बिहार सरकार

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ROAD CONSTRUCTION DEPARTMENT

SCHEDULE OF RATES - 2026

VOLUME - I

Twentieth Edition



Kacchi Dargaah-Bidupur-6 Lane New Ganga Bridge

Published by :

STATE LEVEL SCHEDULE RATE COMMITTEE BIHAR, PATNA

Effective from 01.04.2026

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बिहार सरकार

GOVERNMENT OF BIHAR

पथ निर्माण विभाग

(राष्ट्रीय उच्च पथ उपभाग सहित)

ROAD CONSTRUCTION DEPARTMENT
(Including National Highway Wing)

VOLUME-I
(Chapter 01 to 11)

अनुसूचित दर (दर विश्लेषण सहित)

Schedule of Rates with Analysis
(Twentieth Edition)

Effective from : 01.04.2026

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First Edition	:	05.12.2006
Second Edition	:	23.05.2007
Third Edition	:	24.03.2008
Fourth Edition		01.04.2009
Fifth Edition	:	01.04.2010
Sixth Edition	:	01.05.2011
Seventh Edition	:	02.07.2012
Eighth Edition	:	01.04.2013
Ninth Edition	:	01.04.2014
Tenth Edition	:	01.04.2015
Eleventh Edition	:	01.04.2016
Twelfth Edition	:	01.04.2017
Thirteenth Edition	:	01.04.2018
Fourteenth Edition	:	01.04.2019
Fifteenth Edition	:	01.04.2021
Sixteenth Edition	:	01.04.2022
Seventeenth Edition	:	01.04.2023
Eighteenth Edition	:	01.04.2024
Nineteenth Edition	:	01.04.2025
Twentieth Edition	**:**	**01-04-2026**

ROAD CONSTRUCTION DEPARTMENT
BIHAR

Published by:

CONVENER,
STATE LEVEL SCHEDULE RATE COMMITTEE
-CUM-
ENGINEER-IN-CHIEF (HEAD QUARTER),
ROAD CONSTRUCTION DEPARTMENT
BIHAR, PATNA

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प्रस्तावना

बिहार लोक निर्माण संहिता की कण्डिका–103 के संशोधन के आलोक में बिहार सरकार, पथ निर्माण विभाग द्वारा निर्गत संकल्प सह पठित ज्ञापांक 1/बी–12–2003–5762 (एस) डबलू ई0 पटना दिनांक 05.06.2006 की कंण्डिका–2 (iii) में यह प्रावधान किया गया है कि अनुसूचित दर निर्धारण के लिए दर विश्लेषण तथा सामग्रियों का दर निर्धारण पथ निर्माण विभाग के संयोजन में गठित राज्य स्तरीय अनुसूचित दर निर्धारण समिति द्वारा किया जायेगा। इसी क्रम में यह प्रावधान किया गया है कि पथ निर्माण विभाग में अनुसूचित दर का निर्धारण सड़क, परिवहन एवं राजमार्ग मंत्रालय, भारत सरकार के स्टैण्डर्ड डाटा बुक के आधार पर किया जायेगा, जबकि अन्य विभागों में इससे संबंधित भारत सरकार के कार्य विभागों में प्रचलित विशिष्टियों या दर विश्लेषण के आधार पर किया जायेगा। वर्तमान में राज्य स्तरीय अनुसूचित दर निर्धारण समिति के सदस्य इस प्रकार हैं :–

(i)	अभियंता प्रमुख (मुख्यालय), पथ निर्माण विभाग, बिहार, पटना	संयोजक
(ii)	अभियंता प्रमुख, ग्रामीण कार्य विभाग, बिहार, पटना	सदस्य
(iii)	अभियंता प्रमुख, भवन निर्माण विभाग, बिहार, पटना	सदस्य
(iv)	अभियंता प्रमुख (मुख्यालय), जल संसाधन विभाग, बिहार, पटना	सदस्य
(v)	अभियंता प्रमुख (मुख्यालय), लोक स्वास्थ्य अभियंत्रण विभाग, बिहार, पटना	सदस्य
(vi)	अभियंता प्रमुख, लघु जल संसाधन विभाग, बिहार, पटना	सदस्य
(vii)	अभियंता प्रमुख, तकनीकी परीक्षक कोषांग, निगरानी विभाग, बिहार, पटना	सदस्य
(viii)	अभियंता प्रमुख (विद्युत), भवन निर्माण विभाग, बिहार, पटना	सदस्य
(ix)	मुख्य अभियंता (असैनिक), बिहार स्टेट पावर होल्डिंग कंपनी लि0, पटना	सदस्य

बिहार लोक निर्माण संहिता की कण्डिका–103 में संशोधन के आलोक में MoRT&H Standard Data Book एवं Software पर आधारित पथ निर्माण विभाग (राष्ट्रीय उच्च पथ सहित) के लिए अनुसूचित दर पुस्त का **First Edition दिनांक–05.12.2006** से लागू किया गया था।

समिति द्वारा पथ निर्माण विभाग (राष्ट्रीय उच्च पथ सहित) के लिए अनुसूचित दर पुस्त (दर विश्लेषण सहित) में आवश्यक संशोधन एवं पुनरीक्षण के पश्चात् निम्नलिखित संस्करण किया गया :–

Second Edition	:	23.05.2007
Third Edition	:	24.03.2008
Fourth Edition	:	01.04.2009
Fifth Edition	:	01.04.2010
Sixth Edition	:	01.05.2011
Seventh Edition	:	02.07.2012
Eighth Edition	:	01.04.2013

Ninth Edition	:	01.04.2014
Tenth Edition	:	01.04.2015
Eleventh Edition	:	01.04.2016
Twelfth Edition	:	01.04.2017
Thirteenth Edition	:	01.04.2018
Fourteenth Edition	:	01.04.2019
Fifteenth Edition	:	01.04.2021
Sixteenth Edition	:	01.04.2022
Seventeenth Edition	:	01.04.2023
Eighteenth Edition	:	01.04.2024
Nineteenth Edition	:	01.04.2025

समिति द्वारा Eighteenth Edition में आवश्यक संशोधन एवं पुनरीक्षण के पश्चात् इसका Nineteenth Edition दिनांक–01.04.2025 को प्रकाशित किया गया।

इसी क्रम में Twentieth Edition को तैयार करने के लिए राज्य स्तरीय अनुसूचित दर निर्धारण समिति की बैठक दिनांक–09.03.2026 को आहूत की गई।

दिनांक–09.03.2026 की बैठक में उपस्थित सभी सदस्यों द्वारा MoRT&H के Standard Data Book 2019 एवं Software के आधार पर संशोधन के साथ अनुसूचित दर पुस्तिका के Twentieth Edition को दिनांक 01.04.2026 से लागू करने में अपनी सहमति दी।

इस पुस्तिका के संस्करण के पश्चात् भी समय–समय पर निर्माण सामग्रियों यथा बिटुमेन, सीमेंट, स्टील इत्यादि की दरों में होने वाली घटोत्तरी–बढ़ोत्तरी को देखते हुए लगभग तीन माह पर राज्य स्तरीय अनुसूचित दर निर्धारण समिति की बैठक होती है जिसमें उनके द्वारा दरों को अद्यतन किया जाता है। इसके साथ ही साथ विभिन्न विभागों, संस्थाओं एवं कार्यालयों से प्राप्त सुझावों एवं प्रस्तावों के आधार पर समुचित निर्णय लिये जाते हैं जिन्हे विभागीय वेबसाइट state.bihar.gov.in/rcd पर भी उपलब्ध कराये जाते हैं।

अतः इस पुस्तिका का उपयोग करने वाले सभी पदाधिकारियों, व्यक्तियों, संस्थाओं, निगमों से अनुरोध है कि समय–समय पर विभागीय वेबसाइट का अवलोकन करते रहें।

बिहार लोक निर्माण संहिता की कण्डिका–103 के संशोधन के पश्चात् **MoRT&H Standard Data Book 2019 (2nd Revision)** एवं Software पर आधारित अनुसूचित दर पुस्त का यह Twentieth Edition है। यद्यपि यह सभी सदस्यों की देख–रेख में तैयार किया गया है, फिर भी ऐसी संभावना है कि इस अनुसूचित दर पुस्त को तैयार करने में कुछ त्रुटियाँ रह गई हो और व्यवहार में लाने के क्रम में कुछ त्रुटियाँ दृष्टिगोचर हो सकती है, ऐसी स्थिति में मेरा अनुरोध है कि उन त्रुटियों को राज्य

स्तरीय अनुसूचित दर निर्धारण समिति की जानकारी में E-mail ID-sorrcd2012@gmail.com/पत्र द्वारा अथवा व्यक्तिगत रूप से अविलम्ब दी जाय ताकि सम्यक् विचारोपरान्त उन त्रुटियों का समुचित निराकरण किया जा सके।

चूँकि यह दर विश्लेषण सड़क निर्माण के उच्च एवं आधुनिक तकनीक पर आधारित है। अतः Users को परामर्श दिया जाता है कि उनके द्वारा संबंधित कार्यमद का दर विश्लेषण एवं विशिष्टि का गहन अध्ययन अवश्य किया जाय।

वर्तमान अनुसूचित दर पुस्त को तैयार करने तथा उसे प्रभावी बनाने में सहयोग करने के लिए निम्नलिखित पदाधिकारियों एवं कर्मचारियों का कार्य अत्यन्त ही सराहनीय रहा है:–

1. ई0 सुनील कुमार, अधीक्षण अभियंता, मुख्यालय निरूपण अंचल, पथ निर्माण विभाग, पटना।
2. ई0 नीतू मणि, तकनीकी सलाहकार, मुख्यालय निरूपण अंचल, पथ निर्माण विभाग, पटना।
3. ई0 रवि कुमार सुमन, कार्यपालक अभियंता, मुख्यालय निरूपण अंचल, पथ निर्माण विभाग, पटना।
4. ई0 शोएब उस्मानी, सहायक अभियंता, मुख्यालय निरूपण अंचल, पथ निर्माण विभाग, पटना।
5. ई0 तृप्ति जायसवाल, सहायक अभियंता, मुख्यालय निरूपण अंचल, पथ निर्माण विभाग, पटना।
6. ई0 अरूण कुमार चौधरी, सहायक अभियंता, मुख्यालय निरूपण अंचल, पथ निर्माण विभाग, पटना।
7. ई0 मो० फहीम आलम, सहायक अभियंता, मुख्यालय निरूपण अंचल, पथ निर्माण विभाग, पटना।
8. ई0 सुनील कुमार, सहायक अभियंता, मुख्यालय निरूपण अंचल, पथ निर्माण विभाग, पटना।
9. ई0 संजय कुमार गुप्ता, कनीय अभियंता–सह–सहायक अभियंता, मुख्यालय निरूपण अंचल, पथ निर्माण विभाग, पटना।
10. ई0 प्रतिमा कुमारी, कनीय अभियंता, मुख्यालय निरूपण अंचल, पथ निर्माण विभाग,पटना।
11. ई0 अजय कुमार, कनीय अभियंता, मुख्यालय निरूपण अंचल, पथ निर्माण विभाग, पटना।
12. मो0 कमालउद्दीन अशरफ, सहायक, मुख्यालय निरूपण अंचल, पथ निर्माण विभाग, पटना।
13. श्री विपिन कुमार, डाटा इन्ट्री ऑपरेटर, मुख्यालय निरूपण अंचल, पथ निर्माण विभाग, पटना।

14. श्री उमेश कुमार, कार्यालय परिचारी, मुख्यालय निरूपण अंचल, पथ निर्माण विभाग, पटना।

15. श्री बिरेन्द्र कुमार, कार्यालय परिचारी, मुख्यालय निरूपण अंचल, पथ निर्माण विभाग, पटना।

राज्य स्तरीय अनुसूचित दर निर्धारण समिति श्री अजय कुमार सिंह, मुख्य अभियंता, यांत्रिक उपभाग, श्री संजीव कुमार सिन्हा, कार्यपालक अभियंता एवं श्री श्रीमन् नारायण शर्मा, अधीक्षण अभियंता, उच्च पथ योजना एवं अन्वेषण अंचल, केन्द्रीय निरूपण संगठन, पथ निर्माण विभाग, पटना के प्रति विशेष रूप से आभार व्यक्त करता है जिनके सहयोग एवं रचनात्मक सुझाव से अनुसूचित दर पुस्त के इस संस्करण में सहयोग मिला है।

अनुसूचित दर पुस्त के उपयोग करने वालों की विशेष सुविधा के लिए इस अनुसूचित दर पुस्तक के साथ Soft Copy PDF (C.D.) भी संलग्न की जा रही है। साथ ही साथ, यह अनुसूचित दर पुस्त विभागीय वेबसाइट state.bihar.gov.in/rcd पर भी उपलब्ध है।

यह अनुसूचित दर पुस्त दिनांक 01.04.2026 से प्रभावी होगा।

11/03/26

(अनिल कुमार सिंह)
संयोजक,
राज्य स्तरीय अनुसूचित दर निर्धारण समिति
–सह–अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

स्थान– पटना।

दिनांक–

I S Patha EWR

MoRT&H Standard Data Book 2019 (2nd revision) एवं इसके Software पर आधारित पथ निर्माण विभाग (राष्ट्रीय उच्च पथ सहित) के लिये अनुसूचित दर पुस्तिका (दर विश्लेषण सहित) के Twentieth Edition-2026 का राज्य स्तरीय अनुसूचित दर निर्धारण समिति द्वारा अनुमोदन :-

बिहार लोक निर्माण संहिता की कण्डिका–103 में संशोधन के आलोक में बिहार सरकार, पथ निर्माण विभाग द्वारा निर्गत संकल्प–सह–पठित ज्ञापांक 1/बी0–12/2003–5762 (एस) (डब्लू ई) पटना, दिनांक– 05.06.2006 की कंडिका–2 (iii) में यह प्रावधान किया गया है कि अनुसूचित दर, दर विश्लेषण तथा सामग्रियों का दर निर्धारण पथ निर्माण विभाग के संयोजन में गठित राज्य स्तरीय अनुसूचित दर निर्धारण समिति द्वारा किया जायेगा। इसी क्रम में यह प्रावधान किया गया है कि पथ निर्माण विभाग में अनुसूचित दर का निर्धारण सड़क परिवहन एवं राजमार्ग मंत्रालय, भारत सरकार के स्टैन्डर्ड डाटा बुक के आधार पर किया जायेगा। राज्य स्तरीय अनुसूचित दर निर्धारण समिति द्वारा श्रमदर तथा Plant & Machinery एवं निर्माण सामग्रियों के दर में हुए दर पुनरीक्षण के आलोक में पथ निर्माण विभाग (राष्ट्रीय उच्च पथ सहित) के लिये लागू अनुसूचित दर (दिनांक 01.04.2026 से प्रभावी) के पुनरीक्षण के लिए दिनांक–31.10.2025 एवं दिनांक–19.02.2026 की बैठक में श्रम दर तथा Plant & Machinery एवं निर्माण सामग्री के usage rate के लिए INPUT की स्वीकृति दी गयी है। सदस्यों की सहमति से पथ निर्माण विभाग (राष्ट्रीय उच्च पथ सहित) के लिए दिनांक–01.04.2025 से प्रभावी अनुसूचित दर पुस्त–Nineteenth Edition में परिवर्तन करते हुए MoRT&H Standard Data Book 2019 (2nd revision) के अनुसार आवश्यक संशोधन एवं पुनरीक्षण के पश्चात् इसके **Twentieth Edition** (दिनांक–01.04.2026 से प्रभावी) का अनुमोदन किया जाता है। अनुसूचित दर तैयार करने में निम्नलिखित प्रक्रिया अपनाई गई है:–

1. **(i)** राष्ट्रीय राजमार्ग एवं भूतल परिवहन मंत्रालय के लिए लागू Standard Data Book 2019 के Basic Input Parameters के आधार पर Road/Bridge/Structure/Tunnel के लिए 10% Contractor's Profit शामिल किया गया है।

   (ii) राष्ट्रीय राजमार्ग एवं भूतल परिवहन मंत्रालय के लिए लागू Standard Data Book 2019 के Basic Approach and General Conditions के आधार पर Road/Bridge/Structure/Tunnel के लिए Large/Medium/Small Projects को इस प्रकार श्रेणीबद्ध किया गया है :–

   (a) Civil works cost up to 200 Crore :-Small Project

   (b) Civil works cost > 200 Crore and ≤ 500 Crore :-Medium Project

   (c) Civil works cost > 500 Crore :-Large Project

   (iii) राष्ट्रीय राजमार्ग एवं भूतल परिवहन मंत्रालय के लिए लागू Standard Data Book 2019 में दिये गये Basic Input Parameters के आधार पर Road/Bridge/Structure/Tunnel के लिए Overhead charge का प्रावधान इस प्रकार किया गया है :–

Sl. No.	Description	Overhead (Percentage)		
		Large Project	Medium Project	Small Project
1	Overheads for Road Works (CH-01 to 11)	8%	10%	12%
2	Overheads for New/Widening of Bridge/Structure Works(CH-12 to 16)	20%	20%	20%

3	Overheads for Rehabilitation of Bridges/Structure (CH-17)	30%	30%	30%
4	Overheads for Road Tunnel Works (CH-18)	25%	25%	25%

Note :- For Chapter-19 (Environmental & Safety Management & Bio Engineering), overhead charges will be applicable of Road works.

(iv) भविष्य में परियोजनाओं के DPR तैयार करने के क्रम में यदि किसी परियोजना में पथ कार्य के साथ Bridge/Structure/Tunnel कार्य भी सम्मिलित है, तो पथ कार्य में नियमानुसार लागू Overhead (OH) तथा Bridge/Structure/Tunnel में MoRT&H के Standard Data Book 2019 के अनुरूप नियमानुसार लागू Overhead (OH) मद का प्रावधान करते हुए प्राक्कलन का सृजन किया जाय।

(v) सीमेन्ट के दर में पटना के लिये लागू OPC Grade 43 के दर को व्यवहार में लाया गया है। निरूपण एवं संरचना की आवश्यकतानुसार संबंधित सक्षम पदाधिकारी अन्य प्रकार के सीमेंट का व्यवहार कर सकते हैं।

(vi) दर–विश्लेषण में G.S.T. (Goods & Service Tax) शामिल नहीं है।

(vii) **Goods & Services Tax (G.S.T.)** :- वाणिज्य कर विभाग तथा वित्त विभाग द्वारा दिए गए परामर्श के आलोक में राज्यस्तरीय अनुसूचित दर निर्धारण समिति, बिहार, पटना द्वारा सम्यक् विचारोपरांत सर्वसम्मति से प्राक्कलन में Goods and Services Tax (GST) का प्रावधान करने की प्रक्रिया निम्न् प्रकार से अपनाने का निर्णय लिया गया :–

(i) दर विश्लेषण में 10 (दस) प्रतिशत मालिकाना फीस (Seigniorage Fee) नहीं जोड़ा जाय।

(ii) Carriage, Overhead Charge (excluding VAT/GST), Contractor Profit, Royalty को जोड़कर प्रत्येक कार्य मद का दर निर्धारित किया जाय तथा इस निर्धारित दर के आधार पर परियोजना की प्राक्कलित राशि निर्धारित की जाय।

(iii) उपर्युक्त कंडिका (ii) में निर्धारित प्राक्कलित राशि पर 1 प्रतिशत Labour Cess का प्रावधान निर्धारित मापदंडों के अनुसार किया जाय।

(iv) उपर्युक्त कंडिका (ii) में निर्धारित प्राक्कलित राशि (Labour Cess रहित) में सम्मिलित रॉयल्टी सहित Basic खनिज मूल्य (ढुलाई रहित) पर 10 (दस) प्रतिशत की दर से मालिकाना फीस (Seigniorage Fee) का प्रावधान अलग से किया जाय।

(v) Work-Contracts के लिए उपर्युक्त कंडिका–(ii) में निर्धारित प्राक्कलित राशि/कुल लागत में Labour Cess एवं मालिकाना फीस (Seigniorage Fee) को जोड़ा जाय तथा प्राक्कलित राशि, Labour Cess एवं मालिकाना फीस (Seigniorage Fee) के योग पर Contract Service Tax/Work Contract G.S.T का प्रावधान अधिसूचित/निर्धारित दर के अनुसार किया जाय।

(vi) Bill of Quantity (B.O.Q.) में Work Value, Labour Cess Value, मालिकाना फीस (Seigniorage Fee) एवं GST Value का अलग–अलग उल्लेख किया जाय।

तत्संबंधी उदाहरण तालिका (Model Calculation Sheet) निम्न् प्रकार है :–

(a) Estimated Amount (प्राक्कलित राशि) Including Carriage, Overhead Charge (Excluding VAT/GST), Contractor Profit, Royalty but Excluding GST, Labour Cess & Seigniorage fee = "A"

(b) Labour Cess @1% = "B" = A X 0.01

(c) प्राक्कलन में सम्मिलित रॉयल्टी सहित लघु खनिज का Basic मूल्य (ढुलाई रहित) = "C"

(d) मालिकाना फीस (Seigniorage Fee) रॉयल्टी सहित Basic लघु खनिज मूल्य पर 10 प्रतिशत की दर से = "D" = C X 0.10

(e) Estimated Amount + Labour Cess + Seigniorage Fee = "E" = A+B+D

(f) Work Contract GST in Percentage = "Y" %

(g) Contract GST Amount = "F" = $\frac{EY}{100}$

(h) Bill of Quantity (B.O.Q)

Work Value	= A
Labour Cess	= B
Seigniorage fee	= D
GST Value	= F

(viii) **<u>कार्य विभागों द्वारा सरकारी योजनाओं के लिए लघु खनिजों के उपयोग हेतु मालिकाना फीस (Seigniorage Fee)</u>** :-समिति द्वारा सर्वसम्मति से खान एवं भूतत्व विभाग, बिहार, पटना के पत्रांक–कार्य विभाग/Seigniorage-11/19-3947/एम0, पटना दिनांक–15.11.2019 एवं खान एवं भूतत्व विभाग, बिहार की अधिसूचना संख्या–3174/एम0, दिनांक–17.09.2019 के आलोक में निम्नवत् निर्णय लिया गया है :–

(क) निर्माण कार्यों में व्यवहृत लघु खनिजों पर देय मालिकाना फीस उक्त खनिज के निर्धारित स्वामित्व (रॉयल्टी) दर के अतिरिक्त देय है।

(ख) कार्य विभागों द्वारा प्राक्कलन में लघु खनिज का मूल्य वैध खदान पर वर्तमान में प्रचलित खनिज मूल्य को रॉयल्टी सहित रखा जाय।

(ग) सभी सरकारी विभाग अपनी स्कीम या परियोजनाओं के लिए किसी लघु खनिज का उपयोग करने हेतु मालिकाना फीस की कटौती अपने आपूर्तिकर्ता या संवेदक से करेंगे।

(घ) मालिकाना फीस की कटौती प्राक्कलन में लगे वैध खदान पर रॉयल्टी सहित वर्तमान में प्रचलित खनिज मूल्य पर 10 प्रतिशत की दर से की जाय। इसमें अन्य मद यथा ढुलाई आदि को शामिल नहीं किया जाय।

(ङ) प्राक्कलन में मालिकाना फीस (Seigniorage Fee) का प्रावधान वैध खदान पर रॉयल्टी सहित वर्तमान में खनिज के मूल्य पर 10 (दस) प्रतिशत की दर से किया

जाय। इसमें अन्य मद यथा ढुलाई आदि को शामिल नहीं किया जाय। दर विश्लेषण में मालिकाना फीस (Seigniorage Fee) नहीं जोड़ा जाय।

(च) वैध खदान से खनिज क्रय के समर्थन में संवेदक अपने विपत्रों के साथ खनन विभाग द्वारा निर्गत **ई**–चालान की प्रति संलग्न करेंगें, जिसकी जाँच संबंधित कार्य विभागों द्वारा ही की जायेगी। विपत्रों के साथ खनिज क्रय के साक्ष्य स्वरूप ई–चालान संलग्न नहीं किये जाने की स्थिति में संवेदकों के विपत्र से मालिकाना फीस के अतिरिक्त निर्धारित दर पर रॉयल्टी की वसूली भी कार्य विभागों द्वारा की जायेगी। साथ हीं नियमाधीन अन्य कार्रवाई हेतु ऐसे संवेदकों की पूर्ण सूची कार्य विभागों द्वारा खान एवं भूतत्व विभाग को उपलब्ध कराया जायेगा।

(छ) साधारण मिट्टी निजी जमीन अथवा सरकारी भूमि से प्राप्त करने की स्थिति में बिहार खनिज (समानुदान अवैध खनन, परिवहन एवं भंडारण निवारण) नियमावली, 2019 के सारे प्रावधान लागू होंगे।

(ज) निजी/सरकारी भूमि से नियमानुसार साधारण मिट्टी प्राप्त करने की स्थिति में व्यवहृत मिट्टी के संबंध में संवेदक द्वारा समर्पित विपत्र के साथ खान एवं भूतत्व विभाग द्वारा निर्गत परमिट साक्ष्य स्वरूप संलग्न रहने की स्थिति में सत्यापनोपरांत सिर्फ स्वामित्व की 10 प्रतिशत मालिकाना फीस के रूप में वसूली की जायेगी। जिन विपत्रों के साथ खान एवं भूतत्व विभाग द्वारा निर्गत परमिट संवेदक साक्ष्य स्वरूप विपत्रों के साथ संलग्न नहीं किये होगें या सत्यापनोपरांत गलत पाये जायेगें तो वैसी स्थिति में प्रति घनमीटर वर्तमान स्वामित्व दर 33/रू0 के अलावे 10 प्रतिशित मालिकाना फीस 3.30/– रू0 की कटौती संवेदक के विपत्र से की जायेगी एवं नियमाधीन अन्य कार्रवाई हेतु ऐसे संवेदकों की पूर्ण सूची कार्य विभागों द्वारा खान एवं भूतत्व विभाग को उपलब्ध कराया जायेगा।

(झ) बिहार खनिज नियमावली, 2019 के नियम 37 (2) में सिंचाई विभाग द्वारा नहर तथा जल निकास प्रणाली के संधारण की प्रक्रिया में निष्कासित खनिजों के लिए खनिज निपटाव परमिट, लघु खनिजों के विनिर्दिष्ट दरों पर रॉयल्टी के पूर्व भुगतान पर दिये जाने का प्रावधान है। साथ हीं उक्त नियमावली के नियम 37 (3) में विनिर्दिष्ट आपात स्थितियों के लिए समाहर्त्ता द्वारा लघु खनिजों के विनिर्दिष्ट दरों पर रॉयल्टी के पूर्व भुगतान पर परमिट दिये जाने का प्रावधान है। ऐसी स्थिति में संवेदक द्वारा समर्पित विपत्र के साथ खान एवं भूतत्व विभाग द्वारा निर्गत परमिट साक्ष्य स्वरूप संलग्न रहने की स्थिति में सत्यापनोपरांत सिर्फ स्वामित्व की 10 प्रतिशत मालिकाना फीस के रूप में वसूली की जायेगी। जिन विपत्रों के साथ खान एवं भूतत्व विभाग द्वारा निर्गत परमिट संवेदक द्वारा साक्ष्य स्वरूप विपत्रों के साथ संलग्न नहीं किये होंगें या सत्यापनोपरांत गलत पाये जायेगे तो वैसी स्थिति में स्वामित्व एवं मालिकाना फीस की वूसली की जायेगी।

(ix) **<u>पुल निर्माण कार्य हेतु विभिन्न व्यासों के कूपों के 40 मीटर से अधिक कूप गलाई का दर</u>** :– समिति द्वारा सर्वसम्मति से सम्यक् विचारोपरांत Well Foundation के कूप–गलाई के संदर्भ में 30 मी0 से 40 मीटर के गहराई के प्रावधान को 40 मीटर से अधिक गहराई के दर के रूप में अनुमोदित करने का निर्णय लिया गया है।

(x) **(a)** स्टील के दर में TMT Bar के लिये Fe 500D HYSD के दर को दर विश्लेषण के लिए व्यवहार में लाया गया है।

(b) बिटुमेन के लिए Packed 60/70(VG 30) ग्रेड एवं Packed 80/100(VG 10) ग्रेड Ex-Barauni का दर व्यवहार में लाया गया है। Bitumen Emulsion RS1 & SS1

Packed Ex-Patna, Modified Graded Bitumen CRMB-55 Packed Ex-Fatuha एवं Bitumen (Cutback) Packed Ex-Barauni के दर को दर विश्लेषण में लिया गया है।

(c) M-327 में VG-40 Packed Ex- Fatuha के दर को विश्लेषण में लिया गया है।

(d) Brick 100 "A" का दर Patna Urban के लिये लागू दर को व्यवहार में लाया गया है।

(xi) **(a)** Coarse Sand का Schedule-M/MoRTH-1 के M-004 एवं M-005 तथा Fine Sand का M-006 के अनुसार अनुमोदित दर को व्यवहार में लाया गया है।

संबंधित सक्षम पदाधिकारी निर्माण कार्यक्षेत्र के जोन के अनुसार ही Bitumen/Cement/ Brick/Coarse Sand के निर्धारित दर का प्रयोग करेंगे और इसके अनुसार दर में अन्तर की राशि को प्राक्कलन में जोड़ेगे या घटायेंगे।

(b) TMT Bars, Mild Steel bars एवं Structural Steel के भिन्न आकार/व्यास का व्यवहार निर्माण कार्यों में किया जाता है। इसे अनुसूचित दर विश्लेषण में अधिसूचित दर के औसत दर को व्यवहार में लिया गया है। संबंधित सक्षम पदाधिकारी द्वारा वास्तविक निरूपण के आधार पर भिन्न व्यास/आकार प्रकार के स्वीकृत दरों को आवश्यकतानुसार व्यवहार में लाया जा सकता है।

(c) TATA, SAIL, RINL एवं Shyam Steel Industries Ltd, Kolkata से प्राप्त दर पर राज्यस्तरीय अनुसूचित दर निर्धारण समिति द्वारा विचार–**विमर्श** कर स्टील का दर अनुमोदित करने का निर्णय लिया गया। इन्हीं चार कम्पनियों यथा TATA, SAIL, RINL एवं Shyam Steel Industries Ltd, Kolkata के स्टील/TMT BAR का प्रयोग निर्माण कार्यों में किया जाना है।

(xii) Royalty का प्रावधान खान एवं भूतत्व विभाग की अधिसूचना संख्या–3174 पटना दिनांक–17.09.2019 एवं अधिसूचना संख्या–4352 दिनांक–31.08.2022 के अनुसार किया गया है। रॉयल्टी की कटौती विपत्रों से Loose Volume of Materials पर की जानी है न कि Finished Volume of Materials (Compacted Volume) पर, जिसका अनुपालन सुनिश्चित करने की जिम्मेदारी क्षेत्रीय पदाधिकारियों की होगी।

(xiii) इसके पूर्व में भी समय–समय पर अनुसूचित दर में ''संशोधित दर'' प्रकाशित किया गया है जिसका समायोजन इस अनुसूचित दर पुस्तिका में कर लिया गया है।

2. बिटुमेन से संबंधित दर :–

अनुसूचित दर के पुनरीक्षण के क्रम में राष्ट्रीयकृत कम्पनी Indian Oil Corporation Ltd. (IOCL), Bharat Petroleum Corporation Ltd. (BPCL) एवं Hindustan Petroleum Corporation Ltd. (HPCL) से दर प्राप्त हुआ है। Emulsion MS/RS-1/SS-1 Packed का दर Hindustan Petroleum Corporation Ltd. (HPCL) एवं Indian Oil Corporation Ltd. (IOCL) से प्राप्त हुआ है। समिति के द्वारा सर्वसम्मति से पूर्णविचारोपरान्त, संलग्न अनुसूची "M4" के अनुसार बिटुमेन के विभिन्न Grades/प्रकार के दर को अनुमोदित किया गया है।

3. सीमेन्ट का दर :–

(i) **Ordinary Portland Cement (43 Grade)** का दर विभिन्न कंपनियों से प्राप्त हुआ है। इस दर में शामिल GST को घटाकर प्रति बोरा दर अनुमोदित करने का

निर्णय लिया गया। पटना के न्यूनतम दर के आधार पर, पूर्व से निर्धारित दर के अनुपात में अन्य ज़ोनों के लिए दर प्राप्त किया गया। समिति के द्वारा सर्वसम्मति से पूर्णविचारोपरान्त, संलग्न अनुसूची "M1" के दर को अनुमोदित करने का निर्णय लिया गया।

(ii) **Ordinary Portland Cement (33 Grade)** का दर किसी भी सीमेन्ट निर्माता कम्पनी से प्राप्त नहीं हुआ है। इसलिए समिति द्वारा OPC-33 grade का दर अनुमोदित नहीं किया गया है।

(iii) **Portland Pozzolona Cement (PPC)** का दर विभिन्न कम्पनियों से प्राप्त हुआ है। इस दर में शामिल GST को घटाकर प्रति बोरा दर अनुमोदित करने का निर्णय लिया गया। पटना के न्यूनतम दर के आधार पर, पूर्व से निर्धारित दर के अनुपात में अन्य जोनों के लिए दर प्राप्त किया गया।

समिति के द्वारा सर्वसम्मति से पूर्णविचारोपरान्त, संलग्न अनुसूची "M3A" के दर को अनुमोदित किया गया।

(iv) **Portland Slag Cement (PSC)** का दर विभिन्न सीमेंट निर्माता कम्पनी से प्राप्त हुआ है। इस दर में शामिल GST को घटाकर प्रति बोरा दर अनुमोदित करने का निर्णय लिया गया। P.S.C. के लिए प्राप्त पटना के न्यूनतम दर के आधार पर, पूर्व से निर्धारित दर के अनुपात में अन्य ज़ोन के दरों को भी निर्धारित करने का निर्णय लिया गया। समिति के द्वारा सर्वसम्मति से पूर्णविचारोपरान्त, संलग्न अनुसूची "M3B" के अनुसार P.S.C. के दर को अनुमोदित किया गया।

(v) **Portland Composite Cement (PCC) (IS 16415:2015)** का दर विभिन्न कम्पनियों से प्राप्त हुआ है। इस दर में शामिल GST को घटाकर प्रति बोरा दर अनुमोदित करने का निर्णय लिया गया। पटना के न्यूनतम दर के आधार पर, पूर्व से निर्धारित दर के अनुपात में अन्य ज़ोनों के लिए दर प्राप्त किया गया। समिति के द्वारा सर्वसम्मति से पूर्ण विचारोपरांत, संलग्न अनुसूची "M3C" के अनुसार PCC के दर को अनुमोदित किया गया।

4. श्रमिक कल्याण कोष हेतु 1% (एक प्रतिशत) सेस की कटौती से संबंधित श्रम विभाग, बिहार सरकार के पत्रांक 4984 दिनांक–01.10.2008 एवं संयोजक–सह–अभियंता प्रमुख के पत्रांक–746 (अनु0) दिनांक–25.02.2010 द्वारा दिये गये निर्देश का अनुपालन सुनिश्चित करने की जिम्मेदारी क्षेत्रीय पदाधिकारीयों की होगी।

इस अनुसूचित दर पुस्त के दर विश्लेषण में 1%(एक प्रतिशत) सेस की राशि सम्मिलित नहीं किया गया है।

5. (a) रेलवे द्वारा निर्माण सामग्री की ढुलाई का दर निर्धारण हेतु रेल मंत्रालय (रेलवे बोर्ड) भारत सरकार, महाप्रबंधक (परिचालन)/वाणिज्य के पत्रांक–2024/टी–टी III/27/1, नई दिल्ली दिनांक–**30.06.2025** के द्वारा माल ढुलाई हेतु Route Chart उपलब्ध कराया है जिसे क्षेत्रीय पदाधिकारी सभी Corrigendum/Amendment के साथ जाँचोपरांत व्यवहार में लायेगें। Route Chart की छाया प्रति इस अनुसूचित दर पुस्त में संलग्न कर दी गई है। Freight Rate से संबंधित रेल मंत्रालय भारत सरकार के पत्रांक–TCR/1078/2018/15, नई दिल्ली, दिनांक–31–10–2018 (Rate Circular No.-19 of 2018) एवं इस पत्र के साथ संलग्न Annexure-1, II & III के रूप में Freight Rate Table-2018 की प्रति इस अनुसूचित दर पुस्त में

Amendments के साथ संलग्न कर दी गई है। समय–समय पर रेलवे द्वारा निर्धारित निर्माण सामग्री की ढुलाई के अद्यतन दर को व्यवहार में लाया जा सकता है।

(b) MORT&H Standard Data Book में दिये गये "Carriage of Materials" के Calculation के अलावे रेलवे द्वारा निर्माण सामग्री की ढुलाई पर समिति के सदस्यों द्वारा विचार विमर्श किया गया। सर्वसम्मति से पूर्णविचारोपरान्त, सदस्यों द्वारा यह निर्णय लिया गया कि वैसे स्थल जहाँ पर रेलवे के द्वारा निर्माण सामग्रियों की ढुलाई संभव हो वहाँ पर Road एवं Railway दोनों के द्वारा Carriage of Materials का दर प्राप्त किया जाय तथा दोनों में से न्यूनतम दर को ही प्रयोग में लाया जाय।

The maximum lead to be considered as per T.E.C. Norms is as follows-

(i) For local Sand 3 Km with 1 km kuchcha road.

(ii) For brick 8 km with 1 km kuchcha road.

(iii) For Coarse Sand, Stone Metal, Stone chips, Moorum, Stone Boulder, Bitumen as per actual lead with Provision of kuchcha lead as per requirement of site condition.

6. **<u>Steel से संबंधित निर्माण सामग्रियो का दर</u>** :–

a. **G.C. Sheet** का दर :– G.C. Sheet का दर TATA से प्राप्त हुआ है। तद्नुसार समिति के द्वारा सर्वसम्मति से पूर्णविचारोपरान्त, अनुसूची "M5" के अनुसार अनुमोदित करने का निर्णय लिया गया।

b. **Wire rod in coil :-** Wire rod in coil के भिन्न–भिन्न व्यास का दर RINL से प्राप्त हुआ है। इसपर समिति के सदस्यों द्वारा विचार–विमर्श किया गया तथा RINL से प्राप्त दर बिना GST के समिति के द्वारा सर्वसम्मति से पूर्णविचारोपरान्त, अनुसूची "M6" के अनुसार अनुमोदित करने का निर्णय लिया गया।

c. **Steel Channel का दर** :– Steel Channel का दर RINL से प्राप्त हुआ है, तद्नुसार RINL से प्राप्त न्यूनतम दर बिना GST के समिति के द्वारा सर्वसम्मति से पूर्णविचारोपरान्त, अनुसूची "M8" के अनुसार अनुमोदित करने का निर्णय लिया गया।

d. **Steel Angles का दर** :– भिन्न–भिन्न आकार वाले Steel Angles का दर RINL से प्राप्त हुआ है। तद्नुसार RINL से प्राप्त न्यूनतम दर बिना GST के समिति के द्वारा सर्वसम्मति से पूर्णविचारोपरान्त, Schedule "M9" के अनुसार अनुमोदित करने का निर्णय लिया गया।

e. **TMT Bar (Fe 500D) का दर** :– TMT Bar का दर TATA, RINL, SAIL एवं Shyam Steel Industries ltd. से प्राप्त हुआ है। TATA, RINL, SAIL एवं Shyam Steel Industries ltd. से प्राप्त न्यूनतम दर बिना GST के समिति के द्वारा सर्वसम्मति से पूर्णविचारोपरान्त, Schedule "M10A" के अनुसार अनुमोदित करने का निर्णय लिया गया।

f. **Schedule M7:-** यह Steel Joist से संबंधित है। वर्तमान में इसका दर SAIL,TATA, RINL द्वारा नहीं दिया जा रहा है, अतः इसका वर्तमान में इस्तेमाल नहीं होने तथा दर के अनुपलब्धता के कारण इस पुस्तिका से विलोपित किया जा रहा है।

7. **<u>Plant & Machinery के दर पुनरीक्षण के संबंध में</u>** :– Plant & Machinery के अन्तर्गत 141 मद है। MORT&H Standard Data Book 2019 (2nd revised) के अनुसार

निर्माण कार्यों में प्रयुक्त होनेवाली मशीनों का दर Input के रूप में Oil & Lubricants के दर का प्रयोग कर MORT&H Online SOR Software (based on MORT&H Standard Data Book 2019) से downloaded दर के आधार पर अद्यतन किया गया है। इस आधार पर समिति के सभी सदस्यों द्वारा Plant & Machinery के दर को पूर्ण विचारोपरांत सर्वसम्मति से अनुसूची P&M/MORTH-1A के अनुसार अनुमोदित करने का निर्णय लिया गया।

8. **Carriage का दर पुनरीक्षण के संबंध में** :– Plant & Machinery के अद्यतन अनुमोदित दर (P&M/MoRTH-1A) एवं अद्यतन श्रम दर के आधार पर संलग्न अनुसूची "Carriage Rate of Materials by Tipper" एवं "Carriage Rate of Materials by Tractor" के अनुसार Carriage के दर को समिति के सदस्यों द्वारा पूर्ण विचारोपरांत सर्वसम्मति से अनुमोदित करने का निर्णय लिया गया।

9. **ईंट (Brick) एवं ईंट से संबंधित निर्माण सामग्रियों का दर पुनरीक्षण के संबंध में** :– विभिन्न ग्रेड के ईंट एवं ईंट से संबंधित निर्माण सामग्रियों के दर की मांग अभियंता प्रमुख, भवन निर्माण विभाग एवं सभी अधीक्षण अभियंता, पथ निर्माण विभाग से की गयी, लेकिन दर की प्राप्ति नहीं होने के कारण Office of Economic Adviser, Ministry of Commerce & Industry, भारत सरकार द्वारा निर्गत Plain Bricks के Wholesale Price Index के Moving Average के आधार पर ईंट एवं ईंट से निर्मित सामग्रियों के दर को समिति के सदस्यों द्वारा पूर्ण विचारोपरांत सर्वसम्मति से Schedule "M 11" के अनुसार अनुमोदित करने का निर्णय लिया गया।

10. **Coarse-Sand, स्टोन एवं स्टोन चिप्स से संबंधित निर्माण सामग्रियों का दर–पुनरीक्षण** :– पथ निर्माण विभाग (राष्ट्रीय उच्च पथ सहित) के लिए वर्ष 2026–27 के लिए प्रभावी होने वाले अनुसूचित दर में व्यवहृत स्टोन बोल्डर, स्टोन एग्रीगेट एवं बालू इत्यादि के अद्यतन दर की मांग क्षेत्रीय पदाधिकारियों से की गयी। क्षेत्रीय पदाधिकारियों द्वारा दर उपलब्ध नहीं कराने के कारण राज्यस्तरीय अनुसूचित दर निर्धारण समिति द्वारा स्टोन बोल्डर, स्टोन एग्रीगेट एवं बालू (M-001 से M-054 तक) के दर को Office of Economic Adviser, Ministry of Commerce & Industry, भारत सरकार द्वारा निर्गत Wholesale Price Index (Last updated on 14.01.2026) में Stone, Chips मद में रखते हुए Moving Average के आधार पर अद्यतन करने का निर्णय लिया गया। समिति द्वारा GSB Crusher Run (M-055) का दर Carriage के मद संख्या 1.07 (Crushing of stone-aggregates-GSB crusher run) के दर–विश्लेषण से प्राप्त दर के आधार पर अद्यतन करने का निर्णय लिया गया।

इस प्रकार समिति द्वारा सम्यक् विचारोपरान्त सर्वसम्मति से Coarse Sand, Stone-Boulder एवं Stone-Aggregates से संबंधित निर्माण सामग्रियों का दर अनुसूची M/MoRTH-1 के अनुसार M-001 से M-055 तक अनुमोदित करने का निर्णय लिया गया।

11. **MoRT&H Standard Data Book (2nd Revision) के कार्य मदों में व्यवहृत विभिन्न निर्माण सामग्रियों (Schedule-M/MoRTH-1A) के दर निर्धारण के संबंध में** :– Schedule-M/MoRTH-1A में निहित विभिन्न निर्माण सामग्रियों (M-056 से M-328 एवं MR-01 से MR-54) का दर क्षेत्रीय पदाधिकारियों द्वारा उपलब्ध नहीं कराने के कारण उनमें से कई मदों को समुचित श्रेणियों में रखते हुए Office of Economic Adviser, Ministry of Commerce and Industry, भारत सरकार द्वारा निर्गत Wholesale Price Index (last

updated on 14.01.2026) के Moving Average के आधार पर दरों को अद्यतन करने का निर्णय लिया गया है, जो निम्नवत है :–

Sl. No.	Item Code	Name of Commodity	% Increase/ Decrease in W.P.I
1	M-193	Alloy steel wire rods	(-) 3.712
2	M-059, 061, 306	Aluminium alloy	5.254
3	M- 065, 089, 126, 127 174, 180	Alloy steel castings	(-) 0.313
4	M-056	Asbestos Corrugated sheet	0.074
5	M- 062, 071, 072, 087, 091, 093, 099, 111, 112, 119, 133, 140, 143, 146, 153, 154, 155, 156, 157, 158, 160, 161, 162, 163, 164, 166, 167, 169, 182, 189, 190, 197, 218, 229, 234, 240, 242, 294, 299	All Commodities	0.622
6	M-086, 109, 128, 129, 159	Bolts, Screws, Nuts & Nails of Iron & steel	1.068
7	M-144, 324, 326	Cement blocks (Concrete)	4.425
8	M-186	Ceramic tiles (vitrified tiles)	3.859
9	M-080	Cast Iron, Castings	(-)0.101
10	M-120	Cordage/ropes/twines of Jute and coir	12.175
11	M-215	Explosive	1.443
12	M-095, 096, 097, 098	Epoxy, Liquids	0.241
13	M-085, 132	Fibres	1.956
14	M- 060, 101, 102, 239, 241	Galvanized iron pipes	(-)2.789
15	M-135	Insecticide and pesticide	1.298
16	M-066, 067, 068, 069, 070, 094, 142	Manufacture of Bearings, gears, gearing & Driving elements	1.730

17	M-084, 134, 148 to 152, 293, 323	Manufacture of articles of concrete, cement and plaster	0.757
18	M-217	Manufacture of electrical equipment	1.439
19	M-057, 058, 130, 131, 145, 192	Manufacture of paint, varnishes and similar coatings, printing ink and mastics	(-)1.680
20	M-104, 105, 106, 107, 108, 183, 200 to 214, 286 to 291, 301, 307 to 311	Manufacture of made up textile articles, except apparel	0.992
21	M-090	Manufacture of other non-metallic mineral products	0.898
22	M-063, 122, 123, 124, 194, 228	MS wire rods	(-) 2.498
23	M-092	Mild Steel (MS) flats & sheets	1.170
24	M-139	Nylon Rope	(-) 2.839
25	M- 199, 226	Plasticizer	(-) 6.861
26	M-079	Plain Bricks	4.438
27	M-113, 114, 137, 236, 237, 238, 302 to 304, 328	Plastic tube (Flexible/non - Flexible)	(-) 1.064
28	M-117, 136, 165, 292	Plastic Components	(-) 5.985
29	M-188	Polyethylene	0.359
30	M-141, 147, 170, 184	Stone, chips	3.336
31	M-171, 172, 175, 176, 177	Steel Pipes, tubes & poles	(-) 3.561
32	M-173	Steel Drums and Barrels	(-) 2.574
33	M-178, 179	Steel Cables	3.454
34	M-118	Stainless steel bars & rods, including flats.	(-) 3.919
35	M-088	Steel Structures	2.001
36	M-187, 195, 196, 198	Timber/wooden Plank, Sawn/ resawn	(-) 0.017

Schedule-M/MoRTH-1A के कुछ मदों का दर भवन निर्माण विभाग (दक्षिण बिहार अंचल) से प्राप्त दर के आधार पर अद्यतन किया गया है।

इस प्रकार समिति के सदस्यों द्वारा पूर्ण विचारोपरांत सर्वसम्मति से निर्माण सामग्रियों का दर अनुसूची M/MoRTH-1A के अनुसार अनुमोदित करने का निर्णय लिया गया।

12. <u>निर्माण कार्यों (सड़के, बाँध तथा सिंचाई कार्य) में नियोजित विभिन्न श्रेणी के मजदूरों का संशोधित न्यूनतम दैनिक मजदूरी के दर पुनरीक्षण हेतु लिये गये निर्णय</u> :–

(a) श्रम संसाधन विभाग, बिहार, पटना की अधिसूचना संख्या–5/एम०डब्लू०–40–16/2021–श्र०सं०–58/59 पटना, दिनांक 23.09.2025 एवं अधिसूचना संख्या–04/एम०डब्लू०–40–14/2025–श्र०सं०–56/57 पटना, दिनांक 23.09.2025 के आलोक में पथ निर्माण कार्यो में प्रयुक्त 72 प्रकार के विभिन्न कर्मियों तथा बांध निर्माण एवं सिंचाई कार्यो के लिये प्रयुक्त 71 प्रकार के कर्मियों के न्यूनतम दैनिक श्रम दर का अनुमोदन दिनांक–31.10.2025 की बैठक में सदस्यों द्वारा सर्वसम्मति से पूर्णविचारोपरांत अनुसूची–I एवं II के अनुसार करने का निर्णय लिया गया तथा समिति के सदस्यों द्वारा निर्णय लिया गया कि यह दर पथ निर्माण विभाग, भवन निर्माण विभाग, ग्रामीण कार्य विभाग, लोक स्वास्थ्य अभियंत्रण विभाग एवं अन्य कार्य विभाग के अंतर्गत कराये जानेवाले निर्माण कार्यो के उपयोग में भी लाया जा सकेगा।

(b) **<u>MoRT&H Standard Data Book 2019 (2nd Revision) के दर–विश्लेषण में व्यवहृत विभिन्न श्रेणी के मजदूरों के दर–पुनरीक्षण हेतु लिये गये निर्णय</u>** :– समिति के सदस्यों द्वारा सर्वसम्मति से पूर्ण विचारोपरांत उक्त वर्णित क्रमांक–12 (a) पर अनुमोदित श्रमदर अनुसूची–I के आधार पर MoRT&H Standard Data Book 2019 के दर–विश्लेषण में व्यवहृत विभिन्न श्रेणी के मजदूरों के दरों को अनुसूचित दर पुस्त में INPUT के रूप में प्रयोग करने हेतु अनुसूची–III के अनुसार अनुमोदित करने का निर्णय लिया गया है। समिति के सदस्यों द्वारा सर्वसम्मति से यह निर्णय लिया गया है कि यह दर पथ निर्माण विभाग, भवन निर्माण विभाग, ग्रामीण कार्य विभाग, लोक स्वास्थ्य अभियंत्रण विभाग एवं अन्य कार्य विभाग के अन्तर्गत कराये जाने वाले निर्माण कार्यों के उपयोग में लाया जा सकता है।

13. <u>Cement Concrete Pavement (PQC) के Strength से संबंधित निर्णय</u> :– समिति द्वारा सम्यक् विचारोपरांत सर्वसम्मति से अनुसूचित दर पुस्त के मद संख्या–6.02 में Cement Concrete Pavement (PQC) का 28-day Minimum Flexural Strength 4.5 MPa एवं 28-day Compressive strength 40 (Forty) MPa अंकित करने का निर्णय लिया गया।

14. <u>MoRT&H Standard Data Book 2019 के Basic Input Parameters के अन्तर्गत समिति के सदस्यों द्वारा सर्वसम्मति से पूर्ण विचारोपरांत Lead इस प्रकार लेने का निर्णय लिया गया है</u> :–

(1) Lead from Mixing Plant to working site (L_1) = 1Km

(2) Lead for Earth Work borrow area to site (L_2) = 1 Km

15. MoRT&H Specification for Roads and Bridges work के Fifth Revision पर आधारित MoRT&H के Standard Data Book 2019 (for Analysis of Rates) का 2nd Revision प्राप्त है। इस अनुसूचित दर पुस्त का दर विश्लेषण Standard Data Book 2019 (2nd

Revision) के आधार पर करने का निर्णय पूर्णविचारोपरान्त सर्वसम्मति से समिति के सदस्यों द्वारा लिया गया।

16. **Admixture** :- Batching Plant, Transit Mixture एवं Concrete Pump के माध्यम से सीमेंट कंक्रीट की ढलाई करने पर आवश्यकतानुसार सक्षम प्राधिकार द्वारा अनुमोदित Design Mix की विशिष्टियों के अनुरूप Admixture (plasticizer, super plasticizer etc) का उपयोग किया जा सकता है तथा इसे तत्संबंधित मद–विशेष के दर विश्लेषण में पूर्व से Admixture शामिल नहीं रहने की स्थिति में सम्मिलित किया जा सकता है।

17. **नई अनुसूचित दर पुस्त का अनुमोदन के संबंध में निर्णय** :– पिछले वर्ष की भाँति इस वर्ष भी नये अनुसूचित दर पुस्त का प्रकाशन किया जाना है, जिस पर सदस्यों द्वारा विचार विमर्श किया गया तथा इसे अनुमोदित करते हुए दिनांक–01.04.2026 से लागू किये जाने का सर्वसम्मति से निर्णय लिया गया।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, भवन निर्माण
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
मुख्य अभियंता (असैनिक) बिहार
स्टेट पावर होल्डिंग कंपनी लि0,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख (विद्युत), भवन निर्माण
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख (मु०), लोक स्वास्थ्य
अभियंत्रण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख (मुख्यालय) जल संसाधन
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

राज्यस्तरीय अनुसूचित दर निर्धारण समिति की दिनांक–31.10.2025 की बैठक में निर्माण कार्यों (सड़कें, बाँध तथा सिंचाई कार्य) में नियोजित विभिन्न श्रेणी के मजदूरों का संशोधित न्यूनतम दैनिक मजदूरी का अनुमोदन :–

जुलाई–2024 से दिसम्बर–2024 तक का औसत मूल्य सूचकांक श्रम संसाधन विभाग, बिहार सरकार के अधिसूचना सं०–5/एम०डब्लू०–40–16/2021–श्र०सं०–1659 पटना/दिनांक– 28.03.2025 के अनुसार 9436.77 है। जनवरी–2025 से जून–2025 तक का औसत मूल्य सूचकांक श्रम संसाधन विभाग, बिहार सरकार के अधिसूचना सं०–5/एम डब्लू०–40–16/2021–श्र०सं०–58/59 पटना/दिनांक 23.09.2025 के अनुसार 9438.96 है।

सूचकांक में वृद्धि = 9438.96 – 9436.77 = 2.19

सूचकांक में प्रतिशत वृद्धि = 2.19 /9436.77 X 100 = 0.0232%

औसत मूल्य सूचकांक (जुलाई–2024 से दिसम्बर–2024 तक) पर आधारित न्यूनतम श्रम दर की सूची अनुसूची–'I' एवं 'II' के स्तम्भ '6' पर अंकित है। इसी स्तम्भ के अंकित दर में 0.023% वृद्धि कर न्यूनतम श्रम दर की गणना कर स्तम्भ '7' पर अंकित कर दी गयी है।

श्रम संसाधन विभाग, बिहार, पटना का अधिसूचना सं०–5/एम०डब्लू०–40–16/2021–श्र०सं०–58/59 पटना/दिनांक–23.09.2025 एवं अधिसूचना सं०–04/एम०डब्लू०–40–14/2025–श्र०सं०–56/57 पटना/दिनांक– 23.09.2025 के आलोक में अनुसूचित दर पुनरीक्षण हेतु उपर्युक्त वृद्धि को सम्मिलित करते हुए निर्माण कार्यों, सड़कें, बाँध निर्माण तथा सिंचाई कार्यों में नियोजित दैनिक मजदूरों के न्यूनतम दैनिक मजदूरी में संशोधन के लिए संलग्न अनुसूची–'I' तथा 'II' के स्तम्भ '7' के अनुसार राज्यस्तरीय अनुसूचित दर निर्धारण समिति द्वारा सहमति प्रदान की जाती है। यह दर पथ निर्माण विभाग, भवन निर्माण विभाग, ग्रामीण कार्य विभाग, लोक स्वास्थ्य अभियंत्रण विभाग एवं अन्य कार्य विभाग अंतर्गत कराये जाने वाले समरूप कार्यों के उपयोग में भी लाया जा सकेगा। Schedule-I के लिए Serial No.- 1, 70, 71 एवं 72 पर अंकित श्रमदर, श्रम संसाधन विभाग का अधिसूचना सं०–5/एम०डब्लू०–40–16/2021–श्र०सं०–58/59 पटना/दिनांक– 23.09.2025 में अंकित श्रम दर के अनुसार लिया गया है, कुछ श्रम दर, श्रम संसाधन विभाग के उक्त अधिसूचना में अंकित औसत मूल्य सूचकांक में परिवर्तन के आधार पर संगणित किया गया है एवं शेष श्रम दर श्रम संसाधन विभाग के अधिसूचना सं०–04/एम०डब्लू०–40–14/2025– श्र०सं०–56/57 पटना/दिनांक–23.09.2025 के श्रमिकों के कोटिवार वर्गीकरण के आधार पर लिया गया है। उसी प्रकार Schedule-II के लिए क्रमांक 1, 69, 70 एवं 71 पर अंकित श्रमदर, श्रम संसाधन विभाग का अधिसूचना सं०–5/एम०डब्लू०–40–16/2021–श्र०सं०–58/59 पटना/दिनांक– 23.09.2025 में अंकित श्रम दर के अनुसार लिया गया है, कुछ श्रम दर श्रम संसाधन विभाग के उक्त अधिसूचना में अंकित औसत मूल्य सूचकांक में परिवर्तन के आधार पर संगणित किया गया है एवं शेष श्रम दर श्रम संसाधन विभाग के अधिसूचना सं०–04/एम०डब्लू०–40–14/2025– श्र०सं०–56/57 पटना/दिनांक–23.09.2025 के श्रमिकों के कोटिवार वर्गीकरण के आधार पर लिया गया है। इसके अतिरिक्त MoRT&H Standard Data Book 2019 (2nd Revision) के दर वि"लेषण में प्रयुक्त होने वाले श्रमदर

Schedule-III के अनुसार, जो Schedule-I पर आधारित है। समिति के सदस्यों द्वारा सर्वसम्मति से अनुमोदन करने का निर्णय लिया गया। विशेष जानकारी हेतु श्रम संसाधन विभाग, बिहार सरकार का अधिसूचना सं०–5/एम०डब्लू०–40– 16/2021–श्र०सं०–58/59 पटना/दिनांक–23.09.2025 एवं अधिसूचना सं०–04/एम०डब्लू०–40– 14/2025–श्र०सं०–56/57 पटना/दिनांक–23.09.2025 द्रष्टव्य।

उक्त दर (Schedule-I, II, III) श्रम संसाधन विभाग, बिहार, पटना की अधिसूचना सं०–5/एम०डब्लू०–40– 16/2021–श्र०सं०–58/59 पटना/दिनांक–23.09.2025 में अंकित तिथि 01.10.2025 से प्रभावी होगा।

अनु०– Schedule- I, II एवं III

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, भवन निर्माण
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
मुख्य अभियंता (असैनिक) बिहार
स्टेट पावर होल्डिंग कंपनी लि0,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख (विद्युत), भवन निर्माण
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, लोक स्वास्थ्य
अभियंत्रण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख मुख्यालय जल संसाधन
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

SCHEDULE - I						Date:- 31.10.2025
Approved Schedule of Rates for labour engaged in construction & maintenance of Roads						
		Minimum Rates of wages per day as per				
Sl. No.	**Category of Employees**	Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 5362 Dated 27.09.2023	Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 1496 Dated 14.03.2024	Lab. Deptt. Notification No. 5/MW.40-18/2021-L&R 14 Dated 25.10.2024	Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 1659 Dated 28.03.2025	Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 59 Dated 23.09.2025
1	**2**	**3**	**(1.0355x cl.3) 4**	**(1.0059x cl.4) 5**	**(1.0281x cl.5) 6**	**(1.00023x cl.6) 7**
1	Unskilled labour	395.00	410.00	412.00	424.00	428.00
2	Sweeper	395.00	410.00	412.00	424.00	428.00
3	Mistry	395.00	410.00	412.00	424.00	541.00
4	Cleaner	395.00	410.00	412.00	424.00	428.00
5	Helper	395.00	410.00	412.00	424.00	444.00
6	Khalasi/Chainman	395.00	410.00	412.00	424.00	444.00
7	Marker	498.00	516.00	519.00	534.00	534.00
8	Fitter grade-I	539.00	558.00	561.00	577.00	660.00
	Fitter grade-II	474.00	491.00	494.00	508.00	541.00
9	Turner	474.00	491.00	494.00	508.00	508.00
10	Mechanic grade-I	608.00	630.00	634.00	652.00	660.00
	Mechanic grade-II	566.00	586.00	589.00	606.00	541.00
11	Electrician grade-I	502.00	520.00	523.00	538.00	660.00
	Electrician grade-II	474.00	491.00	494.00	508.00	541.00
12	Lineman/Wireman	454.00	470.00	473.00	486.00	541.00
13	Chargeman	566.00	586.00	589.00	606.00	606.00
14	Foreman	668.00	692.00	696.00	716.00	541.00
15	Welder grade-I	595.00	616.00	620.00	637.00	660.00
	Welder grade-II	502.00	520.00	523.00	538.00	541.00
16	Glazier	441.00	457.00	460.00	473.00	473.00
17	Carpenter	474.00	491.00	494.00	508.00	541.00
18	Head Carpenter	531.00	550.00	553.00	569.00	660.00
19	Checker	479.00	496.00	499.00	513.00	513.00
20	Hammerman	415.00	430.00	433.00	445.00	444.00
21	Tin smith	539.00	558.00	561.00	577.00	577.00
22	Tin plate maker	566.00	586.00	589.00	606.00	606.00
23	Black Smith	474.00	491.00	494.00	508.00	541.00
24	Head black smith	531.00	550.00	553.00	569.00	660.00
25	Tile layer	419.00	434.00	437.00	449.00	449.00
26	Thatcher	419.00	434.00	437.00	449.00	444.00
27	Plumber	502.00	520.00	523.00	538.00	541.00
28	Grader	479.00	496.00	499.00	513.00	513.00
29	Road binder	441.00	457.00	460.00	473.00	473.00
30	Mason	474.00	491.00	494.00	508.00	541.00
31	Head Mason	531.00	550.00	553.00	569.00	660.00
32	Stone layer	474.00	491.00	494.00	508.00	508.00
33	Tarman	415.00	430.00	433.00	445.00	445.00
34	Fireman	419.00	434.00	437.00	449.00	541.00
35	Grinder	474.00	491.00	494.00	508.00	444.00
36	Gas cutter	498.00	516.00	519.00	534.00	534.00

SCHEDULE - I						Date:- 31.10.2025
Approved Schedule of Rates for labour engaged in construction & maintenance of Roads						
Sl. No.	Category of Employees	Minimum Rates of wages per day as per				
		Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 5362 Dated 27.09.2023	Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 1496 Dated 14.03.2024	Lab. Deptt. Notification No. 5/MW.40-18/2021-L&R 14 Dated 25.10.2024	Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 1659 Dated 28.03.2025	Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 59 Dated 23.09.2025
1	2	3	(1.0355x cl.3) 4	(1.0059x cl.4) 5	(1.0281x cl.5) 6	(1.00023x cl.6) 7
37	Rigger	479.00	496.00	499.00	513.00	541.00
38	Sarang	566.00	586.00	589.00	606.00	606.00
39	Chipper-cum-rivetter	498.00	516.00	519.00	534.00	534.00
40	Tractor operator	566.00	586.00	589.00	606.00	541.00
41	Dozer operator grade-I	668.00	692.00	696.00	716.00	660.00
	Dozer operator grade-II	595.00	616.00	620.00	637.00	541.00
42	Dumper operator	568.00	588.00	591.00	608.00	541.00
43	Viberator Operator	439.00	455.00	458.00	471.00	541.00
44	Pump driver grade-I	502.00	520.00	523.00	538.00	541.00
	Pump driver grade-II	474.00	491.00	494.00	508.00	444.00
45	Dragline operator grade-I	668.00	692.00	696.00	716.00	660.00
	Dragline operator grade-II	595.00	616.00	620.00	637.00	541.00
46	Concrete mixer operator grade-I	502.00	520.00	523.00	538.00	660.00
	Concrete mixer operator grade-II	474.00	491.00	494.00	508.00	541.00
47	Compressor operator grade-I	502.00	520.00	523.00	538.00	660.00
	Compressor operator grade-II	474.00	491.00	494.00	508.00	541.00
48	Earth excavator					
	(a) For every 110 cu. ft for soft earth	390.00	404.00	406.00	417.00	444.00
	(b) For every 100 cu. ft for hard earth	390.00	404.00	406.00	417.00	444.00
	(c) For every 90 cu. ft for highly hard earth	390.00	404.00	406.00	417.00	444.00
49	Truck driver	566.00	586.00	589.00	606.00	660.00
50	Car/Jeep driver	498.00	516.00	519.00	534.00	541.00
51	Crane operator grade-I	668.00	692.00	696.00	716.00	660.00
	Crane operator grade-II	595.00	616.00	620.00	637.00	541.00
52	Winch operator	502.00	520.00	523.00	538.00	541.00
53	Road roller driver	683.00	707.00	711.00	731.00	660.00
54	Blaster	653.00	676.00	680.00	699.00	699.00
55	Painter grade-I	502.00	520.00	523.00	538.00	541.00
56	Polisher	419.00	434.00	437.00	449.00	449.00
57	Peon / Darvan / Choukidar	415.00	430.00	433.00	445.00	444.00
58	Clerk / Typist / Typist clerk	466.00	483.00	486.00	500.00	541.00
59	Time keeper	466.00	483.00	486.00	500.00	500.00
60	Store Assistant / Storeman	504.00	522.00	525.00	540.00	444.00
61	Store head	482.00	499.00	502.00	516.00	541.00
62	Material chaser	482.00	499.00	502.00	516.00	516.00
63	Mate and Road mate	419.00	434.00	437.00	449.00	444.00
64	Munshi	439.00	455.00	458.00	471.00	541.00
65	Work Supervisor	441.00	457.00	460.00	473.00	541.00
66	Amin	466.00	483.00	486.00	500.00	500.00
67	Surveyer	479.00	496.00	499.00	513.00	541.00

SCHEDULE - I						Date:- 31.10.2025
Approved Schedule of Rates for labour engaged in construction & maintenance of Roads						
Sl. No.	Category of Employees	Minimum Rates of wages per day as per				
		Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 5362 Dated 27.09.2023	Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 1496 Dated 14.03.2024	Lab. Deptt. Notification No. 5/MW.40-18/2021-L&R 14 Dated 25.10.2024	Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 1659 Dated 28.03.2025	Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 59 Dated 23.09.2025
1	2	3	(1.0355x cl.3) 4	(1.0059x cl.4) 5	(1.0281x cl.5) 6	(1.00023x cl.6) 7
68	Supervisory diploma holder	639.00	662.00	666.00	685.00	660.00
69	Supervisory non-diploma holder	474.00	491.00	494.00	508.00	541.00
70	Any other category of semi-skilled workers not mentioned above	411.00	426.00	428.00	440.00	444.00
71	Any other category of skilled workers not mentioned above	500.00	519.00	521.00	536.00	541.00
72	Highly skilled labour	611.00	634.00	636.00	654.00	660.00

Note :- 1. The above rates has been calculated as 0.023 % increase vide Labour Dept. Memo No. 58/59 Dtd. .23.09.2025 i.e (1.00023* column 6). And Labour Dept. Memo No.56/57 Dtd. .23.09.2025

2. The above rates will be effective from 01.10.2025

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, भवन निर्माण
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
मुख्य अभियंता (असैनिक) बिहार
स्टेट पावर होल्डिंग कंपनी लि0,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख (विद्युत), भवन निर्माण
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, लोक स्वास्थ्य
अभियंत्रण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख मुख्यालय जल संसाधन
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

SCHEDULE - II						Date:- 31.10.2025
Approved Schedule of Rates for labour engaged in Dam construction & Irrigation works						
Sl. No.	Category of Employees	Minimum Rate of wages per day as per				
		Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 5362 Dated 27.09.2023	Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 1496 Dated 14.03.2024	Lab. Deptt. Notification No. 5/MW.40-18/2021-L&R 14 Dated 25.10.2024	Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 1659 Dated 28.03.2025	Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 59 Dated 23.09.2025
1	2	3	(1.0355x cl.3) 4	(1.0059x cl.4) 5	(1.0281x cl.5) 6	(1.00023x cl.6) 7
1	Unskilled labour	395.00	410.00	412.00	424.00	428.00
2	Male	425.00	440.00	443.00	455.00	444.00
3	Head Mason	531.00	550.00	553.00	569.00	660.00
4	Mason	474.00	491.00	494.00	508.00	541.00
5	Printer Class-I	502.00	520.00	523.00	538.00	538.00
6	Printer Class-II	474.00	491.00	494.00	508.00	508.00
7	Head Carpenter	531.00	550.00	553.00	569.00	660.00
8	Carpenter	474.00	491.00	494.00	508.00	541.00
9	Head black smith	531.00	550.00	553.00	569.00	660.00
10	Black Smith	474.00	491.00	494.00	508.00	541.00
11	Glazier	419.00	434.00	437.00	449.00	449.00
12	Stone Dresser	502.00	520.00	523.00	538.00	541.00
13	Water Carrier	390.00	404.00	406.00	417.00	417.00
14	Fitter Class-I	539.00	558.00	561.00	577.00	660.00
15	Fitter Class-II	474.00	491.00	494.00	508.00	541.00
16	Helper	415.00	430.00	433.00	445.00	444.00
17	Hammer man	415.00	430.00	433.00	445.00	444.00
18	Bellowman	390.00	404.00	406.00	417.00	417.00
19	Road Roller Driver	683.00	707.00	711.00	731.00	660.00
20	Concrete Mixer Operator, Class-I	502.00	520.00	523.00	538.00	660.00
21	Concrete Mixer Operator, Class-II	474.00	491.00	494.00	508.00	541.00
22	Stone Crusher Driver, Class-I	502.00	520.00	523.00	538.00	660.00
23	Stone Crusher Driver, Class-II	474.00	491.00	494.00	508.00	541.00
24	Truck Driver	566.00	586.00	589.00	606.00	660.00
25	Compresser Operator, Class-I	502.00	520.00	523.00	538.00	660.00
26	Compresser Operator, Class-II	474.00	491.00	494.00	508.00	541.00
27	Pump Driver, Class-I	502.00	520.00	523.00	538.00	541.00
28	Pump Driver, Class-II	474.00	491.00	494.00	508.00	444.00
29	Concrete Mixer Attendant	415.00	430.00	433.00	445.00	444.00
30	Cleaner or Oilman	403.00	417.00	419.00	431.00	444.00
31	TarBoiler Man	474.00	491.00	494.00	508.00	541.00
32	Plumber	502.00	520.00	523.00	538.00	541.00
33	Thatcher	419.00	434.00	437.00	449.00	444.00
34	Khalasi / Chainman	419.00	434.00	437.00	449.00	444.00
35	Sweeper	403.00	417.00	419.00	431.00	428.00
36	Watchman	403.00	417.00	419.00	431.00	444.00
37	Stone Breaker	403.00	417.00	419.00	431.00	444.00
38	Work Sarkar	441.00	457.00	460.00	473.00	541.00
39	Time Keeper	466.00	483.00	486.00	500.00	500.00
40	Welder, Grade-I	595.00	616.00	620.00	637.00	660.00
41	Welder, Grade-II	502.00	520.00	523.00	538.00	541.00
42	Wireman/Lineman	454.00	470.00	473.00	486.00	541.00
43	Mechanic, Grade-I	608.00	630.00	634.00	652.00	660.00
44	Mechanic, Grade-II	566.00	586.00	589.00	606.00	541.00
45	Sarang	566.00	586.00	589.00	606.00	606.00
46	Drill Operator	474.00	491.00	494.00	508.00	541.00
47	Tractor Operator	566.00	586.00	589.00	606.00	541.00
48	Gauge Reader-cum-silt Observer	415.00	430.00	433.00	445.00	445.00
49	Crane Operator, Grade-I	668.00	692.00	696.00	716.00	660.00
50	Crane Operator, Grade-II	595.00	616.00	620.00	637.00	541.00
51	Dragline / Scraper / Showel Operator Grade-I	668.00	692.00	696.00	716.00	660.00
52	Dragline/Scraper/Showel Operator Grade-II	595.00	616.00	620.00	637.00	541.00
53	Dumper Operator	568.00	588.00	591.00	608.00	541.00
54	Foreman	668.00	692.00	696.00	716.00	541.00
55	Junior Forman	595.00	616.00	620.00	637.00	444.00
56	Chargeman	568.00	588.00	591.00	608.00	608.00
57	Electrician, Grade-I	502.00	520.00	523.00	538.00	660.00
58	Electrician, Grade-II	474.00	491.00	494.00	508.00	541.00

SCHEDULE - II						Date:- 31.10.2025
Approved Schedule of Rates for labour engaged in Dam construction & Irrigation works						
Sl. No.	**Category of Employees**	**Minimum Rate of wages per day as per**				
		Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 5362 Dated 27.09.2023	**Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 1496 Dated 14.03.2024**	**Lab. Deptt. Notification No. 5/MW.40-18/2021-L&R 14 Dated 25.10.2024**	**Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 1659 Dated 28.03.2025**	**Lab. Deptt. Notification No. 5/MW.40-16/2021-L&R 59 Dated 23.09.2025**
1	**2**	**3**	**(1.0355x cl.3) 4**	**(1.0059x cl.4) 5**	**(1.0281x cl.5) 6**	**(1.00023x cl.6) 7**
59	Electrician, Grade-III	415.00	430.00	433.00	445.00	445.00
60	Turner	474.00	491.00	494.00	508.00	508.00
61	Compounder	474.00	491.00	494.00	508.00	660.00
62	Superviser / (Diploma holder)	639.00	662.00	666.00	685.00	660.00
63	Surveyer / Supervisor	474.00	491.00	494.00	508.00	541.00
64	Blue Printer	415.00	430.00	433.00	445.00	445.00
65	Tracer	415.00	430.00	433.00	445.00	445.00
66	Vibrator Operator	439.00	455.00	458.00	471.00	541.00
67	Clerk / Typist / Typist Clerk	466.00	483.00	486.00	500.00	541.00
68	Earth Excavator,					
	(a) For every 110 cubic feet of soft earth	390.00	404.00	406.00	417.00	444.00
	(b) For every 100 cubic feet of hard earth	390.00	404.00	406.00	417.00	444.00
	(c) For every 90 cubic feet of highly hard earth	390.00	404.00	406.00	417.00	444.00
69	Any other category of semi-skilled workers not mentioned above	411.00	426.00	428.00	440.00	444.00
70	Any other category of skilled workers not mentioned above	500.00	519.00	521.00	536.00	541.00
71	Highly skilled labour	611.00	634.00	636.00	654.00	660.00

Note :- 1.The above rates has been calculated as 0.023 % increase vide Labour Dept. Memo No.58/59 Dtd. 23.09.2025 i.e (1.00023* column 6) andLabour Dept. Memo No.56/57 Dtd. 23.09.2025

2. The above rates will be effective from 01.10.2025

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, भवन निर्माण
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
मुख्य अभियंता (असैनिक) बिहार
स्टेट पावर होल्डिंग कंपनी लि0,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख (विद्युत), भवन निर्माण
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, लोक स्वास्थ्य
अभियंत्रण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख मुख्यालय जल संसाधन
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

SCHEDULE -III			Date 31.10.2025
Approved Input of new Labour wages for the preparation of Schedule of Rate RCD Bihar, in prescribed format of revised MORT&H Standard Data Book 2019(2nd Revision)			
S.No.	**Description of Labour**	**Unit**	**Approved Rate**
1	**2**	**3**	**4**
L-01	Blacksmith (IInd class)	day	541.00
L-02	Blacksmith (Ist class)/ Welder/ Plumber/ Electrician	day	660.00
L-03	Blaster (Stone cutter)	day	699.00
L-04	Carpenter I Class	day	660.00
L-05	Chiseller (Head Mazdoor)	day	660.00
L-06	Driller (Jumper)	day	444.00
L-07	Diver	day	660.00
L-08	Fitter	day	541.00
L-09	Mali	day	444.00
L-10	Mason (IInd class)	day	541.00
L-11	Mason (Ist class)	day	660.00
L-12	Mate / Supervisor	day	444.00
L-13	Mazdoor	day	428.00
L-14	Mazdoor/Dresser (Semi Skilled)	day	444.00
L-15	Mazdoor/Dresser/Sinker (Skilled)	day	541.00
L-16	Medical Officer	day	660.00
L-17	Operator(grouting)	day	660.00
L-18	Painter I class	day	541.00
L-19	Para medical personnel	day	660.00
L-20	Heavy Plant Operator	day	660.00
L-21	Light Plant Operator.	day	541.00
L-22	Heavy Vehicle Driver.	day	660.00
L-23	Light Vehicle Driver.	day	541.00
L-24	Helper	day	444.00
L-25	Black smith	day	541.00

Note :- The above rates are based on Schedule-I

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, भवन निर्माण
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
मुख्य अभियंता (असैनिक) बिहार
स्टेट पावर होल्डिंग कंपनी लि0,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख (विद्युत), भवन निर्माण
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, लोक स्वास्थ्य
अभियंत्रण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख मुख्यालय जल संसाधन
विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

Schedule : M1 Date: 21.01.2026

List of Rates of Ordinary Portland Cement approved by State Level Schedule Rate Committee for the year 2026-27 (for Preparation of Schedule of Rates only) - Materials should conform to relevant BIS/IRC/MORT&H Specifications.

Rates are exclusive of GST @ 18%, Overhead Charges & Contractor's Profit.

Sl. No.	Name & Description of Material	Unit	Zones	Approved Rate	
				in figure (Rs)	in words
1	2	3	4	5	6
1	**Ordinary Portland Cement**	Per bag of 50 Kg	Patna	**288.10**	Rupees Two Hundred Eighty Eight and paise Ten Only.
	(O.P.C. - 43 Grade)		Muzaffarpur	**283.70**	Rupees Two Hundred Eighty Three and paise Seventy Only.
			Darbhanga	**288.10**	Rupees Two Hundred Eighty Eight and paise Ten Only.
			Bhagalpur	**283.70**	Rupees Two Hundred Eighty Three and paise Seventy Only.
			Munger	**283.70**	Rupees Two Hundred Eighty Three and paise Seventy Only.
			Saharsa	**288.10**	Rupees Two Hundred Eighty Eight and paise Ten Only.
			Purnea	**288.10**	Rupees Two Hundred Eighty Eight and paise Ten Only.
			Gaya	**272.70**	Rupees Two Hundred Seventy Two and paise Seventy Only.
			Saran	**283.20**	Rupees Two Hundred Eighty Three and paise Twenty

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह– अभियंता
प्रमुख, भवन निर्माण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–मुख्य अभियंता
(असैनिक) बिहार स्टेट पावर होल्डिंग
कंपनी लि0, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (विद्युत) भवन
निर्माण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख
लोक स्वास्थ्य अभियंत्रण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, (मुख्यालय) जल
संसाधन विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

Schedule : M3A **Date: 21.01.2026**

List of Rates of Portland Pozzolana Cement approved by State Level Schedule Rate Committee for the year 2026-27 (for Preparation of Schedule of Rates only) - Materials should conform to relevant BIS/IRC/MORT&H Specifications.

Rates are exclusive of GST @ 18%, Overhead Charges & Contractor's Profit.

Sl. No.	Name & Description of Material	Unit	Zones	Approved Rate	
				in figure (Rs.)	in words
1	2	3	4	5	6
1	**Portland Pozzolana Cement (P.P.C.)**	Per bag of 50 Kg	Patna	**211.90**	Rupees Two Hundred Eleven and paise Ninety Only.
			Muzaffarpur	**204.70**	Rupees Two Hundred Four and paise Seventy Only.
			Darbhanga	**204.70**	Rupees Two Hundred Four and paise Seventy Only.
			Bhagalpur	**211.90**	Rupees Two Hundred Eleven and paise Ninety Only.
			Munger	**210.10**	Rupees Two Hundred Ten and paise Ten Only.
			Saharsa	**208.50**	Rupees Two Hundred Eight and paise Fifty Only.
			Purnea	**215.10**	Rupees Two Hundred Fifteen and paise Ten Only
			Gaya	**186.40**	Rupees One Hundred Eighty Six and paise Forty Only.
			Saran	**207.00**	Rupees Two Hundred Seven and paise Zero Only.

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह– अभियंता
प्रमुख, भवन निर्माण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–मुख्य अभियंता
(असैनिक) बिहार स्टेट पावर होल्डिंग
कंपनी लि०, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (विद्युत) भवन
निर्माण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख
लोक स्वास्थ्य अभियंत्रण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, (मुख्यालय) जल
संसाधन विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

Schedule : M3B

Date: 21.01.2026

List of Rates of Portland Slag Cement approved by State Level Schedule Rate Committee for the year 2026-27 (for Preparation of Schedule of Rates only) - Materials should conform to relevant BIS/IRC/MORT&H Specifications.

Rates are exclusive of GST @ 18%, Overhead Charges & Contractor's Profit.

Sl. No.	Name & Description of Material	Unit	Zones	Approved Rate	
				in figure (Rs)	in words
1	2	3	4	5	6
1	**Portland Slag Cement (P.S.C.)**	Per bag of 50 Kg	Patna	**233.10**	Rupees Two Hundred Thirty Three and paise Ten Only.
			Muzaffarpur	**231.80**	Rupees Two Hundred Thirty One and paise Eighty Only.
			Darbhanga	**227.10**	Rupees Two Hundred Twenty Seven and paise Ten Only.
			Bhagalpur	**232.40**	Rupees Two Hundred Thirty Two and paise Forty Only.
			Munger	**223.80**	Rupees Two Hundred Twenty Three and paise Eighty Only
			Saharsa	**230.90**	Rupees Two Hundred Thirty and paise Ninety Only.
			Purnea	**227.10**	Rupees Two Hundred Twenty Seven and paise Ten Only.
			Gaya	**222.80**	Rupees Two Hundred Twenty Two and paise Eighty Only.
			Saran	**229.30**	Rupees Two Hundred Twenty Nine and paise Thirty Only.

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह– अभियंता
प्रमुख, भवन निर्माण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–मुख्य अभियंता
(असैनिक) बिहार स्टेट पावर होल्डिंग
कंपनी लि0, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (विद्युत) भवन
निर्माण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख
लोक स्वास्थ्य अभियंत्रण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, (मुख्यालय) जल
संसाधन विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

Schedule : M3C

Date: 21.01.2026

List of Rates of Portland Composite Cement approved by State Level Schedule Rate Committee for the year 2026-27 (for Preparation of Schedule of Rates only) - Materials should conform to relevant BIS/IRC/MORT&H Specifications.

Rates are exclusive of GST @ 18%, Overhead Charges & Contractor's Profit.

Sl. No.	Name & Description of Material	Unit	Zones	Approved Rate	
				in figure (Rs)	in words
1	2	3	4	5	6
1	**Portland Composite Cement (P.C.C.)**	Per bag of 50 Kg	Patna	**220.30**	Rupees Two Hundred Twenty and paise Thirty Only.
			Muzaffarpur	**220.30**	Rupees Two Hundred Twenty and paise Thirty Only.
			Darbhanga	**220.30**	Rupees Two Hundred Twenty and paise Thirty Only.
			Bhagalpur	**220.30**	Rupees Two Hundred Twenty and paise Thirty Only.
			Munger	**220.30**	Rupees Two Hundred Twenty and paise Thirty Only.
			Saharsa	**220.30**	Rupees Two Hundred Twenty and paise Thirty Only.
			Purnea	**220.30**	Rupees Two Hundred Twenty and paise Thirty Only.
			Gaya	**220.30**	Rupees Two Hundred Twenty and paise Thirty Only.
			Saran	**220.30**	Rupees Two Hundred Twenty and paise Thirty Only.

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह– अभियंता
प्रमुख, भवन निर्माण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–मुख्य अभियंता
(असैनिक) बिहार स्टेट पावर होल्डिंग
कंपनी लि0, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (विद्युत) भवन
निर्माण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख
लोक स्वास्थ्य अभियंत्रण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, (मुख्यालय) जल
संसाधन विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

RCD/SOR_20th Edition_2026

Schedule : M4

Date: 21.01.2026

List of Rates of Different Grades of Bitumen & Bitumen Emulsion approved by State Level Schedule Rate Committee for the year 2026-27 (for the preparation of Schedule of Rates only). Materials should confirm to relevant BIS/IRC/MORT&H Specifications.

Rates are exclusive of GST @ 18%, Overhead Charges and Contractor's Profit.

Sl. No.	Name & Description of Material	Unit	Approved Rate	
			in figure (Rs.)	in words
1	2	3	4	5
1	**Bitumen Grade VG-40(30/40)Packed**			
	(i) Ex. Barauni	Per MT	**63569.00**	Rupees Sixty Three Thousand Five Hundred Sixty Nine and Paise Zero Only.
	(ii) Ex. Muzaffarpur	Per MT	**61320.00**	Rupees Sixty One Thousand Three Hundred Twenty and Paise Zero Only.
	(iii) Ex. Fatuha / Patna	Per MT	**60920.00**	Rupees Sixty Thousand Nine Hundred Twenty and Paise Zero Only.
	(iv) Ex. Gaya	Per MT	**60724.00**	Rupees Sixty Thousand Seven Hundred Twenty Four and Paise Zero Only.
2	**Bitumen Grade VG-30(60/70) Packed**			
	(i) Ex. Barauni	Per MT	**57448.00**	Rupees Fifty Seven Thousand Four Hundred Forty Eight and Paise Zero Only.
	(ii) Ex. Gaya	Per MT	**58024.00**	Rupees Fifty Eight Thousand Twenty Four and Paise Zero Only.
	(iii) Ex. Fatuha /Patna	Per MT	**57466.00**	Rupees Fifty Seven Thousand FourHundred Sixty Six and Paise Zero Only.
	(iv) Ex. Muzaffarpur	Per MT	**57448.00**	Rupees Fifty Seven Thousand Four Hundred Forty Eight and Paise Zero Only.
3	**Bitumen Grade VG-10(80/100) Packed**			
	(i) Ex. Barauni	Per MT	**55548.00**	Rupees Fifty Five Thousand Five Hundred Forty Eight and Paise Zero Only
	(ii) Ex. Gaya	Per MT	**56224.00**	Rupees Fifty Six Thousand Two Hundred Twenty Four and Paise Zero Only
	(iii) Ex. Fatuha /Patna	Per MT	**55566.00**	Rupees Fifty Five Thousand Five Hundred Sixty Six and Paise Zero Only
	(iv) Ex. Muzaffarpur	Per MT	**55548.00**	Rupees Fifty Five Thousand Five Hundred Forty Eight and Paise Zero Only
4	**Bitumen Grade VG-40(30/40) Bulk**			
	(i) Ex. Barauni	Per MT	**50372.00**	Rupees Fifty Thousand Three Hundred Seventy Two and Paise Zero Only.
5	**Bitumen Grade VG-30(60/70) Bulk**			
	(i) Ex. Barauni	Per MT	**47882.00**	Rupees Forty Seven Thousand Eight Hundred Eighty Two and Paise Zero Only.
6	**Bitumen Grade VG-10(80/100) Bulk**			
	(i) Ex. Barauni		-	
7	**Modified Graded Bitumen**			
	(i) CRMB-55 Packed Ex. Gaya	Per MT	**60134.00**	Rupees Sixty Thousand One Hundred Thirty Four and Paise Zero Only.
	(ii) CRMB-55 Packed Ex.Fatuha / Patna	Per MT	**60330.00**	Rupees Sixty Thousand Three Hundred Thirty and Paise Zero Only.
	(iii) CRMB-55 Packed Ex. Muzaffarpur	Per MT	**60730.00**	Rupees Sixty Thousand Seven Hundred Thirty and Paise Zero Only.
8	**Bitumen Emulsion RS1(Packed) HDPE**			
	(i) Ex. Patna	Per MT	**53201.00**	Rupees Fifty Three Thousand Two Hundred One and Paise Zero Only.
	(ii) Ex. Gaya	Per MT	**56256.00**	Rupees Fifty Six Thousand Two Hundred Fifty Six and Paise Zero Only.
	(iii) Ex. Muzaffarpur	Per MT	**56256.00**	Rupees Fifty Six Thousand Two Hundred Fifty Six and Paise Zero Only.
9	**Bitumen Emulsion MS(Packed) HDPE**			
	(i) Ex. Patna	Per MT	**56238.00**	Rupees Fifty Six Thousand Two Hundred Thirty Eight and Paise Zero Only.
	(ii) Ex. Gaya	Per MT	**59262.00**	Rupees Fifty Nine Thousand Two Hundred Sixty Two and Paise Zero Only.
	(iii) Ex. Muzaffarpur	Per MT	**59262.00**	Rupees Fifty Nine Thousand Two Hundred Sixty Two and Paise Zero Only.
10	**Bitumen Emulsion SS1(Packed) HDPE**			
	(i) Ex. Patna	Per MT	**54349.00**	Rupees Fifty Four Thousand Three Hundred Forty Nine and Paise Zero Only.
	(ii) Ex. Gaya	Per MT	**57244.00**	Rupees Fifty Seven Thousand Two Hundred Forty Four and Paise Zero Only.
	(iii) Ex. Muzaffarpur	Per MT	**57244.00**	Rupees Fifty Seven Thousand Two Hundred Forty Four and Paise Zero Only.

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह– अभियंता
प्रमुख, भवन निर्माण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–मुख्य अभियंता
(असैनिक) बिहार स्टेट पावर होल्डिंग
कंपनी लि0, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (विद्युत) भवन
निर्माण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख
लोक स्वास्थ्य अभियंत्रण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय) जल
संसाधन विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

Schedule : M5

Date: 21.01.2026

Approved rate of G.C. Sheet by State Level Schedule Rate Committee for the year 2026- 27 (for Preparation of Schedule of Rates only) - Materials should conform to relevant BIS/IRC/MORT&H Specifications.

Rates are exclusive of GST @ 18%, Overhead Charges and Contractor's Profit.

Sl. No.	Name & Description of Material	Unit	Approved Rate	
			in figure (Rs)	in words
1	2	3	4	5
	G. C. Sheet in mm			
1	0.80	Per MT	81442.37	Rupees Eighty One Thousand Four Hundred Forty Two and Paise Thirty Seven Only.
2	0.63	Per MT	80744.92	Rupees Eighty Thousand Seven Hundred Forty Four and Paise Ninety Two Only.
3	0.50	Per MT	82354.24	Rupees Eighty Two Thousand Three Hundred Fifty Four and Paise Twenty Four Only.
4	0.40	Per MT	85305.08	Rupees Eighty Five Thousand Three Hundred Five and Paise Eight Only.
5	0.35	Per MT	87450.85	Rupees Eighty Seven Thousand Four Hundred Fifty and Paise Eighty Five Only.

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह– अभियंता
प्रमुख, भवन निर्माण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–मुख्य अभियंता
(असैनिक) बिहार स्टेट पावर होल्डिंग
कंपनी लि0, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (विद्युत) भवन
निर्माण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख
लोक स्वास्थ्य अभियंत्रण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, (मुख्यालय) जल
संसाधन विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

Schedule : M6

Date: 21.01.2026

Approved rate of Steel - Wire Rod in Coil by State Level Schedule Rate Committee for the year 2026- 27 (for Preparation of Schedule of Rates only) - Materials should conform to relevant BIS/IRC/MORT&H Specifications.

Rates are exclusive of GST @ 18%, Overhead Charges and Contractor's Profit.

Sl. No.	Name & Description of Material	Unit	Approved Rate	
			in figure (Rs)	in words
1	2	3	4	5
	Wire Rod in Coil			
1	5.5 mm		-	
2	7.0 mm	Per MT	50050.00	Rupees Fifty Thousand Fifty and Paise Zero Only.
3	8.0 mm	Per MT	50050.00	Rupees Fifty Thousand Fifty and Paise Zero Only.

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह– अभियंता
प्रमुख, भवन निर्माण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–मुख्य अभियंता
(असैनिक) बिहार स्टेट पावर होल्डिंग
कंपनी लि0, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (विद्युत) भवन
निर्माण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख
लोक स्वास्थ्य अभियंत्रण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, (मुख्यालय) जल
संसाधन विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

Schedule : M8

Date: 21.01.2026

Approved rate of Steel Channel by State Level Schedule Rate Committee for the year 2026 - 27 (for Preparation of Schedule of Rates only) - Materials should conform to relevant BIS/IRC/MORT&H Specifications.

Rates are exclusive of GST @ 18%, Overhead Charges and Contractor's Profit.

Sl. No.	Name & Description of Material	Unit	Approved Rate	
			in figure (Rs)	in words
1	2	3	4	5
	STEEL CHANNEL			
1	Channel 75 x 40	Per MT	51200.00	Rupees Fifty One Thousand Two Hundred and Paise Zero Only
2	Channel 100 x 50	Per MT	50200.00	Rupees Fifty Thousand Two Hundred and Paise Zero Only
3	Channel 125 x 65	Per MT	50200.00	Rupees Fifty Thousand Two Hundred and Paise Zero Only
4	Channel 150 x 75	Per MT	50200.00	Rupees Fifty Thousand Two Hundred and Paise Zero Only
5	Channel 200 x 75	Per MT	50200.00	Rupees Fifty Thousand Two Hundred and Paise Zero Only

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह– अभियंता
प्रमुख, भवन निर्माण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–मुख्य अभियंता
(असैनिक) बिहार स्टेट पावर होल्डिंग
कंपनी लि0, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (विद्युत) भवन
निर्माण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख
लोक स्वास्थ्य अभियंत्रण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, (नुख्यालय) जल
संसाधन विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

Schedule : M9

Date: 21.01.2026

Approved rate of Steel Angles by State Level Schedule Rate Committee for the year 2026 - 27 (for Preparation of Schedule of Rates only) - Materials should conform to relevant BIS/IRC/MORT&H Specifications.

Rates are exclusive of GST @ 18%, Overhead Charges and Contractor's Profit.

Sl. No.	Name & Description of Material	Unit	Approved Rate	
			in figure (Rs)	in words
1	2	3	4	5
	STEEL ANGLES			
1	50 x 50 x 6	Per MT.	50000.00	Rupees Fifty Thousand Paise Zero Only
2	65 x 65 x 6	Per MT.	49500.00	Rupees Forty NineThousand Five Hundred Paise Zero Only
3	75 x 75 x 6	Per MT.	49000.00	Rupees Forty NineThousand Paise Zero Only
4	75 x 75 x 8	Per MT.	49000.00	Rupees Forty NineThousand Paise Zero Only
5	75x 75 x 10	Per MT.	49000.00	Rupees Forty NineThousand Paise Zero Only

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह– अभियंता
प्रमुख, भवन निर्माण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–मुख्य अभियंता
(असैनिक) बिहार स्टेट पावर होल्डिंग
कंपनी लि0, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (विद्युत) भवन
निर्माण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख
लोक स्वास्थ्य अभियंत्रण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, (मुख्यालय) जल
संसाधन विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

Schedule : M10A

Date: 21.01.2026

Approved rate of Steel - TMT BARS (Fe 500D) by State Level Schedule Rate Committee for the year 2026- 2027 (for Preparation of Schedule of Rates only) - Materials should conform to relevant BIS/IRC/MORT&H Specifications.

Rates are exclusive of GST @ 18%, Overhead Charges and Contractor's Profit.

Sl. No.	Name & Description of Material	Unit	Approved Rate	
			in figure (Rs)	in words
1	2	3	4	5
	STEEL TMT BARS			
1	TMT Fe 500D - 8 mm	Per MT	48200.00	Rupees Forty Eight Thousand Two Hundred and Paise Zero Only.
2	TMT Fe 500D -10 mm	Per MT	46300.00	Rupees Forty Six Thousand Three Hundred and Paise Zero Only.
3	TMT Fe 500D -12 mm	Per MT	45700.00	Rupees Forty Five Thousand Seven Hundred and Paise Zero Only.
4	TMT Fe 500D -16 mm	Per MT	45700.00	Rupees Forty Five Thousand Seven Hundred and Paise Zero Only.
5	TMT Fe 500D -20 mm	Per MT	45700.00	Rupees Forty Five Thousand Seven Hundred and Paise Zero Only.
6	TMT Fe 500D-25 mm	Per MT	45700.00	Rupees Forty Five Thousand Seven Hundred and Paise Zero Only.
7	TMT Fe 500D-28 mm	Per MT	45700.00	Rupees Forty Five Thousand Seven Hundred and Paise Zero Only.
8	TMT Fe 500D -32 mm	Per MT	45700.00	Rupees Forty Five Thousand Seven Hundred and Paise Zero Only.

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह– अभियंता
प्रमुख, भवन निर्माण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–मुख्य अभियंता
(असैनिक) बिहार स्टेट पावर होल्डिंग
कंपनी लि0, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (विद्युत) भवन
निर्माण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख
लोक स्वास्थ्य अभियंत्रण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, (नुख्यालय) जल
संसाधन विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

Schedule: M11 Date:- 19.02.2026

Approved Rate of Bricks & Bricks related materials by the State Level Schedule Rate Committee for the year 2026 - 2027 (for Preparation of Schedule of Rate only) - Materials should conform to relevant BIS/IRC/MORT & H Specifications. Rates are inclusive of Royalty but Exclusive of all taxes,GST, Contractor's profit and Overhead Charges (Rates are at source)

Sr. No.	Materials	Unit	Approved Rates (Rs)	
			In figure (Rs)	In words
1	2	3	4	5
1	**100 A Bricks**			
	(i) For urban Patna	Nos/1000	6620.00	Rupees Six Thousand Six Hundred Twenty and Paise Zero Only.
	(ii) For Darbhanga,Bhagalpur, Munger & Muzaffarpur	Nos/1000	5589.00	Rupees Five Thousand Five Hundred Eighty Nine and Paise Zero Only.
	(iii) For Gaya & Saran	Nos/1000	5286.00	Rupees Five Thousand Two Hundred Eighty Six and Paise Zero Only.
	(iv) For Saharsa	Nos/1000	5740.00	Rupees Five Thousand Seven Hundred Forty and Paise Zero Only.
	(v) For Purnea	Nos/1000	6043.00	Rupees Six Thousand Forty Three and Paise Zero Only.
	(vi) For rural Patna	Nos/1000	5512.00	Rupees Five Thousand Five Hundred Twelve and Paise Zero Only.
2	**100 B Bricks**			
	(i) For urban Patna	Nos/1000	6144.00	Rupees Six Thousand One Hundred Forty Four and Paise Zero Only.
	(ii) For Darbhanga, Bhagalpur, Munger & Muzaffarpur	Nos/1000	5132.00	Rupees Five Thousand One Hundred Thirty Two and Paise Zero Only.
	(iii) For Gaya & Saran	Nos/1000	4833.00	Rupees Four Thousand Eight Hundred Thirty Three and Paise Zero Only.
	(iv) For Saharsa	Nos/1000	5286.00	Rupees Five Thousand Two Hundred Eighty Six and Paise Zero Only.
	(v) For Purnea	Nos/1000	5589.00	Rupees Five Thousand Five Hundred Eighty Nine and Paise Zero Only.
	(vi) For rural Patna	Nos/1000	5038.00	Rupees Five Thousand Thirty Eight and Paise Zero Only.
3	**Brick Tiles (300mmx150mmx50mm)**			
	(i) For urban Patna and rural Patna	Nos/1000	6620.00	Rupees Six Thousand Six Hundred Twenty and Paise Zero Only.
	(ii) For Saharsa, Bhagalpur, Darbhanga & Muzaffarpur	Nos/1000	6647.00	Rupees Six Thousand Six Hundred Forty Seven and Paise Zero Only.
	(iii) For Purnea	Nos/1000	6951.00	Rupees Six Thousand Nine Hundred Fifty One and Paise Zero Only.
	(iv) For other places	Nos/1000	6344.00	Rupees Six Thousand Three Hundred Forty Four and Paise Zero Only.
4	**Picket Jhama Bricks**			
	(i) For urban Patna	Nos/1000	5672.00	Rupees Five Thousand Six Hundred Seventy Two and Paise Zero Only.
	(ii) For Darbhanga, Bhagalpur, Munger & Muzaffarpur	Nos/1000	4681.00	Rupees Four Thousand Six Hundred Eighty One and Paise Zero Only.
	(iii) For Gaya & Saran	Nos/1000	4373.00	Rupees Four Thousand Three Hundred Seventy Three and Paise Zero Only.
	(iv) For Purnea	Nos/1000	5132.00	Rupees Five Thousand One Hundred Thirty Two and Paise Zero Only.
	(v) For Saharsa	Nos/1000	4833.00	Rupees Four Thousand Eight Hundred Thirty Three and Paise Zero Only.
	(vi) For rural Patna	Nos/1000	4576.00	Rupees Four Thousand Five Hundred Seventy Six and Paise Zero Only.
5	**Brick Bats**			
	(i) For urban Patna	Per m^3	1171.00	Rupees One Thousand One Hundred Seventy One and Paise Zero Only.
	(ii) For Purnea, Saharsa, Bhagalpur, Munger & Darbhanga	Per m^3	1125.00	Rupees One Thousand One Hundred Twenty Five and Paise Zero Only.
	(iii) For other places	Per m^3	1073.00	Rupees One Thousand Seventy Three and Paise Zero Only.
	(iv) For rural Patna	Per m^3	1124.00	Rupees One Thousand One Hundred Twenty Four and Paise Zero Only.
6	**Jhama Metals**			
	(a) 63 mm to 40 mm size			
	(i) For urban Patna	Per m^3	1391.00	Rupees One Thousand Three Hundred Ninety One and Paise Zero Only.
	(ii) For Purnea, Saharsa, Bhagalpur, Munger & Darbhanga	Per m^3	1331.00	Rupees One Thousand Three Hundred Thirty One and Paise Zero Only.
	(iii) For other places	Per m^3	1304.00	Rupees One Thousand Three Hundred Four and Paise Zero Only.
	(iv) For rural Patna	Per m^3	1358.00	Rupees One Thousand Three Hundred Fifty Eight and Paise Zero Only.
	(b) 40 mm to 20 mm size			
	(i) For urban Patna	Per m^3	1547.00	Rupees One Thousand Five Hundred Forty Seven and Paise Zero Only.
	(ii) For Purnea, Saharsa, Bhagalpur, Munger & Darbhanga	Per m^3	1483.00	Rupees One Thousand Four Hundred Eighty Three and Paise Zero Only.
	(iii) For other places	Per m^3	1440.00	Rupees One Thousand Four Hundred Forty and Paise Zero Only.
	(iv) For rural Patna	Per m^3	1500.00	Rupees One Thousand Five Hundred and Paise Zero Only.

	(c) 20 mm and down			
	(i) For urban Patna	Per m^3	1770.00	Rupees One Thousand Seven Hundred Seventy and Paise Zero Only.
	(ii) For Purnea, Saharsa, Bhagalpur, Munger & Darbhanga	Per m^3	1696.00	Rupees One Thousand Six Hundred Ninety Six and Paise Zero Only.
	(iii) For other places	Per m^3	1637.00	Rupees One Thousand Six Hundred Thirty Seven and Paise Zero Only.
	(iv) For rural Patna	Per m^3	1707.00	Rupees One Thousand Seven Hundred Seven and Paise Zero Only.
7	**Surkhi**			
	(i) For urban Patna	Per m^3	1831.00	Rupees One Thousand Eight Hundred Thirty One and Paise Zero Only.
	(ii) For Purnea, Saharsa, Bhagalpur, Munger & Darbhanga	Per m^3	1757.00	Rupees One Thousand Seven Hundred Fifty Seven and Paise Zero Only.
	(iii) For other places	Per m^3	1696.00	Rupees One Thousand Six Hundred Ninety Six and Paise Zero Only.
	(iv) For rural Patna	Per m^3	1770.00	Rupees One Thousand Seven Hundred Seventy and Paise Zero Only.

Note: For S.No. 1 to 4, Royalty has been included as Rs. 45.00 per 1000 Nos. & for S.No. 5 to 7 as Rs. 18.00 per m^3 (cum)

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–साह– अभियंता
प्रमुख, भवन निर्माण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–साह–
अभियंता प्रमुख, लघु जल संसाधन विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–साह–मुख्य अभियंता
(असैनिक) बिहार स्टेट पावर होल्डिंग
कंपनी लि0, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–साह–
अभियंता प्रमुख (विद्युत) भवन
निर्माण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–साह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–साह–अभियंता प्रमुख (मु०)
लोक स्वास्थ्य अभियंत्रण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–साह–
अभियंता प्रमुख, मुख्यालय जल
संसाधन विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–साह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–साह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

APPROVED RATES OF MATERIALS, PLANT-MACHINERY, LABOUR & CARRIAGE RATE (INPUT USED IN SOR)

Schedule -M / MORTH-1				Date:-19.02.2026
List for Approved Rates of Construction Materials for the Preparation of Schedule of Rates for year 2026-27 only by the State Level Schedule Rate Committee (Materials Should conform to relevant B.I.S., MoRD and MoRT&H Specifications). The rates are inclusive of royalty but exclusive of all taxes, G.S.T,Overhead,Seigniorage fee and Contractor's profit. "Rates are at source"Quarry/ Crusher Plant.				
Sl. No.	Description of Materials	Unit	Approved Rates inclusive of Royalty for SoR 2026 (Rs)	Royalty included in col.4 (Rs)
1	2	3	4	5
M-001	Stone Boulder of size 150 mm and below at Source Quarry	Cum	730.02	150.00
M-002	Supply of quarried Stone 150-200 mm size for Hand Broken at source Quarry	Cum	730.02	150.00
M-003	Boulder with minimum size of 300 mm for Pitching at source Quarry	Cum	730.02	150.00
M-004*	Coarse sand/ Sand at source Quarry from five rivers- Sone / Kiul / Falgoo / Chanan and Morhar river.	Cum	612.90	150.00
M-005	Coarse sand / Sand at Source ,Quarry from other river.	Cum	537.90	75.00
M-006	Fine sand at Source	Cum	150.48	75.00
M-007	Moorum at Source Quarry	Cum	168.07	83.00
M-008	Gravel/Quarry spall at Source Quarry	Cum	377.35	150.00
M-009	Granular Material or hard murum for GSB works at source Quarry	Cum	173.92	83.00
M-010	Fly ash conforming to IS:3812 (Part II & I) at HMP Plant/Batching Plant/Crushing Plant	Cum	Nil	Nil
M-011	Filter media/Filter Material as per Table 300-3 (MoRT&H Specification) at Crusher.	Cum	733.48	150.00
M-012	Close graded Granular sub-base Material 53 mm to 9.5 mm/4.75mm at Crusher.	Cum	995.91	150.00
M-013	Close graded Granular sub-base Material 37.5 mm to 9.5 mm at Crusher.	Cum	995.91	150.00
M-014	Close graded Granular sub-base Material 26.5 mm to 9.5 mm at Crusher.	Cum	963.12	150.00
M-015	Close graded Granular sub-base Material 9.5 mm to 4.75 mm at Crusher.	Cum	631.69	150.00
M-016	Close graded Granular sub-base Material 9.5 mm to 2.36mm at Crusher.	Cum	452.95	150.00
M-017	Close graded Granular sub-base Material 4.75mm to 2.36mm At Crusher.	Cum	274.20	150.00
M-018	Close graded Granular sub-base Material 4.75mm to 75 micron at Crusher.	Cum	274.20	150.00
M-019	Close graded Granular sub-base Material 2.36 mm & below at Crusher.	Cum	274.20	150.00
M-020	Stone crusher dust finer than 3 mm with not more than 10% passing 0.075 sieve at Crusher.	Cum	274.20	150.00
M-021	Coarse graded Granular sub-base Material 2.36 mm & below At Crusher.	Cum	274.20	150.00
M-022	Coarse graded Granular sub-base Material 4.75 mm to 75 micron at	Cum	274.20	150.00
M-023	Coarse graded Granular sub-base Material 4.75mm to 2.36 mm at Crusher.	Cum	274.20	150.00
M-024	Coarse graded Granular sub-base Material 9.5mm to 4.75 mm at Crusher.	Cum	631.69	150.00
M-025	Coarse graded Granular sub-base Material 26.5mm to 4.75 mm at Crusher.	Cum	963.12	150.00
M-026	Coarse graded Granular sub-base Material 26.5 mm to 9.5 mm at Crusher.	Cum	963.12	150.00
M-027	Coarse graded Granular sub-base Material 37.5 mm to 9.5 mm at Crusher.	Cum	995.91	150.00
M-028	Coarse graded Granular sub-base Material 53 mm to 26.5 mm at Crusher.	Cum	1178.00	150.00
M-029	Aggregates below 5.6 mm at Crusher.	Cum	452.95	150.00
M-030	Aggregates 22.4 mm to 2.36 mm at Crusher.	Cum	733.48	150.00
M-031	Aggregates 22.4 mm to 5.6 mm at Crusher.	Cum	963.12	150.00
M-032	Aggregates 45 mm to 2.8 mm at Crusher.	Cum	815.48	150.00
M-033	Aggregates 45 mm to 22.4 mm at Crusher.	Cum	1178.00	150.00
M-034	Aggregates 53 mm to 2.8 mm at Crusher.	Cum	815.48	150.00
M-035	Aggregates 53 mm to 22.4 mm(Grade -III) at Crusher.	Cum	1178.00	150.00
M-036	Aggregates 63 mm to 2.8 mm at Crusher.	Cum	815.48	150.00
M-037	Aggregates 63 mm to 45 mm (Grade- II)at Crusher.	Cum	1061.46	150.00
M-038	Aggregates 90 mm to 45mm(Grade-I) at Crusher.	Cum	1061.46	150.00
M-039	Aggregates 10 mm to 5 mm at Crusher.	Cum	631.69	150.00
M-040	Aggregates 11.2 mm to 0.09 mm (Key aggregate Type B) at Crusher.	Cum	452.95	150.00
M-041	Aggregates 13.2 mm to 0.09 mm (Key aggregate Type A) at Crusher.	Cum	452.95	150.00



Sl. No.	Description of Materials	Unit	Approved Rates inclusive of Royalty for SoR 2026 (Rs)	Royalty included in col.4 (Rs)
1	2	3	4	5
M-042	Aggregates 13.2 mm to 5.6 mm at Crusher.	Cum	631.69	150.00
M-043	Aggregates 13.2 mm to 10 mm at Crusher.	Cum	631.69	150.00
M-044	Aggregates 20 mm to 10 mm at Crusher.	Cum	963.12	150.00
M-045	Aggregates 25 mm to10 mm at Crusher.	Cum	963.12	150.00
M-046	Aggregates 19 mm to 6 mm at Crusher.	Cum	963.12	150.00
M-047	Aggregates 37.5 mm to 19 mm at Crusher.	Cum	1178.00	150.00
M-048	Aggregates 37.5 mm to 25 mm at Crusher.	Cum	1178.00	150.00
M-049	Aggregates 6 mm nominal size at Crusher.	Cum	452.95	150.00
M-050	Aggregates 10 mm nominal size at Crusher plant.	Cum	631.69	150.00
M-051	Aggregates 13.2/12.5 mm nominal size at Crusher plant.	Cum	631.69	150.00
M-052	Aggregates 20 mm nominal size at Crusher plant.	Cum	1294.56	150.00
M-053	Aggregates 25 mm nominal size at Crusher.	Cum	1294.56	150.00
M-054	Aggregates 40 mm nominal size at Crusher.	Cum	1061.46	150.00
M-055	Crushing of Stone aggregates (GSB Crusher Run)	Cum	765.78	150.00

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह– अभियंता
प्रमुख, भवन निर्माण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–मुख्य अभियंता
(असैनिक) बिहार स्टेट पावर होल्डिंग
कंपनी लि0, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (विद्युत) भवन
निर्माण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख (मु०)
लोक स्वास्थ्य अभियंत्रण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, मुख्यालय जल
संसाधन विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

Schedule-M/MORTH-1A				Date 19.02.2026
List of Approved Rates of Construction Materials for the Preparation of Schedule of Rates for year 2026-27 only by the State Level Schedule Rate Committee (Materials Should conform to relevant B.I.S., MoRD and MoRT&H Specifications). The rates are inclusive of Royalty but exclusive of all taxes, G.S.T.,Overhead, Seigniorage fee and Contractor's profit. " Rates are at Source"				
Sl. No.	Description of Materials	Unit	Approved Rates Inclusive of Royalty for SoR 2026 (Rs)	Royality (Rs)
1	2	3	4	5
M-056	AC pipe 100 mm dia	metre	47.39	
M-057	Acrylic polymer bonding coat	litre	144.81	
M-058	Alluminium Paint	litre	136.92	
M-059	Aluminium alloy plate 2mm Thick	sqm	12771.09	
M-060	Aluminium alloy/galvanised steel	tonne	51761.60	
M-061	Aluminium sheeting 2 mm thick fixed with encapsulated lens type reflective sheeting including 2% towards lettering, cost of angle iron, cost of drilling holes, nuts, bolts etc.and signs as applicable	sqm	9584.68	
M-062	Road Aluminium Stud with Micro Prismatic lens reflectors (with shank) 100 X 100 mm	each	214.80	
M-063	Barbed wire	kg	75.66	
M-064	Bearing (Cost of parts)	nos	13248.00	
M-065	Bearing (Cast steel rocker bearing assembly of 250 tonne)	nos	95865.64	
M-066	Bearing (Elastomeric bearing assembly consisting of 7 internal layers of elastomer bonded to 6 nos. internal reinforcing steel laminates by the process of vulcanisation)	cubic cm	0.69	
	Taking elastomeric bearing of size 500 X 400 X 96mm, Overall volume=19200 cubic cm @Rs 0.68/cucm= Rs 13056.00	nos	13248.00	
M-067	Bearing (Forged steel roller bearing of 250 tonne)	nos	53052.92	
M-068	Bearing (Pot type bearing assembly consisting of a metal piston supported by a disc, PTFE pads providing sliding surfaces against stainless steel mating together with cast steel assemblies/ fabricated structural steel assemblies duly painted with all components output=250 tonne)	MT	159.42	
	Do	nos	39855.00	
	(a) Fixed POT-PTFE Bearing	MT	159.42	
	(b) Free POT-PTFE Bearing	MT	170.49	
	(c) Guide Slide (L) POT-PTFE Bearing	MT	182.21	
	(d) Guide Slide (T) POT-PTFE Bearing	MT	176.52	
M-069	Bearing (PTFE sliding plate bearing assembly of 80 tonnes)	nos	14120.78	
M-070	Bearing (Supply of sliding plate bearing of 80 tonne)	nos	12753.80	
M-071	Bentonite	kg	4.62	
M-072	Binding wire	kg	49.41	
M-073	Bitumen (Cationic Emulsion) Ex- Patna (R.S1) Packed	tonne	53201.00	
M-074	Bitumen (60-70 grade) Packed Ex- Barauni	tonne	57448.00	
M-075	Bitumen (80-100 grade) Packed Ex- Barauni	tonne	55548.00	
M-076	Bitumen (Cutback) Packed Ex- Barauni .	tonne	57448.00	

Sl. No.	Description of Materials	Unit	Approved Rates Inclusive of Royalty for SoR 2026 (Rs)	Royality (Rs)
1	2	3	4	5
M-077	Bitumen (emulsion) Packed Ex- Patna (SS1)	tonne	54349.00	
M-078	Bitumen (modified graded) Packed Ex - Fatuha (CRMB - 55)	tonne	60330.00	
M-079	Brick 100A for - Patna Urban	each	6.62	0.045
M-080	C.I. shoes for the pile	kg	54.02	
M-081	Cement - OPC 43 Grade at Patna	tonne	5762.00	
M-082	CGI Sheet 0.8 mm thick	Kg	81.44	
M-083	Cold twisted bars (HYSD Bars) - Fe 500 D Av. of M-10A	tonne	46087.50	
M-084	Coller (RCC) for joints 300 mm dia	nos	60.77	
M-085	Compressible Fibre Board (20mm thick)	sqm	1510.29	
M-086	Connectors / Staples	each	9.71	
M-087	Copper Plate (12m long x 250mm wide)	kg	566.14	
M-088	Corrosion resistant Structural steel	tonne	78009.09	
M-089	Corrugated sheet, 3 mm thick, "Thrie" beam section railing	kg	55.63	
M-090	Credit for excavated rock found suitable for use (add Royality @ 30% of Rate)	cum	110.27	25.45
M-091	Curing compound	litre	38.88	
M-092	Delineators from ISI certified firm as per the standard drawing given in IRC - 79	each	579.66	
M-093	Earth Cost or compensation for earth taken from private land	cum	35.30	33.00
M-094	Elastomeric slab seal expansion joint assembly manufactured by using chloroprene, elastomer for elastomeric slab unit conforming to clause 915.1 of IRC: 83 (part II)	metre	25568.64	
M-095	Epoxy compound with accessories for preparing epoxy mortar	kg	353.00	
M-096	Epoxy mortar	kg	497.81	
M-097	Epoxy primer	kg	108.62	
M-098	Epoxy resin-hardner mix for prime coat	kg	624.53	
M-099	Flag of red color cloth 600 x 600 mm	each	65.89	
M-100	Flowering Plants	each	9.00	
M-101	Galvanised MS flat clamp	nos	15.58	
M-102	Galvanised steel wire crates of mesh size 100 mm x 100 mm woven with 4mm dia. GI wire in rolls of required size.	sqm	101.54	
M-103	Galvanised structural steel plate 200 mm wide, 6 mm thick, 24 m long	kg	51.76	
M-104	Geo grids	sqm	105.24	
M-105	Geomembrane	sqm	53.06	
M-106	Geonets	sqm	127.53	

Sl. No.	Description of Materials	Unit	Approved Rates Inclusive of Royalty for SoR 2026 (Rs)	Royality (Rs)
1	2	3	4	5
M-107	Geotextile	sqm	99.70	
M-108	Geotextile filter fabric	sqm	99.70	
M-109	GI bolt 10 mm Dia	nos	20.85	
M-110	Spherical Dome Nut	nos	INPUT	
M-111	Grass (Doob)	kg	5.68	
M-112	Grass (Fine)	kg	5.68	
M-113	HDPE pipes 75mm dia	metre	236.12	
M-114	HDPE pipes 90mm dia	metre	236.12	
M-115	Hedge plants (1'-3' Ht) Kamini Hedge	each	40.00	
M-116	Helical pipes 600mm diameter	metre	INPUT	
M-117	Hot applied thermoplastic compound (Sp. Gravity - 2.10)	litre	191.99	
M-118	HTS strand	tonne	77144.06	
M-119	Joint Sealant Compound	kg	31.25	
M-120	Jute netting, open weave, 2.5 cm square opening for seeding and Mulching	sqm	38.46	
M-121	LDO for steam curing	litre	58.50	
M-122	M.S. Clamps	nos	44.46	
M-123	M.S. Clamps	kg	80.48	
M-124	M.S.shoes @ 35 Kg per pile of 15 m	kg	30.77	
M-125	Mild Steel bars (Av-M6)	tonne	50050.00	
M-126	Modular strip/box seal expansion joint including anchorage catering to a horizontal movement beyond 70 mm and upto 140mm assembly comprising of edge beams, central beam, 2 modules chloroprene seal, anchorage elements, support and control system, all steel sections protected against corrosion and installed by the manufacturer or his authorised representative	metre	35224.05	
M-127	Modular strip/box seal expansion joint catering to a horizontal movement beyond 140mm and upto 210mm box/box seal joint assembly containing 3 modules/cells and comprising of edge beams, two central beams, chloroprene seal, anchorage elements, support and control system, all steel sections protected against corrosion and installed by the manufacturer or his authorised representative	metre	35224.05	
M-128	Nipples 12mm,300mm long	nos	52.22	
M-129	Nuts and bolts	kg	80.60	
M-130	Paint	litre	270.83	
M-131	Pavement Marking Paint	litre	270.83	
M-132	Paving Fabric	sqm	124.74	
M-133	Perforated geosynthetic pipe 150 mm dia	metre	33.66	

Sl. No.	Description of Materials	Unit	Approved Rates Inclusive of Royalty for SoR 2026 (Rs)	Royality (Rs)
1	2	3	4	5
M-134	Perforated pipe of cement concrete, internal dia 100 mm	metre	122.45	
M-135	Pesticide	kg	79.47	
M-136	Pipes 200 mm dia, 2.5 m long for drainage	metre	167.82	
M-137	Plastic sheath, 1.25 mm thick for dowel bars	sqm	17.68	
M-138	Plastic tubes 50 mm dia, 1.2 m high	nos	INPUT	
M-139	Polymer braids	metre	15.90	
M-140	Pre moulded Joint filler, 25 mm thick for expansion joint.	sqm	429.70	
M-141	Pre-coated stone chips of 13.2 mm nominal size	cum	858.84	150.00
M-142	Preformed continuous chloroprene elastomer or closed cell foam sealing element with high tear strength, vulcanised in a single operation for the full length of a joint to ensure water tightness.	metre	1811.08	
M-143	Pre-moulded asphalt filler board	sqm	905.45	
M-144	Pre-packed cement based polymer concrete of strength 45 Mpa at 28 days	kg	214.25	
M-145	Primer (Wall)	kg	85.21	
M-146	Quick setting compound	kg	122.93	
M-147	Random Rubble Stone	cum	730.02	150.00
M-148	RCC Pipe NP 4 heavy duty non presure pipe 1000 mm dia with spigot	metre	6044.84	
M-149	RCC Pipe NP 4 heavy duty non presure pipe 1200 mm dia with spigot	metre	7064.97	
M-150	RCC Pipe NP 4 heavy duty non presure pipe 900 mm dia with spigot	metre	4883.62	
M-151	RCC Pipe NP 4 heavy duty non presure pipe 600 mm dia with spigot	metre	2550.34	
M-152	RCC Pipe NP 4 heavy duty non presure pipe 300 mm dia	metre	577.62	
M-153	Reflectorising glass beads	kg	82.57	
M-154	Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. (Copper Strips)	metre	1511.57	
M-155	Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. (Galvanised carbon steel strips)	metre	139.99	
M-156	Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. (Glass reinforced polymer/fibre reinforced polymer/polymeric strips)	metre	72.50	
M-157	Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. (Stainless steel strips)	metre	728.15	
M-158	Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. (Aluminium strips)	metre	208.84	
M-159	Rivets	each	10.58	
M-160	Sand bags (Cost of sand and Empty cement bag)	nos	12.72	2.59
M-161	Sapling 2 m high 25 mm dia	each	29.30	
M-162	Scrap tyres of size 900 x 20	nos	97.64	

Sl. No.	Description of Materials	Unit	Approved Rates Inclusive of Royalty for SoR 2026 (Rs)	Royality (Rs)
1	2	3	4	5
M-163	Seeds	kg	43.94	
M-164	Selected earth (Including royalty @ `33.0 per cum & compensation @ 2.29 per cum)	cum	35.30	33.00
M-165	Separation Membrane of impermeable plastic sheeting 125 micron thick	sqm	14.74	
M-166	Sheathing duct	metre	107.41	
M-167	Shrubs	each/ (sqft)	3.18	
M-168	Sludge / Farm yard manure @ 0.18 cum per 100 sqm at site of work for turfing	cum	552.10	
M-169	Sodium vapour lamp (70 watt)	each	216.69	
M-170	Square Rubble Coursed Stone	cum	730.02	150.00
M-171	Steel circular hollow pole of standard specification for street lighting to mount light at 5 m height above deck level	each	5516.10	
M-172	Steel circular hollow pole of standard specification for street lighting to mount light at 9 m height above road level	each	9994.92	
M-173	Steel drum 300 mm dia 1.2 m high/empty bitumen drum	nos	155.57	
M-174	Steel helmet and cushion block on top of pile head during driving.	kg	47.01	
M-175	Steel pipe 25 mm external dia as per IS:1239	metre	143.50	
M-176	Steel pipe 50 mm external dia as per IS:1239	metre	256.80	
M-177	Steel pipe 100 mm external dia as per IS:1239	metre	598.94	
M-178	Steel wire rope 20 mm	kg	53.00	
M-179	Steel wire rope 40 mm	kg	53.00	
M-180	Strip seal expansion joint	metre	9916.08	
M-181	Structural Steel (Av. of M6, M8 & M9)	tonne	49936.67	
M-182	Super plastisizer admixture IS marked as per 9103-1999	kg	31.15	
M-183	Synthetic Geogrids as per clause 3102.8 and approved design and specifications.	sqm	221.55	
M-184	Through and bond stone	each	11.68	
M-185	Tie rods 20mm diameter (500mm length) @2.47 kg/m	nos	56.44	
M-186	Tiles size 300 x 300 mm and 25 mm thick	each	44.82	
M-187	Timber	cum	50657.11	
M-188	Traffic cones with 150 mm reflective sleeve	nos	429.37	
M-189	Tube anchorage set complete with bearing plate, permanent wedges etc	nos	58.58	
M-190	Unslaked lime	tonne	3222.77	
M-191	Water	KL	63.20	
M-192	Water based cement paint	litre	137.84	
M-193	Welded steel wire fabric	kg	52.71	

Sl. No.	Description of Materials	Unit	Approved Rates Inclusive of Royalty for SoR 2026 (Rs)	Royality (Rs)
1	2	3	4	5
M-194	Wire mesh 50mm x 50mm size of 3mm wire	kg	52.98	
M-195	Wooden ballies 2" Dia for bracing (Sal)	each	25.17	
M-196	Wooden ballies 8" Dia and 9 m long	each	608.82	
M-197	Wooden packing	cum	27930.68	
M-198	Wooden staff for fastening of flag 25 mm dia, 1.0 m long	each	31.48	
M-199	Silica fume	kg	25.34	
M-200	Synthetic Geogrids Ultimate tensile Strength 100kN/Metre.	Sqm	235.81	
M-201	Synthetic Geogrids Ultimate tensile Strength 150kN/Metre.	Sqm	247.61	
M-202	Synthetic Geogrids Ultimate tensile Strength 200kN/Metre.	Sqm	400.88	
M-203	Synthetic Geogrids Ultimate tensile Strength 250kN/Metre.	Sqm	412.67	
M-204	Synthetic Geogrids Ultimate tensile Strength 300kN/Metre.	Sqm	424.47	
M-205	Synthetic Geogrids Ultimate tensile Strength 350kN/Metre.	Sqm	436.26	
M-206	Synthetic Geogrids Ultimate tensile Strength 400kN/Metre.	Sqm	530.58	
M-207	Synthetic Geogrids Ultimate tensile Strength 500kN/Metre.	Sqm	589.54	
M-208	Synthetic Geogrids Ultimate tensile Strength 600kN/Metre.	Sqm	648.49	
M-209	Synthetic Geogrids Ultimate tensile Strength 700kN/Metre.	Sqm	766.40	
M-210	Synthetic Geogrids Ultimate tensile Strength 800kN/Metre.	Sqm	854.83	
M-211	Synthetic Geogrids Ultimate tensile Strength 900kN/Metre.	Sqm	1002.21	
M-212	Synthetic Geogrids Ultimate tensile Strength 1000kN/Metre.	Sqm	1120.12	
M-213	Synthetic Geogrids Ultimate tensile Strength 1100kN/Metre.	Sqm	1179.07	
M-214	Synthetic Geogrids Ultimate tensile Strength 1200kN/Metre.	Sqm	1238.02	
M-215	Explosive for blasting(Gelatine80%)	Kg	124.27	
M-216	Delay Detonators	Nos	3.47	
M-217	Electric Detonators @1 detonator for 1/2 gelatin stick of 125 gms each	Nos	6.93	
M-218	Detonation Fuse coil	Meter	16.12	
M-219	3.7 mlong extension rod boom Hydraulic Drill jumbo	Nos	INPUT	
M-220	32 mm coupling sleeve boom Hydraulic Drill jumbo	Nos	INPUT	
M-221	Difter rod boom Hydraulic Drill jumbo	Nos	INPUT	
M-222	R32 sank adapter boom Hydraulic Drill jumbo	Nos	INPUT	
M-223	45 mm Dia Button Bit boom Hydraulic Drill jumbo	Nos	INPUT	
M-224	51 mm Dia Button Bit Hydraulic Drill Jumbo	Nos	INPUT	
M-225	Steel Fiber	tonne	INPUT	

Sl. No.	Description of Materials	Unit	Approved Rates Inclusive of Royalty for SoR 2026 (Rs)	Royality (Rs)
1	2	3	4	5
M-226	Microsilica	Kg	25.34	
M-227	Accelerator	Kg	31.15	
M-228	Wire mesh	Kg	52.98	
M-229	Bamboos (i) 75mmDia 6m to 8m long (ii) 100mm Dia 6m to 8m long (iii) 50mm Dia Hill Bamboo	Meter	22.53 24.06 15.05	
M-230	Live Stake Stump	Meter	INPUT	
M-231	Hard wood sticks	Meter	INPUT	
M-232	Live Sods(0.6m Length)	Nos	INPUT	
M-233	Live Sods(2.0 m Length)	Nos	INPUT	
M-234	Coal Tar Epoxy	Kg	37.06	
M-235	Binding Material	Meter	INPUT	
M-236	Spring post 700mm (Hardness-75mm)	each	336.73	
M-237	Spring post 450 mm (Hardness-75mm)	each	271.02	
M-238	Water Filled Barricades Work zone sheeting (Trapezoidal Shape 800 mm to 1000 mm in length, 700 mm in height	each	718.61	
M-239	GI Pipe 100 mm Dia	Meter	560.43	
M-240	Bracket for G.I Pipe fixing	Kg	94.74	
M-241	Flange for G.I Pipe fixing	Kg	190.34	
M-242	Neem Cake	Quintal	6138.61	
M-243	Supplying sludge	Cum	552.10	
M-244	Contol Center Server	Nos	INPUT	
M-245	Hot Standby Backup Server	Nos	INPUT	
M-246	NAS Video Server with storage Minimum 70 TB	Nos	INPUT	
M-247	Backup Video (Only Incidents) Server.	Nos	INPUT	
M-248	Graphic Display(70" LED DLP IN 3X2 matrix)	Set	INPUT	
M-249	Graphic Display Controller and software including Video Switches	Set	INPUT	
M-250	CCTV Monitoring Workstation	Nos	INPUT	
M-251	Emergengy Telephone (1033)Console.	Nos	INPUT	
M-252	VIDS-Workstation.	Nos	INPUT	
M-253	Administrative Workstation	Nos	INPUT	
M-254	ATMS Operator Workstation	Nos	INPUT	
M-255	CCTV joystick	Nos	INPUT	

Sl. No.	Description of Materials	Unit	Approved Rates Inclusive of Royalty for SoR 2026 (Rs)	Royality (Rs)
1	2	3	4	5
M-256	Operations Laser Printer(Colour)	Nos	INPUT	
M-257	Operations Laser Printer(Black)	Nos	INPUT	
M-258	Rack 19"	Nos	INPUT	
M-259	ATMS Control Room Software(integrated with VIDS,ATCC,VMS,MOS)	Ls	INPUT	
M-260	Video Management Software with atleast 150 VMS Lic	Ls	INPUT	
M-261	Facility Monitoring System Controller Software	Ls	INPUT	
M-262	Server & Database license	Ls	INPUT	
M-263	Antivirus license	Ls	INPUT	
M-264	PTZ Camera (including CCTV Controller)	Set	INPUT	
M-265	Solar System with UPS, battery & 12mm Pole & Cabinet	Set	INPUT	
M-266	VIDS Camera (including image Prossesing unit)	Set	INPUT	
M-267	Warning amber lights with hooters, 72 Hrs solar backup,5m poles and foundation	Set	INPUT	
M-268	Cabinet	Nos	INPUT	
M-269	12 m Pole (including manufacturing and galvanizing)	Nos	INPUT	
M-270	Solar System with UPS & batteries	Set	INPUT	
M-271	Equipment,Sensor unit, Processing unit, Solar power supply and civil works for 4 Lanes	Set	INPUT	
M-272	Solar System with UPS , batteries.	Set	INPUT	
M-273	VMS (Variable Message Sine-Mtype)	Nos	INPUT	
M-274	Gantry(including Manufacturing and galvanizing)	Nos	INPUT	
M-275	Solar System with UPS, battery and Cabinet for M type VMS	Set	INPUT	
M-276	Uninterruptible Power supply (UPS)for Server Rack(10KVA)	Set	INPUT	
M-277	Uninterruptible Power supply (UPS) for TMC (30KVA)	Set	INPUT	
M-278	Power Distribution Board (Essential & CriticalSupply)	Set	INPUT	
M-279	MOS sensor Equipment (including MOS Controller)	Set	INPUT	
M-280	Cabinet	Nos	INPUT	
M-281	Pole	Nos	INPUT	
M-282	Steel fence for protection	Set	INPUT	
M-283	24 CoreArmoured OFC + all accessories	Meter	INPUT	
M-284	40 mm PLB HDPE duct as per latest TSEC specification +all accessories	Meter	INPUT	
M-285	Trenching of 1.8 meters,Laying & Back filling for PLB HDPE duct	Meter	INPUT	
M-286	Bi- Axial Extruded Geogrids of Minimum Tensile Strengh 15kN/m	sqm	105.25	

Sl. No.	Description of Materials	Unit	Approved Rates Inclusive of Royalty for SoR 2026 (Rs)	Royality (Rs)
1	2	3	4	5
M-287	Bi- Axial Extruded Geogrids of Minimum Tensile Strengh 20kN/m	sqm	120.75	
M-288	Bi- Axial Extruded Geogrids of Minimum Tensile Strengh 30kN/m	sqm	197.18	
M-289	Bi- Axial Extruded Geogrids of Minimum Tensile Strengh 40kN/m	sqm	288.02	
M-290	Geosynthetic Drainage composite (tensile strength of 18 KN/m)	sqm	558.30	
M-291	Geosynthetic Drainage composite (tensile strength of 13.5 KN/m)	sqm	664.65	
M-292	Waste Plastic (as per IRC:SP:98-2013)	tonne	15275.45	
M-293	RCC Pipe NP 4 heavy duty non presure pipe 1500 mm dia	meter	7064.97	
M-294	Acrylic noise barrier sheet	Sqm	501.32	
M-295	Silt Fence Sheet	Sqm	INPUT	
M-296	Fully Threaded Hot Dip galvanised geotechnical bars with casing'	Lm	INPUT	
M-297	Centralizer	No	INPUT	
M-298	Bearing Plate 200mm x 200mm x 10mm	No	INPUT	
M-299	Solar Power Road Marking(Solar Stud) made up of Polycarbonate or ABS Body.	Nos.	1264.15	
M-300	Fibre Reinforcement	tonne	INPUT	
M-301	Geotextile	Sqm	99.70	
M-302	Polyvinyl Chloride Pipe (PVC)-90 mm	meter	69.73	
M-303	Polyvinyl Chloride Pipe (PVC)-110 mm	meter	129.51	
M-304	Polyvinyl Chloride Pipe (PVC)-135 mm	meter	129.51	
M-305	Steel/Iron Scraps	Kg.	INPUT	
M-306	Aluminium sheeting fixed with encapsulated lens type reflective sheeting including 2% towards lettering (Class-C Type XI- 2mm thick)	sqm	9584.68	
M-307	Geocell	sqm	105.24	
M-308	Geosynthetics mat	sqm	53.07	
M-309	Natural geotextile	sqm	99.70	
M-310	Fabric Form mattress	sqm	99.70	
M-311	Non-Woven Geotextile	sqm	99.70	
M-312	Sr. Road Safety/Auditor/ Team Leader for Road Safety Audit	Month	INPUT	
M-313	Traffic Planner for Road Safety Audit	Month	INPUT	
M-314	Boarding & Loading and Per Diem for Site Visits (During Road Safety Audit)	Days	INPUT	
M-315	Transportation at site and Head Office (During Road Safety Audit)	No. of Trip	INPUT	
M-316	Duty travel to Site (During Road Safety Audit)	Days	INPUT	
M-317	Collection of Road accident data and analysis of fatal and grievously injured accident with black spot identification (During Road Safety Audit)	No. of Copies	INPUT	
M-318	Submission of GAP report (For Road Safety Audit)	No. of Copies	INPUT	

Sl. No.	Description of Materials	Unit	Approved Rates Inclusive of Royalty for SoR 2026 (Rs)	Royality (Rs)
1	2	3	4	5
M-319	Road Safety Audit Reports on all activities which were planned, actually executed and planned for the next quarter.	No. of Copies	INPUT	
M-320	Submission of Audit Report of work zone safety (for Road Safety Audit)	No. of Copies	INPUT	
M-321	Workshop Report for Road Safety Audit	No. of Copies	INPUT	
M-322	Final Safety Report (for road safety Audit)	No. of Copies	INPUT	
M-323	Cement Fly Ash Brick (Conforming to IS 12894, size= 230 X 110 X 70 mm, weight of one brick= 3Kg, composition: Fly ash= 60%, Coarse sand= 30%, Cement= 10%) including carriage of sand	each	5.44	
M-324	Paver Block (Excluding GST)			
	(i) M -35 Grade and 60 mm thickness			
	(a) White	sqm	620.52	
	(b) Red	sqm	631.58	
	(c) Yellow	sqm	651.41	
	(ii) M-40 Grade and 80mm thickness			
	(a) White	sqm	712.10	
	(b) Red	sqm	730.73	
	(c) Yellow	sqm	754.29	
M-325	Kerb-Stone Block- M30 Grade (Size 375mm x 300mm x 150mm)	each	69.50	
M-326	Autoclaved Aerated Concrete (AAC) Block	cum	3009.41	
M-327	Bitumen grade VG 40 (30/40) packed Ex Fatuha.	MT	60920.00	
M-328	Flexible Median Marker as per IRC-79-2019	each	215.73	
MR01	Construction of restaurant, workshop, first aid room, shop etc. in truck parking area complete as per drg. and direction of the Engineer.	Sqm	INPUT	
MR02	Providing Telephone booth complete as per specifications and direction of Engineer.	Nos.	INPUT	
MR03	Providing & fixing tube well, complete as per drawing and additional specifictions.	Nr.	INPUT	
MR04	Providing a Drinking Water Kiosk complete as per drawing & specification.	Nr.	INPUT	
MR05	Providing and fixing of litter bins in Truck lay Bye locations complete as per drawing or as directed by the engineer.	Nr.	INPUT	
MR06	Construction of toilet block provided with fittings and fixtures complete in truck parking area complete as per drg. and direction of the Engineer.	Nr.	INPUT	
MR07	Construction of Open lined U - Drain in truck laybye area complete as shown in drawing and technical specification clause 309.	Meter	INPUT	
MR08	Providing shelters for bus passengers as per drawing and MORT&H Specifications section 300, 1500, 1600 and 1700.	Nr.	INPUT	
MR09	Providing & fixing guard railing with tubular steel sections at foot path / medians / islands etc including foundation concrete and painting with approved paint etc. all complete as per drawing & MORT&H Specifications Clauses 808, 300, 1500, 1700 & 1900.	Meter	INPUT	
MR10	Toll Booth at Tollplaza	Nr.	INPUT	

Sl. No.	Description of Materials	Unit	Approved Rates Inclusive of Royalty for SoR 2026 (Rs)	Royality (Rs)
1	2	3	4	5
MR11	Barrier gates at Tollplaza For 3.2 m wide toll lane	Nr.	INPUT	
MR12	Barrier gates at Tollplaza For 4.5 m wide toll lane	Nr.	INPUT	
MR13	Canopy	Sqm	INPUT	
MR14	Canopy Lights Halide lamps 150 watt	Nr.	INPUT	
MR15	Canopy Lights Halogen lamps 1000 watt	Nr.	INPUT	
MR16	Loading Unloading Platform	Sqm	INPUT	
MR17	Traffic Aid Post at Toll Plaza	Nr.	INPUT	
MR18	Medical Aid Post at Toll Plaza	Nr.	INPUT	
MR19	Vehicle Rescue Post at Toll Plaza	Nr.	INPUT	
MR20	Ambulances at Toll Plaza	Nr.	INPUT	
MR21	Cranesat Toll Plaza	Nr.	INPUT	
MR22	Electronic Toll Connection (ETC lanes) at Toll Plaza	Nr.	INPUT	
MR23	Intercom facility at Toll Plaza	Nr.	INPUT	
MR24	Weigh Bridge	Nr.	INPUT	
MR25	Car Parking area	Sqm	INPUT	
MR26	Generator room	Sqm	INPUT	
MR27	Base Maintainance Camp	Sqm	INPUT	
MR28	Toll plaza equipment	Lane	INPUT	
MR29	Electrification And Air conditioning for toll Booth and toll Plaza	LS	INPUT	
MR30	Bull nose crash barrier	Nr.	INPUT	
MR31	Standby Generator at Toll Plaza	Nr.	INPUT	
MR32	CCTV camera installed at each booth	Nr.	INPUT	
MR33	T1 for Toll Road Start	Nr.	INPUT	
MR34	T2 for Toll Gate 1 Km	Nr.	INPUT	
MR35	T3 for Toll Gate 500 m and toll rates	Nr.	INPUT	
MR36	T4 for exempt vehicles at Toll Plaza	Nr.	INPUT	
MR37	T5 for pictorial description of toll rates	Nr.	INPUT	
MR38	T6 for over size vehicle lane direction sign at Toll Plaza	Nr.	INPUT	
MR39	T7 near the Toll booths displaying Toll Rates, exempt vehicles and complaint telephone number & address	Nr.	INPUT	
MR40	T8 for Toll Road End	Nr.	INPUT	
MR41	Picnic Area at Rest Area	Sqm	INPUT	
MR42	Petrol Pump & Pepairing Shop at Rest Area	Sqm	INPUT	
MR43	Buffer Zone at Rest Area	Sqm	INPUT	
MR44	Traffic blinker Signal (L.E.D.)	Nr	INPUT	

Sl. No.	Description of Materials	Unit	Approved Rates Inclusive of Royalty for SoR 2026 (Rs)	Royalty (Rs)
1	2	3	4	5
MR45	PVC Roof Sheet at FOB	Sqm	INPUT	
MR46	Cost of Water Quality Monitoring	Nos.	INPUT	
MR47	Cost of Soil Quality Monitoring	Nos.	INPUT	
MR48	Cost of Ambient Air Quality	Nos.	INPUT	
MR49	Cost of Ambient Noise Monitoring 24 hour continuous	Nos.	INPUT	
MR50	Consent to Establish (CTE)	Nos.	INPUT	
MR51	Consent to Operate (CTO)	Nos.	INPUT	
MR52	Compliance submission for Consent to Establish (CTE)	Nos.	INPUT	
MR53	Compliance submission for Consent to Operate (CTO)	Nos.	INPUT	
MR54	Cost of Environmental Workshop	Nos.	INPUT	

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह– अभियंता
प्रमुख, भवन निर्माण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–मुख्य अभियंता
(असैनिक) बिहार स्टेट पावर होल्डिंग
कंपनी लि0, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (विद्युत) भवन
निर्माण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख (मु०)
लोक स्वास्थ्य अभियंत्रण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, मुख्यालय जल
संसाधन विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

Schedule- P & M / MORTH - 1A — Date :- 19.02.2026

Approved Usages rate of Plants & Machinery for preparation of Schedule of rate including all charges ,cost of repair,maintaintance,tyre- replacement,running and operating charges such as fuel lubricant, labour etc but excluding GST,Overhead and Contractor's profit.

Sl.No.	Code	Description	Unit	Approved Rate	Remarks
1	PM1001	Dozer - 240 HP	Hour	5,634.00	
2	PM1002	Dozer - 175 HP	Hour	4,360.00	
3	PM1003	Dozer - 90 HP	Hour	3,047.00	
4	PM2001	Motor Grader 4.3 metre blade	Hour	5,560.00	
5	PM2002	Motor Grader 3.7 metre blade	Hour	5,095.00	
6	PM2003	Motor Grader 3.35 metre blade	Hour	4,512.00	
7	PM3003	Hydraulic Excavator of 1.2 cum bucket	Hour	2,809.00	
8	PM3004	Hydraulic Excavator of 1.1 cum bucket	Hour	2,538.00	
9	PM3005	Hydraulic Excavator of 0.9 cum bucket	Hour	2,312.00	
10	PM4001	Jack Hammer (attachment of Hydraulic Excavator)	Hour	206.00	
11	PM5001	Front End loader 3.1 cum bucket capacity	Hour	3,523.00	
12	PM5002	Front End loader 2.1 cum bucket capacity	Hour	2,121.00	
13	PM5003	Backhoe-loader 1 cum bucket capacity	Hour	1,454.00	
14	PM6001	Tipper-18 Cum	Hour	2,349.00	
15	PM6002	Tipper-14 Cum	Hour	2,108.00	
16	PM6003	Tipper-10 Cum	Hour	1,891.00	
17	PM6004	Tipper-5.5 Cum	Hour	1,476.00	
18	PM7001	Vibratory Soil Compactor (10 tonne)	Hour	2,120.00	
19	PM8001	Smooth Wheeled Roller 8 tonne	Hour	1,650.00	
20	PM9001	Tandem Roller	Hour	2,110.00	Vibratory road Roller
21	PM9002	Mini Tandem Roller	hour	1,179.00	do-
22	PM10001	Pneumatic Road Roller	Hour	2,102.00	do-
23	PM11001	Water Tanker (16 KL)	Hour	1,204.00	
24	PM11002	Water Tanker (12 KL)	Hour	1,030.00	
25	PM11003	Water Tanker (6 KL)	Hour	789.00	
26	PM12001	Tractor-Trolly	Hour	717.00	
27	PM13001	Rotavator	Hour	17.00	
28	PM14001	Ripper	Hour	21.00	
29	PM15001	Air Compressor -250 cfm	Hour	496.00	
30	PM15002	Air Compressor -500 cfm	Hour	1,938.00	
31	PM16001	Integrated Stone Crusher Stone (3 Stage) 250 TPH	Hour	13,961.00	
32	PM17001	Wet Mix Plant - 250 TPH Capacity	Hour	708.00	
33	PM17002	Wet Mix Plant - 200 TPH Capacity	Hour	413.00	
34	PM17003	Wet Mix Plant - 100 TPH Capacity	Hour	388.00	
35	PM18001	Hotmix Plant - 200 TPH Capacity	Hour	84,145.00	
36	PM18002	Hotmix Plant - 160 TPH Capacity	Hour	66,183.00	
37	PM18003	Hotmix Plant - 120 TPH capacity	Hour	50,039.00	
38	PM19001	Batching and Mixing Plant - 240 cum Capacity	Hour	5,782.00	
39	PM19002	Batching and Mixing Plant - 120 cum Capacity	Hour	3,706.00	
40	PM20001	Mobile Concrete Batching / Mixing Plant	Hour	681.00	
41	PM21001	Concrete Mixer - 0.4/0.28 cum	Hour	392.00	
42	PM21002	Concrete Mixer - 1 cum	Hour	421.00	
43	PM22001	Generator 725 KVA	Hour	7,798.00	
44	PM22002	Generator 500 KVA	Hour	5,394.00	
45	PM22003	Generator 400 KVA	Hour	4,356.00	
46	PM22004	Generator 250 KVA	Hour	3,064.00	
47	PM22005	Generator 125 KVA	Hour	1,615.00	
48	PM22006	Generator 100 KVA	Hour	1,386.00	
49	PM22007	Generator 62.5 KVA	Hour	895.00	

50	PM22008	Generator 33 KVA	Hour	521.00	
51	PM22009	Generator 15 KVA	Hour	300.00	
52	PM23001	Mechanical Broom Hydraulic	Hour	834.00	
53	PM24001	Bitumen Pressure Distributor	Hour	1,382.00	
54	PM25001	Emulsion Pressure Distributor	Hour	1,382.00	
55	PM26001	Bitumen Boiler Oil Fired	Hour	592.00	
56	PM27001	Mastic Cooker	Hour	555.00	
57	PM28001	Paver Finisher Mechanical	Hour	2,188.00	
58	PM29001	Paver Finisher Hydrostatic with sensor control -240 HP	Hour	8,144.00	
59	PM29002	Paver Finisher Hydrostatic with sensor control -170 HP	Hour	6,436.00	
60	PM30001	Paver Finisher Concrete with 300 HP Motor	Hour	26,020.00	
61	PM30002	Paver Finisher Concrete with 241 HP Motor	Hour	16,683.00	
62	PM30003	Paver Finisher Concrete with 118 HP Motor	Hour	3,854.00	
63	PM31001	Texture Curing Machine (TCM) - upto 18 m	Hour	4,437.00	
64	PM31002	Texture Curing Machine (TCM) - upto 9 m	Hour	3,464.00	
65	PM32001	Hydraulic Chip Spreader	Hour	1,712.00	
66	PM33001	Pot-Hole Repair Machine	Hour	1,345.00	
67	PM34001	Transit Mixer - 6 Cum	Hour	1,992.00	
68	PM35001	Concrete Pump	Hour	1,105.00	
69	PM36001	Boom Placer	Hour	3,827.00	
70	PM37001	Kerb Casting Machine	Hour	1,650.00	
71	PM38001	Piling Rig with Bentonite Pump	Hour	17,246.00	
72	PM39001	Pneumatic Sinking Plant	Hour	5,468.00	
73	PM40001	Road marking machine	Hour	1,432.00	
74	PM41001	Mobile Slurry Seal Equipment	Hour	3,523.00	
75	PM42001	Joint Cutting Machine	Hour	397.00	
76	PM43001	Bar Bending & Cutting Machine	Hour	414.00	
77	PM44001	Needle Vibrator	Hour	456.00	
78	PM45001	Jack Hammer for air compressor	Hour	11.00	
79	PM46001	Plate Compactor	Hour	466.00	
80	PM47001	Milling Machine with 1 meter Drum Width	Hour	4,098.00	
81	PM47002	Milling Machine with 1.2 meter Drum Width	Hour	4,779.00	
82	PM47003	Milling Machine With 1.3 meter Drum Width	Hour	6,876.00	
83	PM47004	Milling Machine With 2 meter Drum Width	Hour	10,007.00	
84	PM48001	Cold in Situ recycling of bitumen's pavement with foam bitumen technology	Hour	27,482.00	
85	PM49001	In situ stabilisation of WMM/GSB/Sub grade	Hour	24,167.00	
86	PM50001	Cement spreader	Hour	7,022.00	
87	PM51001	Mobile cold recycling mixing plant	Hour	20,530.00	
88	PM52001	Hot in place recycling	Hour	1,02,643.00	
89	PM53001	Pre heater unit for hot in place recycling	Hour	741.00	
90	PM54001	Single boom Hydraulic Drill Jumbo	Hour	4,515.00	
91	PM55001	Two boom Hydraulic Drill Jumbo	Hour	6,779.00	
92	PM56001	Three boom Hydraulic Drill Jumbo	Hour	9,865.00	
93	PM57001	Hydraulic Rock bolt drill	Hour	6,701.00	
94	PM58001	Rotating Telehandlers	Hour	975.00	
95	PM59001	Shotcrete Machine	Hour	1,597.00	
96	PM60001	Grouting machine	Hour	668.00	
97	PM61001	Dewatering Pump 10 HP	Hour	235.00	
98	PM61002	Concrete cutting machine	Hour	235.00	
99	PM62001	Crawler mounted Crane 35 tonne capacity	Hour	5,608.00	
100	PM62002	Crawler mounted Crane 80 tonne capacity	Hour	5,722.00	
101	PM62003	Crawler mounted Crane 100 tonne capacity	Hour	8,812.00	
102	PM63001	Mobile Hydraulic Crane 3 tonne capacity	Hour	860.00	
103	PM63002	Mobile Hydraulic Crane 5 tonne capacity	Hour	896.00	
104	PM63003	Mobile Hydraulic Crane 10 tonne capacity	Hour	995.00	
105	PM63004	Mobile Hydraulic Crane 15 tonne capacity	Hour	1,031.00	

106	PM63005	Mobile Hydraulic Crane 20 tonne capacity	Hour	1,231.00	
107	PM63006	Mobile Hydraulic Crane 35 toone capacity	Hour	1,853.00	
108	PM64001	Concrete Bucket	Hour	117.00	
109	PM65001	Prestressing Jack with Pump & Access	Hour	493.00	
110	PM66001	Boat to carry atleast 20 persons	hour	819.00	
111	PM67001	Crane with grab 0.75 cum capacity	hour	869.00	
112	PM68001	Epoxy Injection gun	hour	312.00	
113	PM69001	Induction, deinduction and erection of plant and equipment including all components and accessories for pneumatic method of well sinking.	hour	9,111.00	
114	PM70001	Jack for Lifting 40 tonne lifting capacity.	hour	320.00	
115	PM71001	Vibrating Pile driving hammer complete with power unit and accessories.	hour	16,125.00	
116	PM72001	Tipper 18 Cum (Surface Road)	Per Tonne Km.	4.98	
117	PM72002	Tipper-18 Cum (Unsurfaced Gravelled Road) excluding OH & CP	t.km	6.04	
118	PM72003	Tipper-18 Cum (Katcha Track) excluding OH & CP	t.km	12.10	
119	PM73001	Tipper -14 Cum (Surface Road) excluding OH & CP	t.km	5.71	
120	PM73002	Tipper -14 Cum (Unsurfaced Gravelled Road) excluding OH & CP	t.km	6.93	
121	PM73003	Tipper -14 Cum (Katcha Track) excluding OH & CP	t.km	13.88	
122	PM74001	Tipper -10 Cum (Surface Road) excluding OH & CP	t.km	7.10	
123	PM74002	Tipper -10 Cum (Unsurfaced Gravelled Road) excluding OH & CP	t.km	8.63	
124	PM74003	Tipper -10 Cum (Katcha Track) excluding OH & CP	t.km	17.26	
125	PM75001	Tipper- 5.5 Cum (Surface Road) excluding OH & CP	t.km	9.93	
126	PM75002	Tipper- 5.5 Cum (Unsurfaced Gravelled Road) excluding OH & CP	t.km	12.06	
127	PM75003	Tipper- 5.5 Cum (Katcha Track) excluding OH & CP	t.km	24.14	
128	PM76001	Transit Mixer - 6 Cum excluding OH & CP	t.km	10.87	
129	PM77001	Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum (Using by 18 cum capacity Tipper & 3.1 Cum capacity Loader) excluding OH & CP	cum	75.43	
130	PM77002	Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum (Using by 14 cum capacity Tipper & 2.1 Cum capacity Loader) excluding OH & CP	cum	74.68	
131	PM77003	Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum (Using by 10 cum capacity Tipper & 1.0 Cum capacity Loader) excluding OH & CP	cum	104.81	
132	PM77004	Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum (Using by 5 cum capacity Tipper & 1.0 Cum capacity Loader) excluding OH & CP	cum	118.87	
133	PM77005	Loading and Unloading of Cement or Steel by Manual Means and Stacking	tonne	461.95	
134	PM78001	Centrifugal water pump	Hour	281.00	
135	PM79001	Shredding Machine	Hour	496.00	
136	PM80001	Mobile Bridge Inspection Unit (MBIU)	hour	6,621.00	
137	PM81001	Network Survey Vehicle (NSV) With SUV	hour	6,150.00	
138	PM82001	Falling weight deflectometer (FWD) Equipment With SUV	hour	2,964.00	
139	PM83001	Retroreflectometer testing equipment with Vehicle With SUV	hour	1,575.00	

140	PM84001	Sport utility vehicle (SUV)	hour	1,032.00	
141	PM85001	Automatic Vehicle Counter Classifier (ATCC) System	hour	74.00	

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह– अभियंता
प्रमुख, भवन निर्माण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–मुख्य अभियंता
(असैनिक) बिहार स्टेट पावर होल्डिंग
कंपनी लि0, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (विद्युत) भवन
निर्माण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख (मु०)
लोक स्वास्थ्य अभियंत्रण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, मुख्यालय जल
संसाधन विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

Approved Input of Labour wages, Overhead &Lead for the preparation of Schedule of Rate 2026-27 in prescribed format of updated MORT&H Standard Data Book 2019(2nd Revision) Date :-31.10.2025			
S.No.	**Description of Labour**	**Unit**	**Approved Rate**
1	2	3	4
L-01	Blacksmith (IInd class)	day	541.00
L-02	Blacksmith (Ist class)/ Welder/ Plumber/ Electrician	day	660.00
L-03	Blaster (Stone cutter)	day	699.00
L-04	Carpenter I Class	day	660.00
L-05	Chiseller (Head Mazdoor)	day	660.00
L-06	Driller (Jumper)	day	444.00
L-07	Diver	day	660.00
L-08	Fitter	day	541.00
L-09	Mali	day	444.00
L-10	Mason (IInd class)	day	541.00
L-11	Mason (Ist class)	day	660.00
L-12	Mate / Supervisor	day	444.00
L-13	Mazdoor	day	428.00
L-14	Mazdoor/Dresser (Semi Skilled)	day	444.00
L-15	Mazdoor/Dresser/Sinker (Skilled)	day	541.00
L-16	Medical Officer	day	660.00
L-17	Operator(grouting)	day	660.00
L-18	Painter I class	day	541.00
L-19	Para medical personnel	day	660.00
L-20	Heavy Plant Operator	day	660.00
L-21	Light Plant Operator.	day	541.00
L-22	Heavy Vehicle Driver.	day	660.00
L-23	Light Vehicle Driver.	day	541.00
L-24	Helper	day	444.00
L-25	Black smith	day	541.00
	Overhead		
	Overheads for Road Works(Large)	0.08	(@ 8%)
	Overheads for Road Works(Medium)	0.10	(@ 10%)
	Overheads for Road Works (Small)	0.12	(@ 12%)
	Contractor's profit for Road Works	0.10	(@ 10%)
	Overheads for New / Widening of Bridge/Structure Works	0.20	(@ 20%)
	Overheads for Rehabilitation of Bridge /Structure	0.30	(@ 30%)
	Contractor's profit for Bridge Works	0.10	(@ 10%)
	Over heads for Road Tunnel Works	0.25	(@ 25%)
	Contractor's profit for Tunnel Works	0.10	(@ 10%)
	Lead		
L1	Lead from Mixing Plant to working site	1.0	km
L2	Lead for E/W borrow area to site	1.0	km

APPROVED CARRIAGE RATE OF MATERIALS (BY TIPPER) Date :- 19.02.2026

Sl.No	Ref.to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
1.01	A	Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum.									
		Placing tipper at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip									
		Unit = cum									
		A.Taking output = 5.5 Cum									
		Time required for									
		i) Positioning of tipper at loading point	Min	1.000	1.000	1.000					
		ii) Loading by front end loader 1 cum bucket capacity	Min	6.633	6.633	6.633					
		iii) Maneuvering, reversing, dumping and turning for return	Min	2.000	2.000	2.000					
		iv) Waiting time, unforeseen contingencies etc	Min	4.000	4.000	4.000					
		Total	Min	13.633	13.633	13.633					
		a) Machinery									
		Tipper-5.5 Cum capacity	Hour	0.227	0.227	0.227	1,476.00	335.052	335.052	335.052	PM6004
		Front end -loader 1 cum bucket capacity	Hour	0.227	0.227	0.227	1,454.00	330.058	330.058	330.058	PM5003
		Total Cost Excluding OH & CP						665.110	665.110	665.110	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		53.209	66.511	79.813	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		71.832	73.162	74.492	
		Total Cost for 5.5 cum = (a+b+c) Including OH & CP						790.151	804.783	819.416	
		Unit Cost= (a+b+c)/5.5 Including OH & CP						143.664	146.324	148.985	
	Note :	**Unloading will be by tipping.**					**Say**	**143.700**	**146.300**	**149.000**	
1.01	B	**Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum.**									
		Placing tipper at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip									
		Unit = cum									
		Taking Output = 10.00 cum									

APPROVED CARRIAGE RATE OF MATERIALS (BY TIPPER) Date :- 19.02.2026

Sl.No	Ref.to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Time required for									
		i) Positioning of tipper at loading point	Min	1.000	1.000	1.000					
		ii) Loading by front end loader 1 cum bucket capacity	Min	12.060	12.060	12.060					
		iii) Maneuvering, reversing, dumping and turning for return	Min	2.000	2.000	2.000					
		iv) Waiting time, unforeseen contingencies etc	Min	4.000	4.000	4.000					
		Total	Min	19.060	19.060	19.060					
		a) Machinery									
		Tipper-10 Cum capacity	Hour	0.318	0.318	0.318	1,891.00	601.338	601.338	601.338	PM6003
		Front end-loder 1 cum bucket capacity	Hour	0.318	0.318	0.318	1,454.00	462.372	462.372	462.372	PM5003
		Total Cost Excluding OH & CP						1,063.71	1,063.71	1,063.71	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		85.097	106.371	127.645	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		114.881	117.008	119.136	
		Total Cost for 10 cum = (a+b+c)Including OH & CP						1263.687	1287.089	1310.491	
		Unit Cost= (a+b+c)/10 Including OH & CP						126.369	128.709	131.049	
	Note :	**Unloading will be by tipping.**					**Say**	**126.400**	**128.700**	**131.000**	
1.01	C.	**Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum.**									
		Placing tipper at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip									
		Unit = cum									
		Taking Output = 14.00 cum									
		Time required for									
		i) Positioning of tipper at loading point	Min	1.000	1.000	1.000					
		ii) Loading by front end loader 2.1 cum bucket capacity	Min	8.029	8.029	8.029					
		iii) Maneuvering, reversing, dumping and turning for	Min	2.000	2.000	2.000					
		iv) Waiting time, unforeseen contingencies etc	Min	4.000	4.000	4.000					
		Total	Min	15.029	15.029	15.029					
		a) Machinery									
		Tipper-14 Cum capacity	Hour	0.250	0.250	0.250	2108.000	527.000	527.000	527.000	PM6002
		Front End loader 2.1 cum bucket capacity	Hour	0.250	0.250	0.250	2121.000	530.250	530.250	530.250	PM5002
		Total Cost Excluding OH & CP						1,057.250	1,057.250	1,057.250	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		84.580	105.725	126.870	

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Sl.No	Ref.to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		114.183	116.298	118.412	
		Total Cost for 14 cum = (a+b+c)Including OH & CP						1,256.013	1,279.273	1,302.532	
		Unit Cost= (a+b+c)/14 Including OH & CP						89.715	91.377	93.038	
	Note :	**Unloading will be by tipping.**					**Say**	**89.700**	**91.400**	**93.000**	
1.01	D	**Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum.**									
		Placing tipper at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip									
		Unit = cum									
		Taking Output = 18.00 cum									
		Time required for									
		i) Positioning of tipper at loading point	Min	1.000	1.000	1.000					
		ii) Loading by front end loader 3.1 cum bucket capacity	Min	6.996	6.996	6.996					
		iii) Maneuvering, reversing, dumping and turning for return	Min	2.000	2.000	2.000					
		iv) Waiting time, unforeseen contingencies etc	Min	4.000	4.000	4.000					
		Total	Min	13.996	13.996	13.996					
		a) Machinery									
		Tipper-18 Cum capacity.	Hour	0.233	0.233	0.233	2,349.00	547.317	547.317	547.317	PM6001
		Front End loader 3.1 cum bucket capacity	Hour	0.233	0.233	0.233	3,523.00	820.859	820.859	820.859	PM5001
		Total Cost Excluding OH & CP						1,368.176	1,368.176	1,368.176	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		109.454	136.818	164.181	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		147.763	150.499	153.236	
		Total Cost for 18 cum = (a+b+c)Including OH & CP						1,625.393	1,655.493	1,685.593	
		Unit Cost= (a+b+c)/18 Including OH & CP						90.300	91.972	93.644	
	Note :	**Unloading will be by tipping.**					**Say**	**90.300**	**92.000**	**93.600**	
1.02	Ref. to Morth.	**Loading and Unloading of Boulders by Manual Means**									
		Unit = cum									
		Taking output = 10 Cum									
		a) Labour									
		Mate	day	0.055	0.055	0.055	444.000	24.420	24.420	24.420	L-12
		Mazdoor	day	1.364	1.364	1.364	428.000	583.792	583.792	583.792	L-13
		b) Machinery									

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Sl.No	Ref.to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Tipper-10 Cum capacity	Hour	1.364	1.364	1.364	1,891.00	2579.324	2579.324	2579.324	PM6003
		Total Cost Excluding OH & CP						3,187.54	3,187.54	3,187.54	
		c) Overheads on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		255.003	318.754	382.504	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		344.254	350.629	357.004	
		Total Cost for10 cum=(a+b+c+d)Including OH & CP						3786.793	3856.919	3927.044	
		Unit Cost=(a+b+c+d)/10 Including OH & CP						378.679	385.692	392.704	
	Note :	**Unloading will be by tipping.**					**Say**	**378.70**	**385.70**	**392.70**	
1.03	Ref.to M.	**Loading and Unloading of Cement or Steel by Manual Means and Stacking.**									
		Unit = tonne									
		Taking Output = 18.00 tonne									
		a) Labour									
		Mate	day	0.144	0.144	0.144	444.000	63.936	63.936	63.936	L-12
		Mazdoor	day	3.600	3.600	3.600	428.000	1540.800	1540.800	1540.800	L-13
		b) Machinery									
		Truck-18 tonne capacity.	Hour	3.600	3.600	3.600	1,891.00	6807.600	6807.600	6807.600	PM6003
		Total Cost Excluding OH & CP						8412.336	8412.336	8412.336	
		c) Overheads on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		672.987	841.234	1,009.480	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		908.532	925.357	942.182	
		Total Cost for 18 tonnes=(a+b+c+d)Including OH & CP						9,993.855	10,178.927	10,363.998	
		Unit Cost=(a+b+c+d)/18 Including OH & CP						555.214	565.496	575.778	
							Say	**555.200**	**565.500**	**575.800**	
1.04	(i) A	**Cost of Haulage Excluding Loading and Unloading**									
		i) A.Case-I : Surfaced Road.									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output 10 tonnes load and lead 10 km=100. t.km									
		Speed with load : 25 km / hour.									
		Speed while Returning empty : 35 km / hour.									
		a) Machinery									
		i) Tipper 10 tonnes capacity.									
		Time taken for onward haulage with load.	Hour	0.400	0.400	0.400	1,476.00	590.400	590.400	590.400	PM6004
		Time taken for empty return trip.	Hour	0.286	0.286	0.286	1,476.00	422.136	422.136	422.136	PM6004

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Sl.No	Ref.to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Total Cost Excluding OH & CP						1012.536	1012.536	1012.536	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		81.003	101.254	121.504	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		109.354	111.379	113.404	
		Total Cost for100 t.km = (a+b+c)Including OH & CP						1202.893	1225.169	1247.444	
		Rate per t.km= (a+b+c)/100 Including OH & CP						12.029	12.252	12.474	
							Say	**12.000**	**12.300**	**12.500**	
		Cost of Haulage Excluding Loading and Unloading									
	B	**i) Case-I : Surfaced Road .**									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output =18tonnes load and lead10 km=180. t.km									
		Speed with load : 25 km / hour.									
		Speed while Returning empty : 35 km / hour.									
		a) Machinery									
		i) Tipper 18 tonne capacity.									
		Time taken for onward haulage with load.	Hour	0.400	0.400	0.400	1891.000	756.400	756.400	756.400	PM6003
		Time taken for empty return trip.	Hour	0.286	0.286	0.286	1891.000	540.826	540.826	540.826	PM6003
		Total Cost Excluding OH & CP						1,297.226	1,297.226	1,297.226	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		103.778	129.723	155.667	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		140.100	142.695	145.289	
		Total Cost for180 t.km = (a+b+c)Including OH & CP						1,541.104	1,569.643	1,598.182	
		Rate per t.km= (a+b+c)/180 Including OH & CP						8.562	8.720	8.879	
							Say	**8.600**	**8.700**	**8.900**	
	C	**Case-I : Surfaced Road .**									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output = 25 tonne load and lead 10km=250.t.km									
		Speed with load : 25 km / hour.									
		Speed while Returning empty : 35 km / hour.									
		a) Machinery									

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Sl.No	Ref.to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		i) Tipper 25 tonnes capacity									
		Time taken for onward haulage with load.	Hour	0.400	0.400	0.400	2108.000	843.200	843.200	843.200	PM6002
		Time taken for empty return trip.	Hour	0.286	0.286	0.286	2108.000	602.888	602.888	602.888	PM6002
		Total Cost Excluding OH & CP						1446.088	1446.088	1446.088	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		115.687	144.609	173.531	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		156.178	159.070	161.962	
		Total Cost for250 t.km = (a+b+c)Including OH & CP						1717.953	1749.766	1781.580	
		Rate per t.km= (a+b+c)/250 Including OH & CP						6.872	6.999	7.126	
							Say	**6.900**	**7.000**	**7.100**	
	D	**Case-I : Surfaced Road .**									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output =32tonnes load and lead10km= 320. t.km									
		Speed with load : 25 km / hour.									
		Speed while Returning empty : 35 km / hour.									
		a) Machinery									
		i) Tipper 32 tonne capacity									
		Time taken for onward haulage with load.	Hour	0.400	0.400	0.400	2,349.00	939.6	939.6	939.6	PM6001
		Time taken for empty return trip.	Hour	0.286	0.286	0.286	2,349.00	671.814	671.814	671.814	PM6001
		Total Cost Excluding OH & CP						1,611.414	1,611.414	1,611.414	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		128.913	161.141	193.370	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		174.033	177.256	180.478	
		Total Cost for320 t.km = (a+b+c)Including OH & CP						1,914.360	1,949.811	1,985.262	
		Rate per t.km= (a+b+c)/320 Including OH & CP						5.982	6.093	6.204	
							Say	**6.000**	**6.100**	**6.200**	
1.04	(ii) A	**.Case-II : Unsurfaced Gravelled Road .**									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output 10 tonnes load & lead 10 km= 100 t.km									
		Speed with load: 20 km/hour									
		Speed for empty return trip : 30 km / hour									
		a) Machinery									

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Sl.No	Ref.to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Tipper 10 tonnes capacity									
		Time taken for onward haulage with load	Hour	0.500	0.500	0.500	1476.000	738.000	738.000	738.000	PM6004
		Time taken for empty return trip.	Hour	0.333	0.333	0.333	1476.000	491.508	491.508	491.508	PM6004
		Total Cost Excluding OH & CP						1,229.508	1,229.508	1,229.508	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		98.361	122.951	147.541	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		132.787	135.246	137.705	
		Total Cost for100 t.km = (a+b+c)Including OH & CP						1,460.656	1,487.705	1,514.754	
		Rate per t.km= (a+b+c)/100 Including OH & CP						14.607	14.877	15.148	
							Say	**14.600**	**14.900**	**15.100**	
1.04	(ii) B	**Case-II : Unsurfaced Gravelled Road .**									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output 18 tonnes load & lead10 km=180.t.km									
		Speed with load : 20 km / hour									
		Speed for empty return trip : 30 km / hour									
		a) Machinery									
		Tipper 18 tonnes capacity									
		Time taken for onward haulage with load.	Hour	0.500	0.500	0.500	1,891.00	945.500	945.500	945.500	PM6003
		Time taken for empty return trip.	Hour	0.333	0.333	0.333	1,891.00	629.703	629.703	629.703	PM6003
		Total Cost Excluding OH & CP						1,575.203	1,575.203	1,575.203	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		126.016	157.520	189.024	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		170.122	173.272	176.423	
		Total Cost for180 t.km = (a+b+c)Including OH & CP						1,871.341	1,905.996	1,940.650	
		Rate per t.km= (a+b+c)/180 Including OH & CP						10.396	10.589	10.781	
							Say	**10.400**	**10.600**	**10.800**	
1.04	(ii) C	Case-II : Unsurfaced Gravelled Road .									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output 25 tonnes load & lead10 km =250. t.km									
		Speed with load : 20 km / hour									
		Speed for empty return trip : 30 km / hour									
		a) Machinery									
		Tipper 25 tonnes capacity.									
		Time taken for onward haulage with load	Hour	0.500	0.500	0.500	2,108.00	1054.000	1054.000	1054.000	PM6002

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Sl.No	Ref.to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Time taken for empty return trip.	Hour	0.333	0.333	0.333	2,108.00	701.964	701.964	701.964	PM6002
		Total Cost Excluding OH & CP						1,755.964	1,755.964	1,755.964	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		140.477	175.596	210.716	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		189.644	193.156	196.668	
		Total Cost for250 t.km = (a+b+c)Including OH & CP						2086.085	2124.716	2163.348	
		Rate per t.km= (a+b+c)/250 Including OH & CP						8.344	8.499	8.653	
							Say	**8.300**	**8.500**	**8.700**	
1.04	(ii) D	**Case-II : Unsurfaced Gravelled Road.**									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output 32 tonnes load & lead 10 km= 320. t.km									
		Speed with load : 20 km / hour									
		Speed for empty return trip : 30 km / hour									
		a) Machinery									
		i) Tipper 32 tonnes capacity									
		Time taken for onward haulage with load	Hour	0.500	0.500	0.500	2,349.00	1174.5	1174.5	1174.5	PM6001
		Time taken for empty return trip.	Hour	0.333	0.333	0.333	2,349.00	782.217	782.217	782.217	PM6001
		Total Cost Excluding OH & CP						1,956.717	1,956.717	1,956.717	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		156.537	195.672	234.806	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		211.325	215.239	219.152	
		Total Cost for320 t.km = (a+b+c)Including OH & CP						2,324.580	2,367.628	2,410.675	
		Rate per t.km= (a+b+c)/320 Including OH & CP						7.264	7.399	7.533	
							Say	**7.300**	**7.400**	**7.500**	
1.04	(iii) A	Case-III : Katcha Track and Track in river bed / nallah bed and choe bed.									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output 10 tonnes load & lead 10km= 100 t.km									
		Speed with load: 10 km / hour									
		Speed while returning empty: 15 km / hour									
		a) Machinery									
		i) Tipper 10 tonnes capacity.									
		Time taken for onward haulage	Hour	1.000	1.000	1.000	1,476.00	1476.000	1476.000	1476.000	PM6004
		Time taken for empty return trip.	Hour	0.667	0.667	0.667	1,476.00	984.492	984.492	984.492	PM6004
		Total Cost Excluding OH & CP						2,460.492	2,460.492	2,460.492	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		196.839	246.049	295.259	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		265.733	270.654	275.575	
		Total Cost for100 t.km = (a+b+c)Including OH & CP						2,923.064	2,977.195	3,031.326	

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Sl.No	Ref.to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Rate per t.km= (a+b+c)/100 Including OH & CP						29.231	29.772	30.313	
							Say	**29.200**	**29.800**	**30.300**	
1.04	(iii) B	Case-III : Katcha Track and Track in river bed / nallah bed and choe bed.									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output18 tonnes load &lead10km=180.00 t.km									
		Speed with load: 10 km / hour									
		Speed while returning empty: 15 km / hour									
		a) Machinery									
		Tipper 18 tonnes capacity									
		Time taken for onward haulage	Hour	1.000	1.000	1.000	1,891.00	1891.000	1891.000	1891.000	PM6003
		Time taken for empty return trip.	Hour	0.667	0.667	0.667	1,891.00	1261.297	1261.297	1261.297	PM6003
		Total Cost Excluding OH & CP						3,152.297	3,152.297	3,152.297	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		252.184	315.230	378.276	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		340.448	346.753	353.057	
		Total Cost for180 t.km = (a+b+c)Including OH & CP						3,744.929	3,814.279	3,883.630	
		Rate per t.km= (a+b+c)/180 Including OH & CP						20.805	21.190	21.576	
							Say	**20.800**	**21.200**	**21.600**	
1.04	(iii) C	Case-III : Katcha Track and Track in river bed / nallah bed and choe bed.									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output25Tonnes load &lead10 km=250.t.km									
		Speed with load: 10 km / hour									
		Speed while returning empty: 15 km / hour									
		a) Machinery									
		i) Tipper 25 tonnes capacity									
		Time taken for onward haulage	Hour	1.000	1.000	1.000	2,108.00	2108.000	2108.000	2108.000	PM6002
		Time taken for empty return trip.	Hour	0.667	0.667	0.667	2,108.00	1406.036	1406.036	1406.036	PM6002
		Total Cost Excluding OH & CP						3,514.036	3,514.036	3,514.036	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		281.123	351.404	421.684	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		379.516	386.544	393.572	
		Total Cost for250 t.km = (a+b+c)Including OH & CP						4,174.675	4,251.984	4,329.292	

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Sl.No	Ref.to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Rate per t.km= (a+b+c)/250 Including OH & CP						16.699	17.008	17.317	
							Say	**16.700**	**17.000**	**17.300**	
1.04	(iii) D	Case-III : Katcha Track and Track in river bed / nallah bed and choe bed.									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output 32 tonnes load &lead 10 km= 320. t.km									
		Speed with load: 10 km / hour									
		Speed while returning empty: 15 km / hour									
		a) Machinery									
		i) Tipper 32 tonnes capacity									
		Time taken for onward haulage	Hour	1.000	1.000	1.000	2349.000	2349.000	2349.000	2349.000	PM6001
		Time taken for empty return trip	Hour	0.667	0.667	0.667	2349.000	1566.783	1566.783	1566.783	PM6001
		Total Cost Excluding OH & CP						3,915.783	3,915.783	3,915.783	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		313.263	391.578	469.894	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		422.905	430.736	438.568	
		Total Cost for320 t.km = (a+b+c)Including OH & CP						4651.950	4738.097	4824.245	
		Rate per t.km= (a+b+c)/320 Including OH & CP						14.537	14.807	15.076	
							Say	**14.500**	**14.800**	**15.100**	
1.04	(iv)	**Case-IV : Katcha Track in hilly area.**									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output 10 tonnes load & lead 10km= 100. t.km									
		Speed with load: 5 km / hour									
		Speed while returning empty: 7 km / hour									
		a) Machinery									
		i) Tipper 10 tonnes capacity.									
		Time taken for onward haulage	Hour	2.000	2.000	2.000	1,476.00	2952.000	2952.000	2952.000	PM6004
		Time taken for empty return trip.	Hour	1.429	1.429	1.429	1,476.00	2109.204	2109.204	2109.204	PM6004
		Total Cost Excluding OH & CP						5,061.204	5,061.204	5,061.204	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		404.896	506.120	607.344	

APPROVED CARRIAGE RATE OF MATERIALS (BY TIPPER) Date :- 19.02.2026

Sl.No	Ref.to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		546.610	556.732	566.855	
		Total Cost for100 t.km = (a+b+c)Including OH & CP						6,012.710	6,124.057	6,235.403	
		Rate per t.km= (a+b+c)/100 Including OH & CP						60.127	61.241	62.354	
							Say	**60.100**	**61.200**	**62.400**	
1.04	(v)	**Case-V : Transit Mixture**									
		Haulage of Concrete by transit mixture excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output 15Tonnes load & lead 10km= 150 t.km									
		Speed with load : 20 km / hour									
		Speed while returning empty: 30 km / hour									
		a) Machinery									
		i) Transit Mixture 6 cum capacity.									
		Time taken for onward haulage with load	Hour	0.500	0.500	0.500	1,992.00	996.000	996.000	996.000	PM34001
		Time taken for empty return trip.	Hour	0.333	0.333	0.333	1,992.00	663.336	663.336	663.336	PM34001
		Total Cost Excluding OH & CP						1,659.336	1,659.336	1,659.336	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		132.747	165.934	199.120	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		179.208	182.527	185.846	
		Total Cost for150 t.km = (a+b+c)Including OH & CP						1,971.291	2,007.797	2,044.302	
		Rate per t.km= (a+b+c)/150 Including OH & CP						13.142	13.385	13.629	
							Say	**13.100**	**13.400**	**13.600**	
1.05		**Hand Broken Stone Aggregates 63 mm nominal size**									
		Supply of quarried stone, hand breaking into coarse aggregate 63 mm nominal size (passing 80 mm and retained on 50 mm sieve) and stacking as directed									
		Unit = cum									
		Taking Output = 1.00 cum									
		a) Labour									
		Mate	day	0.0600	0.0600	0.0600	444.000	26.640	26.640	26.640	L-12
		Mazdoor	day	1.500	1.500	1.500	428.000	642.000	642.000	642.000	L-13
		b) Material									
		Supply of quarried stone 150 - 200 mm size	cum	1.1000	1.1000	1.1000	730.020	803.022	803.022	803.022	M-002
		Total Cost Excluding OH & CP						1471.662	1471.662	1471.662	
		c) Overheads on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		117.733	147.166	176.599	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		158.939	161.883	164.826	
		Total Cost for1cum = (a+b+c+d)Including OH & CP						1,748.334	1,780.711	1,813.088	

APPROVED CARRIAGE RATE OF MATERIALS (BY TIPPER) Date :- 19.02.2026

Sl.No	Ref.to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Rate per cum= (a+b+c+d) Including OH & CP					**Say**	**1,748.300**	**1,780.700**	**1,813.100**	
1.06		**Crushing of stone aggregates (Nominal size)**									
		Crushing of stone boulders of 150 mm size in an integrated stone crushing unit of 250 tonnes per hour capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain stone aggregates of different nominal size.									
	(i)	**1.Crushing Pattern 40 mm (tonne)- Cost Distribution 28.98 %**									
		Unit = cum									
		Taking Output = 750.00 cum									
		a) Labour									
		Mate	day	0.320	0.320	0.320	444.000	142.080	142.080	142.080	L-12
		Mazdoor(Skilled)	day	2.000	2.000	2.000	541.000	1082.000	1082.000	1082.000	L-15
		Mazdoor	day	6.000	6.000	6.000	428.000	2568.000	2568.000	2568.000	L-13
		b) Material									
		Stone Boulder of size 150 mm and below.	cum	750.000	750.000	750.000	730.02	547515.000	547515.000	547515.000	M-001
		c) Machinery									
		Integrated stone crusher of 250 TPH including belt conveyor and vibrating screens	Hour	6.000	6.000	6.000	13,961.00	83766.000	83766.000	83766.000	PM16001
		Generator 725 KVA	Hour	6.000	6.000	6.000	7,798.00	46788.000	46788.000	46788.000	PM22001
		Front end loader 3.1 cum bucket capacity at quarry and crusher	Hour	5.515	5.515	5.515	3,523.00	19429.345	19429.345	19429.345	PM5001
		Tipper 14 cum capacity for loading at quarry site	Hour	5.515	5.515	5.515	2,108.00	11625.620	11625.620	11625.620	PM6002
		Tipper 14 cum capacity for transportation within 1 km	t.km	1,125.00	1,125.00	1,125.00	5.71	6423.750	6423.750	6423.750	PM73001
		d) Total Cost for 750 cum(a+b+c) (Excluding OH & CP)						719339.80	7,19,339.80	7,19,339.80	
		e) Crushing pattern 40mm(tonne)	tonne	22.71%	22.71%	22.71%	255.488				255.488
		f) % Cost distribution={(d)x(f)/e)x1.5}	cum	28.98%	28.98%	28.98%	0.2898	1,223.92	1,223.92	1,223.92	
		g) Overheads on (f)		(@ 8%)	(@ 10%)	(@ 12%)		97.914	122.392	146.870	
		h) Contractor's profit on (f+g)		(@ 10%)	(@ 10%)	(@ 10%)		132.183	134.631	137.079	
		i) Total Cost for1cum = (f+g+h) Including OH & CP						1,454.018	1,480.944	1,507.870	
		Rate per cum= (f+g+h) Including OH & CP					**Say**	**1,454.000**	**1,480.900**	**1,507.900**	
	(ii)	**Crushing of stone aggregates (Nominal size)**									

APPROVED CARRIAGE RATE OF MATERIALS (BY TIPPER) Date :- 19.02.2026

Sl.No	Ref.to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		2.Crushing Pattern 20 mm (tonne)- Cost Distribution 31.95 %									
		d) Total Cost for 750 cum(Excluding OH & CP)						7,19,339.80	7,19,339.80	7,19,339.80	
		e) Crushing pattern 20mm(tonne)	tonne	23.00%	23.00%	23.00%	258.75				
		f) % Cost distribution={(d)x(f)/e)x1.5}	cum	31.95%	31.95%	31.95%	0.3195	1,332.34	1,332.34	1,332.34	
		g) Overheads on (f)		(@ 8%)	(@ 10%)	(@ 12%)		106.587	133.234	159.881	
		h) Contractor's profit on (f+g)		(@ 10%)	(@ 10%)	(@ 10%)		143.893	146.558	149.222	
		i)Total Cost for1cum =(f+g+h)Including OH& CP						1,582.823	1,612.134	1,641.446	
		Rate per cum= (f+g+h) Including OH & CP					**Say**	**1,582.800**	**1,612.100**	**1,641.400**	
	(lii)	**Crushing of stone aggregates (Nominal size)**									
		3.Crushing Pattern 10 mm (tonne)- Cost Distribution 30.75 %									
		d) Total Cost for 750 cum(Excluding OH & CP)						7,19,339.80	7,19,339.80	7,19,339.80	
		e) Crushing pattern 10 mm(tonne)	tonne	25.86%	25.86%	25.86%	290.925				
		f) % Cost distribution={(d)x(f)/e)x1.5}	cum	30.75%	30.75%	30.75%	0.3075	1,140.48	1,140.48	1,140.48	
		g) Overheads on (f)		(@ 8%)	(@ 10%)	(@ 12%)		91.239	114.048	136.858	
		h) Contractor's profit on (f+g)		(@ 10%)	(@ 10%)	(@ 10%)		123.172	125.453	127.734	
		i) Total Cost for1cum = (f+g+h)Including OH & CP						1,354.896	1,379.986	1,405.077	
		Rate per cum= (f+g+h) Including OH & CP					**Say**	**1,354.900**	**1,380.000**	**1,405.100**	
	(liv)	**Crushing of stone aggregates (Nominal size)**									
		4 Crushing Pattern dust (tonne)- Cost Distribution 08.32 %									
		d) Total Cost for 750 cum(Excluding OH & CP)						7,19,339.80	7,19,339.80	7,19,339.80	
		e) Crushing pattern dust (tonne)	tonne	28.43%	28.43%	28.43%	319.838				
		f) % Cost distribution={(d)x(f)/e)x1.5}	cum	8.32%	8.32%	8.32%	0.0832	280.685	280.685	280.685	
		g) Overheads on (f)		(@ 8%)	(@ 10%)	(@ 12%)		22.455	28.068	33.682	
		h) Contractor's profit on (f+g)		(@ 10%)	(@ 10%)	(@ 10%)		30.314	30.875	31.437	
		i) Total Cost for1cum = (f+g+h)Including OH & CP						333.453	339.628	345.803	
		Rate per cum= (f+g+h) Including OH & CP					**Say**	**333.500**	**339.600**	**345.800**	
	Note:	**The average density of 1.5 tonne/cum is only a reference density in this Data Book.**									

APPROVED CARRIAGE RATE OF MATERIALS (BY TIPPER) Date :- 19.02.2026

Sl.No	Ref.to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
1.07		**Crushing of stone aggregates (GSB Crusher Run)**									
		Crushing of stone boulders of 150 mm size in an integrated stone crushing unit of 250 tonnes per hour capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain crusher run (all in aggregate) for GSB.									
		Unit = cum									
		Taking Output = 750.00 cum									
		a) Labour									
		Mate	day	0.320	0.320	0.320	444.000	142.080	142.080	142.080	L-12
		Mazdoor (Skilled)	day	2.000	2.000	2.000	541.000	1082.000	1082.000	1082.000	L-15
		Mazdoor	day	6.000	6.000	6.000	428.000	2568.000	2568.000	2568.000	L-13
		b) Material									
		Stone Boulder of size 150 mm and below	cum	750	750	750	730.02	547515.000	547515.000	547515.000	M-001
		c) Machinery									
		Integrated stone crusher of 250 TPH including belt conveyor and vibrating screens (for producing crusher run production capacity will increas by 30%)	Hour	4.615	4.615	4.615	13,961.00	64430.015	64430.015	64430.015	PM16001
		Generator 725 KVA	Hour	4.615	4.615	4.615	7,798.00	35987.770	35987.770	35987.770	PM22001
		Front end loader 3.1 cum bucket capacity at quarry and crusher	Hour	5.515	5.515	5.515	3,523.00	19429.345	19429.345	19429.345	PM5001
		Tipper 14 cum capacity for loading at quarry site	Hour	5.515	5.515	5.515	2,108.00	11625.620	11625.620	11625.620	PM6002
		Tipper 14 cum capacity for transportation within 1 km	t.km	1,125.00	1,125.00	1,125.00	5.71	6423.750	6423.750	6423.750	PM73001
		Total Cost Excluding OH & CP						6,89,203.580	6,89,203.580	6,89,203.580	765.78
		d) Overheads on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		55136.286	68920.358	82704.430	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		74,433.99	75,812.39	77,190.80	
		Cost for 900 cum =(a+b+c+d+e)						8,18,773.85	8,33,936.33	8,49,098.81	
		Rate per cum =(a+b+c+d+e)/900(Including OH & CP)					**Say**	**909.70**	**926.60**	**943.40**	
	Note:	**Considering Crushed volume will be 1.2 times the volume of boulder.**									

APPROVED CARRIAGE RATE OF MATERIALS (BY TIPPER) Date :- 19.02.2026

Sl.No	Ref.to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	

Note:-1. For local transportation , carriage rate will be given as per provision of different Capacity of vehicle in Large/Medium/Small Projects in rate analysis of particular item of any Chapter.

Note:-2. Except Note 1, for transportation/carriage of Stone Aggregate/Stone Boulder/Moorum/Bitumen/Steel/Cement and Other Construction Materials,Loading-Unloading charges&Haulage charges will be allowed by 18 Cum Capacity tipper(18 tonne Capacity Truck in case of loading-unloading of Cement /Steel / Bitumen by manual means) and 32 tonne Capacity tipper respectively only for all types of Projects(Large/Medium/Small) except in cases / circumstances where any limitation/restriction regarding capacity of Vehicle has been imposed by competent Authority(District/State). Incase of restriction. rate of allowed capacity of vehicle will be given.

Note:-3. In case of Loading &Unloading of Boulders by Manual means, loading-unloading charges will be allowed by 10Cum Capacity tipper.

Note:-4. Carriage of material will be done by shortest rout.

Note:-5. Rates of item nos 1.06 will be taken as per approved rate of respective items in schedule M/MORT&H-1

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह– अभियंता
प्रमुख, भवन निर्माण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–मुख्य अभियंता
(असैनिक) बिहार स्टेट पावर होल्डिंग
कंपनी लि०, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (विद्युत) भवन
निर्माण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख (मु०)
लोक स्वास्थ्य अभियंत्रण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, मुख्यालय जल
संसाधन विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

APPROVED CARRIAGE RATE OF MATERIALS (By TRACTOR) Date :- 19.02.2026

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
				Large	Medium	Small		Large	Medium	Small	
1.1		**Loading and Unloading of Stone Boulder/ Stone aggregates/Sand /Kanker/Moorum**	cum								
		Placing Tractor at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip									
		Unit = cum									
		Taking output = 2.25 cum									
		Time required for									
		i) Positioning of Tractor at loading point				1 Min					
		ii) Loading by front end loader 1 cum bucket capacity.				2.71 Min					(6.633/5.5)* 2.25
		iii) Maneuvering, reversing, dumping and turning for return				0 Min					
		iv) Waiting time, unforeseen contingencies etc				0 Min					
		Total				**3.71 Min**					
		a) Machinery									
		Tractor 3.60 tonnes capacity	hour	0.060	0.060	0.060	717.00	43.020	43.020	43.020	**PM12001**
		Front end-loader 1 cum bucket capacity	hour	0.060	0.060	0.060	1454.00	87.240	87.240	87.240	**PM5003**
		Total Cost Excluding OH & CP						130.26	130.26	130.26	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		10.421	13.026	15.631	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		14.068	14.329	14.589	
		Total Cost for2.25 cum = (a+b+c)Including OH & CP						154.749	157.615	160.480	
		Rate per cum= (a+b+c)/2.25 Including OH & CP						68.777	70.051	71.325	
	Note	**Unloading will be done mechanically.**					***Say***	**68.800**	**70.100**	**71.300**	
1.2		**Loading and Unloading of Boulders by Manual Means**									
		Unit = cum									
		Taking output = 2.25 cum									
		a) Labour									

APPROVED CARRIAGE RATE OF MATERIALS (By TRACTOR) Date :- 19.02.2026

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
		Mate	day	0.012	0.012	0.012	444.00	5.328	5.328	5.328	L-12
		Mazdoor for loading and unloading	day	0.310	0.310	0.310	428.00	132.680	132.680	132.680	L-13
		b) Machinery									
		Tractor 3.60 tonne capacity	hour	0.310	0.310	0.310	717.00	222.270	222.270	222.270	PM12001
		Total Cost Excluding OH & CP						360.278	360.278	360.278	
		c) Overheads on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		28.822	36.028	43.233	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		38.910	39.631	40.351	
		Total Cost for2.25 cum = (a+b+c+d)Including OH & CP						428.010	435.936	443.862	
		Rate per cum= (a+b+c+d)/2.25 Including OH & CP						190.227	193.750	197.272	
							Say	**190.200**	**193.700**	**197.300**	
	Note	**Unloading will be done by mechanically.**									
1.3		**Loading and Unloading of Cement or Steel by Manual Means and Stacking.**									
		Unit = tonne									
		Taking output = 3.60 tonnes									
		a) Labour									
		Mate	day	0.030	0.030	0.030	444.00	13.320	13.320	13.320	L-12
		Mazdoor for loading and unloading	day	0.720	0.720	0.720	428.00	308.160	308.160	308.160	L-13
		b) Machinery									
		Tractor 3.60 tonne capacity	hour	0.720	0.720	0.720	717.00	516.240	516.240	516.240	PM12001
		Total Cost Excluding OH & CP						837.720	837.720	837.720	
		c) Overheads on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		67.018	83.772	100.526	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		90.474	92.149	93.825	
		Total Cost for3.6 tonnes= (a+b+c+d)Including OH & CP						995.211	1,013.641	1,032.071	
		Rate per tonne= (a+b+c+d)/3.6 Including OH & CP						276.448	281.567	286.686	
							Say	**276.400**	**281.600**	**286.700**	
1.4		**Cost of Haulage Excluding Loading and Unloading**									
		Haulage of materials by Tractor excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking output 3.60 tonnes load and lead 10 km = 36.0 t.km									
	(i)	**Surfaced Road**									
		Speed with load : 15 km / hour.									

APPROVED CARRIAGE RATE OF MATERIALS (By TRACTOR) Date :- 19.02.2026

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
		Speed while Returning empty :25 km / hour.									
		a) Machinery.									
		Tractor 3.6 tonne capacity									
		Time taken for onward haulage with load	hour	0.667	0.667	0.667	717.00	478.239	478.239	478.239	**PM12001**
		Time taken for empty return trip.	hour	0.400	0.400	0.400	717.00	286.800	286.800	286.800	**PM12001**
		Total Cost Excluding OH & CP						765.039	765.039	765.039	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		61.203	76.504	91.805	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		82.624	84.154	85.684	
		Total Cost for36 t.km = (a+b+c)Including OH & CP						908.866	925.697	942.528	
		Rate per t.km= (a+b+c)/36 Including OH & CP						25.246	25.714	26.181	
							Say	**25.200**	**25.700**	**26.200**	
	(ii)	**Unsurfaced Graveled Road**									
		Speed with load: 12 km / hour									
		Speed for empty return trip :20 km / hour									
		a) Machinery									
		Tractor 3.6 tonnes capacity									
		Time taken for onward haulage with load	hour	0.833	0.833	0.833	717.00	597.261	597.261	597.261	**PM12001**
		Time taken for empty return trip	hour	0.500	0.500	0.500	717.00	358.500	358.500	358.500	**PM12001**
		Total Cost Excluding OH & CP						955.761	955.761	955.761	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		76.461	95.576	114.691	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		103.222	105.134	107.045	
		Total Cost for36 t.km = (a+b+c)Including OH &						1,135.444	1,156.471	1,177.498	
		Rate per t.km= (a+b+c)/36 Including OH & CP						31.540	32.124	32.708	
								31.500	**32.100**	**32.700**	
	(iii)	**Katcha Track and Track in River Bed/Nallah Bed and Choe Bed.**									
		Speed with load :10 km / hour									
		Speed while returning empty:15 km / hour									
		a) Machinery									
		Tractor 3.6 tonnes capacity									
		Time taken for onward haulage	hour	1.000	1.000	1.000	717.00	717.000	717.000	717.000	**PM12001**
		Time taken for empty return trip	hour	0.667	0.667	0.667	717.00	478.239	478.239	478.239	**PM12001**
		Total Cost Excluding OH & CP						1195.24	1195.24	1195.24	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		95.619	119.524	143.429	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		129.086	131.476	133.867	

APPROVED CARRIAGE RATE OF MATERIALS (By TRACTOR) Date :- 19.02.2026

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
		Total Cost for36 t.km = (a+b+c)Including OH & CP						1,419.944	1,446.239	1,472.534	
		Rate per t.km= (a+b+c)/36 Including OH & CP						39.443	40.173	40.904	
							Say	**39.400**	**40.200**	**40.900**	

Note:- वैसे स्थल जहाँ पर **Truck** एवं **Tipper** के द्वारा ढुलाई किया जाना संभव नहीं है तथा **Tractor** से ढुलाई **economical** हो केवल वैसे ही स्थलों के लिए **Tractor** से ढुलाई का प्रावधान किया जाय।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह– अभियंता
प्रमुख, भवन निर्माण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, लघु जल संसाधन विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–मुख्य अभियंता
(असैनिक) बिहार स्टेट पावर होल्डिंग
कंपनी लि0, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (विद्युत) भवन
निर्माण विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–अभियंता
प्रमुख, तकनीकी परीक्षक कोषांग,
निगरानी विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर निर्धारण
समिति–सह–अभियंता प्रमुख (मु०)
लोक स्वास्थ्य अभियंत्रण विभाग,
बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, मुख्यालय जल
संसाधन विभाग, बिहार, पटना।

सदस्य
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख, ग्रामीण कार्य
विभाग, बिहार, पटना।

संयोजक
राज्य स्तरीय अनुसूचित दर
निर्धारण समिति–सह–
अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

RAILWAY ROUTE CHART & FREIGHT

Letter No.	Subject	Issue Date
2025		
No. 2024/TT-III/27/1	Addendum to General Order No. 01/2015	31.10.2025
No. 2024/TT-III/27/1	Rationalization Scheme General Order No. 01/2025 Effective From 01.07.2025	30.06.2025
2024		
No. 2024/TT-III/27/1	Rationalization Scheme General Order No. 01/2024	02.12.2024
No. 2024/TT-III/27/1	Rationalization Scheme General Order No. 01/2024	25.10.2024
No. 2024/TT-III/27/1	Rationalization Scheme General Order No. 01/2024	01.07.2024
No. 2024/TT-III/27/1	Rationalization Scheme General Order No. 01/2024 Effective From 01.07.2024	27.06.2024
No. 2024/TT-III/27/1	Rationalization Scheme General Order No. 01/2024	09.01.2024
2023		
No. 2023/TT-III/27/3	Rationalization Scheme General Order No. 01/2023-Amendment No.-1, Rationalization Circular No. 02/2023	30.11.2023
2021/TT-III/27/1	Rationalization Scheme General Order No. 01/2023	28.06.2023
2021/TT-III/27/1	Rationalization Scheme General Order No. 01/2014-Amendment No.-23	28.02.2023
2022		
2021/TT-III/27/1	Extension of Rationalization Scheme General Order No. 01/2014 alongwith its Amendment	29.06.2022
2021/TT-III/27/1	Corrigendum No. 3 to Rationalisation Amendment No.-22 of Rationalization (Rationalisation Circular 01/2022)	15.03.2022
2021/TT-III/27/1	Corrigendum No. 2 to Rationalisation Amendment No.-22 of Rationalization Scheme General Order No. 01/2014.	08.03.2022

Letter No.	Subject	Issue Date
2021/TT-III/27/1	Corrigendum No. 1 to Rationalisation Amendment No.-22 of Rationalization Scheme General Order No. 01/2014.	28.02.2022
2021/TT-III/27/1	Rationalization Scheme General Order No. 01/2014 - Amendment No.-22 : Rationalization Circular No. 01/2022	03.02.2022
2021		
2021/TT-III/27/1	Rationalization Scheme G.O. No. 01/2014-Amendment- 21 : Rationalization Circular No. 03/2021	31.08.2021
2020/TT-III/27/1	Extension of Rationalization Scheme General Order No. 01/2014 along-with its Amendment Orders : Rationalization Circular No. 02/2021	15.06.2021
2020/TT-III/27/1	Rationalization Scheme General Order No. 01/2014-Amendment- 20	16.02.2021
2020		
2020/TT-III/27/1	Rationalization Scheme General Order No. 01/2014-Amendment- 19	01.07.2020
2020/TT-III/27/1	Extension of Rationalization Scheme General Order No. 01/2014 along-with its Amendment Orders	22.06.2020
2015/TT-II/S/27/2/Part(1)	Rationalization Scheme General Order No. 01/2014-Amendment- 18	14.01.2020
2019		
2015/TT-III/S/27/2/Part(1)	Rationalization Scheme General Order No. 01/2014-Amendment- 17	11.11.2019
2015/TT-III/S/27/2/Part(1)	Rationalization Scheme General Order No. 01/2014-Amendment- 16	03.10.2019
2015/TT-III/S/27/2/Part(1)	Rationalization Scheme General Order No. 01/2014-Amendment- 15	16.07.2019
2015/TT-III/S/27/2/Part(1)	Extension of Rationalization Scheme General Order No. 01/2014	25.06.2019
2015/TT-III/S/27/2/Part(1)	Rationalization Scheme General Order No. 01/2014-Amendment- 14	21.02.2019
2018		
2015/TT-III/S/27/2/Part(1)	Rationalization Scheme General Order No. 01/2014-Amendment- 13	11.12.2018

Letter No.	Subject	Issue Date
2015/TT-III/S/27/2/Part(1)	Rationalization Scheme General Order No. 01/2014-Amendment- 12	17.09.2018
2015/TT-III/S/27/2	Extension of Rationalization Scheme General Order No. 01/2014	18.06.2018
2017		
2015/TT-III/S/27/2 New	Rationalization Scheme General Order No. 01/2014-Amendment- 11	30.06.2017
2015/TT-III/S/27/2	Extension of Rationalization Scheme General Order No. 01/2014	21.06.2017
2015/TT-III/S/27/2	Rationalization Scheme General Order No. 01/2014-Amendment- 10	05.05.2017
2016		
2015/TT-III/S/27/2	Extension of Rationalization Scheme General Order No. 01/2014	27.12.2016
2015/TT-III/S/27/2	Rationalization Scheme General Order No. 01/2014-Amendment- 9	09.09.2016
2015/TT-III/S/27/2	Rationalization Scheme General Order No. 01/2014-Amendment- 8	19.08.2016
2015/TT-III/S/27/2	Extension of Rationalization Scheme General Order No. 01/2014 with Amendment No. 7	27.06.2016
2015/TT-III/S/27/2	Rationalization Scheme General Order No. 01/2014-Amendment- 6	24.05.2016
2015/TT-III/S/27/2	Rationalization Scheme General Order No. 01/2014-Amendment- 5-Corrigendum	11.04.2016
2015/TT-III/S/27/2	Rationalization Scheme General Order No. 01/2014-Amendment- 15	07.04.2016
2015/TT-III/S/27/2	Extension of Rationalization Scheme General Order No. 01/2014	29.03.2016
2015		
2015/TT-III/S/27/2	Extension of Rationalization Scheme G. O. No. 01/2014	30.12.2015
2014/TT-III/S/27/1	Rationalization Scheme G. O. No. 01/2014 Amendment No. 4	16.10.2015
2014/TT-III/S/27/1	Rationalization Scheme G. O. No. 01/2014 extension	15.10.2015
2014/TT-III/S/27/1	Rationalization Scheme G. O. No. 01/2014 extension	25.08.2015
2014/TT-III/S/27/1	Rationalization Scheme G. O. No. 01/2014 Amendment No. 3	01.07.2015

Letter No.	Subject	Issue Date
2014		
2014/TT-III/S/27/1	Rationalization Scheme General Order No. 01/2014-Amendment- 2	18.05.2015
2014/TT-III/S/27/1	Rationalization Scheme General Order No. 01/2014-Amendment- 1	19.09.2014
2014/TT-III/S/27/1	Rationalization Scheme General Order No. 01/2014 w.e.f. 05/09/2014	02.09.2014
2011/TT-III27/1	Extension of Rationalization Scheme General Order No. 01/2012	29.08.2014
2011/TT-III27/1	Extension of Rationalization Scheme 01/2012	28.06.2014
2011/TT-III27/1	Extension of Rationalization Scheme General Order No. 01/2012	26.03.2014
2011/TT-III27/1	Rationalization Scheme General Order No. 01/2012-Amendment No. 6	11.02.2014

भारतसरकारGOVERNMENT OF INDIA

रेलमंत्रालयMINISTRY OF RAILWAYS

(रेलवेबोर्डRAILWAY BOARD)

No. 2024/TT-III/27/1 Rail Bhawan, New Delhi, Dated: 30.06.2025

General Managers (Operating)/ Commercial),
All Indian Railways including Production Units.

GENERAL ORDER No. 01/2025

[RATIONALIZATION SCHEME]

[EFFECTIVE FROM 01.07.2025]

Whereas in the opinion of the Central Government (Railway Board), it is necessary to do so in the public interest:

Now, therefore, in exercise of the powers conferred under Section 71 of The Railway Act, 1989 (24 of 1989) read with notification of the Government of India in the Ministry of Railways number G.S.R. 53(E) dated the 23rd January, 1995 the Railway Board here by directs that all Railway Administration shall carry, unless it is necessary to divert such wagons for operational convenience after the consignments are booked, any goods or class of goods by such route or routes specified in this order:

S.No.	From	To	To be routed via
1. Central Railway			
1.1	All fertilizer traffic from Hubli Division of SWR, KRCL and Palghat Division of Southern Railway.	Destinations on and via Central Railway for which shortest route is via Kulem-Castle Rock-Londa	Ratnagiri–Roha
2. Eastern Railway			
2.1	All Coal traffic (Originating from any Railway)	For destinations on North Western Railway for which the shorter route is via DDU-JAB-AGA-MTJ	DDU-MZP-JAB-IDH-BTE-BKI
2.2	Coal traffic from Pirpainti (PPT) / Pirpainti coal loading siding (PCLS) of Eastern Railway	Destinations for which shortest route is via Kiul – Luckeesarai – Rampur Dumra	Gumani-Andal-Pradhankunta

S.No.	From	To	To be routed via
2.3	Jute Traffic booked from BLY/ BHAE	All destinations on ECOR, SER,SECR,SR and SWR for which shortest route is via BTNG – ADL	BDC-SKG-KPK
2.4	All Traffic originating from ASN Division (Except MDP – MMD section)	Destinations of ECR, NCR, NR, NER and NWR for which shortest route is via MDP – MMD – KQR	To be routed via JMT-SLS – PKA – KQR
3. East Central Railway			
3.1	Coal loaded from NCL sidings and goods sheds located between Billi Jn (BXLL) – Mahadiya (MHDA)– and Karaila Road (KRLR) –Shakti Nagar (SKTN) sections of ECR and Mahadiya (MHDA) – Gajara Bahara (GAJB) section of WCR	All destinations on North Western Railway and Northern Railway (except for destinations on Lucknow Division, Moradabad Division and [HNC-UMB section] of UMB Division) for which shortest route is via Chopan – Chunar	Katni Murwara - Gwalior
3.2	Coal loaded from NCL sidings and goods sheds located between Billi Jn (BXLL) – Mahadiya (MHDA)-Gajara Bahara (GAJB) and Karaila Road Jn (KRLR) – Shakti Nagar (SKTN)	All destinations of Jhansi division, Agra division and Chheoki-Manikpur section of Prayagraj division for which shortest route is via Chopan – Chunar.	Singrauli-NewKatniJn.
3.3	All Coal traffic from Pathardih	All destinations on East Central Railway and via Pt Deen Dayal Upadhyaya Jn. for which shortest route is via Bhojudih-Gomoh	Pathardih-Pradhankunta-Gomoh
4. East Coast Railway			
4.1	All goods traffic	Stations reached via Cuttack except stations on Nergundi–Cuttack–Paradeepsection	Barang – Kapilas Road – Bye Pass avoiding Cuttack.

S.No.	From	To	To be routed via
4.2	All Traffic from ParadeepPort	To TISCO/TWS in SER	Jakhapura–Jaroli
4.3	Traffic Originating from Dhamra Port (DPCB)	Destinations for which shortest route is via Jakhapura-Angul-Sambalpur City exceptfor destinationsonSambalpur Division of ECoR	Bhadrak– Nimpura
4.4	Alltrafficto&from NALCO/DMNJ	Stations for which shortest route is via Kottavalsa (KTV) – Koraput (KRPU) and vice versa	VZM-RGDA-SPRD andvice versa.
5. **Northern Railway**			
5.1	All goods traffic	Destinations for which shortest route is via DLI/NDLS	DSJ
5.2	All Freight Traffic	For which shortest route is via Alam Nagar (AMG) – Lucknow(LKO)–Utraitia (UTR) & vice-versa	Alam Nagar (AMG) – Transport Nagar (TPNR)–Utraitia (UTR) & vice versa
6. **North Central Railway**			
6.1	Coal traffic from Eastern Railway, East Central Railway, South Eastern Railway & East Coast Railway	Destinations for which shortest route is via Pt. Deen Dayal Upadhyaya Jn. (DDU) –Yamuna Bridge (JAB) – MathuraJn (MTJ)– Palwal (PWL)	Pt. Deen Dayal UpadhyayaJn (DDU) – Dadri (DER).
6.2	All traffic routed via Bandikui	Destinations on North Eastern and terminals on Farukhabad (incl.)-Shikohabad (excl.) Section of North Central Railway	Achnera (AH)– Kasganj (KSJ)
6.3	All traffic routed via Bandikui	Destinationson North East Frontier Railways	Achnera (AH) – Kasganj (KSJ–Bara Banki Jn (BBK)

S.No.	From	To	To be routed via
6.4	All Iron or Steel traffic from ER, SER, ECoR and ECR	To destinations of Northern Railway for which shortest route is via Yamuna Bridge (JAB) – Agra City (AGA) – Raja Ki Mandi (RKM)	To be routed via Dadri (DER)
7. **North Eastern Railway**			
7.1	All goods traffic from stations of ER, ECR, SER and ECoR and vice versa.	Destinations on CR, NR, NCR, NWR, WR and WCR and vice versa for which the shortest route is via Pt. Deen Dayal Upadhyaya Jn. – Varanasi–Madhosingh – Prayagraj Rambag	Pt. Deen Dayal Upadhyaya Jn.(DDU) – Mirzapur (MZP) – Prayagraj (PRYJ)
8. North Western Railway			
8.1	Coal Traffic routed Via MTJ-AWR	Suratgarh Thermal Power Station(STPB)	PWL-TKD-SSB-ROK-JHL-KZW-HMH
8.2	All Goods Traffic except to destinations on Moradabad Division of NR, Moradabad –Ramnagar& Rampur – Kathgodamsections of Izzat Nagar Division of North Eastern Railway	Destinations for which present shortest route is KTWS-RGS-FL-PNU and vice-versa	To be routed via KTWS-AELN-PNUN- PNU and vice versa on all stations between AELN and PNUN of WDFC route.
8.3	All goods traffic from Western Railway	Destination to NWR, NER, NCR, WCR, NR routed via BNGM-MJ (IR route) or vice versa	Via BGMN-HPRN-MJND (WDFC route) or vice versa
9.South Central Railway			
9.1	Traffic moving via SNF-CHZ or vice versa	Destinations for which the shortest route is via Secunderabad	SNF – CHZ Chordline.

S.No.	From	To	To be routed via
9.2	All traffic originating on KRCL, CR,SCR, SWR and SR	Destinations on North East Frontier Railway, North Eastern Railway and Samastipur and Sonepur division of East Central Railway for which shortest route is via Bilaspur–Jharsugunda	Itarsi – Bina – Virangana Lakshmibai Jhansi– Kanpur– Lucknow– Gorakhpur.
9.3	All Traffic	Destinations for which shortest route is via Motumari (MTMI) – Vishnupuram (VNUP) – Bibinagar(BN) and vice versa	Kondapalli (KI) – Kazipet (KZJ) or vice versa
10. South Eastern Railway			
10.1	Iron ore traffic originating from Kiriburu - Bondamunda and Bursuan – Bimalgarh sections	BKEC/BSCS/BKSC	Nawagaon–Hatia– Muri
10.2	All traffic from all Railways	From which shortest distance is Kharagpur–Gokulpur via Girimaidan	ViaNimpura– Gokulpur
10.3	All Traffic originating from DPS-JRLI and from BYX-GUAsection	BSCS for which shortest route is via CNI – PRR	CNI–MURI
10.4	Coal traffic originating from JSRY-MFSJ section of SER	Power houses falling on NCR, NR and NWR for which shortest distance is via NKJ	BRKA
11.South East Central Railway			
11.1	Coal traffic from Bilaspur and Raipur Division of SECR	Destinations on Bina – Itarsi Section in Bhopal Divn of WCR and destinations on Central Railway & passing through Central Railway for which shortest route is via NKJ–JBP	New Katni Jn.(NKJ) – Bina Jn. (BINA)

S.No.	From	To	To be routed via
11.2	Coal from Korea – Rewa Coal field of Bilaspur Division of SECR	Stations on Southern and South Central Railway and Stations of Mumbai Division of Western Railway	Via Katni Murwara (KMZ) – Bina – Khandwa – Bhusaval
11.3	Coal traffic from and to SECR, SER, ECR	Destinations on CR, SCR and SR for which shortest routeis via Gondia–Chanda Fort and vice-versa	Nagpur-Balharshah
11.4	Coal traffic originating from SECR	Destinations falling on Narkher – Badnera section of CR for which shortest route is via Nagpur - Wardha – Badnera	Godhani-Narkher
12. South Western Railway			
12.1	All traffic originating /terminating and passing through SWR	Having shortest route via BYPL – OML or vice versa	BYPL – TPT or vice-versa
13. Western Railway			
13.1	Coal Traffic from Western Railway	Destinations on Prayagraj Division of North Central Railway for which shortest route is via BKI–BTE	WDFC route (PNUN – AELN)
13.2	All traffic from WR except the traffic originating from Ratlam–Chanderia section of Ratlam division	Destinationson Moradabad Division of NR, Moradabad-Ramnagar Section&Rampur - Kathgodam section of Izzat Nagar Division of North Eastern Railway for which shortest route is via PTNR.	Bandikui–Achnera-Mathura
14. Bangladesh Traffic			
14.1	All Traffic passing via Dumdum Jn (DDJ)	To Benapole (BEN/ Bangladesh) for which the shortest route is via Barasat (BT) - Bangaon (BNJ)	Naihati(NH)-Ranaghat(RHA)-Bangaon (BNJ)

S.No.	From	To	To be routed via
15. Southern Railway			
15.1	All goods traffic passing through SRR/SRR "B" cabin – PGT section and going towards TPJ Division via Pollachi (POY) as per RBS route.	Destinations in TPJ Division or vice versa	PGT-ED-KRR-TPGY or vice versa

16. The above Rationalization Scheme will also be applicable on the traffic originating/ terminating on Sidings and Ports (including Port Trust Railways) as is applicable for the Railways serving them.

17. The provisions of the Rationalization Scheme shall not apply to Over Dimensional Consignments, POL traffic and edible salt i.e. salt for human consumption.

18. The rate to be charged will be those chargeable by the route specified above.

19. The provisions of the Rationalization Scheme will also apply to the branch lines connected with the different sections covered by the Rationalization Scheme General Order unless categorically specified otherwise.

20. This Order is issued in suppression of General Order No.1/2024 issued vide Board's letter No. 2024/TT-III/27/1 dated 27.06.2024 and its Amendments thereof and will come in to force from 01.07.2025 and unless cancelled earlier will remain in force upto 30.06.2026.

Please acknowledge receipt.

(Avinash Kumar Mishra)
Executive Director/Coal
Railway Board

Copy forwarded for information and necessary action to:
a. Director (Rail Movement), Fairlie Place, Kolkata
b. FA&CAO, All Indian Railways
c. MD/CRIS, GM/FOIS, CAO/FOIS, CRIS Complex, Chanakyapuri, New Delhi-31
d. CMD/CONCOR
e. MD/KRCL
f. President ACTO and All CTOs.

Copy for information please:
OSD/MR, AMT, AMC, PEDTT(M), EDTT/F, EDTT/S, EDTC/R, EDFC, ED/C&IS, ED/P, EDFM, DTT/G, JDTT/POL, JDTT/F, JDTT-III, DTC/R

GOVERNMENT OF INDIA (BHARAT SARKAR)
MINISTRY OF RAILWAYS (RAIL MANTRALAYA)
(RAILWAY BOARD)

No. 2024/TT-III/27/1 New Delhi, dt: 31.10.2025

General Managers (Operating/Commercial),
All Indian Railways including Production Units

-ADDENDUM-

Sub: Addendum to G.O. No. 01/2025, [Rationalization Scheme] (letter no. 2024/TT-III/27/1 dated 30.06.2025).
Ref: Eastern Railway's letter No. TL.215/11/Rationalization/Pt. I, dated 05.06.2025.

In addition to the routes rationalized and notified vide GO No.01/25, the following route has been approved for rationalization which is now added as item no. 2.5:-

2.5 Eastern Railway			
S.No.	**From**	**To**	**To be routed via**
2.5	All goods traffic from CR, SER, SCR, ECoR, SECR, SR and SWR	Destinations over ER fallen in section HWH-BDC, BDC-SKG, BDC-KWAE & SHE-TAK of the HWH division for which shortest route is via – BTNG-DKAE-BEQ-BDC.	KPK-UDL-SKG-BDC

The above rationalization has been approved by the competent authority considering severe operational constraints on the BTNG–DKAE-BEQ-BDC route.

All other instructions issued vide G.O.No.01/2025 will remain same. This order will come into force from 02.11.2025 and shall be valid till 30.06.2026 or currency of the G.O. No.01/2025.

Please acknowledge receipt.

(Dr. Avinash Kumar Mishra)
Executive Director/Coal
Railway Board
Tele- 23047304
E-mail: avinash.mishra17@gov.in

Copy forwarded for information and necessary action to:

i. Director (Rail Movement), Fairlie place, Kolkata
ii. FA&CAO, All Indian Railways
iii. MD/CRIS, GM/FOIS, CAO/FOIS, CRIS Complex, Chanakyapuri, New Delhi-31.
iv. CMD/CONCOR
v. MD/KRCL
vi. President ACTO and All CTOs.

Copy for information please: OSD/MR, AMT, PEDTT(M), PEDTT(F), ED/COAL, EDTC/R, EDFC, ED/C&IS, ED/P, EDFM, DTT/G, DTT/POL, JDTT/F, JDTT-III, DTC/R

भारत सरकार **GOVERNMENT OF INDIA**

रेल मंत्रालय **MINISTRY OF RAILWAYS**

(रेलवे बोर्ड **RAILWAY BOARD)**

No. 2024/TT-III/27/1 **Rail Bhawan, New Delhi, Dated : 27.06.2024**

General Managers (Operating)/ Commercial),
All Indian Railways including Production Units.

GENERAL ORDER No. 01/2024

[RATIONALIZATION SCHEME]

[EFFECTIVE FROM 01.07.2024]

Whereas in the opinion of the Central Government (Railway Board), it is necessary to do so in the public interest:

Now, therefore, in exercise of the powers conferred under Section 71 of The Railway Act, 1989 (24 of 1989) read with notification of the Government of India in the Ministry of Railways number G.S.R. 53(E) dated the 23rd January, 1995 the Railway Board here by directs that all Railway Administration shall carry, unless it is necessary to divert such wagons for operational convenience after the consignments are booked, any goods or class of goods by such route or routes specified in this order:

S.No.	From	To	To be routed via
1. Central Railway			
1.1	All fertilizer traffic from Hubli Division of SWR, KRCL and Palghat Division of Southern Railway.	Destinations on and via Central Railway for which shortest route is via Kulem-Castle Rock-Londa	Ratnagiri–Roha
1.2	Coal traffic from Mumbai division of Central Railway carried beyond Jalgaon station	Any destination having shortest route via Kasara-Igatpuri and Karjat-Lonavala (Mumbai Division)	BSR (Vasai Road) - Bhestan-Jalgaon
2. Eastern Railway			
2.1	All Coal traffic (Originating from any Railway)	For destinations on North Western Railway for which the shorter route is via DDU-JAB-AGA-MTJ	DDU-MZP-JAB-IDH-BTE-BKI

S.No.	From	To	To be routed via
2.2	Coal traffic from Pirpainti (PPT) / Pirpainti coal loading siding (PCLS) of Eastern Railway	Destinations for which shortest route is via Kiul – Luckeesarai – Rampur Dumra	Gumani-Andal-Pradhankunta
2.3	Jute Traffic booked from BLY/ BHAE	All destinations on ECOR, SER,SECR,SR and SWR for which shortest route is via BTNG – ADL	BDC-SKG-KPK
2.4	All Traffic originating from ASN Division (Except MDP – MMD section)	Destinations of ECR, NCR, NR, NER and NWR for which shortest route is via MDP – MMD – KQR	To be routed via JMT-SLS – PKA – KQR
3. East Central Railway			
3.1	Coal loaded from NCL sidings and goods sheds located between Billi Jn (BXLL) – Mahadiya (MHDA)– and Karaila Road (KRLR) –Shakti Nagar (SKTN) sections of ECR and Mahadiya (MHDA) – Gajara Bahara (GAJB) section of WCR	All destinations on North Western Railway and Northern Railway (except for destinations on Lucknow Division, Moradabad Division and [HNC-UMB section] of UMB Division) for which shortest route is via Chopan – Chunar	Katni Murwara - Gwalior
3.2	Coal loaded from NCL sidings and goods sheds located between Billi Jn (BXLL) – Mahadiya (MHDA)-Gajara Bahara (GAJB) and Karaila Road Jn (KRLR) – Shakti Nagar (SKTN)	All destinations of Jhansi division, Agra division and Chheoki-Manikpur section of Prayagraj division for which shortest route is via Chopan – Chunar.	Singrauli-New Katni Jn.

S.No.	From	To	To be routed via
3.3	All Coal traffic from Pathardih	All destinations on East Central Railway and via Pt Deen Dayal Upadhyaya Jn. for which shortest route is via Bhojudih-Gomoh	Pathardih-Pradhankunta-Gomoh
4. **East Coast Railway**			
4.1	All goods traffic	Stations reached via Cuttack except stations on Nergundi–Cuttack–Paradeep section	Barang – Kapilas Road – Bye Pass avoiding Cuttack.
4.2	All Traffic from Paradeep Port	To TISCO/TWS in SER	Jakhapura–Jaroli
4.3	Traffic Originating from Dhamra Port (DPCB)	Destinations for which shortest route is via Jakhapura-Angul-Sambalpur City except for destinations on Sambalpur Division of ECoR	Bhadrak– Nimpura
4.4	All traffic to & from NALCO/DMNJ	Stations for which shortest route is via Kottavalsa (KTV) – Koraput (KRPU) and vice versa	VZM-RGDA-SPRD and vice versa.
5. **Northern Railway**			
5.1	All goods traffic	Destinations for which shortest route is via DLI/NDLS	DSJ
5.2	All Freight Traffic	For which shortest route is via Alam Nagar (AMG) – Lucknow(LKO)–Utraitia (UTR) & vice-versa	Alam Nagar (AMG) – Transport Nagar (TPNR)–Utraitia (UTR) & vice versa
6. **North Central Railway**			
6.1	Coal traffic from Eastern Railway, East Central Railway, South Eastern Railway & East Coast Railway	Destinations for which shortest route is via Pt. Deen Dayal Upadhyaya Jn. (DDU) –Yamuna Bridge (JAB) – MathuraJn (MTJ)–Palwal (PWL)	Pt. Deen Dayal UpadhyayaJn (DDU) – Dadri (DER).

S.No.	From	To	To be routed via
6.2	All traffic routed via Bandikui	Destinations on North Eastern and terminals on Farukhabad (incl.)-Shikohabad (excl.) Section of North Central Railway	Achnera (AH)–Kasganj (KSJ)
6.3	All traffic routed via Bandikui	Destinationson North East Frontier Railways	Achnera (AH) – Kasganj (KSJ–Bara Banki Jn (BBK)
6.4	All Iron or Steel traffic from ER, SER, ECoR and ECR	To destinations of Northern Railway for which shortest route is via Yamuna Bridge (JAB) – Agra City (AGA) – Raja Ki Mandi (RKM)	To be routed via Dadri (DER)
7. **North Eastern Railway**			
7.1	All goods traffic from stations of ER, ECR, SER and ECoR and vice versa.	Destinations on CR, NR, NCR, NWR, WR and WCR and vice versa for which the shortest route is via Pt. Deen Dayal Upadhyaya Jn. – Varanasi–Madhosingh – Prayagraj Rambag	Pt. Deen Dayal Upadhyaya Jn.(DDU) – Mirzapur (MZP) – Prayagraj (PRYJ)
8. North Western Railway			
8.1	Coal Traffic routed Via MTJ-AWR	Suratgarh Thermal Power Station(STPB)	PWL-TKD-SSB-ROK-JHL-KZW-HMH
8.2	All Goods Traffic except to destinations on Moradabad Division of NR, Moradabad –Ramnagar & Rampur – Kathgodam sections of Izzat Nagar Division of North Eastern Railway	Destinations for which present shortest route is KTWS-RGS-FL-PNU and vice-versa	To be routed via KTWS-AELN-PNUN-PNU and vice versa on all stations between AELN and PNUN of WDFC route.

S.No.	From	To	To be routed via
9. South Central Railway			
9.1	Traffic moving via SNF-CHZ or vice versa	Destinations for which the shortest route is via Secunderabad	SNF – CHZ Chordline.
9.2	All traffic originating on KRCL, CR,SCR, SWR and SR	Destinations on North East Frontier Railway, North Eastern Railway and Samastipur and Sonepur division of East Central Railway for which shortest route is via Bilaspur–Jharsugunda	Itarsi – Bina – Virangana Lakshmibai Jhansi–Kanpur–Lucknow–Gorakhpur.
9.3	All Traffic	Destinations for which shortest route is via Motumari (MTMI) – Vishnupuram (VNUP) – Bibinagar(BN) and vice versa	Kondapalli (KI) – Kazipet (KZJ) or vice versa
10. South Eastern Railway			
10.1	Iron ore traffic originating from Kiriburu - Bondamunda and Bursuan – Bimalgarh sections	BKEC/BSCS/BKSC	Nawagaon–Hatia–Muri
10.2	All traffic from all Railways	From which shortest distance is Kharagpur–Gokulpur via Girimaidan	Via Nimpura–Gokulpur
10.3	All Traffic originating from DPS-JRLI and from BYX-GUA section	BSCS for which shortest route is via CNI – PRR	CNI–MURI
10.4	Coal traffic originating from JSRY-MFSJ section of SER and HGR-JSG section of SECR	Power houses falling on NCR, NR and NWR for which shortest distance is via NKJ	BRKA

S.No.	From	To	To be routed via
11. South East Central Railway			
11.1	Coal traffic from Bilaspur and Raipur Division of SECR	Destinations on Bina – Itarsi Section in Bhopal Divn of WCR and destinations on Central Railway & passing through Central Railway for which shortest route is via NKJ–JBP	New Katni Jn.(NKJ) – Bina Jn. (BINA)
11.2	Coal from Korea – Rewa Coal field of Bilaspur Division of SECR	Stations on Southern and South Central Railway and Stations of Mumbai Division of Western Railway	Via Katni Murwara (KMZ) – Bina – Khandwa – Bhusaval.
11.3	All goods traffic originating on main line of BSP div Jharsuguda (excl)-DURG (incl) and Uslapur (excl) including all branch lines connected on this section.	Station on Vadodra, Rajkot and Ahmedabad Divisions of Western Railway	Nagpur-Bhusawal-Jalgaon-Surat.
11.4	Coal traffic from and to SECR, SER, ECR	Destinations on CR, SCR and SR for which shortest route is via Gondia–Chanda Fort and vice-versa	Nagpur-Balharshah
11.5	Coal traffic originating from SECR	Destinations falling on Narkher – Badnera section of CR for which shortest route is via Nagpur - Wardha - Badnera	Godhani-Narkher
12. South Western Railway			
12.1	All traffic originating /terminating and passing through SWR	Having shortest route via BYPL – OML or vice versa	BYPL – TPT or vice-versa
13. Western Railway			
13.1	Coal Traffic from Western Railway	Destinations on Prayagraj Division of North Central Railway for which shortest route is via BKI–BTE	WDFC route (PNUN – AELN)

S.No.	From	To	To be routed via
13.2	All traffic from WR except the traffic originating from Ratlam–Chanderia section of Ratlam division	Destinations on Moradabad Division of NR, Moradabad-Ramnagar Section & Rampur- Kathgodam section of Izzat Nagar Division of North Eastern Railway for which shortest route is via PTNR.	Bandikui–Achnera-Mathura
14. Bangladesh Traffic			
14.1	All Traffic passing via Dumdum Jn (DDJ)	To Benapole (BEN/ Bangladesh) for which the shortest route is via Barasat (BT) - Bangaon (BNJ)	Naihati (NH)-Ranaghat (RHA)-Bangaon (BNJ)

15. The above Rationalization Scheme will also be applicable on the traffic originating/ terminating on Sidings and Ports (including Port Trust Railways) as is applicable for the Railways serving them.

16. The provisions of the Rationalization Scheme shall not apply to Over Dimensional Consignments, POL traffic and edible salt i.e. salt for human consumption.

17. The rate to be charged will be those chargeable by the route specified above.

18. The provisions of the Rationalization Scheme will also apply to the branch lines connected with the different sections covered by the Rationalization Scheme General Order unless categorically specified otherwise.

19. This Order is issued in suppression of General Order No.1/2023 issued vide Board's letter No. 2021/TT-III/27/1 dated 28.06.2023 and its Amendments thereof and will come in to force from 01.07.2024 and unless cancelled earlier will remain in force upto 30.06.2025.

Please acknowledge receipt.

(Avinash Kumar Mishra)
Executive Director/Coal
Railway Board

Copy forwarded for information and necessary action to:
i. Director (Rail Movement), Fairlie Place, Kolkata
ii. FA&CAO, All Indian Railways
iii. MD/CRIS, GM/FOIS, CAO/FOIS, CRIS Complex, Chanakyapuri, New Delhi-31
iv. CMD/CONCOR
v. MD/KRCL
vi. President ACTO and All CTOs.

Copy for information please:
OSD/MR, AMT, AMC, PEDTT(M), EDTT/F, EDTT/S, EDTC/R, EDFC, ED/C&IS, ED/P, EDFM, DTT/G, JDTT/POL, JDTT/F, JDTT-III, DTC/R

भारत सरकार GOVERNMENT OF INDIA

रेल मंत्रालय MINISTRY OF RAILWAYS

(रेलवे बोर्ड RAILWAY BOARD)

No. 2024/TT-III/27/1 Rail Bhawan, New Delhi, Dated : 25.10.2024

General Managers (Operating)/ Commercial),
All Indian Railways including Production Units.

-CORRIGENDUM-

Sub : GO No. 01/2024 [Rationalization Scheme] [Effective From 01.07.2024]
Ref : Even no. of this letter dated 27.06.2024

Vide reference above, It is to clarified that the item no. 1.2 of GO 01/2024 issued on 27.06.2024 may be treated as below:

Print as :

S.No.	From	To	To be routed via
1.2	Coal traffic from Mumbai division of Central Railway carried beyond Jalgaon station	Any destination having shortest route via Kasara-Igatpuri and Karjat-Lonavala (Mumbai Division)	BSR (Vasai Road) - Bhestan-Jalgaon

To be Read as:

Deleted.

All other instructions will remain same. This order will come into force from 01.11.2024.

This has the approval of competent authority.

Please acknowledge receipt.

(Dr.Avinash Kumar Mishra)
Executive Director/Coal
Railway Board

Copy forwarded for information and necessary action to:
i. Director (Rail Movement), Fairlie Place, Kolkata
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भारत सरकार GOVERNMENT OF INDIA

रेल मंत्रालय MINISTRY OF RAILWAYS

(रेलवे बोर्ड RAILWAY BOARD)

No. 2024/TT-III/27/1 Rail Bhawan, New Delhi, Dated : 02.12.2024

General Managers (Operating)/ Commercial),
All Indian Railways including Production Units.

-CORRIGENDUM-

Sub : GO No. 01/2024 [Rationalization Scheme] [Effective From 01.07.2024]
Ref : Even no. of this letter dated 27.06.2024

Vide reference above, It is to clarified that the item no. 11.3 of GO 01/2024 issued on 27.06.2024 may be treated as below:

Print as :

S.No.	From	To	To be routed via
11.3	All goods traffic originating on main line of BSP div Jharsuguda (excl)-DURG (incl) and Uslapur (excl) including all branch lines connected on this section.	Station on Vadodra, Rajkot and Ahmedabad Divisions of Western Railway	Nagpur-Bhusawal-Jalgaon-Surat.

To be Read as:

Deleted.

All other instructions will remain same. This order will come into force from 09.12.2024.

This has the approval of competent authority.

Please acknowledge receipt.

(Dr.Avinash Kumar Mishra)
Executive Director/Coal
Railway Board

Copy forwarded for information and necessary action to:
i. Director (Rail Movement), Fairlie Place, Kolkata
ii. FA&CAO, All Indian Railways
iii. MD/CRIS, GM/FOIS, CAO/FOIS, CRIS Complex, Chanakyapuri, New Delhi-31
iv. CMD/CONCOR
v. MD/KRCL
vi. President ACTO and All CTOs.

Copy for information please: OSD/MR, AMT, AMC, PEDTT(M), EDTT/F, EDTT/S, EDTC/R, EDFC, ED/C&IS, ED/P, EDFM, DTT/G, JDTT/POL, JDTT/F, JDTT-III, DTC/R

भारत सरकार GOVERNMENT OF INDIA

रेल मंत्रालय MINISTRY OF RAILWAYS

(रेलवे बोर्ड RAILWAY BOARD)

No. 2024/TT-III/27/1 Rail Bhawan, New Delhi, Dated : 01.07.2024

General Managers (Operating)/ Commercial),
All Indian Railways including Production Units.

-CORRIGENDUM-

Sub : GO No. 01/2024 [Rationalization Scheme] [Effective From 01.07.2024]
Ref: Even no. of this letter dated 27.06.2024

Vide reference above, It is to clarified that the item no. 10.4 of GO 01/2024 issued on 27.06.2024 has already been amended vide Amendment no.1 of GO/01 of 2023 issued on 30.11.2023) as below:

Print as :			
S.No.	**From**	**To**	**To be routed via**
10.4	Coal traffic originating from JSRY-MFSJ section of SER and HGR-JSG section of SECR	Power houses falling on NCR, NR and NWR for which shortest distance is via NKJ	BRKA
To be Read as:			
10.4	Coal traffic originating from JSRY-MFSJ section of SER	Power houses falling on NCR, NR and NWR for which shortest distance is via NKJ	BRKA

All other instructions will remain same. This Order will come into force with immediate effect.

Please acknowledge receipt.

(Avinash Kumar Mishra)
Executive Director/Coal
Railway Board

Copy forwarded for information and necessary action to:
i. Director (Rail Movement), Fairlie Place, Kolkata
ii. FA&CAO, All Indian Railways
iii. MD/CRIS, GM/FOIS, CAO/FOIS, CRIS Complex, Chanakyapuri, New Delhi-31
iv. CMD/CONCOR
v. MD/KRCL
vi. President ACTO and All CTOs.

Copy for information please:
OSD/MR, AMT, AMC, PEDTT(M), EDTT/F, EDTT/S, EDTC/R, EDFC, ED/C&IS, ED/P, EDFM, DTT/G, JDTT/POL, JDTT/F, JDTT-III, DTC/R

भारतसरकार GOVERNMENT OF INDIA

रेलमंत्रालय MINISTRY OF RAILWAYS

(रेलवेबोर्ड RAILWAY BOARD)

No. 2024/TT-III/27/1 **Rail Bhawan, New Delhi, Dated : 09.01.2025**

General Managers (Operating)/ Commercial),
All Indian Railways including Production Units.

-CORRIGENDUM-

Sub : GO No. 01/2024 [Rationalization Scheme] [Effective From 01.07.2024]
Ref: Even no. of this letter dated 27.06.2024

Vide reference above, It is clarified that the new item no. 15.1 of Southern Railway be amended in GO 01/2024 issued on 27.06.2024 may be treated as below:

Ammended as :15. Southern Railway			
S.No.	From	To	To be routed via
15.1	All goods traffic passing through SRR/SRR "B" cabin – PGT section and going towards TPJ Division via Pollachi (POY) as per RBS route.	Destinations in TPJ Division or vice versa	**PGT-ED-KRR-TPGY or vice versa**

All other instructions will remain same. This order will come into force from 17.01.2025.

This has the approval of competent authority.

Please acknowledge receipt.

(Dr.Avinash Kumar Mishra)
Executive Director/Coal
Railway Board

Copy forwarded for information and necessary action to:

vii. Director (Rail Movement), Fairlie Place, Kolkata
viii. FA&CAO, All Indian Railways
ix. MD/CRIS, GM/FOIS, CAO/FOIS, CRIS Complex, Chanakyapuri, New Delhi-31
x. CMD/CONCOR
xi. MD/KRCL
xii. President ACTO and All CTOs.

Copy for information please: OSD/MR, AMT, AMC, PEDTT(M), EDTT/F, EDTT/S, EDTC/R, EDFC, ED/C&IS, ED/P, EDFM, DTT/G, JDTT/POL, JDTT/F, JDTT-III, DTC/R

Rationalization Circular No. **02/2023**

भारत सरकार GOVERNMENT OF INDIA

रेल मंत्रालय MINISTRY OF RAILWAYS

(रेलवे बोर्ड) (RAILWAY BOARD)

R.No. 260, Raisina Marg,
Rail Bhawan, New Delhi – 110001

No.2023/TT-III/27/3 **Dated 30.11.2023**

General Managers (Operating)/(Commercial),
All Indian Railways including
Production Units

Sub: Rationalization Scheme General Order No.01/2023- Amendment No.1

Refer Board's letter No.2021/TT-III/27/1 dated 28.06.2023 issuing Rationalisation Scheme General Order No.1/2023 effective from 01.07.2023 and their amendments and extensions thereof.

Now as it is necessary so to do in the public interest, the following amendments in the above mentioned Rationalization Scheme are hereby ordered:

South Eastern Railway:

S.No.	From	To	To be routed via
10.3	All Traffic originating from DPS-JRLI and from **BYX-GUA** section	BSCS for which shortest route is via CNI – PRR	CNI-MURI
10.4	Coal traffic originating from JSRY - MFSJ section of SER	Power houses falling on NCR, NR and NWR for which shortest distance is via NKJ	BRKA

All other instructions will remain same. **This Order will come into force with effect from 07.12.2023.** Please acknowledge receipt.

(Dr. Avinash Kr. Mishra)
Executive Director/Coal
Railway Board

Copy forwarded for information to:
(1) Director (Rail Movement), Fairlie Place, Kolkatta
(2) FA & CAO, All Indian Railways
(3) CAO/FOIS, CRIS Complex, Chanakyapuri, New Delhi-21.
(4) CMD/CONCOR
(5) MD/KRCL
(6) President, ACTO & All CTOs.

(Dr. Avinash Kr. Mishra)
Executive Director/Coal
Railway Board

Copy for information please:
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भारत सरकार /GOVERNMENT OF INDIA

रेल मंत्रालय/ MINISTRY OF RAILWAYS

(रेलवे बोर्ड / RAILWAY BOARD)

No. 2021/TT-III/27/1 Rail Bhawan, New Delhi, dt: 28.06.2023

General Managers (Operating)/ Commercial),
All Indian Railways including Production Units.

GENERAL ORDER No. 01/2023
[RATIONALIZATION SCHEME]
[EFFECTIVE FROM 01.07.2023]

Whereas in the opinion of the Central Government (Railway Board), it is necessary to do so in the public interest:

Now, therefore, in exercise of the powers conferred under Section 71 of The Railway Act, 1989 (24 of 1989) read with notification of the Government of India in the Ministry of Railways number G.S.R. 53(E) dated the 23rd January, 1995 the Railway Board hereby directs that all Railway Administration shall carry, unless it is necessary to divert such wagons for operational convenience after the consignments are booked, any goods or class of goods by such route or routes specified in this order:

S.No.	From	To	To be routed Via
1.	**Central Railway**		
1.1	All fertilizer traffic from Hubli Division of SWR, KRCL and Palghat Division of Southern Railway.	Destinations on and via Central Railway for which shortest route is via Kulem-Castle Rock-Londa	Ratnagiri – Roha
2.	**Eastern Railway**		
2.1	All Coal traffic (Originating from any Railway)	For destinations on North Western Railway for which the shorter route is via DDU-JAB-AGA-MTJ	DDU-MZP-JAB-IDH-BTE-BKI
2.2	Coal traffic from Pirpainti (PPT) / Pirpainti coal loading siding (PCLS) of Eastern Railway	Destinations for which shortest route is via Kiul – Luckeesarai – Rampur Dumra	Gumani-Andal-Pradhankunta
2.3	Jute Traffic booked from BLY/ BHAE	All destinations on ECOR, SER, SECR, SR and SWR for which shortest route is via BTNG – ADL	BDC-SKG-KPK
2.4	All Traffic originating from ASN Division (Except MDP – MMD section)	Destinations of ECR, NCR, NR, NER and NWR for which shortest route is via MDP – MMD – KQR	To be routed via JMT-SLS – PKA – KQR

3.	**East Central Railway**		
3.1	Coal loaded from NCL sidings and goods sheds located between Billi Jn (BXLL) – Mahadiya (MHDA) – and Karaila Road (KRLR) – Shakti Nagar (SKTN) sections of ECR and Mahadiya (MHDA) – Gajara Bahara (GAJB) section of WCR	All destinations on North Western Railway and Northern Railway (except for destinations on Lucknow Division, Moradabad Division and [HNC-UMB section] of UMB Division) for which shortest route is via Chopan – Chunar	Katni Murwara - Gwalior
3.2	Coal loaded from NCL sidings and goods sheds located between Billi Jn (BXLL) – Mahadiya (MHDA)-Gajara Bahara (GAJB) and Karaila Road Jn (KRLR) – Shakti Nagar (SKTN)	All destinations of Jhansi division, Agra division and Chheoki-Manikpur section of Prayagraj division for which shortest route is via Chopan – Chunar.	Singrauli – New Katni Jn.
3.3	All Coal traffic from Pathardih	All destinations on East Central Railway and via Pt Deen Dayal Upadhyaya Jn for which shortest route is via Bhojudih-Gomoh	Pathardih-Pradhankunta-Gomoh
4.	**East Coast Railway**		
4.1	All goods traffic	Stations reached via Cuttack except stations on Nergundi – Cuttack – Paradeep section	Barang – Kapilas Road – Bye Pass avoiding Cuttack.
4.2	All Traffic from Paradeep Port	To TISCO/TWS in SER	Jakhapura – Jaroli
4.3	Traffic Originating from Dhamra Port (DPCB)	Destinations for which shortest route is via Jakhapura-Angul-Sambalpur City except for destinations on Sambalpur Division of ECoR	Bhadrak – Nimpura
4.4	All traffic to & from NALCO/DMNJ	Stations for which shortest route is via Kottavalsa (KTV) – Koraput (KRPU) and vice versa	VZM-RGDA-SPRD and vice versa.
5.	**Northern Railway**		
5.1	All goods traffic	Destinations for which	DSJ

		shortest route is via DLI/NDLS	
5.2	All Freight Traffic	For which shortest route is via Alam Nagar (AMG) – Lucknow (LKO) – Utraitia (UTR) & vice-versa	Alam Nagar (AMG) – Transport Nagar (TPNR) – Utraitia (UTR) & vice versa
6. **North Central Railway**			
6.1	Coal traffic from Eastern Railway, East Central Railway, South Eastern Railway & East Coast Railway	Destinations for which shortest route is via Pt. Deen Dayal Upadhyaya Jn (DDU) –Yamuna Bridge (JAB) – Mathura Jn (MTJ)– Palwal (PWL)	Pt. Deen Dayal Upadhyaya Jn (DDU) – Dadri (DER).
6.2	All traffic routed via Bandikui	Destinations on North Eastern and terminals on Farukhabad (incl.)-Shikohabad(excl.) Section of North Central Railway	Achnera (AH) – Kasganj (KSJ)
6.3	All traffic routed via Bandikui	Destinations on North East Frontier Railways	Achnera (AH) – Kasganj (KSJ – Bara Banki Jn (BBK)
6.4	All Iron or Steel traffic from ER, SER, ECoR and ECR	To destinations of Northern Railway for which shortest route is via Yamuna Bridge (JAB) – Agra City (AGA) – Raja Ki Mandi (RKM)	To be routed via Dadri (DER)
7. **North Eastern Railway**			
7.1	All goods traffic from stations of ER, ECR, SER and ECoR and vice versa.	Destinations on CR, NR, NCR, NWR, WR and WCR and vice versa for which the shortest route is via Pt. Deen Dayal Upadhyaya Jn – Varanasi – Madhosingh – Prayagraj Rambag	Pt. Deen Dayal Upadhyaya Jn (DDU) – Mirzapur (MZP) – Prayagraj (PRYJ)
8 North Western Railway			
8.1	Coal Traffic routed via MTJ-AWR	Suratgarh Thermal Power Station (STPB)	PWL-TKD-SSB-ROK-JHL-KZW-HMH
8.2	All Goods Traffic except to destinations on Moradabad Division of NR, Moradabad –Ramnagar & Rampur – Kathgodam sections of Izzat Nagar Division of North Eastern	Destinations for which present shortest route is KTWS-RGS-FL-PNU and vice-versa	To be routed via KTWS-AELN-PNUN-PNU and vice versa on all stations between AELN and PNUN of WDFC route.

	Railway		
9 South Central Railway			
9.1	Traffic moving via SNF-CHZ or vice versa	Destinations for which the shortest route is via Secunderabad	SNF – CHZ Chordline.
9.2	All traffic originating on KRCL, CR, SCR, SWR and SR	Destinations on North East Frontier Railway, North Eastern Railway and Samastipur and Sonepur division of East Central Railway for which shortest route is via Bilaspur – Jharsugunda	Itarsi – Bina – Virangana Lakshmibai Jhansi – Kanpur –Lucknow – Gorakhpur.
9.3	All Traffic	Destinations for which shortest route is via Motumari (MTMI) – Vishnupuram (VNUP) – Bibinagar(BN) and vice versa	Kondapalli (KI) – Kazipet (KZJ) or vice versa
9.4	**All Coal traffic originating from locations in Secunderabad division for which the shortest route is via Nandyal (NDL) – Yerraguntla (YA)**	**Rayalaseema Thermal Power Plant and Siding, Muddanuru (RTPM/MOO)**	NDL-DHNE-PDL-GY-MOO
10 South Eastern Railway			
10.1	Iron ore traffic originating from Kiriburu - Bondamunda and Bursuan – Bimalgarh sections	BKEC/ BSCS/ BKSC	Nawagaon – Hatia – Muri
10.2	All traffic from all Railways	From which shortest distance is Kharagpur – Gokulpur via Girimaidan	Via Nimpura – Gokulpur
10.3	All Traffic originating from DPS-JRLI section	BSCS for which shortest route is via CNI – PRR	CNI – MURI
10.4	Coal traffic originating from JSRY - MFSJ section of SER and HGR – JSG section of SECR	Power houses falling on NCR, NR and NWR for which shortest distance is via NKJ	BRKA
11 **South East Central Railway**			
11.1	Coal traffic from Bilaspur and Raipur Division of SECR	Destinations on Bina – Itarsi Section in Bhopal Divn of WCR and destinations on Central Railway & passing through	New Katni Jn. (NKJ) – Bina Jn. (BINA)

		Central Railway for which shortest route is via NKJ – JBP	
11.2	Coal from Korea – Rewa Coal field of Bilaspur Division of SECR	Stations on Southern and South Central Railway and Stations of Mumbai Division of Western Railway	Via Katni Marwara (KMZ) – Bina – Khandwa – Bhusaval.
11.3	All goods traffic originating on main line of Bilaspur Division Jharsuguda (excl) – Durg (incl) and Uslapur (excl) including all branch lines connected on this section.	Stations on Vadodara, Rajkot and Ahmedabad Divisions of Western Railway	Nagpur – Bhusawal – Jalgaon – Surat.
11.4	Coal traffic from and to SECR, SER, ECR	Destinations on CR, SCR and SR for which shortest route is via Gondia – Chanda Fort and vice-versa	Nagpur - Balharshah
11.5	Clinker, Fly Ash and Slag traffic originating from SECR	Destinations falling on DDU and DNR Divisions for which shortest route is via JSG	NKJ
11.6	Coal traffic originating from SECR	Destinations falling on Narkher – Badnera section of CR for which shortest route is via Nagpur - Wardha - Badnera	Godhani - Narkher
12 **South Western Railway**			
12.1	All traffic originating / terminating and passing through SWR	Having shortest route via BYPL – OML or vice versa	BYPL – TPT or vice-versa
13 **Western Railway**			
13.1	Coal Traffic from Western Railway	Destinations on Prayagraj Division of North Central Railway for which shortest route is via BKI – BTE	WDFC route (PNUN – AELN)
13.2	All traffic from WR except the traffic originating from Ratlam – Chanderia section of Ratlam division	Destinations on Moradabad Division of NR, Moradabad-Ramnagar Section & Rampur – Kathgodam section of Izzat Nagar Division of North Eastern Railway for which	Bandikui – Achnera-Mathura

		shortest route is via PTNR	
14 Bangladesh Traffic			
14.1	All Traffic passing via Dumdum Jn (DDJ)	To Benapole (BEN/ Bangladesh) for which the shortest route is via Barasat (BT) – Bangaon (BNJ)	Naihati (NH)-Ranaghat (RHA)-Bangaon (BNJ)

15. The above Rationalization Scheme will also be applicable on the traffic originating/ terminating on Sidings and Ports (including Port Trust Railways) as is applicable for the Railways serving them.

16. The provisions of the Rationalization Scheme shall not apply to Over Dimensional Consignments, POL traffic and edible salt i.e. salt for human consumption.

17. The rate to be charged will be those chargeable by the route specified above.

18. The provisions of the Rationalization Scheme will also apply to the branch lines connected with the different sections covered by the Rationalization Scheme General Order unless categorically specified otherwise.

19. **This Order is issued in suppression of General Order No. 1/2014 issued vide Board's letter No. 2014/TT-III/S/27/1 dated 02.09.2014 and its Amendments thereof and will come into force from 01.07.2023 and unless cancelled earlier will remain in force upto 30.06.2024.**

Please acknowledge receipt.

28/6/2023

(H.S.Bajwa)
Executive Director/ Coal
Railway Board

Copy forwarded for information and necessary action to:

i.. Director (Rail Movement), Fairlie Place, Kolkata
ii.. FA&CAO, All Indian Railways
iii..MD/CRIS, GM/FOIS, CAO/FOIS, CRIS Complex, Chanakyapuri, New Delhi-31
iv.. CMD/CONCOR
v.. MD/KRCL
vi.. President ACTO and All CTOs.

Copy for information please:

OSD/MR, AMT, AMC, PEDTT(M), EDTT/F, EDTT/S, EDTC/R, EDFC, ED/C&IS, EDP, EDFM, JDTT/POL, DTC/R

भारत सरकार Government of India
रेल मंत्रालय Ministry of Railways
(रेलवे बोर्ड Railway Board)

No. 2021/TT-III/27/1 **Rail Bhawan, New Delhi, dt: 28.02.2023**

General Managers (Operating)/(Commercial),
All Indian Railways including
Production Units

Sub: Rationalization Scheme General Order No.01/2014- Amendment No.23

Refer Board's letter No.2014/TT-III/S/27/1 dated 02.09.2014 issuing Rationalisation Scheme General Order No.1/2014 effective from 05.09.2014 and their amendments and extensions thereof.

Now as it is necessary so to do in the public interest, the following amendments in the above mentioned Rationalization Scheme are hereby ordered:

(a) **Northern Railway**:

5. Northern Railway			
S.No.	**From**	**To**	**To be routed Via**
5.4	All freight traffic	For which shortest route is via Alam Nagar (AMG) – Lucknow (LKO) – Utraitia(UTR) & vice- versa	Alam Nagar (AMG)-Transport Nagar (TPNR)-Utraitia (UTR) & vice-versa

(b) **Eastern Railway**:
(i)

2. **Eastern Railway**			
S.No.	**From**	**To**	**To be routed Via**
2.4	Jute traffic booked from BLY/ BHAE	All destinations on ECOR, SER, SECR, SR and SWR for which shortest route is via BTNG-ADL	BDC-SKG-KPK

(ii)

2. **Eastern Railway**			
S. No	**From**	**To**	**To be routed via**
2.5	All traffic originating from ASN Division (Except MDP – MMD section)	Destinations of ECR, NCR, NR, NER and NWR for which shortest route is via MDP-MMD-KQR	To be routed via JMT-SLS-PKA-KQR

(c) **East Central Railway**:

3. East Central Railway			
S.No.	**From**	**To**	**To be routed Via**
3.1a	Coal loaded from NCL sidings and goods sheds located between Billi Jn (BXLL) – Mahadiya (MHDA) and Karaila Road Jn (KRLR) – Shakti Nagar (SKTN) sections of ECR and Mahadiya (MHDA) – Gajara Bahara (GAJB) section of WCR	All destinations on North Western Railway and Northern Railway (except for destinations on Lucknow and Moradabad Divisions) for which shortest route is via Chopan - Chunar	Katni Murwara-Gwalior

All other instructions will remain same. **This Order will come into force with effect from 06.03.2023.** Please acknowledge receipt.

(H.S.Bajwa)
Executive Director/Coal
Railway Board

Copy forwarded for information and necessary action to:

(i,) Director (Rail Movement), Fairlie Place, Kolkata
(ii) FA&CAO, All Indian Railways
(iii) CAO/FOIS, CRIS Complex, Chanakyapuri, New Delhi-31
(iv) CMD/CONCOR
(v) MD/KRCL
(vi) President, ACTO & All CTOs.

(H.S.Bajwa)
Executive Director/Coal
Railway Board

Copy for information please:
OSD (MR), AM (T), AM(C), PEDTT(M), EDTT(F), EDTT(S), EDTC(R), EDF(C), ED(C&IS), EDP, ED(FM), DTT/POL, DTC/R

Rationalization Circular No. 02/2022

भारत सरकार /GOVERNMENT OF INDIA
रेल मंत्रालय/ MINISTRY OF RAILWAYS
(रेलवे बोर्ड / RAILWAY BOARD)

No. 2021/TT-III/27/1 Rail Bhawan, New Delhi, dt: 29.06.2022

General Managers (Operating)/(Commercial),
All Indian Railways including
Production Units.

Sub: Extension of Rationalization Scheme General Order No. 01/2014 alongwith its Amendments.

****

Refer Railway Board's letter No. 2014/TT-III/S/27/1 dated 02.09.2014 issuing Rationalization Scheme General Order No. 01/2014 effective from 05.09.2014 alongwith its Amendments. The validity of Rationalization Scheme General Order No. 01/2014 alongwith its Amendments was extended upto 30th June, 2022 vide letter no. 2020/TT-III/27/1 dated 15.06.2021.

Now as it is necessary to do so in the public interest, the validity of this Rationalization Scheme General Order alongwith its Amendments is hereby extended upto 30th June, 2023 unless modified/ cancelled earlier.

Please acknowledge receipt.

29/6/22

(Deepak Kumar Jha)
Executive Director /TT(S)
Railway Board

Copy forwarded for information and necessary action to:

(i) Director (Rail Movement), Fairlie Place, Kolkata
(ii) FA&CAO, All Indian Railways
(iii) CAO/FOIS, CRIS Complex, Chanakyapuri, New Delhi-31
(iv) CMD/CONCOR
(v) MD/KRCL
(vi) President, ACTO & All CTOs.

29/6/22

(Deepak Kumar Jha)
Executive Director /TT(S)
Railway Board

Copy for information, please:

OSD/MR, AM/TT, AM/C, PED/TT(M), EDTT(F), EDTT(S), ED/Coal, EDFM, EDTC/R, EDFC, ED/C&IS, EDP, DTT/POL

Corrigendum No. 3 to Rationalization Circular No. 01/2022

भारत सरकार Government of India
रेल मंत्रालय Ministry of Railways
(रेलवे बोर्ड Railway Board)

No. 2021/TT-III/27/1 **Rail Bhawan, New Delhi, dt: 15.03.2022**

General Managers (Operating)/(Commercial),
All Indian Railways including
Production Units

Sub: Rationalization Scheme General Order No.01/2014- Amendment No.22- Corrigendum No. 3.

Refer Board's letter No.2021/TT-III/27/1 dated 03.02.2022, the Amendment No. 22 of Rationalization Scheme General Order No.01/2014 may be read as under:

7A North Western Railway:

S. No.	From	To	To be routed via
7A.2	All Goods Traffic except To Destinations on [(Moradabad Division of NR), (Moradabad-Ramnagar Section & Rampur – Kathgodam section of Izzat Nagar Division of North Eastern Railway) and (Coal traffic from WR to Paryagraj Division on North Central Railway)]	Destinations for which present shortest route is KTWS-RGS-FL-PNU and vice-versa	To be routed via KTWS-AELN-PNUN-PNU and vice versa on all stations between AELN and PNUN of WDFC route.

All other instructions will remain same. **This Order will come into force with immediate effect.** Please acknowledge receipt.

(A.K. Shamsi)
Executive Director/Coal
Railway Board

Copy forwarded for information and necessary action to:
(1,) Director (Rail Movement), Fairlie Place, Kolkatta
(2,) FA & CAO, All Indian Railways
(3,) CAO/FOIS, CRIS Complex, Chanakyapuri, New Delhi-21.
(4,) Standard List attached.

(A.K. Shamsi)
Executive Director/Coal
Railway Board

Copy for information please:
OSD (MR), AM (T), AM(C), PEDTT(M), EDTT(F), EDTT(S), EDTC(R), EDF(C), ED(C&IS), EDP, ED(FM), DTT/POL, DTC/R

Corrigendum No. 2 to Rationalization Circular No. 01/2022

भारत सरकार Government of India
रेल मंत्रालय Ministry of Railways
(रेलवे बोर्ड Railway Board)

No. 2021/TT-III/27/1 **Rail Bhawan, New Delhi, dt: 08.03.2022**

General Managers (Operating)/(Commercial),
All Indian Railways including
Production Units

Sub: Rationalization Scheme General Order No.01/2014- Amendment No.22- Corrigendum No. 2.

Refer Board's letter No.2021/TT-III/27/1 dated 03.02.2022, the Amendment No. 22 of Rationalization Scheme General Order No.01/2014 may be read as under:

7A North Western Railway:

S. No.	From	To	To be routed via
7A.2	All Goods Traffic except From/To (Moradabad Division of NR) and (Moradabad-Ramnagar Section & Rampur – Kathgodam section of Izzat Nagar Division of North Eastern Railway)	Destinations for which present shortest route is KTWS-RGS-FL-PNU and vice-versa	To be routed via KTWS-AELN-PNUN-PNU and vice versa on all stations between AELN and PNUN of WDFC route.

All other instructions will remain same. **This Order will come into force with immediate effect.** Please acknowledge receipt.

(A.K. Shamsi)
Executive Director/Coal
Railway Board

Copy forwarded for information and necessary action to:
(1,) Director (Rail Movement), Fairlie Place, Kolkatta
(2,) FA & CAO, All Indian Railways
(3,) CAO/FOIS, CRIS Complex, Chanakyapuri, New Delhi-21.
(4,) Standard List attached.

(A.K. Shamsi)
Executive Director/Coal
Railway Board

Copy for information please:
OSD (MR), AM (T), AM(C), PEDTT(M), EDTT(F), EDTT(S), EDTC(R), EDF(C), ED(C&IS), EDP, ED(FM), DTT/POL, DTC/R

भारत सरकार Government of India
रेल मंत्रालय Ministry of Railways
(रेलवे बोर्ड Railway Board)

No. 2021/TT-III/27/1 **Rail Bhawan, New Delhi, dt: 28.02.2022**

General Managers (Operating)/(Commercial),
All Indian Railways including
Production Units

Sub: Rationalization Scheme General Order No.01/2014- Amendment No.22- Corrigendum No. 1.

Refer Board's letter No.2021/TT-III/27/1 dated 03.02.2022, the Amendment No. 22 of Rationalization Scheme General Order No.01/2014 may be read as under:

7A North Western Railway:

S. No.	From	To	To be routed via
7A.2	All Goods Traffic	Destinations for which present shortest route is KTWS-RGS-FL-PNU and vice-versa	To be routed via KTWS-AELN-PNUN-PNU and vice versa on all stations between AELN and PNUN of WDFC route.

All other instructions will remain same. **This Order will come into force with immediate effect.** Please acknowledge receipt.

(A.K. Shamsi)
Executive Director/Coal
Railway Board

Copy forwarded for information and necessary action to:

(1) Director (Rail Movement), Fairlie Place, Kolkatta
(2) FA & CAO, All Indian Railways
(3) CAO/FOIS, CRIS Complex, Chanakyapuri, New Delhi-21.
(4) Standard List attached.

(A.K. Shamsi)
Executive Director/Coal
Railway Board

Copy for information please:
OSD (MR), AM (T), AM(C), PEDTT(M), EDTT(F), EDTT(S), EDTC(R), EDF(C), ED(C&IS), EDP, ED(FM), DTT/POL, DTC/R

(Cx)

भारत सरकार Government of India
रेल मंत्रालय Ministry of Railways
(रेलवे बोर्ड Railway Board)

No. 2021/TT-III/27/1 **Rail Bhawan, New Delhi, dt: 03.02.2022**

General Managers (Operating)/(Commercial),
All Indian Railways including
Production Units

Sub: Rationalization Scheme General Order No.01/2014- Amendment No.22

Refer Board's letter No.2014/TT-III/S/27/1 dated 02.09.2014 issuing Rationalisation Scheme General Order No.1/2014 effective from 05.09.2014 and their amendments and extensions thereof.

Now as it is necessary so to do in the public interest, the following amendments in the above mentioned Rationalization Scheme are hereby ordered:

7A North Western Railway:

S. No.	From	To	To be routed via
7A.2	All Goods Traffic	Destinations for which present shortest route is KTWS-RGS-FL-PNU and vice-versa	To be routed via KTWS-AELN-PNUN-PNU and vice versa

All other instructions will remain same. **This Order will come into force with effect from 06.02.2022.** Please acknowledge receipt.

(A.K. Shamsi)
Executive Director/Coal
Railway Board

Copy forwarded for information to:

(1) Director (Rail Movement), Fairlie Place, Kolkatta
(2) FA & CAO, All Indian Railways
(3) CAO/FOIS, CRIS Complex, Chanakyapuri, New Delhi-21.
(4) Standard List attached.

(A.K. Shamsi)
Executive Director/Coal
Railway Board

Copy for information please:
OSD (MR), AM (T), AM(C), PEDTT(M), EDTT(F), EDTT(S), EDTC(R), EDF(C), ED(C&IS), EDP, ED(FM), DTT/POL, DTC/R

Rationalization Circular No. 03/2021

भारत सरकार Government of India
रेल मंत्रालय Ministry of Railways
(रेलवे बोर्ड Railway Board)

No. 2021/TT-III/27/1 **Rail Bhawan, New Delhi, dt: 31.08.2021**

General Managers (Operating)/(Commercial),
All Indian Railways including
Production Units

Sub: Rationalisation Scheme General Order No.01/2014 - Amendment No. 21

Refer Board's letter No.2014/TT-III/S/27/1 dated 02.09.2014 issuing Rationalisation Scheme General Order No.1/2014 effective from 05.09.2014 and subsequently their amendments and extensions thereof.

Now as it is necessary so to do in the public interest, the following amendments in the above mentioned Rationalisation Scheme are hereby ordered:-

6. **NORTH CENTRAL RAILWAY**

6. North Central Railway	
S No	
6.4	**This Para has been withdrawn**

All other instructions will remain same. **This Order will come into force with effect from 01.09.2021.** Please acknowledge receipt.

(A.K. Shamsi)
Executive Director / Coal
Railway Board

Copy forwarded for information and necessary action to:

(1) Director (Rail Movement), Fairlie Place, Kolkatta
(2) FA & CAO, All Indian Railways
(3) CAO/FOIS, CRIS Complex, Chanakyapuri, New Delhi-21.
(4) CMD/CONCOR;
(5) MD/KRCL
(6) All CTOs.

(A.K. Shamsi)
Executive Director / Coal
Railway Board

Copy for information please:
OSD/MR, AM(C), Adv./Tfc, PED/TT(M), EDTT(F), EDTT(S), ED(FM), EDTC(R), EDF(C), ED(C&IS), EDP, DTT/POL, DFM, DTC/R

भारत सरकार Government of India
रेल मंत्रालय Ministry of Railways
(रेलवे बोर्ड Railway Board)

No. 2020/TT-III/27/1 **Rail Bhawan, New Delhi, dt: 15.06.2021**

General Managers (Operating)/(Commercial),
All Indian Railways including
Production Units

Sub: Extension of Rationalisation Scheme General Order No.01/2014 along-with its Amendment Orders.

Refer Railway Board's letter No. 2014/TT-III/S/27/1 dated 02.09.2014 issuing Rationalisation Scheme General Order No.1/2014 effective from 05.09.2014 along with its Amendment Orders. The validity of Rationalisation Scheme General Order No.01/2014 along-with its Amendment Orders was extended upto 30th June, 2021 vide letter no. **2020/TT-III/27/1 dated 22.06.2020**.

Now as it is necessary to do so in the public interest, the validity of this Rationalisation Scheme General Order along-with its Amendment Orders is hereby extended upto **30th June, 2022** unless modified / cancelled earlier.

Please acknowledge receipt.

(A.K. Shamsi)
Executive Director / Coal
Railway Board

Copy forwarded for information and necessary action to:

(1) Director (Rail Movement), Fairlie Place, Kolkatta
(2) FA & CAO, All Indian Railways
(3) CAO/FOIS, CRIS Complex, Chanakyapuri, New Delhi-21
(4) CMD/CONCOR
(5) MD/KRCL
(6) President, ACTO & All CTOs.

(A.K. Shamsi)
Executive Director / Coal
Railway Board

Copy for information please:
OSD/MR, AM/T, AM(C), PED/TT(M), EDTT(F), EDTT(S), ED(FM), EDTC(R), EDF(C), ED(C&IS), EDP, DTT/POL, DFM, DTC/R

भारत सरकार Government of India
रेल मंत्रालय Ministry of Railways
(रेलवे बोर्ड Railway Board)

No. 2020/TT-III/27/1

Rail Bhawan, New Delhi, dt: 16.02.2021

General Managers (Operating)/(Commercial),
All Indian Railways Including
Production Units

Sub: Rationalisation Scheme General Order No.01/2014 - Amendment No. 20

Refer Board's letter No.2014/TT-III/S/27/1 dated 02.09.2014 issuing Rationalisation Scheme General Order No.1/2014 effective from 05.09.2014 and subsequently their amendments and extensions thereof.

Now as it is necessary so to do in the public interest, the following amendments in the above mentioned Rationalisation Scheme are hereby ordered:

a. Existing Para 9.3 South Eastern Railway

From	To	Via
Iron ore traffic originating from Kiriburu / Meghataburu	Bokaro Steel Plant	Bimalgarh – Bondamunda – Nawagaon – Hatia – Muri.

Amended, Para 9.3 of South Eastern Railway will be as under:

S. No.	From	To	To be routed via
9.3	Iron ore traffic originating from Kiriburu - Bondamunda and Bursuan – Bimalgarh sections	BKEC/ BSCS/ BKSC	Nawagaon – Hatia – Muri

b. The existing Para 2.2 Eastern Railway:

S. No.	From	To	To be routed via
2.2	All Coal traffic (Originating from any Railway)	For destinations on North Western Railway for which the shorter route is via MGS-TDL-JAB-AGA-MTJ would be routed via	MGS-MZP-TDL-JAB-IDH- BTE-BKI

After amendment Para 2.2 Eastern Railway will be as under:

S. No.	From	To	To be routed via
2.2	All Coal traffic (Originating from any Railway)	For destinations on North Western Railway for which the shorter route is via DDU-JAB-AGA-MTJ	DDU-MZP-JAB-IDH- BTE-BKI

c. The existing Para 6.1 North Central Railway:

S. No.	From	To	To be routed via
6.1	Coal traffic from Eastern Railway, East Central Railway, South Eastern Railway & East Coast Railway	Destinations for which shortest route is via Mugalsarai – Tundla – Jamuna Bridge – Mathura – Palwal	Mughalsarai – Ghaziabad.

Amended Para 6.1 North Central Railway will be as under:

S. No.	From	To	To be routed via
6.1	Coal traffic from Eastern Railway, East Central Railway, South Eastern Railway & East Coast Railway	Destinations for which shortest route is via Pt. Deen Dayal Upadhyaya Jn (DDU) –Yamuna Bridge (JAB) – Mathura Jn (MTJ)– Palwal (PWL)	Pt. Deen Dayal Upadhyaya Jn (DDU) – Ghaziabad Jn (GZB).

All other instructions will remain same. This Order will be come into force with effect from 19.02.2021. Please acknowledge receipt.

(A K. Shamsi)
Executive Director / Coal
Railway Board

Copy forwarded for information and necessary action:

(1) Director (Rail Movement), Fairlie Place, Kolkatta
(2) FA & CAO, All Indian Railways
(3) CAO/FOIS, CRIS Complex, Chanakyapuri, New Delhi-21.
(4) Standard List attached.

(A K. Shamsi)
Executive Director / Coal
Railway Board

Copy for information please:
OSD/MR , AM (T), AM(C), EDTT(F), EDTC(R), EDF(C), ED(C&IS), EDP

GOVERNMENT OF INDIA (भारत सरकार)
MINISTRY OF RAILWAYS (रेल मंत्रालय)
RAILWAY BOARD (रेलवे बोर्ड)

TCR/1078/2018/15 New Delhi , Dt. 31/10/ 2018

General Manager,
All Indian Railways.

Sub: Adjustment in Base Freight rates effective from 01 / 11 / 2018.

1. Sanction of the Central Government is hereby accorded to rationalise the freight rates. A copy of revised freight tables is enclosed as Annexure-I.

2. The sanction of the Central Government is also accorded for the following:

2.1 There shall be no increase in Base Freight of Main commodity heads Cements, 'Foodgrains, Flours and Pulses', Chemical Manures, Salts, Sugar, 'Hydrogenated and other Edible Oils' and Petroleum Products (POL) under Commodity Group No18(a) as mentioned in IRCA Goods Tariff No. 48 part-I (Vol-II). Freight table of these commodities/groups is given at Annexure-II. Accordingly the classification of these commodities has been revised as under:-

S. No	Commodity	Commodity Group No. as mentioned in IRCA Goods Tariff No. 48 part-I (Vol-II)	Revised Class	
			Trainload	Wagonload
1.	**Cement**	5(a)	140A	140B
		5(b) - (Fly Ash)	120A	120B
2.	**Chemical Manures**	6	130A	130B
3.	**Foodgrains, Flours & Pulses**	9	130A	130B
4.	**Hydrogenated and other Edible Oils**	11(a)	140A	140B
		11(b) -(in covered wagons)	LR-3(A)	LR-3(B)
5.	**POL (Petroleum Products)**	18(a)	180A	180B
6.	**Salts**	19(a)	100A	100B
7.	**Sugar**	21	120A	120B

2.2 The revised freight rate table for main commodity head 'Coal and Coke' is given at Annexure-III. No Busy Season Surcharge and Development charge shall be leviable on transportation of Coal and Coke.

2.3 As a special case, Salt traffic (under the commodity group no. 19(a) in the IRCA Goods Tariff No.48 part-I Vol. II), when booked under TEFD will also be charged at class 100A(trainload) instead of class LR1 as stipulated in Rates Circular no.16 of 2018.

3. A copy of revised Goods tariff no. 48, part-II (freight rates tables) is enclosed herewith.

4. Zonal Railway shall ensure that requisite number of copies of the revised Goods Tariff No. 48 part-II (Freight Rates Tables) are collected from General Secretary, IRCA and distributed in time.

5. Steps should also be taken to ensure that all relevant personnel are made conversant with the aforesaid revisions, related instructions, etc. promptly. Commercial Inspectors (CMIs) and Traffic Inspectors of Accounts (TIAs) may be deputed to goods sheds / stations/ sidings etc. for ensuring correct implementation of the instructions particularly during the initial phase.

The issues with the concurrence of Finance Directorate of the Ministry of Railways.

DA: As above

(Barjesh Dharmani)
Executive Director, Traffic Commercial (Rates)
Railway Board

No. TCR/1078/2018/15 New Delhi, dated: 31/10/2018

Copy for information:-

Principal Finance Adviser, All Zonal Railways
Dy.C&AG (Rlys), Room No. 222, Rail Bhawan, New Delhi

31.10.18

for **Finance Commissioner, Railways**

No. TCR/1078/2018/15 New Delhi, dated: 31/10/2018

Copy to:-

1. Principal Chief Commercial Manager, All Zonal Railways
2. Principal Chief Operations Manager, All Zonal Railways
3. Managing Director, CRIS, Chanakyapuri, New Delhi-21.
4. MD, KRCL,Belapur Bhavan, Sector-11, CBD Belapur, Navi Mumbai-400614.
5. Director General, National Academy of Indian Railways, Vadodara.
6. General Secy., IRCA, New Delhi.

7. Director, IRITM, Campus: Hardoi Bye Pass Road, Village & Post office, Kanausi, Manaknagar, Lucknow-226011
8. Managing Director, Pipavav Railway Corporation Ltd., Jeevan Tara Building, 1st Floor, Gate No.4, Sansad Marg, New Delhi-110001
9. Chief Commissioner of Railway Safety, Lucknow.

(Barjesh Dharmani)
Executive Director, Traffic Commercial (Rates)
Railway Board

Copy to:-

CRB, MT, FC, Railway Board

AM(C), AM(T), AM(IT) PED(F), PED(TT/M), PED(Vig.), PED(Acct.), EDTC(R), EDPG, ED(C&IS), EDFM, EDTT(S), EDTT(F), ED(Coal), EDFC,EDVT, ED(Coord)/MOS(G), DFM, DFC, DPG, DTT(G), DF(CCA) Railway Board

TC(R), TC(CR), F(C), TC(FM), Safety branches, Railway Board.

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FREIGHT RATE PER TONNE

Distance (kilometres)	वर्ग Class LR3	वर्ग Class LR2	वर्ग Class LR1	वर्ग Class 100	वर्ग Class 110	वर्ग Class 120	वर्ग Class 130	वर्ग Class 140
1 - 100	86.30	98.60	117.20	123.30	135.70	148.10	160.30	172.70
101 - 125	107.80	123.30	146.40	154.20	169.60	185.10	200.40	215.80
126 - 150	125.20	143.30	178.60	188.00	206.80	225.60	244.40	263.20
151 - 175	140.60	160.60	200.20	210.70	231.80	252.90	273.90	295.00
176 - 200	157.00	179.50	223.90	235.60	259.20	282.70	306.30	329.90
201 - 225	172.40	197.10	245.70	258.70	284.60	310.40	336.30	362.20
226 - 250	189.00	216.00	269.30	283.50	311.90	340.10	368.50	396.90
251 - 275	205.50	234.80	292.80	308.30	339.10	369.90	400.80	431.60
276 - 300	221.90	253.50	316.10	332.70	366.00	399.30	432.60	465.90
301 - 325	237.10	271.10	338.10	355.90	391.50	427.10	462.70	498.30
326 - 350	253.20	289.30	360.90	379.90	417.90	455.90	493.90	532.00
351 - 375	269.20	307.70	383.70	404.00	444.40	484.80	525.20	565.60
376 - 400	285.70	326.50	407.00	428.40	471.30	514.10	557.00	599.80
401 - 425	302.20	345.20	430.50	453.10	498.50	543.70	589.10	634.40
426 - 450	318.40	363.80	453.70	477.60	525.30	573.10	620.90	668.70
451 - 475	334.50	382.20	476.50	501.60	551.80	602.00	652.10	702.30
476 - 500	351.20	401.40	500.40	526.80	579.40	632.10	684.80	737.50
501 - 550	384.20	439.20	547.60	576.50	634.10	691.70	749.40	807.00
551 - 600	417.10	476.70	594.40	625.70	688.30	750.90	813.40	876.10
601 - 650	449.60	513.90	640.80	674.60	742.00	809.50	877.00	944.40
651 - 700	482.10	551.00	687.00	723.20	795.40	867.80	940.10	1012.50
701 - 750	514.70	588.30	733.60	772.20	849.40	926.70	1003.90	1081.10
751 - 800	546.70	624.80	779.30	820.30	902.30	984.40	1066.40	1148.40
801 - 850	579.00	661.60	825.00	868.50	955.40	1042.10	1129.00	1215.80
851 - 900	611.00	698.20	870.60	916.40	1008.10	1099.70	1191.40	1283.00
901 - 950	642.80	734.70	916.10	964.30	1060.70	1157.10	1253.60	1350.00
951 - 1000	674.80	771.20	961.60	1012.10	1113.40	1214.50	1315.80	1417.00
1001 - 1100	739.20	844.90	1053.40	1108.80	1219.70	1330.60	1441.50	1552.30
1101 - 1200	803.90	918.70	1145.50	1205.70	1326.30	1446.80	1567.40	1688.00
1201 - 1300	868.10	992.10	1237.00	1302.20	1432.30	1562.60	1692.80	1823.10
1301 - 1400	932.10	1065.30	1328.20	1398.10	1537.80	1677.70	1817.50	1957.30
1401 - 1500	996.00	1138.30	1419.30	1494.00	1643.40	1792.80	1942.20	2091.60
1501 - 1625	1058.20	1209.20	1507.70	1587.10	1745.70	1904.50	2063.20	2221.90
1626 - 1750	1139.60	1302.30	1623.70	1709.20	1880.10	2051.00	2222.00	2392.90
1751 - 1875	1171.80	1339.20	1669.70	1757.60	1933.40	2109.10	2284.90	2460.60
1876 - 2000	1249.90	1428.40	1781.00	1874.70	2062.20	2249.70	2437.10	2624.60
2001 - 2125	1262.40	1442.80	1798.90	1893.60	2083.00	2272.40	2461.70	2651.00
2126 - 2250	1336.60	1527.60	1904.70	2005.00	2205.50	2406.00	2606.50	2807.00
2251 - 2375	1348.90	1541.50	1922.00	2023.10	2225.40	2427.80	2630.00	2832.50
2376 - 2500	1419.80	1622.50	2023.10	2129.60	2342.60	2555.70	2768.50	2981.40
2501 - 2625	1441.90	1648.10	2054.90	2163.10	2379.40	2595.70	2812.00	3028.30
2626 - 2750	1510.60	1726.50	2152.80	2266.10	2492.70	2719.30	2945.90	3172.50
2751 - 2875	1532.20	1751.10	2183.20	2298.20	2528.00	2757.80	2987.70	3217.50
2876 - 3000	1598.80	1827.10	2278.20	2398.10	2637.90	2877.70	3117.60	3357.30
3001 - 3125	1619.40	1850.60	2307.50	2429.00	2671.90	2914.80	3157.70	3400.60
3126 - 3250	1684.10	1924.60	2400.00	2526.20	2778.80	3031.40	3284.10	3536.70
3251 - 3375	1704.30	1947.70	2428.70	2556.40	2812.20	3067.70	3323.30	3579.00
3376 - 3500	1767.50	2019.90	2518.50	2651.10	2916.20	3181.30	3446.40	3711.50

FREIGHT RATE PER TONNE

Distance (kilometres)	वर्ग Class 145	वर्ग Class 150	वर्ग Class 160	वर्ग Class 165	वर्ग Class 170	वर्ग Class 180	वर्ग Class 190	वर्ग Class 200
1 - 100	178.90	185.10	197.30	203.50	209.70	222.00	234.30	246.70
101 - 125	223.60	231.30	246.70	254.40	262.20	277.50	292.90	308.40
126 - 150	272.60	282.30	300.80	310.20	319.60	338.40	357.20	376.00
151 - 175	305.60	316.10	337.20	347.70	358.30	379.30	400.40	421.50
176 - 200	341.70	353.50	377.00	388.90	400.60	424.20	447.70	471.30
201 - 225	375.20	388.10	413.90	426.80	439.80	465.60	491.50	517.40
226 - 250	411.00	425.30	453.60	467.80	482.00	510.30	538.60	567.00
251 - 275	447.00	462.50	493.30	508.70	524.10	554.90	585.80	616.60
276 - 300	482.50	499.10	532.40	549.10	565.70	599.00	632.30	665.50
301 - 325	516.10	533.90	569.50	587.20	605.10	640.60	676.30	711.90
326 - 350	550.90	569.90	607.90	626.90	645.90	683.90	722.00	759.90
351 - 375	585.80	606.00	646.40	666.60	686.80	727.20	767.70	808.00
376 - 400	621.30	642.70	685.50	706.90	728.40	771.20	814.10	856.90
401 - 425	657.00	679.80	725.00	747.70	770.30	815.70	861.00	906.30
426 - 450	692.50	716.40	764.20	788.10	811.90	859.70	907.50	955.30
451 - 475	727.40	752.50	802.60	827.70	852.70	902.90	953.20	1003.30
476 - 500	763.80	790.20	842.80	869.20	895.50	948.20	1000.90	1053.60
501 - 550	835.80	864.80	922.40	951.20	980.10	1037.70	1095.30	1153.00
551 - 600	907.30	938.60	1001.10	1032.50	1063.80	1126.30	1189.00	1251.50
601 - 650	978.10	1011.90	1079.30	1113.10	1146.80	1214.20	1281.70	1349.10
651 - 700	1048.70	1084.80	1157.10	1193.30	1229.40	1301.70	1374.00	1446.40
701 - 750	1119.70	1158.40	1235.60	1274.20	1312.80	1390.00	1467.20	1544.40
751 - 800	1189.40	1230.50	1312.50	1353.50	1394.50	1476.50	1558.60	1640.60
801 - 850	1259.30	1302.70	1389.60	1433.00	1476.40	1563.30	1650.10	1737.00
851 - 900	1328.80	1374.70	1466.30	1512.10	1557.90	1649.60	1741.20	1832.80
901 - 950	1398.20	1446.50	1542.90	1591.10	1639.30	1735.70	1832.10	1928.50
951 - 1000	1467.60	1518.20	1619.40	1670.00	1720.60	1821.90	1923.00	2024.20
1001 - 1100	1607.80	1663.20	1774.10	1829.50	1885.00	1995.80	2106.70	2217.60
1101 - 1200	1748.30	1808.60	1929.10	1989.40	2049.70	2170.30	2290.80	2411.40
1201 - 1300	1888.20	1953.30	2083.50	2148.60	2213.70	2343.90	2474.10	2604.40
1301 - 1400	2027.20	2097.20	2237.00	2306.90	2376.80	2516.60	2656.30	2796.20
1401 - 1500	2166.30	2241.00	2390.40	2465.10	2539.80	2689.20	2838.60	2988.00
1501 - 1625	2301.30	2380.70	2539.40	2618.70	2698.10	2856.80	3015.40	3174.30
1626 - 1750	2478.30	2563.80	2734.70	2820.20	2905.60	3076.60	3247.50	3418.40
1751 - 1875	2548.50	2636.50	2812.20	2900.00	2987.90	3163.70	3339.40	3515.20
1876 - 2000	2718.30	2812.10	2999.50	3093.30	3187.00	3374.50	3561.90	3749.40
2001 - 2125	2745.80	2840.50	3029.80	3124.40	3219.10	3408.50	3597.90	3787.20
2126 - 2250	2907.30	3007.50	3208.00	3308.30	3408.50	3609.00	3809.50	4010.00
2251 - 2375	2933.60	3034.70	3237.00	3338.40	3439.30	3641.60	3844.00	4046.20
2376 - 2500	3087.90	3194.40	3407.40	3513.80	3620.30	3833.30	4046.20	4259.20
2501 - 2625	3136.50	3244.70	3461.00	3569.10	3677.30	3893.60	4109.90	4326.20
2626 - 2750	3285.80	3399.20	3625.80	3739.10	3852.40	4079.00	4305.60	4532.20
2751 - 2875	3332.40	3447.30	3677.10	3792.00	3906.90	4136.80	4366.60	4596.40
2876 - 3000	3477.20	3597.20	3837.00	3956.90	4076.80	4316.60	4556.40	4796.20
3001 - 3125	3522.10	3643.50	3886.40	4007.90	4129.30	4372.20	4615.10	4858.00
3126 - 3250	3663.00	3789.30	4041.90	4168.20	4294.50	4547.20	4799.80	5052.40
3251 - 3375	3706.80	3834.60	4090.50	4218.10	4345.90	4601.50	4857.20	5112.80
3376 - 3500	3844.10	3976.70	4241.80	4374.30	4506.90	4772.00	5037.10	5302.20

Annexure-II

FREIGHT RATE PER TONNE (in ₹)

Distance Slab (in Kms)	Class LR-3 (A)		Class 100A		Class 120A	
	Class-(LR3) A	Class-(LR3)B	Class-100A	Class-100B	Class-120 A	Class-120B
	Trainload	Wagonload	Trainload	Wagonload	Trainload	Wagonload
1 - 100	79.40	136.20	113.40	170.20	136.20	170.20
101 - 125	99.20	170.20	141.80	212.70	170.20	212.70
126 - 150	115.20	207.50	172.90	259.40	207.50	259.40
151 - 175	129.30	232.60	193.80	290.70	232.50	290.70
176 - 200	144.40	260.00	216.70	325.10	260.00	325.10
201 - 225	158.60	285.50	237.90	356.90	285.50	356.90
226 - 250	173.80	312.80	260.70	391.10	312.80	391.10
251 - 275	189.00	340.20	283.50	425.30	340.20	425.30
276 - 300	204.10	367.20	306.00	459.00	367.20	459.00
301 - 325	218.10	392.80	327.30	491.00	392.80	491.00
326 - 350	232.90	419.30	349.40	524.10	419.30	524.10
351 - 375	247.60	445.80	371.50	557.30	445.80	557.30
376 - 400	262.80	472.80	394.00	591.00	472.80	591.00
401 - 425	277.90	500.00	416.70	625.10	500.00	625.10
426 - 450	292.80	527.00	439.20	658.80	527.00	658.80
451 - 475	307.60	553.60	461.30	692.00	553.60	692.00
476 - 500	323.00	581.30	484.40	726.60	581.30	726.60
501 - 550	353.30	636.10	530.10	795.20	636.10	795.20
551 - 600	383.60	690.50	575.40	863.10	690.50	863.10
601 - 650	413.50	744.40	620.30	930.50	744.40	930.50
651 - 700	443.40	798.00	665.00	997.50	798.00	997.50
701 - 750	473.30	852.10	710.10	1065.20	852.10	1065.20
751 - 800	502.80	905.20	754.30	1131.50	905.20	1131.50
801 - 850	532.40	958.30	798.60	1197.90	958.30	1197.90
851 - 900	561.90	1011.20	842.70	1264.10	1011.20	1264.10
901 - 950	591.10	1064.00	886.70	1330.10	1064.00	1330.10
951 - 1000	620.50	1116.80	930.70	1396.10	1116.80	1396.10
1001 - 1100	679.70	1223.50	1019.60	1529.40	1223.50	1529.40
1101 - 1200	739.20	1330.40	1108.70	1663.10	1330.40	1663.10
1201 - 1300	798.30	1436.90	1197.40	1796.10	1436.90	1796.10
1301 - 1400	857.10	1542.70	1285.60	1928.40	1542.70	1928.40
1401 - 1500	915.90	1648.60	1373.80	2060.70	1648.60	2060.70
1501 - 1625	973.10	1751.30	1459.40	2189.10	1751.30	2189.10
1626 - 1750	1047.90	1886.00	1571.70	2357.60	1886.00	2357.60
1751 - 1875	1077.50	1939.40	1616.20	2424.30	1939.40	2424.30
1876 - 2000	1149.30	2068.70	1723.90	2585.90	2068.70	2585.90
2001 - 2125	1160.80	2089.60	1741.30	2612.00	2089.60	2612.00
2126 - 2250	1229.10	2212.40	1843.70	2765.60	2212.40	2765.60
2251 - 2375	1240.40	2232.50	1860.40	2790.60	2232.50	2790.60
2376 - 2500	1305.60	2350.00	1958.30	2937.50	2350.00	2937.50
2501 - 2625	1325.90	2386.90	1989.10	2983.70	2386.90	2983.70
2626 - 2750	1389.10	2500.60	2083.80	3125.70	2500.60	3125.70
2751 - 2875	1408.90	2536.00	2113.30	3170.00	2536.00	3170.00
2876 - 3000	1470.20	2646.20	2205.20	3307.80	2646.20	3307.80
3001 - 3125	1489.10	2680.30	2233.60	3350.40	2680.30	3350.40
3126 - 3250	1548.60	2787.60	2323.00	3484.50	2787.60	3484.50
3251 - 3375	1567.20	2821.00	2350.80	3526.20	2821.00	3526.20
3376 - 3500	1625.30	2925.40	2437.80	3656.70	2925.40	3656.70

Annexure-II

FREIGHT RATE PER TONNE (in ₹)

Distance Slab (in Kms)	Class 130A		Class 140A		Class 180A	
	Class 130A	Class 130B	Class 140A	Class 140B	Class 180A	Class 180B
	Trainload	Wagonload	Trainload	Wagonload	Trainload	Wagonload
1 - 100	147.40	170.20	158.80	170.20	204.20	215.50
101 - 125	184.30	212.70	198.50	212.70	255.20	269.40
126 - 150	224.80	259.40	242.10	259.40	311.20	328.50
151 - 175	251.90	290.70	271.30	290.70	348.80	368.20
176 - 200	281.70	325.10	303.40	325.10	390.10	411.70
201 - 225	309.30	356.90	333.10	356.90	428.20	452.00
226 - 250	338.90	391.10	365.00	391.10	469.30	495.30
251 - 275	368.60	425.30	396.90	425.30	510.30	538.70
276 - 300	397.80	459.00	428.40	459.00	550.80	581.40
301 - 325	425.50	491.00	458.20	491.00	589.10	621.90
326 - 350	454.20	524.10	489.20	524.10	628.90	663.90
351 - 375	483.00	557.30	520.10	557.30	668.70	705.90
376 - 400	512.20	591.00	551.60	591.00	709.20	748.60
401 - 425	541.70	625.10	583.40	625.10	750.10	791.70
426 - 450	571.00	658.80	614.90	658.80	790.60	834.50
451 - 475	599.70	692.00	645.80	692.00	830.30	876.50
476 - 500	629.70	726.60	678.20	726.60	871.90	920.40
501 - 550	689.10	795.20	742.10	795.20	954.20	1007.20
551 - 600	748.00	863.10	805.60	863.10	1035.70	1093.30
601 - 650	806.40	930.50	868.40	930.50	1116.50	1178.60
651 - 700	864.50	997.50	931.00	997.50	1197.00	1263.50
701 - 750	923.10	1065.20	994.10	1065.20	1278.20	1349.20
751 - 800	980.60	1131.50	1056.00	1131.50	1357.70	1433.20
801 - 850	1038.20	1197.90	1118.00	1197.90	1437.50	1517.30
851 - 900	1095.50	1264.10	1179.80	1264.10	1516.90	1601.10
901 - 950	1152.70	1330.10	1241.40	1330.10	1596.10	1684.70
951 - 1000	1209.90	1396.10	1303.00	1396.10	1675.30	1768.30
1001 - 1100	1325.50	1529.40	1427.40	1529.40	1835.30	1937.20
1101 - 1200	1441.30	1663.10	1552.20	1663.10	1995.70	2106.50
1201 - 1300	1556.60	1796.10	1676.40	1796.10	2155.30	2275.10
1301 - 1400	1671.30	1928.40	1799.80	1928.40	2314.10	2442.60
1401 - 1500	1785.90	2060.70	1923.30	2060.70	2472.80	2610.20
1501 - 1625	1897.20	2189.10	2043.20	2189.10	2626.90	2772.90
1626 - 1750	2043.20	2357.60	2200.40	2357.60	2829.10	2986.20
1751 - 1875	2101.10	2424.30	2262.70	2424.30	2909.20	3070.80
1876 - 2000	2241.10	2585.90	2413.50	2585.90	3103.00	3275.40
2001 - 2125	2263.70	2612.00	2437.80	2612.00	3134.30	3308.50
2126 - 2250	2396.80	2765.60	2581.20	2765.60	3318.70	3503.00
2251 - 2375	2418.50	2790.60	2604.60	2790.60	3348.70	3534.80
2376 - 2500	2545.80	2937.50	2741.60	2937.50	3524.90	3720.80
2501 - 2625	2585.80	2983.70	2784.70	2983.70	3580.40	3779.30
2626 - 2750	2708.90	3125.70	2917.30	3125.70	3750.80	3959.20
2751 - 2875	2747.30	3170.00	2958.60	3170.00	3803.90	4015.30
2876 - 3000	2866.80	3307.80	3087.30	3307.80	3969.40	4189.90
3001 - 3125	2903.70	3350.40	3127.00	3350.40	4020.50	4243.80
3126 - 3250	3019.90	3484.50	3252.20	3484.50	4181.40	4413.70
3251 - 3375	3056.00	3526.20	3291.10	3526.20	4231.40	4466.50
3376 - 3500	3169.10	3656.70	3412.90	3656.70	4388.00	4631.80

Commodity - Coal & Coke

Freight Rate Table

Distance Slab (in Kms)			Class-145A Trainload	Class-145B Wagonload
1	-	100	216.00	226.80
101	-	125	389.60	409.10
126	-	150	448.90	471.30
151	-	175	488.70	513.10
176	-	200	532.20	559.00
201	-	275	672.50	706.10
276	-	350	797.20	837.10
351	-	425	926.00	972.30
426	-	500	1054.70	1107.40
501	-	600	1228.00	1289.40
601	-	700	1398.70	1468.70
701	-	730	1435.60	1507.40
731	-	760	1484.00	1558.30
761	-	790	1537.90	1614.80
791	-	820	1586.70	1665.90
821	-	850	1640.30	1722.40
851	-	880	1688.60	1773.00
881	-	910	1737.00	1823.70
911	-	940	1790.20	1879.90
941	-	970	1838.60	1930.50
971	-	1000	1891.80	1986.30
1001	-	1020	1919.90	2015.90
1021	-	1040	1955.20	2052.90
1041	-	1060	1990.50	2090.00
1061	-	1080	2025.70	2126.90
1081	-	1100	2061.00	2164.10
1101	-	1120	2090.00	2194.50
1121	-	1140	2125.10	2231.30
1141	-	1160	2160.30	2268.40
1161	-	1180	2195.60	2305.30
1181	-	1200	2230.70	2342.10
1201	-	1220	2259.40	2372.30
1221	-	1240	2294.40	2409.10
1241	-	1260	2329.40	2445.90
1261	-	1280	2364.60	2482.70
1281	-	1300	2399.60	2519.60
1301	-	1320	2427.70	2549.00
1321	-	1340	2462.60	2585.70
1341	-	1360	2497.60	2622.40
1361	-	1380	2532.60	2659.20
1381	-	1400	2567.60	2695.90
1401	-	1420	2596.10	2725.80
1421	-	1440	2630.90	2762.40
1441	-	1460	2665.80	2799.00
1461	-	1480	2680.90	2814.90
1481	-	1500	2695.00	2829.80

Distance Slab (in Kms)			Class-145A Trainload	Class-145B Wagonload
1501	-	1510	2706.70	2842.10
1511	-	1520	2719.00	2854.90
1521	-	1530	2726.10	2862.50
1531	-	1540	2733.40	2870.10
1541	-	1550	2740.60	2877.70
1551	-	1560	2747.80	2885.10
1561	-	1570	2755.10	2892.90
1571	-	1580	2762.30	2900.50
1581	-	1590	2769.50	2908.10
1591	-	1600	2776.70	2915.50
1601	-	1610	2783.90	2923.10
1611	-	1620	2791.20	2930.70
1621	-	1630	2798.40	2938.40
1631	-	1640	2805.60	2945.80
1641	-	1650	2812.80	2953.40
1651	-	1660	2820.10	2961.00
1661	-	1670	2827.30	2968.70
1671	-	1680	2834.50	2976.20
1681	-	1690	2841.70	2983.80
1691	-	1700	2848.90	2991.40
1701	-	1710	2856.20	2999.00
1711	-	1720	2863.40	3006.50
1721	-	1730	2870.60	3014.10
1731	-	1740	2877.90	3021.70
1741	-	1750	2885.00	3029.30
1751	-	1760	2892.30	3036.80
1761	-	1770	2899.50	3044.50
1771	-	1780	2906.80	3052.10
1781	-	1790	2914.00	3059.70
1791	-	1800	2921.10	3067.20
1801	-	1810	2928.40	3074.80
1811	-	1820	2935.60	3082.40
1821	-	1830	2942.90	3090.00
1831	-	1840	2950.10	3097.50
1841	-	1850	2957.20	3105.10
1851	-	1860	2964.50	3112.80
1861	-	1870	2971.70	3120.40
1871	-	1880	2979.00	3127.90
1881	-	1890	2986.20	3135.50
1891	-	1900	2993.30	3143.10
1901	-	1910	3000.60	3150.70
1911	-	1920	3007.80	3158.20
1921	-	1930	3015.10	3165.80
1931	-	1940	3022.30	3173.40
1941	-	1950	3029.60	3181.00
1951	-	1960	3036.70	3188.60

Commodity - Coal & Coke

Freight Rate Table

Distance Slab (in Kms)			Class-145A Trainload	Class-145B Wagonload
1961	-	1970	3043.90	3196.20
1971	-	1980	3051.20	3203.80
1981	-	1990	3058.40	3211.40
1991	-	2000	3065.70	3218.90
2001	-	2010	3072.80	3226.50
2011	-	2020	3080.00	3234.10
2021	-	2030	3087.30	3241.70
2031	-	2040	3094.50	3249.20
2041	-	2050	3101.80	3256.80
2051	-	2060	3108.90	3264.50
2061	-	2070	3116.10	3272.10
2071	-	2080	3123.40	3279.60
2081	-	2090	3130.60	3287.20
2091	-	2100	3137.90	3294.80
2101	-	2110	3145.10	3302.40
2111	-	2120	3152.30	3309.90
2121	-	2130	3159.50	3317.50
2131	-	2140	3166.70	3325.10
2141	-	2150	3174.00	3332.80
2151	-	2160	3181.20	3340.10
2161	-	2170	3188.40	3347.90
2171	-	2180	3195.60	3355.50
2181	-	2190	3202.80	3363.10
2191	-	2200	3210.10	3370.50
2201	-	2210	3217.30	3378.10
2211	-	2220	3224.50	3385.70
2221	-	2230	3231.70	3393.40
2231	-	2240	3238.90	3400.80
2241	-	2250	3246.20	3408.40
2251	-	2260	3253.40	3416.10
2261	-	2270	3260.70	3423.70
2271	-	2280	3267.80	3431.20
2281	-	2290	3275.10	3438.80
2291	-	2300	3282.30	3446.40
2301	-	2310	3289.50	3454.00
2311	-	2320	3296.80	3461.50
2321	-	2330	3303.90	3469.10
2331	-	2340	3311.20	3476.70
2341	-	2350	3318.40	3484.40
2351	-	2360	3325.60	3491.90
2361	-	2370	3332.90	3499.50
2371	-	2380	3340.00	3507.10
2381	-	2390	3347.30	3514.70
2391	-	2400	3354.50	3522.20

Distance Slab (in Kms)			Class-145A Trainloac	Class-145B Wagonload
2401	-	2410	3361.70	3529.80
2411	-	2420	3369.00	3537.40
2421	-	2430	3376.10	3545.00
2431	-	2440	3383.40	3552.50
2441	-	2450	3390.60	3560.10
2451	-	2460	3397.90	3567.80
2461	-	2470	3405.10	3575.40
2471	-	2480	3412.20	3582.90
2481	-	2490	3419.50	3590.50
2491	-	2500	3426.70	3598.10
2501	-	2510	3434.00	3605.70
2511	-	2520	3441.20	3613.20
2521	-	2530	3448.40	3620.80
2531	-	2540	3455.60	3628.40
2541	-	2550	3462.80	3636.10
2551	-	2560	3470.10	3643.60
2561	-	2570	3477.30	3651.20
2571	-	2580	3484.60	3658.80
2581	-	2590	3491.70	3666.40
2591	-	2600	3498.90	3673.90
2601	-	2610	3506.20	3681.50
2611	-	2620	3513.40	3689.10
2621	-	2630	3520.70	3696.70
2631	-	2640	3527.90	3704.20
2641	-	2650	3535.00	3711.90
2651	-	2660	3542.30	3719.50
2661	-	2670	3549.50	3727.10
2671	-	2680	3556.80	3734.60
2681	-	2690	3564.00	3742.20
2691	-	2700	3571.10	3749.80
2701	-	2710	3578.40	3757.40
2711	-	2720	3585.60	3764.90
2721	-	2730	3592.90	3772.50
2731	-	2740	3600.10	3780.20
2741	-	2750	3607.30	3787.80
2751	-	2760	3614.50	3795.20
2761	-	2770	3621.70	3802.80
2771	-	2780	3629.00	3810.50
2781	-	2790	3636.20	3818.10
2791	-	2800	3643.50	3825.50
2801	-	2810	3650.60	3833.10
2811	-	2820	3657.80	3840.70
2821	-	2830	3665.10	3848.30
2831	-	2840	3672.30	3855.80

Commodity - Coal & Coke

Freight Rate Table

Distance Slab (in Kms)			Class-145A Trainload	Class-145B Wagonload
2841	-	2850	3679.60	3863.50
2851	-	2860	3686.70	3871.10
2861	-	2870	3693.90	3878.70
2871	-	2880	3701.20	3886.20
2881	-	2890	3708.40	3893.80
2891	-	2900	3715.70	3901.40
2901	-	2910	3722.80	3909.00
2911	-	2920	3730.10	3916.50
2921	-	2930	3737.30	3924.10
2931	-	2940	3744.50	3931.70
2941	-	2950	3751.80	3939.40
2951	-	2960	3758.90	3946.90
2961	-	2970	3766.20	3954.50
2971	-	2980	3773.40	3962.10
2981	-	2990	3780.60	3969.70
2991	-	3000	3787.90	3977.20
3001	-	3010	3795.00	3984.80
3011	-	3020	3802.30	3992.40
3021	-	3030	3809.50	4000.00
3031	-	3040	3816.70	4007.50
3041	-	3050	3824.00	4015.20
3051	-	3060	3831.20	4022.80
3061	-	3070	3838.40	4030.40
3071	-	3080	3845.60	4037.90
3081	-	3090	3852.90	4045.50
3091	-	3100	3860.10	4053.10
3101	-	3110	3867.30	4060.70
3111	-	3120	3874.50	4068.20
3121	-	3130	3881.70	4075.80
3131	-	3140	3889.00	4083.50
3141	-	3150	3896.20	4091.10
3151	-	3160	3903.40	4098.60
3161	-	3170	3910.70	4106.20

Distance Slab (in Kms)			Class-145A Trainload	Class-145B Wagonload
3171	-	3180	3917.80	4113.80
3181	-	3190	3925.10	4121.40
3191	-	3200	3932.30	4128.90
3201	-	3210	3939.50	4136.50
3211	-	3220	3946.80	4144.10
3221	-	3230	3953.90	4151.70
3231	-	3240	3961.20	4159.30
3241	-	3250	3968.40	4166.90
3251	-	3260	3975.70	4174.50
3261	-	3270	3982.90	4182.10
3271	-	3280	3990.00	4189.60
3281	-	3290	3997.30	4197.20
3291	-	3300	4004.50	4204.80
3301	-	3310	4011.80	4212.40
3311	-	3320	4019.00	4219.90
3321	-	3330	4026.10	4227.50
3331	-	3340	4033.40	4235.20
3341	-	3350	4040.60	4242.80
3351	-	3360	4047.90	4250.20
3361	-	3370	4055.10	4257.80
3371	-	3380	4062.40	4265.50
3381	-	3390	4069.50	4273.10
3391	-	3400	4076.70	4280.50
3401	-	3410	4084.00	4288.10
3411	-	3420	4091.20	4295.70
3421	-	3430	4098.50	4303.30
3431	-	3440	4105.60	4310.90
3441	-	3450	4112.80	4318.50
3451	-	3460	4120.10	4326.10
3461	-	3470	4127.30	4333.70
3471	-	3480	4134.60	4341.20
3481	-	3490	4141.70	4348.80
3491	-	3500	4148.90	4356.40

GOVERNMENT OF INDIA भारत सरकार
MINISTRY OF RAILWAYS रेल मंत्रालय
(RAILWAY BOARD रेलवे बोर्ड)

No.TCR/1078/2015/07/3340125 Dated : 29.09.2022

General Managers
All Indian Railways

Sub: Adjustment in Base Freight Rates-Classification of Commodities-Red Mud.

1.0. Subject above, the array of classification of 'Red Mud' under Group No.7.(b), Main Commodity Head 'Clay and Sand' is as under:

SN	Class	Reference	Valid from - to
1	120	Corrigendum no.13 to Rates Circular no.08 of 2015 dated 31.05.2016	06.06.2016 – 31.03.2017
2	120	Corrigendum no.19 to Rates Circular no.08 of 2015 dated 30.03.2017	Beyond 31.03.2017 – 31.03.2018
3	120	Corrigendum no.22 to Rates Circular no.08 of 2015 dated 27.02.2018	Beyond 31.03.2018 – 31.03.2019
4	130	Corrigendum no.23 to Rates Circular no.08 of 2015 dated 26.03.2019	From 01.04.2019 – 30.09.2019
5	130	Corrigendum no.24 to Rates Circular no.08 of 2015 dated 30.09.2019	Beyond 30.09.2019 – 31.03.2020
6	130	Board's letter E-office no.3316118 dated 23.03.2020	Beyond 31.03.2020 – 30.04.2020
7	120	Corrigendum no.25 to Rates Circular no.08 of 2015 dated 21.04.2020	Beyond 30.04.2020 – 31.03.2021
8	120	Corrigendum no.26 to Rates Circular no.08 of 2015 dated 02.03.2021	Beyond 31.03.2021 – 31.03.2022
10	100	Corrigendum no.27 to Rates Circular no.08 of 2015 dated 28.09.2021	Beyond 30.09.2021 – 30.09.2022

2.0. The matter has been reviewed and now the Competent Authority have decided to continue with the classification of "Red Mud" at class-100 beyond 30.09.2022 for a period of one year i.e. up to 30.09.2023.

3.0 All others details of the Rates Circulars and its corrigenda mentioned in Para 1.0 above shall continue to apply unchanged.

4.0. This issues in consultation with Traffic Transportation Directorate and with the concurrence of Finance Directorate of Ministry of Railways.

(Anshoo Pandey)
Director Traffic Commercial (Rates)
(Railway Board)
dtcr@rb.railnet.gov.in
011- 2304 7359

No.TCR/1078/2015/07/3340125 Dated : 29.09.2022

Copy to:

1. Principal Financial Advisor, All Indian Railways.
2. Dy. C&AG of India (Railways), Rail Bhavan, New Delhi

***for* Member (Finance)Railway Board**

No.TCR/1078/2015/07/3340125 Dated : 29.09.2022

Copy for information and necessary action to:

1. Principal Chief Commercial Managers, All Indian Railways.
2. Principal Chief Operations Managers, All Indian Railways.
3. Managing Director, CRIS Chanakya Puri, New Delhi-21.
4. The Chief Administrative Officer, FOIS/CRIS, Chanakya Puri, New Delhi-21.
5. Managing Director, Konkan Railway Corporation, New Mumbai-400614.
6. Director General, National Academy of Indian Railways, Vadodara.
7. Director, Indian Railways Institute of Transport Management, Lucknow.
8. General Secretary/IRCA, New Delhi.
9. CMD/DFCCIL

(Anshoo Pandey)
Director Traffic Commercial (Rates)
(Railway Board)
dtcr@rb.railnet.gov.in
011- 2304 7359

Copy to:-

OSD to MR, EDPG to MR for kind information of MR please.
PS to MoSR(D), EDPG to MoSR(D) for kind information of MoSR(D) please.
EDPG to MoSR(J) for kind information of MoSR(J) please.
Chairman &CEO, M(O&BD), M(F) Railway Board,
AM(C), AM(T), AM (Vig), AM(Revenue), PED(TTM),
EDTC(R),ED(FM), EDF(C), EDTT(F), EDTT(S),
TC(CR) & FC Branches of Railway Board.

भारतीय रेल सम्मेलन
INDIAN RAILWAY CONFERENCE ASSOCIATION

मालभाड़ा सं. 49 भाग–I (जिल्द–II)

और

मालभाड़ा दर सं. 49 (भाग- II)

GOODS TARIFF NO. 49 Pt. I (Vol.II)

AND

GOODS TARIFF NO. 49 (PART II)

इसमें माल भाड़ा दर संख्या 49 भाग–I (जिल्द–II) का सामान्य वर्गीकरण किया गया है जो केन्द्र सरकार द्वारा रेल मंत्रालय (रेल बोर्ड) के पत्र संख्या टीसीआर/1078/2018/15 दिनांक 31.10.2018 (दर प्ररिपत्र–19/2018) एवं 2015/टीसी (सीआर)/505/1 दिनांक 04.01.2019) से प्राधिकृत है।	Goods Tariff No. 49 Part I (Vol. II) contains the General Classification of Goods which has the authority of the Central Government vide Ministry of Railways (Railway Board) letter Nos. TCR/1078/2018/15 Dated 31.10.2018 (RC-19/2018) & 2015/TC (CR)/505/1 Dated 04.01.2019.
माल भाड़ा दर संख्या 49 (भाग-II) में माल भाड़ा दर तालिकाएं दी गई हैं।	Goods Tariff No. 49 Part II contains Freight Rate Tables.
दिनांक 01 नवम्बर 2018 से लागू	In force from 01.11.2018
भाग-I (जिल्द-I) में माल की स्वीकृति, ढुलाई और सुपुर्दगी के सामान्य नियम दिए गए हैं।	Part I (Volume I) Contains General Rules for Acceptance, Carriage and Delivery of Goods.
भारत की सरकारी रेलों पर स्थानीय बुकिंग में तथा सम्मेलन की सभी सदस्य रेलों पर सीधी बुकिंग में उपयोग के लिए।	To be used in local booking over Indian Railways and through booking over all Railways party to the Association.

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PREFACE

1. This Tariff is in force on the under mentioned Railways, party to the Association, and on the Central Inland Water Transport Corporation Ltd., not party to the Association, subject to the exceptions notified in their current Tariffs :-

Central Inland Water Transport Corporation Ltd. ... C.I.W.T.C

Name of Railways	Code	Name of Railways	Code
Central	C.R.	South East Central	S.E.C.R
Eastern	E.R.	South Western	S.W.R.
East Central	E.C.R.	Western	W.R.
East Coast	E.CoR.	West Central	W.C.R.
Northern	N.R.		
North Central	N.C.R.	**Non-Government Railway**	**Code**
North Eastern	N.E.R.	Kolkata Port Trust	K.P.T.
Northeast Frontier	N.F.R.	Chennai Port Trust	C.P.T.
North Western	N.W.R.	Konkan Rly. Corpn. Ltd.	K.R.
Southern	S.R.	Mumbai Port Trust	Mb.P.T.
South Central	S.C.R.	Pipavav Rly. Corp. Ltd.	P.R.C.L.
South Eastern	S.E.R.	Kutch Rly. Co. Ltd.	Ku.R.C.

2. **Mumbai Port Trust Railway -** The Port Trust Railway, while accepting the rules and conditions, collects in Mumbai an additional charge in certain cases as laid down in its Goods Tariff.

3. **Kolkata Port Trust Railway -** The Eastern Railway works the stations on the Port Trust Railway between Howrah Bridge and Cossipore, while South Eastern Railway works Haldia Port.

   As regards Docks and jetties, the Port Trust are the terminal agents of the Eastern and South Eastern Railways respectively.

4. **Chennai Port Trust Railway -** The rules, rates and conditions, for all goods entering or leaving the Chennai Harbour by rail are the same as from or to Royapuram for goods from or to and via the Southern (B.G. Section) Railway and as from or to Chennai (Beach) for goods from or to and via the Southern (M.G. Section) Railway plus the local charges as laid down in Part III of the Chennai Port Trust Scale Rates.

Quotation of Rates

Authentic information in regard to the rates and conditions for goods traffic may be had on application to the following :–

Railway	Authority competent to quote rates
Mumbai Port Trust	Manager, Mumbai
Kolkata Port Trust	(1) Pr. Chief Commercial Manager, Eastern Rly, Kolkata-1 So far as their respective traffic Docks and Jetties are concerned. * SER Works Haldia Port (2) Traffic Manager, Port Trust, Kolkata For local traffic between points on the Port Trust Premises.
Central	Pr. Chief Commercial Manager, Chhatrapati Shivaji Maharaj Terminus, Mumbai.
Eastern	Pr. Chief Commercial Manager, Koilaghat, Kolkata.
East Central	Pr. Chief Commercial Manager, Hajipur.
East Coast Paradip Port Trust	Pr. Chief Commercial Manager, East Coast Railway, Bhubaneswar.
Chennai Port Trust	Pr. Chief Commercial Manager, Southern Railway (B.G. Section), Chennai.
Northern	Pr. Chief Commercial Manager, Baroda House, New Delhi.
North Western	Pr. Chief Commercial Manager, Jaipur.
North Central	Pr. Chief Commercial Manager, Allahabad.
North Eastern	Pr. Chief Commercial Manager, Gorakhpur.
Northeast Frontier	Pr. Chief Commercial Manager, Maligaon, Guwahati.
Southern	Pr. Chief Commercial Manager, Chennai.
South Central	Pr. Chief Commercial Manager, Secunderabad.
South East Central	Pr. Chief Commercial Manager, Bilaspur.
South Western Goa Port Trust	Pr. Chief Commercial Manager, S.W. Railway, Hubballi.
South Eastern Haldia Port Trust	Pr. Chief Commercial Manager, S.E. Rly., Strand Road, Kolkata.
Western Kutch Rly. Co. Ltd.	Pr. Chief Commercial Manager, W. Rly., Churchgate, Mumbai.
Kandla Port Trust	Dy. CCM (Rates), Western Railway, Churchgate, Mumbai.
West Central	Pr. Chief Commercial Manager, Jabalpur.
Konkan Rly Corpn. Ltd.	Chief Commercial Manager, Konkan Railway, Belapur, Navi Mumbai.
Pipavav Rly. Corp. Ltd.	Vice President (Technical) B-1202, B-Wing, 12th Floor, Statesman House, 148, Barakhamba Road, Connaught Place, New Delhi-1.
Central Inland Water Transport Corpn. Ltd.	Commercial Manager, C.I.W.T.C. Ltd., Juggarnath Ghat, Kolkata-7.

GUIDING PRINCIPLES FOR CLASSIFICATION AND GENERAL RULES FOR CHARGING OF FREIGHT

1.0 Classifications of the commodities have been given in the Goods Tariff under Main Commodity Head/Subhead and three divisions of Low Rated Commodities.

2.0 The Classification of different commodities under the Main Commodity Head/Subhead given in the Goods Tariff, if not explicitly mentioned otherwise, will be same for their different physical forms/shapes and different conditions, (whether raw or manufactured etc).

3.0 A commodity, which has not been included in any of the Main Commodity Heads or three divisions of Low Rated Commodities given in the Goods Tariff, will be charged at Composite Base freight rates applicable for the wagon type in which it is loaded. The base rates are as under:-

Type of wagon	Applicable Class
Tank Wagons	Class-200
Flat Wagons	Class-180
Open (including Hoppers) Wagons	Class-160
Covered Wagons	Class-150

4.0 Proposal for assigning trainload classification of a commodity not indicated in the Goods Tariff but having a potential for block rake loading may be sent to Railway Board.

5.0 Only train load Classification of commodities has been indicated in the Goods Tariff. The Classification for wagonload movement of the commodity will be as under:-

	Trainload Class	Wagonload Class
(a)	Up to Class LR_1	Class-120
(b)	Above Class LR_1 And up to Class-190	One Class higher than Trainload class rate or Class-150, whichever is higher
(C)	Class-200	Base Freight rate of Class-200 + 5%

5.1 MG and NG System: Notwithstanding anything contained in Para 5.0, the Wagonload Class of all commodities shall be one Class higher than their respective Trainload class when loaded on Metre Gauge (MG) and Narrow Gauge (NG) system. However, for the commodities in the highest Class, the Wagonload Class will be same as Trainload Class.

6.0 In case of any disparity in classification between English and Hindi version, the classification given in English version shall prevail.

7.0 Dangerous/hazardous commodities are indicated with alphabet "d" against the commodity. These commodities are to be charged at the class indicated for the Main Commodity Head/Subhead as the case may be. However, all other dangerous/hazardous commodities, not listed in the Goods Tariff but listed in the "Red Tariff", will be charged at the highest Class-200. Dangerous commodities will not be booked for transportation by Rail unless they are listed in the "Red Tariff".

7.1 All conditions for carriage of dangerous/hazardous commodities, as laid down in the Red Tariff, must be followed.

8.0 The chargeable weight for all commodities shall be Permissible Carrying Capacity (PCC) of the wagon notified from time to time.

9.0 Minimum distance for charge shall be 100 kms. for all commodities.

10.0 Freight charges for traffic booked under provisions of Goods Tariff will be rounded off to the next higher rupee. Such rounding off of freight per Railway Receipt will be done only once after adding all applicable charges/surcharges like surcharges under Dynamic Pricing policy, etc.

11.0 Pre-payment of freight is compulsory for all commodities. In case of E-payment, TMS will permit issue of 'Paid E-RR' when a positive confirmation from Bank is received regarding collection of freight. If Bank sends a message of insufficient funds, system will issue 'To-pay' E-RR. If no message is received from the Bank within 150 seconds for any reason whatever, then system will issue a Paid E-RR subject to conditions laid down for 'Procedure in case of exigencies' under e-payment guidelines.

12.0 The commodities attached with "OR" in the column "Risk Rate" will be charged/booked at Owner's Risk. However, commodities with OR rate can be booked at RR rate on payment of 20% surcharge. In all other cases, where "OR" does not appear, commodities be treated to have been charged/booked at Railway Risk Rate.

13.0 Packing condition given against the Main Commodity Head/Subhead shall also apply to all commodities mentioned under that Main Commodity Head/Subhead unless other packing condition is specifically mentioned against the respective commodity.

13.1 Consignors will have to ensure that the commodities offered for transportation by railways are not defectively or improperly packed depending upon the nature of the commodity and the method of transportation such as in loose condition, in bulk, in bagged condition etc. It should be ensured that the commodities are packed in such a manner that they are not liable to damage, deterioration, leakage or wastage during transit.

13.2 It should be ensured that the commodities are packed in bags, containers, drums, cases, cartons etc. of high quality and adequate strength, which can withstand the rigours of transportation and also provide ease of handling. Commodities loaded in loose condition such as bamboos, timber, Iron & steel etc. must be securely tied.

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	GENERAL CLASSIFICATION OF GOODS				
Group No.	Commodity Description	Type of Commo-dity	Packing Condition	Risk Rate	Base Class
(1)	(2)	(3)	(4)	(5)	(6)
	GENERAL TARIFF LINES				
1.	**ACID AND ALCOHOLS**				
	ABSOLUTE ALCOHOLS	d	**P5**	**RR**	**200**
	ACETIC ACID	d			
	BENZOIC ACID				
	BENZYL ALCOHOL				
	BORIC ACID				
	BUTYL ALCOHOL				
	CITRIC ACID				
	HYDROCHLORIC ACID	d			
	NITRIC ACID	d			
	PHOSPHORIC ACID	d			
	SPIRIT	d			
	SULPHURIC ACID	d			
2.	**ALLOYS AND METALS**				
	ALLOY PIPES		**P2(a)**	**RR**	**180**
	ALLOY STEEL				
	ALLOY STEEL CASTINGS				
	ALUMINA				
	ALUMINIUM INGOTS				
	ALUMINIUM BILLETS				
	ALUMINIUM POWDER	d			
	BRASS				
	COPPER ANODE & CATHODE				
	COPPER CONCENTRATES				
	COPPER INGOTS				
	COPPER SLAB				
	FERRO CHROME				
	FERRO MANGANESE				
	FERRO SILICON	d			
	KANSA				
	LEAD				
	SILICO CHROME				
	SILICON				
	SILICON MANGANESE				
	TIN PLATE				
	BEARING PLATES				
	ELECTROPLATED TIN PLATES				
	ZINC				

GENERAL CLASSIFICATION OF GOODS					
Group No.	Commodity Description	Type of Commodity	Packing Condition	Risk Rate	Base Class
(1)	(2)	(3)	(4)	(5)	(6)
3.	**BRICKS AND STONES**				
3(a)	BALLAST		P2(a)	OR	150
	BALLAST CHIPS				
	CERAMIC TILES				
	CHAKKEES				
	FLOORING STONE				
	FLOORING TILES				
	GLASS STONE				
	GRANITE				
	GRANITE BLOCKS UNDRESSED				
	GRANITE BOULDERS UNDRESSED				
	GRAVEL				
	KOTA STONE				
	KUNKER				
	MARBLE CHIPS				
	MARBLE DRESSED				
	MARBLE UN-DRESSED				
	MILL STONE				
	POLISHED GRANITE SLAB				
	QUARTZ (Chips, Stones, Gravel and Powder)				
	ROLLERS STONE				
	SANITARY WARES				
	SLATE				
	SLATE STONE				
	SLATES IN TILES				
	STONE DUST				
	STONE NOC				
	STONE PILLARS				
	STONE WARE				
	STONE, Cut and/or Engraved				
	STONE GRIT				
3.(b)	BRICKS BROKEN				130
	FIRE BRICKS				
4.	**CAUSTIC POTASH AND SODA**				
	CAUSTIC POTASH LIQUOR	d	P1 or P5	RR	140
	CAUSTIC POTASH SOLID				
	CAUSTIC SODA				
	SULPHATE OF SODA				
	CAUSTIC SODA LIQUOR	d			
	CAUSTIC SODA LYE				
	CAUSTIC SODA FLAKES	d			
	CHLORATE OF SODA	d			
	SODA ASH				
	SODA BICARBONATE				
	SULPHUR		P1		
	WASHING SODA		P1 or P5		

GENERAL CLASSIFICATION OF GOODS					
Group No.	Commodity Description	Type of Commodity	Packing Condition	Risk Rate	Base Class
(1)	(2)	(3)	(4)	(5)	(6)
5.	**CEMENT**				
5(a)	ACID RESISTING CEMENT		P5	RR	*140A
	ASBESTOS		P1		
	ASBESTOS JOINTING AND PACKING SHEETS NON GRAPHITED				
	BEAMS (PRESTRESSED CEMENT CONCRETE)				
	CEMENT				
	CEMENT BLOCKS				
	CLINKER		P2(a)		
	CEMENT MANUFACTURED		P2(b), P4		
	CEMENT PIPES		P2(b)		
	CEMENT PLASTER		P1		
	CEMENT SHEETS				
	CEMENT TILES		P4		
	COLOURED CEMENT		P1		
	COLUMNS (PRESTRESSED CEMENT CONCRETE)				
	OIL WELL CEMENT				
	POST SLEEPERS (PRESTRESSED CEMENT CONCRETE)				
	POZZOLONA CEMENT				
	PRESTRESSED CEMENT CONCRETE				
	SUPER FINE CEMENT				
	SUPER MASONRY CEMENT				
	WHITE CEMENT				
5. (b)	FLY ASH		P2(a)		**120A
6.	**CHEMICAL MANURES**				
	AMMONIUM NITRO PHOSPHATE		P1	RR	#130A
	AMMONIUM PHOSPHATE				
	AMMONIUM PHOSPHATE SULPHATE				
	AMMONIUM SULPHATE NITRATE				
	AMMONIUM SULPHATE PHOSPHATE				
	BENTONITE SULPHER PASTILLES (STRAIGHT SULPHUR FERTILIZER)				
	BORONATED SUPHALA				
	CALCIUM AMMONIUM NITRATE				
	CALCIUM AMMONIUM NITRO PHOSPHATE				
	CALCIUM NITRATE	d			
	CALCIUM SULPHATE				
	COMPLEX FERTILIZER				
	CYANAMIDE				
	DI-AMMONIUM PHOSPHATE				
	GROUND PHOSPHATE				
	KAINITE				
	LIME NITROGEN				
Note :-	* for wagonload, applicable class is 140B ** for wagonload, applicable class is 120B # for wagonload, applicable class is 130B				

GENERAL CLASSIFICATION OF GOODS					
Group No.	Commodity Description	Type of Commodity	Packing Condition	Risk Rate	Base Class
(1)	(2)	(3)	(4)	(5)	(6)
	MANURE MIXTURE		P1	RR	# 130A
	MINERAL PHOSPHATE				
	MONO-AMMONIUM PHOSPHATE				
	MURIATE OF AMMONIA				
	MURIATE OF POTASH				
	MURIATE OF POTASH NOC				
	MYCELIUM				
	NEEM COATED UREA				
	NITRO PHOSPHATE				
	NITROPHOSKA				
	NPK FERTILIZER				
	ROCK PHOSPHATE (IN BAG)				
	ROCK PHOSPHATE (LOOSE)		P2(a)		
	SINGLE SUPER PHOSPHATE		P1		
	SNPK FERTILIZERS				
	SODIUM SULPHIDE				
	SULPHATE OF AMMONIA				
	SULPHATE OF ZINC				
	SUPER PHOSPHATE				
	TRIPLE SUPERPHOSPHATE				
	UREA				
	UREA AMMONIUM PHOSPHATE 20.20.0				
	URVARA				
	WATER SOLUBLE FERTILIZER				
7.	**CLAY AND SAND**				
7.(a)	CLAY NOC		P2(a)	RR	150
	GROUND SILICA				
	LUTING SAND				
	MOORUM				
	SAND				
	SILICA SAND				
	WHITE CLAY (LUMPS/POWDER)				
7.(b)	BENTONITE				120
	BENTONITE POWDER				
	CHINA CLAY				
	FIRE CLAY				
	OCHRE IN LUMPS				
	OCHRE IN POWDER				
	OCHRE, NOC				
	RED MUD				
Note :-	# for wagonload, applicable class is 130B				

GENERAL CLASSIFICATION OF GOODS					
Group No.	Commodity Description	Type of Commodity	Packing Condition	Risk Rate	Base Class
(1)	(2)	(3)	(4)	(5)	(6)
8.	**COAL AND COKE**				
	ANTHRACITE COAL		P2(a)	OR	*145A
	ASSAM COAL				
	BHUTAN COAL				
	BREEZE COKE				
	BRIQUETTED FUEL MIXTURE				
	CALCINED PETROLEUM COKE				
	CILCOKE / CILCOKE FINES				
	COAL BRIQUETTES				
	COAL CHAR				
	COAL DUST	d			
	COAL FINES				
	COAL SHALE				
	COAL (GOVT. RLY. ACCOUNT)				
	COKE				
	COKE BRIQUETTES				
	COKE HARD				
	COKE SOFT				
	COKING COAL				
	COKING COAL (IMPORTED)				
	COKING COAL WASHED				
	HARD COKE REJECTIONS				
	LIGNITE				
	METALLURGICAL COKE				
	MIDDLING COAL				
	NON COKING COAL WASHED				
	NUT COKE (IN OPEN WAGON)				
	PATENT FUEL (AS COAL)				
	PEARL COKE (IN COVERED WAGON)				
	PETROLEUM COKE				
	RAW PETROLEUM COKE				
	RUN OFF MINES (ROM) COAL				
	RUN OFF MINES (ROM) COAL (A)				
	RUN OFF MINES (ROM) COAL (B)				
	RUN OFF MINES (ROM) COAL (C)				
	RUN OFF MINES (ROM) COAL (D)				
	RUN OFF MINES (ROM) COAL (E)				
	RUN OFF MINES (ROM) COAL (F)				
	SLACK COAL (GOVT. RLY. ACCOUNT)				
	SLV SLACK COAL				
	SLV STEAM COAL				
	SPECIAL QUALITY LOW ASH METALLURGICAL COKE				
	STEAM COAL				
	STEAM COAL (IMPORTED)				
	WASHED COAL				
	WASHERY MIDDLING COAL				
Note :	* for wagonload, applicable class is 145B				

GENERAL CLASSIFICATION OF GOODS					
Group No.	Commodity Description	Type of Commodity	Packing Condition	Risk Rate	Base Class
(1)	(2)	(3)	(4)	(5)	(6)
9.	**FOODGRAINS, FLOURS AND PULSES**				
	ATTA		P1 & S2	RR	*130A
	BAJRA				
	BARLEY				
	BESAN				
	CHANA DAL				
	CORN GERMS				
	DHALL				
	GRAINS AND PULSES NOC				
	GRAM				
	GRAM DAL				
	JOWAR				
	MAIDA				
	MAIZE				
	MAIZE GERMS				
	MILO (MILLETS)				
	MOONG DAL				
	MUSOOR DAL				
	PADDY				
	PADDY PARCHED				
	PEAS				
	PULSES				
	RICE				
	RICE BOILED GR-A (BRA)				
	RICE (BROKEN)				
	RICE (IR-8)				
	RICE BASMATI				
	RICE BASMATI (BROKEN)				
	RICE COMMON (R)				
	RICE COMMON BOILED (BR)				
	RICE PARMAL (BROKEN)				
	RICE RAW GR-A (RRA)				
	SUJI				
	TOOR DAL				
	URAD DAL				
	WHEAT				
	WHEAT (PFG)				
	WHEAT (SFG)				
10.	**FISH MEAL**				
	FLOATING FISH FEED		P1	RR	100
Note :-	* for wagonload, applicable class is 130B				

GENERAL CLASSIFICATION OF GOODS

Group No.	Commodity Description	Type of Commodity	Packing Condition	Risk Rate	Base Class
(1)	(2)	(3)	(4)	(5)	(6)
11.	**HYDROGENATED AND OTHER EDIBLE OILS**				
11.(a)	ALL REFINED & NON REFINED EDIBLE OILS		P-2	RR	*140A
	CASTOR OIL				
	CORN OIL				
	CRUDE DEGUMMED SOYA				
	CRUDE PALMOLEIN				
	GROUNDNUT OIL				
	HYDROGENATED OILS				
	MUSTARD OIL				
	PALM OIL				
	SOYABEAN OIL				
	SUNFLOWER OIL				
	VANASPATI GHEE				
11.(b)	All REFINED & NON REFINED OIL (In covered wagons)		P5	RR	**LR-3(A)
	CORN OIL (In covered wagons)				
	GROUND NUT OIL (In covered wagons)				
	HYDROGENATED OILS (in covered wagons)				
	MUSTARD OIL (In covered wagons)				
	PALM OIL (in covered wagons)				
	SOYABEAN OIL (In covered wagons)				
	SUNFLOWER OIL (In covered wagons)				
12.	**IRON OR STEEL**				
12.(a)	ALLOY CONSTRUCTIONAL STEELS		P2(b)	RR	165
	ANGLES				
	AXLES IRON OR STEEL NOC				
	BANDS				
	BARS INCLUDING CARBON STEEL BARS				
	BARS IRON OR STEEL GALVANISED				
	BEAMS				
	BILLETS				
	BLOOMS				
	CABLES WIRE				
	CASTINGS NOC				
	CHAINS IRON NOC				
	CHANNELS				
	COLD ROLLED COILS				
	COLD ROLLED SHEETS				
	COLLIERY ARCH AND Z-PILLING				
	CORRUGATED SHEETS				
	DOG SPIKES				
	ELASTIC RAIL CLIPS (S TYPE)				
	FISH PLATES				
	FITTINGS PIPES				
	FLAT IRON OR STEEL GIRDERS				
	FLAT, IRON OR STEEL				
	GALVANISED SHEETS (CORRUGATED)				
Note :-	* for wagonload, applicable class is 140B ** for wagon load, applicable class is LR-3(B)				

GENERAL CLASSIFICATION OF GOODS					
Group No.	Commodity Description	Type of Commodity	Packing Condition	Risk Rate	Base Class
(1)	(2)	(3)	(4)	(5)	(6)
	GALVANISED SHEETS (PLAIN)				
	GALVANSED COILS				
	GUTTERS				
	HEAVY ROLLS SPOILS				
	HOT ROLLED COILS				
	HOT ROLLED SHEETS				
	INGOTS				
	IRON OR STEEL MATERIAL USED OLD DEFACTED FOR REROLNG MELTING				
	IRON OR STEEL SLAB				
	IRON OR STEEL PIPE CUTTINGS				
	IRON SHEET CUTTINGS				
	JOINTS				
	LATTICE/TRANSMISSION TOWER PARTS				
	MILL SCALE IRON OR STEEL				
	NICKLED STEEL BARS				
	PERMANENT WAY MATERIALS NOC				
	PILES SCREWS				
	PLATES				
	POLES				
	RAILS P WAY MATERIAL NOC				
	RODS INCLUDING HIGH CARBON STEEL RODS		P2(b)	RR	165
	ROUNDS				
	SAFES IRON				
	SAFES STEEL				
	SHEETS				
	SHELL BLOOMS				
	SLEEPERS (CAST IRON)				
	SLEEPERS (OTHER THAN CAST IRON)				
	SPOONS (IRON)				
	SPRINGS				
	SQUARES (CAST IRON)				
	SQUARES (OTHER THAN CAST IRON)				
	STAINLESS STEEL				
	STAINLESS STEEL BARS				
	STAINLESS STEEL RODS				
	STAINLESS STEEL SHEETS				
	STAINLESS STEEL SLABS				
	STAINLESS STEEL WARE				
	STEEL SHEET CUTTINGS				
	STEEL SHEETS PILINGS				
	STRUCTURAL COBBLES				
	TACKS				
	TIES				

GENERAL CLASSIFICATION OF GOODS					
Group No.	Commodity Description	Type of Commodity	Packing Condition	Risk Rate	Base Class
(1)	(2)	(3)	(4)	(5)	(6)
	TIN BARS		P2(b)	RR	165
	TYRES (IRON)				
	WEIGHTS				
	WHEELS				
12.(b)	PIPES (API) OF ANY LENGTH & DIA LOADED		P2(b)	RR	130
	PIPES (STEEL) OF ANY LENGTH & DIA (ABOVE 80MM)				
	RIBBED WIRE ROD IN COILS				
	SPIRAL WELDED STEEL PIPES (WITH DIA LESS THAN 610 MM)				
	STAINLESS STEEL PIPES				
	STEEL PIPES				
	WIRE ROD IN COILS				
13.	**LEATHER, RUBBER AND PLASTIC**				
13.(a)	HIDES & SKINS		P3	OR	100
	LEATHER CLOTH		P2(b)or P4		
	LEATHER GOODS				
	LEATHER REFUSE				
	PLASTIC GOODS				
	PVC COMPOUND				
	PVC PIPES				
	RUBBER CRUDE				
	RUBBER TYRES AND TUBES				
13.(b)	PVC POWDER		P1		110
14.	**MINERALS AND ORES**				
14.1	**IRON ORE (*)**				
	IRON ORE		P2(a)	RR	165
	CALIBRATED LUMP IRON ORE				
	IRON ORE NATURAL PELLET				
	NON CALIBRATED LUMP IRON ORE				
	IRON ORE PELLETS				
	IMPORTED IRON ORE				
	SINTER				
	IRON ORE POWDER				
	IRON ORE LUMP				
	IRON ORE FINES				
	BLUE DUST				
	HOT BRIQUETTED IRON				
Note :-	* In case of Iron ore for export, Distance based Charge, as notified from time to time, will be levied additionally.				

GENERAL CLASSIFICATION OF GOODS					
Group No.	Commodity Description	Type of Commodity	Packing Condition	Risk Rate	Base Class
(1)	(2)	(3)	(4)	(5)	(6)
14.2	MINERALS AND ORES OTHER THAN IRON ORE				
14.2(a)	ALUNITE		P2(a)	RR	160
	BARYTES				
	BARYTES POWDER				
	BAUXITE				
	CALCITE				
	CHROME ORE				
	FELSPAR				
	ILIMENITE ORE				
	IRON PYRITES				
	LATERITE				
	LITHIUM ORE				
	MONAZITE				
	OLIFLUX				
	PYROXINITE				
	SOAP STONE				
	SOAP STONE POWDER				
	SOAP STONE TILES				
	ZINC ORES				
14.2(b)	CHEMICAL GYPSUM		P2(a)	RR	150
	GYPSUM				
	GYPSUM IN LUMPS				
	GYPSUM IN POWDER				
	MARINE GYPSUM				
	MINERAL GYPSUM				
14.2(c)	DOLOMITE		P2(a)	RR	145
	DOLOMITE CHIPS				
	DOLOMITE LUMPS				
	DOLOMITE POWDER				
	DUNITE				
	LIME NOC				
	HYDRATED LIME				
	QUICK LIME				
	BURNT LIME				
	LIME POWDER				
	LIME STONE				
	LIME STONE CHIPS				
	LIME STONE POWDER/LUMPS				
	MANGANESE ORES				

GENERAL CLASSIFICATION OF GOODS					
Group No.	Commodity Description	Type of Commodity	Packing Condition	Risk Rate	Base Class
(1)	(2)	(3)	(4)	(5)	(6)
15.	**MACHINERY AND MACHINE TOOLS**				
	AXLES WITH WHEELS		P4	OR	100
	BOILERS				
	CRANES				
	ENGINES				
	LOCOMOTIVES UNASSEMBLED COMPONENT PARTS				
	MACHINERY PARTS				
	SEWING MACHINES				
	VEHICLES RAILWAY UNASSEMBLED COMPONENT PARTS				
	WAGONS RAILWAY UNASSEMBLED COMPONENT PARTS				
16.	**METAL SCRAP AND PIG IRON**				
16.(a)	BRASS SCRAP		P2(a)&S1	RR	150
	COPPER SCRAP				
	IRON PIG (PIG IRON)				
	IRON SCRAP				
	SPONGE IRON				
	STEEL/STAINLESS STEEL SCRAP				
16.(b)	COPPER SLAG				140
	FERRO MANGANESE SLAG				
	GROUND GRANULATED BLAST-FURNACE SLAG				
	IRON AND STEEL SLAG				
	IRON AND STEEL SLAG (GRANULATED)				
	SLAG				
	SLAG NOC				
17.	**OIL CAKES AND SEEDS**				
	COTTON SEED		P1	RR	120
	COTTON SEED OIL CAKES				
	COTTON SEED WASTE				
	DE OILED CAKES				
	DE-OILED RICE BRAN				
	GINGELLY SEED				
	GROUND NUT SEEDS				
	LINSEED				
	MUSTARD SEEDS				
	OILED CAKES				
	RAPE SEEDS				
	SAL SEEDS				
	SOYABEAN				
	SOYABEAN EXTRACTIONS/TOSTED MEALS/FLAKES				
	SOYABEANS SEEDS				
	SUNFLOWER SEEDS				

GENERAL CLASSIFICATION OF GOODS					
Group No.	Commodity Description	Type of Commodity	Packing Condition	Risk Rate	Base Class
(1)	(2)	(3)	(4)	(5)	(6)
18.	**PETROLEUM PRODUCTS AND GASES**				
18.(a)	ALKYLATE	d		RR	*180A
	AVIATION SPIRIT				
	AVIATION TURBINE FUEL (ATF)				
	CARBON BLACK FEED STOCK				
	CRUDE OIL				
	DIESEL OIL				
	FURNACE OIL				
	FUSEL OIL				
	HEXANE				
	HIGH SPEED DIESEL (HSD)				
	HIGH SPEED DIESEL (HSD) BLENDED WITH BIO-DIESEL				
	LIGHT DIESEL OIL				
	LOW SULPHUR HEAVY STOCK				
	LUBRICATING OILS NOC				
	METHANE GAS				
	NAPTHA				
	NAPTHA (BARAUNI)				
	NAPTHA (KOYALI)				
	PARAFFIN OIL				
	PETROL (MOTOR SPIRIT)				
	PETROL (MOTOR SPIRIT) BLENDED WITH ETHANOL				
	REFORMAT				
	RESIDUAL FUEL OIL (RFO)				
	TOLUENE				
	WAXY CRUDE OIL				
	XYLENE				
18.(b)	BITUMEN		P5	RR	160
	COAL TAR				
	COAL TAR PITCH				
	COAL TAR PITCH (SOLID)		P1		
18.(c)	LIQUEFIED PETROLEUM GAS (LPG)	d		RR	165
	LIQUIFIED BUTANE				
	LIQUEFIED PROPANE				
	SUPERIOR KEROSENE OIL				
18.(d)	AMMONIA (ANHYDROUS LIQUEFIED GAS)			RR	200
	AMMONIA LIQUIFIED GAS				
	ARGON GAS				
	COMPRESSED GASES				
	NITROGEN GAS				
Note :-	* for wagonload, applicable class is 180B				

GENERAL CLASSIFICATION OF GOODS

Group No.	Commodity Description	Type of Commodity	Packing Condition	Risk Rate	Base Class
(1)	(2)	(3)	(4)	(5)	(6)
19.	**SALT**				
19.(a)	BLACK SALT		**P1 & S3**	**OR**	***100A**
	EARTH SALT				
	IODISED SALT				
	NON REFINED SALT				
	NON REFINED SALT FOR HUMAN CONSUMPTION (IODISED SALT/SALT MEANT FOR IODISATION)				
	REFINED IODISED SALT				
	REFINED SALT				
	ROCK SALT				
	SALT FOR TABLE USE				
	VACUUM SALT				
19.(b)	SALT FOR INDUSTRIAL USE		**P1**		**120**
20.	**SOAP**				
	LIQUID SOAP		**P1 or P2(a) or P4 or P5**	**RR**	**120**
	SOAP				
	SYNTHETIC DETERGENTS				
	SYNTHETIC SOAP				
21.	**SUGAR**				
	RAW CANE SUGAR		**P1**	**RR**	****120A**
	SUGAR (GR.A)				
	SUGAR (GR.B)				
	SUGAR (GR.C)				
	SUGAR CANDY				
22.	**MISCELLANEOUS**				
	ASHES		**P2(a)**	**RR**	**140**
	BETEL NUTS		**P1**		**150**
	BIOMASS BRIQUETTES		**P1**		**120**
	CHALK CALCIUM CARBONATE		**P1**		**140**
	CHALK IN LUMPS OR POWDER		**P1**		**140**
	GLUCOSE		**P4 or P5**		**150**
	GUNNIES		**P3**		**120**
	GUNNY BAGS				**120**
	HOUSEHOLD EFFECTS				**150**
	MOLASSES		**P5**		**150**
	MOLASSES SUGAR MILL (NOT KHANDSARI MOLASSES)				**150**
	MONO CALCIUM PHOSPHATE FOR ANIMAL, AQUA AND POULTRY FEED		**P1**		**130**
	PURIFIED TEREPHTHALIC ACID (PTA)		**P1**		**130**
	PUTTY		**P2(a)**		**150**
	SECONDARY NUTRIENT/SOIL CONDITIONER (CMS)		**P1**		**150**
	STARCH		**P1 or P4 or P5**		**120**
Note :-	* for wagonload, applicable class is 100B ** for wagonload, applicable class is 120B				

GENERAL CLASSIFICATION OF GOODS					
Group No.	Commodity Description	Type of Commodity	Packing Condition	Risk Rate	Base Class
(1)	(2)	(3)	(4)	(5)	(6)
	LOW RATED TARIFF LINES				
23.	**DIVISION -'A'**				
23.(a)	**ELECTRICAL APPLIANCES AND FITTINGS**		**P4**	**RR**	**LR1**
	ELECTRONIC INSTRUMENTS NOC				
	TELEVISION SETS				
	JOINTING MATERIALS				
	ELECTRIC APPLIANCES NOC				
	DRY BATTERIES				
	DYNAMOS				
	ELECTRIC MOTORS				
	ELECTRIC PUMPS				
	GENERATORS				
	GENERATORS, SMOKE				
	ELECTRIC WIRES				
	ELECTRIC BULBS				
	ELECTRIC FANS				
	FUSE WIRE				
	EMPTY DRUMS		**P2(b)**	**RR**	**LR1**
	JERRYCANES				
	BARRELS				
23.(b)	GUR		**P1**	**RR**	**LR1**
	JAGREE POWDER				
	JAGREE				
23.(c)	JUTE		**P3**	**RR**	**LR1**
	JUTE CADDIES				
23.(d)	MILK		**P4 or P5**	**OR**	**LR1**
	MILK PRODUCTS				
23.(e)	ORGANIC MANURES		**P2(a)**	**RR**	**LR1**
23.(f)	PAINTS AND POLISHES		**P5**	**RR**	**LR1**
	COLOURS AND DYES				
23.(g)	TIMBER		**P2(b)**	**RR**	**LR1**
	FIRE WOOD				
	PLYWOOD IN BOARDS, PANELS				
	SANDAL WOOD				
	SPLINTS FOR MATCHES				
	WOOD PIECES				
23.(h)	TIMBER WASTE				**LR2**
23.(i)	VEGETABLE OIL PITCHES		**P5**	**RR**	**LR1**
23.(j)	WATER			**RR**	**LR1**
23.(k)	FIREWORKS	d		**RR**	**LR1**
23.(l)	BOOKS/EXERCISE BOOKS/NOTE BOOKS AND WORK BOOKS		**P3**	**RR**	**LR1**

GENERAL CLASSIFICATION OF GOODS					
Group No.	Commodity Description	Type of Commodity	Packing Condition	Risk Rate	Base Class
(1)	(2)	(3)	(4)	(5)	(6)
24.	**DIVISION -'B'**				
24.(a)	BOILER COMPONENTS		P4	RR	LR2
24.(b)	CHARCOAL		P2(a)	OR	LR2
24.(c)	PAPER NOC IN BUNDLES		P3	RR	LR2
	PAPER				
	CARD BOARDS				
	PAPER IN REELS/ROLLS				
	PAPER WASTE				
	PAPER CUTTINGS				
	PAPER SLUDGE				
25.	**DIVISION -'C'**				
25.(a)	BAMBOOS		P2(b)	RR	LR3
	BAMBOO CUTS				
	BAMBOO CHIPS				
	BAMBOO CRUSHED				
	BAMBOO PULP				
	STICKS				
25.(b)	BROOMS		P2(b)	RR	LR3
25.(c)	COFFEE AND TEA		P4	RR	LR3
25.(d)	COIR		P2(b)	RR	LR3
	COIR MATS				
25.(e)	**COTTON AND OTHER TEXTILES**		P3	RR	LR3
	COTTON AND OTHER TEXTILES NOC				
	BED SHEETS				
	COTTON HALF/FULL PRESSED				
	COTTON RAW FULL PRESSED				
	COTTON RAW				
	HAND SPUN YARN COTTON				
	KHADDAR				
	SILK				
	SYNTHETIC YARNS				
	TOWELS				
	WOOL				
25.(f)	FODDER AND HUSK		P2(a)	RR	LR3
	FODDER AND HUSK NOC				
	BARLEY HUSK				
	BHOOSA				
	CHARI				
	COTTON SEED HUSK				
	COCONUT HUSK		P1		
	DRY GRASS		P2(a)		
	GRAM HUSK		P1		
	HAY				
	KIRBY				
	KIRBY KUTTI (KUTTAR)				

GENERAL CLASSIFICATION OF GOODS

Group No.	Commodity Description	Type of Commodity	Packing Condition	Risk Rate	Base Class
(1)	(2)	(3)	(4)	(5)	(6)
	PADDY HUSK		P1		
	PEAS HUSK				
	TOOR HUSK				
	WHEAT BRAN (CHOKAR)				
25.(g)	CHUNI		P1		LR1
25.(h)	**FRUITS AND VEGETABLES**				
	FRUITS AND VEGETABLES NOC		P2(a)	OR	LR3
	BANANA				
	GARLIC				
	DATES				
	MANGO		P4		
	ORANGE				
	ONIONS		P2(a)		
	POTATOES				
	POTATOES SWEET				
25.(i)	**GROCERIES**		P1	RR	LR3
	GROCERIES NOC				
	ALUM				
	PICKLES (INDIGENOUS)				
	CHILLIES				
	EDIBLE SNACKS				
	EXTRUDED FOODS				
	JEERA				
	PEPPER				
	SPICES				
	MAIZE FLAKES				
	RICE FLAKES				
	RICE PARCHED				
	SAGO COMMON				
	TURMERIC				
25.(j)	SOYA PROTEIN TEXTURED				120
25.(k)	I.V. AND INSECTICIDE FLUID		P5	RR	LR3
25.(l)	LIVE STOCK			OR	LR3
25.(m)	**MOTOR VEHICLES ***				
	MOTOR VEHICLES		P6(a) & (b)	OR	LR3
	MOTOR CYCLES				
	MOTOR TRACTOR NOC				
	MOTOR CARS				
Note:-	* The "Standardized" CC of NMG & BCCN wagons shall be 58.8 tonnes.				
25.(n)	BAGASSE		P2(a)	RR	LR3
	SUGAR CANE				

निबंधन संख्या पी0टी0-40



बिहार गजट

असाधारण अंक

बिहार सरकार द्वारा प्रकाशित

9 भाद्र 1944 (श0)

(सं0 पटना 650) पटना, बुधवार, 31 अगस्त 2022

खान एवं भूतत्व विभाग

अधिसूचना

30 अगस्त 2022

सं० 02/एम0एम0–(बा0)–25/22–4352/एम0—खान एवं खनिज (विकास एवं विनियमन) अधिनियम, 1957 (अधिनियम सं0 67,1957) की धारा– 15 के द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए बिहार राज्यपाल एतद द्वारा बिहार खनिज (समानुदान, अवैध खनन, परिवहन एवं भंडारण निवारण) नियमावली, 2019 के नियम–51(1)(ख) के साथ सहपठित अनुसूची–III क में निम्नलिखित संशोधन किया जाता है।

संशोधन

उक्त नियमावली में,

1. विद्यमान अनुसूची–III क की तालिका में क्रम संख्या 2 के कॉलम 2 एवं 3 निम्न प्रकार प्रतिस्थापित की जायेगी, यथा:–

(प्रति घन मीटर दर, रूपये में)

2	(क) 05 नदियो यथा–सोन, किउल, फल्गु, चानन एव मोरहर मे उपलब्ध बालू	150.00
	(ख) अन्य शेष नदियों में उपलब्ध बालू	75.00

बिहार–राज्यपाल के आदेश से,
दीवान जाफर हुसैन खाँ,
सरकार के सयुक्त सचिव।

The 30 August 2022

No. 02/MM(BA)-25/22-4352/M,—In exercise of the power conferred by Section 15 of the Mines & Mineral (Development and Regulation) Act. 1957 (Act No.-67, 1957) the Governor of Bihar is pleased to make the following amendment in schedule-III A read with Rule-51 (1)(b) of Bihar Mineral (Concession, Prevention of Illegal Mining, Transportation & Storage) Rules, 2019.

AMMENDMENTS

In the said Rules :-

1. Column 2 & 3 of sr. no. 2 of Existing schedule III A shall be substituted by the following, namely :-

(Rate Per Cubic Meter in Rupees)

2	(A) Sand available in 05 Rivers like Sone, Kiul, Falgu, Chanan & Morhar (B) Sand available in other Rivers	150.00 75.00

By order of the Governor of Bihar,
Diwan Jafar Hussain Khan,
Joint Secretary to Govt.

अधीक्षक, सचिवालय मुद्रणालय,
बिहार, पटना द्वारा प्रकाशित एवं मुद्रित।
बिहार गजट (असाधारण) 650-571+100-डी0टी0पी0
Website: http://egazette.bih.nic.in

RCD/SOR_20th Edition_2026



बिहार गजट

असाधारण अंक

बिहार सरकार द्वारा प्रकाशित

26 भाद्र 1941 (श0)

(सं0 पटना 1068) पटना, मंगलवार, 17 सितम्बर 2019

खान एवं भूतत्व विभाग

अधिसूचना

17 सितम्बर 2019

सं० 4/वी0मु0–20–93/18–3174/एम0—खान एवं भूतत्व (विकास एवं विनियमन) अधिनियम, 1957 (1957 का अधिनियम 67) की धारा 15 सहपठित धारा 23ग तथा धारा 26 के अधीन प्रदत्त शक्तियों का प्रयोग करते हुए बिहार के राज्यपाल निम्नलिखित नियमावली बनाते हैं–

बिहार खनिज (समानुदान, अवैध खनन, परिवहन एवं भंडारण निवारण) नियमावली, 2019

अध्याय–1

प्रारंभिक

1. **संक्षिप्त नाम, विस्तार एवं आरंभ**–
   (1) यह नियमावली बिहार खनिज (समानुदान अवैध खनन, परिवहन एवं भंडारण निवारण) नियमावली, 2019 कही जा सकेगी।
   (2) इसका विस्तार संपूर्ण बिहार राज्य में होगा।
   (3) यह इसके राजपत्र में प्रकाशन की तिथि से प्रवृत्त होगी।
2. **परिभाषाएँ**– इस नियमावली, जब तक संदर्भ अन्यथा अपेक्षित न हो –
   (i) **"अधिनियम"** से अभिप्रेत है खान और खनिज (विकास एवं विनियमन) अधिनियम, 1957 (1957 का अधिनियम 67) ;
   (ii) **"समाहर्त्ता"** से अभिप्रेत है किसी जिले का समाहर्त्ता–सह–जिला दण्डाधिकारी अथवा सगाहर्त्ता–सह–जिला दण्डाधिकारी की शक्तियों का प्रयोग तथा कृत्यों का अनुपालन करने हेतु सरकार द्वारा नियुक्त कोई व्यक्ति ;
   (iii) **"सक्षम पदाधिकारी"** से अभिप्रेत है–
      (क) भारतीय वन अधिनियम 1927 (केन्द्रीय अधिनियम XVI 1927) के अधीन सुरक्षित और संरक्षित वन के रूप में अधिसूचित भूमि में उत्खनन अनुज्ञापत्र की दशा में जहाँ वास्तविक खनन कार्य केवल सतह से अथवा पाँच फीट से अनधिक गहराई से कुछ हटाना मात्र हो, तथा केवल 10000 घन फीट की सीमा तक हो संबंधित सुरक्षित और संरक्षित क्षेत्र का प्रमंडलीय वन पदाधिकारी;

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अनुसूची–I
[नियम 2(x) देखे]

1	खनन लीज के लिए आवेदन	प्रपत्र–क
2	खनन लीज के विलेख	प्रपत्र–ख
3	खनन क्रिया परमिट के लिए आवेदन	प्रपत्र–ग
4	खनन क्रिया परमिट	प्रपत्र–घ
5	खनिज निपटान परमिट देने हेतु आवेदन	प्रपत्र–ङ०
6	खनिज निपटान परमिट के लिए फारम	प्रपत्र–च
7	ई०चालान का प्रपत्र	प्रपत्र–छ
8	लीजधारी/परमिट धारक द्वारा संधारित किया जाने वाला रजिस्टर	प्रपत्र–ज
9	मासिक रिटर्न	प्रपत्र–झ
10	वार्षिक रिटर्न	प्रपत्र–ञ
11	स्टॉकिस्ट लाइसेन्स	प्रपत्र –ट
12	अपील के लिए फारम	प्रपत्र–ठ

अनुसूची–II
[नियम 51(1)(क) देखे]
अनिवार्य लगान

अवधि	अनिवार्य लगान की दर (रूपये मे)
1	2
पट्टा की सम्पूर्ण अवधि के लिए प्रति वर्ष की दर	50,000.00 रू0 प्रति एकड़ प्रति वर्ष

अनुसूची–III क
[नियम 51(1)(ख) देखे]

क्रमांक	रॉयलिटी खनिजो का नाम	प्रतिघनमीटर दर, रूपये मे।
1	2	3
1	(क) बोल्डर, ग्रेवेल अथवा पत्थर चाहे जिस नाम से परिभाषित हो (ख) नीलामी की रीति से बंदोबस्त पत्थर	150.00 नीलामी की दशा मे नीलामी की राशि।
2	(क) निर्माण प्रयोजन के लिए उपयोग में लाया गया साधारण बालू (ख) नीलाम घाटों का साधारण बालू	75.00 नीलामी की दशा में नीलामी की राशि।
3	ईट मिट्टी (400 मानक ईटों के बराबर)	18.00
4	साधारण गिट्टी/क्ले जिसका उपयोग बाँध, सड़क, रेलवे, भवन, आदि के निर्माण के प्रयोजन मे भरने तथा लेवल करने आदि तथा अन्य वाणिज्यिक कार्य हेतु जिसका उपयोग किया जाता हो।	33.00
5	लाईम सेल, लाईम स्टोन तथा ककड जिसका उपयोग निर्माण सामग्री के रूप में किल्न हेतु चूना के विनिर्माण के लिए किया जाता हो तथा चूना का उपयोग बटन के विनिर्माण के लिए किया जाता हो।	166.00
6	मोरम	83.00
7	कैल्सीडोनी ककड़ जिसका उपयोग केवल बॉल मिल के प्रयोजनार्थ होता है।	95.00
8	ग्रैङ्गलर मिट्टी	83.00
9	क्वार्टजाइज जिसका उपयोग भवन निर्माण के प्रयोजनार्थ या सड़क बनाने के लिए किया जाता है।	150.00

RCD/SOR_20th Edition_2026

क्रमांक	रॉयलिटी खनिजों का नाम	प्रतिघनमीटर दर, रूपये में।
1	2	3
10	रेह मिट्टी	34.00
11	साल्ट पीटर	38.00
12	स्लेट तथा रोल जब उसका उपयोग भवन निर्माण सामग्री के रूप मे किया जाता है।	110.00
13	फूलर्स मिट्टी (अर्थ)	124.00
14	स्टोन जिसका उपयोग ग्रिन्डिंग स्टोन सहित घरेलू बर्तन बनाने के लिए होता हो।	95.00
15	स्टोन सेट तथा स्टोन ब्रिक प्रति सैकड़ा	95.00
16	स्टोन डस्ट	30.00
17	ग्रेनाईट डिकोरेटिंग स्टोन के लिए उपयोग की दशा में प्रति सैकड़ा– (I) 60से0मी0 से अधिक ब्लॉक (II) 60 से0मी0 से कम ब्लॉक	 709.00 356.00
18	क्वार्टज	73.00
19	बालू (अन्य)	75.00
20	सिलिका बालू	75.00
21	स्टीटाईट अथवा टाल्क या सोप स्टोन	मूल्यानुसार आधार पर विक्रय मूल्य का तीस प्रतिशत्।
22	अगेट	
23	बालक्ले	
24	बारिटस	
25	काल्केरियस बालू	
26	कैल्साइट	
27	चॉक	
28	चइना क्ले	
29	क्ले (अन्य)	
30	कोरन्डम	
31	डिअयसपोर	
32	डोलोमाईट	मूल्यानुसार आधार पर विक्रय मूल्य का तीस प्रतिशत्।
33	ड्रूनिट अथवा पाईरोक्सेनाईट	
34	फेल्साइट	
35	फेल्सपार	
36	फायर क्ले	
37	फुशाईट क्वार्टजाईट	
38	जिप्सम	
39	जरपर	
40	कायोलीन	
41	लैटेराइट	
42	माईका	
43	ओकरे	
44	पाइरो फाइलाईट	
45	सभी अन्य खनिज	

नोटः– (I) बिहार खनिज समानुदान (अवैध खनन, परिवहन एवं भंडारण निवारण) नियमावली, 2019 या अन्यथा मे प्रतिकूल किसी बात के अतर्विष्ट होने पर भी, बदोबस्तधारी नीलामी राशि के समकक्ष से अधिक उत्खनित तथा प्रेषित पत्थर की मात्रा के लिए अतिरिक्त रॉयलिटी का भुगतान करेगा।

नोटः– (II) बंदोबस्ताधारी नीलामी राशि के समकक्ष से अधिक उत्खनित तथा प्रेषित बालू की मात्रा के लिए अतिरिक्त रॉयलिटी का भुगतान करेगा।

नोटः– (III) साधारण मिट्टी के गैर वाणिज्यिक उपयोग के लिए कोई रॉयलिटी उगाही नही जाएगी।

अनुसूची–III ख

[नियम 38(1) देखें]

बिहार खनिज (समनुदान, अवैध खनन परिवहन एवं भंडारण निवारण) नियमावली, 2019 के नियम 38(1) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए राज्य के अन्तर्गत स्थित विभिन्न क्षेत्रों, जनसंख्या, असैनिक निर्माण कार्य की स्थिति, औद्योगिक निर्माण कार्य की स्थिति, शहरीकरण की अवस्था एवं औद्योगिक विकास की गति को ध्यान में रखते हुए बिहार के राज्यपाल विभिन्न क्षेत्रों को श्रेणियों में विभाजित करते हुए प्रत्येक स्थायी चिमनी एवं बंगला ईंट भट्ठों के लिए ईंटों की संख्या और उस पर ईंट भट्ठा मालिकों/ईंट गिट्टी हटाने वालों द्वारा प्रति भट्ठा प्रति वर्ष राज्य सरकार को देय समेकित स्वामित्व की राशि निर्धारित करते हैं जो निम्नलिखित तालिका में दर्शायी गई है :–

तालिका

क्रमांक	क्षेत्र की श्रेणी	जिला का नाम तथा क्षेत्र	क्षमता स्तंभ 3 में दिखाये गये क्षेत्र में स्थित प्रति स्थायी चिमनी अथवा बंगला ईंट भट्ठा के निर्मित ईंट।	स्वामित्व–प्रति भट्ठा प्रतिवर्ष देय स्वामित्व की राशि जो स्तंभ 4 में निर्धारित ईंट की संख्या पर देय है (रूपये में)।
1	2	3	4	5
1.	I	पटना, मुजफ़्फरपुर, भागलपुर, गया, दरभंगा, जिलों का शहरी क्षेत्र।	45 लाख ईंट	रू0 2,02,500.00/–
2.	II	अन्य शहरी क्षेत्र	35 लाख ईंट	रू0 1,57,500.00/–
3.	III	ग्रामीण क्षेत्र	25 लाख ईंट	रू0 1,12,500.00/–
4.	IV	बंगला भट्ठा	01 (एक लाख) ईंट	रू0 4,500.00/–

टिप्पणी (I)– 'शहरी क्षेत्र' से अभिप्रेत किसी नगर निगम या नगरपालिका या अधिसूचित क्षेत्र समिति की स्थानीय सीमा के भीतर के क्षेत्रों से है और, यथास्थिति, उस नगर निगम या नगरपालिका या अधिसूचित क्षेत्र समिति की सीमा रेखा से चार किलोमीटर की बाहरी दूरी की भीतर पड़ने वाले क्षेत्र भी इसमें शामिल है।

टिप्पणी (II)– अव्यवसायिक, व्यक्तिगत् उपयोग हेतु बंगला भट्ठा में निर्गित ईंट/ईंट गिट्टी पर कोई स्वामित्व भुगतेय नही होगा।

RCD/SOR_20th Edition_2026

बिहार सरकार
खान एवं भूतत्व विभाग

संo संo– 02 / एमoएमo(बा0)–01 / 21–3376 पटना, दिनांक– 15/11/2021

प्रेषक,

E mail

गोपाल मीणा, भा0प्र0से0
निदेशक, खान।

कम्प्यूटरीकृत आलय
पंजीयन संख्या
पंजीयन सं०- 632359
दिनांक- 17/11/2021

सेवा में,

संतोष कुमार,
संयोजक,
राज्य स्तरीय अनुसूचित दर निर्धारण समिति
–सह–अभियंता प्रमुख (मुख्यालय),
पथ निर्माण विभाग, बिहार, पटना।

विषय– अनुसूचित दर पुनरीक्षण हेतु निर्माण कार्यों में व्यवहृत होने वाले विभिन्न प्रकार (Size) के स्टोन–चिप्स, स्टोन मेटल्स, बालू एवं स्टोन डस्ट के दरों के संबंध में।

प्रसंग– आपका पत्रांक–पु.नि.(421)64 / 2021–57(अनु0) पटना, दिनांक–05.10.2021

महाशय,

उपर्युक्त विषयक प्रासंगिक पत्र के संबंध में निदेशानुसार कहना है कि बिहार खनिज (समानुदान, अवैध खनन, परिवहन, भंडारण निवारण) नियमावली, 2019 के नियम 51(1)(b) के प्रावधान के तहत लघु खनिज बालू/पत्थर के लिए Schedule III A में Royalty Rate नीलामी/बन्दोबस्ती राशि होता है। साथ ही उक्त नियमावली के नियम 58 में प्रावधानित है कि उपभोक्ता एवं जनता के लिए खनिजों का विक्रय मूल्य बाजार बल द्वारा विनिश्चित किया जाना है। इसके अतिरिक्त उक्त नियमावली के नियम 41 के प्रावधान के तहत लघु खनिजों का संचालन/परिवहन Form-G में विहित/वांछित सूचनाएँ भरकर ई–चालान के माध्यम से किया जाना है। ई–चालान Form-G की कंडिका 15 में पिट हेड पर वसूली गई राशि अंकित करने का प्रावधान है।

कृपया सूचनार्थ।

विश्वासभाजन

15/11/2021
निदेशक, खान।

अभियंता प्रमुख–सह–अपर आयुक्त–सह–विशेष सचिव का कार्यालय,
पथ निर्माण विभाग बिहार, पटना

ज्ञापांक:– प्र.6 / नियम–10 / 2008 746(E)W पटना, दिनांक 25/2/2010

प्रेषक,

अभियंता प्रमुख–सह–अपर आयुक्त–सह–विशेष सचिव
पथ निर्माण विभाग,बिहार, पटना।

सेवा में,

सभी मुख्य अभियंता, पथ निर्माण विभाग।
सभी अधीक्षण अभियंता, पथ निर्माण विभाग।
सभी कार्यपालक अभियंता, पथ निर्माण विभाग।
अधीक्षण अभियंता,
मुख्यालय निरूपण अंचल।

विषय: **बिहार भवन एवं अन्य सन्निर्माण कर्मकार कल्याण बोर्ड में प्रत्येक योजनाओं की लागत का एक प्रतिशत "सेस" के रूप में जमा करने के संबंध में।**

महाशय,

उपर्युक्त विषयक संयुक्त श्रमायुक्त–सह–सचिव, बिहार भवन एवं अन्य सन्निर्माण कर्मकार कल्याण बोर्ड, पटना के पत्र संख्या–बी0सी0डब्लू0सी0–14 / 2008–श्र.स.–4984 दिनांक 01.10.08 (सानुलग्नक प्रति संलग्न) से प्राप्त प्रस्ताव की समीक्षा विभागीय उच्चस्तरीय तकनीकी समिति द्वारा की गयी और समिति की अनुशंसा के आलोक में सरकार के निर्णयानुसार कहना है कि:–

1) भवन तथा अन्य सन्निर्माण कर्मकार(नियोजन तथा सेवाशर्त्त विनियमन) अधिनियम, 1996 के निर्देशों के अनुपालनार्थ निर्माण कार्यों के संवेदक के विपत्रों से देय 1% (एक प्रतिशत) सेस के निमित निर्माण कार्य के प्राक्कलन में कार्य मूल्य का 1% (एक प्रतिशत) की दर से "सेस" की राशि जोड़कर प्राक्कलन का प्राविधिक स्वीकृति अथवा प्रशासनिक स्वीकृति प्रदान की जाय तथा 1% सेस का भुगतान कल्याण बोर्ड को करना भी सुनिश्चित किया जाय।।

2) प्रस्ताव में महाधिवक्ता, बिहार तथा वित्त विभाग का परामर्श प्राप्त है।

अनु0–यथोक्त।

विषयासभाजन

(रामविमल राम)
अभियंता प्रमुख–सह–अपर आयुक्त –सह–विशेष सचिव
पथ निर्माण विभाग,बिहार,पटना।

कु0पृ0उ0

24/2/10

RCD/SOR_20th Edition_2026

ज्ञापांक: प्र.6 / नियम–10 / 2008 पटना, दिनांक

प्रतिलिपि महालेखाकार बिहार, बीरचंद पटेल पथ, पटना को सूचना एवं आदश्यक कार्रवाई हेतु प्रेषित।

24.2.10

अभियंता प्रमुख–सह–अपर आयुक्त –सह–विशेष सचिव
पथ निर्माण विभाग,बिहार,पटना।

ज्ञापांक: प्र.6 / नियम–10 / 2008 पटना, दिनांक

प्रतिलिपि सभी प्रधान सचिव/सचिव, सभी विभाग/सभी प्रमंडलीय आयुक्त/सभी जिलाधिकारी/अभियंता प्रमुख, सभी कार्य विभाग/ अध्यक्ष, बिहार राज्य पुल निर्माण निगम, बिहार, पटना/ अध्यक्ष, बिहार राज्य पथ विकास निगम, बिहार, पटना को सूचना एवं आवश्यक कार्रवाई हेतु प्रेषित।

24.2.10

अभियंता प्रमुख–सह–अपर आयुक्त –सह–विशेष सचिव
पथ निर्माण विभाग,बिहार,पटना।

ज्ञापांक: प्र.6 / नियम–10 / 2008 पटना, दिनांक

प्रतिलिपि संयुक्त श्रमायुक्त–सह–सचिव, बिहार भवन एवं अन्य सन्निर्माण कर्मकार कल्याण बोर्ड, श्रम संसाधन विभाग, बिहार, पटना को सूचनार्थ समर्पित।

24.2.10

अभियंता प्रमुख–सह–अपर आयुक्त –सह–विशेष सचिव
पथ निर्माण विभाग,बिहार,पटना।

24/2/10

संचिका सं0–बी0सी0डब्लू0सी0–14/2008, श्र0सं0– 4984

बिहार सरकार

श्रम संसाधन विभाग

प्रेषक,

राजेन्द्र प्रसाद मण्डल,
संयुक्त श्रमायुक्त–सह–सचिव,
बिहार भवन एवं अन्य सन्निमार्ण कर्मकार कल्याण बोर्ड,पटना ।

सेवा में,

अभियंता प्रमुख–सह–विशेष सचिव,
पथ निर्माण विभाग,बिहार,पटना।

पटना, दिनांक– 01-10-08

विषयः– अर्द्ध सरकारी पत्र संख्या– बी0सी0डब्लू0सी0 01/2008–922 ,दिनांक–21.02.08 की प्रति उपलब्ध कराने के संबंध में।

महाशय;

उपर्युक्त विषयांतर्गत आपके पत्र के आलोक में प्रधान सचिव, श्रम संसाधन विभाग के अर्द्धसरकारी पत्र सं0–बी0सी0डब्लू0सी0–01/2008–922,दिनांक–21.02.08 की प्रति एवं भारत सरकार के राजपत्र में प्रकाशित सेस संग्रह संबंधी अधिसूचना की प्रति संलग्न कर आपके आवश्यक कार्यार्थ भेजी जा रही है।

अनुलग्नकः यथोक्त।

विश्वासभाजन,

(राजेन्द्र प्रसाद मण्डल)
संयुक्त श्रमायुक्त–सह–सचिव,
बिहार भवन एवं अन्य सन्निमार्ण
कर्मकार कल्याण बोर्ड,पटना।

RCD/SOR_20th Edition_2026

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Principal Secretary

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बिहार सरकार
श्रम संसाधन विभाग
विकास भवन, पटना 800015, बिहार

Government of Bihar
Department of Labour Resources
Vikas Bhawan, Patna - 800015, Bihar

अई सरकारी पत्र सं0 बी.डब्लू.सी.-01/2005 (भाग-II) पटना दिनांक 21/2/2

प्रिय महाशय,

निर्माण श्रमिकों के संबंध में वर्ष 1996 से निम्नलिखित दो केन्द्रीय अधिनियम प्रभावशील हैं :–

(i) भवन तथा अन्य सन्निर्माण कर्मकार (नियोजन तथा सेवा शर्त्त विनियमन) अधिनियम,1996 तथा

(ii) भवन तथा अन्य सन्निर्माण कर्मकार कल्याण उपकर अधिनियम, 1996.

2. उक्त द्वितीय अधिनियम के तहत नियम भी केन्द्र सरकार द्वारा ही बनाया गया है, जबकि प्रथम अधिनियम के अन्तर्गत नियम बिहार सरकार द्वारा 7.9.2005 के असाधारण अंक राजपत्र में प्रकाशित किये भवन एवं अन्य सन्निर्माण कर्मकार कल्याण बोर्ड का गठन भी राज्य सरकार द्वारा दिनांक 19.2.08 की प्रकाशित अधिसूचना द्वारा कर दिया है ।

3. उक्त द्वितीय अधिनियम के धारा 3 के तहत् निर्माण कार्यों की लागत का एक प्रतिशत की दर से उपकर लिए जाने का प्रावधान किया गया है, जो उपरोक्त कल्याण बोर्ड को भेजा जाएगा । बोर्ड द्वारा इसका उपयोग निमार्ण श्रमिकों के कल्याण की विभिन्न गतिविधियों के संचालन में किया जाएगा । (केन्द्र सरकार की अधिसूचना संलग्न)

4. निर्माण कार्य कराने वाले शासकीय विभागों, सार्वजनिक उपक्रमों,स्थानीय निकायों,संविधिक प्राधिकारियों के जानकारी के लिये यह स्पष्ट करना है कि बिहार भवन एवं अन्य सन्निर्माण कर्मकार (नियोजन तथा सेवा शर्त्ते विनियमन) नियमावली,2005 तथा कल्याण बोर्ड के गठन के साथ प्रदेश उक्त दोनों अधिनियमों के कार्यान्वयन किया जाना है। तदनुसार निवेदन है कि आप के विभाग तथा उसके अधीन आनेवाले सार्वजनिक उपक्रमों तथा संविधिक प्राधिकारियों (मुख्य ठेकेदार तथा ठेकेदार, यदि कोई हो) के तहत संचालित होने वाले निर्माण कार्यों में कृपया उक्त अधिनियमों / नियमों का पालन सूनिश्चित करने का कष्ट करें । इस संबंध में निम्नलिखित विन्दु ध्यान देने योग्य है :–

(i) विभाग / सार्वजनिक उपक्रम / संविधिक प्राधिकारिय के कार्यो में निर्माण श्रमिकों को नियोजित करने वाले सभी ठेकेदार अपनी–अपनी स्थापनाओं को उक्त प्रथम अधिनियम की धारा –7 के तहत अविलम्ब पंजीकृत करा लें, और भविष्य में आरम्भ होने वाले सभी निर्माण कार्यो के मामले में भी इसी प्रकार का पंजीयन कराते रहें । इस प्रयोजन के लिए प्रदेश के सभी श्रम अधीक्षकों को पंजीयन पदाधिकारी नियुक्त किया गया है । बिहार भवन और अन्य सन्निर्माण कर्मकार (नियोजन तथा सेवा शर्ते विनियमन) नियमावली, 2005 के निमय 27के अनुसार निबंधन हेतु विहित शुल्क देय होगी ।

(ii) प्रत्येक नवीन निर्माण कार्य आरंभ होने के न्यूनतम 30 दिन पूर्व नियोजक उक्त प्रथम अधिनियम की धारा 46 के तहत् तदविषयक लिखित नोटिस संबंधित "निरीक्षक" को देय,और आरम्भ होने से अधिकतम 30 दिना में " उपकर निर्धारण अधिकारी " को भी विहित प्रपत्र में सूचना दें ।

(iii) उक्त अधिनियम के अध्याय 6 एवं 7 तथा उसके तहत् बने राज्य नियमावली के भाग 3 तथा 4 में निर्माण श्रमिकों की कार्य दशाओं और स्वास्थ्य तथा सुरक्षा के बारे में विस्तृत प्रावधानों का समुचित पालन हो ।

(iv) आपके विभाग, अधीनस्थ सार्वाजनिक उपकर्मो तथा सांविधिक प्राधिकारियों द्वारा निर्माण कार्यो के लिये भविष्य में जो निविदा प्रपत्र तथा अनुबंध के प्रारूप का उपयोग किया जाय । उनमें कंडिका 1 में उल्लेखित अधिनियमों के पालन की शर्त्ते का विशिष्ठ उल्लेख कर दिया जाना उपयुक्त होगा ।

(v) महत्वपूर्ण

ऊपर कंडिका 1 में उल्लेखित द्वितीय अधिनियम (भवन तथा अन्य सन्निर्माण कर्मकार कल्याण उपकर अधिनियम,1996) के तहत् निर्माण कार्यो पर देय उपकर की दर, भारत सरकार की अधिसूचना दिनांक 26.9.1996 द्वारा, निर्माण लागत का एक प्रतिशत निर्धारित किया गया है । इस अधिनियम के तहत बने केन्द्रीय नियमों के नियम 4 (3) के अनुसार शासकिय विभागों और सार्वजनिक उपक्रमों के निर्माण कार्यो पर लगने वाला उपकर ऐसे विभागों / उपक्रमों द्वारा नियत दर से कार्य के लिये भुगतान किये गये बिलों से कटा जाना और इस प्रकार काटे जाने के 30 दिन की अवधि में कल्याण बोर्ड को क्रोस्ड डीमान्ड ड्राफ्ट द्वारा भेजा जाना अपेक्षित है ।

तदनुसार कृपया अपने विभाग और अधीनस्थ उपक्रमों के सभी संबंधित अधिकारियों को अविलम्ब निर्देश दे कि उनके अधीन चल रहें निर्माण कार्यो के लिये उपकर की राशि नियमित रूप से वसुल कर उसे निम्नलिखित पते पर भेजे।

संयुक्त श्रमायुक्त सह सचिव,
बिहार भवन एवं अन्य सन्निर्माण कर्मकार कल्याण बोर्ड,
विकास भवन, नया सचिवालय, बेली रोड, पटना ।

5. मैं, अभारी हाऊगा यदि पत्र के प्रसंग में की गई कार्रवाई से आप मुझे अवगत करा दें और इसे विषय पर अधीनस्थ अधिकारियों, सार्वजनिक उपक्रमों तथा संविधिक प्रधिकारियों को जारी निर्देशों की एक–एक प्रति मुझे तथा श्रमायुक्त सह अध्यक्ष, बिहार भवन एवं अन्य सन्निर्माण कर्मकार कल्याण बोर्ड, विकास भवन पटना को भेज देने की कृपा करें। इस पत्र के साथ निम्न सूचनाऐं संलग्नकी जाती है ।

1. संलग्न अधिसूचना ।
2. कल्याण बोर्ड के संबंध में संक्षिप्त टिप्पणी
3. सेस संग्रह से संबंधित केन्द्र सरकार की अधिसूचना ।

भवदीय

( )

EXTRACT FROM THE GAZETTE OF INDIA : PART II, SEC. 3, SUB-SEC. (ii)

Appeared on page No. 3141
Dated : 02-10-96

श्रम मंत्रालय

MINISTRY OF LABOUR

अधिसूचना

नई दिल्ली, 26 सितम्बर, 1996

का. आ. 2899.—केन्द्रीय सरकार, श्रम और रोजगार मंत्रालय की अधिसूचना संख्या का. आ. 1767, तारीख 17 मई, 1996 की अधिक्रमण करते हुए भवन और अन्य सन्निर्माण कर्मकार (नियोजन का विनियमन तथा सेवा की शर्तें) अधिनियम, 1996 (1996 का 27) के प्रयोजनों के लिए निधि निर्माण करने हेतु उपकर निर्धारित करने के प्रयोजन से ; अधिनियम की धारा 3 की उपधारा (1) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए केन्द्रीय सरकार एतद्द्वारा निर्देश देती है कि नियोजक द्वारा किए गए निर्माण कार्य की लागत पर एक प्रतिशत की दर से उपकर उद्गृहीत किया जाए।

[सं. ई. एल-20101/9/95-आर डब्ल्यू (भाग)]

डी. के. त्रेहन, श्रम एवं रोजगार सलाहकार

NOTIFICATION

New Delhi, the 26th September, 1996

S.O. 2899.—In exercise of powers conferred by subsection (1) of section 3 of the Building and Other Construction Workers' Welfare Cess Act, 1996 (27 of 1996) and in supersession of the notification of the Government of India in the Ministry of Labour No. S.O. 1767 dated the 17th May, 1996, the Central Government specifies a cess for the purposes of the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 (27 of 1996), at the rate of 1 per cent. of the cost of construction incurred by an employer.

[F. No. S-20101/9/95-RW(Part)]

D. K. TREHAN, Labour & Employment Adviser

MISCELLANEOUS

निबंधन संख्या पी0टी0-40



बिहार गजट

असाधारण अंक

बिहार सरकार द्वारा प्रकाशित

24 आषाढ़ 1944 (श0)
(सं0 पटना 507) पटना, शुक्रवार, 15 जुलाई 2022

वाणिज्य-कर विभाग

अधिसूचना
15 जुलाई 2022

अधिसूचना संख्या 03/2022-राज्य कर (दर)

एस० ओ० 106, दिनांक 15 जुलाई 2022— बिहार माल और सेवा कर अधिनियम, 2017 (बिहार अधिनियम – 12, 2017) की धारा 9 की उप धारा (1), उप धारा (3) और उप धारा (4), धारा 11 की उप धारा (1), धारा 15 की उप धारा (5), धारा 16 की उप धारा (1) और धारा 148 के तहत प्रदत्त शक्तियों का प्रयोग करते हुए, बिहार राज्यपाल, इस बात से संतुष्ट होते हुए कि ऐसा करना जनहित में आवश्यक है, और जीएसटी परिषद की सिफारिशों के आधार पर, एतद द्वारा, वाणिज्य - कर विभाग की अधिसूचना संख्या 11/2017-राज्य-कर (दर), दिनांक 29 जून, 2017, जिसे बिहार गजट असाधारण अंक संख्या 554, दिनांक 29 जून, 2017 के तहत प्रकाशित किया गया था, में और आगे भी निम्नलिखित संशोधन करते हैं, यथा:-

उक्त अधिसूचना में,-

क. सारणी में,-

(I) क्रम संख्या 3 के समक्ष,कॉलम (3) में,-

(क) मद (iii), (iv), (v), (va), (vi) और(ix) और कॉलम (4) और (5) में उससे संबंधित प्रविष्टियों को निरसित किया जाएगा;

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(ख) मद (vii) और (x) के समक्ष, कॉलम (4) की प्रविष्टि के स्थान पर, प्रविष्टि "6" को प्रतिस्थापित किया जाएगा।

(ग) मद (xii) में कोष्ठक और अंक ,"(iii), (iv), (v), (va), (vi), (vii), (viii), (ix)" के स्थान पर, कोष्ठक और अंक "(vii), (viii)," को प्रतिस्थापित किया जाएगा;

(II) क्रम संख्या 7 के समक्ष, मद (i) में,"एक हजार रुपए से अधिक लेकिन" शब्दों को निरसित किया जाएगा;

(iii) क्रम संख्या 8 के समक्ष,कॉलम (3) में,-

(क) मद (vi) और उससे संबंधित कॉलम (4), (5), की प्रविष्टियों के पश्चात निम्नलिखित को अंत:स्थापित किया जाएगा, यथा:-

(3)	(4)	(5)
"(via) रोपवे के द्वारा यात्रियों का परिवहन, चाहे वे अपने सामान के साथ हों या नहीं।	2.5	बशर्ते कि ऐसी सेवा की आपूर्ति में प्रयुक्त वस्तुओं पर भारित इनपुट टैक्स की क्रेडिट न ली गई हो। [कृपया देखें: स्पष्टीकरण संख्या (iv)]";

(ख) मद (vii) और उससे संबंधित कॉलम (4) और (5) में प्रविष्टियों के स्थान पर निम्नलिखित को प्रतिस्थापित किया जाएगा, यथा:-

(3)	(4)	(5)
" (vii) उपर्युक्त (i), (ii), (iii), (iv), (ivक), (v), (vi) और (via) से भिन्न यात्री परिवहन सेवाएं।	9	;"-

(IV) क्रमांक 9 के समक्ष, कॉलम (3) में,-

(क) मद (iii) और उससे संबंधित कॉलम (4), और (5) की प्रविष्टियों के स्थान पर निम्नलिखित को प्रतिस्थापित किया जाएगा, यथा:-

(3)	(4)	(5)
जीटीए द्वारा (iii)"आपूर्ति किए गए माल (जिसमें व्यक्तिगत प्रयोग में आने वाले इस्तेमाल किए गए घरेलू सामान भी शामिल हैं) के परिवहन से संबंधित माल परिवहन एजेंसी की सेवाएं, जहां-		

(3)	(4)	(5)
(क) जीटीए अपने द्वारा प्रदान की जानेवाली सेवाओं पर जीएसटी के भुगतान करने का विकल्प का प्रयोग नही करता है;	2.5	बशर्ते कि ऐसी सेवा की आपूर्ति में प्रयुक्त वस्तुओं पर भारित इनपुट टैक्स की क्रेडिट न ली गई हो। [कृपया देखें: स्पष्टीकरण संख्या (iv)]
(ख) जीटीए अपने द्वारा आपूर्ति की जाने वाली सेवाओं पर जीएसटी के स्वयं भुगतान करने का विकल्प का प्रयोग करता हो ।	2.5 या 6	1. ऐसी आपूर्तियों के संबंध में जिसमें की जीटीए 2.5% की दर से कर का भुगतान करता हो तो ऐसी आपूर्तियों पर जीटीए सेवा की आपूर्ति में प्रयोग माल और सेवाओं पर भारित इनपुट टैक्स की क्रेडिट नही लेगा। [कृपया देखें: स्पष्टीकरण संख्या (iv)] 2. किसी वित्तीय वर्ष के दौरान अपने द्वारा आपूर्ति की गई सेवाओं पर जीएसटी का स्वयं भुगतान करने का जीटीए के द्वारा लिए जाने वाले विकल्प का प्रयोग, उक्त वित्तीय वर्ष के तत्काल पहले 15 मार्च तक अनुबंध अनुलग्नक V में घोषणा करके किया जाएगा: बशर्ते कि वित्तीय वर्ष 2022-2023 के लिए इस विकल्प का प्रयोग 16 अगस्त, 2022 को या उसके पहले करना होगा। बशर्ते और भी कि उपवाक्य

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(3)	(4)	(5)
		(ख) पर लागू दर पर केंद्रीय कर वाली सेवा की आपूर्ति के लिए इनवॉयस को वित्तीय वर्ष, 2022-2023 के लिए विकल्प देने के पहले-पहले 18 जुलाई, 2022, से 16 अगस्त, 2022 की अवधि के दौरान जारी किया जा सकता है लेकिन ऐसे मामले में आपूर्तिकर्ता अपनी आपूर्ति पर जीएसटी के भुगतान के विकल्प का प्रयोग 16 अगस्त, 2022 को या उससे पहले ही करेगा ।";

(ख) मद (vi) और कॉलम (4) और (5) में और उससे संबंधित प्रविष्टियों के पश्चात, निम्नलिखित को अन्त:स्थापित किया जाएगा, यथा:-

(3)	(4)	(5)
''(via) रोपवे द्वारा माल का परिवहन ।	2.5	बशर्ते कि ऐसी सेवा की आपूर्ति में प्रयुक्त वस्तुओं पर भारित इनपुट टैक्स की क्रेडिट न ली गई हो। [कृपया देखें: स्पष्टीकरण संख्या (iv)]

(ग) मद (vii) और कॉलम (4) और (5) में उससे संबंधित प्रविष्टियों के स्थान पर निम्नलिखित को प्रतिस्थापित किया जाएगा, यथा:-

(3)	(4)	(5)
"(vii) उपरोक्त (i), (ii), (iii), (iv), (v), (vi) और (via) से भिन्न माल परिवहन सेवाएं।	9	-'';

(V) क्रम संख्या 10 के समक्ष, कॉलम (3) में,-

(क) मद (i) और कॉलम (4) और (5) में उससे संबंधित प्रविष्टियों के पश्चात, निम्नलिखित को अन्त:स्थापित किया जाएगा, यथा:-

(3)	(4)	(5)
"(ia) माल परिवहन का किराया पर देने की सेवाएं जहां सेवा प्राप्तकर्ता से लिए गए प्रतिफल में ईंधन की लागत शामिल है।	6	-'';

(ख) मद (iii) में, कोष्ठक और अंक "(i)" के पश्चात, कोष्ठक और अंक ",(ia)" को प्रतिस्थापित किया जाएगा;

(VI) क्रम संख्या 11 के समक्ष, कॉलम (3) में, मद (i) और (ii) के लिए और कॉलम (4) और (5) में उससे संबंधित प्रविष्टियों के स्थान पर निम्नलिखित को प्रतिस्थापित किया जाएगा, यथा:-

(3)	(4)	(5)
"परिवहन में समर्थनकारी सेवाएं । *स्पष्टीकरण* : इस प्रविष्टि में वे माल परिवहन सेवा नहीं आती है जिनमें माल परिवहन एजेंसी (जीटीए) सेवा, जो शीर्षक 9965 के अंतर्गत आती है, शामिल होती है ।	9	"-;

(Vii) क्रम संख्या 15 के समक्ष, कॉलम (3) में,-

(क) मद (i) और कॉलम (4) और (5) में तत्संबंधी प्रविष्टियों को निरसित किया जाएगा;

(ख) मद (vii) में, कोष्ठक और प्रतीक "(i)," को निरसित किया जाएगा;

(VIII) क्रम संख्या 26 के समक्ष, कॉलम (3) में,-मद (i) में, उम मद (ड़), (ड़क) और (ज) को निरसित किया जाएगा;

(IX) क्रम संख्या 31 और उससे संबंधित प्रविष्टियों के पश्चात निम्नलिखित क्रम संख्या और प्रविष्टियों को अंत:स्थापित किया जाएगा, यथा:-

(1)	(2)	(3)	(4)	(5)
31"A	शीर्षक 9993	किसी नैदानिक स्थापन द्वारा कमरे [इंटेंसिव केयर यूनिट (आईसीयू)/ क्रिटिकल केयर यूनिट (सीसीयू)/ इंटेंसिव कार्डियक केयर यूनिट (आईसीसीयू) /नियोनेटल इंटेंसिव केयर यूनिट	2.5	ऐसी सेवा की आपूर्ति में प्रयुक्त वस्तुओं और सेवाओ पर भारित इनपुट टैक्स की क्रेडिट न ली गई हो। [कृपया देखें: स्पष्टीकरण संख्या

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		(एनआईसीयू) से भिन्न] के रूप में प्रदान की जाने वाली सेवाएं,जिसका शुल्क रु. 5000/- प्रति दिवस से अधिक हो,ऐसे व्यक्ति को जिसे स्वास्थ्य देख रेख सेवाएं दी जा रही हो ।		(iv)]

(X) क्रम संख्या 32 के समक्ष, कॉलम (3) में,-

(क) मद (i) और कॉलम (4) और (5) में उससे संबंधित प्रविष्टियों के पश्चात निम्नलिखित को अन्त:स्थापित किया जाएगा, यथा:-

(3)	(4)	(5)
"(ia) किसी नैदानिक स्थापन को सामान्य जैव-चिकित्सा अपशिष्ट उपचार प्रसुविधा के प्रचालको द्वारा, जैव-चिकित्सिय अपशिष्ट के उपचार या व्ययन के माध्यम से या उससे आनुषंगिक प्रक्रियाओं के माध्यम से उपलब्ध कराई गयी सेवाएं	6	-";

(ख) मद (ii) में कोष्ठक और अंक "(i)" के पश्चात, कोष्ठक "और अंक और (ia)" को अन्त:स्थापित किया जाएगा ।

ख . स्पष्टीकरण से संबंधित पैराग्राफ 4 में उपवाक्य (xxxvi) के पश्चात, निम्नलिखत उपवाक्यों को अंत:स्थापित किया जाएगा, यथा:-

"(xxxvii) 'प्रिंट मीडिया 'से अभिप्राय है- ,

(i) प्रेस और पुस्तक रजिस्ट्रीकरण अधिनियम, 1867 (1867 का 25) की धारा 1 की उप-धारा (1) में परिभाषित 'पुस्तक', किन्तु इसके अंतर्गत कारबार निदेशिकाएँ , पीत पृष्ठ और व्यापार कैटलॉग, जो मुख्यत: वाणिज्यिक प्रयोजनों के लिए आशयित हैं, शामिल नहीं हैं;

(ii) प्रेस और पुस्तक रजिस्ट्रीकरण अधिनियम, 1867 (1867 का 25) की धारा 1 की उप-धारा (1) में यथा परिभाषित ;'समाचार पत्र'

(xxxviii) 'नैदानिक प्रतिस्थापन' से कोई अस्पताल, क्लिनिक, सेनेटोरियम या कोई अन्य संस्था चाहे, नर्सिंग होम, किसी भी नाम से ज्ञात हो, अभिप्रेत है जो निदान या उपचार या रुग्णता, चोट, विरूपण, अप्रसमान्यता या गर्भावस्था के लिए अपेक्षित सेवाओं या सुविधाओं का भारत में मान्यता प्राप्त चिकित्सा पद्धति में प्रस्ताव करता है या स्वतंत्र निकाय के रूप में स्थापित किसी स्थान पर या बीमारियों के निदान या जाँच के लिए सेवा प्रदान करने वाले किसी स्थापन के एक भाग के रूप में सेवा प्रदान करता है; ";

(xxxix) "स्वास्थ्य देखरेख सेवाएं से "निदान या उपचार या रुग्णता की देखरेख, चोट, विरूपता, अप्रसामान्यता या गर्भावस्था के निदान या उपचार के लिए भारत में मान्यता प्राप्त चिकित्सा पद्धति अभिप्रेत है और इसके अंतर्गत किसी नैदानिक स्थापना को और उससे रोगियों के परिवहन के माध्यम से सेवाएं सम्मिलित हैं किन्तु इसके अंतर्गत केश प्रत्यारोपण या कॉस्मेटिक या प्लास्टिक शल्य क्रिया सिवाय तब जब अनुवंशिक त्रुटियों, विकासात्मक अप्रसामान्यताओं, चोट या संघात के कारण प्रभावित शरीर के अंगो या शरीर के कृत्यों को बहाल करने या पुनर्निर्माण के लिए की जाती है, सम्मिलित नहीं है;

(xxxx) "माल परिवहन अभिकरण" से कोई व्यक्ति अभिप्रेत है जो सड़क द्वारा माल के परिवहन के संबंध में सेवा प्रदान करता है तथा पारेषण नोट जारी करता है, चाहे वह किसी भी नाम से ज्ञात हो;

ग . अनुबंध के IV पश्चात निम्नलिखित अनुबंध , को अन्त:स्थापित किया जाएगा, यथा:-

अनुबंध :V किसी वित्तीय वर्ष के प्रारंभ होने से पहले अपने द्वारा उपलब्ध कराई गई सेवाओं पर जीएसटी का भुगतान करने के लिए किसी माल परिवहन एजेंसी के द्वारा विकल्प का प्रयोग करने हेतु फार्म, जिसे अधिकार क्षेत्र वाले जीएसटी प्राधिकारी के समक्ष प्रस्तुत किया जाना होगा ।

"<u>अनुबंध V</u>

<u>फार्म</u>

किसी वित्तीय वर्ष के प्रारंभ होने से पहले अपनेद्वारा उपलब्ध कराई गई सेवाओं पर जीएसटी का भुगतान करने के लिए किसी माल परिवहन एजेंसी(जीटीए) के द्वारा विकल्प का प्रयोग करने हेतु फार्म,जिसे अधिकार क्षेत्र वाले जीएसटी प्राधिकारी के समक्ष प्रस्तुत किया जाना है ।

संदर्भ संख्या .-

दिनांक: -

1. मैंने/हमने_____ (व्यक्ति का नाम), मैसर्स ..... का अधिकृत प्रतिनिधि, जीएस टी पंजीकरण करा लिया है/पंजीकरण के लिए आवेदन कर दिया है और मैं/हम, एतद्द्वारा, बीजीएसटी अधिनियम, 2017 की धारा 9 (1) के अनुसार फारवर्ड चार्ज के अंतर्गत वित्तीय वर्ष ..... के दौरान अपने द्वारा आपूर्त किए गए माल के परिवहन के संबंध में जीटीएटी सेवा पर जीएसटी के भुगतान करने का और बीजीएसटी अधिनियम, 2017 के सभी प्रावधानों का, जैसा कि वे किसी माल या सेवा या दोनों की आपूर्ति से संबंधित कर के भुगतान के लिए दायी किसी व्यक्ति पर लागू होते हों, का अनुपालन करने का वचन देता हूँ/देती हूँ/देते हैं;

2. मैं इस बात को समझता हूं कि एक बार इस विकल्प का प्रयोग कर लिए जाने पर इस विकल्प के प्रयोग की तारीख से एक वर्ष की अवधि के भीतर इसको बदलने की अनुमति नहीं होगी और यह जिस वित्तीय वर्ष के लिए प्रयोग किया जाएगा उसके अंत तक वैध रहेगा ।

विधिक नाम: -

जीएसटीआईएन: -

पैन नं..

प्राधिकृत प्रतिनिधि का हस्ताक्षर:

प्राधिकृत हस्ताक्षरी का नाम:

जीटीए का पूरा पता:

(अधिकार क्षेत्र वाले जीटीए प्राधिकारी का दिनांक सहित स्वीकृति पत्र)

नोट: किसी भी वित्तीय वर्ष के लिए उपरोक्त विकल्प का प्रयोग करने की अंतिम तिथि पूर्ववर्ती वित्तीय वर्ष की 15 मार्च है। वित्तीय वर्ष 2022-2023 के विकल्प का प्रयोग 15 अगस्त, 2022 तक किया जा सकता है।".

2. यह अधिसूचना 18 जुलाई, 2022 से लागू होगी।

[सं०सं०–बिक्री–कर/जीएसटी/विविध–21/2017(खंड–14) 03)]
बिहार–राज्यपाल के आदेश से,
डॉ० प्रतिमा,
राज्य कर आयुक्त–सह–सचिव।

15 जुलाई 2022

एस० ओ० 106, दिनांक 15 जुलाई 2022 का अंग्रेजी में निम्नलिखित अनुवाद बिहार राज्यपाल के प्राधिकार से इसके द्वारा प्रकाशित किया जाता है जो भारतीय संविधान के अनुच्छेद 348 के खण्ड (3) के अधीन अंग्रेजी भाषा में उसका प्राधिकृत पाठ समझा जाय।

[(सं०सं०–बिक्री–कर/जीएसटी/विविध–21/2017(खंड–14) 03)]
बिहार–राज्यपाल के आदेश से,
डॉ० प्रतिमा,
राज्य कर आयुक्त–सह–सचिव।

The 15th July 2022

Notification No. 03/2022– State Tax (Rate)

S.O.106, Dated 15th July 2022— In exercise of the powers conferred by sub-section (1), sub-section (3) and sub-section (4) of section 9, sub-section (1) of section 11, sub-section (5) of section 15, sub-section (1) of section 16 and section 148 of the Bihar Goods and Services Tax Act, 2017 (Bihar Act 12, 2017), the Governor of Bihar, on being satisfied that it is necessary in the public interest so to do, on the recommendations of the Council, hereby makes the following further amendments in the notification of the Commercial Taxes Department notification No. 11/2017-State Tax (Rate), dated the 29th June, 2017, published in the Bihar Gazette, Extraordinary, vide number 554, dated the 29th June, 2017 namely:-

In the said notification, -

(A) in the Table, -

(I) against serial number 3, in column (3), -

(a) items (iii), (iv), (v), (va), (vi) and (ix) and the corresponding entries relating thereto in columns (4) and (5) shall be omitted;

(b) against items (vii) and (x), for the entry in column (4), the entry "6" shall be substituted;

(c) in item (xii), for the brackets and figures"(iii), (iv), (v), (va), (vi), (vii), (viii), (ix)", the brackets and figures "(vii), (viii)," shall be substituted;

(II) against serial number 7, in column (3), in item (i), the words "above one thousand rupees but" shall be omitted;

(III) against serial number 8, in column (3), -

(a) after item (vi) and the corresponding entries relating thereto in columns (4) and (5), the following shall be inserted, namely: -

(3)	(4)	(5)
"(via) Transport of passengers, with or without accompanied belongings, by ropeways.	2.5	The credit of input tax charged on goods used in supplying the service has not been taken. [Please refer to *Explanation* no. (iv)]";

(b) for item (vii) and the corresponding entries relating thereto in columns (4) and (5), the following shall be substituted, namely: -

(3)	(4)	(5)
"(vii) Passenger transport services other than (i), (ii), (iii), (iv), (iva), (v), (vi) and (via) above.	9	-";

(IV) against serial number 9,in column (3), -

(a) for item (iii) and the corresponding entries relating thereto in columns (4) and (5), the following shall be substituted, namely: -

(3)	(4)	(5)
"(iii) Services of Goods Transport Agency (GTA)in relation to transportation of goods (including used house hold goods for personal use)supplied by a GTA where,-		
(a) GTA does not exercise the option to itself pay GST on the services supplied by it;	2.5	The credit of input tax charged on goods and services used in supplying the service has not been taken. [Please refer to *Explanation* no. (iv)]
(b) GTA exercises the option to itself pay GST on services supplied by it.	2.5 or 6	(1)In respect of supplies on which GTA pays tax at the rate of 2.5%, GTA shall not take credit of input tax charged on goods and services used in supplying the service.[Please refer to *Explanation* no. (iv)] (2)The option by GTA to itself pay GSTon the services supplied by it during a Financial Year shall be exercised by making a declaration in Annexure V on or before the 15th March of the preceding Financial Year: Provided that the option for the Financial Year 2022-2023 shall be exercised on or before

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(3)	(4)	(5)
		the 16th August, 2022: Provided further that invoice for supply of the service charging Central tax at the rates as applicable to clause (b) may be issued during the period from the 18th July,2022 to 16th August, 2022 before exercising the option for the financial year 2022-2023 but in such a case the supplier shall exercise the option to pay GST on its supplies on or before the 16th August,2022.”;

(b) after item (vi) and the corresponding entries relating thereto in columns (4) and (5), the following shall be inserted, namely: -

(3)	(4)	(5)
“(via) Transport of goods by ropeways.	2.5	The credit of input tax charged on goods used in supplying the service has not been taken. [Please refer to *Explanation* no. (iv)]”;

(c) for item (vii) and the corresponding entries relating thereto in columns (4) and (5), the following shall be substituted, namely: -

(3)	(4)	(5)
“(vii) Goods transport services other than (i), (ii), (iii),(iv), (v), (vi) and (via) above.	9	-”;

(V) against serial number 10,in column (3), -

(a) after item (i) and the corresponding entries relating thereto in columns (4) and (5), the following shall be inserted, namely: -

(3)	(4)	(5)
“(ia) Renting of goods carriage where the cost of fuel is included in the consideration charged from the service recipient.	6	-”;

(b) in item (iii), after the brackets and figure “(i)”, the brackets and figures “, (ia)” shall be inserted;

(VI) against serial number 11,in column (3),for items (i) and (ii) and the corresponding entries relating thereto in columns (4) and (5), the following shall be substituted, namely:-

(3)	**(4)**	**(5)**
“Supporting services in transport. *Explanation:* This entry does not include goods transport service involving Goods Transport Agency (GTA) service, which falls under Heading 9965.	9	-”;

(VII) against serial number 15, in column (3), -

(a) item (i)and the corresponding entries relating thereto in columns (4) and (5) shall be omitted;

(b) in item (vii), the brackets and figures “(i),” shall be omitted;

(VIII) against serial number 26,in column (3), in item (i), sub-items (e), (ea) and (h) shall be omitted;

(IX) after serial number 31and the entries relating thereto, the following serial number and entries shall be inserted, namely: -

(1)	(2)	(3)	(4)	(5)
"31A	Heading 9993	Services provided by a clinical establishment by way of providing room [other than Intensive Care Unit (ICU)/Critical Care Unit(CCU)/Intensive Cardiac Care Unit (ICCU)/Neo natal Intensive Care Unit (NICU)] having room charges exceeding Rs. 5000 per day to a person receiving health care services.	2.5	The credit of input tax charged on goods and services used in supplying the service has not been taken [Please refer to Explanation no. (iv)]";

(X) against serial number 32, in column (3), -

(a) after item (i) and the corresponding entries relating thereto in columns (4) and (5), the following shall be inserted, namely: -

(3)	(4)	(5)
"(ia)Services by way of treatment or disposal of biomedical waste or the processes incidental thereto by a common bio-medical waste treatment facility to a clinical establishment.	6	-";

(b) in item (ii), after the brackets and figures"(i)", the word, brackets and figure "and (ia)" shall be inserted;

(B) in paragraph 4, relating to Explanation, after clause (xxxvi), the following clauses shall be inserted, namely: -

"(xxxvii) 'print media' means, —

(i) 'book' as defined in sub-section (1) of section 1 of the Press and Registration of Books Act, 1867 (25 of 1867), but does not include business directories, yellow pages and trade catalogues which are primarily meant for commercial purposes;

(ii) 'newspaper' as defined in sub-section (1) of section 1 of the Press and Registration of Books Act, 1867 (25 of 1867);

(xxxviii)'clinical establishment' means, -

a hospital, nursing home, clinic, sanatorium or any other institution by, whatever name called, that offers services or facilities requiring diagnosis or treatment or care for illness, injury, deformity, abnormality or pregnancy in any recognised system of medicines in India, or a place established as an independent entity or a part of an establishment to carry out diagnostic or investigative services of diseases;

(xxxix) 'health care services' means, -

any service by way of diagnosis or treatment or care for illness, injury, deformity, abnormality or pregnancy in any recognised system of medicines in India and includes services by way of transportation of the patient to and from a clinical establishment, but does not include hair transplant or cosmetic or plastic surgery, except when undertaken to restore or to reconstruct anatomy or functions of body affected due to congenital defects, developmental abnormalities, injury or trauma;

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(xxxx) 'goods transport agency' means, -
any person who provides service in relation to transport of goods by road and issues consignment note, by whatever name called.";

(C) After Annexure IV, following annexure shall be inserted, namely: -

"Annexure V

FORM

Form for exercising the option by a Goods Transport Agency (GTA) for payment of GST on the GTA services supplied by him under forward charge before the commencement of any financial year to be submitted before the jurisdictional GST Authority.

Reference No.–
Date: -

1. I/We_____ (name of Person), authorised representative of M/s…….. have taken registration/have applied for registration and do hereby undertake to pay GST on the GTA services in relation to transportation of goods supplied by us during the financial year……under forward charge in accordance with section 9(1) of the CGST Act, 2017 and to comply with all the provisions of the CGST Act, 2017 as they apply to a person liable for paying the tax in relation to supply of any goods or services or both;

2. I understand that this option once exercised shall not be allowed to be changed within a period of one year from the date of exercising the option and will remain valid till the end of the financial year for which it is exercised.

Legal Name: -
GSTIN: -
PAN No.
Signature of Authorised representative:
Name of Authorised Signatory:
Full Address of GTA:

(Dated acknowledgment of jurisdictional GST Authority)

Note: The last date for exercising the above option for any financial year is the 15th March of the preceding financial year. The option for the financial year 2022-2023 can be exercised by 16th August, 2022.".

2. This notification shall come into force with effect from the 18th July, 2022.

[(File No. Bikri kar/GST/vividh-21/2017 (Part-14) 03)]

By the order of Governor of Bihar,
Dr. Pratima,
Commissioner State Tax-cum-Secretary.

अधीक्षक, सचिवालय मुद्रणालय,
बिहार, पटना द्वारा प्रकाशित एवं मुद्रित।
बिहार गजट (असाधारण) 507-571+10-डी0टी0पी0।
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रजिस्ट्री सं. डी.एल.- 33004/99 REGD. No. D. L.-33004/99

भारत का राजपत्र
The Gazette of India

सी.जी.-डी.एल.-अ.-14072022-237290
CG-DL-E-14072022-237290

असाधारण
EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (i)
PART II—Section 3—Sub-section (i)

प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

सं. 501] नई दिल्ली, बुधवार, जुलाई 13, 2022/आषाढ़ 22, 1944
No. 501] NEW DELHI, WEDNESDAY, JULY 13, 2022/ASHADHA 22, 1944

वित्त मंत्रालय

(राजस्व विभाग)

अधिसूचना

नई दिल्ली, 13 जुलाई, 2022

सं. 03/2022-केन्द्रीय कर (दर)

सा.का.नि. 541(अ).— केन्द्रीय माल एवं सेवाकर अधिनियम, 2017 (2017 का 12) की धारा 9 की उप-धारा (1), उप-धारा (3) और उप-धारा (4), धारा 11 की उप-धारा (1), धारा 15 की उप-धारा (5), धारा 16 की उप-धारा (1) और धारा 148 के तहत प्रदत्त शक्तियों का प्रयोग करते हुए, केन्द्र सरकार, इस बात से संतुष्ट होते हुए कि ऐसा करना जनहित में आवश्यक है, और जीएसटी परिषद की सिफारिशों के आधार पर, एतद्द्वारा, भारत सरकार, वित्त मंत्रालय (राजस्व विभाग) की अधिसूचना संख्या 11/2017-केन्द्रीय कर (दर), दिनांक 28 जून, 2017, जिसे सा.का.नि. 690 (अ), दिनांक 28 जून, 2017 के तहत भारत के राजपत्र, असाधारण, के भाग II, खड 3, उप खंड (i) में प्रकाशित किया गया था, में और आगे भी निम्नलिखित संशोधन करती है, यथा:-

उक्त अधिसूचना में,-

क. सारणी में,-

(I) क्रम संख्या 3 के समक्ष, कॉलम (3) में,-

(क) मद (iii), (iv), (v), (va), (vi) और (ix) और कॉलम (4) और (5) में उससे संबंधित प्रविष्टियों को निरसित किया जाएगा;

विधिक नाम: -

जीएसटीआईएन: -

पैन नं.

प्राधिकृत प्रतिनिधि का हस्ताक्षर:

प्राधिकृत हस्ताक्षरी का नाम:

जीटीए का पूरा पता:

(अधिकार क्षेत्र वाले जीटीए प्राधिकारी का दिनांक सहित स्वीकृति पत्र)

नोट: किसी भी वित्तीय वर्ष के लिए उपरोक्त विकल्प का प्रयोग करने की अंतिम तिथि पूर्ववर्ती वित्तीय वर्ष की 15 मार्च है। वित्तीय वर्ष 2022-2023 के विकल्प का प्रयोग 15 अगस्त, 2022 तक किया जा सकता है।".

2. यह अधिसूचना 18 जुलाई, 2022 से लागू होगी।

[फा. सं. 190354/176/2022- टी आर यू]

राजीव रंजन, अवर सचिव

नोट: प्रधान अधिसूचना संख्या 11/2017-केन्द्रीय कर (दर), दिनांक 28 जून, 2017, को सा.का.नि. 690 (अ), दिनांक 28 जून, 2017 के तहत भारत के राजपत्र, असाधारण, में प्रकाशित किया गया था और इसमें अंतिम बार अधिसूचना संख्या 22/2021-केन्द्रीय कर (दर), दिनांक 31 दिसम्बर, 2021, जिसे सा.का.नि. 923(अ), दिनांक 31 दिसम्बर, 2021 के तहत प्रकाशित किया गया था, के द्वारा संशोधन किया गया है।

MINISTRY OF FINANCE

(Department of Revenue)

NOTIFICATION

New Delhi, the 13th July, 2022

No. 03/2022- Central Tax (Rate)

G.S.R. 541(E).— In exercise of the powers conferred by sub-section (1), sub-section (3) and sub-section (4) of section 9, sub-section (1) of section 11, sub-section (5) of section 15, sub-section (1) of section 16 and section 148 of the Central Goods and Services Tax Act, 2017 (12 of 2017), the Central Government, on being satisfied that it is necessary in the public interest so to do, on the recommendations of the Council, hereby makes the following further amendments in the notification of the Government of India, in the Ministry of Finance (Department of Revenue) No. 11/2017-Central Tax (Rate), dated the 28th June, 2017, published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (i), vide number G.S.R. 690(E), dated the 28th June, 2017, namely:-

In the said notification, -

(A) in the Table, -

(I) against serial number 3, in column (3), -

(a) items (iii), (iv), (v), (va), (vi) and (ix) and the corresponding entries relating thereto in columns (4) and (5) shall be omitted;

(b) against items (vii) and (x), for the entry in column (4), the entry "6" shall be substituted;

(c) in item (xii), for the brackets and figures "(iii), (iv), (v), (va), (vi), (vii), (viii), (ix)", the brackets and figures "(vii), (viii)," shall be substituted;

(II) against serial number 7, in column (3), in item (i), the words "above one thousand rupees but" shall be omitted;

(III) against serial number 8, in column (3), -

(a) after item (vi) and the corresponding entries relating thereto in columns (4) and (5), the following shall be inserted, namely: -

(3)	(4)	(5)
"(via) Transport of passengers, with or without accompanied belongings, by ropeways.	2.5	The credit of input tax charged on goods used in supplying the service has not been taken. [Please refer to *Explanation* no. (iv)]";

(b) for item (vii) and the corresponding entries relating thereto in columns (4) and (5), the following shall be substituted, namely: -

(3)	(4)	(5)
"(vii) Passenger transport services other than (i), (ii), (iii), (iv), (iva), (v), (vi) and (via) above.	9	-";

(IV) against serial number 9, in column (3), -

(a) for item (iii) and the corresponding entries relating thereto in columns (4) and (5), the following shall be substituted, namely: -

(3)	(4)	(5)
"(iii) Services of Goods Transport Agency (GTA) in relation to transportation of goods (including used house hold goods for personal use) supplied by a GTA where,-		
(a) GTA does not exercise the option to itself pay GST on the services supplied by it;	2.5	The credit of input tax charged on goods and services used in supplying the service has not been taken. [Please refer to *Explanation* no. (iv)]
(b) GTA exercises the option to itself pay GST on services supplied by it.	2.5 or 6	(1) In respect of supplies on which GTA pays tax at the rate of 2.5%, GTA shall not take credit of input tax charged on goods and services used in supplying the service. [Please refer to *Explanation* no. (iv)] (2) The option by GTA to itself pay GST on the services supplied by it during a Financial Year shall be exercised by making a declaration in Annexure V on or before the 15th March of the preceding Financial Year: Provided that the option for the Financial Year 2022-2023 shall be exercised on or before the 16th August, 2022: Provided further that invoice for supply of the service charging Central tax at the rates as applicable to clause (b) may be

		issued during the period from the 18th July,2022 to 16th August, 2022 before exercising the option for the financial year 2022-2023 but in such a case the supplier shall exercise the option to pay GST on its supplies on or before the 16th August,2022.”;

(b) after item (vi) and the corresponding entries relating thereto in columns (4) and (5), the following shall be inserted, namely: -

(3)	(4)	(5)
“(via) Transport of goods by ropeways.	2.5	The credit of input tax charged on goods used in supplying the service has not been taken. [Please refer to *Explanation* no. (iv)]”;

(c) for item (vii) and the corresponding entries relating thereto in columns (4) and (5), the following shall be substituted, namely: -

(3)	(4)	(5)
“(vii) Goods transport services other than (i), (ii), (iii), (iv), (v), (vi) and (via) above.	9	-”;

(V) against serial number 10, in column (3), -

(a) after item (i) and the corresponding entries relating thereto in columns (4) and (5), the following shall be inserted, namely: -

(3)	(4)	(5)
“(ia) Renting of goods carriage where the cost of fuel is included in the consideration charged from the service recipient.	6	-”;

(b) in item (iii), after the brackets and figure “(i)”, the brackets and figures “, (ia)” shall be inserted;

(VI) against serial number 11, in column (3), for items (i) and (ii) and the corresponding entries relating thereto in columns (4) and (5), the following shall be substituted, namely:-

(3)	(4)	(5)
“Supporting services in transport. *Explanation:* This entry does not include goods transport service involving Goods Transport Agency (GTA) service, which falls under Heading 9965.	9	-”;

(VII) against serial number 15, in column (3), -

(a) item (i) and the corresponding entries relating thereto in columns (4) and (5) shall be omitted;

(b) in item (vii), the brackets and figures "(i)," shall be omitted;

(VIII) against serial number 26, in column (3), in item (i), sub-items (e), (ea) and (h) shall be omitted;

(IX) after serial number 31 and the entries relating thereto, the following serial number and entries shall be inserted, namely: -

(1)	(2)	(3)	(4)	(5)
"31A	Heading 9993	Services provided by a clinical establishment by way of providing room [other than Intensive Care Unit (ICU)/Critical Care Unit (CCU)/Intensive Cardiac Care Unit (ICCU)/Neo natal Intensive Care Unit (NICU)] having room charges exceeding Rs. 5000 per day to a person receiving health care services.	2.5	The credit of input tax charged on goods and services used in supplying the service has not been taken [Please refer to Explanation no. (iv)]";

(X) against serial number 32, in column (3), -

(a) after item (i) and the corresponding entries relating thereto in columns (4) and (5), the following shall be inserted, namely: -

(3)	(4)	(5)
"(ia) Services by way of treatment or disposal of biomedical waste or the processes incidental thereto by a common bio-medical waste treatment facility to a clinical establishment.	6	-";

(b) in item (ii), after the brackets and figures "(i)", the word, brackets and figure "and (ia)" shall be inserted;

(B) in paragraph 4, relating to Explanation, after clause (xxxvi), the following clauses shall be inserted, namely: -

"(xxxvii) 'print media' means, —

(i) 'book' as defined in sub-section (1) of section 1 of the Press and Registration of Books Act, 1867 (25 of 1867), but does not include business directories, yellow pages and trade catalogues which are primarily meant for commercial purposes;

(ii) 'newspaper' as defined in sub-section (1) of section 1 of the Press and Registration of Books Act, 1867 (25 of 1867);

(xxxviii) 'clinical establishment' means, -

a hospital, nursing home, clinic, sanatorium or any other institution by, whatever name called, that offers services or facilities requiring diagnosis or treatment or care for illness, injury, deformity, abnormality or pregnancy in any recognised system of medicines in India, or a place established as an independent entity or a part of an establishment to carry out diagnostic or investigative services of diseases;

(xxxix) 'health care services' means, -

any service by way of diagnosis or treatment or care for illness, injury, deformity, abnormality or pregnancy in any recognised system of medicines in India and includes

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services by way of transportation of the patient to and from a clinical establishment, but does not include hair transplant or cosmetic or plastic surgery, except when undertaken to restore or to reconstruct anatomy or functions of body affected due to congenital defects, developmental abnormalities, injury or trauma;

(xxxx) 'goods transport agency' means, -

any person who provides service in relation to transport of goods by road and issues consignment note, by whatever name called.";

(C) After Annexure IV, following annexure shall be inserted, namely: -

"Annexure V

FORM

Form for exercising the option by a Goods Transport Agency (GTA) for payment of GST on the GTA services supplied by him under forward charge before the commencement of any financial year to be submitted before the jurisdictional GST Authority.

Reference No.-

Date: -

1. I/We_____ (name of Person), authorised representative of M/s…….. have taken registration/have applied for registration and do hereby undertake to pay GST on the GTA services in relation to transportation of goods supplied by us during the financial year……..under forward charge in accordance with section 9(1) of the CGST Act, 2017 and to comply with all the provisions of the CGST Act, 2017 as they apply to a person liable for paying the tax in relation to supply of any goods or services or both;
2. I understand that this option once exercised shall not be allowed to be changed within a period of one year from the date of exercising the option and will remain valid till the end of the financial year for which it is exercised.

Legal Name: -

GSTIN: -

PAN No.

Signature of Authorised representative:

Name of Authorised Signatory:

Full Address of GTA:

(Dated acknowledgment of jurisdictional GST Authority)

Note: The last date for exercising the above option for any financial year is the 15th March of the preceding financial year. The option for the financial year 2022-2023 can be exercised by 16th August, 2022.".

2. This notification shall come into force with effect from the 18th July, 2022.

[F. No. 190354/176/2022-TRU]

RAJEEV RANJAN, Under Secy.

Note: - The principal notification no. 11/2017 - Central Tax (Rate), dated the 28th June, 2017 was published in the Gazette of India, Extraordinary, vide number G.S.R. 690 (E), dated the 28th June, 2017 and last amended vide notification no. 22/2021-Central Tax (Rate), dated the 31st December, 2021 published in the official gazette vide number G.S.R. 923(E), dated the 31st December, 2021.

[TO BE PUBLISHED IN THE GAZZETE OF INDIA, EXTRAORDINARY, PART II, SECTION 3, SUB-SECTION (i)]

Government of India
Ministry of Finance
(Department of Revenue)

Notification No. 20/2017-Central Tax (Rate)

New Delhi, the 22nd August, 2017

G.S.R.....(E).- In exercise of the powers conferred by sub-section (1) of section 9, sub-section (1) of section 11, sub-section (5) of section 15 and sub-section (1) of section 16 of the Central Goods and Services Tax Act, 2017 (12 of 2017), the Central Government, on the recommendations of the Council, and on being satisfied that it is necessary in the public interest so to do, hereby makes the following amendments in the notification of the Government of India, in the Ministry of Finance (Department of Revenue), No. 11/2017- Central Tax (Rate), dated the 28th June, 2017, published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (i), *vide* number G.S.R. 690(E), dated the 28th June, 2017, namely:-

In the said notification, in the Table,-

(i) against serial number 3, for item (iii) in column (3) and the entries relating thereto in columns (3), (4) and (5), the following shall be substituted, namely:-

(3)	(4)	(5)
"(iii) Composite supply of works contract as defined in clause (119) of section 2 of the Central Goods and Services Tax Act, 2017, supplied to the Government, a local authority or a Governmental authority by way of construction, erection, commissioning, installation, completion, fitting out, repair, maintenance, renovation, or alteration of, - (a) a historical monument, archaeological site or remains of national importance, archaeological excavation, or antiquity specified under the Ancient Monuments and Archaeological Sites and Remains Act, 1958 (24 of 1958); (b) canal, dam or other irrigation works; (c) pipeline, conduit or plant for *(i)* water supply *(ii)* water treatment, or *(iii)* sewerage treatment or disposal.	6	-
(iv) Composite supply of works contract as defined in clause (119) of section 2 of the Central Goods and	6	-

Services Tax Act, 2017, supplied by way of construction, erection, commissioning, installation, completion, fitting out, repair, maintenance, renovation, or alteration of,- (a) a road, bridge, tunnel, or terminal for road transportation for use by general public; (b) a civil structure or any other original works pertaining to a scheme under Jawaharlal Nehru National Urban Renewal Mission or Rajiv Awaas Yojana; (c) a civil structure or any other original works pertaining to the "In-situ rehabilitation of existing slum dwellers using land as a resource through private participation" under the Housing for All (Urban) Mission/Pradhan Mantri Awas Yojana, only for existing slum dwellers; (d) a civil structure or any other original works pertaining to the "Beneficiary led individual house construction / enhancement" under the Housing for All (Urban) Mission/Pradhan Mantri Awas Yojana; (e) a pollution control or effluent treatment plant, except located as a part of a factory; or (f) a structure meant for funeral, burial or cremation of deceased.		
(v) Composite supply of works contract as defined in clause (119) of section 2 of the Central Goods and Services Tax Act, 2017, supplied by way of construction, erection, commissioning, or installation of original works pertaining to,- (a) railways, excluding monorail and metro; (b) a single residential unit otherwise than as a part of a residential complex; (c) low-cost houses up to a carpet area of 60 square metres per house in a housing project approved by competent authority empowered under the 'Scheme of Affordable Housing in Partnership' framed by the Ministry of Housing and Urban Poverty Alleviation, Government of India; (d) low cost houses up to a carpet area of 60 square metres per house in a housing project approved	6	-

by the competent authority under- (1) the "Affordable Housing in Partnership" component of the Housing for All (Urban) Mission/Pradhan Mantri Awas Yojana; (2) any housing scheme of a State Government; (e) post-harvest storage infrastructure for agricultural produce including a cold storage for such purposes; or (f) mechanised food grain handling system, machinery or equipment for units processing agricultural produce as food stuff excluding alcoholic beverages.		
(vi) Construction services other than (i), (ii), (iii), (iv) and (v) above.	9	-";

(ii) against serial number 8, for item (vi) in column (3) and the entries relating thereto in columns (3), (4) and (5), the following shall be substituted, namely:-

(3)	(4)	(5)
"(vi) Transport of passengers by motorcab where the cost of fuel is included in the consideration charged from the service recipient.	2.5	Provided that credit of input tax charged on goods and services used in supplying the service has not been taken [Please refer to *Explanation* no. (iv)]
	or	
	6	-";

(iii) against serial number 9, for item (iii) in column (3) and the entries relating thereto in columns (3), (4) and (5), the following shall be substituted, namely:-

(3)	(4)	(5)
"(iii) Services of goods transport agency (GTA) in relation to transportation of goods (including used	2.5	Provided that credit of input tax charged

household goods for personal use). *Explanation*.- "goods transport agency" means any person who provides service in relation to transport of goods by road and issues consignment note, by whatever name called.		on goods and services used in supplying the service has not been taken [Please refer to *Explanation* no. (iv)]
	or	
	6	Provided that the goods transport agency opting to pay central tax @ 6% under this entry shall, thenceforth, be liable to pay central tax @ 6% on all the services of GTA supplied by it.";

(iv) against serial number 10, for item (i) in column (3) and the entries relating thereto in columns (3), (4) and (5), the following shall be substituted, namely:-

(3)	(4)	(5)
"(i) Renting of motorcab where the cost of fuel is included in the consideration charged from the service recipient.	2.5	Provided that credit of input tax charged on goods and services used in supplying the service has not been taken [Please refer to *Explanation* no. (iv)]
	or	
	6	-";

(v) against serial number 11, for item (i) in column (3) and the entries relating thereto in columns (3), (4) and (5), the following shall be substituted, namely:-

(3)	(4)	(5)
"(i) Services of goods transport agency (GTA) in relation to transportation of goods (including used household goods for personal use). *Explanation*.- "goods transport agency" means any person who provides service in relation to transport of goods by road and issues consignment note, by whatever name called.	2.5	Provided that credit of input tax charged on goods and services used in supplying the service has not been taken [Please refer to *Explanation* no. (iv)]
	or	
	6	Provided that the goods transport agency opting to pay central tax @ 6% under this entry shall, thenceforth, be liable to pay central tax @ 6% on all the services of GTA supplied by it.";

(vi) against serial number 26,-

(a) in column (3), in item (i),-

(A) for sub-item (b), the following sub-item shall be substituted, namely:-

"(b) Textiles and textile products falling under Chapter 50 to 63 in the First Schedule to the Customs Tariff Act, 1975 (51of 1975);";

(B) the *Explanation* shall be omitted;

(b) for item (ii) in column (3) and the entries relating thereto in columns (3), (4) and (5), the following shall be substituted, namely:-

(3)	(4)	(5)
"(ii) Services by way of any treatment or process on goods belonging to another person, in relation to- (a) printing of newspapers; (b) printing of books (including Braille books), journals and periodicals.	2.5	-

(iii) Manufacturing services on physical inputs (goods) owned by others, other than (i) and (ii) above.	9	-";

(vii) for serial number 27 and the entries relating thereto, the following shall be substituted, namely:-

(1)	(2)	(3)	(4)	(5)
"27	**Heading 9989**	(i) Services by way of printing of newspapers, books (including Braille books), journals and periodicals, where only content is supplied by the publisher and the physical inputs including paper used for printing belong to the printer.	6	-
		(ii) Other manufacturing services; publishing, printing and reproduction services; materials recovery services, other than (i) above.	9	-";

(viii) against serial number 34, in column (3), in item (i), after the word "drama", the words "or planetarium" shall be inserted.

[F. No.354/173/2017 -TRU]

(Ruchi Bisht)
Under Secretary to the Government of India

Note:-The principal notification was published in the Gazette of India, Extraordinary, *vide* notification No. 11/2017 - Central Tax (Rate), dated the 28th June, 2017, *vide* number G.S.R. 690 (E), dated the 28th June, 2017.

[TO BE PUBLISHED IN THE GAZZETE OF INDIA, EXTRAORDINARY, PART II, SECTION 3, SUB-SECTION (i)]

Government of India
Ministry of Finance
(Department of Revenue)

Notification No. 11/2017-Central Tax (Rate)

New Delhi, the 28th June, 2017

G.S.R.....(E).- In exercise of the powers conferred by sub-section (1) of section 9, sub-section (1) of section 11, sub-section (5) of section 15 and sub-section (1) of section 16 of the Central Goods and Services Tax Act, 2017 (12 of 2017), the Central Government, on the recommendations of the Council, and on being satisfied that it is necessary in the public interest so to do, hereby notifies that the central tax, on the intra-State supply of services of description as specified in column (3) of the Table below, falling under Chapter, Section or Heading of scheme of classification of services as specified in column (2), shall be levied at the rate as specified in the corresponding entry in column (4), subject to the conditions as specified in the corresponding entry in column (5) of the said Table:-

Table

Sl No.	Chapter, Section or Heading	Description of Service	Rate (per cent.)	Condition
(1)	(2)	(3)	(4)	(5)
1	**Chapter 99**	**All Services**		
2	**Section 5**	**Construction Services**		
3	**Heading 9954** (Construction services)	(i) Construction of a complex, building, civil structure or a part thereof, including a complex or building intended for sale to a buyer, wholly or partly, except where the entire consideration has been received after issuance of completion certificate, where required, by the competent authority or after its first occupation, whichever is earlier. (Provisions of paragraph 2 of this notification shall apply for valuation of this service)	9	-
		(ii) composite supply of works contract as defined in clause 119 of section 2 of Central Goods and Services Tax Act, 2017.	9	-
		(iii) construction services other than (i) and (ii) above.	9	-
4	**Section 6**	**Distributive Trade Services; Accommodation, Food and Beverage Service; Transport Services; Gas and**		

		Electricity Distribution Services		
5	**Heading 9961**	Services in wholesale trade. *Explanation*-This service does not include sale or purchase of goods but includes: – Services of commission agents, commodity brokers, and auctioneers and all other traders who negotiate whole sale commercial transactions between buyers and sellers, for a fee or commission' – Services of electronic whole sale agents and brokers, – Services of whole sale auctioning houses.	9	-
6	**Heading 9962**	Services in retail trade. *Explanation*- This service does not include sale or purchase of goods	9	-
7	**Heading 9963** (Accommodation, food and beverage services)	(i) Supply, by way of or as part of any service or in any other manner whatsoever, of goods, being food or any other article for human consumption or drink, where such supply or service is for cash, deferred payment or other valuable consideration, provided by a restaurant, eating joint including mess, canteen, neither having the facility of air-conditioning or central air-heating in any part of the establishment, at any time during the year nor having licence or permit or by whatever name called to serve alcoholic liquor for human consumption.	6	-
		(ii) Accommodation in hotels, inns, guest houses, clubs, campsites or other commercial places meant for residential or lodging purposes having declared tariff of a unit of accommodation of one thousand rupees and above but less than two thousand five hundred rupees per unit per day or equivalent. *Explanation*.- "declared tariff" includes charges for all amenities provided in the unit of accommodation (given on rent for stay) like furniture, air conditioner, refrigerators or any other amenities, but without excluding any discount offered on the published charges for such unit.	6	-
		(iii) Supply, by way of or as part of any service or in any other manner whatsoever, of goods, being food or any other article for human consumption or any drink, where such supply or service is for cash, deferred payment or other valuable consideration, provided by a restaurant, eating joint including mess, canteen, having licence or	9	-

		permit or by whatever name called to serve alcoholic liquor for human consumption.		
		(iv) Supply, by way of or as part of any service or in any other manner whatsoever, of goods, being food or any other article for human consumption or any drink, where such supply or service is for cash, deferred payment or other valuable consideration, provided by a restaurant, eating joint including mess, canteen, having the facility of air-conditioning or central air-heating in any part of the establishment, at any time during the year.	9	-
		(v) Supply, by way of or as part of any service or in any other manner whatsoever in outdoor catering wherein goods, being food or any other article for human consumption or any drink (whether or not alcoholic liquor for human consumption), as a part of such outdoor catering and such supply or service is for cash, deferred payment or other valuable consideration.	9	-
		(vi) Accommodation in hotels, inns, guest houses, clubs, campsites or other commercial places meant for residential or lodging purposes having declared tariff of a unit of accommodation of two thousand five hundred rupees and above but less than seven thousand five hundred rupees per unit per day or equivalent. *Explanation*.- "declared tariff" includes charges for all amenities provided in the unit of accommodation (given on rent for stay) like furniture, air conditioner, refrigerators or any other amenities, but without excluding any discount offered on the published charges for such unit.	9	-
		(vii) Supply, by way of or as part of any service or in any other manner whatsoever, of goods, including but not limited to food or any other article for human consumption or any drink (whether or not alcoholic liquor for human consumption), where such supply or service is for cash, deferred payment or other valuable consideration, in a premises (including hotel, convention center, club, pandal, shamiana or any other place, specially arranged for organising a function) together with renting of such premises.	9	-
		(viii) Accommodation in hotels including five	14	-

		star hotels, inns, guest houses, clubs, campsites or other commercial places meant for residential or lodging purposes having declared tariff of a unit of accommodation of seven thousand and five hundred rupees and above per unit per day or equivalent. *Explanation*.-"declared tariff " includes charges for all amenities provided in the unit of accommodation (given on rent for stay) like furniture, air conditioner, refrigerators or any other amenities, but without excluding any discount offered on the published charges for such unit.		
		(ix) Accommodation, food and beverage services other than (i), (ii), (iii), (iv), (v), (vi), (vii) and (viii) above.	9	-
8	**Heading 9964** (Passenger transport services)	(i) Transport of passengers, with or without accompanied belongings, by rail in first class or air conditioned coach.	2.5	Provided that credit of input tax charged in respect of goods used in supplying the service is not utilised for paying central tax or integrated tax on the supply of the service
		(ii) Transport of passengers, with or without accompanied belongings by- (a) air conditioned contract carriage other than motorcab; (b) air conditioned stage carriage; (c) radio taxi. *Explanation*.- (a) "contract carriage" has the meaning assigned to it in clause (7) of section 2 of the Motor Vehicles Act, 1988 (59 of 1988); (b) "stage carriage" has the meaning assigned to it in clause (40) of section 2 of the Motor Vehicles Act, 1988 (59 of 1988) ; (c) "radio taxi" means a taxi including a radio cab, by whatever name called, which is in two-way radio communication with a central control office and is enabled for tracking using Global Positioning System (GPS) or General Packet Radio Service (GPRS).	2.5	Provided that credit of input tax charged on goods or services used in supplying the service has not been taken [Please refer to *Explanation* no. (iv)]
		(iii) Transport of passengers, with or without accompanied belongings, by air in economy class.	2.5	Provided that credit of input tax charged on goods used in supplying

				the service has not been taken [Please refer to *Explanation* no. (iv)]
		(iv) Transport of passengers, with or without accompanied belongings, by air, embarking from or terminating in a Regional Connectivity Scheme Airport, as notified by the Ministry of Civil Aviation.	2.5	Provided that credit of input tax charged on goods used in supplying the service has not been taken [Please refer to *Explanation* no. (iv)]
		(v) Transport of passengers by air, with or without accompanied belongings, in other than economy class.	6	-
		(vi) Transport of passengers by motorcab where the cost of fuel is included in the consideration charged from the service recipient.	2.5	Provided that credit of input tax charged on goods and services used in supplying the service has not been taken [Please refer to *Explanation* no. (iv)]
		(vii) Passenger transport services other than (i), (ii) (iii), (iv), (v) and (vi) above.	9	-
9	**Heading 9965** (Goods transport services)	(i) Transport of goods by rail (other than services specified at item no. (iv)).	2.5	Provided that credit of input tax charged in respect of goods in supplying the service is not utilised for paying central tax or integrated tax on the supply of the service
		(ii) Transport of goods in a vessel.	2.5	Provided that credit of input tax charged on goods (other than on ships, vessels including bulk carriers and tankers) used in supplying the service has not

				been taken [Please refer to *Explanation* no. (iv)]
		(iii) Services of goods transport agency (GTA) in relation to transportation of goods (including used household goods for personal use). *Explanation.*- "goods transport agency" means any person who provides service in relation to transport of goods by road and issues consignment note, by whatever name called.	2.5	Provided that credit of input tax charged on goods and services used in supplying the service has not been taken [Please refer to *Explanation* no. (iv)]
		(iv) Transport of goods in containers by rail by any person other than Indian Railways.	6	-
		(v) Goods transport services other than (i), (ii), (iii) and (iv) above.	9	-
10	**Heading 9966** (Rental services of transport vehicles)	(i) Renting of motorcab where the cost of fuel is included in the consideration charged from the service recipient.	2.5	Provided that credit of input tax charged on goods and services used in supplying the service has not been taken [Please refer to *Explanation* no. (iv)]
		(ii) Rental services of transport vehicles with or without operators, other than (i) above.	9	-
11	**Heading 9967** (Supporting services in transport)	(i) Services of goods transport agency (GTA) in relation to transportation of goods (including used household goods for personal use). *Explanation.*- "goods transport agency" means any person who provides service in relation to transport of goods by road and issues consignment note, by whatever name called.	2.5	Provided that credit of input tax charged on goods and services used in supplying the service has not been taken [Please refer to *Explanation* no. (iv)]
		(ii) Supporting services in transport other than (i) above.	9	-
12	**Heading 9968**	Postal and courier services.	9	-
13	**Heading 9969**	Electricity, gas, water and other distribution services.	9	-
14	**Section 7**	**Financial and related services; real estate services; and rental and leasing services.**		
15	**Heading 9971** (Financial and	(i) Services provided by a foreman of a chit fund in relation to chit.	6	Provided that credit of input tax

	related services)	*Explanation.*- (a) "chit" means a transaction whether called chit, chit fund, chitty, kuri, or by whatever name by or under which a person enters into an agreement with a specified number of persons that every one of them shall subscribe a certain sum of money (or a certain quantity of grain instead) by way of periodical instalments over a definite period and that each subscriber shall, in his turn, as determined by lot or by auction or by tender or in such other manner as may be specified in the chit agreement, be entitled to a prize amount; (b) "foreman of a chit fund" shall have the same meaning as is assigned to the expression "foreman" in clause (j) of section 2 of the Chit Funds Act, 1982 (40 of 1982).		charged on goods used in supplying the service has not been taken [Please refer to *Explanation* no. (iv)]
		(ii) Transfer of the right to use any goods for any purpose (whether or not for a specified period) for cash, deferred payment or other valuable consideration.	Same rate of central tax as on supply of like goods involving transfer of title in goods	-
		(iii) Any transfer of right in goods or of undivided share in goods without the transfer of title thereof.	Same rate of central tax as on supply of like goods involving transfer of title in goods	-
		(iv) Leasing of aircrafts by an operator for operating scheduled air transport service or scheduled air cargo service by way of transaction covered by clause (f) paragraph 5 of Schedule II of the Central Goods and Services Act, 2017. *Explanation.*- (a) "operator" means a person, organisation or enterprise engaged in or offering to engage in aircraft operations; (b) "scheduled air transport service" means an air transport service undertaken between the same two or more places operated according to a published time table or with	2.5	Provided that credit of input tax charged on goods used in supplying the service has not been taken [Please refer to *Explanation* no. (iv)]

		flights so regular or frequent that they constitute a recognisable systematic series, each flight being open to use by members of the public; (c) "scheduled air cargo service" means air transportation of cargo or mail on a scheduled basis according to a published time table or with flights so regular or frequent that they constitute a recognisably systematic series, not open to use by passengers.		
		(v) Financial and related services other than (i), (ii), (iii), and (iv) above.	9	-
16	**Heading 9972**	Real estate services.	9	-
17	**Heading 9973** (Leasing or rental services, with or without operator)	(i) Temporary or permanent transfer or permitting the use or enjoyment of Intellectual Property (IP) right in respect of goods other than Information Technology software.	6	-
		(ii) Temporary or permanent transfer or permitting the use or enjoyment of Intellectual Property (IP) right in respect of Information Technology software. [Please refer to *Explanation* no. (v)]	9	-
		(iii) Transfer of the right to use any goods for any purpose (whether or not for a specified period) for cash, deferred payment or other valuable consideration.	Same rate of central tax as on supply of like goods involving transfer of title in goods	-
		(iv) Any transfer of right in goods or of undivided share in goods without the transfer of title thereof.	Same rate of central tax as on supply of like goods involving transfer of title in goods	-
		(v) Leasing of aircrafts by an operator for operating scheduled air transport service or scheduled air cargo service by way of transaction covered by clause (f) paragraph 5 of Schedule II of the Central Goods and Services Act, 2017. *Explanation.-* (a) "operator" means a person, organisation	2.5	Provided that credit of input tax charged on goods used in supplying the service has not been taken [Please refer to *Explanation* no.

		or enterprise engaged in or offering to engage in aircraft operations; (b) "scheduled air transport service" means an air transport service undertaken between the same two or more places operated according to a published time table or with flights so regular or frequent that they constitute a recognisable systematic series, each flight being open to use by members of the public; (c) "scheduled air cargo service" means air transportation of cargo or mail on a scheduled basis according to a published time table or with flights so regular or frequent that they constitute a recognisably systematic series, not open to use by passengers.		(iv)]
		(vi) Leasing or rental services, with or without operator, other than (i), (ii), (iii), (iv) and (v) above.	Same rate of central tax as applicable on supply of like goods involving transfer of title in goods	-
18	**Section 8**	**Business and Production Services**		
19	**Heading 9981**	Research and development services.	9	-
20	**Heading 9982**	Legal and accounting services.	9	-
21	**Heading 9983** (Other professional, technical and business services)	(i) Selling of space for advertisement in print media.	2.5	-
		(ii) Other professional, technical and business services other than (i) above.	9	-
22	**Heading 9984**	Telecommunications, broadcasting and information supply services.	9	-
23	**Heading 9985** (Support services)	(i) Supply of tour operators services. *Explanation*.- "tour operator" means any person engaged in the business of planning, scheduling, organizing, arranging tours (which may include arrangements for accommodation, sightseeing or other similar services) by any mode of transport, and includes any person engaged in the business of operating tours.	2.5	1. Provided that credit of input tax charged on goods and services used in supplying the service has not been taken [Please refer to *Explanation* no. (iv)] 2. The bill issued for supply of this

				service indicates that it is inclusive of charges of accommodation and transportation required for such a tour and the amount charged in the bill is the gross amount charged for such a tour including the charges of accommodation and transportation required for such a tour.
		(ii) Support services other than (i) above	9	-
24	**Heading 9986**	(i) Support services to agriculture, forestry, fishing, animal husbandry. *Explanation*. – "Support services to agriculture, forestry, fishing, animal husbandry" mean - (i) Services relating to cultivation of plants and rearing of all life forms of animals, except the rearing of horses, for food, fibre, fuel, raw material or other similar products or agricultural produce by way of— (a) agricultural operations directly related to production of any agricultural produce including cultivation, harvesting, threshing, plant protection or testing; (b) supply of farm labour; (c) processes carried out at an agricultural farm including tending, pruning, cutting, harvesting, drying, cleaning, trimming, sun drying, fumigating, curing, sorting, grading, cooling or bulk packaging and such like operations which do not alter the essential characteristics of agricultural produce but make it only marketable for the primary market; (d) renting or leasing of agro machinery or vacant land with or without a structure incidental to its use;	Nil	-

		(e) loading, unloading, packing, storage or warehousing of agricultural produce; (f) agricultural extension services; (g) services by any Agricultural Produce Marketing Committee or Board or services provided by a commission agent for sale or purchase of agricultural produce. (ii) Services by way of pre-conditioning, pre-cooling, ripening, waxing, retail packing, labelling of fruits and vegetables which do not change or alter the essential characteristics of the said fruits or vegetables. (iii) Carrying out an intermediate production process as job work in relation to cultivation of plants and rearing of all life forms of animals, except the rearing of horses, for food, fibre, fuel, raw material or other similar products or agricultural produce.		
		(ii) Support services to mining, electricity, gas and water distribution.	9	-
25	**Heading 9987**	Maintenance, repair and installation (except construction) services.	9	-
26	**Heading 9988** (Manufacturing services on physical inputs (goods) owned by others)	(i) Services by way of job work in relation to- (a) Printing of newspapers; (b) Textile yarns (other than of man-made fibres) and textile fabrics; (c) Cut and polished diamonds; precious and semi-precious stones; or plain and studded jewellery of gold and other precious metals, falling under Chapter 71 in the First Schedule to the Customs Tariff Act, 1975 (51of 1975); (d) Printing of books (including Braille books), journals and periodicals; (e) Processing of hides, skins and leather falling under Chapter 41 in the First Schedule to the Customs Tariff Act, 1975 (51of 1975). *Explanation*.- "man made fibres" means staple fibres and filaments of organic polymers produced by manufacturing processes either,- (a) by polymerisation of organic monomers to produce polymers such as polyamides, polyesters, polyolefins or polyurethanes, or by chemical modification of polymers produced by	2.5	-

		this process [for example, poly(vinyl alcohol) prepared by the hydrolysis of poly(vinyl acetate)]; or (b) by dissolution or chemical treatment of natural organic polymers (for example, cellulose) to produce polymers such as cuprammonium rayon (cupro) or viscose rayon, or by chemical modification of natural organic polymers (for example, cellulose, casein and other proteins, or alginic acid), to produce polymers such as cellulose acetate or alginates.		
		(ii) Manufacturing services on physical inputs (goods) owned by others, other than (i) above.	9	-
27	**Heading 9989**	Other manufacturing services; publishing, printing and reproduction services; materials recovery services.	9	-
28	**Section 9**	**Community, Social and Personal Services and other miscellaneous services**		
29	**Heading 9991**	Public administration and other services provided to the community as a whole; compulsory social security services.	9	-
30	**Heading 9992**	Education services.	9	-
31	**Heading 9993**	Human health and social care services.	9	-
32	**Heading 9994**	Sewage and waste collection, treatment and disposal and other environmental protection services.	9	-
33	**Heading 9995**	Services of membership organisations.	9	-
34	**Heading 9996** (Recreational, cultural and sporting services)	(i) Services by way of admission or access to circus, Indian classical dance including folk dance, theatrical performance, drama.	9	-
		(ii) Services by way of admission exhibition of cinematograph films where price of admission ticket is one hundred rupees or less.	9	-
		(iii) Services by way of admission to entertainment events or access to amusement facilities including exhibition of cinematograph films, theme parks, water parks, joy rides, merry-go rounds, go-carting, casinos, race-course, ballet, any sporting event such as Indian Premier League and the like.	14	-
		(iv) Services provided by a race club by way of totalisator or a license to bookmaker in such club.	14	-
		(v) Gambling.	14	-
		(vi) Recreational, cultural and sporting services other than (i), (ii), (iii), (iv) and (v)	9	-

		above.		
35	**Heading 9997**	Other services (washing, cleaning and dyeing services; beauty and physical well-being services; and other miscellaneous services including services nowhere else classified).	9	-
36	**Heading 9998**	Domestic services.	9	-
37	**Heading 9999**	Services provided by extraterritorial organisations and bodies.	9	-

2. In case of supply of service specified in column (3) of the entry at item (i) against serial no. 3 of the Table above, involving transfer of property in land or undivided share of land, as the case may be, the value of supply of service and goods portion in such supply shall be equivalent to the total amount charged for such supply less the value of land or undivided share of land, as the case may be, and the value of land or undivided share of land, as the case may be, in such supply shall be deemed to be one third of the total amount charged for such supply.

Explanation .– For the purposes of paragraph 2, "total amount" means the sum total of,-

(a) consideration charged for aforesaid service; and

(b) amount charged for transfer of land or undivided share of land, as the case may be.

3. Value of supply of lottery shall be 100/112 of the face value or the price notified in the Official Gazette by the organising State, whichever is higher, in case of lottery run by State Government and 100/128 of the face value or the price notified in the Official Gazette by the organising State, whichever is higher, in case of lottery authorised by State Government.

4. *Explanation*.- For the purposes of this notification,-

(i) Goods includes capital goods.

(ii) Reference to "Chapter", "Section" or "Heading", wherever they occur, unless the context otherwise requires, shall mean respectively as "Chapter, "Section" and "Heading" in the annexed scheme of classification of services (Annexure).

(iii) The rules for the interpretation of the First Schedule to the Customs Tariff Act, 1975 (51 of 1975), the Section and Chapter Notes and the General Explanatory Notes of the First Schedule shall, so far as may be, apply to the interpretation of heading 9988.

(iv) Wherever a rate has been prescribed in this notification subject to the condition that credit of input tax charged on goods or services used in supplying the service has not been taken, it shall mean that,-

(a) credit of input tax charged on goods or services used exclusively in supplying such service has not been taken; and

(b) credit of input tax charged on goods or services used partly for supplying such service and partly for effecting other supplies eligible for input tax credits, is reversed as if supply of such service is an exempt supply and attracts provisions of sub-section (2) of section 17 of the Central Goods and Services Tax Act, 2017 and the rules made thereunder.

(v) "information technology software" means any representation of instructions, data, sound or image, including source code and object code, recorded in a machine readable form, and capable of being manipulated or providing interactivity to a user, by means of a computer or an automatic data processing machine or any other device or equipment.

(vi) "agricultural extension" means application of scientific research and knowledge to agricultural practices through farmer education or training.

(vii) "agricultural produce" means any produce out of cultivation of plants and rearing of all life forms of animals, except the rearing of horses, for food, fibre, fuel, raw material or other similar products, on which either no further processing is done or such processing is done as is usually done by a cultivator or producer which does not alter its essential characteristics but makes it marketable for primary market.

(viii) "Agricultural Produce Marketing Committee or Board" means any committee or board constituted under a State law for the time being in force for the purpose of regulating the marketing of agricultural produce.

5. This notification shall come into force with effect from 1st day of July, 2017.

[F.No. 334/1/2017-TRU]

(Ruchi Bisht)
Under Secretary to the Government of India

No. RW/G-20017/26/2018-W&A
Government of India
Ministry of Road Transport & Highways
(Planning zone)
Transport Bhawan, 1, Parliament Street, New Delhi - 110001

Dated, the 19th November, 2018.

To

1. The Chief Secretaries of all State Governments/ UTs
2. The Chairman, National Highways Authority of India (NHAI), G-5&6, Sector-10, Dwarka, New Delhi- 110075
3. Director General (Border Roads), Seema Sadak Bhawan, 4- Parliament Street, New Delhi - 110001
4. The Managing Director, NHIDCL, 3rd Floor, PTI Building, 4- Parliament Street, New Delhi - 110 001
5. The Principal Secretaries/ Secretaries of all States/ UTs Public Works Departments dealing with National Highways, Other Centrally Sponsored Schemes & State Schemes
6. The Engineers-in-Chief and Chief Engineers of all States/ UTs Public works Departments dealing with National Highways, Other Centrally Sponsored Schemes
7. All CE-ROs/ SE-ROs/ ELOs of the Ministry of RT&H

Subject: Implementation of CGST Act, 2017 - Standard Operating Procedure - Reg.

References: -

(i) *Ministry's O.M. No. RT-23018/53/2017-T, dated 25.04.2018*

(ii) Ministry's O.M. No. RW/NH-34066/20/2018-S&R (P&B), dated 01.08.2018

(iii) Ministry of Finance (Dept. of Revenue) Circular No. 65/39/2018 - DOR (Letter No. S.31011/11/2018-ST-I-DoR, dated 14.09.2018)

Sir,

Kind attention is drawn to the Ministry's O.M.s under ref. (i) and (ii) above regarding GST Implementation at Project sites/ offices levels. The Ministry of Finance issued detailed guidelines vide Circular under ref. (iii) above for deductions and deposits of TDS under GST by the DDO, copy of which is enclosed herewith for ready reference and for ensuring needful compliance.

2. Further, this is in continuation to the Ministry's policy and guidelines issued vide the reference on above mentioned subject.

3. The CST Act, 2017 has subsumed various indirect taxes of both Central and State Governments, such as Central Excise Duty, Service Tax, Central Sales Tax (CST)/ Works Contract Tax (WCT)/ State Value Added Tax (VAT), Additional Custom duty and Special Additional Duty (SAD) apart from Entry Tax and Octroi charges, etc.

4. Keeping in view the difficulties faced and feedback received so far, it has been decided with the approval of Competent Authority to follow the Standard Operating Procedure (SOP) given below henceforth and until further orders.

5. Incidence of application of Service Tax/ GST

Incidence of the applicability of taxes shall be as follows:-

Sr. No.	Completion of Service	Invoice Date	Payment Date	Applicability of Taxes			Applicable TDS
				Service Tax	Works Contract Tax (WCT)	GST	
1	Before June 30, 2017	Before June 30, 2017	Before June 30, 2017	Yes	Yes	No	WCT TDS
2	Before June 30, 2017	Before June 30, 2017	After June 30, 2017	Yes	Yes	No	WCT TDS
3	Before June 30, 2017	After June 30, 2017	After June 30, 2017	No	No	Yes	GST TDS
4	After June 30, 2017	After June 30, 2017	After June 30, 2017	No	No	Yes	GST TDS

6. Payments for EPC Contracts

6.1. The contract price is quoted lump-sum and inclusive of all taxes in most of EPC contracts; these taxes have now been subsumed under GST. In order to arrive at the incidence of application of Service Tax/GST as mentioned at Para 5 above, the total work shall be categorized as follows: -

(i) Works completed up to 30.06.2017 and Billing completed by 30.06.2017.

(ii) Works completed up to 30.06.2017 and Billing not completed by 30.06.2017.

(iii) Works yet to be completed as on 01.07.2017.

6.2. GST Act, 2017 shall be applicable for all the works mentioned above at (ii) & (iii). Following procedure may be adopted by the Ministry/ ROs/ PIUs/ various Executing Agencies while making payments as per the provisions in the contracts:-

(i) The project components under different major heads (like Earth, Sand, Aggregates, Steel, Cement, Bitumen etc.) are to be intimated by the contractor and checked/confirmed by the respective IE/ AE in consultation with the concerned RO/ PD for each of the Project.

(ii) In order to compile the above information, an indicative Excel format is suggested for guidance and attached (at **Annexure-I**). It indicates various project components which attract various types of taxes including Excise Duty, CST, VAT/WCT and other taxes, which were already included in the contract price as per the original contract. The same format can be used to compile the information for each ongoing project, taking into consideration the GST Input Tax Credit available for the project. The project components and rates shown are only indicative and should be modified as per the project actuals and shall be certified by the statutory auditors of the

Contractor/Developer/Company. In case, appointment of Statutory Auditor is not mandatory, then it can be certified by a Practicing Chartered Accountant.

(iii) After completion of the said exercise, the costs against the subsumed taxes (Excise duty, CST, VAT/ WCT etc.) in the particular contract are to be finalized and to be mutually agreed by IE/ AE/ Ministry / concerned Executive Agency/ Contractor. The cost of subsumed taxes factored in the contract value is required to be reduced from the original contract price to arrive at the actual balance cost of the project.

(iv) Based on such certification and mutual agreement, the concerned RO/ PD shall either pay or recover the net impact of the GST after accounting for subsumed tax component and input tax (GST) credit. The contractor shall be responsible for correct declaration of GST liability and shall provide the supporting documents, if required.

(v) This will be an interim arrangement till the completion of the project and the final impact of GST (positive or negative) shall be worked out at the time of Final bill.

7. Preparation of DPR, Estimation of Project Cost, Cost of Utility Shifting and Change of Scope:

For all the cost estimates, which are finalized prior to 01.07.2017, there is need to revise the estimated amount taking in to consideration the implication of GST. This includes Estimated Cost for Road projects, Cost involved in Utility Shifting and estimated amount for Change in Scope. While estimating the cost, various Schedule of Rates (SoR) are followed, which are approved prior to application of GST. In all such cases, pre-GST taxes should be excluded from the cost/ estimates and the applicable GST rate shall be shown separately/ and added in the cost/ estimate.

8. Payments for Hybrid Annuity Projects (40% of Bid Project Cost), O&M Contracts and Bonus for Early completion:

(i) Keeping in view the clarifications issued by the Ministry of Finance (Deptt. of Revenue) vide notification no. 33/ 2017, dated 13.10.2017 on Integrated Tax (Rate) that "Service by way of access to a road or a bridge on payment of annuity - applicable GST is NIL (Sl. No. 24A, Heading 9967)", no payment against GST shall be made on Annuity payments.

(ii) Interest is payable on the reducing balance of the completion cost as per the clause no. 23.6.4 of the MCA. GST shall not be payable on interest of payment of Annuity amount.

(iii) GST is applicable on entire payment of Operation and Maintenance (O&M) cost as per clause 23.7 of MCA with 100% Input Tax credit.

(CCv)

(CCv)

(iv) GST shall be payable on Bonus for early completion as per clause 23.5 of the MCA without any Input Tax Credit. However, if any input tax credit is availed by the Concessionaire, the benefit of such ITC shall be passed on to the Ministry/ concerned Executing Agency.

9. Mobilization advance:

Applicability of GST on mobilization advance shall be as follows -

(i) If the mobilization advance is refundable as per the Contract Agreement, no GST shall be payable on mobilization advance.

(ii) If the mobilization advance is recoverable as per the Contract Agreement in future bills, then GST shall be applicable. It shall be paid by the concerned executing agency/ RO/ PD at the applicable rates and shall be suitably adjusted at the time of recovery of the Mobilization Advance.

10. Deductibility of TDS under Income Tax Act:

(i) TDS shall continue to be deducted under the Income Tax Act, in addition to the Tax Deducted at Source (TDS) applicable under WCT/GST. Accordingly, wherever in terms of agreement or contract, the component of "GST on Services" comprised in the amount payable is indicated separately, TDS under the Income Tax Act shall be deducted on the amount paid or payable without including such "GST on Services" component. GST for this purpose shall include IGST, CGST, SGST and / UTGST.

(ii) For Example, if the bill is proposed for Rs. 118/- which includes Rs. 100/ - as a value of service/ work done and includes Rs. 18/- towards the GST, TDS under the Income Tax Act shall be deducted on Rs. 100/- and not on Rs. 118/-, as per the applicable rate prescribed under the Income Tax Act.

11. The ROs of the Ministry are permitted to hire the services of Financial Consultants/ Chartered Accountants for activities related to tax deduction under GST, maintaining of register, filing of returns, generating TDS certificate through the GSTN portal, etc., within maximum allowable limit of Rs. 1,00,000/- per annum. The expenditure shall be booked out of funds earmarked from budget head 3451 Secretariat Economic Services (Major Head), 00.090 Secretariat (Minor Head), 11 Ministry of Road Transport and Highways, 11.01 Roads and Transport Wings, 11.01.13 Office Expenses, or its amendments as issued from time to time. ROs shall accordingly refer proposals from time to time to General Section of the Ministry for earmarking of needful allocation of funds. Hiring of such services should be as per Rule 177 of GFR, 2017.

12. If the amount required for such services is more than Rs. 1 lakh/ annum, in such cases prior approval of Ministry needs to be taken.

(CCvi)

13. Further, the ROs of the Ministry are also authorised to hire an Accountant on Contract Basis as per the terms and conditions stipulated vide the Ministry's "norms for setting up of new PMU/ PIU for the EPC projects of MoRT&H" circulated vide Office Order No. N-20011/28/2013-F.II, dated 12.08.2013 for providing assistance to the ROs subject to obtaining prior approval of the Ministry.

14. The RPAOs of the Ministry shall furnish the actual details of the expenditures incurred and deductions made to the ROs on weekly basis on every Monday.

15. It is requested that the contents of this letter may be brought into the notice of all concerned for needful compliance.

16. This issues with the concurrence of Finance Wing vide U.O.No. 1402/TF-II, dated 12.11.2018 and approval of Secretary (RT&H).

19.11.18

(Mohit Kumar)
AEE (Planning)
planningmorth@gmail.com

Enclosure: As above

Copy to:

1. All JSs / CEs in the Ministry of Road Transport & Highways
2. All Technical Officers in the Ministry of Road Transport & Highways
3. All RPAOs of the Ministry
4. The Secretary General, Indian Road Congress
5. The Director, IAHE
6. Dy. FA / Controller of Accounts
7. Technical Circular file of S&R Section
8. NIC - for uploading on Ministry's website under "What's new"

Copy for information and necessary action to:

1. PPS to Secretary (RT&H)
2. Sr. PPS to DG (RD)&SS
3. PPS to Additional Secretary
4. PPS to AS&FA
5. PS to Pr.CCA
6. PS to ADG(Z-I) / ADG(Z-II)/ ADG(Z-III) / ADG(IV) / ADG(V)

TRUCK CAPACITY PER TRIP

VIDE T.E.C. LETTER No. 1115 DATED 12.07.85

Sr. No.	Materials	Truck Capacity per trip	Multi-plying factor	Net payable Volume or weight col.3 x col.4
1.	2.	3.	4.	5.
1.	Lime, Moorum and building rubbish	6.00 M^3	1.00	6.00 M^3
2.	Earth	6.00 M^3	0.80	4.80 M^3
3.	Manure or sludge	6.00 cum	0.92	5.52 cum
4.	Excavated rocks (120 Lbs)	6.00 cum	0.67	4.02 cum
5.	Stone Metal	5.40 cum	0.85	4.59 cum
6.	Soling stone	5.00 cum	0.85	4.25 cum
7.	Boulder (90 Lbs to 120 Lbs)	6.00 cum	0.80	4.80 cum
8.	Bricks	2000 Nos	1.00	2000 Nos.
9.	Tiles/Mangra/Mosaic	3200 Nos	1.00	3200 Nos.
10.	Brick tiles (300 x 150 x 50 mm)	1760 Nos	1.00	1760 Nos.
11.	Cement, Stone blocks, G.I, C.I, A.C. and C.C. Pipe below 100 mm dia and other heavy materials.	8:00 M.T.	1.00	8.00 M.T.
12.	Steel	8.00 M.T.	1.00	8.00 M.T.
13.	Timber	9.60 cum	1.00	9.60 cum
14.	Tar, Bitumen	8.00 M.T.	1.00	8.00 M.T.
15.	Steam coat	8.00 M.T.	1.00	8.00 M.T.
16:	S.W. pipe 60 cm, length			
	(i) 100 mm dia	800 No/480 M	1.00	800 No/480 M
	(ii) 150 mm dia	400 No/240 M	1.00	400 No/240 M
	(iii)200mm dia	224 No/134.40 M	1.00	224 No/134.4M
	(iv)230mm dia	176 No/105.60 M	1.00	176 No/105.6M
	(v) 250 mm dia	140 No/84 M	1.00	140 No/84 M
	(vi)300mm dia	112No/67.20M	1.00	112 No/67.2M
	(vii)350mm dia	80 No/48 M	1.00	80 No/48 M
	(viii)400mm dia	56 No/33.60M	1.00	56 No/3360 M
	(ix) 450 mm dia	44 No/26.40 M	1.00	44 No/26.40 M
	(x) 500 mm dia	40 No/24.00M	1.00	40No/24.00 M
	(xi) 600mm dia	32No/19.20 M	1.00	32 No/19.20M
17.	R.C.C. pipe and A.C. pipe			
	(i) 100 mm dia	145 No x 2M=290M	1.00	290.00M
	(ii) 125 mm dia	100No x2M= 200M	1.00	200.00M
	(iii) 150mm dia	90No x 2M= 180M	1.00	180.00M
	(iv) 200 mm dia	40No x 2.5M=100M	1.00	100.00M

1.	2.	3.	4.	5.
	(v) 250 mm dia	30No x 2.50M=75M	1.00	75.00M
	(vi) 300mm dia	24No x 2.5M = 60 M	1.00	60.00 M
	(vii) 350 mm dia	19 No x 2.5 M = 47.5 M	1.00	47.50 M
	(viii)400 mm dia & 450 mm dia	13 No x 2.5M=32.5M	1.00	32.50M
	(ix) 500 mm ida & 600 mm dia	10 No x 2.5M= 25.0M	1.00	25.00 M
	(x) 700 mm dia & 800 mm dia	6 No x 2.5 M= 15 M	1.00	15.00 M
	(xi) 900 mm dia & 1100 mm dia	4No x 2.5 M=10M	1.00	10.00 M
	(xii) 1100 mm dia & 1200 mm dia	3No x 2.5 M=7.5M	1.00	7.50 M
18.	G.L. crates 1 x 1.5 x 0.75 M	80 No.	1.00	80 No.
19.	Bamboos			
	(i) 75 mm dia & 100 mm dia	280 No.	1.00	280 No.
	(ii) 50 mm dia & 75 mm dia	300 No.	1.00	300 No.
20.	Empty bags of cement	3000 nos.	1.00	3000 nos.
21.	Sal bullah Av. 6 M length			
	(i) 100 mm dia	125 Nos.	1.00	125 Nos.
	(ii) 125 mm dia	80 Nos.	1.00	80 Nos.
	(iii) 150 mm dia	60 Nos.	1.00	60 Nos.
	(iv) 175 mm dia	45 Nos.	1.00	45 Nos.
	(v) 200 mm dia	25 Nos.	1.00	25 Nos.
	(vi) 225 mm dia	20 Nos.	1.00	20 Nos.
22.	Stone chips sand and Fly Ash	5.4 cum	0.924	5.00 cum
23.	Steel and C.I. Pipe 3.66 M			
	(i) 100 mm dia	80No x 3.66M=292.80M	1.00	292.8M
	(ii) 125 mm dia	60No x 3.66M=219.60M	1.00	219.60M
	(iii) 150 mm dia	50No x 3.66M=183.00M	1.00	183.00M
	(iv) 200 mm dia	30No x 3.66M=109.80M	1.00	109.80M
	(v) 250 mm dia	22No x 3.66M= 80.52M	1.00	80.52M
	(vi) 300 mm dia	17No x 3.66M= 62.22M	1.00	62.22M
	(vii) 350 mm dia	12No x 3.66M= 43.92M	1.00	43.92M
	(viii) 400 mm dia	9No x 3.66M= 32.94M	1.00	32.94M
	(ix) 500 mm dia	7No x 3.66M= 25.62 M	1.00	25.62M
	(x) 600 mm dia	5No x 3.66M= 18.30M	1.00	18.30M

BASIC INPUT PARAMETER

Overhead and Contractor Profit

Sl. No.	Description	Percentage		
		Large Project	Medium Project	Small Project
1	Overheads for Road Works	8%	10%	12%
2	Contractors profit for Road Works	10%	10%	10%
3	Overheads for New/Widening of Bridge/Structure Work	20%	20%	20%
4	Overheads for Rehabilitation of Bridges/Stucture	30%	30%	30%
5	Contractors profit for Bridge Works	10%	10%	10%
6	Overheads for Road Tunnel Works	25%	25%	25%
7	Contractors profit for Tunnel Works	10%	10%	10%

Lead Details

Sl. No.	Description	Represent lead
1	Lead from Mixing Plant to working site	L1
2	Lead for Earth work borrow area to site	L2
3	Lead for Moorum/Natural Granular Material barrow area to site.	L3
4	Lead for fly ash from source to site	L4
6	Lead for Sand from source to site	L5
6	Lead for Sand from source to Plant	L6
7	Lead for Aggregate from Quarry to working site	L7
8	Lead for Aggregate from Quarry to Plant	L8
9	Lead for Bitumen from source to Plant	L9
10	Lead for HT Strands from source to Plant	L10

Note "All lead in km (one way).

ABBREVIATIONS

Abbreviation of unit wherever occurring in the 'Standard Data Book' are as under

ATMS	ADVANCED TRAFFIC MANAGMENT SYSTEMS
BC	BITUMINOUS CONCRETE
BM	BITUMINOUS MACADAM
CP	CONTRACTOR'S PROFIT
CM	CENTIMETER
DBM	DENSE BITUMINOUS MACADAM
DIA	DIAMETER
EG	FOX EXAMPLE
ETC.	ET CETERA
FE LOADER	FRONT END LOADER
GI	GALVANISED IRON
GL	GAROUND LEVEL
GM	GRAM
HA	HECTARE
HTMS	HIGHWAY TRAFFIC MANAGEMENT SYSTEMS
HMP	HOT MIX PLANT
HR	HOUR
HYSD	HIGH YIELDING STRENGTH DEFORMED
I.E/IE	THAT IS
IRC	INDIAN ROADS CONGRESS
IS	INDIAN STANDARD
KG	KILOGRAM
KL	KILOLITER
KM	KILOMETER
KMPH	KILOMETER PER HOUR
L	LITER
L1 TO L10	LEAD IN KILOMETER
M	METER
MG	MILIGRAM
MIN	MINIMUM
MAX	MAXIMUM
MM	MILLIMETER

ABBREVIATIONS

MORT& H	MINISTRY OF ROAD TRANSPORT & HIGHWAYS
MS	MILD STEEL
MT	METRIC TONNE
NO./NR.	NUMBER
OH	OVERHEAD
OMC	OPTIMUM MOISTURE CONTENT
PCC/PC.C.	PLAIN CEMENT CONCRETE
Q.	QUINTAL
RCC/R.C.C.	REINFORCED CEMENT CONCRETE
REF. TO M	REFERENCE TO MORT&H SPECIFICATION
RM	RUNNING METER
RR	ROAD ROLLER
RS	RUPEES
SMA	STONE MATRIX ASPHALT
SL./SR. NO.	SERIAL NUMBER
SQM. KM	SQUARE KILOMETER
SQM/M2	SQUARE METER
T	TONNE
T&P	TOOLS & PLANT
T.KM	TONNE KILOMETER
TM	TRANSIT MIXTURE
TPH	TONNE PER HOUR
WBM	WATER BOUND MACADAM
WMM	WET MIX MACADAM

Note: i). The all abbreviations signify both singular as well as plural number,

ii) The all abbreviations signify both small letter as well as capital letter.

PART-A
ROAD WORKS

A-ROAD WORK

BASIC APPROACH AND GENERAL CONDITIONS FOR THE PREPARATION OF STANDARD DATA BOOK 2019

The basic approach for the preparation of standard Data Book for Road Works is indicated as under :

Description of items

1 The description of items are given briefly and linked with the relevant clauses of the MoRT&H Specification for Road and Bridge Works, which may be referred for detailed description, provisions and interpretations.

2 **Mechanical Means**

Due to intensive mechanization with higher size/capacity of machines in construction work, rate analysis for various items has been prepared using mechanical means. However, manual inputs have been enhanced for certain cases, where areas may be inaccessible for large size machines or quantum of work may not be large enough to justify use of large machines.

3 **Overhead Charges**

The overhead charges include the following elements :

i Site office & accommodation, setting up plant, access road, water supply, electricity and general site arrangements.

ii Office furniture, equipment and communications

iii Expenditure on
Corporate office of contractor
Site supervision
Documentation and "as built" drawings

iv Mobilisation/de-mobilisation of resources

v Labour camps with basic amenities and transportation to work sites

vi Light vehicles for site supervision including administrative and managerial requirements

vii Laboratory equipment and quality control including field and laboratory testing

viii Minor T&P and survey instruments and setting out works, including verification of line, diamensions, trial pits and bore holes, where required.

ix Temporary Diversion with Safety measures

x. Watch and ward

xi. Traffic management & Safety during construction

xii. Expenditure on 'safeguarding environment

xiii. Sundries

xiv Financing Expenditure

xv. Insurance/Compensation

3.1 Overhead Charges are considered depending upon the size of the projects as under :

(i) Civil Work Cost upto Rs. 200 crores	12 percent
(ii) Civil Works Cost > 200 crores and ≤ 500 crores	10 percent
(iii) Civil Works Cost> 500 crores	08 percent

Civil works cost is excluding GST.

4 Contractor Profit : 10 percent of cost of works

Contractor profit is added on total cost i.e. after adding overhead charges.

5 Basic Inputs

Basic inputs are only given in the standard data book. The rates for material and labour have to be updated by concerned State/UT govt. officials like E-in-C, CE (NH), State PWDs.

6 Plants and Equipment

6.1 A dozer is proposed for excavation where cutting and filling for the roadway is within 100m. For longer leads, a combination of hydraulic excavator and tipper is proposed.

6.2 Keeping in view, the managerial factor and the age factor of machines as per their utilization in various project sizes, the output of plant & equipment has been considered, however the output of plants is considered approximately 75 percent of the rated capacity given by manufacturer under ideal conditions.

6.3 The water tanker speed @20 km/hr, return speed @ 30 km/hr. spreading speed @ 2.5 km/hr. in soil & 3.00 km/hr. in granular material is considered for analysis. Water charges have not been included for item where the requirement is very nominal. It is assumed that the same would be covered under sundries.

6.4 Output of plant/equipment is considered for the compacted quantities.

6.5 The usage charge for machines include ownership charge which includes depreciation, interest charge, insurance, road tax, cost of repair and maintenance including replacement of Tyres and running and operation charges which includes crew, fuel and lubricants.

7 Materials

7.1 Quantities of material considered in the rate analysis are approximate for the purpose of estimation and includes normal wastage. Actual consumption would have to be based on mix design.

7.2 The rates of material should include basis cost (including royalty) at locations of quarry/stone crushers, loading, unloading, cost of carriage and stacking at plant/sites as the case may be.

7.3 The alternative proposal for crushing own aggregate by installing crusher should be compared with procurement of crushed aggregates from the market and proposal found economical maybe adopted.

7.4 The specifications of materials shall be governed by section 1000 of MORT&H Specifications for Road and Bridge Works.

7.5 Material rates are excluding GST.

8 Labour

8.1 The labour wages should be as per rates fixed by state government.

8.2 One mate has been provided for 25 labours.

8.3 Highly Skilled labour include mason (1st class), carpenter, Blacksmith (1st class)/Welder/Plumber/Electricin, (1st class), mechanics and other trades.

9 Carriage of Materials

9.1 The unit for carriage has been taken as under :

a) In hours where lead is defined including time required for loading and unloading.

b) In tonne Km where lead is variable. The loading and Unloading for such cases have been provided separately.

9.2 Where the quantity of material to be transported is small such as dismantled material, which requires being loaded manually, provision of tractor-trolley has been made instead of tipper.

10 General :

10.1 The clause numbers refer to MoRT&H Specifications for Road and Bridge works.

10.2 Assumptions made have been indicated in respective chapters in the form of notes, where required.

10.3 Sundries to cater for unforeseen contingency and miscellaneous items have been added in the overhead charges.

10.4 Arrangement for traffic during construction shall be as per Clause 112 of MoRT&H Specifications for Road and Bridge Works.

10.5 The supply of materials will be taken either at the location of mixing plant or at the work site as the case may be.

10.6 Contractor will make his own arrangements for borrowing earth. However, compensation for earth taken from private land has been included in the rate analysis for construction of embankment with borrowed earth.

10.7 The requirement of machinery has been worked out assuming effective working period of 6 hour per shift of 8 hours.

10.8 **Credit for Dismantled Material**

The dismantled materials should be examined and a realistic assessment made for the credit to such materials, which can be utilized for works or auctioned.

10.09 In rate analysis of some items, the quantities of sub-items involved in that analyses like excavation for foundation, foundation concrete, painting, lettering etc. have been given. The rates for such items may be taken from relevant chapters where the same have already been analyzed.

10.10 The source of material and samples are required to be approved by the Engineer before start of any work.

10.11 The rates of items include cost of testing of soil, materials and works.

10.12 The use of surface by construction vehicles shall be governed by Clause 119 of MoRT&H Specifications.

10.13 The Contractor shall arrange to provide and maintain an adequate equipped field laboratory as per Clause 120.

10.14 Quality Control of works shall be governed by Section 900 of MoRT&H Specifications.

CHAPTER - 01

CARRIAGE OF MATERIALS

CHAPTER-1

CARRIAGE OF MATERIALS

PREAMBLES :

1 Analysis for loading has been done both for manual and mechanical means for adoption as per actual situations.

2 The provision of tipper has been made in hours where lead is known (like disposal of the materials upto 1 km). In case where lead is variable like carriage of hot mix or concrete mix from plants or earth from borrows areas, provision has been made in terms of tone-kilometer (tonne-km), which can be adopted as per actual conditions.

3 The cost of carriage will vary depending upon riding surface of the road. Provision has accordingly been made considering suface road, unsurfaced gravelled road and kutcha track.

(i) The speed of loaded vehicle on black top surface road is considered as 25 kmph and empty vehicle is considered as 35 kmph.

(ii) The speed of loaded vehicle on gravelled surface road is considered as 20 kmph and empty vehicle speed is considered as 30 kmph.

(iii) The speed of loaded vehicle on kutcha road is considered as 10 kmph and empty vehicle speed is considered as 15 kmph and in hilly area speed of loaded vehicle on kutcha road is considered as 5 kmph and empty vehicle speed is considered as 7 kmph.

(iv) The speed of loaded Transit Mixture is considered as 20 kmph and empty Transit Mixture speed is considered as 30 kmph.

4 Provision has been made for a tractor trolley instead of tipper where dismantled material or material having more volume as compared with weight are required to be transported. This arrangement is more economical.

5 Where loading is done by mechanical plant like HMP or batching plant and there is automatic loading in tippers, provision of loading and un-loading time has been taken by the tipper for getting loaded at the plant and un-loading in the paver or otherwise at site

6 Aggregate shall be crushed at contractor's own crushing plant.

CHAPTER -1

Summary of Rate Analysis

CARRIAGE OF MATERIALS

Sl.No	Ref.to M	Description	Unit	Rate as per Project Category(₹)		
				Large	Medium	Small
1.01	A	**Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum. (Tipper-5.5cum capacity)** Placing tipper at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip	cum	143.70	146.30	149.00
1.01	B	**Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum. (Tipper-10.00 cum capacity)** Placing tipper at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip	cum	126.40	128.70	131.00
1.01	C.	**Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum. (Tipper-14.00 cum capacity)** Placing tipper at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip	cum	89.70	91.40	93.00
1.01	D	**Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum. (Tipper-18.00 cum capacity)** Placing tipper at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip	cum	90.30	92.00	93.60
1.02	Ref.to M.	**Loading and Unloading of Boulders by Manual Means . (Tipper-10 cum capacity.)**	cum	378.70	385.70	392.70
1.03	Ref.to M.	**Loading and Unloading of Cement or Steel by Manual Means and Stacking.(Truck- 18 Tonne capacity.)**	tonne	555.20	565.50	575.80
1.04	(i) A	**Cost of Haulage Excluding Loading and Unloading**				
		(i)A Case I:Surfaced Road				
		Haulage of materials by tipper (10 tonne capacity) excluding cost of loading, unloading and stacking.	t.km.	12.00	12.30	12.50
	B	**(i) Case I:Surfaced Road**				
		Haulage of materials by tipper (18 tonne capacity) excluding cost of loading, unloading and stacking.	t.km.	8.60	8.70	8.90
	C	**Case-I : Surfaced Road .**				
		Haulage of materials by tipper (25 tonne capacity) excluding cost of loading, unloading and stacking.	t.km	6.90	7.00	7.10
	D	**Case-I : Surfaced Road .**				
		Haulage of materials by tipper (32 tonne capacity) excluding cost of loading, unloading and stacking.	t.km	6.00	6.10	6.20

CHAPTER -1

Summary of Rate Analysis

CARRIAGE OF MATERIALS

Sl.No	Ref.to M	Description	Unit	Rate as per Project Category(₹)		
				Large	Medium	Small
1.04	**(ii) A**	**.Case-II : Unsurfaced Gravelled Road .**				
		Haulage of materials by tipper(10 tonne capacity) excluding cost of loading, unloading and stacking.	t.km.	14.60	14.90	15.10
1.04	**(ii) B**	**Case-II : Unsurfaced Gravelled Road .**				
		Haulage of materials by tipper (18 tonne capacity) excluding cost of loading, unloading and stacking.	t.km.	10.40	10.60	10.80
1.04	**(ii) C**	Case-II : Unsurfaced Gravelled Road .				
		Haulage of materials by tipper (25 tonne capacity) excluding cost of loading, unloading and stacking.	t.km.	8.30	8.50	8.70
1.04	**(ii) D**	**Case-II : Unsurfaced Gravelled Road.**				
		Haulage of materials by tipper(32 tonne capacity) excluding cost of loading, unloading and stacking.	t.km.	7.30	7.40	7.50
1.04	**(iii) A**	**Case-III : Katcha Track and Track in river bed / nallah bed and choe bed.**				
		Haulage of materials by tipper(10 tonne capacity) excluding cost of loading, unloading and stacking.	t.km.	29.20	29.80	30.30
1.04	**(iii) B**	**.Case-III : Katcha Track and Track in river bed / nallah bed and choe bed.**				
		Haulage of materials by tipper (18 tonne capacity) excluding cost of loading, unloading and stacking.	t.km.	20.80	21.20	21.60
1.04	**(iii) C**	**Case-III : Katcha Track and Track in river bed / nallah bed and choe bed.**				
		Haulage of materials by tipper(25 tonne capacity) excluding cost of loading, unloading and stacking.	t.km.	16.70	17.00	17.30
1.04	**(iii) D**	**Case-III : Katcha Track and Track in river bed / nallah bed and choe bed.**				
		Haulage of materials by tipper(32 tonne capacity) excluding cost of loading, unloading and stacking.	t.km.	14.50	14.80	15.10
1.04	**(iv)**	**Case-IV : Katcha Track in hilly area.**				
		Haulage of materials by tipper (10 tonne capacity) excluding cost of loading, unloading and stacking.	t.km.	60.10	61.20	62.40
1.04	**(v)**	**Case-V : Transit Mixture**				
		Haulage of Concrete by Transit mixture (6 cum capacity) excluding cost of loading, unloading and stacking.	t.km.	13.10	13.40	13.60
1.05		**Hand Broken Stone Aggregates 63 mm nominal size**				
		Supply of quarried stone, hand breaking into coarse aggregate 63 mm nominal size (passing 80 mm and retained on 50 mm sieve) and stacking as directed	cum	1748.30	1780.70	1813.10
1.06		**Crushing of stone aggregates (Nominal size)**				

CHAPTER -1

Summary of Rate Analysis

CARRIAGE OF MATERIALS

Sl.No	Ref.to M	Description	Unit	Rate as per Project Category(₹)		
				Large	Medium	Small
		Crushing of stone boulders of 150 mm size in an integrated stone crushing unit of 250 tonnes per hour capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain stone aggregates of different nominal size.				
	(i)	**1. Crushing Pattern 40 mm (tonne)- Cost Distribution 28.98 %**	cum	1454.00	1480.90	1507.90
	(ii)	**Crushing of stone aggregates (Nominal size)**				
		2. Crushing Pattern 20 mm (tonne)- Cost Distribution 31.95 %	cum	1582.80	1612.10	1641.40
	(iii)	**Crushing of stone aggregates (Nominal size)**				
		3. Crushing Pattern 10 mm (tonne)- Cost Distribution 30.75 %	cum	1354.90	1380.00	1405.10
	(iv)	**Crushing of stone aggregates (Nominal size)**				
		4. Crushing Pattern dust (tonne)- Cost Distribution 08.32 %	cum	333.50	339.60	345.80
1.07		**Crushing of stone aggregates (GSB Crusher Run)**				
		Crushing of stone boulders of 150 mm size in an integrated stone crushing unit of 250 tonnes per hour capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain crusher run (all in aggregate) for GSB.	cum	909.70	926.60	943.40
Note:		**Considering Crushed volume will be 1.2 times the volume of boulder.**				

Note:-1. **For local transportation , carriage rate will be given as per provision of different Capacity of vehicle in Large/Medium/Small Projects in rate analysis of particular item of any Chapter.**

Note:-2. **Except Note 1, for transportation/carriage of Stone Aggregate/Stone Boulder/Moorum/Bitumen/Steel/Cement and Other Construction Materials,Loading-Unloading charges&Haulage charges will be allowed by 18 Cum Capacity tipper(18 tonne Capacity Truck in case of loading-unloading of Cement /Steel / Bitumen by manual means) and 32 tonne Capacity tipper respectively only for all types of Projects(Large/Medium/Small) except in cases / circumstances where any limitation/restriction regarding capacity of Vehicle has been imposed by competent Authority(District/State). Incase of restriction, rate of allowed capacity of vehicle will be given.**

Note:-3. **In case of Loading &Unloading of Boulders by Manual means, loading-unloading charges will be allowed by 10Cum Capacity tipper.**

Note:-4. **Carriage of material will be done by shortest rout.**

Note:-5. **Rates of item nos 1.06 will be taken as per approved rate of respective items in schedule M/MORT&H-1**

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Analysis of Rates

CARRIAGE OF MATERIALS

Sl.No	Ref. to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
1.01	A	Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum.									
		Placing tipper at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip									
		Unit = cum									
		A.Taking output = 5.5 Cum									
		Time required for									
		i) Positioning of tipper at loading point	Min	1.000	1.000	1.000					
		ii) Loading by front end loader 1 cum bucket capacity	Min	6.633	6.633	6.633					
		iii) Maneuvering, reversing, dumping and turning for return	Min	2.000	2.000	2.000					
		iv) Waiting time, unforeseen contingencies etc	Min	4.000	4.000	4.000					
		Total	Min	13.633	13.633	13.633					
		a) Machinery									
		Tipper-5.5 Cum capacity	Hour	0.227	0.227	0.227	1,476.00	335.052	335.052	335.052	PM6004
		Front end -loader 1 cum bucket capacity	Hour	0.227	0.227	0.227	1,454.00	330.058	330.058	330.058	PM5003
		Total Cost Excluding OH & CP						665.110	665.110	665.110	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		53.209	66.511	79.813	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		71.832	73.162	74.492	
		Total Cost for 5.5 cum = (a+b+c) Including OH & CP						790.151	804.783	819.416	
		Unit Cost= (a+b+c)/5.5 Including OH & CP						143.664	146.324	148.985	
	Note :	**Unloading will be by tipping.**					**Say**	**143.700**	**146.300**	**149.000**	
1.01	B	**Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum.**									
		Placing tipper at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip									
		Unit = cum									
		Taking Output = 10.00 cum									
		Time required for									
		i) Positioning of tipper at loading point	Min	1.000	1.000	1.000					
		ii) Loading by front end loader 1 cum bucket capacity	Min	12.060	12.060	12.060					
		iii) Maneuvering, reversing, dumping and turning for return	Min	2.000	2.000	2.000					

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Analysis of Rates

CARRIAGE OF MATERIALS

Sl.No	Ref. to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		iv) Waiting time, unforeseen contingencies etc	Min	4.000	4.000	4.000					
		Total	Min	19.060	19.060	19.060					
		a) Machinery									
		Tipper-10 Cum capacity	Hour	0.318	0.318	0.318	1,891.00	601.338	601.338	601.338	PM6003
		Front end-loder 1 cum bucket capacity	Hour	0.318	0.318	0.318	1,454.00	462.372	462.372	462.372	PM5003
		Total Cost Excluding OH & CP						1063.710	1063.710	1063.710	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		85.097	106.371	127.645	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		114.881	117.008	119.136	
		Total Cost for 10 cum = (a+b+c)Including OH & CP						1263.687	1287.089	1310.491	
		Unit Cost= (a+b+c)/10 Including OH & CP						126.369	128.709	131.049	
	Note :	**Unloading will be by tipping.**					**Say**	**126.400**	**128.700**	**131.000**	
1.01	**C.**	**Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum.**									
		Placing tipper at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip									
		Unit = cum									
		Taking Output = 14.00 cum									
		Time required for									
		i) Positioning of tipper at loading point	Min	1.000	1.000	1.000					
		ii) Loading by front end loader 2.1 cum bucket capacity	Min	8.029	8.029	8.029					
		iii) Maneuvering, reversing, dumping and turning for return	Min	2.000	2.000	2.000					
		iv) Waiting time, unforeseen contingencies etc	Min	4.000	4.000	4.000					
		Total	Min	15.029	15.029	15.029					
		a) Machinery									
		Tipper-14 Cum capacity	Hour	0.250	0.250	0.250	2108.00	527.000	527.000	527.000	PM6002
		Front End loader 2.1 cum bucket capacity	Hour	0.250	0.250	0.250	2121.00	530.250	530.250	530.250	PM5002
		Total Cost Excluding OH & CP						1057.250	1057.250	1057.250	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		84.580	105.725	126.870	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		114.183	116.298	118.412	
		Total Cost for 14 cum = (a+b+c)Including OH & CP						1256.013	1279.273	1302.532	
		Unit Cost= (a+b+c)/14 Including OH & CP						89.715	91.377	93.038	
	Note :	**Unloading will be by tipping.**					**Say**	**89.700**	**91.400**	**93.000**	

CHAPTER-1

Analysis of Rates

CARRIAGE OF MATERIALS

Sl.No	Ref. to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
1.01	**D**	**Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum.**									
		Placing tipper at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip									
		Unit = cum									
		Taking Output = 18.00 cum									
		Time required for									
		i) Positioning of tipper at loading point	Min	1.000	1.000	1.000					
		ii) Loading by front end loader 3.1 cum bucket capacity	Min	6.996	6.996	6.996					
		iii) Maneuvering, reversing, dumping and turning for return	Min	2.000	2.000	2.000					
		iv) Waiting time, unforeseen contingencies etc	Min	4.000	4.000	4.000					
		Total	Min	13.996	13.996	13.996					
		a) Machinery									
		Tipper-18 Cum capacity.	Hour	0.233	0.233	0.233	2,349.0	547.317	547.317	547.317	PM6001
		Front End loader 3.1 cum bucket capacity	Hour	0.233	0.233	0.233	3,523.0	820.859	820.859	820.859	PM5001
		Total Cost Excluding OH & CP						1,368.176	1,368.176	1,368.176	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		109.454	136.818	164.181	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		147.763	150.499	153.236	
		Total Cost for 18 cum = (a+b+c)Including OH & CP						1,625.393	1,655.493	1,685.593	
		Unit Cost= (a+b+c)/18 Including OH & CP						90.300	91.972	93.644	
	Note :	**Unloading will be by tipping.**					**Say**	**90.300**	**92.000**	**93.600**	
1.02	**Ref.to M.**	**Loading and Unloading of Boulders by Manual Means**									
		Unit = cum									
		Taking output = 10 Cum									
		a) Labour									
		Mate / Supervisor	day	0.055	0.055	0.055	444.00	24.420	24.420	24.420	L-12
		Mazdoor for loading and unloading.	day	1.364	1.364	1.364	428.00	583.792	583.792	583.792	L-13
		b) Machinery									
		Tipper-10 Cum capacity	Hour	1.364	1.364	1.364	1,891.00	2579.324	2579.324	2579.324	PM6003
		Total Cost Excluding OH & CP						3187.536	3187.536	3187.536	
		c) Overheads on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		255.003	318.754	382.504	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		344.254	350.629	357.004	

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Analysis of Rates

CARRIAGE OF MATERIALS

Sl.No	Ref. to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		Total Cost for10 cum=(a+b+c+d)Including OH & CP						3786.793	3856.919	3927.044	
		Unit Cost=(a+b+c+d)/10 Including OH & CP						378.679	385.692	392.704	
	Note :	**Unloading will be by tipping.**					**Say**	**378.700**	**385.700**	**392.700**	
1.03	**Ref.to M.**	**Loading and Unloading of Cement or Steel by Manual Means and Stacking.**									
		Unit = tonne									
		Taking Output = 18.00 tonne									
		a) Labour									
		Mate	day	0.144	0.144	0.144	444.00	63.936	63.936	63.936	L-12
		Mazdoor	day	3.600	3.600	3.600	428.00	1540.800	1540.800	1540.800	L-13
		b) Machinery									
		Truck-18 tonne capacity.	Hour	3.600	3.600	3.600	1891.00	6807.600	6807.600	6807.600	PM6003
		Total Cost Excluding OH & CP						8412.336	8412.336	8412.336	
		c) Overheads on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		672.987	841.234	1009.480	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		908.532	925.357	942.182	
		Total Cost for 18 tonnes=(a+b+c+d)Including OH & CP						9993.855	10178.927	10363.998	
		Unit Cost=(a+b+c+d)/18 Including OH & CP						555.214	565.496	575.778	
							Say	**555.200**	**565.500**	**575.800**	
1.04	**(i) A**	**Cost of Haulage Excluding Loading and Unloading**									
		i) A.Case-I : Surfaced Road.									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output 10 tonnes load and lead 10 km=100. t.km									
		Speed with load : 25 km / hour.									
		Speed while Returning empty : 35 km / hour.									
		a) Machinery									
		i) Tipper 10 tonnes capacity.									
		Time taken for onward haulage with load.	Hour	0.400	0.400	0.400	1,476.0	590.400	590.400	590.400	PM6004
		Time taken for empty return trip.	Hour	0.286	0.286	0.286	1,476.0	422.136	422.136	422.136	PM6004
		Total Cost Excluding OH & CP						1,012.536	1,012.536	1,012.536	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		81.003	101.254	121.504	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		109.354	111.379	113.404	

CARRIAGE OF MATERIALS

Sl.No	Ref. to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		Total Cost for100 t.km = (a+b+c)Including OH & CP						1,202.893	1,225.169	1,247.444	
		Rate per t.km= (a+b+c)/100 Including OH & CP						12.029	12.252	12.474	
							Say	**12.000**	**12.300**	**12.500**	
1.04	**(i) B**	**Cost of Haulage Excluding Loading and Unloading**									
		i) Case-I : Surfaced Road .									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output =18tonnes load and lead10 km=180. t.km									
		Speed with load : 25 km / hour.									
		Speed while Returning empty : 35 km / hour.									
		a) Machinery									
		i) Tipper 18 tonne capacity.									
		Time taken for onward haulage with load.	Hour	0.400	0.400	0.400	1891.00	756.400	756.400	756.400	PM6003
		Time taken for empty return trip.	Hour	0.286	0.286	0.286	1891.00	540.826	540.826	540.826	PM6003
		Total Cost Excluding OH & CP						1297.226	1297.226	1297.226	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		103.778	129.723	155.667	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		140.100	142.695	145.289	
		Total Cost for180 t.km = (a+b+c)Including OH & CP						1541.104	1569.643	1598.182	
		Rate per t.km= (a+b+c)/180 Including OH & CP						8.562	8.720	8.879	
							Say	**8.600**	**8.700**	**8.900**	
1.04	**(i) C**	**Case-I : Surfaced Road .**									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output = 25 tonne load and lead 10km=250.t.km									
		Speed with load : 25 km / hour.									
		Speed while Returning empty : 35 km / hour.									
		a) Machinery									
		i) Tipper 25 tonnes capacity									
		Time taken for onward haulage with load.	Hour	0.400	0.400	0.400	2108.00	843.200	843.200	843.200	PM6002
		Time taken for empty return trip.	Hour	0.286	0.286	0.286	2108.00	602.888	602.888	602.888	PM6002
		Total Cost Excluding OH & CP						1446.088	1446.088	1446.088	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		115.687	144.609	173.531	

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Analysis of Rates

CARRIAGE OF MATERIALS

Sl.No	Ref. to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		156.178	159.070	161.962	
		Total Cost for250 t.km = (a+b+c)Including OH & CP						1717.953	1749.766	1781.580	
		Rate per t.km= (a+b+c)/250 Including OH & CP						6.872	6.999	7.126	
							Say	**6.900**	**7.000**	**7.100**	
1.04	**(i) D**	**Case-I : Surfaced Road .**									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output =32tonnes load and lead10km= 320. t.km									
		Speed with load : 25 km / hour.									
		Speed while Returning empty : 35 km / hour.									
		a) Machinery									
		i) Tipper 32 tonne capacity									
		Time taken for onward haulage with load.	Hour	0.400	0.400	0.400	2349.00	939.600	939.600	939.600	PM6001
		Time taken for empty return trip.	Hour	0.286	0.286	0.286	2349.00	671.814	671.814	671.814	PM6001
		Total Cost Excluding OH & CP						1611.414	1611.414	1611.414	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		128.913	161.141	193.370	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		174.033	177.256	180.478	
		Total Cost for320 t.km = (a+b+c)Including OH & CP						1914.360	1949.811	1985.262	
		Rate per t.km= (a+b+c)/320 Including OH & CP						5.982	6.093	6.204	
							Say	**6.000**	**6.100**	**6.200**	
1.04	**(ii) A**	**.Case-II : Unsurfaced Gravelled Road .**									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output 10 tonnes load & lead 10 km= 100 t.km									
		Speed with load: 20 km/hour									
		Speed for empty return trip : 30 km / hour									
		a) Machinery									
		Tipper 10 tonnes capacity									
		Time taken for onward haulage with load	Hour	0.500	0.500	0.500	1476.00	738.000	738.000	738.000	PM6004
		Time taken for empty return trip.	Hour	0.333	0.333	0.333	1476.00	491.508	491.508	491.508	PM6004
		Total Cost Excluding OH & CP						1229.508	1229.508	1229.508	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		98.361	122.951	147.541	

CARRIAGE OF MATERIALS

Sl.No	Ref. to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		132.787	135.246	137.705	
		Total Cost for100 t.km = (a+b+c)Including OH & CP						1460.656	1487.705	1514.754	
		Rate per t.km= (a+b+c)/100 Including OH & CP						14.607	14.877	15.148	
							Say	**14.600**	**14.900**	**15.100**	
1.04	**(ii) B**	**Case-II : Unsurfaced Gravelled Road .**									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output 18 tonnes load & lead10 km=180.t.km									
		Speed with load : 20 km / hour									
		Speed for empty return trip : 30 km / hour									
		a) Machinery									
		Tipper 18 tonnes capacity									
		Time taken for onward haulage with load.	Hour	0.500	0.500	0.500	1891.00	945.500	945.500	945.500	PM6003
		Time taken for empty return trip.	Hour	0.333	0.333	0.333	1891.00	629.703	629.703	629.703	PM6003
		Total Cost Excluding OH & CP						1575.203	1575.203	1575.203	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		126.016	157.520	189.024	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		170.122	173.272	176.423	
		Total Cost for180 t.km = (a+b+c)Including OH & CP						1871.341	1905.996	1940.650	
		Rate per t.km= (a+b+c)/180 Including OH & CP						10.396	10.589	10.781	
							Say	**10.400**	**10.600**	**10.800**	
1.04	**(ii) C**	Case-II : Unsurfaced Gravelled Road .									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output 25 tonnes load & lead10 km =250. t.km									
		Speed with load : 20 km / hour									
		Speed for empty return trip : 30 km / hour									
		a) Machinery									
		Tipper 25 tonnes capacity.									
		Time taken for onward haulage with load	Hour	0.500	0.500	0.500	2108.00	1054.000	1054.000	1054.000	PM6002
		Time taken for empty return trip.	Hour	0.333	0.333	0.333	2108.00	701.964	701.964	701.964	PM6002
		Total Cost Excluding OH & CP						1755.964	1755.964	1755.964	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		140.477	175.596	210.716	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		189.644	193.156	196.668	
		Total Cost for250 t.km = (a+b+c)Including OH & CP						2086.085	2124.716	2163.348	

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Sl.No	Ref. to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		Rate per t.km= (a+b+c)/250 Including OH & CP						8.344	8.499	8.653	
							Say	**8.300**	**8.500**	**8.700**	
1.04	**(ii) D**	**Case-II : Unsurfaced Gravelled Road.**									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output 32tonnes load & lead 10 km= 320. t.km									
		Speed with load : 20 km / hour									
		Speed for empty return trip : 30 km / hour									
		a) Machinery									
		i) Tipper 32 tonnes capacity									
		Time taken for onward haulage with load	Hour	0.500	0.500	0.500	2349.00	1174.500	1174.500	1174.500	PM6001
		Time taken for empty return trip.	Hour	0.333	0.333	0.333	2349.00	782.217	782.217	782.217	PM6001
		Total Cost Excluding OH & CP						1956.717	1956.717	1956.717	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		156.537	195.672	234.806	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		211.325	215.239	219.152	
		Total Cost for320 t.km = (a+b+c)Including OH & CP						2324.580	2367.628	2410.675	
		Rate per t.km= (a+b+c)/320 Including OH & CP						7.264	7.399	7.533	
							Say	**7.300**	**7.400**	**7.500**	
1.04	**(iii) A**	Case-III : Katcha Track and Track in river bed / nallah bed and choe bed.									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output 10 tonnes load & lead 10km= 100 t.km									
		Speed with load: 10 km / hour									
		Speed while returning empty: 15 km / hour									
		a) Machinery									
		i) Tipper 10 tonnes capacity.									
		Time taken for onward haulage	Hour	1.000	1.000	1.000	1476.00	1476.000	1476.000	1476.000	PM6004
		Time taken for empty return trip.	Hour	0.667	0.667	0.667	1476.00	984.492	984.492	984.492	PM6004
		Total Cost Excluding OH & CP						2460.492	2460.492	2460.492	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		196.839	246.049	295.259	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		265.733	270.654	275.575	
		Total Cost for100 t.km = (a+b+c)Including OH & CP						2923.064	2977.195	3031.326	

CARRIAGE OF MATERIALS

Sl.No	Ref. to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		Rate per t.km= (a+b+c)/100 Including OH & CP						29.231	29.772	30.313	
							Say	**29.200**	**29.800**	**30.300**	
1.04	**(iii) B**	.Case-III : Katcha Track and Track in river bed / nallah bed and choe bed.									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output18 tonnes load &lead10km=180.00 t.km									
		Speed with load: 10 km / hour									
		Speed while returning empty: 15 km / hour									
		a) Machinery									
		Tipper 18 tonnes capacity									
		Time taken for onward haulage	Hour	1.000	1.000	1.000	1891.00	1891.000	1891.000	1891.000	PM6003
		Time taken for empty return trip.	Hour	0.667	0.667	0.667	1891.00	1261.297	1261.297	1261.297	PM6003
		Total Cost Excluding OH & CP						3152.297	3152.297	3152.297	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		252.184	315.230	378.276	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		340.448	346.753	353.057	
		Total Cost for180 t.km = (a+b+c)Including OH & CP						3744.929	3814.279	3883.630	
		Rate per t.km= (a+b+c)/180 Including OH & CP						20.805	21.190	21.576	
							Say	**20.800**	**21.200**	**21.600**	
1.04	**(iii) C**	Case-III : Katcha Track and Track in river bed / nallah bed and choe bed.									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output25Tonnes load &lead10 km=250.t.km									
		Speed with load: 10 km / hour									
		Speed while returning empty: 15 km / hour									
		a) Machinery									
		i) Tipper 25 tonnes capacity									
		Time taken for onward haulage	Hour	1.000	1.000	1.000	2108.00	2108.000	2108.000	2108.000	PM6002
		Time taken for empty return trip.	Hour	0.667	0.667	0.667	2108.00	1406.036	1406.036	1406.036	PM6002
		Total Cost Excluding OH & CP						3514.036	3514.036	3514.036	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		281.123	351.404	421.684	

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Sl.No	Ref. to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		379.516	386.544	393.572	
		Total Cost for250 t.km = (a+b+c)Including OH & CP						4174.675	4251.984	4329.292	
		Rate per t.km= (a+b+c)/250 Including OH & CP						16.699	17.008	17.317	
							Say	**16.700**	**17.000**	**17.300**	
1.04	**(iii) D**	Case-III : Katcha Track and Track in river bed / nallah bed and choe bed.									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output32 tonnes load &lead 10 km= 320. t.km									
		Speed with load: 10 km / hour									
		Speed while returning empty: 15 km / hour									
		a) Machinery									
		i) Tipper 32 tonnes capacity									
		Time taken for onward haulage	Hour	1.000	1.000	1.000	2349.00	2349.000	2349.000	2349.000	PM6001
		Time taken for empty return trip	Hour	0.667	0.667	0.667	2349.00	1566.783	1566.783	1566.783	PM6001
		Total Cost Excluding OH & CP						3915.783	3915.783	3915.783	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		313.263	391.578	469.894	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		422.905	430.736	438.568	
		Total Cost for320 t.km = (a+b+c)Including OH & CP						4651.950	4738.097	4824.245	
		Rate per t.km= (a+b+c)/320 Including OH & CP						14.537	14.807	15.076	
							Say	**14.500**	**14.800**	**15.100**	
1.04	**(iv)**	**Case-IV : Katcha Track in hilly area.**									
		Haulage of materials by tipper excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output 10 tonnes load & lead 10km= 100. t.km									
		Speed with load: 5 km / hour									
		Speed while returning empty: 7 km / hour									
		a) Machinery									
		i) Tipper 10 tonnes capacity.									
		Time taken for onward haulage	Hour	2.000	2.000	2.000	1476.00	2952.000	2952.000	2952.000	PM6004
		Time taken for empty return trip.	Hour	1.429	1.429	1.429	1476.00	2109.204	2109.204	2109.204	PM6004
		Total Cost Excluding OH & CP						5061.204	5061.204	5061.204	

Sl.No	Ref. to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		404.896	506.120	607.344	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		546.610	556.732	566.855	
		Total Cost for100 t.km = (a+b+c)Including OH & CP						6012.710	6124.057	6235.403	
		Rate per t.km= (a+b+c)/100 Including OH & CP						60.127	61.241	62.354	
							Say	**60.100**	**61.200**	**62.400**	
1.04	**(v)**	**Case-V : Transit Mixture**									
		Haulage of Concrete by Transit mixture excluding cost of loading, unloading and stacking.									
		Unit = t.km									
		Taking Output 15Tonnes load & lead 10km= 150 t.km									
		Speed with load : 20 km / hour									
		Speed while returning empty: 30 km / hour									
		a) Machinery									
		i) Transit Mixture 6 cum capacity.									
		Time taken for onward haulage with load	Hour	0.500	0.500	0.500	1992.00	996.000	996.000	996.000	PM34001
		Time taken for empty return trip.	Hour	0.333	0.333	0.333	1992.00	663.336	663.336	663.336	PM34001
		Total Cost Excluding OH & CP						1659.336	1659.336	1659.336	
		b) Overheads on (a)		(@ 8%)	(@ 10%)	(@ 12%)		132.747	165.934	199.120	
		c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		179.208	182.527	185.846	
		Total Cost for150 t.km = (a+b+c)Including OH & CP						1971.291	2007.797	2044.302	
		Rate per t.km= (a+b+c)/150 Including OH & CP						13.142	13.385	13.629	
							Say	**13.100**	**13.400**	**13.600**	
1.05		**Hand Broken Stone Aggregates 63 mm nominal size**									
		Supply of quarried stone, hand breaking into coarse aggregate 63 mm nominal size (passing 80 mm and retained on 50 mm sieve) and stacking as directed									
		Unit = cum									
		Taking Output = 1.00 cum									
		a) Labour									
		Mate	day	0.0600	0.0600	0.0600	444.00	26.640	26.640	26.640	L-12
		Mazdoor	day	1.500	1.500	1.500	428.00	642.000	642.000	642.000	L-13
		b) Material									
		Supply of quarried stone 150 - 200 mm size	cum	1.1000	1.1000	1.1000	730.02	803.022	803.022	803.022	M-002
		Total Cost Excluding OH & CP						1471.662	1471.662	1471.662	
		c) Overheads on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		117.733	147.166	176.599	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		158.939	161.883	164.826	

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Sl.No	Ref. to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		Total Cost for1cum = (a+b+c+d)Including OH & CP						1748.334	1780.711	1813.088	
		Rate per cum= (a+b+c+d) Including OH & CP						1748.334	1780.711	1813.088	
							Say	**1748.300**	**1780.700**	**1813.100**	
1.06		**Crushing of stone aggregates (Nominal size)**									
		Crushing of stone boulders of 150 mm size in an integrated stone crushing unit of 250 tonnes per hour capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain stone aggregates of different nominal size.									
	(i)	**1.Crushing Pattern 40 mm (tonne)- Cost Distribution 28.98 %**									
		Unit = cum									
		Taking Output = 750.00 cum									
		a) Labour									
		Mate	day	0.320	0.320	0.320	444.00	142.080	142.080	142.080	L-12
		Mazdoor(Skilled)	day	2.000	2.000	2.000	541.00	1082.000	1082.000	1082.000	L-15
		Mazdoor	day	6.000	6.000	6.000	428.00	2568.000	2568.000	2568.000	L-13
		b) Material									
		Stone Boulder of size 150 mm and below .	cum	750.000	750.000	750.000	730.02	547515.000	547515.000	547515.000	M-001
		c) Machinery									
		Integrated stone crusher of 250 TPH including belt conveyor and vibrating screens	Hour	6.000	6.000	6.000	13961.00	83766.000	83766.000	83766.000	PM16001
		Generator 725 KV A	Hour	6.000	6.000	6.000	7798.00	46788.000	46788.000	46788.000	PM22001
		Front end loader 3.1 cum bucket capacity at quarry and crusher	Hour	5.515	5.515	5.515	3523.00	19429.345	19429.345	19429.345	PM5001
		Tipper 14 cum capacity for loading at quarry site	Hour	5.515	5.515	5.515	2108.00	11625.620	11625.620	11625.620	PM6002
		Tipper 14 cum capacity for transportation within 1 km	t.km	1,125.00	1,125.00	1,125.00	5.71	6423.750	6423.750	6423.750	PM73001
		d) Total Cost for 750 cum(a+b+c) (Excluding OH & CP)						719339.795	719339.795	719339.795	
		e) Crushing pattern 40mm(tonne)	tonne	22.71%	22.71%	22.71%	255.488				750*1.5*0.2271
		f) % Cost distribution={(d)x(f)/e)x1.5}	cum	28.98%	28.98%	28.98%	0.2898	1223.921	1223.921	1223.921	
		g) Overheads on (f)		(@ 8%)	(@ 10%)	(@ 12%)		97.914	122.392	146.870	
		h) Contractor's profit on (f+g)		(@ 10%)	(@ 10%)	(@ 10%)		132.183	134.631	137.079	
		i) Total Cost for1cum = (f+g+h) Including OH & CP						1454.018	1480.944	1507.870	
		Rate per cum= (f+g+h) Including OH & CP						1454.018	1480.944	1507.870	

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Sl.No	Ref. to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
							Say	**1454.000**	**1480.900**	**1507.900**	
	(ii)	**Crushing of stone aggregates (Nominal size)**									
		2.Crushing Pattern 20 mm (tonne)- Cost Distribution 31.95 %									
		d) Total Cost for 750 cum(Excluding OH & CP)						719339.795	719339.795	719339.795	
		e) Crushing pattern 20mm(tonne)	tonne	23.00%	23.00%	23.00%	258.750				
		f) % Cost distribution={(d)x(f)/e)x1.5}	cum	31.95%	31.95%	31.95%	0.3195	1332.342	1332.342	1332.342	
		g) Overheads on (f)		(@ 8%)	(@ 10%)	(@ 12%)		106.587	133.234	159.881	
		h) Contractor's profit on (f+g)		(@ 10%)	(@ 10%)	(@ 10%)		143.893	146.558	149.222	
		i) Total Cost for1cum = (f+g+h)Including OH & CP						1582.823	1612.134	1641.446	
		Rate per cum= (f+g+h) Including OH & CP					**Say**	**1582.800**	**1612.100**	**1641.400**	
	(iii)	**Crushing of stone aggregates (Nominal size)**									
		3.Crushing Pattern 10 mm (tonne)- Cost Distribution 30.75 %									
		d) Total Cost for 750 cum(Excluding OH & CP)						719339.795	719339.795	719339.795	
		e) Crushing pattern 10 mm(tonne)	tonne	25.86%	25.86%	25.86%	290.925				
		f) % Cost distribution={(d)x(f)/e)x1.5}	cum	30.75%	30.75%	30.75%	0.3075	1140.485	1140.485	1140.485	
		g) Overheads on (f)		(@ 8%)	(@ 10%)	(@ 12%)		91.239	114.048	136.858	
		h) Contractor's profit on (f+g)		(@ 10%)	(@ 10%)	(@ 10%)		123.172	125.453	127.734	
		i) Total Cost for1cum = (f+g+h)Including OH & CP						1354.896	1379.986	1405.077	
		Rate per cum= (f+g+h) Including OH & CP						**1354.900**	**1380.000**	**1405.100**	
	(iv)	**Crushing of stone aggregates (Nominal size)**									
		4 Crushing Pattern dust (tonne)- Cost Distribution 08.32 %									
		d) Total Cost for 750 cum(Excluding OH & CP)						719339.795	719339.795	719339.795	
		e) Crushing pattern dust (tonne)	tonne	28.43%	28.43%	28.43%	319.838				
		f) % Cost distribution={(d)x(f)/e)x1.5}	cum	8.32%	8.32%	8.32%	0.0832	280.685	280.685	280.685	
		g) Overheads on (f)		(@ 8%)	(@ 10%)	(@ 12%)		22.455	28.068	33.682	
		h) Contractor's profit on (f+g)		(@ 10%)	(@ 10%)	(@ 10%)		30.314	30.875	31.437	
		i) Total Cost for1cum = (f+g+h)Including OH & CP						333.453	339.628	345.803	
		Rate per cum= (f+g+h) Including OH & CP						**333.500**	**339.600**	**345.800**	

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Sl.No	Ref. to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
	Note:-	The average density of 1.5 tonne/cum is only a reference density in this Data Book									
1.07		**Crushing of stone aggregates (GSB Crusher Run)**									
		Crushing of stone boulders of 150 mm size in an integrated stone crushing unit of 250 tonnes per hour capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain crusher run (all in aggregate) for GSB.									
		Unit = cum									
		Taking Output = 750.00 cum									
		a) Labour									
		Mate	day	0.320	0.320	0.320	444.00	142.080	142.080	142.080	L-12
		Mazdoor (Skilled)	day	2.000	2.000	2.000	541.00	1082.000	1082.000	1082.000	L-15
		Mazdoor	day	6.000	6.000	6.000	428.00	2568.000	2568.000	2568.000	L-13
		b) Material									
		Stone Boulder of size 150 mm and below	cum	750	750	750	730.02	547515.000	547515.000	547515.000	M-001
		c) Machinery									
		Integrated stone crusher of 250 TPH including belt conveyor and vibrating screens (for producing crusher run production capacity will increas by 30%)	Hour	4.615	4.615	4.615	13961.00	64430.015	64430.015	64430.015	PM16001
		Generator 725 KVA	Hour	4.615	4.615	4.615	7798.00	35987.770	35987.770	35987.770	PM22001
		Front end loader 3.1 cum bucket capacity at quarry and crusher	Hour	5.515	5.515	5.515	3523.00	19429.345	19429.345	19429.345	PM5001
		Tipper 14 cum capacity for loading at quarry site	Hour	5.515	5.515	5.515	2108.00	11625.620	11625.620	11625.620	PM6002
		Tipper 14 cum capacity for transportation within 1 km	t.km	1,125.00	1,125.00	1,125.00	5.71	6423.750	6423.750	6423.750	PM73001
		Total Cost Excluding OH & CP						689203.580	689203.580	689203.580	**765.78**
		d) Overheads on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		55136.286	68920.358	82704.430	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		74433.987	75812.394	77190.801	
		Cost for 900 cum =(a+b+c+d+e)						818773.853	833936.332	849098.811	
		Rate per cum =(a+b+c+d+e)/900(Including OH & CP)					**Say**	**909.700**	**926.600**	**943.400**	
	Note:	**Considering Crushed volume will be 1.2 times the volume of boulder.**									
Note:-1.		**For local transportation , carriage rate will be given as per provision of different Capacity of vehicle in Large/Medium/Small Projects in rate analysis of particular item of any Chapter.**									

CHAPTER-1

Analysis of Rates

CARRIAGE OF MATERIALS

Sl.No	Ref. to M.	Description	Unit	Quantity as per Project Category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
Note:-2.		Except Note 1, for transportation/carriage of Stone Aggregate/Stone Boulder/Moorum/Bitumen/Steel/Cement and Other Construction Materials, Lodading-Unloading charges &Haulage charges will be allowed by 18 Cum Capacity tipper (18 tonne Capacity Truck in case of loading-unloading of Cement/Steel/Bitumen by manual means) and 32 tonne Capacity tipperrespectively only for all types of Projects (Large/Medium/Small) except in case/circumstances where and limitation/restriction regarding capacity of Vehicle has been imposed by competent Authority (District/State). Incase of restriction, rate of allowed capacity of vehicle will be given.									
Note:-3.		In case of Loading &Unloading of Boulders by Manual means, loading-unloading charges will be allowed by 10Cum Capacity tipper.									
Note:-4.		Carriage of material will be done by shortest rout.									
Note:-5.		Rates of item nos 1.06 will be taken as per approved rate of respective items in schedule M/MORT&H-1									

CHAPTER - 02
SITE CLEARANCE

CHAPTER-2

SITE CLEARANCE

PREAMBLES:

1 Carriage of dismantled materials, bushes, branches of tree etc, has been catered with a tipper mechanical loading and unloading within a lead of 1000 meter.

2 Unless otherwise stated the rates include sorting and disposal of unserviceable material and stacking of serviceable material with all lifts and upto a lead of 1000 meter.

3 The Clearing and Grubbing road land has been considered both by manual and mechanical means (by use of Dozer & by use of Motor Grader). The rates include sorting and disposal of unserviceable material and stacking of serviceable material with all lifts and upto a lead of 1000 meter. The estimator can use his discretion depending upon quantum of work and particular site conditions for mechanical means (by using Dozer or by using Motor Grader).

4 The dismantling of structures has been considered both by manual and mechanical means. The rates include sorting and disposal of unserviceable material and stacking of serviceable material with all lifts and upto a lead of 1000 meter. The estimator can use his discretion depending upon quantum of work and particular site conditions for mechanical means.

5 The rates include T&P and scaffolding required for items of dismantling.

6 Where only grass/wild growth is met, item No.2.02 i.e. clearing grass and removal of rubbish can be applied. As regards wild growth disposal of grass, the same can be disposed.

7 The dismantling of structures has been catered both by manual and mechanical means. The estimator can use his discretion depending upon quantum of work and particular site conditions.

8 Cutting of rivets has been provided separately.

9 Dismantling of Hume pipes has been catered mechanical means as pipes can be easily rolled by men to a suitable stacking place within the right of way.

10 For dismantling of structures, which remain submerged in water, the cost may be enhanced by 50 percent.

11 Dismantling of utilities is required to be done under the supervision of concerned departments with prior information to the users.

12 In certain items of dismantling, like, pipe culverts, utilities, etc., excavation in earth and dismantling of masonry works is not included in this analysis for which suitable notes have been inserted. These items are required to be priced separately based on actual quantities at site and nature of work.

13 The dismantled materials should be examined and a realistic assessment and provision made after due process for the credit for such materials, which can be utilized for works or auction.

14 In case where lead for disposal is more than 1000m, extra cost of carriage is required to be added based on tonne-kilometerage.

15 All minor T&P items required for dismantling are already included in overhead charges.

16 Provision has been made for a tractor trolley/10 tonne capacity tipper for transport of utility removal like telephone/electrical poles & lines, water pipe lines, and dismantling materials of sorts or materials having more volume as compared with weight are required to be transported. This arrangement is more economical.

17 For dismantling of utility services like water pipe lines, electric and telephone lines, prior intimation should be given to users.

CHAPTER -2

Summary of Rate Analysis

SITE CLEARANCE

Sr No	Ref. to M.	Description		Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
2.01	**201**	**A**	**Cutting of trees, excluding removal of stumps and roots of trees**				
			Cutting of trees stacking of serviceble material with all lifts and up to a lead of 1000 metres.				
		(i)	**Girth from 300mm to 600mm**	Each	432.50	454.40	488.10
		(ii)	**Girth from 600mm to 900mm**	Each	620.90	660.30	790.40
		(iii)	**Girth from 900mm to 1800mm**	Each	1209.20	1259.60	1400.60
		(iv)	**Girth above 1800mm**	Each	2372.00	2497.90	2801.10
2.01	**201**	**B**	**Removal of stumps and roots including backfillinbg with suitable material to required compaction**				
			Removal of stumps, roots, staking of serviceable material with all lifts up to a lead of 1000 metres and earth filling in the depression/ pit.				
		(i)	**Girth from 300mm to 600mm**	Each	481.10	499.50	554.20
		(ii)	**Girth from 600mm to 900mm**	Each	643.60	666.00	751.90
		(iii)	Girth from 900mm to 1800mm	Each	773.20	799.20	899.60
		(iv)	**Girth above 1800mm**	Each	960.40	999.00	1119.60
2.02	**201**		**Clearing Grass and Removal of Rubish**				
			Clearing grass and removal of rubbish up to a distance of 50 metres outside the periphery of the area				
			By Manual Means	Hectare	26478.10	26968.50	27458.80
2.03	**201**		**Clearing and Grubbing road land**				
			Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, sapling and tress girth upto 300 mm, removal of stumps of tree cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used of auctioned, up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150mm in thickness.				
		(i)	**By Manual means:-**				
		A	**In area of light jungle**	Hectare	183542.60	186941.60	190340.50
		B	**In area of thorny jungle**	Hectare	210020.80	213910.10	217799.30
		(ii)	**By Mechanical means using dozer**				
		A	**In area of light jungle**	Hectare	139382.20	142385.10	195483.00
2.03		**B**	**In area of thorny jungle**	Hectare	149341.70	152530.10	208516.60
2.03		**(iii)**	**By Mechanical Means using Motor grader**				
		A	**In area of light jungle**	Hectare	125647.30	131252.10	172941.20
2.03		**B**	**In area of thorny Jungle**	Hectare	132305.40	138748.70	180478.90
2.04	**202**		**Dismantling of Structures**				

CHAPTER -2

Summary of Rate Analysis

SITE CLEARANCE

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
			Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres				
		(i)	**Lime/ Cement concrete**				
		I	**By Manual means**				
		A	**Lime concrete, cement concrete grade M-10 and below**	cum	627.40	639.00	650.60
2.04		**B**	**Cement concrete Grade M-15 & M-20**	cum	733.30	746.90	760.50
2.04		**C**	**Prestressed/ Reinforced cement concrete grade M-20 & above**	cum	1790.70	1823.80	1857.00
2.04		**II**	**By Mechanical means**				
		A	**Cement Concrete Grade M-15 & M-20**	cum	849.70	865.80	921.20
2.04		**B**	**Prestressed/ Reinforced cement concrete grade M-20 & above**	cum	1151.70	1173.50	1234.50
2.04		**(ii)**	**Dismantling Brick/ tile work**				
			By Manual means				
		A	**In lime mortar**	cum	387.00	394.10	401.30
2.04		**B**	**In cement mortar**	cum	492.90	502.00	511.10
2.04		**C**	**In Mud mortar**	cum	344.60	351.00	357.40
2.04		**D**	**Dry brick pitching or brick soling**	cum	323.40	329.40	335.40
2.04		**(iii)**	**Dismantling stone masonry**				
		I	**By Manual means**				
		A	**rubble stone masonry in lime mortar**	cum	429.30	437.30	445.20
2.04		**B**	**Rubble stone masonry in cement mortar**	cum	492.90	502.00	511.10
2.04		**C**	**Rubble stone masonry in mud mortar**	cum	387.00	394.10	401.30
2.04		**D**	**Dry rubble masonry**	cum	365.80	372.50	379.30
2.04		**E**	**Dismantling stone pitching/dry stone spalls.**	cum	344.60	351.00	357.40
2.04		**F**	**Dismantling boulders laid in wire crates including opening of crates and stacking dismantled materials.**	cum	387.00	394.10	401.30
2.04		**II**	**By Mechanical means**				
		A	**Dismantling Brick/ Tile work/ rubble masonary/pitching/ etc. by mechanical means**	cum	174.40	185.30	236.90
2.04		**(iv)**	**Wood work wrought framed and fixed in frames of trussess upto a height of 5m above plinth level**	cum	920.90	937.90	955.00
2.04		**(v)**	**Steel work in all types of sections upto a height of 5m above plinth level excluding cutting of rivet.**				
		A	**Including dismembring**	tonne	2142.20	2181.80	2221.50

CHAPTER -2

Summary of Rate Analysis

SITE CLEARANCE

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
2.04		B	**Excluding dismembering**	tonne	1530.60	1558.90	1587.30
2.04		C	**Extra over item no (v) A and (v)B for cutting rivets**	Each	15.50	15.80	16.10
2.04		(vi)	**Scrapping of bricks dismantled from brick work including stacking**				
		A	**In Lime/Cement mortar**	Nos	1.90	1.90	1.90
2.04		B	**In mud mortar**	Nos	0.70	0.70	0.70
2.04		(vii)	**Scraping of stone from dismantled stone masonry**				
		A	**In Cement and lime mortar**	cum	741.40	755.10	768.80
2.04		B	**In Mud mortar**	cum	158.90	161.80	164.80
2.04	(viii)		**Scraping plaster in lime or cement mortar from Brick/Stone Masonry**	sqm	23.80	24.20	24.70
2.04		(ix)	**Removing all type of Hume pipes and stacking within a lead of 1000 metres including Earthwork and Dismantling of Masonry Works.**				
		A	**Upto 600mm dia**	metre	972.00	1102.10	1220.30
		B	**Above 600mm to 900mm dia**	metre	1185.00	1298.50	1402.10
		C	**Above 900mm**	metre	1398.10	1494.90	1765.60
2.05	202		**Dismantling of flexible pavements**				
			Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately				
		(i)	**By Manual means**				
		A	**Bituminous courses**	cum	936.60	953.90	971.30
2.05		B	**Granular courses**	cum	671.80	684.30	696.70
2.05	202		Dismantling of flexible pavements and disposal of dismantled materials upto a leadof 1000 metres, stacking serviceable and unserviceable materials separately				
		(ii)	**By Mechanical means**				
		A	**Bituminous courses**	cum	421.80	443.40	517.70
		B	**Granular Courses**	cum	53.50	58.30	75.40
2.06	202		**Dismantling of cement concrete pavement**				
			Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled materials up to a alead of 1000 metres, stacking serviceable and unserviceable materials separately	cum	649.10	696.70	785.40
2.07	202		**Dismantling of guard rails**				
			Dismantling of guard rails by manual means and disposal of dismantled material with all lifts and up to a lead of 1000 metres, stacking serviceable materials and unserviceable materials separately	metre	84.50	86.10	87.70
2.08	202		**Dismantling of kerb stone**				

CHAPTER -2

Summary of Rate Analysis

SITE CLEARANCE

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
			Dismantling kerb stone by manual means and disposal of dismantled material with all lifts and up to a lead of 1000 metres	metre	19.80	20.10	20.50
2.09	**202**		**Dismantling of kerb stone channel**				
			Dismantling kerb stone channel by manual means and disposal of dismantled material with all lifts and up to a lead of 1000 metres	metre	26.40	26.90	27.40
2.10	**202**		**Dismantling of kilometre stone**				
			Dismantling of kilometre stone including cutting of earth , foundation and disposal of dismantled material with all lifts and lead up to 1000 metres and back filling of pit				
		A	**5th KM stone**	Each	524.90	534.70	544.40
		B	**Ordinary KM Stone**	Each	350.00	356.40	362.90
		C	**Hectometre Stone**	Each	70.00	71.30	72.60
2.11	**202**		**Dismantling of fencing**				
			Dismantling of barbed wire fencing/ wire mesh fencing including posts, foundation concrete, back filling of pit by manual means including disposal of dismantled materials with all lifts and up to a lead of 1000 metres stacking serviceable material and unserviceable material separately.	metre	73.80	75.20	76.50
2.12	**202**		**Dismantling of CI Water Pipe Line**				
			Dismantling of CI Water Pipe Line 600mm dia. Including disposal with all lifts and lead upto 1000 metres and stacking of serviceable material and unserviceable material separately under supervision of concerned department	metre	220.40	224.50	228.60
2.13	**202**		**Removal of cement concrete Pipe of sewer Gutter**				
			Removal of cement concrete pipe of sewer gutter 1500 mm dia under the supervision of concerned department including disposal with all lifts and up to a lead of 1000 metres and stacking of serviceable and unserviceable material separately but excluding earth excavation and dismantling of masonry works.	metre	339.70	346.00	352.30
2.14	**202**		**Removal of telephone/ Electric Poles and Lines**				
			Removal of telephone/ Electric poles including excavation and dismantling of foundation concrete and lines under the supervision of concerned department , disposal with all lifts and up to a lead of 1000 metres and stacking the serviceable and unserviceable material separately	Each	272.80	277.80	282.90

CHAPTER -2
Analysis of Rates
SITE CLEARANCE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
2.01	201	A	**Cutting of trees, excluding removal of stumps and roots of trees**									
			Cutting of trees stacking of serviceble material with all lifts and up to a lead of 1000 metres.									
		(i)	**Girth from 300mm to 600mm**									
			Unit=Each									
			Taking output= 40nos.									
			a) Labour									
			Mate	day	0.960	0.960	0.960	444.00	426.24	426.24	426.24	L-12
			Mazdoors	day	24.000	24.000	24.000	428.00	10272.00	10272.00	10272.00	L-13
									10698.24	10698.24	10698.24	
			b) Machinery									
			Tipper									
			(i) 18 cum capacity	hour	1.600			2349.00	3758.40			PM6001
			(ii) 14 cum capacity	hour		2.000		2108.00		4216.00		PM6002
			(iii) 10 cum capacity	hour			2.667	1891.00			5043.30	PM6003
			Sundries @1% of labour cost (a)						106.98	106.98	106.98	
			Total cost without (OH&CP)						14563.62	15021.22	15848.52	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		1165.09	1502.12	1901.82	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1572.87	1652.33	1775.03	
			Rate for each tree = (a+b+c+d)/40						432.54	454.39	488.13	
								Say	**432.50**	**454.40**	**488.10**	
		(ii)	**Girth from 600mm to 900mm**									
			Unit= Each									
			Taking output= 30nos									
			a) Labour									
			Mate	day	1.080	1.080	1.080	444.00	479.52	479.52	479.52	L-12
			Mazdoors	day	27.000	27.000	27.000	428.00	11556.00	11556.00	11556.00	L-13
									12035.52	12035.52	12035.52	
			b) Machinery									
			Tipper									
			(i) 18 cum capacity	hour	1.500			2349.00	3523.50			PM6001

CHAPTER -2
Analysis of Rates
SITE CLEARANCE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			(ii) 14 cum capacity	hour		2.000		2108.00		4216.00		PM6002
			(iii) 10 cum capacity	hour			3.750	1891.00			7091.25	PM6003
			Sundries @1% of labour cost (a)						120.36	120.36	120.36	
			Total cost without (OH&CP)						15679.38	16371.88	19247.13	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		1254.35	1637.19	2309.66	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1693.37	1800.91	2155.68	
			Rate for each tree = (a+b+c+d)/30						620.90	660.33	790.42	
								Say	**620.90**	**660.30**	**790.40**	
		(iii)	**Girth from 900mm to 1800mm**									
			Unit= Each									
			Taking output= 25nos									
			a) Labour									
			Mate	day	2.000	2.000	2.000	444.00	888.00	888.00	888.00	L-12
			Mazdoors	day	50.000	50.000	50.000	428.00	21400.00	21400.00	21400.00	L-13
									22288.00	22288.00	22288.00	
			b) Machinery									
			Tipper									
			(i) 18 cum capacity	hour	1.250			2349.00	2936.25			PM6001
			(ii) 14 cum capacity	hour		1.667		2108.00		3514.04		PM6002
			(iii) 10 cum capacity	hour			3.125	1891.00			5909.38	PM6003
			Sundries @1% of labour cost (a)						222.88	222.88	222.88	
			Total cost without (OH&CP)						25447.13	26024.92	28420.26	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		2035.77	2602.49	3410.43	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2748.29	2862.74	3183.07	
			Rate for each tree = (a+b+c+d)/25						1209.25	1259.61	1400.55	
								Say	**1209.20**	**1259.60**	**1400.60**	
		(iv)	**Girth above 1800mm**									
			Unit= Each									
			Taking output= 20nos									
			a) Labour									
			Mate	day	3.200	3.200	3.200	444.00	1420.80	1420.80	1420.80	L-12
			Mazdoors	day	80.000	80.000	80.000	428.00	34240.00	34240.00	34240.00	L-13
									35660.80	35660.80	35660.80	

CHAPTER -2
Analysis of Rates
SITE CLEARANCE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			b) Machinery									
			Tipper									
			(i) 18 cum capacity	hour	1.667			2349.00	3915.78			PM6001
			(ii) 14 cum capacity	hour		2.500		2108.00		5270.00		PM6002
			(iii) 10 cum capacity	hour			5.000	1891.00			9455.00	PM6003
			Sundries @1% of labour cost (a)						356.61	356.61	356.61	
			Total cost without (OH&CP)						39933.19	41287.41	45472.41	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		3194.66	4128.74	5456.69	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		4312.78	4541.61	5092.91	
			Rate for each tree = (a+b+c+d)/20						2372.03	2497.89	2801.10	
								Say	**2372.00**	**2497.90**	**2801.10**	
		Note: All the serviceable material resulting from tree cutting would be handed over to the employer. for the all above items.										
2.01	**201**	**B**	**Removal of stumps and roots including backfillinbg with suitable material to required compaction**									
			Removal of stumps, roots, stacking of serviceable material with all lifts up to a lead of 1000 metres and earth filling in the depression/ pit.									
		(i)	**Girth from 300mm to 600mm**									
			Unit= Each									
			Taking output=40nos.									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoors	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
									445.76	445.76	445.76	
			b) Machinery									
			Hydraulic Excavator									
			(i) 1.2 cum bucket capacity	hour	5.000			2809.00	14045.00			PM3003
			(ii) 1.1 cum bucket capacity	hour		5.500		2538.00		13959.00		PM3004
			(iii) 0.9 cum bucket capacity	hour			6.500	2312.00			15028.00	PM3005
			Tipper									

CHAPTER -2
Analysis of Rates
SITE CLEARANCE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			(i) 18 cum capacity	hour	0.727			2349.00	1707.72			PM6001
			(ii) 14 cum capacity	hour		1.000		2108.00		2108.00		PM6002
			(iii) 10 cum capacity	hour			1.333	1891.00			2520.70	PM6003
			Total cost without (OH&CP)						16198.48	16512.76	17994.46	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		1295.88	1651.28	2159.34	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1749.44	1816.40	2015.38	
			Rate for each tree = (a+b+c+d)/40						481.09	499.51	554.23	
								Say	**481.10**	**499.50**	**554.20**	
		(ii)	**Girth from 600mm to 900mm**									
			Unit= Each									
			Taking output=30nos.									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoors	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
									445.76	445.76	445.76	
			b) Machinery									
			Hydraulic Excavator									
			(i) 1.2 cum bucket capacity	hour	5.000			2809.00	14045.00			PM3003
			(ii) 1.1 cum bucket capacity	hour		5.500		2538.00		13959.00		PM3004
			(iii) 0.9 cum bucket capacity	hour			6.500	2312.00			15028.00	PM3005
			Tipper									
			(i) 18 cum capacity	hour	0.750			2349.00	1761.75			PM6001
			(ii) 14 cum capacity	hour		1.000		2108.00		2108.00		PM6002
			(iii) 10 cum capacity	hour			1.500	1891.00			2836.50	PM6003
			Total cost without (OH&CP)						16252.51	16512.76	18310.26	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		1300.20	1651.28	2197.23	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1755.27	1816.40	2050.75	
			Rate for each tree = (a+b+c+d)/30						643.60	666.01	751.94	
								Say	**643.60**	**666.00**	**751.90**	
		(iii)	**Girth from 900mm to 1800mm**									
			Unit= Each									
			Taking output=25nos.									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoors	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13

SITE CLEARANCE

Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
								445.76	445.76	445.76	
		b) Machinery									
		Hydraulic Excavator									
		(i) 1.2 cum bucket capacity	hour	5.000			2809.00	14045.00			PM3003
		(ii) 1.1 cum bucket capacity	hour		5.500		2538.00		13959.00		PM3004
		(iii) 0.9 cum bucket capacity	hour			6.500	2312.00			15028.00	PM3005
		Tipper									
		(i) 18 cum capacity	hour	0.758			2349.00	1780.54			PM6001
		(ii) 14 cum capacity	hour		1.000		2108.00		2108.00		PM6002
		(iii) 10 cum capacity	hour			1.471	1891.00			2781.66	PM6003
		Total cost without (OH&CP)						16271.30	16512.76	18255.42	
		c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		1301.70	1651.28	2190.65	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1757.30	1816.40	2044.61	
		Rate for each tree = (a+b+c+d)/25						773.21	799.22	899.63	
							Say	**773.20**	**799.20**	**899.60**	
	(iv)	**Girth above 1800mm**									
		Unit= Each									
		Taking output=20nos.									
		a) Labour									
		Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
		Mazdoors	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
		b) Machinery									
		Hydraulic Excavator									
		(i) 1.2 cum bucket capacity	hour	5.000			2809.00	14045.00			PM3003
		(ii) 1.1 cum bucket capacity	hour		5.500		2538.00		13959.00		PM3004
		(iii) 0.9 cum bucket capacity	hour			6.500	2312.00			15028.00	PM3005
		Tipper									
		(i) 18 cum capacity	hour	0.714			2349.00	1677.19			PM6001
		(ii) 14 cum capacity	hour		1.000		2108.00		2108.00		PM6002
		(iii) 10 cum capacity	hour			1.429	1891.00			2702.24	PM6003
		Total cost without (OH&CP)						16167.95	16512.76	18176.00	
		c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		1293.44	1651.28	2181.12	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1746.14	1816.40	2035.71	
		Rate for each tree = (a+b+c+d)/20						960.38	999.02	1119.64	
							Say	**960.40**	**999.00**	**1119.60**	

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SITE CLEARANCE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
		Note: All the serviceable material resulting from girth removal would be handed over to the employer for the all above items.										
2.02	**201**		**Clearing Grass and Removal of Rubish**									
			Clearing grass and removal of rubbish up to a distance of 50 metres outside the periphery of the area									
			By Manual Means									
			Unit = Hectare									
			Taking output= 1 Hectare									
			a) Labour									
			Mate	day	2.000	2.000	2.000	444.00	888.00	888.00	888.00	L-12
			Mazdoor	day	50.000	50.000	50.000	428.00	21400.00	21400.00	21400.00	L-13
			Total cost without (OH&CP)						22288.00	22288.00	22288.00	
			b) Overhead charges on(a)		(@ 8%)	(@ 10%)	(@ 12%)		1783.04	2228.80	2674.56	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		2407.10	2451.68	2496.26	
			Rate per Hectare = (a+b+c)						26478.14	26968.48	27458.82	
								Say	**26478.10**	**26968.50**	**27458.80**	
2.03	**201**		**Clearing and Grubbing road land**									
			Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, sapling and tress girth upto 300 mm, removal of stumps of tree cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used of auctioned, up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150mm in thickness.									
			Unit= Hectare									
			Taking output= 1 Hectare									
		(i)	**By Manual means:-**									
		A	**In area of light jungle**									
			a) Labour									
			Mate	day	6.000	6.000	6.000	444.00	2664.00	2664.00	2664.00	L-12
			Mazdoor	day	150.000	150.000	150.000	428.00	64200.00	64200.00	64200.00	L-13

SITE CLEARANCE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			b) Machinery									
			Tractor-trolley	hour	122.222	122.222	122.222	717.00	87633.17	87633.17	87633.17	PM12001
			Total cost without (OH&CP)						154497.17	154497.17	154497.17	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		12359.77	15449.72	18539.66	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		16685.69	16994.69	17303.68	
			Rate per Hectare= a+b+c+d						183542.64	186941.58	190340.52	
								Say	**183542.60**	**186941.60**	**190340.50**	
		B	**In area of thorny jungle**									
			a) Labour									
			Mate	day	8.000	8.000	8.000	444.00	3552.00	3552.00	3552.00	L-12
			Mazdoor	day	200.000	200.000	200.000	428.00	85600.00	85600.00	85600.00	L-13
			b) Machinery									
			Tractor-trolley	hour	122.222	122.222	122.222	717.00	87633.17	87633.17	87633.17	PM12001
			Total cost without (OH&CP)						176785.17	176785.17	176785.17	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		14142.81	17678.52	21214.22	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		19092.80	19446.37	19799.94	
			Rate per Hectare = (a+b+c+d)						210020.79	213910.06	217799.33	
		(ii)	**By Mechanical means using dozer**					**Say**	**210020.80**	**213910.10**	**217799.30**	
		A	**In area of light jungle**									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Machinery									
			Dozer									
			(i) Dozer (240HP)	hour	5.952			5634.00	33533.57			PM1001
			(ii) Dozer (175 HP)	hour		7.692		4360.00		33537.12		PM1002
			(iii) Dozer (90 Hp)	hour			13.889	3047.00			42319.78	PM1003
			Tipper									
			For tranportation to dumping yard considering lead @ 1km									
			(i) 18 cum capacity	t.km	1500.000			4.98	7470.00			PM72001
			(ii) 14 cum capacity	t.km		1500.000		5.71		8565.00		PM73001
			(iii) 10 cum capacity	t.km			1500.000	7.10			10650.00	PM74001
			Loading & unloading charges for disposed of grabbed material									

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Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			(i) Using by 18 cum capacity Tipper & 3.1 cum capacity loader	cum	1000.000			75.43	75430.00			PM77001
			(ii) Using by 14 cum capacity tipper & 2.1 cum capacity loader.	cum		1000.000		74.68		74680.00		PM77002
			(iii) Using by 10 cum capacity tipper & 1 cum capacity loader.	cum			1000.000	104.81			104810.00	PM77003
			Total cost without (OH&CP)						117325.09	117673.64	158671.30	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		9386.01	11767.36	19040.56	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		12671.11	12944.10	17771.19	
			Rate per Hectare = (a+b+c+d)						139382.20	142385.10	195483.05	
								Say	**139382.20**	**142385.10**	**195483.00**	
2.03		**B**	**In area of thorny jungle**									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Machinery									
			Dozer									
			(i) Dozer (240HP)	hour	7.440			5634.00	41916.96			PM1001
			(ii) Dozer (175 HP)	hour		9.615		4360.00		41921.40		PM1002
			(iii) Dozer (90 Hp)	hour			17.361	3047.00			52898.97	PM1003
			Tipper									
			For tranportation to dumping yard considering lead @ 1km									
			(i) 18 cum capacity	t.km	1500.000			4.98	7470.00			PM72001
			(ii) 14 cum capacity	t.km		1500.000		5.71		8565.00		PM73001
			(iii) 10 cum capacity	t.km			1500.000	7.10			10650.00	PM74001
			Loading & unloading charges for disposed of grabbed material									
			(i) Using by 18 cum capacity Tipper & 3.1 cum capacity loader	cum	1000.000			75.43	75430.00			PM77001
			(ii) Using by 14 cum capacity tipper & 2.1 cum capacity loader	cum		1000.000		74.68		74680.00		PM77002

SITE CLEARANCE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			(iii) Using by 10 cum capacity tipper & 1 cum capacity loader	cum			1000.000	104.81			104810.00	PM77003
			Total cost without (OH&CP)						125708.48	126057.92	169250.49	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		10056.68	12605.79	20310.06	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		13576.52	13866.37	18956.05	
			Rate per Hectare = (a+b+c+d)						149341.67	152530.08	208516.60	
								Say	**149341.70**	**152530.10**	**208516.60**	
2.03		**(iii)**	**By Mechanical Means using Motor grader**									
		A	**In area of light jungle**									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Motor Grader									
			(i) Motor grader 4.3 metre blade	hour	4.032			5560.00	22417.92			PM2001
			(ii) Motor grader 3.70 metre blade	hour		4.864		5095.00		24782.08		PM2002
			(iii) motor grader 3.35 metre blade	hour			5.423	4512.00			24468.58	PM2003
			Tipper									
			For tranportation to dumping yard considering lead @ 1km									
			(i) 18 cum capacity	t.km	1500.00			4.98	7470.00			PM72001
			(ii) 14 cum capacity	t.km		1500.00		5.71		8565.00		PM73001
			(iii) 10 cum capacity	t.km			1500.00	7.10			10650.00	PM74001
			Loading & unloading charges for disposed of grabbed material									
			(i) Using by 18 cum capacity Tipper & 3.1 cum capacity loader	cum	1000.00			75.43	75430.00			PM77001
			(ii) Using by 14 cum capacity tipper & 2.1 cum capacity loader	cum		1000.00		74.68		74680.00		PM77002
			(iii) Using by 10 cum capacity tipper & 1 cum capacity loader	cum			1000.00	104.81			104810.00	PM77003
			Total cost without (OH&CP)						105763.68	108472.84	140374.34	

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Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		8461.09	10847.28	16844.92	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		11422.48	11932.01	15721.93	
			Rate per Hectare = (a+b+c+d)						125647.25	131252.14	172941.18	
								Say	**125647.30**	**131252.10**	**172941.20**	
2.03		**B**	**In area of thorny Jungle**									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Motor Grader									
			(i) Motor grader 4.3 metre blade	hour	5.040			5560.00	28022.40			PM2001
			(ii) Motor grader 3.70 metre blade	hour		6.080		5095.00		30977.60		PM2002
			(iii) motor grader 3.35 metre blade	hour			6.779	4512.00			30586.85	PM2003
			Tipper									
			For tranportation to dumping yard considering lead @ 1km									
			(i) 18 cum capacity	t.km	1500.00			4.98	7470.00			PM72001
			(ii) 14 cum capacity	t.km		1500.00		5.71		8565.00		PM73001
			(iii) 10 cum capacity	t.km			1500.00	7.10			10650.00	PM74001
			Loading & unloading charges for disposed of grabbed material									
			(i) Using by 18 cum capacity Tipper & 3.1 cum capacity loader	cum	1000.00			75.43	75430.00			PM77001
			(ii) Using by 14 cum capacity tipper & 2.1 cum capacity loader	cum		1000.00		74.68		74680.00		PM77002
			(iii) Using by 10 cum capacity tipper & 1 cum capacity loader	cum			1000.00	104.81			104810.00	PM77003
			Total cost without (OH&CP)						111368.16	114668.36	146492.61	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		8909.45	11466.84	17579.11	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		12027.76	12613.52	16407.17	
			Rate per Hectare = (a+b+c+d)						132305.37	138748.72	180478.89	
								Say	**132305.40**	**138748.70**	**180478.90**	
2.04	**202**		**Dismantling of Structures**									

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Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres									
			Unit- cum									
			Taking output-=1.25 cum									
		(i)	**Lime/ Cement concrete**									
		I	**By Manual means**									
		A	**Lime concrete, cement concrete grade M-10 and below**									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor for dismantling and loading	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Tractor- trolley (considering 15 min loading time)	hour	0.299	0.299	0.299	717.00	214.38	214.38	214.38	PM12001
			Total cost without (OH&CP)						660.14	660.14	660.14	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		52.81	66.01	79.22	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		71.30	72.62	73.94	
			Rate for 1.25 cum = (a+b+c+d)						784.25	798.77	813.30	
			Rate per cum= (a+b+c+d)/1.25						627.40	639.02	650.64	
								Say	**627.40**	**639.00**	**650.60**	
2.04		**B**	**Cement concrete Grade M-15 & M-20**									
			a) Labour									
			Mate	day	0.050	0.050	0.050	444.00	22.20	22.20	22.20	L-12
			Mazdoor for dismantling and loading	day	1.250	1.250	1.250	428.00	535.00	535.00	535.00	L-13
			b) Machinery									
			Tractor- trolley (considering 15 min loading time)	hour	0.299	0.299	0.299	717.00	214.38	214.38	214.38	PM12001
			Total cost without (OH&CP)						771.58	771.58	771.58	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		61.73	77.16	92.59	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		83.33	84.87	86.42	

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Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Cost for 1.25 cum = (a+b+c+d)						916.64	933.62	950.59	
			Rate per cum= (a+b+c+d)/1.25						733.31	746.89	760.47	
								Say	**733.30**	**746.90**	**760.50**	
2.04		**C**	**Prestressed/ Reinforced cement concrete grade M-20 & above**									
			a) Labour									
			Mate	day	0.150	0.150	0.150	444.00	66.60	66.60	66.60	L-12
			Blacksmith	day	0.250	0.250	0.250	541.00	135.25	135.25	135.25	L-25
			Mazdoor for dismantling and loading	day	3.500	3.500	3.500	428.00	1498.00	1498.00	1498.00	L-13
			b) Machinery									
			Tractor- trolley (considering 15 min loading time)	hour	0.257	0.257	0.257	717.00	184.27	184.27	184.27	PM12001
			Total cost without (OH&CP)						1884.12	1884.12	1884.12	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		150.73	188.41	226.09	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		203.48	207.25	211.02	
			Cost for 1.25 cum = (a+b+c+d)						2238.33	2279.78	2321.23	
			Rate per cum= (a+b+c+d)/1.25						1790.67	1823.83	1856.99	
								Say	**1790.70**	**1823.80**	**1857.00**	
2.04		**II**	**By Mechanical means**									
		A	**Cement Concrete Grade M-15 & M-20**									
			Unit= cum									
			Taking output= 1.25 cum									
			a) Labour									
			Mate	day	0.020	0.020	0.020	444.00	8.88	8.88	8.88	L-12
			Mazdoor for loading and unloading & pneumatic breaker	day	0.500	0.500	0.500	428.00	214.00	214.00	214.00	L-13
			b) Machinery									
			Air compressor 250cfm	hour	0.625	0.625	0.625	496.00	310.00	310.00	310.00	PM15001
			Pneumatic breaker @ 1 cum per hour	hour	1.250	1.250	1.250	206.00	257.50	257.50	257.50	PM4001
			Tipper									
			For tranportation to dumping yard considering lead @ 1km									
			(i) 18 cum capacity	t.km	1.875			4.98	9.34			PM72001
			(ii) 14 cum capacity	t.km		1.875		5.71		10.71		PM73001
			(iii) 10 cum capacity	t.km			1.875	7.10			13.31	PM74001
			Loading & unloading charges for disposed of material									

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Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			(i) Using by 18 cum capacity Tipper & 3.1 cum capacity loader	cum	1.250			75.43	94.29			PM77001
			(ii) Using by 14 cum capacity tipper & 2.1 cum capacity loader	cum		1.250		74.68		93.35		PM77002
			(iii) Using by 10 cum capacity tipper & 1 cum capacity loader	cum			1.250	104.81			131.01	PM77003
			Total cost without (OH&CP)						894.01	894.44	934.71	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		71.52	89.44	112.16	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		96.55	98.39	104.69	
			Cost for 1.25 cum = (a+b+c+d)						1062.08	1082.27	1151.56	
			Rate per cum = (a+b+c+d)/1.25						849.66	865.81	921.25	
								Say	**849.70**	**865.80**	**921.20**	
2.04	**II**	**B**	**Prestressed/ Reinforced cement concrete grade M-20 & above**									
			Unit= cum									
			Taking output= 1.25 cum									
			a) Labour									
			Mate	day	0.036	0.036	0.036	444.00	15.98	15.98	15.98	L-12
			Mazdoor with Pneumatic breaker and for loading and unloading .	day	0.910	0.910	0.910	428.00	389.48	389.48	389.48	L-13
			Blacksmith	day	0.250	0.250	0.250	541.00	135.25	135.25	135.25	L-25
			b) Machinery									
			Air compressor 250cfm	hour	0.625	0.625	0.625	496.00	310.00	310.00	310.00	PM15001
			Pneumatic breaker @ 1 cum per hour	hour	1.250	1.250	1.250	206.00	257.50	257.50	257.50	PM4001
			Tipper									
			For tranportation to dumping yard considering lead @ 1km									
			(i) 18 cum capacity	t.km	1.875			4.98	9.34			PM72001
			(ii) 14 cum capacity	t.km		1.875		5.71		10.71		PM73001
			(iii) 10 cum capacity	t.km			1.875	7.10			13.31	PM74001
			Loading & unloading charges for disposed of material									
			(i) Using by 18 cum capacity Tipper & 3.1 cum capacity loader	cum	1.250			75.43	94.29			PM77001

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Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			(ii) Using by 14 cum capacity tipper & 2.1 cum capacity loader	cum		1.250		74.68		93.35		PM77002
			(iii) Using by 10 cum capacity tipper & 1 cum capacity loader	cum			1.250	104.81			131.01	PM77003
			Total cost without (OH&CP)						1211.84	1212.27	1252.54	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		96.95	121.23	150.30	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		130.88	133.35	140.28	
			Cost for 1.25 cum = (a+b+c+d)						1439.66	1466.85	1543.13	
			Rate per cum = (a+b+c+d)/1.25						1151.73	1173.48	1234.50	
								Say	**1151.70**	**1173.50**	**1234.50**	
2.04		**(ii)**	**Dismantling Brick/ tile work**									
			By Manual means									
		A	**In lime mortar**									
			a) Labour									
			Mate	day	0.020	0.020	0.020	444.00	8.88	8.88	8.88	L-12
			Mazdoor for dismantling and loading	day	0.500	0.500	0.500	428.00	214.00	214.00	214.00	L-13
			b) Machinery									
			Tractor- trolley	hour	0.257	0.257	0.257	717.00	184.27	184.27	184.27	PM12001
			Total cost without (OH&CP)						407.15	407.15	407.15	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		32.57	40.71	48.86	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		43.97	44.79	45.60	
			Cost for 1.25 cum = (a+b+c+d)						483.69	492.65	501.61	
			Rate per cum= (a+b+c+d)/1.25						386.95	394.12	401.29	
								Say	**387.00**	**394.10**	**401.30**	
2.04		**B**	**In cement mortar**									
			a) Labour									
			Mate	day	0.030	0.030	0.030	444.00	13.32	13.32	13.32	L-12
			Mazdoor for dismantling and loading-unloading	day	0.750	0.750	0.750	428.00	321.00	321.00	321.00	L-13
			b) Machinery									
			Tractor- trolley	hour	0.257	0.257	0.257	717.00	184.27	184.27	184.27	PM12001
			Total cost without (OH&CP)						518.59	518.59	518.59	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		41.49	51.86	62.23	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		56.01	57.04	58.08	
			Cost for 1.25 cum = (a+b+c+d)						616.08	627.49	638.90	
			Rate per cum= (a+b+c+d)/1.25						492.87	501.99	511.12	

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Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
								Say	**492.90**	**502.00**	**511.10**	
2.04		**C**	**In Mud mortar**									
			a) Labour									
			Mate	day	0.016	0.016	0.016	444.00	7.10	7.10	7.10	L-12
			Mazdoor for dismantling , loading and unloading.	day	0.400	0.400	0.400	428.00	171.20	171.20	171.20	L-13
			b) Machinery									
			Tractor- trolley	hour	0.257	0.257	0.257	717.00	184.27	184.27	184.27	PM12001
			Total cost without (OH&CP)						362.57	362.57	362.57	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		29.01	36.26	43.51	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		39.16	39.88	40.61	
			Cost for 1.25 cum = (a+b+c+d)						430.74	438.71	446.69	
			Rate per cum= (a+b+c+d)/1.25						344.59	350.97	357.35	
								Say	**344.60**	**351.00**	**357.40**	
2.04		**D**	**Dry brick pitching or brick soling**									
			a) Labour									
			Mate	day	0.014	0.014	0.014	444.00	6.22	6.22	6.22	L-12
			Mazdoor for dismantling, loadingand -unloading.	day	0.350	0.350	0.350	428.00	149.80	149.80	149.80	L-13
			b) Machinery									
			Tractor- trolley	hour	0.257	0.257	0.257	717.00	184.27	184.27	184.27	PM12001
			Total cost without (OH&CP)						340.29	340.29	340.29	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		27.22	34.03	40.83	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		36.75	37.43	38.11	
			Cost for 1.25 cum = (a+b+c+d)						404.26	411.74	419.23	
			Rate per cum= (a+b+c+d)/1.25						323.41	329.40	335.38	
								Say	**323.40**	**329.40**	**335.40**	
2.04		**(iii)**	**Dismantling stone masonry**									
		I	**By Manual means**									
		A	**rubble stone masonry in lime mortar**									
			a) Labour									
			Mate	day	0.024	0.024	0.024	444.00	10.66	10.66	10.66	L-12
			Mazdoor for dismantling , loading and -unloading.	day	0.600	0.600	0.600	428.00	256.80	256.80	256.80	L-13
			b) Machinery									
			Tractor- trolley	hour	0.257	0.257	0.257	717.00	184.27	184.27	184.27	PM12001
			Total cost without (OH&CP)						451.73	451.73	451.73	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		36.14	45.17	54.21	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		48.79	49.69	50.59	
			Cost for 1.25 cum = (a+b+c+d)						536.65	546.59	556.53	
			Rate per cum= (a+b+c+d)/1.25						429.32	437.27	445.22	

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Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
								Say	**429.30**	**437.30**	**445.20**	
2.04		**B**	**Rubble stone masonry in cement mortar**									
			a) Labour									
			Mate	day	0.030	0.030	0.030	444.00	13.32	13.32	13.32	L-12
			Mazdoor for dismantling , loading and -unloading.	day	0.750	0.750	0.750	428.00	321.00	321.00	321.00	L-13
			b) Machinery									
			Tractor- trolley	hour	0.257	0.257	0.257	717.00	184.27	184.27	184.27	PM12001
			Total cost without (OH&CP)						518.59	518.59	518.59	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		41.49	51.86	62.23	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		56.01	57.04	58.08	
			Cost for 1.25 cum = (a+b+c+d)						616.08	627.49	638.90	
			Rate per cum= (a+b+c+d)/1.25						492.87	501.99	511.12	
								Say	**492.90**	**502.00**	**511.10**	
2.04		**C**	**Rubble stone masonry in mud mortar**									
			a) Labour									
			Mate	day	0.020	0.020	0.020	444.00	8.88	8.88	8.88	L-12
			Mazdoor for dismantling ,loading and -unloading.	day	0.500	0.500	0.500	428.00	214.00	214.00	214.00	L-13
			b) Machinery									
			Tractor- trolley	hour	0.257	0.257	0.257	717.00	184.27	184.27	184.27	PM12001
			Total cost without (OH&CP)						407.15	407.15	407.15	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		32.57	40.71	48.86	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		43.97	44.79	45.60	
			Cost for 1.25 cum = (a+b+c+d)						483.69	492.65	501.61	
			Rate per cum= (a+b+c+d)/1.25						386.95	394.12	401.29	
								Say	**387.00**	**394.10**	**401.30**	
2.04		**D**	**Dry rubble masonry**									
			a) Labour									
			Mate	day	0.018	0.018	0.018	444.00	7.99	7.99	7.99	L-12
			Mazdoor for dismantling ,loading and -unloading.	day	0.450	0.450	0.450	428.00	192.60	192.60	192.60	L-13
			b) Machinery									
			Tractor- trolley	hour	0.257	0.257	0.257	717.00	184.27	184.27	184.27	PM12001
			Total cost without (OH&CP)						384.86	384.86	384.86	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		30.79	38.49	46.18	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		41.56	42.33	43.10	
			Cost for 1.25 cum = (a+b+c+d)						457.21	465.68	474.15	
			Rate per cum= (a+b+c+d)/1.25						365.77	372.55	379.32	
								Say	**365.80**	**372.50**	**379.30**	
2.04		**E**	**Dismantling stone pitching/dry stone spalls.**									

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Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			a) Labour									
			Mate	day	0.016	0.016	0.016	444.00	7.10	7.10	7.10	L-12
			Mazdoor for dismantling ,loading and -unloading.	day	0.400	0.400	0.400	428.00	171.20	171.20	171.20	L-13
			b) Machinery									
			Tractor- trolley	hour	0.257	0.257	0.257	717.00	184.27	184.27	184.27	PM12001
			Total cost without (OH&CP)						362.57	362.57	362.57	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		29.01	36.26	43.51	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		39.16	39.88	40.61	
			Cost for 1.25 cum = (a+b+c+d)						430.74	438.71	446.69	
			Rate per cum= (a+b+c+d)/1.25						344.59	350.97	357.35	
								Say	**344.60**	**351.00**	**357.40**	
2.04		**F**	**Dismantling boulders laid in wire crates including opening of crates and stacking dismantled materials.**									
			a) Labour									
			Mate	day	0.020	0.020	0.020	444.00	8.88	8.88	8.88	L-12
			Mazdoor for dismantling ,loading and -unloading.	day	0.500	0.500	0.500	428.00	214.00	214.00	214.00	L-13
			b) Machinery									
			Tractor- trolley	hour	0.257	0.257	0.257	717.00	184.27	184.27	184.27	PM12001
			Total cost without (OH&CP)						407.15	407.15	407.15	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		32.57	40.71	48.86	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		43.97	44.79	45.60	
			Cost for 1.25 cum = (a+b+c+d)						483.69	492.65	501.61	
			Rate per cum= (a+b+c+d)/1.25						386.95	394.12	401.29	
								Say	**387.00**	**394.10**	**401.30**	
2.04		**II**	**By Mechanical means**									
		A	**Dismantling Brick/ Tile work/ rubble masonary/pitching/ etc. by mechanical means**									
			Unit=cum									
			Taking output=20cum									
			a) Labour									
			Mate	day	0.008	0.008	0.008	444.00	3.55	3.55	3.55	L-12
			Mazdoor	day	0.200	0.200	0.200	428.00	85.60	85.60	85.60	L-13
			b) Machinery									
			Hydraulic Excavator									
			(i) 1.2 cum bucket capacity	hour	0.523			2809.00	1469.11			PM3003
			(ii) 1.1 cum bucket capacity	hour		0.603		2538.00		1530.41		PM3004
			(iii) 0.9 cum bucket capacity	hour			0.843	2312.00			1949.02	PM3005

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Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Tipper									
			For transprtation to dumping yard considering lead @ 1km									
			(i) 18 cum capacity	t.km	30.000			4.98	149.40			PM72001
			(ii) 14 cum capacity	t.km		30.000		5.71		171.30		PM73001
			(iii) 10 cum capacity	t.km			30.000	7.10			213.00	PM74001
			Loading and unloading time									
			(i) 18 cum capacity	hour	0.523			2349.00	1228.53			PM6001
			(ii) 14 cum capacity	hour		0.603		2108.00		1271.12		PM6002
			(iii) 10 cum capacity	hour			0.843	1891.00			1594.11	PM6003
			Total cost without (OH&CP)						2936.19	3061.99	3845.28	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		234.89	306.20	461.43	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		317.11	336.82	430.67	
			Rate for 20 Cum = (a+b+c+d)						3488.19	3705.01	4737.39	
			Rate per cum= (a+b+c+d)/20						174.41	185.25	236.87	
								Say	**174.40**	**185.30**	**236.90**	
2.04		**(iv)**	**Wood work wrought framed and fixed in frames of trussess upto a height of 5m above plinth level**									
			Unit=cum									
			Taking output=1.25 cum									
			a) Labour									
			Mate	day	0.060	0.060	0.060	444.00	26.64	26.64	26.64	L-12
			Carpenter	day	0.500	0.500	0.500	660.00	330.00	330.00	330.00	L-04
			Mazdoor for dismantling, loading and unloading	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Tractor- trolley	hour	0.257	0.257	0.257	717.00	184.27	184.27	184.27	PM12001
			Total cost without (OH&CP)						968.91	968.91	968.91	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		77.51	96.89	116.27	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		104.64	106.58	108.52	
			Rate for1.25 Cum = (a+b+c+d)						1151.06	1172.38	1193.70	
			Rate per cum= (a+b+c+d)/1.25						920.85	937.90	954.96	
								Say	**920.90**	**937.90**	**955.00**	
2.04		**(v)**	**Steel work in all types of sections upto a height of 5m above plinth level excluding cutting of rivet.**									
			Unit=tonne									
			Taking output=1 tonne									
		A	**Including dismembring**									

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Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			a) Labour									
			Mate	day	0.140	0.140	0.140	444.00	62.16	62.16	62.16	L-12
			Blacksmith	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-25
			Mazdoor for dismantling, loading and unloading	day	2.500	2.500	2.500	428.00	1070.00	1070.00	1070.00	L-13
			Add 2.5 percent of cost of labour for gas cutting, ropes, pulleys etc.						41.83	41.83	41.83	
			b) Machinery									
			Tractor-trolley	hour	0.123	0.123	0.123	717.00	88.19	88.19	88.19	PM12001
			Total cost without (OH&CP)						1803.18	1803.18	1803.18	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		144.25	180.32	216.38	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		194.74	198.35	201.96	
			Rate per tonne = (a+b+c+d)						2142.18	2181.85	2221.52	
								Say	**2142.20**	**2181.80**	**2221.50**	
2.04		**B**	**Excluding dismembering**									
			a) Labour									
			Mate	day	0.100	0.100	0.100	444.00	44.40	44.40	44.40	L-12
			Blacksmith	day	0.500	0.500	0.500	541.00	270.50	270.50	270.50	L-25
			Mazdoor for dismantling, loading and unloading	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			Add 2.5 percent of cost of labour for gas cutting, ropes, pulleys etc.						29.27	29.27	29.27	
			b) Machinery									
			Tractor-trolley	hour	0.123	0.123	0.123	717.00	88.19	88.19	88.19	PM12001
			Total cost without (OH&CP)						1288.36	1288.36	1288.36	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		103.07	128.84	154.60	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		139.14	141.72	144.30	
			Rate per tonne = (a+b+c+d)						1530.58	1558.92	1587.26	
								Say	**1530.60**	**1558.90**	**1587.30**	
2.04		**C**	**Extra over item no (v) A and (v)B for cutting rivets**									
			Unit=each									
			Taking output=10 rivets									
			a) Labour									
			Mate	day	0.010	0.010	0.010	444.00	4.44	4.44	4.44	L-12
			Blacksmith	day	0.130	0.130	0.130	541.00	70.33	70.33	70.33	L-25
			Mazdoor	day	0.130	0.130	0.130	428.00	55.64	55.64	55.64	L-13
			Total cost without (OH&CP)						130.41	130.41	130.41	
			b) Overhead charges on(a)		(@ 8%)	(@ 10%)	(@ 12%)		10.43	13.04	15.65	

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Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		14.08	14.35	14.61	
			Rate for 10 rivets = (a+b+c)						154.93	157.80	160.67	
			Rate for each rivet =(a+b+c)/10						15.49	15.78	16.07	
								Say	**15.50**	**15.80**	**16.10**	
2.04		**(vi)**	**Scrapping of bricks dismantled from brick work including stacking**									
			Unit= numbers									
			Taking output= 1000 numbers									
		A	**In Lime/Cement mortar**									
			a) Labour									
			Mate	day	0.140	0.140	0.140	444.00	62.16	62.16	62.16	L-12
			Mazdoor	day	3.500	3.500	3.500	428.00	1498.00	1498.00	1498.00	L-13
			Total cost without (OH&CP)						1560.16	1560.16	1560.16	
			b) Overhead charges on(a)		(@ 8%)	(@ 10%)	(@ 12%)		124.81	156.02	187.22	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		168.50	171.62	174.74	
			Rate for 1000 Nos = (a+b+c)						1853.47	1887.79	1922.12	
			Rate for each rivet =(a+b+c)/1000						1.85	1.89	1.92	
2.04		**B**	**In mud mortar**					**Say**	**1.90**	**1.90**	**1.90**	
			a) Labour									
			Mate	day	0.050	0.050	0.050	444.00	22.20	22.20	22.20	L-12
			Mazdoor	day	1.250	1.250	1.250	428.00	535.00	535.00	535.00	L-13
			Total cost without (OH&CP)						557.20	557.20	557.20	
			b) Overhead charges on(a)		(@ 8%)	(@ 10%)	(@ 12%)		44.58	55.72	66.86	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		60.18	61.29	62.41	
			Rate for 1000 Nos = (a+b+c)						661.95	674.21	686.47	
			Rate for each rivet =(a+b+c)/1000						0.66	0.67	0.69	
2.04		**(vii)**	**Scraping of stone from dismantled stone masonry**					**Say**	**0.70**	**0.70**	**0.70**	
			Unit=cum									
			Taking output=1 cum									
		A	**In Cement and lime mortar**									
			a) Labour									
			Mate	day	0.056	0.056	0.056	444.00	24.86	24.86	24.86	L-12
			Mazdoor	day	1.400	1.400	1.400	428.00	599.20	599.20	599.20	L-13
			Total cost without (OH&CP)						624.06	624.06	624.06	
			b) Overhead charges on(a)		(@ 8%)	(@ 10%)	(@ 12%)		49.93	62.41	74.89	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		67.40	68.65	69.90	
			Rate per Cum = (a+b+c)						741.39	755.12	768.85	
								Say	**741.40**	**755.10**	**768.80**	
2.04		**B**	**In Mud mortar**									

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Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			a) Labour									
			Mate	day	0.012	0.012	0.012	444.00	5.33	5.33	5.33	L-12
			Mazdoor	day	0.300	0.300	0.300	428.00	128.40	128.40	128.40	L-13
			Total cost without (OH&CP)						133.73	133.73	133.73	
			b) Overhead charges on(a)		(@ 8%)	(@ 10%)	(@ 12%)		10.70	13.37	16.05	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		14.44	14.71	14.98	
			Rate per Cum = (a+b+c)						158.87	161.81	164.75	
								Say	**158.90**	**161.80**	**164.80**	
2.04		**(viii)**	**Scraping plaster in lime or cement mortar from Brick/Stone Masonry**									
			Unit=sqm									
			Taking output= 100sqm									
			a) Labour									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor for scraping and loading	day	4.000	4.000	4.000	428.00	1712.00	1712.00	1712.00	L-13
			b) Machinery									
			Tractor-trolley	hour	0.308	0.308	0.308	717.00	220.84	220.84	220.84	PM12001
			Total cost without (OH&CP)						2003.88	2003.88	2003.88	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		160.31	200.39	240.47	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		216.42	220.43	224.43	
			Rate per sqm= (a+b+c+d)/100						23.81	24.25	24.69	
								Say	**23.80**	**24.20**	**24.70**	
2.04		**(ix)**	**Removing all type of Hume pipes and stacking within a lead of 1000 metres including Earthwork and Dismantling of Masonry Works.**									
		A	**Upto 600mm dia**									
			Unit= metre									
			Taking output= 15 metre									
			a) Labour									
			Mate	day	0.084	0.094	0.105	444.00	37.30	41.74	46.62	L-12
			Mazdoor	day	2.088	2.346	2.617	428.00	893.66	1004.09	1120.08	L-13
			b) Machinery									
			Hydraulic Excavator									
			(i) 1.2 cum bucket capacity	hour	2.176			2809.00	6112.38			PM3003
			(ii) 1.1 cum bucket capacity	hour		2.693		2538.00		6834.83		PM3004
			(iii) 0.9 cum bucket capacity	hour			3.235	2312.00			7479.32	PM3005
			Tipper									

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Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			For loading & unloading time & for transportation of excess material to dumping yard considering lead @ 1km									
			(i) 18 cum capacity	hour	2.226			2349.00	5228.87			PM6001
			(ii) 14 cum capacity	hour		2.743		2108.00		5782.24		PM6002
			(iii) 10 cum capacity	hour			3.285	1891.00			6211.94	PM6003
			Total cost without (OH&CP)						12272.22	13662.90	14857.95	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		981.78	1366.29	1782.95	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1325.40	1502.92	1664.09	
			Rate for 15 meter = (a+b+c+d)						14579.39	16532.11	18305.00	
			Rate per metre= (a+b+c+d)/15						971.96	1102.14	1220.33	
								Say	**972.00**	**1102.10**	**1220.30**	
		B	**Above 600mm to 900mm dia**									
			Unit= metre									
			Taking output= 15 metre									
			a) Labour									
			Mate	day	0.094	0.104	0.115	444.00	41.74	46.18	51.06	L-12
			Mazdoor	day	2.338	2.596	2.867	428.00	1000.66	1111.09	1227.08	L-13
			b) Machinery									
			Hydraulic Excavator									
			(i) 1.2 cum bucket capacity	hour	2.676			2809.00	7516.88			PM3003
			(ii) 1.1 cum bucket capacity	hour		3.193		2538.00		8103.83		PM3004
			(iii) 0.9 cum bucket capacity	hour			3.735	2312.00			8635.32	PM3005
			Tipper									
			For loading & unloading time & for transportation of excess nmaterial to dumping yard considering lead @ 1km									
			(i) 18 cum capacity	hour	2.726			2349.00	6403.37			PM6001
			(ii) 14 cum capacity	hour		3.243		2108.00		6836.24		PM6002
			(iii) 10 cum capacity	hour			3.785	1891.00			7157.44	PM6003
			Total cost without (OH&CP)						14962.66	16097.34	17070.89	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		1197.01	1609.73	2048.51	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1615.97	1770.71	1911.94	
			Rate for 15 metre = (a+b+c+d)						17775.64	19477.78	21031.34	
			Rate per metre= (a+b+c+d)/15						1185.04	1298.52	1402.09	
								Say	**1185.00**	**1298.50**	**1402.10**	
		C	**Above 900mm**									
			Unit= metre									

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Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Taking output= 15 metre									
			a) Labour									
			Mate	day	0.104	0.114	0.135	444.00	46.18	50.62	59.94	L-12
			Mazdoor	day	2.588	2.846	3.367	428.00	1107.66	1218.09	1441.08	L-13
			b) Machinery									
			Hydraulic Excavator									
			(i) 1.2 cum bucket capacity	hour	3.176			2809.00	8921.38			PM3003
			(ii) 1.1 cum bucket capacity	hour		3.693		2538.00		9372.83		PM3004
			(iii) 0.9 cum bucket capacity	hour			4.735	2312.00			10947.32	PM3005
			Tipper									
			For loading & unloading time & for transportation of excess nmaterial to dumping yard considering lead @ 1km									
			(i) 18 cum capacity	hour	3.226			2349.00	7577.87			PM6001
			(ii) 14 cum capacity	hour		3.743		2108.00		7890.24	0.00	PM6002
			(iii) 10 cum capacity	hour			4.785	1891.00			9048.44	PM6003
			Total cost without (OH&CP)						17653.10	18531.78	21496.77	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		1412.25	1853.18	2579.61	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1906.53	2038.50	2407.64	
			Rate for 15metre = (a+b+c+d)						20971.88	22423.46	26484.02	
			Rate per metre= (a+b+c+d)/15						1398.13	1494.90	1765.60	
								Say	**1398.10**	**1494.90**	**1765.60**	
		Note	1. The excavation of earth, dismantling of stone masonry work in head walls and protection work is not included which is to be measured and paid separately.									
			2. Credit for retrieved stone from masonry work may be taken as per actual availability.									
2.05	**202**		**Dismantling of flexible pavements**									
			Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately									
			Unit=cum									
			Taking output= 1 cum									
		(i)	**By Manual means**									
		A	**Bituminous courses**									
			a) Labour									

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Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Mate	day	0.060	0.060	0.060	444.00	26.64	26.64	26.64	L-12
			Mazdoor for dismantling, loading and unloading	day	1.500	1.500	1.500	428.00	642.00	642.00	642.00	L-13
			b) Machinery									
			Tractor-trolley	hour	0.167	0.167	0.167	717.00	119.74	119.74	119.74	PM12001
			Total cost without (OH&CP)						788.38	788.38	788.38	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		63.07	78.84	94.61	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		85.14	86.72	88.30	
			Rate per cum = (a+b+c+d)						936.59	953.94	971.28	
								Say	**936.60**	**953.90**	**971.30**	
2.05		**B**	**Granular courses**									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor for dismantling, loading and unloading	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Tractor-trolley	hour	0.167	0.167	0.167	717.00	119.74	119.74	119.74	PM12001
			Total cost without (OH&CP)						565.50	565.50	565.50	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		45.24	56.55	67.86	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		61.07	62.20	63.34	
			Rate per cum = (a+b+c+d)						671.81	684.25	696.69	
								Say	**671.80**	**684.30**	**696.70**	
2.05	**202**		Dismantling of flexible pavements and disposal of dismantled materials upto a leadof 1000 metres, stacking serviceable and unserviceable materials separately									
		(ii)	**By Mechanical means**									
		A	**Bituminous courses**									
			Unit=cum									
			Taking output= 20cum									
			a) Labour									
			Mate	day	0.024	0.027	0.033	444.00	10.66	11.99	14.65	L-12
			Mazdoor for dismantling, loading and unloading	day	0.588	0.667	0.833	428.00	251.66	285.48	356.52	L-13
			b) Machinery									
			Hydraulic Excavator									
			(i) 1.2 cum bucket capacity considering output 85 sqm/8.5 cum per hour	hour	2.353			2809.00	6609.58			PM3003

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Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		(ii) 1.1 cum bucket capacity considering output 75 sqm/7.5 cum per hour	hour		2.667		2538.00		6768.85		PM3004
		(iii) 0.9 cum bucket capacity considering output 60 sqm/6 cum per hour	hour			3.333	2312.00			7705.90	PM3005
		Tipper for transportation									
		(i) 18 cum capacity	t.km	46.000			4.98	229.08			PM72001
		(ii) 14 cum capacity	t.km		46.000		5.71		262.66		PM73001
		(iii) 10 cum capacity	t.km			46.000	7.10			326.60	PM74001
		Total cost without (OH&CP)						7100.98	7328.97	8403.67	
		c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		568.08	732.90	1008.44	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		766.91	806.19	941.21	
		Ratefor 20 cum = (a+b+c+d)						8435.96	8868.05	10353.32	
		Rate per cum= (a+b+c+d)/20						421.80	443.40	517.67	
							Say	**421.80**	**443.40**	**517.70**	
	B	**Granular Courses**									
		Unit=cum									
		Taking output= 250cum									
		a) Labour									
		Mate	day	0.029	0.033	0.046	444.00	12.88	14.65	20.42	L-12
		Mazdoor for dismantling, loading and unloading	day	0.718	0.827	1.156	428.00	307.30	353.96	494.77	L-13
		b) Machinery									
		Hydraulic Excavator									
		(i) 1.2 cum bucket capacity	hour	2.873			2809.00	8070.26			PM3003
		(ii) 1.1 cum bucket capacity	hour		3.308		2538.00		8395.70		PM3004
		(iii) 0.9 cum bucket capacity	hour			4.625	2312.00			10693.00	PM3005
		Tipper for transportation									
		(i) 18 cum capacity	t.km	575.000			4.98	2863.50			PM72001
		(ii) 14 cum capacity	t.km		575.000		5.71		3283.25		PM73001
		(iii) 10 cum capacity	t.km			575.000	7.10			4082.50	PM74001
		Total cost without (OH&CP)						11253.94	12047.56	15290.69	
		c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		900.31	1204.76	1834.88	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1215.43	1325.23	1712.56	
		Rate for 250 cum = (a+b+c+d)						13369.68	14577.55	18838.13	
		Rate per cum = (a+b+c+d)/250						53.48	58.31	75.35	

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Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
							Say	**53.50**	**58.30**	**75.40**	
2.06	**202**	**Dismantling of cement concrete pavement**									
		Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled materials up to a alead of 1000 metres, stackiung serviceable and unserviceable materials separately									
		Unit=cum									
		Taking output=60cum									
		a) Labour									
		Mate	day	0.120	0.120	0.120	444.00	53.28	53.28	53.28	L-12
		Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
		b) Machinery									
		Hydraulic Excavator									
		(i) 1.2 cum bucket capacity	hour	6.841			2809.00	19216.37			PM3003
		(ii) 1.1 cum bucket capacity	hour		8.048		2538.00		20425.82		PM3004
		(iii) 0.9 cum bucket capacity	hour			9.121	2312.00			21087.75	PM3005
		Jack hammer	hour	6.841	9.146	12.162	206.00	1409.25	1884.08	2505.37	PM4001
		Air compressor 250 cfm with 2 leads of pneumatic breaker @1 cum per hour	hour	2.880	2.880	2.880	496.00	1428.48	1428.48	1428.48	PM15001
		Pneumatic breaker	hour	5.760	5.760	5.760	206.00	1186.56	1186.56	1186.56	PM4001
		Concrete joint cutting machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61002
		Tipper									
		for transportation to dumping yard considering lead @ 1km									
		(i) 18 cum capacity	t.km	180.000			4.98	896.40			PM72001
		(ii) 14 cum capacity	t.km		180.000		5.71		1027.80		PM73001
		(iii) 10 cum capacity	t.km			180.000	7.10			1278.00	PM74001
		For loading and unloading charges for disposed of grabbed material									
		(i) Using by 18 cum capacity tipper & 3.1 cum capacity loader	cum	72.000			75.43	5430.96			PM77001

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Sr No	Ref. to M.	Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		(ii) Using by 14 cum capacity tipper & 2.1 cum capacity loader	cum		72.000		74.68		5376.96		PM77002
		(i) Using by 10 cum capacity tipper & 1 cum capacity loader	cum			72.000	104.81			7546.32	PM77003
		Total cost without (OH&CP)						32785.30	34546.98	38249.76	
		c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		2622.82	3454.70	4589.97	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		3540.81	3800.17	4283.97	
		Cost for 60 cum = (a+b+c+d)						38948.93	41801.85	47123.71	
		Rate per cum= (a+b+c+d)/60						649.15	696.70	785.40	
							Say	**649.10**	**696.70**	**785.40**	
2.07	**202**	**Dismantling of guard rails**									
		Dismantling of guard rails by manual means and disposal of dismantled material with all lifts and up to a lead of 1000 metres, stacking serviceable materials and unserviceable materials separately									
		Unit= running metre									
		Takng output= 1 metre									
		a) Labour									
		Mate	day	0.006	0.006	0.006	444.00	2.66	2.66	2.66	L-12
		Mazdoor including loading and unloading	day	0.150	0.150	0.150	428.00	64.20	64.20	64.20	L-13
		b) Machinery									
		Tractor- trolley	hour	0.006	0.006	0.006	717.00	4.30	4.30	4.30	PM12001
		Total cost without (OH&CP)						71.17	71.17	71.17	
		c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		5.69	7.12	8.54	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		7.69	7.83	7.97	
		Rate per metre = (a+b+c+d)						84.55	86.11	87.68	
							Say	**84.50**	**86.10**	**87.70**	
2.08	**202**	**Dismantling of kerb stone**									
		Dismantling kerb stone by manual means and disposal of dismantled material with all lifts and up to a lead of 1000 metres									
		Unit= running metre									
		Takng output= 10 metre									
		a) Labour									
		Mate	day	0.006	0.006	0.006	444.00	2.66	2.66	2.66	L-12

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Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor including loading and unloading	day	0.150	0.150	0.150	428.00	64.20	64.20	64.20	L-13
			b) Machinery									
			Tractor- trolley	hour	0.139	0.139	0.139	717.00	99.66	99.66	99.66	PM12001
			Total cost without (OH&CP)						166.53	166.53	166.53	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		13.32	16.65	19.98	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		17.98	18.32	18.65	
			Cost for 10 meter = (a+b+c+d)						197.83	201.50	205.16	
			Rate per metre =(a+b+c+d)/10						19.78	20.15	20.52	
								Say	**19.80**	**20.10**	**20.50**	
2.09	**202**		**Dismantling of kerb stone channel**									
			Dismantling kerb stone channel by manual means and disposal of dismantled material with all lifts and up to a lead of 1000 metres									
			Unit= running metre									
			Takng output= 10 metre									
			a) Labour									
			Mate	day	0.009	0.009	0.009	444.00	4.00	4.00	4.00	L-12
			Mazdoor including loading and unloading	day	0.225	0.225	0.225	428.00	96.30	96.30	96.30	L-13
			b) Machinery									
			Tractor- trolley	hour	0.170	0.170	0.170	717.00	121.89	121.89	121.89	PM12001
			Total cost without (OH&CP)						222.19	222.19	222.19	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		17.77	22.22	26.66	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		24.00	24.44	24.88	
			Cost for 10 meter = (a+b+c+d)						263.96	268.85	273.73	
			Rate per metre =(a+b+c+d)/10						26.40	26.88	27.37	
								Say	**26.40**	**26.90**	**27.40**	
2.10	**202**		**Dismantling of kilometre stone**									
			Dismantling of kilometre stone including cutting of earth , foundation and disposal of dismantled material with all lifts and lead up to 1000 metres and back filling of pit									
			Unit= each									
			Takng output= one KM stone									
		A	**5th KM stone**									
			Quantity of cement concrete= 0.392									
			a) Labour									
			Mate	day	0.030	0.030	0.030	444.00	13.32	13.32	13.32	L-12
			Mazdoor	day	0.750	0.750	0.750	428.00	321.00	321.00	321.00	L-13

SITE CLEARANCE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			b) Machinery									
			Tractor- trolley	hour	0.150	0.150	0.150	717.00	107.55	107.55	107.55	PM12001
			Total cost without (OH&CP)						441.87	441.87	441.87	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		35.35	44.19	53.02	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		47.72	48.61	49.49	
			Rate for one 5th KM Stone = (a+b+c+d)						524.94	534.66	544.38	
								Say	**524.90**	**534.70**	**544.40**	
		B	**Ordinary KM Stone**									
			Quantity of cement concrete=0.269 cum									
			a) Labour									
			Mate	day	0.020	0.020	0.020	444.00	8.88	8.88	8.88	L-12
			Mazdoor	day	0.500	0.500	0.500	428.00	214.00	214.00	214.00	L-13
			b) Machinery									
			Tractor- trolley	hour	0.100	0.100	0.100	717.00	71.70	71.70	71.70	PM12001
			Total cost without (OH&CP)						294.58	294.58	294.58	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		23.57	29.46	35.35	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		31.81	32.40	32.99	
			Rate for 1 ordinary km stone = (a+b+c+d)						349.96	356.44	362.92	
								Say	**350.00**	**356.40**	**362.90**	
		C	**Hectometre Stone**									
			Quantity of cement concrete=0.048 cum									
			a) Labour									
			Mate	day	0.004	0.004	0.004	444.00	1.78	1.78	1.78	L-12
			Mazdoor	day	0.100	0.100	0.100	428.00	42.80	42.80	42.80	L-13
			b) Machinery									
			Tractor- trolley	hour	0.020	0.020	0.020	717.00	14.34	14.34	14.34	PM12001
			Total cost without (OH&CP)						58.92	58.92	58.92	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		4.71	5.89	7.07	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		6.36	6.48	6.60	
			Rate for 1 Hectometre stone = (a+b+c+d)						69.99	71.29	72.58	
								Say	**70.00**	**71.30**	**72.60**	
2.11	**202**		**Dismantling of fencing**									
			Dismantling of barbed wire fencing/ wire mesh fencing including posts, foundation concrete, back filling of pit by manual means including disposal of dismantled materials with all lifts and up to a lead of 1000 metres stacking serviceable material and unserviceable material separately.									

CHAPTER -2
Analysis of Rates
SITE CLEARANCE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Unit=running metre									
			Taking output= 30 metres									
			a) Labour									
			Mate	day	0.150	0.150	0.150	444.00	66.60	66.60	66.60	L-12
			Mazdoor including loading and unloading	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Blacksmith	day	0.750	0.750	0.750	541.00	405.75	405.75	405.75	L-25
			b) Machinery									
			Tractor- trolley	hour	0.150	0.150	0.150	717.00	107.55	107.55	107.55	PM12001
			Total cost without (OH&CP)						1863.90	1863.90	1863.90	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		149.11	186.39	223.67	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		201.30	205.03	208.76	
			Cost for 30 metres = (a+b+c+d)						2214.31	2255.32	2296.32	
			Rate per metre= (a+b+c+d)/30					**Say**	**73.80**	**75.20**	**76.50**	
2.12	**202**		**Dismantling of CI Water Pipe Line**									
			Dismantling of CI Water Pipe Line 600mm dia. Including disposal with all lifts and lead upto 1000 metres and stacking of serviceable material and unserviceable material separately under supervision of concerned department									
			Unit= running metre									
			Taking output=10 metres									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			Plumber	day	0.250	0.250	0.250	660.00	165.00	165.00	165.00	L-02
			b) Machinery									
			Truck 10 tonne capacity	hour	0.250	0.250	0.250	1476.00	369.00	369.00	369.00	PM6004
			Light crane 3 tonne capacity	hour	0.500	0.500	0.500	860.00	430.00	430.00	430.00	PM63001
			Total cost without (OH&CP)						1855.52	1855.52	1855.52	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		148.44	185.55	222.66	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		200.40	204.11	207.82	
			Cost for 10 metres = (a+b+c+d)						2204.36	2245.18	2286.00	
			Rate per metre= (a+b+c+d)/10					**Say**	**220.40**	**224.50**	**228.60**	
		Note	The rate analysis does not include any excavation in earth or dismantling of masonry works which are to be measured and paid separately.									

SITE CLEARANCE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
2.13	**202**		**Removal of cement concrete Pipe of sewer Gutter**									
			Removal of cement concrete pipe of sewer gutter 1500 mm dia under the supervision of concerned department including disposal with all lifts and up to a lead of 1000 metres and stacking of serviceable and unserviceable material separately but excluding earth excavation and dismantling of masonry works.									
			Unit= running metre									
			Taking output= 10 metres									
			a) Labour									
			Mate	day	0.100	0.100	0.100	444.00	44.40	44.40	44.40	L-12
			Mazdoor	day	2.500	2.500	2.500	428.00	1070.00	1070.00	1070.00	L-13
			b) Machinery									
			Crane 5 tonne cpacity	hour	0.300	0.300	0.300	896.00	268.80	268.80	268.80	PM63002
			Truck flat body 10 tonne	hour	1.000	1.000	1.000	1476.00	1476.00	1476.00	1476.00	PM6004
			Total cost without (OH&CP)						2859.20	2859.20	2859.20	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		228.74	285.92	343.10	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		308.79	314.51	320.23	
			Cost for 10 metres = (a+b+c+d)						3396.73	3459.63	3522.53	
			Rate per metre= (a+b+c+d)/10					**Say**	**339.70**	**346.00**	**352.30**	
		Note	The rate analysis does not include any excavation in earth or dismantling of masonry works which are to be measured and paid separately.									
2.14	**202**		**Removal of telephone/ Electric Poles and Lines**									
			Removal of telephone/ Electric poles including excavation and dismantling of foundation concrete and lines under the supervision of concerned department , disposal with all lifts and up to a lead of 1000 metres and stacking the serviceable and unserviceable material separately									
			Unit= Each									
			Taking Output= 30 nos.									
			a) Labour									
			Mate	day	0.480	0.480	0.480	444.00	213.12	213.12	213.12	L-12
			Mazdoor	day	10.000	10.000	10.000	428.00	4280.00	4280.00	4280.00	L-13
			Electrician/ Lineman	day	2.000	2.000	2.000	660.00	1320.00	1320.00	1320.00	L-02

CHAPTER -2
Analysis of Rates

SITE CLEARANCE

Sr No	Ref. to M.		Description	Unit	Quantity as per peroject category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			b) Machinery									
			Tractor-trolley	hour	1.500	1.500	1.500	717.00	1075.50	1075.50	1075.50	PM12001
			Total cost without (OH&CP)						**6888.62**	**6888.62**	**6888.62**	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		551.09	688.86	826.63	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		743.97	757.75	771.53	
			Cost for 30 Pole = (a+b+c+d)						8183.68	8335.23	8486.78	
			Rate per pole= (a+b+c+d)/30						272.79	277.84	282.89	
								Say	**272.80**	**277.80**	**282.90**	
		Note	**All the serviceables material resulting from removal of telephone / Electric poles and lines would be handed over to the employer.**									

CHAPTER - 03

EARTHWORK, EROSION CONTROL AND DRAINAGE

CHAPTER-3

EARTHWORK, EROSION CONTROL AND DRAINAGE

PREAMBLES :

1 The rates have been analyzed using mechanical means. Manual means for certain items have also been provided which can be used for area inaccessible to machines and for small jobs.

2 In rate analyses of earthwork, only compacted volume of earth has been considered.

3 Rates have been analyzed for average working conditions.

4 Average achievable outputs of machines have been considered taking into account job and management factors.

5 A water tanker of 6, 12, & 16 KL capacity which is commonly used at construction site has been considered

6 The rate caters for disposal of unsuitable soil only upto a distance of 1 km. The cost of transportation beyond the initial lead of 1 km will be paid separately based on tonne-kilometer.

7 The replacement of unsuitable soil by suitable soil shall be included separately in the estimate. The rate analyses for removal of unsuitable soil does not provide for replacement by suitable soil.

8 In cases where embankment is constructed with earth taken from roadway, the cost of depositing the earth at the site of embankment is already included in the disposal of excavated earth.

9 For narrow and restricted areas, plate compactor has been proposed for compaction to achieve the desired density.

10 For small jobs where loading and unloading is required to be done manually, tractor-trollley has been proposed for carriage instead of a tipper.

11 In case excavated rock is found suitable for incorporation in works, suitable credit for the available rock shall be given.

12 The possibility of using the blasted rock fragments for backfilling behind structures or backfilling of foundation pits or filling in medians/separators or use in service road shall be examined before proposing disposal of excavated rock.

13 In case of hill roads, the cut earth can be pushed down the valley in case there is no objection. In that case, cost of disposal in not required to be provided.

14 'L2' (Lead for Earthwork borrow area to site) in the analysis represents lead in km one way. This will vary from project to project and is required to be ascertained at site at the time of estimation.

15 For inhabited areas, controlled blasting with limited charges of explosives has been provided. The involves smaller drill holes and additional requirement of electric detonators. Provision has accordingly been made.

16 Any work involved for water courses at culverts (Clause 312) will be priced under respective items like excavation, grubbing, clearing etc. for which rate analyses have separately been made.

17 Earth excavated from drains can be used in roadway berms. Hence, carriage for disposal of same is not provided.

18 In rate analysis of some items, the quantities of sub-items involved in that analysis, (like excavation for foundation, foundation concrete, painting, lettering etc.)has been given. The rates for such item shall be taken from relevant chapters where the same have already been analyzed.

CHAPTER -3

Summary of Rate Analysis

EARTH WORK, EROSION CONTROL AND DRAINAGE

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
3.01	301		**Exacavation in Soil by Manual Means.**				
			Exacavation for roadway in soil using manual means including loading in truck for carrying of cut earth to embankment site with all lifts and lead upto 1000 metres.	cum	333.50	339.70	345.90
3.02	301		**Exacavation in Ordinary Rock by Manual Means.**				
			Exacavation in ordinary rock using manual means including loading in a truck and carrying of excavated material to embankment site with in all lifts and leads upto 1000 metres.	cum	443.90	452.10	460.30
3.03	301		**Excavation in soil with Dozer with lead upto 1000 metres**				
			Excavation for road way in soil by mechanical means including cutting and transporting the earth to site of embankment /dumping area with lead upto 1000 metres, including trimming bottom and side slopes in accordance with requirements of lines, grades and cross sections.	cum	150.10	158.90	208.90
3.04	301		**Excavation in ordinary rock with Dozer with lead upto 1000 metres**				
			Excavation for roadway in ordinary rock by deploying a dozer, including cutting and transporting the earth to site of embankment /dumping area with lead upto 1000 metres, trimming bottom and side slopes in accordance with the requirements of lines, grades and cross sections.	cum	228.10	244.10	311.80
3.05	301 & 302		**Excavation in Hard Rock (requiring blasting) with disposal upto 1000 metres**				
			Excavation for roadway in hard rock (requiring blasting) by drilling, blasting and breaking, trimming of bottom and side slopes in accordance with requirements of lines, grades and cross sections, loading and disposal of cut road with in all lifts and leads upto 1000 metres	cum	459.80	481.80	556.20
3.06	301		**Excavation in Soil using Hydraulic Excavator and Tippers with Disposal upto 1000 metres.**				
			Excavation for road work in soil with hydraulic excavator including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and tranporting to the embankment location within all lifts and lead upto 1000 m	cum	79.10	92.60	108.20

CHAPTER -3

Summary of Rate Analysis

EARTH WORK, EROSION CONTROL AND DRAINAGE

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
3.07	**301**		**Excavation in Ordinary Rock using Hydraulic Excavator and Tippers with Disposal upto 1000 metres**				
			Excavation for roadwork in Ordinary Rock with hydraulic excavator including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000m	cum	545.00	585.80	632.80
3.08	**301**		**Excavation in Hard Rock (blasting prohibited)**				
			Excavation for roadwork in Hard Rock (blasting prohibited) with hydraulic excavator including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000m				
		A	**Mechanical Method**	cum	675.70	733.00	821.40
3.08		**B**	**Manual Method**	cum	2031.10	2068.80	2106.40
3.09	**301 & 302**		**Excavation in Hard Rock (controlled blasting) with disposal upto 1000 metres**				
			Excavation for road way in hard rock (requiring blasting) by drilling, blasting and breaking, trimming of bottom and side slopes in accordance with requirements of lines,grades and cross sections,loading and disposal of cut road within all lifts and leads upto 1000 metres.	cum	482.80	491.20	584.00
3.10	**301**		**Excavation in Marshy Soil using Hydraulic Excavator and Tippers with Disposal upto 1000 metres**				
			Excavation for roadwork in Marshy Soil with hydraulic excavator including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000m	cum	170.90	181.50	233.00
3.11	**301**		**Removal of Unserviceable Soil with Disposal upto 1000 metres**				
			Removal of unserviceable soil including excavation, loading and disposal upto 1000 metres lead but excluding replacement by suitable soil which shall be paid separately as per clause 305.	cum	80.60	86.10	110.20
3.12	**303**		**Presplitting of Rock Excavation Slopes**				

CHAPTER -3

Summary of Rate Analysis

EARTH WORK, EROSION CONTROL AND DRAINAGE

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
			Carrying out excavation in hard rock to achieve a specified slope of the rock face by controlled use of explosives and blasting accessories in properly aligned and spaced drill holes, collection of the excavated rock by a dozer, loading in tipper by a front end loader and disposing of the material with all lifts and lead upto 1000 m, all as specified in clause No. 303	sqm	130.50	132.80	157.60
3.13	**304**		**Excavation for Structures**				
			Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work.				
		(i)	**Ordinary Soil**				
		A	**Manual Means (Depth upto 3 m)**	cum	423.70	431.50	439.30
3.13		**B**	**Mechanical Means (Depth upto 3 m)**	cum	78.80	83.30	103.90
3.13		**(ii)**	**Ordinary Rock (not requiring blasting)**				
		A	**Manual Means (Depth upto 3m)**	cum	529.60	539.40	549.20
3.13		**B**	**Mechanical Means**	cum	569.80	615.80	650.50
3.13	**302 & 303**	**(iii)**	**Mechanical Means**				
		A	Carrying out excavation in hard rock to achieve a specified slope of the rock face by controlled use of explosives and blasting accessories in property aligned and spaced drill holes , collection of the excavated rock by a dozer, loading in tipper by a front end loader and disposing of the material with all lifts and lead upto 1000 m, all as specified in clasue No. 303.	cum	405.00	421.20	456.40
3.13		**(iv)**	**Hard Rock (Blasting Priohibited)**	cum	1029.70	1118.50	1279.00
3.13		**(v)**	**Marshy soil**				
		A	**Manual means (upto 3m depth)**	cum	778.00	792.40	806.80
3.13		**B**	**Mechanical Means**	cum	283.50	300.10	378.60
3.14	**305.4.3**		**Scarifying the existing bituminous road surface to a depth of 50 mm and disposal of scarified material with in all lifts and lead upto 1000 metres.**				
		(i)	Scarifying Existing Grannular Surface to a depth of 50 mm by Manual Means	sqm	40.70	41.50	42.20
3.14	**305.4.3**	**(ii)**	**By Mechanaical Means using Hydraulic excavator**	sqm	5.10	5.40	7.00
3.14	**305.4.3**	**(iii)**	**By Mechanaical Means using Motor Grader**	sqm	6.70	7.10	9.00

CHAPTER -3

Summary of Rate Analysis

EARTH WORK, EROSION CONTROL AND DRAINAGE

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
3.15	305.4.3		**Scarifying the existing bituminous surface to a depth of 50 mm and disposal of scarified material within all the lifts and leads upto 1000 metres.**				
		(i)	**By Mechanaical Means using Hydraulic excavator**	sqm	6.10	6.50	8.30
3.15	305.4.3	(ii)	**By Mechanaical Means using Motor Grader**	sqm	6.80	7.20	9.20
3.16	305		**Construction of Embankment with Material obtained from Borrow pits.**				
			Construction of Embankment with approved material obtained from Borrow pits with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of Table 300-2.	cum	176.10	187.30	214.80
3.17	305		**Construction of Embankment with Material Deposited from Roadway Cutting.**				
			Construction of Embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of Table 300-2.	cum	54.80	59.70	62.60
			Rate per cum after adding royalty@Rs 33.00/cum	cum	87.80	92.70	95.60
3.18	305		**Construction of Subgrade and Earthen Shoulders**				
			Construction of sub-grade and earthen shoulders with approved material obtained from Borrow pits with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of Table 300-2.	cum	177.90	189.30	217.30
3.19	305		**Construction of Subgrade and Earthen Shoulders with Material Deposited from Roadway Cutting**				
			Construction of Embankment with Material Deposited from Roadway Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of Table 300-2.	cum	55.70	60.70	63.80
			Rate per cum after adding royalty@Rs 33.00/cum	cum	88.70	93.70	96.80
3.20	305.3.4		**Compacting Original ground**				
	Case-I		**Compacting Original ground supporting sub-grade**				
			Loosening of the ground upto a level of 500 mm below the sub-grade level, watered, graded and compacted in layers to meet requirement of Table 300-2 for sub-grade construction.	cum	87.80	96.40	95.40

CHAPTER -3

Summary of Rate Analysis

EARTH WORK, EROSION CONTROL AND DRAINAGE

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
	Case-II		**Compacting Original ground supporting embankment**				
			Loosening, leveling and compacting original ground supporting embankment to facilitate placement of first layer of embankment , scarified to a depth of 150 mm, mixed with water at OMC and then compacted by rolling so as to achieve minimum dry density as given in Table 300-2 for emabakment construction.	cum	100.50	111.00	110.90
3.21	**305**		**Stripping and Storing Top Soil**				
			Stripping, Storing of Top Soil by road side at 15 m internal and re-application on embankment slopes, cut slopes and other areas in localities where the available embankment material is not conducive to plant growth.	cum	103.60	112.00	132.30
3.22	**305**		**Stripping, Storing and Re-laying Top Soil from Borrow Areas in Agriculture Fields.**				
			Stripping of top Soil from Borrow areas located in agriculture fields, storing at a suitable place, spreading and re-laying after taking the borrow earth to maintain fertility of the agricultural field, finishing it to the required levels and satisfaction of the farmer.	cum	183.00	193.20	247.00
3.23	**307**	**A**	**Turfing with Sods**				
			Furnishing and laying of the live sods of perennial turf forming grass on embankment slope, verges or other locations shown on the drawing or as directed by the engineer including preparation of ground, fetching of sods and watering.	cum	43.10	45.10	51.30
3.24	**308**		**Seeding and Mulching**				
			Preparation of seed bed on previously laid top soil, firnishing and placing of seeds, fertilizer, mulching material, applying bituminous emulssion at the rate of 0.23 litres per sqm and laying and fixing jute netting, including cost of watering for 3 months all as per clause 308.	sqm	154.40	161.60	183.70
3.25	**309**		**Surface Drains in Soil**				
			Construction of unlined surface drains of average cross sectional area 0.40 sqm in soil to specified lines, grades, levels and dimensions to the requirement of clause 301 and 309. Excavated material to be used in embankment within a lead of 1000 metres				
		A	**Mechanical means**	metre	58.90	60.00	61.10
3.25		**B**	**Manual means**	metre	175.90	179.20	182.40
3.26	**309**		**Surface Drains in Ordinary Rock**				

CHAPTER -3

Summary of Rate Analysis

EARTH WORK, EROSION CONTROL AND DRAINAGE

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
			Construction of unlined surface drain of average cross sectional area 0.4 sqm in ordinary rock to specified lines, grades, levels and dimensions as per approved design and to the reuirement of clause 301 and 309. Excavated material to be used in embankment at site within a lead of 1000 metres				
		A	**Mechanical means**	metre	80.00	81.50	82.90
		B	**Manual means**	metre	247.80	252.40	257.00
3.27	**309**		**Surface Drains in Hard Rock**				
			Rate per metre may be worked out based on quantity of hard rock as per design. For rate of hard rock cutting, refer relevent item in this chapter				
3.28	**309**		**Sub-Surface Drains with Perforated Pipe**				
			Construction of subsurface drain with perforated pipe of 100 mm internal diameter of metal/ asbestos cement/ Cement concrete/ PVC, closely jointed, perforations ranging from 3mm to 6mm depending upto size of material surrounding the pipe, with 150 mm bedding below the pipe and 300mm cushion above the pipe, cross section of excavation 450 x 550 mm. Excavated material to be utilised in roadway at site	metre	458.40	466.90	475.40
3.29	**309**		**Aggregate Sub-Surface Drains**				
			Construction of aggregate sub surface drain 300 mm x 450 mm with aggregates conforming to Table 300-4, excavated material to be utilised in roadway.	metre	197.10	200.70	204.40
3.30	**309**		**Underground Drain at Edge of pavement**				
			Construction of an underground drain 1m x 1m (inside dimensions) lined with RCC-20 cm thick and covered with RCC slab 10 cm in thickness on urban roads.	metre	3847.60	3927.40	4042.00
			Rates for these items may be taken from chapters on earth work and culvert respectively.				
3.31	**310**		**Preparation and Surface Treatment of Formation**				
			Preparation and Surface treatment of formation by removing mud and slurry, watering to the extent needed to maintain the desired moisture content, trimming to the required line, grade, profile and rolling with smooth wheeled roller,complete as per clause 310.	sqm	3.70	3.80	4.10
3.32	**313**		**Construction of Rock fill Embankment with all lifts and lead upto 5 km**				

CHAPTER -3

Summary of Rate Analysis

EARTH WORK, EROSION CONTROL AND DRAINAGE

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
			Construction of Rock fill Embankment from roadway excavation with broken hard rock fragments of size not exceeding 300 mm laid in layers not exceeding 500 mm thick including filling of surface voids with stone spalls, blinding top layer with granular material, rolled with vibratory road roller, all complete as per clause 313.	cum	114.40	123.70	153.70
3.33			**Work in Urban Roads**				
			The cost of earth work in urban roads inhabited area will be comparatively higher due to following reasons:				
			a) There is mixed traffic on urban roads like slow moving hand and animal driven carts, riskshaws, cycles, two/ three wheeler apart from the usual vehicular traffic resulting into traffic jams. This causes loss of working time which may be in the range of 10-15 percent				
			b) There is considerable disruption of traffic adversely affecting the efficiency of the working parties including machines due to congestion caused by pedestrian traffic, local road side venders, parking of vehicles by the-road side encroachment by the shopkeepers and local shops who make use of the berms of the road in front of these shops and unauthorised conversion of road berms into mini local market. The output of Manpower and machines is substantially reduced due to factors mentioned above.				
			c) Cost of living in urban areas is comparatively more resulting into higher wages.				
			d) At times, work is executed during night time due to heavy traffic during day time. This involves extra expenditure by way of making arrangement for lighting and special transport for working parties due to odd hour.				
			In the light of above, the authorities engaged in preparing the cost estimates may exercise their judgement and cater for the additional cost to the extent of 2 to3 percent,keeping in view the severity of factors mentioned above. Supporting details for the extra cost based on the actual conditions in specific cases will have to give in justification.				
3.34	**Suggestive**		**Embankment Construction with Fly ash/Pond ash available from coal or lignite burning Thermal Plants as waste material.**				

CHAPTER -3

Summary of Rate Analysis

EARTH WORK, EROSION CONTROL AND DRAINAGE

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
			Construction of embankment with fly ash conforming to Table 1 of IRC: SP:58 obtained from coal or lignite burning thermal power stations as waste material, spread and compacted in layers at OMC, all as specified in IRC: SP: 58 and as per approved plans. Considering soil blanketing of 2m either side for 4 lane section	cum	79.20	85.50	93.10

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
3.01	301	**Excavation in Soil by Manual Means.**									
		Excavation for roadway in soil using manual means including loading in truck for carrying of cut earth to embankment site with all lifts and lead upto 1000 metres.									
		Unit=cum									
		Taking output=120 cum									
		a) Labour									
		Mate	day	1.800	1.800	1.800	444.00	799.20	799.20	799.20	L-12
		Mazdoors	day	45.000	45.000	45.000	428.00	19260.00	19260.00	19260.00	L-13
		b) Machinery									
		Truck 5.5 cum capacity	hour	9.236	9.236	9.236	1476.00	13632.34	13632.34	13632.34	PM6004
		Total cost(Without O.H&C.P.)						33691.54	33691.54	33691.54	
		c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		2695.32	3369.15	4042.98	
		d) Contractor's profit on(a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		3638.69	3706.07	3773.45	
		Cost of 120 cum= a+b+c+d						40025.54	40766.76	41507.97	
		Rate per cum= (a+b+c+d)/120(With OH.&C.P.)						333.55	339.72	345.90	
							Say	**333.50**	**339.70**	**345.90**	
	Note	In case there is a situation where the cross-section is of cut and fill and cut earth is required to be used in embankment in the immediate vicinity, the item of carriage in the truck shall be omitted									
3.02	301	**Excavation in Ordinary Rock by Manual Means.**									
		Excavation in ordinary rock using manual means including loading in a truck and carrying of excavated material to embankment site with in all lifts and leads upto 1000 metres.									
		Unit=cum									
		Taking output=120 cum									
		a) Labour									
		Mate	day	2.800	2.800	2.800	444.00	1243.20	1243.20	1243.20	L-12
		Mazdoors	day	70.000	70.000	70.000	428.00	29960.00	29960.00	29960.00	L-13
		b) Machinery									
		Truck 5.5 cum capacity	hour	9.236	9.236	9.236	1476.00	13632.34	13632.34	13632.34	PM6004
		Total cost(Without O.H&C.P.)						44835.54	44835.54	44835.54	

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Analysis of Rates

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		3586.84	4483.55	5380.26	
		d) Contractor's profit on(a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		4842.24	4931.91	5021.58	
		Cost of 120 cum= a+b+c+d						53264.62	54251.00	55237.38	
		Rate per cum= (a+b+c+d)/120(With OH.&C.P.)						443.87	452.09	460.31	
							Say	**443.90**	**452.10**	**460.30**	
		Note In case there is a situation where the cross-section is of cut and fill and cut earth is required to be used in embankment in the immediate vicinity, the item of carriage in the truck shall be omitted									
3.03	301	**Excavation in soil with Dozer with lead upto 1000 metres**									
		Excavation for road way in soil by mechanical means including cutting and transporting the earth to site of embankment /dumping area with lead upto 1000 metres, including trimming bottom and side slopes in accordance with requirements of lines, grades and cross sections.									
		Unit=cum									
		Taking output= 500 cum									
		a) Labour									
		Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
		Mazdoors	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
		b) Machinery									
		Dozer									
		Dozer (240HP)	hour	3.731			5634.00	21020.45			PM1001
		Dozer (175HP)	hour		5.342		4360.00		23291.12		PM1002
		Dozer (90HP)	hour			8.621	3047.00			26268.19	PM1003
		Tipper									
		(i) 18 cum capacity	t.km	800.000			4.98	3984.00			PM72001
		(ii) 14 cum capacity	t.km		800.000		5.71		4568.00		PM73001
		(iii) 10 cum capacity	t.km			800.000	7.10			5680.00	PM74001
		Loading & unloading charges									
		(i) Using by 18 cum capacity Tipper & 3.1 cum capacity loader	cum	500.000			75.43	37715.00			PM77001
		(ii) Using by 14 cum capacity tipper & 2.1 cum capacity loader	cum		500.000		74.68		37340.00		PM77002

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		(iii) Using by 10 cum capacity tipper & 1 cum capacity loader	cum			500.000	104.81			52405.00	PM77003
		Total cost(Without O.H&C.P.)						63165.21	65644.88	84798.95	
		c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		5053.22	6564.49	10175.87	
		d) Contractor's profit on(a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		6821.84	7220.94	9497.48	
		Cost for 500 cum= a+b+c+d						75040.27	79430.30	104472.30	
		Rate per cum= (a+b+c+d)/500(With OH.&C.P.)						150.08	158.86	208.94	
							Say	**150.10**	**158.90**	**208.90**	
3.04	**301**	**Excavation in ordinary rock with Dozer with lead upto 1000 metres**									
		Excavation for roadway in ordinary rock by deploying a dozer, including cutting and transporting the earth to site of embankment /dumping area with lead upto 1000 metres, trimming bottom and side slopes in accordance with the requirements of lines, grades and cross sections.									
		Unit=cum									
		Taking output= 300 cum									
		a) Labour									
		Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
		Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
		b) Machinery									
		Dozer									
		Dozer (240HP)	hour	4.688			5634.00	26412.19			PM1001
		Dozer (175HP)	hour		6.667		4360.00		29068.12		PM1002
		Dozer (90HP)	hour			10.714	3047.00			32645.56	PM1003
		Tipper									
		For transportation considering lead @1 km									
		(i) 18 cum capacity	t.km	720.000			4.98	3585.60			PM72001
		(ii) 14 cum capacity	t.km		720.000		5.71		4111.20		PM73001
		(iii) 10 cum capacity	t.km			720.000	7.10			5112.00	PM74001
		For Loading & unloading charges									
		(i) Using by 18 cum capacity Tipper & 3.1 cum capacity loader	cum	360.000			75.43	27154.80			PM77001
		(ii) Using by 14 cum capacity tipper & 2.1 cum capacity loader	cum		360.000		74.68		26884.80		PM77002

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Analysis of Rates

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		(iii) Using by 10 cum capacity tipper & 1 cum capacity loader	cum			360.000	104.81			37731.60	PM77003
		Total cost(Without O.H&C.P.)						57598.35	60509.88	75934.92	
		c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		4607.87	6050.99	9112.19	
		d) Contractor's profit on(a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		6220.62	6656.09	8504.71	
		Cost for 300 cum= a+b+c+d						68426.84	73216.95	93551.82	
		Rate per cum= (a+b+c+d)/300 (With OH.&C.P.)						228.09	244.06	311.84	
							Say	**228.10**	**244.10**	**311.80**	
3.05	**301 & 302**	**Excavation in Hard Rock (requiring blasting) with disposal upto 1000 metres**									
		Excavation for roadway in hard rock (requiring blasting) by drilling, blasting and breaking, trimming of bottom and side slopes in accordance with requirements of lines, grades and cross sections, loading and disposal of cut road with in all lifts and leads upto 1000 metres									
		Unit = cum									
		Taking output= 180 cum									
		a) Labour									
		Mate	day	0.210	0.210	0.210	444.00	93.24	93.24	93.24	L-12
		Mazdoors	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
		Driller	day	2.000	2.000	2.000	444.00	888.00	888.00	888.00	L-06
		Blaster	day	0.250	0.250	0.250	699.00	174.75	174.75	174.75	L-03
		b) Machinery									
		Air Compressor 250 cfm	hour	27.500	27.500	27.500	496.00	13640.00	13640.00	13640.00	PM15001
		Pneumatic breaker for driling holes	hour	55.000	55.000	55.000	206.00	11330.00	11330.00	11330.00	PM4001
		(@ 4.5 m per hour)									
		Dozer									
		Dozer (240HP)	hour	3.375			5634.00	19014.75			PM1001
		Dozer (175HP)	hour		4.800		4360.00		20928.00		PM1002
		Dozer (90HP)	hour			7.714	3047.00			23504.56	PM1003
		Tipper									

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Analysis of Rates

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		For transportation considering lead @1 km									
		(i) 18 cum capacity	t.km	360.000			4.98	1792.80			PM72001
		(ii) 14 cum capacity	t.km		360.000		5.71		2055.60		PM73001
		(iii) 10 cum capacity	t.km			360.000	7.10			2556.00	PM74001
		For Loading & unloading charges									
		(i) Using by 18 cum capacity Tipper & 3.1 cum capacity loader	cum	216.000			75.43	16292.88			PM77001
		(ii) Using by 14 cum capacity tipper & 2.1 cum capacity loader	cum		216.000		74.68		16130.88		PM77002
		(iii) Using by 10 cum capacity tipper & 1 cum capacity loader	cum			216.000	104.81			22638.96	PM77003
		c) Materials									
		Small dia Explosive at 0.40kg/cum for 180 cum (180 x 0.40) Explosive at 0.20 kg/cum for secondary blast @5% of the total volume (180 x 0.2x5%)	kg	73.800	73.800	73.800	124.27	9171.13	9171.13	9171.13	M-215
		Electric detonators at 1 per hole for main blast holes (21x3+20x2)= 103 nos	no	103.000	103.000	103.000	6.93	713.79	713.79	713.79	M-217
		Ordinary detonators @ 1 per hole for 10 secondary holes (required for 5% of the total quantity @ 0.6 m per hole for 1 cum)	no	10.000	10.000	10.000	3.47	34.70	34.70	34.70	M-216
		Detonating Fuse coil	m	320.000	320.000	320.000	16.12	5158.40	5158.40	5158.40	M-218
		Credit for excavated rock found suitable for use @ 50 percent quantity blasted	cum	90.000	90.000	90.000	110.27	-9924.30	-9924.30	-9924.30	M-090
		Total cost(Without O.H&C.P.)						69664.14	71678.19	81263.22	
		d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		5573.13	7167.82	9751.59	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		7523.73	7884.60	9101.48	
		Cost for 180 cum = a+b+c+d+e						82760.99	86730.61	100116.29	
		Rate per cum=(a+b+c+d+e)/180(with OH.&C.P)						459.78	481.84	556.20	
							Say	**459.80**	**481.80**	**556.20**	

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Analysis of Rates

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
		Note	1. The quantity and availability of rock shall be checked before affording credit.									
			2. In case some rock is issued to the contractor at site, the item of carriage shall be reduced/ restricted to that extent.									
3.06	301		**Excavation in Soil using Hydraulic Excavator and Tippers with Disposal upto 1000 metres.**									
			Excavation for road work in soil with hydraulic excavator including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000 m									s
			Unit = cum									
			Taking output= 350 cum									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Hydraulic Excavator									
			(i) 1.2 cum bucket capacity	hour	3.926			2809.00	11028.13			PM3003
			(ii) 1.1 cum bucket capacity	hour		5.024		2538.00		12750.91		PM3004
			(iii) 0.9 cum bucket capacity	hour			6.321	2312.00			14614.15	PM3005
			Tipper									
			For transportation considering lead @1 km									
			(i) 18 cum capacity	t.km	525.000			4.98	2614.50			PM72001
			(ii) 14 cum capacity	t.km		525.000		5.71		2997.75		PM73001
			(iii) 10 cum capacity	t.km			525.000	7.10			3727.50	PM74001
			For Loading and unloading time									
			(i) 18 cum capacity	hour	3.926			2349.00	9222.17			PM6001
			(ii) 14 cum capacity	hour		5.024		2108.00		10590.59		PM6002
			(iii) 10 cum capacity	hour			6.321	1891.00			11953.01	PM6003
			Total cost(Without O.H&C.P.)						23310.57	26785.01	30740.42	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		1864.85	2678.50	3688.85	
			d) Contractor's profit on(a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2517.54	2946.35	3442.93	
			Cost for 350 cum= a+b+c+d						27692.95	32409.87	37872.20	
			Rate per cum= (a+b+c+d)/350 (With OH.&C.P.)						79.12	92.60	108.21	
								Say	**79.10**	**92.60**	**108.20**	

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
3.07	301		**Excavation in Ordinary Rock using Hydraulic Excavator and Tippers with Disposal upto 1000 metres**									
			Excavation for road work in OrdinaryRock with hydraulic excavator including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000m									
			Unit=cum									
			Taking output= 60 cum									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoors	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Hydraulic Excavator for Jack Hammer									
			(i) 1.2 cum bucket capacity	hour	6.982			2809.00	19612.44			PM3003
			(ii) 1.1 cum bucket capacity	hour		8.214		2538.00		20847.13		PM3004
			(iii) 0.9 cum bucket capacity	hour			8.727	2312.00			20176.82	PM3005
			Jack Hammer	hour	6.982	8.214	8.727	206.00	1438.29	1692.08	1797.76	PM4001
			Tipper									
			For transportation considering lead @1 km									
			(i) 18 cum capacity	t.km	120.000			4.98	597.60			PM72001
			(ii) 14 cum capacity	t.km		120.000		5.71		685.20		PM73001
			(iii) 10 cum capacity	t.km			120.000	7.10			852.00	PM74001
			For Loading & unloading charges for disposed of grabbed material									
			(i) Using by 18 cum capacity Tipper & 3.1 cum capacity loader	cum	72.000			75.43	5430.96			PM77001
			(ii) Using by 14 cum capacity tipper & 2.1 cum capacity loader	cum		72.000		74.68		5376.96		PM77002
			(iii) Using by 10 cum capacity tipper & 1 cum capacity loader	cum			72.000	104.81			7546.32	PM77003
			Total cost(Without O.H&C.P.)						27525.05	29047.14	30818.67	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		2202.00	2904.71	3698.24	
			d) Contractor's profit on(a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2972.71	3195.18	3451.69	

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EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Cost for 60 cum= a+b+c+d						32699.76	35147.03	37968.60	
			Rate per cum= (a+b+c+d)/ 60 (With OH.&C.P.)						545.00	585.78	632.81	
								Say	**545.00**	**585.80**	**632.80**	
3.08	**301**		**Excavation In Hard Rock (blasting prohibited)**									
			Excavation for roadwork in Hard Rock (blasting prohibited) with hydraulic excavator including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000m.									
		A	**Mechanical Method**									
			Unit = cum									
			Taking output= 50 cum									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoors	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Hydraulic Excavator for Jack Hammer									
			(I) 1.2 cum bucket capacity	hour	8.533			2809.00	23969.20	0.00	0.00	PM3003
			(II) 1.1 cum bucket capacity	hour		10.039		2538.00	0.00	25478.98	0.00	PM3004
			(III) 0.9 cum bucket capacity	hour			11.378	2312.00	0.00	0.00	26305.94	PM3005
			Jack Hammer	hour	8.533	10.039	11.378	206.00	1757.80	2068.03	2343.87	PM4001
			Tipper									
			For transportation considering lead @1 km									
			(I) 18 cum capacity	t.km	100.000			4.98	498.00			PM72001
			(II) 14 cum capacity	t.km		100.000		5.71		571.00		PM73001
			(III) 10 cum capacity	t.km			100.000	7.10			710.00	PM74001
			For Loading & unloading charges for disposed of grabbed material									
			(I) Using by 18 cum capacity Tipper & 3.1 cum capacity loader	cum	60.000			75.43	4525.80			PM77001
			(II) Using by 14 cum capacity tipper & 2.1 cum capacity loader	cum		60.000		74.68		4480.80		PM77002

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			(iii) Using by 10 cum capacity tipper & 1 cum capacity loader	cum			60.000	104.81			6288.60	PM77003
			Credit for excavated rock found suitable for use @ 50 percent of excavated .	cum	25.000	25.000	25.000	110.27	-2756.75	-2756.75	-2756.75	M-090
			Total cost(Without O.H&C.P.)						28439.81	30287.83	33337.41	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		2275.18	3028.78	4000.49	
			d) Contractor's profit on(a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		3071.50	3331.66	3733.79	
			Cost for 50 cum= a+b+c+d						33786.49	36648.27	41071.69	
			Rate per cum= (a+b+c+d)/ 50 (With OH.&C.P.)						675.73	732.97	821.43	
								Say	**675.70**	**733.00**	**821.40**	
3.08		**B**	**Manual Method**									
			Unit = cum									
			Taking output= 16 cum									
			a) Labour									
			Mate	day	1.640	1.640	1.640	444.00	728.16	728.16	728.16	L-12
			Mazdoor including loading in truck	day	16.000	16.000	16.000	428.00	6848.00	6848.00	6848.00	L-13
			Chiseller	day	24.000	24.000	24.000	660.00	15840.00	15840.00	15840.00	L-05
			Blacksmith (Iind class)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-01
			b) Machinery									
			Tipper 5.5 cum capacity, 1 trip per hour	hour	2.900	2.900	2.900	1476.00	4280.40	4280.40	4280.40	PM6004
			Credit for excavated rock found suitable for use @ 50 percent quantity blasted	cum	8.000	8.000	8.000	110.27	-882.16	-882.16	-882.16	M-090
			Total cost(Without O.H&C.P.)						27355.40	27355.40	27355.40	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		2188.43	2735.54	3282.65	
			d) Contractor's profit on(a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2954.38	3009.09	3063.80	
			Cost for 16 cum= a+b+c+d						32498.22	33100.03	33701.85	
			Rate per cum= (a+b+c+d)/ 16 (With OH.&C.P.)						2031.14	2068.75	2106.37	
								Say	**2031.10**	**2068.80**	**2106.40**	
		Note	1. Credit is considered for 50 percent of quantity of work.									
			2. Loading for disposal will be done manually, being small quantity.									
			3. In case some rock is issued to contractor at site, the item of carriage shall be omitted to the extent of quantity issued to the contractor									

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Analysis of Rates

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
3.09	301 & 302	**Excavation in Hard Rock (controlled blasting) with disposal upto 1000 metres**									
		Excavation for road way in hard rock (requiring blasting) by drilling, blasting and breaking, trimming of bottom and side slopes in accordance with requirements of lines,grades and cross sections,loading and disposal of cut road within all lifts and leads upto 1000 metres.									
		Unit = cum									
		Taking output= 180 cum									
		a) Labour									
		Mate	day	0.210	0.210	0.210	444.00	93.24	93.24	93.24	L-12
		Mazdoors	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
		Driller	day	2.000	2.000	2.000	444.00	888.00	888.00	888.00	L-06
		Blaster	day	0.250	0.250	0.250	699.00	174.75	174.75	174.75	L-03
		b) Machinery									
		Air Compressor 250 cfm	hour	27.500	27.500	27.500	496.00	13640.00	13640.00	13640.00	PM15001
		Pneumatic breaker for drilling holes	hour	55.000	55.000	55.000	206.00	11330.00	11330.00	11330.00	PM4001
		(@ 4.5 m per hour)									
		Dozer									
		Dozer (240HP)	hour	3.375			5634.00	19014.75			PM1001
		Dozer (175HP)	hour		4.320		4360.00		18835.20		PM1002
		Dozer (90HP)	hour			7.714	3047.00			23504.56	PM1003
		Tipper									
		For transportation considering lead @1 km									
		(i) 18 cum capacity	t.km	360.000			4.98	1792.80			PM72001
		(ii) 14 cum capacity	t.km		360.000		5.71		2055.60		PM73001
		(iii) 10 cum capacity	t.km			360.000	7.10			2556.00	PM74001
		For Loading & unloading charges									
		(i) Using by 18 cum capacity Tipper & 3.1 cum capacity loader	cum	216.000			75.43	16292.88			PM77001
		(ii) Using by 14 cum capacity tipper & 2.1 cum capacity loader	cum		216.000		74.68		16130.88		PM77002
		(iii) Using by 10 cum capacity tipper & 1 cum capacity loader	cum			216.000	104.81			22638.96	PM77003
		c) Materials									

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Small dia Explosive at 0.40kg/cum for 180 cum (180 x 0.40) Explosive at 0.20 kg/cum for secondary blast @5% of the total volume (180 x 0.2x5%)	kg	73.800	73.800	73.800	124.27	9171.13	9171.13	9171.13	M-215
			Electric detonators at 1 per hole for main blast holes (21x3+20x2)= 103 nos	no	103.000	103.000	103.000	6.93	713.79	713.79	713.79	M-217
			Ordinary detonators @ 1 per hole for 10 secondary holes (required for 5% of the total quantity @ 0.6 m per hole for 1 cum)	no	10.000	10.000	10.000	3.47	34.70	34.70	34.70	M-216
			Detonating Fuse coil	m	320.000	320.000	320.000	16.12	5158.40	5158.40	5158.40	M-218
			Credit for excavated rock found suitable for use @ 50 percent quantity blasted	cum	90.000	90.000	90.000	110.27	-9924.30	-9924.30	-9924.30	M-090
									69664.14	69585.39	81263.22	
			Add 5 percent of cost of a+b+c towards muffling arrangements to guard agaainst any rock fly off during blasting						3483.21	3479.27	4063.16	
			Total cost(Without O.H&C.P.)						73147.34	73064.66	85326.39	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		5851.79	7306.47	10239.17	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		7899.91	8037.11	9556.56	
			Cost for 180 cum = a+b+c+d+e						86899.04	88408.23	105122.11	
			Rate per cum=(a+b+c+d+e)/180(with OH.&C.P)						482.77	491.16	584.01	
								Say	**482.80**	**491.20**	**584.00**	
		Note	1. The quantity and availability of rock shall be checked before affording credit.									
			2. In case some rock is issued to the contractor at site, the item of carriage shall be reduced/ restricted to that extent.									
3.10	**301**		**Excavation in Marshy Soil using Hydraulic Excavator and Tippers with Disposal upto 1000 metres**									

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Analysis of Rates

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		Excavation for roadwork in Marshy Soil with hydraulic excavator including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000m.									
		Unit = cum									
		Taking output= 325 cum									
		a) Labour									
		Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
		Mazdoors	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
		b) Machinery									
		Hydraulic Excavator									
		(i) 1.2 cum bucket capacity	hour	8.506			2809.00	23893.35			PM3003
		(ii) 1.1 cum bucket capacity	hour		9.796		2538.00		24862.25		PM3004
		(iii) 0.9 cum bucket capacity	hour			13.695	2312.00			31662.84	PM3005
		Tipper									
		For transportation to dumping yard considering lead @1 km									
		(i) 18 cum capacity	t.km	487.500			4.98	2427.75			PM72001
		(ii) 14 cum capacity	t.km		487.500		5.71		2783.63		PM73001
		(iii) 10 cum capacity	t.km			487.500	7.10			3461.25	PM74001
		For Loading and unloading time									
		(i) 18 cum capacity	hour	8.506			2349.00	19980.59	0.00		PM6001
		(ii) 14 cum capacity	hour		9.796		2108.00		20649.97		PM6002
		(iii) 10 cum capacity	hour			13.695	1891.00			25897.25	PM6003
		Total cost(Without O.H&C.P.)						46747.46	48741.60	61467.10	
		c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		3739.80	4874.16	7376.05	
		d) Contractor's profit on(a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		5048.73	5361.58	6884.31	
		Cost of 325 cum= a+b+c+d						55535.98	58977.34	75727.46	
		Rate per cum= (a+b+c+d)/325 (With OH.&C.P.)						170.88	181.47	233.01	
							Say	**170.90**	**181.50**	**233.00**	
3.11	**301**	**Removal of Unserviceable Soil with Disposal upto 1000 metres**									

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Removal of unserviceable soil including excavation, loading and disposal upto 1000 metres lead but excluding replacement by suitable soil which shall be paid separately as per clause 305.									
			Unit = cum									
			Taking output= 415 cum									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoors	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Hydraulic Excavator									
			(i) 1.2 cum bucket capacity	hour	4.769			2809.00	13396.12			PM3003
			(ii) 1.1 cum bucket capacity	hour		5.492		2538.00		13938.70		PM3004
			(iii) 0.9 cum bucket capacity	hour			7.678	2312.00			17751.54	PM3005
			Tipper									
			For transportation to dumping yard considering lead @1 km									
			(i) 18 cum capacity	t.km	622.500			4.98	3100.05			PM72001
			(ii) 14 cum capacity	t.km		622.500		5.71		3554.48		PM73001
			(iii) 10 cum capacity	t.km			622.500	7.10			4419.75	PM74001
			Loading and unloading time									
			(i) 18 cum capacity	hour	4.769			2349.00	11202.38			PM60001
			(ii) 14 cum capacity	hour		5.492		2108.00		11577.14		PM60002
			(iii) 10 cum capacity	hour			7.678	1891.00			14519.10	PM60003
			Total cost(Without O.H&C.P.)						28144.31	29516.07	37136.14	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		2251.54	2951.61	4456.34	
			d) Contractor's profit on(a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		3039.59	3246.77	4159.25	
			Cost of 415 cum= a+b+c+d						33435.44	35714.44	45751.73	
			Rate per cum= (a+b+c+d)/415 (With OH.&C.P.)						80.57	86.06	110.25	
								Say	**80.60**	**86.10**	**110.20**	
3.12	**303**		**Presplitting of Rock Excavation Slopes**									

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Analysis of Rates

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		Carrying out excavation in hard rock to achieve a specified slope of the rock face by controlled use of explosives and blasting accessories in properly aligned and spaced drill holes, collection of the excavated rock by a dozer, loading in tipper by a front end loader and disposing of the material with all lifts and lead upto 1000 m, all as specified in clause No. 303									
		Unit = Sqm									
		Taking output= 400 Sqm									
		(120 cum considering 300mm average depth of excavation over the existing rock face)									
		a) Labour									
		Mate	day	0.210	0.210	0.210	444.00	93.24	93.24	93.24	L-12
		Mazdoors	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
		Driller	day	2.000	2.000	2.000	444.00	888.00	888.00	888.00	L-06
		Blaster	day	0.250	0.250	0.250	699.00	174.75	174.75	174.75	L-03
		b) Machinery									
		Air Compressor 250 cfm	hour	17.000	17.000	17.000	496.00	8432.00	8432.00	8432.00	PM15001
		Pneumatic breaker for drilling holes	hour	34.000	34.000	34.000	206.00	7004.00	7004.00	7004.00	PM4001
		(@ 4.5 m per hour)									
		Dozer									
		(i) Dozer (240HP)	hour	1.875			5634.00	10563.75			PM1001
		(ii) Dozer (175HP)	hour		2.400		4360.00		10464.00		PM1002
		(iii) Dozer (90HP)	hour			4.286	3047.00			13059.44	PM1003
		Tipper									
		For transportation considering lead @1 km									
		(i) 18 cum capacity	t.km	240.000			4.98	1195.20			PM72001
		(ii) 14 cum capacity	t.km		240.000		5.71		1370.40		PM73001
		(iii) 10 cum capacity	t.km			240.000	7.10			1704.00	PM74001
		Loading & unloading charges									
		(i) Using by 18 cum capacity Tipper & 3.1 cum capacity loader	cum	144.000			75.43	10861.92			PM77001
		(ii) Using by 14 cum capacity tipper & 2.1 cum capacity loader	cum		144.000		74.68		10753.92		PM77002
		(iii) Using by 10 cum capacity tipper & 1 cum capacity loader	cum			144.000	104.81			15092.64	PM77003
		c) Materials									

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Small dia Explosive at 0.40kg/cum for 400 cum (400 x 0.40) Explosive at 0.20 kg/cum for secondary blast @5% of the total volume (400 x 0.2x5%)	kg	49.200	49.200	49.200	124.27	6114.08	6114.08	6114.08	M-215
			Electric detonators at 1 per hole for main blast holes (21x3+20x2)= 103 nos	no	69.000	69.000	69.000	6.93	478.17	478.17	478.17	M-217
			Ordinary detonators @ 1 per hole for 10 secondary holes (required for 5% of the total quantity @ 0.6 m per hole for 1 cum)	no	7.000	7.000	7.000	3.47	24.29	24.29	24.29	M-216
			Detonating Fuse coil	m	213.000	213.000	213.000	16.12	3433.56	3433.56	3433.56	M-218
			Credit for excavated rock found suitable for use @ 50 percent quantity blasted	cum	60.000	60.000	60.000	110.27	-6616.20	-6616.20	-6616.20	M-090
			Total cost(Without O.H&C.P.)						43930.76	43898.21	51165.98	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		3514.46	4389.82	6139.92	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		4744.52	4828.80	5730.59	
			Cost for 400 sqm = a+b+c+d+e						52189.75	53116.84	63036.48	
			Rate per sqm=(a+b+c+d+e)/400(with OH.&C.P)						130.47	132.79	157.59	
								Say	**130.50**	**132.80**	**157.60**	
		Note	1. The quantity and availability of rock shall be checked before affording credit.									
			2. In case some rock is issued to the contractor at site, the item of carriage shall be reduced/ restricted to that extent.									
3.13	**304**		**Excavation for Structures**									
			Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work.									
		(I)	**(I) Ordinary Soil**									
			Unit=cum									
			Taking output=10 cum									
		A	**Manual Means (Depth upto 3 m)**									
			a) Labour									
			Mate	day	0.320	0.320	0.320	444.00	142.08	142.08	142.08	L-12
			Mazdoors	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13
			Total cost(Without O.H&C.P.)						3566.08	3566.08	3566.08	

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Analysis of Rates

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			b) Overhead charges on (a)		(@ 8%)	(@ 10%)	(@ 12%)		285.29	356.61	427.93	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		385.14	392.27	399.40	
			Cost for 10 cum = a+b+c						4236.50	4314.96	4393.41	
			Rate per cum=(a+b+c)/10(with OH.&C.P)						423.65	431.50	439.34	
								Say	**423.70**	**431.50**	**439.30**	
		Note	Cost of dewatering may be added where required upto 10 percent of labour cost.Assesment for dewatering shall be made as per site conditions.									
3.13		**B**	**Mechanical Means (Depth upto 3 m)**									
			Unit= Cum									
			Taking output= 330 cum									
			a) Labour									
			Mate	day	0.320	0.320	0.320	444.00	142.08	142.08	142.08	L-12
			Mazdoor	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13
			b) Machinery									
			Hydraulic Excavator									
			For excavation & backfill									
			(i) 1.2 cum bucket capacity	hour	4.627			2809.00	12997.24			PM3003
			(ii) 1.1 cum bucket capacity	hour		5.329		2538.00		13525.00		PM3004
			(iii) 0.9 cum bucket capacity	hour			7.450	2312.00			17224.40	PM3005
			Tipper									
			For transportation of excess material to dumping yard considering lead @1 km									
			(i) 18 cum capacity	t.km	198.000			4.98	986.04			PM72001
			(ii) 14 cum capacity	t.km		198.000		5.71		1130.58		PM73001
			(iii) 10 cum capacity	t.km			198.000	7.10			1405.80	PM74001
			For Loading and unloading time									
			(i) 18 cum capacity	hour	1.851			2349.00	4348.00			PM6001
			(ii) 14 cum capacity	hour		2.131		2108.00		4492.15		PM6002
			(iii) 10 cum capacity	hour			2.980	1891.00			5635.18	PM6003
			Total cost(Without O.H&C.P.)						21897.36	22713.81	27831.46	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		1751.79	2271.38	3339.78	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2364.92	2498.52	3117.12	
			Cost for 330 cum= a+b+c+d						26014.07	27483.71	34288.36	
			Rate per cum= (a+b+c+d)/330						78.83	83.28	103.90	
								Say	**78.80**	**83.30**	**103.90**	
3.13		**(II)**	**(II) Ordinary Rock (not requiring blasting)**									

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EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
		A	**Manual Means (Depth upto 3m)**									
			Unit=cum									
			Taking output=10 cum									
			a) Labour									
			Mate	day	0.400	0.400	0.400	444.00	177.60	177.60	177.60	L-12
			Mazdoor	day	10.000	10.000	10.000	428.00	4280.00	4280.00	4280.00	L-13
			Total cost(Without O.H&C.P.)						4457.60	4457.60	4457.60	
			b) Overhead charges on (a)		(@ 8%)	(@ 10%)	(@ 12%)		356.61	445.76	534.91	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		481.42	490.34	499.25	
			Cost for 10 cum = a+b+c						5295.63	5393.70	5491.76	
									529.56	539.37	549.18	
			Rate per cum=(a+b+c)/10(with OH.&C.P)					**Say**	**529.60**	**539.40**	**549.20**	
		Note	Cost of dewatering upto 10 percent of labour cost may be added where required. Assesment for dewatering shall be made as per site conditions.									
3.13		B	**Mechanical Means**									
			Unit= Cum									
			Taking output= 50 cum									
			a) Labour									
			Mate	day	0.120	0.120	0.120	444.00	53.28	53.28	53.28	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			b) Machinery									
			Hydraulic Excavator									
			For excavation, backfill & loading									
			(i) 1.2 cum bucket capacity	hour	7.127			2809.00	20019.74			PM3003
			(ii) 1.1 cum bucket capacity	hour		8.352		2538.00		21197.38		PM3004
			(iii) 0.9 cum bucket capacity	hour			9.380	2312.00			21686.56	PM3005
			Jack Hammer	hour	5.818	6.845	7.273	206.00	1198.51	1410.07	1498.24	PM4001
			Tipper									
			For transportation to dumping yard considering lead @1 km									
			(i) 18 cum capacity	t.km	40.000			4.98	199.20			PM72001
			(ii) 14 cum capacity	t.km		40.000		5.71		228.40		PM73001
			(iii) 10 cum capacity	t.km			40.000	7.10			284.00	PM74001
			Loading and unloading time									
			(i) 18 cum capacity	hour	0.523			2349.00	1228.53			PM6001
			(ii) 14 cum capacity	hour		0.603		2108.00		1271.12		PM6002
			(iii) 10 cum capacity	hour			0.843	1891.00			1594.11	PM6003

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EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Total cost(Without O.H&C.P.)						23983.26	25444.25	26400.19	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		1918.66	2544.43	3168.02	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2590.19	2798.87	2956.82	
			Cost for 50 cum= a+b+c+d						28492.11	30787.54	32525.04	
			Rate per cum= (a+b+c+d)/50						569.84	615.75	650.50	
								Say	**569.80**	**615.80**	**650.50**	
3.13	**302 & 303**	**(iii)**	**Mechanical Means**									
		A	Carrying out excavation in hard rock to achieve a specified slope of the rock face by controlled use of explosives and blasting accessories in properly aligned and spaced drill holes , collection of the excavated rock by a dozer, loading in tipper by a front end loader and disposing of the material with all lifts and lead upto 1000 m, all as specified in clasue No. 303.									
			Unit = cum									
			Taking output= 120 cum									
			a) Labour									
			Mate	day	0.210	0.210	0.210	444.00	93.24	93.24	93.24	L-12
			Mazdoors	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Driller	day	2.000	2.000	2.000	444.00	888.00	888.00	888.00	L-06
			Blaster	day	0.250	0.250	0.250	699.00	174.75	174.75	174.75	L-03
			b) Machinery									
			Air Compressor 250 cfm	hour	17.000	17.000	17.000	496.00	8432.00	8432.00	8432.00	PM15001
			Pneumatic breaker for drilling holes	hour	34.000	34.000	34.000	206.00	7004.00	7004.00	7004.00	PM4001
			(@ 4.5 m per hour)									
			Hydraulic Excavator for Jack Hammer & backfilling, loading									
			(i) 1.2 cum bucket capacity	hour	3.537			2809.00	9935.43			PM3003
			(ii) 1.1 cum bucket capacity	hour		4.174		2538.00		10593.61		PM3004
			(iii) 0.9 cum bucket capacity	hour			5.411	2312.00			12510.23	PM3005
			Jack Hammer (considering 5% of the volume for dressing)	hour	1.024	1.280	1.365	206.00	210.94	263.68	281.19	PM4001
			Tipper									
			For transportation considering lead @1 km									
			(i) 18 cum capacity	t.km	96.000			4.98	478.08			PM72001
			(ii) 14 cum capacity	t.km		96.000		5.71		548.16		PM73001
			(iii) 10 cum capacity	t.km			96.000	7.10			681.60	PM74001
			For Loading and unloading time									

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			(i) 18 cum capacity	hour	1.005			2349.00	2360.75			PM6001
			(ii) 14 cum capacity	hour		1.157		2108.00		2438.96		PM6002
			(iii) 10 cum capacity	hour			1.618	1891.00			3059.64	PM6003
			c) Materials									
			Small dia Explosive at 0.40kg/cum for 120 cum (120 x 0.40) Explosive at 0.20 kg/cum for secondary blast @5% of the total volume (120 x 0.2x5%)	kg	49.200	49.200	49.200	124.27	6114.08	6114.08	6114.08	M-215
			Electric detonators at 1 per hole for main blast holes (21x3+20x2)= 103 nos	no	69.000	69.000	69.000	6.93	478.17	478.17	478.17	M-217
			Ordinary detonators @ 1 per hole for 10 secondary holes (required for 5% of the total quantity @ 0.6 m per hole for 1 cum)	no	7.000	7.000	7.000	3.47	24.29	24.29	24.29	M-216
			Detonating Fuse coil	m	213.000	213.000	213.000	16.12	3433.56	3433.56	3433.56	M-218
			Total cost(Without O.H&C.P.)						40911.30	41770.50	44458.75	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		3272.90	4177.05	5335.05	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		4418.42	4594.76	4979.38	
			Cost for120 cum = a+b+c+d+e						48602.62	50542.31	54773.18	
			Rate per cum=(a+b+c+d+e)/120(with OH.&C.P)						405.02	421.19	456.44	
								Say	**405.00**	**421.20**	**456.40**	
3.13		(iv)	**Hard Rock (Blasting Prohibited)**									
			Unit= Cum									
			Taking output= 35 cum									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Machinery									
			Hydraulic Excavator used for Jack Hammer & loading									
			(i) 1.2 cum bucket capacity	hour	9.571			2809.00	26884.94			PM3003
			(ii) 1.1 cum bucket capacity	hour		11.244		2538.00		28537.27		PM3004
			(iii) 0.9 cum bucket capacity	hour			13.783	2312.00			31866.30	PM3005
			Jack Hammer	hour	8.960	10.541	12.800	206.00	1845.76	2171.45	2636.80	PM4001
			Tipper									
			For transportation to dumping yard considering lead @1 km									
			(i) 18 cum capacity	t.km	28.000			4.98	139.44			PM72001
			(ii) 14 cum capacity	t.km		28.000		5.71		159.88		PM73001
			(iii) 10 cum capacity	t.km			28.000	7.10			198.80	PM74001

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Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Loading and unloading time									
			(i) 18 cum capacity	hour	0.244			2349.00	573.16			PM6001
			(ii) 14 cum capacity	hour		0.281		2108.00		592.35		PM6002
			(iii) 10 cum capacity	hour			0.393	1891.00			743.16	PM6003
			Total cost(Without O.H&C.P.)						30334.82	32352.47	36336.58	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		2426.79	3235.25	4360.39	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		3276.16	3558.77	4069.70	
			Cost for 35cum= a+b+c+d						36037.76	39146.48	44766.67	
			Rate per cum= (a+b+c+d)/35						1029.65	1118.47	1279.05	
								Say	**1029.70**	**1118.50**	**1279.00**	
3.13		**(v)**	**Marshy soil**									
			Unit=cum									
			Taking output=10 cum									
		A	**Manual means (upto 3m depth)**									
			a) Labour									
			Mate	day	0.400	0.400	0.400	444.00	177.60	177.60	177.60	L-12
			Mazdoor	day	10.000	10.000	10.000	428.00	4280.00	4280.00	4280.00	L-13
			b) Machinery									
			Tractor- Trolley	hour	2.670	2.670	2.670	717.00	1914.39	1914.39	1914.39	PM12001
			c) Material									
			Selected earth for refilling	cum	5.000	5.000	5.000	35.30	176.50	176.50	176.50	M-164
			Total cost(Without O.H&C.P.)						6548.49	6548.49	6548.49	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		523.88	654.85	785.82	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		707.24	720.33	733.43	
			Cost for 10 cum= a+b+c+d						7779.61	7923.67	8067.74	
			Rate per cum= (a+b+c+d)/10						777.96	792.37	806.77	
								Say	**778.00**	**792.40**	**806.80**	
		Note	1. Cost of dewatering @ 30 percent of (a), may be added where required Assesment for dewatering shall be made as per site conditions.									
			2. Shoring & Strutting 20 percent of (a), where required may be added.									
			3. It is assumed that Marshy Soil will be available upto 3 m depth only. For deeper excavation below 3 m depth, refer analysis in Item (i) to (iv) for ordinary soil.									
3.13		**B**	**Mechanical Means**									
			Unit= Cum									
			Taking output= 260 cum									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			b) Machinery									
			Hydraulic Excavator									
			(i) 1.2 cum bucket capacity	hour	10.256			2809.00	28809.10			PM3003
			(ii) 1.1 cum bucket capacity	hour		11.811		2538.00		29976.32		PM3004
			(iii) 0.9 cum bucket capacity	hour			16.513	2312.00			38178.06	PM3005
			Tipper									
			For transportation to dumping yard considering lead @1 km									
			(i) 18 cum capacity	t.km	639.600			4.98	3185.21			PM72001
			(ii) 14 cum capacity	t.km		639.600		5.71		3652.12		PM73001
			(iii) 10 cum capacity	t.km			639.600	7.10			4541.16	PM74001
			For Loading and unloading									
			(i) 18 cum capacity	hour	10.256			2349.00	24091.34			PM6001
			(ii) 14 cum capacity	hour		11.811		2108.00		24897.59		PM6002
			(iii) 10 cum capacity	hour			16.513	1891.00			31226.08	PM6003
			c) Material									
			Selected earth for refilling	cum	156.000	156.000	156.000	35.30	5506.80	5506.80	5506.80	M-164
			Total cost(Without O.H&C.P.)						62038.22	64478.58	79897.86	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		4963.06	6447.86	9587.74	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		6700.13	7092.64	8948.56	
			Cost for260 cum = a+b+c+d+e						73701.40	78019.08	98434.16	
			Rate per cum=(a+b+c+d+e)/260 (with OH.&C.P)						283.47	300.07	378.59	
								Say	**283.50**	**300.10**	**378.60**	
3.14	**305.4.3**		**Scarifying the existing bituminous road surface to a depth of 50 mm and disposal of scarified material with in all lifts and lead upto 1000 metres.**									
		(i)	Scarifying Existing Grannular Surface to a depth of 50 mm by Manual Means									
			Unit= sqm									
			Taking output= 100 sqm									
			a) Labour									
			Mate	day	0.200	0.200	0.200	444.00	88.80	88.80	88.80	L-12
			Mazdoor including loading and unloading	day	5.000	5.000	5.000	428.00	2140.00	2140.00	2140.00	L-13
			b) Machinery									
			Tractor- Trolley	hour	1.670	1.670	1.670	717.00	1197.39	1197.39	1197.39	PM12001
			Total cost(Without O.H&C.P.)						3426.19	3426.19	3426.19	

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Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		274.10	342.62	411.14	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		370.03	376.88	383.73	
			Cost for 100 sqm = a+b+c+d						4070.31	4145.69	4221.07	
			Rate per sqm= (a+b+c+d)/100						40.70	41.46	42.21	
								Say	**40.70**	**41.50**	**42.20**	
		Note	In case material is to be reused at site, transportation cost catered above for disposal shall be deleted.									
3.14	305.4.3	(ii)	By Mechanaical Means using Hydraulic excavator									
			Unit= sqm									
			Taking output= 6000 sqm									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Hydraulic Excavator									
			(i) 1.2 cum bucket capacity	hour	4.309			2809.00	12103.98			PM3003
			(ii) 1.1 cum bucket capacity	hour		4.962		2538.00		12593.56		PM3004
			(iii) 0.9 cum bucket capacity	hour			6.938	2312.00			16040.66	PM3005
			Tipper									
			For transportation to dumping yard considering lead @1 km									
			(i) 18 cum capacity	t.km	600.000			4.98	2988.00			PM72001
			(ii) 14 cum capacity	t.km		600.000		5.71		3426.00		PM73001
			(iii) 10 cum capacity	t.km			600.000	7.10			4260.00	PM74001
			For Loading and unloading									
			(i) 18 cum capacity	hour	4.309			2349.00	10121.84			PM6001
			(ii) 14 cum capacity	hour		4.962		2108.00		10459.90		PM6002
			(iii) 10 cum capacity	hour			6.938	1891.00			13119.76	PM6003
			Total cost(Without O.H&C.P.)						25659.58	26925.21	33866.17	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		2052.77	2692.52	4063.94	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2771.23	2961.77	3793.01	
			Cost for 6000 sqm = a+b+c+d						30483.58	32579.51	41723.13	
			Rate per sqm= (a+b+c+d)/6000						5.08	5.43	6.95	
								Say	**5.10**	**5.40**	**7.00**	
3.14	305.4.3	(iii)	By Mechanaical Means using Motor Grader									
			Unit= sqm									
			Taking output= 12500 sqm									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Motor Grader									
			(i) Motor grader 4.30 metre blade	hour	3.064			5560.00	17035.84			PM2001
			(ii) Motor grader 3.70 metre blade	hour		3.676		5095.00		18729.22		PM2002
			(iii) Motor grader 3.35 metre blade	hour			3.720	4512.00			16784.64	PM2003
			Tipper									
			For transportation to dumping yard considering lead @1 km									
			(i) 18 cum capacity	t.km	1250.000			4.98	6225.00			PM72001
			(ii) 14 cum capacity	t.km		1250.000		5.71		7137.50		PM73001
			(iii) 10 cum capacity	t.km			1250.000	7.10			8875.00	PM74001
			For Loading & unloading charges									
			(i) Using by 18 cum capacity Tipper & 3.1 cum capacity loader	cum	625.000			75.43	47143.75			PM77001
			(ii) Using by 14 cum capacity tipper & 2.1 cum capacity loader	cum		625.000		74.68		46675.00		PM77002
			(iii) Using by 10 cum capacity tipper & 1 cum capacity loader	cum			625.000	104.81			65506.25	PM77003
			Total cost(Without O.H&C.P.)						70850.35	72987.48	91611.65	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		5668.03	7298.75	10993.40	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		7651.84	8028.62	10260.50	
			Cost for12500 sqm = a+b+c+d						84170.22	88314.85	112865.55	
			Rate per sqm= (a+b+c+d)/12500						6.73	7.07	9.03	
								Say	**6.70**	**7.10**	**9.00**	
		Note	In case material is to be reused at site, transportation cost catered above for disposal shall be deleted.									
3.15	**305.4.3**		**Scarifying the existing bituminous surface to a depth of 50 mm and disposal of scarified material within all the lifts and leads upto 1000 metres.**									
		(i)	**By Mechanaical Means using Hydraulic excavator**									
			Unit= sqm									
			Taking output= 6000 sqm									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13

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Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			b) Machinery									
			Hydraulic Excavator									
			(i) 1.2 cum bucket capacity	hour	5.196			2809.00	14595.56			PM3003
			(ii) 1.1 cum bucket capacity	hour		5.984		2538.00		15187.39		PM3004
			(iii) 0.9 cum bucket capacity	hour			8.366	2312.00			19342.19	PM3005
			Tipper									
			For transportation to dumping yard considering lead @1 km									
			(i) 18 cum capacity	t.km	690.000			4.98	3436.20			PM72001
			(ii) 14 cum capacity	t.km		690.000		5.71		3939.90		PM73001
			(iii) 10 cum capacity	t.km			690.000	7.10			4899.00	PM74001
			For Loading and unloading									
			(i) 18 cum capacity	hour	5.196			2349.00	12205.40			PM6001
			(ii) 14 cum capacity	hour		5.984		2108.00		12614.27		PM6002
			(iii) 10 cum capacity	hour			8.366	1891.00			15820.11	PM6003
			Total cost(Without O.H&C.P.)						30682.93	32187.32	40507.06	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		2454.63	3218.73	4860.85	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		3313.76	3540.61	4536.79	
			Cost for 6000 sqm = a+b+c+d						36451.32	38946.66	49904.70	
			Rate per sqm= (a+b+c+d)/6000						6.08	6.49	8.32	
								Say	**6.10**	**6.50**	**8.30**	
3.15	**305.4.3**	**(ii)**	**By Mechanaical Means using Motor Grader**									
			Unit= sqm									
			Taking output= 12500 sqm									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Motor Grader									
			(i) Motor grader 4.30 metre blade	hour	3.064			5560.00	17035.84			PM2001
			(ii) Motor grader 3.70 metre blade	hour		3.676		5095.00		18729.22		PM2002
			(iii) Motor grader 3.35 metre blade	hour			3.720	4512.00			16784.64	PM2003
			Tipper									
			For transportation to dumping yard considering lead @1 km									
			(i) 18 cum capacity	t.km	1437.500			4.98	7158.75			PM72001
			(ii) 14 cum capacity	t.km		1437.500		5.71		8208.13		PM73001
			(iii) 10 cum capacity	t.km			1437.500	7.10			10206.25	PM74001
			For Loading & unloading charges									

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		(i) Using by 18 cum capacity Tipper & 3.1 cum capacity loader	cum	625.000			75.43	47143.75			PM77001
		(ii) Using by 14 cum capacity tipper & 2.1 cum capacity loader	cum		625.000		74.68		46675.00		PM77002
		(iii) Using by 10 cum capacity tipper & 1 cum capacity loader	cum			625.000	104.81			65506.25	PM77003
		Total cost(Without O.H&C.P.)						71784.10	74058.11	92942.90	
		c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		5742.73	7405.81	11153.15	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		7752.68	8146.39	10409.60	
		Cost for 12500 sqm = a+b+c+d						85279.51	89610.31	114505.65	
		Rate per sqm= (a+b+c+d)/12500						6.82	7.17	9.16	
							Say	**6.80**	**7.20**	**9.20**	
3.16	**305**	**Construction of Embankment with Material obtained from Borrow pits.**									
		Construction of Embankment with approved material obtained from Borrow pits with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of Table 300-2.									
		Unit= cum									
		Taking output= 450 cum									
		a) Labour									
		Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
		Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
		b) Machinery									
		Hydraulic Excavator									
		(i) 1.2 cum bucket capacity	hour	5.048			2809.00	14179.83			PM3003
		(ii) 1.1 cum bucket capacity	hour		5.813		2538.00		14753.39		PM3004
		(iii) 0.9 cum bucket capacity	hour			8.127	2312.00			18789.62	PM3005
		Tipper									
		For transportation									
		(i) 18 cum capacity	t.km	450x1.6xL2			4.98	3585.60			PM72001
		(ii) 14 cum capacity	t.km		450x1.6xL2		5.71		4111.20		PM73001
		(iii) 10 cum capacity	t.km			450x1.6xL2	7.10			5112.00	PM74001
		For Loading and unloading time									
		(i) 18 cum capacity	hour	5.048			2349.00	11857.75			PM6001
		(ii) 14 cum capacity	hour		5.813		2108.00		12253.80		PM6002
		(iii) 10 cum capacity	hour			8.127	1891.00			15368.16	PM6003

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EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Motor grader									
			(i) Motor grader 4.30 metre blade	hour	2.177			5560.00	12104.12			PM2001
			(ii) Motor grader 3.70 metre blade	hour		2.626		5095.00		13379.47		PM2002
			(iii) Motor grader 3.35 metre blade	hour			2.929	4512.00			13215.65	PM2003
			Water tanker (Speed @ 20 km/hr and return speed @ 30km/hr and spreading speed @ 2.5 km/hr	hour								**L1=1Km.**
			(i) 16 KL Capacity	hour	0.25XL1+0.864			1204.00	1341.26			PM11001
			(ii) 12 KL capacity	hour		0.333XL1+1.152		1030.00		1529.55		PM11002
			(iii) 6 KL Capacity	hour			0.667XL1+2.304	789.00			2344.12	PM11003
			Vibratory roller	hour	2.184	2.184	2.184	2102.00	4590.77	4590.77	4590.77	PM10001
			c) Material									
			Cost of water (considering 5% additional moisture required)	KL	36.000	36.000	36.000	63.20	2275.20	2275.20	2275.20	M-191
			Compensation for Earth taken from private land	cum	450.000	450.000	450.000	35.30	15885.00	15885.00	15885.00	M-093
			Total cost(Without O.H&C.P.)						66711.05	69669.91	78472.04	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		5336.88	6966.99	9416.64	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		7204.79	7663.69	8788.87	
			Cost for450 cum = a+b+c+d+e						79252.73	84300.59	96677.55	
			Rate per cum=(a+b+c+d+e)/450 (with OH.&C.P)						176.12	187.33	214.84	
									176.10	**187.30**	**214.80**	
	Note		Compensation for earth will vary from place to place and will have to be assessed realistically as per particular ground situation. In case earth is available from Govt. land, compensation for earth will not be required. The position is required to be clearly stated in the cost estimate.									
3.17	**305**		**Construction of Embankment with Material Deposited from Roadway Cutting**									
			Construction of Embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of Table 300-2.									
			Unit= cum									
			Taking output= 450 cum									

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		a) Labour									
		Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
		Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
		b) Machinery									
		Motor Grader for grading									
		(i) Motor grader 4.30 metre blade	hour	2.177			5560.00	12104.12			PM2001
		(ii) Motor grader 3.70 metre blade	hour		2.626		5095.00		13379.47		PM2002
		(iii) Motor grader 3.35 metre blade	hour			2.929	4512.00			13215.65	PM2003
		Water tanker (Speed @ 20 km/hr and return speed @ 30km/hr and spreading speed @ 2.5 km/hr									L1=1Km.
		(i) 16 KL Capacity	hour	0.25XL1+0.864			1204.00	1341.26			PM11001
		(ii) 12 KL capacity	hour		0.333XL1+1.152		1030.00		1529.55		PM11002
		(iii) 6 KL Capacity	hour			0.667XL1+2.304	789.00			2344.12	PM11003
		Vibratory roller	hour	2.184	2.184	2.184	2102.00	4590.77	4590.77	4590.77	PM10001
		c) Material									
		Cost of water (considering 5% additional moisture required)	KL	36.000	36.000	36.000	63.20	2275.20	2275.20	2275.20	M-191
		Total cost(Without O.H&C.P.)						20757.10	22220.75	22871.50	
		d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		1660.57	2222.07	2744.58	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		2241.77	2444.28	2561.61	
		Cost for450 cum = a+b+c+d+e						24659.44	26887.11	28177.68	
		Rate per cum=(a+b+c+d+e)/450 (with OH.&C.P)						**54.80**	**59.70**	**62.60**	
		Rate per cum after adding royalty@Rs 33.00/cum						**87.80**	**92.70**	**95.60**	
3.18	**305**	**Construction of Subgrade and Earthen Shoulders**									
		Construction of sub-grade and earthen shoulders with approved material obtained from Borrow pits with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of Table 300-2.									
		Unit= cum									
		Taking output= 450 cum									
		a) Labour									
		Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12

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EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
		b) Machinery									
		Hydraulic Excavator									
		(i) 1.2 cum bucket capacity	hour	5.048			2809.00	14179.83			PM3003
		(ii) 1.1 cum bucket capacity	hour		5.813		2538.00		14753.39		PM3004
		(iii) 0.9 cum bucket capacity	hour			8.127	2312.00			18789.62	PM3005
		Tipper									
		For transportation									L2=1Km.
		(i) 18 cum capacity	t.km	450x1.75x L2			4.98	3921.75			PM72001
		(ii) 14 cum capacity	t.km		450x1.75xL 2		5.71		4496.63		PM73001
		(iii) 10 cum capacity	t.km			450x1.75xL2	7.10			5591.25	PM74001
		For Loading and unloading time									
		(i) 18 cum capacity	hour	5.048			2349.00	11857.75			PM6001
		(ii) 14 cum capacity	hour		5.813		2108.00		12253.80		PM6002
		(iii) 10 cum capacity	hour			8.127	1891.00			15368.16	PM6003
		Motor grader for grading									
		(i) Motor grader 4.30 metre blade	hour	2.177			5560.00	12104.12			PM2001
		(ii) Motor grader 3.70 metre blade	hour		2.626		5095.00		13379.47		PM2002
		(iii) Motor grader 3.35 metre blade	hour			2.929	4512.00			13215.65	PM2003
		Water tanker (Speed @ 20 km/hr and return speed @ 30km/hr and spreading speed @ 2.5 km/hr									L1=1Km.
		(i) 16 KL Capacity	hour	0.273XL1+0 .945			1204.00	1466.47			PM11001
		(ii) 12 KL capacity	hour		0.365XL1+1 .26		1030.00		1673.75		PM11002
		(iii) 6 KL Capacity	hour			0.729XL1+2.5 2	789.00			2563.46	PM11003
		Vibratory roller 12 tonne	hour	2.184	2.184	2.184	2102.00	4590.77	4590.77	4590.77	PM10001
		c) Material									
		Cost of water (considering 5% additional moisture required)	KL	39.375	39.375	39.375	63.20	2488.50	2488.50	2488.50	M-191
		Compensation for Earth taken from private land	cum	450.000	450.000	450.000	35.30	15885.00	15885.00	15885.00	M-093
		Total cost(Without O.H&C.P.)						67385.71	70412.83	79383.93	
		d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		5390.86	7041.28	9526.07	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		7277.66	7745.41	8891.00	
		Cost for450 cum = a+b+c+d+e						80054.23	85199.53	97801.00	

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		Rate per cum=(a+b+c+d+e)/450 (with OH.&C.P)						177.90	189.33	217.34	
							Say	**177.90**	**189.30**	**217.30**	
3.19	**305**	**Construction of Subgrade and Earthen Shoulders with Material Deposited from Roadway Cutting**									
		Construction of Embankment with Material Deposited from Roadway Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of Table 300-2.									
		Unit= cum									
		Taking output= 450 cum									
		a) Labour									
		Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
		Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
		b) Machinery									
		Motor grader for grading									
		(i) Motor grader 4.30 metre blade	hour	2.177			5560.00	12104.12			PM2001
		(ii) Motor grader 3.70 metre blade	hour		2.626		5095.00		13379.47		PM2002
		(iii) Motor grader 3.35 metre blade	hour			2.929	4512.00			13215.65	PM2003
		Water tanker (Speed @ 20 km/hr and return speed @ 30km/hr and spreading speed @ 2.5 km/hr									L1=1Km.
		(i) 16 KL Capacity	hour	0.273XL1+0.945			1204.00	1466.47			PM11001
		(ii) 12 KL capacity	hour		0.365XL1+1.26		1030.00		1673.75		PM11002
		(iii) 6 KL Capacity	hour			0.729XL1+2.52	789.00			2563.46	PM11003
		Vibratory roller	hour	2.184	2.184	2.184	2102.00	4590.77	4590.77	4590.77	PM10001
		c) Material									
		Cost of water (considering 5% additional moisture required)	KL	39.375	39.375	39.375	63.20	2488.50	2488.50	2488.50	M-191
		Total cost(Without O.H&C.P.)						21095.62	22578.25	23304.14	
		d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		1687.65	2257.82	2796.50	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		2278.33	2483.61	2610.06	
		Cost for450 cum = a+b+c+d+e						25061.60	27319.68	28710.70	
		Rate per cum=(a+b+c+d+e)/450 (with OH.&C.P)						**55.70**	**60.70**	**63.80**	
		Rate per cum after adding royalty@Rs 33.00/cum						**88.70**	**93.70**	**96.80**	

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Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
3.20	305.3.4	**Compacting Original ground**									
	Case-I	**Compacting Original ground supporting sub-grade**									
		Loosening of the ground upto a level of 500 mm below the sub-grade level, watered, graded and compacted in layers to meet requirement of Table 300-2 for sub-grade construction.									
		Unit= cum									
		Taking output= 225 cum									
		a) Labour									
		Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
		Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
		b) Machinery									
		Motor grader for ripping (in two layers) & grading									
		(i) Motor grader 4.30 metre blade	hour	2.192			5560.00	12187.52			PM2001
		(ii) Motor grader 3.70 metre blade	hour		2.637		5095.00		13435.52		PM2002
		(iii) Motor grader 3.35 metre blade	hour			2.804	4512.00			12651.65	PM2003
		Water tanker (Speed @ 20 km/hr and return speed @ 30km/hr and spreading speed @ 2.5 km/hr									**L1=1Km.**
		(i) 16 KL Capacity	hour	0.137XL1+0.236			1204.00	449.09			PM11001
		(ii) 12 KL capacity	hour		0.182XL1+0.315		1030.00		511.91		PM11002
		(iii) 6 KL Capacity	hour			0.365XL1+0.63	789.00			785.06	PM11003
		Vibratory roller	hour	1.092	1.092	1.092	2102.00	2295.38	2295.38	2295.38	PM10001
		c) Material									
		Cost of water (considering 5% additional moisture required)	KL	19.688	19.688	19.688	63.20	1244.28	1244.28	1244.28	M-191
		Total cost(Without O.H&C.P.)						16622.04	17932.85	17422.13	
		d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		1329.76	1793.29	2090.66	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		1795.18	1972.61	1951.28	
		Cost for 225 cum = a+b+c+d+e						19746.98	21698.75	21464.06	
		Rate per cum=(a+b+c+d+e)/225(with OH.&C.P)						87.76	96.44	95.40	
							Say	**87.80**	**96.40**	**95.40**	
	Case-II	**Compacting Original ground supporting embankment**									

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Loosening, leveling and compacting original ground supporting embankment to facilitate placement of first layer of embankment , scarified to a depth of 150 mm, mixed with water at OMC and then compacted by rolling so as to achieve minimum dry density as given in Table 300-2 for emabakment construction.									
			Unit= cum									
			Taking output= 300 cum									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Motor Grader for ripping & grading									
			(i) Motor grader 4.30 metre blade	hour	3.487			5560.00	19387.72			PM2001
			(i) Motor grader 3.70 metre blade	hour		4.197		5095.00		21383.72		PM2002
			(i) Motor grader 3.35 metre blade	hour			4.497	4512.00			20290.46	PM2003
			Water tanker (Speed @ 20 km/hr and return speed @ 30km/hr and spreading speed @ 2.5 km/hr	hour								**L1=1Km.**
			(i) 16 KL Capacity	hour	0.167xL1+0.64			1204.00	971.63			PM11001
			(ii) 12 KL capacity	hour		0.222XL1+0.853		1030.00		1107.25		PM11002
			(iii) 6 KL Capacity	hour			0.444XL1+1.707	789.00			1697.14	PM11003
			Vibratory roller	hour	1.456	1.456	1.456	2102.00	3060.51	3060.51	3060.51	PM10001
			c) Material									
			Cost of water (considering 5% additional moisture required)	KL	24.000	24.000	24.000	63.20	1516.80	1516.80	1516.80	M-191
			Total cost(Without O.H&C.P.)						25382.42	27514.04	27010.68	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		2030.59	2751.40	3241.28	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		2741.30	3026.54	3025.20	
			Cost for 300 cum = a+b+c+d+e						30154.31	33291.98	33277.15	
			Rate per cum=(a+b+c+d+e)/300(with OH.&C.P)						100.51	110.97	110.92	
								Say	**100.50**	**111.00**	**110.90**	
3.21	**305**		**Stripping and Storing Top Soil**									

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EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		Stripping, Storing of Top Soil by road side at 15 m internal and re-application on embankment slopes, cut slopes and other areas in localities where the available embankment material is not conducive to plant growth.									
		Unit= cum									
		Taking output= 250 cum									
		a) Labour									
		Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
		Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
		b) Machinery									
		Motor Grader									
		(i) Motor grader 4.30 metre blade	hour	1.680			5560.00	9340.80			PM2001
		(ii) Motor grader 3.70 metre blade	hour		2.027		5095.00		10327.57		PM2002
		(iii) Motor grader 3.35 metre blade	hour			2.260	4512.00			10197.12	PM2003
		Hydraulic Excavator for reapplication									
		(i) 1.2 cum bucket capacity	hour	2.804			2809.00	7876.44			PM3003
		(ii) 1.1 cum bucket capacity	hour		3.230		2538.00		8197.74		PM3004
		(iii) 0.9 cum bucket capacity	hour			4.515	2312.00			10438.68	PM3005
		Tipper									
		For transportation considering lead @ 1 km (20% of the material needs to be transported)									
		(i) 18 cum capacity	t.km	75.000			4.98	373.50			PM72001
		(ii) 14 cum capacity	t.km		75.000		5.71		428.25		PM73001
		(iii) 10 cum capacity	t.km			75.000	7.10			532.50	PM74001
		For Loading (20% of the material needs to be transported)									
		(i) Using by 18 cum capacity Tipper & 3.1 cum capacity loader	cum	50.000			75.43	3771.50			PM77001
		(ii) Using by 14 cum capacity tipper & 2.1 cum capacity loader	cum		50.000		74.68		3734.00		PM77002
		(iii) Using by 10 cum capacity tipper & 1 cum capacity loader	cum			50.000	104.81			5240.50	PM77003
		Total cost(Without O.H&C.P.)						21808.00	23133.32	26854.56	
		c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		1744.64	2313.33	3222.55	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2355.26	2544.66	3007.71	
		Cost for 250 cum = a+b+c+d						25907.90	27991.31	33084.82	
		Rate per cum= (a+b+c+d)/250						103.63	111.97	132.34	
							Say	**103.60**	**112.00**	**132.30**	

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
3.22	305		**Stripping, Storing and Re-laying Top Soil from Borrow Areas in Agriculture Fields.**									
			Stripping of top Soil from Borrow areas located in agriculture fields, storing at a suitable place, spreading and re-laying after taking the borrow earth to maintain fertility of the agricultural field, finishing it to the required levels and satisfaction of the farmer.									
			Unit= cum									
			Taking output= 250 cum									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Motor Grader									
			(i) Motor grader 4.30 metre blade	hour	1.680			5560.00	9340.80			PM2001
			(ii) Motor grader 3.70 metre blade	hour		2.027		5095.00		10327.57		PM2002
			(iii) Motor grader 3.35 metre blade	hour			2.260	4512.00			10197.12	PM2003
			Hydraulic Excavator for reapplication									
			(i) 1.2 cum bucket capacity	hour	2.804			2809.00	7876.44			PM3003
			(ii) 1.1 cum bucket capacity	hour		3.230		2538.00		8197.74		PM3004
			(iii) 0.9 cum bucket capacity	hour			4.515	2312.00			10438.68	PM3005
			Tipper									
			For transportation									**L2=1Km.**
			(i) 18 cum capacity	t.km	250x1.60xL 2			4.98	1992.00			PM72001
			(ii) 14 cum capacity	t.km		250x1.60xL 2		5.71		2284.00		PM73001
			(iii) 10 cum capacity	t.km			250x1.60xL2	7.10			2840.00	PM74001
			For Loading & unloading									
			(i) Using by 18 cum capacity Tipper & 3.1 cum capacity loader	cum	250.000			75.43	18857.50			PM77001
			(ii) Using by 14 cum capacity tipper & 2.1 cum capacity loader	cum		250.000		74.68		18670.00		PM77002
			(iii) Using by 10 cum capacity tipper & 1 cum capacity loader	cum			250.000	104.81			26202.50	PM77003
			Total cost(Without O.H&C.P.)						38512.50	39925.07	50124.06	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		3081.00	3992.51	6014.89	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		4159.35	4391.76	5613.89	
			Cost for 250 cum = a+b+c+d						45752.85	48309.33	61752.84	
			Rate per cum= (a+b+c+d)/250						183.01	193.24	247.01	

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EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
								Say	183.00	193.20	247.00	
3.23	307	A	**Turfing with Sods**									
			Furnishing and laying of the live sods of perennial turf forming grass on embankment slope, verges or other locations shown on the drawing or as directed by the engineer including preparation of ground, fetching of sods and watering.									
			Unit= sqm									
			Taking output= 100 sqm									
			a) Labour									
			Mate	day	0.120	0.120	0.120	444.00	53.28	53.28	53.28	L-12
			Mazdoor for preparation of ground and fetching of sods	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			b) Machinery									
			Water tanker including watering for 3 months									
			Water tanker (Speed @ 20 km/hr and return speed @ 30km/hr and spreading speed @ 2.5 km/hr									L1=1Km.
			(i) 16 KL Capacity	hour	0.5XL1+0.096			1204.00	717.58			PM11001
			(ii) 12 KL capacity	hour		0.667XL1+0.128		1030.00		818.85		PM11002
			(iii) 6 KL Capacity	hour			1.333XL1+0.256	789.00			1253.72	PM11003
			Tactor- trolley	hour	1.000	1.000	1.000	717.00	717.00	717.00	717.00	PM12001
			c) Material									
			Farm yard manure @ 0.18 cum per 100 sqm at site of work	cum	0.180	0.180	0.180	552.10	99.38	99.38	99.38	M-168
			Cost of water	KL	12.000	12.000	12.000	63.20	758.40	758.40	758.40	M-191
			Total cost(Without O.H&C.P.)						3629.64	3730.91	4165.78	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		290.37	373.09	499.89	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		392.00	410.40	466.57	
			Cost for100 sqm = a+b+c+d+e						4312.01	4514.40	5132.24	
			Rate per Sqm=(a+b+c+d+e)/100 (with OH.&C.P)						43.12	45.14	51.32	
								Say	43.10	45.10	51.30	
3.24	308		**Seeding and Mulching**									

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		Preparation of seed bed on previously laid top soil, firnishing and placing of seeds, fertilizer, mulching material, applying bituminous emulssion at the rate of 0.23 litres per sqm and laying and fixing jute netting, including cost of watering for 3 months all as per clause 308.									
		Unit= sqm									
		Taking output= 240 sqm									
		a) Labour									
		Mate	day	0.400	0.400	0.400	444.00	177.60	177.60	177.60	L-12
		Mazdoor	day	10.000	10.000	10.000	428.00	4280.00	4280.00	4280.00	L-13
		b) Machinery									
		Water tanker including watering for 3 months									
		Water tanker (Speed @ 20 km/hr and return speed @ 30km/hr and spreading speed @ 2.5 km/hr									L1=1Km.
		(i) 16 KL Capacity	hour	3.5XL1+1.613			1204.00	6156.05			PM11001
		(ii) 12 KL capacity	hour		4.667XL1+2.15		1030.00		7021.51		PM11002
		(iii) 6 KL Capacity	hour			9.333XL1+4.301	789.00			10757.23	PM 11003
		Tactor- trolley	hour	2.400	2.400	2.400	717.00	1720.80	1720.80	1720.80	PM12001
		c) Material									
		Seeds	kg	3.600	3.600	3.600	43.94	158.19	158.19	158.19	M-163
		Sludge/Farm yard manure @ 0.18 cum per 100 sqm	cum	0.430	0.430	0.430	552.10	237.40	237.40	237.40	M-168
		Bitumen emulsion	litre	55.200	55.200	55.200	54.349	3000.06	3000.06	3000.06	M-077
		Jute netting, open weave, 2.5 cm square opening	sqm	264.000	264.000	264.000	38.46	10153.44	10153.44	10153.44	M-120
		Cost of water for 3 months	KL	84.000	84.000	84.000	63.20	5308.80	5308.80	5308.80	M-191
		Total cost(Without O.H&C.P.)						31192.35	32057.81	35793.53	
		d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		2495.39	3205.78	4295.22	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		3368.77	3526.36	4008.87	
		Cost for240 sqm = a+b+c+d+e						37056.51	38789.95	44097.62	
		Rate per sqm=(a+b+c+d+e)/240 (with OH.&C.P)						154.40	161.62	183.74	
							Say	**154.40**	**161.60**	**183.70**	
3.25	**309**	**Surface Drains in Soil**									

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Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Construction of unlined surface drains of average cross sectional area 0.40 sqm in soil to specified lines, grades, levels and dimensions to the requirement of clause 301 and 309. Excavated material to be used in embankment within a lead of 1000 metres									
			Unit= metre									
			Taking output = 10 metre									
		A	**Mechanical means**									
			a) Labour									
			Mate	day	0.010	0.010	0.010	444.00	4.44	4.44	4.44	L-12
			Mazdoor for dressing of bed and side of drain	day	0.250	0.250	0.250	428.00	107.00	107.00	107.00	L-13
			b) Machinery									
			Hydraulic Excavator 0.9 cum bucket capacity	hour	0.090	0.090	0.090	2312.00	208.08	208.08	208.08	PM3005
			Tactor- trolley									
			Tactor- Trolley for transportation & for loading & un loading Time	hour	0.246	0.246	0.246	717.00	176.38	176.38	176.38	PM12001
			Total cost(Without O.H&C.P.)						495.90	495.90	495.90	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		39.67	49.59	59.51	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		53.56	54.55	55.54	
			Cost for 10 meter = a+b+c+d						589.13	600.04	610.95	
			Rate per meter= (a+b+c+d)/10						58.91	60.00	61.10	
								Say	**58.90**	**60.00**	**61.10**	
3.25		B	**Manual means**									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Machinery									
			Tactor- trolley									
			Tactor- trolley for transportation & for loading & un loading Time	hour	0.822	0.822	0.822	717.00	589.37	589.37	589.37	PM12001
			Total cost(Without O.H&C.P.)						1480.89	1480.89	1480.89	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		118.47	148.09	177.71	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		159.94	162.90	165.86	
			Cost for 10 meter = a+b+c+d						1759.30	1791.88	1824.46	
			Rate per meter= (a+b+c+d)/10						175.93	179.19	182.45	
								Say	**175.90**	**179.20**	**182.40**	

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
		Note	Where lining of drain is provided, quanity shall be worked out based on approved design and drawing and priced on rate of cement concrete of approved grade or stone/ brick masonry as the case may be.									
3.26	309		**Surface Drains in Ordinary Rock**									
			Construction of unlined surface drain of average cross sectional area 0.4 sqm in ordinary rock to specified lines, grades, levels and dimensions as per approved design and to the reuirement of clause 301 and 309. Excavated material to be used in embankment at site within a lead of 1000 metres									
			Unit= metre									
			Taking output = 10 metre									
		A	**Mechanical means**									
			a) Labour									
			Mate	day	0.020	0.020	0.020	444.00	8.88	8.88	8.88	L-12
			Mazdoor for dressing of bed and side of drain	day	0.500	0.500	0.500	428.00	214.00	214.00	214.00	L-13
			b) Machinery									
			Hydraulic Excavator 0.9 cum bucket capacity	hour	0.112	0.112	0.112	2312.00	258.94	258.94	258.94	PM3005
			Tactor- trolley									
			Tactor- trolley for transportation & for loading & un loading Time	hour	0.267	0.267	0.267	717.00	191.44	191.44	191.44	PM12001
			Total cost(Without O.H&C.P.)						673.26	673.26	673.26	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		53.86	67.33	80.79	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		72.71	74.06	75.41	
			Cost for 10 meter = a+b+c+d						799.84	814.65	829.46	
			Rate per meter= (a+b+c+d)/10						79.98	81.46	82.95	
								Say	**80.00**	**81.50**	**82.90**	
		B	**Manual means**									
			a) Labour									
			Mate	day	0.120	0.120	0.120	444.00	53.28	53.28	53.28	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			b) Machinery									
			Tactor- trolley									
			Tactor- trolley for transportation & for loading & un loading Time	hour	1.044	1.044	1.044	717.00	748.55	748.55	748.55	PM12001
			Total cost(Without O.H&C.P.)						2085.83	2085.83	2085.83	
			c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		166.87	208.58	250.30	

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EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		225.27	229.44	233.61	
									2477.96	2523.85	2569.74	
			Rate per meter= (a+b+c+d)/10						247.80	252.39	256.97	
								Say	**247.80**	**252.40**	**257.00**	
3.27	**309**		**Surface Drains in Hard Rock**									
			Rate per metre may be worked out based on quantity of hard rock as per design. For rate of hard rock cutting, refer relevent item in this chapter									
3.28	**309**		**Sub-Surface Drains with Perforated Pipe**									
			Construction of subsurface drain with perforated pipe of 100 mm internal diameter of metal/ asbestos cement/ Cement concrete/ PVC, closely jointed, perforations ranging from 3mm to 6mm depending upto size of material surrounding the pipe, with 150 mm bedding below the pipe and 300mm cushion above the pipe, cross section of excavation 450 x 550 mm. Excavated material to be utilised in roadway at site									
			Unit= metre									
			Taking output = 10 metre									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor for excavation and back filling	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Material									
			Perforated pipe of cement concrete, internal dia 100 mm	metre	10.000	10.000	10.000	122.45	1224.50	1224.50	1224.50	M-134
			Crushed stone as per table 300-3	cum	2.400	2.400	2.400	733.48	1760.35	1760.35	1760.35	M-011
			Total cost(Without O.H&C.P.)						3858.61	3858.61	3858.61	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		308.69	385.86	463.03	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		416.73	424.45	432.16	
			Cost for 10 meter = a+b+c+d						4584.03	4668.92	4753.81	
			Rate per meter= (a+b+c+d)/10						458.40	466.89	475.38	
								Say	**458.40**	**466.90**	**475.40**	
		Note	Type of pipe may be modified depending upon provision in design.									
3.29	**309**		**Aggregate Sub-Surface Drains**									
			Construction of aggregate sub surface drain 300 mm x 450 mm with aggregates conforming to Table 300-4, excavated material to be utilised in roadway.									

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		Unit= metre									
		Taking output = 10 metre									
		a) Labour									
		Mate	day	0.060	0.060	0.060	444.00	26.64	26.64	26.64	L-12
		Mazdoor for excavation and back filling with aggregates	day	1.500	1.500	1.500	428.00	642.00	642.00	642.00	L-13
		b) Material									
		Crushed stone as per table 300-3	cum	1.350	1.350	1.350	733.48	990.20	990.20	990.20	M-011
		Total cost(Without O.H&C.P.)						1658.84	1658.84	1658.84	
		c) Overhead charges on(a+b)		(@ 8%)	(@ 10%)	(@ 12%)		132.71	165.88	199.06	
		d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		179.15	182.47	185.79	
		Cost for 10 meter = a+b+c+d						1970.70	2007.19	2043.69	
		Rate per meter= (a+b+c+d)/10						197.07	200.72	204.37	
							Say	**197.10**	**200.70**	**204.40**	
3.30	**309**	**Underground Drain at Edge of pavement**									
		Construction of an underground drain 1m x 1m (inside dimensions) lined with RCC-20 cm thick and covered with RCC slab 10 cm in thickness on urban roads.									
		Unit= Running metre									
		Taking output= One metre									
		a) Earthwork in soil (Rate taken from Item No. - 3.13 B including OH & CP)	cum	1.500	1.500	1.500	78.80 L 83.30 M 103.90 S	118.20	124.95	155.85	
		b) RCC work M-20 (Rate taken from Item No. - 9.06 C Case-II including OH & CP)	cum	0.495	0.495	0.495	5128.00 L 5228.70 M 5349.00 S	2538.36	2588.21	2647.76	
		c) Reinforcement (Rate taken from Item No. - 9.07 including OH & CP)	tonne	0.020	0.020	0.020	59554.30L 60710.90M 61918.70S	1191.09	1214.22	1238.37	
		Rate per metre= (a+b+c)						**3847.65**	**3927.37**	**4041.98**	
							Say	**3847.60**	**3927.40**	**4042.00**	
		Rates for these items may be taken from chapters on earth work and culvert respectively.									
3.31	**310**	**Preparation and Surface Treatment of Formation**									

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EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Preparation and Surface treatment of formation by removing mud and slurry, watering to the extent needed to maintain the desired moisture content, trimming to the required line, grade, profile and rolling with smooth wheeled roller,complete as per clause 310.									
			Unit= sqm									
			Taking output= 3500 sqm									
			a) Labour									
			Mate	day	0.280	0.280	0.280	444.00	124.32	124.32	124.32	L-12
			Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
			Mazdoor skilled	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			b) Machinery									
			Water tanker (Speed @ 20 km/hr and return speed @ 30km/hr and spreading speed @ 2.5 km/hr									L1=1Km.
			(i) 16 KL Capacity	hour	0.125xL1+0.84			1204.00	1161.86			PM11001
			(ii) 12 KL capacity	hour		0.167XL1+1.12		1030.00		1325.61		PM11002
			(iii) 6 KL Capacity	hour			0.333XL1+2.24	789.00			2030.10	PM11003
			Vibratory roller	hour	2.549	2.549	2.549	2102.00	5358.00	5358.00	5358.00	PM10001
			c) Material									
			Cost of water	KL	18.000	18.000	18.000	63.20	1137.60	1137.60	1137.60	M-191
			Total cost(Without O.H&C.P.)						10890.78	11054.53	11759.02	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		871.26	1105.45	1411.08	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		1176.20	1216.00	1317.01	
			Cost for3500 sqm = a+b+c+d+e						12938.24	13375.98	14487.11	
			Rate per sqm=(a+b+c+d+e)/3500(with OH.&C.P)						3.70	3.82	4.14	
								Say	**3.70**	**3.80**	**4.10**	
3.32	**313**		**Construction of Rock fill Embankment with all lifts and lead upto 5 km**									

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EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		Construction of Rock fill Embankment from roadway excavation with broken hard rock fragments of size not exceeding 300 mm laid in layers not exceeding 500 mm thick including filling of surface voids with stone spalls, blinding top layer with granular material, rolled with vibratory road roller, all complete as per clause 313.									
		Unit = cum									
		Taking output= 500 cum									
		a) Labour									
		Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
		Mazdoors	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
		b) Machinery									
		Dozer									
		Dozer (240HP)	hour	3.731			5634.00	21020.45			PM1001
		Dozer (175HP)	hour		4.808		4360.00		20962.88		PM1002
		Dozer (90HP)	hour			8.621	3047.00			26268.19	PM1003
		Tipper for transportation of rock considering lead @5 km									
		(i) 18 cum capacity	t.km	4000.000			4.98	19920.00			PM72001
		(ii) 14 cum capacity	t.km		4000.000		5.71		22840.00		PM73001
		(iii) 10 cum capacity	t.km			4000.000	7.10			28400.00	PM74001
		Water tanker (Speed @ 20 km/hr and return speed @ 30km/hr and spreading speed @ 2.5 km/hr									L1=1Km.
		(i) 16 KL Capacity	hour	0.111xL1+0.427			1204.00	647.75			PM11001
		(ii) 12 KL capacity	hour		0.148XL1+0.569		1030.00		738.51		PM11002
		(iii) 6 KL Capacity	hour			0.296XL1+1.138	789.00			1131.43	PM11003
		Vibratory roller	hour	2.427	2.427	2.427	2102.00	5101.55	5101.55	5101.55	PM10001
		c) Material									
		Cost of water (considering 5% additional moisture required)	KL	16.000	16.000	16.000	63.20	1011.20	1011.20	1011.20	M-191
		Total cost(Without O.H&C.P.)						48146.72	51099.90	62358.13	
		d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		3851.74	5109.99	7482.98	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		5199.85	5620.99	6984.11	

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Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
					Large	Medium	Small		Large	Medium	Small	
			Cost for500 cum = a+b+c+d+e						57198.30	61830.88	76825.21	
			Rate per cum=(a+b+c+d+e)/500 (with OH.&C.P)						114.40	123.66	153.65	
								Say	**114.40**	**123.70**	**153.70**	
		Note	It is assumed that rock is available locally at site from roadway cutting. In case,portion of the rock requires breaking to acceptable size of 300mm, breaking charges will have to be added.									
3.33			**Work in Urban Roads**									
			The cost of earth work in urban roads inhabited area will be comparatively higher due to following reasons:									
			a) There is mixed traffic on urban roads like slow moving hand and animal driven carts, rickshaws, cycles, two/ three wheeler apart from the usual vehicular traffic resulting into traffic jams. This causes loss of working time which may be in the range of 10-15 percent									
			b) There is considerable disruption of traffic adversely affecting the efficiency of the working parties including machines due to congestion caused by pedestrian traffic, local road side venders, parking of vehicles by the-road side encroachment by the shopkeepers and local shops who make use of the berms of the road in front of these shops and unauthorised conversion of road berms into mini local market. The output of Manpower and machines is substantially reduced due to factors mentioned above.									
			c) Cost of living in urban areas is comparatively more resulting into higher wages.									
			d) At times, work is executed during night time due to heavy traffic during day time. This involves extra expenditure by way of making arrangement for lighting and special transport for working parties due to odd hour.									

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		In the light of above, the authorities engaged in preparing the cost estimates may exercise their judgement and cater for the additional cost to the extent of 2 to3 percent,keeping in view the severity of factors mentioned above. Supporting details for the extra cost based on the actual conditions in specific cases will have to give in justification.									
3.34	**Suggestive**	**Embankment Construction with Fly ash/Pond ash available from coal or lignite burning Thermal Plants as waste material.**									
		Construction of embankment with fly ash conforming to Table 1 of IRC: SP:58 obtained from coal or lignite burning thermal power stations as waste material, spread and compacted in layers at OMC, all as specified in IRC: SP: 58 and as per approved plans. Considering soil blanketing of 2m either side for 4 lane section.									
		Unit= cum									
		Taking output= 450 cum									
		a) Labour									
		Mate	day	0.120	0.120	0.120	444.00	53.28	53.28	53.28	L-12
		Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
		b) Machinery									
		Hydraulic Excavator									
		(i) 1.2 cum bucket capacity	hour	0.757			2809.00	2126.41			PM3003
		(ii) 1.1 cum bucket capacity	hour		0.872		2538.00		2213.14		PM3004
		(iii) 0.9 cum bucket capacity	hour			1.219	2312.00			2818.33	PM3005
		Tipper									
		Transportation of borrow area soil									L2=1Km.
		(i) 18 cum capacity	t.km	67.5X1.6X L2			4.98	537.84			PM72001
		(ii) 14 cum capacity	t.km		67.5X1.6XL 2		5.71		616.68		PM73001
		(iii) 10 cum capacity	t.km			67.5X1.6X L2	7.10			766.80	PM74001
		Transportation of Fly ash									

CHAPTER- 3

Analysis of Rates

EARTHWORK,EROSION CONTROL AND DRAINAGE.

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input.Ref.
				Large	Medium	Small		Large	Medium	Small	
		To be supplied by the thermal power plant including loading and unloading									
		Loading and unloading									
		(i) 18 cum capacity	hour	0.757			2349.00	1778.19			PM6001
		(ii) 14 cum capacity	hour		0.872		2108.00		1838.18		PM6002
		(iii) 10 cum capacity	hour			1.219	1891.00			2305.13	PM6003
		Motor Grader for grading									
		(i) Motor grader 4.30 metre blade	hour	2.177			5560.00	12104.12			PM2001
		(ii) Motor grader 3.70 metre blade	hour		2.626		5095.00		13379.47		PM2002
		(iii) Motor grader 3.35 metre blade	hour			2.929	4512.00			13215.65	PM2003
		Water tanker (Speed @ 20 km/hr and return speed @ 30km/hr and spreading speed @ 2.5 km/hr									
		(i) 16 KL Capacity	hour	0.356XL1+1.231			1204.00	1910.75			PM11001
		(ii) 12 KL capacity	hour		0.475XL1+1.642		1030.00		2180.51		PM11002
		(iii) 6 KL Capacity	hour			0.95XL1+3.283	789.00			3339.84	PM11003
		Vibratory roller	hour	2.184	2.184	2.184	2102.00	4590.77	4590.77	4590.77	PM10001
		c) Material									
		Cost of water (considering 5% additional moisture required)	KL	51.300	51.300	51.300	63.20	3242.16	3242.16	3242.16	M-191
		Compensation for Earth taken from private land	cum	67.5	67.5	67.5	35.30	2382.75	2382.75	2382.75	M-093
		Total cost(Without O.H&C.P.)						30010.27	31780.93	33998.70	
		d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		2400.82	3178.09	4079.84	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		3241.11	3495.90	3807.85	
		Cost for 450 cum = a+b+c+d+e						35652.20	38454.93	41886.40	
		Rate per cum=(a+b+c+d+e)/450 (with OH.&C.P)						79.23	85.46	93.08	
							Say	**79.20**	**85.50**	**93.10**	
	Note	1. As Fly Ash is available free of cost as waste material from Thermal Plants, cost of materials has not been added.									
		2. The Earth cover on sides and intermidiate layers of earth sandwitching the Fly Ash has been included in this analysis.									

CHAPTER - 04

SUB-BASES, BASES (NON-BITUMENOUS) AND SHOULDERS

CHAPTER-4

SUB-BASES, BASES (NON-BITUMENOUS) AND SHOULDERS

PREAMBLES :

1 Quantities of materials provided are approximate and are meant for the purpose of estimating only. Actual quantities shall be as per mix design.

2 For construction of sub-base, three alternatives as under have been provided :

a. Plant mix method

b. Mix in Placed method

c. Crusher Run method

3. For Plant Mix method of Granular sub base, a wet mix plant of 250, 200 & 100 TPH capacity is taken as the appropriate mixing plant.

4 The plant mix method is actually being practiced from quite some time to get better quality of mix. It is also found economical as it can achieve much more progress.

5 In the case of cement treated sub-base or base course, Plant mixing as well as site mixing with the help off cement spreader, stabilizer equipment is considered for rate analysis.

6 In the case of sub-base or base course using RAP, milling machine is considered for rate analysis.

7 In the case of medians, separators and footpaths, plate compactor has been catered for compaction due to restricted space.

8 It has been assumed in the case of crushed cement concrete sub-base/base that during the process of dismantling, 25% of aggregate will get segregated and only the remaining will have to be broken/crushed from dismantled concrete slab portions. Transportation of material has been catered from place of dismantling to work site. In case, site is the same, transportation can be deleted.

9 Separate rate for penetration coat over top layer of crushed cement concrete base has been provided, as this item is optional.

10 The rate analysis for crushing of aggregate has been included in Chapter-1.

11 The quantity considered in the output is the compacted quantity. The quantities of aggregates provided in the rate analysis under the head material are the un-compacted quantities.

CHAPTER - 4
Summary of Rate Analysis
SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
4.01	401	A	**Granular Sub-Base with Graded Material (Table:-400-1)**				
			Plant Mix Method				
4.01A			Construction of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per clause 401.				
4.01A		(i)	Rate per cum for grading-I Material	cum	1400.10	1425.30	1535.90
4.01A		(ii)	Rate per cum for grading-II Material	cum	1154.60	1175.30	1281.40
4.01A		(iii)	Rate per cum for grading-III Material	cum	1515.30	1542.70	1655.50
4.01A		(iv)	Rate per cum for grading-IV Material	cum	1465.60	1492.00	1603.80
4.01A		(v)	Rate per cum for grading-V Material	cum	1414.40	1439.90	1550.80
4.01A		(vi)	Rate per cum for grading-VI Material	cum	1254.80	1277.30	1385.20
4.01	401	B	**By Mix in Place Method**				
			Construction of granular sub-base by providing close graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with front end loader at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401.				
4.01B		(i)	Rate per cum for grading-I Material	cum	1313.00	1335.30	1393.40
4.01B		(ii)	Rate per cum for grading-II Material	cum	1067.50	1085.30	1138.80
4.01B		(iii)	Rate per cum for grading-III Material	cum	1428.20	1452.70	1512.90
4.01B		(iv)	Rate per cum for grading-IV Material	cum	1378.40	1402.00	1461.30
4.01B		(v)	Rate per cum for grading-V Material	cum	1327.20	1349.80	1408.20
4.01B		(vi)	Rate per cum for grading-VI Material	cum	1167.60	1187.20	1242.70
4.01	401& 407	C	**Using Crusher Run**				
			Construction of granular sub-base using crusher run ,spreading in uniform layers with mator grader on prepared surface ,mixing by mix in place method with rotovator at OMC, and compating with vibratory roller to achieve the desired density, complete as per clause 401				
4.01C		(i)	Rate per cum for grading-I Material	cum	1452.70	1490.80	1556.20
4.01C		(ii)	Rate per cum for grading-II Material	cum	1688.80	1731.30	1801.10
4.01C		(iii)	Rate per cum for grading-III Material	cum	1688.80	1731.30	1801.10
4.01C		(iv)	Rate per cum for grading-IV Material	cum	1688.80	1731.30	1801.10
4.01C		(v)	Rate per cum for grading-V Material	cum	1452.70	1490.80	1556.20
4.01C		(vi)	Rate per cum for grading-VI Material	cum	1452.70	1490.80	1556.20
4.02A	402		**Lime Stabilisation for Improving Sub-grade**				

CHAPTER - 4
Summary of Rate Analysis
SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
			Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with rotavator with 2 percent slaked lime having minimum content of 70 percent of CaO, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.				
		A	**By Manual Means**	cum	379.20	398.00	435.80
4.02B	402	(i)	**Lime Stabilisation for Improving Sub-grade**				
			Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with Soil Stabilizer with 2 percent slaked lime using Binder spreader Machine having minimum content of 70 percent of CaO, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.				
		A	**By Mechanical Means**	cum	692.60	717.30	760.90
4.02B	402	(ii)	**Lime Stabilisation for Improving Sub-grade**				
			Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with Soil Stablizer with 2 percent slaked lime manually spread having minimum content of 70 percent of CaO, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.				
		A	**By Mechanical Means**	cum	630.80	654.40	696.80
4.03	402	A	**Cement Stabilisation for Improving Sub-grade**				
			Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with rotavator with 2 percent cement , grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.				
		A	**By Manual Means**	cum	484.70	505.60	545.30
4.03	402	B	**Cement Stabilisation for Improving Sub-grade**				
		(i)	Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with Soil stabilizer with 2 percent cement using Binder spreader Machine grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.				
			By Mechanical Means	cum	798.20	824.80	870.40
4.03B	402	(ii)	**Cement Stabilisation for Improving Sub-grade**				

Sr. No.	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
			Laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with Soil Stablizer with 2 percent cement **manually spread**, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.	cum	736.40	761.90	806.30
4.04	**402**		**Lime Stabilisation in Embankment**				
			Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with rotavator with 2 percent slaked lime having minimum content of 70 percent of CaO, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.				
		A	**By Manual Means**	cum	353.00	370.90	406.50
4.04B	**402**	**(i)**	**Lime Stabilisation in Embankment**				
			Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with Soil Stabilizer with 2 percent slaked lime using Binder Spreader Machine having minimum content of 70 percent of CaO, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.				
		A	**By Manual Means**	cum	666.40	690.10	731.60
4.04B	**402**	**(ii)**	**Lime Stabilisation in Embankment**				
			Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with Soil Stabilizer with 2 percent slaked lime manually spread having minimum content of 70 percent of CaO, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.				
			By Mechanical Means	cum	604.60	627.20	667.50
4.04B	**403**	**(iii)**	**Cement Stabilisation in Embankment**				
			Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with Soil Stabilizer with 2 percent cement using Binder Spreader machine, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.				
			By Mechanical Means	cum	756.90	782.30	825.40
4.04B	**403**	**(iv)**	**Cement Stabilisation in Embankment**				

CHAPTER - 4
Summary of Rate Analysis
SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
			Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with Soil Stabilizer with 2 percent cement manually spread, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.				
			By Mechanical Means	cum	695.10	719.40	761.30
4.05	**402**		**Lime Treated Soil for Sub- Base**				
			Providing, laying and spreading soil on a prepared sub grade, pulverising, mixing the spread soil in place with rotavator with 3 percent slaked lime with minimum content of 70 percent of CaO, grading with motor grader and compacting with the road roller at OMC to achieve at least 98percentof the max dry density to form a layer of sub base.	cum	525.20	549.30	611.80
4.06	**403**		**Cement Treated Soil for Sub- Base /Base**				
			Providing, laying and spreading soil on a prepared sub grade, pulverising,adding the designed quantity of cement to the spread soil mixing in place with rotavator , grading with motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub base /base	cum	803.30	832.60	900.30
4.07	**403**		**Cement Treated Crushed Rock or combination as per clause 403 and Table 400-4 in sub base /Base**				
			Providing, laying and spreading Material on a prepared sub grade, pulverising,adding the designed quantity of cement to the spread Material mixing in place with rotavator , grading with motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub base /base				
4.07			**(I) For Sub -Base course**	cum	1791.30	1831.40	1869.20
4.07			**(II) For Base course**	cum	1462.80	1496.80	1528.60
4.08	**403**	**A**	**Cement Treated Crushed stone Sub base**				
			Plant Mix Method				
			Construction of granular sub-base by providing graded Material, mixing with cement in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with mechanical paver on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per clause 401.				
			(i) Rate per cum for Grading -III Material	cum	1918.30	1958.20	2080.60
			(ii) Rate per cum for Grading -IV Material	cum	1868.50	1907.50	2029.00
4.08	**403**		**Cement Treated Crushed stone Sub base**				
		B	**By Mix Place Method**				

CHAPTER - 4
Summary of Rate Analysis
SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
			Construction of granular sub-base by providing graded Material, mixing , carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface mixing with cement at OMC and compacting with vibratory power roller to achieve the desired density, complete as per clause 401.				
			(i) Rate per cum for Grading -III Material	cum	2155.90	2195.10	2274.10
			(ii) Rate per cum for Grading -IV Material	cum	2106.10	2144.30	2222.50
4.09	**404.3.1**		**Making 50 mm x 50 mm Furrows**				
			Making 50 mm x 50 mm furrows, 25mm/ 50mm deep, 450 to the center line of the road and at one metre interval in the existing thin bituminous wearing coarse including sweeping and disposal of excavated material within 1000 metres lead,				
		(i)	**25mm deep furrow cutting**	sqm	5.90	6.00	6.10
		(ii)	**50mm deep furrow cutting**	sqm	11.70	11.90	12.10
4.10	**404.3.2**		**Inverted Choke**				
			Construction of inverted choke by providing, laying, spreading and compacting screening B type/ coarse sand of specified grade in uniform layer on a prepared surface with motor grader and compacting with power roller etc.	cum	892.60	916.70	940.90
4.11	**404**		**Water Bound Macadam**				
			Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with 3 wheeled steel/ vibratory roller in stages to proper grade and camber, applying and brooming requisite type of screening/ binding Materials to fill up the interstices of coarse aggregate, watering and compacting to the required density.				
		A	**By Manual Means**				
4.11A(i)		**(a)**	Using Screening Crushable type such as Moorum or Gravel.	cum	2037.20	2077.70	2121.80
4.11A(i)		**(b)**	Using Screening Type-A (13.2mm agg.)	cum	2064.20	2105.10	2149.80
4.11A(i)		**(c)**	Using Screening Type-B (11.2mm agg.)	cum	2107.80	2149.60	2195.00
4.11A(ii)		**(a)**	Using Screening Crushable type such as Moorum or Gravel.	cum	2204.80	2248.30	2295.60
4.11A(ii)		**(b)**	Using Screening Type-B (11.2mm agg.)	cum	2275.30	2320.20	2368.80
4.11		**B**	**By Mechanical Means**				
4.11B(i)		**(a)**	Using Screening Crushable type such as Moorum or Gravel.	cum	1819.50	1853.10	1928.90
4.11B(i)		**(b)**	Using Screening Type-A (13.2mm agg.)	cum	1847.10	1881.20	1957.50
4.11B(i)		**(c)**	Using Screening Type-B (11.2mm agg.)	cum	1890.10	1925.00	2002.10
4.11B		**(ii)**	Grading-II				

CHAPTER - 4
Summary of Rate Analysis
SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
4.11B (ii)		(a)	Using Screening Crushable type such as Moorum or Gravel.	cum	1987.10	2023.80	2102.60
4.11B (ii)		(b)	Using Screening Type-B (11.2mm agg.)	cum	2057.70	2095.60	2175.80
4.12	405		**Crushed Cement Concrete Sub-base / Base**				
			Breaking and crushing of material obtained by breaking damaged cement concrete slabs to size range not exceeding 75 mm as specified in **Table 400-9** transporting the aggregates obtained from breaking of cement concrete slabs at a lead of L1 km., laying and compacting the same as sub base/ base course, constructed as WBM to clause 404 except the use of screening or binding Material.	cum	323.30	340.70	386.00
4.13	405.2		**Penetration Coat Over Top Layer of Crushed Cement Concrete Base**				
			Spraying of bitumen over cleaned dry surface of crushed cement concrete base at the rate of 25 kg per 10 sqm by a bitumen pressure distributor, spreading of key aggregates at the rate of 0.13 cum per 10 sqm by a mechanical gritter and rolling the surface as per clause 506.3.8.	cum	17.40	17.70	18.10
4.14	406	A	**Wet Mix Macadam (Plant Mix Method)**				
			Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.	cum	1465.20	1502.70	1588.20
4.14	406	B	**Wet Mix Macadam (Plant Mix Method)**				
			Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with grader in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.	cum	1448.00	1473.10	1561.20
4.15	406		**Cement Treated Crushed Stone Base(Plant Mix Method)**				

CHAPTER - 4
Summary of Rate Analysis
SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
			Providing, laying, spreading and compacting graded stone aggregate mixed with cement to crushed stone treated base specification including pre mixing the material with water at OMC. in Mechanical mix plant carriage of mixed Material by tipper to site ,laying in uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.	cum	2115.80	2146.40	2254.20
4.16	**408**		**Construction of Median and Island with Soil Taken from Roadway Cutting**				
			Construction of Median and Island above road level with approved material deposited at site from roadway cutting and excavation for drain and foundation of other structures, spread, graded and compacted as per clause 408	cum	320.00	326.00	332.90
4.17	**408**		**Construction of Median and Island with Soil Taken from Borrow Areas**				
			Construction of median and Island above road level with approved material brought from borrow pits, spread, sloped and compacted as per clause 408	cum	217.40	225.30	252.40
4.18	**408**		**Construction of Shoulders**				
			A. Earthen Shoulders				
			The rate as applicable for sub-grade construction may be adopted.				
			B. Hard Shoulders				
			Rate as applicable for sub-base and or base may be adopted as per approved design.				
			C. Paved shoulders				
			The rate may be adopted as applicable for different layers of pavement depending upon approved design of paved shoulders.				
4.19	**410**		**Footpaths and Separators**				
			Construction of footpath/separator by providing a 150 mm compacted granular sub base as per clause 401 and 25 mm thick cement concrete grade M15, over laid with pre-cast concrete tiles in cement mortar 1:3 including provision of all drainage arrangements but excluding kerb channel.	cum	1012.50	1031.30	1050.50
4.20	**407**		**Crusher Run Macadam Base**				
			Providing crushed stone aggregate, depositing on a prepared surface by hauling vehicles, spreading and mixing with a motor grader, watering and compacting with a vibratory roller to clause 407 to form a layer of sub-base/Base.				
		A	**By Mix in Place Method**				
4.20A		**(i)**	**For 53 mm maximum size**	cum	1484.80	1510.10	1570.50
4.20A		**(ii)**	**For 37.5 mm maximum size**	cum	1372.00	1395.20	1453.60

CHAPTER - 4
Summary of Rate Analysis
SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
4.20		B	**By Mixing Plant :**				
4.20B		(i)	**For 53 mm maximum size**	cum	1502.10	1529.30	1614.50
4.20B		(ii)	**For 37.5 mm maximum size**	cum	1389.30	1414.40	1497.50
4.21	Suggestive		**Lime, Flyash Stabilised Soil Sub-Base**				
			Construction of Sub-base using lime - Flyash admixture with granular soil, free from organic matter/ deleterious material or clayey silts and low plasticity clays having PI between 5 and 20 and liquid limit less than 25 and commercial dry lime, slaked at site or pre-slaked with CaO content not less than 50 per cent, Flyash to conform to gradation as per clause 4.3 of IRC: 88-1984, lime + Flyash content ranging between 10 to 30 per cent, the minimum un-confined compressive strength and CBR value after 28 days curing and 4 days soaking to be 7.5kg/sq, cm and 25percent respectively, all as specified in IRC: 88.	cum	431.10	448.10	476.30
4.22	Suggestive		**Granular crack relief layer** Granular crack relief layer laying Using Mechanical Paver (Providing, laying ,spreading and compacting graded stone aggregate to Granular crack relief layer as per IRC SP -37 including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver over base course on well prepared surface and compacting with vibratory roller to achieve the desired density.)				
			Unit:= Cum				
	Note		Rate shall be taken from item no- 4.14 A.				

CHAPTER - 4
Analysis of Rates
SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
4.01	**401**		**Granular Sub-Base with Graded Material (Table:-400-1)**									
		A	**Plant Mix Method**									
			Construction of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per clause 401.									
			Unit = cum									
			Taking output = 400 cum									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor skilled	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
									1004.52	1004.52	1004.52	
			b) Machinery									
			Wet mix plant									
			(i)250 tonne per hour	hour	4.480			708.00	3171.84			PM17001
			(ii)200 tonne per hour	hour		5.600		413.00		2312.80		PM17002
			(iii)100 tonne per hour	hour			11.200	388.00			4345.60	PM17003
			Electric generator									
			(i)125 KVA	hour	4.480			1615.00	7235.20			PM22005
			(ii)100 KVA	hour		5.600		1386.00		7761.60		PM22006
			(iii)62.5 KVA	hour			11.200	895.00			10024.00	PM22007
			Front end loader									
			(i)3.1 cum capacity	hour	9.502			3523.00	33475.55			PM5001
			(ii) 2.1 cum capacity	hour		14.047		2121.00		29793.69		PM5002
			(iii) 1 cum capacity	hour			29.371	1454.00			42705.43	PM5003
			Tipper for transportation									
			(i)18 cum capacity	t.km	840xL1			4.98	4183.20			L1=1km & PM72001
			(ii) 14 cum capacity	t.km		840xL1		5.71		4796.40		L1=1km &PM73001

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(iii) 10 cum capacity	t.km			840xL1	7.10			5964.00	L1=1 km &PM74001
			For loading and unloading Time									
			(i)18 cum capacity	hour	4.480			2349.00	10523.52			PM6001
			(ii) 14 cum capacity	hour		5.600		2108.00		11804.80		PM6002
			(iii) 10 cum capacity	hour			11.200	1891.00			21179.20	PM6003
			Motor grader									
			(i)Motor grader 4.30 metre blade	hour	3.226			5560.00	17936.56			PM2001
			(ii)Motor grader 3.70 metre blade	hour		3.891		5095.00		19824.65		PM2002
			(iii)Motor grader 3.35 metre blade	hour			4.339	4512.00			19577.57	PM2003
			Vibratory roller	hour	2.589	2.589	2.589	2102.00	5442.08	5442.08	5442.08	PM10001
									81967.94	81736.01	109237.88	
			c) Material									
			Granular sub-base Material as per table 400-1									
			For Grading-I Material									
			53 mm to 26.5 mm @ 27.5 percent	cum	148.077	148.077	148.077	1178.00	174434.71	174434.71	174434.71	M-028
			26.5 mm to 9.5 mm @ 22.5 percent	cum	121.154	121.154	121.154	963.12	116685.84	116685.84	116685.84	M-014
			9.5 mm to 4.75 mm @ 10%	cum	53.846	53.846	53.846	631.69	34013.98	34013.98	34013.98	M-015
			4.75mm below @40 percent	cum	215.385	215.385	215.385	274.20	59058.57	59058.57	59058.57	M-018
			Cost of water	KL	67.200	67.200	67.200	63.20	4247.04	4247.04	4247.04	M-191
									388440.13	388440.13	388440.13	
			OR									
			For Grading-II Material									
			26.5 mm to 9.5 mm @ 35 percent	cum	188.462	188.462	188.462	963.12	181511.52	181511.52	181511.52	M-014
			9.5 mm to 4.75 mm @12.5 %	cum	67.308	67.308	67.308	631.69	42517.79	42517.79	42517.79	M-015
			4.75 mm below @ 52.5 percent	cum	282.692	282.692	282.692	274.20	77514.15	77514.15	77514.15	M-018
			Cost of water	KL	67.200	67.200	67.200	63.20	4247.04	4247.04	4247.04	M-191
									305790.50	305790.50	305790.50	
			OR									
			For Grading-III Material									
			26.5 mm to 9.5 mm @ 68 percent	cum	366.154	366.154	366.154	963.12	352650.24	352650.24	352650.24	M-014
			9.5 mm to 4.75 mm @12% percent	cum	64.615	64.615	64.615	631.69	40816.65	40816.65	40816.65	M-015
			4.75 mm below @ 20 percent	cum	107.692	107.692	107.692	274.20	29529.15	29529.15	29529.15	M-018
			Cost of water	KL	67.200	67.200	67.200	63.20	4247.04	4247.04	4247.04	M-191
									427243.08	427243.08	427243.08	
			OR									
			For Grading-IV Material									
			26.5 mm to 9.5 mm @ 64 percent	cum	344.615	344.615	344.615	963.12	331905.60	331905.60	331905.60	M-014

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			9.5 mm to 4.75 mm @11%	cum	59.231	59.231	59.231	631.69	37415.63	37415.63	37415.63	M-015
			4.75 mm below @ 25 percent	cum	134.615	134.615	134.615	274.20	36911.43	36911.43	36911.43	M-018
			Cost of water	KL	67.200	67.200	67.200	63.20	4247.04	4247.04	4247.04	M-191
									410479.70	410479.70	410479.70	
			OR									
			For Grading-V Material									
			53 mm to 26.5 mm @ 27.5 percent	cum	148.077	148.077	148.077	1178.00	174434.71	174434.71	174434.71	M-028
			26.5 mm to 9.5 mm @ 22.5 percent	cum	121.154	121.154	121.154	963.12	116685.84	116685.84	116685.84	M-014
			9.5 mm to 4.75 mm @ 12.50 percent	cum	67.308	67.308	67.308	631.69	42517.79	42517.79	42517.79	M-015
			4.75mm below @ 37.5 percent	cum	201.923	201.923	201.923	274.20	55367.29	55367.29	55367.29	M-018
			Cost of water	KL	67.200	67.200	67.200	63.20	4247.04	4247.04	4247.04	M-191
									393252.66	393252.66	393252.66	
			OR									
			For Grading-VI Material									
			53 mm to 26.5 mm @ 12.5 percent	cum	67.308	67.308	67.308	1178.00	79288.82	79288.82	79288.82	M-028
			26.5 mm to 9.5 mm @ 22.5 percent	cum	121.154	121.154	121.154	963.12	116685.84	116685.84	116685.84	M-014
			9.5 mm to 4.75 mm @ 22.50 percent	cum	121.154	121.154	121.154	631.69	76531.77	76531.77	76531.77	M-015
			4.75mm below @ 42.5 percent	cum	228.846	228.846	228.846	274.20	62749.57	62749.57	62749.57	M-018
			Cost of water	KL	67.200	67.200	67.200	63.20	4247.04	4247.04	4247.04	M-191
									339503.05	339503.05	339503.05	
4.01A		(i)	**Rate per cum for grading-I Material**									
			Total cost (Without O.H.& C.P.)						471412.60	471180.66	498682.53	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		37713.01	47118.07	59841.90	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		50912.56	51829.87	55852.44	
			Cost for 400 cum = a+b+c+d+e (With O.H. & C.P.)						560038.17	570128.60	614376.88	
			Rate per cum = (a+b+c+d+e)/400 (With O.H. & C.P.)						1400.10	1425.32	1535.94	
								Say	**1400.10**	**1425.30**	**1535.90**	
4.01A		(ii)	**Rate per cum for grading-II Material**									
			Total cost (Without O.H.& C.P.)						388762.96	388531.03	416032.90	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		31101.04	38853.10	49923.95	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		41986.40	42738.41	46595.68	
			Cost for 400 cum = a+b+c+d+e (With O.H. & C.P.)						461850.40	470122.54	512552.53	
			Rate per cum = (a+b+c+d+e)/400 (With O.H. & C.P.)						1154.63	1175.31	1281.38	
								Say	**1154.60**	**1175.30**	**1281.40**	
4.01A		(iii)	**Rate per cum for grading-III Material**									
			Total cost (Without O.H.& C.P.)						**510215.54**	**509983.61**	**537485.48**	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		40817.24	50998.36	64498.26	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		55103.28	56098.20	60198.37	

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Cost for 400 cum = a+b+c+d+e (With O.H. & C.P.)						606136.06	617080.16	662182.11	
			Rate per cum = (a+b+c+d+e)/400 (With O.H. & C.P.)						1515.34	1542.70	1655.46	
								Say	**1515.30**	**1542.70**	**1655.50**	
4.01A		**(iv)**	**Rate per cum for grading-IV Material**									
			Total cost (Without O.H.& C.P.)						493452.17	493220.23	520722.10	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		39476.17	49322.02	62486.65	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		53292.83	54254.23	58320.88	
			Cost for 400 cum = a+b+c+d+e (With O.H. & C.P.)						586221.17	596796.48	641529.63	
			Rate per cum = (a+b+c+d+e)/400 (With O.H. & C.P.)						1465.55	1491.99	1603.82	
								Say	**1465.60**	**1492.00**	**1603.80**	
4.01A		**(v)**	**Rate per cum for grading-V Material**									
			Total cost (Without O.H.& C.P.)						476225.13	475993.19	503495.06	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		38098.01	47599.32	60419.41	
			e) Contractor's profit on(a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		51432.31	52359.25	56391.45	
			Cost for 400 cum = a+b+c+d+e (With O.H. & C.P.)						565755.45	575951.76	620305.92	
			Rate per cum = (a+b+c+d+e)/400 (With O.H. & C.P.)						1414.39	1439.88	1550.76	
								Say	**1414.40**	**1439.90**	**1550.80**	
4.01A		**(vi)**	**Rate per cum for grading-VI Material**									
			Total cost (Without O.H.& C.P.)						422475.51	422243.58	449745.45	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		33798.04	42224.36	53969.45	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		45627.36	46446.79	50371.49	
			Cost for 400 cum = a+b+c+d+e (With O.H. & C.P.)						501900.91	510914.73	554086.39	
			Rate per cum = (a+b+c+d+e)/400 (With O.H. & C.P.)						1254.75	1277.29	1385.22	
								Say	**1254.80**	**1277.30**	**1385.20**	
		Note	Any one of the grading for material may be adopted as per design.									
4.01	**401**	**B**	**By Mix in Place Method**									
			Construction of granular sub-base by providing close graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with front end loader at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401.									
			Unit = cum									
			Taking output = 250 cum									
			a) Labour									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor skilled	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
									1896.04	1896.04	1896.04	
			b) Machinery									
			Front end loader for Mixing at stock pile location.									
			(i)3.1 cum capacity	hour	4.464			3523.00	15726.67			PM5001
			(ii) 2.1 cum capacity	hour		6.579		2121.00		13954.06		PM5002
			(iii) 1 cum capacity	hour			13.889	1454.00			20194.61	PM5003
			Water tanker (speed@20km / hr and return speed @30km / hr and spreading speed@3.0 km /hr)									
			(i)16 KL capacity	hour	0.292xL1+ 0.778			1204.00	1288.28			L1=1km & PM11001
			(ii)12 KL capacity	hour		0.389xL1 +1.037		1030.00		1468.78		L1=1km & PM11002
			(iii)6 KL capacity	hour			0.778xL1+ 2.074	789.00			2250.23	L1=1km & PM11003
			Motor Grader									
			(i)Motor grader 4.30 metre blade	hour	2.016			5560.00	11208.96			PM2001
			(ii)Motor grader 3.70 metre blade	hour		2.432		5095.00		12391.04		PM2002
			(iii)Motor grader 3.35 metre blade	hour			2.712	4512.00			12236.54	PM2003
			Vibratory roller	hour	1.618	1.618	1.618	2102.00	3401.04	3401.04	3401.04	PM10001
									31624.95	31214.92	38082.41	
			c) Material									
			Granular sub-base Material as per table 400-1									
			For Grading-I Material									
			53 mm to 26.5 mm @ 27.5 percent	cum	92.548	92.548	92.548	1178.00	109021.54	109021.54	109021.54	M-028
			26.5 mm to 9.5 mm @ 22.5 percent	cum	75.721	75.721	75.721	963.12	72928.41	72928.41	72928.41	M-014
			9.5 mm to 4.75mm @10 percent	cum	33.654	33.654	33.654	631.69	21258.90	21258.90	21258.90	M-015
			4.75mm below @ 40 percent	cum	134.615	134.615	134.615	274.20	36911.43	36911.43	36911.43	M-018
			Cost of water	KL	42.000	42.000	42.000	63.20	2654.40	2654.40	2654.40	M-191
									242774.68	242774.68	242774.68	
			OR									
			For Grading-II Material									
			26.5 mm to 9.5 mm @ 35 percent	cum	117.788	117.788	117.788	963.12	113443.98	113443.98	113443.98	M-014

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			9.5 mm to 4.75 mm @12.5 %	cum	42.067	42.067	42.067	631.69	26573.30	26573.30	26573.30	M-015
			4.75 mm below @ 52.5 percent	cum	176.683	176.683	176.683	274.20	48446.48	48446.48	48446.48	M-018
			Cost of water	KL	42.000	42.000	42.000	63.20	2654.40	2654.40	2654.40	M-191
									191118.16	191118.16	191118.16	
			OR									
			For Grading-III Material									
			26.5 mm to 9.5 mm @ 68 percent	cum	228.846	228.846	228.846	963.12	220406.16	220406.16	220406.16	M-014
			9.5 mm to 4.75 mm @12 %	cum	40.385	40.385	40.385	631.69	25510.80	25510.80	25510.80	M-015
			4.75 mm below @ 20 percent	cum	67.308	67.308	67.308	274.20	18455.85	18455.85	18455.85	M-018
			Cost of water	KL	42.000	42.000	42.000	63.20	2654.40	2654.40	2654.40	M-191
									267027.21	267027.21	267027.21	
			OR									
			For Grading-IV Material									
			26.5 mm to 9.5 mm @ 64 percent	cum	215.385	215.385	215.385	963.12	207441.60	207441.60	207441.60	M-014
			9.5 mm to 4.75 mm @11 percent	cum	37.019	37.019	37.019	631.69	23384.53	23384.53	23384.53	M-015
			4.75 mm below @ 25 percent	cum	84.135	84.135	84.135	274.20	23069.82	23069.82	23069.82	M-018
			Cost of water	KL	42.000	42.000	42.000	63.20	2654.40	2654.40	2654.40	M-191
									256550.35	256550.35	256550.35	
			OR									
			For Grading-V Material									
			53 mm to 26.5 mm @ 27.5 percent	cum	92.548	92.548	92.548	1178.00	109021.54	109021.54	109021.54	M-028
			26.5 mm to 9.5 mm @ 22.5 percent	cum	75.721	75.721	75.721	963.12	72928.41	72928.41	72928.41	M-014
			9.5 mm to 4.75mm @ 12.50 percent	cum	42.067	42.067	42.067	631.69	26573.30	26573.30	26573.30	M-015
			4.75mm below @ 37.5 percent	cum	126.202	126.202	126.202	274.20	34604.59	34604.59	34604.59	M-018
			Cost of water	KL	42.000	42.000	42.000	63.20	2654.40	2654.40	2654.40	M-191
									245782.25	245782.25	245782.25	
			OR									
			For Grading-VI Material									
			53 mm to 26.5 mm @ 12.5 percent	cum	42.067	42.067	42.067	1178.00	49554.93	49554.93	49554.93	M-028
			26.5 mm to 9.5 mm @ 22.5 percent	cum	75.721	75.721	75.721	963.12	72928.41	72928.41	72928.41	M-014
			9.5 mm to 4.75mm @ 22.50 percent	cum	75.721	75.721	75.721	631.69	47832.20	47832.20	47832.20	M-015
			4.75mm below @ 42.5 percent	cum	143.029	143.029	143.029	274.20	39218.55	39218.55	39218.55	M-018
			Cost of water	KL	42.000	42.000	42.000	63.20	2654.40	2654.40	2654.40	M-191
									212188.49	212188.49	212188.49	
4.01B		**(i)**	**Rate per cum for grading-I Material**									
			Total cost (Without O.H.& C.P.)						276295.67	275885.64	282753.14	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		22103.65	27588.56	33930.38	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		29839.93	30347.42	31668.35	

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Cost for 250 cum = a+b+c+d+e (With O.H. & C.P.)						328239.26	333821.62	348351.86	
			Rate per cum = (a+b+c+d+e)/250 (With O.H. & C.P.)						1312.96	1335.29	1393.41	
								Say	**1313.00**	**1335.30**	**1393.40**	
4.01B		**(ii)**	**Rate per cum for grading-II Material**									
			Total cost (Without O.H.& C.P.)						224639.15	224229.12	231096.61	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		17971.13	22422.91	27731.59	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		24261.03	24665.20	25882.82	
			Cost for 250 cum = a+b+c+d+e (With O.H. & C.P.)						266871.31	271317.23	284711.03	
			Rate per cum = (a+b+c+d+e)/250 (With O.H. & C.P.)						1067.49	1085.27	1138.84	
								Say	**1067.50**	**1085.30**	**1138.80**	
4.01B		**(iii)**	**Rate per cum for grading-III Material**									
			Total cost (Without O.H.& C.P.)						300548.20	300138.17	307005.67	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		24043.86	30013.82	36840.68	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		32459.21	33015.20	34384.63	
			Cost for 250 cum = a+b+c+d+e (With O.H. & C.P.)						357051.26	363167.18	378230.98	
			Rate per cum = (a+b+c+d+e)/250 (With O.H. & C.P.)						1428.21	1452.67	1512.92	
								Say	**1428.20**	**1452.70**	**1512.90**	
4.01B		**(iv)**	**Rate per cum for grading-IV Material**									
			Total cost (Without O.H.& C.P.)						290071.34	289661.31	296528.80	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		23205.71	28966.13	35583.46	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		31327.70	31862.74	33211.23	
			Cost for 250 cum = a+b+c+d+e (With O.H. & C.P.)						344604.75	350490.18	365323.49	
			Rate per cum = (a+b+c+d+e)/250 (With O.H. & C.P.)						1378.42	1401.96	1461.29	
								Say	**1378.40**	**1402.00**	**1461.30**	
4.01B		**(v)**	**Rate per cum for grading-V Material**									
			Total cost (Without O.H.& C.P.)						279303.23	278893.20	285760.70	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		22344.26	27889.32	34291.28	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		30164.75	30678.25	32005.20	
			Cost for 250 cum = a+b+c+d+e (With O.H. & C.P.)						331812.24	337460.77	352057.18	
			Rate per cum = (a+b+c+d+e)/250 (With O.H. & C.P.)						1327.25	1349.84	1408.23	
								Say	**1327.20**	**1349.80**	**1408.20**	
4.01B		**(vi)**	**Rate per cum for grading-VI Material**									
			Total cost (Without O.H.& C.P.)						245709.47	245299.44	252166.94	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		19656.76	24529.94	30260.03	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		26536.62	26982.94	28242.70	
			Cost for 250 cum = a+b+c+d+e (With O.H. & C.P.)						291902.85	296812.32	310669.67	

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Rate per cum = (a+b+c+d+e)/250 (With O.H. & C.P.)						1167.61	1187.25	1242.68	
								Say	**1167.60**	**1187.20**	**1242.70**	
		Note	Any one of the grading for material may be adopted as per design.									
4.01	**401& 407**	**C**	**Using Crusher Run**									
			Construction of granular sub-base using crusher run ,spreading in uniform layers with mator grader on prepared surface ,mixing by mix in place method with rotovator at OMC, and compating with vibratory roller to achieve the desired density, complete as per clause 401									
			Unit=cum									
			Taking output=250 cum									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor skilled	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
									1004.52	**1004.52**	**1004.52**	
			b) Machinery									
			Front end loader for loading to Tipper									
			(i)3.1 cum capacity	hour	1.548			3523.00	5453.60			PM5001
			(ii) 2.1 cum capacity	hour		2.283		2121.00		4842.24		PM5002
			(iii) 1 cum capacity	hour			4.808	1454.00			6990.83	PM5003
			Tipper									
			for transportation									
			(i)18 cum capacity	t.km	525xL1			4.98	2614.50			L1=1km & PM72001
			(ii) 14 cum capacity	t.km		525xL1		5.71		2997.75		L1=1km &PM73001
			(iii) 10 cum capacity	t.km			525xL1	7.10			3727.50	L1=1 km &PM74001
			For loading and unloading Time									
			(i)18 cum capacity	hour	1.548			2349.00	3636.25			PM6001
			(ii) 14 cum capacity	hour		2.283		2108.00		4812.56		PM6002
			(iii) 10 cum capacity	hour			4.808	1891.00			9091.93	PM6003

SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Water tanker (speed@20km /hr and return speed @30 km / hr and spreading speed@3.0 km /hr)									
			(i)16 KL capacity	hour	0.292xL1+ 0.778			1204.00	1288.28			L1=1km & PM11001
			(ii)12 KL capacity	hour		0.389xL1 +1.037		1030.00		1468.78		L1=1km & PM11002
			(iii)6 KL capacity	hour			0.778xL1+ 2.074	789.00			2250.23	L1=1km & PM11003
			Motor Grader									
			(i)Motor grader 4.30 metre blade	hour	2.016			5560.00	11208.96			PM2001
			(ii)Motor grader 3.70 metre blade	hour		2.432		5095.00		12391.04		PM2002
			(iii)Motor grader 3.35 metre blade	hour			2.712	4512.00			12236.54	PM2003
			Vibratory roller	hour	1.618	1.618	1.618	2102.00	3401.04	3401.04	3401.04	PM10001
									27602.63	29913.41	37698.07	
			c) Material									
			Granular sub-base Material as per table 400-1									
			For Grading-I Material									
			53 mm to 4.75 mm below	cum	336.538	336.538	336.538	815.48	**274440.01**	**274440.01**	**274440.01**	***M-034***
			cost of water	KL	42.000	42.000	42.000	63.20	2654.40	2654.40	2654.40	M-191
									277094.41	**277094.41**	**277094.41**	
			OR									
			For Grading-II Material									
			26.5 mm to 4.75 mm below	cum	336.538	336.538	336.538	963.12	**324126.48**	**324126.48**	**324126.48**	***M-025***
			cost of water	KL	42.000	42.000	42.000	63.20	2654.40	2654.40	2654.40	M-191
									326780.88	**326780.88**	**326780.88**	
			OR									
			For Grading-III Material									
			26.5 mm to 4.75 mm below	cum	336.538	336.538	336.538	963.12	**324126.48**	**324126.48**	**324126.48**	***M-025***
			cost of water	KL	42.000	42.000	42.000	63.20	2654.40	2654.40	2654.40	M-191
									326780.88	**326780.88**	**326780.88**	
			OR									
			For Grading-IV Material									
			26.5 mm to 4.75 mm below	cum	336.538	336.538	336.538	963.12	**324126.48**	**324126.48**	**324126.48**	***M-025***

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			cost of water	KL	42.000	42.000	42.000	63.20	2654.40	2654.40	2654.40	M-191
									326780.88	**326780.88**	**326780.88**	
			OR									
			For Grading-V Material									
			53 mm to 4.75 mm below	cum	336.538	336.538	336.538	815.48	**274440.01**	**274440.01**	**274440.01**	***M-034***
			cost of water	KL	42.000	42.000	42.000	63.20	2654.40	2654.40	2654.40	M-191
									277094.41	**277094.41**	**277094.41**	
			OR									
			For Grading-VI Material									
			53 mm to 4.75 mm below	cum	336.538	336.538	336.538	815.48	**274440.01**	**274440.01**	**274440.01**	***M-034***
			cost of water	KL	42.000	42.000	42.000	63.20	2654.40	2654.40	2654.40	M-191
									277094.41	**277094.41**	**277094.41**	
4.01C		**(i)**	**Rate per cum for grading-I Material**									
			Total cost (Without O.H.& C.P.)						**305701.56**	**308012.34**	**315797.00**	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		24456.12	30801.23	37895.64	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		33015.77	33881.36	35369.26	
			Cost for 250 cum = a+b+c+d+e (With O.H. & C.P.)						363173.45	372694.93	389061.90	
			Rate per cum = (a+b+c+d+e)/250 (With O.H. & C.P.)						1452.69	1490.78	1556.25	
								Say	**1452.70**	**1490.80**	**1556.20**	
4.01C		**(ii)**	**Rate per cum for grading-II Material**									
			Total cost (Without O.H.& C.P.)						**355388.03**	**357698.81**	**365483.47**	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		28431.04	35769.88	43858.02	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		38381.91	39346.87	40934.15	
			Cost for 250 cum = a+b+c+d+e (With O.H. & C.P.)						422200.98	432815.56	450275.63	
			Rate per cum = (a+b+c+d+e)/250 (With O.H. & C.P.)						1688.80	1731.26	1801.10	
								Say	**1688.80**	**1731.30**	**1801.10**	
4.01C		**(iii)**	**Rate per cum for grading-III Material**									
			Total cost (Without O.H.& C.P.)						**355388.03**	**357698.81**	**365483.47**	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		28431.04	35769.88	43858.02	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		38381.91	39346.87	40934.15	
			Cost for 250 cum = a+b+c+d+e (With O.H. & C.P.)						422200.98	432815.56	450275.63	
			Rate per cum = (a+b+c+d+e)/250 (With O.H. & C.P.)						1688.80	1731.26	1801.10	
								Say	**1688.80**	**1731.30**	**1801.10**	
4.01C		**(iv)**	**Rate per cum for grading-IV Material**									
			Total cost (Without O.H.& C.P.)						**355388.03**	**357698.81**	**365483.47**	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		28431.04	35769.88	43858.02	

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		38381.91	39346.87	40934.15	
			Cost for 250 cum = a+b+c+d+e (With O.H. & C.P.)						422200.98	432815.56	450275.63	
			Rate per cum = (a+b+c+d+e)/250 (With O.H. & C.P.)						1688.80	1731.26	1801.10	
								Say	**1688.80**	**1731.30**	**1801.10**	
4.01C		**(v)**	**Rate per cum for grading-V Material**									
			Total cost (Without O.H.& C.P.)						**305701.56**	**308012.34**	**315797.00**	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		24456.12	30801.23	37895.64	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		33015.77	33881.36	35369.26	
			Cost for 250 cum = a+b+c+d+e (With O.H. & C.P.)						363173.45	372694.93	389061.90	
			Rate per cum = (a+b+c+d+e)/250 (With O.H. & C.P.)						1452.69	1490.78	1556.25	
								Say	**1452.70**	**1490.80**	**1556.20**	
4.01C		**(vi)**	**Rate per cum for grading-VI Material**									
			Total cost (Without O.H.& C.P.)						**305701.56**	**308012.34**	**315797.00**	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		24456.12	30801.23	37895.64	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		33015.77	33881.36	35369.26	
			Cost for 250 cum = a+b+c+d+e (With O.H. & C.P.)						363173.45	372694.93	389061.90	
			Rate per cum = (a+b+c+d+e)/250 (With O.H. & C.P.)						1452.69	1490.78	1556.25	
								Say	**1452.70**	**1490.80**	**1556.20**	
		Note	Any one of the grading for material may be adopted as per design.									
4.02A	**402**		**Lime Stabilisation for Improving Sub-grade**									
			Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with rotavator with 2 percent slaked lime having minimum content of 70 percent of CaO, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.									
			Unit = cum									
			Taking output = 300 cum									
		A	**By Manual Means**									
			a) Labour									
			Mate	day	0.360	0.360	0.360	444.00	159.84	159.84	159.84	L-12
			Skilled mazdoor for alignment and geometrics	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor for spraying lime	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13
									4124.84	4124.84	4124.84	
			b) Machinery									
			Hydraulic Excavator									
			(i)1.2 cum bucket capacity	hour	3.365			2809.00	9452.29			PM3003
			(ii)1.1 cum bucket capacity	hour		3.875		2538.00		9834.75		PM3004
			(iii)0.9 cum bucket capacity	hour			5.418	2312.00			12526.42	PM3005
			Tipper									
			for transportation									
			(i)18 cum capacity	t.km	525xL2			4.98	2614.50			L2=1km & PM72001
			(ii) 14 cum capacity	t.km		525xL2		5.71		2997.75		L2=1km &PM73001
			(iii) 10 cum capacity	t.km			525xL2	7.10			3727.50	L2=1 km &PM74001
			For loading and unloading Time									
			(i)18 cum capacity	hour	3.365			2349.00	7904.39			PM6001
			(ii) 14 cum capacity	hour		3.875		2108.00		8168.50		PM6002
			(iii) 10 cum capacity	hour			5.418	1891.00			10245.44	PM6003
			Tractor with ripper and rotavator									
			attachments @250 cum per hour for mixing	hour	1.200	1.200	1.200	755.00	906	906	906	PM (12001+ 13001+14001)
			Motor Grader									
			(i)Motor grader 4.30 metre blade	hour	2.419			5560.00	13449.64			PM2001
			(ii)Motor grader 3.70 metre blade	hour		2.918		5095.00		14867.21		PM2002
			(iii)Motor grader 3.35 metre blade	hour			3.254	4512.00			14682.05	PM2003
			Vibratory roller	hour	1.456	1.456	1.456	2102.00	3060.51	3060.51	3060.51	PM10001
			Water tanker (speed@20km /hr and return speed @30 km/hr and spreading speed@3.0 km /hr)									
			(i)16 KL capacity	hour	0.693xL1+ 2.217			1204.00	3503.64			L1=1km & PM11001

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(ii)12 KL capacity	hour		0.924xL1 +2.956		1030.00		3996.40		L1=1km & PM11002
			(iii) 6 KL capacity	hour			1.847xL1+ 5.911	789.00			6121.06	L1=1km & PM11003
									40890.96	43831.12	51268.98	
			c) Material									
			Lime at site	tonne	10.500	10.500	10.500	3222.77	33839.09	33839.09	33839.09	M-190
			Cost of water including water for curing	KL	99.750	99.750	99.750	63.20	6304.20	6304.20	6304.20	M-191
			Compensation for earth taken from private land	cum	300.000	300.000	300.000	35.30	10590.00	10590.00	10590.00	M-093
									50733.29	50733.29	50733.29	
			Total cost (Without O.H.& C.P.)						95749.09	98689.25	106127.10	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		7659.93	9868.92	12735.25	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		10340.90	10855.82	11886.24	
			Cost for 300 cum = a+b+c+d+e (With O.H. & C.P.)						113749.92	119413.99	130748.59	
			Rate per cum = (a+b+c+d+e)/300 (With O.H. & C.P.)						379.17	398.05	435.83	
								Say	**379.20**	**398.00**	**435.80**	
4.02B	**402**	**(i)**	**Lime Stabilisation for Improving Sub-grade**									
			Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with Soil Stabilizer with 2 percent slaked lime using Binder spreader Machine having minimum content of 70 percent of CaO, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.								
			Unit = cum									
			Taking output = 300 cum									
		A	**By Mechanical Means**									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Skilled mazdoor for alignment and geometrics	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
									1004.52	1004.52	1004.52	
			b) Machinery									
			Hydraulic Excavator									
			(i)1.2 cum bucket capacity	hour	3.365			2809.00	9452.29			PM3003
			(ii)1.1 cum bucket capacity	hour		3.875		2538.00		9834.75		PM3004

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(iii)0.9cum bucket capacity	hour			5.418	2312.00			12526.42	PM3005
			Tipper									
			for transportation									
			(i)18 cum capacity	t.km	525xL2			4.98	2614.50			L2=1km & PM72001
			(ii) 14 cum capacity	t.km		525xL2		5.71		2997.75		L2=1km &PM73001
			(iii) 10 cum capacity	t.km			525xL2	7.10			3727.50	L2=1 km &PM74001
			For loading and unloading Time									
			(i)18 cum capacity	hour	3.365			2349.00	7904.39			PM6001
			(ii) 14 cum capacity	hour		3.875		2108.00		8168.50		PM6002
			(iii) 10 cum capacity	hour			5.418	1891.00			10245.44	PM6003
			Soil Stabilizer for mixing and pulverising with capacity 1000 m2 per hour	hour	2.667	2.667	2.667	24167.00	64453.39	64453.39	64453.39	PM49001
			Binder Spreader	hour	2.667	2.667	2.667	7022.00	18727.67	18727.67	18727.67	PM50001
			Motor Grader									
			(i)Motor grader 4.30 metre blade	hour	2.419			5560.00	13449.64			PM2001
			(ii)Motor grader 3.70 metre blade	hour		2.918		5095.00		14867.21		PM2002
			(iii)Motor grader 3.35 metre blade	hour			3.254	4512.00			14682.05	PM2003
			Vibratory roller	hour	1.456	1.456	1.456	2102.00	3060.51	3060.51	3060.51	PM10001
			Water tanker (speed@20km /hr and return speed @30 km/ hr and spreading speed@3.0 km /hr)									
			(i)16 KL capacity	hour	0.693xL1+ 2.217			1204.00	3503.64			L1=1km & PM11001
			(ii)12 KL capacity	hour		0.924xL1 +2.956		1030.00		3996.40		L1=1km & PM11002
			(iii)6 KL capacity	hour			1.847xL1+ 5.911	789.00			6121.06	L1=1km & PM11003
									123166.03	126106.19	133544.04	
			c) Material									
			Lime at site	tonne	10.500	10.500	10.500	3222.77	33839.09	33839.09	33839.09	M-190
			Cost of water including water for curing	KL	99.750	99.750	99.750	63.20	6304.20	6304.20	6304.20	M-191
			Compensation for earth taken from private land	cum	300.00	300.00	300.00	35.30	10590.00	10590.00	10590.00	M-093

SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
									50733.29	50733.29	50733.29	
			Total cost (Without O.H.& C.P.)						174903.83	177843.99	185281.84	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		13992.31	17784.40	22233.82	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		18889.61	19562.84	20751.57	
			Cost for 300 cum = a+b+c+d+e (With O.H. & C.P.)						207785.75	215191.23	228267.23	
			Rate per cum = (a+b+c+d+e)/300 (With O.H. & C.P.)						692.62	717.30	760.89	
								Say	**692.60**	**717.30**	**760.90**	
4.02B	**402**	**(ii)**	**Lime Stabilisation for Improving Sub-grade**									
			Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with Soil Stablizer with 2 percent slaked lime manually spread having minimum content of 70 percent of CaO, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.									
			Unit = cum									
			Taking output = 300 cum									
			By Mechanical Means									
			a) Labour									
			Mate	day	0.360	0.360	0.360	444.00	159.84	159.84	159.84	L-12
			Skilled mazdoor for alignment and geometrics	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor for sprying lime	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13
									4124.84	4124.84	4124.84	
			b) Machinery									
			Hydraulic Excavtor									
			(i)1.2 cum bucket capacity	hour	3.365			2809.00	9452.29			PM3003
			(ii)1.1 cum bucket capacity	hour		3.875		2538.00		9834.75		PM3004
			(iii)0.9cum bucket capacity	hour			5.418	2312.00			12526.42	PM3005
			Tipper									
			for transportation									
			(i)18 cum capacity	t.km	525xL2			4.98	2614.50			L2=1km & PM72001
			(ii) 14 cum capacity	t.km		525xL2		5.71		2997.75		L2=1km &PM73001
			(iii) 10 cum capacity	t.km			525xL2	7.10			3727.50	L2=1 km &PM74001

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Analysis of Rates
SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			For loading and unloading Time									
			(i)18 cum capacity	hour	3.365			2349.00	7904.39			PM6001
			(ii) 14 cum capacity	hour		3.875		2108.00		8168.50		PM6002
			(iii) 10 cum capacity	hour			5.418	1891.00			10245.44	PM6003
			Soil Stabiliser for mixing and pulversing with capacity1000 m2 per hour	hour	2.667	2.667	2.667	24167.00	64453.39	64453.39	64453.39	PM49001
			Motor Grader									
			(i)Motor grader 4.30 metre blade	hour	2.419			5560.00	13449.64			PM2001
			(ii)Motor grader 3.70 metre blade	hour		2.918		5095.00		14867.21		PM2002
			(iii)Motor grader 3.35 metre blade	hour			3.254	4512.00			14682.05	PM2003
			Vibratory roller	hour	1.456	1.456	1.456	2102.00	3060.51	3060.51	3060.51	PM10001
			Water tanker (speed@20km /hr and return speed @30 km/ hr and spreading speed@3.0 km /hr)									
			(i)16 KL capacity	hour	0.693xL1+ 2.217			1204.00	3503.64			L1=1km & PM11001
			(ii)12 KL capacity	hour		0.924xL1 +2.956		1030.00		3996.40		L1=1km & PM11002
			(iii)6 KL capacity	hour			1.847xL1+ 5.911	789.00			6121.06	L1=1km & PM11003
									104438.35	107378.51	114816.37	
			c) Material									
			Lime at site	tonne	10.500	10.500	10.500	3222.77	33839.09	33839.09	33839.09	M-190
			Cost of water including water for curing	KL	99.750	99.750	99.750	63.20	6304.20	6304.20	6304.20	M-191
			Compensation for earth taken from private land	cum	300.000	300.000	300.000	35.30	10590.00	10590.00	10590.00	M-093
									50733.29	50733.29	50733.29	
			Total cost (Without O.H.& C.P.)						159296.48	162236.64	169674.49	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		12743.72	16223.66	20360.94	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		17204.02	17846.03	19003.54	
			Cost for 300 cum = a+b+c+d+e (With O.H. & C.P.)						189244.21	196306.33	209038.97	
			Rate per cum = (a+b+c+d+e)/300 (With O.H. & C.P.)						630.81	654.35	696.80	
								Say	**630.80**	**654.40**	**696.80**	
4.03	**402**	**A**	**Cement Stabilisation for Improving Sub-grade**									

SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with rotavator with 2 percent cement , grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.									
			Unit = cum									
			Taking output = 300 cum									
		A	**By Manual Means**									
			a) Labour									
			Mate	day	0.360	0.360	0.360	444.00	159.84	159.84	159.84	L-12
			Skilled mazdoor for alignment and geometrics	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor for spraying cement	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13
									4124.84	4124.84	4124.84	
			b) Machinery									
			Hydraulic Excavator									
			(i)1.2 cum bucket capacity	hour	3.365			2809.00	9452.29			PM3003
			(ii)1.1 cum bucket capacity	hour		3.875		2538.00		9834.75		PM3004
			(iii)0.9 cum bucket capacity	hour			5.418	2312.00			12526.42	PM3005
			Tipper									
			for transportation									
			(i)18 cum capacity	t.km	525xL2			4.98	2614.50			L2=1km & PM72001
			(ii) 14 cum capacity	t.km		525xL2		5.71		2997.75		L2=1km &PM73001
			(iii) 10 cum capacity	t.km			525xL2	7.10			3727.50	L2=1 km &PM74001
			For loading and unloading Time									
			(i)18 cum capacity	hour	3.365			2349.00	7904.39			PM6001
			(ii) 14 cum capacity	hour		3.875		2108.00		8168.50		PM6002
			(iii) 10 cum capacity	hour			5.418	1891.00			10245.44	PM6003
			Tractor with ripper and rotavator									
			attachments @250 cum per hour for mixing	hour	1.200	1.200	1.200	755.00	906.00	906.00	906.00	PM(12001+ 13001+14001)
			Motor Grader									
			(i)Motor grader 4.30 metre blade	hour	2.419			5560.00	13449.64			PM2001

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SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(ii)Motor grader3.70 metre blade	hour		2.918		5095.00		14867.21		PM2002
			(iii)Motor grader 3.35 metre blade	hour			3.254	4512.00			14682.05	PM2003
			Vibratory roller	hour	1.456	1.456	1.456	2102.00	3060.51	3060.51	3060.51	PM10001
			Water tanker (speed@20km /hr and return speed @30 hr/km and spreading speed@3.0 km /hr)									
			(i)16 KL capacity	hour	0.693xL1+ 2.217			1204.00	3503.64			L1=1km & PM11001
			(ii)12 KL capacity	hour		0.924xL1 +2.956		1030.00		3996.40		L1=1km & PM11002
			(iii)6 KL capacity	hour			1.847xL1+ 5.911	789.00			6121.06	L1=1km & PM11003
									40890.96	43831.12	51268.98	
			c) Material									
			cement at site	tonne	10.500	10.500	10.500	5762.00	60501.00	60501.00	60501.00	M-081
			Cost of water including water for curing	KL	99.750	99.750	99.750	63.20	6304.20	6304.20	6304.20	M-191
			Compensation for earth taken from private land	cum	300.000	300.000	300.000	35.30	10590.00	10590.00	10590.00	M-093
									77395.20	77395.20	77395.20	
			Total cost (Without O.H.& C.P.)						122411.00	125351.16	132789.02	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		9792.88	12535.12	15934.68	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		13220.39	13788.63	14872.37	
			Cost for 300 cum = a+b+c+d+e (With O.H. & C.P.)						145424.27	151674.91	163596.07	
			Rate per cum = (a+b+c+d+e)/300 (With O.H. & C.P.)						484.75	505.58	545.32	
								Say	**484.70**	**505.60**	**545.30**	
4.03	**402**	**B**	**Cement Stabilisation for Improving Sub-grade**									
		(I)	Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with Soil stabilizer with 2 percent cement using Binder spreader Machine grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.									
			Unit = cum									
			Taking output = 300 cum									

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Analysis of Rates
SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			By Mechanical Means									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Skilled mazdoor for alignment and geometrics	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor for spraying cement	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
									1004.52	1004.52	1004.52	
			b) Machinery									
			Hydraulic Excavator									
			(i)1.2 cum bucket capacity	hour	3.365			2809.00	9452.29			PM3003
			(ii)1.1 cum bucket capacity	hour		3.875		2538.00		9834.75		PM3004
			(iii)0.9 cum bucket capacity	hour			5.418	2312.00			12526.42	PM3005
			Tipper									
			for transportation									
			(i)18 cum capacity	t.km	525xL2			4.98	2614.50			L2=1km & PM72001
			(ii) 14 cum capacity	t.km		525xL2		5.71		2997.75		L2=1km &PM73001
			(iii) 10 cum capacity	t.km			525xL2	7.10			3727.50	L2=1 km &PM74001
			For loading and unloading Time									
			(i)18 cum capacity	hour	3.365			2349.00	7904.39			PM6001
			(ii) 14 cum capacity	hour		3.875		2108.00		8168.50		PM6002
			(iii) 10 cum capacity	hour			5.418	1891.00			10245.44	PM6003
			Soil stabilizer for mixing and pulverising with capacity 1000 m2 per hour	hour	2.667	2.667	2.667	24167.00	64453.39	64453.39	64453.39	PM49001
			Binder Spreader	hour	2.667	2.667	2.667	7022.00	18727.67	18727.67	18727.67	PM50001
			Motor Grader									
			(i)Motor grader 4.30 metre blade	hour	2.419			5560.00	13449.64			PM2001
			(ii)Motor grader3.7metre blade	hour		2.918		5095.00		14867.21		PM2002
			(iii)Motor grader3.35 metre blade	hour			3.254	4512.00			14682.05	PM2003
			Vibratory roller	hour	1.456	1.456	1.456	2102.00	3060.51	3060.51	3060.51	PM10001
			Water tanker (speed@20km /hr and return speed @30 km/ hr and spreading speed@3.0 km /hr)									
			(i)16 KL capacity	hour	0.693xL1+ 2.217			1204.00	3503.64			L1=1km & PM11001

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SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(ii)12 KL capacity	hour		0.924xL1 +2.956		1030.00		3996.40		L1=1km & PM11002
			(iii)6 KL capacity	hour			1.847xL1+ 5.911	789.00			6121.06	L1=1km & PM11003
									123166.03	126106.19	133544.04	
			c) Material									
			cement at site	tonne	10.500	10.500	10.500	5762.00	60501.00	60501.00	60501.00	M-081
			Cost of water including water for curing	KL	99.750	99.750	99.750	63.20	6304.20	6304.20	6304.20	M-191
			Compensation for earth taken from private land	cum	300.000	300.000	300.000	35.30	10590.00	10590.00	10590.00	M-093
									77395.20	77395.20	77395.20	
			Total cost (Without O.H.& C.P.)						201565.75	204505.91	211943.76	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		16125.26	20450.59	25433.25	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		21769.10	22495.65	23737.70	
			Cost for 300 cum = a+b+c+d+e (With O.H. & C.P.)						239460.11	247452.15	261114.71	
			Rate per cum = (a+b+c+d+e)/300 (With O.H. & C.P.)						798.20	824.84	870.38	
								Say	**798.20**	**824.80**	**870.40**	
4.03B	**402**	**(ii)**	**Cement Stabilisation for Improving Sub-grade**									
			Laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with Soil Stablizer with 2 percent cement **manually spread**, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.									
			Unit = cum									
			Taking output = 300 cum									
			a) Labour									
			Mate	day	0.360	0.360	0.360	444.00	159.84	159.84	159.84	L-12
			Skilled mazdoor for alignment and geometrics	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor for sprying cement	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13
									4124.84	4124.84	4124.84	
			b) Machinery									
			Hydraulic Excavtor									
			(i)1.2 cum bucket capacity	hour	3.365			2809.00	9452.29			PM3003
			(ii)1.1 cum bucket capacity	hour		3.875		2538.00		9834.75		PM3004
			(iii)0.9cum bucket capacity	hour			5.418	2312.00			12526.42	PM3005

SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Tipper									
			for transportation									
			(i)18 cum capacity	t.km	525xL2			4.98	2614.50			L2=1km & PM72001
			(ii) 14 cum capacity	t.km		525xL2		5.71		2997.75		L2=1km &PM73001
			(iii) 10 cum capacity	t.km			525xL2	7.10			3727.50	L2=1 km &PM74001
			For loading and unloading Time									
			(i)18 cum capacity	hour	3.365			2349.00	7904.39			PM6001
			(ii) 14 cum capacity	hour		3.875		2108.00		8168.50		PM6002
			(iii) 10 cum capacity	hour			5.418	1891.00			10245.44	PM6003
			Soil Stabiliser for mixing and pulversing with capacity1000 m2 per hour	hour	2.667	2.667	2.667	24167.00	64453.39	64453.39	64453.39	PM49001
			Motor Grader									
			(i)Motor grader 4.30 metre blade	hour	2.419			5560.00	13449.64			PM2001
			(ii)Motor grader 3.70 metre blade	hour		2.918		5095.00		14867.21		PM2002
			(iii)Motor grader 3.35 metre blade	hour			3.254	4512.00			14682.05	PM2003
			Vibratory roller	hour	1.456	1.456	1.456	2102.00	3060.51	3060.51	3060.51	PM10001
			Water tanker (speed@20km /hr and return speed @30 km/ hr and spreading speed@3.0 km /hr)									
			(i)16 KL capacity	hour	0.693xL1+ 2.217			1204.00	3503.64			L1=1km & PM11001
			(ii)12 KL capacity	hour		0.924xL1 +2.956		1030.00		3996.40		L1=1km & PM11002
			(iii) 6 KL capacity	hour			1.847xL1+ 5.911	789.00			6121.06	L1=1km & PM11003
									104438.35	107378.51	114816.37	
			c) Material									
			Cement at site	tonne	10.500	10.500	10.500	5762.00	60501.00	60501.00	60501.00	M-081
			Cost of water including water for curing	KL	99.750	99.750	99.750	63.20	6304.20	6304.20	6304.20	M-191
			Compensation for earth taken from private land	cum	300.000	300.000	300.000	35.30	10590.00	10590.00	10590.00	M-093
									77395.20	77395.20	77395.20	

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Analysis of Rates
SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Total cost (Without O.H.& C.P.)						185958.39	188898.55	196336.41	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		14876.67	18889.86	23560.37	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		20083.51	20778.84	21989.68	
			Cost for 300 cum = a+b+c+d+e (With O.H. & C.P.)						220918.57	228567.25	241886.45	
			Rate per cum = (a+b+c+d+e)/300 (With O.H. & C.P.)						736.40	761.89	806.29	
								Say	**736.40**	**761.90**	**806.30**	
4.04	**402**		**Lime Stabilisation in Embankment**									
			Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with rotavator with 2 percent slaked lime having minimum content of 70 percent of CaO, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.									
			Unit = cum									
			Taking output = 300 cum									
		A	**By Manual Means**									
			a) Labour									
			Mate	day	0.360	0.360	0.360	444.00	159.84	159.84	159.84	L-12
			Skilled mazdoor for alignment and geometrics	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor for spraying lime	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13
									4124.84	4124.84	4124.84	
			b) Machinery									
			Hydraulic Excavator									
			(i)1.2 cum bucket capacity	hour	3.365			2809.00	9452.29			PM3003
			(ii)1.1 cum bucket capacity	hour		3.875		2538.00		9834.75		PM3004
			(iii)0.9 cum bucket capacity	hour			5.418	2312.00			12526.42	PM3005
			Tipper									
			for transportation									
			(i)18 cum capacity	t.km	450xL2			4.98	2241.00			L2=1km & PM72001
			(ii) 14 cum capacity	t.km		450xL2		5.71		2569.50		L2=1km &PM73001
			(iii) 10 cum capacity	t.km			450xL2	7.10			3195.00	L2=1 km &PM74001
			For loading and unloading Time									

SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(i)18 cum capacity	hour	3.365			2349.00	7904.39			PM6001
			(ii) 14 cum capacity	hour		3.875		2108.00		8168.50		PM6002
			(iii) 10 cum capacity	hour			5.418	1891.00			10245.44	PM6003
			Tractor with ripper and rotavator									
			attachments @250 cum per hour for mixing	hour	1.200	1.200	1.200	755.00	906.00	906.00	906.00	PM(12001+ 13001+14001)
			Motor Grader									
			(i)Motor grader 4.30 metre blade	hour	2.419			5560.00	13449.64			PM2001
			(ii)Motor grader 3.70metre blade	hour		2.918		5095.00		14867.21		PM2002
			(iii)Motor grader3.35metre blade	hour			3.254	4512.00			14682.05	PM2003
			Vibratory roller	hour	1.456	1.456	1.456	2102.00	3060.51	3060.51	3060.51	PM10001
			Water tanker (speed@20km /hr and return speed @30 km/hr and spreading speed@3.0 km /hr)									
			(i)16 KL capacity	hour	0.594xL1+ 1.9			1204.00	3002.78			L1=1km & PM11001
			(ii)12 KL capacity	hour		0.792xL1 +2.533		1030.00		3424.75		L1=1km & PM11002
			(iii)6 KL capacity	hour			1.583xL1+ 5.067	789.00			5246.85	L1=1km & PM11003
									40016.60	42831.22	49862.26	
			c) Material									
			Lime at site	tonne	9.000	9.000	9.000	3222.77	29004.93	29004.93	29004.93	M-190
			Cost of water including water for curing	KL	85.500	85.500	85.500	63.20	5403.60	5403.60	5403.60	M-191
			Compensation for earth taken from private land	cum	300.000	300.000	300.000	35.30	10590.00	10590.00	10590.00	M-093
									44998.53	44998.53	44998.53	
			Total cost (Without O.H.& C.P.)						89139.97	91954.59	98985.63	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		7131.20	9195.46	11878.28	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		9627.12	10115.01	11086.39	
			Cost for 300 cum = a+b+c+d+e (With O.H. & C.P.)						105898.28	111265.06	121950.30	
			Rate per cum = (a+b+c+d+e)/300 (With O.H. & C.P.)						352.99	370.88	406.50	
								Say	**353.00**	**370.90**	**406.50**	
4.04B	**402**	**(i)**	**Lime Stabilisation in Embankment**									

CHAPTER - 4
Analysis of Rates
SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with **Soil Stabilizer** with 2 percent slaked lime **using Binder Spreader Machine** having minimum content of 70 percent of CaO, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.									
			Unit = cum									
			Taking output = 300 cum									
		A	**By Manual Means**									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Skilled mazdoor for alignment and geometrics	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor for spraying lime	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
									1004.52	1004.52	1004.52	
			b) Machinery									
			Hydraulic Excavator									
			(i)1.2 cum bucket capacity	hour	3.365			2809.00	9452.29			PM3003
			(ii)1.1 cum bucket capacity	hour		3.875		2538.00		9834.75		PM3004
			(iii)0.9 cum bucket capacity	hour			5.418	2312.00			12526.42	PM3005
			Tipper									
			for transportation									
			(i)18 cum capacity	t.km	450xL2			4.98	2241.00			L2=1km & PM72001
			(ii) 14 cum capacity	t.km		450xL2		5.71		2569.50		L2=1km &PM73001
			(iii) 10 cum capacity	t.km			450xL2	7.10			3195.00	L2=1 km &PM74001
			For loading and unloading Time									
			(i)18 cum capacity	hour	3.365			2349.00	7904.39			PM6001
			(ii) 14 cum capacity	hour		3.875		2108.00		8168.50		PM6002
			(iii) 10 cum capacity	hour			5.418	1891.00			10245.44	PM6003
			Soil Stabilizer for mixing and pulverising with capacity 1000m2 per hour	hour	2.667	2.667	2.667	24167.00	64453.39	64453.39	64453.39	PM49001

SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Binder Spreader	hour	2.667	2.667	2.667	7022.00	18727.67	18727.67	18727.67	PM50001
			Motor Grader									
			(i)Motor grader 4.30 metre blade	hour	2.419			5560.00	13449.64			PM2001
			(ii)Motor grader 3.70 metre blade	hour		2.918		5095.00		14867.21		PM2002
			(iii)Motor grader 3.35 metre blade	hour			3.254	4512.00			14682.05	PM2003
			Vibratory roller	hour	1.456	1.456	1.456	2102.00	3060.51	3060.51	3060.51	PM10001
			Water tanker (speed@20km /hr and return speed @30 km/ hr and spreading speed@3.0 km /hr)									
			(i)16 KL capacity	hour	0.594xL1+ 1.9			1204.00	3002.78			L1=1km & PM11001
			(ii)12 KL capacity	hour		0.792xL1 +2.533		1030.00		3424.75		L1=1km & PM11002
			(iii)6 KL capacity	hour			1.583xL1+ 5.067	789.00			5246.85	L1=1km & PM11003
									122291.66	125106.29	132137.33	
			c) Material									
			Lime at site	tonne	9.000	9.000	9.000	3222.77	29004.93	29004.93	29004.93	M-190
			Cost of water including water for curing	KL	85.500	85.500	85.500	63.20	5403.60	5403.60	5403.60	M-191
			Compensation for earth taken from private land	cum	300.000	300.000	300.000	35.30	10590.00	10590.00	10590.00	M-093
									44998.53	44998.53	44998.53	
			Total cost (Without O.H.& C.P.)						168294.71	171109.34	178140.38	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		13463.58	17110.93	21376.85	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		18175.83	18822.03	19951.72	
			Cost for 300 cum = a+b+c+d+e (With O.H. & C.P.)						199934.12	207042.30	219468.94	
			Rate per cum = (a+b+c+d+e)/300 (With O.H. & C.P.)						666.45	690.14	731.56	
								Say	**666.40**	**690.10**	**731.60**	
4.04B	**402**	**(ii)**	**Lime Stabilisation in Embankment**									

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with Soil Stabilizer with 2 percent slaked lime manually spread having minimum content of 70 percent of CaO, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.									
			Unit = cum									
			Taking output = 300 cum									
			By Mechanical Means									
			a) Labour									
			Mate	day	0.360	0.360	0.360	444.00	159.84	159.84	159.84	L-12
			Skilled mazdoor for alignment and geometrics	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor for spraying lime	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13
									4124.84	4124.84	4124.84	
			b) Machinery									
			Hydraulic Excavator									
			(i)1.2 cum bucket capacity	hour	3.365			2809.00	9452.29			PM3003
			(ii)1.1 cum bucket capacity	hour		3.875		2538.00		9834.75		PM3004
			(iii)0.9 cum bucket capacity	hour			5.418	2312.00			12526.42	PM3005
			Tipper									
			for transportation									
			(i)18 cum capacity	t.km	450xL2			4.98	2241.00			L2=1km & PM72001
			(ii) 14 cum capacity	t.km		450xL2		5.71		2569.50		L2=1km &PM73001
			(iii) 10 cum capacity	t.km			450xL2	7.10			3195.00	L2=1 km &PM74001
			For loading and unloading Time									
			(i)18 cum capacity	hour	3.365			2349.00	7904.39			PM6001
			(ii) 14 cum capacity	hour		3.875		2108.00		8168.50		PM6002
			(iii) 10 cum capacity	hour			5.418	1891.00			10245.44	PM6003
			Soil Stabilizer for mixing and pulverising with capacity 1000m2 per hour	hour	2.667	2.667	2.667	24167.00	64453.39	64453.39	64453.39	PM49001
			Motor Grader									

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(i)Motor grader 4.30 metre blade	hour	2.419			5560.00	13449.64			PM2001
			(ii)Motor grader 3.70 metre blade	hour		2.918		5095.00		14867.21		PM2002
			(iii)Motor grader 3.35 metre blade	hour			3.254	4512.00			14682.05	PM2003
			Vibratory roller	hour	1.456	1.456	1.456	2102.00	3060.51	3060.51	3060.51	PM10001
			Water tanker (speed@20km /hr and return speed @30 Km / hr and spreading speed@3.0 km /hr)									
			(i)16 KL capacity	hour	0.594xL1+ 1.9			1204.00	3002.78			L1=1km & PM11001
			(ii)12 KL capacity	hour		0.792xL1 +2.533		1030.00		3424.75		L1=1km & PM11002
			(iii)6 KL capacity	hour			1.583xL1+ 5.067	789.00			5246.85	L1=1km & PM11003
									103563.99	106378.61	113409.65	
			c) Material									
			Lime at site	tonne	9.000	9.000	9.000	3222.77	29004.93	29004.93	29004.93	M-190
			Cost of water including water for curing	KL	85.500	85.500	85.500	63.20	5403.60	5403.60	5403.60	M-191
			Compensation for earth taken from private land	cum	300.000	300.000	300.000	35.30	10590.00	10590.00	10590.00	M-093
									44998.53	44998.53	44998.53	
			Total cost (Without O.H.& C.P.)						152687.36	155501.98	162533.02	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		12214.99	15550.20	19503.96	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		16490.23	17105.22	18203.70	
			Cost for 300 cum = a+b+c+d+e (With O.H. & C.P.)						181392.58	188157.40	200240.68	
			Rate per cum = (a+b+c+d+e)/300 (With O.H. & C.P.)						604.64	627.19	667.47	
								Say	**604.60**	**627.20**	**667.50**	
4.04B	**403**	**(iii)**	**Cement Stabilisation in Embankment**									
			Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with Soil Stabilizer with 2 percent cement using Binder Spreader machine, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.									
			Unit = cum									
			Taking output = 300 cum									

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			By Mechanical Means									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Skilled mazdoor for alignment and geometrics	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor for spraying cement	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery						1004.52	1004.52	1004.52	
			Hydraulic Excavator									
			(i)1.2 cum bucket capacity	hour	3.365			2809.00	9452.29			PM3003
			(ii)1.1 cum bucket capacity	hour		3.875		2538.00		9834.75		PM3004
			(iii)0.9 cum bucket capacity	hour			5.418	2312.00			12526.42	PM3005
			Tipper									
			for transportation									
			(i)18 cum capacity	t.km	450xL2			4.98	2241.00			L2=1km & PM72001
			(ii) 14 cum capacity	t.km		450xL2		5.71		2569.50		L2=1km &PM73001
			(iii) 10 cum capacity	t.km			450xL2	7.10			3195.00	L2=1 km &PM74001
			For loading and unloading Time									
			(i)18 cum capacity	hour	3.365			2349.00	7904.39			PM6001
			(ii) 14 cum capacity	hour		3.875		2108.00		8168.50		PM6002
			(iii) 10 cum capacity	hour			5.418	1891.00			10245.44	PM6003
			Soil Stabilizer for mixing and pulverising with capacity 1000m2 per hour	hour	2.667	2.667	2.667	24167.00	64453.39	64453.39	64453.39	PM49001
			Binder Spreader	hour	2.667	2.667	2.667	7022.00	18727.67	18727.67	18727.67	PM50001
			Motor Grader									
			(i)Motor grader 4.30 metre blade	hour	2.419			5560.00	13449.64			PM2001
			(ii)Motor grader 3.70 metre blade	hour		2.918		5095.00		14867.21		PM2002
			(iii)Motor grader 3.35 metre blade	hour			3.254	4512.00			14682.05	PM2003
			Vibratory roller	hour	1.456	1.456	1.456	2102.00	3060.51	3060.51	3060.51	PM10001
			Water tanker (speed@20km /hr and return speed @30Km / hr. and spreading speed@3.0 km /hr)									

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(i)16 KL capacity	hour	0.594xL1+ 1.9			1204.00	3002.78			L1=1km & PM11001
			(ii)12 KL capacity	hour		0.792xL1 +2.533		1030.00		3424.75		L1=1km & PM11002
			(iii)6 KL capacity	hour			1.583xL1+ 5.067	789.00			5246.85	L1=1km & PM11003
									122291.66	125106.29	132137.33	
			c) Material									
			cement at site	tonne	9.000	9.000	9.000	5762.00	51858.00	51858.00	51858.00	M-081
			Cost of water including water for curing	KL	85.500	85.500	85.500	63.20	5403.60	5403.60	5403.60	M-191
			Compensation for earth taken from private land	cum	300.000	300.000	300.000	35.30	10590.00	10590.00	10590.00	M-093
									67851.60	67851.60	67851.60	
			Total cost (Without O.H.& C.P.)						191147.78	193962.41	200993.45	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		15291.82	19396.24	24119.21	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		20643.96	21335.86	22511.27	
			Cost for 300 cum = a+b+c+d+e (With O.H. & C.P.)						227083.56	234694.51	247623.93	
			Rate per cum = (a+b+c+d+e)/300 (With O.H. & C.P.)						756.95	782.32	825.41	
								Say	**756.90**	**782.30**	**825.40**	
4.04B	**403**	**(iv)**	**Cement Stabilisation in Embankment**									
			Providing,laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spread soil in place with Soil Stabilizer with 2 percent cement manually spread, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade.									
			Unit = cum									
			Taking output = 300 cum									
			By Mechanical Means									
			a) Labour									
			Mate	day	0.360	0.360	0.360	444.00	159.84	159.84	159.84	L-12
			Skilled mazdoor for alignment and geometrics	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor for spraying cement	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13
									4124.84	4124.84	4124.84	
			b) Machinery									

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Hydraulic Excavator									
			(i)1.2 cum bucket capacity	hour	3.365			2809.00	9452.29			PM3003
			(ii)1.1 cum bucket capacity	hour		3.875		2538.00		9834.75		PM3004
			(iii)0.9 cum bucket capacity	hour			5.418	2312.00			12526.42	PM3005
			Tipper for transportation									
			(i)18 cum capacity	t.km	450xL2			4.98	2241.00			L2=1km & PM72001
			(ii) 14 cum capacity	t.km		450xL2		5.71		2569.50		L2=1km &PM73001
			(iii) 10 cum capacity	t.km			450xL2	7.10			3195.00	L2=1 km &PM74001
			For loading and unloading Time									
			(i)18 cum capacity	hour	3.365			2349.00	7904.39			PM6001
			(ii) 14 cum capacity	hour		3.875		2108.00		8168.50		PM6002
			(iii) 10 cum capacity	hour			5.418	1891.00			10245.44	PM6003
			Soil Stabilizer for mixing and pulverising with capacity 1000m2 per hour	hour	2.667	2.667	2.667	24167.00	64453.39	64453.39	64453.39	PM49001
			Motor Grader									
			(i)Motor grader 4.30 metre blade	hour	2.419			5560.00	13449.64			PM2001
			(ii)Motor grader 3.70 metre blade	hour		2.918		5095.00		14867.21		PM2002
			(iii)Motor grader 3.35 metre blade	hour			3.254	4512.00			14682.05	PM2003
			Vibratory roller	hour	1.456	1.456	1.456	2102.00	3060.51	3060.51	3060.51	PM10001
			Water tanker (speed@20km /hr and return speed @30 km /hr and spreading speed@3.0 km /hr)									
			(i)16 KL capacity	hour	0.594xL1+ 1.900			1204.00	3002.78			L1=1km & PM11001
			(ii)12 KL capacity	hour		0.792xL1 +2.533		1030.00		3424.75		L1=1km & PM11002
			(iii)6 KL capacity	hour			1.583xL1+ 5.067	789.00			5246.85	L1=1km & PM11003
									103563.99	106378.61	113409.65	
			c) Material									

SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			cement at site	tonne	9.000	9.000	9.000	5762.00	51858.00	51858.00	51858.00	M-081
			Cost of water including water for curing	KL	85.500	85.500	85.500	63.20	5403.60	5403.60	5403.60	M-191
			Compensation for earth taken from private land	cum	300.000	300.000	300.000	35.30	10590.00	10590.00	10590.00	M-093
									67851.60	67851.60	67851.60	
			Total cost (Without O.H.& C.P.)						175540.43	178355.05	185386.09	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		14043.23	17835.51	22246.33	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		18958.37	19619.06	20763.24	
			Cost for 300 cum = a+b+c+d+e (With O.H. & C.P.)						208542.03	215809.61	228395.67	
			Rate per cum = (a+b+c+d+e)/300 (With O.H. & C.P.)						695.14	719.37	761.32	
								Say	**695.10**	**719.40**	**761.30**	
4.05	**402**		**Lime Treated Soil for Sub- Base**									
			Providing, laying and spreading soil on a prepared sub grade, pulverising, mixing the spread soil in place with rotavator with 3 percent slaked lime with minimum content of 70 percent of CaO, grading with motor grader and compacting with the road roller at OMC to achieve at least 98 percent of the max dry density to form a layer of sub base.									
			Unit = cum									
			Taking output = 300 cum									
			a) Labour									
			Mate	day	0.480	0.480	0.480	444.00	213.12	213.12	213.12	L-12
			Mazdoor skilled	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			Mazdoor	day	10.000	10.000	10.000	428.00	4280.00	4280.00	4280.00	L-13
									5575.12	5575.12	5575.12	
			b) Machinery									
			Hydraulic Excavator									
			(i)1.2 cum bucket capacity	hour	7.852			2809.00	22056.27			PM3003
			(ii)1.1 cum bucket capacity	hour		9.043		2538.00		22951.13		PM3004
			(iii)0.9 cum bucket capacity	hour			12.642	2312.00			29228.30	PM3005
			Tipper									
			for transportation									
			(i)18 cum capacity	t.km	525xL2			4.98	2614.50			L2=1km & PM72001
			(ii) 14 cum capacity	t.km		525xL2		5.71		2997.75		L2=1km &PM73001

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(iii) 10 cum capacity	t.km			525xL2	7.10			3727.50	L2=1 km &PM74001
			For loading and unloading Time									
			(i)18 cum capacity	hour	7.852			2349.00	18444.35			PM6001
			(ii) 14 cum capacity	hour		9.043		2108.00		19062.64		PM6002
			(iii) 10 cum capacity	hour			12.642	1891.00			23906.02	PM6003
			Motor Grader for grading									
			(i)Motor grader 4.30 metre blade	hour	2.419			5560.00	13449.64			PM2001
			(ii)Motor grader 3.70 metre blade	hour		2.918		5095.00		14867.21		PM2002
			(iii)Motor grader 3.35 metre blade	hour			3.254	4512.00			14682.05	PM2003
			Vibratory roller	hour	1.456	1.456	1.456	2102.00	3060.51	3060.51	3060.51	PM10001
			Tractor with ripper and rotovator									
			attachments @ 250 cum per hour for mixing	hour	1.200	1.200	1.200	755.00	906.00	906.00	906.00	PM (12001+13001+ 14001)
			Water tanker (speed@20km /hr and return speed @30 km / hr and spreading speed@3.0 km /hr)									
			(i)16 KL capacity	hour	0.365xL1+ 1.167			1204.00	1844.53			L1=1km & PM11001
			(ii)12 KL capacity	hour		0.486xL1 +1.556		1030.00		2103.26		L1=1km & PM11002
			(iii)6 KL capacity	hour			0.972xL1+ 3.111	789.00			3221.49	L1=1km & PM11003
									62375.80	65948.51	78731.87	
			c) Material									
			Lime at site	tonne	15.750	15.750	15.750	3222.77	50758.63	50758.63	50758.63	M-190
			Compensation for earth taken from private land	cum	300.000	300.000	300.000	35.30	10590.00	10590.00	10590.00	M-093
			Cost of water	KL	52.500	52.500	52.500	63.20	3318.00	3318.00	3318.00	M-191
									64666.63	64666.63	64666.63	
			Total cost (Without O.H.& C.P.)						132617.54	136190.26	148973.62	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		10609.40	13619.03	17876.83	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		14322.69	14980.93	16685.05	
			Cost for 300 cum = a+b+c+d+e (With O.H. & C.P.)						157549.64	164790.21	183535.50	

SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Rate per cum = (a+b+c+d+e)/300 (With O.H. & C.P.)						525.17	549.30	611.79	
								Say	**525.20**	**549.30**	**611.80**	
4.06	**403**		**CementTreated Soil for Sub- Base /Base**									
			Providing, laying and spreading soil on a prepared sub grade, pulverising,adding the designed quantity of cement to the spread soil mixing in place with rotavator , grading with motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub base /base									
			Unit = cum									
			Taking output = 300 cum for 4 percent quantity of cement by weight of soil									
			a) Labour									
			Mate	day	0.480	0.480	0.480	444.00	213.12	213.12	213.12	L-12
			Mazdoor skilled	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			Mazdoor	day	10.000	10.000	10.000	428.00	4280.00	4280.00	4280.00	L-13
									5575.12	5575.12	5575.12	
			b) Machinery									
			Hydraulic Excavator									
			(i)1.2 cum bucket capacity	hour	7.852			2809.00	22056.27			PM3003
			(ii)1.1 cum bucket capacity	hour		9.043		2538.00		22951.13		PM3004
			(iii)0.9 cum bucket capacity	hour			12.642	2312.00			29228.30	PM3005
			Tipper									
			for transportation									
			(i)18 cum capacity	t.km	525xL2			4.98	2614.50			L2=1km & PM72001
			(ii) 14 cum capacity	t.km		525xL2		5.71		2997.75		L2=1km &PM73001
			(iii) 10 cum capacity	t.km			525xL2	7.10			3727.50	L2=1 km &PM74001
			For loading and unloading Time									
			(i)18 cum capacity	hour	7.852			2349.00	18444.35			PM6001
			(ii) 14 cum capacity	hour		9.043		2108.00		19062.64		PM6002

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SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(iii) 10 cum capacity	hour			12.642	1891.00			23906.02	PM6003
			Motor Grader for grading									
			(i)Motor grader 4.30 metre blade	hour	2.419			5560.00	13449.64			PM2001
			(ii)Motor grader 3.70 metre blade	hour		2.918		5095.00		14867.21		PM2002
			(iii)Motor grader 3.35 metre blade	hour			3.254	4512.00			14682.05	PM2003
			Vibratory roller	hour	1.456	1.456	1.456	2102.00	3060.51	3060.51	3060.51	PM10001
			Tractor with ripper and rotovator									
			attachments @ 250 cum per hour for mixing	hour	1.200	1.200	1.200	755.00	906.00	906.00	906.00	PM(12001+ 13001+14001)
			Water tanker (speed@20km /hr and return speed @30Km / hr. and spreading speed@3.0 km /hr)									
			(i)16 KL capacity	hour	0.365xL1+ 1.167			1204.00	1844.53			L1=1km & PM11001
			(ii)12 KL capacity	hour		0.486xL1 +1.556		1030.00		2103.26		L1=1km & PM11002
			(iii)6 KL capacity	hour			0.972xL1- 3.111	789.00			3221.49	L1=1km & PM11003
									62375.80	65948.51	78731.87	
			c) Material									
			Cement at site(@4 percent of 525 tonne)	tonne	21.000	21.000	21.000	5762.00	121002.00	121002.00	121002.00	M-081
			Compensation for earth taken from private land	cum	300.000	300.000	300.000	35.30	10590.00	10590.00	10590.00	M-093
			Cost of water	KL	52.500	52.500	52.500	63.20	3318.00	3318.00	3318.00	M-191
									134910.00	134910.00	134910.00	
			Total cost (Without O.H.& C.P.)						202860.92	206433.63	219216.99	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		16228.87	20643.36	26306.04	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		21908.98	22707.70	24552.30	
			Cost for 300 cum = a+b+c+d+e (With O.H. & C.P.)						240998.77	249784.69	270075.34	
			Rate per cum = (a+b+c+d+e)/300 (With O.H. & C.P.)						803.33	832.62	900.25	
								Say	**803.30**	**832.60**	**900.30**	
4.07	**403**		**Cement Treated Crushed Rock or combination as per clause 403 and Table 400-4 in sub base /Base**									

SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Providing, laying and spreading Material on a prepared sub grade, pulverising,adding the designed quantity of cement to the spread Material mixing in place with rotavator , grading with motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub base /base									
			Unit = cum									
			Taking output = 300 cum									
			Quantity of cement assumed as 4 percent of quantity of crushed rock by weight									
			a) Labour									
			Mate	day	0.480	0.480	0.480	444.00	213.12	213.12	213.12	L-12
			Mazdoor skilled	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			Mazdoor	day	10.000	10.000	10.000	428.00	4280.00	4280.00	4280.00	L-13
									5575.12	5575.12	5575.12	
			b) Machinery									
			Motor Grader for grading									
			(i)Motor grader 4.30 metre blade	hour	2.419			5560.00	13449.64			PM2001
			(ii)Motor grader 3.70 metre blade	hour		2.918		5095.00		14867.21		PM2002
			(iii)Motor grader 3.35 metre blade	hour			3.254	4512.00			14682.05	PM2003
			Vibratory roller	hour	1.456	1.456	1.456	2102.00	3060.51	3060.51	3060.51	PM10001
			Tractor with ripper and rotovator									
			attachments @ 250 cum per hour for mixing	hour	1.200	1.200	1.200	755.00	906.00	906.00	906.00	PM(12001+ 13001+14001)
			Water tanker (speed@20km /hr and return speed @30 km / hr and spreading speed@3.0 km /hr)									
			(i)16 KL capacity	hour	0.417xL1+ 1.333			1204.00	2107.00			L1=1km & PM11001
			(ii)12 KL capacity	hour		0.556xL1 +1.778		1030.00		2404.02		L1=1km & PM11002
			(iii)6 KL capacity	hour			1.111xL1+ 3.556	789.00			3682.26	L1=1km & PM11003

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SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
									19523.15	21237.74	22330.82	
			c) Material									
			cement at site @4 percent by weight of crushed aggregate (600 tonne)	tonne	24.000	24.000	24.000	5762.00	138288.00	138288.00	138288.00	M-081
			Grading of material for sub-base course									
			37.5mm to 9.5mm @ 55 percent	cum	211.200	211.200	211.200	995.91	210336.19	210336.19	210336.19	M-013
			9.5mm to 4.75mm @ 20 percent	cum	76.800	76.800	76.800	631.69	48513.79	48513.79	48513.79	M-015
			4.75mm to 75 micron @ 25 percent	cum	96.000	96.000	96.000	274.20	26323.20	26323.20	26323.20	M-018
			Cost of water	kL	60.000	60.000	60.000	63.20	3792.00	3792.00	3792.00	M-191
									288965.18	288965.18	288965.18	
			or									
			Grading of material for Base course									
			37.5 mm to 9.5mm @ 32.5 percent	cum	124.800	124.800	124.800	995.91	124289.57	124289.57	124289.57	M-013
			9.5mm to 4.75mm @ 5 percent	cum	19.200	19.200	19.200	631.69	12128.45	12128.45	12128.45	M-015
			4.75mm to 75 micron @ 62.5 percent	cum	240.000	240.000	240.000	274.20	65808.00	65808.00	65808.00	M-018
			Cost of water	kL	60.000	60.000	60.000	63.20	3792.00	3792.00	3792.00	M-191
									206018.02	206018.02	206018.02	
4.07			**(I) For Sub -Base course**									
			Total cost (Without O.H.& C.P.)						452351.46	454066.05	455159.13	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		36188.12	45406.60	54619.10	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		48853.96	49947.27	50977.82	
			Cost for 300 cum = a+b+c+d+e (With O.H. & C.P.)						537393.53	549419.92	560756.04	
			Rate per cum = (a+b+c+d+e)/300 (With O.H. & C.P.)						1791.31	1831.40	1869.19	
								Say	**1791.30**	**1831.40**	**1869.20**	
4.07			**(II) For Base course**									
			Total cost (Without O.H.& C.P.)						369404.29	371118.88	372211.96	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		29552.34	37111.89	44665.44	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		39895.66	40823.08	41687.74	
			Cost for 300 cum = a+b+c+d+e (With O.H. & C.P.)						438852.29	449053.84	458565.13	
			Rate per cum = (a+b+c+d+e)/300 (With O.H. & C.P.)						1462.84	1496.85	1528.55	
								Say	**1462.80**	**1496.80**	**1528.60**	
		Note	Quantities of aggregate provide under 'c' above are uncompacted quantities									
4.08	**403**	**A**	**Cement Treated Crushed stone Sub base**									
			Plant Mix Method									

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SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Construction of granular sub-base by providing graded Material, mixing with cement in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with mechanical paver on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per clause 401.									
			Laying Using Mechanical Paver									
			Unit = cum									
			Taking output = 250 cum									
			a) Labour									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor skilled	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
									1896.04	1896.04	1896.04	
			b) Machinery									
			Wet mix plant									
			(i)250 tonne per hoour	hour	2.800			708.00	1982.40			PM17001
			(ii)200 tonne per hoour	hour		3.500		413.00		1445.50		PM17002
			(iii)100 tonne per hoour	hour			7.000	388.00			2716.00	PM17003
			Electric generator									
			(i) 125 KVA	hour	2.800			1615.00	4522.00			PM22005
			(ii)100KVA	hour		3.500		1386.00		4851.00		PM22006
			(iii)62.5 KVA	hour			7.000	895.00			6265.00	PM22007
			Front end loader for loading to Tipper									
			(i) 3.1Cum capacity	hour	5.939			3523.00	20923.10			PM5001
			(ii)2.1 Cum capacity	hour		8.779		2121.00		18620.26		PM5002
			(iii)1 Cum Capacity	hour			18.357	1454.00			26691.08	PM5003
			Tipper For Transportation									
			(i) 18Cum capacity	t.km	525xL1			4.98	2614.50			L1=1km & PM72001
			(ii)14 Cum capacity	t.km		525xL1		5.71		2997.75		L1=1km &PM73001
			(iii)10 Cum Capacity	t.km			525xL1	7.10			3727.50	L1=1 km &PM74001

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			For loading &unloading time									
			(i) 18Cum capacity	hour	5.600			2349.00	13154.40			PM6001
			(ii)14 Cum capacity	hour		6.300		2108.00		13280.40		PM6002
			(iii)10 Cum Capacity	hour			9.800	1891.00			18531.80	PM6003
			Mechanical paver finisher	hour	2.800	3.500	3.500	2188.00	6126.40	7658.00	7658.00	PM28001
			Vibratory roller	hour	2.240	2.800	2.800	2102.00	4708.48	5885.60	5885.60	PM10001
			Water tanker (speed@20km /hr and return speed @30 Km / hr. and spreading speed@3.0 km /hr)									
			(i)16 KL capacity	hour	0.328xL1+ 0.875			1204.00	1448.41			L1=1km & PM11001
			(ii)12 KL capacity	hour		0.4375xL1 +1.167		1030.00		1652.64		L1=1km & PM11002
			(iii)6 KL capacity	hour			0.875xL1− 2.333	789.00			2531.11	L1=1km & PM11003
									55479.69	56391.14	74006.09	
			c) Material									
			cement at site	tonne	13.125	13.125	13.125	5762.00	75626.25	75626.25	75626.25	M-081
			cost of water including water for curing	KL	99.750	99.750	99.750	63.20	6304.20	6304.20	6304.20	M-191
									81930.45	81930.45	81930.45	
			(i)For Grading -III Material									
			26.5mm to 9.5mm @ 68 percent	cum	228.846	228.846	228.846	963.12	220406.16	220406.16	220406.16	M-014
			9.5mm to 4.75mm @ 12 percent	cum	40.385	40.385	40.385	631.69	25510.80	25510.80	25510.80	M-015
			4.75mm below @ 20 percent	cum	67.308	67.308	67.308	274.20	18455.85	18455.85	18455.85	M-018
									264372.81	264372.81	264372.81	
			OR									
			(ii)For Grading -IV Material									
			26.5 mm to 9.5mm @ 64 percent	cum	215.385	215.385	215.385	963.12	207441.60	207441.60	207441.60	M-014
			9.5mm to 4.75mm @ 11 percent	cum	37.019	37.019	37.019	631.69	23384.53	23384.53	23384.53	M-015
			4.75mm below@25 percent	cum	84.135	84.135	84.135	274.20	23069.82	23069.82	23069.82	M-018
									253895.95	253895.95	253895.95	
			(i) Rate per cum for Grading -III Material									
			Total cost (Without O.H.& C.P.)						403678.99	404590.45	422205.39	393202.13
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		32294.32	40459.04	50664.65	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		43597.33	44504.95	47287.00	

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Cost for 250 cum = a+b+c+d+e (With O.H. & C.P.)						479570.64	489554.44	520157.05	
			Rate per cum = (a+b+c+d+e)/250 (With O.H. & C.P.)						1918.28	1958.22	2080.63	
								Say	**1918.30**	**1958.20**	**2080.60**	
			(ii) Rate per cum for Grading -IV Material									
			Total cost (Without O.H.& C.P.)						393202.13	394113.58	411728.53	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		31456.17	39411.36	49407.42	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		42465.83	43352.49	46113.60	
			Cost for 250 cum = a+b+c+d+e (With O.H. & C.P.)						467124.13	476877.44	507249.55	
			Rate per cum = (a+b+c+d+e)/250 (With O.H. & C.P.)						1868.50	1907.51	2029.00	
								Say	**1868.50**	**1907.50**	**2029.00**	
4.08	**403**		**Cement Treated Crushed stone Sub base**									
		B	**By Mix Place Method**									
			Construction of granular sub-base by providing graded Material, mixing , carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface mixing with cement at OMC and compacting with vibratory power roller to achieve the desired density, complete as per clause 401.									
			Unit = cum									
			Taking output = 250cum									
			By mechanical means									
			a) Labour									
			Mate	day	0.400	0.400	0.400	444.00	177.60	177.60	177.60	L-12
			Skilled mazdoor for alignment and geometrics	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			Mazdoor for spraying cement	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13
									4683.60	4683.60	4683.60	
			b) Machinery									
			Front end loader for Mixing at stock pile location.									
			(i)3.1 cum capacity	hour	4.464			3523.00	15726.67			PM5001
			(ii) 2.1 cum capacity	hour		6.579		2121.00		13954.06		PM5002
			(iii) 1 cum capacity	hour			13.889	1454.00			20194.61	PM5003
			Water tanker (speed@20km /hr and return speed @30 Km / hr and spreading speed@3.0 km /hr)									
			(i)16 KL capacity	hour	0.693xL1+ 1.847			1204.00	3058.16			L1=1km & PM11001

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(ii)12 KL capacity	hour		0.924xL1 +2.463		1030.00		3488.61		L1=1km & PM11002
			(iii)6 KL capacity	hour			1.847xL1+ 4.926	789.00			5343.90	L1=1km & PM11003
			Soil Stabilizer for mixing and pulverising with capacity 1000m2 per hour	hour	2.222	2.222	2.222	24167.00	53699.07	53699.07	53699.07	PM49001
			Binder Spreader	hour	2.222	2.222	2.222	7022.00	15602.88	15602.88	15602.88	PM50001
			Motor Grader									
			(i)Motor grader 4.30 metre blade	hour	2.016			5560.00	11208.96			PM2001
			(ii)Motor grader 3.70 metre blade	hour		2.432		5095.00		12391.04		PM2002
			(iii)Motor grader 3.35 metre blade	hour			2.712	4512.00			12236.54	PM2003
			Vibratory roller	hour	1.618	1.618	1.618	2102.00	3401.04	3401.04	3401.04	PM10001
									102696.79	102536.70	110478.04	
			c) Material									
			cement at site	tonne	13.125	13.125	13.125	5762.00	75626.25	75626.25	75626.25	M-081
			Cost of water including water for curing	KL	99.750	99.750	99.750	63.20	6304.20	6304.20	6304.20	M-191
									81930.45	81930.45	81930.45	
			For Grading -III Material									
			26.5mm to 9.5mm @ 68 percent	cum	228.846	228.846	228.846	963.12	220406.16	220406.16	220406.16	M-014
			9.5mm to 4.75mm @ 12 percent	cum	40.385	40.385	40.385	631.69	25510.80	25510.80	25510.80	M-015
			4.75mm below@ 20 percent	cum	67.308	67.308	67.308	274.20	18455.85	18455.85	18455.85	M-018
									264372.81	264372.81	264372.81	
			OR									
			For Grading -IV Material									
			26.5 mm to 9.5mm @ 64 percent	cum	215.385	215.385	215.385	963.12	207441.60	207441.60	207441.60	M-014
			9.5mm to 4.75mm @ 11 percent	cum	37.019	37.019	37.019	631.69	23384.53	23384.53	23384.53	M-015
			4.75mm below@ 25 percent	cum	84.135	84.135	84.135	274.20	23069.82	23069.82	23069.82	M-018
									253895.95	253895.95	253895.95	
			(i) Rate per cum for Grading -III Material									
			Total cost (Without O.H.& C.P.)						453683.65	453523.57	461464.90	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		36294.69	45352.36	55375.79	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		48997.83	49887.59	51684.07	
			Cost for 250 cum = a+b+c+d+e (With O.H. & C.P.)						538976.18	548763.52	568524.76	
			Rate per cum = (a+b+c+d+e)/250 (With O.H. & C.P.)						2155.90	2195.05	2274.10	
								Say	**2155.90**	**2195.10**	**2274.10**	

SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(ii) Rate per cum for Grading -IV Material									
			Total cost (Without O.H.& C.P.)						443206.79	443046.70	450988.04	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		35456.54	44304.67	54118.56	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		47866.33	48735.14	50510.66	
			Cost for 250 cum = a+b+c+d+e (With O.H. & C.P.)						526529.66	536086.51	555617.27	
			Rate per cum = (a+b+c+d+e)/250 (With O.H. & C.P.)						2106.12	2144.35	2222.47	
								Say	**2106.10**	**2144.30**	**2222.50**	
4.09	**404.3.1**		**Making 50 mm x 50 mm Furrows**									
			Making 50 mm x 50 mm furrows, 25mm/ 50mm deep, 450 to the center line of the road and at one metre interval in the existing thin bituminous wearing coarse including sweeping and disposal of excavated material within 1000 metres lead.									
			Unit = sqm									
			Taking output = 30 m x 7 m = 210 sqm									
		(i)	**25mm deep furrow cutting**									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
									891.52	891.52	891.52	
			b) Machinery									
			Tractor-trolley	hour	0.200	0.200	0.200	717.00	143.40	143.40	143.40	PM12001
			Total cost (Without O.H.& C.P.)						1034.92	1034.92	1034.92	
			d) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		82.79	103.49	124.19	
			e) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		111.77	113.84	115.91	
			Cost for 210 sqm = a+b+c+d (With O.H. & C.P.)						1229.48	1252.25	1275.02	
			Rate per sqm = (a+b+c+d)/210 (With O.H. & C.P.)						5.85	5.96	6.07	
								Say	**5.90**	**6.00**	**6.10**	
		(ii)	**50mm deep furrow cutting**									
			a) Labour									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	4.000	4.000	4.000	428.00	1712.00	1712.00	1712.00	L-13
									1783.04	1783.04	1783.04	
			b) Machinery									
			Tractor-trolley	hour	0.400	0.400	0.400	717.00	286.80	286.80	286.80	PM12001
			Total cost (Without O.H.& C.P.)						2069.84	2069.84	2069.84	
			d) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		165.59	206.98	248.38	
			e) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		223.54	227.68	231.82	

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Cost for 210 sqm= a+b+c+d (With O.H. & C.P.)						2458.97	2504.51	2550.04	
			Rate per sqm= (a+b+c+d)/210 (With O.H. & C.P.)						11.71	11.93	12.14	
								Say	**11.70**	**11.90**	**12.10**	
4.10	**404.3.2**		**Inverted Choke**									
			Construction of inverted choke by providing, laying, spreading and compacting screening B type/ coarse sand of specified grade in uniform layer on a prepared surface with motor grader and compacting with power roller etc.									
			Unit = cum									
			Taking output = 600 cum									
			a) Labour									
			Mate	day	0.920	0.920	0.920	444.00	408.48	408.48	408.48	L-12
			Mazdoor skilled	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			Mazdoor	day	21.000	21.000	21.000	428.00	8988.00	8988.00	8988.00	L-13
									10478.48	10478.48	10478.48	
			b) Machinery									
			(i)Motor Grader 4.30 meter blade.	hour	4.839			5560.00	26904.84			PM2001
			(ii)Motor Grader 3.70 meter blade.	hour		5.837		5095.00		29739.52		PM2002
			(iii)Motor Grader 3.35 meter blade.	hour			6.508	4512.00			29364.10	PM2003
			Vibratory roller 8-10 tonnes @ 60 cum per hour	hour	6.000	6.000	6.000	2102.00	12612.00	12612.00	12612.00	PM10001
			Water tanker (speed @20km/hourand return speed@30 km/hourand spreading speed@ 3.0km/hour									
			(i) 16 KL capacity	hour	0.75xL1+4.8			1204.00	6682.20			L1=1km & PM11001
			(ii) 12 KL capacity	hour		1xL1+6.4		1030.00		7622.00		L1=1km & PM11002
			(iii) 6 KL capacity	hour			2xL1+12.8	789.00			11677.20	L1=1km & PM11003
									46199.04	49973.52	53653.30	
			c) Material									
			Screening type 'B' or coarse sand	cum	720.000	720.000	720.000	537.90	387288.00	387288.00	387288.00	M-005
			Cost of water	KL	108.000	108.000	108.000	63.20	6825.60	6825.60	6825.60	M-191
									394113.60	394113.60	394113.60	
			Total cost (Without O.H.& C.P.)						450791.12	454565.60	458245.38	

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		36063.29	45456.56	54989.45	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		48685.44	50002.22	51323.48	
			Cost for 600 cum = a+b+c+d+e (With O.H. & C.P.)						535539.85	550024.37	564558.30	
			Rate per cum = (a+b+c+d+e)/600 (With O.H. & C.P.)						892.57	916.71	940.93	
								Say	**892.60**	**916.70**	**940.90**	
4.11	**404**		**Water Bound Macadam**									
			Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with 3 wheeled steel/ vibratory roller in stages to proper grade and camber, applying and brooming requisite type of screening/ binding Materials to fill up the interstices of coarse aggregate, watering and compacting to the required density.									
		A	**By Manual Means**									
			Unit = cum									
			Taking output = 360 cum									
			a) Labour									
			Mate	day	10.080	10.080	10.080	444.00	4475.52	4475.52	4475.52	L-12
			Mazdoor skilled	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			Mazdoor	day	250.000	250.000	250.000	428.00	107000.00	107000.00	107000.00	L-13
									112557.52	112557.52	112557.52	
			b) Machinery									
			Vibratory roller	hour	2.330	2.330	2.330	2102.00	4897.66	4897.66	4897.66	PM10001
			or									
			Smooth 3 wheeled steel roller @ 30cum/hour	hour	4.660	4.660	4.660					PM8001
			Water tanker (speed @20km/hour and return speed@30 km/hourand spreading speed@ 3.0km/hour									
			(i) 16 KL capacity	hour	1xL1=3.84			1204.00	5827.36			L1=1km & PM11001
			(ii) 12 KL capacity	hour		1.333xL1 +5.12		1030.00		6646.59		L1=1km & PM11002

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(iii) 6 KL capacity	hour			0.533xL1+ 10.24	789.00			8499.90	L1=1km & PM11003
									10725.02	11544.25	13397.56	
			C)Material (Refer table 400-8,9,10 & 11.)									
4.11A		**(i)**	**Grading-I**									
			Aggregate									
			Grading-I 63 mm to 45 mm/ Grading II-53mm to 22.4mm@ 0.91 cum per 10 sqm for compacted thickness of 75 mm.	cum	435.600	435.600	435.600	1061.46	462371.98	462371.98	462371.98	M-037
			Stone Screening									
			Type A 13.2 mm for **grading-I** @ 0.12 cum per 10 sqm	cum	57.200	57.200	57.200	452.95	25908.74	25908.74	25908.74	M-041
			OR									
			Crushable type such as Moorum or Gravel for **grading-I &II** @ 0.22 cum per 10 sqm	cum	105.590	105.590	105.590	168.07	17746.51	17746.51	17746.51	M-007
			OR									
			Type B 11.2 mm for grading-II @ 0.18 cum per 10 sqm	Cum	86.400	86.400	86.400	452.95	39134.88	39134.88	39134.88	M-040
			Binding material									
			Binding Material @ 0.06 cum per 10 sqm for grading I material	cum	28.800	28.800	28.800	168.07	4840.42	4840.42	4840.42	M-007
			Cost of water	KL	144.000	144.000	144.000	63.20	9100.80	9100.80	9100.80	M-191
4.11A(i)		**(a)**	**Using Screening Crushable type such as Moorum or Gravel.**									
			Total cost (Without O.H.& C.P.)						617342.24	618161.47	620014.78	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		49387.38	61816.15	74401.77	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		66672.96	67997.76	69441.66	
			Cost for 360 cum = a+b+c+d+e (With O.H. & C.P.)						733402.59	747975.38	763858.21	
			Rate per cum = (a+b+c+d+e)/ 360 (With O.H. & C.P.)						2037.23	2077.71	2121.83	
								Say	**2037.20**	**2077.70**	**2121.80**	
			OR									
4.11A(i)		**(b)**	**Using Screening Type-A (13.2mm agg.)**									
			Total cost (Without O.H.& C.P.)						625504.47	626323.70	628177.01	

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		50040.36	62632.37	75381.24	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		67554.48	68895.61	70355.83	
			Cost for 360 cum = a+b+c+d+e (With O.H. & C.P.)						743099.31	757851.68	773914.08	
			Rate per cum = (a+b+c+d+e)/ 360 (With O.H. & C.P.)						2064.16	2105.14	2149.76	
								Say	**2064.20**	**2105.10**	**2149.80**	
			OR									
4.11A(i)		**(c)**	**Using Screening Type-B (11.2mm agg.)**									
			Total cost (Without O.H.& C.P.)						638730.61	639549.84	641403.15	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		51098.45	63954.98	76968.38	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		68982.91	70350.48	71837.15	
			Cost for 360 cum = a+b+c+d+e (With O.H. & C.P.)						758811.97	773855.31	790208.68	
			Rate per cum = (a+b+c+d+e)/ 360 (With O.H. & C.P.)						2107.81	2149.60	2195.02	
								Say	**2107.80**	**2149.60**	**2195.00**	
4.11A		**(ii)**	**Grading-II**									
			Aggregate									
			Grading-II 53 mm to22.4 mm @ 0.91 cum per 10 sqm for compacted thickness of 75 mm	cum	435.600	435.600	435.600	1178.00	513136.80	513136.80	513136.80	M-035
			Stone Screening									
			TypeB 11.2 mm for grading-II @ 0.18 cum per 10 sqm	cum	86.400	86.400	86.400	452.95	39134.88	39134.88	39134.88	M-040
			OR									
			Crushable type such as Moorum or Gravel for **grading I&II** @ 0.22 cum per 10 sqm	cum	105.590	105.590	105.590	168.07	17746.51	17746.51	17746.51	M-007
			Binding material									
			Binding Material @ 0.06cum per 10 sqm for grading I material	cum	28.800	28.800	28.800	168.07	4840.42	4840.42	4840.42	M-007
			Cost of water	KL	144.000	144.000	144.000	63.20	9100.80	9100.80	9100.80	M-191
4.11A (ii)		**(a)**	**Using Screening Crushable type such as Moorum or Gravel.**									
			Total cost (Without O.H.& C.P.)						668107.07	668926.30	670779.60	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		53448.57	66892.63	80493.55	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		72155.56	73581.89	75127.32	
			Cost for 360 cum = a+b+c+d+e (With O.H. & C.P.)						793711.20	809400.82	826400.47	
			Rate per cum = (a+b+c+d+e)/ 360 (With O.H. & C.P.)						2204.75	2248.34	2295.56	
								Say	**2204.80**	**2248.30**	**2295.60**	
			OR									

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
4.11A (ii)		(b)	**Using Screening Type-B (11.2mm agg.)**									
			Total cost (Without O.H.& C.P.)						689495.44	690314.67	692167.97	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		55159.63	69031.47	83060.16	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		74465.51	75934.61	77522.81	
			Cost for 360 cum = a+b+c+d+e (With O.H. & C.P.)						819120.58	835280.75	852750.94	
			Rate per cum = (a+b+c+d+e)/ 360 (With O.H. & C.P.)						2275.33	2320.22	2368.75	
								Say	**2275.30**	**2320.20**	**2368.80**	
			(Anyone of the aggregate grading, screening and binding material may be used as per design.)									
4.11		B	**By Mechanical Means**									
			Unit = cum									
			Taking output = 360 cum									
			a) Labour									
			Mate	day	0.680	0.680	0.680	444.00	301.92	301.92	301.92	L-12
			Mazdoor skilled	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			Mazdoor	day	15.000	15.000	15.000	428.00	6420.00	6420.00	6420.00	L-13
									7803.92	7803.92	7803.92	
			b) Machinery									
			Front end loader for Mixing at stock pile location.									
			(i) 3.1 Cum Capacity.	hour	6.429			3523.00	22649.37			PM5001
			(ii) 2.1 Cum Capacity.	hour		9.474		2121.00		20094.35		PM5002
			(iii) 1 Cum Capacity.	hour			20.000	1454.00			29080.00	PM5003
			Motor grader									
			(i) Moter grader 4.3 meter blade	hour	2.903			5560.00	16140.68			PM2001
			(ii) Moter grader 3.70 meter blade	hour		3.502		5095.00		17842.69		PM2002
			(iii) Moter grader3.35 meter blade	hour			3.905	4512.00			17619.36	PM2003
			Vibratory roller	hour	2.330	2.330	2.330	2102.00	4897.66	4897.66	4897.66	PM10001
			or									
			Smooth 3 wheeled steel roller.	hour	4.660	4.660	4.660					PM8001
			Water tanker (speed @20km/hour and return speed@30 km/hourand spreading speed@ 3.0km/hour									

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(i) 16 KL capacity	hour	1xL1=3.84			1204.00	5827.36			L1=1km & PM11001
			(ii)12 KL.Capacity.	hour		1.333xL1 +5.12		1030.00		6646.59		L1=1km & PM11002
			(iii)6 KL.Capacity.	hour			2.667xL1= 10.24	789.00			10183.62	L1=1km & PM11003
									49515.07	**49481.29**	**61780.64**	
			c) Material (Refer table 400- 8,9,10&11)									
4.11B		**(i)**	**Grading-I**									
			Aggregate									
			Grading-I 63 mm to 45 mm/ Grading-II-53MM to22.4mm @ 0.91 cum per 10 sqm for compacted thickness of 75 mm	cum	435.600	435.600	435.600	1061.46	462371.98	462371.98	462371.98	M-037
			Stone Screening									
			Type A 13.2 mm for **grading-I** @ 0.12 cum per 10 sqm	cum	57.600	57.600	57.600	452.95	26089.92	26089.92	26089.92	M-041
			OR									
			Crushable type such as Moorum or Gravel for **grading-I&II** @ 0.22 cum per 10 sqm	cum	105.590	105.590	105.590	168.07	17746.51	17746.51	17746.51	M-007
			OR									
			Type B 11.2 mm for grading II-@0.18 cum per 10sqm	cum	86.400	86.400	86.400	452.95	39134.88	39134.88	39134.88	M-040
			Binding material									
			Binding Material @ 0.06 cum per 10 sqm for grading I material	cum	28.800	28.800	28.800	168.07	4840.42	4840.42	4840.42	M-007
			Cost of water	KL	144.000	144.000	144.000	63.20	9100.80	9100.80	9100.80	M-191
4.11B(i)		**(a)**	**Using Screening Crushable type such as Moorum or Gravel.**									
			Total cost (Without O.H.& C.P.)						551378.69	551344.92	563644.27	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		44110.30	55134.49	67637.31	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		59548.90	60647.94	63128.16	

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Cost for 360 cum = a+b+c+d+e (With O.H. & C.P.)						655037.88	667127.35	694409.74	
			Rate per cum = (a+b+c+d+e)/ 360 (With O.H. & C.P.)						1819.55	1853.13	1928.92	
								Say	**1819.50**	**1853.10**	**1928.90**	
			OR									
4.11B(i)		(b)	**Using Screening Type-A (13.2mm agg.)**									
			Total cost (Without O.H.& C.P.)						559722.10	559688.33	571987.68	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		44777.77	55968.83	68638.52	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		60449.99	61565.72	64062.62	
			Cost for 360 cum = a+b+c+d+e (With O.H. & C.P.)						664949.85	677222.87	704688.82	
			Rate per cum = (a+b+c+d+e)/ 360 (With O.H. & C.P.)						1847.08	1881.17	1957.47	
								Say	**1847.10**	**1881.20**	**1957.50**	
			OR									
4.11B(i)		(c)	**Using Screening Type-B (11.2mm agg.)**									
			Total cost (Without O.H.& C.P.)						572767.06	572733.29	585032.64	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		45821.36	57273.33	70203.92	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		61858.84	63000.66	65523.66	
			Cost for 360 cum = a+b+c+d+e (With O.H. & C.P.)						680447.27	693007.28	720760.21	
			Rate per cum = (a+b+c+d+e)/ 360 (With O.H. & C.P.)						1890.13	1925.02	2002.11	
								Say	**1890.10**	**1925.00**	**2002.10**	
4.11B		(ii)	**Grading-II**									
			Aggregate									
			Grading-II 53 mm to 22.4 mm @ 0.91 cum per 10 sqm for compacted thickness of 75 mm	cum	435.600	435.600	435.600	1178.00	513136.80	513136.80	513136.80	M-035
			Stone Screening									
			Type B 11.2 mm for grading-II @ 0.18 cum per 10 sqm	cum	86.400	86.400	86.400	452.95	39134.88	39134.88	39134.88	M-040
			OR									
			Crushable type such as Moorum or Gravel for grading I &II @ 0.22 cum per 10 sqm	cum	105.590	105.590	105.590	168.07	17746.51	17746.51	17746.51	M-007
			Binding material									
			Binding Material @ 0.06 cum per 10 sqm for grading I material	cum	28.800	28.800	28.800	168.07	4840.42	4840.42	4840.42	M-007
			Cost of water	KL	144.000	144.000	144.000	63.20	9100.80	9100.80	9100.80	M-191
4.11B (ii)		(a)	**Using Screening Crushable type such as Moorum or Gravel.**									

SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Total cost (Without O.H.& C.P.)						602143.51	602109.74	614409.09	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		48171.48	60210.97	73729.09	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		65031.50	66232.07	68813.82	
			Cost for 360 cum = a+b+c+d+e (With O.H. & C.P.)						715346.49	728552.79	756952.00	
			Rate per cum = (a+b+c+d+e)/ 360 (With O.H. & C.P.)						1987.07	2023.76	2102.64	
								Say	**1987.10**	**2023.80**	**2102.60**	
			OR									
4.11B (ii)		**(b)**	**Using Screening Type-B (11.2mm agg.)**									
			Total cost (Without O.H.& C.P.)						623531.88	623498.11	635797.46	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		49882.55	62349.81	76295.70	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		67341.44	68584.79	71209.32	
			Cost for 360 cum = a+b+c+d+e (With O.H. & C.P.)						740755.88	754432.71	783302.47	
			Rate per cum = (a+b+c+d+e)/ 360 (With O.H. & C.P.)						2057.66	2095.65	2175.84	
								Say	**2057.70**	**2095.60**	**2175.80**	
4.12	**405**		**Crushed Cement Concrete Sub-base / Base**									
			Breaking and crushing of material obtained by breaking damaged cement concrete slabs to size range not exceeding 75 mm as specified in **Table 400-9** transporting the aggregates obtained from breaking of cement concrete slabs at a lead of L1 km., laying and compacting the same as sub base/ base course, constructed as WBM to clause 404 except the use of screening or binding Material.									
			Unit = cum									
			Taking output =360 cum									
			a) Labour									
			Mate	day	4.160	4.160	4.160	444.00	1847.04	1847.04	1847.04	L-12
			Mazdoor skilled	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			Mazdoor for crushing broken cement concrete pavement/slabs into aggregate	day	102.000	102.000	102.000	428.00	43656.00	43656.00	43656.00	L-13
									46585.04	46585.04	46585.04	
			b) Machinery									
			Motor Grader for grading									
			(i) Moter grader 4.3 meter blade	hour	2.903			5560.00	16140.68			PM2001
			(ii) Moter grader 3.70 meter blade	hour		3.502		5095.00		17842.69		PM2002

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(iii) Moter grader3.35 meter blade	hour			3.905	4512.00			17619.36	PM2003
			Vibratory roller 8-10 tonne @ 60 Cum per hour	hour	6.000	6.000	6.000	2102.00	12612.00	12612.00	12612.00	PM10001
			or									
			Smooth 3 wheeled steel roller @ 30cum/hr.	hour	12.00	12.00	12.00					PM8001
			Front end loader for loading to Tipper									
			(i) 3.1Cum Capacity	hour	2.229			3523.00	7852.77			PM5001
			(ii) 2.1Cum Capacity	hour		3.288		2121.00		6973.85		PM5002
			(iii) 1Cum Capacity	hour			6.923	1454.00			10066.04	PM5003
			Tipper ForTransportation									
			(i) 18 Cum Capacity	tonne.km	720xL1			4.98	3585.60			L1=1km & PM72001
			(ii) 14 Cum Capacity	tonne.km		720xL1		5.71		4111.20		L1=1km &PM73001
			(iii) 10 Cum Capacity	tonne.km			720xL1	7.10			5112.00	L1=1 km &PM74001
			For loading and unloading time									
			(i) 18 Cum Capacity	hour	2.229			2349.00	5235.92			PM6001
			(ii) 14 Cum Capacity	hour		3.288		2108.00		6931.10		PM6002
			(iii) 10 Cum Capacity	hour			6.923	1891.00			13091.39	PM6003
			Water tanker (speed @20km/hour and return speed@30 km/hourand spreading speed@ 3.0km/hour									
			(i) 16 KL capacity	hour	0.4xL1+1.536			1204.00	2330.94			L1=1km & PM11001
			(ii)12 KL.Capacity.	hour		0.533xL1 +2.048		1030.00		2658.43		L1=1km & PM11002
			(iii)6 KL.Capacity.	hour			1.067xL1+ 4.096	789.00			4073.61	L1=1km & PM11003
									47757.91	51129.27	62574.40	
			c) Material									

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Material available from dismantled concrete slab after crushing / breaking and only carriage is required to be provided.									
			Cost of water	KL	57.600	57.600	57.600	63.20	3640.32	3640.32	3640.32	M-191
			Total cost (Without O.H.& C.P.)						97983.27	101354.63	112799.76	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		7838.66	10135.46	13535.97	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		10582.19	11149.01	12633.57	
			Cost for 360 cum = a+b+c+d+e (With O.H. & C.P.)						116404.13	122639.10	138969.31	
			Rate per cum = (a+b+c+d+e)/ 360 (With O.H. & C.P.)						323.34	340.66	386.03	
								Say	**323.30**	**340.70**	**386.00**	
		Note	1. It is assumed that dismantling of concrete slab/pavement has been considered separately. Hence same is not added in this analysis. Only labour for crushing the dismantled slab into aggregate has been added. Carriage from stock pile to work site has been provided with a lead of L1 km.									
			2. In case of breaking of slabs is done locally without involvement of transportation, the provision of tipper, front end loader and loading/unloading charges may be deleted.									
			3. As three wheeled smooth steel rollers are commonly in use, the same has been provided as an alternative.									
4.13	**405.2**		**Penetration Coat Over Top Layer of Crushed Cement Concrete Base**									
			Spraying of bitumen over cleaned dry surface of crushed cement concrete base at the rate of 25 kg per 10 sqm by a bitumen pressure distributor, spreading of key aggregates at the rate of 0.13 cum per 10 sqm by a mechanical gritter and rolling the surface as per clause 506.3.8.									
			Unit = sqm									
			Taking output = 7500 sqm									
			a) Labour									
			Mate	day	0.560	0.560	0.560	444.00	248.64	248.64	248.64	L-12

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor skilled	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			Mazdoor	day	12.000	12.000	12.000	428.00	5136.00	5136.00	5136.00	L-13
									6466.64	6466.64	6466.64	
			b) Machinery									
			Mechanical broom (2.1meter sweeping width)	hour	2.232	2.232	2.232	834.00	1861.49	1861.49	1861.49	PM23001
			Hydraulic self propelled chips spreader	hour	5.140	5.140	5.140	1712.00	8799.68	8799.68	8799.68	PM32001
			Front end loader 1 cum bucket capacity	hour	6.000	6.000	6.000	1454.00	8724.00	8724.00	8724.00	PM5003
			Tipper 10 tonne capacity	hour	6.000	6.000	6.000	1476.00	8856.00	8856.00	8856.00	PM6004
			Vibratory roller 8 -10 tonnes	hour	5.140	5.140	5.140	2102.00	10804.28	10804.28	10804.28	PM10001
			Bitumen pressure distributor @ 1750 sqm per hour	hour	4.280	4.280	4.280	1382.00	5914.96	5914.96	5914.96	PM24001
									44960.41	44960.41	44960.41	
			c) Material									
			Crushed stone aggregate 11.2 mm size	cum	97.500	97.500	97.500	452.95	44162.63	44162.63	44162.63	M-040
			Bitumen (60-70 grade)	tonne	0.250	0.250	0.250	57448.00	14362.00	14362.00	14362.00	M-074
									58524.63	58524.63	58524.63	
			Total cost (Without O.H.& C.P.)						109951.67	109951.67	109951.67	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		8796.13	10995.17	13194.20	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		11874.78	12094.68	12314.59	
			Cost for 7500 sqm = a+b+c+d+e (With O.H. & C.P.)						130622.59	133041.52	135460.46	
			Rate per sqm = (a+b+c+d+e)/ 7500 (With O.H. & C.P.)						17.42	17.74	18.06	
								Say	**17.40**	**17.70**	**18.10**	
4.14	**406**	**A**	**Wet Mix Macadam (Plant Mix Method)**									
			Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.									
			Laying Using Mechanical Paver									
			Unit = cum									
			Taking output = 225 cum									
			a) Labour									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor skilled	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
									1896.04	1896.04	1896.04	

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			b) Machinery									
			Wet mix plant									
			(i) 250 tonne per hour	hour	2.640			708.00	1869.12			PM17001
			(ii) 200 tonne per hour	hour		3.300		413.00		1362.90		PM17002
			(iii) 100 tonne per hour	hour			6.600	388.00			2560.80	PM17003
			Electric generator									
			(i) 125 KVA	hour	2.640			1615.00	4263.60			PM22005
			(ii) 100 KVA	hour		3.300		1386.00		4573.80		PM22006
			(iii) 62.5 KVA	hour			6.600	895.00			5907.00	PM22007
			Front end loader for loading to Tipper									
			(i) 3.1Cum Capacity	hour	2.640			3523.00	9300.72			PM5001
			(ii) 2.1Cum Capacity	hour		3.300		2121.00		6999.30		PM5002
			(iii) 1Cum Capacity	hour			6.600	1454.00			9596.40	PM5003
			Tipper for Transportation									
			(i) 18 Cum Capacity	tonne.km	495xL2			4.98	2465.10			L2=1km & PM72001
			(ii) 14 Cum Capacity	tonne.km		495xL2		5.71		2826.45		L2=1km &PM73001
			(iii) 10 Cum Capacity	tonne.km			495xL2	7.10			3514.50	L2=1 km &PM74001
			For loading and unloading time									
			(i) 18 Cum Capacity	hour	5.280			2349.00	12402.72			PM6001
			(ii) 14 Cum Capacity	hour		6.600		2108.00		13912.80		PM6002
			(iii) 10 Cum Capacity	hour			9.900	1891.00			18720.90	PM6003
			Mechanical Paver finisher	hour	2.640	3.300	3.300	2188.00	5776.32	7220.40	7220.40	PM28001
			Vibratory roller	hour	2.112	2.640	2.640	2102.00	4439.42	5549.28	5549.28	PM10001
									40517.00	42444.93	53069.28	
			c) Material as per table 400-13									
			45 mm to 22.4 mm@ 30 percent	Cum	95.192	95.192	95.192	1178.00	112136.18	112136.18	112136.18	M-033
			22.4 mm to 2.36 mm@ 40 percent	Cum	126.923	126.923	126.923	733.48	93095.48	93095.48	93095.48	M-030
			2.36 mm to 75 microm@ 30 percent	Cum	95.192	95.192	95.192	274.20	26101.65	26101.65	26101.65	M-019
			Cost of water	KL	59.400	59.400	59.400	63.20	3754.08	3754.08	3754.08	M-191
									235087.38	235087.38	235087.38	
			Rate per cum									
			Total cost (Without O.H.& C.P.)						277500.43	279428.35	290052.70	

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		22200.03	27942.84	34806.32	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		29970.05	30737.12	32485.90	
			Cost for 225 cum = a+b+c+d+e (With O.H. & C.P.)						329670.51	338108.31	357344.93	
			Rate per cum= (a+b+c+d+e)/ 225 (With O.H. & C.P.)						1465.20	1502.70	1588.20	
								Say	**1465.20**	**1502.70**	**1588.20**	
4.14	**406**	**B**	**Wet Mix Macadam (Plant Mix Method)**									
			Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with grader in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.									
			Laying Using Grader									
			Unit = cum									
			Taking output = 225 cum									
			a) Labour									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor skilled	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
									1896.04	1896.04	1896.04	
			b) Machinery									
			Wet mix plant									
			(i) 250 tonne per hour	hour	2.640			708.00	1869.12			PM17001
			(ii) 200 tonne per hour	hour		3.300		413.00		1362.90		PM17002
			(iii) 100 tonne per hour	hour			6.600	388.00			2560.80	PM17003
			Electric generator									
			(i) 125 KVA	hour	2.640			1615.00	4263.60			PM22005
			(ii)100 KVA	hour		3.300		1386.00		4573.80		PM22006
			(iii) 62.5 KVA	hour			6.600	895.00			5907.00	PM22007
			Front end loader for loading to Tipper									
			(i) 3.1Cum Capacity	hour	2.640			3523.00	9300.72			PM5001
			(ii) 2.1Cum Capacity	hour		3.300		2121.00		6999.30		PM5002
			(iii) 1Cum Capacity	hour			6.600	1454.00			9596.40	PM5003
			Tipper									
			For Transportation									

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(i) 18 Cum Capacity	tonne.km	495xL2			4.98	2465.10			L2=1km & PM72001
			(ii) 14 Cum Capacity	tonne.km		495xL2		5.71		2826.45		L2=1km &PM73001
			(iii) 10 Cum Capacity	tonne.km			495xL2	7.10			3514.50	L2=1 km &PM74001
			For loading and unloading time									
			(i) 18 Cum Capacity	hour	2.640			2349.00	6201.36			PM6001
			(ii) 14 Cum Capacity	hour		3.300		2108.00		6956.40		PM6002
			(iii) 10 Cum Capacity	hour			6.600	1891.00			12480.60	PM6003
			Motor grader									
			(i) Motor grader 4.3 meter blade	hour	1.815			5560.00	10091.40			PM2001
			(ii) Motor grader 3.70 meter blade	hour		2.189		5095.00		11152.96		PM2002
			(iii) Motor grader 3.35 meter blade	hour			2.441	4512.00			11013.79	PM2003
			Vibratory roller	hour	1.456	1.456	1.456	2102.00	3060.51	3060.51	3060.51	PM10001
									37251.81	36932.32	48133.60	
			c) Material									
			Material as per table 400-13									
			45 mm to 22.4 mm@ 30 percent	Cum	95.192	95.192	95.192	1178.00	112136.18	112136.18	112136.18	M-033
			22.4 mm to 2.36 mm@ 40 percent	Cum	126.923	126.923	126.923	733.48	93095.48	93095.48	93095.48	M-030
			2.36 mm to 75 micron@ 30 percent	Cum	95.192	95.192	95.192	274.20	26101.65	26101.65	26101.65	M-019
			Cost of water	KL	59.400	59.400	59.400	63.20	3754.08	3754.08	3754.08	M-191
									235087.38	235087.38	235087.38	
			Rate per cum									
			Total cost (Without O.H.& C.P.)						274235.24	273915.74	285117.03	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		21938.82	27391.57	34214.04	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		29617.41	30130.73	31933.11	
			Cost for 225 cum = a+b+c+d+e (With O.H. & C.P.)						325791.46	331438.05	351264.18	
			Rate per cum= (a+b+c+d+e)/ 225 (With O.H. & C.P.)						1447.96	1473.06	1561.17	
								Say	**1448.00**	**1473.10**	**1561.20**	
4.15	**406**		**Cement Treated Crushed Stone Base(Plant Mix Method)**									

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Providing, laying, spreading and compacting graded stone aggregate mixed with cement to crushed stone treated base specification including pre mixing the material with water at OMC. in Mechanical mix plant carriage of mixed Material by tipper to site ,laying in uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.									
			Laying Using Mechanical Paver.									
			Unit = cum									
			Taking output = 225 cum									
			a) Labour									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor skilled	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
									1896.04	1896.04	1896.04	
			b) Machinery									
			Wet mix plant									
			(i) 250 tonne per hour	hour	2.640			708.00	1869.12			PM17001
			(ii) 200 tonne per hour	hour		3.300		413.00		1362.90		PM17002
			(iii) 100 tonne per hour	hour			6.600	388.00			2560.80	PM17003
			Electric generator									
			(i)125 KVA	hour	2.640			1615.00	4263.60			PM22005
			(ii) 100 KVA	hour		3.300		1386.00		4573.80		PM22006
			(iii) 62.5 KVA	hour			6.600	895.00			5907.00	PM22007
			Front end loader for loading to Tipper									
			(i) 3.1Cum Capacity	hour	2.640			3523.00	9300.72			PM5001
			(ii) 2.1Cum Capacity	hour		3.300		2121.00		6999.30		PM5002
			(iii) 1Cum Capacity	hour			6.600	1454.00			9596.40	PM5003
			Tipper For Transportation									
			(i) 18 Cum Capacity	tonne.km	495xL2			4.98	2465.10			L2=1km & PM72001
			(ii) 14 Cum Capacity	tonne.km		495xL2		5.71		2826.45		L2=1km &PM73001

SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(iii) 10 Cum Capacity	tonne.km			495xL2	7.10			3514.50	L2=1 km &PM74001
			For loading and unloading time									
			(i) 18 Cum Capacity	hour	5.280			2349.00	12402.72			PM6001
			(ii) 14 Cum Capacity	hour		5.940		2108.00		12521.52		PM6002
			(iii) 10 Cum Capacity	hour			9.240	1891.00			17472.84	PM6003
			Vibratory roller	hour	2.112	2.112	2.112	2102.00	4439.42	4439.42	4439.42	PM10001
			Mechanical Paver finisher	hour	2.460	2.460	2.460	2188.00	5382.48	5382.48	5382.48	PM28001
			Water tanker (speed @20km/hr and return speed@30 km/hr and spreading speed@ 3.0km/hr									
			(i) 16 KL capacity	hour	0.722xL1+ 1.733			1204.00	2955.82			L1=1km & PM11001
			(ii)12 KL.Capacity.	hour		0.963xL1 +2.31		1030.00		3371.19		L1=1km & PM11002
			(iii)6 KL.Capacity.	hour			1.925xL1+ 4.62	789.00			5164.01	L1=1km & PM11003
									43078.98	*41477.06*	54037.45	
			c) Material									
			Material as per table 400-13									
			45 mm to 22.4 mm@ 30 percent	Cum	95.192	95.192	95.192	1178.00	112136.18	112136.18	112136.18	M-033
			22.4 mm to 2.36 mm@ 40 percent	Cum	126.923	126.923	126.923	733.48	93095.48	93095.48	93095.48	M-030
			2.36 mm to 75 microm@ 30 percent	Cum	95.192	95.192	95.192	274.20	26101.65	*26101.65*	26101.65	M-021
			Cost of cement @4%	Tonne.	19.800	19.800	19.800	5762.00	114087.60	114087.60	114087.60	M-081
			Cost of water	KL	163.350	163.350	163.350	63.20	10323.72	10323.72	10323.72	M-191
									355744.62	355744.62	355744.62	
			Total cost (Without O.H.& C.P.)						400719.65	400719.65	411678.11	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		32057.57	39911.77	49401.37	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		43277.72	43902.95	46107.95	
			Cost for 225 cum = a+b+c+d+e (With O.H. & C.P.)						476054.94	482932.45	507187.44	
			Rate per cum= (a+b+c+d+e)/ 225 (With O.H. & C.P.)						2115.80	2146.37	2254.17	
								Say	**2115.80**	**2146.40**	**2254.20**	

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
4.16	**408**		**Construction of Median and Island with Soil Taken from Roadway Cutting**									
			Construction of Median and Island above road level with approved material deposited at site from roadway cutting and excavation for drain and foundation of other structures, spread, graded and compacted as per clause 408									
			Unit = cum									
			Taking output =21 cum									
			a) Labour									
			Mate	day	0.240	0.240	0.240	444.00	106.56	106.56	106.56	L-12
			Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
									2674.56	2674.56	2674.56	
			b) Machinery									
			Water tanker (speed @20km/hr and return speed@30 km/hr and spreading speed@ 3.0km/hr									
			(i) 16 KL capacity	hour	0.018xL1+ 0.004			1204.00	26.49			L1=1km & PM11001
			(ii)12 KL.Capacity.	hour		0.023xL1 +0.005		1030.00		28.84		L1=1km & PM11002
			(iii)6 KL.Capacity.	hour			0.047xL1- 0.01	789.00			44.97	L1=1km & PM11003
			Plate Compactor @ 3.5 cum per hour	hour	6.000	6.000	6.000	466.00	2796.00	2796.00	2796.00	PM46001
									2822.49	2824.84	2840.97	
			c) Material									
			Cost of water	KL	2.520	2.520	2.520	63.20	159.26	159.26	159.26	M-191
			Total cost (Without O.H.& C.P.)						5656.31	5658.66	5674.80	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		452.50	565.87	680.98	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		610.88	622.45	635.58	
			Cost for 21 cum = a+b+c+d+e (With O.H. & C.P.)						6719.70	6846.98	6991.35	
			Rate per cum= (a+b+c+d+e)/ 21 (With O.H. & C.P.)						319.99	326.05	332.92	
								Say	**320.00**	**326.00**	**332.90**	

SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
		Note	This analysis provides for median and island with earthen top. In case the surface is required to be turfed or planted with shrubs, the same is required to be provided separately as per analysis given in the chapter on horticulture. In case granular fill is required to be paved, quantities of paving are required to be calculated as per approved design and paid separately.									
4.17	**408**		**Construction of Median and Island with Soil Taken from Borrow Areas**									
			Construction of median and Island above road level with approved material brought from borrow pits, spread, sloped and compacted as per clause 408									
			Unit = cum									
			Taking output = 21 cum									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
									891.52	891.52	891.52	
			b) Machinery									
			Hydraulic Excavator									
			(i) 1.2 Cum bucket Capacity	hour	0.236			2809.00	662.92			PM3003
			(ii) 1.1 Cum bucket Capacity	hour		0.271		2538.00		687.80		PM3004
			(iii) 0.9 Cum bucket Capacity	hour			0.379	2312.00			876.25	PM3005
			Tipper									
			for Transportation									
			(i) 18 Cum Capacity	t.km	31.5xL2			4.98	156.87			L2=1km & PM72001
			(ii) 14 Cum Capacity	t.km		31.5xL2		5.71		179.87		L2=1km &PM73001
			(iii) 10 Cum Capacity	t.km			31.5xL2	7.10			223.65	L2=1 km &PM74001
			For loading and unloading time									
			(i) 18 Cum Capacity	hour	0.236			2349.00	554.36			PM6001

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(ii) 14 Cum Capacity	hour		0.271		2108.00		571.27		PM6002
			(iii) 10 Cum Capacity	hour			0.379	1891.00			716.69	PM6003
			Water tanker (speed @20km/hr and return speed@30 km/hr and spreading speed@ 3.0km/hr									
			(i) 16 KL capacity	hour	0.018xL1+ 0.002			1204.00	24.08			L1=1km & PM11001
			(ii)12 KL.Capacity.	hour		0.023xL1 +0.003		1030.00		26.78		L1=1km & PM11002
			(iii)6 KL.Capacity.	hour			0.047xL1+ 0.006	789.00			41.82	L1=1km & PM11003
			Plate Compactor	hour	1.400	1.400	1.400	466.00	652.40	652.40	652.40	PM46001
									2050.64	2118.11	2510.80	
			c) Material									
			Compensation for earth taken from private Land	cum	21.000	21.000	21.000	35.30	741.30	741.30	741.30	M-093
			Cost of water	KL	2.520	2.520	2.520	63.20	159.26	159.26	159.26	M-191
									900.56	900.56	900.56	
			Total cost (Without O.H.& C.P.)						3842.72	3910.20	4302.89	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		307.42	391.02	516.35	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		415.01	430.12	481.92	
			Cost for 21 cum = a+b+c+d+e (With O.H. & C.P.)						4565.15	4731.34	5301.16	
			Rate per cum= (a+b+c+d+e)/ 21 (With O.H. & C.P.)						217.39	225.30	252.44	
								Say	**217.40**	**225.30**	**252.40**	
		Note	This analysis provides for median and island with earthen top. In case the surface is required to be turfed or planted with shrubs, the same is required to be provided separately as per analysis given in the chapter on horticulture. In case surface finish is of hard type, the same may be provided separately as per approved design.									
4.18	**408**		**Construction of Shoulders**									
			A. Earthen Shoulders									

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			The rate as applicable for sub-grade construction may be adopted.									
			B. Hard Shoulders									
			Rate as applicable for sub-base and or base may be adopted as per approved design.									
			C. Paved shoulders									
			The rate may be adopted as applicable for different layers of pavement depending upon approved design of paved shoulders.									
4.19	**410**		**Footpaths and Separators**									
			Construction of footpath/separator by providing a 150 mm compacted granular sub base as per clause 401 and 25 mm thick cement concrete grade M15, over laid with pre-cast concrete tiles in cement mortar 1:3 including provision of all drainage arrangements but excluding kerb channel.									
			Unit = sqm									
			Taking output = 300 sqm									
			a) Labour									
			Mate	day	1.360	1.360	1.360	444.00	603.84	603.84	603.84	L-12
			Mason	day	4.000	4.000	4.000	541.00	2164.00	2164.00	2164.00	L-10
			Mazdoor	day	30.000	30.000	30.000	428.00	12840.00	12840.00	12840.00	L-13
									15607.84	15607.84	15607.84	
			b) Machinery									
			Vibratory road roller	hour	0.750	0.750	0.750	2102.00	1576.50	1576.50	1576.50	PM10001
			Water tanker (speed @20km/hr and return speed@30 km/hr and spreading speed@ 3.0km/hr									
			(i) 16 KL capacity	hour	0.083xL1+ 0.04			1204.00	148.09			L1=1km & PM11001
			(ii)12 KL.Capacity.	hour		0.111xL1 +0.053		1030.00		168.92		L1=1km & PM11002
			(iii)6 KL.Capacity.	hour			0.222xL1− 0.107	789.00			259.58	L1=1km & PM11003

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Concrete mixer 0.4/0.28 cum per hour	hour	6.000	6.000	6.000	392.00	2352.00	2352.00	2352.00	PM21001
									4076.59	4097.42	4188.08	
			c) Material									
			i) For Granular sub base material									
			53 mm to 26.5 mm @ 35 percent	cum	20.790	20.790	20.790	1178.00	24490.62	24490.62	24490.62	M-028
			26.5 mm to 4.75 mm @ 45 percent	cum	26.730	26.730	26.730	963.12	25744.20	25744.20	25744.20	M-025
			2.36 mm below @ 20 percent	cum	11.880	11.880	11.880	274.20	3257.50	3257.50	3257.50	M-019
			ii) For cement concrete grade M15 7.5 cum									
			Aggregate 12 mm crushed @ 0.9 cum of concrete	cum	6.750	6.750	6.750	631.69	4263.91	4263.91	4263.91	M-051
			Sand @ 0.45 cum/cum of concrete	cum	3.380	3.380	3.380	612.90	2071.60	2071.60	2071.60	M-004*
			Cement	tonne	1.880	1.880	1.880	5762.00	10832.56	10832.56	10832.56	M-081
			iii) For cement plaster 1:3									
			Sand	cum	3.840	3.840	3.840	612.90	2353.54	2353.54	2353.54	M-004*
			Cement	tonne	1.830	1.830	1.830	5762.00	10544.46	10544.46	10544.46	M-081
			iv) Pre-cast cement concrete tiles									
			Tiles size 300 x 300 mm and 25 mm thick	each	3300.000	3300.000	3300.000	44.82	147906.00	147906.00	147906.00	M-186
			v) RCC pipes									
			Pipes 200 mm dia,2.5 m long for drainage	metre	22.500	22.500	22.500	167.82	3775.85	3775.85	3775.85	M-136
			vi) Cost of water	KL	12.000	12.000	12.000	63.20	758.40	758.40	758.40	M-191
									235998.63	235998.63	235998.63	
			Total cost (Without O.H.& C.P.)						255683.06	255703.89	255794.55	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		20454.64	25570.39	30695.35	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		27613.77	28127.43	28648.99	
			Cost for 300 sqm = a+b+c+d+e (With O.H. & C.P.)						303751.47	309401.70	315138.88	
			Rate per sqm = (a+b+c+d+e)/ 300 (With O.H. & C.P.)						1012.50	1031.34	1050.46	
								Say	**1012.50**	**1031.30**	**1050.50**	
4.20	**407**		**Crusher Run Macadam Base**									
			Providing crushed stone aggregate, depositing on a prepared surface by hauling vehicles, spreading and mixing with a motor grader, watering and compacting with a vibratory roller to clause 407 to form a layer of sub-base/Base.									
			Unit = cum									
			Taking output = 360 cum									
		A	**By Mix in Place Method**									
			a) Labour									

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mate	day	0.480	0.480	0.480	444.00	213.12	213.12	213.12	L-12
			Mazdoor skilled	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			Mazdoor	day	10.000	10.000	10.000	428.00	4280.00	4280.00	4280.00	L-13
									5575.12	5575.12	5575.12	
			b) Machinery									
			Tractor attached with rotavator @ 25 cum per hour	hour	12.000	12.000	12.000	734.00	8808.00	8808.00	8808.00	PM(12001+ 13001)
			Front end Loader for mixing at stock pile location.									
			(i) 3.1 Cum Capacity	hour	6.429			3523.00	22649.37			PM5001
			(ii) 2.1 Cum Capacity	hour		9.474		2121.00		20094.35		PM5002
			(iii)1 Cum Capacity	hour			20.000	1454.00			29080.00	PM5003
			Motor grader									
			(i) Motor grader 4.30 meter blade.	hour	2.903			5560.00	16140.68			PM2001
			(ii) Motor grader 3.70 meter blade.	hour		3.502		5095.00		17842.69		PM2002
			(iii) Motor grader 3.35 meter blade.	hour			3.905	4512.00			17619.36	PM2003
			Vibratory roller	hour	2.330	2.330	2.330	2102.00	4897.66	4897.66	4897.66	PM10001
			or									
			Smooth 3 Wheeled steel roller	hour	4.660	4.660	4.660					PM8001
			Water tanker (speed @20km / hr and return speed@30 km / hr and spreading speed@ 3.0km / hr									
			(i) 16 KL capacity	hour	0.25xL1+ 0.96			1204.00	1456.84			L1=1km & PM11001
			(ii)12 KL.Capacity.	hour		0.333xL1 +1.28		1030.00		1661.39		L1=1km & PM11002
			(iii)6 KL.Capacity.	hour			0.667xL1+ 2.56	789.00			2546.10	L1=1km & PM11003
									53952.55	53304.09	62951.12	
			C) Material									
			i) For 53 mm maximum size (Table- 400-14)									
			63 mm to 45 mm @ 33 percent	cum	157.460	157.460	157.460	1061.46	167137.49	167137.49	167137.49	M-037
			22.5 mm to 5.6 mm @ 32 percent	cum	151.060	151.060	151.060	963.12	145488.91	145488.91	145488.91	M-031
			Below 5.6 mm @ 35 percent	cum	166.680	166.680	166.680	452.95	75497.71	75497.71	75497.71	M-029
			Cost of water	KL	36.000	36.000	36.000	63.20	2275.20	2275.20	2275.20	M-191
									390399.30	390399.30	390399.30	
			Or									

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Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			ii) For 37.5 mm maximum size (Table- 400-14)									
			37.5 mm to 22.5 mm @ 5 percent	cum	24.120	24.120	24.120	1178.00	28413.36	28413.36	28413.36	M-047
			22.4 mm to 5.6 mm @ 50 percent	cum	237.600	237.600	237.600	963.12	228837.31	228837.31	228837.31	M-031
			Below 5.6 mm @ 45 percent	cum	213.480	213.480	213.480	452.95	96695.77	96695.77	96695.77	M-029
			Cost of water	KL	36.000	36.000	36.000	63.20	2275.20	2275.20	2275.20	M-191
									356221.64	356221.64	356221.64	
4.20A		**(i)**	**For 53 mm maximum size**									
			Total cost (Without O.H.& C.P.)						449926.97	449278.52	458925.55	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		35994.16	44927.85	55071.07	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		48592.11	49420.64	51399.66	
			Cost for 360.0 cum = a+b+c+d+e (With O.H. & C.P.)						534513.24	543627.01	565396.27	
			Rate per cum = (a+b+c+d+e)/ 360.0 (With O.H. & C.P.)						1484.76	1510.08	1570.55	
								Say	**1484.80**	**1510.10**	**1570.50**	
			or									
4.20A		**(ii)**	**For 37.5 mm maximum size**									
			Total cost (Without O.H.& C.P.)						415749.31	415100.85	424747.88	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		33259.94	41510.09	50969.75	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		44900.92	45661.09	47571.76	
			Cost for 360.0 cum = a+b+c+d+e (With O.H. & C.P.)						493910.17	502272.03	523289.39	
			Rate per cum = (a+b+c+d+e)/ 360.0 (With O.H. & C.P.)						1371.97	1395.20	1453.58	
								Say	**1372.00**	**1395.20**	**1453.60**	
		Note	Any one of the aggregate grading may be adopted.									
4.20		**B**	**By Mixing Plant :**									
			Unit = cum									
			Taking output = 225 cum									
			a) Labour									
			Mate	day	0.280	0.280	0.280	444.00	124.32	124.32	124.32	L-12
			Mazdoor skilled	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
									3233.32	3233.32	3233.32	
			b) Machinery									
			Wet mix plant									
			(i) 250 tonne per hour	hour	2.400			708.00	1699.20			PM17001
			(ii) 200 tonne per hour	hour		3.000		413.00		1239.00		PM17002
			(iii) 100 tonne per hour	hour			6.000	388.00			2328.00	PM17003
			Electric generator									
			(i) 125 KVA	hour	2.400			1615.00	3876.00			PM22005

SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(ii) 100 KVA	hour		3.000		1386.00		4158.00		PM22006
			(iii) 62.5 KVA	hour			6.000	895.00			5370.00	PM22007
			Front end loader for loading to tipper									
			(i) 3.1 Cum Capacity	hour	2.400			3523.00	8455.20			PM5001
			(ii) 2.10 Cum Capacity	hour		3.000		2121.00		6363.00		PM5002
			(iii) 1 Cum Capacity	hour			6.000	1454.00			8724.00	PM5003
			Motor grader									
			(i) Motor grader 4.3 meter blade.	hour	1.815			5560.00	10091.40			PM2001
			(ii) Motor grader 3.70 meter blade.	hour		2.189		5095.00		11152.96		PM2002
			(iii) Motor grader 3.35 meter blade.	hour			2.441	4512.00			11013.79	PM2003
			Vibratory roller	hour	2.400	2.400	2.400	2102.00	5044.80	5044.80	5044.80	PM10001
			Water tanker (speed @20km/hr and return speed@30 km/hr and spreading speed@ 3.0km/hr									
			(i) 16 KL capacity	hour	0.125xL1+ 0.3			1204.00	511.70			L1=1km & PM11001
			(ii)12 KL.Capacity.	hour		0.167xL1 +0.4		1030.00		584.01		L1=1km & PM11002
			(iii)6 KL.Capacity.	hour			0.333xL1+ 0.8	789.00			893.94	L1=1km & PM11003
			Tipper									
			ForTransportation									
			(i) 18 Cum capacity	t.km	450xL2			4.98	2241.00			L2=1km & PM72001
			(ii) 14 Cum capacity	t.km		450xL2		5.71		2569.50		L2=1km &PM73001
			(iii) 10 Cum capacity	t.km			450xL2	7.10			3195.00	L2=1 km &PM74001
			For loading & unloading time									
			(i) 18 Cum capacity	hour	2.400			2349.00	5637.60			PM6001
			(ii) 14 Cum capacity	hour		3.000		2108.00		6324.00		PM6002
			(iii) 10 Cum capacity	hour			6.000	1891.00			11346.00	PM6003
									37556.90	37435.27	47915.53	

CHAPTER - 4
Analysis of Rates
SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			c) Material									
			Aggregate at site									
			i) For 53 mm maximum size (Table 400-14)									
			63 mm to 45 mm @ 33 percent	cum	98.400	98.400	98.400	1061.46	104447.66	104447.66	104447.66	M-037
			22.5 mm to 5.6 mm @ 32 percent	cum	94.410	94.410	94.410	963.12	90928.16	90928.16	90928.16	M-031
			Below 5.6 mm @ 35 percent	cum	104.180	104.180	104.180	452.95	47188.33	47188.33	47188.33	M-029
			Cost of water	KL	18.000	18.000	18.000	63.20	1137.60	1137.60	1137.60	M-191
									243701.75	243701.75	243701.75	
			Or									
			ii) For 37.5 mm maximum size (Table 400-14)									
			37.5 mm to 22.5 mm @ 5 percent	cum	15.060	15.060	15.060	1178.00	17740.68	17740.68	17740.68	M-047
			22.4 mm to 5.6 mm @ 50 percent	cum	148.500	148.500	148.500	963.12	143023.32	143023.32	143023.32	M-031
			Below 5.6 mm @ 45 percent	cum	133.430	133.430	133.430	452.95	60437.12	60437.12	60437.12	M-029
			Cost of water	KL	18.000	18.000	18.000	63.20	1137.60	1137.60	1137.60	M-191
									222338.72	222338.72	222338.72	
4.20B		**(i)**	**For 53 mm maximum size**									
			Total cost (Without O.H.& C.P.)						284491.97	284370.34	294850.60	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		22759.36	28437.03	35382.07	
			e) Contractor's on profit (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		30725.13	31280.74	33023.27	
			Cost for 225 cum = a+b+c+d+e (With O.H. & C.P.)						337976.47	344088.11	363255.94	
			Rate per cum = (a+b+c+d+e)/ 225 (With O.H. & C.P.)						1502.12	1529.28	1614.47	
								Say	**1502.10**	**1529.30**	**1614.50**	
4.20B		**(ii)**	**For 37.5 mm maximum size**									
			Total cost (Without O.H.& C.P.)						263128.94	263007.30	273487.57	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		21050.32	26300.73	32818.51	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		28417.93	28930.80	30630.61	
			Cost for 225 cum = a+b+c+d+e (With O.H. & C.P.)						312597.18	318238.84	***336936.68***	
			Rate per cum = (a+b+c+d+e)/ 225 (With O.H. & C.P.)						1389.32	1414.39	1497.50	
								Say	**1389.30**	**1414.40**	**1497.50**	
4.21	**Suggestive**		**Lime, Flyash Stabilised Soil Sub-Base**									

SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Construction of Sub-base using lime - Flyash admixture with granular soil, free from organic matter/ deleterious material or clayey silts and low plasticity clays having PI between 5 and 20 and liquid limit less than 25 and commercial dry lime, slaked at site or pre-slaked with CaO content not less than 50 percent, Flyash to conform to gradation as per clause 4.3 of IRC: 88-1984, lime – Flyash content ranging between 10 to 30 percent, the minimum un-confined compressive strength and CBR value after 28 days curing and 4 days soaking to be 7.5kg/sq, cm and 25 percent respectively, all as specified in IRC: 88.	cum								
			Unit = cum									
			Taking output = 480 cum (720 tonnes, density 1.50 t/cum)									
			Assumptions made									
			Total mass taken for analysis = 720 Tonne									
			Lime – Flyash admixture @ 20 percent = 0.2 x 720=144 Tonne									
			Soil = 720 -144 = 576 Tonne									
			576 /1.6 = 360 cum									
			Lime – Flyash = 144 t									
			Ratio Lime 4 : Flyash 16									
			Lime = 29 t									
			Flyash = 115 t									
			a) Labour									
			Mate	day	0.280	0.280	0.280	444.00	124.32	124.32	124.32	L-12
			Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
									3233.32	3233.32	3233.32	
			b) Machinery									
			Hydraulic Excavator									
			(i) 1.2 Cum bucket Capacity	hour	4.038			2809.00	11342.74			PM3003
			(ii) 1.1 Cum bucket Capacity	hour		4.650		2538.00		11801.70		PM3004
			(iii) 0.9 Cum bucket Capacity	hour			6.502	2312.00			15032.62	PM3005
			Tipper For transportation									

CHAPTER - 4
Analysis of Rates
SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(i) 18 Cum Capacity	t.km	720xL1			4.98	3585.60			L1=1km & PM72001
			(ii) 14 Cum Capacity	t.km		720xL1		5.71		4111.20		L1=1km &PM73001
			(iii) 10 Cum Capacity	t.km			720xL1	7.10			5112.00	L1=1 km &PM74001
			For loading & unloading time									
			(i) 18 Cum Capacity	hour	4.038			2349.00	9485.26			PM6001
			(ii) 14 Cum Capacity	hour		4.650		2108.00		9802.20		PM6002
			(iii) 10 Cum Capacity	hour			6.502	1891.00			12295.28	PM6003
			Tractor with disc harrow for pulverisation	hour	6.000	6.000	6.000	738.00	4428.00	4428.00	4428.00	PM(12001+ 14001)
			Motor grader for grading									
			(i) Motor grader 4.3 meter blade.	hour	3.302			5560.00	18359.12			PM2001
			(ii) Motor grader 3.70 meter blade.	hour		3.982		5095.00		20288.29		PM2002
			(iii) Motor grader 3.35 meter blade.	hour			4.441	4512.00			20037.79	PM2003
			Vibratory Roller	hour	6.000	6.000	6.000	2102.00	12612.00	12612.00	12612.00	PM10001
			Water tanker (speed @20km/hr and return speed@30 km/hr and spreading speed@ 3.0km/hr									
			(i) 16 KL capacity	hour	0.3xL1+ 1.572			1204.00	2253.89			L1=1km & PM11001
			(ii)12 KL.Capacity.	hour		0.4xL1+ 2.096		1030.00		2570.88		L1=1km & PM11002
			(iii)6 KL.Capacity.	hour			0.8xL1+ 4.192	789.00			3938.69	L1=1km & PM11003
									62066.61	65614.27	73456.39	
			c) Material									
			Slaked Lime	tonne	29.000	29.000	29.000	3222.77	93460.33	93460.33	93460.33	M-190
			Compensation for earth taken from private source	cum	360.000	360.000	360.000	35.30	12708.00	12708.00	12708.00	M-093
			Cost of water (considering 5% additional moisture required)	KL	43.200	43.200	43.200	63.20	2730.24	2730.24	2730.24	M-191
									108898.57	108898.57	108898.57	

SUB-BASES, BASES (NON - BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to M.		Description	Unit	Quantity as per Project Category			Rate (₹)	Amount(₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Total cost (Without O.H.& C.P.)						174198.50	177746.16	185588.28	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		13935.88	17774.62	22270.59	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		18813.44	19552.08	20785.89	
			Cost for 480 cum = a+b+c+d+e (With O.H. & C.P.)						206947.82	215072.85	228644.76	
			Rate per cum = (a+b+c+d+e)/ 480 (With O.H. & C.P.)						431.14	448.07	476.34	
								Say	**431.10**	**448.10**	**476.30**	
		Note	1.Compensation for earth will vary from place to place and will have to be assessed realistically as per particular ground situation. In case earth is available from Govt. land, compensation for earth will not be required. The position is required to be clearly stated in the cost estimate.									
			2.Cost of Flyash has not been considered as same will be available free of cost. Only carriage of Flyash has been provided.									
			3.Lime + Flyash has been taken as 20 percent of total mass and ratio of lime and Flyash as 1:4 for estimating purposes. Total quantities will be as per approved design.									
4.22	**Suggestive**		**Granular crack relief layer** Granular crack relief layer laying Using Mechanical Paver (Providing, laying ,spreading and compacting graded stone aggregate to Granular crack relief layer as per IRC SP -37 including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver over base course on well prepared surface and compacting with vibratory roller to achieve the desired density.)									
			Unit:= Cum									
		Note	Rate shall be taken from item no- 4.14 A.									

CHAPTER - 05

BASED AND SURFACE COURSES (BITUMENOUS)

CHAPTER-5

BASED AND SURFACE COURSES (BITUMENOUS)

PREAMBLES:

1 Various alternatives for machines and materials have been provided. The one that suits a particular situation and design may be adopted.

2 The clauses of MoRT&h Specifications have been mentioned for each item, may be referred for detailed specifications and construction procedure. The rate analyses mentions only brief description.

3 The machinery and equipment included in analysis are as per specifications of MoRT&H and are mandatory. As per the present trend, contractors are procuring machinery and equipment of higher capacity.

4 The outputs taken for the construction equipment are for the compacted quantities of the relevant items and not for loose quantities.

5 In case of prime coat and tack coat, minimum quantities of binder indicated in specifications have been taken. Adjustment plus or minus can be made for the variation between this quantity and the actual quantity approved by the Engineer after the preliminary trials.

6 The items of bituminous works under maintenance have been added in the Chapter on maintenance.

7 Tack coat and prime coat, wherever provided are required to be measured and paid separately.

8 Brooming & cleaning of surface is a part of the prime coat and tack coat. As such cleaning of surface has not been provided for bituminous courses as the same is already catered in prime/tack coat. However, for those case where such coats are not required to be done, cleaning of surface shall be included.

9 It is presumed that tack coat, where required, will be provided immediately preceding the bituminous layer.

10 Rolling of bituminous courses is required to be done as per Clause 501.6 Provision in the analyses has accordingly been made. It has been observed during actual practice at work sites, that the availability of road roller is generally inadequate. As compaction is the key to good construction, this point is being specifically highlighted to ensure that road rollers are deployed at sites as per provision in the rate analyses.

11 Spreading of bituminous materials shall be done as per Clause 501.5.3.

12 The source of all materials to be used on the project must be tasted and expressly approved by the Engineer.

13 Quantities of materials taken in the analyses are for the proposed of cost estimate only. The actual quantity shall be as per job mix formula.

14 Choice of grade of bitumen shall be made as per IRC-37.

15 The specification and requirements for modified binders with various types of modifiers have been laid down in Clause 501.2.1 of MoRT&H Specifications and IRC:SP:53 which shall be followed.

16 The guidelines given vide Annexure-A to Clause 501 of MoRT&H Specifications in regard to protection of environment shall be followed for a particular situation.

17 The quantities taken as output of the item rate analysis are the compacted quantities and the quantities of aggregates taken under the head 'material' are the un-compacted quantities for the procurement purposes.

18 The approximate proportions by weight of different aggregates and bitumen necessary to produce the intended mix satisfying the job requirements and meeting the designated specifications are for estimating purpose only. The actual quantities should be worked out on the basis of job mix formula adopted for the job after working out the same in the laboratory for particular aggregates and bitumen approved by the Engineer.

CHAPTER -5
Summary of Rate Analysis
BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
5.01	502	A	**Prime Coat over WMM/WBM**				
		(i)	Providing and applying primer coat with SS1 grade bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.70 kg/sqm using mechanical means.	sqm	46.50	47.40	48.40
		(ii)	Providing and applying primer coat with cutback MC 30 bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means.	sqm	42.30	43.10	44.00
5.01	502	B	**Prime Coat over Stabilized soil bases/ Crusher Run Macadam**				
		(i)	Providing and applying primer coat with SS1 grade bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.90 kg/sqm using mechanical means.	sqm	59.40	60.60	61.80
		(ii)	Providing and applying primer coat with cutback MC 70 bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.90 kg/sqm using mechanical means.	sqm	62.80	63.90	65.20
5.02	503	(i)	**Tack Coat on Bituminous surfaces**				
			Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous surface cleaned with mechanical broom.	sqm	14.00	14.20	14.50
5.02	503	(ii)	**Tack Coat on Granular surfaces treated with primer**				
			Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.25 kg per sqm on the prepared bituminous surface cleaned with mechanical broom.	sqm	17.20	17.50	17.90
5.02	503	(iii)	**Tack Coat on Cement concrete pavement**				
			Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.30 kg per sqm on the prepared bituminous surface cleaned with mechanical broom.	sqm	20.40	20.80	21.20

CHAPTER -5
Summary of Rate Analysis
BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
5.03	504	(i)	**Bituminous Macadam Grading- I**				
			Providing and laying bituminous macadam with higher capacity hot mix plant using crushed aggregates of specified grading premixed with bituminous binder, transported to site, laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled as per clauses 501.6 and 501.7 to achieve the desired compaction.	cum	8380.50	8548.80	8780.30
5.03	504	(ii)	**Bituminous Macadam Grading-II**				
			Providing and laying bituminous macadam with higher capacity hot mix plant using crushed aggregates of specified grading premixed with bituminous binder, transported to site, laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled as per clauses 501.6 and 501.7 to achieve the desired compaction.	cum	8396.30	8563.80	8799.70
5.04	505	A	**Dense Graded Bituminous Macadam Grading-I**				
			Providing and laying dense graded bituminous macadam with higher capacity batch type HMP using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 percent by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 505 complete in all respects.	cum	9871.80	10067.60	10334.80
5.04	505	B	**Dense graded Bituminous Macadam Grading-II**				
			Providing and laying dense graded bituminous macadam with higher capacity batch type HMP using crushed aggregates of specified grading, premixed with bituminous binder @4.5 percent by weight of total mix and filler, transporting the hot mix to work site laying with a hydrostatic paver finisher with sensor control to the required grade level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORT&H specification clause no. 505 complete in all respects.	cum	10553.00	10761.50	11041.10
5.05	507	A	**Bituminous concrete Grading- I**				

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
			Providing and laying bituminous concrete with higher capacity batch type hot mix plant using crushed aggregates of specified grading, premixed with bituminous binder @5.2 percent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment , rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORT&H specification clause no. 507 complete in all respects.	cum	11999.70	12243.10	12564.90
5.05	**507**	**B**	**Bituminous concrete Grading- II**				
			Providing and laying bituminous concrete with higher capacity batch type hot mix plant using crushed aggregates of specified grading, premixed with bituminous binder @5.4 percent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment , rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORT&H specification clause no. 507 complete in all respects.	cum	12111.40	12356.70	12681.00
5.06	**509**		**Surface Dressing**				
			Providing and laying surface dressing as wearing course in a single coat using crushed stone aggregates of specified size on a layer of bituminous binder laid on prepared surface and rolling with 8-10 tonne smooth wheeled steel roller				
5.06	**509**	**Case-I**	19mm Nominal chipping size	sqm	108.50	110.30	112.60
5.06		**Case-II**	13 mm Nominal size chipping	sqm	83.80	85.20	86.80
5.07	**510**		**Open-Graded Premix Surfacing**				
			Providing, laying and rolling of open-graded pemix surfacing of 20mm thickness composed of 13.2mm to 5.6mm aggregates using viscosity grade bitumen to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable hot mix plant of appropriate capcity not less than 200 tonnes/hour, laying and rolling with a smooth wheeled roller finished to required level and grades.	sqm	165.70	169.10	173.80
5.08	**508**		**Close Graded Premix Surfacing/Mixed Seal Surfacing**				

CHAPTER -5
Summary of Rate Analysis
BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
			Providing, laying and rolling of open graded premix surfacing of 20mm thickness composed of 11.2mm to 0.09 mm (Type-a) or 13.2 mm to 0.09mm (Type-b) aggregates using viscosity grade bitumen to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable hot mix plant of appropriate capacity not less tha 200 tonnes/hour, laying and rolling with a smooth wheeled roller, finished to required level and grades.				
			Type-A	sqm	209.80	214.70	220.20
			Type-B	sqm	189.30	193.80	199.00
5.09	**511**		**Seal Coat**				
			Providing and laying seal coat sealing the voids in a bituminous surface laid to the specified levels, grade and cross fall using Type A and B Seal coats				
5.09		**(i)**	**Case-I: Type A**	sqm	78.40	79.70	81.20
		(ii)	**Case-II : Type B**				
			Providing and laying of premix sand seal coat with HMP of appropriate capacity not less than 200 tonnes/hours using crushed stone chipping 6.7mm size and penetration bitumen of suitable grade.	sqm	57.00	58.10	59.40
5.10	**520**		**Supply of Stone aggregates for pavement course**				
			Supply of stone aggregates from approved sources conforming to physical requirement, specified in the respective specefied clauses, including royalties , fees, rents, collection, transportaion, stacking and testing and measured in cum as per clause 520				
			Competitive market rates to be ascertained. Altenatively rates for stone crushing given in chapter 1 may be adopted, if found economical. In case for supply of aggregates at site may be ascertained. Loading and unloading charges and cost of carriage may be added to the rates to arrive at the cost at site.				
5.11	**516**		**Mastic Asphalt**				

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
			Providing and laying 25 mm thick mastic asphalt wearing course with paving grade bitumen meeting the requirements given in table 500-39, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine grained hard stone chipping of 13.2 mm nominal size at the rate of 0.005 cum per 10sqm and at an approximate spacing of 10cm center to center in both directions, pressed into surface when the temperature of surfaces is not less than 1000c, protruding 1mm to 4mm over mastic surface, all complete as per clause 516.	sqm	792.40	807.00	821.70
5.12	**512**		**Slurry seal**				
			Providing and laying slurry seal consisting of a mixture of fine aggregates, portland cement filler, bituminous emulsion and water on a road surface including cleaning of surface, mixing of slurry seal in a suitable mobile plant, laying and compacting to provide even riding surface				
5.12		(i)	2-3mm thickness (Type-i)	sqm	50.90	51.80	52.90
		(ii)	4-6mm thickness (Type-II)	sqm	82.30	83.80	85.60
		(iii)	6-8mm thickness (Type-III)	sqm	97.30	99.10	101.10
5.13	**519**		Recycling of Bituminous Pavement with Central Recycling Plant				
			Recycling pavement by cold milling of existing bituminous layers, planning the surface after cold milling, reclaiming excavated material to the extent of 30 percent of the required quantity, hauling and stock piling the reclaimed material near the central recycling plant after carrying out necessary checks and evaluation, adding fresh material including rejuvenators as required , mixing in a hot mix plant, transporting and laying at site and compacting to the required the grade , level and the thickness, all as specified in clause 519.				
		A	(i) Using by bituminous Macadam Grading I	cum	8345.30	8607.20	8669.40
		A	(ii) Using by bituminous Macadam Grading II	cum	8392.20	8653.70	8721.30
		B	(i) Using by Dense Graded bituminous macadam Grading I	cum	9234.00	9503.50	9560.20
		B	(ii) Using by Dense Graded bituminous macadam Grading II	cum	9978.00	10269.20	10365.20
		C	(i) Using bituminous concrete Grading I	cum	10964.80	11274.30	11388.30

CHAPTER -5
Summary of Rate Analysis
BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
		C	(ii) Using by bituminous concrete Grading II	cum	11078.30	11389.90	11506.00
5.14	**513**	(i)	Providing and applying low viscosity bitumen emulsion for sealing cracks less than 3mm wide or incipient fretting or disintegration in an existing bituminous surfacing	sqm	49.50	50.50	51.40
		(ii)	1. In case it is decided by the engineer to blind the fog spray, the following may be added	sqm	5.40	5.40	5.40
5.15	**518**		Bituminous Cold mix (including gravel emulsion)				
			Providing laying and rolling of bituminous cold mix on prepared base consisting of a mixture of unheated mineral aggregate and emulsified or cutback bitumen, including mixing in a plant of suitable type and capacity , transporting , laying compacting and finishing to specified grades and levels.				
5.15		**(i)**	**Using bitumen emulsion and 9.5mm or 13.2mm size aggregate**	cum	14720.00	15007.70	15374.90
5.15		**(ii)**	**Using bitumen emulsion and 19mm or 26.5mm nominal size aggregate**	cum	14989.40	15282.00	15654.20
5.15		**(iii)**	**Using cutback bitumen and 9.5mm or 13.2mm nominal size aggregate**	cum	10914.00	11130.80	11428.90
5.15		**(iv)**	**Using cutback bitumen and 19mm or 26.5mm nominal size aggregate**	cum	11168.30	11389.80	11692.60
5.16	**506**		**Sand asphalt /base course**				
			Providing , laying and rolling sand-asphalt base course compose of sand, mineral filler and bitumnious binder on a prepared subgrade or sub-base to the lines, levels, grades and cross sections as per the drawing including mixing in a plant of suitable type and capacity, transporting, laying, compacting and finishing.	cum	10835.90	11048.70	11329.90
5.17	**517**	**(i)**	**Crack prevention courses**				
			Stress absorbing membrane (SAM) crack width less than 6mm				

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
			Providng and laying of a stress absorbing membrane over a cracked road surface, with crack width below 6 mm afer cleaning with a mechanical broom, using modified binder complying with IRC:SP: 53, sprayed at the rate of 9 kg per 10 sqm and spreading 5.6 mm crushed stone aggregates @ 0.11 cum per 10 sqm with hydraulic chip spreader, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.	sqm	73.10	74.40	75.80
5.17		**(ii)**	**Stress absorbing membrane (SAM) crack width 6mm to 9mm**				
			Providng and laying of a stress absorbing membrane over a cracked road surface, with crack width 6 mm to 9mm afer cleaning with a mechanical broom, using modified binder complying with IRC:SP: 53, sprayed at the rate of 11 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm with hydraulic chip spreader, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.	sqm	87.40	89.00	90.60
5.17		**(iii)**	**Stress absorbing membrane (SAM) crack width above 9 mm and cracked area above 50 percent**				
			Providng and laying of a stress absorbing membrane over a cracked road surface, with crack width above 9mm and cracked area above 50 percent after cleaning with a mechanical broom, using modified binder complying with IRC:SP: 53, sprayed at the rate of 15 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm with hydraulic chip spreader, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.	sqm	117.30	119.40	121.60
5.17		**(iv)**	**Case IV: bitumen impregnated geotextile**				
			Providing and laying of premix of crushed stone aggregates and emulsion binder, mixed in a batch type cold mixing plant, laid over prepared surface, by paver finisher, rolled with a pneumatic tyred roller initially and finished with a smooth steel wheel roller, all as per clause 518.3	sqm	203.20	206.90	210.70
5.18	**518**		**Recipe Cold mix**				

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
			Providing and laying of premix crushed stone aggregates and emulsion binder, mixed in a batch type cold mixing plant, laid over prepared surface, by paver finisher, rolled with a pneumatic tyred rolle initially and finished with a smooth steel wheel roller, all as per clause 518.3				
5.18		**(i)**	**75mm thickness**	cum	10322.60	10530.90	10816.00
5.18		**(ii)**	**40mm thickness**	cum	13082.40	13344.50	13682.70
5.18		**(iii)**	**25mm thickness**	cum	14856.70	15153.20	15520.30
5.19	**Suggestive**	**A**	**Bituminous Concrete Grading I using waste plastic**				
			Providing and laying bituminous concrete with higher capacity batch type hot mix plant using crushed aggregates of specified grading, premixed with bituminous binder @ 5.2 percent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment , rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORT&H specification clause no. 507 complete in all respects.	cum	11511.30	11745.60	12058.30
5.19	**Suggestive**	**B**	**Bituminous Concrete Grading II (using waste plastic)**				
			Providing and laying bituminous concrete with higher capacity batch type hot mix plant using crushed aggregates of specified grading, premixed with bituminous binder @ 5.4 percent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment , rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORT&H specification clause no. 507 complete in all respects.	cum	11606.30	11842.40	12157.20
5.20	**519**	**A**	**Hot recycling in place of Bituminous Pavement with bituminous concrete**				
			Grading I				

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category (₹)		
					Large	Medium	Small
			Providing and laying bitminous concrete with hot recycling in place using crushed aggregates of specified grading, with bituminous binder @ 5.2 percent of mix filler, transporting the aggregate to work site, laying with a hot recycling in plavce to the required grade, level and alignment rolling with smoothed wheeled, vibratoy and tandem rollers to achieve the desired compaction as per MORTH specificationf clause No. 519 complete in all respects.	cum	4190.00	4257.40	4330.40
5.20	**519**	**B**	**Hot recycling in place of Bituminous Pavement with bituminous concrete**				
			Grading II				
			Providing and laying bitminous concrete with hot recycling in place using crushed aggregates of specified grading, with bituminous binder @ 5.4 percent of mix filler, transporting the aggregate to work site, laying with a hot recycling in place to the required grade, level and alignment rolling with smoothed wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specificationf clause No. 519 complete in all respects.	cum	4198.50	4266.00	4339.20

CHAPTER-5
Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
5.01	502	A	**Prime Coat over WMM/WBM**									
		(i)	Providing and applying primer coat with SS1 grade bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.70 kg/sqm using mechanical means.									
			Unit = sqm									
			Taking output = 7000 sqm									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Machinery									
			Mechanical broom (2.1 m sweeping width)	hour	2.083	2.083	2.083	834.00	1737.22	1737.22	1737.22	PM23001
			Air compressor 250 cfm	hour	2.083	2.083	2.083	496.00	1033.17	1033.17	1033.17	PM15001
			Bitumen pressure distributor (spraying width 4.5m)	hour	1.944	1.944	1.944	1382.00	2686.61	2686.61	2686.61	PM24001
			Water tanker (Speed @ 20km/hr and return speed @ 30km/hr and spreading speed. @ 4.0 km/hr.									L1=1
			(i) 16 KL Capacity	hour	0.073xL1+ 0.613			1204.00	825.94			PM11001
			(ii) 12 KL capacity	hour		0.097XL1+ 0.817		1030.00		941.42		PM11002
			(iii) 6 KL Capacity	hour			0.194XL1+ 1.633	789.00			1441.50	PM11003
			c) Material									
			SS1 grade Bitumen emulsion @ 0.70 Kg per sqm	tonne	4.900	4.900	4.900	54349.00	266310.10	266310.10	266310.10	M-077
			Cost of water	KL	10.500	10.500	10.500	63.20	663.60	663.60	663.60	M-191
			Total cost(Without O.H&C.P.)						274148.16	274263.64	274763.72	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		21931.85	27426.36	32971.65	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		29608.00	30169.00	30773.54	
			Cost for 7000 sqm = a+b+c+d+e						325688.02	331859.00	338508.90	
			Rate per sqm = (a+b+c+d+e)/7000						46.53	47.41	48.36	

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
								Say	46.50	47.40	48.40	
	Note		Bitumen primer has been provided @ 0.70 kg per sqm as per clause 502.8. Payment shall be made with adjustment, plus or minus, for the variation between this quantity and the actual quantity approved by the Engineer after the preliminary trials referred to in clause No. 502.4.3.									
		(ii)	Providing and applying primer coat with cutback MC 30 bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means.									
			Unit = sqm									
			Taking output = 7000 sqm									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Machinery									
			Mechanical broom (2.1 m sweeping width)	hour	2.083	2.083	2.083	834.00	1737.22	1737.22	1737.22	PM23001
			Air compressor 250 cfm	hour	2.083	2.083	2.083	496.00	1033.17	1033.17	1033.17	PM15001
			Bitumen pressure distributor (spraying width 4.5m)	hour	1.944	1.944	1.944	1382.00	2686.61	2686.61	2686.61	PM24001
			Water tanker (Speed @ 20km/hr and return speed @ 30km/hr and spreading speed @ 4.0 km/hr									L1=1
			(i) 16 KL Capacity	hour	0.073xL1+0.613			1204.00	825.94			PM11001
			(ii) 12 KL capacity	hour		0.097XL1+0.817		1030.00		941.42		PM11002
			(iii) 6 KL Capacity	hour			0.194XL1+1.633	789.00			1441.50	PM11003

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			c) Material									
			Cutback Bitumen MC 30 @ 0.60 Kg per sqm	tonne	4.200	4.200	4.200	57448.00	241281.60	241281.60	241281.60	M-076
			Cost of water	KL	10.500	10.500	10.500	63.20	663.60	663.60	663.60	M-191
			Total cost(Without O.H&C.P.)						249119.66	249235.14	249735.22	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		19929.57	24923.51	29968.23	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		26904.92	27415.87	27970.34	
			Cost for 7000 sqm = a+b+c+d+e						295954.16	301574.52	307673.79	
			Rate per sqm = (a+b+c+d+e)/7000						42.28	43.08	43.95	
								Say	**42.30**	**43.10**	**44.00**	
		Note	Bitumen primer has been provided @ 0.60 kg per sqm as per clause 502.8. Payment shall be made with adjustment, plus or minus, for the variation between this quantity and the actual quantity approved by the Engineer after the preliminary trials referred to in clause No. 502.4.3.									
5.01	**502**	**B**	**Prime Coat over Stabilized soil bases/ Crusher Run Macadam**									
		(i)	Providing and applying primer coat with SS1 grade bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.90 kg/sqm using mechanical means.									
			Unit = sqm									
			Taking output = 7000 sqm									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Machinery									
			Mechanical broom (2.1 m sweeping width)	hour	2.083	2.083	2.083	834.00	1737.22	1737.22	1737.22	PM23001
			Air compressor 250 cfm	hour	2.083	2.083	2.083	496.00	1033.17	1033.17	1033.17	PM15001
			Bitumen pressure distributor (spraying width 4.5m)	hour	1.944	1.944	1.944	1382.00	2686.61	2686.61	2686.61	PM24001

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Water tanker (Speed @ 20km/hr and return speed @ 30km/hr and spreading speed @ 4.0 km/hr									L1=1
			(i) 16 KL Capacity	hour	0.073xL1+ 0.613			1204.00	825.94			PM11001
			(ii) 12 KL capacity	hour		0.097XL1+ 0.817		1030.00		941.42		PM11002
			(iii) 6 KL capacity	hour			0.194XL1+ 1.633	789.00			1441.50	PM11003
			c) Material									
			SS1 grade bitumen emulsion @ 0.9 kg/sqm	tonne	6.300	6.300	6.300	54349.00	342398.70	342398.70	342398.70	M-077
			Cost of water	KL	10.500	10.500	10.500	63.20	663.60	663.60	663.60	M-191
			Total cost(Without O.H&C.P.)						350236.76	350352.24	350852.32	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		28018.94	35035.22	42102.28	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		37825.57	38538.75	39295.46	
			Cost for 7000 sqm = a+b+c+d+e						416081.27	423926.21	432250.06	
			Rate per sqm = (a+b+c+d+e)/7000						59.44	60.56	61.75	
								Say	**59.40**	**60.60**	**61.80**	
		Note	Bitumen primer has been provided @ 0.90 kg per sqm as per clause 502.8. Payment shall be made with adjustment, plus or minus, for the variation between this quantity and the actual quantity approved by the Engineer after the preliminary trials referred to in clause No. 502.4.3.									
		(ii)	Providing and applying primer coat with cutback MC 70 bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.90 kg/sqm using mechanical means.									
			Unit = sqm									
			Taking output = 7000 sqm									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Machinery									

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mechanical broom (2.1 m sweeping width)	hour	2.083	2.083	2.083	834.00	1737.22	1737.22	1737.22	PM23001
			Air compressor 250 cfm	hour	2.083	2.083	2.083	496.00	1033.17	1033.17	1033.17	PM15001
			Bitumen pressure distributor (spraying width 4.5m)	hour	1.944	1.944	1.944	1382.00	2686.61	2686.61	2686.61	PM24001
			Water tanker (Speed @ 20km/hr and return speed @ 30km/hr and spreading speed @ 4.0 km/hr									L1=1
			(i) 16 KL Capacity	hour	0.073xL1+ 0.613			1204.00	825.94			PM11001
			(ii) 12 KL capacity	hour		0.097XL1+ 0.817		1030.00		941.42		PM11002
			(iii) 6 KL Capacity	hour			0.194XL1+ 1.633	789.00			1441.50	PM11003
			c) Material									
			Cutback Bitumen MC 70@ 0.90 Kg per sqm	tonne	6.300	6.300	6.300	57448.00	361922.40	361922.40	361922.40	M-076
			Cost of water	KL	10.500	10.500	10.500	63.20	663.60	663.60	663.60	M-191
			Total cost(Without O.H&C.P.)						369760.46	369875.94	370376.02	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		29580.84	36987.59	44445.12	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		39934.13	40686.35	41482.11	
			Cost for 7000 sqm = a+b+c+d+e						439275.43	447549.88	456303.26	
			Rate per sqm = (a+b+c+d+e)/7000						62.75	63.94	65.19	
								Say	**62.80**	**63.90**	**65.20**	
		Note	Bitumen primer has been provided @ 0.90 kg per sqm as per clause 502.8. Payment shall be made with adjustment, plus or minus, for the variation between this quantity and the actual quantity approved by the Engineer after the preliminary trials referred to in clause No. 502.4.3.									
5.02	**503**	**(i)**	**Tack Coat on Bituminous surfaces**									

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous surface cleaned with mechanical broom.									
			Unit = sqm									
			Taking output = 7000 sqm									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Machinery									
			Mechanical broom (2.1 m sweeping width)	hour	2.083	2.083	2.083	834.00	1737.22	1737.22	1737.22	PM23001
			Air compressor 250 cfm	hour	2.083	2.083	2.083	496.00	1033.17	1033.17	1033.17	PM15001
			Bitumen pressure distributor (spraying width 4.5m)	hour	1.944	1.944	1.944	1382.00	2686.61	2686.61	2686.61	PM24001
			c) Material									
			Bitumen emulsion @0.2 kg per sqm	tonne	1.400	1.400	1.400	54349.00	76088.60	76088.60	76088.60	M-077
			Total cost(Without O.H&C.P.)						82437.12	82437.12	82437.12	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		6594.97	8243.71	9892.45	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		8903.21	9068.08	9232.96	
			Cost for 7000 sqm = a+b+c+d+e						97935.30	99748.91	101562.53	
			Rate per sqm = (a+b+c+d+e)/7000						13.99	14.25	14.51	
								Say	**14.00**	**14.20**	**14.50**	
		Note	Bitumen emulsion has been provided @ 0.20 kg per sqm as per clause 503.8. Payment shall be made with adjustment, plus or minus, for the variation between this quantity and the actual quantity approved by the Engineer after the preliminary trials referred to in clause No. 503.4.3.									
5.02	**503**	**(ii)**	**Tack Coat on Granular surfaces treated with primer**									

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.25 kg per sqm on the prepared bituminous surface cleaned with mechanical broom.									
			Unit = sqm									
			Taking output = 7000 sqm									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Machinery									
			Mechanical broom (2.1 m sweeping width)	hour	2.083	2.083	2.083	834.00	1737.22	1737.22	1737.22	PM23001
			Air compressor 250 cfm	hour	2.083	2.083	2.083	496.00	1033.17	1033.17	1033.17	PM15001
			Bitumen pressure distributor (spraying width 4.5m)	hour	1.944	1.944	1.944	1382.00	2686.61	2686.61	2686.61	PM24001
			c) Material									
			Bitumen emulsion @0.25 kg per sqm	tonne	1.750	1.750	1.750	54349.00	95110.75	95110.75	95110.75	M-077
			Total cost(Without O.H&C.P.)						101459.27	101459.27	101459.27	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		8116.74	10145.93	12175.11	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		10957.60	11160.52	11363.44	
			Cost for 7000 sqm = a+b+c+d+e						120533.61	122765.71	124997.82	
			Rate per sqm = (a+b+c+d+e)/7000						17.22	17.54	17.86	
								Say	**17.20**	**17.50**	**17.90**	
		Note	1) Bitumen emulsion has been provided @ 0.25 kg per sqm as per clause 503.8. Payment shall be made with adjustment, plus or minus, for the variation between this quantity and actual quantity approved by the Engineer after the preliminary trials referred to in clause No. 503.4.3.									
			2) An output of 7000 sqm has been considered in case of prime coat and tack coat which can be covered by bituminous courses on the same day									
5.02	**503**	**(iii)**	**Tack Coat on Cement concrete pavement**									

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.30 kg per sqm on the prepared bituminous surface cleaned with mechanical broom.									
			Unit = sqm									
			Taking output = 7000 sqm									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Machinery									
			Mechanical broom (2.1 m sweeping width)	hour	2.083	2.083	2.083	834.00	1737.22	1737.22	1737.22	PM23001
			Air compressor 250 cfm	hour	2.083	2.083	2.083	496.00	1033.17	1033.17	1033.17	PM15001
			Bitumen pressure distributor (spraying width 4.5m)	hour	1.944	1.944	1.944	1382.00	2686.61	2686.61	2686.61	PM24001
			c) Material									
			Bitumen emulsion @0.30 kg per sqm	tonne	2.100	2.100	2.100	54349.00	114132.90	114132.90	114132.90	M-077
			Total cost(Without O.H&C.P.)						120481.42	120481.42	120481.42	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		9638.51	12048.14	14457.77	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		13011.99	13252.96	13493.92	
			Cost for 7000 sqm = a+b+c+d+e						143131.92	145782.52	148433.11	
			Rate per sqm = (a+b+c+d+e)/7000						20.45	20.83	21.20	
								Say	**20.40**	**20.80**	**21.20**	
		NOTE	1) Bitumen emulsion has been provided @ 0.30 kg per sqm as per clause 503.8. Payment shall be made with adjustment, plus or minus, for the variation between this quantity and the actual quantity approved by the Engineer after the preliminary trials referred to in clause No. 503.4.3.									
			2) An output of 7000 sqm has been considered in case of prime coat and tack coat which can be covered by bituminous courses on the same day									
5.03	**504**	**(i)**	**Bituminous Macadam Grading- I**									

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Providing and laying bituminous macadam with higher capacity hot mix plant using crushed aggregates of specified grading premixed with bituminous binder, transported to site, laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled as per clauses 501.6 and 501.7 to achieve the desired compaction.									
		Unit=cum									
		Taking output=205cum									
		a) Labour									
		Mate	day	0.440	0.440	0.440	444.00	195.36	195.36	195.36	L-12
		Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
		Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
		b) Machinery									
		Batch type hot mix plant									
		(i) HMP 200 TPH	hour	3.007			84145.00	253024.02			PM18001
		(ii) HMP 160 TPH	hour		3.758		66183.00		248715.71		PM18002
		(iii) HMP 120 TPH	hour			5.011	50039.00			250745.43	PM18003
		Mechanical broom (2.1m sweeping width)	hour	0.697	0.697	0.697	834.00	581.30	581.30	581.30	PM23001
		Air compressor 250 cfm	hour	0.697	0.697	0.697	496.00	345.71	345.71	345.71	PM15001
		Paver finisher hydrostatic with sensor control compatible with hot mix plant									
		(i) Paver (240 HP)	hour	3.007			8144.00	24489.01			PM29001
		(ii) Paver (240 HP)	hour		3.758		8144.00		30605.15		PM29001
		(iii) Paver (174 HP)	hour			5.011	6436.00			32250.80	PM29002
		Electric generator									
		(i) 500 KVA	hour	3.007			5394.00	16219.76			PM22002
		(ii) 400 KVA	hour		3.758		4356.00		16369.85		PM22003
		(iii) 250 KVA	hour			5.011	3064.00			15353.70	PM22004
		Front end loader for feeding the plant									
		(i) 3.1 cum Capacity	hour	4.618			3523.00	16269.21			PM5001
		(ii) 2.1 cum Capacity	hour		6.826		2121.00		14477.95		PM5002
		(iii) 1 Cum Capacity	hour			14.273	1454.00			20752.94	PM5003

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Tipper for transportation									L1=1
		(i) 18 cum Capacity	t.km	451xL1			4.98	2245.98			PM72001
		(ii) 14 cum Capacity	t.km		451XL1		5.71		2575.21		PM73001
		(iii) 10 Cum Capacity	t.km			451XL1	7.10			3202.10	PM74001
		For loading & Unloading time									
		(i) 18 cum Capacity	hour	6.013			2349.00	14124.54			PM6001
		(ii) 14 cum Capacity	hour		7.517		2108.00		15845.84		PM6002
		(iii) 10 Cum Capacity	hour			10.022	1891.00			18951.60	PM6003
		Smooth steel wheeled tandem roller for static and vibratory passages	hour	7.256	7.256	7.256	2110.00	15310.16	15310.16	15310.16	PM9001
		c) Material									
		i) Bitumen @ 3.3 percent of mix	tonne	14.883	14.883	14.883	57448.00	854998.58	854998.58	854998.58	M-074
		Weight of mix = 205 X 2.2 = 451 tonne									
		ii) Aggregate									
		Total weight of mix = 451 tonnes									
		Weight of bitumen= 14.88 tonnes									
		Weight of aggregate = 436.12 tonnes									
		Taking density of aggregate= 1.5 tonne/ cum									
		*Grading I (40 mm nominal size)									
		37.5-25 mm 15 percent	cum	43.612	43.612	43.612	1178.00	51374.94	51374.94	51374.94	M-048
		25- 10 mm 45 percent	cum	130.835	130.835	130.835	963.12	126009.81	126009.81	126009.81	M-045
		10-5mm 25 percent	cum	72.686	72.686	72.686	631.69	45915.02	45915.02	45915.02	M-039
		5mm and below 15 percent	cum	43.612	43.612	43.612	452.95	19754.06	19754.06	19754.06	M-029
		* Any one of the alternative may be adopted asper approved design									
		(i) for Grading I (40mm nominal size)									
		Total cost(Without O.H&C.P.)						1446130.44	1448347.64	1461014.50	
		d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		115690.44	144834.76	175321.74	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		156182.09	159318.24	163633.62	
		Cost for 205 cum = a+b+c+d+e						1718002.97	1752500.64	1799969.87	
		Rate per cum = (a+b+c+d+e)/205						8380.50	8548.78	8780.34	
							Say	**8380.50**	**8548.80**	**8780.30**	

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description		Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		Note:	1.Quantity of Bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.									
			2. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative over heads of the contractor.									
			3. In case BM is laid over freshly laid tack coat, provision of Mechanical broom and 2 mazdoors for the same shall be deleted as the same has been included in the cost of tack coat.									
5.03	**504**	**(ii)**	**Bituminous Macadam Grading-II**									
			Providing and laying bituminous macadam with higher capacity hot mix plant using crushed aggregates of specified grading premixed with bituminous binder, transported to site, laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled as per clauses 501.6 and 501.7 to achieve the desired compaction.									
			Unit=cum									
			Taking output=205cum									
			a) Labour									
			Mate	day	0.440	0.440	0.440	444.00	195.36	195.36	195.36	L-12
			Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
			Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
			b) Machinery									
			Batch type hot mix plant									
			(i) HMP 200 TPH	hour	3.007			84145.00	253024.02			PM18001

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		(ii) HMP 160 TPH	hour		3.758		66183.00		248715.71		PM18002
		(iii) HMP 120 TPH	hour			5.011	50039.00			250745.43	PM18003
		Mechanical broom (2.1m sweeping width)	hour	0.976	0.976	0.976	834.00	813.98	813.98	813.98	PM23001
		Air compressor 250 cfm	hour	0.976	0.976	0.976	496.00	484.10	484.10	484.10	PM15001
		Paver finisher hydrostatic with sensor control compatible with the hot mix plant									
		(i) Paver (240 HP)	hour	3.007			8144.00	24489.01			PM29001
		(ii) Paver (240 HP)	hour		3.758		8144.00		30605.15		PM29001
		(iii) Paver (174 HP)	hour			5.011	6436.00			32250.80	PM29002
		Electric generator									
		(i) 500 KVA	hour	3.007			5394.00	16219.76			PM22002
		(ii) 400 KVA	hour		3.758		4356.00		16369.85		PM22003
		(iii) 250 KVA	hour			5.011	3064.00			15353.70	PM22004
		Front end loader for feeding the plant									
		(i) 3.1 cum Capacity	hour	5.125			3523.00	18055.38			PM5001
		(ii) 2.1 cum Capacity	hour		7.577		2121.00		16070.82		PM5002
		(iii) 1 Cum Capacity	hour			15.842	1454.00			23034.27	PM5003
		Tipper for transportation									L1=1
		(i) 18 cum Capacity	t.km	451XL1			4.98	2245.98			PM72001
		(ii) 14 cum Capacity	t.km		451XL1		5.71		2575.21		PM73001
		(iii) 10 Cum Capacity	t.km			451XL1	7.10			3202.10	PM74001
		Tipper for loading & Unloading time									
		(i) 18 cum Capacity	hour	6.013			2349.00	14124.54			PM6001
		(ii) 14 cum Capacity	hour		7.517		2108.00		15845.84		PM6002
		(iii) 10 Cum Capacity	hour			10.022	1891.00			18951.60	PM6003
		Smooth steel wheeled tandem roller for static and vibratory passages	hour	10.159	10.159	10.159	2110.00	21435.49	21435.49	21435.49	PM9001
		c) Material									
		i) Bitumen @ 3.4 percent of mix	tonne	15.334	15.334	15.334	57448.00	880907.63	880907.63	880907.63	M-074
		Weight of mix = 205 * 2.2 = 451 tonne									
		ii) Aggregate									
		Total weight of mix = 451 tonnes									
		Weight of bitumen= 15.33 tonnes									
		Weight of aggregate = 435.67 tonnes									
		Taking density of aggregate= 1.5 tonne/ cum									

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Grading II (19 mm nominal size)									
			25-10 mm 40 percent	cum	116.178	116.178	116.178	963.12	111893.36	111893.36	111893.36	M-045
			10-5mm 40 percent	cum	116.178	116.178	116.178	631.69	73388.48	73388.48	73388.48	M-039
			5mm and below 20 percent	cum	58.089	58.089	58.089	452.95	26311.41	26311.41	26311.41	M-029
			* Any one of the alternative may be adopted asper approved design									
			(i) for grading II (19mm nominal size)									
			Total cost(Without O.H&C.P.)						1448861.48	1450885.39	1464240.71	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		115908.92	145088.54	175708.89	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		156477.04	159597.39	163994.96	
			cost for 250 cum = (a+b+c+d+e)						1721247.44	1755571.32	1803944.55	
			Rate per cum = (a+b+c+d+e)/205						8396.33	8563.76	8799.73	
								Say	**8396.30**	**8563.80**	**8799.70**	
	NOTE		*1.Quantity of Bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.									
			2. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative overheads of the contractor.									
			3. In case BM is laid over freshly laid tack coat, provision of Mechanical broom and 2 mazdoors for the same shall be deleted as the same has been included in the cost of tack coat.									
5.04	**505**	**A**	**Dense Graded Bituminous Macadam Grading-I**									

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Analysis of Rates
BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Providing and laying dense graded bituminous macadam with higher capacity batch type HMP using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 per cent by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 505 complete in all respects.									
		Unit = cum									
		Taking output = 195 cum									
		a) Labour									
		Mate	day	0.440	0.440	0.440	444.00	195.36	195.36	195.36	L-12
		Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
		Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
		b) Machinery									
		Hot mix plant									
		(i) HMP 200 TPH	hour	3.003			84145.00	252687.44			PM18001
		(ii) HMP 160 TPH	hour		3.754		66183.00		248450.98		PM18002
		(iii) HMP 120 TPH	hour			5.005	50039.00			250445.20	PM18003
		Mechanical broom (2.1m sweeping width)	hour	0.663	0.663	0.663	834.00	552.94	552.94	552.94	PM23001
		Air compressor 250 cfm	hour	0.663	0.663	0.663	496.00	328.85	328.85	328.85	PM15001
		Paver finisher hydrostatic with sensor control compatible with the hot mix plant									
		(i) Paver (240 HP)	hour	3.003			8144.00	24456.43			PM29001
		(ii) Paver (240 HP)	hour		3.754		8144.00		30572.58		PM29001
		(iii) Paver (174 HP)	hour			5.005	6436.00			32212.18	PM29002
		Electric generator									
		(i) 500 KVA	hour	3.003			5394.00	16198.18			PM22002
		(ii) 400 KVA	hour		3.754		4356.00		16352.42		PM22003
		(iii) 250 KVA	hour			5.005	3064.00			15335.32	PM22004

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Front end loader for feeding the plant									
			(i) 3.1 cum Capacity	hour	5.138			3523.00	18101.17			PM5001
			(ii) 2.1 cum Capacity	hour		7.596		2121.00		16111.12		PM5002
			(iii) 1 Cum Capacity	hour			15.882	1454.00			23092.43	PM5003
			Tipper for transportation									L1=1
			(i) 18 cum Capacity	t.km	450.45XL1			4.98	2243.24			PM72001
			(ii) 14 cum Capacity	t.km		450.45XL1		5.71		2572.07		PM73001
			(iii) 10 Cum Capacity	t.km			450.45XL1	7.10			3198.20	PM74001
			Tipper For loading & Unloading time									
			(i) 18 cum Capacity	hour	6.006			2349.00	14108.09			PM6001
			(ii) 14 cum Capacity	hour		7.508		2108.00		15826.86		PM6002
			(iii) 10 Cum Capacity	hour			10.010	1891.00			18928.91	PM6003
			Smooth steel wheeled tandem roller for static and vibratory passages	hour	9.663	9.663	9.663	2110.00	20388.93	20388.93	20388.93	PM9001
			c) Material									
			i) Bitumen @ 4 percent of mix	tonne	18.018	18.018	18.018	57448.00	1035098.06	1035098.06	1035098.06	M-074
			Weight of mix = 450.45 tonne									
			ii) Aggregate									
			Total weight of mix = 450.45 tonnes									
			Weight of bitumen= 18.02 tonnes									
			Weight of aggregate = 432.43 tonnes									
			Taking density of aggregate= 1.5 tonne/ cum									
			Grading- I 37.5mm (Nominal size)									
			37.5-25mm 22 percent	cum	63.423	63.423	63.423	1178.00	74712.29	74712.29	74712.29	M-048
			25-10 mm 13 percent	cum	37.477	37.477	37.477	963.12	36094.85	36094.85	36094.85	M-045
			10-4.75mm 19 percent	cum	54.775	54.775	54.775	631.69	34600.82	34600.82	34600.82	M-039
			4.75 mm and below 44 percent	cum	126.847	126.847	126.847	452.95	57455.35	57455.35	57455.35	M-029
			Filler @ 2percent of weight of aggregates	tonne	8.649	8.649	8.649	3222.77	27873.74	27873.74	27873.74	M-190
			* Any one of the alternative may be adopted asper approved design						1620368.75	1622460.22	1635786.42	
			Grading I 37.5mm (Nominal size)									
			Total cost(Without O.H&C.P.)						1620368.75	1622460.22	1635786.42	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		129629.50	162246.02	196294.37	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		174999.83	178470.62	183208.08	
			Cost for 195 cum = a+b+c+d+e						1924998.08	1963176.87	2015288.87	

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Rate per cum = (a+b+c+d+e)/195						9871.79	10067.57	10334.81	
								Say	**9871.80**	**10067.60**	**10334.80**	
5.04	**505**	**B**	**Dense graded Bituminous Macadam Grading-II**									
			Providing and laying dense graded bituminous macadam with higher capacity batch type HMP using crushed aggregates of specified grading, premixed with bituminous binder @4.5 percent by weight of total mix and filler, transporting the hot mix to work site laying with a hydrostatic paver finisher with sensor control to the required grade level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORT&H specification clause no. 505 complete in all respects.									
			Unit= cum									
			Taking output= 195 cum									
			a) Labour									
			Mate	day	0.440	0.440	0.440	444.00	195.36	195.36	195.36	L-12
			Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
			Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
			b) Machinery									
			Hot mix plant									
			(i) HMP 200 TPH	hour	3.003			84145.00	252687.44			PM18001
			(ii) HMP 160 TPH	hour		3.754		66183.00		248450.98		PM18002
			(iii) HMP 120 TPH	hour			5.005	50039.00			250445.20	PM18003
			Mechanical broom (2.1m sweeping width)	hour	0.663	0.663	0.663	834.00	552.94	552.94	552.94	PM23001
			Air compressor 250 cfm	hour	0.663	0.663	0.663	496.00	328.85	328.85	328.85	PM15001
			Paver finisher hydrostatic with sensor control compatible with the hot mix plant									
			(i) Paver (240 HP)	hour	3.003			8144.00	24456.43			PM29001
			(ii) Paver (240 HP)	hour		3.754		8144.00		30572.58		PM29001
			(iii) Paver (174 HP)	hour			5.005	6436.00			32212.18	PM29002
			Electric generator									

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		(i) 500 KVA	hour	3.003			5394.00	16198.18			PM22002
		(ii) 400 KVA	hour		3.754		4356.00		16352.42		PM22003
		(iii) 250 KVA	hour			5.005	3064.00			15335.32	PM22004
		Front end loader for feeding the plant									
		(i) 3.1 cum Capacity	hour	5.112			3523.00	18009.58			PM5001
		(ii) 2.1 cum Capacity	hour		7.556		2121.00		16026.28		PM5002
		(iii) 1 Cum Capacity	hour			15.799	1454.00			22971.75	PM5003
		Tipper for transportation									L1=1
		(i) 18 cum Capacity	t.km	450.45XL1			4.98	2243.24			PM72001
		(ii) 14 cum Capacity	t.km		450.45XL1		5.71		2572.07		PM73001
		(iii) 10 Cum Capacity	t.km			450.45XL1	7.10			3198.20	PM74001
		Tipper for loading & Unloading time									
		(i) 18 cum Capacity	hour	6.006			2349.00	14108.09			PM6001
		(ii) 14 cum Capacity	hour		7.508		2108.00		15826.86		PM6002
		(iii) 10 Cum Capacity	hour			10.010	1891.00			18928.91	PM6003
		Smooth steel wheeled tandem roller for static and vibratory passages	hour	9.663	9.663	9.663	2110.00	20388.93	20388.93	20388.93	PM9001
		c) Material									
		i) Bitumen @ 4.5 percent of mix	tonne	20.270	20.270	20.270	57448.00	1164470.96	1164470.96	1164470.96	M-074
		ii) Aggregate									
		Total weight of mix = 450.45 tonnes									
		Weight of bitumen= 20.27 tonnes									
		Weight of aggregate = 430.18 tonnes									
		Taking density of aggregate= 1.5 tonne/ cum									
		Grading-2, 26.5 mm (Nominal size)									
		25-10mm 30 percent	cum	86.036	86.036	86.036	963.12	82862.99	82862.99	82862.99	M-045
		10-5mm 28 percent	cum	80.300	80.300	80.300	631.69	50724.71	50724.71	50724.71	M-039
		5mm and below 40 percent	cum	114.715	114.715	114.715	452.95	51960.16	51960.16	51960.16	M-029
		Filler @2 percent of weight of aggregates	tonne	8.604	8.604	8.604	3222.77	27728.71	27728.71	27728.71	M-190
		* Any one of the alternative may be adopted asper approved design									
		Grading-2, 26.5mm (Nominal size)									
		Total cost(Without O.H&C.P.)						1732189.57	1734287.80	1747578.16	
		d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		138575.17	173428.78	209709.38	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		187076.47	190771.66	195728.75	

CHAPTER-5
Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Cost for 195 cum = a+b+c+d+e						2057841.21	2098488.24	2153016.29	
			Rate per cum = (a+b+c+d+e)/195						10553.03	10761.48	11041.11	
								Say	**10553.00**	**10761.50**	**11041.10**	
		Note	1.Quantity of Bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.									
			2. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative overheads of the contractor.									
			3. In case DBM is laid over freshly laid tack coat, provision of Mechanical broom and 2 mazdoors shall be deleted as the same has been included in the cost of tack coat.									
			4. The average density of 1.5 tonne/cum is only a refrence density in this data book.									
			5. The individual percentage of aggregates should be calculated from the total weight of dry aggregates i.e. excluding the weight of bitumen. The weight of filler will also be 2 percent by weight of dry aggregates.									
5.05	**507**	**A**	**Bituminous concrete Grading- I**									

CHAPTER-5
Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Providing and laying bituminous concrete with higher capacity batch type hot mix plant using crushed aggregates of specified grading, premixed with bituminous binder @5.2 percent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment , rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORT&H specification clause no. 507 complete in all respects.									
		Unit= cum									
		Taking output= 191 cum									
		a) Labour									
		Mate	day	0.440	0.440	0.440	444.00	195.36	195.36	195.36	L-12
		Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
		Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
		b) Machinery									
		Hot mix plant									
		(i) HMP 200 TPH	hour	3.005			84145.00	252855.73			PM18001
		(ii) HMP 160 TPH	hour		3.756		66183.00		248583.35		PM18002
		(iii) HMP 120 TPH	hour			5.008	50039.00			250595.31	PM18003
		Mechanical broom (2.1m sweeping width)	hour	1.137	1.137	1.137	834.00	948.26	948.26	948.26	PM23001
		Air compressor 250 cfm	hour	1.137	1.137	1.137	496.00	563.95	563.95	563.95	PM15001
		Paver finisher hydrostatic with sensor control compatible with hot mix plant									
		(i) Paver (240 HP)	hour	3.005			8144.00	24472.72			PM29001
		(ii) Paver (240 HP)	hour		3.756		8144.00		30588.86		PM29001
		(iii) Paver (174 HP)	hour			5.008	6436.00			32231.49	PM29002
		Electric generator									
		(i) 500 KVA	hour	3.005			5394.00	16208.97			PM22002
		(ii) 400 KVA	hour		3.756		4356.00		16361.14		PM22003
		(iii) 250 KVA	hour			5.008	3064.00			15344.51	PM22004
		Front end loader for feeding the plant									

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		(i) 3.1 cum Capacity	hour	5.078			3523.00	17889.79			PM5001
		(ii) 2.1 cum Capacity	hour		7.506		2121.00		15920.23		PM5002
		(iii) 1 Cum Capacity	hour			15.694	1454.00			22819.08	PM5003
		Tipper for transportation									L1=1
		(i) 18 cum Capacity	t.km	450.76xL1			4.98	2244.78			PM72001
		(ii) 14 cum Capacity	t.km		450.76xL1		5.71		2573.84		PM73001
		(iii) 10 Cum Capacity	t.km			450.76xL1	7.10			3200.40	PM74001
		Tipper for loading & Unloading time									
		(i) 18 cum Capacity	hour	6.010			2349.00	14117.49			PM6001
		(ii) 14 cum Capacity	hour		7.513		2108.00		15837.40		PM6002
		(iii) 10 Cum Capacity	hour			10.017	1891.00			18942.15	PM6003
		Smooth steel wheeled tandem roller for static and vibratory passages	hour	11.831	11.831	11.831	2110.00	24963.41	24963.41	24963.41	PM9001
		Pneumatic tyre roller	hour	2.404	3.005	4.007	2102.00	5053.21	6316.51	8422.71	PM10001
		c) Material									
		i) Bitumen @ 5.2 percent of mix	tonne	23.440	23.440	23.440	57448.00	1346581.12	1346581.12	1346581.12	M-074
		ii) Aggregate									
		Total weight of mix = 450.76tonnes									
		Weight of bitumen= 23.44 tonnes									
		Weight of aggregate = 427.32 tonnes									
		Taking density of aggregate= 1.5 tonne/ cum									
		*Grading I 19mm (Nominal size)									
		20-10mm 38 percent	cum	108.255	108.255	108.255	963.12	104262.56	104262.56	104262.56	M-044
		10-5mm 17percent	cum	48.430	48.430	48.430	631.69	30592.75	30592.75	30592.75	M-039
		5mm and below 43 percent	cum	122.499	122.499	122.499	452.95	55485.92	55485.92	55485.92	M-029
		Filler @ 2percent of weight of aggregates	tonne	8.546	8.546	8.546	3222.77	27541.79	27541.79	27541.79	M-190
		* Any one of the alternative may be adopted asper approved design									
		Total cost(Without O.H&C.P.)						1929250.81	1932589.44	1947963.76	
		d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		154340.06	193258.94	233755.65	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		208359.09	212584.84	218171.94	
		Cost for 191 cum = a+b+c+d+e						2291949.96	2338433.23	2399891.35	
		Rate per cum = (a+b+c+d+e)/191						11999.74	12243.11	12564.88	
							Say	**11999.70**	**12243.10**	**12564.90**	

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
5.05	507	B	**Bituminous concrete Grading- II**									
			Providing and laying bituminous concrete with higher capacity batch type hot mix plant using crushed aggregates of specified grading, premixed with bituminous binder @5.4 percent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment , rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORT&H specification clause no. 507 complete in all respects.								
			Unit= cum									
			Taking output= 191 cum									
			a) Labour									
			Mate	day	0.440	0.440	0.440	444.00	195.36	195.36	195.36	L-12
			Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
			Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
			b) Machinery									
			Hot mix plant									
			(i) HMP 200 TPH	hour	3.005			84145.00	252855.73	0.00	0.00	PM18001
			(ii) HMP 160 TPH	hour		3.756		66183.00	0.00	248583.35	0.00	PM18002
			(iii) HMP 120 TPH	hour			5.008	50039.00	0.00	0.00	250595.31	PM18003
			Mechanical broom (2.1m sweeping width)	hour	1.624	1.624	1.624	834.00	1354.42	1354.42	1354.42	PM23001
			Air compressor 250 cfm	hour	1.624	1.624	1.624	496.00	805.50	805.50	805.50	PM15001
			Paver finisher hydrostatic with sensor control compatible with hot mix plant									
			(i) Paver (240 HP)	hour	3.005			8144.00	24472.72			PM29001
			(ii) Paver (240 HP)	hour		3.756		8144.00		30588.86		PM29001
			(iii) Paver (174 HP)	hour			5.008	6436.00			32231.49	PM29002
			Electric generator									
			(i) 500 KVA	hour	3.005			5394.00	16208.97			PM22002
			(ii) 400 KVA	hour		3.756		4356.00		16361.14		PM22003
			(iii) 250 KVA	hour			5.008	3064.00			15344.51	PM22004
			Front end loader for feeding the plant									

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		(i) 3.1 cum Capacity	hour	5.004			3523.00	17629.09			PM5001
		(ii) 2.1 cum Capacity	hour		7.378		2121.00		15648.74		PM5002
		(iii) 1 Cum Capacity	hour			15.553	1454.00			22614.06	PM5003
		Tipper for transportation									L1=1
		(i) 18 cum Capacity	t.km	450.76xL1			4.98	2244.78			PM72001
		(ii) 14 cum Capacity	t.km		450.76xL1		5.71		2573.84		PM73001
		(iii) 10 Cum Capacity	t.km			450.76xL1	7.10			3200.40	PM74001
		For loading & Unloading time									
		(i) 18 cum Capacity	hour	6.010			2349.00	14117.49			PM6001
		(ii) 14 cum Capacity	hour		7.513		2108.00		15837.40		PM6002
		(iii) 10 Cum Capacity	hour			10.017	1891.00			18942.15	PM6003
		Smooth steel wheeled tandem roller for static and vibratory passages	hour	16.902	16.902	16.902	2110.00	35663.22	35663.22	35663.22	PM9001
		Pneumatic tyre roller	hour	2.404	3.005	4.007	2102.00	5053.21	6316.51	8422.71	PM10001
		c) Material									
		i) Bitumen @ 5.4 percent of mix	tonne	24.341	24.341	24.341	57448.00	1398341.77	1398341.77	1398341.77	M-074
		ii) Aggregate									
		Total weight of mix = 450.76 tonnes									
		Weight of bitumen= 24.34 tonnes									
		Weight of aggregate = 426.42 tonnes									
		Taking density of aggregate= 1.5 tonne/ cum									
		*Grading II 13mm (Nominal size)									
		13.2mm-10 mm 21percent	cum	59.699	59.699	59.699	631.69	37711.26	37711.26	37711.26	M-043
		10-5mm 17percent	cum	48.327	48.327	48.327	631.69	30527.68	30527.68	30527.68	M-039
		5mm and below 60 percent	cum	170.568	170.568	170.568	452.95	77258.78	77258.78	77258.78	M-029
		Filler @ 2percent of weight of aggregates	tonne	8.528	8.528	8.528	3222.77	27483.78	27483.78	27483.78	M-190
		* Any one of the alternative may be adopted asper approved design									
		Total cost(Without O.H&C.P.)						1947196.76	1950524.61	1965965.40	
		d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		155775.74	195052.46	235915.85	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		210297.25	214557.71	220188.12	
		Cost for 191 cum = a+b+c+d+e						2313269.75	2360134.78	2422069.37	
		Rate per cum = (a+b+c+d+e)/191						12111.36	12356.73	12680.99	

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
								Say	12111.40	12356.70	12681.00	
	Note		1.Quantity of Bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.									
			2. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative overheads of the contractor.									
			3. In case BC is laid over freshly laid tack coat, provision of Mechanical broom and 2 mazdoors shall be deleted as the same has been included in the cost of tack coat.									
			4. The average density of 1.5 tonne/cum is only a refrence density in this data book.									
			5. The individual percentage of aggregates should be calculated from the total weight of dry aggregates i.e. excluding the weight of bitumen. The weight of filler will also be 2 percent by weight of dry aggregates.									
5.06	**509**		**Surface Dressing**									
			Providing and laying surface dressing as wearing course in a single coat using crushed stone aggregates of specified size on a layer of bituminous binder laid on prepared surface and rolling with 8-10 tonne smooth wheeled steel roller									
			Unit=sqm									
			Taking output= 9000sqm									

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description		Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
5.06		Case-I	19mm Nominal chipping size									
			a) Labour									
			Mate	day	0.440	0.440	0.440	444.00	195.36	195.36	195.36	L-12
			Mazdoor	day	9.000	9.000	9.000	428.00	3852.00	3852.00	3852.00	L-13
			Mazdoor skilled	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			b) Machinery									
			Mechanical broom (2.1m sweeping width)	hour	2.679	2.679	2.679	834.00	2234.29	2234.29	2234.29	PM23001
			Air compressor 250 cfm	hour	2.679	2.679	2.679	496.00	1328.78	1328.78	1328.78	PM15001
			Bitumen pressure distributor (Spraying width 4.5m)	hour	1.250	1.250	1.250	1382.00	1727.50	1727.50	1727.50	PM24001
			Hydraulic self propelled chip spreader	hour	7.401	7.401	7.401	1712.00	12670.51	12670.51	12670.51	PM32001
			Front end loader for feeding the plant									
			(i) 3.1 cum capacity	hour	0.823			3523.00	2899.43			PM5001
			(ii) 2.1 cum Capacity	hour		1.216		2121.00		2579.14		PM5002
			(iii) 1 cum Capacity	hour			2.547	1454.00			3703.34	PM5003
			Tipper for transportation									LI=1
			(i) 18 cum Capacity	t.km	202.5XL1			4.98	1008.45			PM72001
			(ii) 14 cum capacity	t.km		202.5XL1		5.71		1156.28		PM73001
			(iii) 10 cum capacity	t.km			202.5XL1	7.10			1437.75	PM74001
			For loading and unloading time									
			(i) 18 cum Capacity	hour	8.224			2349.00	19318.18			PM6001
			(ii) 14 cum capacity	hour		8.618		2108.00		18166.74		PM6002
			(iii) 10 cum capacity	hour			9.948	1891.00			18811.67	PM6003
			Smooth steel wheeled tandem roller for static and vibratory pasages	hour	5.973	5.973	5.973	2110.00	12603.03	12603.03	12603.03	PM9001
			Pneumatic Tyre roller	hour	5.973	5.973	5.973	2102.00	12555.25	12555.25	12555.25	PM10001
			c) Material									
			Bitumen @1.2 kg per sqm	tonne	10.800	10.800	10.800	57448.00	620438.40	620438.40	620438.40	M-074
			Crushed stone chipping, 19mm nominal size @ 0.015 cum per sqm	cum	135.000	135.000	135.000	963.12	130021.20	130021.20	130021.20	M-046
			Total cost(Without O.H&C.P.)						821934.37	820610.47	822661.07	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		65754.75	82061.05	98719.33	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		88768.91	90267.15	92138.04	
			Cost for 9000 sqm= a+b+c+d+e						976458.04	992938.67	1013518.44	

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Rate per sqm =(a+b+c+d+e)/9000						108.50	110.33	112.61	
								Say	**108.50**	**110.30**	**112.60**	
5.06	**509**	**Case-II**	13 mm Nominal size chipping									
			Unit= sqm									
			Taking output= 9000sqm									
			a) Labour									
			Mate	day	0.440	0.440	0.440	444.00	195.36	195.36	195.36	L-12
			Mazdoor	day	9.000	9.000	9.000	428.00	3852.00	3852.00	3852.00	L-13
			Mazdoor skilled	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			b) Machinery									
			Mechanical broom (2.1m sweeping width)	hour	2.679	2.679	2.679	834.00	2234.29	2234.29	2234.29	PM23001
			Air compressor 250 cfm	hour	2.679	2.679	2.679	496.00	1328.78	1328.78	1328.78	PM15001
			Bitumen pressure distributor (Spraying width 4.5m)	hour	1.250	1.250	1.250	1382.00	1727.50	1727.50	1727.50	PM24001
			Hydraulic self propelled chip spreader	hour	7.401	7.401	7.401	1712.00	12670.51	12670.51	12670.51	PM32001
			Front end loader for loading									
			(i) 3.1 cum capacity	hour	0.544			3523.00	1916.51			PM5001
			(ii) 2.1 cum Capacity	hour		0.804		2121.00		1705.28		PM5002
			(iii) 1 cum Capacity	hour			1.688	1454.00			2454.35	PM5003
			Tipper for transportation									L1=1
			(i) 18 cum Capacity	t.km	135XL1			4.98	672.30			PM72001
			(ii) 14 cum capacity	t.km		135XL1		5.71		770.85		PM73001
			(iii) 10 cum capacity	t.km			135XL1	7.10			958.50	PM74001
			For loading and unloading time									
			(i) 18 cum Capacity	hour	7.946			2349.00	18665.15			PM6001
			(ii) 14 cum capacity	hour		8.205		2108.00		17296.14		PM6002
			(iii) 10 cum capacity	hour			9.089	1891.00			17187.30	PM6003
			Smooth steel wheeled tandem roller for static and vibratory pasages	hour	3.982	3.982	3.982	2110.00	8402.02	8402.02	8402.02	PM9001
			Pneumatic Tyre roller	hour	3.982	3.982	3.982	2102.00	8370.16	8370.16	8370.16	PM10001
			c) Material									
			Bitumen @1.2 kg per sqm	tonne	9.000	9.000	9.000	57448.00	517032.00	517032.00	517032.00	M-074
			Crushed stone chipping, 13mm nominal size @ 0.015 cum per sqm	cum	90.000	90.000	90.000	631.69	56852.10	56852.10	56852.10	M-051

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Total cost(Without O.H&C.P.)						635000.69	633519.00	634346.88	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		50800.06	63351.90	76121.63	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		68580.07	69687.09	71046.85	
			Cost for 9000 sqm= a+b+c+d+e						754380.82	766557.99	781515.35	
			Rate per sqm =(a+b+c+d+e)/9000						83.82	85.17	86.84	
								Say	**83.80**	**85.20**	**86.80**	
		Note	1. Where the proposed aggregate fails to pass the stripping test, an approved adhesion agent may be added to the binder as per clause 510.2.4. Alternatively, chips may be precoated as per clause 510.2									
			2. Input for the second coat, where required, will be the same as per the Ist coat mentioned above									
5.07	**510**		**Open-Graded Premix Surfacing**									
			Providing, laying and rolling of open-graded pemix surfacing of 20mm thickness composed of 13.2mm to 5.6mm aggregates using viscosity grade bitumen to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable hot mix plant of appropriate capcity not less than 200 tonnes/hour, laying and rolling with a smooth wheeled roller finished to required level and grades.									
			Unit=sqm									
			Taking output= 10250 sqm									
			a) Labour									
			Mate	day	0.440	0.440	0.440	444.00	195.36	195.36	195.36	L-12
			Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
			Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
			b) Machinery									
			Hot mix plant									

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		(i) HMP 200 TPH	hour	3.225			84145.00	271367.63			PM18001
		(ii) HMP 160 TPH	hour		4.032		66183.00		266849.86		PM18002
		(iii) HMP 120 TPH	hour			5.376	50039.00			269009.66	PM18003
		Mechanical broom (2.1m sweeping width)	hour	1.220	1.220	1.220	834.00	1017.48	1017.48	1017.48	PM23001
		Air compressor 250 cfm	hour	1.220	1.220	1.220	496.00	605.12	605.12	605.12	PM15001
		Paver finisher hydrostatic with sensor control compatible with the hot mix plant									
		(i) Paver (240 HP)	hour	3.225			8144.00	26264.40			PM29001
		(ii) Paver (240 HP)	hour		4.032		8144.00		32836.61		PM29001
		(iii) Paver (174 HP)	hour			5.376	6436.00			34599.94	PM29002
		Electric generator									
		(i) 500 KVA	hour	3.225			5394.00	17395.65			PM22002
		(ii) 400 KVA	hour		4.032		4356.00		17563.39		PM22003
		(iii) 250 KVA	hour			5.376	3064.00			16472.06	PM22004
		Front end loader for feeding the plant									
		(i) 3.1 cum Capacity	hour	4.942			3523.00	17410.67			PM5001
		(ii) 2.1 cum Capacity	hour		7.283		2121.00		15447.24		PM5002
		(iii) 1 Cum Capacity	hour			15.375	1454.00			22355.25	PM5003
		Tipper for transportation									LI=1
		(i) 18 cum Capacity	t.km	483.8XL1			4.98	2409.32			PM72001
		(ii) 14 cum Capacity	t.km		483.8XL1		5.71		2762.50		PM73001
		(iii) 10 Cum Capacity	t.km			483.8XL1	7.10			3434.98	PM74001
		For loading & Unloading time									
		(i) 18 cum Capacity	hour	6.451			2349.00	15153.40			PM6001
		(ii) 14 cum Capacity	hour		8.063		2108.00		16996.80		PM6002
		(iii) 10 Cum Capacity	hour			10.751	1891.00			20330.14	PM6003
		Smooth steel wheeled tandem roller for static and vibratory passages	hour	18.141	18.141	18.141	2110.00	38277.51	38277.51	38277.51	PM9001
		c) Material									
		i) Bitumen @ 14.60 kg per 10 sqm	tonne	14.965	14.965	14.965	57448.00	859709.32	859709.32	859709.32	M-074

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Crushed stone chipping, 13.2mm to 5.6mm @ 0.27 cum per 10 sqm	cum	276.750	276.750	276.750	631.69	174820.21	174820.21	174820.21	M-042
		* Any one of the alternative may be adopted asper approved design									
		Total cost(Without O.H&C.P.)						1429899.06	1432354.40	1446100.03	
		d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		114391.92	143235.44	173532.00	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		154429.10	157558.98	161963.20	
		Cost for 10250 sqm = a+b+c+d+e						1698720.09	1733148.82	1781595.24	
		Rate per sqm = (a+b+c+d+e)/10250						165.73	169.09	173.81	
							Say	**165.70**	**169.10**	**173.80**	
5.08	**508**	**Close Graded Premix Surfacing/Mixed Seal Surfacing**									
		Providing, laying and rolling of open graded premix surfacing of 20mm thickness composed of 11.2mm to 0.09 mm (Type-a) or 13.2 mm to 0.09mm (Type-b) aggregates using viscosity grade bitumen to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable hot mix plant of appropriate capacity not less than 200 tonnes/hour, laying and rolling with a smooth wheeled roller, finished to required level and grades.									
		Unit=sqm									
		Taking output=10250 sqm									
		a) Labour									
		Mate	day	0.440	0.440	0.440	444.00	195.36	195.36	195.36	L-12
		Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
		Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
		b) Machinery									
		Hot mix plant									
		(i) HMP 200 TPH	hour	3.225			84145.00	271367.63	0.00	0.00	PM18001
		(ii) HMP 160 TPH	hour		4.032		66183.00	0.00	266849.86	0.00	PM18002

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		(iii) HMP 120 TPH	hour			5.376	50039.00	0.00	0.00	269009.66	PM18003
		Mechanical broom (2.1m sweeping width)	hour	1.220	1.220	1.220	834.00	1017.48	1017.48	1017.48	PM23001
		Air compressor 250 cfm	hour	1.220	1.220	1.220	496.00	605.12	605.12	605.12	PM15001
		Paver finisher hydrostatic with sensor control compatible with hot mix plant									
		(i) Paver (240 HP)	hour	3.225			8144.00	26264.40			PM29001
		(ii) Paver (240 HP)	hour		4.032		8144.00		32836.61		PM29001
		(iii) Paver (174 HP)	hour			5.376	6436.00			34599.94	PM29002
		Electric generator									
		(i) 500 KVA	hour	3.225			5394.00	17395.65			PM22002
		(ii) 400 KVA	hour		4.032		4356.00		17563.39		PM22003
		(iii) 250 KVA	hour			5.376	3064.00			16472.06	PM22004
		Front end loader for feeding the plant									
		(i) 3.1 cum Capacity	hour	3.225			3523.00	11361.68			PM5001
		(ii) 2.1 cum Capacity	hour		7.283		2121.00		15447.24		PM5002
		(iii) 1 Cum Capacity	hour			15.375	1454.00			22355.25	PM5003
		Tipper for transportation									LI=1
		(i) 18 cum Capacity	t.km	483.8XL1			4.98	2409.32			PM72001
		(ii) 14 cum Capacity	t.km		483.8XL1		5.71		2762.50		PM73001
		(iii) 10 Cum Capacity	t.km			483.8XL1	7.10			3434.98	PM74001
		For loading & Unloading time									
		(i) 18 cum Capacity	hour	6.451			2349.00	15153.40			PM6001
		(ii) 14 cum Capacity	hour		8.063		2108.00		16996.80		PM6002
		(iii) 10 Cum Capacity	hour			10.751	1891.00			20330.14	PM6003

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Smooth steel wheeled tandem roller for static and vibratory passages	hour	18.141	18.141	18.141	2110.00	38277.51	38277.51	38277.51	PM9001
			c) Material									
			Type-A									
			* Bitumen @ 22kg per 10sqm	tonne	22.550	22.550	22.550	57448.00	1295452.40	1295452.40	1295452.40	M-074
			Stone crushed aggregates 11.2 mm to 0.09 @ 0.27 cum per 10sqm	cum	276.750	276.750	276.750	452.95	125353.91	125353.91	125353.91	M-040
			or									
			Type-B									
			Bitumen @19 kg per 10 sqm	tonne	19.475	19.475	19.475	57448.00	1118799.80	1118799.80	1118799.80	M-074
			Stone crushed aggregates 13.2mm to 0.09mm @ 0.27 cum per 10sqm	cum	276.750	276.750	276.750	452.95	125353.91	125353.91	125353.91	M-041
			* Any one of the alternative may be adopted as per approved design									
			Type-A									
			Total cost(Without O.H&C.P.)						1810126.86	1818631.18	1832376.82	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		144810.15	181863.12	219885.22	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		195493.70	200049.43	205226.20	
			Cost for 10250 sqm = a+b+c+d+e						2150430.70	2200543.73	2257488.24	
			Rate per sqm = (a+b+c+d+e)/10250						209.80	214.69	220.24	
								Say	**209.80**	**214.70**	**220.20**	
			Type-B									
			Total cost(Without O.H&C.P.)						1633474.26	1641978.58	1655724.22	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		130677.94	164197.86	198686.91	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		176415.22	180617.64	185441.11	
			Cost for 10250 sqm = a+b+c+d+e						1940567.42	1986794.09	2039852.24	
			Rate per sqm = (a+b+c+d+e)/10250						189.32	193.83	199.01	
								Say	**189.30**	**193.80**	**199.00**	
5.09	**511**		**Seal Coat**									

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Providing and laying seal coat sealing the voids in a bituminous surface laid to the specified levels, grade and cross fall using Type A and B Seal coats									
		(i)	**Case-I: Type A**									
			Unit= sqm									
			Taking output= 10250sqm									
			a) Labour									
			Mate	day	0.240	0.240	0.240	444.00	106.56	106.56	106.56	L-12
			Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
			b) Machinery									
			Mechanical broom (2.1m sweeping width)	hour	3.051	3.051	3.051	834.00	2544.53	2544.53	2544.53	PM23001
			Air compressor 250 cfm	hour	3.051	3.051	3.051	496.00	1513.30	1513.30	1513.30	PM15001
			Bitumen pressure distributor (spraying width 4.5m)	hour	2.847	2.847	2.847	1382.00	3934.55	3934.55	3934.55	PM24001
			Hydraulic self propelled chip spreader	hour	8.429	8.429	8.429	1712.00	14430.45	14430.45	14430.45	PM32001
			Front end loader									
			(i) 3.1 cum Capacity	hour	0.563			3523.00	1983.45			PM5001
			(ii) 2.1 cum Capacity	hour		0.831		2121.00		1762.55		PM5002
			(iii) 1 Cum Capacity	hour			1.741	1454.00			2531.41	PM5003
			Tipper									
			For loading time									
			(i) 18 cum Capacity	hour	0.563			2349.00	1322.49			PM6001
			(ii) 14 cum Capacity	hour		0.831		2108.00		1751.75		PM6002
			(iii) 10 Cum Capacity	hour			1.741	1891.00			3292.23	PM6003
			For transportation									L1=1
			(i) 18 cum Capacity	t.km	202.95XL1			4.98	1010.69			PM72001
			(ii) 14 cum Capacity	t.km		202.95XL1		5.71		1158.84		PM73001
			(iii) 10 Cum Capacity	t.km			202.95XL1	7.10			1440.95	PM74001
			For Unloading time									
			(i) 18 cum Capacity	hour	8.429			2349.00	19799.72			PM6001
			(ii) 14 cum Capacity	hour		8.429		2108.00		17768.33		PM6002
			(iii) 10 Cum Capacity	hour			8.429	1891.00			15939.24	PM6003
			Smooth steel wheeled tandem roller for static and vibratory passages	hour	4.082	4.082	4.082	2110.00	8613.02	8613.02	8613.02	PM9001

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			c) Material									
			i) Bitumen @ 9.80 kg per 10 sqm	tonne	10.045	10.045	10.045	57448.00	577065.16	577065.16	577065.16	M-074
			Crushed stone chipping of 6.7 mm size defined as 100 percent passing 11.2mm sieve and retained on 2.36mm sieve applied @ 0.09 cum per 10 sqm	cum	92.250	92.250	92.250	452.95	41784.64	41784.64	41784.64	M-049
			Total cost(Without O.H&C.P.)						676676.56	675001.69	675764.04	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		54134.12	67500.17	81091.68	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		73081.07	74250.19	75685.57	
			Cost for 10250 sqm= a+b+c+d+e						803891.75	816752.04	832541.30	
			Rate per sqm = (a+b+c+d+e)/10250						78.43	79.68	81.22	
								Say	**78.40**	**79.70**	**81.20**	
		Note	Since seal coat is provided immediately over the bituminous layers, mechanical broom for cleaning has not been catered.									
5.09		**(ii)**	**Case-II : Type B**									
			Providing and laying of premix sand seal coat with HMP of appropriate capacity not less than 200 tonnes/hours using crushed stone chipping 6.7mm size and penetration bitumen of suitable grade.									
			Unit=sqm									
			Taking output= 7860 sqm									
			a) Labour									
			Mate	day	0.440	0.440	0.440	444.00	195.36	195.36	195.36	L-12
			Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
			Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
			b) Machinery									
			Hot mix plant									
			(i) HMP 200 TPH	hour	0.314			84145.00	26421.53			PM18001
			(ii) HMP 160 TPH	hour		0.393		66183.00		26009.92		PM18002
			(iii) HMP 120 TPH	hour			0.524	50039.00			26220.44	PM18003
			Mechanical broom (2.1m sweeping width)	hour	2.339	2.339	2.339	834.00	1950.73	1950.73	1950.73	PM23001
			Air compressor 250 cfm	hour	2.339	2.339	2.339	496.00	1160.14	1160.14	1160.14	PM15001

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Paver finisher hydrostatic with sensor control compatible with Hot mix plant									
		(i) Paver (240 HP)	hour	0.314			8144.00	2557.22			PM29001
		(ii) Paver (240 HP)	hour		0.393		8144.00		3200.59		PM29001
		(iii) Paver (174 HP)	hour			0.524	6436.00			3372.46	PM29002
		Electric generator									
		(i) 500 KVA	hour	0.314			5394.00	1693.72			PM22002
		(ii) 400 KVA	hour		0.393		4356.00		1711.91		PM22003
		(iii) 250 KVA	hour			0.524	3064.00			1605.54	PM22004
		Front end loader for feeding the plant									
		(i) 3.1 cum Capacity	hour	0.832			3523.00	2931.14			PM5001
		(ii) 2.1 cum Capacity	hour		1.230		2121.00		2608.83		PM5002
		(iii) 1 Cum Capacity	hour			2.572	1454.00			3739.69	PM5003
		Tipper for transportation									L1=1
		(i) 18 cum Capacity	t.km.	103.752XL1			4.98	516.68			PM72001
		(ii) 14 cum Capacity	t.km		103.752XL1		5.71		592.42		PM73001
		(iii) 10 Cum Capacity	t.km			103.752XL1	7.10			736.64	PM74001
		For loading & Unloading time									
		(i) 18 cum Capacity	hour	0.629			2349.00	1477.52			PM6001
		(ii) 14 cum Capacity	hour		0.786		2108.00		1656.89		PM6002
		(iii) 10 Cum Capacity	hour			1.048	1891.00			1981.77	PM6003
		Smooth steel wheeled tandem roller for static and vibratory passages	hour	2.087	2.087	2.087	2110.00	4403.57	4403.57	4403.57	PM9001
		c) Material									
		i) Bitumen @ 6.80 kg per 10 sqm	tonne	5.345	5.345	5.345	57448.00	307059.56	307059.56	307059.56	M-074
		Crushed stone chipping of 6.7mm size defined as passing 11.2mm sieve and retained on 2.6mm sieve applied @0.06 cum per 10 sqm	cum	47.160	47.160	47.160	452.95	21361.12	21361.12	21361.12	M-049
		* Any one of the alternative may be adopted asper approved design									

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Total cost(Without O.H&C.P.)						377001.29	377184.04	379060.01	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		30160.10	37718.40	45487.20	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		40716.14	41490.24	42454.72	
			Cost for 7860 sqm = a+b+c+d+e						447877.53	456392.69	467001.94	
			Rate per sqm = (a+b+c+d+e)/7860						56.98	58.07	59.42	
								Say	**57.00**	**58.10**	**59.40**	
5.10	**520**		**Supply of Stone aggregates for pavement course**									
			Supply of stone aggregates from approved sources conforming to physical requirement, specified in the respective specefied clauses, including royalties , fees, rents, collection, transportaion, stacking and testing and measured in cum as per clause 520									
			Competitive market rates to be ascertained. Altenatively rates for stone crushing given in chapter 1 may be adopted, if found economical. In case for supply of aggregates at site may be ascertained. Loading and unloading charges and cost of carriage may be added to the rates to arrive at the cost at site.									
5.11	**516**		**Mastic Asphalt**									
			Providing and laying 25 mm thick mastic asphalt wearing course with paving grade bitumen meeting the requirements given in table 500-39, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine grained hard stone chipping of 13.2 mm nominal size at the rate of 0.005 cum per 10sqm and at an approximate spacing of 10cm center to center in both directions, pressed into surface when the temperature of surfaces is not less than 1000c, protruding 1mm to 4mm over mastic surface, all complete as per clause 516.									

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Unit=sqm									
		Taking output=35 sqm									
		a) Labour									
		Mate	day	0.440	0.440	0.440	444.00	195.36	195.36	195.36	L-12
		Mazdoor	day	10.000	10.000	10.000	428.00	4280.00	4280.00	4280.00	L-13
		Mazdoor skilled	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
		b) Machinery									
		Mechanical broom (2.1m sweeping width)	hour	0.010	0.010	0.010	834.00	8.34	8.34	8.34	PM23001
		Air compressor 250 cfm	hour	0.010	0.010	0.010	496.00	4.96	4.96	4.96	PM15001
		Mastic cooker 1 tonne capacity	hour	3.000	3.000	3.000	555.00	1665.00	1665.00	1665.00	PM27001
		Bitumen boiler 1500 litres capacity	hour	3.000	3.000	3.000	592.00	1776.00	1776.00	1776.00	PM26001
		Tractor for towing and positioning of mastic cooker and bitumen boiler	hour	1.000	1.000	1.000	717.00	717.00	717.00	717.00	PM12001
		c) Material									
		Base mastic (without coarse aggregates)= 60 percent									
		Coarse aggregate (6.3mm to 13.2mm)= 40 percent									
		Proportion of material required for mastic asphalt with coarse aggregates (based on mix design by CRRI for a specific case)									
		i) Bitumen 85/25 or 30/40 @10.2 percent by weight of mix. 2 X 10.2/100=0.204	tonne	0.205	0.205	0.205	60920.00	12488.60	12488.60	12488.60	M-327
		ii) Fine aggregate passing 2.36mm and retained on 0.075mm sieve @31.9 percent by weight of mix = 2 X 31.9/100=0.638 tonnes= 0.638/1.625 = 0.39	cum	0.395	0.395	0.395	274.20	108.31	108.31	108.31	M-019
		iii) Lime stone dust filler with calcium content not less than 80 percent by weight of mix = 2 X 17.92/100=0.36	tonne	0.361	0.361	0.361	3222.77	1163.42	1163.42	1163.42	M-190

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Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			iv) Coarse aggregates 6.3mm to 13.2mm @ 40 percent by weight of mix = 2 X 40/100= 0.8 MT= 0.8/1.456= 0.55	cum	0.553	0.553	0.553	631.69	349.32	349.32	349.32	M-042
			v) Pre-Coated stone chips of 13.2 mm nominal size for skid resistance =35 X 0.005/10=0.018	cum	0.018	0.018	0.018	858.84	15.46	15.46	15.46	M-141
			vi) Bitumen for coating of chips @2 percent by weight= 0.018 X 1.456 X 2/100 = 0.0005 MT= 0.5kg	kg	0.510	0.510	0.510	60.92	31.07	31.07	31.07	M327/1000
			Total cost(Without O.H&C.P.)						23343.84	23343.84	23343.84	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		1867.51	2334.38	2801.26	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		2521.13	2567.82	2614.51	
			Cost for 35 sqm = a+b+c+d+e						27732.48	28246.05	28759.61	
			Rate per sqm= (a+b+c+d+e)/35						792.36	807.03	821.70	
								Say	**792.40**	**807.00**	**821.70**	
		Note	1. The rates for 50mm and 40mm thick layers may be worked out on pro-rata basis									
			2. Where tack coat is required to be provided before laying mastic asphalt, the same is required to be measured and paid separately.									
			3. The quantities of binder, filler and aggregates are for estimating purpose. Exact quantities shall be as per mix design.									
			4. This rate analysis is based on design made by CRRI for a specific case and is meant estimating purposes only. Actual design is required to be done for each case.									

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
5.12	512		**Slurry seal**									
			Providing and laying slurry seal consisting of a mixture of fine aggregates, portland cement filler, bituminous emulsion and water on a road surface including cleaning of surface, mixing of slurry seal in a suitable mobile plant, laying and compacting to provide even riding surface									
		(i)	**2-3mm thickness (Type-I)**									
			Unit=sqm									
			Taking output= 24000 sqm (60cum)									
			Taking density of 2.2 tonnes per cum									
			a) Labour									
			Mate	day	0.200	0.200	0.200	444.00	88.80	88.80	88.80	L-12
			Mazdoor	day	5.000	5.000	5.000	428.00	2140.00	2140.00	2140.00	L-13
			b) Machinery									
			Machanical broom (2.1m sweeping width)	hour	7.143	7.143	7.143	834.00	5957.26	5957.26	5957.26	PM23001
			Air compressor 250 cfm	hour	7.143	7.143	7.143	496.00	3542.93	3542.93	3542.93	PM15001
			Mobile slurry seal equipment	hour	6.579	6.579	6.579	3523.00	23177.82	23177.82	23177.82	PM41001
			Front end loader									
			(i) 3.1 Cum Capacity	hour	0.366			3523.00	1289.42			PM5001
			(ii) 2.1 cum capacity	hour		0.541		2121.00		1147.46		PM5002
			(iii) 1 cum capacity	hour			1.132	1454.00			1645.93	PM5003
			Tipper									
			Tipper for loading time									
			(i) 18 cum capacity	hour	0.366			2349.00	859.73			PM6001
			(ii) 14 cum capacity	hour		0.541		2108.00		1140.43		PM6002
			(iii) 10 cum capacity	hour			1.132	1891.00			2140.61	PM6003
			For transportation									L1=1
			(i) 18 cum capacity	t.km	132XL1			4.98	657.36			PM72001
			(ii) 14 cum capacity	t.km		132XL1		5.71		753.72		PM73001
			(iii) 10 cum capacity	t.km			132XL1	7.10			937.20	PM74001
			Tipper for unloading time									
			(i) 18 cum capacity	hour	6.579			2349.00	15454.07			PM6001

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(ii) 14 cum capacity	hour		6.579		2108.00		13868.53		PM6002
			(iii) 10 cum capacity	hour			6.579	1891.00			12440.89	PM6003
			Water tanker (speed @20km/hr and return speed @30km/hr and spreading speed @3 km/hr)									L1=1
			(i) 16kL capacity	hour	0.083xL1+3.2			1204.000	3952.732			PM11001
			(ii) 12 kL capacity	hour		0.111xL1+4.267		1030.000		4509.340		PM11002
			(iii) 6 kL capacity	hour			0.222xL1+8.533	789.000			6907.695	PM11003
			Pneumatic tyred roller with individual wheel load not exceeding 1.5 tonnes	hour	5.263	5.263	5.263	2102.00	11062.83	11062.83	11062.83	PM10001
			c) Material									
			Residual binder @13 percent of mix = 60 X 2.2 X 0.13	tonne	17.160	17.160	17.160	54349.00	932628.84	932628.84	932628.84	M-077
			Fine aggregate 3mm and below 85.5 percent of total mix, 60X2.2X0.855=112.860 tonnes. Taking density 1.5,= 112.860/1.5= 75.240 cum	cum	75.240	75.240	75.240	274.20	20630.81	20630.81	20630.81	M-019
			Filler @1.5 percent of total mix= 60X2.2X0.015	tonne	1.980	1.980	1.980	3222.77	6381.08	6381.08	6381.08	M-190
			Cost of water	kL	12.000	12.000	12.000	63.20	758.40	758.40	758.40	M-191
			Total cost(Without O.H&C.P.)						1028582.08	1027788.25	1030441.09	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		82286.57	102778.82	123652.93	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		111086.86	113056.71	115409.40	
			Cost for 24000 sqm= a+b+c+d+e						1221955.51	1243623.78	1269503.42	
			Rate per sqm= (a+b+c+d+e)/24000						50.91	51.82	52.90	
								Say	**50.90**	**51.80**	**52.90**	
5.12		**(ii)**	**4-6mm thickness (Type-II)**									
			Unit=sqm									
			Taking output= 16000 sqm (80cum)									

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		a) Labour									
		Mate	day	0.240	0.240	0.240	444.000	106.560	106.560	106.560	L-12
		Mazdoor	day	6.000	6.000	6.000	428.000	2568.000	2568.000	2568.000	L-13
		b) Machinery									
		Machanical broom (2.1m sweeping width)	hour	4.762	4.762	4.762	834.000	3971.508	3971.508	3971.508	PM23001
		Air compressor 250 cfm	hour	4.762	4.762	4.762	496.000	2361.952	2361.952	2361.952	PM15001
		Mobile slurry seal equipment	hour	4.386	4.386	4.386	3523.000	15451.878	15451.878	15451.878	PM41001
		Front end loader									
		(i) 3.1 Cum Capacity	hour	0.488			3523.000	1719.224			PM5001
		(ii) 2.1 cum capacity	hour		0.721		2121.000		1529.241		PM5002
		(iii) 1 cum capacity	hour			1.509	1454.000			2194.086	PM5003
		Tipper									
		Tipper for loading time									
		(i) 18 cum capacity	hour	0.488			2349.000	1146.312			PM6001
		(ii) 14 cum capacity	hour		0.721		2108.000		1519.868		PM6002
		(iii) 10 cum capacity	hour			1.509	1891.000			2853.519	PM6003
		For transportation									Li=1
		(i) 18 cum capacity	t.km	176XL1			4.980	876.480			PM72001
		(ii) 14 cum capacity	t.km		176XL1		5.710		1004.960		PM73001
		(iii) 10 cum capacity	t.km			176XL1	7.100			1249.600	PM74001
		Tipper for unloading time									
		(i) 18 cum capacity	hour	4.386			2349.000	10302.714			PM6001
		(ii) 14 cum capacity	hour		4.386		2108.000		9245.688		PM6002
		(iii) 10 cum capacity	hour			4.386	1891.000			8293.926	PM6003
		Water tanker (speed @20km/hr and return speed @30km/hr and spreading speed @3 km/hr)									Li=1
		(i) 16kL capacity	hour	0.083XL1+2.133			1204.000	2668.064			PM11001
		(ii) 12 kL capacity	hour		0.111 XL1+2.844		1030.000		3043.650		PM11002
		(iii) 6 kL capacity	hour			0.222XL1+5.689	789.000			4663.779	PM11003

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Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Pneumatic tyred roller with individual wheel load not exceeding 1.5 tonnes	hour	3.509	3.509	3.509	2102.000	7375.918	7375.918	7375.918	PM10001
			c) Material									
			Residual binder @10.5 percent of mix = 80 X 2.2 X 0.105	tonne	18.480	18.480	18.480	54349.000	1004369.520	1004369.520	1004369.520	M-077
			Fine aggregate 4.75mm and below 88 percent of total mix, 80 X 2.2 X 0.88 =154.88 tonnes. Taking density 1.5,= 154.88/1.5= 103.253cum	cum	103.253	103.253	103.253	452.950	46768.446	46768.446	46768.446	M-029
			Filler @1.5 percent of total mix= 80X2.2X0.015	tonne	2.640	2.640	2.640	3222.77	8508.113	8508.113	8508.113	M-190
			Cost of water	kL	12.000	12.000	12.000	63.200	758.400	758.400	758.400	M-191
			Total cost(Without O.H&C.P.)						1108953.089	1108583.702	1111495.205	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		88716.247	110858.370	133379.425	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		119766.934	121944.207	124487.463	
			Cost for 16000 sqm= a+b+c+d+e						1317436.270	1341386.280	1369362.093	
			Rate per sqm= (a+b+c+d+e)/16000						82.340	83.837	85.585	
								Say	**82.30**	**83.80**	**85.60**	
5.12		**(iii)**	**6-8mm thickness (Type-III)**									
			Unit=sqm									
			Taking output= 12000 sqm (84cum)									
			a) Labour									
			Mate	day	0.280	0.280	0.280	444.00	124.32	124.32	124.32	L-12
			Mazdoor	day	7.000	7.000	7.000	428.00	2996.00	2996.00	2996.00	L-13
			b) Machinery									
			Machanical broom (2.1m sweeping width)	hour	3.571	3.571	3.571	834.00	2978.21	2978.21	2978.21	PM23001
			Air compressor 250 cfm	hour	3.571	3.571	3.571	496.00	1771.22	1771.22	1771.22	PM15001
			Mobile slurry seal equipment	hour	3.289	3.289	3.289	3523.00	11587.15	11587.15	11587.15	PM41001
			Front end loader									
			(i) 3.1 Cum Capacity	hour	0.512			3523.00	1803.78			PM5001
			(ii) 2.1 cum capacity	hour		0.757		2121.00		1605.60		PM5002
			(iii) 1 cum capacity	hour			1.585	1454.00			2304.59	PM5003
			Tipper									
			Tipper for loading time									

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		(i) 18 cum capacity	hour	0.512			2349.00	1202.69			PM6001
		(ii) 14 cum capacity	hour		0.757		2108.00		1595.76		PM6002
		(iii) 10 cum capacity	hour			1.585	1891.00			2997.24	PM6003
		For transportation									LI=1
		(i) 18 cum capacity	t.km	184.8XL1			4.98	920.30			PM72001
		(ii) 14 cum capacity	t.km		184.8XL1		5.71		1055.21		PM73001
		(iii) 10 cum capacity	t.km			184.8XL1	7.10			1312.08	PM74001
		Tipper for unloading time									
		(i) 18 cum capacity	hour	3.289			2349.00	7725.86			PM6001
		(ii) 14 cum capacity	hour		3.289		2108.00		6933.21		PM6002
		(iii) 10 cum capacity	hour			3.289	1891.00			6219.50	PM6003
		Water tanker (speed @20km/hr and return speed @30km/hr and spreading speed @3 km/hr)									LI=1
		(i) 16kL capacity	hour	0.083XL1+ 1.600			1204.000	2026.33			PM11001
		(ii) 12 kL capacity	hour		0.111XL1+ 2.133		1030.000		2311.320		PM11002
		(iii) 6 kL capacity	hour			0.222XL1+ 4.267	789.000			3541.821	PM11003
		Pneumatic tyred roller with individual wheel load not exceeding 1.5 tonnes	hour	2.632	2.632	2.632	2102.00	5532.46	5532.46	5532.46	PM10001
		c) Material									
		Residual binder @9 percent of mix = 84 X 2.2 X 0.09	tonne	16.632	16.632	16.632	54349.00	903932.57	903932.57	903932.57	M-077
		Fine aggregate 2.36mm and below 89.5 percent of total mix, 84 X 2.2 X 0.895 =165.396 tonnes. Taking density 1.5,= 165.396/1.5= 110.264 cum	cum	110.264	110.264	110.264	274.20	30234.39	30234.39	30234.39	M-019
		Filler @1.5 percent of total mix= 84X2.2X0.015	tonne	2.772	2.772	2.772	3222.77	8933.52	8933.52	8933.52	M-190
		Cost of water	kL	12.000	12.000	12.000	63.20	758.40	758.40	758.40	M-191
		Total cost(Without O.H&C.P.)						982527.20	982349.33	985223.46	
		d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		78602.18	98234.93	118226.82	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		106112.94	108058.43	110345.03	

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Cost for 12000 sqm= a+b+c+d+e						1167242.31	1188642.69	1213795.30	
			Rate per sqm= (a+b+c+d+e)/12000						97.27	99.05	101.15	
								Say	**97.30**	**99.10**	**101.10**	
		Note	Tack coat, if required to be provided, before laying slurry seal may be measured and paid separately									
5.13	**519**		**Recycling of Bituminous Pavement with Central Recycling Plant**									
			Recycling pavement by cold milling of existing bituminous layers, planning the surface after cold milling, reclaiming excavated material to the extent of 30 percent of the required quantity, hauling and stock piling the reclaimed material near the central recycling plant after carrying out necessary checks and evaluation, adding fresh material including rejuvenators as required , mixing in a hot mix plant, transporting and laying at site and compacting to the required the grade , level and the thickness, all as specified in clause 519.									
			Unit= cum									
			Taking output = 120 cum									
		A	**(i) Using by bituminous Macadam**									
			Grading I									
			a) Labour									
			Mate	day	0.280	0.280	0.280	444.00	124.32	124.32	124.32	L-12
			Mazdoor	day	4.000	4.000	4.000	428.00	1712.00	1712.00	1712.00	L-13
			Mazdoor skilled	day	3.000	3.000	3.000	541.00	1623.00	1623.00	1623.00	L-15
			b) Machinery									
			Milling machine									
			Milling machine with 2 metre drum width	hour	5.926			10007.00	59301.48			PM47004
			Milling machine with 1.3 meter Drum width	hour		9.117		6876.00		62688.49		PM47003
			Milling machine with 1.2 metre drum width	hour			9.877	4779.00			47202.18	PM47002

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Bitumen pressure distributor(Spraying width 4.5m)	hour	0.667	0.667	0.667	1382.00	921.79	921.79	921.79	PM24001
		Batch Type Hot Mix Plant									
		(i) HMP 200 TPH	hour	1.840			84145.00	154826.80			PM18001
		(ii) HMP 160 TPH	hour		2.300		66183.00		152220.90		PM18002
		(iii) HMP 120 TPH	hour			3.067	50039.00			153469.61	PM18003
		Mechanical broom (2.1 m sweeping width)	hour	0.571	0.571	0.571	834.00	476.21	476.21	476.21	PM23001
		Air compressor 250 cfm	hour	0.571	0.571	0.571	496.00	283.22	283.22	283.22	PM15001
		Paver finsher hydrostatic with sensor control compatible with Hot mix plant									
		(i) Paver (240HP)	hour	1.840			8144.00	14984.96			PM29001
		(ii)Paver (240HP)	hour		2.300		8144.00		18731.20		PM29001
		(iii) Paver (174 HP)	hour			3.067	6436.00			19739.21	PM29002
		Electric generator									
		(i) 500 kVA	hour	1.840			5394.00	9924.96			PM22002
		(ii) 400 KVA	hour		2.300		4356.00		10018.80		PM22003
		(iii) 250 KVA	hour			3.067	3064.00			9397.29	PM22004
		Front end loader for feeding the plant									
		(i) 3.1 Cum Capacity	hour	1.868			3523.00	6580.96			PM5001
		(ii) 2.1 cum Capacity	hour		2.762		2121.00		5858.20		PM5002
		(iii) 1 Cum capacity	hour			5.775	1454.00			8396.85	PM5003
		Tipper									
		For transportation plant to site									L1=1
		(i) 18 cum capacity	t.km	276XL1			4.98	1374.48			PM72001
		(ii) 14 cum capacity	t.km		276XL1		5.71		1575.96		PM73001
		(iii) 10 cum capacity	t.km			276XL1	7.10			1959.60	PM74001
		Tipper for loading & unloading time									
		(i) 18 cum capacity	hour	3.680			2349.00	8644.32			PM6001
		(ii) 14 cum capacity	hour		4.600		2108.00		9696.80		PM6002
		(iii) 10 cum capacity	hour			6.133	1891.00			11597.50	PM6003
		For transportation of dismantle material site to plant									L1=1
		(i) 18 cum capacity	t.km	276XL1			4.98	1374.48			PM72001
		(ii) 14 cum capacity	t.km		276XL1		5.71		1575.96		PM73001
		(iii) 10 cum capacity	t.km			276XL1	7.10			1959.60	PM74001

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Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Tipper for loading time									
		(i) 18 cum capacity	hour	5.926			2349.00	13920.17			PM6001
		(ii) 14 cum capacity	hour		9.117		2108.00		19218.64		PM6002
		(iii) 10 cum capacity	hour			9.877	1891.00			18677.41	PM6003
		Smooth steel wheeled tandem roller for static and vibratory passaes	hour	10.619	10.619	10.619	2110.00	22406.09	22406.09	22406.09	PM9001
		c) Material									
		i) Bitumen									
		A bitumen content is 3.3 percent bitumen weight of mix. For reclaimed material, fresh material will be required to extent of 60 percent of normal requiement.									
		In a mix of 276 tonnes, 82.8 tonne is reclaimed and balance 193.2 tonne is fresh mix.									
		Bitumen required for reclaimed mix of 82.8 tonne @60 percent= 82.8 X 0.60 X 0.033=1.639	tonne	1.639	1.639	1.639	57448.00	94157.27	94157.27	94157.27	M-074
		Bitumen required for fresh mix of 193.2 tonnes= 193.2 tonnes= 193.2 X 0.033= 6.376	tonne	6.376	6.376	6.376	57448.00	366288.45	366288.45	366288.45	M-074
		ii) Aggregates									
		Percentage of mix requiring fresh aggregates- 70 percent									
		Weight of fresh mix= 276 X 0.70= 193.2 tonne									
		Weight of fresh aggregate in the mix= 193.2 X 0.967= 186.824 tonne									
		Taking average density of 1.5 tonnes/cum, total volume of aggregate = 124.550 cum									
		Size wise requirement of fresh aggregates									
		*** Grading I (40 mm nominal size)**									
		37.5-25 mm 15 percent	cum	18.683	18.683	18.683	1178.00	22008.57	22008.57	22008.57	M-048

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Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			25-10 mm 45 percent	cum	56.048	56.048	56.048	963.12	53980.95	53980.95	53980.95	M-045
			10-5mm 25 percent	cum	31.138	31.138	31.138	631.69	19669.56	19669.56	19669.56	M-039
			5mm and below 15 percent	cum	18.683	18.683	18.683	452.95	8462.46	8462.46	8462.46	M-029
			Credit for milled material for use (70 percent), Considering 20 percent cost as salvage value of above average material rate of aggregate	cum	124.550	124.550	124.550	806.44	-20088.42	-20088.42	-20088.42	J=0.2*F*I
			* Any one of the alternative may be adopted as per approved design									
			Total cost(Without O.H&C.P.)						842958.11	853610.44	844424.74	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		67436.65	85361.04	101330.97	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		91039.48	93897.15	94575.57	
			Cost for 120 cum= a+b+c+d+e						1001434.23	1032868.63	1040331.28	
			Rate per cum= (a+b+c+d+e)/120						8345.29	8607.24	8669.43	
								Say	**8345.30**	**8607.20**	**8669.40**	
		A	**(ii) Using by bituminous Macadam**									
			Grading II									
			a) Labour									
			Mate	day	0.280	0.280	0.280	444.00	124.32	124.32	124.32	L-12
			Mazdoor	day	4.000	4.000	4.000	428.00	1712.00	1712.00	1712.00	L-13
			Mazdoor skilled	day	3.000	3.000	3.000	541.00	1623.00	1623.00	1623.00	L-15
			b) Machinery									
			Milling machine									
			Milling machine with 2 metre drum width	hour	5.926			10007.00	59301.48			PM47004
			Milling machine with 1.3 meter Drum width	hour		9.117		6876.00		62688.49		PM47003
			Milling machine with 1.2 metre drum width	hour			9.877	4779.00			47202.18	PM47002
			Bitumen pressure distributor(Spraying width 4.5m)	hour	0.667	0.667	0.667	1382.00	921.79	921.79	921.79	PM24001
			Batch Type Hot Mix Plant									
			(i) HMP 200 TPH	hour	1.840			84145.00	154826.80			PM18001
			(ii) HMP 160 TPh	hour		2.300		66183.00		152220.90		PM18002
			(iii) HMP 120 TPH	hour			3.067	50039.00			153469.61	PM18003
			Mechanical broom (2.1 m sweeping width)	hour	0.571	0.571	0.571	834.00	476.21	476.21	476.21	PM23001
			Air compressor 250 cfm	hour	0.571	0.571	0.571	496.00	283.22	283.22	283.22	PM15001

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Paver finsher hydrostatic with sensor control compatible with hot mix plant									
			(i) Paver (240HP)	hour	1.840			8144.00	14984.96			PM29001
			(ii)Paver (240HP)	hour		2.300		8144.00		18731.20		PM29001
			(iii) Paver (174 HP)	hour			3.067	6436.00			19739.21	PM29002
			Electric generator									
			(i) 500 kVA	hour	1.840			5394.00	9924.96			PM22002
			(ii) 400 KVA	hour		2.300		4356.00		10018.80		PM22003
			(iii) 250 KVA	hour			3.067	3064.00			9397.29	PM22004
			Front end loader for feeding the pant									
			(i) 3.1 Cum Capacity	hour	2.196			3523.00	7736.51			PM5001
			(ii) 2.1 cum Capacity	hour		3.246		2121.00		6884.77		PM5002
			(iii) 1 Cum capacity	hour			6.787	1454.00			9868.30	PM5003
			Tipper									
			For transportation plant to site									L1=1
			(i) 18 cum capacity	t.km	276XL1			4.98	1374.48			PM72001
			(ii) 14 cum capacity	t.km		276XL1		5.71		1575.96		PM73001
			(iii) 10 cum capacity	t.km			276XL1	7.10			1959.60	PM74001
			Tipper for loading & unloading time									
			(i) 18 cum capacity	hour	3.680			2349.00	8644.32			PM6001
			(ii) 14 cum capacity	hour		4.600		2108.00		9696.80		PM6002
			(iii) 10 cum capacity	hour			6.133	1891.00			11597.50	PM6003
			For transportation of dismantle material site to plant									
			(i) 18 cum capacity	t.km	276XL1			4.98	1374.48			PM72001
			(ii) 14 cum capacity	t.km		276XL1		5.71		1575.96		PM73001
			(iii) 10 cum capacity	t.km			276XL1	7.10			1959.60	PM74001
			Tipper for loading time									
			(i) 18 cum capacity	hour	5.926			2349.00	13920.17			PM6001
			(ii) 14 cum capacity	hour		9.117		2108.00		19218.64		PM6002
			(iii) 10 cum capacity	hour			9.877	1891.00			18677.41	PM6003
			Smooth steel wheeled tandem roller for static and vibratory passaes	hour	10.619	10.619	10.619	2110.00	22406.09	22406.09	22406.09	PM9001

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		c) Material									
		i) Bitumen									
		A bitumen content is 3.4 percent bitumen weight of mix. For reclaimed material, fresh material will be required to extent of 60percent of normal requiement.									
		In a mix of 276 tonnes, 82.8 tonne is reclaimed and balance 193.2 tonne is fresh mix.									
		Bitumen required for reclaimed mix of 82.8 tonne @60 percent= 82.8 X 0.60 X 0.034=1.689	tonne	1.689	1.689	1.689	57448.00	97029.67	97029.67	97029.67	M-074
		Bitumen required fro fresh mix of 193.2 tonnes= 193.2 tonnes= 193.2 X 0.034= 6.569	tonne	6.569	6.569	6.569	57448.00	377375.91	377375.91	377375.91	M-074
		ii) Aggregates									
		Percentage of mix requiring fresh aggregates- 70 percent									
		Weight of fresh mix= 276 X 0.70= 193.2 tonne									
		Weight of fresh aggregate in the mix= 193.2 X 0.966= 186.631 tonne									
		Taking average density of 1.5 tonnes/cum, total volume of aggregate = 124.421 cum									
		Size wise requirement of fresh aggregates									
		*** Grading II (19 mm nominal size)**									
		25-10 mm 40 percent	cum	49.768	49.768	49.768	963.12	47932.56	47932.56	47932.56	M-045
		10-5mm 40 percent	cum	49.768	49.768	49.768	631.69	31437.95	31437.95	31437.95	M-039
		5mm and below 20 percent	cum	24.884	24.884	24.884	452.95	11271.21	11271.21	11271.21	M-029

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Credit for milled material for use (70 percent), Considering 20 percent cost as salvage value of above average material rate of aggregate	cum	124.421	124.421	124.421	682.59	-16985.62	-16985.62	-16985.62	J=0.2*F*I
			* Any one of the alternative may be adopted as per approved design									
			Total cost(Without O.H&C.P.)						847696.47	858219.82	849479.01	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		67815.72	85821.98	101937.48	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		91551.22	94404.18	95141.65	
			Cost for 120 cum= a+b+c+d+e						1007063.41	1038445.98	1046558.14	
			Rate per cum= (a+b+c+d+e)/120						8392.20	8653.72	8721.32	
								Say	**8392.20**	**8653.70**	**8721.30**	
		B	**(i) Using by Dense Graded bituminous macadam**									
			Grading I									
			a) Labour									
			Mate	day	0.280	0.280	0.280	444.00	124.32	124.32	124.32	L-12
			Mazdoor	day	4.000	4.000	4.000	428.00	1712.00	1712.00	1712.00	L-13
			Mazdoor skilled	day	3.000	3.000	3.000	541.00	1623.00	1623.00	1623.00	L-15
			b) Machinery									
			Milling machine									
			Milling machine with 2 metre drum width	hour	5.926			10007.00	59301.48			PM47004
			Milling machine with 1.3 meter Drum width			9.117		6876.00		62688.49		PM47003
			Milling machine with 1.2 metre drum width				9.877	4779.00			47202.18	PM47002
			Bitumen pressure distributor(Spraying width 4.5m)	hour	0.667	0.667	0.667	1382.00	921.79	921.79	921.79	PM24001
			Batch Type Hot Mix Plant									
			(i) HMP 200 TPH	hour	1.840			84145.00	154826.80			PM18001
			(ii) HMP 160 TPh	hour		2.300		66183.00		152220.90		PM18002
			(iii) HMP 120 TPH	hour			3.067	50039.00			153469.61	PM18003
			Mechanical broom (2.1 m sweeping width)	hour	0.571	0.571	0.571	834.00	476.21	476.21	476.21	PM23001
			Air compressor 250 cfm	hour	0.571	0.571	0.571	496.00	283.22	283.22	283.22	PM15001
			Paver finsher hydrostatic with sensor control compatible with hot mix plant									
			(i) Paver (240HP)	hour	1.840			8144.00	14984.96			PM29001

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		(ii)Paver (240HP)	hour		2.300		8144.00		18731.20		PM29001
		(iii) Paver (174 HP)	hour			3.067	6436.00			19739.21	PM29002
		Electric generator									
		(i) 500 kVA	hour	1.840			5394.00	9924.96			PM22002
		(ii) 400 KVA	hour		2.300		4356.00		10018.80		PM22003
		(iii) 250 KVA	hour			3.067	3064.00			9397.29	PM22004
		Front end loader for feeding the plant									
		(i) 3.1 Cum Capacity	hour	1.840			3523.00	6482.32			PM5001
		(ii) 2.1 cum Capacity	hour		2.300		2121.00		4878.30		PM5002
		(iii) 1 Cum capacity	hour			3.642	1454.00			5295.47	PM5003
		Tipper									
		For transportation plant to site									L1=1
		(i) 18 cum capacity	t.km	276XL1			4.98	1374.48			PM72001
		(ii) 14 cum capacity	t.km		276XL1		5.71		1575.96		PM73001
		(iii) 10 cum capacity	t.km			276XL1	7.10			1959.60	PM74001
		Tipper for loading & unloading time									
		(i) 18 cum capacity	hour	3.680			2349.00	8644.32			PM6001
		(ii) 14 cum capacity	hour		4.600		2108.00		9696.80		PM6002
		(iii) 10 cum capacity	hour			6.133	1891.00			11597.50	PM6003
		For transportation of dismantle material site to plant									L1=1
		(i) 18 cum capacity	t.km	276XL1			4.98	1374.48			PM72001
		(ii) 14 cum capacity	t.km		276XL1		5.71		1575.96		PM73001
		(iii) 10 cum capacity	t.km			276XL1	7.10			1959.60	PM74001
		Tipper for loading time									
		(i) 18 cum capacity	hour	5.926			2349.00	13920.17			PM6001
		(ii) 14 cum capacity	hour		9.117		2108.00		19218.64		PM6002
		(iii) 10 cum capacity	hour			9.877	1891.00			18677.41	PM6003
		Smooth steel wheeled tandem roller for static and vibratory passaes	hour	10.619	10.619	10.619	2110.00	22406.09	22406.09	22406.09	PM9001
		c) Material									
		i) Bitumen									

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		A bitumen content is 4 percent bitumen weight of mix. For reclaimed material, fresh bitumen will be required to extent of 60 percent of normal requiement.									
		In a mix of 276 tonnes, 82.8 tonne is reclaimed and balance 193.2 tonne is fresh mix.									
		Bitumen required for reclaimed mix of 82.8 tonne @60 percent= 82.8 X 0.60 X 0.04=1.987	tonne	1.987	1.987	1.987	57448.00	114149.18	114149.18	114149.18	M-074
		Bitumen required for fresh mix of 193.2 tonnes= 193.2 tonnes= 193.2 X 0.04= 7.728	tonne	7.728	7.728	7.728	57448.00	443958.14	443958.14	443958.14	M-074
		ii) Aggregates									
		Percentage of mix requiring fresh aggregates- 70 percent									
		Weight of fresh mix= 276 X 0.70= 193.2 tonne									
		Weight of fresh aggregate in the mix= 193.2 X 0.96= 185.472 tonne									
		Taking average density of 1.5 tonnes/cum, total volume of aggregate = 123.648 cum									
		Size wise requirement of fresh aggregates									
		*** Grading I (40mm nominal size)**									
		37.5-25mm 22 percent	cum	27.203	27.203	27.203	1178.00	32045.13	32045.13	32045.13	M-048
		25-10mm 13 percent	cum	16.074	16.074	16.074	963.12	15481.19	15481.19	15481.19	M-045
		10-4.75mm 19 percent	cum	23.493	23.493	23.493	631.69	14840.29	14840.29	14840.29	M-039
		4.75mm and below 44 percent	cum	54.405	54.405	54.405	274.20	14917.85	14917.85	14917.85	M-022
		Filler @2 % of weight of aggregates	tonnes	5.520	5.520	5.520	3222.77	17789.69	17789.69	17789.69	M-190

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Credit for milled material for use (70 percent), Considering 20 percent cost as salvage value of above average material rate of aggregate	cum	123.648	123.648	123.648	761.75	-18837.83	-18837.83	-18837.83	J=0.2*F*I
			* Any one of the alternative may be adopted as per approved design									
			Total cost(Without O.H&C.P.)						932724.25	942495.33	931188.15	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		74617.94	94249.53	111742.58	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		100734.22	103674.49	104293.07	
			Cost for 120 cum= a+b+c+d+e						1108076.41	1140419.35	1147223.80	
			Rate per cum= (a+b+c+d+e)/120						9233.97	9503.49	9560.20	
								Say	**9234.00**	**9503.50**	**9560.20**	
		B	**(ii) Using by Dense Graded bituminous macadam**									
			Grading II									
			a) Labour									
			Mate	day	0.280	0.280	0.280	444.00	124.32	124.32	124.32	L-12
			Mazdoor	day	4.000	4.000	4.000	428.00	1712.00	1712.00	1712.00	L-13
			Mazdoor skilled	day	3.000	3.000	3.000	541.00	1623.00	1623.00	1623.00	L-15
			b) Machinery									
			Milling machine									
			Milling machine with 2 metre drum width	hour	5.926			10007.00	59301.48			PM47004
			Milling machine with 1.3 meter Drum width	hour		9.117		6876.00		62688.49		PM47003
			Milling machine with 1.2 metre drum width	hour			9.877	4779.00			47202.18	PM47002
			Bitumen pressure distributor(Spraying width 4.5m)	hour	0.667	0.667	0.667	1382.00	921.79	921.79	921.79	PM24001
			Batch Type Hot Mix Plant									
			(i) HMP 200 TPH	hour	1.840			84145.00	154826.80			PM18001
			(ii) HMP 160 TPH	hour		2.300		66183.00		152220.90		PM18002
			(iii) HMP 120 TPH	hour			3.067	50039.00			153469.61	PM18003
			Mechanical broom (2.1 m sweeping width)	hour	0.571	0.571	0.571	834.00	476.21	476.21	476.21	PM23001
			Air compressor 250 cfm	hour	0.571	0.571	0.571	496.00	283.22	283.22	283.22	PM15001
			Paver finsher hydrostatic with sensor control compatible with hot mix plant									

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		(i) Paver (240HP)	hour	1.840			8144.00	14984.96			PM29001
		(ii)Paver (240HP)	hour		2.300		8144.00		18731.20		PM29001
		(iii) Paver (174 HP)	hour			3.067	6436.00			19739.21	PM29002
		Electric generator									
		(i) 500 kVA	hour	1.840			5394.00	9924.96			PM22002
		(ii) 400 KVA	hour		2.300		4356.00		10018.80		PM22003
		(iii) 250 KVA	hour			3.067	3064.00			9397.29	PM22004
		Front end loader for feeding the pant									
		(i) 3.1 Cum Capacity	hour	2.127			3523.00	7493.42			PM5001
		(ii) 2.1 cum Capacity	hour		3.145		2121.00		6670.55		PM5002
		(iii) 1 Cum capacity	hour			6.575	1454.00			9560.05	PM5003
		Tipper									
		For transportation plant to site									LI=1
		(i) 18 cum capacity	t.km	276XL1			4.98	1374.48			PM72001
		(ii) 14 cum capacity	t.km		276XL1		5.71		1575.96		PM73001
		(iii) 10 cum capacity	t.km			276XL1	7.10			1959.60	PM74001
		Tipper for loading & unloading time									
		(i) 18 cum capacity	hour	3.680			2349.00	8644.32			PM6001
		(ii) 14 cum capacity	hour		4.600		2108.00		9696.80		PM6002
		(iii) 10 cum capacity	hour			6.133	1891.00			11597.50	PM6003
		For transportation of dismantle material site to plant									LI=1
		(i) 18 cum capacity	t.km	276XL1			4.98	1374.48			PM72001
		(ii) 14 cum capacity	t.km		276XL1		5.71		1575.96		PM73001
		(iii) 10 cum capacity	t.km			276XL1	7.10			1959.60	PM74001
		Tipper for loading time									
		(i) 18 cum capacity	hour	5.926			2349.00	13920.17			PM6001
		(ii) 14 cum capacity	hour		9.117		2108.00		19218.64		PM6002
		(iii) 10 cum capacity	hour			9.877	1891.00			18677.41	PM6003
		Smooth steel wheeled tandem roller for static and vibratory passaes	hour	10.619	10.619	10.619	2110.00	22406.09	22406.09	22406.09	PM9001
		c) Material									
		i) Bitumen									

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		A bitumen content is 4.5 percent bitumen weight of mix. For reclaimed material, fresh material will be required to extent of 60percent of normal requiement.									
		In a mix of 276 tonnes, 82.8 tonne is reclaimed and balance 193.2 tonne is fresh mix.									
		Bitumen required for reclaimed mix of 82.8 tonne @60 percent= 82.8 X 0.60 X 0.045=2.236 tonne	tonne	2.236	2.236	2.236	57448.00	128453.73	128453.73	128453.73	M-074
		Bitumen required for fresh mix of 193.2 tonnes= 193.2 tonnes= 193.2 X 0.045=8.694 tonne.	tonne	8.694	8.694	8.694	57448.00	499452.91	499452.91	499452.91	M-074
		ii) Aggregates									
		Percentage of mix requiring fresh aggregates- 70 percent									
		Weight of fresh mix= 276 X 0.70= 193.2 tonne									
		Weight of fresh aggregate in the mix= 193.2 X 0.955= 184.506 tonne									
		Taking average density of 1.5 tonnes/cum, total volume of aggregate = 123.004 cum									
		Size wise requirement of fresh aggregates									
		*** Grading II (19mm nominal size)**									
		25-10mm 30percent	cum	36.901	36.901	36.901	963.12	35540.09	35540.09	35540.09	M-045
		10-5mm 28 percent	cum	34.441	34.441	34.441	631.69	21756.04	21756.04	21756.04	M-039
		5mm and below 40 percent	cum	49.202	49.202	49.202	452.95	22286.05	22286.05	22286.05	M-029
		Filler @2 % of weight of aggregates	tonnes	5.520	5.520	5.520	3222.77	17789.69	17789.69	17789.69	M-190

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Credit for milled material for use (70 percent), Considering 20 percent cost as salvage value of above average material rate of aggregate	cum	123.004	123.004	123.004	682.59	-16792.18	-16792.18	-16792.18	J=0.2*F*I
			* Any one of the alternative may be adopted as per approved design									
			Total cost(Without O.H&C.P.)						1007878.04	1018430.25	1009595.41	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		80630.24	101843.03	121151.45	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		108850.83	112027.33	113074.69	
			Cost for 120 cum= a+b+c+d+e						1197359.11	1232300.60	1243821.55	
			Rate per cum= (a+b+c+d+e)/120						9977.99	10269.17	10365.18	
								Say	**9978.00**	**10269.20**	**10365.20**	
		C	**(i) Using bituminous concrete**									
			Grading I									
			a) Labour									
			Mate	day	0.280	0.280	0.280	444.00	124.32	124.32	124.32	L-12
			Mazdoor	day	4.000	4.000	4.000	428.00	1712.00	1712.00	1712.00	L-13
			Mazdoor skilled	day	3.000	3.000	3.000	541.00	1623.00	1623.00	1623.00	L-15
			b) Machinery									
			Milling machine									
			Milling machine with 2 metre drum width	hour	5.926			10007.00	59301.48			PM47004
			Milling machine with 1.3 meter Drum width	hour		9.117		6876.00		62688.49		PM47003
			Milling machine with 1.2 metre drum width	hour			9.877	4779.00			47202.18	PM47002
			Bitumen pressure distributor(Spraying width 4.5m)	hour	0.667	0.667	0.667	1382.00	921.79	921.79	921.79	PM24001
			Batch Type Hot Mix Plant									
			(i) HMP 200 TPH	hour	1.840			84145.00	154826.80			PM18001
			(ii) HMP 160 TPH	hour		2.300		66183.00		152220.90		PM18002
			(iii) HMP 120 TPH	hour			3.067	50039.00			153469.61	PM18003
			Mechanical broom (2.1 m sweeping width)	hour	0.571	0.571	0.571	834.00	476.21	476.21	476.21	PM23001
			Air compressor 250 cfm	hour	0.571	0.571	0.571	496.00	283.22	283.22	283.22	PM15001
			Paver finsher hydrostatic with sensor control compatible with hot mix plant									
			(i) Paver (240HP)	hour	1.840			8144.00	14984.96			PM29001

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		(ii)Paver (240HP)	hour		2.300		8144.00		18731.20		PM29001
		(iii) Paver (174 HP)	hour			3.067	6436.00			19739.21	PM29002
		Electric generator									
		(i) 500 kVA	hour	1.840			5394.00	9924.96			PM22002
		(ii) 400 KVA	hour		2.300		4356.00		10018.80		PM22003
		(iii) 250 KVA	hour			3.067	3064.00			9397.29	PM22004
		Front end loader for feeding the pant									
		(i) 3.1 Cum Capacity	hour	2.112			3523.00	7440.58			PM5001
		(ii) 2.1 cum Capacity	hour		3.122		2121.00		6621.76		PM5002
		(iii) 1 Cum capacity	hour			6.527	1454.00			9490.26	PM5003
		Tipper									
		For transportation plant to site									L1=1
		(i) 18 cum capacity	t.km	276XL1			4.98	1374.48			PM72001
		(ii) 14 cum capacity	t.km		276XL1		5.71		1575.96		PM73001
		(iii) 10 cum capacity	t.km			276XL1	7.10			1959.60	PM74001
		Tipper for loading & unloading time									
		(i) 18 cum capacity	hour	3.680			2349.00	8644.32			PM6001
		(ii) 14 cum capacity	hour		4.600		2108.00		9696.80		PM6002
		(iii) 10 cum capacity	hour			6.133	1891.00			11597.50	PM6003
		For transportation of dismantle material site to plant									L1=1
		(i) 18 cum capacity	t.km	276XL1			4.98	1374.48			PM72001
		(ii) 14 cum capacity	t.km		276XL1		5.71		1575.96		PM73001
		(iii) 10 cum capacity	t.km			276XL1	7.10			1959.60	PM74001
		Tipper for loading time									
		(i) 18 cum capacity	hour	5.926			2349.00	13920.17			PM6001
		(ii) 14 cum capacity	hour		9.117		2108.00		19218.64		PM6002
		(iii) 10 cum capacity	hour			9.877	1891.00			18677.41	PM6003
		Smooth steel wheeled tandem roller for static and vibratory passaes	hour	10.619	10.619	10.619	2110.00	22406.09	22406.09	22406.09	PM9001
		c) Material									
		i) Bitumen									

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		A bitumen content is 5.2 percent bitumen weight of mix. For reclaimed material, fresh material will be required to extent of 60 percent of normal requiement.									
		In a mix of 276 tonnes, 82.8 tonne is reclaimed and balance 193.2 tonne is fresh mix.									
		Bitumen required for reclaimed mix of 82.8 tonne @60 percent= 82.8 X 0.60 X 0.052=2.583 tonne.	tonne	2.583	2.583	2.583	57448.00	148388.18	148388.18	148388.18	M-074
		Bitumen required for fresh mix of 193.2 tonnes = 193.2 X 0.052= 10.046 tonne.	tonne	10.046	10.046	10.046	57448.00	577122.61	577122.61	577122.61	M-074
		ii) Aggregates									
		Percentage of mix requiring fresh aggregates- 70 percent									
		Weight of fresh mix= 276 X 0.70= 193.2 tonne									
		Weight of fresh aggregate in the mix= 193.2 X 0.948= 183.154 tonne									
		Taking average density of 1.5 tonnes/cum, total volume of aggregate = 122.102cum									
		Size wise requirement of fresh aggregates									
		*** Grading I (19mm nominal size)**									
		20-10mm 38percent	cum	46.399	46.399	46.399	963.12	44687.80	44687.80	44687.80	M-044
		10-5mm 17 percent	cum	20.757	20.757	20.757	631.69	13111.99	13111.99	13111.99	M-039
		5mm and below 43 percent	cum	52.504	52.504	52.504	452.95	23781.69	23781.69	23781.69	M-029
		Filler @2 % of weight of aggregates	tonnes	5.520	5.520	5.520	3222.77	17789.69	17789.69	17789.69	M-190
		Credit for milled material for use (70 percent), Considering 20 percent cost as salvage value of above average material rate of aggregate	cum	122.102	122.102	122.102	682.59	-16669.04	-16669.04	-16669.04	J=0.2*F*I
		* Any one of the alternative may be adopted as per approved design									
		Total cost(Without O.H&C.P.)						1107551.79	1118108.07	1109252.22	

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		88604.14	111810.81	133110.27	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		119615.59	122991.89	124236.25	
			Cost for 120 cum= a+b+c+d+e						1315771.53	1352910.76	1366598.74	
			Rate per cum= (a+b+c+d+e)/120						10964.76	11274.26	11388.32	
								Say	**10964.80**	**11274.30**	**11388.30**	
		C	**(ii) Using by bituminous concrete**									
			Grading II									
			a) Labour									
			Mate	day	0.280	0.280	0.280	444.00	124.32	124.32	124.32	L-12
			Mazdoor	day	4.000	4.000	4.000	428.00	1712.00	1712.00	1712.00	L-13
			Mazdoor skilled	day	3.000	3.000	3.000	541.00	1623.00	1623.00	1623.00	L-15
			b) Machinery									
			Milling machine									
			Milling machine with 2 metre drum width	hour	5.926			10007.00	59301.48			PM47004
			Milling machine with 1.3 meter Drum width	hour		9.117		6876.00		62688.49		PM47003
			Milling machine with 1.2 metre drum width	hour			9.877	4779.00			47202.18	PM47002
			Bitumen pressure distributor(Spraying width 4.5m)	hour	0.667	0.667	0.667	1382.00	921.79	921.79	921.79	PM24001
			Batch Type Hot Mix Plant									
			(i) HMP 200 TPH	hour	1.840			84145.00	154826.80			PM18001
			(ii) HMP 160 TPH	hour		2.300		66183.00		152220.90		PM18002
			(iii) HMP 120 TPH	hour			3.067	50039.00			153469.61	PM18003
			Mechanical broom (2.1 m sweeping width)	hour	0.571	0.571	0.571	834.00	476.21	476.21	476.21	PM23001
			Air compressor 250 cfm	hour	0.571	0.571	0.571	496.00	283.22	283.22	283.22	PM15001
			Paver finsher hydrostatic with sensor control compatible with hot mix plant									
			(i) Paver (240HP)	hour	1.840			8144.00	14984.96			PM29001
			(ii)Paver (240HP)	hour		2.300		8144.00		18731.20		PM29001
			(iii) Paver (174 HP)	hour			3.067	6436.00			19739.21	PM29002
			Electric generator									
			(i) 500 kVA	hour	1.840			5394.00	9924.96			PM22002
			(ii) 400 KVA	hour		2.300		4356.00		10018.80		PM22003
			(iii) 250 KVA	hour			3.067	3064.00			9397.29	PM22004
			Front end loader for feeding the plant									

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		(i) 3.1 Cum Capacity	hour	2.107			3523.00	7422.96			PM5001
		(ii) 2.1 cum Capacity	hour		3.115		2121.00		6606.92		PM5002
		(iii) 1 Cum capacity	hour			6.513	1454.00			9469.90	PM5003
		Tipper									
		For transportation plant to site									L1=1
		(i) 18 cum capacity	t.km	276XL1			4.98	1374.48			PM72001
		(ii) 14 cum capacity	t.km		276XL1		5.71		1575.96		PM73001
		(iii) 10 cum capacity	t.km			276XL1	7.10			1959.60	PM74001
		Tipper for loading & unloading time									
		(i) 18 cum capacity	hour	3.680			2349.00	8644.32			PM6001
		(ii) 14 cum capacity	hour		4.600		2108.00		9696.80		PM6002
		(iii) 10 cum capacity	hour			6.133	1891.00			11597.50	PM6003
		For transportation of dismantle material site to plant									L1=1
		(i) 18 cum capacity	t.km	276XL1			4.98	1374.48			PM72001
		(ii) 14 cum capacity	t.km		276XL1		5.71		1575.96		PM73001
		(iii) 10 cum capacity	t.km			276XL1	7.10			1959.60	PM74001
		Tipper for loading time									
		(i) 18 cum capacity	hour	5.926			2349.00	13920.17			PM6001
		(ii) 14 cum capacity	hour		9.117		2108.00		19218.64		PM6002
		(iii) 10 cum capacity	hour			9.877	1891.00			18677.41	PM6003
		Smooth steel wheeled tandem roller for static and vibratory passaes	hour	10.619	10.619	10.619	2110.00	22406.09	22406.09	22406.09	PM9001
		c) Material									
		i) Bitumen									
		A bitumen content is 5.4 percent bitumen weight of mix. For reclaimed material, fresh material will be required to extent of 60 percent of normal requiement.									
		In a mix of 276 tonnes, 82.8 tonne is reclaimed and balance 193.2 tonne is fresh mix.									

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Bitumen required for reclaimed mix of 82.8 tonne @60 percent= 82.8 X 0.60 X 0.054=2.683 tonne.	tonne	2.683	2.683	2.683	57448.00	154132.98	154132.98	154132.98	M-074
		Bitumen required for fresh mix of 193.2 tonnes = 193.2 X 0.054= 10.433 tonne.	tonne	10.433	10.433	10.433	57448.00	599354.98	599354.98	599354.98	M-074
		ii) Aggregates									
		Percentage of mix requiring fresh aggregates- 70 percent									
		Weight of fresh mix= 276 X 0.70= 193.2 tonne									
		Weight of fresh aggregate in the mix= 193.2 X 0.946= 182.767 tonne									
		Taking average density of 1.5 tonnes/cum, total volume of aggregate = 121.845cum									
		Size wise requirement of fresh aggregates									
		*** Grading II(13mm nominal size)**									
		13.2-10mm 21percent	cum	25.587	25.587	25.587	631.69	16163.05	16163.05	16163.05	M-043
		10-5mm 17 percent	cum	20.714	20.714	20.714	631.69	13084.83	13084.83	13084.83	M-039
		5mm and below 60 percent	cum	73.107	73.107	73.107	452.95	33113.82	33113.82	33113.82	M-029
		Filler @2 % of weight of aggregates	tonnes	5.520	5.520	5.520	3222.77	17789.69	17789.69	17789.69	M-190
		Credit for milled material for use (70 percent), Considering 20 percent cost as salvage value of above average material rate of aggregate	cum	121.845	121.845	121.845	572.11	-13941.75	-13941.75	-13941.75	J=0.2*F*I
		* Any one of the alternative may be adopted as per approved design									
		Total cost(Without O.H&C.P.)						1119018.86	1129577.90	1120716.55	
		d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		89521.51	112957.79	134485.99	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		120854.04	124253.57	125520.25	
		Cost for 120 cum= a+b+c+d+e						1329394.40	1366789.26	1380722.78	
		Rate per cum= (a+b+c+d+e)/120						11078.29	11389.91	11506.02	

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
								Say	11078.30	11389.90	11506.00	
5.14	513		Providing and applying low viscosity bitumen emulsion for sealing cracks less than 3mm wide or incipient fretting or disintegration in an existing bituminous surfacing									
			Unit=sqm									
			Taking output=10500sqm									
		(i)	**a) Labour**									
			Mate	day	0.120	0.120	0.120	444.00	53.28	53.28	53.28	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			b) Machinery									
			Mechanical broom @ 1250 sqm per hour	hour	3.125	3.125	3.125	834.00	2606.25	2606.25	2606.25	PM23001
			Air compressor 250cfm	hour	3.125	3.125	3.125	496.00	1550.00	1550.00	1550.00	PM15001
			Bitumen pressure distributor (spraying width 4.5m)	tonne	2.917	2.917	2.917	1382.00	4031.29	4031.29	4031.29	PM24001
			c) Material									
			Bitumn emulsion @ 0.75 kg/sqm	tonne	7.880	7.880	7.880	54349.00	428270.12	428270.12	428270.12	M-077
			Total cost(Without O.H&C.P.)						437794.94	437794.94	437794.94	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		35023.60	43779.49	52535.39	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		47281.85	48157.44	49033.03	
			Cost for 10500sqm= a+b+c+d+e						520100.39	529731.88	539363.37	
			Rate per sqm= (a+b+c+d+e)/10500						49.53	50.45	51.37	
								Say	49.50	50.50	51.40	
		(ii)	1. In case it is decided by the engineer to blind the fog spray, the following may be added									
			a) Labour									
			Mate	day	0.160	0.160	0.160	444.000	71.040	71.040	71.040	L-12
			Mazdoor for precoating of grit	day	4.000	4.000	4.000	428.000	1712.000	1712.000	1712.000	L-13
			b) Material									
			Crushed stone grit 3mm size @3.75kg / sqm	cum	26.250	26.250	26.250	452.950	11889.938	11889.938	11889.938	M-029
			Bitumen emulsion for precoating grit @2 percent of grit, 39.38 X 0.02 =0.790 tonne.	tonne	0.790	0.790	0.790	54349.000	42935.710	42935.710	42935.710	M-077
			Cost for 10500 sqm= a+b						56608.688	56608.688	56608.688	

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Rate per sqm= (a+b)/10500						5.391	5.391	5.391	
								Say	**5.40**	**5.40**	**5.40**	
5.15	**518**		**Bituminous Cold mix (including gravel emulsion)**									
			Providing laying and rolling of bituminous cold mix on prepared base consisting of a mixture of unheated mineral aggregate and emulsified or cutback bitumen, including mixing in a plant of suitable type and capacity , transporting , laying compacting and finishing to specified grades and levels.									
			Unit=cum									
			Taking outpur=205cum									
		(i)	**Using bitumen emulsion and 9.5mm or 13.2mm size aggregate**									
			Composition of mix (450 tonne) is assumed to be as under-:									
			Bitumen emulsion 8 percent by weight of total mix									
			Filler 2 percent									
			Total aggregates 90 percent									
			Proportion of aggregates									
			19mm to 9.5 mm 25 percent									
			9.5mm to 6mm 29 percent									
			6mm to 0.075mm 36 percent									
			a) Labour									
			Mate	day	0.480	0.480	0.480	444.00	213.12	213.12	213.12	L-12
			Mazdoor	day	7.000	7.000	7.000	428.00	2996.00	2996.00	2996.00	L-13
			Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
			b) Machinery									
			Hot Mix Plant									
			(i) HMP 200 TPH	hour	3.000			84145.00	252435.00			PM18001
			(ii) HMP 160 TPH	hour		3.750		66183.00		248186.25		PM18002
			(iii) HMP 120 TPH	hour			5.000	50039.00			250195.00	PM18003
			Mechanical broom (2.1 m sweeping width)	hour	1.743	1.743	1.743	834.00	1453.66	1453.66	1453.66	PM23001

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Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Air compressor 250 cfm	hour	1.743	1.743	1.743	496.00	864.53	864.53	864.53	PM15001
		Paver finsher hydrostatic with sensor control compatible with hot mix plant									
		(i) Paver (240HP)	hour	3.000			8144.00	24432.00			PM29001
		(ii)Paver (240HP)	hour		3.750		8144.00		30540.00		PM29001
		(iii) Paver (174 HP)	hour			5.000	6436.00			32180.00	PM29002
		Electric generator									
		(i) 500 kVA	hour	3.000			5394.00	16182.00			PM22002
		(ii) 400 KVA	hour		3.750		4356.00		16335.00		PM22003
		(iii) 250 KVA	hour			5.000	3064.00			15320.00	PM22004
		Front end loader for feeding the plant									
		(i) 3.1 Cum Capacity	hour	4.852			3523.00	17093.60			PM5001
		(ii) 2.1 cum Capacity	hour		6.923		2121.00		14683.68		PM5002
		(iii) 1 Cum capacity	hour			15.081	1454.00			21927.77	PM5003
		Tipper									
		For transportation									L1=1
		(i) 18 cum capacity	t.km	450XL1			4.98	2241.00			PM72001
		(ii) 14 cum capacity	t.km		450XL1		5.71		2569.50		PM73001
		(iii) 10 cum capacity	t.km			450XL1	7.10			3195.00	PM74001
		Tipper for loading & unloading time									
		(i) 18 cum capacity	hour	6.000			2349.00	14094.00			PM6001
		(ii) 14 cum capacity	hour		7.500		2108.00		15810.00		PM6002
		(iii) 10 cum capacity	hour			10.000	1891.00			18910.00	PM6003
		Smooth steel wheeled tandem roller for static and vibratory passaes	hour	18.141	18.141	18.141	2110.00	38277.51	38277.51	38277.51	PM9001
		Pneumatic Tyre roller	hour	2.569	3.000	4.000	2102.00	5400.04	6306.00	8408.00	PM10001
		c) Material									
		Bitumen emulsion @8percent	tonne	36.000	36.000	36.000	54349.00	1956564.00	1956564.00	1956564.00	M-077

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Filler (lime) @ 2percent	tonne	9.000	9.000	9.000	3222.77	29004.93	29004.93	29004.93	M-190
			Aggregates size 19 to 9.5mm- 450 X 0.25 X1/1.5	cum	75.000	75.000	75.000	963.12	72234.00	72234.00	72234.00	M-044
			Aggregates size 9.5 to 6mm- 450 X 0.29 X 1/1.5	cum	87.000	87.000	87.000	631.69	54957.03	54957.03	54957.03	M-039
			Aggregates size 6 to 0.075mm- 450 X 0.36 X 1/1.5	cum	108.000	108.000	108.000	452.95	48918.60	48918.60	48918.60	M-029
			Total cost(Without O.H&C.P.)						2540066.01	2542618.81	2558324.15	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		203205.28	254261.88	306998.90	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		274327.13	279688.07	286532.31	
			Cost for 205 cum= a+b+c+d+e						3017598.42	3076568.76	3151855.36	
			Rate per cum= (a+b+c+d+e)/205						14719.99	15007.65	15374.90	
								Say	**14720.00**	**15007.70**	**15374.90**	
			(Applicable to cases I to IV)									
		Note	1. Density of aggregates has been assumed 1.5gms/cc									
			2. Tack coat where provided will be measured and paid separately									
		(ii)	**Using bitumen emulsion and 19mm or 26.5mm nominal size aggregate**									
			Compostion of mix (450 tonne) is assumed to be as under-:									
			Bitumen emulsion - 8 percent									
			Filler - 2 percent									
			Total aggregates - 90 percent									
			Proportion of aggregates									
			37.5mm to 19 mm 25 percent									

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		19mm to 6mm 30percent									
		6mm to 0.075mm 35 percent									
		a) Labour									
		Mate	day	0.480	0.480	0.480	444.00	213.12	213.12	213.12	L-12
		Mazdoor	day	7.000	7.000	7.000	428.00	2996.00	2996.00	2996.00	L-13
		Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
		b) Machinery									
		Hot Mix Plant									
		(i) HMP 200 TPH	hour	3.000			84145.00	252435.00			PM18001
		(ii) HMP 160 TPH	hour		3.750		66183.00		248186.25		PM18002
		(iii) HMP 120 TPH	hour			5.000	50039.00			250195.00	PM18003
		Mechanical broom (2.1 m sweeping width)	hour	1.743	1.743	1.743	834.00	1453.66	1453.66	1453.66	PM23001
		Air compressor 250 cfm	hour	1.743	1.743	1.743	496.00	864.53	864.53	864.53	PM15001
		Paver finsher hydrostatic with sensor control compatible with hot mix plant									
		(i) Paver (240HP)	hour	3.000			8144.00	24432.00			PM29001
		(ii)Paver (240HP)	hour		3.750		8144.00		30540.00		PM29001
		(iii) Paver (174 HP)	hour			5.000	6436.00			32180.00	PM29002
		Electric generator									
		(i) 500 kVA	hour	3.000			5394.00	16182.00			PM22002
		(ii) 400 KVA	hour		3.750		4356.00		16335.00		PM22003
		(iii) 250 KVA	hour			5.000	3064.00			15320.00	PM22004
		Front end loader for feeding the plant									
		(i) 3.1 Cum Capacity	hour	4.852			3523.00	17093.60			PM5001
		(ii) 2.1 cum Capacity	hour		6.923		2121.00		14683.68		PM5002
		(iii) 1 Cum capacity	hour			15.081	1454.00			21927.77	PM5003
		Tipper									
		For transportation									L I=I
		(i) 18 cum capacity	t.km	450XL1			4.98	2241.00			PM72001
		(ii) 14 cum capacity	t.km		450XL1		5.71		2569.50		PM73001
		(iii) 10 cum capacity	t.km			450XL1	7.10			3195.00	PM74001
		Tipper for loading & unloading time									
		(i) 18 cum capacity	hour	6.000			2349.00	14094.00			PM6001

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(ii) 14 cum capacity	hour		7.500		2108.00		15810.00		PM6002
			(iii) 10 cum capacity	hour			10.000	1891.00			18910.00	PM6003
			Smooth steel wheeled tandem roller for static and vibratory passaes	hour	18.141	18.141	18.141	2110.00	38277.51	38277.51	38277.51	PM9001
			Pneumatic Tyre roller	hour	2.569	3.000	4.000	2102.00	5400.04	6306.00	8408.00	PM10001
			c) Material									
			Bitumen emulsion @8percent	tonne	36.000	36.000	36.000	54349.00	1956564.00	1956564.00	1956564.00	M-077
			Filler (lime) @ 2percent	tonne	9.000	9.000	9.000	3222.77	29004.93	29004.93	29004.93	M-190
			Aggregates size 37.5 to 19mm- 450 X 0.25 X1/1.5	cum	75.000	75.000	75.000	1178.00	88350.00	88350.00	88350.00	M-047
			Aggregates size 19 to 6mm- 450 X 0.3 X 1/1.5	cum	90.000	90.000	90.000	963.12	86680.80	86680.80	86680.80	M-046
			Aggregates size 6 to 0.075mm- 450 X 0.35 X 1/1.5	cum	105.000	105.000	105.000	452.95	47559.75	47559.75	47559.75	M-029
			Total cost(Without O.H&C.P.)						2586546.93	2589099.73	2604805.07	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		206923.75	258909.97	312576.61	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		279347.07	284800.97	291738.17	
			Cost for 205 cum= a+b+c+d+e						3072817.76	3132810.68	3209119.85	
			Rate per cum= (a+b+c+d+e)/205						14989.35	15282.00	15654.24	
								Say	**14989.40**	**15282.00**	**15654.20**	
		Note	1. Density of aggregates has been assumed 1.5gms/cc									
			2. Tack coat where provided will be measured and paid separately									
5.15		**(iii)**	**Using cutback bitumen and 9.5mm or 13.2mm nominal size aggregate**									
			Compostion of mix (450 tonne) is assumed to be as under-:									
			Bitumen emulsion - 5 percent									
			Filler - 2 percent									
			Total aggregates - 93 percent									
			Proportion of aggregates									
			19mm to 9.5mm 26 percent									
			9.5mm to 6mm 31percent									
			6mm to 0.075mm 36 percent									

CHAPTER-5
Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		a) Labour									
		Mate	day	0.480	0.480	0.480	444.00	213.12	213.12	213.12	L-12
		Mazdoor	day	7.000	7.000	7.000	428.00	2996.00	2996.00	2996.00	L-13
		Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
		b) Machinery									
		Hot Mix Plant									
		(i) HMP 200 TPH	hour	3.000			84145.00	252435.00			PM18001
		(ii) HMP 160 TPH	hour		3.750		66183.00		248186.25		PM18002
		(iii) HMP 120 TPH	hour			5.000	50039.00			250195.00	PM18003
		Mechanical broom (2.1 m sweeping width)	hour	1.743	1.743	1.743	834.00	1453.66	1453.66	1453.66	PM23001
		Air compressor 250 cfm	hour	1.743	1.743	1.743	496.00	864.53	864.53	864.53	PM15001
		Paver finsher hydrostatic with sensor control compatible with hot mix plant									
		(i) Paver (240HP)	hour	3.000			8144.00	24432.00			PM29001
		(ii)Paver (240HP)	hour		3.750		8144.00		30540.00		PM29001
		(iii) Paver (174 HP)	hour			5.000	6436.00			32180.00	PM29002
		Electric generator									
		(i) 500 kVA	hour	3.000			5394.00	16182.00			PM22002
		(ii) 400 KVA	hour		3.750		4356.00		16335.00		PM22003
		(iii) 250 KVA	hour			5.000	3064.00			15320.00	PM22004
		Front end loader for feeding the plant									
		(i) 3.1 Cum Capacity	hour	5.009			3523.00	17646.71			PM5001
		(ii) 2.1 cum Capacity	hour		7.154		2121.00		15173.63		PM5002
		(iii) 1 Cum capacity	hour			15.568	1454.00			22635.87	PM5003
		Tipper									
		For transportation									L1=1
		(i) 18 cum capacity	t.km	450XL1			4.98	2241.00			PM72001
		(ii) 14 cum capacity	t.km		450XL1		5.71		2569.50		PM73001
		(iii) 10 cum capacity	t.km			450XL1	7.10			3195.00	PM74001
		Tipper for loading & unloading time									
		(i) 18 cum capacity	hour	6.000			2349.00	14094.00			PM6001
		(ii) 14 cum capacity	hour		7.500		2108.00		15810.00		PM6002
		(iii) 10 cum capacity	hour			10.000	1891.00			18910.00	PM6003

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Smooth steel wheeled tandem roller for static and vibratory passaes	hour	18.141	18.141	18.141	2110.00	38277.51	38277.51	38277.51	PM9001
			Pneumatic tyre roller	hour	2.569	3.000	4.000	2102.00	5400.04	6306.00	8408.00	PM10001
			c) Material									
			Cutback bitumen @ 5percent	tonne	22.500	22.500	22.500	57448.00	1292580.00	1292580.00	1292580.00	M-076
			Filler (lime) @ 2percent	tonne	9.000	9.000	9.000	3222.77	29004.93	29004.93	29004.93	M-190
			Aggregates size 19 to 9.5mm- 450 X 0.26 X1/1.5	cum	78.000	78.000	78.000	963.12	75123.36	75123.36	75123.36	M-044
			Aggregates size 9.5 to 6 mm- 450 X 0.31 X 1/1.5	cum	93.000	93.000	93.000	631.69	58747.17	58747.17	58747.17	M-039
			Aggregates size 6 to 0.075mm- 450 X 0.36 X 1/1.5	cum	108.000	108.000	108.000	452.95	48918.60	48918.60	48918.60	M-029
			Total cost(Without O.H&C.P.)						1883314.63	1885804.26	1901727.75	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		150665.17	188580.43	228207.33	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		203397.98	207438.47	212993.51	
			Cost for 205 cum= a+b+c+d+e						2237377.77	2281823.16	2342928.59	
			Rate per cum= (a+b+c+d+e)/205						10914.04	11130.84	11428.92	
								Say	**10914.00**	**11130.80**	**11428.90**	
		Note	1. Density of aggregates has been assumed 1.5gms/cc									
			2. Tack coat where provided will be measured and paid separately									
5.15		**(iv)**	**Using cutback bitumen and 19mm or 26.5mm nominal size aggregate**									
			Compostion of mix (450 tonne) is assumed to be as under-:									
			Bitumen emulsion - 5 percent									
			Filler - 2 percent									
			Total aggregates - 93 percent									
			Proportion of aggregates									
			37.5mm to 19mm 25 percent									
			19mm to 6mm 30 percent									
			6mm to 0.075mm 38 percent									

CHAPTER-5
Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		a) Labour									
		Mate	day	0.480	0.480	0.480	444.00	213.12	213.12	213.12	L-12
		Mazdoor	day	7.000	7.000	7.000	428.00	2996.00	2996.00	2996.00	L-13
		Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
		b) Machinery									
		Hot Mix Plant									
		(i) HMP 200 TPH	hour	3.000			84145.00	252435.00			PM18001
		(ii) HMP 160 TPH	hour		3.750		66183.00		248186.25		PM18002
		(iii) HMP 120 TPH	hour			5.000	50039.00			250195.00	PM18003
		Mechanical broom (2.1 m sweeping width)	hour	1.743	1.743	1.743	834.00	1453.66	1453.66	1453.66	PM23001
		Air compressor 250 cfm	hour	1.743	1.743	1.743	496.00	864.53	864.53	864.53	PM15001
		Paver finsher hydrostatic with sensor control compatible with hot mix plant									
		(i) Paver (240HP)	hour	3.000			8144.00	24432.00			PM29001
		(ii)Paver (240HP)	hour		3.750		8144.00		30540.00		PM29001
		(iii) Paver (174 HP)	hour			5.000	6436.00			32180.00	PM29002
		Electric generator									
		(i) 500 kVA	hour	3.000			5394.00	16182.00			PM22002
		(ii) 400 KVA	hour		3.750		4356.00		16335.00		PM22003
		(iii) 250 KVA	hour			5.000	3064.00			15320.00	PM22004
		Front end loader for feeding the plant									
		(i) 3.1 Cum Capacity	hour	5.009			3523.00	17646.71			PM5001
		(ii) 2.1 cum Capacity	hour		7.154		2121.00		15173.63		PM5002
		(iii) 1 Cum capacity	hour			15.568	1454.00			22635.87	PM5003
		Tipper									
		For transportation									LI=1
		(i) 18 cum capacity	t.km	450XL1			4.98	2241.00			PM72001
		(ii) 14 cum capacity	t.km		450XL1		5.71		2569.50		PM73001
		(iii) 10 cum capacity	t.km			450XL1	7.10			3195.00	PM74001
		Tipper for loading & unloading time									
		(i) 18 cum capacity	hour	6.000			2349.00	14094.00			PM6001
		(ii) 14 cum capacity	hour		7.500		2108.00		15810.00		PM6002
		(iii) 10 cum capacity	hour			10.000	1891.00			18910.00	PM6003

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Smooth steel wheeled tandem roller for static and vibratory passaes	hour	18.141	18.141	18.141	2110.00	38277.51	38277.51	38277.51	PM9001
			Pneumatic tyre roller	hour	2.569	3.000	4.000	2102.00	5400.04	6306.00	8408.00	PM10001
			c) Material									
			Cutback bitumen @ 5percent	tonne	22.500	22.500	22.500	57448.00	1292580.00	1292580.00	1292580.00	M-076
			Filler (lime) @ 2percent	tonne	9.000	9.000	9.000	3222.77	29004.93	29004.93	29004.93	M-190
			Aggregates size 37.5 to 19mm- 450 X 0.25 X1/1.5	cum	75.000	75.000	75.000	1178.00	88350.00	88350.00	88350.00	M-047
			Aggregates size 19 to 6 mm- 450 X 0.3 X 1/1.5	cum	90.000	90.000	90.000	963.12	86680.80	86680.80	86680.80	M-046
			Aggregates size 6 to 0.075mm- 450 X 0.38 X 1/1.5	cum	114.000	114.000	114.000	452.95	51636.30	51636.30	51636.30	M-029
			Total cost(Without O.H&C.P.)						1927192.60	1929682.23	1945605.72	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		154175.41	192968.22	233472.69	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		208136.80	212265.05	217907.84	
			Cost for 205 cum= a+b+c+d+e						2289504.80	2334915.50	2396986.25	
			Rate per cum= (a+b+c+d+e)/205						11168.32	11389.83	11692.62	
								Say	**11168.30**	**11389.80**	**11692.60**	
		Note	1. Density of aggregates has been assumed 1.5gms/cc									
			2. Tack coat where provided will be measured and paid separately									
5.16	**506**		**Sand asphalt /base course**									
			Providing , laying and rolling sand-asphalt base course compose of sand, mineral filler and bitumnious binder on a prepared sub-grade or sub-base to the lines, levels, grades and cross sections as per the drawing including mixing in a plant of suitable type and capacity, transporting, laying, compacting and finishing.									
			Unit= cum									
			Taking output=205 cum									
			a) Labour									
			Mate	day	0.480	0.480	0.480	444.00	213.12	213.12	213.12	L-12
			Mazdoor	day	7.000	7.000	7.000	428.00	2996.00	2996.00	2996.00	L-13
			Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		b) Machinery									
		Hot Mix Plant									
		(i) HMP 200 TPH	hour	3.000			84145.00	252435.00			PM18001
		(ii) HMP 160 TPH	hour		3.750		66183.00		248186.25		PM18002
		(iii) HMP 120 TPH	hour			5.000	50039.00			250195.00	PM18003
		Paver finsher hydrostatic with sensor control compatible with hot mix plant									
		(i) Paver (240HP)	hour	3.000			8144.00	24432.00			PM29001
		(ii)Paver (240HP)	hour		3.750		8144.00		30540.00		PM29001
		(iii) Paver (174 HP)	hour			5.000	6436.00			32180.00	PM29002
		Electric generator									
		(i) 500 kVA	hour	3.000			5394.00	16182.00			PM22002
		(ii) 400 KVA	hour		3.750		4356.00		16335.00		PM22003
		(iii) 250 KVA	hour			5.000	3064.00			15320.00	PM22004
		Front end loader for feeding the plant									
		(i) 3.1 Cum Capacity	hour	5.044			3523.00	17770.01			PM5001
		(ii) 2.1 cum Capacity	hour		7.441		2121.00		15782.36		PM5002
		(iii) 1 Cum capacity	hour			15.664	1454.00			22775.46	PM5003
		Tipper									
		For transportation									L1=1
		(i) 18 cum capacity	t.km	450XL1			4.98	2241.00			PM72001
		(ii) 14 cum capacity	t.km		450XL1		5.71		2569.50		PM73001
		(iii) 10 cum capacity	t.km			450XL1	7.10			3195.00	PM74001
		Tipper for loading & unloading time									
		(i) 18 cum capacity	hour	6.000			2349.00	14094.00			PM6001
		(ii) 14 cum capacity	hour		7.500		2108.00		15810.00		PM6002
		(iii) 10 cum capacity	hour			10.000	1891.00			18910.00	PM6003
		Smooth steel wheeled tandem roller for static and vibratory passaes	hour	18.141	18.141	18.141	2110.00	38277.51	38277.51	38277.51	PM9001
		c) Material									
		Composition of mix (450 tonne) is assumed to be as under:-									
		Density 2.20 tonne per cum									

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Weight 450 tonne									
			Bitumen 5 percent									
			Filler 2 percent									
			Sand of size 4.75 to 0.075mm 93 percent									
			Bitumen @ 5 percent	tonne	22.500	22.500	22.500	57448.00	1292580.00	1292580.00	1292580.00	M-074
			Filler (lime) @ 2 percent	tonne	9.000	9.000	9.000	3222.77	29004.93	29004.93	29004.93	M-190
			Sand of size 4.75 to 0.075mm - 450 X 0.93 X 1/1.5	cum	288.620	288.620	288.620	612.90	176895.20	176895.20	176895.20	M-004*
			Total cost(Without O.H&C.P.)						1869825.77	1871894.87	1885247.21	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		149586.06	187189.49	226229.67	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		201941.18	205908.44	211147.69	
			Cost for 205 cum= a+b+c+d+e						2221353.01	2264992.79	2322624.57	
			Rate per cum = (a+b+c+d+e)/205						10835.87	11048.75	11329.88	
		Note:-	Tack coat will be measured and paid separately					**Say**	**10835.90**	**11048.70**	**11329.90**	
5.17	**517**	**(i)**	**Crack prevention courses**									
			Stress absorbing membrane (SAM) crack width less than 6mm									
			Providng and laying of a stress absorbing membrane over a cracked road surface, with crack width below 6 mm after cleaning with a mechanical broom, using modified binder complying with IRC:SP: 53, sprayed at the rate of 9 kg per 10 sqm and spreading 5.6 mm crushed stone aggregates @ 0.11 cum per 10 sqm with hydraulic chip spreader, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.									
			Unit= sqm									
			Taking output= 10500 sqm									
			a) Labour									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	4.000	4.000	4.000	428.00	1712.00	1712.00	1712.00	L-13
			B) Machinery									
			Mechanical broom (2.1 m sweeping width)	hour	3.125	3.125	3.125	834.00	2606.25	2606.25	2606.25	PM23001

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Air compressor 250cfm	hour	3.125	3.125	3.125	496.00	1550.00	1550.00	1550.00	PM15001
			Bitumen pressue distributor (spraying widh 4.5m)	hour	2.917	2.917	2.917	1382.00	4031.29	4031.29	4031.29	PM24001
			Hydraulic chip spreader	hour	5.397	5.397	5.397	1712.00	9239.66	9239.66	9239.66	PM32001
			Smooth wheeled road roller 8-10 tonne	hour	5.397	5.397	5.397	1650.00	8905.05	8905.05	8905.05	PM8001
			c) Material									
			Modified binder	tonne	9.450	9.450	9.450	60330.00	570118.50	570118.50	570118.50	M-078
			Crushed stone aggregates 5.6 mm size	cum	105.000	105.000	105.000	452.95	47559.75	47559.75	47559.75	M-029
			Total cost(Without O.H&C.P.)						645793.55	645793.55	645793.55	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		51663.48	64579.35	77495.23	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		69745.70	71037.29	72328.88	
			Cost for 10500 sqm= a+b+c+d+e						767202.74	781410.19	795617.65	
			Rate per sqm= (a+b+c+d+e)/10500						**73.07**	**74.42**	**75.77**	
								Say	**73.10**	**74.40**	**75.80**	
5.17		**(ii)**	**Stress absorbing membrane (SAM) crack width 6mm to 9mm**									
			Providng and laying of a stress absorbing membrane over a cracked road surface, with crack width 6 mm to 9mm after cleaning with a mechanical broom, using modified binder complying with IRC:SP: 53, sprayed at the rate of 11 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm with hydraulic chip spreader, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.									
			Unit= sqm									
			Taking output= 10500 sqm									
			a) Labour									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	4.000	4.000	4.000	428.00	1712.00	1712.00	1712.00	L-13
			B) Machinery									
			Mechanical broom (2.1 m sweeping width)	hour	3.125	3.125	3.125	834.00	2606.25	2606.25	2606.25	PM23001
			Air compressor 250cfm	hour	3.125	3.125	3.125	496.00	1550.00	1550.00	1550.00	PM15001

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Bitumen pressure distributor (spraying widh 4.5m)	hour	2.917	2.917	2.917	1382.00	4031.29	4031.29	4031.29	PM24001
			Hydraulic chip spreader	hour	5.397	5.397	5.397	1712.00	9239.66	9239.66	9239.66	PM32001
			Smooth wheeled road roller 8-10 tonne	hour	5.397	5.397	5.397	1650.00	8905.05	8905.05	8905.05	PM8001
			c) Material									
			Modified binder	tonne	11.550	11.550	11.550	60330.00	696811.50	696811.50	696811.50	M-078
			Crushed stone aggregates 11.2mm size	cum	105.000	105.000	105.000	452.95	47559.75	47559.75	47559.75	M-040
			Total cost(Without O.H&C.P.)						772486.55	772486.55	772486.55	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		61798.92	77248.65	92698.39	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		83428.55	84973.52	86518.49	
			Cost for 10500 sqm= a+b+c+d+e						917714.02	934708.72	951703.43	
			Rate per sqm= (a+b+c+d+e)/10500					**Say**	87.40	89.02	90.64	
									87.40	**89.00**	**90.60**	
		(iii)	**Stress absorbing membrane (SAM) crack width above 9 mm and cracked area above 50 percent**									
			Providng and laying of a stress absorbing membrane over a cracked road surface, with crack width above 9mm and cracked area above 50 percent after cleaning with a mechanical broom, using modified binder complying with IRC:SP: 53, sprayed at the rate of 15 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm with hydraulic chip spreader, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.									
			Unit= sqm									
			Taking output= 10500 sqm									
			a) Labour									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	4.000	4.000	4.000	428.00	1712.00	1712.00	1712.00	L-13
			Mazdoor skilled	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			B) Machinery									
			Mechanical broom (2.1 m sweeping width)	hour	3.125	3.125	3.125	834.00	2606.25	2606.25	2606.25	PM23001
			Air compressor 250cfm	hour	3.125	3.125	3.125	496.00	1550.00	1550.00	1550.00	PM15001

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Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Bitumen pressure distributor (spraying widh 4.5m)	hour	2.917	2.917	2.917	1382.00	4031.29	4031.29	4031.29	PM24001
			Hydraulic chip spreader	hour	5.397	5.397	5.397	1712.00	9239.66	9239.66	9239.66	PM32001
			Smooth wheeled road roller 8-10 tonne	hour	5.397	5.397	5.397	1650.00	8905.05	8905.05	8905.05	PM8001
			c) Material									
			Modified binder	tonne	15.750	15.750	15.750	60330.00	950197.50	950197.50	950197.50	M-078
			Crushed stone aggregates 11.2mm size	cum	126.000	126.000	126.000	452.95	57071.70	57071.70	57071.70	M-040
			Total cost(Without O.H&C.P.)						1036466.50	1036466.50	1036466.50	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		82917.32	103646.65	124375.98	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		111938.38	114011.31	116084.25	
			Cost for 10500 sqm= a+b+c+d+e						1231322.20	1254124.46	1276926.73	
			Rate per sqm= (a+b+c+d+e)/10500						117.27	119.44	121.61	
								Say	**117.30**	**119.40**	**121.60**	
		Note	In case 2nd coat is also required to be provided, material provided for the 2nd coat shall be as per Table 500-43									
5.17		**(iv)**	**Case IV: bitumen impregnated geotextile**									
			Providing and laying of premix of crushed stone aggregates and emulsion binder, mixed in a batch type cold mixing plant, laid over prepared surface, by paver finisher, rolled with a pneumatic tyred roller initially and finished with a smooth steel wheel roller, all as per clause 518.3									
			Unit= sqm									
			Taking output= 3500 sqm									
			a) Labour									
			Mate	day	0.280	0.280	0.280	444.00	124.32	124.32	124.32	L-12
			Mazdoor	day	5.000	5.000	5.000	428.00	2140.00	2140.00	2140.00	L-13
			Mazdoor skilled	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			B) Machinery									
			Mechanical broom (2.1 m sweeping width)	hour	1.042	1.042	1.042	834.00	869.03	869.03	869.03	PM23001
			Air compressor 250cfm	hour	1.042	1.042	1.042	496.00	516.83	516.83	516.83	PM15001
			Bitumen pressure distributor (spraying widh 4.5m)	hour	0.972	0.972	0.972	1382.00	1343.30	1343.30	1343.30	PM24001

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Pneumatic roller	hour	2.000	2.000	2.000	2102.00	4204.00	4204.00	4204.00	PM10001
			c) Material									
			Paving grade bitumen of 80-100 penetration @1.05 kg per sqm	tonne	3.680	3.680	3.680	55548.00	204416.64	204416.64	204416.64	M-075
			Geotextile including 10 percent for overlaps	sqm	3850.000	3850.000	3850.000	99.70	383845.00	383845.00	383845.00	M-108
			Total cost(Without O.H&C.P.)						598541.12	598541.12	598541.12	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		47883.29	59854.11	71824.93	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		64642.44	65839.52	67036.61	
			Cost for 3500 sqm= a+b+c+d+e						711066.86	724234.76	737402.66	
			Rate per sqm= (a+b+c+d+e)/3500						203.16	206.92	210.69	
								Say	**203.20**	**206.90**	**210.70**	
		Note	As bitumen overlay construction shall follw closely the fabric placement on the same day, an output of 3500 sqm only has been considered for the analysis which will cover a length of 500m, of 7 m wide carriageway. This can be conveniently overlaide by a bituminous course in a day									
5.18	**518.3**		**Recipe Cold mix**									
			Providing and laying of premix crushed stone aggregates and emulsion binder, mixed in a batch type cold mixing plant, laid over prepared surface, by paver finisher, rolled with a pneumatic tyred rolle initially and finished with a smooth steel wheel roller, all as per clause 518.3									
			Unit= cum									
			Taking output=205cum									
		(i)	**75mm thickness**									
			a) Labour									
			Mate	day	0.480	0.480	0.480	444.00	213.12	213.12	213.12	L-12
			Mazdoor	day	7.000	7.000	7.000	428.00	2996.00	2996.00	2996.00	L-13
			Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
			b) Machinery									

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Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Hot Mix Plant									
			(i) HMP 200 TPH	hour	3.000			84145.00	252435.00			PM18001
			(ii) HMP 160 TPH	hour		3.750		66183.00		248186.25		PM18002
			(iii) HMP 120 TPH	hour			5.000	50039.00			250195.00	PM18003
			Electric generator									
			(i) 500 kVA	hour	3.000			5394.00	16182.00			PM22002
			(ii) 400 KVA	hour		3.750		4356.00		16335.00		PM22003
			(iii) 250 KVA	hour			5.000	3064.00			15320.00	PM22004
			Front end loader for feeding the plant									
			(i) 3.1 Cum Capacity	hour	5.400			3523.00	19024.20			PM5001
			(ii) 2.1 cum Capacity	hour		8.027		2121.00		17025.27		PM5002
			(iii) 1 Cum capacity	hour			16.500	1454.00			23991.00	PM5003
			Tipper									
			For transportation									LI=1
			(i) 18 cum capacity	t.km	450XL1			4.98	2241.00			PM72001
			(ii) 14 cum capacity	t.km		450XL1		5.71		2569.50		PM73001
			(iii) 10 cum capacity	t.km			450XL1	7.10			3195.00	PM74001
			Tipper for loading & unloading time									
			(i) 18 cum capacity	hour	6.000			2349.00	14094.00			PM6001
			(ii) 14 cum capacity	hour		7.500		2108.00		15810.00		PM6002
			(iii) 10 cum capacity	hour			10.000	1891.00			18910.00	PM6003
			Paver finisher hydrostatic with sensor control compatible with the hot mix plant									
			(i) Paver (240 HP)	hour	3.000			8144.00	24432.00			PM29001
			(ii) Paver (240 HP)	hour		3.750		8144.00		30540.00		PM29001
			(iii) Paver (174 HP)	hour			5.000	6436.00			32180.00	PM29002
			Smooth steel wheeled tandem roller for static and vibratory passaes	hour	11.831	11.831	11.831	2110.00	24963.41	24963.41	24963.41	PM9001
			Pneumatic tyre roller	hour	2.400	3.000	4.000	2102.00	5044.80	6306.00	8408.00	PM10001
			Water tanker (speed @20km/hr and return speed @30km/hr and spreading speed @3.0 km.hr)									LI=1

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(i) 16 KL capacity	hour	0.42XL1+ 0.182			1204.000	724.808			PM11001
			(ii) 12 KL capacity	hour		0.056XL1+ 0.243		1030.000		307.970		PM11002
			(iii) 6 KL capacity	hour			0.111XL1+ 0.486	789.000			471.033	PM11003
			c) Material									
			Bitumen emulsion @ 45 litres per tonne	tonne	20.250	20.250	20.250	54349.00	1100567.25	1100567.25	1100567.25	M-077
			Crushed stone aggregates 40mm nominal size	cum	297.000	297.000	297.000	1061.46	315253.62	315253.62	315253.62	M-054
			Cost ofwater	KL	6.000	6.000	6.000	63.20	379.20	379.20	379.20	M-191
			Total cost(Without O.H&C.P.)						1781255.41	1784157.59	1799747.63	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		142500.43	178415.76	215969.72	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		192375.58	196257.33	201571.73	
			Cost for 205 cum= a+b+c+d+e						2116131.42	2158830.68	2217289.08	
			Rate per cum= (a+b+c+d+e)/205						10322.59	10530.88	10816.04	
		Note	**(Case (i) to (iii))**					**Say**	**10322.60**	**10530.90**	**10816.00**	
			1. These mixes are considered suitable for minor repair work and temporary road surface improvements.									
			2. In case concrete mixtures are required to be used for mixing, a number of these will be needed to match the capacity of road rollers.									
			3. Tack coat, where provided, will be measured and paid separately.									
5.18		**(ii)**	**40mm thickness**									
			a) Labour									
			Mate	day	0.480	0.480	0.480	444.00	213.12	213.12	213.12	L-12

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Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Mazdoor	day	7.000	7.000	7.000	428.00	2996.00	2996.00	2996.00	L-13
		Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
		b) Machinery									
		Hot Mix Plant									
		(i) HMP 200 TPH	hour	3.000			84145.00	252435.00			PM18001
		(ii) HMP 160 TPH	hour		3.750		66183.00		248186.25		PM18002
		(iii) HMP 120 TPH	hour			5.000	50039.00			250195.00	PM18003
		Electric generator									
		(i) 500 kVA	hour	3.000			5394.00	16182.00			PM22002
		(ii) 400 KVA	hour		3.750		4356.00		16335.00		PM22003
		(iii) 250 KVA	hour			5.000	3064.00			15320.00	PM22004
		Front end loader for feeding the plant									
		(i) 3.1 Cum Capacity	hour	5.125			3523.00	18055.38			PM5001
		(ii) 2.1 cum Capacity	hour		7.553		2121.00		16019.91		PM5002
		(iii) 1 Cum capacity	hour			15.944	1454.00			23182.58	PM5003
		Tipper									
		For transportation									LI=1
		(i) 18 cum capacity	t.km	450XL1			4.98	2241.00			PM72001
		(ii) 14 cum capacity	t.km		450XL1		5.71		2569.50		PM73001
		(iii) 10 cum capacity	t.km			450XL1	7.10			3195.00	PM74001
		Tipper for loading & unloading time									
		(i) 18 cum capacity	hour	6.000			2349.00	14094.00			PM6001
		(ii) 14 cum capacity	hour		7.500		2108.00		15810.00		PM6002
		(iii) 10 cum capacity	hour			10.000	1891.00			18910.00	PM6003
		Paver finisher hydrostatic with sensor control compatible with the hot mix plant									
		(i) Paver (240 HP)	hour	3.000			8144.00	24432.00			PM29001
		(ii) Paver (240 HP)	hour		3.750		8144.00		30540.00		PM29001
		(iii) Paver (174 HP)	hour			5.000	6436.00			32180.00	PM29002
		Smooth steel wheeled tandem roller for static and vibratory passaes	hour	11.831	11.831	11.831	2110.00	24963.41	24963.41	24963.41	PM9001
		Pneumatic tyre roller	hour	2.400	3.000	4.000	2102.00	5044.80	6306.00	8408.00	PM10001

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Water tanker (speed @20km/hr and return speed @30km/hr and spreading speed @3.0 km.hr)									L1=1
			(i) 16 KL capacity	hour	0.042XL1+ 0.342			1204.000	462.336			PM11001
			(ii) 12 KL capacity	hour		0.056XL1+ 0.456		1030.000		527.360		PM11002
			(iii) 6 KL capacity	hour			0.111XL1+ 0.911	789.000			806.358	PM11003
			c) Material									
			Bitumen emulsion @ 70 litres per tonne	tonne	31.500	31.500	31.500	54349.00	1711993.50	1711993.50	1711993.50	M-077
			Crushed stone aggregates 14mm nominal size	cum	287.000	287.000	287.000	631.69	181295.03	181295.03	181295.03	M-051
			Cost of water	KL	6.000	6.000	6.000	63.20	379.20	379.20	379.20	M-191
			Total cost(Without O.H&C.P.)						2257491.77	2260839.28	2276742.19	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		180599.34	226083.93	273209.06	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		243809.11	248692.32	254995.13	
			Cost for 205 cum= a+b+c+d+e						2681900.22	2735615.53	2804946.38	
			Rate per cum= (a+b+c+d+e)/205						13082.44	13344.47	13682.67	
								Say	**13082.40**	**13344.50**	**13682.70**	
5.18		**(iii)**	**25mm thickness**									
			a) Labour									
			Mate	day	0.480	0.480	0.480	444.00	213.12	213.12	213.12	L-12
			Mazdoor	day	7.000	7.000	7.000	428.00	2996.00	2996.00	2996.00	L-13
			Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
			b) Machinery									
			Hot Mix Plant									
			(i) HMP 200 TPH	hour	3.000			84145.00	252435.00			PM18001
			(ii) HMP 160 TPH	hour		3.750		66183.00		248186.25		PM18002
			(iii) HMP 120 TPH	hour			5.000	50039.00			250195.00	PM18003
			Electric generator									
			(i) 500 kVA	hour	3.000			5394.00	16182.00			PM22002
			(ii) 400 KVA	hour		3.750		4356.00		16335.00		PM22003

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Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		(iii) 250 KVA	hour			5.000	3064.00			15320.00	PM22004
		Front end loader for feeding the plant									
		(i) 3.1 Cum Capacity	hour	4.576			3523.00	16121.25			PM5001
		(ii) 2.1 cum Capacity	hour		6.750		2121.00		14316.75		PM5002
		(iii) 1 Cum capacity	hour			14.211	1454.00			20662.79	PM5003
		Tipper									
		For transportation									L1=1
		(i) 18 cum capacity	t.km	450XL1			4.98	2241.00			PM72001
		(ii) 14 cum capacity	t.km		450XL1		5.71		2569.50		PM73001
		(iii) 10 cum capacity	t.km			450XL1	7.10			3195.00	PM74001
		Tipper for loading & unloading time									
		(i) 18 cum capacity	hour	6.000			2349.00	14094.00			PM6001
		(ii) 14 cum capacity	hour		7.500		2108.00		15810.00		PM6002
		(iii) 10 cum capacity	hour			10.000	1891.00			18910.00	PM6003
		Paver finisher hydrostatic with sensor control compatible with the hot mix plant									
		(i) Paver (240 HP)	hour	3.000			8144.00	24432.00			PM29001
		(ii) Paver (240 HP)	hour		3.750		8144.00		30540.00		PM29001
		(iii) Paver (174 HP)	hour			5.000	6436.00			32180.00	PM29002
		Smooth steel wheeled tandem roller for static and vibratory passaes	hour	11.831	11.831	11.831	2110.00	24963.41	24963.41	24963.41	PM9001
		Pneumatic tyre roller	hour	2.400	3.000	4.000	2102.00	5044.80	6306.00	8408.00	PM10001
		Water tanker (speed @20km/hr and return speed @30km/hr and spreading speed @3.0 km.hr)									L1=1
		(i) 16 KL capacity	hour	0.042XL1+ 0.547			1204.000	709.156			PM11001
		(ii) 12 KL capacity	hour		0.056XL1+ 0.729		1030.000		808.550		PM11002

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Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(iii) 6 KL capacity	hour			0.111XL1+ 1.458	789.000			1237.941	PM11003
			c) Material									
			Bitumen emulsion @ 85 litres per tonne	tonne	38.250	38.250	38.250	54349.00	2078849.25	2078849.25	2078849.25	M-077
			Crushed stone aggregates 6mm nominal size	cum	270.000	270.000	270.000	452.95	122296.50	122296.50	122296.50	M-049
			Cost of water	KL	6.000	6.000	6.000	63.20	379.20	379.20	379.20	M-191
			Total cost(Without O.H&C.P.)						2563661.68	2567274.53	2582511.22	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		205092.93	256727.45	309901.35	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		276875.46	282400.20	289241.26	
			Cost for 205 cum= a+b+c+d+e						3045630.08	3106402.18	3181653.82	
			Rate per cum= (a+b+c+d+e)/205						14856.73	15153.18	15520.26	
								Say	**14856.70**	**15153.20**	**15520.30**	
5.19	**Suggestive**	**A**	**Bituminous Concrete Grading 1 using waste plastic**									
			Providing and laying bituminous concrete with higher capacity batch type hot mix plant using crushed aggregates of specified grading, premixed with bituminous binder @ 5.2 percent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment , rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORT&H specification clause no. 507 complete in all respects.									
			Unit= cum									
			Taking output= 191 cum									
			a) Labour									
			Mate	day	0.400	0.400	0.400	444.00	177.60	177.60	177.60	L-12
			Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
			Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
			b) Machinery									
			Hot Mix Plant									
			(i) HMP 200 TPH	hour	3.005			84145.00	252855.73			PM18001

CHAPTER-5
Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		(ii) HMP 160 TPH	hour		3.756		66183.00		248583.35		PM18002
		(iii) HMP 120 TPH	hour			5.008	50039.00			250595.31	PM18003
		Mechanical broom (2.1m sweeping width)	hour	1.137	1.137	1.137	834.00	948.26	948.26	948.26	PM23001
		Air compressor 250cfm	hour	1.137	1.137	1.137	496.00	563.95	563.95	563.95	PM15001
		Paver finisher hydrostatic with sensor control compatible with the hot mix plant									
		(i) Paver (240 HP)	hour	3.005			8144.00	24472.72			PM29001
		(ii) Paver (240 HP)	hour		3.756		8144.00		30588.86		PM29001
		(iii) Paver (174 HP)	hour			5.008	6436.00			32231.49	PM29002
		Electric generator									
		(i) 500 kVA	hour	3.005			5394.00	16208.97			PM22002
		(ii) 400 KVA	hour		3.756		4356.00		16361.14		PM22003
		(iii) 250 KVA	hour			5.008	3064.00			15344.51	PM22004
		Front end loader for feeding the plant									
		(i) 3.1 Cum Capacity	hour	5.078			3523.00	17889.79			PM5001
		(ii) 2.1 cum Capacity	hour		7.506		2121.00		15920.23		PM5002
		(iii) 1 Cum capacity	hour			15.694	1454.00			22819.08	PM5003
		Tipper									
		For transportation mix									LI=1
		(i) 18 cum capacity	t.km	450.76XL1			4.98	2244.78			PM72001
		(ii) 14 cum capacity	t.km		450.76XL1		5.71		2573.84		PM73001
		(iii) 10 cum capacity	t.km			450.76XL1	7.10			3200.40	PM74001
		Tipper for loading & unloading time for mix									
		(i) 18 cum capacity	hour	6.010			2349.00	14117.49			PM6001
		(ii) 14 cum capacity	hour		7.513		2108.00		15837.40		PM6002
		(iii) 10 cum capacity	hour			10.017	1891.00			18942.15	PM6003
		Smooth steel wheeled tandem roller for static and vibratory passages	hour	11.831	11.831	11.831	2110.00	24963.41	24963.41	24963.41	PM9001
		Pneumatic tyre roller	hour	2.404	3.005	4.007	2102.00	5053.21	6316.51	8422.71	PM10001
		Shredding Machine	hour	1.250	1.250	1.250	496.00	620.00	620.00	620.00	PM79001
		c) Material									
		i) Bitumen @4.78 percent of mix	tonne	21.564	21.564	21.564	57448.00	1238808.67	1238808.67	1238808.67	M-074
		ii) Plastic @ 8 percent of bitumen	tonne	1.875	1.875	1.875	15275.45	28641.46	28641.46	28641.46	M-292

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			iii) Aggregate									
			Total weight of mix = 450.76 tonnes									
			Weight of bitumen=21.564 tonnes									
			Weight of Plastic= 1.875 tonnes									
			Weight of aggregate= 427.320 tonnes									
			Taking density of aggregate=1.5 ton/cum									
			* Grading-I 19mm(Nominal size)									
			20-10mm 38 percent	cum	108.255	108.255	108.255	963.12	104262.56	104262.56	104262.56	M-044
			10-5mm 17 percent	cum	48.430	48.430	48.430	631.69	30592.75	30592.75	30592.75	M-039
			5mm and below 43 percent	cum	122.499	122.499	122.499	452.95	55485.92	55485.92	55485.92	M-029
			Filler @2 percent of weight of aggregates	cum	8.546	8.546	8.546	3222.77	27541.79	27541.79	27541.79	M-190
			*Any one of the alternative may be adopted as per approved design									
			* Grading I-19mm (Nominal size)									
			Total cost(Without O.H&C.P.)						1850722.06	1854060.70	1869435.02	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		148057.77	185406.07	224332.20	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		199877.98	203946.68	209376.72	
			Cost for 191 cum= a+b+c+d+e						2198657.81	2243413.45	2303143.94	
			Rate per cum=(a+b+c+d+e)/191						11511.30	11745.62	12058.35	
								Say	**11511.30**	**11745.60**	**12058.30**	
5.19	**Suggestive**	**B**	**Bituminous Concrete Grading 2 (using waste plastic)**									
			Providing and laying bituminous concrete with higher capacity batch type hot mix plant using crushed aggregates of specified grading, premixed with bituminous binder @ 5.4 percent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment , rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORT&H specification clause no. 507 complete in all respects.									
			Unit= cum									

CHAPTER-5
Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		Taking output= 191 cum									
		a) Labour									
		Mate	day	0.440	0.440	0.440	444.00	195.36	195.36	195.36	L-12
		Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
		Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
		b) Machinery									
		Hot Mix Plant									
		(i) HMP 200 TPH	hour	3.005			84145.00	252855.73			PM18001
		(ii) HMP 160 TPH	hour		3.756		66183.00		248583.35		PM18002
		(iii) HMP 120 TPH	hour			5.008	50039.00			250595.31	PM18003
		Mechanical broom (2.1m sweeping width)	hour	1.624	1.624	1.624	834.00	1354.42	1354.42	1354.42	PM23001
		Air compressor 250cfm	hour	1.624	1.624	1.624	496.00	805.50	805.50	805.50	PM15001
		Paver finisher hydrostatic with sensor control compatible with the hot mix plant									
		(i) Paver (240 HP)	hour	3.005			8144.00	24472.72			PM29001
		(ii) Paver (240 HP)	hour		3.756		8144.00		30588.86		PM29001
		(iii) Paver (174 HP)	hour			5.008	6436.00			32231.49	PM29002
		Electric generator									
		(i) 500 kVA	hour	3.005			5394.00	16208.97			PM22002
		(ii) 400 KVA	hour		3.756		4356.00		16361.14		PM22003
		(iii) 250 KVA	hour			5.008	3064.00			15344.51	PM22004
		Front end loader for feeding the plant									
		(i) 3.1 Cum Capacity	hour	4.993			3523.00	17590.34			PM5001
		(ii) 2.1 cum Capacity	hour		7.362		2121.00		15614.80		PM5002
		(iii) 1 Cum capacity	hour			15.520	1454.00			22566.08	PM5003
		Tipper									
		For transportation mix									L1=1
		(i) 18 cum capacity	t.km	450.76XL1			4.98	2244.78			PM72001
		(ii) 14 cum capacity	t.km		450.76XL1		5.71		2573.84		PM73001
		(iii) 10 cum capacity	t.km			450.76XL1	7.10			3200.40	PM74001
		Tipper for loading & unloading time for mix									
		(i) 18 cum capacity	hour	6.010			2349.00	14117.49			PM6001
		(ii) 14 cum capacity	hour		7.513		2108.00		15837.40		PM6002

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Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		(iii) 10 cum capacity	hour			10.017	1891.00			18942.15	PM6003
		Smooth steel wheeled tandem roller for staic and vibratory passages	hour	16.902	16.902	16.902	2110.00	35663.22	35663.22	35663.22	PM9001
		Pneumatic tyre roller	hour	2.404	3.005	4.007	2102.00	5053.21	6316.51	8422.71	PM10001
		Shredding Machine	hour	1.298	1.298	1.298	496.00	643.81	643.81	643.81	PM79001
		c) Material									
		i) Bitumen @4.97 percent of mix	tonne	22.394	22.394	22.394	57448.00	1286490.51	1286490.51	1286490.51	M-074
		ii) Plastic @ 8 percent of bitumen	tonne	1.947	1.947	1.947	15275.45	29741.30	29741.30	29741.30	M-292
		iii) Aggregate									
		Total weight of mix = 450.76 tonnes									
		Weight of bitumen=22.39 tonnes									
		Weight of Plastic= 1.95 tonnes									
		Weight of aggregate= 426.42 tonnes									
		Taking density of aggregate=1.5 ton/cum									
		* Grading-II 13mm(Nominal size)									
		13.2-10mm 21 percent	cum	59.825	59.825	59.825	631.69	37790.85	37790.85	37790.85	M-043
		10-5mm 17 percent	cum	48.430	48.430	48.430	631.69	30592.75	30592.75	30592.75	M-039
		5mm and below 60 percent	cum	170.928	170.928	170.928	452.95	77421.84	77421.84	77421.84	M-029
		Filler @2 percent of weight of aggregates	tonne	8.528	8.528	8.528	3222.77	27483.78	27483.78	27483.78	M-190
		*Any one of the alternative may be adopted as per approved design									
		* Grading II-13mm (Nominal size)									
		Total cost(Without O.H&C.P.)						1865999.57	1869332.24	1884758.99	
		d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		149279.97	186933.22	226171.08	
		e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		201527.95	205626.55	211093.01	
		Cost for 191 cum= a+b+c+d+e						2216807.49	2261892.01	2322023.07	
		Rate per cum=(a+b+c+d+e)/191						11606.32	11842.37	12157.19	
							Say	**11606.30**	**11842.40**	**12157.20**	
	Note	*1. Quantity of bitumen & plastic has been taken for analysis purpose. The actual quantity will depend upon job mix formula.									

CHAPTER-5
Analysis of Rates
BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			2 Labour for traffic control, watch and ward and other miscellaneous duties at site incllluding sundries have beeen included in administrative overheads of the contractor.									
			3. The average density of 1.5 tonne/cum is only a refrence density in this data book									
			4. The individual percentage of aggregates should be calculated from the total weight of dry aggregates i.e Excluding the weight of bitumen. The weight of filler will also be 2 percent by weight of dry aggregates.									
5.20	**519**	**A**	**Hot recycling in place of Bituminous Pavement with bituminous concrete**									
			Grading I									
			Providing and laying bitminous concrete with hot recycling in place using crushed aggregates of specified grading, with bituminous bindes @ 5.2 percent of mix filler, transporting the aggregate to work site, laying with a hot recycling in place to the required grade, level and alignment rolling with smoothed wheeled, vibratoey and tandem rollers to achieve the desired compaction as per MORTH specificationf clause No. 519 complete in all respects.									
			Unit= cum									
			Taking output= 191 cum									
			a) Labour									
			Mate	day	0.520	0.520	0.520	444.00	230.88	230.88	230.88	L-12
			Mazdoor working with HMP, mechanical boom, paver, roller, asphalt cutter and assistancew for setting out lins, levels and layout of construction	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13
			Skilled mazdoor for checking lines and levels	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
			b) Machinery									
			Hot in place recycling with pre heater unit for hot in place recycling	hour	6.000	6.000	6.000	741.00	4446.00	4446.00	4446.00	PM53001
			Front end loader for feeding the plant									

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		i) 3.1 cum capacity	hour	1.200			3523.00	4227.60			PM5001
		ii) 2.1 cum capacity	hour		1.200		2121.00		2545.20		PM5002
		iii) 1 cum capacity	hour			1.200	1454.00			1744.80	PM5003
		Tipper									
		For Transportation (Mix 20 % fresh material has been considered)									L1=1
		i)18 cum capacity	t.km	90.152 X L1			4.98	448.96			PM72001
		ii) 14 cum capacity	t.km		90.152 X L1		5.71		514.77		PM73001
		iii) 10 cum capacity	t.km			90.152 X L1	7.10			640.08	PM74001
		Smooth steel wheeled tandem roller for static and vibbratory passages	hour	11.831	11.831	11.831	2110.00	24963.41	24963.41	24963.41	PM9001
		Pneumatic Tyre roller	hour	4.800	4.800	4.800	2102.00	10089.60	10089.60	10089.60	PM10001
		c) Material									
		i) Bitumen@5.2 percent of weight of mix (for 80% recycled material @1.5%)	tonne	10.088	10.088	10.088	57448.00	579535.42	579535.42	579535.42	M-074
		ii) Aggregate									
		Total weight of mix= 450.76 tonnes									
		Weight of bitumen= 23.440 tonnes									
		Weight of aggregate=427.320 tonnes									
		Taking density of aggregate = 1.5 ton/cum									
		* Grading I -19mm (Nominal size)(only 20% fresh material has been considered)									
		20-10 mm 38 percent	cum	21.651	21.651	21.651	963.12	20852.51	20852.51	20852.51	M-044
		10-5 mm 17 percent	cum	9.686	9.686	9.686	631.69	6118.55	6118.55	6118.55	M-039
		5 mm and below 43 percent	cum	24.500	24.500	24.500	452.95	11097.28	11097.28	11097.28	M-029
		Filler @2 percent of weight of aggregates	tonne	1.709	1.709	1.709	3222.77	5507.71	5507.71	5507.71	M-190
		* Any of the alternative may be adopted as per approved design									
		* Grading I-19mm (Nominal size)									
		Total cost(Without O.H&C.P.)						673646.92	672030.33	671355.24	
		d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		53891.75	67203.03	80562.63	

CHAPTER-5
Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		72753.87	73923.34	75191.79	
			Cost for 191 cum = a+b+c+d+e						800292.54	813156.70	827109.66	
			Rate per cum= (a+b+c+d+e)/191						4190.01	4257.36	4330.42	
								Say	**4190.00**	**4257.40**	**4330.40**	
5.20	**519**	**B**	**Hot recycling in place of Bituminous Pavement with bituminous concrete**									
			Grading II									
			Providing and laying bitminous concrete with hot recycling in place using crushed aggregates of specified grading, with bituminous bindes @ 5.4 percent of mix filler, transporting the aggregate to work site, laying with a hot recycling in place to the required grade, level and alignment rolling with smoothed wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specificationf clause No. 519 complete in all respects.									
			Unit= cum									
			Taking output= 191 cum									
			a) Labour									
			Mate	day	0.520	0.520	0.520	444.00	230.88	230.88	230.88	L-12
			Mazdoor	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13
			Skilled mazdoor	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
			b) Machinery									
			Hot in place recycling with pre heater unit for hot in place recycling	hour	6.000	6.000	6.000	741.00	4446.00	4446.00	4446.00	PM53001
			Front end loader for feeding the plant									
			i) 3.1 cum capacity	hour	1.200			3523.00	4227.60			PM5001
			ii) 2.1 cum capacity	hour		1.200		2121.00		2545.20		PM5002
			iii) 1 cum capacity	hour			1.200	1454.00			1744.80	PM5003
			Tipper									
			For Transportation									L1=1

CHAPTER-5
Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			i)18 cum capacity	t.km	90.152 X L1			4.98	448.96			PM72001
			ii) 14 cum capacity	t.km		90.152 X L1		5.71		514.77		PM73001
			iii) 10 cum capacity	t.km			90.152 X L1	7.10			640.08	PM74001
			Smooth steel wheeled tandem roller for static and vibbratory passages	hour	11.831	11.831	11.831	2110.00	24963.41	24963.41	24963.41	PM9001
			Pneumatic Tyre roller	hour	4.800	4.800	4.800	2102.00	10089.60	10089.60	10089.60	PM10001
			c) Material									
			i) Bitumen@5.4 percent of weight of mix (for 80% recycled material @1.5%)	tonne	10.268	10.268	10.268	57448.00	589876.06	589876.06	589876.06	M-074
			ii) Aggregate									
			Total weight of mix= 450.76 tonnes									
			Weight of bitumen= 23.341 tonnes									
			Weight of aggregate=426.419 tonnes									
			Taking density of aggregate = 1.5 ton/cum									
			* Grading II -13mm (Nominal size)(only 20% fresh material has been considered)									
			13.2-10 mm 21 percent	cum	11.940	11.940	11.940	631.69	7542.38	7542.38	7542.38	M-043
			10-5mm 17 percent	cum	9.665	9.665	9.665	631.69	6105.28	6105.28	6105.28	M-039
			5 mm and below 60 percent	cum	34.114	34.114	34.114	452.95	15451.94	15451.94	15451.94	M-029
			Filler @2 percent of weight of aggregates	tonne	1.706	1.706	1.706	3222.77	5498.05	5498.05	5498.05	M-190
			* Any of the alternative may be adopted as per approved design									
			Total cost(Without O.H&C.P.)						675009.16	673392.57	672717.48	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		54000.73	67339.26	80726.10	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		72900.99	74073.18	75344.36	
			Cost for 191 cum = a+b+c+d+e						801910.88	814805.01	828787.93	
			Rate per cum= (a+b+c+d+e)/191						4198.49	4265.99	4339.20	
								Say	**4198.50**	**4266.00**	**4339.20**	
		Note	*1 Quantity of bitumen & plastic has been taken for analysis purpose. The actual quantity will depend upon job mix formula.									

CHAPTER-5
Analysis of Rates

BASES AND SURFACE COURSES (BITUMINOUS)

Sr No	Ref. to M.	Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
				Large	Medium	Small		Large	Medium	Small	
		2. Labour for traffic control, watch and ward and other miscellaneos duties at site including sundries have been included in administrative overheads of the contractors.									
		3.The average density of 1.5 tonne/cum is only refrence density in this data book.									
		4. The individual percentage of aggregate should be calculated from the total weight of dry aggregates i.e. excluding the weight of bitumen. The weight of filler will also be 2 percent by weight of dry aggregates.									

CHAPTER - 06

CEMENT CONCRETE PAVEMENT

CHAPTER-6

CEMENT CONCRETE PAVEMENT

PREAMBLES :

1 High capacity of batch mix plants of 240 cum/hour & 120 cum/hour have been considered in the rate analysis of cement concrete pavement works.

2 While tippers have been provided for transportation of dry lean cement concrete and rolled cement concrete, transit truck mixers have been considered for the cement concrete pavement.

3 Chemical admixture and Silica Fumes has been considered to improve workability with reduced water cement ratio.

4 OPC 43 & 53 grade, Portland Slag Cement and Portland Pozzolana Cement has been catered for the cement concrete pavement i.e., for payement quality concrete to get higher strength. However, for dry lean concrete, cement OPC 43 grade, Portland Slag Cement and Portlant Pozzolana Cement.

5 While a slip form paver has been considered for pavement quality concrete, mechanical paver has been provided for dry lean and rolled cement concrete. However for smaller length construction by fixed form paver in an alternative.

6 The letter 'LI' (Lead from Mixing Plant to working site) represents lead in km one way. This will vary from project to project and is required to be ascertained at site to provide for the cost of carriage of the mix to work site.

7 Materials provided in the rate analysis are for estimating purpose. Exact quantity of materials will be determined for the job mix formula.

8 Fiber reinforcement concrete is also considered as specified in Clause 602.2.5 of MoRT&H Specification.

9 Rate of Ultra Thin White Topping analyzed.

CHAPTER -6
Summary of Rate Analysis
CEMENT CONCRETE PAVEMENT

Sr No	Ref. to M.	Description	Unit	Rate as per Project Category (₹)		
				Large	Medium	Small
6.01	**601**	**Dry Lean Cement Concrete Sub- base**				
		Construction of dry lean cement concrete Sub- base over a prepared sub-grade with coarse and fine aggregate conforming to IS: 383, the size of coarse aggregate not exceeding 25 mm, aggregate cement ratio not to exceed 15:1, aggregate gradation after blending to be as per table 600-1, cement content not to be less than 150 kg/ cum, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver with electronic sensor, compacting with 8-10 tonnes vibratory roller, finishing and curing.	cum	2821.30	2878.90	2945.30
6.02	**602**	**Cement Concrete Pavement**				
		Construction of un-reinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with approve grade cement @ 400 kg per cum, coarse and fine aggregate conforming to IS 383 as per actual Design Mix, possessing 28 days minimum compressive strength of 40 (Forty) Mpa and 28 days minimum flexural strength of 4.5 (Four point five) MPa, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing	cum	5518.10	5632.50	5753.70
6.03	**Suggestive**	**Transition Section between Rigid and Flexible Pavement**				
		Due to change in the properties of materials and type of construction, a gradual changeover from rigid pavement to flexible pavement is desirable to avoid any damage at the butting joint. After provision of an expansion joint in the cement concrete slab, the thickness of slab should be tapered to 10 cm over a length of 3 m towards the flexible pavement. The deficiency of thickness caused due to tapering of the slab should be made up by the asphaltic layers. The quantities of items should be worked out based on the approved design and drawings and priced as per rates given under respective clauses for cement concrete and asphaltic work.				

CHAPTER -6
Summary of Rate Analysis
CEMENT CONCRETE PAVEMENT

Sr No	Ref. to M.	Description	Unit	Rate as per Project Category (₹)		
				Large	Medium	Small
6.04	**Suggestive**	**Cement-Fly ash Dry Lean Cement Concrete Sub-base**				
		Construction of dry lean cement concrete sub-base over a prepared sub-grade with coarse and fine aggregate conforming to IS: 383, the size of coarse aggregate not exceeding 25 mm, replacing cement by fly ash to the extent of 20 percent, aggregate cement ratio not to exceed 15:1,aggregate gradation after blending to be as per table 600-1,cement content not to be less than 129 kg/cum,optimum moisture content to be determined during trial length construction,concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver with electronic sensor , compacting with 8-10 tonnes vibratory roller, finishing and curing.	cum	2674.00	2728.80	2792.60
6.05	**Suggestive**	**Cement - Fly ash concrete pavement.**				
		Construction reinforced-reinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with approve grade cement @ 340 kg per cum, coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm,replacing cement by fly ash to the extent of 15 percent and sand by 10 percent,mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing	cum	5053.70	5159.60	5274.00
6.06	**Suggestive**	**Thin White topping**				
		Construction of thin white topping with plain cement concrete pavement over existing surface with approve grade cement @ 400 kg per cum and as per IRC SP-76, coarse and fine aggregate conforming to IS 383, maximum size of fine aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction joint, joint filler, sealant primer, joint sealant, admixtures as approved, curing compound, finishing to lines etc.. and grades as per drawing.	cum	#VALUE!	#VALUE!	#VALUE!
6.07	**Suggestive**	**Cement- Fly ash Thin White topping**				

CHAPTER -6
Summary of Rate Analysis
CEMENT CONCRETE PAVEMENT

Sr No	Ref. to M.	Description	Unit	Rate as per Project Category (₹)		
				Large	Medium	Small
		Construction of thin white topping with plain cement concrete pavement over exiting surface with approve grade cement @ 340 kg per cum and Fly ash as per IRC SP-76, coarse and fine aggregate conforming to IS 383, maximum size of fine aggregate not exceeding 25mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction joint, joint filler, sealent primer, joint sealent, admixtures as approved, curing compound, finishing to lines etc.. and grades as per drawing.	cum	#VALUE!	#VALUE!	#VALUE!

CHAPTER -6
Analysis of Rate
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
6.01	**601**		**Dry Lean Cement Concrete Sub- base**									
			Construction of dry lean cement concrete Sub- base over a prepared sub-grade with coarse and fine aggregate conforming to IS: 383, the size of coarse aggregate not exceeding 25 mm, aggregate cement ratio not to exceed 15:1, aggregate gradation after blending to be as per table 600-1, cement content not to be less than 150 kg/ cum, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver with electronic sensor, compacting with 8-10 tonnes vibratory roller, finishing and curing.									
			Unit = cum									
			Taking output = 450 cum.									
			a) Labour									
			Mate	day	0.360	0.360	0.360	444.00	159.84	159.84	159.84	L-12
			Mazdoor skilled	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			Mazdoor	day	7.000	7.000	7.000	428.00	2996.00	2996.00	2996.00	L-13
			b) Machinery									
			Paver with electronic senser									
			(i)Paver Finisher Concrete with 300HP Motor	hour	2.045			26020.00	53210.90			PM30001
			(ii)Paver Finisher Concrete with 241HP Motor	hour		3.000		16683.00		50049.00		PM30002
			(iii)Paver Finisher Concrete with 118HP Motor	hour			5.625	3854.00			21678.75	PM30003
			Vibratory roller 8-10 t capacity	hour	2.045	3.000	5.625	2102.00	4298.59	6306.00	11823.75	PM10001
			Tipper for Transportation									
			(i) 18 cum capacity	t.km	990 x L1			4.98	4930.20			PM72001

CHAPTER -6
Analysis of Rate
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(ii) 14 cum capacity	t.km		990 x L1		5.71		5652.90		PM73001
			(iii) 10 cum capacity	t.km			990 x L1	7.10			7029.00	PM74001
			For loading& unloading									
			Time									
			(i) 18 cum capacity	hour	4.545			2349.00	10676.21			PM6001
			(ii) 14 cum capacity	hour		5.500		2108.00		11594.00		PM6002
			(iii) 10 cum capacity	hour			10.625	1891.00			20091.88	PM6003
			Water tanker(speed@20km/hr and return speed@30km/hr and spreading speed@3.0km/hr)									
			(i) 16KL Capacity	hour	1.509xL1+ 7.245			1204.00	10539.82			PM11001
			(ii) 12KL Capacity	hour		2.013xL1+ 9.66		1030.00		12023.19		PM11002
			(iii)6KL Capacity	hour			4.025xL1+ 19.32	789.00			18419.21	PM11003
			(C) Material									
			Concrete from sub-analysis of concrete Rate									
			(i) Using Batching Plant 240 Cum Capacity (Rate taken from sub-analysis of concrete-21.18 A)	cum	450.000			2149.00	967050.00			21.18 A
			(ii) Using Batching Plant 240 Cum Capacity (Rate taken from sub-analysis of concrete-21.18 A)	cum		450.000		2149.00		967050.00		21.18 A
			(iii)Using Batching Plant 120 Cum Capacity (Rate taken from sub-analysis of concrete-21.18 C)	cum			450.000	2175.10			978795.00	21.18 C
			cost of water (Curing)	KL	217.35	217.35	217.35	63.20	13736.52	13736.52	13736.52	M-191
			Total cost(Without O.H&C.P.)						1068680.07	1070649.45	1075811.94	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		85494.41	107064.95	129097.43	

CHAPTER -6
Analysis of Rate
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		115417.45	117771.44	120490.94	
			Cost for 450 cum = a+b+c+d+e						1269591.92	1295485.83	1325400.31	
			Rate per cum=(a+b+c+d+e)/450 (with OH.&C.P)						2821.32	2878.86	2945.33	
								Say	**2821.30**	**2878.90**	**2945.30**	
	Note:-		Quantity provided for aggregate is for estimating purpose.Exact quantity shall be as per mix design.									
6.02	**602**		**Cement Concrete Pavement**									
			Construction of un-reinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with approve grade cement @ 400 kg per cum, coarse and fine aggregate conforming to IS 383 as per actual Design mix,possessing 28 days minimum compressive strength of 40(Forty) Mpa and 28 days minimum flexural strength of 4.5 (Four point five) MPa, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing									
			Unit = cum									
			Taking output = 900cum									
			a) Labour									
			Mate	day	0.440	0.440	0.440	444.00	195.36	195.36	195.36	L-12
			Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
			Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
			b) Machinery									
			Mechanical broom@1250 sqm per hour	hour	0.893	0.893	0.893	834.00	744.76	744.76	744.76	PM23001
			Air compressor 250 cfm	hour	0.893	0.893	0.893	496.00	442.93	442.93	442.93	PM15001

CHAPTER -6
Analysis of Rate
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Paver with electronic senser									
			(i)Paver Finisher Concrete with 300HP Motor	hour	4.091			26020.00	106447.82			PM30001
			(ii)Paver Finisher Concrete with 241HP Motor	hour		6.000		16683.00		100098.00		PM30002
			(iii)Paver Finisher Concrete with 118HP Motor	hour			11.250	3854.00			43357.50	PM30003
			Transit truck agitator									
			For Transportation Transit truck agitator 6cum capacity	t.km	2070xL1	2070xL1	2070xL1	10.87	22500.90	22500.90	22500.90	PM76001
			For unloading time	hour	4.091	6.000	11.250	1992.00	8149.27	11952.00	22410.00	PM34001
			Concrete joint cutting machine	hour	101.587	101.587	101.587	235.00	23872.95	23872.95	23872.95	PM61002
			Texturing machine									
			Texturing machine(TCM) up to 18 m	hour	4.091			4437.00	18151.77			PM31001
			Texturing machine(TCM) up to 18 m	hour		6.000		4437.00		26622.00		PM31001
			Texturing machine(TCM) up to 9 m	hour			11.250	3464.00			38970.00	PM31002
			Water tanker (speed @20 km /hr and return speed@30 km / hr and spreading speed@3.0 km /hr)									L1=1
			(i)16 KL capacity	hour	3.281xL1+ 15.75			1204.00	22913.32			PM11001
			(ii) 12 KL capacity	hour		4.375xL1+ 21		1030.00		26136.25		PM11002
			(iii)6 KL capacity	hour			8.75xL1+42	789.00			40041.75	PM11003
			c) Material									

CHAPTER -6
Analysis of Rate
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Concrete from sub analysis of concrete Rate									
			(i) Using Batching Plant 240 cum Capacity (Rate taken from sub analysis of concrete 21.19 A)	cum	900.000			3667.10	3300390.00			21.19 A
			(ii) Using Batching Plant 240 cum Capacity(Rate taken from sub analysis of concrete 21.19 A)	cum		900.000		3667.10		3300390.00		21.19 A
			(iii) Using Batching Plant 120 cum Capacity (Rate taken from sub analysis of concrete 21.19 C)	cum			900.000	3704.20			3333780.00	21.19 C
			36 mm mild steel dowel bars of grade S 240	tonne	9.170	9.170	9.170	50050.00	458958.50	458958.50	458958.50	M-125
			12 mm deformed steel tie bars of grade S 415	tonne	1.051	1.051	1.051	46087.50	48437.96	48437.96	48437.96	M-083
			Separation Membrane of impermeable plastic sheeting125 micron thick (including5% overlap)	sqm	3150.000	3150.000	3150.000	14.74	46431.00	46431.00	46431.00	M-165
			Joint sealant	kg	609.524	609.524	609.524	31.25	19047.63	19047.63	19047.63	M-119
			Sealent primer	kg	100.003	100.003	100.003	31.25	3125.09	3125.09	3125.09	M-119
			Plastic sheath,1.25 mm thick for dowel bars	sqm	155.735	155.735	155.735	17.68	2753.39	2753.39	2753.39	M-137
			Curing compound	Liter	600.000	600.000	600.000	38.88	23328.00	23328.00	23328.00	M-091
			Cost of water(Curing)	KL	472.500	472.500	472.500	63.20	29862.00	29862.00	29862.00	M-191
			Add 1 percent of material for cost of miscellaneous materials like tarpauline, Hessian cloth, metal cap, cotton / compressible sponge and cradle for dowel bars, work bridges for men to approach concrete surface without walking over it, cutting blades and bites, minor equipments like scabbling machine, threads, ropes, guide wires and any other unforeseen items.						39323.34	39323.34	39657.24	
			Total cost(Without O.H&C.P.)						4180348.99	4189495.06	4203189.96	

CHAPTER -6
Analysis of Rate
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		334427.92	418949.51	504382.79	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		451477.69	460844.46	470757.28	
			Cost for 900 cum = a+b+c+d+e						4966254.60	5069289.02	5178330.03	
			Rate per cum=(a+b+c+d+e)/900(with OH.&C.P)						5518.06	5632.54	5753.70	
								Say	**5518.10**	**5632.50**	**5753.70**	
	Note		The quantities for cement, coarse aggregate and fine aggregates are for estimating only .The exact quantities will be as per mix design.									
6.03	**Suggestive**		**Transition Section between Rigid and Flexible Pavement**									
			Due to change in the properties of materials and type of construction, a gradual changeover from rigid pavement to flexible pavement is desirable to avoid any damage at the butting joint. After provision of an expansion joint in the cement concrete slab, the thickness of slab should be tapered to 10 cm over a length of 3 m towards the flexible pavement. The deficiency of thickness caused due to tapering of the slab should be made up by the asphaltic layers. The quantities of items should be worked out based on the approved design and drawings and priced as per rates given under respective clauses for cement concrete and asphaltic work.									
6.04	**Suggestive**		**Cement-Fly ash Dry Lean Cement Concrete Sub-base**									

CHAPTER -6
Analysis of Rate
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Construction of dry lean cement concrete sub-base over a prepared sub-grade with coarse and fine aggregate conforming to IS: 383, the size of coarse aggregate not exceeding 25 mm, replacing cement by fly ash to the extent of 20 percent, aggregate cement ratio not to exceed 15:1,aggregate gradation after blending to be as per table 600-1,cement content not to be less than 129 kg/cum,optimum moisture content to be determined during trial length construction,concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver with electronic sensor , compacting with 8-10 tonnes vibratory roller, finishing and curing.									
			Unit = cum									
			Taking output= 450 cum									
			a) Labour									
			Mate	day	0.360	0.360	0.360	444.00	159.84	159.84	159.84	L-12
			Mazdoor skilled	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			Mazdoor	day	7.000	7.000	7.000	428.00	2996.00	2996.00	2996.00	L-13
			b) Machinery									
			Paver finisher with electronic sensor									
			(i) Paver finisher concrete with 300 HP Motor	hour	2.045			26020.00	53210.90			PM30001
			(ii) Paver Finisher concrete with 241 HP Motor	hour		3.000		16683.00		50049.00		PM30002
			(iii) Paver Finisher concrete with 118 HP Motor	hour			5.625	3854.00			21678.75	PM30003
			Vibratory roller 8-10 t capacity	hour	2.045	3.000	5.625	2102.00	4298.59	6306.00	11823.75	PM10001
			Tipper									

CHAPTER -6
Analysis of Rate
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			For Transportation									L1=1
			(i) 18 cum capacity	t.km	990xL1			4.98	4930.20			PM72001
			(ii) 14 cum capacity	t.km		990xL1		5.71		5652.90		PM73001
			(iii) 10 cum capacity	t.km			990xL1	7.10			7029.00	PM74001
			For loading & unloading Time									
			(i) 18 cum capacity	hour	4.545			2349.00	10676.21			PM6001
			(ii) 14 cum capacity	hour		5.500		2108.00		11594.00		PM6002
			(iii) 10 cum capacity	hour			10.625	1891.00			20091.88	PM6003
			Water tanker (speed @ 20 km/hr and return speed @ 30 km/hr and spreading speed @ 3.0 km/hr)									L1=1
			(i) 16 KL capacity	hour	1.509xL1+ 7.245			1204.00	10539.82			PM11001
			(ii) 12 KL capacity	hour		2.013xL1+ 9.66		1030.00		12023.19		PM11002
			(iii) 6 KL capacity	hour			4.025xL1+ 19.32	789.00			18419.21	PM11003
			c) Material									
			Concrete from sub-analysis of concrete Rate									
			(i) Using Batching Plant 240 cum capacity(Rate taken from sub-analysis of concrete-21.18 B)	cum	450.00			2025.00	911250.00			21.18 B
			(ii) Using Batching Plant 240 cum capacity (Rate taken from sub-analysis of concrete-21.18 B)	cum		450.00		2025.00		911250.00		21.18 B
			(iii) Using Batching Plant 120 Cum capacity (Rate taken from sub-analysis of concrete-21.18 D)	cum			450.00	2051.10			922995.00	21.18 D=
			Cost of water (Curing)	KL	217.35	217.35	217.35	63.20	13736.52	13736.52	13736.52	M-191

CHAPTER -6
Analysis of Rate
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Total cost(Without O.H&C.P.)						1012880.07	1014849.45	1020011.94	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		81030.41	101484.95	122401.43	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		109391.05	111633.44	114241.34	
			Cost for 450 cum = a+b+c+d+e						1203301.52	1227967.83	1256654.71	
			Rate per cum=(a+b+c+d+e)/450(with OH.&C.P)						2674.00	2728.82	2792.57	
								Say	**2674.00**	**2728.80**	**2792.60**	
	Note:-		Quantity provided for aggregate is for estimating purpose.Exact quantity shall be as per mix design.									
6.05	**Suggestive**		**Cement - Fly ash concrete pavement.**									
			Construction reinforced-reinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with approve grade cement @ 340 kg per cum, coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm,replacing cement by fly ash to the extent of 15 percent and sand by 10 percent,mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing									
			Unit = cum									
			Taking output = 900 cum									
			a) Labour									
			Mate	day	0.440	0.440	0.440	444.00	195.36	195.36	195.36	L-12
			Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
			Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13

CHAPTER -6
Analysis of Rate
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			b) Machinery									
			Mechanical broom @ 1250 sqm per hour	hour	0.893	0.893	0.893	834.00	744.76	744.76	744.76	PM23001
			Air compressor 250 cfm	hour	0.893	0.893	0.893	496.00	442.93	442.93	442.93	PM15001
			Paver with electronic sensor									
			(i) Paver finisher Concrete with 300 HP Motor	hour	4.091			26020.00	106447.82			PM30001
			(ii) Paver Finisher Concrete with 241 HP Motor	hour		6.000		16683.00		100098.00		PM30002
			(iii) Paver Finisher Concrete with 118 HP Motor	hour			11.250	3854.00			43357.50	PM30003
			Transit truck agitator									L1=1
			For Transportation Transit truck agitator 6 cum capacity	t.km	2070xL1	2071xL1	2072xL1	10.87	22500.90	22511.77	22522.64	PM76001
			For Unloading time	hour	4.091	6.000	11.250	1992.00	8149.27	11952.00	22410.00	PM34001
			Concrete joint cutting machine	hour	101.587	101.587	101.587	235.00	23872.95	23872.95	23872.95	PM61002
			Texturing machine.	hour	4.091	6.000	11.250	4437.00	18151.77	26622.00	49916.25	PM31001
			Water tanker (speed @ 20km/hr and return speed @30 km/hr and spreading speed@ 3.0 km/hr									L1=1
			(i) 16 KL capacity	hour	3.281xL1+ 15.75			1204.00	22913.32			PM11001
			(ii) 12 KL capacity	hour		4.375xL1+ 21		1030.00		26136.25		PM11002
			(iii) 6 KL capacity	hour			8.75xL1+42	789.00			40041.75	PM11003
			c) Material									
			Concrete from sub-analysis of concrete Rate									
			(i) Using Batching plant 240 Cum Capacity (Rate taken from sub-analysis of concrete- 21.19 B)	cum	900.000			3280.10	2952090.00			21.19. B

CHAPTER -6
Analysis of Rate
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(ii) Using Batching Plant 240 cum capacity (Rate taken from sub-analysis of concrete-21.19 B)	cum		900.000		3280.10		2952090.00		21.19 B
			(iii) Using Batching Plant 120 Cum Capacity(Rate taken from sub-analysis of concrete - 21.19 D)	cum			900.000	3306.60			2975940.00	21.19 D
			36mm mild steel dowelbars of grade S 240	tonne	9.170	9.170	9.170	50050.00	458958.50	458958.50	458958.50	M-125
			12 mm deformed steel tie bars of grade S 415	tonne	1.051	1.051	1.051	46087.50	48437.96	48437.96	48437.96	M-083
			Separation Membrance of impermeable plastic sheeting 125 micron thick (including 5% overlap)	sqm	3150.000	3150.000	3150.000	14.74	46431.00	46431.00	46431.00	M-165
			Joint Sealant	kg	609.524	609.524	609.524	31.25	19047.63	19047.63	19047.63	M-119
			Sealant primer	kg	100.003	100.003	100.003	31.25	3125.09	3125.09	3125.09	M-119
			Plastic sheath,1.25 mm thick for dowel bars	sqm	155.735	155.735	155.735	17.68	2753.39	2753.39	2753.39	M-137
			Curing compound	Litre	600.000	600.000	600.000	38.88	23328.00	23328.00	23328.00	M-091
			Cost of water (Curing)	KL	472.500	472.500	472.500	63.20	29862.00	29862.00	29862.00	M-191
			Add 1 percent of material for cost of miscellaneous materials like tarpaulin, Hessian cloth, metal cap, cotton/ compressible sponge and cradle for dowel bars, work bridges for men to approach concrete surface without walking over it, cutting blades and bites, minor equipments like scabbling machine, threads, ropes, guide wires and any other unforseen items.						35840.34	35840.34	36078.84	
			Total cost(Without O.H&C.P.)						3828565.99	3837722.93	3852739.55	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		306285.28	383772.29	462328.75	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		413485.13	422149.52	431506.83	
			Cost for 900 cum = a+b+c+d+e						4548336.40	4643644.74	4746575.12	
			Rate per cum = (a+b+c+d+e)/900						5053.71	5159.61	5273.97	
								Say	**5053.70**	**5159.60**	**5274.00**	
		Note	The quantities for cement, coarse aggregate and fine aggregates are for estimating only. The exact quantities will be as per mix design.									

CHAPTER -6
Analysis of Rate
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
6.06	Suggestive		**Thin White topping**									
			Construction of thin white topping with plain cement concrete pavement over existing surface with approve grade cement @ 400 kg per cum and as per IRC SP-76, coarse and fine aggregate conforming to IS 383, maximum size of fine aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction joint, joint filler, sealant primer, joint sealant, admixtures as approved, curing compound, finishing to lines etc.. and grades as per drawing.								
			Unit = cum									
			Taking output = 450 cum									
			a) Labour									
			Mate	day	0.440	0.440	0.440	444.00	195.36	195.36	195.36	L-12
			Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
			Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
			b) Machinery									
			Mechanical broom @1250 sqm per hour	hour	0.893	0.893	0.893	834.00	744.76	744.76	744.76	PM23001
			Air Compresser 250 cfm	hour	0.893	0.893	0.893	496.00	442.93	442.93	442.93	PM15001
			Paver with electronic sensor									
			(i) Paver finisher concrete with 300 HP Motor	hour	2.045			26020.00	53210.90			PM30001
			(ii) Paver finisher concrete with 241 HP Motor	hour		3.000		16683.00		50049.00		PM30002
			(iii) Paver finisher concrete with 118 HP Motor	hour			5.625	3854.00			21678.75	PM30003
			Transit truck agitator									L1=1
			For Transportation Transit truck agitator 6 cum capacity	t.km	2070xL1	2070xL1	2070xL1	10.87	22500.90	22500.90	22500.90	PM76001
			For Unloading time	hour	2.045	3.000	5.625	1992.00	4073.64	5976.00	11205.00	PM34001
			Concrete joint cutting machine	hour	320.000	320.000	320.000	235.00	75200.00	75200.00	75200.00	PM61002
			Texturing machine									

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Analysis of Rate
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Texturing machine (TCM) upto 18 m	hour	2.045			4437.00	9073.67			PM31001
			Texturing machine (TCM) upto 18 m	hour		3.000		4437.00		13311.00		PM31001
			Texturing machine (TCM) upto 9 m	hour			5.625	3464.00			19485.00	PM31002
			Water tanker (speed @ 20 km/hr and return speed @ 30 km/hr and spreading speed @ 3.0 km/hr									L1=1
			(i) 16 KL capacity	hour	1.641xL1+ 7.875			1204.00	11457.26			PM11001
			(ii) 12 KL capacity	hour		2.188xL1+ 10.5		1030.00		13068.64		PM11002
			(iii) 6 KL capacity	hour			4.375xL1+21	789.00			20020.88	PM11003
			c) Material									
			Concrete from sub-analysis of concrete Rate									
			(i) Using Batching Plant 240 cum Capacity (Rate taken from sub-analysis of concrete-21.19 A)	cum	450.000			3667.10	1650195.00			21.19 A
			(ii) Using Batching Plant 240 Cum capacity (Rate taken from sub-analysis of concrete- 21.19 A)	cum		450.000		3667.10		1650195.00		21.19 A
			(iii) Using Batching Plant 120 Cum capacity (Rate taken from sub-analysis of concrete- 21.19 C)	cum			450.000	3704.20			1666890.00	21.19 C
			Joint sealant	kg	1920.000	1920.000	1920.000	31.25	60000.00	60000.00	60000.00	M-119
			Sealant primer	kg	50.001	50.001	50.001	31.25	1562.53	1562.53	1562.53	M-119
			Fibre Reinforcement @ 9.25 kg Per Cum	tonne	4.163	4.163	4.163	INPUT	#VALUE!	#VALUE!	#VALUE!	M-300.
			Curing compound	Liter	600.000	600.000	600.000	38.88	23328.00	23328.00	23328.00	M-091
			Cost of water (Curing)	KL	236.250	236.250	236.250	63.20	14931.00	14931.00	14931.00	M-191

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Analysis of Rate
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Add 1 percent of material for cost of miscellaneous materials like tarpauline, Hessian cloth, cotton / compressible sponge and , work bridges for men to approach concrete surface without walking over it, cutting blades and bites, minor equipments like scabbling machine, threades, ropes, guide wires and any other unforseen items.						#VALUE!	#VALUE!	#VALUE!	
			Total cost(Without O.H&C.P.)						#VALUE!	#VALUE!	#VALUE!	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Cost for 450 cum = a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per cum = (a+b+c+d+e)/450						#VALUE!	#VALUE!	#VALUE!	
									#VALUE!	#VALUE!	#VALUE!	
	Note		1.The quantities for cement, coarse aggregate and fine aggregates are for estimating only .The exact quantities will be as per mix design.									
6.07	**Suggestive**		**Cement- Fly ash Thin White topping**									
			Construction of thin white topping with plain cement concrete pavement over exiting surface with approve grade cement @ 340 kg per cum and Fly ash as per IRC SP-76, coarse and fine aggregate conforming to IS 383, maximum size of fine aggregate not exceeding 25mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction joint, joint filler, sealent primer, joint sealent, admixtures as approved, curing compound, finishing to lines etc.. and grades as per drawing.									
			Unit = cum									
			Taking output = 450 cum									

CHAPTER -6
Analysis of Rate
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			a) Labour									
			Mate	day	0.440	0.440	0.440	444.00	195.36	195.36	195.36	L-12
			Mazdoor skilled	day	5.000	5.000	5.000	541.00	2705.00	2705.00	2705.00	L-15
			Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
			b) Machinery									
			Mechanical broom @1250 sqm per hour	hour	0.893	0.893	0.893	834.00	744.76	744.76	744.76	PM23001
			Air Compresser 250 cfm	hour	0.893	0.893	0.893	496.00	442.93	442.93	442.93	PM15001
			Paver with electronic sensor									
			(i) Paver finisher concrete with 300 HP Motor	hour	2.045			26020.00	53210.90			PM30001
			(ii) Paver finisher concrete with 241 HP Motor	hour		3.000		16683.00		50049.00		PM30002
			(iii) Paver finisher concrete with 118 HP Motor	hour			5.625	3854.00			21678.75	PM30003
			Transit truck agitator									L1=1
			For Transportation Transit truck agitator 6 cum capacity	t.km	2070xL1	2070xL1	2070xL1	10.87	22500.90	22500.90	22500.90	PM76001
			For Unloading time	hour	2.045	3.000	5.625	1992.00	4073.64	5976.00	11205.00	PM34001
			Concrete joint cutting machine	hour	320.000	320.000	320.000	235.00	75200.00	75200.00	75200.00	PM61002
			Texturing machine									
			Texturing machine (TCM) upto 18 m	hour	2.045			4437.00	9073.67			PM31001
			Texturing machine (TCM) upto 18 m	hour		3.000		4437.00		13311.00		PM31001
			Texturing machine (TCM) upto 9 m	hour			5.625	3464.00			19485.00	PM31002
			Water tanker (speed @ 20 km/hr and return speed @ 30 km/hr and spreading speed @ 3.0 km/hr									L1=1
			(i) 16 KL capacity	hour	1.641xL1+7.875			1204.00	11457.26			PM11001
			(ii) 12 KL capacity	hour		2.188xL1+10.5		1030.00		13068.64		PM11002
			(iii) 6 KL capacity	hour			4.375xL1+21	789.00			20020.88	PM11003
			c) Material									
			Concrete from sub-analysis of concrete Rate									

CHAPTER -6
Analysis of Rate
CEMENT CONCRETE PAVEMENTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(i) Using Batching Plant 240 cum Capacity (Rate taken from sub-analysis of concrete-21.19 B)	cum	450.000			3280.10	1476045.00			21.19. B
			(ii) Using Batching Plant 240 Cum capacity (Rate taken from sub-analysis of concrete- 21.19 B)	cum		450.000		3280.10		1476045.00		21.19 B
			(iii) Using Batching Plant 120 Cum capacity (Rate taken from sub-analysis of concrete- 21.19 D)	cum			450.000	3306.60			1487970.00	21.19 D
			Joint sealant	kg	1920.000	1920.000	1920.000	31.25	60000.00	60000.00	60000.00	M-119
			Sealant primer	kg	50.001	50.001	50.001	31.25	1562.53	1562.53	1562.53	M-119
			Fibre Reinforcement @ 9.25 kg Per Cum	tonne	4.163	4.163	4.163	INPUT	#VALUE!	#VALUE!	#VALUE!	M-300.
			Curing compound	Liter	600.000	600.000	600.000	38.88	23328.00	23328.00	23328.00	M-091
			Cost of water (Curing)	KL	236.250	236.250	236.250	63.2	14931.00	14931.00	14931.00	M-191
			Add 1 percent of material for cost of miscellaneous materials like tarpauline, Hessian cloth, cotton / compressible sponge and , work bridges for men to approach concrete surface without walking over it, cutting blades and bites, minor equipments like scabbling machine, threades, ropes, guide wires and any other unforseen items.						#VALUE!	#VALUE!	#VALUE!	
			Total cost(Without O.H&C.P.)						#VALUE!	#VALUE!	#VALUE!	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Cost for 450 cum = a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per cum = (a+b+c+d+e)/450						#VALUE!	#VALUE!	#VALUE!	
									#VALUE!	#VALUE!	#VALUE!	
	Note:-		1.The quantities for cement, coarse aggregate and fine aggregates are for estimating only .The exact quantities will be as per mix design.									

CHAPTER - 07

GEOSYNTHETIC, REINFORCED EARTH AND PROTECTION WORK

CHAPTER-7

GEOSYNTHETIC, REINFORCED EARTH AND PROTECTION WORK

PREAMBLES :

1 The specifications for geo-synthetics which includes geotextiles, geogrids, geo-nets, geomembranes, geo-composites, geo-cells, geo-synthetic-map, natural geotextiles and Paving Fabric and Glass Grids shall be as per section 700 of MoRT&H Specifications.

2 The geotextile proposed for sub-surface drain shall satisfy the requirements given in Clause 702.2.3.1

3 Bitumen overlay shall follow on the same day where paving fabric is laid.

4 Rates are including quality control and tesiting.

Chapter 7

Summary of Rate Analysis

GEOSYNTHETICS AND REINFORCED EARTH

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category(₹)		
					Large	Medium	Small
7.01	702		**Sub-Surface Drain with Geotextiles**				
			Construction of sub surface drain 200 mm dia using geotextiles treated with carbon black with physical properties as given in clause 702.2.3 formed in to a stable network and a planer geocomposite structure, joints wrapped with geotextile to prevent ingress of soil, all as per clause 702 and approved drawings including excavation and backfilling	Running metre	891.20	907.70	924.20
7.02	708		**Laying Paving Fabric Beneath a Pavement Overlay**				
			Providing and laying paving fabric with physical requirements as per **Table 700-16** over a tack coat of paving grade Bitumen 80-100 penetration, laid at the rate of 1 kg per sqm over thoroughly cleaned and repaired surface to provide a water resistant membrane and crack retarding layer. Paving fabric to be free of wrinkling and folding and to be laid before cooling of tack coat, brooming and rolling of surface with pneumatic roller to maximise paving fabric contact with pavement surface	Sqm	227.40	231.60	235.80
7.03	703		**Laying Boulder Apron in Crates of Synthetic Geogrids**				
			Providing, preparing and laying of geogrid crated apron 1 m x 5 m, 600 mm thick including excavation and backfilling with baffles at 1 metre interval, made with geogrids having characteristics as per clause 703.2, joining sides with connectors/ring staples, top corners to be tie tensioned, placing of suitable cross interval ties in layers of 300 mm connecting opposite side with lateral braces and tied with polymer braids to avoid bulging, constructed as per clause 703.3. filled with stone with minimum size of 200 mm and specific gravity not less than 2.65, packed with stone spalls, keyed to the foundation recess in case of sloping ground and laid over a layer of geotextile to prevent migration of fines, all as per clause 703 and laid as per clause 2503.3 and approved design.	cum	2633.40	2682.10	2730.90
7.04	3100		**Reinforced Earth Structures**				
			Reinforced earth Structures have four main components as under:				
			a) Excavation for foundation, foundation concrete and cement concrete grooved seating in the foundation for facing elements (fascia material).				
			b) Fascia material and its placement.				
			c) Assembling, joining with facing elements and laying of the reinforcing elements.				
			d) Earth fill with granular material which is to be retained by the wall.				
			Each component is analysed separately as under:				
			considering Average height of wall = 8 m.				
7.04	3103	(i)	**Assembling, joining and laying of reinforcing elements.**				

Chapter 7

Summary of Rate Analysis

GEOSYNTHETICS AND REINFORCED EARTH

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category(₹)		
					Large	Medium	Small
		A	With reinforcing element of steel / Aluminium strips / polymeric strips.				
		Type 1	1.Galvanised carbon steel strips	Running Metre	189.80	193.40	196.90
		Type 2	2.Copper Strips	Running Metre	1986.30	2023.10	2059.90
		Type 3	3.Aluminium Strips	Running Metre	280.00	285.20	290.40
		Type 4	4.Stainless steel strips	Running Metre	960.20	978.00	995.80
		Type 5	Glass reinforced polymer/ fiber reinforced polymer /polymeric strips	Running Metre	101.40	103.30	105.20
7.04(i)		B	With reinforcing elements of synthetic geogrids	Sqm	299.90	305.50	311.00
7.04	3105	(ii)	Facing elements of RCC	Sqm	1575.30	1605.80	1640.10
7.05	703	(i)	supplying & laying of bi-axial extruted high modulus polypropylene geogrid conforming to MORT&H specification for base/sub-base reinforcement having minimum tensile stength 15KN/m in the longitudinal and transverse direction ,with 5KN/m and 7KN/m tensile strength at 2 % and 5% strain respectively in the longitudinal and transverse direction ,junction efficiency not less than95% and with 38mmx38mm mesh opening.	Sqm	147.30	150.00	152.70
7.05	703	(ii)	supplying & laying of bi-axial extruted high modulus polypropylene geogrid confirming to MORT&H specification for base/sub-base reinforcement having minimum tensile stength 20KN/m in the longitudinal and transverse direction ,with 7KN/m and 14KN/m tensile strength at 2% and 5% strain respectively in the longitudinal and transverse direction ,junction efficiency not less than 95% and with 38mmx38mm mesh opening.	Sqm	167.50	170.60	173.70
7.05	703	(iii)	supplying & laying of bi-axial extruted high modulus polypropylene geogrid conforming to MORT&H specification for base/sub-base reinforcement having minimum tensile stength 30KN/m in the longitudinal and transverse direction ,with 10.5KN/m and 21KN/m tensile strength at 2% and 5% strain respectively in the longitudinal and transverse direction ,junction efficiency not less than 95% and with 38mmx38mm mesh opening.	Sqm	267.40	272.30	277.30

Chapter 7

Summary of Rate Analysis

GEOSYNTHETICS AND REINFORCED EARTH

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category(₹)		
					Large	Medium	Small
7.05	703	(iv)	supplying & laying of bi-axial extruted high modulus polypropylene geogrid confirming to MORT&H specification for base/sub-base reinforcement having minimum tensile stength 40KN/m in the longitudinal and transverse direction ,with 14KN/m and 28KN/m tensile strength at 2% and 5% strain respectively in the longitudinal and transverse direction ,junction efficiency not less than 95% and with 38mmx38mm mesh opening.	Sqm	386.10	393.30	400.40
7.06	703		supplying and laying high strength flexible geogrids (HSFG) as soil reinforcement /basal reinforcement as per MORT&H 3100 and IRC 113, made of high tenacity polyester core with polyethylene coating with minimum Long Term Design strength (LTDS) of more than 50% of ultimate tensile strength at 30 degree celcius corresponding to 12 % strain e.t.c.Complete and as directed by Engineer-in-charge.				
			(i) Synthetic Geogrid ultimate tensile strength- 100kN/m	Sqm	348.70	355.20	361.60
			(ii) Synthetic Geogrid ultimate tensile strength-150kN/m	Sqm	365.70	372.40	379.20
			(iii) Synthetic Geogrid ultimate tensile strength-200kN/m	Sqm	586.00	596.80	607.70
			(iv) Synthetic Geogrid ultimate tensile strength-250kN/m	Sqm	602.90	614.10	625.30
			(v) Synthetic Geogrid ultimate tensile strength-300kN/m	Sqm	619.90	631.40	642.80
			(vi) Synthetic Geogrid ultimate tensile strength-350kN/m	Sqm	636.80	648.60	660.40
			(vii) Synthetic Geogrid ultimate tensile strength-400kN/m	Sqm	772.40	786.70	801.00
			(viii) Synthetic Geogrid ultimate tensile strength-500kN/m	Sqm	857.20	873.00	888.90
			(ix) Synthetic Geogrid ultimate tensile strength-600kN/m	Sqm	941.90	959.40	976.80
			(x) Synthetic Geogrid ultimate tensile strength-800kN/m	Sqm	1238.50	1261.50	1284.40
			(xi) Synthetic Geogrid ultimate tensile strength-900kN/m	Sqm	1450.40	1477.20	1504.10
			(xii) Synthetic Geogrid ultimate tensile strength-1000kN/m	Sqm	1619.90	1649.90	1679.90
			(xiii) Synthetic Geogrid ultimate tensile strength-1100kN/m	Sqm	1704.60	1736.20	1767.70
			(xiv) Synthetic Geogrid ultimate tensile strength-1200kN/m	Sqm	1789.30	1822.50	1855.60

Chapter 7

Summary of Rate Analysis

GEOSYNTHETICS AND REINFORCED EARTH

Sr No	Ref. to M.		Description	Unit	Rate as per Project Category(₹)		
					Large	Medium	Small
7.07	704		Supplying & laying of drainage composite for use behind walls, between two different fills, alongside drains of road, below concrete lining of canal etc. Geocomposite for planar drainage,realized by thermobonding a draining core in extruded monofilaments with two filtering nonwoven geotextiles that may also be working as seperation or protecting layers. The draining three dimensional core will have a "W" configuration as longitudinal parallel channels.Minimum thickness to be 7.2mm, with two filtering UV stabilized polypropylene nonwoven geo textile of minimum thickness of 0.75mm having pores of 150 micron and tensile strength of 8.0kN/m that will be working as seperation or protecting layer, geocomposite having in plane flow capacity of 2.1L/(m.s) at hydraulic gradiant of 1.0 & 20 kpa pressure and tensile strength of 18 kN/m, with mass per unit area of 740 gsm, supplied in the form of roll for easy transportation to site of work as per detailed specification all complete as per directions of Engineer in charge	Sqm	739.30	753.00	766.70
7.08	704		Supplying & laying of drainage composite for use behind walls, between two different fills, alongside drains of road, below concrete lining of canal etc.having thermobonding a draining core- HDPE geonet comprises of two sets of parellel overlayed ribs integrally connected to have a rhomboidal shape with a polythylene film and a nonwoven geotextile having mass per unit area 130g/m2 and tensile strength of 8.0 kn/m that will be working as seperation or protecting layers, geocomposite having in plane flow capacity of 0.7L/(m.s) at hydraulic gradiant of 1.0 & 20 kpa pressure and tensile strength of 13.5 kN/m, with mass per unit area of 830 gsm, at easily accessible location including top and bottom, with all leads and lifts, manpower and machinery, materials, labour etc. complete and as directed by Engineer-in-charge	Sqm	878.30	894.60	910.80
7.09	suggestive		**Reinforced cement concrete crash Barrier with friction slab**				
			Provision of an Reinforced cement concrete crash barrier with friction slab at the approaches to bridge structures, Constructed with M-40 grade concrete with HYSD reinforcement conforming to IRC:112 and as per dimensions in the approved drawings and at locations directed by the Engineers, all as specified.(Area-0.185 sqm/meter) below friction slab and (Area-1.032 sqm/meter) crash Barrier with friction slab				
		(I)	**a) M 40 grade concrete**	Running Metre	#VALUE!	#VALUE!	#VALUE!

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Sr No	Ref. to M.		Description	Unit	Rate as per Project Category(₹)		
					Large	Medium	Small
7.10			**In-Situ Soil reinforcement for slope restoration and protection work (Soil Nailing)**	Running Metre			
			Supply and installation of In-Situ Soil reinforcement (Soil Nailing) With fully threaded hot-dip galvanised solid geotechnical bars as soil nails (galvanization minimum 500 grams per sqm) of minimum 25 mm diameter, having yield strength>670N/mm2 and tensile strength> 800N/mm2 as per technical specifications and drawings etc. complete inciuding drilling, flushing,grouting, and all Supply and installation of all components listed as per tecnical specifications and drawings etc.and considering all iead, lift and machinery.	Running Metre	#VALUE!	#VALUE!	#VALUE!
7.11	suggestive		**Horizontal Drainage Boring**				
			Horizontal Drainage Boring methods on the types of sandy soil / cohesive soil and drilling length including cost of all materials, machinery, labour and all other ancillary operations etc..(Nominal Diameter of drilling pipe- 90mm				
			Nominal Diameter of drilling pipe- 90mm				
		(i)	**Drilling length below bed level upto 50.0 Meter**				
		A	**Sandy Soil / Cohesive Soil**	Running Metre	#VALUE!	#VALUE!	#VALUE!
		B	**Gravelly Soil**	Running Metre	#VALUE!	#VALUE!	#VALUE!
		C	**Rubble / Cobble Stone**	Running Metre	#VALUE!	#VALUE!	#VALUE!
		D	**Soft Rock**	Running Metre	#VALUE!	#VALUE!	#VALUE!
		(ii)	**Drilling length from 50.0 Meter-80 meter**				
		A	**Sandy Soil / Cohesive Soil**	Running Metre	#VALUE!	#VALUE!	#VALUE!
		B	**Gravelly Soil**	Running Metre	#VALUE!	#VALUE!	#VALUE!
		C	**Rubble / Cobble Stone**	Running Metre	#VALUE!	#VALUE!	#VALUE!
		D	**Soft Rock**	Running Metre	#VALUE!	#VALUE!	#VALUE!
7.12	suggestive		**Horizontal Drainage Boring(Nominal Diameter of drilling pipe-110 mm)**				
			Horizontal Drainage Boring methods on the types of sandy soil / cohesive soil and drilling length including cost of all materials, machinery, labour and all other ancillary operations etc..(Nominal Diameter of drilling pipe- 90mm				
			Nominal Diameter of drilling pipe- 110mm				
		(i)	**Drilling length below bed level upto 50.0 Meter**				

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Sr No	Ref. to M.		Description	Unit	Rate as per Project Category(₹)		
					Large	Medium	Small
		A	Sandy Soil / Cohesive Soil	Running Metre	#VALUE!	#VALUE!	#VALUE!
		B	Gravelly Soil	Running Metre	#VALUE!	#VALUE!	#VALUE!
		C	Rubble / Cobble Stone	Running Metre	#VALUE!	#VALUE!	#VALUE!
		D	Soft Rock	Running Metre	#VALUE!	#VALUE!	#VALUE!
		(ii)	Drilling length from 50.0 Meter-80 meter				
		A	Sandy Soil / Cohesive Soil	Running Metre	#VALUE!	#VALUE!	#VALUE!
		B	Gravelly Soil	Running Metre	#VALUE!	#VALUE!	#VALUE!
		C	Rubble / Cobble Stone	Running Metre	#VALUE!	#VALUE!	#VALUE!
		D	Soft Rock	Running Metre	#VALUE!	#VALUE!	#VALUE!
7.13	suggestive		Horizontal Drainage Boring (Nominal Diameter of drilling pipe-135 mm)				
			Horizontal Drainage Boring methods on the types of sandy soil / cohesive soil and drilling length including cost of all materials, machinery, labour and all other ancillary operations etc..(Nominal Diameter of drilling pipe- 90mm				
			Nominal Diameter of drilling pipe- 135mm				
		(i)	Drilling length below bed level upto 50.0 Meter				
		A	Sandy Soil / Cohesive Soil	Running Metre	#VALUE!	#VALUE!	#VALUE!
		B	Gravelly Soil	Running Metre	#VALUE!	#VALUE!	#VALUE!
		C	Rubble / Cobble Stone	Running Metre	#VALUE!	#VALUE!	#VALUE!
		D	Soft Rock	Running Metre	#VALUE!	#VALUE!	#VALUE!
		(ii)	Drilling length from 50.0 Meter-80 meter				
		A	Sandy Soil / Cohesive Soil	Running Metre	#VALUE!	#VALUE!	#VALUE!
		B	Gravelly Soil	Running Metre	#VALUE!	#VALUE!	#VALUE!
		C	Rubble / Cobble Soil	Running Metre	#VALUE!	#VALUE!	#VALUE!
		D	Soft Rock	Running Metre	#VALUE!	#VALUE!	#VALUE!
7.14	710.1.4 of IRC78&2200		Selected fill behind Reinforced Earth Wall Complete as per drawing and Technical specification				
		A	Granular Material	Cum	313.90	323.70	331.90
7.14		B	Sandy Material	Cum	234.80	243.10	249.30

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Sr No	Ref. to M.		Description	Unit	Rate as per Project Category(₹)		
					Large	Medium	Small
7.15	710.1.4 of IRC:78 and 2504.2		Providing and laying of filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRT&H specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and Technical specifications.	cum	1488.30	1515.90	1543.50
7.16	704		**Supplying & laying of drainage composite for use behind walls with Geosynthetic Drainage composite.**				
7.16		A	Supplying & laying of drainage composite for use behind walls,between two different fills, alongside drains of road, below concrete lining of canal etc. Geocomposite for planar drainage, realized by thermobonding a draining core in extruded monofilaments with two filtering nonwoven geotextiles that may also be working as separation or protecting layers.The draining three dimensional core will have a "W" configuration as longitudinal parallel chanels. Minimum thickness to be 7.2 mm, with two filtering UV stabilized polypropylene nonwoven geotextile of minimum thickness of 0.75 mm having pores of 150 micron and tensile strength of 8.0 KN/M that will be working as separation or protecting layer, geocomposite having in plane flow capacity of 2.1 L /(m.s) at hydraulic gradiant of 1.0 & 20 kpa pressure and tensile strength of 18 KN/M, with mass per unit area of 740 gsm, supplied in the form of roll for easy transportation to site of work as per detailed specification all complete as per directions of Engineer in charge.	Sqm	739.30	753.00	766.70
7.16		B	Supplying & laying of drainage composite for use behind walls,between two different fills, alongside drains of road, below concrete lining of canal etc. having thermobonding a draining core - HDPE geonet comprises of two sets of parallel overlayed ribs integrally connected to have a rhomboidal shape with a polythylene film and a nonwoven geotextiles having mass per unit area 130 g/m2 and tensile strength of 8.0 KN/M that will be workind as separation or protecting layer, geocomposite having in plane flow capacity of 0.7 L /(m.s) at hydraulic gradiant of 1.0 & 20 kpa pressure and tensile strength of 13.5 KN/M, with mass per unit area of 830 gsm, at easily accessible location including top and bottom, with all leads and lifts, manpower and machinery, materials, labour etc. complete and as directed by Engineer in charge.	Sqm	878.30	894.60	910.80
7.17	705		**Geocell for Slope protection**				

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Sr No	Ref. to M.		Description	Unit	Rate as per Project Category(₹)		
					Large	Medium	Small
			Furnishing and installing of the Geocell for slope protection including fixing and anchoring of cells in the ground, preparation of ground, filling of cells with specified materials, seeding, watering and all other incidentals including all other items to complete the work as per these specifications drawing or as directed by the Engineer.	Sqm	146.10	148.80	151.60
7.18	**706**		**Geosynthtics mat on the slope**				
			Furnishing and installing of the Geosynthetics mat for control of erosion of slopes including supplying and laying the mat, spreading soil and seeding to promote the design of vegetation, watering and all other incidentals including all other items to complete the work as per these specifications drawing or as directed by the Engineer.	Sqm	78.00	79.40	80.80
7.19	**707**		**Natural Geotextile on the slope**				
			Furnishing and installing of the natural Geotextile for control of erosion of slopes including supplying and laying the natural Geotextile, spreading soil and seeding to promote the design of vegetation, watering and all other incidentals including all other items to complete the work as per these specifications drawing or as directed by the Engineer.	Sqm	138.90	141.50	144.00

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
7.01	702		**Sub-Surface Drain with Geotextiles**									
			Construction of sub surface drain 200 mm dia using geotextiles treated with carbon black with physical properties as given in clause 702.2.3 formed in to a stable network and a planer geocomposite structure, joints wrapped with geotextile to prevent ingress of soil, all as per clause 702 and approved drawings including excavation and backfilling									
			Unit = Running metre									
			Taking output = one metre									
			a) Labour									
			Mate	day	0.030	0.030	0.030	444.00	13.32	13.32	13.32	L-12
			Mazdoor skilled	day	0.250	0.250	0.250	541.00	135.25	135.25	135.25	L-15
			Mazdoor	day	0.500	0.500	0.500	428.00	214.00	214.00	214.00	L-13
			b) Material									
			Geonets, geomembrane and geotextile to make planar geocomposite stable network for sub surface drain including wrapping of joints with 160 mm over lapping with geotextile .									
			Geonets	sqm	1.000	1.000	1.000	127.53	127.53	127.53	127.53	M-106
			Geomembrane	sqm	1.000	1.000	1.000	53.06	53.06	53.06	53.06	M-105
			Geotextile	sqm	2.000	2.000	2.000	99.70	199.40	199.40	199.40	M-107
			Add 2 per cent cost of material for miscellaneous items like synthetic cord						7.60	7.60	7.60	
			c) Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		60.01	75.02	90.02	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		81.02	82.52	84.02	
			Rate per metre = a+b+c+d						891.19	907.70	924.20	
								Say	**891.20**	**907.70**	**924.20**	
		Note	Surplus excavated material to be used at site. Hence separate cost for disposal not added.									

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
7.02	**708**		**Laying Paving Fabric Beneath a Pavement Overlay**									
			Providing and laying paving fabric with physical requirements as per **Table 700-16** over a tack coat of paving grade Bitumen 80-100 penetration, laid at the rate of 1 kg per sqm over thoroughly cleaned and repaired surface to provide a water resistant membrane and crack retarding layer. Paving fabric to be free of wrinkling and folding and to be laid before cooling of tack coat, brooming and rolling of surface with pneumatic roller to maximise paving fabric contact with pavement surface									
			Unit = sqm									
			Taking output = 2800 sqm									
			a) Labour									
			Mate	day	0.800	0.800	0.800	444.00	355.20	355.20	355.20	L-12
			Mazdoor	day	20.000	20.000	20.000	428.00	8560.00	8560.00	8560.00	L-13
			b) Machinery									
			Mechanical broom (2.1m sweeping width)	hour	0.833	0.833	0.833	834.00	694.72	694.72	694.72	PM23001
			Pneumatic roller 14 tonnes 2000 sqm per hour	hour	1.400	1.400	1.400	2102.00	2942.80	2942.80	2942.80	PM10001
			Bitumen pressure distributor (Spraying width 4.5 m)	hour	0.778	0.778	0.778	1382.00	1075.20	1075.20	1075.20	PM24001
			c) Material									
			Paving Fabric	sqm	2940.000	2940.000	2940.000	124.74	366735.60	366735.60	366735.60	M-132
			Paving Bitumen 80-100	tonne	2.800	2.800	2.800	55548.00	155534.40	155534.40	155534.40	M-075
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		42871.83	53589.79	64307.75	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		57876.98	58948.77	60020.57	
			Cost for 2800 sqm = a+b+c+d+e						636646.73	648436.48	660226.23	
			Rate per sqm =(a+b+c+d+e)/2800						227.37	231.58	235.80	
								Say	**227.40**	**231.60**	**235.80**	
7.03	**703**		**Laying Boulder Apron in Crates of Synthetic Geogrids**									

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Providing, preparing and laying of geogrid crated apron 1 m x 5 m, 600 mm thick including excavation and backfilling with baffles at 1 metre interval, made with geogrids having characteristics as per clause 703.2, joining sides with connectors/ring staples, top corners to be tie tensioned, placing of suitable cross interval ties in layers of 300 mm connecting opposite side with lateral braces and tied with polymer braids to avoid bulging, constructed as per clause 703.3. filled with stone with minimum size of 200 mm and specific gravity not less than 2.65, packed with stone spalls, keyed to the foundation recess in case of sloping ground and laid over a layer of geotextile to prevent migration of fines, all as per clause 703 and laid as per clause 2503.3 and approved design.									
			Unit = cum									
			Taking output = 3 cum									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor skilled	day	0.500	0.500	0.500	541.00	270.50	270.50	270.50	L-15
			Mazdoor	day	1.500	1.500	1.500	428.00	642.00	642.00	642.00	L-13
			b) Material									
			Geo grids	sqm	21.000	21.000	21.000	105.24	2210.04	2210.04	2210.04	M-104
			Connectors/ Staples	each	50.000	50.000	50.000	9.71	485.50	485.50	485.50	M-086
			Polymer braids	metre	20.000	20.000	20.000	15.90	318.00	318.00	318.00	M-139
			Stones with minimum size of 200 mm	cum	3.450	3.450	3.450	730.02	2518.57	2518.57	2518.57	M-002
			Stones spall for filling voids	cum	0.450	0.450	0.450	377.35	169.81	169.81	169.81	M-008
			c) Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		531.99	664.99	797.99	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		718.19	731.49	744.79	
			Cost for 3 cum = a+b+c+d						7900.12	8046.42	8192.72	
			Rate per cum = (a+b+c+d)/ 3						2633.37	2682.14	2730.91	

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
								Say	2633.40	2682.10	2730.90	
7.04	3100		**Reinforced Earth Structures**									
			Reinforced earth Structures have four main components as under:									
			a) Excavation for foundation, foundation concrete and cement concrete grooved seating in the foundation for facing elements (fascia material).									
			b)Fascia material and its placement.									
			c)Assembling, joining with facing elements and laying of the reinforcing elements.									
			d)Earth fill with granular material which is to be retained by the wall.									
			Each component is analysed separately as under:									
			considering Average height of wall = 8 m.									
7.04	3103	(i)	**Assembling, joining and laying of reinforcing elements.**									
		A	**With reinforcing element of steel / Aluminium strips / polymeric strips.**									
			Unit = Running Metre									
			Taking Output = 450 m									
			a) Labour									
			Mate	day	0.200	0.200	0.200	444.00	88.80	88.80	88.80	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor skilled	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			b) Material									
			@ Reinforcement strips 60 mm wide 5 mm thick as per clause 3103.including 5% wastage.									
			1.Galvanised carbon steel strips	metre	472.500	472.500	472.500	139.99	66145.28	66145.28	66145.28	M-155

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Add 5 percent of the cost of reinforcing elements strip towards accessories like tie-strips, nuts and bolts and loops / lugs for joining reinforcing elements with the fascia panels, overlaps heat bonding or extension						**3307.26**	**3307.26**	**3307.26**	
			or									
			2.Copper Strips	metre	472.500	472.500	472.500	1511.57	714216.83	714216.83	714216.83	M-154
			Add 5 percent of the cost of reinforcing elements strip towards accessories like tie-strips, nuts and bolts and loop/lugs for joining reinforcing elements with the fascia panels, overlaps heat bonding or extension						**35710.84**	**35710.84**	**35710.84**	
			or									
			3.Aluminium Strips	metre	472.500	472.500	472.500	208.84	98676.90	98676.90	98676.90	M-158
			Add 5 percent of the cost of reinforcing elements strip towards accessories like tie-strips, nuts and bolts and loop/lugs for joining reinforcing elements with the fascia panels, overlaps heat bonding or extension						**4933.85**	**4933.85**	**4933.85**	
			or									
			4.Stainless steel strips	metre	472.500	472.500	472.500	728.15	344050.88	344050.88	344050.88	M-157
			Add 5 percent of the cost of reinforcing elements strip towards accessories like tie-strips, nuts and bolts and loop/lugs for joining reinforcing elements with the fascia panels, overlaps heat bonding or extension						**17202.54**	**17202.54**	**17202.54**	
			or									
			5.Glass reinforced polymer/fibre reinforced polymer/polymeric strips	metre	472.500	472.500	472.500	72.50	34256.25	34256.25	34256.25	M-156

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Add 5 percent of the cost of reinforcing elements strip towards accessories like tie-strips, nuts and bolts and loop/lugs for joining reinforcing elements with the fascia panels, overlaps heat bonding or extension						**1712.81**	**1712.81**	**1712.81**	
			@ Any one of the above alternative may be adopted as per approved design.									
		Type 1	**1.Galvanised carbon steel strips**									
			c) Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		5752.59	7190.73	8628.88	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		7765.99	7909.81	8053.62	
			Cost of 450 m = a+b+c+d						85425.92	87007.88	88589.84	
			Rate per metre =(a+b+c+d)/450						189.84	193.35	196.87	
								Say	**189.80**	**193.40**	**196.90**	
		Type 2	**2.Copper Strips**									
			c) Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		60190.60	75238.25	90285.90	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		81257.31	82762.07	84266.84	
			Cost of 450 m = a+b+c+d						893830.37	910382.78	926935.20	
			Rate per metre =(a+b+c+d)/450						1986.29	2023.07	2059.86	
								Say	**1986.30**	**2023.10**	**2059.90**	
		Type 3	**3.Aluminium Strips**									
			c) Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		8485.24	10606.55	12727.87	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		11455.08	11667.21	11879.34	
			Cost of 450 m = a+b+c+d						126005.87	128339.31	130672.75	
			Rate per metre =(a+b+c+d)/450						280.01	285.20	290.38	
								Say	**280.00**	**285.20**	**290.40**	
		Type 4	**4.Stainless steel strips**									
			c) Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		29096.66	36370.82	43644.99	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		39280.49	40007.90	40735.32	

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Cost of 450 m = a+b+c+d						432085.36	440086.94	448088.53	
			Rate per metre =(a+b+c+d)/450						960.19	977.97	995.75	
								Say	**960.20**	**978.00**	**995.80**	
		Type 5	**Glass reinforced polymer/ fiber reinforced polymer /polymeric strips**									
			c) Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		3073.91	3842.39	4610.86	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		4149.78	4226.62	4303.47	
			Cost of 450 m = a+b+c+d						45647.55	46492.87	47338.20	
			Rate per metre =(a+b+c+d)/450						101.44	103.32	105.20	
								Say	**101.40**	**103.30**	**105.20**	
7.04(I)		**B**	**With reinforcing elements of synthetic geogrids**									
			Unit = sqm									
			Taking output = 300 sqm									
			a) Labour									
			Mate	day	0.200	0.200	0.200	444.00	88.80	88.80	88.80	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor skilled	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			b) Material									
			Synthetic Geogrids as per clause 3100 and approved design and specifications including 5% wastage	sqm	315.000	315.000	315.000	221.55	69788.25	69788.25	69788.25	M-183
			Add 5 per cent of the cost of reinforcing elements (synthetic geogrids) for accessories like tie-strips, nuts and bolts and loops/lugs for joining reinforcing elements with the fascia pannels, overlaps and other protective elements for synthetic geogrids.						3489.41	3489.41	3489.41	
			c) Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		6058.60	7573.25	9087.90	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		8179.11	8330.57	8482.04	
			Cost of 300 sqm of Synthetic geogrids = a+b+c+d						89970.17	91636.28	93302.39	

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Rate per sqm = (a+b+c+d)/ 300						299.90	305.45	311.01	
								Say	**299.90**	**305.50**	**311.00**	
7.04	**3105**	**(ii)**	**Facing elements of RCC**									
			Unit = sqm									
			Taking output = 200 sqm									
			a) Labour									
			Mate	day	0.320	0.320	0.320	444.000	142.080	142.080	142.080	L-12
			Mazdoor	day	6.000	6.000	6.000	428.000	2568.000	2568.000	2568.000	L-13
			Mazdoor skilled	day	2.000	2.000	2.000	541.000	1082.000	1082.000	1082.000	L-15
			b) Machinery									
			i) For Casting Yard									
			Light crane with lifting capacity upto 3 tonne (For Lifting at casting yard)	hour	2.963	2.963	2.963	860.00	2548.18	2548.18	2548.18	PM63001
			ii) For transportation and placement at site									
			Light crane with lifting capacity upto 3 tonne for loading &unloading	hour	5.926	5.926	5.926	860.00	5096.36	5096.36	5096.36	PM63001
			Trailer 30 tonne capacity for transporting to site	t.km	36x2.5xL	36x2.5xL	36x2.5xL	4.98	448.20	448.20	448.20	L=1km&PM72001
			Light crane with lifting capacity upto 3 tonne (For erection)	hour	8.000	8.000	8.000	860.00	6880.00	6880.00	6880.00	PM63001
			c) Material									
			Pre-cast RCC M-35 facing elements of size as per design and 18 cm thick for 75 sqm. (Refer Item **12.08 (H)**)Case-II Basic cost of Labour, Material & Machinery))	cum	36.000	36.000	36.000	L-4409.65 M-4413.99 S-4432.61	158747.46	158903.93	159574.10	12.08H Case II
			Formwork @ 4 % on cost of concrete i.e. cost of Material, labour and machinery						6349.90	6356.16	6382.96	
			Non- Woven geotextile behind the fascia element to avoid leaching out of backfill material.	sqm	80.000	80.000	80.000	99.70	7976.00	7976.00	7976.00	M-107
			HYSD steel @ 7 kg / sqm (Refer Item 9.07, Basic Cost of Labour,Material&Machinery)	tonnes	1.400	1.400	1.400	L-50129.91 M-50174.20 S-50258.68	70181.88	70244.02	70362.16	9.07 Basic cost

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Add 2 per cent of cost of fascia pannels, for all necessary temporary form work, scaffolding and provision of loops/lugs for lifting of pannels and joining the reinforcing elements.						3174.95	3178.08	3191.48	
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		21215.60	26542.30	31950.18	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		28641.06	29196.53	29820.17	
			Cost for 200 sqm = a+b+c+d+e						315051.66	321161.84	328021.88	
			Rate per sqm = (a+b+c+d+e)/ 200						1575.26	1605.81	1640.11	
		Note	1. The specification and construction details to be adopted shall be as per section 3100 of MoRTH Specification.					**Say**	**1575.30**	**1605.80**	**1640.10**	
			2. Drainage arrangement shall be made as per approved design and drawings.									
			3. The quantity of filler media shall be calculated as per approved design and specifications and shall be priced separately.The rate for same to be adopted from chapter 9.									
			4. Excavation for foundation including foundation concrete and groove in the foundation for seating of bottom most facia panel and capping beam to be calculated as per design and priced separately. The rates for excavation and foundation concrete shall be taken from the chapter 3.									
			5. The earth fill to be retained is not included in this analysis. The same is to be worked out and provided separately complete as per clause 305.									
			6. For compaction of Earthwork, attention is invited to clause 3106.5 of MoRTH Specification.									
			7. Length of reinforcing strips will vary with the height of wall and will be as per approved design and drawings.									

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			8. The type of reinforcing elements to be adopted shall be as per approved design and specifications.									
			9. The market rate for supply of reinforcing elements and their accessories are to be ascertained from reputed firms in the field of earth reinforcement.									
			10. The earth fill material shall be clean, free draining, granular with high friction and low cohesion, non-corrosive, coarse grained with not 10 per cent of particles passing 75 micron sieve, free of any deleterious matter, chlorides, salts, acids, alkalies, mineral oil, fungus and microbes and shall be of specified PH value.									
			11. Capping beam is to be priced separately as per approved design. The rate for cement concrete shall be taken from the chapter of sub-structure in bridge section.									
			12. The cost of reinforced earth retaining wall shall include following:									
			(i) Foundation concrete as per approved design.									
			(ii)Cost of facial pannels and their erection .									
			(iii)Cost of reinforcing elements including their fixing and joining with the facial pannels.									
			(iv) Drainage arrangement including filter media as per approved design and drawings.									
			13. The compacted earth filling to be retained shall form part of embankment.									
			14. Excavation for foundation including back filling paid separately.									

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			15.The compacted earth filling to be retained shall form part of embankment /backfilling									
7.05	703	(i)	Supplying & laying of bi-axial extruted high modulus polypropylene geogrid conforming to MORT&H specification for base/sub-base reinforcement having minimum tensile stength 15KN/m in the longitudinal and transverse direction ,with 5KN/m and 7KN/m tensile strength at 2 % and 5% strain respectively in the longitudinal and transverse direction ,junction efficiency not less than95% and with 38mmx38mm mesh opening.									
			Unit = sqm									
			Taking output = 300 sqm									
			a) Labour									
			Mate	day	0.200	0.200	0.200	444.00	88.80	88.80	88.80	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (skilled)	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			b) Material									
			Bi-Axial Extrusted GeoGrids of Minimum Tensile Strength 15 KN/m in the longitudinal and transverse direction	sqm	300.000	300.000	300.000	105.25	31575.00	31575.00	31575.00	M-286
			Add 10% of the cost of reinforcing elements (synthetic geogrids) for wastage and accessories like tie-strips, nuts and bolts and loops/lugs for joining reinforcing elements with the fascia panels, overlaps and other protective elements for synthetic geogrids and all other activities required to complete the item in all respect including taxes and transportation.						3157.50	3157.50	3157.50	
			c) Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		2974.98	3718.73	4462.48	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		4016.23	4090.60	4164.98	

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Cost for 300 sqm = a+b+c+d						44178.51	44996.63	45814.75	
			Rate per sqm = (a+b+c+d)/300						147.26	149.99	152.72	
								Say	**147.30**	**150.00**	**152.70**	
7.05	**703**	**(ii)**	Supplying & laying of bi-axial extruted high modulus polypropylene geogrid confirming to MORT&H specification for base/sub-base reinforcement having minimum tensile stength 20KN/m in the longitudinal and transverse direction ,with 7KN/m and 14KN/m tensile strength at 2% and 5% strain respectively in the longitudinal and transverse direction ,junction efficiency not less than 95% and with 38mmx38mm mesh opening.									
			Unit = sqm									
			Taking output = 300 sqm									
			a) Labour									
			Mate	day	0.200	0.200	0.200	444.00	88.80	88.80	88.80	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (skilled)	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			b) Material									
			Bi-Axial Extrusted GeoGrids of Minimum Tensile Strength 20 KN/m in the longitudinal and transverse direction	sqm	300.000	300.000	300.000	120.75	36225.00	36225.00	36225.00	M-287
			Add 10% of the cost of reinforcing elements (synthetic geogrids) for wastage and accessories like tie-strips, nuts and bolts and loops/lugs for joining reinforcing elements with the fascia panels, overlaps and other protective elements for synthetic geogrids and all other activities required to complete the item in all respect including taxes and transportation.						3622.50	3622.50	3622.50	
			c) Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		3384.18	4230.23	5076.28	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		4568.65	4653.25	4737.86	

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Cost for 300 sqm = a+b+c+d						50255.13	51185.78	52116.43	
			Rate per sqm = (a+b+c+d)/300						167.52	170.62	173.72	
								Say	**167.50**	**170.60**	**173.70**	
7.05	**703**	**(iii)**	Supplying & laying of bi-axial extruted high modulus polypropylene geogrid conforming to MORT&H specification for base/sub-base reinforcement having minimum tensile stength 30KN/m in the longitudinal and transverse direction ,with 10.5KN/m and 21KN/m tensile strength at 2% and 5% strain respectively in the longitudinal and transverse direction ,junction efficiency not less than 95% and with 38mmx38mm mesh opening.									
			Unit = sqm									
			Taking output = 300 sqm									
			a) Labour									
			Mate	day	0.200	0.200	0.200	444.00	88.80	88.80	88.80	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (skilled)	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			b) Material									
			Bi-Axial Extrusted GeoGrids of Minimum Tensile Strength 30 KN/m in the longitudinal and transverse direction	sqm	300.000	300.000	300.000	197.18	59154.00	59154.00	59154.00	M-288
			Add 10% of the cost of reinforcing elements (synthetic geogrids) for wastage and accessories like tie-strips, nuts and bolts and loops/lugs for joining reinforcing elements with the fascia panels, overlaps and other protective elements for synthetic geogrids and all other activities required to complete the item in all respect including taxes and transportation.						5915.40	5915.40	5915.40	

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		5401.94	6752.42	8102.90	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		7292.61	7427.66	7562.71	
			Cost for 300 sqm = a+b+c+d						80218.75	81704.28	83189.81	
			Rate per sqm = (a+b+c+d)/300						267.40	272.35	277.30	
								Say	**267.40**	**272.30**	**277.30**	
7.05	**703**	**(iv)**	Supplying & laying of bi-axial extruted high modulus polypropylene geogrid confirming to MORT&H specification for base/sub-base reinforcement having minimum tensile stength 40KN/m in the longitudinal and transverse direction ,with 14KN/m and 28KN/m tensile strength at 2% and 5% strain respectively in the longitudinal and transverse direction ,junction efficiency not less than 95% and with 38mmx38mm mesh opening.									
			Unit = sqm									
			Taking output = 300 sqm									
			a) Labour									
			Mate	day	0.200	0.200	0.200	444.00	88.80	88.80	88.80	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (skilled)	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			b) Material									
			Bi-Axial Extrusted GeoGrids of Minimum Tensile Strength 40 KN/m in the longitudinal and transverse direction	sqm	300.000	300.000	300.000	288.02	86406.00	86406.00	86406.00	M-289

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Add 10% of the cost of reinforcing elements (synthetic geogrids) for wastage and accessories like tie-strips, nuts and bolts and loops/lugs for joining reinforcing elements with the fascia panels, overlaps and other protective elements for synthetic geogrids and all other activities required to complete the item in all respect including taxes and transportation.						8640.60	8640.60	8640.60	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		7800.11	9750.14	11700.17	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		10530.15	10725.15	10920.16	
			Cost for 300 sqm = a+b+c+d						115831.66	117976.69	120121.72	
			Rate per sqm = (a+b+c+d)/300						386.11	393.26	400.41	
								Say	**386.10**	**393.30**	**400.40**	
7.06	**703**		Supplying and laying high strength flexible geogrids (HSFG) as soil reinforcement /basal reinforcement as per MORT&H 3100 and IRC 113, made of high tenacity polyester core with polyethylene coating with minimum Long Term Design strength (LTDS) of more than 50% of ultimate tensile strength at 30 degree celcius corresponding to 12 % strain e.t.c.Complete and as directed by Engineer-in-charge.									
			Details of Cost for 300 sqm									
			Unit = sqm									
			Taking output = 300 sqm									
			a) Labour									
			Mate	day	0.200	0.200	0.200	444.00	88.80	88.80	88.80	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (skilled)	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			b) Material									
			(i) Synthetic Geogrid ultimate tensile strength-100kN/m	sqm	300*1.1	300*1.1	300*1.1	235.81	77817.30	77817.30	77817.30	M-200

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					Large	Medium	Small		Large	Medium	Small	
			(ii) Synthetic Geogrid ultimate tensile strength-150kN/m	sqm	300*1.1	300*1.1	300*1.1	247.61	81711.30	81711.30	81711.30	M-201
			(iii) Synthetic Geogrid ultimate tensile strength-200kN/m	sqm	300*1.1	300*1.1	300*1.1	400.88	132290.40	132290.40	132290.40	M-202
			(iv) Synthetic Geogrid ultimate tensile strength-250kN/m	sqm	300*1.1	300*1.1	300*1.1	412.67	136181.10	136181.10	136181.10	M-203
			(v) Synthetic Geogrid ultimate tensile strength-300kN/m	sqm	300*1.1	300*1.1	300*1.1	424.47	140075.10	140075.10	140075.10	M-204
			(vi) Synthetic Geogrid ultimate tensile strength-350kN/m	sqm	300*1.1	300*1.1	300*1.1	436.26	143965.80	143965.80	143965.80	M-205
			(vii) Synthetic Geogrid ultimate tensile strength-400kN/m	sqm	300*1.1	300*1.1	300*1.1	530.58	175091.40	175091.40	175091.40	M-206
			(viii) Synthetic Geogrid ultimate tensile strength-500kN/m	sqm	300*1.1	300*1.1	300*1.1	589.54	194548.20	194548.20	194548.20	M-207
			(ix) Synthetic Geogrid ultimate tensile strength-600kN/m	sqm	300*1.1	300*1.1	300*1.1	648.49	214001.66	214001.66	214001.66	M-208
			(x) Synthetic Geogrid ultimate tensile strength-800kN/m	sqm	300*1.1	300*1.1	300*1.1	854.83	282093.90	282093.90	282093.90	M-210
			(xi) Synthetic Geogrid ultimate tensile strength-900kN/m	sqm	300*1.1	300*1.1	300*1.1	1002.21	330729.30	330729.30	330729.30	M-211
			(xii) Synthetic Geogrid ultimate tensile strength-1000kN/m	sqm	300*1.1	300*1.1	300*1.1	1120.12	369639.60	369639.60	369639.60	M-212
			(xiii) Synthetic Geogrid ultimate tensile strength-1100kN/m	sqm	300*1.1	300*1.1	300*1.1	1179.07	389093.10	389093.10	389093.10	M-213
			(xiv) Synthetic Geogrid ultimate tensile strength-1200kN/m	sqm	300*1.1	300*1.1	300*1.1	1238.02	408546.60	408546.60	408546.60	M-214
			@ Any one of the above alternative may be adopted as per appproved design									

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Add 10% of the cost of reinforcing elements (synthetic geogrids) for wastage and accessories like tie-strips, nuts and bolts and loops/lugs for joining reinforcing elements with the fascia panels, overlaps and other protective elements for synthetic geogrids and all other activities required to complete the item in all respect including taxes and transportation.									
			(i) Synthetic Geogrid ultimate tensile strength-100kN/m						7781.73	7781.73	7781.73	
			(ii) Synthetic Geogrid ultimate tensile strength-150kN/m						8171.13	8171.13	8171.13	
			(iii) Synthetic Geogrid ultimate tensile strength-200kN/m						13229.04	13229.04	13229.04	
			(iv) Synthetic Geogrid ultimate tensile strength-250kN/m						13618.11	13618.11	13618.11	
			(v) Synthetic Geogrid ultimate tensile strength-300kN/m						14007.51	14007.51	14007.51	
			(vi) Synthetic Geogrid ultimate tensile strength-350kN/m						14396.58	14396.58	14396.58	
			(vii) Synthetic Geogrid ultimate tensile strength-400kN/m						17509.14	17509.14	17509.14	
			(viii) Synthetic Geogrid ultimate tensile strength-500kN/m						19454.82	19454.82	19454.82	
			(ix) Synthetic Geogrid ultimate tensile strength-600kN/m						21400.17	21400.17	21400.17	
			(x) Synthetic Geogrid ultimate tensile strength-800kN/m						28209.39	28209.39	28209.39	
			(xi) Synthetic Geogrid ultimate tensile strength-900kN/m						33072.93	33072.93	33072.93	
			(xii) Synthetic Geogrid ultimate tensile strength-1000kN/m						36963.96	36963.96	36963.96	

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(xiii) Synthetic Geogrid ultimate tensile strength-1100kN/m						38909.31	38909.31	38909.31	
			(xiv) Synthetic Geogrid ultimate tensile strength-1200kN/m						40854.66	40854.66	40854.66	
		(i)	c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		7044.31	8805.38	10566.46	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		9509.81	9685.92	9862.03	
			Cost for 300 sqm = a+b+c+d						104607.95	106545.13	108482.32	
			Rate per sqm = (a+b+c+d)/300						348.69	355.15	361.61	
								Say	**348.70**	**355.20**	**361.60**	
		(ii)	c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		7386.98	9233.72	11080.47	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		9972.42	10157.10	10341.77	
			Cost for 300 sqm = a+b+c+d						109696.63	111728.05	113759.47	
			Rate per sqm = (a+b+c+d)/300						365.66	372.43	379.20	
								Say	**365.70**	**372.40**	**379.20**	
		(iii)	c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		11837.94	14797.42	17756.91	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		15981.22	16277.17	16573.11	
			Cost for 300 sqm = a+b+c+d						175793.40	179048.83	182304.26	
			Rate per sqm = (a+b+c+d)/300						585.98	596.83	607.68	
								Say	**586.00**	**596.80**	**607.70**	
		(iv)	c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		12180.32	15225.40	18270.48	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		16443.43	16747.94	17052.45	
			Cost for 300 sqm = a+b+c+d						180877.76	184227.35	187576.94	
			Rate per sqm = (a+b+c+d)/300						602.93	614.09	625.26	
								Say	**602.90**	**614.10**	**625.30**	
		(v)	c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		12522.99	15653.74	18784.49	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		16906.04	17219.12	17532.19	
			Cost for 300 sqm = a+b+c+d						185966.44	189410.27	192854.09	
			Rate per sqm = (a+b+c+d)/300						619.89	631.37	642.85	
								Say	**619.90**	**631.40**	**642.80**	

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
		(vi)	c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		12865.37	16081.72	19298.06	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		17368.26	17689.89	18011.52	
			Cost for 300 sqm = a+b+c+d						191050.81	194588.79	198126.77	
			Rate per sqm = (a+b+c+d)/300						636.84	648.63	660.42	
								Say	**636.80**	**648.60**	**660.40**	
		(vii)	c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		15604.43	19505.53	23406.64	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		21065.98	21456.09	21846.20	
			Cost for 300 sqm = a+b+c+d						231725.74	236016.96	240308.18	
			Rate per sqm = (a+b+c+d)/300						772.42	786.72	801.03	
								Say	**772.40**	**786.70**	**801.00**	
		(viii)	c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		17316.63	21645.78	25974.94	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		23377.44	23810.36	24243.28	
			Cost for 300 sqm = a+b+c+d						257151.89	261913.96	266676.03	
			Rate per sqm = (a+b+c+d)/300						857.17	873.05	888.92	
								Say	**857.20**	**873.00**	**888.90**	
		(ix)	c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		19028.53	23785.66	28542.80	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		25688.52	26164.23	26639.94	
			Cost for 300 sqm = a+b+c+d						282573.67	287806.52	293039.37	
			Rate per sqm = (a+b+c+d)/300						941.91	959.36	976.80	
								Say	**941.90**	**959.40**	**976.80**	
		(x)	c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		25020.65	31275.81	37530.97	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		33777.87	34403.39	35028.91	
			Cost for 300 sqm = a+b+c+d						371556.61	378437.29	385317.97	
			Rate per sqm = (a+b+c+d)/300						1238.52	1261.46	1284.39	
								Say	**1238.50**	**1261.50**	**1284.40**	
		(xi)	c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		29300.56	36625.70	43950.84	

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		39555.76	40288.27	41020.79	
			Cost for 300 sqm = a+b+c+d						435113.35	443171.01	451228.66	
			Rate per sqm = (a+b+c+d)/300						1450.38	1477.24	1504.10	
								Say	**1450.40**	**1477.20**	**1504.10**	
		(xii)	c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		32724.67	40905.84	49087.00	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		44178.30	44996.42	45814.54	
			Cost for 300 sqm = a+b+c+d						485961.33	494960.62	503959.90	
			Rate per sqm = (a+b+c+d)/300						1619.87	1649.87	1679.87	
								Say	**1619.90**	**1649.90**	**1679.90**	
		(xiii)	c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		34436.58	43045.72	51654.87	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		46489.38	47350.29	48211.21	
			Cost for 300 sqm = a+b+c+d						511383.17	520853.22	530323.28	
			Rate per sqm = (a+b+c+d)/300						1704.61	1736.18	1767.74	
								Say	**1704.60**	**1736.20**	**1767.70**	
		(xiv)	c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		36148.48	45185.61	54222.73	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		48800.45	49704.17	50607.88	
			Cost for 300 sqm = a+b+c+d						536805.00	546745.83	556686.67	
			Rate per sqm = (a+b+c+d)/300						1789.35	1822.49	1855.62	
								Say	**1789.30**	**1822.50**	**1855.60**	

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
7.07	704		Supplying & laying of drainage composite for use behind walls, between two different fills, alongside drains of road, below concrete lining of canal etc. Geocomposite for planar drainage,realized by thermobonding a draining core in extruded monofilaments with two filtering nonwoven geotextiles that may also be working as seperation or protecting layers. The draining three dimensional core will have a "W" configuration as longitudinal parallel channels.Minimum thickness to be 7.2mm, with two filtering UV stabilized polypropylene nonwoven geo textile of minimum thickness of 0.75mm having pores of 150 micron and tensile strength of 8.0kN/m that will be working as seperation or protecting layer, geocomposite having in plane flow capacity of 2.1L/(m.s) at hydraulic gradiant of 1.0 & 20 kpa pressure and tensile strength of 18 kN/m, with mass per unit area of 740 gsm, supplied in the form of roll for easy transportation to site of work as per detailed specification all complete as per directions of Engineer in charge									
			Unit= sqm									
			Taking output = 300 sqm									
			a) Labour									
			Mate	day	0.200	0.200	0.200	444.00	88.80	88.80	88.80	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor(skilled)	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			b) Material									
			Geosynthetic Drainage composite	sqm	300.000	300.000	300.000	558.30	167490.00	167490.00	167490.00	M-290

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Add 10% of the cost of synthetic composite for wastage and accessories for joining sheets with the fascia panels, overlaps and other protective elements for synthetic composite and other miscellaneous activities required to complete the item in all respect including transportation & taxes.						16749.00	16749.00	16749.00	
			c) Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		14935.50	18669.38	22403.26	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		20162.93	20536.32	20909.71	
			Cost for 300 sqm = a+b+c+d						221792.23	225899.50	230006.76	
			Rate per sqm = (a+b+c+d)/300						739.31	753.00	766.69	
								Say	**739.30**	**753.00**	**766.70**	
7.08	**704**		Supplying & laying of drainage composite for use behind walls, between two different fills, alongside drains of road, below concrete lining of canal etc.having thermobonding a draining core- HDPE geonet comprises of two sets of parellel overlayed ribs integrally connected to have a rhomboidal shape with a polythylene film and a nonwoven geotextile having mass per unit area 130g/m2 and tensile strength of 8.0 kn/m that will be working as seperation or protecting layers, geocomposite having in plane flow capacity of 0.7L/(m.s) at hydraulic gradiant of 1.0 & 20 kpa pressure and tensile strength of 13.5 kN/m, with mass per unit area of 830 gsm, at easily accessible location including top and bottom, with all leads and lifts, manpower and machinery, materials, labour etc. complete and as directed by Engineer-in-charge										
			Unit= sqm									
			Taking output = 300 sqm									
			a) Labour									
			Mate	day	0.200	0.200	0.200	444.00	88.80	88.80	88.80	L-12

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor(skilled)	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			b) Material									
			Geosynthetic Drainage composite	sqm	300.000	300.000	300.000	664.65	199395.00	199395.00	199395.00	M-291
			Add 10% of the cost of synthetic composite for wastage and accessories for joining sheets with the fascia panels, overlaps and other protective elements for synthetic composite and other miscellaneous activities required to complete the item in all respect including transportation & taxes.						19939.50	19939.50	19939.50	
			c) Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		17743.14	22178.93	26614.72	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		23953.24	24396.82	24840.40	
			Cost for 300 sqm = a+b+c+d						263485.69	268365.05	273244.42	
			Rate per sqm = (a+b+c+d)/300						878.29	894.55	910.81	
								Say	**878.30**	**894.60**	**910.80**	
7.09	**Suggestive**		**Reinforced cement concrete crash Barrier with frication slab**									
			Provision of an Reinforced cement concrete crash barrier with frication slab at the approaches to bridge structures, Constructed with M-40 grade concrete with HYSD reinforcement conforming to IRC:112 and as per dimensions in the approved drawings and at locations directed by the Engineers, all as specified.(Area-0.185 sqm/meter) below frication slab and (Area-1.032 sqm/meter) crash Barrier with frication slab									
			Unit= Linear meter									
			Taking output= 10 m									
		(i)	**a) M 40 grade concrete**									

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			PCC M 15 grade concrete (Area-0.185 sqm/meter) below frication slab (Rate taken from items 12.08 B Case-II (including OH & CP)	cum	0.550	0.550	0.550	L-5369.60 M-5375.50 S-5401.10	2953.28	2956.58	2970.61	12.08 B Case-II
			RCC M 40 grade concrete (Area-1.032 sqm/meter) (Rate taken from items 14.01 E Case-II (p) including OH & CP)	cum	10.320	10.320	10.320	L-6854.70 M-6861.70 S-6892.00	70740.50	70812.74	71125.44	14.01 E Case-II (p)
			b) Labour									
			Mate	day	0.120	0.120	0.120	444.00	53.28	53.28	53.28	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			c) Material									
			Fiber steel (80 kg/cum)	tonne	0.826	0.826	0.826	INPUT	#VALUE!	#VALUE!	#VALUE!	M-225
			d) Overhead charges on (b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost for 10 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/10						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		Note	i) Excavation and backfilling are incidental to work and not to be measured separately.									
			ii) Rate for PCC M 15 may be taken from chapter on 12.									
			iii) Rate for RCC M 40 may be taken from chapter on 14.									
7.10			**In-Situ Soil reinforcement for slope restoration and protection work (Soil Nailing)**									

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Supply and installation of In-Situ Soil reinforcement (Soil Nailing) With fully threaded hot-dip galvanised solid geotechnical bars as soil nails (galvanization minimum 500 grams per sqm) of minimum 25 mm diameter, having yield strength>670N/mm2 and tensile strength> 800N/mm2 as per technical specifications and drawings etc. complete inciuding drilling, flushing,grouting, and all Supply and installation of all components listed as per technical specifications and drawings etc.and considering all lead, lift and machinery.									
			Unit =Running meter									
			Taking output =6 Running Meter									
			a) Labour									
			Mate	day	0.360	0.360	0.360	444.00	159.84	159.84	159.84	L-12
			skilled Mazdoor	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Semi Skilled Mazdoor	day	2.000	2.000	2.000	444.00	888.00	888.00	888.00	L-14
			Highly Skilled	day	4.000	4.000	4.000	660.00	2640.00	2640.00	2640.00	L-05
			Driller	day	1.000	1.000	1.000	444.00	444.00	444.00	444.00	L-06
			Operator(Grouting)	day	1.000	1.000	1.000	660.00	660.00	660.00	660.00	L-17
			b) Machinery									
			Air Compressor	hour	6.000	6.000	6.000	496.00	2976.00	2976.00	2976.00	PM15001
			Tractor-trolley	hour	3.000	3.000	3.000	717.00	2151.00	2151.00	2151.00	PM12001
			Grouting pump with agitator	hour	6.000	6.000	6.000	668.00	4008.00	4008.00	4008.00	PM60001
			Drilling Machine	hour	6.000	6.000	6.000	11.00	66.00	66.00	66.00	PM45001
			c) Material									
			Fully Threaded Hot Dip galvanized geotechnical bars with casing	LM	6.000	6.000	6.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-296
			Centralizer	No.	3.000	3.000	3.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-297
			Bearing plate 200mmx200mmx10mm	No.	1.000	1.000	1.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-298
			Spherical Dome Nut	No.	1.000	1.000	1.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-110

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Cement	tonne	0.300	0.300	0.300	5762.00	1728.60	1728.60	1728.60	M-081
			Admixture	Kg	1.000	1.000	1.000	31.15	31.15	31.15	31.15	M-182
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost of repair for 10 meter= a+b+c+d						#VALUE!	#VALUE!	#VALUE!	
			Cost of meter = (a+b+c+d+e)/6						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
7.11	**Suggestive**		**Horizontal Drainage Boring**									
			Horizontal Drainage Boring methods on the types of sandy soil / cohesive soil and drilling length including cost of all materials, machinery, labour and all other ancillary operations etc..(Nominal Diameter of drilling pipe- 90mm									
			Nominal Diameter of drilling pipe- 90mm									
			Unit = Running Meter									
		(i)	**Drilling length below bed level upto 50.0 Meter**									
		A	**Sandy Soil / Cohesive Soil**									
			Taking output = 32 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.030	0.030	0.030	444.00	13.32	13.32	13.32	L-12
			Mazdoor	day	0.400	0.400	0.400	428.00	171.20	171.20	171.20	L-13
			Mazdoor (Skilled)	day	0.352	0.352	0.352	541.00	190.43	190.43	190.43	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			polyvinyl chloride pipe (PVC)- 90 mm	meter	32.960	32.960	32.960	69.73	2298.30	2298.30	2298.30	M-302
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	11.180	11.180	11.180	99.70	1114.65	1114.65	1114.65	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost of for 32 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/32						#VALUE!	#VALUE!	#VALUE!	
								Say	#VALUE!	#VALUE!	#VALUE!	
		B	**Gravelly Soil**									
			Taking output = 22 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.022	0.022	0.022	444.00	9.77	9.77	9.77	L-12
			Mazdoor	day	0.300	0.300	0.300	428.00	128.40	128.40	128.40	L-13

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor (Skilled)	day	0.242	0.242	0.242	541.00	130.92	130.92	130.92	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			Vinyl chloride pipes	meter	22.660	22.660	22.660	69.73	1580.08	1580.08	1580.08	M-302
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	7.686	7.686	7.686	99.70	766.29	766.29	766.29	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost of for 22 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/22						#VALUE!	#VALUE!	#VALUE!	
								Say	#VALUE!	#VALUE!	#VALUE!	
		C	**Rubble / Cobble Stone**									
			Taking output = 16 meter									
			a) Labour									
			For boring work									

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.017	0.017	0.017	444.00	7.55	7.55	7.55	L-12
			Mazdoor	day	0.240	0.240	0.240	428.00	102.72	102.72	102.72	L-13
			Mazdoor (Skilled)	day	0.176	0.176	0.176	541.00	95.22	95.22	95.22	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			vinyl chloride pipes	meter	16.480	16.480	16.480	69.73	1149.15	1149.15	1149.15	M-302
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	5.590	5.590	5.590	99.70	557.32	557.32	557.32	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost of for 16 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Rate per meter = (a+b+c+d+e)/16						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		D	**Soft Rock**									
			Taking output = 20 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.020	0.020	0.020	444.00	8.88	8.88	8.88	L-12
			Mazdoor	day	0.280	0.280	0.280	428.00	119.84	119.84	119.84	L-13
			Mazdoor (Skilled)	day	0.220	0.220	0.220	541.00	119.02	119.02	119.02	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			vinyl chloride pipes	meter	20.600	20.600	20.600	69.73	1436.44	1436.44	1436.44	M-302
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	6.988	6.988	6.988	99.70	696.70	696.70	696.70	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost of for 20 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/20						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		(ii)	**Drilling length from 50.0 Meter-80 meter**									
		A	**Sandy Soil / Cohesive Soil**									
			Taking output = 26.7 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.026	0.026	0.026	444.00	11.54	11.54	11.54	L-12
			Mazdoor	day	0.347	0.347	0.347	428.00	148.52	148.52	148.52	L-13
			Mazdoor (Skilled)	day	0.294	0.294	0.294	541.00	159.05	159.05	159.05	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			polyvinyl chloride pipe (PVC)	meter	27.501	27.501	27.501	69.73	1917.64	1917.64	1917.64	M-302
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	9.328	9.328	9.328	99.70	930.00	930.00	930.00	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost of for 26.7 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/26.7						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		B	**Gravelly Soil**									
			Taking output = 18.3 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.019	0.019	0.019	444.00	8.44	8.44	8.44	L-12
			Mazdoor	day	0.263	0.263	0.263	428.00	112.56	112.56	112.56	L-13
			Mazdoor (Skilled)	day	0.201	0.201	0.201	541.00	108.74	108.74	108.74	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			Vinyl chloride pipes	meter	18.849	18.849	18.849	69.73	1314.34	1314.34	1314.34	M-302
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	6.394	6.394	6.394	99.70	637.48	637.48	637.48	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost for 18.3 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/18.3						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		C	**Rubble / Cobble Stone**									
			Taking output = 13.3 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.014	0.014	0.014	444.00	6.22	6.22	6.22	L-12
			Mazdoor	day	0.213	0.213	0.213	428.00	91.16	91.16	91.16	L-13
			Mazdoor (Skilled)	day	0.146	0.146	0.146	541.00	78.99	78.99	78.99	L-15

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			vinyl chloride pipes	meter	13.699	13.699	13.699	69.73	955.23	955.23	955.23	M-302
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	4.647	4.647	4.647	99.70	463.31	463.31	463.31	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost of for 13.3 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/13.3						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		D	**Soft Rock**									
			Taking output = 16.7 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.017	0.017	0.017	444.00	7.55	7.55	7.55	L-12
			Mazdoor	day	0.247	0.247	0.247	428.00	105.72	105.72	105.72	L-13
			Mazdoor (Skilled)	day	0.184	0.184	0.184	541.00	99.54	99.54	99.54	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			vinyl chloride pipes	meter	17.201	17.201	17.201	69.73	1199.43	1199.43	1199.43	M-302
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	5.835	5.835	5.835	99.70	581.75	581.75	581.75	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost for 16.7 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/16.7						#VALUE!	#VALUE!	#VALUE!	

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
								Say	#VALUE!	#VALUE!	#VALUE!	
7.12	Suggestive		**Horizontal Drainage Boring(Nominal Diameter of drilling pipe-110 mm)**									
			Horizontal Drainage Boring methods on the types of sandy soil / cohesive soil and drilling length including cost of all materials, machinery, labour and all other ancillary operations etc..(Nominal Diameter of drilling pipe- 90mm									
			Nominal Diameter of drilling pipe- 110mm									
			Unit = Running Meter									
		(i)	**Drilling length below bed level upto 50.0 Meter**									
		A	**Sandy Soil / Cohesive Soil**									
			Taking output = 24 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.048	0.048	0.048	444.00	21.31	21.31	21.31	L-12
			Mazdoor	day	0.940	0.940	0.940	428.00	402.32	402.32	402.32	L-13
			Mazdoor (Skilled)	day	0.264	0.264	0.264	541.00	142.82	142.82	142.82	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			polyvinyl chloride pipe (PVC)- 110 mm	meter	24.720	24.720	24.720	129.51	3201.58	3201.58	3201.58	M-303
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	8.385	8.385	8.385	99.70	835.98	835.98	835.98	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost of for 24 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/24						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		B	**Gravelly Soil**									
			Taking output = 18 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.043	0.043	0.043	444.00	19.09	19.09	19.09	L-12
			Mazdoor	day	0.880	0.880	0.880	428.00	376.64	376.64	376.64	L-13
			Mazdoor (Skilled)	day	0.198	0.198	0.198	541.00	107.12	107.12	107.12	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			PolyVinyl chloride pipes(PVC)-110 mm	meter	18.540	18.540	18.540	129.51	2401.19	2401.19	2401.19	M-303
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	6.289	6.289	6.289	99.70	627.01	627.01	627.01	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost for 18meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/18						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		C	**Rubble / Cobble Stone**									
			Taking output = 14 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor	day	0.840	0.840	0.840	428.00	359.52	359.52	359.52	L-13
			Mazdoor (Skilled)	day	0.154	0.154	0.154	541.00	83.31	83.31	83.31	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			Polyvinyl chloride pipe (PVC)-110 mm	meter	14.420	14.420	14.420	129.51	1867.59	1867.59	1867.59	M-303
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	4.891	4.891	4.891	99.70	487.63	487.63	487.63	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost for 14 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/14						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		D	**Soft Rock**									
			Taking output = 17 meter									
			a) Labour									

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.042	0.042	0.042	444.00	18.65	18.65	18.65	L-12
			Mazdoor	day	0.870	0.870	0.870	428.00	372.36	372.36	372.36	L-13
			Mazdoor (Skilled)	day	0.187	0.187	0.187	541.00	101.17	101.17	101.17	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			Polyvinyl chloride pipe (PVC)-110 mm	meter	17.510	17.510	17.510	129.51	2267.79	2267.79	2267.79	M-303
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	5.939	5.939	5.939	99.70	592.12	592.12	592.12	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Cost for 17 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/17					**Say**	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		(ii)	**Drilling length from 50.0 Meter-80 meter**									
		A	**Sandy Soil / Cohesive Soil**									
			Taking output = 20 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.045	0.045	0.045	444.00	19.98	19.98	19.98	L-12
			Mazdoor	day	0.900	0.900	0.900	428.00	385.20	385.20	385.20	L-13
			Mazdoor (Skilled)	day	0.220	0.220	0.220	541.00	119.02	119.02	119.02	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			polyvinyl chloride pipe (PVC)- 110 mm	meter	20.600	20.600	20.600	129.51	2667.99	2667.99	2667.99	M-303

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	6.988	6.988	6.988	99.70	696.70	696.70	696.70	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost for 20 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/20					**Say**	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		B	**Gravelly Soil**									
			Taking output = 15 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.041	0.041	0.041	444.00	18.20	18.20	18.20	L-12
			Mazdoor	day	0.850	0.850	0.850	428.00	363.80	363.80	363.80	L-13
			Mazdoor (Skilled)	day	0.165	0.165	0.165	541.00	89.27	89.27	89.27	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			Polyvinyl chloride pipe (PVC)- 110 mm	meter	15.450	15.450	15.450	129.51	2000.99	2000.99	2000.99	M-303
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	5.241	5.241	5.241	99.70	522.53	522.53	522.53	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost for 15 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/15						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		C	**Rubble / Cobble Stone**									
			Taking output = 11.7 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.038	0.038	0.038	444.00	16.87	16.87	16.87	L-12
			Mazdoor	day	0.817	0.817	0.817	428.00	349.68	349.68	349.68	L-13
			Mazdoor (Skilled)	day	0.129	0.129	0.129	541.00	69.79	69.79	69.79	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			Polyvinyl chloride pipe (PVC)- 110 mm	meter	12.051	12.051	12.051	129.51	1560.77	1560.77	1560.77	M-303
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	4.088	4.088	4.088	99.70	407.57	407.57	407.57	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost for 11.7 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/11.7						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		D	**Soft Rock**									
			Taking output = 14.2 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	0.842	0.842	0.842	428.00	360.38	360.38	360.38	L-13

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor (Skilled)	day	0.156	0.156	0.156	541.00	84.40	84.40	84.40	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			Polyvinyl chloride pipe(PVC)- 110 mm	meter	14.626	14.626	14.626	129.51	1894.27	1894.27	1894.27	M-303
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	4.961	4.961	4.961	99.70	494.61	494.61	494.61	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost for 14.2 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/14.2						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
7.13	**Suggestive**		**Horizontal Drainage Boring (Nominal Diameter of drilling pipe-135 mm)**									

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Horizontal Drainage Boring methods on the types of sandy soil / cohesive soil and drilling length including cost of all materials, machinery, labour and all other ancillary operations etc..(Nominal Diameter of drilling pipe- 90mm									
			Nominal Diameter of drilling pipe- 135mm									
			Unit = Running Meter									
		(i)	**Drilling length below bed level upto 50.0 Meter**									
		A	**Sandy Soil / Cohesive Soil**									
			Taking output = 20 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.020	0.020	0.020	444.00	8.88	8.88	8.88	L-12
			Mazdoor	day	0.270	0.270	0.270	428.00	115.56	115.56	115.56	L-13
			Mazdoor (Skilled)	day	0.220	0.220	0.220	541.00	119.02	119.02	119.02	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			polyvinyl chloride pipe (PVC)- 135 mm	meter	20.600	20.600	20.600	129.51	2667.99	2667.99	2667.99	M-304
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	6.988	6.988	6.988	99.70	696.70	696.70	696.70	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost for 20 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/20						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		B	**Gravelly Soil**									
			Taking output = 15 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.015	0.015	0.015	444.00	6.66	6.66	6.66	L-12
			Mazdoor	day	0.220	0.220	0.220	428.00	94.16	94.16	94.16	L-13
			Mazdoor (Skilled)	day	0.165	0.165	0.165	541.00	89.27	89.27	89.27	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			Polyvinyl chloride pipe(PVC) -135 mm	meter	15.450	15.450	15.450	129.51	2000.99	2000.99	2000.99	M-304
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	5.241	5.241	5.241	99.70	522.53	522.53	522.53	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost for 15 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/15						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		C	**Rubble / Cobble Stone**									
			Taking output = 13 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.014	0.014	0.014	444.00	6.22	6.22	6.22	L-12
			Mazdoor	day	0.200	0.200	0.200	428.00	85.60	85.60	85.60	L-13
			Mazdoor (Skilled)	day	0.143	0.143	0.143	541.00	77.36	77.36	77.36	L-15

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			Polyvinyl chloride pipe(PVC) -135 mm	meter	13.390	13.390	13.390	129.51	1734.19	1734.19	1734.19	M-304
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	4.542	4.542	4.542	99.70	452.84	452.84	452.84	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost for 13 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/13						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		D	**Soft Rock**									
			Taking output = 15 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.015	0.015	0.015	444.00	6.66	6.66	6.66	L-12
			Mazdoor	day	0.220	0.220	0.220	428.00	94.16	94.16	94.16	L-13
			Mazdoor (Skilled)	day	0.165	0.165	0.165	541.00	89.27	89.27	89.27	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.176	0.176	0.176	444.00	78.14	78.14	78.14	L-12
			Mazdoor	day	2.600	2.600	2.600	428.00	1112.80	1112.80	1112.80	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			Polyvinyl chloride pipe (PVC) -135 mm	meter	15.450	15.450	15.450	129.51	2000.99	2000.99	2000.99	M-304
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	5.241	5.241	5.241	99.70	522.53	522.53	522.53	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost for 15 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/15						#VALUE!	#VALUE!	#VALUE!	

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
								Say	#VALUE!	#VALUE!	#VALUE!	
		(ii)	**Drilling length from 50.0 Meter-80 meter**									
		A	**Sandy Soil / Cohesive Soil**									
			Taking output = 16.7 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.017	0.017	0.017	444.00	7.55	7.55	7.55	L-12
			Mazdoor	day	0.230	0.230	0.230	428.00	98.44	98.44	98.44	L-13
			Mazdoor (Skilled)	day	0.184	0.184	0.184	541.00	99.54	99.54	99.54	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.184	0.184	0.184	444.00	81.70	81.70	81.70	L-12
			Mazdoor	day	2.800	2.800	2.800	428.00	1198.40	1198.40	1198.40	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			polyvinyl chloride pipe (PVC)- 135 mm	meter	17.201	17.201	17.201	129.51	2227.77	2227.77	2227.77	M-304
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	5.835	5.835	5.835	99.70	581.75	581.75	581.75	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost for 16.7 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/16.7						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		B	**Gravelly Soil**									
			Taking output = 12.5 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.013	0.013	0.013	444.00	5.77	5.77	5.77	L-12
			Mazdoor	day	0.188	0.188	0.188	428.00	80.46	80.46	80.46	L-13
			Mazdoor (Skilled)	day	0.138	0.138	0.138	541.00	74.66	74.66	74.66	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.184	0.184	0.184	444.00	81.70	81.70	81.70	L-12
			Mazdoor	day	2.800	2.800	2.800	428.00	1198.40	1198.40	1198.40	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			Polyvinyl chloride pipe (PVC)- 135 mm	meter	12.875	12.875	12.875	129.51	1667.49	1667.49	1667.49	M-304
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	4.367	4.367	4.367	99.70	435.39	435.39	435.39	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost for 12.5 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/12.5						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		C	**Rubble / Cobble Soil**									
			Taking output = 10.8 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.012	0.012	0.012	444.00	5.33	5.33	5.33	L-12
			Mazdoor	day	0.171	0.171	0.171	428.00	73.19	73.19	73.19	L-13
			Mazdoor (Skilled)	day	0.119	0.119	0.119	541.00	64.38	64.38	64.38	L-15
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.184	0.184	0.184	444.00	81.70	81.70	81.70	L-12
			Mazdoor	day	2.800	2.800	2.800	428.00	1198.40	1198.40	1198.40	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			Polyvinyl chloride pipe(PVC)- 135 mm	meter	11.124	11.124	11.124	129.51	1440.71	1440.71	1440.71	M-304
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	3.773	3.773	3.773	99.70	376.17	376.17	376.17	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost for 10.8 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/10.8						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
		D	**Soft Rock**									
			Taking output = 12.5 meter									
			a) Labour									
			For boring work									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			For installation of pipe material									
			Mate	day	0.013	0.013	0.013	444.00	5.77	5.77	5.77	L-12
			Mazdoor	day	0.188	0.188	0.188	428.00	80.46	80.46	80.46	L-13
			Mazdoor (Skilled)	day	0.138	0.138	0.138	541.00	74.66	74.66	74.66	L-15

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			For both installation and removal of machinery and equipment of boring work									
			Mate	day	0.184	0.184	0.184	444.00	81.70	81.70	81.70	L-12
			Mazdoor	day	2.800	2.800	2.800	428.00	1198.40	1198.40	1198.40	L-13
			Mazdoor (Skilled)	day	1.800	1.800	1.800	541.00	973.80	973.80	973.80	L-15
			For installation and removal of temporary stage in flat terrain									
			Mate	day	0.364	0.364	0.364	444.00	161.62	161.62	161.62	L-12
			Mazdoor	day	5.700	5.700	5.700	428.00	2439.60	2439.60	2439.60	L-13
			Mazdoor (Skilled)	day	3.400	3.400	3.400	541.00	1839.40	1839.40	1839.40	L-15
			b) Machinery									
			Boring machine	hour	8.000	8.000	8.000	235.00	1880.00	1880.00	1880.00	PM61001
			Grout pump	hour	8.000	8.000	8.000	668.00	5344.00	5344.00	5344.00	PM60001
			Crawler Crane-5 tonne (for installation and removal of machinery and equipment)	hour	5.600	5.600	5.600	896.00	5017.60	5017.60	5017.60	PM63002
			Crawler Crane-5 tonne (for temporary stage)	hour	3.600	3.600	3.600	896.00	3225.60	3225.60	3225.60	PM63002
			c) Materials									
			Polyvinyl chloride pipe (PVC) - 135 mm	meter	12.875	12.875	12.875	129.51	1667.49	1667.49	1667.49	M-304
			Core tube(drilling bit)	Nos.	0.416	0.416	0.416	INPUT	#VALUE!	#VALUE!	#VALUE!	M-223
			Core tube(drilling pipe)	Nos.	0.224	0.224	0.224	INPUT	#VALUE!	#VALUE!	#VALUE!	M-221
			Core tube (Inner rod)	Nos.	0.288	0.288	0.288	INPUT	#VALUE!	#VALUE!	#VALUE!	M-219
			Geotextile for Wrapping the pipe including 5% wastage	sqm	4.367	4.367	4.367	99.70	435.39	435.39	435.39	M-107
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		#VALUE!	#VALUE!	#VALUE!	
			Cost for 12.5 meter= a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per meter = (a+b+c+d+e)/12.5						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
7.14	**710.1.4 of IRC78 & 2200**		**Selected fill behind Reinforced Earth Wall Complete as per drawing and Technical specification**									
		A	**Granular Material**									
			Unit = cum									

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Taking output = 250 cum									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor skilled	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			Mazdoor	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			b) Machinery									
			Motor Grader									
			(i) Motor grader 4.30 metre blade	hour	1.210			5560.00	6727.60			PM2001
			(ii) Motor grader 3.70 metre blade	hour		1.459		5095.00		7433.61		PM2002
			(iii) Motor grader 3.35 metre blade	hour			1.627	4512.00			7341.02	PM2003
			Vibratory roller	hour	1.214	1.214	1.214	2120.00	2573.68	2573.68	2573.68	PM7001
			water tanker (speed @ 20 km/hr and return speed @ 30 km/hr and spreading speed @ 3.0 km/hr)									
			(i) 16 KL capacity	hour	0.292xL1+ 0.467			1204.00	913.84			L=1km& PM11001
			(ii) 12 KL capacity	hour		0.389xL1+ 0.622		1030.00		1041.33		L=1km& PM11002
			(iii) 6 KL capacity	hour			0.778xL1+ 1.244	789.00			1595.36	L=1km& PM11003
			c) Material									
			cost of water	KL	42.000	42.000	42.000	63.20	2654.40	2654.40	2654.40	M-191
			Granular material	cum	300.000	300.000	300.000	173.92	52176.00	52176.00	52176.00	M-009
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		5284.00	6688.35	8081.40	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		7133.40	7357.19	7542.64	
			Cost for 250 cum of granular backfill= a+b+c+d+e						78467.44	80929.08	82969.02	
			Rate per cum = (a+b+c+d+e)/250						313.87	323.72	331.88	
								Say	**313.90**	**323.70**	**331.90**	
7.14		**B**	**Sandy Material**									
			Unit = cum									
			Taking output = 450 cum									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			b) Machinery									
			Motor Grader for grading									
			(i) Motor grader 4.30 metre blade	hour	2.177			5560.00	12104.12			PM2001
			(ii) Motor grader 3.70 metre blade	hour		2.626		5095.00		13379.47		PM2002
			(iii) Motor grader 3.35 metre blade	hour			2.929	4512.00			13215.65	PM2003
			water tanker (speed @ 20 water tanker speed km/hr and return speed @ 30 km/hr and spreading speed @ 2.5 km/hr)									
			(i) 16 KL capacity	hour	0.25xL1+0.864			1204.00	1341.26			L1=1km&PM11001
			(ii) 12 KL capacity	hour		0.333xL1+1.152		1030.00		1529.55		L1=1km&PM11002
			(iii) 6 KL capacity	hour			0.667xL1+2.304	789.00			2344.12	L1=1km&PM11003
			Vibtatory roller	hour	2.184	2.184	2.184	2120.00	4630.08	4630.08	4630.08	PM7001
			c) Material									
			cost of water	KL	36.000	36.000	36.000	63.20	2275.20	2275.20	2275.20	M-191
			Sand at site	cum	450.000	450.000	450.000	150.48	67716.00	67716.00	67716.00	M-006
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		7116.65	9042.18	10928.71	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		9607.48	9946.40	10200.13	
			Cost for 450cum= a+b+c+d+e						105682.31	109410.40	112201.40	
			Rate per cum = (a+b+c+d+e)/450						234.85	243.13	249.34	
								Say	**234.80**	**243.10**	**249.30**	
7.15	**710.1.4of IRC:78 and2504.2**		Providing and laying of filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRT&H specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and Technical specifications.									

Chapter 7
Analysis of Rate
GEOSYNTHETICS AND REINFORCED EARTH

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Unit = cum									
			Taking output = 10 cum									
			a) Labour									
			Mate	day	0.320	0.320	0.320	444.00	142.08	142.08	142.08	L-12
			Mazdoor for filling, watering, ramming etc.	day	7.000	7.000	7.000	428.00	2996.00	2996.00	2996.00	L-13
			Mazdoor (skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			b) Material									
			Filer media of stone aggregate conforming to clause 2504.2.2. of MoRT&H specifications.	cum	12.000	12.000	12.000	733.48	8801.76	8801.76	8801.76	M-011
			c) Machinery									
			Water Tanker of 6 KL capacity	hour	0.060	0.060	0.060	789.00	47.34	47.34	47.34	PM11003
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		1002.25	1252.82	1503.38	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		1353.04	1378.10	1403.16	
			Cost for 10 cum of filter Media = a+b+c+d+e						14883.48	15159.10	15434.72	
			Rate per cum = (a+b+c+d+e)/10						1488.35	1515.91	1543.47	
								Say	**1488.30**	**1515.90**	**1543.50**	
7.16	**704**		**Supplying & laying of drainage composite for use behind walls with Geosynthetic Drainage composite.**									

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
7.16		A	Supplying & laying of drainage composite for use behind walls,between two different fills, alongside drains of road, below concrete lining of canal etc. Geocomposite for planar drainage, realized by thermobonding a draining core in extruded monofilaments with two filtering nonwoven geotextiles that may also be working as separation or protecting layers.The draining three dimensional core will have a "W" configuration as longitudinal parallel chanels. Minimum thickness to be 7.2 mm, with two filtering UV stabilized polypropylene nonwoven geotextile of minimum thickness of 0.75 mm having pores of 150 micron and tensile strength of 8.0 KN/M that will be working as separation or protecting layer, geocomposite having in plane flow capacity of 2.1 L /(m.s) at hydraulic gradiant of 1.0 & 20 kpa pressure and tensile strength of 18 KN/M, with mass per unit area of 740 gsm, supplied in the form of roll for easy transportation to site of work as per detailed specification all complete as per directions of Engineer in charge.									
			Unit= sqm									
			Taking output = 300 sqm									
			a) Labour									
			Male	day	0.200	0.200	0.200	444.00	88.80	88.80	88.80	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			b) Material									
			Geosynthetic Drainage Composite	sqm	300.000	300.000	300.000	558.30	167490.00	167490.00	167490.00	M-290

Chapter 7
Analysis of Rate
GEOSYNTHETICS AND REINFORCED EARTH

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Add 10 percent of the synthetic composite for wastage and accessories for joining sheets with the fascia panels overlaps and other protective elements for synthetic composites and other miscellaneous activities required to complete the items in all respect including transportation & takes.						16749.00	16749.00	16749.00	
			c) Overhead Charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		14935.50	18669.38	22403.26	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		20162.93	20536.32	20909.71	
			Cost for 300 sqm = a+b+c+d						221792.23	225899.50	230006.76	
			Rate per sqm = (a+b+c+d)/300						739.31	753.00	766.69	
								Say	**739.30**	**753.00**	**766.70**	
7.16		**B**	Supplying & laying of drainage composite for use behind walls,between two different fills, alongside drains of road, below concrete lining of canal etc. having thermobonding a draining core - HDPE geonet comprises of two sets of parallel overlayed ribs integrally connected to have a rhomboidal shape with a polythylene film and a nonwoven geotextiles having mass per unit area 130 g/m2 and tensile strength of 8.0 KN/M that will be working as separation or protecting layer, geocomposite having in plane flow capacity of 0.7 L /(m.s) at hydraulic gradiant of 1.0 & 20 kpa pressure and tensile strength of 13.5 KN/M, with mass per unit area of 830 gsm, at easily accessible location including top and bottom, with all leads and lifts, manpower and machinery, materials, labour etc. complete and as directed by Engineer in charge.									
			Unit= sqm									
			Taking output = 300 sqm									
			a) Labour									

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mate	day	0.200	0.200	0.200	444.00	88.80	88.80	88.80	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor (Skilled)	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-15
			b) Material									
			Geosynthetic Drainage Composite	sqm	300.000	300.000	300.000	664.65	199395.00	199395.00	199395.00	M-291
			Add 10 percent of the cost of synthetic composites for wastage and accessories for joining sheets with the fascia panels, overlaps and other protective elements for synthetic composites and other miscellaneous activities required to complete the item in all respect including transportation and takes.						19939.50	19939.50	19939.50	
			c) Overhead Charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		17743.14	22178.93	26614.72	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		23953.24	24396.82	24840.40	
			Cost for 300 sqm = a+b+c+d						263485.69	268365.05	273244.42	
			Rate per sqm = (a+b+c+d)/300						878.29	894.55	910.81	
								Say	**878.30**	**894.60**	**910.80**	
7.17	**705**		**Geocell for Slope protection**									
			Furnishing and installing of the Geocell for slope protection including fixing and anchoring of cells in the ground, preparation of ground, filling of cells with specified materials, seeding, watering and all other incidentals including all other items to complete the work as per these specifications drawing or as directed by the Engineer.									
			Unit = sqm									
			Taking output = 100 sqm									
			a) Labour									
			Mate	day	0.060	0.060	0.060	444.00	26.64	26.64	26.64	L-12
			Mazdoor for preparation of ground and laying of the Geocell	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			Skilled Mazdoor	day	0.500	0.500	0.500	541.00	270.50	270.50	270.50	L-15

Chapter 7
Analysis of Rate
GEOSYNTHETICS AND REINFORCED EARTH

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			b) Material									
			Geocell	sqm	100.000	100.000	100.000	105.24	10524.08	10524.08	10524.08	M-307
			Add 10 percent of the cost of Geocell for wastage, overlaps and accessories for anchoring with the ground, other protective elements for Geocell and other miscelleneous activities required to complete the item in all respect including transportation & takes.						1052.41	1052.41	1052.41	
			c) Overhead Charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		984.13	1230.16	1476.20	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		1328.58	1353.18	1377.78	
			Cost for 100 sqm = a+b+c+d						14614.34	14884.98	15155.61	
			Rate per sqm = (a+b+c+d)/100						146.14	148.85	151.56	
								Say	**146.10**	**148.80**	**151.60**	
		Note	Soil filling/spreading, turfing/seeding paid separately, refer chapter-03 for details.									
7.18	**706**		**Geosynthtics mat on the slope**									
			Furnishing and installing of the Geosynthetics mat for control of erosion of slopes including supplying and laying the mat, spreading soil and seeding to promote the design of vegetation, watering and all other incidentals including all other items to complete the work as per these specifications drawing or as directed by the Engineer.									
			Unit = sqm									
			Taking output = 100 sqm									
			a) Labour									
			Mate	day	0.060	0.060	0.060	444.00	26.64	26.64	26.64	L-12
			Mazdoor for preparation of ground and laying of the Geocell	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			Skilled Mazdoor	day	0.500	0.500	0.500	541.00	270.50	270.50	270.50	L-15
			b) Material									
			Geosynthetics mat	sqm	100.000	100.000	100.000	53.07	5306.60	5306.60	5306.60	M-308

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Add 10 percent of the cost of Geosynthetics mat for wastage, overlaps and accessories for anchoring with the ground, other protective elements for Geosynthetics mat and other miscelleneous activities required to complete the item in all respect including transportation & takes.						530.66	530.66	530.66	
			c) Overhead Charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		524.99	656.24	787.49	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		708.74	721.86	734.99	
			Cost for 100 sqm = a+b+c+d						7796.13	7940.50	8084.88	
			Rate per sqm = (a+b+c+d)/100						77.96	79.41	80.85	
								Say	**78.00**	**79.40**	**80.80**	
		Note	Soil filling/spreading, turfing/seeding paid separately, refer chapter-03 for details.									
7.19	**707**		**Natural Geotextile on the slope**									
			Furnishing and installing of the natural Geotextile for control of erosion of slopes including supplying and laying the natural Geotextile, spreading soil and seeding to promote the design of vegetation, watering and all other incidentals including all other items to complete the work as per these specifications drawing or as directed by the Engineer.									
			Unit = sqm									
			Taking output = 100 sqm									
			a) Labour									
			Mate	day	0.060	0.060	0.060	444.00	26.64	26.64	26.64	L-12
			Mazdoor for preparation of ground and laying of the natural Geotextile	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			Skilled Mazdoor	day	0.500	0.500	0.500	541.00	270.50	270.50	270.50	L-15
			b) Material									
			Natural Geotextile	sqm	100.000	100.000	100.000	99.70	9969.69	9969.69	9969.69	M-309

Chapter 7
Analysis of Rate
GEOSYNTHETICS AND REINFORCED EARTH

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Remarks/ Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Add 10 percent of the cost of natural Geotextile for wastage, overlaps and accessories for anchoring with the ground, other protective elements for natural Geotextile and other miscelleneous activities required to complete the item in all respect including transportation & takes.						996.97	996.97	996.97	
			c) Overhead Charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		935.34	1169.18	1403.02	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1262.71	1286.10	1309.48	
			Cost for 100 sqm = a+b+c+d						13889.86	14147.08	14404.30	
			Rate per sqm = (a+b+c+d)/100						138.90	141.47	144.04	
		Note	Soil filling/spreading, turfing/seeding paid separately, refer chapter-03 for details.					**Say**	**138.90**	**141.50**	**144.00**	

CHAPTER - 08

TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

CHAPTER-8

TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURATENANCES

PREAMBLES :

1 Rate analysis for fencing has been done for two different height, i.e., 1.20 m and 1.80m. Any of these two can be adopted depending upon a particular situation and design.

2 Rate analysis for fencing provides for three types as under :

a) Barbed wire fencing

b) Welded steel wire fabric with mesh size of 75 x 25 mm

c) welded steel wire fabric with mesh size of 75 x 50 mm

3 Kerb stone laying and road marking has been provided for laying by mechanical means.

4 Back filling of foundation of boundary pillars has been proposed with stone spalls, tightly packed and compacted.

5 The item pertaining to road traffic signals has not been analyzed as this is a specialized work and rates can be obtained from firms having specialization for design and installation of this work.

6 For metal beam crash barrier, a 'w' shaped beam of size 311x83 mm flange width made with structural steel corrugated plate 3 mm thick and having a length of 4.5 m has been provided, over a channel post of 150x75x5 mm with a spacer of channel section 150x75x5 mm, 330 mm long.

7 Printing of letters and signs on item Nos. 18 to 21 is required to be measured and paid separately. A separate rate analysis for lettering has been prepred and included in this chapter for this purpose.

8 Two supports have been provided for direction and place identification signs where size is more than 0.9 sqm. Only one is provided for size upto 0.9 sqm.

9 The Traffic signs proposed are of retro-reflectorized type made of encapsulated lens type reflective sheeting fixed over aluminum sheeting as per Clause 801.3 and installation.

10 The size, location of traffic signs shall be as per IRC : 67

11 The analysis for rigid, semi-rigid and flexible crash barriers have been included.

12 Provision has been made for a crane for installation of overhead signs.

13 Separate rate analysis has been made for Tubular steel railing with RCC posts and MS steel posts.

14 The organization and financial aspects are required to be finalized in consultation with administrative and traffic authorities.

15 The rate for the message display board for gantry mounted variable message sign is required to be ascertained form the market, this being a commercially produced item by specialized firms.

16 The rate analysis for traffic impact attenuators at abutments and piers have been included.

17 In the case of road signs and direction boards the depth of foundation and quantity of cement concrete provided in the rate analysis are indicative. These may be suitably increased in areas of higher wind velocities

18 **Ducts for Utility Services Along and Across the Expressway/Highway :**

The running meter cost of duct along the road including inspection chambers (Where applicable) or across the road depend upon the approved design. The various item involved are earthen work, plain cement concrete, brick stone masonry, reinforcement cement concrete, form work, steel reinforcement, laying of pipe line (where duct is of pipe) and cast iron/RCC cover for the inspection chamber. The rate for these items are available under respective clauses which can be applied and running meter cost of duct worked out as per the approved design and drawing for particular situations. In case cast iron cover for the inspection chamber, the rate can be ascertained from the market for the size provided in the design and approved drawings.

19 **Noise Barriers :**

Noise barrier can be provided in the form of a brick wall of a suitable height as per the site requirement and approved design. The items involved for the construction of this barrier like earthwork, brick masonry, plain cement concrete, etc. are available in the Data Book, which can be applied to arrive at the cost of noise barrier based on the design adopted.

20 Items and rate analysis for ATMS, HTMS and solar Road Studs has been included.

CHAPTER - 8
Summary of Rate Analysis
TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Item. No.	Description	Unit	Rate as per project category (₹)		
			Large	Medium	Small
8.01	**Cast-in-Situ Cement Concrete M20 Kerb** (Construction of cement concrete kerb with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M-15 grade foundation 150 mm thick, foundation having 50 mm projection beyond kerb stone, kerb stone laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 409)				
(i)	PCC M15 for Kerb Base	RM	152.20	154.90	157.70
(ii)	PCC M20 for Kerb cast in situ	RM	189.00	192.50	196.00
8.02	**Cast in Situ Cement Concrete M 20 Kerb with Channel** (Construction of cement concrete kerb with channel with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M15 grade foundation 150 mm thick, kerb channel 300 mm wide, 50 mm thick in PCCM20 grade, sloped towards the kerb, kerb stone with channel laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 409)				
(i)	PCC M15 for Kerb Base	RM	154.30	157.10	159.80
(ii)	PCC M20 for Kerb Cast in situ	RM	263.60	268.50	273.40
8.03	**Printing New Lettor and Figures of any Shade** (Printing new letter and figures of any shade with synthetic enamel paint black or any other approved colour to give an even shade)				
(i)	**Hindi** (Matras commas and the like not to be measured and paid for Half letter shall be counted as half)	per cm height per letter	1.30	1.30	1.30
(ii)	**English and Roman** (Hyphens and the like not to be measured and paid for)	per cm height per letter	0.80	0.80	0.80
8.04	**Retro-Reflectorised Traffic Signs**				
A	Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of class-B Type IV retro reflective sheeting fixed cover 2 mm thick aluminium sheeting vide clause 801.3, 3mm/4mm thick aluminium composite material sheet depending on the size of the sign fixed over back support frame of min 25 x 25 x 3 mm Angle mounted on a mild steel circular pipe 65 NB, 3.2 mm thickness firmly fixed to the ground by means of properly designed foundation with M25 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing. The sign shall be maintained as per section 12 of IRC 67.The retro reflective sheeting shall be tested for a certificate of having the sheeting tested for coefficient of retro reflection, daytime colour and luminance, shrinkage, flexibility, linear removal, adhesion, impact resistance, specular gloss and fungus resistance, 3 years outdoor weathering and its having passed these tests shall be obtained from International/Government Laboratory/Institute by the manufacturer of the sheeting and in case the certificate is obtained from international condition, it should also be obtained from indian condition within 3 years of launching of product by the manufacture in abroad.Alternatively, a certificate conforming to ASTM specification (D4956-09) on artificial accelerated weathering requirements from a reputed laboratory in India can be accepted provisionally.In such a situation, the Employer/Client, if so desires could seek for a performance guarantee which would released after receipt a certificate meeting the requirement of three years outdoor weathering of the sheeting as per IRC 67:2012 & proof of the same report shall be uploaded while quoting tendor. The retro reflective sheeting shall be covered under 7 years warranty to be provided from the original sheeting manufacturer, as per Clause 6.9 of IRC 67:2012. At the end of 7 years, the sheeting shall retain atleast 80% of its original retro-reflectance. When totally wet, the sheeting shall show not less than 90% of the value of the desired retro reflectance.				
(i)	**120 cm equilateral triangle**	Each	9508.90	9685.60	9864.90
(ii)	**90 cm equilateral triangle**	Each	5369.20	5487.90	5609.00
(iii)	**75 cm equilateral triangle**	Each	5138.70	5234.50	5332.90
(iv)	**60 cm equilateral triangle**	Each	4126.70	4203.80	4283.40
(v)	**120 cm circular**	Each	15339.60	15624.40	15911.60
(vi)	**90 cm circular**	Each	9646.90	9826.20	10008.00
(vii)	**75 cm circular**	Each	7415.80	7553.80	7694.30
(viii)	**60 cm circular**	Each	5587.20	5691.40	5798.00
(ix)	**90 cm x 75 cm rectangular**	Each	10095.40	10283.00	10473.20
(x)	**80 cm x 60 cm rectangular**	Each	7852.80	7998.90	8147.50
(xi)	**60 cm x 50 cm rectangular**	Each	5782.70	5890.50	6000.80
(xii)	**60 cm x 45 cm rectangular**	Each	5437.70	5539.10	5643.00
(xiii)	**60 cm x 60 cm square**	Each	6472.80	6593.30	6716.30
(xiv)	**120 cm high octagon**	Each	16052.60	16350.60	16651.00
(xv)	**90 cm high octagon**	Each	10049.40	10236.20	10425.50
(xvi)	**75 cm high octagon**	Each	7461.80	7600.60	7742.00

CHAPTER - 8
Summary of Rate Analysis
TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Item. No.	Description	Unit	Rate as per project category (₹)		
			Large	Medium	Small
8.04 (B)	Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of class-C Type XI retro reflective sheeting fixed over 2mm thick aluminium sheeting vide clause 801.3, 3/4mm thick Aluminium composite material sheet depending on the size of the sign fixed over back support frame of min 25 x 25 x 3 mm Angle mounted on a mild steel circular pipe 65 NB, 3.2 mm thickness firmly fixed to the ground by means of properly designed foundation with M25 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing. The sign shall be maintained as per section 12 of IRC 67. The sign shall be maintained as per section 12 of IRC 67.The retro reflective sheeting shall be tested for a certificate of having the sheeting tested for coefficient of retro reflection, daytime colour and luminance, shrinkage, flexibility, linear removal, adhesion, impact resistance, specular gloss and fungus resistance, 3 years outdoor weathering and its having passed these tests shall be obtained from International/Goverment Laboratory/Institute by the manufacturer of the sheeting and in case the certificate is obtained from international condition, it should also be obtained from Indian condition within 3 years of launching of product by the manufacture in abroad.Alternatively, a certificate conforming to ASTM specification (D4956-09) on artificial accelerated weathering requirements from a reputed laboratory in India can be accepted provisionally.In such a situation, the Employer/Client, if so desires could seek for a performance guarantee which would released after receipt a certificate meeting the requirement of three years outdoor weathering of the sheeting as per IRC 67:2012 & proof of the same report shall be uploaded while quoting tendor. The retro reflective sheeting shall be covered under 10 years warranty to be provided from the original sheeting manufacturer, as per Clause 6.9 of IRC 67:2012. At the end of 10 years, the sheeting shall retain atleast 80% of its original retro-reflectance. When totally wet, the sheeting shall show not less than 90% of the value of the desired retro reflectance.				
(i)	**120 cm equilateral triangle**	Each	9508.90	9685.60	9864.90
(ii)	**90 cm equilateral triangle**	Each	6369.20	6487.90	6609.00
(iii)	**75 cm equilateral triangle**	Each	5138.70	5234.50	5332.90
(iv)	**60 cm equilateral triangle**	Each	4126.70	4203.80	4283.40
(v)	**120 cm circular**	Each	15339.60	15624.40	15911.60
(vi)	**90 cm circular**	Each	9646.90	9826.20	10008.00
(vii)	**75 cm circular**	Each	7415.80	7553.80	7694.30
(viii)	**60 cm circular**	Each	5587.20	5691.40	5798.00
(ix)	**90 cm x 75 cm rectangular**	Each	10095.40	10283.00	10473.20
(x)	**80 cm x 60 cm rectangular**	Each	7852.80	7998.90	8147.50
(xi)	**60 cm x 50 cm rectangular**	Each	5782.70	5890.50	6000.80
(xii)	**60 cm x 45 cm rectangular**	Each	5437.70	5539.10	5643.00
(xiii)	**60 cm x 60 cm square**	Each	6472.80	6593.30	6716.30
(xiv)	**120 cm high octagon**	Each	16052.60	16350.60	16651.00
(xv)	**90 cm high octagon**	Each	10049.40	10236.20	10425.50
(xvi)	**75 cm high octagon**	Each	7461.80	7600.60	7742.00
8.05	**Direction and Place Identification Signs upto 0.9 sqm Size Board.** (Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick or Aluminium composite material sheet with overall thickness of 4 mm with area not exceeding 0.9 sqm fixed over back support frame of min 35 x 35 x 3 mm Angle mounted on a mild steel circular pipe 65 NB, firmly fixed to the ground by means of properly designed foundation with M25 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing).The retro reflective sheeting shall be tested for a certificate of having the sheeting tested for coefficient of retro reflection, daytime colour and luminance, shrinkage, flexibility, linear removal, adhesion, impact resistance, specular gloss and fungus resistance, 3 years outdoor weathering and its having passed these tests shall be obtained from International/Goverment Laboratory/Institute by the manufacturer of the sheeting and in case the certificate is obtained from international condition, it should also be obtained from Indian condition within 3 years of launching of product by the manufacture in abroad. Alternatively, a certificate conforming to ASTM specification (D4956-09) on artificial accelerated weathering requirements from a reputed laboratory in India can be accepted provisionally. In such a situation, the Employer/Client, if so desires could seek for a performance guarantee which would released after receipt a certificate meeting the requirement of three years outdoor weathering of the sheeting as per IRC 67:2012 & proof of the same report shall be uploaded while quoting tendor. 7 years warranty shall be provided for retro reflection sheeting Type-IV & 10 years warranty shall be provided for retro reflective sheeting Type-XI as per Clause 6.9 of IRC 67:2012. At the end of warranty period, the sheeting shall retain atleast 80% of its retro reflectance. When totally wet, the sheeting shall show not less than 90% of the value of the desired retro reflectance.	Sqm	14462.00	14730.60	15001.90

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Item. No.	Description	Unit	Rate as per project category (₹)		
			Large	Medium	Small
8.06	**Direction and Place Identification Signs with size more than 0.9 sqm size Board.**(Providing and erecting direction and place identification retro- reflectorised sign as per IRC :67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick or Aluminium composite material sheet with overall thickness of 4 mm with area exceeding 0.9 sqm fixed over back support frame of min 40 x 40 x 5 mm Angle mounted on two nos. of mild steel circular pipe 65 NB, 3.2mm thickness and 4.5m meter total height firmly fixed to the ground by means of properly designed foundation with M 25 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing).The retro reflective sheeting shall be tested for a certificate of having the sheeting tested for coefficient of retro reflection, daytime colour and luminance, shrinkage, flexibility, linear removal, adhesion, impact resistance, specular gloss and fungus resistance, 3 years outdoor weathering and its having passed these tests shall be obtained from International/Goverment Laboratory/Institute by the manufacturer of the sheeting and in case the certificate is obtained from international condition, it should also be obtained from indian condition within 3 years of launching of product by the manufacture in abroad.Alternatively, a certificate conforming to ASTM specification (D4956-09) on artificial accelerated weathering requirements from a reputed laboratory in India can be accepted provisionally.In such a situation, the Employer/Client, if so desires could seek for a performance guarantee which would released after receipt a certificate meeting the requirement of three years outdoor weathering of the sheeting as per IRC 67:2012 & proof of the same report shall be uploaded while quoting tendor. 7 years warranty shall be provided for retro reflection sheeting Type-IV & 10 years warranty shall be provided for retro reflective sheeting Type-XI as per Clause 6.9 of IRC 67:2012. At the end of warranty period, the sheeting shall retain atleast 80% of its retro reflectance. When totally wet, the sheeting shall show not less than 90% of the value of the desired retro reflectance. `	Sqm	15071.30	15351.30	15634.70
8.07	**Overhead Signs** (Providing and erecting overhead signs with a corrosion resistant 2mm thick aluminium alloy sheet reflectorised with high intensity retro-reflective sheeting of encapsulated lense type with vertical and lateral clearance given in clause 802.2 and 802.3 and installed as per clause 802.7 over a designed support system of aluminium alloy or galvanised steel trestles and trusses of sections and type as per structural design requirements and approved plans & as per IRC: 67). The retro reflective sheeting shall be tested for a certificate of having the sheeting tested for coefficient of retro reflection, daytime colour and luminance, shrinkage, flexibility, linear removal, adhesion, impact resistance, specular gloss and fungus resistance, 3 years outdoor weathering and its having passed these tests shall be obtained from International/Goverment Laboratory/Institute by the manufacturer of the sheeting and in case the certificate is obtained from international condition, it should also be obtained from indian condition within 3 years of launching of product by the manufacture in abroad.Alternatively, a certificate conforming to ASTM specification (D4956-09) on artificial accelerated weathering requirements from a reputed laboratory in India can be accepted provisionally.In such a situation, the Employer/Client, if so desires could seek for a performance guarantee which would released after receipt a certificate meeting the requirement of three years outdoor weathering of the sheeting as per IRC 67:2012 & proof of the same report shall be uploaded while quoting tendor. 7 years warranty shall be provided for retro reflection sheeting Type-IV & 10 years warranty shall be provided for retro reflective sheeting Type-XI as per Clause 6.9 of IRC 67:2012. At the end of warranty period, the sheeting shall retain atleast 80% of its retro reflectance. When totally wet, the sheeting shall show not less than 90% of the value of the desired retro reflectance.				
A	Truss and Vertical Support	tonne	80145.90	81630.10	83114.30
B	Aluminium Alloy Plate for Over Head Sign	sqm	15319.30	15603.00	15886.70
8.08	**Painting Two Coats on New Concrete Surfaces** (Painting two coats after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces)	sqm	99.90	101.70	103.60
8.09	**Painting on Steel Surfaces** (Providing and applying two coats of ready mix paint of approved brand on steel surface after through cleaning of surface to give an even shade)	sqm	87.90	89.50	91.20
8.10	**Painting on Wood Surfaces** (Providing and applying two coats of ready mix paint of approved brand on wood surface after thorough cleaning of surface to give an even shade)	sqm	97.10	98.90	100.70
8.11	**Painting Lines, Dashes, Arrows etc on Roads in Two Coats on New Work** (Painting lines, dashes, arrows etc on roads in two coats on new work with ready mixed road marking paint conforming to IS:164 on bituminous surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control)				
(i)	Over 10 cm in width	sqm	166.20	169.30	172.40
(ii)	Up to 10 cm in width	sqm	142.30	145.00	147.60

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Item. No.	Description	Unit	Rate as per project category (₹)		
			Large	Medium	Small
8.12	**Painting Lines, Dashes, Arrows etc on Roads in Two Coats on Old Work** (Painting lines, dashes, arrows etc on roads in two coats on old work with ready mixed road marking paint conforming to IS: 164 on bituminous surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control)				
(i)	Over 10 cm in width	sqm	115.10	117.20	119.30
(ii)	Up to 10 cm in width	sqm	123.70	126.00	128.30
8.13	**Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface** (Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.)	sqm	624.50	636.00	647.60
8.14	**Kilometre Stone** (Reinforced cement concrete M15grade kilometre stone of standard design as per IRC:8-1980, fixing in position including painting and printing etc)				
(i)	5th kilometre stone (precast)	Nos	3929.40	4000.10	4078.80
(ii)	Ordinary kilometer stone (precast)	Nos	2245.40	2286.90	2333.70
(iii)	Hectometer stone (precast)	Nos	672.10	684.80	698.50
8.15 (a)	**Road Delineators** (Supplying and installation of MS delineators (Road way indicators, hazard markers, object markers), 80-100 cm high above ground level, painted black and white in 15 cm wide strips, fitted with 80 x 100 mm rectangular or 75 mm dia circular reflectorised panels at the top, buried or pressed into the ground and conforming to IRC-79 and the drawings. MS Delineator made of Mild steel with pure polyester powder coating with the minimum thickness of powder coating of not less than 40 micron for protection against corrosion. The surface should be concealed so that there should not be any exposed surface without powder coating. Alternatively,these metal guide poles can be concealed with thermoplastic body. The posts shall have fan ellipsoidal or circular design with the height of the pole shall be 800 to 900 mm above the ground with about 200 to 300 mm base which can be anchored onto ground. Mild steel Guide poles shall conform to Type XI sheeting specifications as per IRC:67 and ASTM D4956 which would ensure to obtain clear visibility of the road alignment during night time. The retro reflective sheeting shall be tested for a certificate of having the sheeting tested for coefficient of retro reflection, daytime colour and luminance, shrinkage, flexibility, linear removal, adhesion, impact resistance, specular gloss and fungus resistance, 3 years outdoor weathering and its having passed these tests shall be obtained from International/Goverment Laboratory/Institute by the manufacturer of the sheeting and in case the certificate is obtained from international condition, it should also be obtained from indian condition within 3 years of launching of product by the manufacture in abroad.Alternatively, a certificate conforming to ASTM specification (D4956-09) on artificial accelerated weathering requirements from a reputed laboratory in India can be accepted provisionally.In such a situation, the Employer/Client, if so desires could seek for a performance guarantee which would released after receipt a certificate meeting the requirement of three years outdoor weathering of the sheeting as per IRC 67:2012 & proof of the same report shall be uploaded while quoting tendor.	Each	775.10	789.50	803.90
8.15 (b)	**Flexible Median Marker (FMM) as per IRC 79:2019** Supplying and Installation of Flexible Median Marker made up of plastic body moulded from flexible thermoplastic.Flexible Median Marker (FMM) should be used for improving median visibility during dark hours, Use of Median Marker provides safety against collision happening wih median during night time, or severe weather. Flexible Median Markers shall be provided with fluorescent yellow colour retro-reflective sheeting Type XI as per IRC 67, Flexible Median Marker shall be of tough, high impact resistant, injection-molded, thermoplastic body with property of flexibility to provide high durability and U shape structure having rebound/ bounce back property. The sheeting shall be of Type XI conforming to IRC:67 and it should be on both the faces whereby providing minimum reflectivity at longer distances with adequate durability. The logo of the manufacturer shall be embossed on either side of the body during the injection moulding process. FMM shall be fixed by a combination of epoxy adhesive and grouting/drilling on concrete medians or properly constructed solid medians. Height :The marker height shall be a minimum of 180 mm, width 120 mm & Body thickness 6.5 mm. The shank shall not be less than 20 mm and depth shall not be less than 30 mm. Reflective Area: Shall not be less than 90 cm square. Proof of the same report shall be uploaded while quoting tender. The body of FMM shall bounce back to its original position of after 750 number of hits using pendulum of 1.8 kg conforming 40 ASTM D256 adhesion between the body and outer casting body of FMM shall withstand 50 kgf tensile loads conforming to ASTM D638 method.	Each	299.60	305.10	310.70

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Item. No.	Description	Unit	Rate as per project category (₹)		
			Large	Medium	Small
8.16	**Boundary pillar** (Reinforced cement concrete M15 grade boundary pillars of standard design as per IRC:25, fixed in position including finishing and lettering but excluding painting).	Each	567.60	577.70	588.30
8.17	**G.I Barbed Wire Fencing 1.2 Metre High** (Providing and fixing 1.2 metres high GI barbed wire fencing with 1.8 m angle iron posts 40 mm x 40 mm x 6 mm placed every 3 metres center to center founded in M15 grade cement concrete, 0.6 metre below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 9 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc complete as per clause 817)	RM	306.30	311.90	317.60
8.18	**G.I Barbed Wire Fencing 1.8 Metre High** (Providing and fixing 1.8 metres high GI barbed wire fencing with 2.4 m angle iron posts 50 mm x 50 mm x 6 mm placed every 3 metres center to center founded in M15 grade cement concrete, 0.6 metre below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 12 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc complete as per clause 808)	RM	495.50	504.60	513.80
8.19 Suggestive	**Fencing With Welded Steel Wire Fabric 75 mm x 50 mm** (Providing 1.20 metre high fencing with angle iron posts 50 mm x 50 mm x 6 mm at 3 metre center to center with 0.40 metre embedded in M15 grade cement concrete, corner, end and every 10th post to be strutted, provided with welded steel wire fabric of 75 mm x 50 mm mesh or 75 mm x 25 mm mesh and fixed to iron posts by flat iron 50 x 5 mm and bolts etc. complete in all respects.)	Rm	679.00	691.60	704.20
8.20	**Tubular Steel Railing on Medium Weight Steel Channel (ISMC series) 100 mm x 50 mm** (Providing, fixing and erecting 50 mm dia steel pipe railing in 3 rows duly painted on medium weight steel channels (ISMC series) 100 mm x 50 mm, 1.2 metres high above ground, 2 m centre to centre, complete as per approved drawings)	RM	1917.20	1953.10	1990.30
8.21	**Tubular Steel Railing on Precast RCC Posts, 1.2 m High Above Ground Level** (Providing, fencing and erecting 50 mm dia painted steel pipe railing in 3 rows on precast M20 grade RCC vertical posts1.8 metres high (1.2 m above GL) with 3 holes 50 mm dia for pipe, fixed 2 metres centre to centre, complete as per approved drawing)	RM	3682.10	3753.30	3835.10
8.22	**Reinforced Cement Concrete Crash Barrier**				
A	Provision of an Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with Reinforced Cement Concrete with HYSD reinforcement conforming to MoRT&H specification and as per details given IRC-5 (Fig.-5, b) including dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board etc., as per approved drawing and at locations directed by the Engineer, all as specified. (Area- 0.243 sqm./meter, single face)				
	(I) M 25 grade concrete	Linear metre	1974.60	2013.10	2056.80
	(II) M 30 grade concrete	Linear metre	1974.60	2013.10	2056.80
B	Provision of an Reinforced cement concrete New Jersy crash barrier at the medians constructed with Reinforced cement concrete with HYSD reinforcement conforming to MoRT&H specification and as per details given IRC-119 (Fig.-26) including dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board etc.,as per approved drawing and at locations directed by the Engineer, all as specified. (Area- 0.261 sqm./meter, Double Face)				
	(I) M 25 grade concrete	Linear metre	2382.50	2395.30	2408.70
	(II) M 30 grade concrete	Linear metre	2396.20	2409.00	2422.40
8.23	**Metal Beam Crash Barrier**				

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Item. No.	Description	Unit	Rate as per project category (₹)		
			Large	Medium	Small
A	**Type - A, "W" : Metal Beam Crash Barrier** (Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 811)	RM	3225.90	3285.60	3345.30
B	**Type - B, "THRIE" : Metal Beam Crash Barrier** (Providing and erecting a "Thrie" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 85 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 2 m high with 1.15 m below ground level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a space of channel section 150 x 75 x 5 mm, 546 mm long complete as per clause 811)	RM	4075.40	4150.90	4226.40
8.24	**Road Traffic Signals electrically operated** (Since it is a ready made item commercially produced and erected by specialised firm in the electrical and electronic field, rate may be taken based on market enquiry from firms specialised in this field and ISI certified for the approved design and drawing.)				
8.25 Suggestive	**Flexible Crash Barrier, Wire Rope Safety Barrier** (Providing and erecting a wire rope safety barrier with vertical posts of medium weight RS Joist (ISMB series) 100 mm x 75 mm (11.50 kg/m), 1.50 m long 0.85 m above ground and 0.65 m below ground level, split at the bottom for better grip, embedded in M 15 grade cement concrete 450 x 450 x 450 mm, 1.50 m center to center and with 4 horizontal steel wire rope 40 mm dia and anchored at terminal posts 15 m apart. Terminal post to be embedded in M 15 grade cement concrete foundation 2400 x 450 x 900 mm (depth), strengthened by a strut of RS joist 100 x 75 mm, 2 m long at 45° inclination and a tie 100 x 8 mm, 1.50 m long at the bottom, all embedded in foundation concrete as per approved design and drawing, rate excluding excavation and cement concrete.)	RM	2274.70	2316.70	2359.00
8.26 Suggestive	**Anti-Glare Devices in Median**				
A	**Plantation** (Plantation of shrubs and plants of approved species in the median. apart from cutting off glare from vehicle coming from opposite direction, these plants provide a pleasant environment and are eco-friendly. The rate for this item is available in the chapter 11 on horticulture.)				
B	**Anti-glare screen with 25 mm steel pipe framework fixed with circular and rectangular vans** (Providing and erecting an anti - glare screen with 25 mm dia vertical pipes fabricated and framed in the form of panels of one metre length and 1.75 metre height fixed with circular vane 250 mm dia at top and rectangular vane 600 x 300 mm at the middle, made out of steel sheet of 3 mm thickness, end vertical pipes of the panel made larger for embedding in foundation concrete, applying 2 coats of paint on all exposed surfaces, all as per approved design and drawings.)	RM	3645.90	3713.40	3781.10
C	**Anti-glare screen with rectangular vane of MS sheet** (Providing and erecting anti - glare screen with rectangular vanes of size 750 x 500 mm made from MS sheet, 3 mm thick and fixed on MS angle 50 x 50 x 6 mm at an angle of 45° to the direction of flow of traffic, 1.5 m center to center, top edge of the screen 1.75 m above ground level, vertical post firmly embedded in M-15 cement concrete foundation 0.60 m below ground level, applying 2 coats of paint on exposed faces, all complete as per approved design and drawings)	RM	955.00	972.70	990.40
8.27 Suggestive	**Street Lighting** (Providing and erecting street light mounted on a steel circular hollow pole of standard specifications for street lighting, 10 m high spaced 40 m apart, 1.8 m overhang on both sides if fixed in the median and on one side if fixed on the footpath, fitted with sodium vapour lamp and fixed firmly in concrete foundation.)				
	(i) For Fixing in Median	Each	13709.50	13963.20	14217.50
	(ii) For fixing in Footpath	Each	13611.00	13863.00	14115.30
8.28 Suggestive	**Lighting on Bridges** (Providing and fixing lighting on bridges, mounted on steel hollow circular poles of standard specifications, 5 m high fixed on parapets with cement concrete, 20 m apart and fitted with sodium vapour lamp)	Each	7494.10	7632.80	7771.80

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Item. No.	Description	Unit	Rate as per project category (₹)		
			Large	Medium	Small
8.29 Suggestive	**Cable Duct Across the Road** (Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings.)				
(i)	Single row for one utility service	RM	1416.20	1432.00	1447.90
(ii)	Double row for two utility services	RM	2503.00	2534.50	2566.00
(iii)	Triple Row for three utility services	RM	3614.90	3662.60	3710.20
8.30 Suggestive	**Highway Patrolling and Traffic Aid Post.** It is proposed to locate one Traffic Aid Post every 50-60 km of the highway. The organisation and financial aspect are required to be finalised in consultation with administrative and traffic authorities .				
8.31 Suggestive	**Items Related to Underpass/ Subway/ Overhead Bridge/ Overhead Foot Bridge** (The items involved for underpass/ subway/ overhead bridge/ overhead foot bridge are earthwork, plain cement concrete, plastering, painting, information sign etc. The rates for these items are available in respective chapters which can be adopted for the quantities derived from the approved designs and drawings)				
8.32 Suggestive	**Traffic Control System and Communication System** (Providing a traffic control centre and communication system including telecommunication facilities and related accessories, CCTV, radar, vehicle detection camera, central computer system. These are specialised item of telecommunication system and are the commercial products. The designer is required to contact the manufacturers to ascertain market prices. In case of civil works required to be executed for these installations, pricing may be done as per rates in relevant chapters for quantities derived as per approved design and drawing. As regards the locations where such devices are required to be installed, the traffic control authority should be consulted to finalise the location)				
8.33 Suggestive	**Gantry Mounted Variable Message Sign Board**				
(i)	Providing and erecting gantry mounted variable message sign board electronically operated capable of flashing the desired message over a designed support system of aluminium alloy or galvanised steel, erected as per approved design and drawings and with lateral clearance as per clause 802.3	tonne	78374.60	79826.00	81277.40
(ii)	**Message Display** (Message display board 6 sqm electronically operated with complete electronic fitments for flashing the pre-determined messages.This is a specilised commercial product and the lumpsum rate including erection at site is required to be as certained from the market and including in the rate analysis. The size of the board will vary depending upon specific location.The rate for the gantry mounted variable sign would be the addition of cost of gantry support system as per approved design determined at (i) above and the cost of message display board as certained from the market at (ii) above)				
8.34 Suggestive	**Traffic Impact Attenuators at Abutments and Piers**				
A	**With Scrap Tyres** (Provision and installation of traffic attenuators at abutment/pier of flyovers bridges using scrap tyres of size 100 x 20 retrieved from trucks laid in 2 rows and 4 tiers, one above the other and tied with 20 mm wire rope as per approved design and drawings.)	sqm	1116.70	1137.40	1158.10
B	**Using Plastic/Steel Barrel, Filled with Sand** (Provision and installation of traffic impact attenuator at abutment/pier of flyovers bridges using plastic/steel barrels 0.60 m dia and 1.0 m in height, filled with sand in three rows and tied with 20 mm steel wire rope as per approved design and drawings)	sqm	973.90	991.90	1010.00
C	**With HI - DRO cell Sandwich (Patented)** (In this patented HI - DRO cell system, water gets discharged from plastic tubes on impact over a pre-determined time, thus absorbing the energy)	sqm	#VALUE!	#VALUE!	#VALUE!

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Item. No.	Description	Unit	Rate as per project category (₹)		
			Large	Medium	Small
8.35 (a) Suggestive MoRTH 804.60	**Solar Powered Road Marker (Solar Stud)** Supplying and fixing of Solar Raised Pavement Markers made of polycarbonate moulded body with circular shape, solar powered, LED self illumination in active mode, 360 degree illumination and reflective panels with micro prismatic lens capable of providing total internal reflection of the light entering the lens face in passive mode. The marker shall support a load of 13,635 kg tested in accordance to ASTM D 4280. The marker should be resistant to dust and water ingress according to IP 65 standards and should withstand temperatures in the range of 0 C to 70 C. Color of lighting could be provided in red or yellow (amber) as per requirement and typical frequency of blinking in 1 Hz. There should be current losses of less than 20 microamperes at 2.4 V in sleepcharging mode to enhace the life of the marker and a full charge should provide for a minimum autonomy of 50 hours. The height, width and length of the marker shall not be less than 10mm x 100 mm x 100 mm. Also, the surface diameter of the marker shall not be less than 100 mm respectively. The weight of the marker shall not exceed 0.5 Kilograms. It shall have super bright LED's so as to provide long visibility from a distance of more than 800 m. Its life shall not be less than 3 years. Fixing will be by drilling holes on the road for the shanks to go inside, without nails and using epoxy resin based adhesive and complete as directed by the engineer.	Nos	1662.60	1693.40	1724.20
8.35 (b) Suggestive MoRTH 804	**Reflective Raised Pavement Marker with Shank (Cat Eye/Road Stud)** Supplying and fixing of raised pavement marker with made of aluminium alloy or plastic body moulded from ASA (Acrylic Styrene Acrylonitrite) or HIPS (High Impact Polystyrene) or Acrylonitrite Butadiene Styrene (ABS) or any other suitable material approved by the Engineer. The marker shall support a load of 13,635 kg tested in accordance with ASTM D4280. The reflective panels shall consist of number of lenses containing single or dual prismatic cubes capable of providing total internal reflection of the light entering the lens face.Lenses shall be moulded of methyl methecrylate conforming to ASTM D788 of equivalent.The slop or retro-reflecting surface shall preferably be 35+/-5 degree to base and the area of each retro- reflecting surface shall not be less than 13.00 sq.cm the marker height shall not be less than 10 mm and shall not exceed 20 mm & width shall not exceed 130 mm. The base of the marker shall be flat within 1.3 mm, all road studs shall be legibly marked with the name,trade or other means of identification of the manufacturer, epoxy installations, excess adhesive around the edge of the marker, excess adhesive on the pavement and adhesive on the exposed surface of the markers shall be immediately removed. The contractor shall submit a two year warranty for satisfactory field performance including stipilated retro-reflectance of the reflecting panel, to the Engineer.In addition, a two year warranty for satifactory infield performance of the finished road marker shall also given by the contractor who carrier out the work of fixing of reflective road marker. In Case the markers are displaced, damaged, get worn out or lose their reflectivity compared to stipulated standards, the contractor would be required to replace all such markers within 15 days of the intimation from the Engineer, at his own cost.	Nos	291.30	296.70	302.10
8.36 Suggestive	**Traffic Cone** (Provision of red fluorescent with white reflective sleeve traffic cone made of low density polyethylene (LDPE) material with a square base of 390 x 390 x 35 mm and a height of 770 mm, 4 kg in weight, placed at 1.5 m interval, all as per BS 873)	Each	515.20	524.80	534.30
8.37 Suggestive	**Roadside Amenities**				
A	**Rest areas** (Providing plainly furnished accommodation for rest rooms, dormitories, restaurants, stalls, shops, petrol pump, telephone booth, first aid room, traffic aid post, police assistance booth, including electricity, toilet and sewerage system. Pricing may be done based on current plinth area rates approved by PWD/CPWD/MES for a particular zone. Area is required to be assessed for specific location as per actual site conditions.)				
B	**Parking areas and bus laybyes for trucks, buses and light vehicles** (Pricing of parking areas may be done for the quantities of various items based on the approved dimensions and pavement design for a particular terrain and soil. Rates for items may be from respective chapters.)				
C	**Lawn** (Providing a lawn planted with grass and its maintenance .Pricing of lawn may be done as per rates given in the chapter on horticulture for the quantities as per approved dimensions in the drawings)				
8.38 Suggestive	**Rumble Strips** (Provision of 15 nos rumble strips covered with premix bituminous carpet, 15-20 mm high at center, 250 mm wide placed at 1 m center to center at approved locations to control speed, marked with white strips of road marking paint.)	sqm			

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Item. No.	Description	Unit	Rate as per project category (₹)		
			Large	Medium	Small
8.39 Suggestive	**Policeman Umbrella** (Provision of a 2 m high (floor to roof) umbrella for traffic policeman at road crossings, where necessary, installed on a raised platform, built on a central support of a steel pipe 100 mm dia, roof made of 25 mm dia steel pipe to provide covered area of 3 sqm, roofed with CGI sheets, all steel parts to be given 2 coats of paint)	Each	8392.50	8552.70	8713.50
8.40 Suggestive	**High Mast Pole Lighting at Interchanges and Flyovers** (Providing and erecting a high mast pole lighting with 30 m high hot dip galvanised mast designed to withstand forces exerted with wind speeds of 180 km per hour with 3 seconds gust, as per IS:875 (Part 3) - 1978, fitted with a base flange, door at the base of mast with heavy duty internal lock, lantern carriage, suitable winching arrangement for safe working load of 750 kg and high powered electrically driven power tools for raising and lowering of lantern carriage, flexible 8 core electric cable, lightening conductor, earthing terminal, and fixing 2 nos aviation obstruction lights on top of the mast, all complete as per approved design and drawings.This is a specialised work and is generally done by firms who specialise in such jobs. The detailed designs and estimates are submitted by the firms along with their tender for checks by the Department. The cost of this work is required to be worked out based on approved design, drawings and estimate of the lowest tender. A separate contract for this work is concluded as the contractors for road and bridge works generally donot undertake such jobs.)				
8.41	**Toll Plaza** (The construction, operation and maintenance of Toll Plaza can be broken into separate items of work as under based on the approved design and drawings)				
8.42	**Safety Devices and Signs in Construction Zones** (Provision and fixing of traffic signs for limited period at suitable locations in construction zone comprising of warning zone, approach transition zone, working zone and terminal transition zone with a minimum distance of 60 cm from the edge of the kerb in case of kerbed roads and 2 to 3 m from the edge of the carriageway in case of un-kerbed roads, the bottom edge of the lowest sign plate to be not less than 2 m above the road level, fixed on 60 mm x 60 mm x 6 mm angle iron post, founded and installed as per approved design and drawings, removed and disposed of after completion of construction work, all as per IRC:SP:55)	Each			
8.43 Suggestive	**Portable Barricade in Construction Zone** (Installation of a steel portable barricade with horizontal rail 300 mm wide, 2.5 m in length fitted on a 'A' frame made with 45 x 45 x 5 mm angle iron section, 1.5 m in height, horizontal rail painted (2 coats) with yellow and white stripes, 150 mm in width at an angle of 45°, 'A' frame painted with 2 coats of yellow paint, complete as per IRC:SP:55)	Each	3246.90	3307.00	3367.20
8.44 Suggestive	**Permanent Type Barricade in Construction Zone**				
A	**With steel components** (Construction of a permanent type barricade made of steel components, 1.5 m high from road level, fitted with 3 horizontal rails 200 mm wide and 4 m long on 50 x 50 x 5 mm angle iron vertical support, painted with yellow and white strips, 150 mm in width at an angle of 45°, complete as per IRC:SP:55)	Each	5015.10	5108.00	5200.90
B	**With wooden components** (Construction of a permanent type barricade made of wooden components, 1.5 m high from road level, fitted with 3 horizontal planks 200 mm wide and 3.66 m long on 100 x 100mm wooden vertical post, painted with yellow and white strips, 150 mm in width at an angle of 45°, complete as per IRC:SP:55)	Each	11981.10	12203.00	12424.80
C	**With bricks** (Construction of a permanent type barricade made with brick work in mud mortar, 1.5 m high, 4 m long, 600 mm thick, plastered with cement mortar 1:6, painted with yellow and white strips)	Each	18354.60	18694.50	19034.40
8.45 Suggestive	**Drum Delineator in Construction Zone** (Provision of metal drum/empty bitumen drum delineator, 300 mm in diameter, 800 mm high, filled with earth for stability, painted in circumferential strips of alternate black and white 100 mm wide fitted with reflectors 3 Nos of 7.5 cm dia, all as per IRC:SP:55)	Each	644.00	656.00	667.90

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TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Item. No.	Description	Unit	Rate as per project category (₹)		
			Large	Medium	Small
8.46 Suggestive	**Water filled barricades work zone sheeting** (Providing water filled barricades made up of LDPE to segregate the vehicular movement and work zone as per IRC SP 55 shall be in Trapezoidal Shape 800 mm to 1000 mm in length, 700 mm in height for Major Roads and expressway and 500 mm tall for other roads with interlocking arrangements, To be placed 0.5 m from the edge of the carriageway for expressway and 0.3 m for other roads. It should have reboubdable work zone sheeting as per ASTM D 4956 S2.)	Each	986.10	1004.40	1022.60
8.47 Suggestive	**Tubular Marker/ Spring Post 450 mm** (Providing Tubular Marker made up of Polyurethane used to divide opposing lanes of road users shall be flexible in nature. Tubular marker having height upto 450 mm shall be having 75 mm Reboundable work zone retroreflective sheeting as per ASTM 4956 S2. Application of Tubular Marker shall be done as per IRC SP 55.)	Each	454.40	462.80	471.20
8.48 Suggestive	**Tubular Marker/ Spring Post 700 mm** (Providing Tubular Marker made up of Polyurethane used to divide opposing lanes of road users shall be flexible in nature. Tubular marker having minimum height 700 mm shall be having minimum 75 mm Reboundable work zone retroreflective sheeting as per ASTM 4956 S2. Application of Tubular Marker shall be done as per IRC SP 55.)	Each	532.40	542.30	552.10
8.49 Suggestive	**Flagman** (Positioning of a smart flagman with a yellow vest and a yellow cap and a red flag 600 x 600 mm securely fastened to a staff 1 m in length for gulding the traffic)	Each	645.20	657.20	669.10
8.50	**Advanced Traffic Management System (ATMS)** work shall cover design, supply, installation, commissioning and / or operation and maintenance of Advance Traffic Management Systems (which is one of the components of Intelligent Transport Systems-ITS). The system would include out-door equipment including emergency call boxes, variable message sign systems, meteorological data system, close circuit TV camera (CCTV) system, traffic counting and classification system and transmittion system. The indoor equipment would comprise a large display board, central computer (with Network Management System- NMS), CCTV monitor system, call centre system or management of emergency call boxes housed in a control centre with uninterrupted power supply.				
A	Traffifc Management Commond Centre Equipment				
B	Advanced Traffic Management System (ATMS) Software				
C	PTZ Closed Circuit Television System				
D	Video Incident Detection System Equipment (VIDS)				
E	Automatic Traffic Counters-cum-classifier System Equipment (ATCC)				
F	Variable Message Sign Equipment (VMS)				
G	UPS and Power system				
H	Meteorological Observation System (MOS)				
I	Digital Transmission System (DTS)				
8.51 Suggestive	**Fiber Reinforced Cement Concrete New Jersy Crash Barrier**				
A	Provision of an Reinforced cement concrete crash barrier at th edges of the road, approaches to bridge structures and medians, constructed with Reinforced Cement Concrete with fiber steel and as per details given IRC -5 (Fig.- 5, b) including dowel bars 25 mm dia, 450mm long at expansion joints filled with pre-moulded asphalt filler board etc., as per approved drawing and at locations directed by the engineer, all as specified. (Area- 0.243 Sqm/ Metre, Single Face)	Linear metre	#VALUE!	#VALUE!	#VALUE!
B	Provision of an Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with Reinforced Cement Concrete with fiber steel and as per details given IRC- 119 (Fig. -26) including dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board etc., as per approved drawing and at locations directed by the Engineer ,all as specified. (Area-0.261 Sqm./ meter, Double Face)	Linear metre	#VALUE!	#VALUE!	#VALUE!

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Analysis of Rate
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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
8.01	409		**Cast-in-Situ Cement Concrete M20 Kerb**									
			Construction of cement concrete kerb with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M-15 grade foundation 150 mm thick, foundation having 50 mm projection beyond kerb stone, kerb stone laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 409									
			Unit = Running metre									
			Taking output = 360 metre									
			Using Concrete Batching and Mixing Plant									
		(i)	**PCC M15 for Kerb Base**									
			Total Concrete = 11.610 cu.m									
			a) **Labour**									
			Mate	day	0.240	0.240	0.240	444.00	106.56	106.56	106.56	L-12
			Mason	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-10
			Mazdoor	day	4.000	4.000	4.000	428.00	1712.00	1712.00	1712.00	L-13
			b) **Machinery**									
			Transit truck agitator									
			For Transportation Transit truck agitator 6 cum capacity	t.km	26.703xL1	26.703xL1	26.703xL1	10.87	290.26	290.26	290.26	PM76001
			For loading and unloading	hour	3.729	3.729	3.729	1992.00	7428.17	7428.17	7428.17	PM34001
			Water tanker (Speed @ 20 km/hr and return speed @ 30km/hr and spreading speed @ 3 km/hr)									
			(i) 16 KL Capacity	hour	0.011xL1 +0.12			1204.00	157.72			PM11001
			(ii) 12 KL capacity	hour		0.015xL1 +0.12		1030.00		139.05		PM11002
			(iii) 6 KL Capacity	hour			0.03xL1 +0.12	789.00			118.35	PM11003
			c) **Material**									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.20)	cum	11.610	11.610	11.610	3034.40	35229.38	35229.38	35229.38	21.20
			Cost of water	KL	1.602	1.602	1.602	63.20	101.25	101.25	101.25	M-191
			Total cost without OH & CP						46107.34	46088.67	46067.97	
			d) **Overhead charges on (a+b+c)**		(@ 8%)	(@ 10%)	(@ 12%)		3688.59	4608.87	5528.16	
			e) **Contractor's profit on (a+b+c+d)**		(@ 10%)	(@ 10%)	(@ 10%)		4979.59	5069.75	5159.61	

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Cost of 360 meter= a+b+c+d+e						54775.52	55767.29	56755.74	
			Rate per meter= (a+b+c+d+e)/360						152.15	154.91	157.65	
								Say	**152.20**	**154.90**	**157.70**	
		(ii)	**PCC M20 for Kerb cast in situ**									
			Total Concrete = 12.600 cu.m									
			a) **Labour**									
			Mate	day	0.060	0.060	0.060	444.00	26.64	26.64	26.64	L-12
			Mason	day	0.500	0.500	0.500	541.00	270.50	270.50	270.50	L-10
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) **Machinery**									
			Kerb Casting machine @ 120 metres/hour	hour	3.000	3.000	3.000	1650.00	4950.00	4950.00	4950.00	PM37001
			Transit truck agitator									
			For Transportation Transit truck agitator 6 cum capacity	t.km	28.980xL1	28.980xL1	28.980xL1	10.87	315.01	315.01	315.01	PM76001
			For loading and Unloading time	hour	3.140	3.140	3.140	1992.00	6254.88	6254.88	6254.88	PM34001
			Concrete cutting machine	hour	6.000	6.000	6.000	235.00	1410.00	1410.00	1410.00	PM61002
			Water tanker (Speed @ 20 km/hr and return speed @ 30km/hr and spreading speed @ 3 km/hr)									
			(i) 16 KL Capacity	hour	0.042xL1 +0.12			1204.00	195.05			PM11001
			(ii) 12 KL capacity	hour		0.056xL1 +0.12		1030.00		181.28		PM11002
			(iii) 6 KL Capacity	hour			0.113xL1 +0.12	789.00			183.84	PM11003
			c) **Material**									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.21)	cum	12.600	12.600	12.600	3416.10	43042.86	43042.86	43042.86	21.21
			Cost of water	KL	6.086	6.086	6.086	63.20	384.64	384.64	384.64	M-191
			Total cost without OH & CP						57277.58	57263.81	57266.36	
			d) **Overhead charges on (a+b+c)**		(@ 8%)	(@ 10%)	(@ 12%)		4582.21	5726.38	6871.96	
			e) **Contractor's profit on (a+b+c+d)**		(@ 10%)	(@ 10%)	(@ 10%)		6185.98	6299.02	6413.83	
			Cost of 360 meter= a+b+c+d+e						68045.76	69289.21	70552.16	
			Rate per meter= (a+b+c+d+e)/360						189.02	192.47	195.98	

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
								Say	189.00	192.50	196.00	
8.02	409		**Cast in Situ Cement Concrete M 20 Kerb with Channel**									
			Construction of cement concrete kerb with channel with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M15 grade foundation 150 mm thick, kerb channel 300 mm wide, 50 mm thick in PCCM20 grade, sloped towards the kerb, kerb stone with channel laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 409									
			Unit = Running metre									
			Taking output = 300 metre									
			Total Concrete = 9.675 cum.									
			Using Concrete Batching and Mixing Plant									
		(i)	**PCC M15 for Kerb Base**									
			Total Concrete = 9.675 cu.m									
			a) Labour									
			Mate	day	0.240	0.240	0.240	444.00	106.56	106.56	106.56	L-12
			Mason	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-10
			Mazdoor	day	4.000	4.000	4.000	428.00	1712.00	1712.00	1712.00	L-13
			b) Machinery									
			Transit truck agitator									
			For Transportation Transit truck agitator 6 cum capacity	t.km	26.703xL1	26.703xL1	26.703xL1	10.87	290.26	290.26	290.26	PM76001
			For loading and Unloading time	hour	3.108	3.108	3.108	1992.00	6191.14	6191.14	6191.14	PM34001
			Water tanker (Speed @ 20 km/hr and return speed @ 30km/hr and spreading speed @ 3 km/hr)									
			(i) 16 KL Capacity	hour	0.009xL1 +0.1			1204.00	131.24			PM11001
			(ii) 12 KL capacity	hour		0.012xL1 +0.1		1030.00		115.36		PM11002
			(iii) 6 KL Capacity	hour			0.025xL1 +0.1	789.00			98.63	PM11003
			c) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.20)	cum	9.675	9.675	9.675	3034.40	29357.82	29357.82	29357.82	21.20
			Cost of water	KL	1.335	1.335	1.335	63.20	84.37	84.37	84.37	M-191

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Total cost without OH & CP						38955.39	38939.51	38922.77	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		3116.43	3893.95	4670.73	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		4207.18	4283.35	4359.35	
			Cost of 300 meter= a+b+c+d+e						46279.00	47116.81	47952.86	
			Rate per meter= (a+b+c+d+e)/300						154.26	157.06	159.84	
								Say	**154.30**	**157.10**	**159.80**	
		(ii)	**PCC M20 for Kerb Cast in situ**									
			Total Concrete = 15.000 cu.m									
			a) Labour									
			Mate	day	0.060	0.060	0.060	444.00	26.64	26.64	26.64	L-12
			Mason	day	0.500	0.500	0.500	541.00	270.50	270.50	270.50	L-10
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Kerb Casting machine @ 90 metres/hour	hour	3.333	3.333	3.333	1650.00	5499.45	5499.45	5499.45	PM37001
			Transit truck agitator									
			For Transportation Transit truck agitator 6 cum capacity	t.km	28.980xL1	28.980xL1	28.980xL1	10.87	315.01	315.01	315.01	PM76001
			For loading and Unloading time	hour	3.500	3.500	3.500	1992.00	6972.00	6972.00	6972.00	PM34001
			Concrete cutting machine	hour	5.000	5.000	5.000	235.00	1175.00	1175.00	1175.00	PM61002
			Water tanker (Speed @ 20 km/hr and return speed @ 30km/hr and spreading speed @ 3 km/hr)									
			(i) 16 KL Capacity	hour	0.05xL1 +0.1			1204.00	180.60			PM11001
			(ii) 12 KL capacity	hour		0.067xL1 +0.1		1030.00		172.01		PM11002
			(iii) 6 KL Capacity	hour			0.134xL1 +0.1	789.00			184.63	PM11003
			c) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.21)	cum	15.000	15.000	15.000	3416.10	51241.50	51241.50	51241.50	21.21
			Cost of water	KL	7.245	7.245	7.245	63.20	457.88	457.88	457.88	M-191
			Total cost without OH & CP						66566.59	66558.00	66570.61	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		5325.33	6655.80	7988.47	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		7189.19	7321.38	7455.91	
			Cost of 300meter= a+b+c+d+e						79081.10	80535.18	82014.99	
			Rate per meter= (a+b+c+d+e)/300						263.60	268.45	273.38	
								Say	**263.60**	**268.50**	**273.40**	

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
8.03	801		**Printing New Letter and Figures of any Shade**									
			Printing new letter and figures of any shade with synthetic enamel paint black or any other approved colour to give an even shade									
		(i)	**Hindi** (Matras commas and the like not to be measured and paid for Half letter shall be counted as half)									
			Details for 100 letters of 16 cm height i.e. 1600 cm									
			Unit = per cm height per letter									
			Taking output= 1600.00 cm									
			a) Labour									
			Mate	day	0.120	0.120	0.120	444.00	53.28	53.28	53.28	L-12
			Painter	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-18
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Material									
			Paint	Litre	0.700	0.700	0.700	270.83	189.58	189.58	189.58	M-130
			Total cost without OH & CP						1752.86	1752.86	1752.86	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		140.23	175.29	210.34	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		189.31	192.81	196.32	
			Cost for 1600 cm = a+b+c+d						2082.40	2120.96	2159.52	
			Rate per cm height per letter = (a+b+c+ d)/1600						1.30	1.33	1.35	
								Say	**1.30**	**1.30**	**1.30**	
8.03		(ii)	**English and Roman**									
			Hyphens and the like not to be measured and paid for									
			Detail for 100 letters of 16 cm height. i.e.1600 cm									
			Unit = per cm height per letter									
			Taking output= 1600.00 cm									
			a) Labour									
			Mate	day	0.070	0.070	0.070	444.00	31.08	31.08	31.08	L-12
			Painter Ist class	day	1.250	1.250	1.250	541.00	676.25	676.25	676.25	L-18
			Mazdoor	day	0.500	0.500	0.500	428.00	214.00	214.00	214.00	L-13
			b) Material									
			Paint	Litre	0.500	0.500	0.500	270.83	135.42	135.42	135.42	M-130
			Total cost without OH & CP						1056.75	1056.75	1056.75	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		84.54	105.67	126.81	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		114.13	116.24	118.36	
			Cost for 1600 cm = a+b+c+d						1255.41	1278.66	1301.91	

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Rate per cm height per letter = (a+b+c +d)/1600						0.78	0.80	0.81	
								Say	**0.80**	**0.80**	**0.80**	
8.04	801		**Retro-Reflectorised Traffic Signs**									
		A	Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of class-B Type IV retro reflective sheeting fixed cover 2 mm thick aluminium sheeting vide clause 801.3, 3mm/4mm thick aluminium composite material sheet depending on the size of the sign fixed over back support frame of min 25 x 25 x 3 mm Angle mounted on a mild steel circular pipe 65 NB, 3.2 mm thickness firmly fixed to the ground by means of properly designed foundation with M25 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing. The sign shall be maintained as per section 12 of IRC 67.The retro reflective sheeting shall be tested for a certificate of having the sheeting tested for coefficient of retro reflection, daytime colour and luminance, shrinkage, flexibility, linear removal, adhesion, impact resistance, specular gloss and fungus resistance, 3 years outdoor weathering and its having passed these tests shall be obtained from International/Goverment Laboratory/Institute by the manufacturer of the sheeting and in case the certificate is obtained from international condition, it should also be obtained from indian condition within 3 years of launching of product by the manufacture in abroad.Alternatively, a certificate conforming to ASTM specification (D4956-09) on artificial accelerated weathering requirements from a reputed laboratory in India can be accepted provisionally.In such a situation, the Employer/Client, if so desires could seek for a performance guarantee which would released after receipt a certificate meeting the requirement of three years outdoor weathering of the sheeting as per IRC 67:2012 & proof of the same report shall be uploaded while quoting tender. The retro reflective sheeting shall be covered under 7 years warranty to be provided from the original sheeting manufacturer, as per Clause 6.9 of IRC 67:2012. At the end of 7 years, the sheeting shall retain atleast 80% of its original retro-reflectance. When totally wet, the sheeting shall show not less than 90% of the value of the desired retro reflectance.									
			Unit = Each									
			Taking output = one traffic sign									

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			I) Excavation for foundation	cum	0.122	0.122	0.122	185.30-L 188.80-M 192.20-S	22.61	23.03	23.45	9.01 A (I)
			(Rate taken from item No. 9.01 A (I) including OH & CP)									
			II) Cement concrete M25 grade	cum	0.122	0.122	0.122	5584.30-L 5693.50-M 5822.20-S	681.28	694.61	710.31	9.06 E Case-II
			(Rate taken from item No. 9.06, E, Case-II including OH & CP)									
			iii) Painting angle iron post two coats (Rate taken from item No. 8.09 including OH & CP)	sqm	1.414	1.414	1.414	87.90-L 89.50-M 91.20-S	124.29	126.55	128.96	8.09
								(I+II+iii)	828.18	844.19	862.71	
			a) Labour (For fixing at site)									
			Mate	day	0.010	0.010	0.010	444.00	4.44	4.44	4.44	L-12
			Mazdoor	day	0.250	0.250	0.250	428.00	107.00	107.00	107.00	L-13
			b) Material									
			Mild steel 'L' angle back support frame 25 x 25 x 3 mm	kg	2.2	2.2	2.2	49.937	109.86	109.86	109.86	M181/1000
			Mild steel circular pipe 65 NB, 3.2 mm thickness,3.6 meter height	kg	20.556	20.556	20.556	49.937	1026.50	1026.50	1026.50	M181/1000
			Aluminium sheeting fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable									
		(i)	120 cm equilateral triangle	sqm	0.624	0.624	0.624	9584.68	5980.84	5980.84	5980.84	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						71.17	71.17	71.17	
			or									
		(ii)	90 cm equilateral triangle	sqm	0.351	0.351	0.351	9584.68	3364.22	3364.22	3364.22	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						45.01	45.01	45.01	
			or									
		(iii)	75 cm equilateral triangle	sqm	0.244	0.244	0.244	9584.68	2338.66	2338.66	2338.66	M-061

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						34.75	34.75	34.75	
			or									
		(iv)	60 cm equilateral triangle	sqm	0.156	0.156	0.156	9584.68	1495.21	1495.21	1495.21	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						26.32	26.32	26.32	
			or									
		(v)	120 cm circular	sqm	1.131	1.131	1.131	9584.68	10840.27	10840.27	10840.27	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						119.77	119.77	119.77	
			or									
		(vi)	90 cm circular	sqm	0.636	0.636	0.636	9584.68	6095.86	6095.86	6095.86	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						72.32	72.32	72.32	
			or									
		(vii)	75 cm circular	sqm	0.442	0.442	0.442	9584.68	4236.43	4236.43	4236.43	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						53.73	53.73	53.73	
			or									
		(viii)	60 cm circular	sqm	0.283	0.283	0.283	9584.68	2712.46	2712.46	2712.46	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						38.49	38.49	38.49	
			or									
		(ix)	90 cm x 75 cm rectangular	sqm	0.675	0.675	0.675	9584.68	6469.66	6469.66	6469.66	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						76.06	76.06	76.06	
			or									
		(x)	80 cm x 60 cm rectangular	sqm	0.480	0.480	0.480	9584.68	4600.65	4600.65	4600.65	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						57.37	57.37	57.37	

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			or									
		(xi)	60 cm x 50 cm rectangular	sqm	0.300	0.300	0.300	9584.68	2875.40	2875.40	2875.40	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						40.12	40.12	40.12	
			or									
		(xii)	60 cm x 45 cm rectangular	sqm	0.270	0.270	0.270	9584.68	2587.86	2587.86	2587.86	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						37.24	37.24	37.24	
			or									
		(xiii)	60 cm x 60 cm square	sqm	0.360	0.360	0.360	9584.68	3450.48	3450.48	3450.48	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						45.87	45.87	45.87	
			or									
		(xiv)	120 cm high octagon	sqm	1.193	1.193	1.193	9584.68	11434.52	11434.52	11434.52	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						125.71	125.71	125.71	
			or									
		(xv)	90 cm high octagon	sqm	0.671	0.671	0.671	9584.68	6431.32	6431.32	6431.32	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						75.68	75.68	75.68	
			or									
		(xvi)	75 cm high octagon	sqm	0.446	0.446	0.446	9584.68	4274.77	4274.77	4274.77	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						54.11	54.11	54.11	
			c) Machinery									
			Tractor-trolley	hour	0.010	0.010	0.010	717.00	7.17	7.17	7.17	PM12001

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		(i)	120 cm equilateral triangle					(a+b+c)	7306.98	7306.98	7306.98	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		584.56	730.70	876.84	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		789.15	803.77	818.38	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						9508.88	9685.64	9864.91	
								Say	**9508.90**	**9685.60**	**9864.90**	
		(ii)	90 cm equilateral triangle									
								(a+b+c)	4664.20	4664.20	4664.20	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		373.14	466.42	559.70	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		503.73	513.06	522.39	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						6369.25	6487.87	6609.00	
								Say	**6369.20**	**6487.90**	**6609.00**	
		(iii)	75 cm equilateral triangle									
								(a+b+c)	3628.38	3628.38	3628.38	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		290.27	362.84	435.41	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		391.87	399.12	406.38	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						5138.70	5234.53	5332.88	
								Say	**5138.70**	**5234.50**	**5332.90**	
		(iv)	60 cm equilateral triangle									
								(a+b+c)	2776.49	2776.49	2776.49	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		222.12	277.65	333.18	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		299.86	305.41	310.97	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						4126.66	4203.75	4283.35	
								Say	**4126.70**	**4203.80**	**4283.40**	
		(v)	120 cm circular									
								(a+b+c)	12215.01	12215.01	12215.01	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		977.20	1221.50	1465.80	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		1319.22	1343.65	1368.08	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						15339.61	15624.35	15911.60	
								Say	**15339.60**	**15624.40**	**15911.60**	
		(vi)	90 cm circular									
								(a+b+c)	7423.15	7423.15	7423.15	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		593.85	742.31	890.78	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		801.70	816.55	831.39	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						9646.88	9826.20	10008.03	
								Say	**9646.90**	**9826.20**	**10008.00**	
		(vii)	75 cm circular									
								(a+b+c)	5545.13	5545.13	5545.13	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		443.61	554.51	665.42	

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		598.87	609.96	621.05	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						7415.79	7553.80	7694.31	
								Say	**7415.80**	**7553.80**	**7694.30**	
		(viii)	60 cm circular									
								(a+b+c)	4005.92	4005.92	4005.92	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		320.47	400.59	480.71	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		432.64	440.65	448.66	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						5587.22	5691.36	5798.01	
								Say	**5587.20**	**5691.40**	**5798.00**	
		(ix)	90 cm x 75 cm rectangular									
								(a+b+c)	7800.69	7800.69	7800.69	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		624.06	780.07	936.08	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		842.47	858.08	873.68	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						10095.40	10283.03	10473.16	
								Say	**10095.40**	**10283.00**	**10473.20**	
		(x)	80 cm x 60 cm rectangular									
								(a+b+c)	5912.99	5912.99	5912.99	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		473.04	591.30	709.56	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		638.60	650.43	662.25	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						7852.81	7998.91	8147.51	
								Say	**7852.80**	**7998.90**	**8147.50**	
		(xi)	60 cm x 50 cm rectangular									
								(a+b+c)	4170.49	4170.49	4170.49	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		333.64	417.05	500.46	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		450.41	458.75	467.09	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						5782.72	5890.49	6000.76	
								Say	**5782.70**	**5890.50**	**6000.80**	
		(xii)	60 cm x 45 cm rectangular									
								(a+b+c)	3880.07	3880.07	3880.07	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		310.41	388.01	465.61	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		419.05	426.81	434.57	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						5437.71	5539.08	5642.97	
								Say	**5437.70**	**5539.10**	**5643.00**	
		(xiii)	60 cm x 60 cm square									
								(a+b+c)	4751.32	4751.32	4751.32	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		380.11	475.13	570.16	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		513.14	522.65	532.15	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						6472.75	6593.29	6716.34	

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
								Say	**6472.80**	**6593.30**	**6716.30**	
		(xiv)	120 cm high octagon									
								(a+b+c)	12815.20	12815.20	12815.20	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		1025.22	1281.52	1537.82	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		1384.04	1409.67	1435.30	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						16052.64	16350.59	16651.04	
								Say	**16052.60**	**16350.60**	**16651.00**	
		(xv)	90 cm high octagon									
								(a+b+c)	7761.97	7761.97	7761.97	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		620.96	776.20	931.44	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		838.29	853.82	869.34	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						10049.40	10236.17	10425.46	
								Say	**10049.40**	**10236.20**	**10425.50**	
		(xvi)	75 cm high octagon									
								(a+b+c)	5583.85	5583.85	5583.85	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		446.71	558.38	670.06	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		603.06	614.22	625.39	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						7461.79	7600.65	7742.01	
								Say	**7461.80**	**7600.60**	**7742.00**	
8.04	801	B	Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of class-C Type XI retro reflective sheeting fixed over 2mm thick aluminium sheeting vide clause 801.3, 3/4mm thick Aluminium composite material sheet depending on the size of the sign fixed over back support frame of min 25 x 25 x 3 mm Angle mounted on a mild steel circular pipe 65 NB, 3.2 mm thickness firmly fixed to the ground by means of properly designed foundation with M25 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing. The sign shall be maintained as per section 12 of IRC 67. The sign shall be maintained as per section 12 of IRC 67.The retro reflective sheeting shall be tested for a certificate of having the sheeting tested for coefficient of retro reflection, daytime colour and luminance, shrinkage, flexibility, linear removal, adhesion, impact resistance, specular gloss and fungus resistance, 3 years outdoor weathering and its having passed these tests shall be obtained from International/Goverment Laboratory/Institute by the									

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			manufacturer of the sheeting and In case the certificate is obtained from international condition, it should also be obtained from indian condition within 3 years of launching of product by the manufacture in abroad.Alternatively, a certificate conforming to ASTM specification (D4956-09) on artificial accelerated weathering requirements from a reputed laboratory in India can be accepted provisionally.In such a situation, the Employer/Client, if so desires could seek for a performance guarantee which would released after receipt a certificate meeting the requirement of three years outdoor weathering of the sheeting as per IRC 67:2012 & proof of the same report shall be uploaded while quoting tender. The retro reflective sheeting shall be covered under 10 years warranty to be provided from the original sheeting manufacturer, as per Clause 6.9 of IRC 67:2012. At the end of 10 years, the sheeting shall retain atleast 80% of its original retro-reflectance. When totally wet, the sheeting shall show not less than 90% of the value of the desired retro reflectance.									
			Unit = Each									
			Taking output = one traffic sign									
			i) Excavation for foundation	cum	0.122	0.122	0.122	185.30-L 188.80-M 192.20-S	22.61	23.03	23.45	9.01 A (I)
			(Rate taken from item No. 9.01 A (I) including OH & CP)									
			ii) Cement concrete M25 grade	cum	0.122	0.122	0.122	5584.30-L 5693.50-M 5822.20-S	681.28	694.61	710.31	9.06 E Case-II
			(Rate taken from item No. 9.06, E, Case-II including OH & CP)									
			iii) Painting angle iron post two coats	sqm	1.414	1.414	1.414	87.90-L 89.50-M 91.20-S	124.29	126.55	128.96	8.09
			(Rate taken from Item No. 8.09 including OH & CP)						828.18	844.19	862.71	
			a) Labour (For fixing at site)									
			Mate	day	0.01	0.01	0.01	444.00	4.44	4.44	4.44	L-12
			Mazdoor	day	0.25	0.25	0.25	428.00	107.00	107.00	107.00	L-13
			b) Material									
			Mild steel 'L' angle back support 25 x 25 x 3 mm	kg	2.200	2.200	2.200	49.937	109.86	109.86	109.86	M181/1000

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mild steel circulatar pipe 65 NB, 3.2 mm thickness,	kg	20.556	20.556	20.556	49.937	1026.50	1026.50	1026.50	M181/1000
			Aluminium sheeting fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable									
		(i)	120 cm equilateral triangle	sqm	0.624	0.624	0.624	9584.68	5980.84	5980.84	5980.84	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						71.17	71.17	71.17	
			or									
		(ii)	90 cm equilateral triangle	sqm	0.351	0.351	0.351	9584.68	3364.22	3364.22	3364.22	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						45.01	45.01	45.01	
			or									
		(iii)	75 cm equilateral triangle	sqm	0.244	0.244	0.244	9584.68	2338.66	2338.66	2338.66	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						34.75	34.75	34.75	
			or									
		(iv)	60 cm equilateral triangle	sqm	0.156	0.156	0.156	9584.68	1495.21	1495.21	1495.21	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						26.32	26.32	26.32	
			or									
		(v)	120 cm circular	sqm	1.131	1.131	1.131	9584.68	10840.27	10840.27	10840.27	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						119.77	119.77	119.77	
			or									
		(vi)	90 cm circular	sqm	0.636	0.636	0.636	9584.68	6095.86	6095.86	6095.86	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						72.32	72.32	72.32	
			or									
		(vii)	75 cm circular	sqm	0.442	0.442	0.442	9584.68	4236.43	4236.43	4236.43	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						53.73	53.73	53.73	
			or									
		(viii)	60 cm circular	sqm	0.283	0.283	0.283	9584.68	2712.46	2712.46	2712.46	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						38.49	38.49	38.49	
			or									
		(ix)	90 cm x 75 cm rectangular	sqm	0.675	0.675	0.675	9584.68	6469.66	6469.66	6469.66	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						76.06	76.06	76.06	
			or									

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		(x)	80 cm x 60 cm rectangular	sqm	0.480	0.480	0.480	9584.68	4600.65	4600.65	4600.65	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						57.37	57.37	57.37	
			or									
		(xi)	60 cm x 50 cm rectangular	sqm	0.300	0.300	0.300	9584.68	2875.40	2875.40	2875.40	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						40.12	40.12	40.12	
			or									
		(xii)	60 cm x 45 cm rectangular	sqm	0.270	0.270	0.270	9584.68	2587.86	2587.86	2587.86	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						37.24	37.24	37.24	
			or									
		(xiii)	60 cm x 60 cm square	sqm	0.360	0.360	0.360	9584.68	3450.48	3450.48	3450.48	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						45.87	45.87	45.87	
			or									
		(xiv)	120 cm high octagon	sqm	1.193	1.193	1.193	9584.68	11434.52	11434.52	11434.52	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						125.71	125.71	125.71	
			or									
		(xv)	90 cm high octagon	sqm	0.671	0.671	0.671	9584.68	6431.32	6431.32	6431.32	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						75.68	75.68	75.68	
			or									
		(xvi)	75 cm high octagon	sqm	0.446	0.446	0.446	9584.68	4274.77	4274.77	4274.77	M-061
			Add 1 per cent of cost of material (b) towards cost of drilling holes, nuts, bolts etc.						54.11	54.11	54.11	

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Analysis of Rate

TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			c) Machinery									
			Tractor-trolley	hour	0.010	0.010	0.010	717.00	7.17	7.17	7.17	PM12001
		(i)	120 cm equilateral triangle									
								(a+b+c)	7306.98	7306.98	7306.98	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		584.56	730.70	876.84	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		789.15	803.77	818.38	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						9508.88	9685.64	9864.91	
								Say	**9508.90**	**9685.60**	**9864.90**	
		(ii)	90 cm equilateral triangle									
								(a+b+c)	4664.20	4664.20	4664.20	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		373.14	466.42	559.70	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		503.73	513.06	522.39	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						6369.25	6487.87	6609.00	
								Say	**6369.20**	**6487.90**	**6609.00**	
		(iii)	75 cm equilateral triangle									
								(a+b+c)	3628.38	3628.38	3628.38	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		290.27	362.84	435.41	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		391.87	399.12	406.38	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						5138.70	5234.53	5332.88	
								Say	**5138.70**	**5234.50**	**5332.90**	
		(iv)	60 cm equilateral triangle									
								(a+b+c)	2776.49	2776.49	2776.49	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		222.12	277.65	333.18	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		299.86	305.41	310.97	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						4126.66	4203.75	4283.35	
								Say	**4126.70**	**4203.80**	**4283.40**	
		(v)	120 cm circular									
								(a+b+c)	12215.01	12215.01	12215.01	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		977.20	1221.50	1465.80	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		1319.22	1343.65	1368.08	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						15339.61	15624.35	15911.60	
								Say	**15339.60**	**15624.40**	**15911.60**	
		(vi)	90 cm circular									
								(a+b+c)	7423.15	7423.15	7423.15	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		593.85	742.31	890.78	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		801.70	816.55	831.39	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						9646.88	9826.20	10008.03	
								Say	**9646.90**	**9826.20**	**10008.00**	

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Analysis of Rate

TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		(vii)	75 cm circular									
								(a+b+c)	5545.13	5545.13	5545.13	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		443.61	554.51	665.42	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		598.87	609.96	621.05	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						7415.79	7553.80	7694.31	
								Say	**7415.80**	**7553.80**	**7694.30**	
		(viii)	60 cm circular									
								(a+b+c)	4005.92	4005.92	4005.92	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		320.47	400.59	480.71	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		432.64	440.65	448.66	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						5587.22	5691.36	5798.01	
								Say	**5587.20**	**5691.40**	**5798.00**	
		(ix)	90 cm x 75 cm rectangular									
								(a+b+c)	7800.69	7800.69	7800.69	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		624.06	780.07	936.08	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		842.47	858.08	873.68	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						10095.40	10283.03	10473.16	
								Say	**10095.40**	**10283.00**	**10473.20**	
		(x)	80 cm x 60 cm rectangular									
								(a+b+c)	5912.99	5912.99	5912.99	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		473.04	591.30	709.56	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		638.60	650.43	662.25	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						7852.81	7998.91	8147.51	
								Say	**7852.80**	**7998.90**	**8147.50**	
		(xi)	60 cm x 50 cm rectangular									
								(a+b+c)	4170.49	4170.49	4170.49	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		333.64	417.05	500.46	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		450.41	458.75	467.09	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						5782.72	5890.49	6000.76	
								Say	**5782.70**	**5890.50**	**6000.80**	
		(xii)	60 cm x 45 cm rectangular									
								(a+b+c)	3880.07	3880.07	3880.07	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		310.41	388.01	465.61	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		419.05	426.81	434.57	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						5437.71	5539.08	5642.97	
								Say	**5437.70**	**5539.10**	**5643.00**	
		(xiii)	60 cm x 60 cm square									
								(a+b+c)	4751.32	4751.32	4751.32	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		380.11	475.13	570.16	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		513.14	522.65	532.15	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						6472.75	6593.29	6716.34	
								Say	**6472.80**	**6593.30**	**6716.30**	

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Analysis of Rate

TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		(xiv)	120 cm high octagon									
								(a+b+c)	12815.20	12815.20	12815.20	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		1025.22	1281.52	1537.82	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		1384.04	1409.67	1435.30	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						16052.64	16350.59	16651.04	
								Say	**16052.60**	**16350.60**	**16651.00**	
		(xv)	90 cm high octagon									
								(a+b+c)	7761.97	7761.97	7761.97	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		620.96	776.20	931.44	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		838.29	853.82	869.34	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						10049.40	10236.17	10425.46	
								Say	**10049.40**	**10236.20**	**10425.50**	
		(xvi)	75 cm high octagon									
								(a+b+c)	5583.85	5583.85	5583.85	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		446.71	558.38	670.06	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		603.06	614.22	625.39	
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)						7461.79	7600.65	7742.01	
		Note						Say	**7461.80**	**7600.60**	**7742.00**	
			1.Any one area of aluminium sheeting given at (i) to (xvi) may be adopted as per site requirement and in accordance with IRC : 67									
			2.Rate for excavation, cement concrete M-25 and painting may be taken from respective chapters- 08 & 09 respectively.									
			3. The depth of foundation and quantity of cement concrete in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.									
8.05	**801**		**Direction and Place Identification Signs upto 0.9 sqm Size Board.**									
			Direction and Place Identification Signs upto 0.9 sqm Size Board.(Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick or Aluminium composite material sheet with overall thickness of 4 mm with area not exceeding 0.9 sqm fixed over back support frame of min 35 x 35 x 3 mm Angle mounted on a mild steel circular									

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			pipe 65 NB, firmly fixed to the ground by means of properly designed foundation with M25 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing).The retro reflective sheeting shall be tested for a certificate of having the sheeting tested for coefficient of retro reflection, daytime colour and luminance, shrinkage, flexibility, linear removal, adhesion, impact resistance, specular gloss and fungus resistance, 3 years outdoor weathering and its having passed these tests shall be obtained from International/Goverment Laboratory/Institute by the manufacturer of the sheeting and In case the certificate is obtained from International condition, it should also be obtained from indian condition within 3 years of launching of product by the manufacture in abroad.Alternatively, a certificate conforming to ASTM specification (D4956-09) on artificial accelerated weathering requirements from a reputed laboratory in India can be accepted provisionally.In such a situation, the Employer/Client, if so desires could seek for a performance guarantee which would released after receipt a certificate meeting the requirement of three years outdoor weathering of the sheeting as per IRC 67:2012 & proof of the same report shall be uploaded while quoting tender. 7 years warranty shall be provided for retro reflection sheeting Type-IV & 10 years warranty shall be provided for retro reflective sheeting Type-XI as per Clause 6.9 of IRC 67:2012. At the end of warranty period, the sheeting shall retain atleast 80% of its retro reflectance. When totally wet, the sheeting shall show not less than 90% of the value of the desired retro reflectance.									
			Unit = Sqm									
			Taking output = 0.9 sqm									
			I) Excavation for foundation	cum	0.122	0.122	0.122	185.30-L 188.80-M 192.20-S	22.61	23.03	23.45	9.01 A (I)
			(Rate taken from item No. 9.01 A (I) including OH & CP)									

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Analysis of Rate
TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			ii) Cement concrete M25 grade	cum	0.122	0.122	0.122	5584.30-L 5693.50-M 5822.20-S	681.28	694.61	710.31	9.06 E Case-II
			(Rate taken from item No. 9.06, E, Case-II including OH & CP)									
			iii) Painting angle iron post two coats (Rate taken from item No. 8.09 A including OH & CP)	sqm	1.414	1.414	1.414	87.90-L 89.50-M 91.20-S	124.29	126.55	128.96	8.09
								(i+ii+iii)	828.18	844.19	862.71	
			a) Labour (For fixing at site)									
			Mate	day	0.008	0.008	0.008	444.00	3.55	3.55	3.55	L-12
			Mazdoor	day	0.200	0.200	0.200	428.00	85.60	85.60	85.60	L-13
			b) Material									
			Mild steel 'L' angle back support 35 x 35 x 3 mm	kg	6.080	6.080	6.080	49.937	303.61	303.61	303.61	M181/1000
			Mild steel circulatar pipe 65 NB, 3.2 mm thickness, 3.6 meter height	kg	20.556	20.556	20.556	49.937	1026.50	1026.50	1026.50	M181/1000
			Aluminium sheeting fixed with encapsulated lens type reflective sheeting of size 0.9 sqm	sqm	0.900	0.900	0.900	9584.68	8626.21	8626.21	8626.21	M-061
			Add 2 per cent of cost of materials for drilling holes, nuts, bolts, fabrication etc.						199.13	199.13	199.13	
			c) Machinery									
			Tractor-trolley	hour	0.020	0.020	0.020	717.000	14.34	14.34	14.34	PM12001
			(a+b+c)						10258.94	10258.94	10258.94	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		820.72	1025.89	1231.07	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		1107.97	1128.48	1149.00	
			Cost for 0.9 sqm= (i+ii+iii+a+b+c+d+e)						13015.81	13257.52	13501.73	
			Rate per sqm (for sign having area upto 0.9 sqm)= (i+ii+iii+a+b+c+d+e)/0.90						14462.01	14730.57	15001.92	
								Say	**14462.00**	**14730.60**	**15001.90**	
		Note	I) Lettering and arrow marks on sign board to be provided separately as per actual requirement. Rates for these items have been analysed separately									
			II) Rate for excavation, cement concrete M-25 and painting may be taken from respective chapters-09 & 08 respectively.									
8.06	**801**		**Direction and Place Identification Signs with size more than 0.9 sqm size Board.**									

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Analysis of Rate
TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Providing and erecting direction and place identification retro- reflectorised sign as per IRC :67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick or Aluminium composite material sheet with overall thickness of 4 mm with area exceeding 0.9 sqm fixed over back support frame of min 40 x 40 x 5 mm Angle mounted on two nos. of mild steel circular pipe 65 NB, 3.2mm thickness and 4.5m meter total height firmly fixed to the ground by means of properly designed foundation with M 25 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing.The retro reflective sheeting shall be tested for a certificate of having the sheeting tested for coefficient of retro reflection, daytime colour and luminance, shrinkage, flexibility, linear removal, adhesion, impact resistance, specular gloss and fungus resistance, 3 years outdoor weathering and its having passed these tests shall be obtained from International/Goverment Laboratory/Institute by the manufacturer of the sheeting and in case the certificate is obtained from international condition, it should also be obtained from indian condition within 3 years of launching of product by the manufacture in abroad.Alternatively, a certificate conforming to ASTM specification (D4956-09) on artificial accelerated weathering requirements from a reputed laboratory in India can be accepted provisionally.In such a situation, the Employer/Client, if so desires could seek for a performance guarantee which would released after receipt a certificate meeting the requirement of three years outdoor weathering of the sheeting as per IRC 67:2012 & proof of the same report shall be uploaded while quoting tender. 7 years warranty shall be provided for retro reflection sheeting Type-IV & 10 years warranty shall be provided for retro reflective sheeting Type-XI as per Clause 6.9 of IRC 67:2012. At the end of warranty period, the sheeting shall retain atleast 80% of its retro reflectance. When totally wet, the sheeting shall show not less than 90% of the value of the desired retro reflectance. `									
			Unit = Sqm									
			Taking output = 1.5 sqm									
			I) Excavation for foundation	cum	0.243	0.243	0.243	185.30-L 188.80-M 192.20-S	45.03	45.88	46.70	9.01 A (I)
			(Rate taken from item No. 9.01 A (I) including OH & CP)									

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			ii) Cement concrete M25 grade	cum	0.243	0.243	0.243	5584.30-L 5693.50-M 5822.20-S	1356.98	1383.52	1414.79	9.06 E Case-II
			(Rate taken from item No. 9.06, E, Case-II including OH & CP)									
			iii) Painting angle iron post two coats	sqm	2.827	2.827	2.827	87.90-L 89.50-M 91.20-S	248.49	253.02	257.82	8.09
			(Rate taken from item No. 8.09 including OH & CP)									
			(i+ii+iii)						1650.51	1682.42	1719.32	
			a) Labour (For fixing at site)									
			Mate	day	0.012	0.012	0.012	444.00	5.33	5.33	5.33	L-12
			Mazdoor	day	0.300	0.300	0.300	428.00	128.40	128.40	128.40	L-13
			b) Material									
			Mild steel 'L' angle back support 40 x 40 x 5 mm	kg	14.400	14.400	14.400	49.937	719.09	719.09	719.09	M181/ 1000
			Mild steel circulatar pipe 65 NB, 3.2 mm thickness, 3.6 meter height	kg	41.112	41.112	41.112	49.937	2053.00	2053.00	2053.00	M181/ 1000
			Aluminium sheeting fixed with encapsulated lens type reflective sheeting	sqm	1.500	1.500	1.500	9584.68	14377.02	14377.02	14377.02	M-061
			Add 2 per cent of cost of materials for drilling holes, nuts, bolts, fabrication etc.						342.98	342.98	342.98	
			c) Machinery									
			Tractor-trolley	hour	0.020	0.020	0.020	717.00	14.34	14.34	14.34	PM12001
			(a+b+c)						17640.15	17640.15	17640.15	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		1411.21	1764.02	2116.82	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		1905.14	1940.42	1975.70	
			Cost for 1.5 sqm= (i+ii+iii+a+b+c+d+e)						22607.01	23027.00	23451.99	
			Rate per sqm (for sign having area more than 0.9 sqm)= (i+ii+iii+a+b+c+d+e)/1.50						15071.34	15351.33	15634.66	
								Say	**15071.30**	**15351.30**	**15634.70**	
		Note	I) Lettering and arrow marks on sign board to be provided separately as per actual requirement. Rates for these items have been analysed separately									
			ii) Rate for excavation, cement concrete M-25 and painting may be taken from respective chapters-09 & 08 respectively.									

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TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
8.07	802		**Overhead Signs**									
			Overhead Signs (Providing and erecting overhead signs with a corrosion resistant 2mm thick aluminium alloy sheet reflectorised with high intensity retro-reflective sheeting of encapsulated lense type with vertical and lateral clearance given in clause 802.2 and 802.3 and installed as per clause 802.7 over a designed support system of aluminium alloy or galvanised steel trestles and trusses of sections and type as per structural design requirements and approved plans & as per IRC: 67). The retro reflective sheeting shall be tested for a certificate of having the sheeting tested for coefficient of retro reflection, daytime colour and luminance, shrinkage, flexibility, linear removal, adhesion, impact resistance, specular gloss and fungus resistance, 3 years outdoor weathering and its having passed these tests shall be obtained from International/Goverment Laboratory/Institute by the manufacturer of the sheeting and in case the certificate is obtained from international condition, it should also be obtained from indian condition within 3 years of launching of product by the manufacture in abroad.Alternatively, a certificate conforming to ASTM specification (D4956-09) on artificial accelerated weathering requirements from a reputed laboratory in India can be accepted provisionally.In such a situation, the Employer/Client, if so desires could seek for a performance guarantee which would released after receipt a certificate meeting the requirement of three years outdoor weathering of the sheeting as per IRC 67:2012 & proof of the same report shall be uploaded while quoting tender. 7 years warranty shall be provided for retro reflection sheeting Type-IV & 10 years warranty shall be provided for retro reflective sheeting Type-XI as per Clause 6.9 of IRC 67:2012. At the end of warranty period, the sheeting shall retain atleast 80% of its retro reflectance. When totally wet, the sheeting shall show not less than 90% of the value of the desired retro reflectance.									
		A	**Truss and Vertical Support**									
			Unit = tonne									
			Taking output = 1 tonne									
			a) Labour									
			Mate	day	0.240	0.240	0.240	444.00	106.56	106.56	106.56	L-12
			Blacksmith	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-25
			Mazdoor including for handling & fixing at site.	day	4.000	4.000	4.000	428.00	1712.00	1712.00	1712.00	L-13
			b) Material									
			Aluminium alloy/galvanised steel including 2 per cent wastage	tonne	1.020	1.020	1.020	51761.60	52796.83	52796.83	52796.83	M-060

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Add 1 per cent on cost of material for nuts, bolts and drilling and welding consumables						527.97	527.97	527.97	
			Add 15 per cent on cost of material for fabrication of trusses as per approved design						7919.52	7919.52	7919.52	
			c) Machinery									
			Crane 3 tonne capacity	hour	3.000	3.000	3.000	860.00	2580.00	2580.00	2580.00	PM63001
			Truck	hour	0.500	0.500	0.500	1476.00	738.00	738.00	738.00	PM6004
			Total cost without OH & CP						67462.89	67462.89	67462.89	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		5397.03	6746.29	8095.55	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		7285.99	7420.92	7555.84	
			Rate per tonne = (a+b+c+d+e)						80145.91	81630.09	83114.27	
								Say	80145.90	81630.10	83114.30	
8.07		B	Aluminium Alloy Plate for Over Head Sign									
			Unit = sqm									
			Taking output = 1 sqm									
			a) Labour									
			Mate	day	0.010	0.010	0.010	444.00	4.44	4.44	4.44	L-12
			Blacksmith	day	0.100	0.100	0.100	541.00	54.10	54.10	54.10	L-25
			Mazdoor	day	0.150	0.150	0.150	428.00	64.20	64.20	64.20	L-13
			b) Material									
			Aluminium alloy plate,2 mm thick, fixed with high intensity grade sheeting vide clause 801.3	sqm	1.000	1.000	1.000	12771.09	12771.09	12771.09	12771.09	M-059
			Miscellaneous									
			Add 1 per cent of cost of labour for lifting arrangement, like ladders, pulleys, ropes etc						1.23	1.23	1.23	
			Total cost without OH & CP						12895.06	12895.06	12895.06	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		1031.60	1289.51	1547.41	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1392.67	1418.46	1444.25	
			Rate per sqm = (a+b+c+d)						15319.33	15603.02	15886.72	
								Say	15319.30	15603.00	15886.70	
		Note	1. The cost of excavation and foundation concrete for fixing of vertical support system to be worked out separately as per the approved drawing/design and to be included in the estimate.									
			2. Lettering and arrow marks on sign board to be provided separately as per actual requirement. Rates for these items have been included separately in this chapter.									
8.08	803		Painting Two Coats on New Concrete Surfaces									

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Painting two coats after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces									
			Unit = sqm									
			Taking output = 40 sqm									
			a) Labour									
			Mate	day	0.120	0.120	0.120	444.00	53.28	53.28	53.28	L-12
			Painter	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-18
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Material									
			Paint conforming to requirement of clause 803.3.	Litre	6.000	6.000	6.000	270.83	1624.98	1624.98	1624.98	M-130
			Add for scaffolding @ 1 percent of labour cost where required						15.63	15.63	15.63	
			Add @ 5 percent cost of labour and materials to prepare the surface by filling minutes roughness on the surface and priming the surface before laying 2 costs of painting.						159.41	159.41	159.41	
			Total cost without OH & CP						3363.31	3363.31	3363.31	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		269.06	336.33	403.60	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		363.24	369.96	376.69	
			Cost for 40 sqm = a+b+c+d						3995.61	4069.60	4143.59	
			Rate per sqm = (a+b+c+d) /40						99.89	101.74	103.59	
								Say	99.90	101.70	103.60	
8.09	803		Painting on Steel Surfaces									
			Providing and applying two coats of ready mix paint of approved brand on steel surface after through cleaning of surface to give an even shade									
			Unit = sqm									
			Taking output = 10 sqm									
			a) Labour									
			Mate	day	0.028	0.028	0.028	444.00	12.43	12.43	12.43	L-12
			Painter	day	0.450	0.450	0.450	541.00	243.45	243.45	243.45	L-18
			Mazdoor	day	0.250	0.250	0.250	428.00	107.00	107.00	107.00	L-13
			b) Material									
			Paint ready mixed approved brand.	Litre	1.250	1.250	1.250	270.83	338.54	338.54	338.54	M-130
			Add @ 1 per cent on cost of material for scaffolding						3.39	3.39	3.39	
			Add @ 5 percent cost of labour and materials to prepare the surface by filling minutes roughness on the surface and priming the surface before laying 2 coats of painting.						35.07	35.07	35.07	
			Total cost without OH & CP						739.88	739.88	739.88	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		59.19	73.99	88.79	
			d) Contractor's profit (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		79.91	81.39	82.87	

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Cost for 10 sqm = a+b+c+d						878.97	895.25	911.53	
			Rate per sqm= (a+b+c+d)/10						87.90	89.52	91.15	
								Say	**87.90**	**89.50**	**91.20**	
8.10	**803**		**Painting on Wood Surfaces**									
			Providing and applying two coats of ready mix paint of approved brand on wood surface after thorough cleaning of surface to give an even shade									
			Unit = sqm									
			Taking output = 10 sqm									
			a) Labour									
			Mate	day	0.028	0.028	0.028	444.00	12.43	12.43	12.43	L-12
			Painter	day	0.500	0.500	0.500	541.00	270.50	270.50	270.50	L-18
			Mazdoor	day	0.200	0.200	0.200	428.00	85.60	85.60	85.60	L-13
			b) Material									
			Paint ready mixed of approved brand.	Litre	1.500	1.500	1.500	270.83	406.25	406.25	406.25	M-130
			Add @ 1 per cent on cost of material for scaffolding						4.06	4.06	4.06	
			Add @ 5 percent cost of labour and materials to prepare the surface by filling minuts roughness on the surface and priming the surface before laying 2 costs of painting.						38.74	38.74	38.74	
			Total cost without OH & CP						817.58	817.58	817.58	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		65.41	81.76	98.11	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		88.30	89.93	91.57	
			Cost for 10 sqm = a+b+c+d						971.28	989.27	1007.26	
			Rate per sqm = (a+b+c+d)/10						97.13	98.93	100.73	
								Say	**97.10**	**98.90**	**100.70**	
8.11	**803**		**Painting Lines, Dashes, Arrows etc on Roads in Two Coats on New Work**									
			Painting lines, dashes, arrows etc on roads in two coats on new work with ready mixed road marking paint conforming to IS:164 on bituminous surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control									
		(i)	**Over 10 cm in width**									
			Unit = sqm									
			Taking output = 10 sqm									
			a) Labour									
			Mate	day	0.084	0.084	0.084	444.00	37.30	37.30	37.30	L-12
			Painter	day	0.550	0.550	0.550	541.00	297.55	297.55	297.55	L-18
			Mazdoor	day	1.550	1.550	1.550	428.00	663.40	663.40	663.40	L-13
			b) Material									
			Road marking Paint as per IS :164	Litre	1.480	1.480	1.480	270.83	400.82	400.82	400.82	M-131

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Total cost without OH & CP						1399.07	1399.07	1399.07	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		111.93	139.91	167.89	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		151.10	153.90	156.70	
			Cost for 10 sqm = a+b+c+d						1662.10	1692.87	1723.65	
			Rate per sqm= (a+b+c+d)/10						166.21	169.29	172.37	
								Say	166.20	169.30	172.40	
8.11		(ii)	Up to 10 cm in width									
			Unit = sqm									
			Taking output = 10 sqm									
			a) Labour									
			Mate	day	0.068	0.068	0.068	444.00	30.19	30.19	30.19	L-12
			Painter	day	0.350	0.350	0.350	541.00	189.35	189.35	189.35	L-18
			Mazdoor	day	1.350	1.350	1.350	428.00	577.80	577.80	577.80	L-13
			b) Material									
			Road marking paint	Litre	1.480	1.480	1.480	270.83	400.82	400.82	400.82	M-131
			Total cost without OH & CP						1198.17	1198.17	1198.17	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		95.85	119.82	143.78	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		129.40	131.80	134.19	
			Cost for 10 sqm = a+b+c+d						1423.42	1449.78	1476.14	
			Rate per sqm = (a+b+c+d)/10						142.34	144.98	147.61	
								Say	142.30	145.00	147.60	
8.12	803		Painting Lines, Dashes, Arrows etc on Roads in Two Coats on Old Work									
			Painting lines, dashes, arrows etc on roads in two coats on old work with ready mixed road marking paint conforming to IS: 164 on bituminous surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control									
		(i)	Over 10 cm in width									
			Unit = sqm									
			Taking output = 10 sqm									
			a) Labour									
			Mate	day	0.062	0.062	0.062	444.00	27.53	27.53	27.53	L-12
			Painter Ist class	day	0.300	0.300	0.300	541.00	162.30	162.30	162.30	L-18
			Mazdoor	day	1.250	1.250	1.250	428.00	535.00	535.00	535.00	L-13
			b) Material									
			Road marking paint	Litre	0.900	0.900	0.900	270.83	243.74	243.74	243.74	M-131
			Total cost without OH & CP						968.57	968.57	968.57	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		77.49	96.86	116.23	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		104.61	106.54	108.48	
			Cost for 10 sqm = a+b+c+d						1150.66	1171.97	1193.28	
			Rate per sqm = (a+b+c+d)/10						115.07	117.20	119.33	

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
								Say	115.10	117.20	119.30	
8.12		(ii)	Up to 10 cm in width									
			Unit = sqm									
			Taking output = 10 sqm									
			a) Labour									
			Mate	day	0.068	0.068	0.068	444.00	30.19	30.19	30.19	L-12
			Painter Ist class	day	0.350	0.350	0.350	541.00	189.35	189.35	189.35	L-18
			Mazdoor	day	1.350	1.350	1.350	428.00	577.80	577.80	577.80	L-13
			b) Material									
			Road marking Paint	Litre	0.900	0.900	0.900	270.83	243.74	243.74	243.74	M-131
			Total cost without OH & CP						1041.09	1041.09	1041.09	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		83.29	104.11	124.93	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		112.44	114.52	116.60	
			Cost for 10 sqm= a+b+c+d						1236.81	1259.71	1282.62	
			Rate per sqm = (a+b+c+d)/10						123.68	125.97	128.26	
								Say	123.70	126.00	128.30	
8.13	803		Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface									
			Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.									
			Unit = sqm									
			Taking output = 600 sqm									
			a) Labour									
			Mate	day	0.030	0.030	0.030	444.00	13.32	13.32	13.32	L-12
			Mazdoor	day	0.750	0.750	0.750	428.00	321.00	321.00	321.00	L-13
			b) Machinery									
			Road marking machine @ 60 sqm per hour	hour	10.000	10.000	10.000	1432.00	14320.00	14320.00	14320.00	PM40001
			Tractor-trolley	hour	0.500	0.500	0.500	717.00	358.50	358.50	358.50	PM12001
			c) Material									
			Hot applied thermoplastic compound	Litre	1500.000	1500.000	1500.000	191.99	287985.00	287985.00	287985.00	M-117
			Reflectorising glass beads	kg	150.000	150.000	150.000	82.57	12385.50	12385.50	12385.50	M-153
			Total cost without OH & CP						315383.32	315383.32	315383.32	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		25230.67	31538.33	37846.00	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		34061.40	34692.17	35322.93	
			Cost for 600 sqm = a+b+c+d+e						374675.38	381613.82	388552.25	
			Rate per sqm = a+b+c+d+e)/600						624.46	636.02	647.59	

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
								Say	624.50	636.00	647.60	
		Note	1. A sealing primer may be applied in advance on cement concrete pavement to ensure proper bonding. Any laitance and/or curing compound to be removed where paint is required to be applied on concrete surface.									
			2.Cost of painter is already included in hire charges of road marking machine.									
8.14	804		**Kilometre Stone**									
			Reinforced cement concrete M15grade kilometre stone of standard design as per IRC:8-1980, fixing in position including painting and printing etc									
		(i)	**5th kilometre stone (precast)**									
			Unit = Nos.									
			Taking output = 6 Nos.									
			a) M-15 grade of concrete	cum	2.350	2.350	2.350	4612.70-L 4703.90-M 4814.60-S	10839.85	11054.17	11314.31	9.06 A Case-II
			(Rate taken from item No. 9.06, A, Case-II including OH & CP)									
			b) Steel reinforcement @ 5 kg per sqm	kg	22.080	22.080	22.080	59.554-L 60.710-M 61.918-S	1314.96	1340.50	1367.16	9.07/ 1000
			(Rate taken from items 9.07/1000 including OH & CP)									
			c) Excavation in soil for foundation	cum	1.680	1.680	1.680	185.30-L 188.80-M 192.20-S	311.30	317.18	322.90	9.01 A I (i)
			(Rate taken from item No. 9.01 A (I) including OH & CP)									
			d) Painting two coats on concrete surface	sqm	9.850	9.850	9.850	99.90-L 101.70-M 103.60-S	984.02	1001.75	1020.46	8.08
			(Rate taken from item No. 8.08 including OH & CP)									
			e) Lettering on km post (average 30 letters of 10 cm height each)	per cm per letter	1800.000	1800.000	1800.000	0.80-L 0.80-M 0.80-S	1440.00	1440.00	1440.00	8.03(ii)
			(Rate taken from item No. 8.03(II) including OH & CP)									
			Transportation and fixing									
			f) Labour									
			Mate	day	0.264	0.264	0.264	444.00	117.22	117.22	117.22	L-12
			Mason	day	0.600	0.600	0.600	541.00	324.60	324.60	324.60	L-10
			Mazdoor including loading/unloading	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			g) Machinery									
			Tractor-trolley	hour	6.000	6.000	6.000	717.00	4302.00	4302.00	4302.00	PM12001
			h) Overhead charges on (f+g)		(@ 8%)	(@ 10%)	(@ 12%)		584.95	731.18	877.42	
			i) Contractor's profit on (f+g+h)		(@ 10%)	(@ 10%)	(@ 10%)		789.68	804.30	818.92	
			Cost for 6 Nos. 5th km stone = a+b+c+ d+e +f+g+h +i						23576.56	24000.89	24472.99	
			Rate for each 5th km stone = (a+b+c+d+e+f+g+h+I)/ 6						3929.43	4000.15	4078.83	
								Say	**3929.40**	**4000.10**	**4078.80**	
8.14		(ii)	**Ordinary kilometer stone (precast)**									
			Unit = Nos.									
			Taking output = 14 Nos.									
			a) M-15 grade of concrete	cum	3.770	3.770	3.770	4612.70-L 4703.90-M 4814.60-S	17389.88	17733.70	18151.04	9.06 A Case-II
			(Rate taken from item No. 9.06, A, Case-II including OH & CP)									
			b) Steel reinforcement @ 5 kg per sqm	kg	26.320	26.320	26.320	59.554-L 60.710-M 61.918-S	1567.47	1597.91	1629.70	9.07/ 1000
			(Rate taken from items 9.07/1000 including OH & CP)									
			c) Excavation in soil for foundation	cum	2.770	2.770	2.770	185.30-L 188.80-M 192.20-S	513.28	522.98	532.39	9.01 A I (i)
			(Rate taken from item No. 9.01 A (I) including OH & CP)									
			d) Painting two coats on concrete surface	sqm	11.410	11.410	11.410	99.90-L 101.70-M 103.60-S	1139.86	1160.40	1182.08	8.08
			(Rate taken from item No. 8.08 including OH & CP)									
			e) Lettering on km post (average 12 letters of 10 cm height each)	per cm per letter	1680.000	1680.000	1680.000	0.80-L 0.80-M 0.80-S	1344.00	1344.00	1344.00	8.03(ii)
			(Rate taken from item No. 8.03 (ii) including OH & CP)									
			Transportation and fixing									
			f) Labour									
			Mate	day	0.320	0.320	0.320	444.00	142.08	142.08	142.08	L-12
			Mason	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-10
			Mazdoor	day	7.000	7.000	7.000	428.00	2996.00	2996.00	2996.00	L-13
			g) Machinery									
			Tractor-trolley	hour	6.000	6.000	6.000	717.00	4302.00	4302.00	4302.00	PM12001
			h) Overhead charges on (f+g)		(@ 8%)	(@ 10%)	(@ 12%)		638.49	798.11	957.73	

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			i) Contractor's profit on (f+g+h)		(@ 10%)	(@ 10%)	(@ 10%)		861.96	877.92	893.88	
			Cost for 14 Nos. ordinary km stone = (a+b+ c+d+e+f+g+h+i)						31436.01	32016.09	32671.90	
			Rate for each ordinary km stone = (a+b+ c+d+e+f+g+h+j) /14						2245.43	2286.86	2333.71	
								Say	**2245.40**	**2286.90**	**2333.70**	
8.14		(iii)	Hectometer stone (precast)									
			Unit = Nos.									
			Taking output = 33 Nos.									
			a) M-15 grade of concrete	cum	1.580	1.580	1.580	4612.70-L 4703.90-M 4814.60-S	7288.07	7432.16	7607.07	9.06 A Case-II
			(Rate taken from item No. 9.06, A, Case-II including OH & CP)									
			b) Steel reinforcement @ 5 kg per sqm	kg	66.000	66.000	66.000	59.554-L 60.710-M 61.918-S	3930.58	4006.92	4086.63	9.07/1000
			(Rate taken from items 9.07/1000 including OH & CP)									
			c) Excavation in soil for foundation	cum	1.390	1.390	1.390	185.30-L 188.80-M 192.20-S	257.57	262.43	267.16	9.01 A I (i)
			(Rate taken from item No. 9.01 A (I) including OH & CP)									
			d) Painting two coats on concrete surface	sqm	6.270	6.270	6.270	99.90-L 101.70-M 103.60-S	626.37	637.66	649.57	8.08
			(Rate taken from item No. 8.08 including OH & CP)									
			e) Lettering on km post (average 1 letter of 10 cm height each)	per cm per letter	330.000	330.000	330.000	0.80-L 0.80-M 0.80-S	264.00	264.00	264.00	8.03 (ii)
			(Rate taken from item No. 8.03(ii) including OH & CP)									
			Transportation and fixing									
			f) Labour									
			Mate	day	0.340	0.340	0.340	444.00	150.96	150.96	150.96	L-12
			Mason	day	1.500	1.500	1.500	541.00	811.50	811.50	811.50	L-10
			Mazdoor	day	7.000	7.000	7.000	428.00	2996.00	2996.00	2996.00	L-13
			g) Machinery									
			Tractor-trolley	hour	6.000	6.000	6.000	717.00	4302.00	4302.00	4302.00	PM12001
			h) Overhead charges on (f+g)		(@ 8%)	(@ 10%)	(@ 12%)		660.84	826.05	991.26	
			i) Contractor's profit on (f+g+h)		(@ 10%)	(@ 10%)	(@ 10%)		892.13	908.65	925.17	
			Cost for 33 Nos. Hectometer stone = (a+b+c+d+e+f+ g+h+i)						22180.02	22598.33	23051.32	
			Rate for each Hectometer stone = (a+b +c +d+e+f+ g+h+i) / 33						672.12	684.80	698.52	
								Say	**672.10**	**684.80**	**698.50**	

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		Note	The rate for excavation, cement concrete, steel reinforcement, painting and lettering may be taken from respective chapters.									
8.15 (a)	805		**Road Delineators**									
			Road Delineators (Supplying and installation of MS delineators (Road way indicators, hazard markers, object markers), 80-100 cm high above ground level, painted black and white in 15 cm wide strips, fitted with 80 x 100 mm rectangular or 75 mm dia circular reflectorised panels at the top, buried or pressed into the ground and conforming to IRC-79 and the drawings. MS Delineator made of Mild steel with pure polyester powder coating with the minimum thickness of powder coating of not less than 40 micron for protection against corrosion. The surface should be concealed so that there should not be any exposed surface without powder coating. Alternatively,these metal guide poles can be concealed with thermoplastic body. The posts shall have fan ellipsoidal or circular design with the height of the pole shall be 800 to 900 mm above the ground with about 200 to 300 mm base which can be anchored onto ground. Mild steel Guide poles shall conform to Type XI sheeting specifications as per IRC:67 and ASTM D4956 which would ensure to obtain clear visibility of the road alignment during night time. The retro reflective sheeting shall be tested for a certificate of having the sheeting tested for coefficient of retro reflection, daytime colour and luminance, shrinkage, flexibility, linear removal, adhesion, impact resistance, specular gloss and fungus resistance, 3 years outdoor weathering and its having passed these tests shall be obtained from International/Goverment Laboratory/Institute by the manufacturer of the sheeting and in case the certificate is obtained from international condition, it should also be obtained from indian condition within 3 years of launching of product by the manufacture in abroad.Alternatively, a certificate conforming to ASTM specification (D4956-09) on artificial accelerated weathering requirements from a reputed laboratory in India can be accepted provisionally.In such a situation, the Employer/Client, if so desires could seek for a performance guarantee which would released after receipt a certificate meeting the requirement of three years outdoor weathering of the sheeting as per IRC 67:2012 & proof of the same report shall be uploaded while quoting tender.									
			Unit = Each									
			Taking output= 30 Nos.									

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor for fixing	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Material									
			Cost of approved type of delineators from ISI certified firm as per the standard drawing given in IRC - 79	each	30.000	30.000	30.000	579.66	17389.72	17389.72	17389.72	M-092
			Add 10 per cent cost of material for installation						1738.97	1738.97	1738.97	
			Total cost without OH & CP						19574.45	19574.45	19574.45	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		1565.96	1957.44	2348.93	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2114.04	2153.19	2192.34	
			Cost for 30 Nos. delineators = (a+b+ c+d)						23254.45	23685.08	24115.72	
			Rate per delineators = (a+b+c+d) /30						775.15	789.50	803.86	
		Note						Say	775.10	789.50	803.90	
			In case of soft ground, a proper foundation may be provided as per approved design. In case foundation is required to be provided, the items of excavation and foundation concrete are required to be measured and paid separately.									
8.15 (b)	805		Flexible Median Marker (FMM) as per IRC 79:2019									
			Flexible Median Marker (FMM) as per IRC 79:2019 Supplying and Installation of Flexible Median Marker made up of plastic body moulded from flexible thermoplastic.Flexible Median Marker (FMM) should be used for improving median visibility during dark hours, Use of Median Marker provides safety against collision happening wih median during night time, or severe weather. Flexible Median Markers shall be provided with fluorescent yellow colour retro-reflective sheeting Type XI as per IRC 67, Flexible Median Marker shall be of tough, high impact resistant, injection-molded, thermoplastic body with property of flexibility to provide high durability and U shape structure having rebound/ bounce back property. The sheeting shall be of Type XI conforming to IRC:67 and it should be on both the faces whereby providing minimum reflectivity at longer distances with adequate durability. The logo of the manufacturer shall be embossed on either side of the body during the injection moulding process. FMM shall be fixed by a combination of epoxy adhesive and grouting/drilling on									

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			concrete medians or properly constructed solid medians. Height :The marker height shall be a minimum of 180 mm, width 120 mm & Body thickness 6.5 mm. The shank shall not be less than 20 mm and depth shall not be less than 30 mm, Reflective Area: Shall not be less than 90 cm square. Proof of the same report shall be uploaded while quoting tender. The body of FMM shall bounce back to its original position of after 750 number of hits using pendulum of 1.8 kg conforming 40 ASTM D256 adhesion between the body and outer casting body of FMM shall withstand 50 kgf tensile loads conforming to ASTM D638 method.									
			Unit = Each									
			Taking output= 30 Nos.									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor for fixing	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Material									
			Cost of Flexible Median Marker (FMM) as per IRC 79:2019	each	30.000	30.000	30.000	215.73	6471.90	6471.90	6471.90	M-328
			Add 10 per cent cost of material for Installation						647.19	647.19	647.19	
			Total cost without OH & CP						7564.85	7564.85	7564.85	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		605.19	756.49	907.78	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		817.00	832.13	847.26	
			Cost for 30 Nos. FMM = (a+b+ c+d)						8987.04	9153.47	9319.90	
			Rate per FMM = (a+b+c+d) /30						299.57	305.12	310.66	
								Say	**299.60**	**305.10**	**310.70**	
8.16	**806**		**Boundary pillar**									
			Reinforced cement concrete M15 grade boundary pillars of standard design as per IRC:25, fixed in position including finishing and lettering but excluding painting									
			Unit = Each									
			Taking output = 57 Nos.									
			a) M-15 grade of the boundary stone									
			(Rate taken from item No. 9.06, A, Case-II including OH & CP)	cum	1.250	1.250	1.250	4612.70-L 4703.90-M 4814.60-S	5765.88	5879.88	6018.25	9.06 A Case-II
			b) Steel reinforcement									

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(Rate taken from items 9.07/1000 including OH & CP)	kg	79.800	79.800	79.800	59.554-L 60.710-M 61.918-S	4752.43	4844.73	4941.11	9.07/1000
			c) Excavation in soil									
			(Rate taken from item No. 9.01 A (I) including OH & CP)	cum	10.720	10.720	10.720	185.30-L 188.80-M 192.20-S	1986.42	2023.94	2060.38	9.01 A I (i)
			d) Lettering, each 10 cm high									
			(Rate taken from item No. 8.03(ii) including OH & CP)	per letter per cm high	2280.000	2280.000	2280.000	0.80-L 0.80-M 0.80-S	1824.00	1824.00	1824.00	8.03 (ii)
			Transportation and fixing									
			e) Labour									
			Mate	day	0.570	0.570	0.570	444.000	253.08	253.08	253.08	L-12
			Mazdoor	day	14.250	14.250	14.250	428.000	6099.00	6099.00	6099.00	L-13
			f) Machinery									
			Tractor-trolley	hour	6.000	6.000	6.000	717.000	4302.00	4302.00	4302.00	PM12001
			g) Material									
			Stone spall	cum	11.970	11.970	11.970	377.350	4516.88	4516.88	4516.88	M-008
			h) Overhead charges on (e+f+g)		(@ 8%)	(@ 10%)	(@ 12%)		1213.68	1517.10	1820.52	
			i) Contractor's profit on (e+f+g+h)		(@ 10%)	(@ 10%)	(@ 10%)		1638.46	1668.81	1699.15	
			Cost for 57 Nos. boundary pillar = (a+b +c+d +e+ f+g+h+i)						32351.82	32929.40	33534.37	
			Rate for each boundary pillar = (a+b+c+d+e+ f+g+h+i)/57						567.58	577.71	588.32	
								Say	**567.60**	**577.70**	**588.30**	
		Note	In case of soft ground, a proper foundation may be provided as per approved design. In case foundation is required to be provided, the items of excavation and foundation concrete are required to be measured and paid separately.									
8.17	**808**		**G.I Barbed Wire Fencing 1.2 Metre High**									
			Providing and fixing 1.2 metres high GI barbed wire fencing with 1.8 m angle iron posts 40 mm x 40 mm x 6 mm placed every 3 metres center to center founded in M15 grade cement concrete, 0.6 metre below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 9 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc complete as per clause 817									
			Unit = per running metre									

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Taking output = 30 metres									
			a) Labour									
			Mate	day	0.090	0.090	0.090	444.00	39.96	39.96	39.96	L-12
			Blacksmith	day	0.250	0.250	0.250	541.00	135.25	135.25	135.25	L-25
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Material									
			Barbed wire 335 metres length @ 9.38 kg per 100 metres	kg	31.420	31.420	31.420	75.659	2377.20	2377.20	2377.20	M-063
			MS angle iron 40 mm x 40mm x 6 mm, 23 metres in length @ 3.5 kg per metre	kg	80.500	80.500	80.500	49.937	4019.90	4019.90	4019.90	M181 /1000
			Add for GI staple binding wire, drilling holes etc. @ 2 per cent of the cost of material						127.94	127.94	127.94	
			c) Painting									
			Applying two coats of painting on exposed surface of angle iron posts (Rate as per item no. 8.08 without OH & CP)	sqm	2.110	2.110	2.110	84.08-L 84.08-M 84.08-S	177.41	177.41	177.41	8.08
			Total cost without OH & CP						7733.67	7733.67	7733.67	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		618.69	773.37	928.04	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		835.24	850.70	866.17	
			Cost for 30 metres fencing = a+b+c+d+e						9187.60	9357.74	9527.88	
			Rate per metre = (a+b+c+d+e)/30						306.25	311.92	317.60	
								Say	**306.30**	**311.90**	**317.60**	
		Note	Cost of excavation for foundation and foundation concrete to be added separately in the cost estimate as per approved design. The rate for these items may be taken from respective chapters.									
8.18	**808**		**G.I Barbed Wire Fencing 1.8 Metre High**									
			Providing and fixing 1.8 metres high GI barbed wire fencing with 2.4 m angle iron posts 50 mm x 50 mm x 6 mm placed every 3 metres center to center founded in M15 grade cement concrete, 0.6 metre below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 12 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc complete as per clause 808									
			Unit = per running metre									
			Taking output = 30 metres									
			a) Labour									
			Mate	day	0.116	0.116	0.116	444.00	51.50	51.50	51.50	L-12
			Blacksmith	day	0.400	0.400	0.400	541.00	216.40	216.40	216.40	L-25
			Mazdoor	day	2.500	2.500	2.500	428.00	1070.00	1070.00	1070.00	L-13
			b) Material									
			Barbed wire 428 metres length @ 9.38 kg per 100 metres	kg	40.150	40.150	40.150	75.66	3037.70	3037.70	3037.70	M-063

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			MS angle iron 50 mm x 50 mm x 6 mm,33.8 metres in length @ 4.5 kg per metre	kg	152.000	152.000	152.000	49.937	7590.37	7590.37	7590.37	M181/ 1000
			Add for GI staple, binding wire, drilling holes etc. @ 2 per cent of the cost of material						212.56	212.56	212.56	
			c) Painting									
			Applying two coats of painting on exposed surface of angle iron posts without OH & CP	sqm	3.960	3.960	3.960	84.08-L 84.08-M 84.08-S	332.97	332.97	332.97	8.08
			Total cost without OH & CP						12511.51	12511.51	12511.51	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		1000.92	1251.15	1501.38	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		1351.24	1376.27	1401.29	
			Cost for 30 metres fencing = a+b+c+d+e						14863.67	15138.92	15414.18	
			Rate per metre fencing = (a+b+c +d+e)/30						495.46	504.63	513.81	
								Say	**495.50**	**504.60**	**513.80**	
		Note	Cost of excavation for foundation and foundation concrete to be added separately in the cost estimate as per approved design. The rate for these items may be taken from respective chapters.									
8.19	**Suggestive**		**Fencing With Welded Steel Wire Fabric 75 mm x 50 mm**									
			Providing 1.20 metre high fencing with angle iron posts 50 mm x 50 mm x 6 mm at 3 metre center to center with 0.40 metre embedded in M15 grade cement concrete, corner, end and every 10th post to be strutted, provided with welded steel wire fabric of 75 mm x 50 mm mesh or 75 mm x 25 mm mesh and fixed to iron posts by flat iron 50 x 5 mm and bolts etc. complete in all respects.									
			Unit = Running metre									
			Taking output = 30 m									
			a) Labour									
			Mate	day	0.120	0.120	0.120	444.00	53.28	53.28	53.28	L-12
			Welder	day	1.000	1.000	1.000	660.00	660.00	660.00	660.00	L-02
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Material									
			i) Angle iron for posts 50 x 50 x 6 mm	kg	106.000	106.000	106.000	49.937	5293.29	5293.29	5293.29	M181/ 1000
			ii) Runner flat 50 x 5 mm	kg	26.000	26.000	26.000	49.937	1298.35	1298.35	1298.35	M181/ 1000
			iii) Welded steel wire fabric 75x50 mm mesh @ 4 kg/sqm,4 x 30 x 1.2 + 5 per cent wastage	kg	151.000	151.000	151.000	52.71	7959.08	7959.08	7959.08	M-193
			OR									

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Welded steel wire fabric 75 x 25 mm mesh @ 7.75 kg/sqm, 7.75 x 30 x 1.2 + 5 per cent wastage	kg	293.000	293.000	293.000					M-193
			Add 2.5 per cent of cost of material for drilling holes in angles, flats, splitting angle at bottom, nuts and bolts and welded consumables						363.77	363.77	363.77	
			c) Machinery									
			Tractor-trolley	hour	0.100	0.100	0.100	717.00	71.70	71.70	71.70	PM12001
			(a+b+c)						16555.47	16555.47	16555.47	
			d) Painting									
			Painting two coats including priming (including OH & CP)	sqm	8.000	8.000	8.000	87.90-L 89.50-M 91.20-S	703.20	716.00	729.60	Item 8.9
			e) Overhead charges (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		1324.44	1655.55	1986.66	
			f) Contractor's profit (a+b+c+e)		(@ 10%)	(@ 10%)	(@ 10%)		1787.99	1821.10	1854.21	
			Cost for 30 metre = a+b+c+d+e+f						20371.10	20748.12	21125.94	
			Rate per metre = (a+b+c+d+e+f)/30						679.04	691.60	704.20	
								Say	**679.00**	**691.60**	**704.20**	
		Note	i) Adopt any one type of welded steel wire fabric 75 x 50 mm or 75 x 25 mm as per approved design.									
			ii) The item of excavation and cement concrete in foundation shall be measured and paid separately									
8.20	808		**Tubular Steel Railing on Medium Weight Steel Channel (ISMC series) 100 mm x 50 mm**									
			Providing, fixing and erecting 50 mm dia steel pipe railing in 3 rows duly painted on medium weight steel channels (ISMC series) 100 mm x 50 mm, 1.2 metres high above ground, 2 m centre to centre, complete as per approved drawings									
			Unit = Running metre									
			Taking output = 10metres									
			i) Excavation for foundation (6 Nos)6 x 0.6 x 0.6 x 0.6									
			(Rate taken from item No. 9.01 A (I) including OH & CP)	cum	1.296	1.296	1.296	185.30-L 188.80-M 192.20-S	240.15	244.68	249.09	9.01 A (I)
			ii) Foundation concrete M-15 grade PCC 6 x 0.6 x 0.6 x 0.3									
			(Rate taken from item No. 9.06, A, Case-II including OH & CP)	cum	0.648	0.648	0.648	4612.70-L 4703.90-M 4814.60-S	2989.03	3048.13	3119.86	9.06 A Case-II
			iii) Painting of pipe									

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(Rate taken from Item No. 8.09 including OH & CP)	sqm	4.710	4.710	4.710	87.90-L 89.50-M 91.20-S	414.01	421.55	429.55	8.09
			iv) Painting of channel section 6 nos,1.8 metres each 0.2x1.8x6=2.16 (Including OH & CP)	sqm	2.160	2.160	2.160	87.90-L 89.50-M 91.20-S	189.86	193.32	196.99	Item 8.09
			a) Labour (For fixing at site)									
			Mate	day	0.010	0.010	0.010	444.00	4.44	4.44	4.44	L-12
			Mazdoor	day	0.250	0.250	0.250	428.00	107.00	107.00	107.00	L-13
			Plumber	day	0.010	0.010	0.010	660.00	6.60	6.60	6.60	L-02
			b) Material									
			Steel pipe 50 mm external dia as per IS:1239	metre	30.000	30.000	30.000	256.798	7703.93	7703.93	7703.93	M-176
			Medium weight steel channel (ISMC series) 100 mm x 50 mm,10.8 metres length @ 9.2 kg per metre	kg	99.360	99.360	99.360	49.937	4961.708	4961.708	4961.708	M181/ 1000
			Add for drilling holes @ 2 per cent of cost of channels						99.234	99.234	99.234	
			c) Machinery									
			Tractor-trolley	hour	0.040	0.040	0.040	717.00	28.680	28.680	28.680	PM12001
			(a+b+c)						12911.59	12911.59	12911.59	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		1032.927	1291.159	1549.391	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		1394.452	1420.275	1446.098	
			Cost for 10 metre =i+ii+iii+iv+ a+b+c+d+e						19172.02	19530.71	19902.58	
			Rate per metre = (i+ii+iii+iv+a+b+c+d+e)/10						1917.20	1953.07	1990.26	
								Say	**1917.20**	**1953.10**	**1990.30**	
8.21	808		**Tubular Steel Railing on Precast RCC Posts, 1.2 m High Above Ground Level**									
			Providing, fencing and erecting 50 mm dia painted steel pipe railing in 3 rows on precast M20 grade RCC vertical posts1.8 metres high (1.2 m above GL) with 3 holes 50 mm dia for pipe, fixed 2 metres centre to centre, complete as per approved drawing									
			Unit = Running metre									
			Taking output = 10metres									
			i) Excavation for foundation (6 Nos)6 x 0.6 x 0.6 x 0.6									
			(Rate taken from item No. 9.01 A (I) including OH & CP)	cum	1.296	1.296	1.296	185.30-L 188.80-M 192.20-S	240.15	244.68	249.09	9.01 A (I)
			II) Foundation concrete M - 15 grade PCC 6 x 0.6 x 0.6 x 0.3									
			(Rate taken from Item No. 9.06, A, Case-II including OH & CP)	cum	0.648	0.648	0.648	4612.70-L 4703.90-M 4814.60-S	2989.03	3048.13	3119.86	9.06 A Case-II

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			iii) RCC M - 20 for pre cast posts 6 nos of 1.8 metres each									
			(Rate taken from item No. 9.06, B, Case-II including OH & CP)	cum	4.710	4.710	4.710	5111.50-L 5211.90-M 5331.90-S	24075.17	24548.05	25113.25	9.06 B Case-II
			iv) Painting of pipe									
			(Rate taken from item No. 8.09 including OH & CP)	sqm	2.160	2.160	2.160	87.90-L 89.50-M 91.20-S	189.86	193.32	196.99	8.09
			a) Labour									
			Mate	day	0.010	0.010	0.010	444.000	4.44	4.44	4.44	L-12
			Mazdoor	day	0.250	0.250	0.250	428.000	107.00	107.00	107.00	L-13
			Plumber	day	0.010	0.010	0.010	660.000	6.60	6.60	6.60	L-02
			b) Material									
			Steel pipe 50 mm dia as per IS:1239	metre	30.000	30.000	30.000	256.798	7703.93	7703.93	7703.93	M-176
			c) Machinery									
			Tractor-trolley	hour	0.040	0.040	0.040	717.000	28.68	28.68	28.68	PM12001
			(a+b+c)						7850.65	7850.65	7850.65	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		628.05	785.07	942.08	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		847.87	863.57	879.27	
			Cost for 10 metre =i+ii+iii+iv+ a+b+c+d+e						36820.78	37533.47	38351.20	
			Rate per metre = (i+ii+iii+iv+a+b+c+d+e)/10						3682.08	3753.35	3835.12	
									3682.10	**3753.30**	**3835.10**	
8.22	**811**		**Reinforced Cement Concrete Crash Barrier**									
		A	Provision of an Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with Reinforced Cement Concrete with HYSD reinforcement conforming to MoRT&H specification and as per details given IRC-5 (Fig.-5, b) including dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board etc., as per approved drawing and at locations directed by the Engineer, all as specified. (Area- 0.243 sqm./meter, single face)									
			Unit = Linear metre									
			Taking output = 20 m									
	A	**(i)**	**M 25 grade concrete**									
			a) M 25 grade concrete & HYSD steel reinforcement									
			M 25 grade concrete (Area-0.243 sqm/meter)	cum	4.860	4.860	4.860	5584.30-L 5693.50-M 5822.20-S	27139.70	27670.41	28295.89	9.06 E Case-II
			(Rate taken from item No. 9.06, E, Case-II including OH & CP)									

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Providing HYSD steel reinforcement including dowel bars, including OH &CP	tonne	0.194	0.194	0.194	59554.30 L 60710.90M 61918.70 S	11553.53	11777.91	12012.23	9.07
			b) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			c) Material									
			Pre-moulded asphalt filler board	sqm	0.250	0.250	0.250	905.45	226.36	226.36	226.36	M-143
			d) Overhead charges on (b+c)		(@ 8%)	(@ 10%)	(@ 12%)		53.77	67.21	80.65	
			e) Contractor's profit on (b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		72.59	73.93	75.28	
			Cost for 20 metre = a+b+c+d+e						39491.71	40261.59	41136.17	
			Rate per metre = (a+b+c+d+e)/20						1974.59	2013.08	2056.81	
								Say	**1974.60**	**2013.10**	**2056.80**	
8.22		A (ii)	**M 30 grade concrete**									
			a) M 30 grade concrete & HYSD steel reinforcement									
			M 30 grade concrete (Area-0.243 sqm/meter)	cum	4.860	4.860	4.860	5584.30-L 5693.50-M 5822.20-S	27139.70	27670.41	28295.89	9.06 E Case-II
			(Rate taken from item No. 9.06, E, Case-II including OH & CP)									
			Providing HYSD steel reinforcement including dowel bars, including OH &CP	tonne	0.194	0.194	0.194	59554.30 L 60710.90M 61918.70 S	11553.53	11777.91	12012.23	9.07
			b) Labour									
			Mate	day	0.040	0.040	0.040	444.000	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.000	428.00	428.00	428.00	L-13
			c) Material									
			Pre-moulded asphalt filler board	sqm	0.250	0.250	0.250	905.450	226.36	226.36	226.36	M-143
			d) Overhead charges on (b+c)		(@ 8%)	(@ 10%)	(@ 12%)		53.77	67.21	80.65	
			e) Contractor's profit on (b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		72.59	73.93	75.28	
			Cost for 20 metre = a+b+c+d+e						39491.71	40261.59	41136.17	
			Rate per metre = (a+b+c+d+e)/20						1974.59	2013.08	2056.81	
								Say	**1974.60**	**2013.10**	**2056.80**	
		Note	I) Excavation and backfilling are incidental to work and not to be measured separately.									
			II)If PCC required below crash barrier then it should be measured & Paid separately.									
			III) Rate for RCC M 30 may be taken from chapter-12 on foundation.									

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		B	Provision of an Reinforced cement concrete New Jersy crash barrier at the medians constructed with Reinforced cement concrete with HYSD reinforcement conforming to MoRT&H specification and as per details given IRC-119 (Fig.-26) including dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board etc.,as per approved drawing and at locations directed by the Engineer, all as specified. (Area- 0.261 sqm./meter, Double Face)									
			Unit = Linear metre									
			Taking output = 20 m									
		(i)	**M 25 grade concrete**									
			a) M 25 grade concrete & HYSD steel reinforcement									
			M 25 grade concrete (Area-0.261 sqm/meter)	cum	5.220	5.220	5.220	6591.00	34405.02	34405.02	34405.02	12.11 A (ii) Case-II
			(Rate taken from item No. 12.11 A (ii), Case-II including OH & CP)									
			Providing HYSD steel reinforcement including dowel bars, including OH &CP	tonne	0.209	0.209	0.209	59554.30 L 60710.90M 61918.70 S	12446.85	12688.58	12941.01	9.07
			b) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			c) Material									
			Pre-moulded asphalt filler board	sqm	0.250	0.250	0.250	905.45	226.36	226.36	226.36	M-143
			d) Overhead charges on (b+c)		(@ 8%)	(@ 10%)	(@ 12%)		53.77	67.21	80.65	
			e) Contractor's profit on (b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		72.59	73.93	75.28	
			Cost for 20 metre = a+b+c+d+e						47650.35	47906.87	48174.08	
			Rate per metre = (a+b+c+d+e)/20						2382.52	2395.34	2408.70	
								Say	**2382.50**	**2395.30**	**2408.70**	
		Note	i) Excavation and backfilling are incidental to work and not to be measured separately.									
			ii)If PCC required below crash barrier then it should be measured & Paid separately.									
			iii) Rate for RCC M 25 may be taken from chapter-12 on foundation.									
8.22	B	(ii)	**M 30 grade concrete**									
			a) M 30 grade concrete & HYSD steel reinforcement									
			M 30 grade concrete (Area-0.261 sqm/meter)	cum	5.220	5.220	5.220	6643.40	34678.55	34678.55	34678.55	12.11 A(iii) Case-II
			(Rate taken from item No. 12.11 A (iii), Case-II including OH & CP)									
			Providing HYSD steel reinforcement including dowel bars, including OH &CP	tonne	0.209	0.209	0.209	59554.30 L 60710.90M 61918.70 S	12446.85	12688.58	12941.01	9.07

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			b) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			c) Material									
			Pre-moulded asphalt filler board	sqm	0.250	0.250	0.250	905.45	226.36	226.36	226.36	M-143
			d) Overhead charges on (b+c)		(@ 8%)	(@ 10%)	(@ 12%)		53.77	67.21	80.65	
			e) Contractor's profit on (b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		72.59	73.93	75.28	
			Cost for 20 metre = a+b+c+d+e						47923.88	48180.39	48447.61	
			Rate per metre = (a+b+c+d+e)/20						2396.19	2409.02	2422.38	
								Say	**2396.20**	**2409.00**	**2422.40**	
		Note	i) Excavation and backfilling are incidental to work and not to be measured separately.									
			II)If PCC required below crash barrier then it should be measured & Paid separately.									
			iii) Rate for RCC M 30 may be taken from chapter-12 on foundation.									
8.23	811		**Metal Beam Crash Barrier**									
		A	**Type - A, "W" : Metal Beam Crash Barrier**									
			Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 811									
			Unit = Running metre									
			Taking output = 4.5 metre length									
			a) Labour									
			Mate	day	0.060	0.060	0.060	444.00	26.64	26.64	26.64	L-12
			Blacksmith	day	0.500	0.500	0.500	541.00	270.50	270.50	270.50	L-25
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Tractor-trolley	hour	0.100	0.100	0.100	717.00	71.70	71.70	71.70	PM12001
			c) Material									
			Corrugated sheet,3 mm thick, "W" beam section railing,4.5 m in length	kg	41.210	41.210	41.210	55.63	2292.51	2292.51	2292.51	M-089
			Channel post 150 x 75 x 5 mm,1.8 m long,3 Nos @ 16.4 kg per metre	kg	88.560	88.560	88.560	49.937	4422.39	4422.39	4422.39	M181/ 1000
			Spacer 150 x 75 x 5 mm channel 0.33 m long,3 Nos @ 16.4 kg per metre	kg	16.240	16.240	16.240	49.937	810.97	810.97	810.97	M181/ 1000
			Nuts and bolts	kg	20.000	20.000	20.000	80.60	1612.00	1612.00	1612.00	M-129

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Add 25 per cent of the cost of material for fabrication, nuts, bolts and washers etc.)						2284.47	2284.47	2284.47	
			Total cost without OH & CP						12219.18	12219.18	12219.18	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		977.53	1221.92	1466.30	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		1319.67	1344.11	1368.55	
			Cost for 4.5 metre = a+b+c+d+e						14516.39	14785.21	15054.03	
			Rate per metre = (a+b+c+d+e)/4.5						3225.86	3285.60	3345.34	
								Say	3225.90	3285.60	3345.30	
8.23		B	Type - B, "THRIE" : Metal Beam Crash Barrier									
			Providing and erecting a "Thrie" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 85 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 2 m high with 1.15 m below ground level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a space of channel section 150 x 75 x 5 mm, 546 mm long complete as per clause 811									
			Unit = Running metre									
			Taking output = 4.5 metre length									
			a) Labour									
			Mate	day	0.060	0.060	0.060	444.00	26.64	26.64	26.64	L-12
			Blacksmith	day	0.500	0.500	0.500	541.00	270.50	270.50	270.50	L-25
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Tractor-trolley	hour	0.100	0.100	0.100	717.00	71.70	71.70	71.70	PM12001
			c) Material									
			Corrugated sheet,3 mm thick, "Thrie" beam section railing,4.5 m in length	kg	72.940	72.940	72.940	55.63	4057.65	4057.65	4057.65	M-089
			Channel post 150 x 75 x 5 mm, 2 m long,3 Nos @ 16.4 kg per metre	kg	98.400	98.400	98.400	49.937	4913.77	4913.77	4913.77	M181/ 1000
			Spacer 150 x 75 x 5 mm channel 0.546 m long,3 Nos	kg	26.860	26.860	26.860	49.937	1341.30	1341.30	1341.30	M181/ 1000
			Nuts and bolts	kg	30.000	30.000	30.000	80.60	2418.00	2418.00	2418.00	M-129
			Add 15 per cent of the cost of material for fabrication, nuts, bolts and washers etc.)						1909.61	1909.61	1909.61	
			Total cost without OH & CP						15437.17	15437.17	15437.17	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		1234.97	1543.72	1852.46	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		1667.21	1698.09	1728.96	
			Cost for 4.5 metre = a+b+c+d+e						18339.35	18678.97	19018.59	
			Rate per metre= (a+b+c+d+e)/4.5						4075.41	4150.88	4226.35	
								Say	4075.40	4150.90	4226.40	

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		Note	In the case of median crash barrier, 'W' metal beamor thrie beam section should be provided on both sides of the vertical posts fixed in the median. Extra provision for metal beam railing and spacer is required to be made when fixed in the median depending on approved design.									
8.24	811		**Road Traffic Signals electrically operated**									
		Note	Since it is a ready made item commercially produced and erected by specialised firm in the electrical and electronic field, rate may be taken based on market enquiry from firms specialised in this field and ISI certified for the approved design and drawing.									
8.25	Suggestive		**Flexible Crash Barrier, Wire Rope Safety Barrier**									
			Providing and erecting a wire rope safety barrier with vertical posts of medium weight RS Joist (ISMB series) 100 mm x 75 mm (11.50 kg/m), 1.50 m long 0.85 m above ground and 0.65 m below ground level, split at the bottom for better grip, embedded in M 15 grade cement concrete 450 x 450 x 450 mm, 1.50 m center to center and with 4 horizontal steel wire rope 40 mm dia and anchored at terminal posts 15 m apart. Terminal post to be embedded in M 15 grade cement concrete foundation 2400 x 450 x 900 mm (depth), strengthened by a strut of RS joist 100 x 75 mm, 2 m long at 45° inclination and a tie 100 x 8 mm, 1.50 m long at the bottom, all embedded in foundation concrete as per approved design and drawing, rate excluding excavation and cement concrete.									
			Unit = Running metre									
			Taking output = 15 metre									
			a) Labour									
			Mate	day	0.120	0.120	0.120	444.00	53.28	53.28	53.28	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			Blacksmith	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-25
			b) Material									
			i) RS Joist 100 x 75 mm - 16.5 m @ 11.5 kg per metre	kg	190.000	190.000	190.000	49.937	9487.97	9487.97	9487.97	M181/1000
			ii) Struts - 2 Nos. for terminal posts,2 m long each 2 x 2 x 11.50	kg	46.000	46.000	46.000	49.937	2297.09	2297.09	2297.09	M181/1000
			iii) Tie 2 Nos. of 8 mm steel plate,1.5 sqm each for terminal posts @ 62.80 kg/sqm (2 x 1.5)	kg	188.400	188.400	188.400	49.937	9408.07	9408.07	9408.07	M181/1000
			iv) Steel wire rope 40 mm, including 7.50 per cent extra for fixing at ends 15 x 4 x 1.075 @ 1 kg per m	kg	65.000	65.000	65.000	53.00	3445.00	3445.00	3445.00	M-179

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Add 5 per cent of cost of material for drilling, gripping, fixing, fabrication and welding consumables						1231.91	1231.91	1231.91	
			(a+b)						27320.31	27320.31	27320.31	
			c) **Painting**									
			Applying 2 coats of painting on exposed surface	sqm	16.500	16.500	16.500	87.90-L 89.50-M 91.20-S	1450.35	1476.75	1504.80	8.09
			(Rate taken from item no. 8.09 including OH & CP)									
			d) **Machinery**									
			Tractor-trolley	hour	0.250	0.250	0.250	717.00	179.25	179.25	179.25	PM12001
			e) **Overhead charges on (a+b+d)**		(@ 8%)	(@ 10%)	(@ 12%)		2199.96	2749.96	3299.95	
			f) **Contractor's profit on (a+b+d+e)**		(@ 10%)	(@ 10%)	(@ 10%)		2969.95	3024.95	3079.95	
			Cost for 15 m = a+b+c+d+e+f						34119.83	34751.22	35384.26	
			Rate per m = (a+b+c+d+e+f)/15						2274.66	2316.75	2358.95	
								Say	**2274.70**	**2316.70**	**2359.00**	
		Note	The items of excavations and cement concrete works will be measured and included separately as per the approved designs and drawings.									
8.26	**Suggestive**		**Anti-Glare Devices in Median**									
		A	**Plantation**									
			Plantation of shrubs and plants of approved species in the median. apart from cutting off glare from vehicle coming from opposite direction, these plants provide a pleasant environment and are eco-friendly. The rate for this item is available in the chapter 11 on horticulture.									
		B	**Anti-glare screen with 25 mm steel pipe framework fixed with circular and rectangular vans**									
			Providing and erecting an anti - glare screen with 25 mm dia vertical pipes fabricated and framed in the form of panels of one metre length and 1.75 metre height fixed with circular vane 250 mm dia at top and rectangular vane 600 x 300 mm at the middle, made out of steel sheet of 3 mm thickness, end vertical pipes of the panel made larger for embedding in foundation concrete, applying 2 coats of paint on all exposed surfaces, all as per approved design and drawings.									
			Unit = Running metre									
			Taking output = one metre									
			a) **Labour**									
			Mate	day	0.004	0.004	0.004	444.00	1.78	1.78	1.78	L-12

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor	day	0.100	0.100	0.100	428.00	42.80	42.80	42.80	L-13
			b) Material									
			i) 25 mm steel pipe	metre	16.000	16.000	16.000	143.50	2296.00	2296.00	2296.00	M-175
			ii) MS sheet for 600 x 300 x 3 mm reclangular vane, one number @ 24kg/sqm	kg	4.320	4.320	4.320	49.937	215.73	215.73	215.73	M181/ 1000
			iii) MS sheet for 250 mm dia circular vane 3 mm thick,4 numbers @ 24 kg/sqm	kg	4.800	4.800	4.800	49.937	239.70	239.70	239.70	M181/ 1000
			Add 5 per cent cost of material for fabrication, welding, bending, nuts, bolts etc						137.57	137.57	137.57	
			c) Painting									
			Applying 2 coats of painting on exposed surface	sqm	1.830	1.830	1.830	87.90-L 89.50-M 91.20-S	160.86	163.79	166.90	8.09
			(Rate taken from item no. 8.09 including OH & CP)									
			d) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		234.69	293.36	352.03	
			e) Contractor's profit on (a+b+d)		(@ 10%)	(@ 10%)	(@ 10%)		316.83	322.69	328.56	
			Rate per metre = a+b+c+d+e						3645.94	3713.40	3781.05	
								Say	3645.90	3713.40	3781.10	
		Note	The items of excavation and cement concrete as per approved design to be measured and paid separately									
8.26		C	Anti-glare screen with rectangular vane of MS sheet									
			Providing and erecting anti - glare screen with rectangular vanes of size 750 x 500 mm made from MS sheet, 3 mm thick and fixed on MS angle 50 x 50 x 6 mm at an angle of 45° to the direction of flow of traffic, 1.5 m center to center, top edge of the screen 1.75 m above ground level, vertical post firmly embedded in M-15 cement concrete foundation 0.60 m below ground level, applying 2 coats of paint on exposed faces, all complete as per approved design and drawings									
			Unit = Running metre									
			Taking output = 1.50 metre									
			a) Labour									
			Mate	day	0.004	0.004	0.004	444.00	1.78	1.78	1.78	L-12
			Mazdoor	day	0.100	0.100	0.100	428.00	42.80	42.80	42.80	L-13
			b) Material									
			i) Angle iron post,50 x 50 x 6 mm, length 2.35 m	kg	10.580	10.580	10.580	49.937	528.33	528.33	528.33	M181/1000
			ii) MS sheet 3 mm thick @ 24 kg/sqm	kg	9.000	9.000	9.000	49.937	449.43	449.43	449.43	M181/1000
			Add 5 percent of cost of material for fabrication,nuts,bolts etc						48.89	48.89	48.89	
			c) Machinery									

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Tractor-trolley	hour	0.100	0.100	0.100	717.00	71.70	71.70	71.70	PM12001
			d) Painting									
			Applying 2 coats of painting	sqm	0.850	0.850	0.850	87.90-L 89.50-M 91.20-S	74.72	76.08	77.52	8.09
			(Rate taken from item no. 8.09 including OH & CP)									
			e) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		91.43	114.29	137.15	
			f) Contractor's profit on (a+b+c+e)		(@ 10%)	(@ 10%)	(@ 10%)		123.44	125.72	128.01	
			Cost for 1.5 m = a+b+c+d+e+f						1432.51	1459.01	1485.60	
			Rate per metre = (a+b+c+d+e+f)/1.50						955.01	972.68	990.40	
								Say	**955.00**	**972.70**	**990.40**	
		Note	The items of excavation and cement concrete as per approved design to be measured and paid separately. Rate of painting has been analaysed separately in this chapter.									
8.27	**Suggestive**		**Street Lighting**									
			Providing and erecting street light mounted on a steel circular hollow pole of standard specifications for street lighting, 10 m high spaced 40 m apart, 1.8 m overhang on both sides if fixed in the median and on one side if fixed on the footpath, fitted with sodium vapour lamp and fixed firmly in concrete foundation.									
			Unit = Each									
			Taking output = one light									
			a) Labour									
			Mate	day	0.030	0.030	0.030	444.00	13.32	13.32	13.32	L-12
			Mazdoor	day	0.500	0.500	0.500	428.00	214.00	214.00	214.00	L-13
			Electrician	day	0.250	0.250	0.250	660.00	165.00	165.00	165.00	L-02
			b) Material									
			i) Steel circular hollow pole of standard specification for street lighting to mount light at 10 m height above road level	each	1.000	1.000	1.000	9994.92	9994.92	9994.92	9994.92	M-172
			ii) Sodium vapour lamp	each	1.000	1.000	1.000	216.69	216.69	216.69	216.69	M-169
			Add 5 percent of cost of material for holder, electric cable, insulation, ladder, scaffolding etc						510.58	510.58	510.58	
			c) Painting									
			For Fixing in Median									
			Providing two coats of alluminium paint over steel circular hollow pipe with overhang on both sides	sqm	5.750	5.750	5.750	87.90-L 89.50-M 91.20-S	505.43	514.63	524.40	Item 8.9

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			For fixing in Footpath									
			Providing two coats of alluminium paint over steel circular hollow pipe with overhang on one side	sqm	4.630	4.630	4.630	87.90-L 89.50-M 91.20-S	406.98	414.39	422.26	Item 8.9
		(i)	**For Fixing in Median**									
			d) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		889.16	1111.45	1333.74	
			e) Contractor's profit on (a+b+d)		(@ 10%)	(@ 10%)	(@ 10%)		1200.37	1222.60	1244.83	
			Rate per light for fixing in Median= a+b+c+d+e						13709.47	13963.19	14217.49	
								Say	**13709.50**	**13963.20**	**14217.50**	
		(ii)	**For fixing in Footpath**									
			d) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		889.16	1111.45	1333.74	
			e) Contractor's profit on (a+b+d)		(@ 10%)	(@ 10%)	(@ 10%)		1200.37	1222.60	1244.83	
			Rate per light for Fixing in Footpath = a+b+c+d+e						13611.02	13862.95	14115.34	
								Say	**13611.00**	**13863.00**	**14115.30**	
		Note	The items of excavation and cement concrete foundation will be measured and included separately in the estimate as per approved design and drawing. The rate for painting has been analysed in this chapter.									
8.28	**Suggestive**		**Lighting on Bridges**									
			Providing and fixing lighting on bridges, mounted on steel hollow circular poles of standard specifications, 5 m high fixed on parapets with cement concrete, 20 m apart and fitted with sodium vapour lamp									
			Unit = Each									
			Taking output = one light									
			a) Labour									
			Mate	day	0.024	0.024	0.024	444.00	10.66	10.66	10.66	L-12
			Mazdoor	day	0.400	0.400	0.400	428.00	171.20	171.20	171.20	L-13
			Electrician	day	0.200	0.200	0.200	660.00	132.00	132.00	132.00	L-02
			b) Material									
			i) Steel circular hollow pole of standard specification for street lighting to mount light at 5 m above deck level	each	1.000	1.000	1.000	5516.10	5516.10	5516.10	5516.10	M-171
			ii) Sodium vapour lamp 70 watt	each	1.000	1.000	1.000	216.69	216.69	216.69	216.69	M-169
			Add 1 per cent of cost of material for holder, electric cable, insulation, ladder, scaffolding etc						57.33	57.33	57.33	
			c) Painting									
			Providing two coats of alluminium paint over steel circular hollow pipe	sqm	2.760	2.760	2.760	87.90-L 89.50-M 91.20-S	242.60	247.02	251.71	8.09

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			(Rate taken from Item no. 8.09 including OH & CP)									
			d) Overhead charges @ on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		488.32	610.40	732.48	
			e) Contractor's profit @ on (a+b+d)		(@ 10%)	(@ 10%)	(@ 10%)		659.23	671.44	683.65	
			Rate per light = a+b+c+d+e						7494.13	7632.83	7771.81	
								Say	7494.10	7632.80	7771.80	
		Note	The items of cement concrete to be measured and paid separately as per approved design. The rate for painting has already been analysed in this chapter.									
8.29	Suggestive		Cable Duct Across the Road									
			Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings.									
		(i)	Single row for one utility service									
			Unit = Running metre									
			Taking output = 20metres									
			a) Random Rubble masonry/Brick masonry in cement mortar 1:6 for head wall both side	cum	2.360	2.360	2.360	4756.70	11225.81	11225.81	11225.81	12.07 (B)
			(Rate taken from item no. 12.07(B) including OH & CP)									
			b) Labour									
			Mate	day	0.050	0.050	0.050	444.00	22.20	22.20	22.20	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			Mazdoor skilled	day	0.250	0.250	0.250	541.00	135.25	135.25	135.25	L-15
			c) Material									
			Reinforced Cement Concrete pipe 300 mm dia	metre	20.000	20.000	20.000	577.62	11552.40	11552.40	11552.40	M-152
			Granular soil with PI less than 6 for bedding and sides of pipe (0.6 x 0.6 x 20 m)	cum	7.200	7.200	7.200	173.92	1252.22	1252.22	1252.22	M-009
			Collar for joints 300 mm dia	each	9.000	9.000	9.000	60.77	546.93	546.93	546.93	M-084
			Cement mortar 1:2 for joints	cum	0.020	0.020	0.020	4843.20	96.86	96.86	96.86	15.05 (B)
			(Rate taken from item no. 15.05 B)									
			d) Machinery									
			Tractor-trolley	hour	0.500	0.500	0.500	717.00	358.50	358.50	358.50	PM12001
			e) Overhead charges on (b+c+d)		(@ 8%)	(@ 10%)	(@ 12%)		1151.39	1439.24	1727.08	

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			f) Contractor's profit on (b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		1554.38	1583.16	1611.94	
			Cost for 20 metre = a+b+c+d+e+f						28323.94	28640.57	28957.21	
			Rate per metre = (a+b+c+d+e+f)/20						1416.20	1432.03	1447.86	
								Say	1416.20	1432.00	1447.90	
8.29		(ii)	Double row for two utility services									
			Unit = Running metre									
			Taking output = 20metres									
			a) Random Rubble brick/Brick masonry in cement mortar 1:6 for head wall both sides.									
			(Rate taken from Item no. 12.07 B)	cum	3.370	3.370	3.370	4756.70	16030.08	16030.08	16030.08	12.07 B
			b) Labour									
			Mate	day	0.090	0.090	0.090	444.00	39.96	39.96	39.96	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			Mazdoor skilled	day	0.250	0.250	0.250	541.00	135.25	135.25	135.25	L-15
			c) Material									
			Reinforced Cement Concrete pipe 300 mm dia	metre	40.000	40.000	40.000	577.62	23104.80	23104.80	23104.80	M-152
			Granular soil with PI less than 6 for bedding and sides of pipe (0.6 x 0.6 x 40 m)	cum	14.400	14.400	14.400	173.92	2504.45	2504.45	2504.45	M-009
			Collar for joints 300 mm dia	each	18.000	18.000	18.000	60.77	1093.86	1093.86	1093.86	M-084
			Cement mortar 1:2 for joints	cum	0.040	0.040	0.040	4843.20	193.73	193.73	193.73	15.05 B
			(Rate taken from item no. 15.05 B)									
			d) Machinery									
			Tractor-trolley	hour	1.000	1.000	1.000	717.00	717.00	717.00	717.00	PM12001
			(b+c+d)						28645.04	28645.04	28645.04	
			e) Overhead charges on (b+c+d)		(@ 8%)	(@ 10%)	(@ 12%)		2291.60	2864.50	3437.40	
			f) Contractor's profit on (b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		3093.66	3150.95	3208.24	
			Cost for 20 metre = a+b+c+d+e+f						50060.39	50690.58	51320.77	
			Rate per metre = (a+b+c+d+e+f)/20						2503.02	2534.53	2566.04	
								Say	2503.00	2534.50	2566.00	
8.29		(iii)	Triple Row for three utility services									
			Unit = Running metre									
			Taking output = 20metres									
			a) Random Rubble masonary/Brick masonry in cement mortar 1:6 for head wall both sides.	cum	4.380	4.380	4.380	4756.70	20834.35	20834.35	20834.35	12.07 B
			(Rate taken from Item No. 12.07 B including OH & CP)									
			b) Labour									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Mazdoor skilled	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			c) Material									
			Reinforced Cement Concrete pipe 300 mm dia	metre	60.000	60.000	60.000	577.62	34657.20	34657.20	34657.20	M-152

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Granular soil with PI less than 6 for bedding and sides of pipe (0.6 x 0.6 x 60 m)	cum	21.600	21.600	21.600	173.92	3756.67	3756.67	3756.67	M-009
			Collar for joints 300 mm dia	each	27.000	27.000	27.000	60.77	1640.78	1640.78	1640.78	M-084
			Cement mortar 1:2 for joints									
			(Rate taken from sub-analysis 21.01 B)	cum	0.060	0.060	0.060	4890.20	293.41	293.41	293.41	21.01 B
			d) Machinery									
			Tractor-trolley	hour	1.500	1.500	1.500	717.00	1075.50	1075.50	1075.50	PM12001
			(b+c+d)						43319.61	43319.61	43319.61	
			e) Overhead charges on (b+c+d)		(@ 8%)	(@ 10%)	(@ 12%)		3465.57	4331.96	5198.35	
			f) Contractor's profit on (b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		4678.52	4765.16	4851.80	
			Cost for 20 metre = a+b+c+d+e+f						72298.04	73251.07	74204.10	
			Rate per metre = (a+b+c+d+e+f)/20						3614.90	3662.55	3710.21	
		Note						**Say**	**3614.90**	**3662.60**	**3710.20**	
			1.Inspection chamber at both ends is the responsibility of the agency who is laying the duct. Hence not included.									
			2.The rates for stone masonry / brick masonry and cement mortar to be adopted from respective clauses.									
8.30	**Suggestive**		**Highway Patrolling and Traffic Aid Post**									
			It is proposed to locate one Traffic Aid Post every 50-60 km of the highway.									
			The organisation and financial aspect are required to be finalised in consultation with administrative and traffic authorities .									
8.31	**Suggestive**		**Items Related to Underpass/ Subway/ Overhead Bridge/ Overhead Foot Bridge**									
			The items involved for underpass/ subway/ overhead bridge/ overhead foot bridge are earthwork, plain cement concrete, plastering, painting, information sign etc. The rates for these items are available in respective chapters which can be adopted for the quantities derived from the approved designs and drawings									
8.32	**Suggestive**		**Traffic Control System and Communication System**									
			Providing a traffic control centre and communication system including telecommunication facilities and related accessories, CCTV, radar, vehicle detection camera, central computer system									

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			These are specialised item of telecommunication system and are the commercial products. The designer is required to contact the manufacturers to ascertain market prices. In case of civil works required to be executed for these installations, pricing may be done as per rates in relevant chapters for quantities derived as per approved design and drawing.									
			As regards the locations where such devices are required to be installed, the traffic control authority should be consulted to finalise the location									
8.33	Suggestive		**Gantry Mounted Variable Message Sign Board**									
		(i)	Providing and erecting gantry mounted variable message sign board electronically operated capable of flashing the desired message over a designed support system of aluminium alloy or galvanised steel, erected as per approved design and drawings and with lateral clearance as per clause 802.3									
			Gantry Support System									
			Unit = tonne									
			Taking output=1 tonne									
			a) Labour									
			Mate	day	0.120	0.120	0.120	444.00	53.28	53.28	53.28	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			Blacksmith	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-25
			b) Material									
			Alluminium alloy/galvanised steel including 5 per cent wastage	tonne	1.050	1.050	1.050	51761.60	54349.68	54349.68	54349.68	M-060
			Add 15 per cent of cost of material for fabrication and erection.						8152.45	8152.45	8152.45	
			Add 1 per cent of cost of material for nuts, bolts and welding						543.50	543.50	543.50	
			c) Machinery									
			Truck 10 tonne	hour	1.000	1.000	1.000	1476.00	1476.00	1476.00	1476.00	PM6004
			Total cost without OH & CP						65971.91	65971.91	65971.91	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		5277.75	6597.19	7916.63	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		7124.97	7256.91	7388.85	
			Rate per tonne = a+b+c+d+e						78374.63	79826.01	81277.39	
8.33		(ii)	**Message Display**					**Say**	**78374.60**	**79826.00**	**81277.40**	

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Message display board 6 sqm electronically operated with complete electronic fitments for flashing the pre-determined messages.This is a specilised commercial product and the lumpsum rate including erection at site is required to be as certained from the market and including in the rate analysis. The size of the board will vary depending upon specific location.The rate for the gantry mounted variable sign would be the addition of cost of gantry support system as per approved design determined at (i) above and the cost of message display board as certained from the market at (ii) above									
8.34	Suggestive		**Traffic Impact Attenuators at Abutments and Piers**									
		A	**With Scrap Tyres**									
			Provision and installation of traffic attenuators at abutment/pier of flyovers bridges using scrap tyres of size 100 x 20 retrieved from trucks laid in 2 rows and 4 tiers, one above the other and tied with 20 mm wire rope as per approved design and drawings.									
			Unit = sqm									
			Taking output = 20sqm									
			a) Labour									
			Mate	day	0.070	0.070	0.070	444.00	31.08	31.08	31.08	L-12
			Mazdoor	day	1.500	1.500	1.500	428.00	642.00	642.00	642.00	L-13
			Blacksmith	day	0.250	0.250	0.250	541.00	135.25	135.25	135.25	L-25
			b) Material									
			Scrap tyres of size 900 x 20	each	80.000	80.000	80.000	97.64	7811.20	7811.20	7811.20	M-162
			20 mm steel wire rope	kg	150.000	150.000	150.000	53.00	7950.00	7950.00	7950.00	M-178
			Add 1 per cent of cost of wire rope for clamps etc.						79.50	79.50	79.50	
			c) Machinery									
			Tractor-trolley	hour	3.000	3.000	3.000	717.00	2151.00	2151.00	2151.00	PM12001
			Total cost without OH & CP						18800.03	18800.03	18800.03	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		1504.00	1880.00	2256.00	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		2030.40	2068.00	2105.60	
			Cost for 20 sqm = a+b+c+d+e						22334.44	22748.04	23161.64	
			Rate per sqm = (a+b+c+d+e)/20						1116.72	1137.40	1158.08	
								Say	**1116.70**	**1137.40**	**1158.10**	
8.34		B	**Using Plastic/Steel Barrel, Filled with Sand**									

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Provision and installation of traffic impact attenuator at abutment/pier of flyovers bridges using plastic/steel barrels 0.60 m dia and 1.0 m in height, filled with sand in three rows and tied with 20 mm steel wire rope as per approved design and drawings									
			Unit = sqm									
			Taking output = 20sqm									
			a) Labour									
			Mate	day	0.130	0.130	0.130	444.00	57.72	57.72	57.72	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Blacksmith	day	0.250	0.250	0.250	541.00	135.25	135.25	135.25	L-25
			b) Material									
			Plastic barrels	each	50.000	50.000	50.000					
			or									
			Steel barrels	each	50.000	50.000	50.000	155.57	7778.50	7778.50	7778.50	M-173
			Sand	cum	8.000	8.000	8.000	612.90	4903.20	4903.20	4903.20	M-004*
			20 mm steel wire rope	kg	15.000	15.000	15.000	53.00	795.00	795.00	795.00	M-178
			Add 1 per cent of cost of wire rope for clamps etc.						7.95	7.95	7.95	
			c) Machinery									
			Tractor-trolley	hour	2.000	2.000	2.000	717.00	1434.00	1434.00	1434.00	PM12001
			Total cost without OH & CP						16395.62	16395.62	16395.62	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		1311.65	1639.56	1967.47	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		1770.73	1803.52	1836.31	
			Cost for 20 sqm = a+b+c+d+e						19478.00	19838.70	20199.40	
			Rate per sqm = (a+b+c+d+e)/20						973.90	991.94	1009.97	
								Say	**973.90**	**991.90**	**1010.00**	
8.34		C	**With HI - DRO cell Sandwich (Patented)**									
			(In this patented HI - DRO cell system, water gets discharged from plastic tubes on impact over a pre-determined time, thus absorbing the energy)									
			Providing and installing a patentend HI - DRO cell system as a traffic impact attenuators, using plastic tubes 50 mm dia, 1.2 m in height, 25 mm opening at the top, placed in three rows, filled with water and tied with a 20 mm steel wire rope									
			Unit = sqm									
			Taking output = 10sqm									
			a) Labour									
			Mate	day	0.100	0.100	0.100	444.00	44.40	44.40	44.40	L-12
			Mazdoor	day	2.500	2.500	2.500	428.00	1070.00	1070.00	1070.00	L-13
			b) Material									

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Plastic tubes 50 mm dia,1.2 m high	each	40.000	40.000	40.000	INPUT	#VALUE!	#VALUE!	#VALUE!	M-138
			Cost of water	KL	12.000	12.000	12.000	63.20	758.40	758.40	758.40	M-191
			20 mm steel wire rope	kg	100.000	100.000	100.000	53.00	5300.00	5300.00	5300.00	M-178
			Add 1 per cent of cost of wire rope for clamps etc.						53.00	53.00	53.00	
			c) **Machinery**									
			Tractor-trolley	hour	2.000	2.000	2.000	717.00	1434.00	1434.00	1434.00	PM12001
			Water tanker6 KL capacity	hour	2.000	2.000	2.000	789.00	1578.00	1578.00	1578.00	PM11003
			Total cost without OH & CP						#VALUE!	#VALUE!	#VALUE!	
			d) **Overhead charges on (a+b+c)**		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			e) **Contractor's profit on (a+b+c+d)**		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Cost for 10 sqm = a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per sqm = (a+b+c+d+e)/10						#VALUE!	#VALUE!	#VALUE!	
8.35 (a)	**Suggestive**		**Solar Powered Road Marker (Solar Stud)**									
	804.60		Supplying and fixing of Solar Raised Pavement Markers made of polycarbonate moulded body with circular shape, solar powered, LED self illumination in active mode, 360 degree illumination and reflective panels with micro prismatic lens capable of providing total internal reflection of the light entering the lens face in passive mode. The marker shall support a load of 13,635 kg tested in accordance to ASTM D 4280. The marker should be resistant to dust and water ingress according to IP 65 standards and should withstand temperatures in the range of 0 C to 70 C. Color of lighting could be provided in red or yellow (amber) as per requirement and typical frequency of blinking in 1 Hz. There should be current losses of less than 20 microamperes at 2.4 V in sleepcharging mode to enhace the life of the marker and a full charge should provide for a minimum autonomy of 50 hours. The height, width and length of the marker shall not be less than 10mm x 100 mm x 100 mm. Also, the surface diameter of the marker shall not be less than 100 mm respectively. The weight of the marker shall not exceed 0.5 Kilograms. It shall have super bright LED's so as to provide long visibility from a distance of more than 800 m. Its life shall not be less than 3 years. Fixing will be by drilling holes on the road for the shanks to go inside, without nails and using epoxy resin based adhesive and complete as directed by the engineer.									
			Unit = Nos									
			Taking output = 50Nos									
			a) **Labour**									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Material									
			Poly carbonate or ABS body and shall support a load of 13.635 kg tested in accordance to ASTM D 4280 with heigth not exceeding 20 mm and width/length not exceeding 130mm	each	50.000	50.000	50.000	1264.15	63207.50	63207.50	63207.50	M-299
			Add 10 per cent of cost of material for fixing and installation						6320.75	6320.75	6320.75	
			Total cost without OH & CP						69974.01	69974.01	69974.01	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		5597.92	6997.40	8396.88	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		7557.19	7697.14	7837.09	
			Cost for 50 studs = a+b+c+d						83129.12	84668.55	86207.98	
			Rate per studs = (a+b+c+d)/50						1662.58	1693.37	1724.16	
								Say	1662.60	1693.40	1724.20	
8.35 (b)	Suggestive		Reflective Raised Pavement Marker with Shank (Cat Eye/Road Stud)									
	804		Supplying and fixing of raised pavement marker with made of aluminium alloy or plastic body moulded from ASA (Acrylic Styrene Acrylonitrite) or HIPS (High Impact Polystyrene) or Acrylonitrite Butadiene Styrene (ABS) or any other suitable material approved by the Engineer. The marker shall support a load of 13,635 kg tested in accordance with ASTM D4280. The reflective panels shall consist of number of lenses containing single or dual prismatic cubes capable of providing total internal reflection of the light entering the lens face.Lenses shall be moulded of methyl methecrylate conforming to ASTM D788 of equivalent.The slop or retro-reflecting surface shall preferably be 35+/-5 degree to base and the area of each retro- reflecting surface shall not be less than 13.00 sq.cm the marker height shall not be less than 10 mm and shall not exceed 20 mm & width shall not exceed 130 mm. The base of the marker shall be flat within 1.3 mm, all road studs shall be legibly marked with the name, trade or other means of identification of the manufacturer, epoxy installations, excess adhesive around the edge of the marker, excess adhesive on the pavement and adhesive on the exposed surface of the markers shall be immediately removed. The contractor shall submit a two year warranty for satisfactory field performance including stipilated retro-reflectance of the reflecting panel, to the Engineer.In addition, a two year warranty for satifactory infield performance of the finished road marker shall also given by the contractor who carrier out the work of fixing of reflective road marker. In Case the markers are displaced, damaged, get worn out or lose their reflectivity compared to stipulated standards, the contractor would be required to replace all such markers within 15 days of the intimation from the Engineer, at his own cost.									

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Unit = Nos									
			Taking output = 50Nos									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Material									
			Road Aluminium Stud with Micro Prismatic lens reflectors (with shank) 100 X 100 mm	each	50.000	50.000	50.000	214.80	10740.01	10740.01	10740.01	M-062
			Add 10 per cent of cost of material for fixing and installation						1074.00	1074.00	1074.00	
			Total cost without OH & CP						12259.77	12259.77	12259.77	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		980.78	1225.98	1471.17	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1324.06	1348.58	1373.09	
			Cost for 50 studs = a+b+c+d						14564.61	14834.33	15104.04	
			Rate per studs = (a+b+c+d)/50						291.292	296.687	302.081	
								Say	**291.30**	**296.70**	**302.10**	
8.36	Suggestive		**Traffic Cone**									
			Provision of red fluorescent with white reflective sleeve traffic cone made of low density polyethylene (LDPE) material with a square base of 390 x 390 x 35 mm and a height of 770 mm, 4 kg in weight, placed at 1.5 m interval, all as per BS 873									
			Unit = Each									
			Taking output = 68 Nos.									
			a) Labour									
			Mate	day	0.020	0.020	0.020	444.00	8.88	8.88	8.88	L-12
			Mazdoor	day	0.500	0.500	0.500	428.00	214.00	214.00	214.00	L-13
			b) Material									
			Traffic cones with 150 mm reflective sleeve	each	68.000	68.000	68.000	429.37	29197.16	29197.16	29197.16	M-188
			c) Machinery									
			Tractor-trolley	hour	0.100	0.100	0.100	717.00	71.70	71.70	71.70	PM12001
			Total cost without OH & CP						29491.74	29491.74	29491.74	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		2359.34	2949.17	3539.01	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		3185.11	3244.09	3303.07	
			Cost for 68 Nos. = a+b+c+d+e						35036.19	35685.01	36333.82	
			Rate per no = (a+b+c+d+e)/68						515.238	524.779	534.321	
								Say	515.20	524.80	534.30	
8.37	Suggestive		**Roadside Amenities**									
		A	**Rest areas**									

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Providing plainly furnished accommodation for rest rooms, dormitories, restaurants, stalls, shops, petrol pump, telephone booth, first aid room, traffic aid post, police assistance booth, including electricity, toilet and sewerage system. Pricing may be done based on current plinth area rates approved by PWD/CPWD/MES for a particular zone. Area is required to be assessed for specific location as per actual site conditions.									
		B	**Parking areas and bus laybyes for trucks, buses and light vehicles**									
			Pricing of parking areas may be done for the quantities of various items based on the approved dimensions and pavement design for a particular terrain and soil. Rates for items may be from respective chapters.									
		C	**Lawn**									
			Providing a lawn planted with grass and its maintenance									
			Pricing of lawn may be done as per rates given in the chapter on horticulture for the quantities as per approved dimensions in the drawings									
8.38	Suggestive		**Rumble Strips**									
			Provision of 15 nos rumble strips covered with premix bituminous carpet, 15-20 mm high at center, 250 mm wide placed at 1 m center to center at approved locations to control speed, marked with white strips of road marking paint.									
			Unit = sqm									
			Taking output = 100 sqm (including gaps)									
			The rate per sqm of premix carpet and road marking may be adopted from chapter 5 & 8 respectively for the quantities calculated from approved drawings									
8.39	Suggestive		**Policeman Umbrella**									
			Provision of a 2 m high (floor to roof) umbrella for traffic policeman at road crossings, where necessary, installed on a raised platform, built on a central support of a steel pipe 100 mm dia, roof made of 25 mm dia steel pipe to provide covered area of 3 sqm, roofed with CGI sheets, all steel parts to be given 2 coats of paint									
			Unit = each									
			Taking output = one number									
			Earthwork	cum								
			Cement Concrete/	cum								
			brick masonry or	cum								
			stone masonry	cum								

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Painting									
			(Rate taken from item no. 8.09 including OH & CP)	sqm	2.500	2.500	2.500	87.90-L 89.50-M 91.20-S	219.75	223.75	228.00	8.09
			a) Labour									
			Mate	day	0.090	0.090	0.090	444.00	39.96	39.96	39.96	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			Blacksmith	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-25
			Welder	day	0.250	0.250	0.250	660.00	165.00	165.00	165.00	L-02
			b) Material									
			Steel pipe 100 mm dia	metre	3.500	3.500	3.500	598.94	2096.29	2096.29	2096.29	M-177
			Steel pipe 25 mm dia	metre	10.000	10.000	10.000	143.50	1435.00	1435.00	1435.00	M-175
			CGI sheets	kg	8.000	8.000	8.000	81.44	651.52	651.52	651.52	M-082
			Add 25 per cent of cost of material for fabrication						1045.70	1045.70	1045.70	
			Add 2 per cent of cost of material for welding consumables, J-hooks, washers etc.						83.66	83.66	83.66	
			c) Machinery									
			Tractor-trolley	hour	0.500	0.500	0.500	717.00	358.50	358.50	358.50	PM12001
			Total cost without OH & CP						7064.38	7068.38	7072.63	
			d) Overheads charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		565.15	706.84	848.72	
			e) Contractors Profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		762.95	777.52	792.13	
			Rate per policeman umbrella = a+b+c+d+e						8392.478	8552.735	8713.475	
								Say	**8392.50**	**8552.70**	**8713.50**	
8.40	**Suggestive**		**High Mast Pole Lighting at Interchanges and Flyovers**									
			Providing and erecting a high mast pole lighting with 30 m high hot dip galvanised mast designed to withstand forces exerted with wind speeds of 180 km per hour with 3 seconds gust, as per IS:875 (Part 3) - 1978, fitted with a base flange, door at the base of mast with heavy duty internal lock, lantern carriage, suitable winching arrangement for safe working load of 750 kg and high powered electrically driven power tools for raising and lowering of lantern carriage, flexible 8 core electric cable, lightening conductor, earthing terminal, and fixing 2 nos aviation obstruction lights on top of the mast, all complete as per approved design and drawings									

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			This is a specialised work and is generally done by firms who specialise in such jobs. The detailed designs and estimates are submitted by the firms along with their tender for checks by the Department. The cost of this work is required to be worked out based on approved design, drawings and estimate of the lowest tender. A separate contract for this work is concluded as the contractors for road and bridge works generally do not undertake such jobs.									
8.41			**Toll Plaza**									
			The construction, operation and maintenance of Toll Plaza can be broken into separate items of work as under based on the approved design and drawings:-									
			a) Provision of toll collection service lane to separate different categories of vehicles for purpose of toll collection. This involves considerable increase in carriage way width									
			b) Provision of 2.5 m wide separators for different toll collection service lanes for safety									
			c) Toll booths with integrated roof cover									
			d) Barrier gates for individual lanes									
			e) Provision of building to provide facility to toll plaza personnel									
			f) Toll plaza office equipment and furniture									
			g) Water supply, electricity, sanitation, septic-tank system and drainage									
			h) Telephone, intercomes, wireless communication system									
			i) High mast lighting									
			j) Pavement marking									
			k) Overhead signs									
			l) Fixed message signs (Advance)									
			m) Variable message signs									
			n) Traffic cones and pylons									
			o) First aid post									
			p) Traffic aid post and security									
			The quantities for the above mentioned items may be calculated from the approved design and drawings and their rates adopted from respective chapters of the Standard Data Book									
8.42			**Safety Devices and Signs in Construction Zones**									

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Provision and fixing of traffic signs for limited period at suitable locations in construction zone comprising of warning zone, approach transition zone, working zone and terminal transition zone with a minimum distance of 60 cm from the edge of the kerb in case of kerbed roads and 2 to 3 m from the edge of the carriageway in case of un-kerbed roads, the bottom edge of the lowest sign plate to be not less than 2 m above the road level, fixed on 60 mm x 60 mm x 6 mm angle iron post, founded and installed as per approved design and drawings, removed and disposed of after completion of construction work, all as per IRC:SP:55									
			Unit = each									
			Taking output = one sign post									
			Following types of signs are required to be fixed in construction zones for safety of traffic									
			a) Diversion one km ahead									
			b) Traffic sign ahead									
			c) Road ahead closed									
			d) Men at work									
			e) Road narrow									
			f) Single file traffic									
			g) Right lane diverted									
			h) Left lane diverted									
			i) Right lane closed									
			j) Left lane closed									
			k) Median closed									
			l) Diversion to other carriageway									
			m) Traffic signal ahead									
			n) Two way traffic									
			o) Un - even road									
			p) Slippery road									
			q) Loose chippings									
			r) Dual carriageway ends									
			s) Diversion									
			t) Do not enter									
			u) Road closed									
			v) Stop									
			w) Slow									
			x) One way									
			y) Give way									
			z) Overtaking prohibited									
			aa) Speed limit									

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			bb) Weight limit									
			cc) Height and length limit									
			dd) No stopping or standing									
			ee) Any other warning or regulatory safety sign as per site requirement and consistent with IRC:SP:55 and IRC:67									
			The rate for traffic signs are already worked out and given elsewhere in this chapter. The same may be adopted.									
8.43	Suggestive		**Portable Barricade in Construction Zone**									
			Installation of a steel portable barricade with horizontal rail 300 mm wide, 2.5 m in length fitted on a 'A' frame made with 45 x 45 x 5 mm angle iron section, 1.5 m in height, horizontal rail painted (2 coats) with yellow and white stripes, 150 mm in width at an angle of 45°, 'A' frame painted with 2 coats of yellow paint, complete as per IRC:SP:55									
			Unit = each									
			Taking output = one steel portable barricade									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	0.250	0.250	0.250	428.00	107.00	107.00	107.00	L-13
			Painter	day	0.500	0.500	0.500	541.00	270.50	270.50	270.50	L-18
			Welder	day	0.250	0.250	0.250	660.00	165.00	165.00	165.00	L-02
			b) Material									
			Angle iron 45 x 45 x 5 mm	kg	25.000	25.000	25.000	49.937	1248.42	1248.42	1248.42	M181/1000
			MS sheet 300 mm wide,2.5 m long and 2.6 mm thick	kg	15.000	15.000	15.000	49.937	749.05	749.05	749.05	M181/1000
			Paint	litre	0.500	0.500	0.500	270.83	135.42	135.42	135.42	M-130
			Add 2 per cent of cost of steel for welding consumables, nuts & bolts and drilling holes						39.95	39.95	39.95	
			Total cost without OH & CP						2733.09	2733.09	2733.09	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		218.65	273.31	327.97	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		295.17	300.64	306.11	
			Rate per barricade = a+b+c+d						3246.91	3307.04	3367.17	
								Say	**3246.90**	**3307.00**	**3367.20**	
8.44	Suggestive		**Permanent Type Barricade In Construction Zone**									
		A	**With steel components**									

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Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Construction of a permanent type barricade made of steel components, 1.5 m high from road level, fitted with 3 horizontal rails 200 mm wide and 4 m long on 50 x 50 x 5 mm angle iron vertical support, painted with yellow and white strips, 150 mm in width at an angle of 45°, complete as per IRC:SP:55									
			Unit = each									
			Taking output = one barricade									
			a) Labour									
			Mate	day	0.048	0.048	0.048	444.00	21.31	21.31	21.31	L-12
			Mazdoor	day	0.300	0.300	0.300	428.00	128.40	128.40	128.40	L-13
			Painter	day	0.600	0.600	0.600	541.00	324.60	324.60	324.60	L-18
			Welder	day	0.300	0.300	0.300	660.00	198.00	198.00	198.00	L-02
			b) Material									
			Angle iron 50 x 50 x 5 mm,2 m long,2 Nos.	kg	15.000	15.000	15.000	49.937	749.05	749.05	749.05	M181/1000
			MS sheet of 12 SWG,3 Nos of 200 mm width and 4 m length	kg	50.000	50.000	50.000	49.937	2496.83	2496.83	2496.83	M181/1000
			Paint	litre	1.000	1.000	1.000	270.83	270.83	270.83	270.83	M-130
			Add 1 per cent of cost of steel for welding consumables, nuts & bolts and drilling holes						32.46	32.46	32.46	
			Total cost without OH & CP						4221.48	4221.48	4221.48	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		337.72	422.15	506.58	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		455.92	464.36	472.81	
			Rate per barricade = a+b+c+d						5015.12	5108.00	5200.87	
								Say	**5015.10**	**5108.00**	**5200.90**	
8.44		**B**	**With wooden components**									
			Construction of a permanent type barricade made of wooden components, 1.5 m high from road level, fitted with 3 horizontal planks 200 mm wide and 3.66 m long on 100 x 100mm wooden vertical post, painted with yellow and white strips, 150 mm in width at an angle of 45°, complete as per IRC:SP:55									
			Unit = each									
			Taking output = one barricade									
			a) Labour									
			Mate	day	0.060	0.060	0.060	444.00	26.64	26.64	26.64	L-12
			Mazdoor	day	0.300	0.300	0.300	428.00	128.40	128.40	128.40	L-13
			Painter	day	0.600	0.600	0.600	541.00	324.60	324.60	324.60	L-18
			Carpenter	day	0.600	0.600	0.600	660.00	396.00	396.00	396.00	L-04
			b) Material									

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Timber	cum	0.180	0.180	0.180	50657.11	9118.28	9118.28	9118.28	M-187
			Add 1 per cent of cost of timber for nuts & bolts, nails, etc.						91.18	91.18	91.18	
			Total cost without OH & CP						10085.10	10085.10	10085.10	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		806.81	1008.51	1210.21	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1089.19	1109.36	1129.53	
			Rate per barricade = a+b+c+d						11981.10	12202.97	12424.85	
								Say	**11981.10**	**12203.00**	**12424.80**	
8.44		C	**With bricks**									
			Construction of a permanent type barricade made with brick work in mud mortar, 1.5 m high, 4 m long, 600 mm thick, plastered with cement mortar 1:6, painted with yellow and white strips									
			Unit = each									
			Taking output = one barricade									
			a) Labour									
			Mate	day	0.240	0.240	0.240	444.00	106.56	106.56	106.56	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Painter	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-18
			Mason	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-10
			b) Material									
			Brick	each	1800.000	1800.000	1800.000	6.620	11916.00	11916.00	11916.00	M-079
			Cement	kg	22.000	22.000	22.000	5.762	126.76	126.76	126.76	M081/1000
			Sand	cum	0.090	0.090	0.090	612.90	55.16	55.16	55.16	M-004*
			Paint	litre	1.250	1.250	1.250	270.83	338.54	338.54	338.54	M-130
			Total cost without OH & CP						15450.02	15450.02	15450.02	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		1236.00	1545.00	1854.00	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		1668.60	1699.50	1730.40	
			Rate per barricade = a+b+c+d						18354.63	18694.53	19034.43	
								Say	**18354.60**	**18694.50**	**19034.40**	
8.45	Suggestive		**Drum Delineator in Construction Zone**									
			Provision of metal drum/empty bitumen drum delineator, 300 mm in diameter, 800 mm high, filled with earth for stability, painted in circumferential strips of alternate black and white 100 mm wide fitted with reflectors 3 Nos of 7.5 cm dia, all as per IRC:SP:55									
			Unit = each									
			Taking output = one drum delineator									
			a) Labour									
			Mate	day	0.020	0.020	0.020	444.00	8.88	8.88	8.88	L-12
			Mazdoor	day	0.250	0.250	0.250	428.00	107.00	107.00	107.00	L-13

CHAPTER - 8
Analysis of Rate
TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Painter	day	0.250	0.250	0.250	541.00	135.25	135.25	135.25	L-18
			b) Material									
			Steel drum 300 mm dia 1.2 m high/empty bitumen drum	each	1.000	1.000	1.000	155.57	155.57	155.57	155.57	M-173
			Paint	litre	0.500	0.500	0.500	270.83	135.42	135.42	135.42	M-130
			Total cost without OH & CP						542.12	542.12	542.12	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		43.37	54.21	65.05	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		58.55	59.63	60.72	
			Rate per drum delineator = a+b+c+d						644.03	655.96	667.89	
								Say	644.00	656.00	667.90	
8.46	Suggestive		Water filled barricades work zone sheeting									
			Providing water filled barricades made up of LDPE to segregate the vehicular movement and work zone as per IRC SP 55 shall be in Trapezoidal Shape 800 mm to 1000 mm in length, 700 mm in height for Major Roads and expressway and 500 mm tall for other roads with interlocking arrangements, To be placed 0.5 m from the edge of the carriageway for expressway and 0.3 m for other roads. It should have reboubdable work zone sheeting as per ASTM D 4956 S2.									
			Unit = each									
			Taking output = one drum delineator									
			a) Labour									
			Mate	day	0.010	0.010	0.010	444.00	4.44	4.44	4.44	L-12
			Mazdoor	day	0.250	0.250	0.250	428.00	107.00	107.00	107.00	L-13
			b) Material									
			Water filled barricades work zone sheeting	each	1.000	1.000	1.000	718.61	718.61	718.61	718.61	M-238
			Total cost without OH & CP						830.05	830.05	830.05	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		66.40	83.00	99.61	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		89.64	91.31	92.97	
			Rate per drum delineator = a+b+c+d						986.095	1004.356	1022.617	
								Say	986.10	1004.40	1022.60	
8.47	Suggestive		Tubular Marker/ Spring Post 450 mm									
			Providing Tubular Marker made up of Polyurethane used to divide opposing lanes of road users shall be flexible in nature. Tubular marker having height upto 450 mm shall be having 75 mm Reboundable work zone retroreflective sheeting as per ASTM 4956 S2. Application of Tubular Marker shall be done as per IRC SP 55.									
			Unit = each									
			Taking output = one drum delineator									

CHAPTER - 8
Analysis of Rate
TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			a) Labour									
			Mate	day	0.010	0.010	0.010	444.00	4.44	4.44	4.44	L-12
			Mazdoor	day	0.250	0.250	0.250	428.00	107.00	107.00	107.00	L-13
			b) Material									
			Tubular Marker/ Spring Post 450 mm	each	1.000	1.000	1.000	271.02	271.02	271.02	271.02	M-237
			Total cost without OH & CP						382.46	382.46	382.46	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		30.60	38.25	45.89	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		41.31	42.07	42.84	
			Rate per drum delineator = a+b+c+d						454.36	462.77	471.19	
								Say	**454.40**	**462.80**	**471.20**	
8.48	suggestive		Tubular Marker/ Spring Post 700 mm									
			Providing Tubular Marker made up of Polyurethane used to divide opposing lanes of road users shall be flexible in nature. Tubular marker having minimum height 700 mm shall be having minimum 75 mm Reboundable work zone retroreflective sheeting as per ASTM 4956 S2. Application of Tubular Marker shall be done as per IRC SP 55.									
			Unit = each									
			Taking output = one drum delineator									
			a) Labour									
			Mate	day	0.010	0.010	0.010	444.00	4.44	4.44	4.44	L-12
			Mazdoor	day	0.250	0.250	0.250	428.00	107.00	107.00	107.00	L-13
			b) Material									
			Tubular Marker/ Spring Post 700 mm	each	1.000	1.000	1.000	336.73	336.73	336.73	336.73	M-236
			Total cost without OH & CP						448.17	448.17	448.17	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		35.85	44.82	53.78	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		48.40	49.30	50.20	
			Rate per drum delineator = a+b+c+d						532.429	542.288	552.148	
								Say	**532.40**	**542.30**	**552.10**	
8.49	Suggestive		Flagman									
			Positioning of a smart flagman with a yellow vest and a yellow cap and a red flag 600 x 600 mm securely fastened to a staff 1 m in length for guiding the traffic									
			Unit = each									
			Taking output = one flagman									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12

CHAPTER - 8

Analysis of Rate

TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Material									
			Flag of red color cloth 600 x 600 mm	each	1.000	1.000	1.000	65.89	65.89	65.89	65.89	M-099
			Wooden staff for fastening of flag 25 mm dia, one m long	each	1.000	1.000	1.000	31.48	31.48	31.48	31.48	M-198
			Total cost without OH & CP						543.13	543.13	543.13	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		43.45	54.31	65.18	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		58.66	59.74	60.83	
			Rate per flagman = a+b+c+d						645.24	657.19	669.14	
								Say	645.20	657.20	669.10	
8.50	816		**Advanced Traffic Management System (ATMS)** work shall cover design, supply, installation, commissioning and / or operation and maintenance of Advance Traffic Management Systems (which is one of the components of intelligent Transport Systems- ITS). The system would include out-door equipment including emergency call boxes, variable message sign systems, meteorological data system, close circuit TV camera (CCTV) system, traffic counting and classification system and transmittion system. The indoor equipment would comprise a large display board, central computer (with Network Management System- NMS), CCTV monitor system, call centre system or management of emergency call boxes housed in a control centre with uninterrupted power supply.									
		A	**Traffifc Management Commond Centre Equipment**									
			Material									
		A1	Control Centre Server	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-244
		A2	Hot Standby Backup Server	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-245
		A3	NAS Video Server with storage Minimum 70 TB	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-246
		A4	Backup Video (only Incidents) Server	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-247
		A5	Graphic Display (70" LED DLP in 3x2 Matrix)	Set	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-248
		A6	Graphic Display Controller and software including Video Switches	Set	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-249
		A7	CCTV Monitoring Workstation	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-250
		A8	Emergency Telephone (1033) console	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-251
		A9	VIDS- Workstation	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-252
		A10	Admintrative Workstation	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-253
		A11	ATMS Operator Workstation	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-254
		A12	CCTV Joystick	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-255
		A13	Operations Laser Printer (Colour)	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-256
		A14	Operations Laser Printer (Black)	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-257
		A15	Rack 19"	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-258

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Analysis of Rate
TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		B	**Advanced Traffic Management System (ATMS) Software**									
		B1	ATMS Control Room Software (integreted with VIDS, ATCC, VMS, MOS)	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-259
		B2	Video Management Software with atleast 150 VMS Lic.	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-260
		B3	Facility Monitoring System Controller Software	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-261
		B4	Server & Database license	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-262
		B5	Antivirus license	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-263
		C	**PTZ Closed Circuit Television System**									
		C1	PTZ Camera (including CCTV Controller)	Set	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-264
		C2	Solar System with UPS, Battery & 12 m Pole & Cabinet	Set	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-265
		D	**Video Incident Detection System Equipment (VIDS)**									
		D1	VIDS Camera (including Image Processing unit)	Set	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-266
		D2	Warning Amber Lights with hooters, 72 Hrs solar backup, 5m poles and foundation	Set	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-267
		D3	Cabinet	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-268
		D4	12m Pole (including manufacturing and galvanizing)	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-269
		D5	Solar System with UPS & batteries	Set	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-270
		E	**Automatic Traffic Counters-cum-classifier System Equipment (ATCC)**									
		E1	Equipment, Sensor unit, Processing unit, Solar power supply	Set	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-271
		E2	Solar System with UPS, batteries	Set	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-272
		F	**Variable Message Sign Equipment (VMS)**									
		F1	VMS (Variable Message Sign- M type)	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-273
		F2	Gantry (including manufacturing and galvanizing)	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-274
		F3	Solar System with UPS, battery and cabinet for M type VMS	Set	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-275
		G	**UPS and Power system**									
		G1	Uninterruptible Power Supply (UPS) For Server Rack (10 KVA)	Set	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-276
		G2	Uninterruptible Power Supply (UPS) For TMC (30 KVA)	Set	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-277
		G3	Power Distribution Board (Essential & Critical Supply)	Set	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-278
		H	**Meteorological Observation System (MOS)**									
		H1	MOS sensor equipment (including MOS controller)	Set	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-279
		H2	Cabinet	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-280
		H3	Pole	Nos.	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-281
		H4	Steel fence for protection	Set	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-282
		I	**Digital Transmission System (DTS)**									
		I1	24 Core Armored OFC + all accessories	km	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-283

CHAPTER - 8
Analysis of Rate
TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
		I2	40mm PLB HDPE duct as per latest TSEC specifications + all accessories	km	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-284
		I3	Trenching of 1.8 metres, laying & backfilling for PLB HDPE duct	km	1	1	1	INPUT	#VALUE!	#VALUE!	#VALUE!	M-285
		Note	Overhead and contractor's profit will be added separately on Item no. 8.50.									
			Civil works required to be executed for these installations Drilling may be done as per rates in relevant chapters for quantity derived, approved design and drawing.									
8.51	Suggestive		**Fiber Reinforced Cement Concrete New Jersy Crash Barrier**									
			Unit= Linear metre									
			Taking Output= 20 m									
		A	Provision of an Reinforced cement concrete crash barrier at th edges of the road, approaches to bridge structures and medians, constructed with Reinforced Cement Concrete with fiber steel and as per details given IRC - 5 (Fig.- 5, b) including dowel bars 25 mm dia, 450mm long at expansion joints filled with pre-moulded asphalt filler board etc., as per approved drawing and at locations directed by the engineer, all as specified. (Area- 0.243 Sqm/ Metre, Single Face)									
			a) M30 Grade concrete									
			M30 grade concrete (Area- 0.243 Sqm/ Metre)	cum	4.860	4.860	4.860	6643.40	32286.92	32286.92	32286.92	12.11 A (iii) Case II
			(Rate taken from item No. 12.11 A (iii) Case II including OH & CP)									
			b) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			c) Material									
			Fiber Steel (35 Kg/Cum)	tonne	0.170	0.170	0.170	INPUT	#VALUE!	#VALUE!	#VALUE!	M-225
			d) Overhead charges on (b+c)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Cost for 20 metre = a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per metre = (a+b+c+d+e)/20						#VALUE!	#VALUE!	#VALUE!	
		Note	i) Excavation and backfilling are incidental to work and not to be measured separetely.									
			II) If PCC required below crash barrier then it should be measured & Paid separately.									
			iii) Rate for RCC M30 may be taken from chapter on 12.									
		B	Provision of an Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with Reinforced Cement Concrete with fiber steel and as per details given IRC-119 (Fig. -26) including dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board etc., as per approved drawing and at locations directed by the Engineer ,all as specified. (Area- 0.261 Sqm./ meter, Double Face)									

CHAPTER - 8

Analysis of Rate

TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Sr. No.	Ref. to M		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input_Ref
					Large	Medium	Small		Large	Medium	Small	
			M30 Grade concrete									
			M30 grade concrete (Area- 0.261 Sqm/ Metre)	cum	5.220	5.220	5.220	6643.40	34678.55	34678.55	34678.55	12.11 A (iii) Case II
			(Rate taken from item No. 12.11 A (iii) Case II including OH & CP)									
			b) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			c) Material									
			Fiber Steel (35 Kg/Cum)	tonne	0.183	0.183	0.183	INPUT	#VALUE!	#VALUE!	#VALUE!	M-225
			d) Overhead charges on (b+c)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			e) Contractor's profit on (b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Cost for 20 metre = a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per metre = (a+b+c+d+e)/20						#VALUE!	#VALUE!	#VALUE!	
		Note	i) Excavation and backfilling are incidental to work and not to be measured separetely.									
			ii) If PCC required below crash barrier then it should be measured & Paid separately.									
			iii) Rate for RCC M30 may be taken from chapter on 12.									

CHAPTER - 09

PIPE CULVERTS

CHAPTER-9

PIPE CULVERTS

PREAMBLES :

1 Excavation for structures has been provided both by manual and mechanical means. The rate relevant to a particular situation may be adopted.

2 The earth excavated from foundation has been proposed to be backfilled and balance quantity utilized for road work locally except for marshy soil where disposal has been provided.

3 Pipe culverts of size 1000mm, 1200mm & 1500 mm dia in single row and double row which are generally used on roads, have been included. Only laying pipe has been included in the rate. Auxiliary works such as excavation, backfilling, concrete and masonry shall be paid for separately, as provided under the respective clauses.

4 Any river training ad protection work like stone pitching, apron, revetment, curtain wall etc. may be provided under the respective clause include in Chapter 16.

5 The choice between first class bedding and cement cradle bedding will depend on particular situations and approved design.

6 The joining of pipes is proposed by collar or flush joints.

7 Backfilling upto 300 mm above top of the pipe shall be carefully done and the soil thoroughly rammed, tamped or vibrated in layers not exceeding 150 mm.

8 Head walls and other ancillary works shall be executed under respective clauses.

9 Pipe shall be laid at least 600 mm below from the top of road.

CHAPTER - 9
Summary of Rate Analysis
PIPE CULVERTS

Sr. No.		Description	Unit	Rate (₹)		
				Large	Medium	Small
9.01		**Excavation for structures**				
		Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.				
	I	**Ordinary soil**				
	A	**Manual Means**				
	(i)	**Depth upto 3 m**	**Cum**	185.30	188.80	192.20
9.01	(ii)	**Depth 3 m to 6 m**	**Cum**	238.30	242.70	247.10
9.01	(iii)	**Depth above 6 m**	**Cum**	317.70	323.60	329.50
9.01	B(i)	**Mechanical Means(Depth upto 3 m)**	**Cum**	91.20	96.60	121.40
9.01	B(ii)	**Mechanical Means(Depth 3 m to 6 m)**	**Cum**	100.90	106.70	134.20
9.01	B(iii)	**Mechanical Means(Depth above 6 m)**	**Cum**	112.80	119.30	150.10
9.01	II	**Ordinary Rock (not requiring blasting)**				
	A	**Manual Means**				
	(i)	**Depth upto 3 m**	Cum	264.80	269.70	274.60
9.01	B	**Mechanical Means**	Cum	564.30	610.30	642.80
9.01	III	**Hard Rock (requiring blasting)**				
	A	**Manual Means**	Cum	597.10	608.20	619.20
9.01	III	**Hard Rock (requiring blasting)**				
		Carrying out excavation in hard rock to achieve a specified slope of the rock face by controlled use of explosives and blasting accessories in properly aligned and spaced drill holes , collection of the excavated rock by a dozer , loading in tipper by a front end loader and disposing of the material with all lifts and lead upto 1000 m, all as specified in clause No . 303				
	B	**Mechanical Means**	Cum	347.00	355.90	393.10
9.01	IV	**Hard Rock (blasting prohibited))**				
	A	**Mechanical Means**	Cum	757.40	862.40	1004.50
9.01	V	**Marshy Soil**				
	A	**Manual Means**	Cum	757.00	771.00	785.00
	B	**Mechanical Means**	Cum	236.50	249.90	314.10
9.02		**Sand Filling in Foundation Trenches as per Drawing & Technical Specification**	Cum	237.40	242.40	249.40
9.03		**PCC 1:3:6 in Foundation**				
		Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days.	Cum	3911.70	3986.20	4068.20
9.04		**Laying Reinforced Cement Concrete Pipe NP4 / Prestressed Concrete Pipe on First Class Bedding in Single Row .**				

CHAPTER - 9
Summary of Rate Analysis
PIPE CULVERTS

Sr. No.		Description	Unit	Rate (₹)		
				Large	Medium	Small
		Laying Reinforced cement concrete pipe NP4 / prestressed concrete pipe for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets .				
	A	**1000 mm dia**	Metre	7568.60	7708.80	7849.00
	B	**1200 mm dia**	Metre	8869.90	9034.10	9198.40
	C	**1500 mm dia**	Metre	8916.30	9081.50	9246.60
9.05		**Laying Reinforced Cement Concrete Pipe NP4 / Prestressed Concrete Pipe on First Class Bedding in Double Row .**				
		Laying Reinforced cement concrete pipe NP4 / prestressed concrete pipe for culverts on first class bedding of granular material in double row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets .				
	A	**1000 mm dia**	Metre	15195.20	15476.60	15758.00
	B	**1200 mm dia**	Metre	17801.80	18131.40	18461.10
	C	**1500 mm dia**	Metre	17900.90	18232.40	18563.90
9.06		**Plain/ Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical Specifications .**	Cum			
9.06	A	**PCC Grade M15**				
	Case I	PCC Grade M15 using batching plant , transit mixer & Concrete pump	Cum	4311.30	4397.00	4502.20
	Case II	PCC Grade M15 using batching plant , transit mixer & manual placing	**Cum**	4612.70	4703.90	4814.60
9.06	B	**PCC Grade M20**				
	Case I	PCC Grade M20 using batching plant , transit mixer & Concrete pump	Cum	4810.10	4905.00	5019.50
	Case II	PCC Grade M20 using batching plant , transit mixer & manual placing	Cum	5111.50	5211.90	5331.90
9.06	C	**RCC Grade M20**				
	Case I	RCC Grade M20 using batching plant , transit mixer & Concrete pump	Cum	4807.20	4902.00	5016.40
	Case II	RCC Grade M20 using batching plant , transit mixer & manual placing	Cum	5128.00	5228.70	5349.00
9.06	D	**PCC Grade M25**				
	Case I	PCC Grade M25 using batching plant , transit mixer & Concrete pump	Cum	5230.40	5333.10	5455.30
	Case II	PCC Grade M25 using batching plant , transit mixer & manual placing	Cum	5531.70	5640.00	5767.70
9.06	E	**RCC Grade M25**				
	Case I	RCC Grade M25 using batching plant , transit mixer & Concrete pump	Cum	5263.60	5366.80	5489.70

CHAPTER - 9
Summary of Rate Analysis
PIPE CULVERTS

Sr. No.		Description	Unit	Rate (₹)		
				Large	Medium	Small
	Case II	RCC Grade M25 using batching plant , transit mixer & manual placing	Cum	5584.30	5693.50	5822.20
9.07		**Supplying ,Fitting and Placing un-coated HYSD bar Reinforcement in Foundation complete as per Drawing and Technical Specifications.**	MT	59554.30	60710.90	61918.70

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Analysis of Rate
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
9.01	304		**Excavation for structures**									
			Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.									
		I	**Ordinary soil**									
			Unit = cum									
			Taking output = 10 cum									
		A	**Manual Means**									
		(i)	**Depth upto 3 m**									
			a) Labour									
			Mate	day	0.140	0.140	0.140	444.00	62.16	62.16	62.16	L-12
			Mazdoor	day	3.500	3.500	3.500	428.00	1498.00	1498.00	1498.00	L-13
			b) Overhead charges on (a)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		124.81	156.02	187.22	
			c) Contractor's profit on (a+b)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		168.50	171.62	174.74	
			Cost for 10 cum = a+b+c						1853.47	1887.79	1922.12	
			Rate per cum = (a+b+c)/10						185.35	188.78	192.21	
								Say	**185.30**	**188.80**	**192.20**	
		Note	1. Cost of dewatering may be added where required upto, 10 percent of labour cost Assessment for dewatering shall be made as per site conditions.									
			2. The excavated earth can be used partially for backfilling of foundation pit and partly for road work except for marshy soil .Hence cost of disposal has not been added except for marshy soil .This remark is common to all cases of item 9.01 excluding marshy soil .									

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Analysis of Rate
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			3 . The cost of shoring and shuttering , where needed , may be added @ 1 percent on cost of excavation for open foundation .									
9.01	A	(ii)	**Depth 3 m to 6 m**									
			a) Labour									
			Mate / Supervisor	day	0.180	0.180	0.180	444.00	79.92	79.92	79.92	L-12
			Mazdoor	day	4.500	4.500	4.500	428.00	1926.00	1926.00	1926.00	L-13
			b) Overhead charges on (a)		(@ 8%)	(@ 10%)	(@ 12%)		160.47	200.59	240.71	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		216.64	220.65	224.66	
			Cost for 10 cum = a+b+c						2383.03	2427.16	2471.29	
			Rate per cum = (a+b+c)/10						238.30	242.72	247.13	
								Say	**238.30**	**242.70**	**247.10**	
		Note	1. Cost of dewatering may be added where required upto 15 percent of labour cost. Assessment for dewatering shall be done as per actual ground conditions.									
9.01	A	(iii)	**Depth above 6 m**									
			a) Labour									
			Mate / Supervisor	day	0.240	0.240	0.240	444.00	106.56	106.56	106.56	L-12
			Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
			b) Overhead charges on (a)		(@ 8%)	(@ 10%)	(@ 12%)		213.96	267.46	320.95	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		288.85	294.20	299.55	
			Cost for 10 cum = a+b+c						3177.38	3236.22	3295.06	
			Rate per cum = (a+b+c)/10						317.74	323.62	329.51	
								Say	**317.70**	**323.60**	**329.50**	
		Note	1. Cost of dewatering may be added where required upto 20 percent of labour cost.									
			2. Assessment for dewatering shall be made as per site conditions.									

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Analysis of Rate
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
9.01	B	(i)	**Mechanical Means(Depth upto 3 m)**									
			Unit = cum									
			Taking output = 330 cum									
			a) Labour									
			Mate	day	0.320	0.320	0.320	444.00	142.08	142.08	142.08	L-12
			Mazdoor	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13
			b) Machinery Hydraulic Excavator									
			For excavation									
			(i) 1.2 cum bucket capacity	hour	4.627			2809.00	12997.24			PM3003
			(ii) 1.1 cum bucket capacity	hour		5.329		2538.00		13525.00		PM3004
			(iii) 0.9 cum bucket capacity	hour			7.450	2312.00			17224.40	PM3005
			For backfilling (considering 60 % of the excavated material)									
			(i) 1.2 cum bucket capacity	hour	2.776			2809.00	7797.78			PM3003
			(ii) 1.1 cum bucket capacity	hour		3.197		2538.00		8113.99		PM3004
			(iii) 0.9 cum bucket capacity	hour			4.470	2312.00			10334.64	PM3005
			Tipper for transportation of excess material to dumping yard considering lead @ 1 km									
			(i) 18 cum capacity	t-km	198.000			4.98	986.04			PM72001
			(ii) 14 cum capacity	t-km		198.000		5.71		1130.58		PM73001
			(iii) 10 cum capacity	t-km			198.000	7.10			1405.80	PM74001
			c) Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		2027.77	2633.56	3903.71	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		2737.49	2896.92	3643.46	
			Cost for 330 cum = a+b+c+d						30112.41	31866.13	40078.09	

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Analysis of Rate
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Rate per cum = (a+b+c+d)/ 330						91.25	96.56	121.45	
								Say	**91.20**	**96.60**	**121.40**	
9.01	**B**	**(ii)**	**Mechanical Means(Depth 3 m to 6 m)**									
			Unit = cum									
			Taking output = 300 cum									
			a) Labour									
			Mate	day	0.320	0.320	0.320	444.00	142.08	142.08	142.08	L-12
			Mazdoor	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13
			b) Machinery Hydraulic Excavator									
			For excavation									
			(i) 1.2 cum bucket capacity	hour	4.674			2809.00	13129.27			PM3003
			(ii) 1.1 cum bucket capacity	hour		5.383		2538.00		13662.05		PM3004
			(iii) 0.9 cum bucket capacity	hour			7.525	2312.00			17397.80	PM3005
			For backfilling (considering 60 % of the excavated material)									
			(i) 1.2 cum bucket capacity	hour	2.804			2809.00	7876.44			PM3003
			(ii) 1.1 cum bucket capacity	hour		3.230		2538.00		8197.74		PM3004
			(iii) 0.9 cum bucket capacity	hour			4.515	2312.00			10438.68	PM3005
			Tipper for transportation of excess material to dumping yard considering lead @ 1 km									
			(i) 18 cum capacity	t-km	180.000			4.98	896.40			PM?2001
			(ii) 14 cum capacity	t-km		180.000		5.71		1027.80		PM73001
			(iii) 10 cum capacity	t-km			180.000	7.10			1278.00	PM?4001
			c) Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		2037.45	2645.37	3921.67	

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Analysis of Rate
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2750.56	2909.90	3660.22	
			Cost for 300 cum = a+b+c+d						30256.20	32008.95	40262.45	
			Rate per cum = (a+b+c+d)/ 300						100.85	106.70	134.21	
								Say	**100.90**	**106.70**	**134.20**	
9.01	**B**	**(iii)**	**Mechanical Means(Depth above 6 m)**									
			Unit = cum									
			Taking output = 270 cum									
			a) Labour									
			Mate	day	0.320	0.320	0.320	444.00	142.08	142.08	142.08	L-12
			Mazdoor	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13
			b) Machinery Hydraulic Excavator									
			For excavation									
			(i) 1.2 cum bucket capacity	hour	4.732			2809.00	13292.19			PM3003
			(ii) 1.1 cum bucket capacity	hour		5.450		2538.00		13832.10		PM3004
			(iii) 0.9 cum bucket capacity	hour			7.619	2312.00			17615.13	PM3005
			For backfilling (considering 60 % of the excavated material)									
			(i) 1.2 cum bucket capacity	hour	2.839			2809.00	7974.75			PM3003
			(ii) 1.1 cum bucket capacity	hour		3.270		2538.00		8299.26		PM3004
			(iii) 0.9 cum bucket capacity	hour			4.571	2312.00			10568.15	PM3005
			Tipper for transportation of excess material to dumping yard considering lead @ 1 km									
			(i) 18 cum capacity	t-km	162.000			4.98	806.76			PM72001
			(ii) 14 cum capacity	t-km		162.000		5.71		925.02		PM73001
			(iii) 10 cum capacity	t-km			162.000	7.10			1150.20	PM74001

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Analysis of Rate
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		2051.18	2662.25	3947.95	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2769.10	2928.47	3684.75	
			Cost for 270 cum = a+b+c+d						30460.06	32213.18	40532.26	
			Rate per cum = (a+b+c+d)/ 270						112.82	119.31	150.12	
								Say	**112.80**	**119.30**	**150.10**	
9.01		II	Ordinary Rock (not requiring blasting)									
		A	Manual Means									
		(i)	Depth upto 3 m									
			Unit = cum									
			Taking output = 10 cum									
			a) Labour									
			Mate	day	0.200	0.200	0.200	444.00	88.80	88.80	88.80	L-12
			Mazdoor	day	5.000	5.000	5.000	428.00	2140.00	2140.00	2140.00	L-13
			b) Overhead charges on (a)		(@ 8%)	(@ 10%)	(@ 12%)		178.30	222.88	267.46	
			c) Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		240.71	245.17	249.63	
			Cost for 10 cum = a+b+c						2647.81	2696.85	2745.88	
			Rate per cum = (a+b+c)/10						264.78	269.68	274.59	
								Say	**264.80**	**269.70**	**274.60**	
		Note	Cost of dewatering upto 10 percent of labour cost may be added , where required. Assessment for dewatering shall be made as per site conditions.									
9.01		B	Mechanical Means									
			Unit = cum									
			Taking output = 50 cum									
			a) Labour									
			Mate	day	0.120	0.120	0.120	444.00	53.28	53.28	53.28	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			b) Machinery Hydraulic Excavator									
			Excavator for excavation									

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Analysis of Rate
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(i) 1.2 cum bucket capacity	hour	5.818			2809.00	16342.76			PM3003
			(ii) 1.1 cum bucket capacity	hour		6.845		2538.00		17372.61		PM3004
			(iii) 0.9 cum bucket capacity	hour			7.273	2312.00			16815.18	PM3005
			For loading									
			(i) 1.2 cum bucket capacity	hour	0.872			2809.00	2449.45			PM3003
			(ii) 1.1 cum bucket capacity	hour		1.005		2538.00		2550.69		PM3004
			(iii) 0.9 cum bucket capacity	hour			1.405	2312.00			3248.36	PM3005
			Jack Hammer	hour	5.818	6.845	7.273	206.00	1198.51	1410.07	1498.24	PM4001
			Tipper for transportation considering lead @ 1 km									
			(i) 18 cum capacity	t-km	75.000			4.98	373.50			PM72001
			(ii) 14 cum capacity	t-km		75.000		5.71		428.25		PM73001
			(iii) 10 cum capacity	t-km			75.000	7.10			532.50	PM74001
			For loading & unloading time									
			(i) 18 cum capacity	hour	0.872			2349.00	2048.33			PM6001
			(ii) 14 cum capacity	hour		1.005		2108.00		2118.54		PM6002
			(iii) 10 cum capacity	hour			1.405	1891.00			2656.86	PM6003
			c) Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		1899.99	2521.74	3130.61	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		2564.98	2773.92	2921.90	
			Cost for 50 cum = a+b+c+d						28214.79	30513.10	32140.92	
			Rate per cum = (a+b+c+d)/ 50						564.30	610.26	642.82	
								Say	**564.30**	**610.30**	**642.80**	

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Analysis of Rate
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
9.01	301& 302	III	**Hard Rock (requiring blasting)**									
		A	**Manual Means**									
			Unit = cum									
			Taking output = 10 cum									
			a) Labour									
			Mate	day	0.350	0.350	0.350	444.00	155.40	155.40	155.40	L-12
			Driller	day	0.500	0.500	0.500	444.00	222.00	222.00	222.00	L-06
			Blaster	day	0.250	0.250	0.250	699.00	174.75	174.75	174.75	L-03
			Mazdoor	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13
			b) Machinery									
			Air Compressor 250 cfm with 2 jack hammer for drilling	hour	1.000	1.000	1.000	518.00	518.00	518.00	518.00	PM15001 + 2 x PM45001
			c) Material									
			Explosives (Blasting Material)	kg	3.500	3.500	3.500	124.27	434.95	434.95	434.95	M-215
			Detonator electric	each	14.000	14.000	14.000	6.93	97.02	97.02	97.02	M-217
			c) Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		402.09	502.61	603.13	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		542.82	552.87	562.92	
			Cost for 10 cum = a+b+c+d						5971.02	6081.60	6192.17	
			Rate per cum = (a+b+c+d)/ 10						597.10	608.16	619.22	
								Say	**597.10**	**608.20**	**619.20**	
		Note	Cost of dewatering @ 10 percent of (a+b) may be added , where required . Assessment for dewatering shall be made as per site conditions.									
9.01	301, 302	III	**Hard Rock (requiring blasting)**									

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Analysis of Rate
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Carrying out excavation in hard rock to achieve a specified slope of the rock face by controlled use of explosives and blasting accessories in properly aligned and spaced drill holes , collection of the excavated rock by a dozer , loading in tipper by a front end loader and disposing of the material with all lifts and lead upto 1000 m, all as specified in clause No . 303									
		B	**Mechanical Means**									
			Unit = cum									
			Taking output = 120 cum									
			a) Labour									
			Mate	day	0.210	0.210	0.210	444.00	93.24	93.24	93.24	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			Driller	day	2.000	2.000	2.000	444.00	888.00	888.00	888.00	L-06
			Blaster	day	0.250	0.250	0.250	699.00	174.75	174.75	174.75	L-03
			b) Machinery									
			Air Compressor	hour	6.000	6.000	6.000	496.00	2976.00	2976.00	2976.00	PM15001
			Jack Hammer for drilling holes (@4.5 m per hour)	hour	24.000	24.000	24.000	206.00	4944.02	4944.02	4944.02	PM4001
			Jack Hammer (consider 5% of the volume for dressing)	hour	1.024	1.024	1.024	206.00	210.94	210.94	210.94	PM4001
			Hydraulic Excavator									
			Excavator for excavation									
			(i) 1.2 cum bucket capacity	hour	1.024			2809.00	2876.42			PM3003
			(ii) 1.1 cum bucket capacity	hour		1.024		2538.00		2598.91		PM3004
			(iii) 0.9 cum bucket capacity	hour			1.024	2312.00			2367.49	PM3005
			For loading									

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(i) 1.2 cum bucket capacity	hour	2.094			2809.00	5882.05			PM3003
			(ii) 1.1 cum bucket capacity	hour		2.411		2538.00		6119.12		PM3004
			(iii) 0.9 cum bucket capacity	hour			3.371	2312.00			7793.75	PM3005
			Tipper									
			For transportation considering lead @ 1 km									
			(i) 18 cum capacity	t-km	180.000			4.98	896.40			PM72001
			(ii) 14 cum capacity	t-km		180.000		5.71		1027.80		PM73001
			(iii) 10 cum capacity	t-km			180.000	7.10			1278.00	PM74001
			For loading & unloading time									
			(i) 18 cum capacity	hour	2.094			2349.00	4918.81			PM6001
			(ii) 14 cum capacity	hour		2.411		2108.00		5082.39		PM6002
			(iii) 10 cum capacity	hour			3.371	1891.00			6374.56	PM6003
			c) Materials									
			Small dia Explosive at 0.40 kg / cum for 120 cum (120x0.40) Explosive at 0.20 kg / cum for secondary blast @ 5 % of the total volume (120x0.2x5%)	kg	48.000	48.000	48.000	124.27	5964.96	5964.96	5964.96	M-215
			Electric detonators at 1 per hole for main blast holes (21x3+20*2)= 103 nos	no	69.000	69.000	69.000	6.93	478.17	478.17	478.17	M-217
			Ordinary detonators @ 1 per hole for 10 secondary holes (required for 5 % of the total quantity @ 0.6 m per hole for 1 cum)	no	7.000	7.000	7.000	3.47	24.29	24.29	24.29	M-216
			Detonating fuse coil	m	213.000	213.000	213.000	16.12	3433.56	3433.56	3433.56	M-218
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		2803.65	3530.02	4594.29	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		3784.93	3883.02	4288.00	
			Cost for 120 cum = a+b+c+d+e						41634.18	42713.18	47168.03	

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Analysis of Rate
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Rate per cum = (a+b+c+d+e)/ 120						346.95	355.94	393.07	
								Say	**347.00**	**355.90**	**393.10**	
9.01		IV	**Hard Rock (blasting prohibited))**									
			Unit = cum									
			Taking output = 35 cum									
		A	**Mechanical Means**									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Machinery									
			Jack Hammer	hour	5.973	7.467	9.190	206.00	1230.44	1538.20	1893.14	PM4001
			Hydraulic Excavator									
			Excavator for excavation									
			(i) 1.2 cum bucket capacity	hour	5.973			2809.00	16778.16			PM3003
			(ii) 1.1 cum bucket capacity	hour		7.467		2538.00		18951.25		PM3004
			(iii) 0.9 cum bucket capacity	hour			9.190	2312.00			21247.28	PM3005
			For loading									
			(i) 1.2 cum bucket capacity	hour	0.611			2809.00	1716.30			PM3003
			(ii) 1.1 cum bucket capacity	hour		0.703		2538.00		1784.21		PM3004
			(iii) 0.9 cum bucket capacity	hour			0.983	2312.00			2272.70	PM3005
			Tipper									
			For transportation to dumping yard considering lead @ 1 km									
			(i) 18 cum capacity	t-km	52.500			4.98	261.45			PM72001
			(ii) 14 cum capacity	t-km		52.500		5.71		299.78		PM73001

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Analysis of Rate
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(iii) 10 cum capacity	t-km			52.500	7.10			372.75	PM74001
			For loading & unloading time									
			(i) 18 cum capacity	hour	0.611			2349.00	1435.24			PM6001
			(ii) 14 cum capacity	hour		0.703		2108.00		1481.92		PM6002
			(iii) 10 cum capacity	hour			0.983	1891.00			1858.85	PM6003
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		1785.05	2494.69	3424.35	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2409.82	2744.16	3196.06	
			Cost for 35 cum = a+b+c+d						26507.97	30185.73	35156.65	
			Rate per cum = (a+b+c+d)/ 35						757.37	862.45	1004.48	
								Say	**757.40**	**862.40**	**1004.50**	
9.01		**V**	**Marshy Soil**									
			Unit = cum									
			Taking output = 10 cum **Depth upto 3 m**									
		A	**Manual Means**									
			a) Labour									
			Mate / Supervisor	day	0.400	0.400	0.400	444.00	177.60	177.60	177.60	L-12
			Mazdoor	day	10.000	10.000	10.000	428.00	4280.00	4280.00	4280.00	L-13
			b) Machinery									
			Tractor -trolley for removal	hour	2.670	2.670	2.670	717.00	1914.39	1914.39	1914.39	PM12001
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		509.76	637.20	764.64	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		688.17	700.92	713.66	
			Cost for 10 cum = a+b+c+d						7569.92	7710.11	7850.29	
			Rate per cum = (a+b+c+d)/ 10						756.99	771.01	785.03	
								Say	**757.00**	**771.00**	**785.00**	
		Note	1. Cost of dewatering @ 30 percent of (a), may be added , where required . Assessment for dewatering shall be made as per site conditions.									
			2. Shoring & strutting 15 percent of (a) , where required may be added									

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PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			3. It is assumed that Marshy Soil will be available upto 3 m depth only .For deeper excavation below 3 m depth , refer analysis in item 12.01 (i) to (iv) for ordinary soil									
9.01		B	**Mechanical Means**									
			Unit = cum									
			Taking output = 260 cum									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Hydraulic Excavator									
			(i) 1.2 cum bucket capacity	hour	8.506			2809.00	23893.35			PM3003
			(ii) 1.1 cum bucket capacity	hour		9.796		2538.00		24862.25		PM3004
			(iii) 0.9 cum bucket capacity	hour			13.695	2312.00			31662.84	PM3005
			Tipper									
			For transportation to dumping yard considering lead @ 1 km									
			(i) 18 cum capacity	t-km	390.000			4.98	1942.20			PM72001
			(ii) 14 cum capacity	t-km		390.000		5.71		2226.90		PM73001
			(iii) 10 cum capacity	t-km			390.000	7.10			2769.00	PM74001
			For loading & unloading time									
			(i) 18 cum capacity	hour	8.506			2349.00	19980.59			PM6001
			(ii) 14 cum capacity	hour		9.796		2108.00		20649.97		PM6002
			(iii) 10 cum capacity	hour			13.695	1891.00			25897.25	PM6003
			c) Material									
			Selected earth for refilling	cum	156.000	156.000	156.000	35.30	5506.80	5506.80	5506.80	M-164
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		4141.50	5369.17	7953.80	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		5591.02	5906.08	7423.54	
			Cost for 260 cum = a+b+c+d+e						61501.23	64966.93	81658.99	
			Rate per cum = (a+b+c+d+e)/ 260						236.54	249.87	314.07	
								Say	**236.50**	**249.90**	**314.10**	

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PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
9.02	304		Sand Filling in Foundation Trenches as per Drawing and Technical Specification(As per Requirement ,Fine Sand/Coarse Sand may be used)									
			Unit = cum									
			Taking output = 100 cum									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Water tanker (speed @20 km /hr and return speed@30 km / hr and spreading speed@2.5 km /hr)									L1=1 Km
			(i) 16 KL capacity	hour	0.125xL1+ 0.16			1204.00	343.14			PM11001
			(ii) 12 KL capacity	hour		0.167xL1+ 0.213		1030.00		391.40		PM11002
			(iii) 6 KL capacity	hour			0.333XL1+ 0.427	789.00			599.64	PM11003
			c) Material									
			Sand (assuming 20 percent voids) at site	cum	120.000	120.000	120.000	150.48	18057.60	18057.60	18057.60	M-006
			Water	KL	18.000	18.000	18.000	63.20	1137.60	1137.60	1137.60	M-191
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		1598.73	2003.24	2428.87	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		2158.28	2203.56	2266.95	
			Cost for 100 cum = a+b+c+d+e						23741.11	24239.16	24936.42	
			Rate per cum = (a+b+c+d+e)/ 100						237.41	242.39	249.36	
								Say	237.40	242.40	249.40	
9.03			PCC 1:3:6 in Foundation									

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PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days.									
			Unit = cum									
			Taking output = 15 cum									
			a) Labour									
			Mate	day	0.320	0.320	0.320	444.00	142.08	142.08	142.08	L-12
			Mason	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-10
			Mazdoor	day	7.000	7.000	7.000	428.00	2996.00	2996.00	2996.00	L-13
			b) Material									
			Plain cement concrete 1:3:6 nominal mix using batching plant (Rate taken from sub-analysis 21.02)	cum	15.000	15.000	15.000	2990.00	44850.00	44850.00	44850.00	21.02
			Water	KL	3.240	3.240	3.240	63.20	204.77	204.77	204.77	M-191
			c) Machinery									
			Plate Compactor	hour	1.000	1.000	1.000	466.00	466.00	466.00	466.00	PM46001
			Water tanker (speed @ 20 km /hr and return speed @ 30 km/hr and 30 mins for unloading)									**L1=1 Km**
			(i) 16 KL capacity	hour	0.023xL1+ 0.135			1204.00	190.23			PM11001
			(ii) 12 KL capacity	hour		0.03xL1+ 0.18		1030.00		216.30		PM11002
			(iii) 6 KL capacity	hour			0.06XL1+ 0.36	789.00			331.38	PM11003
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		3951.21	4941.61	5943.75	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		5334.13	5435.78	5547.50	
			Cost for 15 cum = a+b+c+d+e						58675.42	59793.54	61022.47	
			Rate per cum = (a+b+c+d+e)/ 15						3911.69	3986.24	4068.16	
								Say	**3911.70**	**3986.20**	**4068.20**	

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PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
		Note	Vibrator is a part of minor T & P which is already included in overhead charges of the contractor.									
9.04	2900		**Laying Reinforced Cement Concrete Pipe NP4 / Prestressed Concrete Pipe on First Class Bedding in Single Row .**									
			Laying Reinforced cement concrete pipe NP4 / prestressed concrete pipe for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets .									
			Unit = metre									
			Taking output = 12.5 metres (5 pipes of 2.5 m length each)									
		A	**1000 mm dia**									
			a) Labour									
			Mate	day	0.100	0.100	0.100	444.00	44.40	44.40	44.40	L-12
			Mason	day	0.500	0.500	0.500	541.00	270.50	270.50	270.50	L-10
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Material									
			Sand at site	cum	0.070	0.070	0.070	612.90	42.90	42.90	42.90	M-004*
			Cement at site	tonne	0.050	0.050	0.050	5762.00	288.10	288.10	288.10	M-081
			RCC pipe NP-4 /prestressed concrete pipe including collar at site	metre	12.500	12.500	12.500	6044.84	75560.45	75560.45	75560.45	M-148
			Granular material passing 5.6 mm sieve for bedding	cum	4.500	4.500	4.500	173.92	782.64	782.64	782.64	M-009
			c) Machinery									
			Light Crane 3 tonnes capacity for placing of Hume pipe	hour	2.083	2.083	2.083	860.00	1791.38	1791.38	1791.38	PM63001
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		6370.91	7963.64	9556.36	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		8600.73	8760.00	8919.27	

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PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Cost for 12.5 metres = a+b+c+d+e						94608.01	96360.01	98112.01	
			Rate per metre = (a+b+c+d+e)/ 12.5						7568.64	7708.80	7848.96	
								Say	**7568.60**	**7708.80**	**7849.00**	
		Note	1. In case of cement craddle bedding, quantity of PCC M15 is to be calculated as per design and priced separately and added .									
			2. The rate analysis does not include excavation, cement /masonry works in head walls, backfilling, protection works and parapet walls. The same are to be calculated as per approved design and drawings and priced separately on rates available under respective sections									
9.04		**B**	**1200 mm dia**									
			a) Labour									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mason	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-10
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			b) Material									
			Sand at site	cum	0.090	0.090	0.090	612.90	55.16	55.16	55.16	M-004*
			Cement at site	tonne	0.070	0.070	0.070	5762.00	403.34	403.34	403.34	M-081
			RCC pipe NP-4/prestressed concrete pipe including collar at site	metre	12.500	12.500	12.500	7064.97	88312.12	88312.12	88312.12	M-149
			Granular material passing 5.6 mm sieve for class bedding	cum	5.000	5.000	5.000	173.92	869.60	869.60	869.60	M-009
			c) Machinery									
			Light Crane 3 tonnes capacity for handling Huma pipe	hour	2.083	2.083	2.083	860.00	1791.38	1791.38	1791.38	PM63001
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		7466.21	9332.76	11199.32	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		10079.39	10266.04	10452.70	
			Cost for 12.5 metres = a+b+c+d+e						110873.24	112926.44	114979.65	
			Rate per metre = (a+b+c+d+e)/ 12.5						8869.86	9034.12	9198.37	
								Say	**8869.90**	**9034.10**	**9198.40**	

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PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
		Note	1. In case of cement craddle bedding, quantity of PCC M15 is to be calculated as per design and priced separately and added .									
			2. The rate analysis does not include excavation, cement /masonry works in head walls, backfilling, protection works and parapet walls. The same are to be calculated as per approved design and drawings and priced separately on rates available under respective sections									
9.04		C	**1500 mm dia**									
			a) Labour									
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Mason	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-10
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			b) Material									
			Sand at site	cum	0.090	0.090	0.090	612.90	55.16	55.16	55.16	M-004*
			Cement at site	tonne	0.070	0.070	0.070	5762.00	403.34	403.34	403.34	M-081
			RCC pipe NP-4/prestressed concrete pipe including collar at site	metre	12.500	12.500	12.500	7064.97	88312.12	88312.12	88312.12	M-293
			Granular material passing 5.6 mm sieve for class bedding	cum	5.750	5.750	5.750	173.92	1000.04	1000.04	1000.04	M-009
			c) Machinery									
			Light Crane 3 tonnes capacity for handling Hume pipe	hour	2.500	2.500	2.500	860.00	2150.00	2150.00	2150.00	PM63001
			d) Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		7505.34	9381.67	11258.00	
			e) Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		10132.20	10319.84	10507.47	
			Cost for 12.5 metres = a+b+c+d+e						111454.24	113518.21	115582.17	
			Rate per metre = (a+b+c+d+e)/ 12.5						8916.34	9081.46	9246.57	
								Say	**8916.30**	**9081.50**	**9246.60**	

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PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
		Note	1. In case of cement craddle bedding, quantity of PCC M15 is to be calculated as per design and priced separately and added .									
			2. The rate analysis does not include excavation, cement /masonry works in head walls, backfilling, protection works and parapet walls. The same are to be calculated as per approved design and drawings and priced separately on rates available under respective sections									
9.05	**2900**		**Laying Reinforced Cement Concrete Pipe NP4 / Prestressed Concrete Pipe on First Class Bedding in Double Row .**									
			Laying Reinforced cement concrete pipe NP4 / prestressed concrete pipe for culverts on first class bedding of granular material in double row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets .									
			Unit = metre									
			Taking output = 12.5 metres (10 pipes of 2.5 m length each in two rows.)									
		A	**1000 mm dia**									
			a) Labour									
			Mate	day	0.200	0.200	0.200	444.00	88.80	88.80	88.80	L-12
			Mason	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-10
			Mazdoor	day	4.000	4.000	4.000	428.00	1712.00	1712.00	1712.00	L-13
			b) Material									
			Sand at site	cum	0.140	0.140	0.140	612.90	85.81	85.81	85.81	M-004*
			Cement at site	tonne	0.100	0.100	0.100	5762.00	576.20	576.20	576.20	M-081
			RCC pipe NP-4/prestressed concrete pipe including collar at site	metre	25.000	25.000	25.000	6044.84	151120.89	151120.89	151120.89	M-148

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Granular material passing 5.6 mm sieve for bedding	cum	12.500	12.500	12.500	173.92	2174.00	2174.00	2174.00	M-009
			c) Machinery									
			Light Crane 3 tonnes capacity for handling Hume pipe	hour	4.167	4.167	4.167	860.00	3583.62	3583.62	3583.62	PM63001
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		12790.59	15988.23	19185.88	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		17267.29	17587.05	17906.82	
			Cost for 12.5 metres = a+b+c+d+e						189940.19	193457.60	196975.01	
			Rate per metre = (a+b+c+d+e)/ 12.5						15195.22	15476.61	15758.00	
								Say	**15195.20**	**15476.60**	**15758.00**	
		Note	1. In case of cement craddle bedding, quantity of PCC M15 is to be calculated as per design and priced separately and added .									
			2. The rate analysis does not include excavation, cement /masonry works in head walls, backfilling, protection works and parapet walls. The same are to be calculated as per approved design and drawings and priced separately on rates available under respective sections									
9.05		**B**	**1200 mm dia**									
			a) Labour									
			Mate	day	0.320	0.320	0.320	444.00	142.08	142.08	142.08	L-12
			Mason	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-10
			Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
			b) Material									
			Sand at site	cum	0.180	0.180	0.180	612.90	110.32	110.32	110.32	M-004*
			Cement at site	tonne	0.140	0.140	0.140	5762.00	806.68	806.68	806.68	M-081
			RCC pipe NP-4 /prestressed concrete pipe including collar at site	metre	25.000	25.000	25.000	7064.97	176624.24	176624.24	176624.24	M-149
			Granular material passing 5.6 mm sieve for class bedding	cum	13.750	13.750	13.750	173.92	2391.40	2391.40	2391.40	M009
			c) Machinery									

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Light Crane 3 tonnes capacity for handling Hume pipe	hour	4.167	4.167	4.167	860.00	3583.62	3583.62	3583.62	PM63001
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		14984.67	18730.83	22477.00	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		20229.30	20603.92	20978.53	
			Cost for 12.5 metres = a+b+c+d+e						222522.31	226643.09	230763.87	
			Rate per metre = (a+b+c+d+e)/ 12.5						17801.78	18131.45	18461.11	
								Say	**17801.80**	**18131.40**	**18461.10**	
		Note	1. In case of cement craddle bedding, quantity of PCC M15 is to be calculated as per design and priced separately and added .									
			2. The rate analysis does not include excavation, cement /masonry works in head walls, backfilling, protection works and parapet walls. The same are to be calculated as per approved design and drawings and priced separately on rates available under respective sections									
9.05		**C**	**1500 mm dia**									
			a) Labour									
			Mate	day	0.320	0.320	0.320	444.00	142.08	142.08	142.08	L-12
			Mason	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-10
			Mazdoor	day	6.000	6.000	6.000	428.00	2568.00	2568.00	2568.00	L-13
			b) Material									
			Sand at site	cum	0.180	0.180	0.180	612.90	110.32	110.32	110.32	M-004*
			Cement at site	tonne	0.140	0.140	0.140	5762.00	806.68	806.68	806.68	M-081
			RCC pipe NP-4 /prestressed concrete pipe including collar at site	metre	25.000	25.000	25.000	7064.97	176624.24	176624.24	176624.24	M-293
			Granular material passing 5.6 mm sieve for class bedding	cum	15.625	15.625	15.625	173.92	2717.50	2717.50	2717.50	M-009
			c) Machinery									
			Light Crane 3 tonnes capacity for handling Hume pipe	hour	5.000	5.000	5.000	860.00	4300.00	4300.00	4300.00	PM63001

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Analysis of Rate
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		15068.07	18835.08	22602.10	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		20341.89	20718.59	21095.29	
			Cost for 12.5 metres = a+b+c+d+e						223760.77	227904.49	232048.21	
			Rate per metre = (a+b+c+d+e)/ 12.5						17900.86	18232.36	18563.86	
								Say	**17900.90**	**18232.40**	**18563.90**	
		Note	1. In case of cement craddle bedding, quantity of PCC M15 is to be calculated as per design and priced separately and added .									
			2. The rate analysis does not include excavation, cement /masonry works in head walls, backfilling, protection works and parapet walls. The same are to be calculated as per approved design and drawings and priced separately on rates available under respective sections									
9.06	1500 , 1700& 2100		Plain/ Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical Specifications .									
9.06		A	PCC Grade M15									
		Case I	PCC Grade M15 using batching plant , transit mixer & Concrete pump									
			Unit = cum									
			Taking output = 30 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.03)	cum	30.000	30.000	30.000	3034.40	91032.00	91032.00	91032.00	21.03
			Water for curing	KL	15.750	15.750	15.750	63.20	995.40	995.40	995.40	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.113	0.113	0.113	444.00	50.17	50.17	50.17	L-12
			Mason	day	1.500	1.500	1.500	541.00	811.50	811.50	811.50	L-10
			Mazdoor	day	1.325	1.325	1.325	428.00	567.10	567.10	567.10	L-13
			c) Machinery									

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Transit truck agitator									
			For transportation (6 cum Capacity)	tonne-km	75xL1	75xL1	75xL1	10.87	815.25	815.25	815.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1992.00	1294.80	1294.80	1294.80	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3827.00	2487.55	2487.55	2487.55	PM36001
			Water tanker (speed @ 20 km / hr and return speed @ 30 km / hr and 30 mins for unloading)									**L1=1 Km**
			(i) 16 KL capacity	hour	0.109xL1+ 0.656			1204.00	921.06			PM11001
			(ii) 12 KL capacity	hour		0.146xL1+ 0.875		1030.00		1051.63		PM11002
			(iii) 6 KL capacity	hour			0.292XL1+ 1.75	789.00			1611.14	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material , labour and machinery						9897.48	9910.54	9966.49	
			e) Overhead charges on (a+b+c+d)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		8709.79	10901.59	13155.77	
			f) Contractor's profit on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		11758.21	11991.75	12278.72	
			Cost for 30 cum = a+b+c+d+e+f						129340.31	131909.29	135065.89	
			Rate per cum = (a+b+c+d+e+f)/ 30						4311.34	4396.98	4502.20	
								Say	**4311.30**	**4397.00**	**4502.20**	
		Case II	**PCC Grade M15 using batching plant , transit mixer & manual placing**									
			Unit = cum									
			Taking output = 15 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.03)	cum	15.000	15.000	15.000	3034.40	45516.00	45516.00	45516.00	21.03
			Water for curing	KL	7.875	7.875	7.875	63.20	497.70	497.70	497.70	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.380	0.380	0.380	444.00	168.72	168.72	168.72	L-12
			Mason	day	1.500	1.500	1.500	541.00	811.50	811.50	811.50	L-10
			Mazdoor	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13

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PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum Capacity)	tonne-km	37.5xL1	37.5xL1	37.5xL1	10.87	407.63	407.63	407.63	PM76001
			For unloading	hour	0.833	0.833	0.833	1992.00	1659.34	1659.34	1659.34	PM34001
			Water tanker (speed @ 20 km / hr and return speed @ 30 km / hr and 30 mins for unloading)									L1=1 Km
			(i) 16 KL capacity	hour	0.055xL1+ 0.328			1204.00	461.13			PM11001
			(ii) 12 KL capacity	hour		0.073xL1+ 0.438		1030.00		526.33		PM11002
			(iii) 6 KL capacity	hour			0.146XL1+ 0.875	789.00			805.57	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material , labour and machinery						5294.60	5301.12	5329.05	
			e) Overhead charges on (a+b+c+d)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		4659.25	5831.23	7034.34	
			f) Contractor's profit on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		6289.99	6414.36	6565.38	
			Cost for 15 cum = a+b+c+d+e+f						69189.85	70557.92	72219.22	
			Rate per cum = (a+b+c+d+e+f)/ 15						4612.66	4703.86	4814.61	
								Say	**4612.70**	**4703.90**	**4814.60**	
9.06		**B**	**PCC Grade M20**									
		Case I	PCC Grade M20 using batching plant , transit mixer & Concrete pump									
			Unit = cum									
			Taking output = 30 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.04)	cum	30.000	30.000	30.000	3416.10	102483.00	102483.00	102483.00	21.04
			Water for curing	KL	15.750	15.750	15.750	63.20	995.40	995.40	995.40	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.113	0.113	0.113	444.00	50.17	50.17	50.17	L-12

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mason	day	1.500	1.500	1.500	541.00	811.50	811.50	811.50	L-10
			Mazdoor	day	1.325	1.325	1.325	428.00	567.10	567.10	567.10	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum Capacity)	tonne-km	75xL1	75xL1	75xL1	10.87	815.25	815.25	815.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1992.00	1294.80	1294.80	1294.80	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3827.00	2487.55	2487.55	2487.55	PM36001
			Water tanker (speed @ 20 km / hr and return speed @ 30 km / hr and 30 mins for unloading)									L1=1 Km
			(i) 16 KL capacity	hour	0.109xL1+ 0.656			1204.00	921.06			PM11001
			(ii) 12 KL capacity	hour		0.146xL1+ 0.875		1030.00		1051.63		PM11002
			(iii) 6 KL capacity	hour			0.292XL1+ 1.75	789.00			1611.14	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material , labour and machinery						11042.58	11055.64	11111.59	
			e) Overhead charges on (a+b+c+d)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		9717.47	12161.20	14667.30	
			f) Contractor's profit on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		13118.59	13377.32	13689.48	
			Cost for 30 cum = a+b+c+d+e+f						144304.48	147150.57	150584.28	
			Rate per cum = (a+b+c+d+e+f)/ 30						4810.15	4905.02	5019.48	
								Say	**4810.10**	**4905.00**	**5019.50**	
		Case II	PCC Grade M20 using batching plant , transit mixer & manual placing									
			Unit = cum									
			Taking output = 15 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.04)	cum	15.000	15.000	15.000	3416.10	51241.50	51241.50	51241.50	21.04
			Water for curing	KL	7.875	7.875	7.875	63.20	497.70	497.70	497.70	M-191

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			b) Labour									
			For pouring and placing									
			Mate	day	0.380	0.380	0.380	444.00	168.72	168.72	168.72	L-12
			Mason	day	1.500	1.500	1.500	541.00	811.50	811.50	811.50	L-10
			Mazdoor	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum Capacity)	tonne-km	37.5xL1	37.5xL1	37.5xL1	10.87	407.63	407.63	407.63	PM76001
			For unloading	hour	0.833	0.833	0.833	1992.00	1659.34	1659.34	1659.34	PM34001
			Water tanker (speed @ 20 km / hr and return speed @ 30 km / hr and 30 mins for unloading)									L1=1 Km
			(i) 16 KL capacity	hour	0.055xL1+ 0.328			1204.00	461.13			PM11001
			(ii) 12 KL capacity	hour		0.073xL1+ 0.438		1030.00		526.33		PM11002
			(iii) 6 KL capacity	hour			0.146XL1+ 0.875	789.00			805.57	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material , labour and machinery						5867.15	5873.67	5901.60	
			e) Overhead charges on (a+b+c+d)		(@ 8%)	(@ 10%)	(@ 12%)		5163.09	6461.04	7790.11	
			f) Contractor's profit on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		6970.18	7107.14	7270.77	
			Cost for 15 cum = a+b+c+d+e+f						76671.93	78178.56	79978.42	
			Rate per cum = (a+b+c+d+e+f)/ 15						5111.46	5211.90	5331.89	
								Say	**5111.50**	**5211.90**	**5331.90**	
9.06		C	RCC Grade M20									
		Case I	RCC Grade M20 using batching plant , transit mixer & Concrete pump									
			Unit = cum									
			Taking output = 30 cum									
			a) Material									

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PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Per Cum Basic Cost (Rate taken from sub-analysis 21.05)	cum	30.000	30.000	30.000	3399.00	101970.00	101970.00	101970.00	21.05
			Water for curing	KL	15.750	15.750	15.750	63.20	995.40	995.40	995.40	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	444.00	67.93	67.93	67.93	L-12
			Mason	day	1.500	1.500	1.500	541.00	811.50	811.50	811.50	L-10
			Mazdoor	day	2.325	2.325	2.325	428.00	995.10	995.10	995.10	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum Capacity)	tonne-km	75xL1	75xL1	75xL1	10.87	815.25	815.25	815.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1992.00	1294.80	1294.80	1294.80	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3827.00	2487.55	2487.55	2487.55	PM36001
			Water tanker (speed @ 20 km / hr and return speed @ 30 km / hr and 30 mins for unloading)									L1=1 Km
			(i) 16 KL capacity	hour	0.109xL1+ 0.656			1204.00	921.06			PM11001
			(ii) 12 KL capacity	hour		0.146xL1+ 0.875		1030.00		1051.63		PM11002
			(iii) 6 KL capacity	hour			0.292XL1+ 1.75	789.00			1611.14	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material , labour and machinery						11035.86	11048.92	11104.87	
			e) Overhead charges on (a+b+c+d)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		9711.56	12153.81	14658.42	
			f) Contractor's profit on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		13110.60	13369.19	13681.20	
			Cost for 30 cum = a+b+c+d+e+f						144216.61	147061.07	150493.16	
			Rate per cum = (a+b+c+d+e+f)/ 30						4807.22	4902.04	5016.44	
								Say	**4807.20**	**4902.00**	**5016.40**	
		Case II	**RCC Grade M20 using batching plant , transit mixer & manual placing**									

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PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Unit = cum									
			Taking output = 15 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.05)	cum	15.000	15.000	15.000	3399.00	50985.00	50985.00	50985.00	21.05
			Water for curing	KL	7.875	7.875	7.875	63.20	497.70	497.70	497.70	M-191
			b) Labour									
			For pouring and placing									
			Male	day	0.420	0.420	0.420	444.00	186.48	186.48	186.48	L-12
			Mason	day	1.500	1.500	1.500	541.00	811.50	811.50	811.50	L-10
			Mazdoor	day	9.000	9.000	9.000	428.00	3852.00	3852.00	3852.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum Capacity)	tonne-km	37.5xL1	37.5xL1	37.5xL1	10.87	407.63	407.63	407.63	PM76001
			For unloading	hour	0.833	0.833	0.833	1992.00	1659.34	1659.34	1659.34	PM34001
			Water tanker (speed @ 20 km / hr and return speed @ 30 km / hr and 30 mins for unloading)									L1=1 Km
			(i) 16 KL capacity	hour	0.055xL1+ 0.328			1204.00	461.13			PM11001
			(ii) 12 KL capacity	hour		0.073xL1+ 0.438		1030.00		526.33		PM11002
			(iii) 6 KL capacity	hour			0.146XL1+ 0.875	789.00			805.57	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material , labour and machinery						5886.08	5892.60	5920.52	
			e) Overhead charges on (a+b+c+d)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		5179.75	6481.86	7815.09	
			f) Contractor's profit on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		6992.66	7130.04	7294.08	
			Cost for 15 cum = a+b+c+d+e+f						76919.26	78430.47	80234.90	
			Rate per cum = (a+b+c+d+e+f)/ 15						5127.95	5228.70	5348.99	
								Say	**5128.00**	**5228.70**	**5349.00**	

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
9.06		D	**PCC Grade M25**									
		Case I	PCC Grade M25 using batching plant , transit mixer & Concrete pump									
			Unit = cum									
			Taking output = 30 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.06)	cum	30.000	30.000	30.000	3737.70	112131.00	112131.00	112131.00	21.06
			Water for curing	KL	15.750	15.750	15.750	63.20	995.40	995.40	995.40	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.113	0.113	0.113	444.00	50.17	50.17	50.17	L-12
			Mason	day	1.500	1.500	1.500	541.00	811.50	811.50	811.50	L-10
			Mazdoor	day	1.325	1.325	1.325	428.00	567.10	567.10	567.10	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum Capacity)	tonne-km	75xL1	75xL1	75xL1	10.87	815.25	815.25	815.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1992.00	1294.80	1294.80	1294.80	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3827.00	2487.55	2487.55	2487.55	PM36001
			Water tanker (speed @ 20 km / hr and return speed @ 30 km / hr and 30 mins for unloading)									L1=1 Km
			(i) 16 KL capacity	hour	0.109xL1+ 0.656			1204.00	921.06			PM11001
			(ii) 12 KL capacity	hour		0.146xL1+ 0.875		1030.00		1051.63		PM11002
			(iii) 6 KL capacity	hour			0.292XL1+ 1.75	789.00			1611.14	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material , labour and machinery						12007.38	12020.44	12076.39	

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			e) Overhead charges on (a+b+c+d)		(@ 8%)	(@ 10%)	(@ 12%)		10566.50	13222.48	15940.84	
			f) Contractor's profit on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		14264.77	14544.73	14878.11	
			Cost for 30 cum = a+b+c+d+e+f						156912.48	159992.06	163659.25	
			Rate per cum = (a+b+c+d+e+f)/ 30						5230.42	5333.07	5455.31	
								Say	**5230.40**	**5333.10**	**5455.30**	
		Case II	PCC Grade M25 using batching plant , transit mixer & manual placing									
			Unit = cum									
			Taking output = 15 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.06)	cum	15.000	15.000	15.000	3737.70	56065.50	56065.50	56065.50	21.06
			Water for curing	KL	7.875	7.875	7.875	63.20	497.70	497.70	497.70	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.380	0.380	0.380	444.00	168.72	168.72	168.72	L-12
			Mason	day	1.500	1.500	1.500	541.00	811.50	811.50	811.50	L-10
			Mazdoor	day	8.000	8.000	8.000	428.00	3424.00	3424.00	3424.00	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum Capacity)	tonne-km	37.5xL1	37.5xL1	37.5xL1	10.87	407.63	407.63	407.63	PM76001
			For unloading	hour	0.833	0.833	0.833	1992.00	1659.34	1659.34	1659.34	PM34001
			Water tanker (speed @ 20 km / hr and return speed @ 30 km / hr and 30 mins for unloading)									L1=1 Km
			(i) 16 KL capacity	hour	0.055xL1+ 0.328			1204.00	461.13			PM11001
			(ii) 12 KL capacity	hour		0.073xL1+ 0.438		1030.00		526.33		PM11002
			(iii) 6 KL capacity	hour			0.146XL1+ 0.875	789.00			805.57	PM11003

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PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material , labour and machinery						6349.55	6356.07	6384.00	
			e) Overhead charges on (a+b+c+d)		(@ 8%)	(@ 10%)	(@ 12%)		5587.61	6991.68	8426.87	
			f) Contractor's profit on (a+b+c+d+e)		(@ 10%)	(@ 10%)	(@ 10%)		7543.27	7690.85	7865.08	
			Cost for 15 cum = a+b+c+d+e+f						82975.94	84599.31	86515.90	
			Rate per cum = (a+b+c+d+e+f)/ 15						5531.73	5639.95	5767.73	
								Say	**5531.70**	**5640.00**	**5767.70**	
9.06		**E**	**RCC Grade M25**									
		Case I	RCC Grade M25 using batching plant , transit mixer & Concrete pump									
			Unit = cum									
			Taking output = 30 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.07)	cum	30.000	30.000	30.000	3748.20	112446.00	112446.00	112446.00	21.07
			Water for curing	KL	15.750	15.750	15.750	63.20	995.40	995.40	995.40	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.153	0.153	0.153	444.00	67.93	67.93	67.93	L-12
			Mason	day	1.500	1.500	1.500	541.00	811.50	811.50	811.50	L-10
			Mazdoor	day	2.325	2.325	2.325	428.00	995.10	995.10	995.10	L-13
			c) Machinery									
			Transit truck agitator									
			For transportation (6 cum Capacity)	t-km	75xL1	75xL1	75xL1	10.87	815.25	815.25	815.25	PM76001
			For unloading	hour	0.650	0.650	0.650	1992.00	1294.80	1294.80	1294.80	PM34001
			Hydraulic Boom placer pump	hour	0.650	0.650	0.650	3827.00	2487.55	2487.55	2487.55	PM36001
			Water tanker (speed @ 20 km / hr and return speed @ 30 km / hr and 30 mins for unloading)									L1=1 Km

CHAPTER-9
Analysis of Rate
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			(i) 16 KL capacity	hour	0.109xL1+ 0.656			1204.00	921.06			PM11001
			(ii) 12 KL capacity	hour		0.146xL1+ 0.875		1030.00		1051.63		PM11002
			(iii) 6 KL capacity	hour			0.292XL1+ 1.75	789.00			1611.14	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material , labour and machinery						12083.46	12096.52	12152.47	
			e) Overhead charges on (a+b+c+d)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		10633.44	13306.17	16041.26	
			f) Contractor's profit on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		14355.15	14636.78	14971.84	
			Cost for 30 cum = a+b+c+d+e+f						157906.64	161004.63	164690.23	
			Rate per cum = (a+b+c+d+e+f)/ 30						5263.55	5366.82	5489.67	
								Say	**5263.60**	**5366.80**	**5489.70**	
		Case II	RCC Grade M25 using batching plant , transit mixer & manual placing									
			Unit = cum									
			Taking output = 15 cum									
			a) Material									
			Per Cum Basic Cost (Rate taken from sub-analysis 21.07)	cum	15.000	15.000	15.000	3748.20	56223.00	56223.00	56223.00	21.07
			Water for curing	KL	7.875	7.875	7.875	63.20	497.70	497.70	497.70	M-191
			b) Labour									
			For pouring and placing									
			Mate	day	0.420	0.420	0.420	444.00	186.48	186.48	186.48	L-12
			Mason	day	1.500	1.500	1.500	541.00	811.50	811.50	811.50	L-10
			Mazdoor	day	9.000	9.000	9.000	428.00	3852.00	3852.00	3852.00	L-13
			c) Machinery									
			Transit truck agitator									L1=1 Km
			For transportation (6 cum Capacity)	t-km	37.5xL1	37.5xL1	37.5xL1	10.87	407.63	407.63	407.63	PM76001
			For unloading	hour	0.833	0.833	0.833	1992.00	1659.34	1659.34	1659.34	PM34001

CHAPTER-9
Analysis of Rate
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Water tanker (speed @ 20 km / hr and return speed @ 30 km / hr and 30 mins for unloading)									L1=1 Km
			(i) 16 KL capacity	hour	0.055xL1+ 0.328			1204.00	461.13			PM11001
			(ii) 12 KL capacity	hour		0.073xL1+ 0.438		1030.00		526.33		PM11002
			(iii) 6 KL capacity	hour			0.146XL1+ 0.875	789.00			805.57	PM11003
			d) Formwork @ 10 percent on cost of concrete i.e. cost of material , labour and machinery						6409.88	6416.40	6444.32	
			e) Overhead charges on (a+b+c+d)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		5640.69	7058.04	8506.50	
			f) Contractor's profit on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		7614.93	7763.84	7939.40	
			Cost for 15 cum = a+b+c+d+e+f						83764.28	85402.25	87333.44	
			Rate per cum = (a+b+c+d+e+f)/ 15						5584.29	5693.48	5822.23	
								Say	**5584.30**	**5693.50**	**5822.20**	
9.07	**1600**		**Supplying ,Fitting and Placing un-coated HYSD bar Reinforcement in Foundation complete as per Drawing and Technical Specifications.**									
			Unit = MT									
			Taking output = 8 MT									
			a) Material									
			HYSD bars including 5 percent overlaps and wastage	tonne	8.400	8.400	8.400	46087.50	387135.00	387135.00	387135.00	M-083
			Binding wire	Kg	48.000	48.000	48.000	49.41	2371.68	2371.68	2371.68	M-072
			b) Labour for									
			straightening , cutting ,bending , shifting to site ,tying and placing in position									

CHAPTER-9
Analysis of Rate
PIPE CULVERTS

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mate	day	0.160	0.160	0.160	444.00	71.04	71.04	71.04	L-12
			Blacksmith	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-25
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			c) Machinery									
			Cutting Machine & Bending Machine	hour	5.333	5.333	5.333	414.00	2207.86	2207.86	2207.86	PM43001
			Electric generator 15 KVA	hour	5.333	5.333	5.333	300.00	1599.90	1599.90	1599.90	PM22009
			Tipper									
			Tipper for transportation									
			(i) 18 cum capacity	t-km	8xL1			4.98	39.84			PM72001
			(ii) 14 cum capacity	t-km		8xL1		5.71		45.68		PM73001
			(iii) 10 cum capacity	t-km			8xL1	7.10			56.80	PM74001
			loading & unloading time									
			(i) 18 cum capacity	hour	1.000			2349.00	2349.00			PM6001
			(ii) 14 cum capacity	hour		1.280		2108.00		2698.24		PM6002
			(iii) 10 cum capacity	hour			1.778	1891.00			3362.20	PM6003
			Light weight Crane									
			At cutting bending yard	hour	2.000	2.000	2.000	860.00	1720.00	1720.00	1720.00	PM63001
			At site	hour	2.000	2.000	2.000	860.00	1720.00	1720.00	1720.00	PM63001
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		32083.15	40139.44	48248.34	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		43312.25	44153.38	45031.78	
			Cost for 8 MT (a+b+c+d+e)						476434.71	485687.23	495349.60	
			Rate for per MT (a+b+c+d+e)/ 8						59554.34	60710.90	61918.70	
								Say	**59554.30**	**60710.90**	**61918.70**	

CHAPTER - 10

MAINTENANCE OF ROADS

CHAPTER-10

MAINTENANCE OF ROADS

PREAMBLES :

1 In case of rain cuts, it has been assumed that some material cut by rain, approximately 25 percent, will be available at site which can be retrieved and re-used and the balance 75 percent is required to be provided as fresh material.

2 For making up earthen shoulders, it has been assumed that on an average 150 mm filling will be required. Similarly, for stripping of excess soil from the shoulder, an average depth of 75 mm has been assumed.

3 In the case of chocking of drain, it has been assumed that half the depth of drain has been filled with earth/debris, which requires clearance.

4 During the process of landslide clearance on hill roads, it has been assumed that earth will be disposed off by the dozer on the valley side. In case there is any objection to this arrangement due to particular site conditions, resources like loader and tripper will have to be provided for disposal of earth/debris for the lead involved.

5 Pot hole repair and patchwork are provided to be done by mechanical means.

6 The rates for items like slurry seal, for spray, crack prevention courses, surface dressing & micro-surfacing for maintenance works have been included in Chapter-5.

7 The cost of other items like repair of ruts and undulation maintenance of earthen shoulders, cross drainage works, minor and major bridges and miscellaneous items like turfing and arboriculture, painting and lettering on km stones, repair to signage, repair to foothpath, street light, railing, dividers, separators and under passes for pedestrians has been given in the "Report of the Committee on Norms for Maintenance on Roads in India" published by IRC in January 2001 which may be referred for guidance.

8 The repair items related to bridges have been given in Chapter-17

CHAPTER - 10
Summary of Rate Analysis
MAINTENANCE OF ROADS

Sr. No.		Description	Unit	Rate (₹)		
				Large	Medium	Small
10.01		**Restoration of Rain Cuts**				
		Restoration of rain cuts with soil, moorum, gravel or a mixture of these, clearing the loose soil, benching for 300 mm width, laying fresh material in layers not exceeding 250 mm and compacting with plate compactor or power rammers to restore the original alignment, levels and slopes	Cum	145.00	148.90	155.30
10.02		**Maintenance of Earthen Shoulder (filling with fresh soil)**				
		Making up loss of material/ irregularities on shoulder to the design level by adding fresh approved soil and compacting it with appropriate equipment.	Sqm	92.40	94.30	96.60
10.03		**Maintenance of Earth Shoulder (stripping excess soil)**				
		Stripping excess soil from the shoulder surface to achieve the approved level and compacting with plate compactor	Sqm	35.40	36.00	36.70
10.04		**Filling Pot-holes and Patch Repairs with open-Graded Premix surfacing, 20mm.**				
		Removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat on the sides and base of excavation as per clause 503, back filling the pot holes with hot bituminous material as per clause 510, compacting, trimming and finishing the surface to form a smooth continuous surface, all as per clause 3004.2	Sqm	170.40	173.00	176.40
10.05		**Filling Pot-holes and Patch Repairs with Bituminous concrete, 40mm.**				
		Removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat on the sides and base of excavation as per clause 503, back filling the pot holes with hot bituminous material as per clause 504, compacting, trimming and finishing the surface to form a smooth continuous surface, all as per clause 3004.2				
10.05	(i)	**for grading I Material**	Sqm	476.70	484.20	493.60
10.05	(ii)	**for grading II Material**	Sqm	465.40	472.60	481.80
10.06		**Crack Filling**				

Sr. No.		Description	Unit	Rate (₹)		
				Large	Medium	Small
		Filling of crack using slow - curing bitumen emulsion and applying crusher dust in case crack are wider than 3mm.	Running Metre	5.30	5.40	5.50
10.07		**Dusting**				
		Applying crusher dust to areas of road where bleeding of excess bitumen has occurred.	Sqm	0.90	0.90	0.90
10.08	**(A)**	**Fog Seal**	sqm			
	(B)	**Crack Prevention courses.**				
	(i)	Stress Absorbing Membrane (SAM) crack width less than 6 mm	sqm			
	(ii)	Stress Absorbing Membrane (SAM) with crack width 6 mm to 9 mm	sqm			
	(iii)	Stress Absorbing Membrane (SAM) crack width above 9 mm and cracked area above 50 percent	sqm			
	(iv)	Bitumen Impregnated Geotextile	sqm			
10.08	**(C)**	**Slurry Seal**				
	(i)	5 mm thickness	sqm			
	(ii)	3 mm thickness	sqm			
	(iii)	1.5 mm thickness	sqm			
10.08	**(D)**	**Surface Dressing for maintenance works.**				
	(i)	19 mm nominal chipping size	sqm			
	(ii)	13 mm nominal size chipping	sqm			
		The above mentioned items have already been included in chapter 5.				
10.09		**Repair of Joint Grooves with Epoxy Mortar**				
		Repair of spalled joint grooves of contraction joints, longitudinal joints and expansion joints in concrete pavements using epoxy mortar or epoxy concrete.	Running Metre	521.30	531.00	540.60
10.10		**Repair of old Joints Sealant**				
		Removal of existing sealant and re sealing of contraction, longitudinal or expansion joints in concrete pavement with fresh sealant material.	Running Metre	35.70	36.30	37.00
10.11		**Hill Side Drain Clearance**				
		Removal of earth from the choked hill side drain and disposing it on the valley side manually	Running Metre	53.00	53.90	54.90
10.12		**Land Slide Clearance in soil**				

Sr. No.		Description	Unit	Rate (₹)		
				Large	Medium	Small
		Clearance of land slides in soil and ordinary rock by a bull-dozer D 80 A-12, 180 HP and disposal of the same on the valley side	Cum	91.80	93.50	95.20
10.13		**Landslide Clearance in Hard Rock Requiring Blasting**				
		Clearing of land slide in hard rock requiring blasting for 50 per cent of the boulders and disposal of the same on the valley side.	Cum	146.10	148.80	151.60
10.14		**Snow Clearance on Roads with Dozer**	Cum	6.30	6.40	6.50
		Snow clearance from road surface by a bull- dozer 165 Hp and disposing it on the valley side				
10.15		**Snow Clearance on Roads with Snow Blowers**				
		Snow clearance from road surface by a snow blower and disposing on the valley side.	Cum	8.90	9.10	9.30
10.16		**Replacement of Metal Beam Crash Barrier**				
	A	Type - A , " W" : Metal Beam Crash Barrier	Running Metre	#VALUE!	#VALUE!	#VALUE!
		Replacement of "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail , 70 cm above road / ground level , fixed on ISMC series channel vertical post , 150x75x5 mm spaced 2 m centre to centre, 1.8 m high , 1.1 m below ground /road level, all steel parts and fitments to be galvanised by hot dip process , all fittings to conform to IS: 1367 and IS :1364 , metal beam rail to be fixed on the vertical post with a spacer of channel section 150x75x5 mm ,330 mm long complete as per clause 811				
10.16	**B**	**Type - B , " THRIE" : Metal Beam Crash Barier**	Running Metre	#VALUE!	#VALUE!	#VALUE!
		Replacement of "Thrie" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail , 85 cm above road/ ground level , fixed on ISMC series channel verrtical post , 150 x 75 x 5 mm spaced 2 m centre to centre,2 m high with 1.15 m below ground level, all steel parts and fitments to be galvanised by hot dip process ,all fittings to conform to				

Sr. No.		Description	Unit	Rate (₹)		
				Large	Medium	Small
		IS: 1367 and IS :1364 , metal beam rail to be fixed on the vertical post with a space of channel section 150x75x5 mm, 546 mm long complete as per clause 811				
10.17		**Network Survey Vehicle (NSV) attached with SUV**				
		Data collection of longitudinal profiling (International Roughness Index),Transverse profiling (Rut Depth) , Pavement Texture in terms of Mean Profile Depth , Road Geometry Data (cross slope , gradient , curvature), GPS coordinates (X , Y , Z) viz. longitude , latitude & altitude , video imaging for Roadside furniture/ Road Assets and Video imaging for Pavement Surface Distresses and reports.	KM	878.80	895.10	911.30
10.18		**Falling weight deflectometer (FWD)**	KM	696.20	709.00	721.90
10.19		**Road Retro reflectometer attached with SUV**	KM	3965.80	4039.20	4112.70
10.20		**Automatic Vehicle Counter Classifier (ATCC)**	Location	127405.00	129764.30	132114.80

Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
10.01	3002.0		**Restoration of Rain Cuts**									
			Restoration of rain cuts with soil, moorum, gravel or a mixture of these, clearing the loose soil, benching for 300 mm width, laying fresh material in layers not exceeding 250 mm and compacting with plate compactor or power rammers to restore the original alignment, levels and slopes									
			Unit = cum									
			Taking output = 10 cum									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Machinery Hydraulic Excavator									
			(i) 1.2 cum bucket capacity	hour	0.007			2809.00	19.66			PM3003
			(ii) 1.1 cum bucket capacity	hour		0.008		2538.00		20.30		PM3004
			(iii) 0.9 cum bucket capacity	hour			0.012	2312.00			27.74	PM3005
			Tipper for transportation to dumping yard considering lead @ 1 km									
			(i) 18 cum capacity	t-km	12×L2			4.98	59.76			PM72001
			(ii) 14 cum capacity	t-km		12×L2		5.71		68.52		PM73001
			(iii) 10 cum capacity	t-km			12×L2	7.10			85.20	PM74001
			For loading & unloading									
			(i) 18 cum capacity	hour	0.007			2349.00	16.44			PM6001
			(ii) 14 cum capacity	hour		0.008		2108.00		16.86		PM6002
			(iii) 10 cum capacity	hour			0.012	1891.00			22.69	PM6003
			Plate compactor	hour	0.500	0.500	0.500	466.00	233.00	233.00	233.00	PM46001
			c) Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		97.63	123.02	151.22	
			d) Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		131.80	135.32	141.14	
			Cost for 10 cum = a+b+c+d						1449.82	1488.55	1552.51	
			Rate per cum = (a+b+c+d)/10						144.98	148.86	155.25	
								Say	**145.00**	**148.90**	**155.30**	

CHAPTER - 10
Analysis of Rate
MAINTENANCE OF ROADS

Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
		Note	Only 75 percent of fresh material has been provided as 25 per cent can be retrieved at site from earth that is flown down the slope in the form of slurry and deposited at the foot of there in cuts									
10.02	**3003.0**		**Maintenance of Earthen Shoulder (filling with fresh soil)**									
			Making up loss of material/ irregularities on shoulder to the design level by adding fresh approved soil and compacting it with appropriate equipment.									
			Unit = sqm									
			Taking output = 100 sqm									
			Assuming average thickness of filling to be 150 mm									
			Quantity of fresh material = 15 cum									
			a) Labour									
			Mate	day	0.180	0.180	0.180	444.00	79.92	79.92	79.92	L-12
			Mazdoor	day	4.500	4.500	4.500	428.00	1926.00	1926.00	1926.00	L-13
			b) Machinery Hydraulic Excavator									
			(i) 1.2 cum bucket capacity	hour	0.011			2809.00	30.90			PM3003
			(ii) 1.1 cum bucket capacity	hour		0.012		2538.00		30.46		PM3004
			(iii) 0.9 cum bucket capacity	hour			0.017	2312.00			39.30	PM3005
			Tipper For transportation to dumping yard considering lead @ 1 km									
			(i) 18 cum capacity	t-km	24×L2			4.98	119.52			PM72001
			(ii) 14 cum capacity	t-km		24×L2		5.71		137.04		PM73001
			(iii) 10 cum capacity	t-km			24×L2	7.10			170.40	PM74001
			For loading & unloading									
			(i) 18 cum capacity	hour	0.011			2349.00	25.84			PM6001
			(ii) 14 cum capacity	hour		0.012		2108.00		25.30		PM6002
			(iii) 10 cum capacity	hour			0.017	1891.00			32.15	PM6003
			Plate compactor @ 25 sqm per hour	hour	12.000	12.000	12.000	466.00	5592.00	5592.00	5592.00	PM46001

Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		621.93	779.07	940.77	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		839.61	856.98	878.05	
			Cost for 100 sqm = a+b+c+d						9235.72	9426.76	9658.60	
			Rate per sqm = (a+b+c+d)/100						92.36	94.27	96.59	
								Say	**92.40**	**94.30**	**96.60**	
10.03	3003.0		Maintenance of Earth Shoulder (stripping excess soil)									
			Stripping excess soil from the shoulder surface to achieve the approved level and compacting with plate compactor									
			Unit = sqm									
			Taking output = 100 sqm									
			Assuming average depth of stripping as 75 mm									
			Quantity of earth cutting involved = 7.5 cum									
			a) Labour									
			Mate	day	0.100	0.100	0.100	444.00	44.40	44.40	44.40	L-12
			Mazdoor	day	2.500	2.500	2.500	428.00	1070.00	1070.00	1070.00	L-13
			b) Machinery									
			Plate compactor @ 25 sqm per hour	hour	4.000	4.000	4.000	466.00	1864.00	1864.00	1864.00	PM46001
			c) Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		238.27	297.84	357.41	
			d) Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		321.67	327.62	333.58	
			Cost for 100 sqm = a+b+c+d						3538.34	3603.86	3669.39	
			Rate per sqm on= (a+b+c+d)/100						35.38	36.04	36.69	
								Say	**35.40**	**36.00**	**36.70**	
		Note	The earth stripped from earthen shoulders to be dumped on the side slopes locally for disposal.									
10.04	3004.2		Filling Pot-holes and Patch Repairs with open-Graded Premix surfacing, 20mm.									

CHAPTER - 10
Analysis of Rate
MAINTENANCE OF ROADS

Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
			Removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat on the sides and base of excavation as per clause 503, back filling the pot holes with hot bituminous material as per clause 510, compacting, trimming and finishing the surface to form a smooth continuous surface, all as per clause 3004.2									
			Unit = Sqm									
			Taking out put = 10250 sqm									
			a) Labour									
			Mate	Day	3.760	3.760	3.760	444.00	1669.44	1669.44	1669.44	L-12
			Mazdoor	Day	90.000	90.000	90.000	428.00	38520.00	38520.00	38520.00	L-13
			Mazdoor skilled	Day	4.000	4.000	4.000	541.00	2164.00	2164.00	2164.00	L-15
			b) Machinery Hot mix Plant									
			(i) HMP 200 TPH	hour	2.700			84145.00	227191.50			PM18001
			(i) HMP 160 TPH	hour		3.375		66183.00		223367.63		PM18002
			(i) HMP 120 TPH	hour			4.500	50039.00			225175.50	PM18003
			Mechanical broom (2.1m sweeping width)	hour	3.051	3.051	3.051	834.00	2544.53	2544.53	2544.53	PM23001
			Air compressor 250 cfm	hour	3.051	3.051	3.051	496.00	1513.30	1513.30	1513.30	PM15001
			Electric generator									
			(i) 500 KVA	hour	2.700			5394.00	14563.80			PM22002
			(ii) 400 KVA	hour		3.375		4356.00		14701.50		PM22003
			(iii) 250 KVA	hour			4.500	3064.00			13788.00	PM22004
			Front end loader for feeding the plant									
			(i) 3.1 Cum Capacity	hour	2.700			3523.00	9512.10			PM5001
			(ii) 2.1 Cum Capacity	hour		3.375		2121.00		7158.38		PM5002
			(iii) 1 Cum Capacity	hour			4.500	1454.00			6543.00	PM5003
			Tipper									
			For transportation									
			(i) 18 cum capacity	t-km	405×L			4.98	2016.90			PM72001
			(ii) 14 cum capacity	t-km		405×L		5.71		2312.55		PM73001

Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
			(iii) 10 cum capacity	t-km			405×L	7.10			2875.50	PM74001
			For loading & unloading time									
			(i) 18 cum capacity	hour	2.700			2349.00	6342.30			PM6001
			(ii) 14 cum capacity	hour		3.375		2108.00		7114.50		PM6002
			(iii) 10 cum capacity	hour			4.500	1891.00			8509.50	PM6003
			Smooth steel wheeled tandem roller for static and vibratory passages	hour	14.512	14.512	14.512	1650.00	23944.80	23944.80	23944.80	PM8001
			c) Material									
			Crushed stone aggregates nominal size 13.2 mm	cum	184.500	184.500	184.500	631.69	116546.81	116546.81	116546.81	M-051
			Crushed stone aggregates nominal size 11.2 mm	cum	92.250	92.250	92.250	631.69	58273.40	58273.40	58273.40	M-050
			Bitumen 80/100	tonne	14.970	14.970	14.970	55548.00	831553.56	831553.56	831553.56	M-075
			Bitumen emulsion for tack coat including vertical sides of pot hole.	tonne	2.460	2.460	2.460	54349.00	133698.54	133698.54	133698.54	M-077
			d) Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		117604.40	146508.29	176078.39	
			e) Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		158765.94	161159.12	164339.83	
			Cost for 10250 sqm = a+b+c+d+e						1746425.31	1772750.34	1807738.09	
			Rate per sqm = (a+b+c+d+e)/10250						170.38	172.95	176.36	
								Say	**170.40**	**173.00**	**176.40**	
10.05	**3004.2**		**Filling Pot-holes and Patch Repairs with Bituminous concrete, 40mm.**									
			Removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat on the sides and base of excavation as per clause 503, back filling the pot holes with hot bituminous material as per clause 504, compacting, trimming and finishing the surface to form a smooth continuous surface, all as per clause 3004.2									
			Unit = Sqm									

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Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
			Taking out put = 4900 sqm									
			a) Labour									
			Mate	Day	2.920	2.920	2.920	444.00	1296.48	1296.48	1296.48	L-12
			Mazdoor	Day	70.000	70.000	70.000	428.00	29960.00	29960.00	29960.00	L-13
			Mazdoor skilled	Day	3.000	3.000	3.000	541.00	1623.00	1623.00	1623.00	L-15
			b) Machinery Hot Mix Plant									
			(i) HMP 200 TPH	hour	3.000			84145.00	252435.00			PM18001
			(ii) HMP 160 TPH	hour		3.750		66183.00		248186.25		PM18002
			(iii) HMP 120 TPH	hour			5.000	50039.00			250195.00	PM18003
			Mechanical broom (2.1m sweeping width)	hour	1.458	1.458	1.458	834.00	1215.97	1215.97	1215.97	PM23001
			Air compressor 250 cfm	hour	1.458	1.458	1.458	496.00	723.17	723.17	723.17	PM15001
			Electric generator									
			(i) 500 KVA	hour	3.000			5394.00	16182.00			PM22002
			(ii) 400 KVA	hour		3.750		4356.00		16335.00		PM22003
			(iii) 250 KVA	hour			5.000	3064.00			15320.00	PM22004
			Front end loader for feeding the plant									
			(i) 3.1 cum capacity	hour	3.000			3523.00	10569.00			PM5001
			(ii) 2.1 cum capacity	hour		3.750		2121.00		7953.75		PM5002
			(iii) 1 cum capacity	hour			5.000	1454.00			7270.00	PM5003
			Tipper									
			For Transportation									
			(i) 18 cum capacity	t.km	450x L			4.98	2241.00			PM72001
			(ii) 14 cum capacity	t.km		450x L		5.71		2569.50		PM73001
			(iii) 10 cum capacity	t.km			450x L	7.10			3195.00	PM74001
			For loading & unloading time									
			(i) 18 cum capacity	hour	3.000			2349.00	7047.00			PM6001
			(ii) 14 cum capacity	hour		3.750		2108.00		7905.00		PM6002
			(iii) 10 cum capacity	hour			5.000	1891.00			9455.00	PM6003
			Smooth steel wheeled tandem roller for static and vibratory passages	hour	13.875	13.875	13.875	1650.00	22893.75	22893.75	22893.75	PM8001
			c) Material									
			I) Bitumen	tonne	23.890	23.890	23.890	55548.00	1327041.72	1327041.72	1327041.72	M-075

Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
			ii) Bitumen emulsion for tack coat .	tonne	1.180	1.180	1.180	54349.00	64131.82	64131.82	64131.82	M-077
			iii) Aggregates									
			Grading I - 19mm (Nominal size)									
			20-10mm 38 percent	cum	108.255	108.255	108.255	963.12	104262.56	104262.56	104262.56	M-044
			10-5 mm 17 percent	cum	48.430	48.430	48.430	631.690	30592.75	30592.75	30592.75	M-039
			5mm and below 43 per cent	cum	122.499	122.499	122.499	452.950	55485.92	55485.92	55485.92	M-029
			Filler @ 2 percent of weight of aggregates	tonne	8.546	8.546	8.546	3222.77	27541.79	27541.79	27541.79	M-190
			Add 5 per cent for wastage						10894.15	10894.15	10894.15	
			or									
			Grading-II 13mm (Nominal size)									
			13.2-10 mm 21 percent	cum	59.825	59.825	59.825	631.69	37790.85	37790.85	37790.85	M-043
			10-5 mm 17 percent	cum	48.430	48.430	48.430	631.69	30592.75	30592.75	30592.75	M-039
			5 mm and Below 60 percent	cum	170.928	170.928	170.928	452.95	77421.84	77421.84	77421.84	M-029
			Filler 2 percent	tonne	8.546	8.546	8.546	3222.77	27541.79	27541.79	27541.79	M-190
			Add 5 per cent for wastage						8667.36	8667.36	8667.36	
			Any one of the above alternatives of aggregate i.e. 19mm or 13mm nominal size may be adopted as per approved design.									
10.05		**(i)**	**for grading I Material**									
			d)Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		157290.97	196061.26	235571.77	
			e)Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		212342.80	215667.38	219866.98	
			Cost for 4900 sqm = a+b+c+d+e						2335770.85	2372341.22	2418536.83	
			Rate per sqm = (a+b+c+d+e)/4900						476.69	484.15	493.58	
								Say	**476.70**	**484.20**	**493.60**	
10.05		**(ii)**	**for grading II Material**									
			d)Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		153549.96	191385.00	229960.26	
			e)Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		207292.45	210523.50	214629.58	
			Cost for 4900 sqm = a+b+c+d+e						2280216.91	2315758.50	2360925.34	
			Rate per sqm = (a+b+c+d+e)/4900						465.35	472.60	481.82	
								Say	**465.40**	**472.60**	**481.80**	

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Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
		Note	For detailed working of quantities of aggregates,& bitumen refer item 5.05 of chapter 5.									
10.06	3004.3.3		**Crack Filling**									
			Filling of crack using slow - curing bitumen emulsion and applying crusher dust in case crack are wider than 3mm.									
			Unit = Running Meter									
			Taking out put = 500m									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Material									
			Slow-curing bitumen emulsion	Kg	33.000	33.000	33.000	54.349	1793.52	1793.52	1793.52	M-077
			Stone crusher dust	cum	0.020	0.020	0.020	274.20	5.48	5.48	5.48	M-020
			c)Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		179.58	224.48	269.37	
			d)Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		242.43	246.92	251.41	
			Cost for 500m = a+b+c+d						2666.78	2716.16	2765.55	
			Rate per meter = (a+b+c+d)/500						5.33	5.43	5.53	
								Say	**5.30**	**5.40**	**5.50**	
10.07	3004.4		**Dusting**									
			Applying crusher dust to areas of road where bleeding of excess bitumen has occurred.									
			Unit = Sqm									
			Taking output = 3500 sqm									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Material									
			Stone crusher dust finer than 3mm with not more than 10 percent passing 0.075 sieve.	cum	6.250	6.250	6.250	274.20	1713.75	1713.75	1713.75	M-020

Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
			c)Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		208.42	260.53	312.63	
			d)Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		281.37	286.58	291.79	
			Cost for 3500sqm = a+b+c+d						3095.06	3152.38	3209.69	
			Rate per sqm = (a+b+c+d)/3500						0.88	0.90	0.92	
								Say	0.90	0.90	0.90	
10.08	(A) 3004.3.2		Fog Seal	sqm								
	(B) 3004.3.4		Crack Prevention courses.									
		(i)	Stress Absorbing Membrane (SAM) crack width less than 6 mm	sqm								
		(ii)	Stress Absorbing Membrane (SAM) with crack width 6 mm to 9 mm	sqm								
		(iii)	Stress Absorbing Membrane (SAM) crack width above 9 mm and cracked area above 50 percent	sqm								
		(iv)	Bitumen Impregnated Geotextile	sqm								
10.08	(C) 3004.5		Slurry Seal									
		(i)	5 mm thickness	sqm								
		(ii)	3 mm thickness	sqm								
		(iii)	1.5 mm thickness	sqm								
10.08	(D) 3004.6		Surface Dressing for maintenance works.									
		(i)	19 mm nominal chipping size	sqm								
		(ii)	13 mm nominal size chipping	sqm								
			The above mentioned items have already been included in chapter 5.									
10.09	3005.1		Repair of Joint Grooves with Epoxy Mortar									

Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
			Repair of spalled joint grooves of contraction joints, longitudinal joints and expansion joints in concrete pavements using epoxy mortar or epoxy concrete.									
			Unit = running metre									
			Taking output = 10 metres									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	0.500	0.500	0.500	428.00	214.00	214.00	214.00	L-13
			Chiseller	day	0.500	0.500	0.500	660.00	330.00	330.00	330.00	L-05
			b) Material									
			Epoxy primer	kg	2.500	2.500	2.500	108.62	271.55	271.55	271.55	M-097
			Epoxy compound with accessories for preparing epoxy mortar	kg	10.000	10.000	10.000	353.00	3530.00	3530.00	3530.00	M-095
			c) Machinery									
			Air compressor 250 cfm for cleaning	hour	0.050	0.050	0.050	496.00	24.80	24.80	24.80	PM15001
			d)Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		351.05	438.81	526.57	
			e)Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		473.92	482.69	491.47	
			Cost for 10 metres = a+b+c+d+e						5213.07	5309.61	5406.15	
			Rate per metre = (a+b+c+d+e)/10						521.31	530.96	540.62	
								Say	**521.30**	**531.00**	**540.60**	
10.10	**3005.2**		**Repair of old Joints Sealant**									
			Removal of existing sealant and re sealing of contraction, longitudinal or expansion joints in concrete pavement with fresh sealant material.									
			Unit = running metre									
			Taking output = 10 metres									
			a) Labour									
			Mate	day	0.020	0.020	0.020	444.00	8.88	8.88	8.88	L-12
			Mazdoor	day	0.500	0.500	0.500	428.00	214.00	214.00	214.00	L-13
			b) Material									
			Primer	kg	0.250	0.250	0.250	85.21	21.30	21.30	21.30	M-145

Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
			Sealant	kg	1.000	1.000	1.000	31.25	31.25	31.25	31.25	M-119
			c) Machinery									
			Air compressor 250 cfm for cleaning	hour	0.050	0.050	0.050	496.00	24.80	24.80	24.80	PM15001
			d)Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		24.02	30.02	36.03	
			e)Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		32.43	33.03	33.63	
			Cost for 10 metres = a+b+c+d+e						356.68	363.28	369.89	
			Rate per metre = (a+b+c+d+e)/10						35.67	36.33	36.99	
								Say	**35.70**	**36.30**	**37.00**	
10.11			**Hill Side Drain Clearance**									
			Removal of earth from the choked hill side drain and disposing it on the valley side manually									
			Unit = running metre									
			Taking output = 10 metres									
			Assuming muck causing choking of drain to be 0.2 cum per metre, quantity of earth to be removed for 10 metres = 2 cum									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b)Overhead charges on (a)		(@ 8%)	(@ 10%)	(@ 12%)		35.66	44.58	53.49	
			c)Contractor's profit on (a+b)		(@ 10%)	(@ 10%)	(@ 10%)		48.14	49.03	49.93	
			Cost for 10 metres = a+b+c						529.56	539.37	549.18	
			Rate per metre = (a+b+c)/10						52.96	53.94	54.92	
								Say	**53.00**	**53.90**	**54.90**	
10.12	**3000**		**Land Slide Clearance in soil**									
			Clearance of land slides in soil and ordinary rock by a bull-dozer D 80 A-12, 180 HP and disposal of the same on the valley side									
			Unit = cum									
			Taking output = 100 cum									
			a) Labour									

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Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Dozer 175 HP	hour	1.670	1.670	1.670	4360.00	7281.20	7281.20	7281.20	PM1002
			c)Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		618.16	772.70	927.24	
			d)Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		834.51	849.97	865.42	
			Cost for 100 cum = a+b+c+d						9179.63	9349.62	9519.61	
			Rate per cum = (a+b+c+d)/100						91.80	93.50	95.20	
								Say	**91.80**	**93.50**	**95.20**	
		Note	Land Slide clearance involves pushing of loose earth slided on the road surface from hill face on the valley side. Since no cutting of original ground is involved, the output of dozer has been taken as 60 cum per hour for soil, ordinary rock and blasted hard rock. However, if there are objection to disposing of earth on valley side, additional resources for its disposal shall be considered as per site conditions.									
10.13	**3000**		**Landslide Clearance in Hard Rock Requiring Blasting**									
			Clearing of land slide in hard rock requiring blasting for 50 per cent of the boulders and disposal of the same on the valley side.									
			Unit = cum									
			Taking output = 100 cum									
			a) Labour									
			Mate	day	0.093	0.093	0.093	444.00	41.29	41.29	41.29	L-12
			Mazdoor	day	1.500	1.500	1.500	428.00	642.00	642.00	642.00	L-13
			Driller	day	0.750	0.750	0.750	444.00	333.00	333.00	333.00	L-06
			Blaster	day	0.070	0.070	0.070	699.00	48.93	48.93	48.93	L-03
			b) Machinery									
			Dozer 175 HP	hour	1.670	1.670	1.670	4360.00	7281.20	7281.20	7281.20	PM1002

Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
			Air compressor 250 cfm with two jack hammer	hour	2.500	2.500	2.500	518.00	1295.00	1295.00	1295.00	PM15001 + 2xPM45001
			c) Materials									
			Explosives	kg	17.500	17.500	17.500	124.27	2174.73	2174.73	2174.73	M-215
			Electric Detonators @ 1 Detonator for 2 Gelatin sticks of 125 gms each	each	70.000	70.000	70.000	6.93	485.10	485.10	485.10	M-217
			d)Overhead charges on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		984.10	1230.12	1476.15	
			e)Contractor's profit on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		1328.53	1353.14	1377.74	
			Cost for 100 cum = a+b+c+d+e						14613.88	14884.51	15155.14	
			Rate per cum = (a+b+c+d+e)/100						146.14	148.85	151.55	
								Say	**146.10**	**148.80**	**151.60**	
		Note	Credit for the rock if found acceptable as construction material shall be afforded									
10.14	**3000.0**		**Snow Clearance on Roads with Dozer**									
			Snow clearance from road surface by a bull- dozer 165 Hp and disposing it on the valley side									
			Unit = cum									
			Taking output = 5000 cum									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Machinery									
			Dozer 175 HP	hour	5.880	5.880	5.880	4360.00	25636.80	25636.80	25636.80	PM1002
			c)Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		2122.27	2652.83	3183.40	
			d)Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		2865.06	2918.12	2971.17	
			Cost for 5000 cum = a+b+c+d						31515.64	32099.27	32682.89	
			Rate per cum = (a+b+c+d)/5000						6.30	6.42	6.54	
								Say	**6.30**	**6.40**	**6.50**	

Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
		Note	I) Labour provided will not be cutting the snow. They will be guiding the dozer operator on the alignment of the road as entire surface gets covered with snow and the edges of the road are not visible and for changing the blade angle. Also they will keep a watch on the hill side for any eventuality of avalanches, slide etc									
10.15	3000		**Snow Clearance on Roads with Snow Blowers**									
			Snow clearance from road surface by a snow blower and disposing on the valley side.									
			Unit = cum									
			Taking output = 3600 cum									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Machinery									
			Snow blower equipment 175 HP @ 600 cum per hour	hour	6.000	6.000	6.000	4360.00	26160.00	26160.00	26160.00	PM1002
			c)Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		2164.12	2705.15	3246.18	
			d)Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		2921.56	2975.67	3029.77	
			Cost for 3600 cum (a+b+c+d)						32137.21	32732.34	33327.47	
			Rate per cum = (a+b+c+d)/3600						8.93	9.09	9.26	
								Say	**8.90**	**9.10**	**9.30**	
10.16	811		**Replacement of Metal Beam Crash Barrier**									
		A	Type - A , " W" : Metal Beam Crash Barrier									
			Replacement of "W" metalbeam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail , 70 cm above road / ground level , fixed									

Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
			on ISMC series channel vertical post , 150x75x5 mm spaced 2 m centre to centre,1.8 m high , 1.1 m below ground /road level, all steel parts and fitments to be galvanised by hot dip process ,all fittings to conform to IS: 1367 and IS :1364 , metal beam rail to be fixed on the vertical post with a spacer of channel section 150x75x5mm ,330 mm long complete as per clause 811									
			Unit = Running metre									
			Taking output = 4.5 metre									
			length									
			a) Labour									
			Mate	day	0.080	0.060	0.060	444.00	35.52	26.64	26.64	L-12
			Blacksmith	day	0.500	0.500	0.500	541.00	270.50	270.50	270.50	L-25
			Mazdoor	day	1.500	1.000	1.000	428.00	642.00	428.00	428.00	L-13
			b) Machinery									
			Tractor-trolley	hour	0.100	0.100	0.100	717.00	71.70	71.70	71.70	PM12001
			c) Material									
			Corrugated sheet , 3 mm thick ,:"W:" beam section railing , 4.5 m in length	kg	41.210	41.210	41.210	55.63	2292.51	2292.51	2292.51	M-089
			Channel post 150x75x5 mm , 1.8 m long , 3 Nos @ 16.4 kg per metre (M-181/1000= 49.937)	kg	88.560	88.560	88.560	49.937	4422.39	4422.39	4422.39	M-181
			Spacer 150x75x5 mm channal 0.33 m long , 3 Nos @ 16.4 kg per metre (M-181/1000= 49.937)	kg	16.240	16.240	16.240	49.937	810.97	810.97	810.97	M-181
			Nuts and bolts	kg	20.000	20.000	20.000	80.60	1612.00	1612.00	1612.00	M-129

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Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
			Add 25 percent of the cost of material for fabrication , nuts , bolts and washers etc ..}						2284.47	2284.47	2284.47	
			Credit for salvage value of dismantled material	kg	166.010	166.010	166.010	INPUT	#VALUE!	#VALUE!	#VALUE!	M-305
			d)Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			e)Contractor profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Cost for 4.5 metre = a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per metre = (a+b+c+d+e)/4.5						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
10.16		**B**	**Type - B , " THRIE" : Metal Beam Crash Barier**									
			Replacement of "Thrie" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail , 85 cm above road/ ground level , fixed on ISMC series channel verrtical post , 150 x 75 x 5 mm spaced 2 m centre to centre,2 m high with 1.15 m below ground level, all steel parts and fitments to be galvanised by hot dip process ,all fittings to conform to IS: 1367 and IS :1364 , metal beam rail to be fixed on the vertical post with a space of channel section 150x75x5 mm, 546 mm long complete as per clause 811									
			Unit = Running metre									
			Taking output = 4.5 metre length									
			a) Labour									
			Mate	day	0.080	0.080	0.080	444.00	35.52	35.52	35.52	L-12
			Blacksmith	day	0.500	0.500	0.500	541.00	270.50	270.50	270.50	L-25
			Mazdoor	day	1.500	1.500	1.500	428.00	642.00	642.00	642.00	L-13

Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
			b) Machinery									
			Tractor-trolley	hour	0.100	0.100	0.100	717.00	71.70	71.70	71.70	PM12001
			c) Material									
			Corrugated sheet , 3 mm hick , "Thrie" beam section railing , 4.5 m in length	kg	72.940	72.940	72.940	55.63	4057.65	4057.65	4057.65	M-089
			Channel post 150x75x5 mm , 2 m long , 3 Nos @ 16.4 kg per metre (M-181/1000= 49.937)	kg	98.400	98.400	98.400	49.937	4913.77	4913.77	4913.77	M-181
			Spacer 150x75x5 mm channel 0.546 m long , 3 Nos (M-181/1000= 49.937)	kg	26.860	26.860	26.860	49.937	1341.30	1341.30	1341.30	M-181
			Nuts and bolts	kg	30.000	30.000	30.000	80.60	2418.00	2418.00	2418.00	M-129
			Add 15 percent of the cost of material for fabrication , nuts , bolts and washers etc						1909.61	1909.61	1909.61	
			Credit for salvage valueof dismantled material	kg	228.200	228.200	228.200	INPUT	#VALUE!	#VALUE!	#VALUE!	M-305
			d)Overhead charges on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		#VALUE!	#VALUE!	#VALUE!	
			e)Contractor's profit on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		#VALUE!	#VALUE!	#VALUE!	
			Cost for 4.5 metre = a+b+c+d+e						#VALUE!	#VALUE!	#VALUE!	
			Rate per metre = (a+b+c+d+e)/4.5						#VALUE!	#VALUE!	#VALUE!	
								Say	**#VALUE!**	**#VALUE!**	**#VALUE!**	
10.17			**Network Survey Vehicle (NSV) attached with SUV**									
			Data collection of longitudinal profiling (International Roughness Index),Transverse profiling (Rut Depth) , Pavement Texture in terms of Mean Profile Depth , Road Geometry Data (cross slope , gradient , curvature), GPS coordinates (X , Y , Z) viz. longitude , latitude & altitude , video imaging for Roadside furniture/ Road Assets and Video imaging for Pavement Surface Distresses and reports.								

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Analysis of Rate
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Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
			Unit = Lane Kilometer									
			Taking output = 200 Lane Km.									
			a) Labour									
			Mate	day	0.360	0.360	0.360	444.00	159.84	159.84	159.84	L-12
			Mazdoor (skilled)	day	9.000	9.000	9.000	541.00	4869.00	4869.00	4869.00	L-15
			b) Machinery									
			Network Survey Vehicle (NSV)	hour	8.000	8.000	8.000	6150.00	49200.00	49200.00	49200.00	PM81001
			Network Survey Vehicle (NSV) Mobilization & demobillization	hour	15.000	15.000	15.000	6150.00	92250.00	92250.00	92250.00	PM81001
			Add 1 percent of cost of a+b for Miscellaneous work						1464.79	1464.79	1464.79	
			c)Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		11835.49	14794.36	17753.24	
			d)Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		15977.91	16273.80	16569.69	
			Cost for 200 Km. = a+b+c+d						175757.03	179011.79	182266.55	
			Rate per Km. = (a+b+c+d)/200						878.79	895.06	911.33	
								Say	**878.80**	**895.10**	**911.30**	
		Note	(I) Average Distance has been considered 300 km for mobilization at working site and same for demobilization									
			(ii) Speed of vehicle 40 km/hr. has been considered .									
			(iii) The survey speed shall be within 30 to 80 kmph .									
10.18			**Falling weight deflectometer (FWD)**									
			Unit = Lane Kilometer									
			Taking output = 120 Lane Km.									
			a) Labour									
			Mate	day	0.120	0.120	0.120	444.00	53.28	53.28	53.28	L-12
			Mazdoor (skilled)	day	1.000	1.000	1.000	541.00	541.00	541.00	541.00	L-15
			Mazdoor	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			b) Machinery									

Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
			Falling weight deflectometer (FWD)	hour	8.000	8.000	8.000	2964.00	23712.00	23712.00	23712.00	PM82001
			Equipment Falling weight deflectometer (FWD) Equipment Mobilization & demobilization	hour	15.000	15.000	15.000	2964.00	44460.00	44460.00	44460.00	PM82001
			Add 1 percent of cost of a+b for Miscellaneous work						696.22	696.22	696.22	
			c)Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		5625.48	7031.85	8438.22	
			d)Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		7594.40	7735.04	7875.67	
			Cost for 120 Km. = a+b+c+d						83538.38	85085.39	86632.40	
			Rate per Km. = (a+b+c+d)/120						696.15	709.04	721.94	
								Say	**696.20**	**709.00**	**721.90**	
		Note	(I) Average Distance has been considered 300 km for mobilization at working site and same for demobilization									
			(ii) Speed of vehicle 40 km/hr. has been considered.									
10.19			**Road Retro reflectometer attached with SUV**									
			Unit = Km.									
			Taking output = 50 Km.									
			a) Labour									
			Mate	day	1.200	1.200	1.200	444.00	532.80	532.80	532.80	L-12
			Mazdoor (skilled)	day	20.000	20.000	20.000	541.00	10820.00	10820.00	10820.00	L-15
			Mazdoor	day	10.000	10.000	10.000	428.00	4280.00	4280.00	4280.00	L-13
			b) Machinery									
			Road Retro reflectometer attached with SUV	hour	80.000	80.000	80.000	1575.00	126000.00	126000.00	126000.00	PM83001
			Road Retro reflectometer attached with SUV Mobilization & demobilization	hour	15.000	15.000	15.000	1575.00	23625.00	23625.00	23625.00	PM83001
			Add 1 percent of cost of a+b as Miscellaneous work						1652.58	1652.58	1652.58	

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Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
			c)Overhead charges on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		13352.83	16691.04	20029.25	
			d)Contractor's profit on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		18026.32	18360.14	18693.96	
			Cost for 50 Km. = a+b+c+d						198289.53	201961.56	205633.59	
			Rate per Km. = (a+b+c+d)/50						3965.79	4039.23	4112.67	
								Say	**3965.80**	**4039.20**	**4112.70**	
		Note	(I) Average Distance has been considered 300 km for mobilization at working site and same for demobilization									
			(ii) Speed of vehicle 40 km / hr. has been considered .									
			(iii) The km is only for one side if road is more than 2 lane									
10.20			**Automatic Vehicle Counter Classifier (ATCC)**									
			Unit = Per Location									
			Taking output = 1 Location									
			a) Labour									
			Mate	day	1.696	1.696	1.680	444.00	753.02	753.02	745.92	L-12
			Mazdoor (skilled)	day	0.400	0.400	0.400	541.00	216.40	216.40	216.40	L-15
			Mazdoor	day	42.000	42.000	42.000	428.00	17976.00	17976.00	17976.00	L-13
			b) Machinery									
			Automatic Vehicle Counter Classifier (ATCC) Equipment etc..	hour	168.000	168.000	168.000	74.00	12432.00	12432.00	12432.00	PM85001
			Sport utility vehicle (SUV) including Mobilization& demobilization	hour	72.000	72.000	72.000	1032.00	74304.00	74304.00	74304.00	PM84001

Sr. No.	Ref. to MoRTH		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Lagre	Medium	Small		Large	Medium	Small	
			Data processing and Report charges	Lumpsum	1.000	1.000	1.000	500.00	500.00	500.00	500.00	Lumpsum
			Add 1 percent of cost of a+b as Miscellaneous work						1061.81	1061.81	1061.74	
			c)Overhead charges on (a+b)		(@ 8%)	(@ 10%)	(@ 12%)		8579.46	10724.32	12868.33	
			d)Contractor's profit on (a+b+c)		(@ 10%)	(@ 10%)	(@ 10%)		11582.27	11796.76	12010.44	
			Cost for 1 location . = a+b+c+d						127404.97	129764.32	132114.83	
			Rate per Location = (a+b+c+d)/1						127404.97	129764.32	132114.83	
								Say	**127405.00**	**129764.30**	**132114.80**	
		Note	(I) Average interval of location has been considered 50 km.									
			(ii) The duration of traffic counting 24 hours for 7 days has been considered for one location									

CHAPTER - 11

HORTICULTURE

CHAPTER-11

HORTICULTURE

PREAMBLES :

1 The items of turfing with sods and seeding and mulching have been included in the chapter of earthwork.

2 The analysis of rates for grassing of lawns and hedges has been included, as the same may be needed for resting places on highways.

3 Five types of tree guards as under have been provided.

a) Half brick circular type.

b) Tree guards made from empty bitumen drums 1.30 m high

c) Tree guards made from empty bitumen drums 2.00 m high

d) Tree guards with MS flat iron

e) Tree guards with MS angle and 3 mm steel wire welded on MS flat and bolted to angle iron posts

Section from above may be made as per actual situation and design.

4 Analysis of rates for wrought iron and mild steel welded work has been included to cater for any miscellaneous work in connection with horticulture, fencing and traffic sign.

5 Though the estimate for compensatory afforestation is made by the forest department, the rate for this item has been analysed and included for the purpose of estimation.

6 In the rate analysis of some items, the quantities of sub-items involved in that analysis, like excavation for foundation, foundation concrete, painting, lettering. etc. have been given. The rates for such items may be taken from relevant chapters where the same have already been analysed.

CHAPTER - 11
Summary of Rate Analysis
HORTICULTURE

Sr. No.		Description	Unit	Rate (₹)		
				Large	Medium	Small
11.01		**Spreading of Sludge Farm Yard Manure or/and good Earth**				
		Spreading of sludge farm yard manure or/and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately).	Cum	35.30	36.00	36.60
11.02		**Grassing with ' Doobs' Grass**				
		Grassing with 'Doobs' grass including watering and maintenance of the lawn for 30 days or more till the grass forms a thick lawn free from weeds and fit for moving including supplying good earth if needed.	Sqm			
	(i)	**In rows 15 cm apart in either direction**	Sqm	20.70	21.10	21.50
	(ii)	**In rows 7.5 cm apart in either direction**	Sqm	32.40	33.00	33.60
11.03		**Making Lawns including Ploughing and Dragging with 'Swagha' Breaking of Clod**				
		Making lawns including ploughing and breaking of clod, removal of rubbish, dressing and supplying doobs grass roots and planting at 15 cm apart, including supplying and spreading of farm yard manure at rate of 0.18 cum per 100 sqm.	Sqm	20.80	21.20	21.60
11.04		**Maintenance of Lawns or Turfing of Slopes**				
		Maintenance of lawns or Turfing of slopes (rough grassing) for a period of one year including watering etc.	Sqm	263.00	267.90	272.80
11.05		**Turfing Lawns with Fine Grassing including Ploughing, Dressing**				
		Turfing lawns with fine grassing including ploughing, dressing including breaking of clods, removal of rubbish, dressing and supplying doobs grass roots at 10 cm apart, including supplying and spreading of farm yard manure at rate of 0.6 cum per 100 sqm.	Sqm	29.00	29.50	30.10
11.06		**Maintenance of Lawns with Fine Grassing for the First Year**				
		Maintenance of lawns with fine grassing for the first year including watering etc	Sqm	287.40	292.70	298.00
11.07		**Planting and Maintaining of Permanent Hedges**				
	(a)	**Planting permanent hedges including digging of trenches**	Running Metre	435.10	443.10	451.20
		Planting permanent hedges including digging of trenches, 60 cm wide and 45 cm deep, refilling the excavated earth mixed with farmyard manure, supplied at the rate of 4.65 cum per 100 metres and supplying and planting hedge plants at 30 cm apart.				

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Summary of Rate Analysis
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Sr. No.		Description	Unit	Rate (₹)		
				Large	Medium	Small
	(b)	**Maintenance of hedge for one year**	Running Metre	274.20	279.20	284.30
11.08		**Planting and Maintaining of Flowering Plants and Shrubs**				
	(a)	**Planting flowering plants and shrubs in central verge**	Km	61630.70	62772.00	63913.30
		200 plants and 800 shrubs in two rows in one km length of road where width of verge is 3m and above.				
11.08	(b)	**Maintenance of flowering plants and shrubs in central verge for one year**	Km	298381.70	303907.20	309432.80
11.09		**Planting of Trees and their Maintenance for one Year**				
		Planting of trees by the road side (Avenue trees) in 0.60 m dia holes, 1 m deep dug in the ground, mixing the soil with decayed farm yard/sludge manure, planting the saplings, backfilling the trench, watering, fixing the tree guard and maintaining the plants for one year.	Each	1279.00	1302.70	1326.40
11.10		**Renovation Lawns including, Weeding, Forking the Ground, Top Dressing with Forked Soil**				
		Renovation lawns including, weeding, forking the ground, top dressing with forked soil, watering and maintenance the lawns, for 30 days or more, till the grass forms a thick lawn, free from weeds, and fit for moving and disposal of rubbish as directed, including supplying good earth, if needed but excluding the cost of well decayed farm yard manure.	Sqm	22.80	23.20	23.70
11.11		**Supply at Site Well Decayed Farm Yard Manure**				
		Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stacking.	Cum	655.90	668.00	680.20
11.12		**Supply at Site of Work/ Store-Deoiled Neem Cake**				
		Supply at site of work/ store-deoiled neem cake duly packed in used gunny bags	Quintal	7292.70	7427.70	7562.80
11.13		**Supplying Sludge**				
		Supplying sludge duly stacked at site/ store	Cum	655.90	668.00	680.20

Sr. No.		Description	Unit	Rate (₹)		
				Large	Medium	Small
11.14		**Half Brick Circular Tree Guard, in 2nd Class Brick, internal diametre 1.25 metres, and height 1.2 metres, above ground and 0.20 metre below ground**				
		Half brick circular tree guard, in 2nd class brick, internal diametre 1.25 metres, and height 1.2 metres, above ground and 0.20 metre below ground, bottom two courses laid dry, and top three courses in cement mortar 1:6 (1 cement 6 sand) and the intermediate courses being in dry honey comb masonry, as per design complete.	Each	2063.30	2101.50	2139.70
11.15		**Edging with 2nd Class Bricks, Laid Dry Lengthwise**				
		Edging with 2nd class bricks, laid dry lengthwise, including excavation, refilling, consolidation, with a hand packing and spreading nearly surplus earth within a lead of 50 metres.	Metre	42.50	43.20	44.00
11.16	Suggestive	**Making Tree Guard 53 cm dia and 1.3 m High as per Design from Empty Bitumen Drums**				
		Making tree guard 53 cm dia and 1.3 m high as per design from empty bitumen drum, slit suitably to permit sun and air, (supplied by the department at stock issue rate) including providing and fixing 2 nos MS sheet rings 50 x 0.5 mm with rivets, complete in all respect.	Each	636.60	648.40	660.20
11.17	Suggestive	**Making Tree Guard 53 cm dia and 2 Metre High as per Design from Empty Bitumen Drums**				
		Making tree guard 53 cm dia and 2 metres high as per design from empty bitumen drums, slit suitably to permit sun and air, (supplied by the department at stock issue rate) including providing and fixing four legs 40 cm long of 30 x 3 mm MS riveted to tree guard and providing and fixing 2 nos MS sheet rings 50 x 0.5 mm with rivets complete in all respects.	Each	1260.00	1283.40	1306.70
11.18	Suggestive	**Wrought Iron and Mild Steel Welded Work**				
		Wrought iron and mild steel welded work (using angles, square bars, tees and channel grills, grating frames, gates and tree guards of any size and design etc. including cost of screens and welding rods or bolts and nuts complete fixed in position but without the cost of excavation and concrete for fixing which will be paid separately	Quintal	9088.30	9256.60	9424.90
11.19	Suggestive	**Tree Guard with MS Iron**				

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Summary of Rate Analysis
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Sr. No.		Description	Unit	Rate (₹)		
				Large	Medium	Small
		Providing and fixing MS iron tree guard 60 cm dia and 2 metre high above ground level formed of 4 Nos (25 x 6 mm) and 8 Nos (25 x 3 mm) vertical MS riveted to 3 Nos (25 x 6 mm) iron rings in two halves, bolted together with 8 mm dia and 30 mm long bolts including painting two coats with paint of approved brand over a coat of priming, complete in all respects.	Each	2282.00	2324.20	2366.50
11.20		**Tree Guard with MS Angle Iron and Steel Wire**				
		Providing and fixing tree guard 0.60 metre square, 2.00 metre high fabricated with MS angle iron 30 x 30 x 3 mm, MS iron 25 x 3 mm and steel wire3 mm dia welded and fabricated as per design in two halves bolted together	Each	3024.30	3080.30	3136.30
11.21	**Suggestive**	**Compensatory Afforestation**				
		Planting trees as compensatory afforestation at the rate of 290 trees per hectare at a spacing of 6 m by grubbing and leveling the ground upto a depth of 150 mm, digging holes 0.9 m dia, 1 m deep, mixing farm yard/sludge manure with soil, planting of sapling 2 m high with 25 cm dia stem, backfilling the hole and watering.	Hectare	156734.30	159636.80	162539.20
11.22		**Rain Water Harvesting** Constructing rain water harvesting recharge trench cum recharge shaft/well including grating passage joining storm water drain and trench having brick walls, RCC cover slab and filled with layers of filter media (size 75 mm to 100 mm), grating having brick walls and CC 1:2:4 base and PVC pipe shaft packed with gravel, provided with wire screen and bottom plug complete as per Drawing, direction of the Engineer and MORT&H Specifications sections 300, 1000, 1300, 1500, 1600 & 1700. (Dimension of rain water harvesting pit 6.5 m depth, 2.10 meter inner dia, wall width 375 mm and top slab thickness 150 mm).	Number	122564.70	125007.40	128272.10

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
11.01	307		**Spreading of Sludge Farm Yard Manure or/and good Earth**									
			Spreading of sludge farm yard manure or/and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately).									
			Unit = cum									
			Taking output = 15 cum									
			a) Labour									
			Mate	day	0.040	0.040	0.040	444.00	17.76	17.76	17.76	L-12
			Mazdoor	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Overhead charges @ on (a)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		35.66	44.58	53.49	
			c) Contractor's profit @ on (a+b)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		48.14	49.03	49.93	
			Cost for 15 cum= a+b+c						529.56	539.37	549.18	
			Rate per cum = (a+b+c)/15						35.30	35.96	36.61	
								Say	**35.30**	**36.00**	**36.60**	
11.02	307		**Grassing with ' Doobs' Grass**									
			Grassing with 'Doobs' grass including watering and maintenance of the lawn for 30 days or more till the grass forms a thick lawn free from weeds and fit for moving including supplying good earth if needed.									
			Unit = sqm									
			Taking output = 100 sqm									
		(i)	**In rows 15 cm apart in either direction**									
			a) Labour									
			Mate	day	0.070	0.070	0.070	444.00	31.08	31.08	31.08	L-12
			Mazdoor for grassing	day	0.750	0.750	0.750	428.00	321.00	321.00	321.00	L-13

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor for maintenance for 30 days	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Water tanker 6 KL capacity	hour	0.500	0.500	0.500	789.00	394.50	394.50	394.50	PM11003
			c) Material									
			Doob grass	kg	100.000	100.000	100.000	5.68	568.00	568.00	568.00	M-111
			d) Overhead charges @ on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		139.41	174.26	209.11	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		188.20	191.68	195.17	
			Cost for 100 sqm = a+b+c+d+e						2070.19	2108.52	2146.86	
			Rate per sqm= (a+b+c+d+e)/100						20.70	21.09	21.47	
								Say	**20.70**	**21.10**	**21.50**	
11.02		**(ii)**	**In rows 7.5 cm apart in either direction**									
			a) Labour									
			Mate	day	0.090	0.090	0.090	444.00	39.96	39.96	39.96	L-12
			Mazdoor for grassing.	day	1.250	1.250	1.250	428.00	535.00	535.00	535.00	L-13
			for maintenance for 30 days	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			b) Machinery									
			Water tanker 6 KL capacity	hour	0.750	0.750	0.750	789.00	591.75	591.75	591.75	PM11003
			c) Material									
			Doob grass	kg	200.000	200.000	200.000	5.68	1136.00	1136.00	1136.00	M-111
			d) Overhead charges @ on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		218.46	273.07	327.69	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		294.92	300.38	305.84	
			Cost for 100 sqm = a+b+c+d+e						3244.08	3304.16	3364.23	
			Rate per sqm = (a+b+c+d+e)/100						32.44	33.04	33.64	
								Say	**32.40**	**33.00**	**33.60**	
		Note	In the case of horticulture one mate has been provided for every 10 mazdoors as maintenance of grass and plants require more care.									

HORTICULTURE

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
11.03	307		**Making Lawns including Ploughing and Dragging with 'Swagha' Breaking of Clod**									
			Making lawns including ploughing and breaking of clod, removal of rubbish, dressing and supplying doobs grass roots and planting at 15 cm apart, including supplying and spreading of farm yard manure at rate of 0.18 cum per 100 sqm.									
			Unit = sqm									
			Taking output = 100 sqm									
			a) Labour									
			Mate	day	0.060	0.060	0.060	444.00	26.64	26.64	26.64	L-12
			Mazdoor for preparation of ground	day	0.500	0.500	0.500	428.00	214.00	214.00	214.00	L-13
			Mali for fetching doobs grass roots and grassing at 15 cm apart	day	1.000	1.000	1.000	444.00	444.00	444.00	444.00	L-09
			b) Machinery									
			Water tanker 6 KL capacity	hour	0.500	0.500	0.500	789.00	394.50	394.50	394.50	PM11003
			Tractor with tipper	hour	0.010	0.010	0.010	717.00	7.17	7.17	7.17	PM12001
			c) Material									
			Supply of farm yard manure at site of work	cum	0.180	0.180	0.180	552.10	99.38	99.38	99.38	M-168
			Fine grass	kg	100.000	100.000	100.000	5.68	568.00	568.00	568.00	M-112
			d) Overhead charges @ on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		140.30	175.37	210.44	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		189.40	192.91	196.41	
			Cost for 100 sqm = a+b+c+d+e						2083.38	2121.96	2160.54	
			Rate per sqm = (a+b+c+d+e)/100						20.83	21.22	21.61	
								Say	**20.80**	**21.20**	**21.60**	
11.04	307		**Maintenance of Lawns or Turfing of Slopes**									

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Maintenance of lawns or Turfing of slopes (rough grassing) for a period of one year including watering etc.									
			Unit = sqm									
			Taking output = 100 sqm									
			a) Labour									
			Mate	day	0.400	0.400	0.400	444.00	177.60	177.60	177.60	L-12
			Mali	day	10.000	10.000	10.000	444.00	4440.00	4440.00	4440.00	L-09
			b) Machinery									
			Water tanker 6 KL capacity	hour	15.000	15.000	15.000	789.00	11835.00	11835.00	11835.00	PM11003
			c) Material									
			Cost of water	KL	90.000	90.000	90.000	63.20	5688.00	5688.00	5688.00	M-191
			d) Overhead charges @ on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		1771.25	2214.06	2656.87	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		2391.18	2435.47	2479.75	
			Cost for 100 sqm = a+b+c+d+e						26303.03	26790.13	27277.22	
			Rate per sqm = (a+b+c+d+e)/100						263.03	267.90	272.77	
								Say	**263.00**	**267.90**	**272.80**	
11.05	**307**		**Turfing Lawns with Fine Grassing including Ploughing, Dressing**									
			Turfing lawns with fine grassing including ploughing, dressing including breaking of clods, removal of rubbish, dressing and supplying doobs grass roots at 10 cm apart, including supplying and spreading of farm yard manure at rate of 0.6 cum per 100 sqm.									
			Unit = sqm									
			Taking output = 100 sqm									

HORTICULTURE

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			a) Labour									
			Mate	day	0.100	0.100	0.100	444.00	44.40	44.40	44.40	L-12
			Mazdoor for preparation of ground	day	1.000	1.000	1.000	428.00	428.00	428.00	428.00	L-13
			Mali for fetching doobs grass roots and grassing at 15 cm apart	day	1.500	1.500	1.500	444.00	666.00	666.00	666.00	L-09
			b) Machinery									
			Water tanker 6 KL capacity	hour	0.500	0.500	0.500	789.00	394.50	394.50	394.50	PM11003
			Tractor with tiller	hour	0.010	0.010	0.010	717.00	7.17	7.17	7.17	PM12001
			c) Material									
			Supply of farm yard manure at site of work @ 0.6 cum per 100 sqm	cum	0.600	0.600	0.600	552.10	331.26	331.26	331.26	M-168
			Fine grass	kg	100.000	100.000	100.000	5.68	568.00	568.00	568.00	M-112
			d) Overhead charges @ on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		195.15	243.93	292.72	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		263.45	268.33	273.20	
			Cost for 100 sqm = a+b+c+d+e						2897.92	2951.59	3005.25	
			Rate per sqm = (a+b+c+d+e)/100						28.98	29.52	30.05	
								Say	**29.00**	**29.50**	**30.10**	
11.06	**307**		**Maintenance of Lawns with Fine Grassing for the First Year**									
			Maintenance of lawns with fine grassing for the first year including watering etc									
			Unit = sqm									
			Taking output = 100 sqm									
			a) Labour									
			Mate	day	0.400	0.400	0.400	444.00	177.60	177.60	177.60	L-12
			Mali	day	10.000	10.000	10.000	444.00	4440.00	4440.00	4440.00	L-09

HORTICULTURE

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			b) Machinery									
			Water tanker 6 KL capacity	hour	20.000	20.000	20.000	789.00	15780.00	15780.00	15780.00	PM11003
			c) Material									
			Cost of water	KL	60.000	60.000	60.000	63.20	3792.00	3792.00	3792.00	M-191
			d) Overhead charges @ on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		1935.17	2418.96	2902.75	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		2612.48	2660.86	2709.24	
			Cost for 100 sqm = a+b+c+d+e						28737.24	29269.42	29801.59	
			Rate per sqm = (a+b+c+d+e)/100						287.37	292.59	298.02	
								Say	**287.40**	**292.70**	**298.00**	
11.07	**307**		**Planting and Maintaining of Permanent Hedges**									
		(a)	**Planting permanent hedges including digging of trenches**									
			Planting permanent hedges including digging of trenches, 60 cm wide and 45 cm deep, refilling the excavated earth mixed with farmyard manure, supplied at the rate of 4.65 cum per 100 metres and supplying and planting hedge plants at 30 cm apart.									
			Unit = Running metre									
			Taking output = 100 metre									
			a) Labour									
			Mate	day	0.560	0.560	0.560	444.00	248.64	248.64	248.64	L-12
			Mazdoor for digging of trench 60 cm wide and 45 cm deep	day	10.000	10.000	10.000	428.00	4280.00	4280.00	4280.00	L-13

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor for refilling the excavated earth mixed with cow dung, preparation of ground and digging of plant, from the nursery carriage to site and planting in position.	day	4.000	4.000	4.000	428.00	1712.00	1712.00	1712.00	L-13
			b) Machinery									
			Water tanker 6 KL capacity	hour	0.500	0.500	0.500	789.00	394.50	394.50	394.50	PM11003
			c) Material									
			Cost of hedge plants 2 rows at 30 cm apart	each	2x340	2x340	2x340	40.00	27200.00	27200.00	27200.00	M-115
			Supply of farm yard manure at site of work	cum	4.670	4.670	4.670	552.10	2578.31	2578.31	2578.31	M-168
			Pesticide	kg	0.250	0.250	0.250	79.47	19.87	19.87	19.87	M-135
			Cost of water	KL	3.000	3.000	3.000	63.20	189.60	189.60	189.60	M-191
			d) Overhead charges @ on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		2929.83	3662.29	4394.75	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		3955.27	4028.52	4101.77	
			Cost for 100 metres = a+b+c+d+e						43508.02	44313.73	45119.43	
			Rate per metre = (a+b+c+d+e)/100						435.08	443.14	451.19	
								Say	**435.10**	**443.10**	**451.20**	
		(b)	**Maintenance of hedge for one year**									
			Unit = Running metre									
			Taking output = 100 m									
			a) Labour									
			Mate	day	1.200	1.200	1.200	444.00	532.80	532.80	532.80	L-12
			Mazdoor	day	30.000	30.000	30.000	428.00	12840.00	12840.00	12840.00	L-13
			b) Machinery									
			Water tanker 6 KL capacity	hour	5.000	5.000	5.000	789.00	3945.00	3945.00	3945.00	PM11003
			c) Material									
			Manure sludge/Farm yard manure	cum	2.000	2.000	2.000	552.10	1104.20	1104.20	1104.20	M-168
			Pesticide	kg	0.500	0.500	0.500	79.47	39.74	39.74	39.74	M-135
			Cost of water	KL	30.000	30.000	30.000	63.20	1896.00	1896.00	1896.00	M-191
			Cost of hedge plants @ 10 percent casualty	each	68.000	68.000	68.000	40.00	2720.00	2720.00	2720.00	M-115

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Analysis of Rate

HORTICULTURE

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			d) Overhead charges @ on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		1846.22	2307.77	2769.33	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		2492.40	2538.55	2584.71	
			Cost for 100 metres = a+b+c+d+e						27416.35	27924.06	28431.77	
			Rate per metre = (a+b+c+d+e)/100						274.16	279.24	284.32	
								Say	**274.20**	**279.20**	**284.30**	
11.08	**307**		**Planting and Maintaining of Flowering Plants and Shrubs**									
		(a)	Planting flowering plants and shrubs in central verge									
			200 plants and 800 shrubs in two rows in one km length of road where width of verge is 3m and above.									
			Unit = Km.									
			Taking output = 1000 metres									
			a) Labour									
			Mate	day	0.480	0.480	0.480	444.00	213.12	213.12	213.12	L-12
			Mazdoor	day	12.000	12.000	12.000	428.00	5136.00	5136.00	5136.00	L-13
			b) Machinery									
			Water tanker 6 KL capacity	hour	6.000	6.000	6.000	789.00	4734.00	4734.00	4734.00	PM11003
			c) Material									
			Plants	each	200.000	200.000	200.000	9.00	1800.00	1800.00	1800.00	M-100
			Shrubs	each	800.000	800.000	800.000	3.18	2544.00	2544.00	2544.00	M-167
			Manure sludge/Farm yard manure	cum	63.640	63.640	63.640	552.10	35135.64	35135.64	35135.64	M-168
			Pesticide	kg	0.500	0.500	0.500	79.47	39.74	39.74	39.74	M-135
			Cost of water	KL	36.000	36.000	36.000	63.20	2275.20	2275.20	2275.20	M-191
			d) Overhead charges @ on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		4150.22	5187.77	6225.32	

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		5602.79	5706.55	5810.30	
			Rate per Km = (a+b+c+d+e)						61630.71	62772.02	63913.33	
								Say	**61630.70**	**62772.00**	**63913.30**	
11.08		(b)	Maintenance of flowering plants and shrubs in central verge for one year									
			Unit = km									
			Taking output = one km									
			a) Labour									
			Mate	day	14.600	14.600	14.600	444.00	6482.40	6482.40	6482.40	L-12
			Mazdoor	day	365.000	365.000	365.000	428.00	156220.00	156220.00	156220.00	L-13
			b) Machinery									
			Water tanker 6 KL capacity	hour	90.000	90.000	90.000	789.00	71010.00	71010.00	71010.00	PM11003
			c) Material									
			Manure Sludge / farm yard manure at site	cum	10.000	10.000	10.000	552.10	5521.00	5521.00	5521.00	M-168
			Cost of water	KL	180.000	180.000	180.000	63.20	11376.00	11376.00	11376.00	M-191
			Replacement of casualties @ 10 percent									
			Plants	each	20.000	20.000	20.000	9.00	180.00	180.00	180.00	M-100
			Shrubs	each	80.000	80.000	80.000	3.18	254.40	254.40	254.40	M-167
			Pesticides	kg	1.500	1.500	1.500	79.47	119.21	119.21	119.21	M-135
			d) Overhead charges @ on (a+b+c)		(@ 8%)	(@ 10%)	(@ 12%)		20093.04	25116.30	30139.56	
			e) Contractor's profit @ on (a+b+c+d)		(@ 10%)	(@ 10%)	(@ 10%)		27125.61	27627.93	28130.26	
			Rate per Km for one year = (a+b+c+d+e)						298381.66	303907.24	309432.83	
								Say	**298381.70**	**303907.20**	**309432.80**	
11.09	307		Planting of Trees and their Maintenance for one Year									

Analysis of Rate

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Planting of trees by the road side (Avenue trees) in 0.60 m dia holes, 1 m deep dug in the ground, mixing the soil with decayed farm yard/sludge manure, planting the saplings, backfilling the trench, watering, fixing the tree guard and maintaining the plants for one year.									
			Unit = Each									
			Taking output = 10 trees									
			a) Labour									
			Mate	day	0.680	0.680	0.680	444.00	301.92	301.92	301.92	L-12
			Mazdoor for planting	day	2.000	2.000	2.000	428.00	856.00	856.00	856.00	L-13
			Mazdoor for maintenance for one year	day	15.000	15.000	15.000	428.00	6420.00	6420.00	6420.00	L-13
			b) Machinery									
			Water tanker 6 KL capacity	hour	2.000	2.000	2.000	789.00	1578.00	1578.00	1578.00	PM11003
			c) Material									
			Sapling 2 m high 25 mm dia	each	10.000	10.000	10.000	29.30	293.00	293.00	293.00	M-161
			Farm yard manure	cum	0.940	0.940	0.940	552.10	518.97	518.97	518.97	M-168
			Pesticide	kg	0.500	0.500	0.500	79.47	39.74	39.74	39.74	M-135
			Cost of water	KL	12.000	12.000	12.000	63.20	758.40	758.40	758.40	M-191
			d) Overhead charges @ on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		861.28	1076.60	1291.92	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		1162.73	1184.26	1205.80	
			Cost for 10 trees = a+b+c+d+e						12790.04	13026.90	13263.75	
			Rate per trees = (a+b+c+d+e)/10						1279.00	1302.69	1326.38	
								Say	**1279.00**	**1302.70**	**1326.40**	
11.10	**308**		**Renovation Lawns including, Weeding, Forking the Ground, Top Dressing with Forked Soil**									

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Renovation lawns including, weeding, forking the ground, top dressing with forked soil, watering and maintenance the lawns, for 30 days or more, till the grass forms a thick lawn, free from weeds, and fit for moving and disposal of rubbish as directed, including supplying good earth, if needed but excluding the cost of well decayed farm yard manure.									
			Unit = sqm									
			Taking output = 100 sqm									
			a) Labour									
			Mate	day	0.120	0.120	0.120	444.00	53.28	53.28	53.28	L-12
			Mazdoor	day	3.000	3.000	3.000	428.00	1284.00	1284.00	1284.00	L-13
			b) Machinery									
			Water tanker 6 KL capacity	hour	0.500	0.500	0.500	789.00	394.50	394.50	394.50	PM11003
			c) Material									
			Cost of water	KL	3.000	3.000	3.000	63.20	189.60	189.60	189.60	M-191
			d) Overhead charges @ on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		153.71	192.14	230.57	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		207.51	211.35	215.19	
			Cost for 100 sqm = a+b+c+d+e						2282.60	2324.87	2367.14	
			Rate per sqm = (a+b+c+d+e) / 100						22.83	23.25	23.67	
								Say	**22.80**	**23.20**	**23.70**	
11.11	**308.2**		**Supply at Site Well Decayed Farm Yard Manure**									

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stacking.									
			Unit = cum									
			Taking output = one cum									
			a) Material									
			a) Cost of well decayed farm yard manure duly screened, loading, carriage, unloading and stacking at site	cum	1.000	1.000	1.000	552.10	552.10	552.10	552.10	M-168
			b) Overhead charges @ on (a)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		44.17	55.21	66.25	
			c) Contractor's profit @ on (a+b)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		59.63	60.73	61.84	
			Rate per cum = (a+b+c)						655.89	668.04	680.19	
								Say	**655.90**	**668.00**	**680.20**	
11.12	**308.2**		**Supply at Site of Work/ Store-Deoiled Neem Cake**									
			Supply at site of work/ store-deoiled neem cake duly packed in used gunny bags									
			Unit = quintal									
			Taking output = one quintal									
			a) Cost, carriage, loading, unloading and stacking in store/site	quintal	1.000	1.000	1.000	6138.61	6138.61	6138.61	6138.61	M-242
			b) Overhead charges @ on (a)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		491.09	613.86	736.63	
			c) Contractor's profit @ on (a+b)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		662.97	675.25	687.52	
			Rate per quintal = a+b+c						7292.67	7427.72	7562.77	

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
								Say	7292.70	7427.70	7562.80	
11.13	308.2		**Supplying Sludge**									
			Supplying sludge duly stacked at site/ store									
			Unit = cum									
			Taking output = one cum									
			a) Cost of sludge including carriage, loading, unloading and stacking at site	cum	1.000	1.000	1.000	552.10	552.10	552.10	552.10	M-168
			b) Overhead charges @ on (a)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		44.17	55.21	66.25	
			c) Contractor's profit @ on (a+b)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		59.63	60.73	61.84	
			Rate per cum = a+b+c						655.89	668.04	680.19	
								Say	**655.90**	**668.00**	**680.20**	
11.14	308 &1300		**Half Brick Circular Tree Guard, in 2nd Class Brick, internal diametre 1.25 metres, and height 1.2 metres, above ground and 0.20 metre below ground**									
			Half brick circular tree guard, in 2nd class brick, internal diametre 1.25 metres, and height 1.2 metres, above ground and 0.20 metre below ground, bottom two courses laid dry, and top three courses in cement mortar 1:6 (1 cement 6 sand) and the intermediate courses being in dry honey comb masonry, as per design complete.									
			Unit = Each									
			Taking output = one tree guard									
			a) Labour									

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mate	day	0.020	0.020	0.020	444.00	8.88	8.88	8.88	L-12
			Mason	day	0.250	0.250	0.250	541.00	135.25	135.25	135.25	L-10
			Mazdoor	day	0.250	0.250	0.250	428.00	107.00	107.00	107.00	L-13
			b) Material									
			Brick 2nd class	each	230.000	230.000	230.000	6.144	1413.12	1413.12	1413.12	Sch M-11 Sr No. 2(i)
			Cement mortar 1:6 (Rate taken from sub- analysis 21.01 D)	cum	0.025	0.025	0.025	2900.50	72.51	72.51	72.51	21.01D
			c) Overhead charges @ on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		138.94	173.68	208.41	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		187.57	191.04	194.52	
			Rate per tree Guard = a+b+c+d						2063.27	2101.48	2139.69	
								Say	**2063.30**	**2101.50**	**2139.70**	
11.15	**308 &1300**		**Edging with 2nd Class Bricks, Laid Dry Lengthwise**									
			Edging with 2nd class bricks, laid dry lengthwise, including excavation, refilling, consolidation, with a hand packing and spreading nearly surplus earth within a lead of 50 metres.									
			Unit = Metre									
			Taking output= 10 metres									
			a) Labour									
			Mate	day	0.004	0.004	0.004	444.00	1.78	1.78	1.78	L-12
			Mason	day	0.050	0.050	0.050	541.00	27.05	27.05	27.05	L-10
			Mazdoor	day	0.050	0.050	0.050	428.00	21.40	21.40	21.40	L-13
			b) Material									
			Brick 2nd class	each	50.000	50.000	50.000	6.144	307.20	307.20	307.20	Sch M-11 Sr No. 2(i)
			c) Overhead charges @ on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		28.59	35.74	42.89	

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		38.60	39.32	40.03	
			Cost for 10 metre = a+b+c+d						424.62	432.49	440.35	
			Rate per metre = (a+b+c+d)/10						42.46	43.25	44.03	
								Say	**42.50**	**43.20**	**44.00**	
11.16	**Suggestive**		**Making Tree Guard 53 cm dia and 1.3 m High as per Design from Empty Bitumen Drums**									
			Making tree guard 53 cm dia and 1.3 m high as per design from empty bitumen drum, slit suitably to permit sun and air, (supplied by the department at stock issue rate) including providing and fixing 2 nos MS sheet rings 50 x 0.5 mm with rivets, complete in all respect.									
			Unit = Each									
			Taking output = one tree guard									
			a) Labour									
			Mate	day	0.009	0.009	0.009	444.00	4.00	4.00	4.00	L-12
			Blacksmith	day	0.150	0.150	0.150	541.00	81.15	81.15	81.15	L-25
			Mazdoor	day	0.070	0.070	0.070	428.00	29.96	29.96	29.96	L-13
			b) Material									
			Empty bitumen drum	each	1.000	1.000	1.000	155.57	155.57	155.57	155.57	M-173
			MS sheet 50 x 0.5 mm	kg	0.650	0.650	0.650	49.937	32.46	32.46	32.46	M-181
			Rivets 6 mm dia and 10 mm in length	each	22.000	22.000	22.000	10.58	232.76	232.76	232.76	M-159
			c) Overhead charges @ on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		42.87	53.59	64.31	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		57.88	58.95	60.02	
			Rate for each tree guard = a+b+c+d						636.64	648.43	660.22	
								Say	**636.60**	**648.40**	**660.20**	

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
11.17	Suggestive		**Making Tree Guard 53 cm dia and 2 Metre High as per Design from Empty Bitumen Drums**									
			Making tree guard 53 cm dia and 2 metres high as per design from empty bitumen drums, slit suitably to permit sun and air, (supplied by the department at stock issue rate) including providing and fixing four legs 40 cm long of 30 x 3 mm MS riveted to tree guard and providing and fixing 2 nos MS sheet rings 50 x 0.5 mm with rivets complete in all respects.									
			Unit = Each									
			Taking output = one tree guard									
			a) Labour									
			Mate	day	0.016	0.016	0.016	444.00	7.10	7.10	7.10	L-12
			Blacksmith	day	0.200	0.200	0.200	541.00	108.20	108.20	108.20	L-25
			Mazdoor	day	0.200	0.200	0.200	428.00	85.60	85.60	85.60	L-13
			b) Material									
			Empty bitumen drum	each	1.500	1.500	1.500	155.57	233.36	233.36	233.36	M-173
			MS sheet50 x 0.5 mm	kg	0.650	0.650	0.650	49.937	32.46	32.46	32.46	M-181
			Rivets 6 mm dia and 10 mm in length	each	50.000	50.000	50.000	10.58	529.00	529.00	529.00	M-159
			MSplate30 x 3 mm	kg	1.300	1.300	1.300	49.937	64.92	64.92	64.92	M-181
			c) Overhead charges @ on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		84.85	106.06	127.28	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		114.55	116.67	118.79	
			Rate for each tree guard = a+b+c+d						1260.03	1283.37	1306.70	
								Say	**1260.00**	**1283.40**	**1306.70**	
11.18	Suggestive		**Wrought Iron and Mild Steel Welded Work**									

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Wrought iron and mild steel welded work (using angles, square bars, tees and channel grills, grating frames, gates and tree guards of any size and design etc. including cost of screens and welding rods or bolts and nuts complete fixed in position but without the cost of excavation and concrete for fixing which will be paid separately									
			Unit = quintal									
			Taking output = one quintal									
			a) Labour									
			Mate	day	0.180	0.180	0.180	444.00	79.92	79.92	79.92	L-12
			Blacksmith/ welder for cutting to design and shape and jointing	day	2.000	2.000	2.000	541.00	1082.00	1082.00	1082.00	L-25
			Mazdoor for fixing and helper for Blacksmith/welder	day	2.500	2.500	2.500	428.00	1070.00	1070.00	1070.00	L-13
			b) Material									
			Angle, tees, channels etc	quintal	1.050	1.050	1.050	4993.67	5243.35	5243.35	5243.35	M181/10
			Deduct the cost of scrap	quintal	0.050	0.050	0.050	1664.56	(83.23)	(83.23)	(83.23)	M181/10/3
			Add 5 per cent of cost of material for welding rods and other welding accessories						258.01	258.01	258.01	
			c) Overhead charges @ on (a+b)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		612.00	765.00	918.01	
			d) Contractor's profit @ on (a+b+c)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		826.21	841.51	856.81	
			Rate per quintal = a+b+c+d						9088.26	9256.56	9424.86	
								Say	**9088.30**	**9256.60**	**9424.90**	

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
11.19	Suggestive		**Tree Guard with MS Iron**									
			Providing and fixing MS iron tree guard 60 cm dia and 2 metre high above ground level formed of 4 Nos (25 x 6 mm) and 8 Nos (25 x 3 mm) vertical MS riveted to 3 Nos (25 x 6 mm) iron rings in two halves, bolted together with 8 mm dia and 30 mm long bolts including painting two coats with paint of approved brand over a coat of priming, complete in all respects.									
			Unit = Each									
			Taking output = one tree guard									
			a) Labour									
			Mate	day	0.020	0.020	0.020	444.00	8.88	8.88	8.88	L-12
			Blacksmith	day	0.250	0.250	0.250	541.00	135.25	135.25	135.25	L-25
			Mazdoor	day	0.250	0.250	0.250	428.00	107.00	107.00	107.00	L-13
			b) Material									
			MS iron 25 x 6 mm	kg	19.200	19.200	19.200	49.937	958.78	958.78	958.78	M-181
			MS iron 25 x 3 mm	kg	9.600	9.600	9.600	49.937	479.39	479.39	479.39	M-181
			Add 5 percent of cost of material for riveting, bolting and welding accessories						71.91	71.91	71.91	
			c) Machinery									
			Tractor-trolley	hour	0.040	0.040	0.040	717.00	28.68	28.68	28.68	PM12001
			d) Painting									

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Painting two coats including priming Rate for concrete may be adopted vide item no. 8.09	sqm	1.770	1.770	1.770	73.99	130.96	130.96	130.96	8.09
			e) Overhead charges @ on (a+b+c+d)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		153.67	192.09	230.50	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		207.45	211.29	215.14	
			Rate per tree guard =a+b+c+d+e+f						2281.97	2324.23	2366.49	
								Say	**2282.00**	**2324.20**	**2366.50**	
		Note	1 The items of excavation and concreting to be measured and paid separately as per design .									
			2 . Rate of painting may be adopted from the chapter as Traffic signs.									
11.20	**Suggestive**		**Tree Guard with MS Angle Iron and Steel Wire**									
			Providing and fixing tree guard 0.60 metre square, 2.00 metre high fabricated with MS angle iron 30 x 30 x 3 mm, MS iron 25 x 3 mm and steel wire3 mm dia welded and fabricated as per design in two halves bolted together									
			Unit = Each									
			Taking output = one									
			a) Labour									
			Mate	day	0.030	0.030	0.030	444.00	13.32	13.32	13.32	L-12
			Blacksmith	day	0.250	0.250	0.250	541.00	135.25	135.25	135.25	L-25
			Welder	day	0.250	0.250	0.250	660.00	165.00	165.00	165.00	L-02

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Mazdoor	day	0.250	0.250	0.250	428.00	107.00	107.00	107.00	L-13
			b) Material									
			MS angle 30 x 30 x 3 mm	kg	13.500	13.500	13.500	49.937	674.15	674.15	674.15	M-181
			MS iron 25 x 3 mm	kg	18.000	18.000	18.000	49.937	898.86	898.86	898.86	M-181
			Steel wire 3 mm dia	kg	6.000	6.000	6.000	52.982	317.89	317.89	317.89	M-194
			Add 5 per cent of cost of material for riveting, bolting and welding accessories						94.54	94.54	94.54	
			c) Machinery									
			Tractor-trolley	hour	0.040	0.040	0.040	717.00	28.68	28.68	28.68	PM12001
			d) Painting									
			Painting two coats including priming Rate for concrete may be adopted vide item no. 8.09	sqm	1.500	1.500	1.500	73.99	110.99	110.99	110.99	8.09
			e) Overhead charges @ on (a+b+c+d)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		203.65	254.57	305.48	
			f) Contractor's profit @ on (a+b+c+d+e)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		274.93	280.02	285.12	
			Rate per tree guard = a+b+c+d+e+f						3024.26	3080.27	3136.27	
								Say	**3024.30**	**3080.30**	**3136.30**	
11.21			**Compensatory Afforestation**									
			Planting trees as compensatory afforestation at the rate of 290 trees per hectare at a spacing of 6 m by grubbing and leveling the ground upto a depth of 150 mm, digging holes 0.9 m dia, 1 m deep, mixing farm yard/sludge manure with soil, planting of sapling 2 m high with 25 cm dia stem, backfilling the hole and watering.									

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Unit = Hectare									
			Taking output = one hectare									
			a) Labour									
			i) Planting									
			Mate	day	1.000	1.000	1.000	444.00	444.00	444.00	444.00	L-12
			Mazdoor	day	25.000	25.000	25.000	428.00	10700.00	10700.00	10700.00	L-13
			ii) For Maintenance for one year									
			Mate	day	5.000	5.000	5.000	444.00	2220.00	2220.00	2220.00	L-12
			Mazdoor	day	50.000	50.000	50.000	428.00	21400.00	21400.00	21400.00	L-13
			b) Machinery									
			Dozer 90 HP @ 1000 sqm/hour	hour	10.000	10.000	10.000	3047.00	30470.00	30470.00	30470.00	PM1003
			Water tanker 6 KL capacity (for planting)	hour	3.000	3.000	3.000	789.00	2367.00	2367.00	2367.00	PM11003
			Water tanker 6 KL capacity (for maintenance)	hour	25.000	25.000	25.000	789.00	19725.00	19725.00	19725.00	PM11003
			c) Material									
			Sapling 1 to 1.5 m high 2 cm dia stem	each	290.000	290.000	290.000	23.44	6797.60	6797.60	6797.60	M-161*0.8
			Add 10 per cent of sapling	each	29.000	29.000	29.000	23.44	679.76	679.76	679.76	M-161*0.8
			Decayed farm yard/sludge manure (planting)	cum	60.900	60.900	60.900	552.10	33622.89	33622.89	33622.89	M-168
			Decayed farm yard/sludge manure (maintenance)	cum	4.000	4.000	4.000	552.10	2208.40	2208.40	2208.40	M-168
			Pesticides for planting	kg	0.500	0.500	0.500	79.47	39.74	39.74	39.74	M-135
			Pesticides for maintenance	kg	1.500	1.500	1.500	79.47	119.21	119.21	119.21	M-135
			Cost of water	KL	18.000	18.000	18.000	63.20	1137.60	1137.60	1137.60	M-191
			d) Overhead charges @ on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		10554.50	13193.12	15831.74	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		14248.57	14512.43	14776.29	
			Rate per hectare = a+b+c+d+e						156734.26	159636.75	162539.24	
								Say	**156734.30**	**159636.80**	**162539.20**	

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Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
		Note-	Cost of fencing to be Provided as per size of plot and approved design, measured and paid separately									
11.22			**Rain Water Harvesting** Constructing rain water harvesting recharge trench cum recharge shaft/well including grating passage joining storm water drain and trench having brick walls, RCC cover slab and filled with layers of filter media (size 75 mm to 100 mm), grating having brick walls and CC 1:2:4 base and PVC pipe shaft packed with gravel, provided with wire screen and bottom plug complete as per Drawing, direction of the Engineer and MORT&H Specifications sections 300, 1000, 1300, 1500, 1600 & 1700. (Dimension of rain water harvesting pit 6.5 m depth, 2.10 meter inner dia, wall width 375 mm and top slab thickness 150 mm).									
			Unit=Number									
			Taking output=10 Number									
			a) Material									
			Excavation 12.01 (Rate taken from item NO.- 12.01 (I) B (iii)) excluding OH & CP	Cum	230.213	230.213	230.213	L-94.96 M-98.60 S-121.85	21861.52	22699.46	28051.51	12.01 (I) B (iii)

Sr. No.	Ref. to MoRTH Spec.		Description	Unit	Quantity as per project category			Rate (₹)	Amount (₹)			Input ref.
					Large	Medium	Small		Large	Medium	Small	
			Brick Wall (2.5 meter) (Rate taken from Item No.-12.05) excluding OH & CP	cum	61.819	61.819	61.819	L-5493.70 M-5497.42 S-5514.70	339616.52	339846.59	340913.30	12.05
			Brick wall (without Mortar-4 meter) (Rate taken from Item NO.-12.05×83%) excluding OH & CP	cum	98.910	98.910	98.910	L-4559.79 M-4562.86 S-4577.20	451008.92	451314.45	452731.03	12.05x0.83
			RCC M20 for slab (Rate taken from Item No.-12.08 C, Case-II) excluding OH & CP	cum	5.193	5.193	5.193	L-4433.26 M-4437.78 S-4457.14	23021.93	23045.40	23145.94	12.08 C, Case II
			Reinforcement (Rate taken from Item No.-12.42) excluding OH & CP	MT	0.415	0.415	0.415	L-50405.90 M-50450.28 S-50534.67	20918.45	20936.87	20971.89	12.42
			b) Filter Material (Size from 75-100 mm)	cum	225.020	225.020	225.020	733.48	165047.67	165047.67	165047.67	M-011
			c) Add 1 percent of the cost of (a+b) for other miscellenus (i.e. Pipe etc) activities required to complete the item in all respect.						10214.75	10228.90	10308.61	
			d) Overhead charges @ on (a+b+c)		**(@ 8%)**	**(@ 10%)**	**(@ 12%)**		82535.18	103311.93	124940.39	
			e) Contractor's profit @ on (a+b+c+d)		**(@ 10%)**	**(@ 10%)**	**(@ 10%)**		111422.49	113643.13	116611.03	
			Cost for 10 Nos.=a+b+c+d+e						1225647.43	1250074.40	1282721.38	
			Rate per No.=(a+b+c+d+e)/10						122564.74	125007.44	128272.14	
								Say	**122564.70**	**125007.40**	**128272.10**	



Mithapur-Mahuli Project