# PUBLIC WORKS DEPARTMENT
# ARUNACHAL PRADESH

# 2023

# ANALYSIS OF RATES

## FOR
## ROAD AND BRIDGE WORKS

**ZERO LEAD BASED**
**(EXCLUDING CARRIAGE COST)**

**PUBLISHED UNDER THE AUTHORITY OF**
**THE CHIEF ENGINEER (CSQ)**
**P.W.D., ARUNACHAL PRADESH, ITANAGAR**

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| (A) Usage Rates of Plant and Machinery | | | | | | |
|---|---|---|---|---|---|---|
| **Code** | **Description of Machine** | **Activity** | **Output of Machine** | **Output** | **Unit** | **Rate** |
| P&M-001 | Air Compressor | General Purpose | capacity in cfm | 170/250 | hour | 658.00 |
| P&M-002 | Batching and Mixing Plant (a) 30 cum capacity | Concrete Mixing | cum/hour | 20 | hour | 3,200.00 |
| P&M-003 | Batching and Mixing Plant (b) 15 - 20 cum capacity | Concrete Mixing | cum/hour | 13 | hour | 3,154.00 |
| P&M-004 | Bitumen Pressure Distributor | Applying bitumen tack coat | sqm/hour | 1750 | hour | 1,509.00 |
| P&M-005 | Bitumen Boiler oil fired | Bitumen Spraying | capacity in litre | 1500 | hour | 348.00 |
| P&M-006 | Concrete Paver Finisher with 40 HP Motor | Paving of concrete surface | cum / hour | 20 | hour | 3,690.00 |
| P&M-007 | Concrete Pump of 45 & 30 cum capacity | Pumping of concrete | cum / hour | 33 / 22 | hour | 2,726.00 |
| P&M-008 | Concrete Bucket | For Pouring concrete | capacity in cum | 1 | hour | 22.00 |
| P&M-009 | Concrete Mixer (a) 0.4/0.28 cum | Concrete Mixing | cum/hour | 2.5 | hour | 291.00 |
| P&M-010 | Concrete Mixer (b) 1 cum | Concrete Mixing | cum/hour | 7.5 | hour | 306.00 |
| P&M-011 | Crane (a) 80 tonnes | Lifting Purpose | | | hour | 1,665.00 |
| P&M-012 | Cranes b) 35 tonnes | Lifting Purpose | | | hour | 1,166.00 |
| P&M-013 | Cranes c) 3 tonnes | Lifting Purpose | | | hour | 490.00 |
| P&M-014 | Dozer D - 80 - A 12 | Spreading /Cutting / Clearing | cum/hour | 300/ 150/250 | hour | 5,045.00 |
| P&M-015 | Dozer D - 50 - A 15 | Spreading /Cutting / Clearing | cum/hour | 200/ 120/150 | hour | 3,398.00 |
| P&M-016 | Emulsion Pressure Distributor | Applying emulsion tack coat | sqm/hour | 1750 | hour | 1,160.00 |
| P&M-017 | Front End loader 1 cum bucket capacity | Soil loading / Aggregate loading | cum/hour | 60 /25 | hour | 1,838.00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| P&M-018 | Generator (a) 125 KVA | Genration of electric Energy | KVA | 100 | hour | 1,135.00 |
| P&M-019 | Generator( b) 63 KVA | Genration of electric Energy | KVA | 50 | hour | 883.00 |
| P&M-020 | GSB Plant 50 cum | Producing GSB | cum/hour | 40 | hour | 1,511.00 |
| P&M-021 | Hotmix Plant - 120 TPH capacity | DBM/BM/SDC/ Premix | cum/hour | 40 | hour | 32,730.00 |
| P&M-022 | Hotmix Plant - 100 TPH capacity | DBM/BM/SDC/ Premix | cum/hour | 30 | hour | 25,480.00 |
| P&M-023 | Hotmix Plant - 60 to 90 TPH capacity | DBM/BM/SDC/ Premix | cum/hour | 25 | hour | 20,099.00 |
| P&M-024 | Hotmix Plant - 40 to 60 TPH capacity | DBM/BM/SDC/ Premix | cum/hour | 17 | hour | 15,405.00 |
| P&M-025 | Hydraulic Chip Spreader | Surface Dressing | sqm/hour | 1500 | hour | 3,640.00 |
| P&M-026 | Hydraulic Excavator of 1 cum bucket | Soil Ordinary/Soil Marshy / Soil Unsuitable | cum/hour | 60 /60 /60 | hour | 2,044.00 |
| P&M-027 | Integrated Stone Crusher 100THP | Crushing of Spalls | TPH | 100 | hour | 11,408.00 |
| P&M-028 | Integrated Stone Crusher 200 HP | Crushing of Spalls | TPH | 200 | hour | 22,887.00 |
| P&M-029 | Kerb Casting Machine | Kerb Making | Rm/hour | 80 | hour | 407.00 |
| P&M-030 | Mastic Cooker | Mastic Wearing coat | capacity in tonne | 1 | hour | 135.00 |
| P&M-031 | Mechanical Broom Hydraulic | Surface Cleaning | sqm/hour | 1250 | hour | 473.00 |
| P&M-032 | Motor Grader 3.35 mtr blade | Clearing /Spreading /GSB /WBM | cum/hour | 200/200/50/50 | hour | 3,247.00 |
| P&M-033 | Mobile slurry seal equipment | Mixing and laying slurry seal | sqm/hour | 2700 | hour | 1,328.00 |
| P&M-034 | Paver Finisher Hydrostatic with sensor control 100 TPH | Paving of DBM/ BM/SDC/ Premix | cum/hour | 40 | hour | 3,847.00 |
| P&M-035 | Paver Finisher Mechanical 100 TPH | Paving of WMM /Paving of DLC | cum/hour | 40/30 | hour | 1,386.00 |
| P&M-036 | Piling Rig with Bantonite Pump | 0.75 m dia to 1.2 m dia Boring attachment | Rm/hour | 2 to 3 | hour | 10,129.00 |
| P&M-037 | Pneumatic Road Roller | Rolling of Asphalt Surface | cum/hour | 25 | hour | 1,708.00 |
| P&M-038 | Pneumatic Sinking Plant | Pneumatic Sinking of wells | cum/hour | 1.5 to 2.00 | hour | 5,508.00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| P&M-039 | Pot Hole Repair Machine | Repair of potholes | cum/hour | 4 | hour | 1,207.00 |
| P&M-040 | Prestressing Jack with Pump & access | Stressing of steel wires/stands | | | hour | 170.00 |
| P&M-041 | Ripper | Scarifying | cum/hour | 60 | hour | 88.00 |
| P&M-042 | Rotavator | Scarifying | cum/hour | 25 | hour | 57.00 |
| P&M-043 | Road marking machine | Road marking | Sqm/hour | 100 | hour | 128.00 |
| P&M-044 | Smooth Wheeled Roller 8 tonne | Soil Compaction /BM Compaction | cum/hour | 70/25 | hour | 783.00 |
| P&M-045 | Tandem Road Roller | Rolling of Aspalt Surface | cum/hour | 30 | hour | 1,641.00 |
| P&M-046 | Tipper - 5 cum | Transportation of soil, GSB, WMM, Hotmix etc. | Capacity in cum | 5.5 | km | 87.00 |
| P&M-047 | Tipper - 5 cum | Transportation of soil, GSB, WMM, Hotmix etc. | Capacity in cum | 5.5 | tonne.km | 87.00 |
| P&M-048 | Tipper - 5 cum | Transportation of soil, GSB, WMM, Hotmix etc. | Capacity in cum | 5.5 | hour | 916.00 |
| P&M-049 | Transit Mixer 4.0/4.5 cum | Transportation of Concrete Mix to site | cum/hour | 4.5 | hour | 1,265.00 |
| P&M-050 | Transit Mixer 4/4.5 cum | Transportation of Concrete Mix to site | cum/hour | 4.5 | tonne.km | 80.00 |
| P&M-051 | Transit Mixer 3.0 cum | Transportation of Concrete Mix to site | cum/hour | 3 | hour | 1,174.00 |
| P&M-052 | Transit Mixer 3.0 cum | Transportation of Concrete Mix to site | cum/hour | 3 | tonne.km | 79.00 |
| P&M-053 | Tractor | Pulling | capacity in HP | 50 | hour | 530.00 |
| P&M-054 | Tractor with Rotevator | Rate of Tractor + Rotevator | | | hour | 494.00 |
| P&M-055 | Tractor with Ripper | Rate of Tractor 6+ Ripper | | | hour | 511.00 |
| P&M-056 | Truck 5.5 cum per 10 tonnes | Material Transport | capacity/cum | 4.5 | km | 106.00 |
| P&M-057 | Truck 5.5 cum per 10 tonnes | Material Transport | capacity/cum | 4.5 | hour | 778.00 |
| P&M-058 | Truck 5.5 cum per 10 tonnes | Material Transport | capacity/cum | 4.5 | tonne.km | 18.00 |
| P&M-059 | Three wheel 80-100 kN Statis Roller | Earth or soil / GSB / WBM | cum/hour | 100/60/60 | hour | 969.00 |
| P&M-060 | Water Tanker | Water Transport | capacity in KL | 6 | hour | 724.00 |
| P&M-061 | Water Tanker | Water Transport | capacity in KL | 6 | km | 77.00 |
| P&M-062 | Wet Mix Plant 60 TPH | Wet Mix | cum/hour | 25 | hour | 1,731.00 |
| P&M-062 (A) | Vibratory roller 8 to 10 tonne | Intermediate rolling. | cum/hour | 3.9 | hour | 856.00 |

| Code | Description of Machine | Unit | Rate |
|---|---|---|---|
| P&M-063 | Air compressor with pneumatic chisel attachment for cutting hard clay. | hour | 723.00 |
| P&M-064 | Batch type cold mixing plant 100-120 TPH capacity producing an average output of 75 tonne per hour | hour | 23,790.00 |
| P&M-065 | Belt conveyor system | hour | 2,233.00 |
| P&M-066 | Boat to carry atleast 20 persons | hour | 2,278.00 |
| P&M-067 | Cement concrete batch mix plant @ 20 cum per hour (effective output) | hour | 3,770.00 |
| P&M-068 | Cement concrete batch mix plant @ 75 cum per hour | hour | 5,170.00 |
| P&M-069 | Cold milling machine @ 20 cum per hour | hour | input |
| P&M-070 | Crane 5 tonne capacity | hour | 827.00 |
| P&M-071 | Crane 10 tonne capacity | hour | 838.00 |
| P&M-072 | Crane 15 tonne capacity | hour | 902.00 |
| P&M-073 | Crane 20 tonne capacity | hour | 1,452.00 |
| P&M-074 | Crane 40 T capacity | hour | 1,447.00 |
| P&M-075 | Crane with grab 0.75 cum capacity | hour | 1,040.00 |
| P&M-076 | Compressor with guniting equipment along with accessories | hour | 896.00 |
| P&M-077 | Drum mix plant for cold mixes of appropriate capacity but not less than 75 tonnes/hour. | hour | 449.00 |
| P&M-078 | Epoxy Injection gun | hour | 3,723.00 |
| P&M-079 | Generator 33 KVA | hour | 506.00 |
| P&M-080 | Generator 100 KVA | hour | 938.00 |
| P&M-081 | Generator 250 KVA | hour | 1,154.00 |

| | | | |
|---|---|---|---|
| P&M-082 | Induction, deinduction and erection of plant and equipment including all components and accessories for pneumatic method of well sinking. | hour | input |
| P&M-083 | Joint Cutting Machine with 2-3 blades (for rigid pavement) | hour | 143.00 |
| P&M-084 | Jack for Lifting 40 tonne lifting capacity. | day | input |
| P&M-085 | Piling rig Including double acting pile driving hammer (Hydraulic rig) | hrs | 7,335.00 |
| P&M-086 | Plate compactor | hour | 382.00 |
| P&M-087 | Snow blower equipment 140 HP @ 600 cum per hour | hour | input |
| P&M-088 | Texturing machine (for rigid pavement) | hour | 301.00 |
| P&M-089 | Truck Trailor 30 tonne capacity | hour | input |
| P&M-090 | Truck Trailor 30 tonne capacity | t.km | input |
| P&M-091 | Tunnel Boring machine | hour | input |
| P&M-092 | Vibrating Pile driving hammer complete with power unit and accessories. | hour | input |
| P&M-093 | Wet Mix Plant 100 TPH | hour | 2,240.00 |
| P&M-094 | Wet Mix Plant 75 TPH | hour | 1,794.00 |
| P&M-095 | Hot mix Plant -120 TPH capacity | hour | 16,471.00 |
| P&M-096 | Hot mix Plant -100 TPH capacity | hour | 13,681.00 |
| P&M-097 | Drum Type HMP of 60-90 TPH capacity @ 75 tonne per hour actual output | hour | 10,712.00 |
| P&M-098 | Backhoe-loader | hour | 2,200.00 |

| (B) Labour | | | |
|---|---|---|---|
| **Code** | **Description of Labour** | **Unit** | **Rate** |
| L-01 | Blacksmith (IInd class) | day | 551.00 |
| L-02 | Blacksmith (Ist class)/ Welder/ Plumber/ Electrician | day | 593.00 |
| L-03 | Blaster (Stone cutter) | day | 551.00 |
| L-04 | Carpenter I Class | day | 593.00 |
| L-05 | Chiseller (Head Mazdoor) | day | 551.00 |
| L-06 | Driller (Jumper) | day | 551.00 |
| L-07 | Diver | day | 869.00 |
| L-08 | Fitter | day | 593.00 |
| L-09 | Mali | day | 551.00 |
| L-10 | Mason (IInd class) | day | 551.00 |
| L-11 | Mason (Ist class) | day | 593.00 |
| L-12 | Mate / Supervisor | day | 551.00 |
| L-13 | Mazdoor | day | 424.00 |
| L-14 | Mazdoor/Dresser (Semi Skilled) | day | 424.00 |
| L-15 | Mazdoor/Beldar/Dresser/Sinker (Skilled) | day | 508.00 |
| L-16 | Medical Officer | day | 1,490.00 |
| L-17 | Operator(grouting) | day | 593.00 |
| L-18 | Painter I class | day | 593.00 |
| L-19 | Para medical personnel | day | 869.00 |
| L-20 | Beldar | day | 424.00 |
| L-21 | Coolie | day | 424.00 |
| L-21 | Bhisti | day | 424.00 |

| (C) Materials | | | |
|---|---|---|---|
| **Code** | **Description** | **Unit** | **Rate** |
| M-001 | Stone Boulder of size 150 mm and below at Cruser Plant | cum | 956.00 |
| M-002 | Supply of quarried stone 150 - 200 mm size for Hand Broken at site | cum | 923.00 |
| M-003 | Boulder with minimum size of 300 mm for Pitching at Site | cum | 893.00 |
| M-004 | Coarse sand at Mixing Plant | cum | 650.00 |
| M-005 | Coarse sand at Site | cum | 650.00 |
| M-006 | Fine sand at Site | cum | 650.00 |
| M-007 | Moorum at Site | cum | 350.00 |
| M-008 | Gravel/Quarry spall at Site | Cum | 300.00 |
| M-009 | Granular Material or hard murrum for GSB works at Site | Cum | 500.00 |
| M-010 | Granular Material or hard murrum for GSB works at Mixing Plant | Cum | 450.00 |
| M-011 | Fly ash conforming to IS: 3812 ( Part II & I) atHMP Plant / Batching Plant / Crushing Plant | Cum | input |
| M-012 | Filter media/Filter Material as per Table 300-3 (MoRT&H Specification) | Cum | 1,450.00 |

| Code | Description | Unit | Rate at Plant (HMP/Batching) | Rate at Site |
|---|---|---|---|---|
| M-013 | Close graded Granular sub-base Material 53 mm to 9.5 mm | cum | 900.00 | 900.00 |
| M-014 | Close graded Granular sub-base Material 37.5 mm to 9.5 mm | cum | 880.00 | 880.00 |
| M-015 | Close graded Granular sub-base Material 26.5 mm to 9.5 mm | cum | 850.00 | 850.00 |
| M-016 | Close graded Granular sub-base Material 9.5 mm to 4.75 mm | cum | 800.00 | 800.00 |
| M-017 | Close graded Granular sub-base Material 9.5 mm to 2.36 mm | cum | 780.00 | 780.00 |
| M-018 | Close graded Granular sub-base Material 4.75mm to 2.36 mm | cum | 750.00 | 750.00 |
| M-019 | Close graded Granular sub-base Material 4.75mm to 75 micron mm | cum | 720.00 | 720.00 |
| M-020 | Close graded Granular sub-base Material 2.36 mm | cum | 700.00 | 700.00 |
| M-021 | Stone crusher dust finer than 3mm with not more than 10% passing 0.075 sieve. | cum | 700.00 | 700.00 |
| M-022 | Coarse graded Granular sub-base Material 2.36 mm & below | cum | 700.00 | 700.00 |
| M-023 | Coarse graded Granular sub-base Material 4.75mm to 75 micron mm | cum | 720.00 | 720.00 |
| M-024 | Coarse graded Granular sub-base Material 4.75 mm to 2.36 mm | cum | 780.00 | 780.00 |
| M-025 | Coarse graded Granular sub-base Material 9.5 mm to 4.75 mm | cum | 800.00 | 800.00 |
| M-026 | Coarse graded Granular sub-base Material 26.5 mm to 4.75 mm | cum | 850.00 | 850.00 |
| M-027 | Coarse graded Granular sub-base Material 26.5 mm to 9.5 mm | cum | 850.00 | 850.00 |
| M-028 | Coarse graded Granular sub-base Material 37.5 mm to 9.5 mm | cum | 880.00 | 880.00 |
| M-029 | Coarse graded Granular sub-base Material 53 mm to 26 .5mm | cum | 900.00 | 900.00 |
| M-030 | Aggregates below 5.6 mm | cum | 1,300.00 | 1,300.00 |
| M-031 | Aggregates 22.4 mm to 2.36 mm | cum | 1,020.00 | 1,020.00 |
| M-032 | Aggregates 22.4 mm to 5.6 mm | cum | 1,590.00 | 1,590.00 |
| M-033 | Aggregates 45 mm to 2.8 mm | cum | 790.00 | 790.00 |
| M-034 | Aggregates 45 mm to 22.4 mm | cum | 1,010.00 | 1,010.00 |
| M-035 | Aggregates 53 mm to 2.8 mm | cum | 850.00 | 850.00 |
| M-036 | Aggregates 53 mm to 22.4 mm | cum | 1,010.00 | 1,010.00 |
| M-037 | Aggregates 63 mm to 2.8 mm | cum | 820.00 | 820.00 |
| M-038 | Aggregates 63 mm to 45 mm | cum | 980.00 | 980.00 |

| | | | | |
|---|---|---|---|---|
| M-039 | Aggregates 90 mm to 45 mm | cum | 950.00 | 950.00 |
| M-040 | Aggregates 10 mm to 5 mm | cum | 1,550.00 | 1,550.00 |
| M-041 | Aggregates 11.2 mm to 0.09 mm | cum | 1,500.00 | 1,500.00 |
| M-042 | Aggregates 13.2 mm to 0.09 mm | cum | 1,200.00 | 1,200.00 |
| M-043 | Aggregates 13.2 mm to 5.6 mm | cum | 1,600.00 | 1,600.00 |
| M-044 | Aggregates 13.2 mm to 10 mm | cum | 1,580.00 | 1,580.00 |
| M-045 | Aggregates 20 mm to 10 mm | cum | 1,850.00 | 1,850.00 |
| M-046 | Aggregates 25 mm to 10 mm | cum | 1,860.00 | 1,860.00 |
| M-047 | Aggregates 19 mm to 6 mm | cum | 1,600.00 | 1,600.00 |
| M-048 | Aggregates 37.5 mm to 19 mm | cum | 1,900.00 | 1,900.00 |
| M-049 | Aggregates 37.5 mm to 25 mm | cum | 1,910.00 | 1,910.00 |
| M-050 | Aggregates 6 mm nominal size | cum | 1,300.00 | 1,300.00 |
| M-051 | Aggregates 10 mm nominal size | cum | 1,800.00 | 1,800.00 |
| M-052 | Aggregates 13.2/12.5 mm nominal size | cum | 1,820.00 | 1,820.00 |
| M-053 | Aggregates 20 mm nominal size | cum | 1,900.00 | 1,900.00 |
| M-054 | Aggregates 25 mm nominal size | cum | 1,920.00 | 1,920.00 |
| M-055 | Aggregates 40 mm nominal size | cum | 1,900.00 | 1,900.00 |

| Code | Description | Unit | Rate |
|---|---|---|---|
| M-056 | AC pipe 100 mm dia | metre | 43.00 |
| M-057 | Acrylic polymer bonding coat | litre | 371.00 |
| M-058 | Alluminium Paint | litre | 355.00 |
| M-059 | Aluminium alloy plate 2mm Thick | sqm | input |
| M-060 | Aluminium alloy/galvanised steel | tonne | 63,142.00 |
| M-061 | Aluminium sheeting 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 | 170.00 |
| M-062 | Aluminium studs 100 x 100 mm fitted with lense reflectors | nos | 567.00 |
| M-063 | G. I Barbed wire | kg | 102.00 |
| M-064 | Bearing (Cost of parts) | nos | input |
| M-065 | Bearing (Cast steel rocker bearing assembly of 250 tonne ) | nos | 3,44,046.00 |
| 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,) | nos | 16,514.00 |
| M-067 | Bearing (Forged steel roller bearing of 250 tonne | nos | 3,02,759.00 |
| 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 | nos | 68,782.00 |
| M-069 | Bearing (PTFE sliding plate bearing assembly of 80 tonnes ) | nos | 2,06,437.00 |
| M-070 | Bearing (Supply of sliding plate bearing of 80 tonne) | nos | 16,514.00 |
| M-071 | Bentonite | kg | 14.00 |
| M-072 | Binding wire | kg | 105.00 |
| M-073 | Bitumen ( Cationic Emulsion ) | tonne | 55,000.00 |
| M-074 | Bitumen (60-70 grade) | tonne | 58,973.00 |
| M-075 | Bitumen (80-100 grade ) | tonne | 57,924.00 |
| M-076 | Bitumen (Cutback ) | tonne | 63,348.00 |
| M-077 | Bitumen (emulsion) | tonne | 55,000.00 |
| M-078 | Bitumen (modified graded) | tonne | 58,000.00 |
| M-078 (A) | Bitumen grade PMB - 40 | tonne | 37,030.00 |
| M-078 (B) | Modified Bitumen Refinary produced CRMB - 60 | tonne | 35,116.00 |
| M-079 | Brick | each | 12.00 |
| M-080 | C.I.shoes for the pile | kg | 66.00 |

| | | | |
|---|---|---|---|
| M-081 | Cement | tonne | 9,100.00 |
| M-082 | Cold twisted bars (HYSD Bars) | tonne | 67,000.00 |
| M-083 | Coller for joints 300 mm dia | nos | 143.00 |
| M-084 | Compressible Fibre Board(20mm thick) | sqm | 798.00 |
| M-085 | Connectors/ Staples | each | 63.00 |
| M-086 | Copper Plate(12m long x 250mmwide) | kg | 850.00 |
| M-087 | Corrosion resistant Structural steel | tonne | 71,000.00 |
| M-088 | Corrugated sheet, 3 mm thick, "Thrie" beam section railing | kg | 71.00 |
| M-089 | Credit for excavated rock found suitable for use | cum | 270.00 |
| M-090 | Curing compound | liter | 59.00 |
| M-091 | Delineators from ISI certified firm as per the standard drawing given in IRC - 79 | each | input |
| M-092 | Earth Cost or compensation for earth taken from private land | cum | - |
| M-093 | 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 | 11,591.00 |
| M-094 | Electric Detonators @ 1 detonator for 1/2 gelatin stick of 125 gms each | 100 nos | 1,159.00 |
| M-095 | Epoxy compound with accessories for preparing epoxy mortar | kg | 257.00 |
| M-096 | Epoxy mortar | kg | input |
| M-097 | Epoxy primer | kg | 281.00 |
| M-098 | Epoxy resin-hardner mix for prime coat | kg | 169.00 |
| M-099 | Flag of red color cloth 600 x 600 mm | each | 69.00 |
| M-100 | Flowering Plants | each | 50.00 |
| M-101 | Galvanised MS flat clamp | nos | 38.00 |
| 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 | 191.00 |
| M-103 | Galvanised structural steel plate 200 mm wide, 6 mm thick, 24 m long | kg | 228.00 |
| M-104 | Gelatin 80% | kg | 166.00 |
| M-105 | Geo grids | sqm | input |
| M-106 | Geomembrane | sqm | input |
| M-107 | Geonets | sqm | input |
| M-108 | Geotextile | sqm | 54.00 |
| M-109 | Geotextile filter fabric | sqm | input |
| M-110 | GI bolt 10 mm Dia | nos | 44.60 |

| | | | |
|---|---|---|---|
| M-111 | Grouting pump with agitator | hour | 193.00 |
| M-112 | Grass (Doob) | kg | 18.00 |
| M-113 | Grass (Fine) | kg | 18.00 |
| M-114 | HDPE pipes 75mm dia | metre | 70.00 |
| M-115 | HDPE pipes 90mm dia | metre | input |
| M-116 | Hedge plants | each | 13.00 |
| M-117 | Helical pipes 600mm diameter | metre | 1,352.00 |
| M-118 | Hot applied thermoplastic compound | litre | 209.00 |
| M-119 | HTS strand | tonne | 74,697.00 |
| M-120 | Joint Sealant Compound | kg | 340.00 |
| M-121 | Jute netting, open weave, 2.5 cm square opening for seeding and Mulching | sqm | 15.00 |
| M-122 | LDO for steam curing | litre | 46.00 |
| M-123 | M.S. Clamps | nos | 81.00 |
| M-124 | M.S. Clamps | kg | 257.00 |
| M-125 | M.S.shoes @ 35 Kg per pile of 15 m | kg | 58.00 |
| M-126 | Tor Steel bars | tonne | 67,000.00 |
| M-127 | 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 | 2,44,696.00 |
| M-128 | 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 | 2,70,454.00 |
| M-129 | Nipples 12mm | nos | 32.00 |
| M-130 | Nuts and bolts | kg | 120.00 |
| M-131 | Paint | litre | 450.00 |
| M-132 | Pavement Marking Paint | litre | 450.00 |
| M-133 | Paving Fabric | sqm | input |
| M-134 | Perforated geosynthetic pipe 150 mm dia | metre | input |
| M-135 | Perforated pipe of cement concrete, internal dia 100 mm | metre | 150.00 |
| M-136 | Pesticide | kg | 361.00 |
| M-137 | Pipes 200 mm dia, 2.5 m long for drainage | metre | input |

| | | | |
|---|---|---|---|
| M-138 | Plastic sheath, 1.25 mm thick for dowel bars | sqm | 2.00 |
| M-139 | Plastic tubes 50 cm dia, 1.2 m high | nos | input |
| M-140 | Polymer braids | metre | input |
| M-141 | Pre moulded Joint filler,25 mm thick for expansion joint. | sqm | 950.00 |
| M-142 | Pre-coated stone chips of 13.2 mm nominal size | cum | 2,107.00 |
| M-143 | 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 | 5,151.00 |
| M-144 | Pre-moulded asphalt filler board | sqm | 71.00 |
| M-145 | Pre-packed cement based polymer concrete of strength 45 Mpa at 28 days | kg | 39.00 |
| M-146 | Primer (Best Quality) | kg | 207.50 |
| M-147 | Quick setting compound | kg | 59.00 |
| M-148 | Random Rubble Stone | cum | 605.00 |
| M-149 | RCC Pipe NP 2 heavy duty non presure pipe 1000 mm dia | metre | 1,800.00 |
| M-150 | RCC Pipe NP 2 heavy duty non presure pipe 1200 mm dia | metre | 2,210.00 |
| M-151 | RCC Pipe NP 2 heavy duty non presure pipe 300 mm dia | metre | 490.00 |
| M-152 | Reflectorising glass beads | kg | 243.00 |
| M-153 | Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. (Copper Strips) | metre | input |
| M-154 | Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. (Galvanised carbon steel strips) | metre | input |
| M-155 | Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. (Glass reinforced polymer/fibre reinforced polymer/ polymeric strips) | metre | input |
| M-156 | Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. (Stainless steel strips) | metre | input |
| M-157 | Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. Aluminium strips) | metre | 381.00 |
| M-158 | Rivets | each | 1.00 |
| M-159 | Sand bags (Cost of sand and Empty cement bag) | nos | 11.00 |
| M-160 | Sapling 2 m high 25 mm dia | each | 103.00 |
| M-161 | Scrap tyres of size 900 x 20 | nos | 150.00 |
| M-162 | Seeds | kg | 354.00 |
| M-163 | Selected earth | cum | 212.00 |
| M-164 | Separation Membrane of impermeable plastic sheeting 125 micron thick | sqm | 32.00 |
| M-165 | Sheathing duct | metre | 116.00 |
| M-166 | Shrubs | each | 25.00 |
| M-167 | Sludge / Farm yard manure @ 0.18 cum per 100 sqm at site of work for turfing | cum | 141.00 |
| M-168 | Sodium vapour lamp | each | 2,125.00 |

| | | | |
|---|---|---|---|
| M-169 | Square Rubble Coursed Stone | cum | 605.00 |
| M-170 | Steel circular hollow pole of standard specification for street lighting to mount light at 5 m height above deck level | each | 6,500.00 |
| M-171 | Steel circular hollow pole of standard specification for street lighting to mount light at 9 m height above road level | each | 10,625.00 |
| M-172 | Steel drum 300 mm dia 1.2 m high/empty bitumen drum | nos | 71.00 |
| M-173 | Steel helmet and cushion block on top of pile head during driving. | kg | 212.00 |
| M-174 | Steel pipe 25 mm external dia as per IS:1239 | metre | 150.00 |
| M-175 | Steel pipe 50 mm external dia as per IS:1239 | metre | 280.00 |
| M-176 | Steel wire rope 20 mm | kg | 450.00 |
| M-177 | Steel wire rope 40 mm | kg | 823.00 |
| M-178 | Strip seal expansion join | metre | 14,167.00 |
| M-179 | Structural Steel | tonne | 50,728.00 |
| M-180 | Super plastisizer admixture IS marked as per 9103-1999 | kg | 64.00 |
| M-181 | Synthetic Geogrids as per clause 3102.8 and approved design and specifications. | sqm | input |
| M-182 | Through and bond stone | each | 15.00 |
| M-183 | Tie rods 20mm diameter | nos | 289.00 |
| M-184 | Tiles size 300 x 300 mm and 25 mm thick | each | input |
| M-185 | Timber | cum | 28,685.00 |
| M-186 | Traffic cones with 150 mm reflective sleeve | nos | 1,545.00 |
| M-187 | Tube anchorage set complete with bearing plate, permanent wedges etc | nos | 4,894.00 |
| M-188 | Unstaked lime | tonne | 15,000.00 |
| M-189 | Water | KL | 71.00 |
| M-190 | Water based cement paint | litre | 140.00 |
| M-191 | Welded steel wire fabric | kg | 69.00 |
| M-192 | Wire mesh 50mm x 50mm size of 3mm wire | kg | 170.00 |
| M-193 | Wooden ballies 2" Dia for bracing | each | 45.00 |
| M-194 | Wooden ballies 8" Dia and 9 m long | each | 580.00 |
| M-195 | Wooden packing | cum | 16,977.00 |
| M-196 | Wooden staff for fastening of flag 25 mm dia, one m long | each | 71.00 |
| M-197 | Coldmix Binder | tonne | 66,861.00 |
| M-198 | Paving Asphalt VG-30 of approved quality | tonne | 41,549.00 |

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|---|---|---|---|
| M-199 | Waste plastic additive | tonne | 42,000.00 |
| M-200 | Dry hydrated lime (factory made) | quintal | 300.00 |
| M-201 | Mirror polish granite 0.5 Sq.m Granite of any colour, 18 mm thick | sqm | 1,739.00 |
| M-202 | Granite stone slab 30mm thick | sqm | 1,890.00 |
| M-203 | Interlocking C.C. paver block, ( 60 mm thick, M-30) | sqm | 420.00 |
| M-204 | Matt finished vitrified tile 100x100 x16mm | sqm | 1,100.00 |
| M-205 | Vitrified tile 300x300 x9.8mm | sqm | 559.50 |
| M-206 | Tactile tile 300x300 9.8mm | sqm | 1,050.00 |
| M-207 | Coloured inter locking C.C. paver Block | sqm | 472.50 |
| M-208 | Interlocking C.C. paver block (80 mm thick, M-30) | sqm | 470.00 |
| M-209 | Sundries | | 2.75 |
| M-210 | Hire and running charges of mech mixer | | 2.75 |
| | Lead from Mixing Plant to working site | | 0 |
| | Lead for E/W borow area to site | | 3 |
| | Lead for fly ash from source to site | | 50 |

| **Description** | **Percentage of Rate** |
|---|---|
| GST for Road Works 18 % (as a Multiplying factor ) | 0.2016 |
| Overheads for Road Works | 10 % |
| Contractors profit for Road Works | 10 % |
| Cess for Road Works | 1% |
| Overheads for Bridge Works | 20 % |
| Overheads for Bridge Works (Rehabilitation) | 10 % |
| Contractors profit for Bridge Works | 10 % |

| **Items No.** | **Summary of Rates calculated and used for analysis of rates of other items** | **Unit** | **Rate** |
|---|---|---|---|
| Item 8.3 | Printing new letter and figures of any shade (ii) English Roman (As per Analysis Directly Used Items) | per cm height per letter | 1.10 |
| Item 8.8 | Painting Two Coats on New Concrete Surfaces ( ---DO---) | sqm | 162.00 |
| Item 8.9 | Painting angle iron post two coats ( ---DO---) | sqm | 141.00 |

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|---|---|---|---|
| Item 12.6 (B) | Cement mortor 1:2 (Excluding OH & CP) ( ---DO---) | cum | 7,105.00 |
| Item 12.6 (A) | Cement mortor 1:3 (Excluding OH & CP) ( ---DO---) | cum | 5,727.00 |
| Item 12.6 (D) | Cement mortor 1:6 (Excluding OH & CP) ( ---DO---) | cum | 3,823.00 |
| Item 12.7 (A ) | Course Rubble masonary in cement mortor 1:3 (including OH & CP) ( ---DO---) | cum | 6,751.00 |
| Item 12.7 (Addl) B) | Random Rubble masonary in cement mortor 1:6 (including OH & CP) ( ---DO---) | cum | 5,605.00 |
| Item 12.8 (A) | PCC Grade M15 including OH & CP for Open Foundation by Mixer ( ---DO---) | cum | 9,371.00 |
| Item 12.8 (A) | PCC Grade M15 for Open Foundation Per Cum Basic Cost of Labour, Material & Mechinery by Mixer ( ---DO---) | cum | 5,625.00 |
| Item 12.8 (B) PCC | PCC Grade M20 for Open Foundation Per Cum Basic Cost of Labour, Material & Mechinery by Mixer ( ---DO---) | cum | 6,090.00 |
| Item 12.8 (C) Case I | RCC Grade M20 for Open Foundation Per Cum Basic Cost of Labour, Material & Mechinery by Mixer ( ---DO---) | cum | 6,103.00 |
| Item 12.8 (C) RCC | RCC Grade M20 including OH & CP for Open Foundation by Batching Plant ( ---DO---) | cum | 9,665.00 |
| Item 12.8 (C) Case II | RCC Grade M20 for Open Foundation Per Cum Basic Cost of Labour, Material & Mechinery by Batching Plant ( ---DO---) | cum | 5,802.00 |
| Item 12.8 (D) | PCC Grade M25 for Open Foundation Per Cum Basic Cost of Labour, Material & Mechinery by Mixer ( ---DO---) | cum | 6,594.00 |
| Item 12.8 (D) | PCC Grade M25 including OH & CP for Open Foundation by Batching Plant ( ---DO---) | cum | 10,465.00 |
| Item 12.8 (D) | PCC Grade M25 for Open Foundation Per Cum Basic Cost of Labour, Material & Mechinery by Batching Plant ( ---DO---) | cum | 6,297.00 |
| Item 12.8 (E) | RCC Grade M25 for Open Foundation Per Cum Basic Cost of Labour, Material & Mechinery by Mixer ( ---DO---) | cum | 6,612.00 |
| Item 12.8 (E) | RCC Grade M25 for Open Foundation Per Cum Basic Cost of Labour, Material & Mechinery by Batching Plant ( ---DO---) | cum | 6,415.00 |
| Item 12.8 (F) Case I | PCC Grade M30 for Open Foundation Per Cum Basic Cost of Labour, Material & Mechinery by Mixer ( ---DO---) | cum | 6,649.00 |
| Item 12.8 (F) Case II | PCC Grade M30 for Open Foundation Per Cum Basic Cost of Labour, Material & Mechinery by Batching Plant ( ---DO---) | cum | 6,346.00 |
| Item 12.8 (G) | RCC Grade M30 for Open Foundation Per Cum Basic Cost of Labour, Material & Mechinery by Mixer ( ---DO---) | cum | 6,643.00 |

| | | | |
|---|---|---|---|
| Item 12.8 (G) | RCC Grade M30 for Open Foundation Per Cum Basic Cost of Labour, Material & Mechinery by Batching Plant ( ---DO---) | cum | 6,343.00 |
| Item 12.8 (H) | RCC Grade M35 for Open Foundation Per Cum Basic Cost of Labour, Material & Mechinery by Mixer ( ---DO---) | cum | 6,782.00 |
| Item 12.8 (H) | RCC Grade M35 including OH & CP for Open Foundation by Batching Plant ( ---DO---) | cum | 6,788.00 |
| Item 12.8 (H) | RCC Grade M35 excluding OH & CP for Open Foundation by Batching Plant ( ---DO---) | cum | 10,874.00 |
| Item 12.8 (H) | RCC Grade M35 for Open Foundation Per Cum Basic Cost of Labour, Material & Mechinery by Batching Plant ( ---DO---) | cum | 6,591.00 |
| Item 12.11 (C) i | PCC Grade M20 for Open Foundation (Bottom Plug) Per Cum Basic Cost of Labour, Material & Mechinery by Mixer ( ---DO---) | cum | 6,604.00 |
| Item 12.11 (C) i | PCC Grade M20 for Open Foundation (Bottom Plug) Per Cum Basic Cost of Labour, Material & Mechinery by Batching Plant ( ---DO---) | cum | 6,089.00 |
| Item 12.11 (C) ii | PCC Grade M25 for Open Foundation (Bottom Plug) Per Cum Basic Cost of Labour, Material & Mechinery by Mixer ( ---DO---) | cum | 6,884.00 |
| Item 12.11 (C) ii | PCC Grade M25 for Open Foundation (Bottom Plug) Per Cum Basic Cost of Labour, Material & Mechinery by Batching Plant ( ---DO---) | cum | 6,366.00 |
| Item 12.11 (C) iii | PCC Grade M30 for Open Foundation (Bottom Plug) Per Cum Basic Cost of Labour, Material & Mechinery by Mixer ( ---DO---) | cum | 6,938.00 |
| Item 12.11 (C) iii | PCC Grade M30 for Open Foundation (Bottom Plug) Per Cum Basic Cost of Labour, Material & Mechinery by Batching Plant ( ---DO---) | cum | 6,423.00 |
| Item 12.11 (C) iv | PCC Grade M35 for Open Foundation (Bottom Plug) Per Cum Basic Cost of Labour, Material & Mechinery by Mixer ( ---DO---) | cum | 7,066.00 |
| Item 12.11 (C) iv | PCC Grade M35 including OH & CP for Well Foundation (Bottom Plug) by Batching Plant ( ---DO---) | cum | 10,965.00 |
| Item 12.11 (C) iv | PCC Grade M35 for Open Foundation (Bottom Plug) Per Cum Basic Cost of Labour, Material & Mechinery by Batching Plant ( ---DO---) | cum | 6,548.00 |
| Item 12.11 (F) iv | PCC Grade M35 including OH & CP for Well Foundation (Well Cap) by Batching Plant ( ---DO---) | cum | 10,696.00 |
| Item No. 3.13 | Excavation for Structures (Manual Means) ( ---DO---) | cum | 524.00 |
| Item No. 3.13 | Excavation for Structures (Mechenical Meanse) ( ---DO---) | cum | 78.00 |
| Item 14.1(A) | RCC Grade M20 for super-structure including OH & CP by Batching Plant ( ---DO---) | cum | 11,044.00 |
| Item 14.1(B) | RCC Grade M20 for super-structure including OH & CP by Batching Plant ( ---DO---) | cum | 12,071.00 |

| | | | |
|---|---|---|---|
| Item 14.1(E) | RCC Grade M20 for super-structure including OH & CP by Batching Plant ( ---DO---) | cum | 12,835.88 |
| Item 14.1(C) | RCC Grade M30 for super-structure including formwork and excluding OH & CP by Batching Plant ( ---DO---) | cum | 7,619.00 |
| Item 14.1(C) | RCC Grade M30 for super-structure excluding formwork and excluding OH & CP by Batching Plant ( ---DO---) | cum | 6,349.00 |
| Item 14.2 A | Supplying ,fitting and placing HYSD bar reinforcement in super-structure exncluding OH & CP ( ---DO---) | tonne | 76,604.00 |
| Item 13.6 | Supplying, fitting and placing HYSD including OH & CP for sub-structure ( ---DO---) | tonne | 1,20,323.00 |
| Item 5.17 | Fog Seal ( ---DO---) | sqm | 68.00 |
| Item 5.21 Case-I | Crack Prevention courses. Case-I Stress Absorbing Membrane (SAM) crack width less than 6 mm ( ---DO---) | sqm | 102.00 |
| Item 5.21 Case-II | Crack Prevention courses. Case-II Stress Absorbing Membrane (SAM) with crack width 6 mm to 9 mm ( ---DO---) | sqm | 124.00 |
| Item 5.21 Case-IV | Crack Prevention courses. Case-III Stress Absorbing Membrane (SAM) crack width above 9 mm and cracked area above 50 % ( ---DO---) | sqm | 166.00 |
| Item 5.21 Case-IV | Crack Prevention courses. Case-IV Bitumen Impregnated Geotextile ( ---DO---) | sqm | 183.00 |
| Item 5.15 Case-I | Slurry Seal Case-I 5 mm thickness ( ---DO---) | sqm | 111.00 |
| Item 5.15 Case-II | Slurry Seal Case-II 3 mm thickness ( ---DO---) | sqm | 77.00 |
| Item 5.15 Case-III | Slurry Seal Case III 1.5 mm thickness ( ---DO---) | sqm | 47.00 |
| Item 5.9 Case-I | Surface Dressing Case-I 19 mm nominal chipping size ( ---DO---) | sqm | 156.00 |
| Item 5.9 Case-II | Surface Dressing Case-II 13 mm nominal size chipping ( ---DO---) | sqm | 124.00 |

## A. Roads Works

## Basic Notes for Preparation of Schedule of Rates

The basic approach for the preparation of schedule of rates for Road Works is indicated as under :

**Description of items**

1. The description of items is given briefly and linked with the relevant clause of the MoRT&H Specifications for Road and Bridge Works, which may be referred for detailed description, provisions and interpretation.

2. **Mechanical Means**

   Due to mechanization of construction work, rate for various items have been derived using mechanical means. However, manual means have also been provided for certain cases, where areas may be inaccessible for machines or quantum of work may not be large enough to justify deployment of the machines.

3. **Overhead Charges**

3.1 **10 percent overhead charges has been considered in the schedule of rates**

(i) Site accomodation, setting up plant, access road, water supply, electricity and general site arrangements.

(ii) Office furniture, equipment and communications.

(iii) Expenditure on

a) Corporate office of contractor
b) Site Supervision
c) Documentation and "as built" drawings

(iv) Mobilisation/de-mobilisation of resources.

(v) Labour camps with minimum 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, dimensions, trial pits and bore holes, where required

(ix) Watch and ward

(x) Traffic management during construction

(xi) Expenditure on safeguarding environment

(xii) Sundries

(xiii) Financing Expenditure

(xiv) Work Insurance/compensation

4. **Contractor Profit**

   10 percent of cost of works. Contractor profit is also added on overhead charges.

5. **Basic Inputs**

   Other than the Basic given in the standard data book of MoRT&H the ratefor plants & equipments, material and labour are as per the prevailing market rates from the near by authorised dealers/quarry etc. excluding all Taxes/charges on Zero lead basis.

6. **Plants and Equipments**

6.1 A dozer is proposed for excavation where cutting and filling for the roadway is within 100 m. For longer leads, a combination of hydraulic excavator and tipper is proposed.

6.2 Keeping in view the job and managerial factors and the age factor of machines, the output of plant and equipment is taken approximately 70 percent of the rated capacity given by manufacture under ideal conditions.

6.3 It has been assumed that a water tanker would make one trip per hour on an average. Water charges have not been included for items 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 charges for machines include ownership charges, cost of repair and maintenance including replacement of tyres and running and operating charges which includes crew, fuel and lubricants.

7. **Materials**

7.1 Quantities of materials considered in the rate are approximate for the purpose of estimating and include normal wastages. Actual consumption would have to be based on mix design.

7.2 Arunachal Pradesh has typical and hard terrain having different altitude, wherein maximum construction material are brought from Assam and utilised in different station located in state. Hence, to maintain the uniformity in rates, it is decided to prepare the APSR-2023 without considering any lead on materials and aggregate. The transportation cost shall be included in the estimate as per distance from the source of procurement of material/aggregate. The following sources has been adopted in the schedule 2023.

(i) Bitumen product - Near by Authorised Dealer

(ii) All steel items/Cement :- Tezpur/Banderdewa/North Lakhimpur/Silapathar/Dibrughar /Tinsukia

(iii) Bricks :- Kiln in Assam nearest to site of work

(iv) Aggregate :- At quarry nearby site of work.

(v) Other items :- Avarage market rates fixed for all district headquarter of state.

(vi) R.C.C. Hume Pipes :- Naharlagun/Likabali or nearby source in Assam.

7.3 The alternative proposal for crushing own aggregate by installing crusher is compared with procurement of crushed aggregates from the market and proposal found economical is to be adopted.

7.4 The specifications of materials shall be governed by section 1000 of MoRT&H Specifications for Road and Bridge Works.

8. **Labour**

8.1 The avarage market rate has been adopted which are workable in the state

8.2 One mate has been provided for 25 labours

9. **Carriage of Materials**

9.1 The unit for vehicle for carriage has been taken as under :

a) In hours where lead is variable. The loading and unloading for such cases have been provided separetely.

b) In tonne - km where lead is variable. The loading and unloading for such cases have been provided separately.

c) Ziro lead has been considered for the stone aggregate in order to work out the actual rates of aggregates by adding the transportation cost up to the site of work.

d) In case of Hot Mix Plant Zero lead has been considered. The lead may be considered as per actual location of plant.

9.2 Where the quantity of material to be transported is small such as dismantled materials and the same are required to be 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 Bridges Works.

10.2 Assumptions made have been indicated in respective chapter in the form of notes, where required.

10.3 Sundries to cater for unforeseen contingency and miscelleneous 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 Contractor will make his own arrangements for borrowing earth. However, compensation for earth taken from private land has been included in the rate for construction of embankment with borrowed earth.

10.6 **Credit for Dismantled Material**

Credit for dismantled materials has not been included in this schedule of rates. The dismantled materials should be examined and a realistic assessment made for such materials, which can be utilised for works and to be reflected in the estimate.

10.7 The source of material and samples are required to be approved by the Engineer before start of any work.

10.8 The rates of items include cost of testing dismantled materials.

10.9 The use of surface by construction vehicles shall be governed by Clause 119 of MoRT&H Specifications.

10.10 The contractor shall arrange to provide and maintain adequate equipment field laboratory as per Clause 121.

10.11 Quality Control of works shall be governed by Section 900 of MoRT&H Specifications.

10.12 The various activities of works shall also be documented by photographs and vedio cassettes as per Clauses 125 & 126 of MoRT&H Specifications.

10.13 The classification of soil shall be as per Clause 301.2 of MoRT&H Specifications.

10.14 The earth excavated from foundations has been considered to be backfilled and balance utilised locally for road work except in the case of marshy soil.

10.15 The rate for removal of unsuitable soil does not provide for replacement by suitable soil which will have to be paid separately.

10.16 Items for hilly terrain have been analysed separately.

10.17 The hire charge rates for machinery and equipment are taken from the Standard Data Book and prevailing market rate.

10.18 10 per cent extra cement has been provided for concreting under water, where required.

10.19 Grade of cement may be adopted as per mix design.

10.20 Quantities of cement in various grades of cement concrete have been taken as per IRC:21-2000 and IRC:18-2000.

10.21 The coarse and fine aggregates shall conform to IS:383.

10.22 For pricing of RCC slab culverts, the items given in respective chapters in bridge section may be reffered.

10.23 Some of major steel producing firms have evolved thermo-mechanically treated steel which has enhanced strength, better corrosion resistance, ductility, weld ability and high temparature thermal resistance. Enquiries from these are made on technical specifications and use of such products considered in works based on performance in works where these have already been used.

10.24 In case it is decided to include the following items and their maintenance in the BOQ, the scope and specifications should be worked out and defined in a detailed manner in the tender document to avoid any dispute during execution.

(i) Site office and furniture for Engineer and his staff.

(ii) Site residential accomodation for Engineer and other supervisory staff.

(iii) Providing and maintaining vehicle for the Engineer.

## GENERAL
# Notes - Bridge Works

The basic approach for the preparation of schedule of rates for Bridge works in indicated as under :

1. **Description of items**

   The description of items is given briefly and linked with relevant clause of MoRT&H's Specifications for Road and Bridge Works, which may be referred for detailed description, provisions and interpretation.

2. **Overhead Charges**

   The rates include over head charges considering the following elements -

2.1 **20 percent overhead charges has been considered in the schedule of rates for :-**

(i) Site accomodation, setting up plant, access road, water supply, electricity and general site arrangements.

(ii) Office furniture, equipment and communications.

(iii) Expenditure on

a) Corporate office of contractor

b) Site Supervision

c) Documentation and "as built" drawings

(iv) Mobilisation/de-mobilisation of resources.

(v) Labour camps with minimum 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, dimensions, trial pits and bore holes, where required

(ix) Watch and ward

(x) Traffic management during construction

(xi) Expenditure on safeguarding environment

(xii) Sundries

(xiii) Financing Expenditure

(xiv) Work Insurance/compensation

3 **Contractor Profit**

10 percent of cost of works. Contractor profit is also added on overhead charges.

4 **Basic Inputs**

Basic inputs are only given in the standard data book. The rates for material and labour are as per the prevailing market/govt. rates.

5 **Plants and Equipments**

The usage/hire charges of machinery/equipment have been worked out based upon present cost of equipments, repairs, POL and Operational charges.

6. **Materials**

6.1 Quantities of materials considered in the rate are approximate for the purpose of estimating and include normal wastages. Actual consumption would have to be based on mix design.

6.2 Arunachal Pradesh has typical and hard terrain having varying altitude, wherein maximum construction materials are brought from Assam and utilised in different station located in state. Hence, to maintain the uniformity in rates, it is decided to prepare the APSR-2023 without considering any lead on materials and aggregate. The transportation cost shall be included in the estimate as per distance from the source of procurement of material/aggregate. The following sources has been adopted in the schedule .

(i) Bitumen product - Near by authorised Dealer.

(ii) All steel items/Cement :- Tezpur/Banderdewa/North Lakhimpur/ /Dibrughar /Tinsukia

(iii) Bricks :- Kiln in Assam nearest to site of work

(iv) Aggregate :- At quarry nearby site of work.

(v) Other items :- Avarage market rates fixed for all district headquarter of state.

(vi) R.C.C. Hume Pipes :- Naharlagun/Likabali or nearby source in Assam.

6.3 The alternative proposal for crushing own aggregate by installing crusher is compared with procurement of crushed aggregates from the market and proposal found economical is to be adopted.

6.4 The specifications of materials shall be governed by section 1000 of MoRT&H Specifications for Road and Bridge Works.

7. **Labour**

7.1 The avarage market rate has been adopted which are workable in the state

7.2 One mate has been provided for 25 labours

8. **Carriage of Materials**

8.1 The unit for vehicle for carriage has been taken as under :

a) In hours where lead is variable. The loading and unloading for such cases have been provided separetely.

b) In tonne - km where lead is variable. The loading and unloading for such cases have been provided separately.

c) Ziro lead has been considered for the stone aggregate in order to work out the actual rates of aggregates by adding the transportation cost up to the site of work.

9 **General :**

9.1 The clause numbers refer to MoRT&H Specifications for Road and Bridges Works.

9.2 Assumptions made have been indicated in respective chapter in the form of notes, where required.

9.3 Sundries to cater for unforeseen contingency and miscelleneous items have been added in the overhead charges.

9.4 Arrangement for traffic during construction shall be as per Clause 112 of MoRT&H Specifications for Road and Bridge Works.

9.5 Contractor will make his own arrangements for borrowing earth. However, compensation for earth taken from private land has been included in the rate for construction of embankment with borrowed earth.

9.6 **Credit for Dismantled Material**

Credit for dismantled materials has not been included in this schedule of rates. The dismantled materials should be examined and a realistic assessment made for such materials, which can be utilised for works and to be reflected in the estimate.

9.7 The source of material and samples are required to be approved by the Engineer before start of any work.

9.8 The rates of items include cost of testing dismantled materials.

9.9 The contractor shall arrange to provide and maintain adequate equipment field laboratory as per Clause 121.

9.10 Quality Control of works shall be governed by Section 900 of MoRT&H Specifications.

9.11 The various activities of works shall also be documented by photographs and vedio cassettes as per Clauses 125 & 126 of MoRT&H Specifications.

9.12 The classification of soil shall be as per Clause 301.2 of MoRT&H Specifications.

9.13 The earth excavated from foundations has been considered to be backfilled and balance utilised locally for road work except in the case of marshy soil.

9.14 The rate for removal of unsuitable soil does not provide for replacement by suitable soil which will have to be paid separately.

9.15 The hire charge rates for machinery and equipment are taken from the Standard Data Book and prevailing market rate.

9.16 10 per cent extra cement has been provided for concreting under water, where required.

9.17 Grade of cement may be adopted as per mix design.

9.18 Quantities of cement in various grades of cement concrete have been taken as per IRC:21-2000 and IRC:18-2000.

9.19 The coarse and fine aggregates shall conform to IS:383.

9.20 Some of major steel producing firms have evolved thermo-mechanically treated steel which has enhanced strength, better corrosion resistance, ductility, weld ability and high temparature thermal resistance. Enquiries from these are made on technical specifications and use of such products considered in works based on performance in works where these have already been used.

9.21 In case it is decided to include the following items and their maintenance in the BOQ, the scope and specifications should be worked out and defined in a detailed manner in the tender document to avoid any dispute during execution.

(i) Site office and furniture for Engineer and his staff.

(ii) Site residential accomodation for Engineer and other supervisory staff.

(iiI) Providing and maintaining vehicle for the Engineer.

10. **Guide Bund**

10.1 The item for the guide bund are excavation, embankment and protection works.

10.2 In case bridge construction works are to be done on wide and deep water channels in major rivers provision of floating barracges etc. for taking the construction materiasl and equipments inside water shall be made separately.

10.3 The item for singking of wells cover diameters from 6 m to 12 and Twin D Type and size 12 m x 6 m. For other shapes like rectangular or any other size, the rates of sinking may be worked out on pro-rata basis.

10.4 The lift for casting of concrete in well steining may be 2 to 2.5 m restricting the free fall of concrete to 1.5 m and concreting layer to 450 mm.

11 **Foundation**

The Corrosion resistant treated Steel Driven Pile item has to be used only after getting the proper design approved by the authorities as per the specific need at the site.

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| 1.1 | | **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 = 5.5 cum*** | | | | | |
| | | **Time required for** | | | | | |
| | | i) Positioning of tipper at loading point | | 1 Min | | | |
| | | ii) Loading by front end loader 1 cum bucket capacity @ 25 cum per hour | | 13 Min | | | |
| | | iii) Maneuvering, reversing, dumping and turning for return | | 2 Min | | | |
| | | iv) Waiting time, unforeseen contingencies etc | | 4 Min | | | |
| | | Total | | **20 Min** | | | |
| | | **a) Machinery** | | | | | |
| | | Tipper 5.5 tonnes capacity | hour | 0.330 | 916.00 | 302.28 | P&M-048 |
| | | Front end-loader 1 cum bucket capacity @ 25 cum/hour | hour | 0.330 | 1838.00 | 606.54 | P&M-017 |
| | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 183.22 | |
| | | **c) Overheads @ 10 % on (a+b)** | | | | 109.20 | |
| | | **d) Contractors profit @ 10 % on (a+b+c)** | | | | 120.12 | |
| | | **e) Cess @1% on (a+b+c+d)** | | | | 13.21 | |
| | | **Cost for 5.5 cum = (a+b+c+d+e)** | | | | 1334.57 | |
| | | **Rate per cum = (a+b+c+d+e)/ 5.5** | | | | 242.65 | |
| | | | | | ***say*** | ***243.00*** | |
| | Note | **Unloading will be by tipping.** | | | | | |
| 1.4 | | **Cost of Haulage Excluding Loading and Unloading** | | | | | |
| | | 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*** | | | | | |
| 1.4(I) | Case I | **Surfaced Road** | | | | | |
| | | Speed with load :25 km / hour. | | | | | |
| | | Speed while Returning empty : 35 km / hour. | | | | | |
| | | **a) Machinery.** | | | | | |
| | | **i) Tipper 10 tonne capacity** | | | | | |
| | | Time taken for onward haulage with load | hour | 0.400 | 916.00 | 366.40 | P&M-048 |
| | | Time taken for empty return trip. | hour | 0.290 | 916.00 | 265.64 | P&M-048 |
| | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 127.42 | |
| | | **c) Overheads @ 10 % on (a+b)** | | | | 75.95 | |
| | | **d) Contractors profit @ 10 % on (a+b+c)** | | | | 83.54 | |
| | | **e) Cess @1% on (a+b+c+d)** | | | | 9.19 | |
| | | cost for 100 t km = a+b+c+d+e | | | | 928.14 | |
| | | **Rate per t.km = (a+b+c+d+e)/100** | | | | 9.28 | |
| | | | | | ***say*** | ***9.30*** | |
| 1.4(II) | Case II | **Unsurfaced Gravelled Road** | | | | | |
| | | Speed with load : 20 km / hour | | | | | |
| | | Speed for empty return trip : 30 km / hour | | | | | |
| | | **a)Machinery** | | | | | |
| | | **Tipper 10 tonnes capacity** | | | | | |
| | | Time taken for onward hanlage with load | hour | 0.500 | 916.00 | 458.00 | P&M-048 |
| | | Time taken for empty return trip | hour | 0.330 | 916.00 | 302.28 | P&M-048 |

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 153.27 | |
| | | **c) Overheads @ 10 % on (a+b)** | | | | 91.36 | |
| | | **d) Contractors profit @ 10 % on (a+b+c)** | | | | 100.49 | |
| | | **e) Cess @1% on (a+b+c+d)** | | | | 11.05 | |
| | | Cost for 100 t .km = a+b+c+d+e | | | | 1116.45 | |
| | | Rate per t.Km = (a+b+c+d+e)/100 | | | | 11.16 | |
| | | | | | ***say*** | ***11.20*** | |
| **1.4(III** | Case III | **Katcha Track and Track in river bed / nallah bed and choe bed.** | | | | | |
| | | Speed with load : 10 km / hour<br>Speed while returning empty : 15 km / hour | | | | | |
| | | **a) Machinery** | | | | | |
| | | **I) Tipper 10 tonnes capacity** | | | | | |
| | | Time taken for onward haulage | hour | 1.000 | 916.00 | 916.00 | P&M-048 |
| | | Time taken for empty return trip | hour | 0.670 | 916.00 | 613.72 | P&M-048 |
| | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 308.39 | |
| | | **c) Overheads @ 10 % on (a+b)** | | | | 183.81 | |
| | | **d) Contractors profit @ 10 % on (a+b+c)** | | | | 202.19 | |
| | | **e) Cess @1% on (a+b+c+d)** | | | | 22.24 | |
| | | Cost for 100 t .km = a+b+c+d+e | | | | 2246.35 | |
| | | **Rate per t.Km = (a+b+c+d+e)/100** | | | | 22.46 | |
| | | | | | ***say*** | ***22.50*** | |
| **1.5** | | **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 cum*** | | | | | |
| | | **a) Labour** | | | | | |
| | | Mate | day | 0.060 | 551.00 | 33.06 | L-12 |
| | | Mazdoor | day | 1.500 | 424.00 | 636.00 | L-13 |
| | | **b) Material** | | | | | |
| | | Supply of quarried stone 150 - 200 mm size | cum | 1.100 | 923.00 | 1015.30 | M-002 |
| | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 339.57 | |
| | | **d) Overheads @ 10% on (a+b+c)** | | | | 202.39 | |
| | | **e) Contractors profit @10% on (a+b+c+d)** | | | | 222.63 | |
| | | **f) Cess @1% on (a+b+c+d+e)** | | | | 24.49 | |
| | | **Rate per cum = a+b+c+d+e+f** | | | | 2473.44 | |
| | | | | | ***say*** | ***2473.00*** | |
| **1.6** | | **Crushing of stone aggregates 13.2 mm nominal size.** | | | | | |
| | | Crushing of stone boulders of 150 mm size in an integrated stone crushing unit of 200 tonnes per hour capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain stone aggregates of 13 mm nominal size. | | | | | |
| | | ***Unit : cum***<br>***Taking Output = 600 cum at crusher location.*** | | | | | |
| | | **a) Labour** | | | | | |
| | | Mate | day | 0.760 | 551.00 | 418.76 | L-12 |
| | | Mazdoor Skilled | day | 2.000 | 424.00 | 848.00 | L-14 |
| | | Mazdoor including breaking of any oversize boulder. | day | 17.000 | 424.00 | 7208.00 | L-13 |
| | | **b) Material** | | | | | |
| | | Stone Boulder of size 150 mm and below | cum | 800.000 | 956.00 | 764800.00 | M-001 |

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | **c) Machinery** | | | | | |
| | | Integrated stone crusher of 200 TPH including belt conveyor and vibrating screens | Hour | 6.000 | 22887.00 | 137322.00 | P&M-028 |
| | | Front end loader 1 cum bucket capacity | Hour | 20.000 | 1838.00 | 36760.00 | P&M-017 |
| | | Tipper 5.5 cum capacity | Hour | 20.000 | 916.00 | 18320.00 | P&M-048 |
| | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 194680.43 | |
| | | **e) Overheads @ 10 % on (a+b+c+d)** | | | | 116035.72 | |
| | | **f) Contractors profit @ 10 % on (a+b+c+d+e)** | | | | 127639.29 | |
| | | **g) Cess @1% on (a+b+c+d+e+f)** | | | | 14040.32 | |
| | | Cost for 600 cum = a+b+c+d+e+f+g | | | | 1418072.52 | |
| | | **Rate per cum = (a+b+c+d+e+f+g)*0.95/600** | | | | **2245.28** | |
| | | | | | ***say*** | ***2245.00*** | |
| | Note | 1. 800 cum of stone boulders are needed to get 600 cum of stone chips of size 13.2 mm. | | | | | |
| | | 2. 95% of above cost will be attributed to the production of 600 cum of stone chips of 13.2 mm size and balance 5% to the production of stone dust which comes out as a by-product. | | | | | |
| | | 3. The integrated stone crusher includes primary and secondary crushing units. | | | | | |
| **1.7** | | **Crushing of stone aggregates 20 mm nominal size** | | | | | |
| | | Crushing of stone boulders of 150 mm size in an integrated stone crushing unit of 200 tonnes per hour capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain stone aggregates of 20 mm nominal size. | | | | | |
| | | ***Unit : cum*** | | | | | |
| | | ***Taking Output = 670 cum at crusher location.*** | | | | | |
| | | **a) Labour** | | | | | |
| | | Mate | day | 0.760 | 551.00 | 418.76 | L-12 |
| | | Mazdoor Skilled | day | 2.000 | 424.00 | 848.00 | L-14 |
| | | Mazdoor including breaking of any size boulder. | day | 17.000 | 424.00 | 7208.00 | L-13 |
| | | **b) Material** | | | | | |
| | | Stone Boulder of size 150 mm and below | cum | 800.000 | 956.00 | 764800.00 | M-001 |
| | | **c) Machinery** | | | | | |
| | | Integrated stone crusher of 200 TPH including belt conveyor and vibrating screens | Hour | 6.000 | 22887.00 | 137322.00 | P&M-028 |
| | | Front end loader 1 cum bucket capacity | Hour | 20.000 | 1838.00 | 36760.00 | P&M-017 |
| | | Tipper 5.5 cum capacity | Hour | 20.000 | 916.00 | 18320.00 | P&M-048 |
| | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 194680.43 | |
| | | **e) Overheads @ 10 % on (a+b+c+d)** | | | | 116035.72 | |
| | | **f) Contractors profit @ 10 % on (a+b+c+d+e)** | | | | 127639.29 | |
| | | **g) Cess @1% on (a+b+c+d+e+f)** | | | | 14040.32 | |
| | | Cost for 670 cum = a+b+c+d+e+f+g | | | | 1418072.52 | |
| | | **Rate per cum = (a+b+c+d+e+f+g)*0.90/670** | | | | **1904.87** | |
| | | | | | ***say*** | ***1905.00*** | |
| | Note | 1. 800 cum of stone boulders are needed to get 600 cum of stone chips of size 20 and 40 mm. | | | | | |

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | 2. 90% of above cost will be attributed to the production of 670 cum of stone aggregates of 20mm size and balance 10% will be for smaller size aggregates and stone dust which comes out as a by-product. | | | | | |
| | | 3. The integrated stone crusher includes primary and secondary crushing units. | | | | | |
| **1.8** | | **Crushing of stone aggregates 40 mm nominal size** | | | | | |
| | | Crushing of stone boulders of 150 mm size in an integrated stone crushing unit of 200 tonnes per hour capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain stone aggregates of 40 mm nominal size. | | | | | |
| | | ***Unit : cum*** | | | | | |
| | | ***Taking Output = 750 cum at crusher location.*** | | | | | |
| | | **a) Labour** | | | | | |
| | | Mate | day | 0.760 | 551.00 | 418.76 | L-12 |
| | | Mazdoor Skilled | day | 2.000 | 424.00 | 848.00 | L-14 |
| | | Mazdoor | day | 17.000 | 424.00 | 7208.00 | L-13 |
| | | **b) Material** | | | | | |
| | | Stone Boulder of size 150 mm and below | cum | 800.000 | 956.00 | 764800.00 | M-001 |
| | | **c) Machinery** | | | | | |
| | | Integrated stone crusher of 200 TPH including belt conveyor and vibrating screens | Hour | 6.000 | 22887.00 | 137322.00 | P&M-028 |
| | | Front end loader 1 cum bucket capacity | Hour | 20.000 | 1838.00 | 36760.00 | P&M-017 |
| | | Tipper 5.5 cum capacity | Hour | 20.000 | 916.00 | 18320.00 | P&M-048 |
| | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 194680.43 | |
| | | **e) Overheads @ 10 % on (a+b+c+d)** | | | | 116035.72 | |
| | | **f) Contractors profit @ 10 % on (a+b+c+d+e)** | | | | 127639.29 | |
| | | **g) Cess @1% on (a+b+c+d+e+f)** | | | | 14040.32 | |
| | | Cost for 750 cum = (a+b+c+d+e+f+g)x0.85 | | | | 1205361.64 | |
| | | **Rate per cum = (a+b+c+d+e+f+g)x0.85/750** | | | | **1607.15** | |
| | | | | | ***say*** | ***1607.00*** | |
| | Note | 1. 800 cum of stone boulders are needed to get 600 cum of stone chips of size 13.2 mm. | | | | | |
| | | 2. 85% of above cost will be attributed to the production of 750 cum of stone aggregates of 40mm size and balance 15% will be for smaller size aggregates and stone dust which comes out as a by-product. | | | | | |
| | | 3. The integrated stone crusher includes primary and secondary crushing units. | | | | | |
| ***5.9*** | 510 | **Surface Dressing** | | | | | |
| | | Providing and laying surface dressing as wearing course in 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 = 9000 sqm*** | | | | | |
| | | **Case -1:-19 mm nominal chipping size** | | | | | |
| | | **a) Labour** | | | | | |
| | | Mate | day | 0.440 | 551.00 | 242.44 | L-12 |
| | | Mazdoor | day | 9.000 | 424.00 | 3816.00 | L-13 |
| | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | **b) Machinery** | | | | | |
| | | Mechanical broom @ 1250 sqm per hour | hour | 7.200 | 473.00 | 3405.60 | P&M-031 |

**DIRECTLY USED ITEMS**

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | Air compressor 250 cfm | hour | 7.200 | 658.00 | 4737.60 | P&M-001 |
| | | Hydraulic self propelled chip spreader @ 1500 sqm per hour | hour | 6.000 | 3640.00 | 21840.00 | P&M-025 |
| | | Tipper 10 tonne capacity for carriage of stone chips from stockpile on road side to chip spreader | hour | 6.000 | 916.00 | 5496.00 | P&M-048 |
| | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | Bitumen pressure distributor | hour | 6.000 | 1509.00 | 9054.00 | P&M-004 |
| | | Smooth wheeled roller 8-10 tonne weight | hour | 6.000 | 783.00 | 4698.00 | P&M-044 |
| | | **c) Material** | | | | | |
| | | Bitumen@ 1.20 kg per sqm | tonne | 10.800 | 58973.00 | 636908.40 | M-074 |
| | | Crushed stone chipping,19 mm nominal size @ 0.015 cum per sqm | cum | 135.000 | 1900.00 | 256500.00 | M-053 |
| | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 193282.40 | |
| | | **e) Overheads @ 10 % on (a+b+c+d)** | | | | 115202.44 | |
| | | **f) Contractors profit @ 10 % on (a+b+c+d+e)** | | | | 126722.69 | |
| | | **g) Cess @1% on (a+b+c+d+e+f)** | | | | 13939.50 | |
| | | Cost for 9000 sqm= a+b+c+d+e+f+g | | | | 1407889.07 | |
| | | **Rate per sqm = (a+b+c+d+e+f+g)/9000** | | | | 156.43 | |
| | | | | | ***say*** | ***156.00*** | |
| | | **Case - II13 mm nominal size chipping** | | | | | |
| | | **a) Labour** | | | | | |
| | | Mate | day | 0.440 | 551.00 | 242.44 | L-12 |
| | | Mazdoor | day | 9.000 | 424.00 | 3816.00 | L-13 |
| | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | **b) Machinery** | | | | | |
| | | Mechanical broom @ 1250 sqm per hour | hour | 7.200 | 473.00 | 3405.60 | P&M-031 |
| | | Air compressor 250 cfm | hour | 7.200 | 658.00 | 4737.60 | P&M-001 |
| | | Hydraulic self propelled chip spreader @ 1500 sqm per hour | hour | 6.000 | 3640.00 | 21840.00 | P&M-025 |
| | | Tipper 10 tonne capacity for carriage of stone chips from stockpile on road side to chip spreader | hour | 6.000 | 916.00 | 5496.00 | P&M-048 |
| | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | Bitumen pressure distributor @ 1750 sqm per hour | hour | 6.000 | 1509.00 | 9054.00 | P&M-004 |
| | | Vibratory roller 8-10 tonne weight | hour | 6.000 | 969.00 | 5814.00 | P&M-059 |
| | | **c) Material** | | | | | |
| | | Bitumen@ 1.00 kg per sqm | tonne | 9.000 | 58973.00 | 530757.00 | M-074 |
| | | Crushed stone chipping,13 mm nominal size @ 0.01 cum per sqm | cum | 90.000 | 1820.00 | 163800.00 | M-052 |
| | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 153418.94 | |
| | | **e) Overheads @ 10 % on (a+b+c+d)** | | | | 91442.56 | |
| | | **f) Contractors profit @ 10 % on (a+b+c+d+e)** | | | | 100586.81 | |
| | | **g) Cess @1% on (a+b+c+d+e+f)** | | | | 11064.55 | |
| | | Cost for 9000 sqm= a+b+c+d+e+f+g | | | | 1117519.50 | |
| | | **Rate per sqm = (a+b+c+d+e+f+g)/9000** | | | | 124.17 | |
| | | | | | ***say*** | ***124.00*** | |

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 pre-coated as per clause 510.2.5

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | 2.Input for the second coat, where required, will be the same as per the Ist coat mentioned above | | | | | |
| ***5.15*** | 516 | **Slurry Seal**<br>Providing andlaying 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 | | | | | |
| | Case I | **5 mm thickness**<br>***Unit = sqm***<br>***Taking output = 16000 sqm (80 cum)***<br>***Taking density of 2.2 tonnes per cum, weight of mix = 264 tonnes***<br>weight of mix = 176 tonnes | | | | | |
| | | **a) Labour** | | | | | |
| | | Mate | day | 0.240 | 551.00 | 132.24 | L-12 |
| | | Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | **b) Machinery** | | | | | |
| | | Mechanical broom | hour | 6.000 | 473.00 | 2838.00 | P&M-031 |
| | | Air compressor 250 cfm | hour | 6.000 | 658.00 | 3948.00 | P&M-001 |
| | | Mobile slurry seal equipment | hour | 6.000 | 1328.00 | 7968.00 | P&M-033 |
| | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | Tipper 5.5 cum capacity for carriage of aggregate from stockpile on road side to slurry equipment,bitumen emulsion and filler. | hour | 6.000 | 916.00 | 5496.00 | P&M-048 |
| | | Pneumatic tyred roller with individual wheel load not exceeding 1.5 tonnes | hour | 6.000 | 1708.00 | 10248.00 | P&M-037 |
| | | Water tanker6 KL capacity | hour | 2.000 | 724.00 | 1448.00 | P&M-060 |
| | | **c) Material** | | | | | |
| | | Residual Binder @ 11 % of mix 80 x 2.2 x 0.11 | tonne | 19.360 | 55000.00 | 1064800.00 | M-077 |
| | | Fine aggregate 4.75 mm and below 87 % of total mix,80 x 2.2 x 0.87 = 153.12 tonnes. Taking density1.5,= 153.12/1.5 = 102.08 cum | cum | 102.080 | 650.00 | 66352.00 | M-005 |
| | | Filler @ 2 % of total mix = 80 x 2.2 x 0.02 | tonne | 3.520 | 15000.00 | 52800.00 | M-188 |
| | | Cost of water | KL | 12.000 | 71.00 | 852.00 | M-189 |
| | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 248059.57 | |
| | | **e) Overheads @ 10 % on (a+b+c+d)** | | | | 123045.42 | |
| | | **f) Contractors profit @ 10 % on (a+b+c+d+e)** | | | | 160155.92 | |
| | | **g) Cess @1% on (a+b+c+d+e+f)** | | | | 17617.15 | |
| | | Cost for 16000 sqm= a+b+c+d+e+f+g | | | | 1779332.30 | |
| | | **Rate per sqm = (a+b+c+d+e+f+g)/16000** | | | | 111.21 | |
| | | | | | ***say*** | ***111.00*** | |
| | Case II | **3 mm thickness**<br>***Unit = sqm***<br>***Taking output = 20000 sqm (60 cum)*** | | | | | |
| | | **a) Labour** | | | | | |
| | | Mate | day | 0.200 | 551.00 | 110.20 | L-12 |
| | | Mazdoor | day | 5.000 | 424.00 | 2120.00 | L-13 |
| | | **b) Machinery** | | | | | |
| | | Mechanical broom | hour | 6.000 | 473.00 | 2838.00 | P&M-031 |
| | | Air compressor 250 cfm | hour | 6.000 | 658.00 | 3948.00 | P&M-001 |
| | | Mobile slurry seal equipment | hour | 6.000 | 1328.00 | 7968.00 | P&M-033 |

**DIRECTLY USED ITEMS**

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | Tipper 5.5 cum capacity for carriage of aggregate from stockpile on road side to slurry equipment,bitumen emulsion and filler | hour | 6.000 | 916.00 | 5496.00 | P&M-048 |
| | | Water tanker6 KL capacity | hour | 2.000 | 724.00 | 1448.00 | P&M-060 |
| | | **c) Material** | | | | | |
| | | Residual Binder @ 13 % of mix = 60 x 2.2 x 0.13 | tonne | 17.160 | 55000.00 | 943800.00 | M-077 |
| | | Fine aggregate 3 mm and below 85 % of total mix, 60x 2.2 x 0.85 = 112.2 tonnes. Taking density 1.5, | cum | 74.800 | 650.00 | 48620.00 | M-005 |
| | | Filler @ 2 % of total mix =60x 2.2 x 0.02 | tonne | 2.640 | 15000.00 | 39600.00 | M-188 |
| | | Cost of water | KL | 12.000 | 71.00 | 852.00 | M-189 |
| | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 215274.17 | |
| | | **e) Overheads @ 10 % on (a+b+c+d)** | | | | 106782.82 | |
| | | **f) Contractors profit @ 10 % on (a+b+c+d+e)** | | | | 138988.52 | |
| | | **g) Cess @1% on (a+b+c+d+e+f)** | | | | 15288.74 | |
| | | Cost for 30000 sqm= a+b+c+d+e+f+g | | | | 1544162.45 | |
| | | **Rate per sqm = (a+b+c+d+e+f+g)/20000** | | | | 77.21 | |
| | | | | | ***say*** | ***77.00*** | |
| Case III | | **1.5 mm thickness** | | | | | |
| | | ***Unit = sqm*** | | | | | |
| | | ***Taking output = 24000 sqm (36 cum)*** | | | | | |
| | | **a) Labour** | | | | | |
| | | Mate | day | 0.200 | 551.00 | 110.20 | L-12 |
| | | Mazdoor | day | 5.000 | 424.00 | 2120.00 | L-13 |
| | | **b) Machinery** | | | | | |
| | | Mechanical broom | hour | 6.000 | 473.00 | 2838.00 | P&M-031 |
| | | Air compressor 250 cfm | hour | 6.000 | 658.00 | 3948.00 | P&M-001 |
| | | Mobile slurry seal equipment | hour | 6.000 | 1328.00 | 7968.00 | P&M-033 |
| | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | Tipper 5.5 cum capacity for carriage of aggregate from stockpile on road side to slurry equipment,bitumen emulsion and filler. | hour | 6.000 | 916.00 | 5496.00 | P&M-048 |
| | | Water tanker6 KL capacity | hour | 2.000 | 724.00 | 1448.00 | P&M-060 |
| | | **c) Material** | | | | | |
| | | Residual Binder @ 16 % of mix, 36 x 2.2 x 0.16 | tonne | 12.670 | 55000.00 | 696850.00 | M-077 |
| | | Fine aggregate 2.36 mm and below,82 % of total mix,36x 2.2 x 0.82 = 64.94 tonnes. Taking density 1.5 | cum | 43.300 | 700.00 | 30310.00 | M-022 |
| | | Filler @ 2 % of total mix = 36x 2.2 x 0.02 | tonne | 1.580 | 15000.00 | 23700.00 | M-188 |
| | | Cost of water | KL | 12.000 | 71.00 | 852.00 | M-189 |
| | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 158592.31 | |
| | | **e) Overheads @ 10 % on (a+b+c+d)** | | | | 78666.82 | |
| | | **f) Contractors profit @ 10 % on (a+b+c+d+e)** | | | | 102392.73 | |
| | | **g) Cess @1% on (a+b+c+d+e+f)** | | | | 11263.20 | |
| | | Cost for 24000 sqm= a+b+c+d+e+f+g | | | | 1137583.26 | |
| | | **Rate per sqm = (a+b+c+d+e+f+g)/24000** | | | | 47.40 | |
| | | | | | ***say*** | ***47.00*** | |
| Note | | 1.Tack coat, if required to be provided, before laying slurry seal may be measured and paid separately | | | | | |

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| ***5.17*** | 518 | **Fog Spray** | | | | | |
| | | Providing and applying low viscosity bitumen emulsion for sealing cracks less than 3 mm wide or incipient fretting or disintegration in an existing bituminous surfacing. | | | | | |
| | | ***Unit = sqm*** | | | | | |
| | | ***Taking output = 10500 sqm*** | | | | | |
| | | **a) Labour** | | | | | |
| | | Mate | day | 0.120 | 551.00 | 66.12 | L-12 |
| | | Mazdoor | day | 3.000 | 424.00 | 1272.00 | L-13 |
| | | **b) Machinery** | | | | | |
| | | Mechanical broom @ 1250 sqm per hour | hour | 6.000 | 473.00 | 2838.00 | P&M-031 |
| | | Air compressor 250 cfm | hour | 6.000 | 658.00 | 3948.00 | P&M-001 |
| | | Bitumen emulsion pressure distributor @ 1750 sqm per hour | tonne | 6.000 | 1509.00 | 9054.00 | P&M-004 |
| | | **c) Material** | | | | | |
| | | Bitumenemulsion @ 0.75 kg per sqm | tonne | 7.880 | 55000.00 | 433400.00 | M-077 |
| | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 90836.55 | |
| | | **e) Overheads @ 10 % on (a+b+c+d)** | | | | 45057.81 | |
| | | **f) Contractors profit @ 10 % on (a+b+c+d+e)** | | | | 58647.25 | |
| | | **g) Cess @1% on (a+b+c+d+e+f)** | | | | 6451.20 | |
| | | Cost for 10500 sqm= a+b+c+d+e+f+g | | | | 651570.93 | |
| | | **Rate per sqm = (a+b+c+d+e+f+g)/10500** | | | | 62.05 | |
| | | | | | ***say*** | ***62.00*** | |
| | | 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 | 551.00 | 88.16 | L-12 |
| | | Mazdoor for precoating of grit | day | 4.000 | 424.00 | 1696.00 | L-13 |
| | | **c) Material** | | | | | |
| | | Crushed stone grit 3 mm size @ 3.75 kg per sqm | cum | 26.250 | 780.00 | 20475.00 | M-024 |
| | | Bitumenemulsion for precoating grit @ 2 % of grit,39.38 x 0.02 | tonne | 0.790 | 55000.00 | 43450.00 | M-077 |
| | | | | | | 65709.16 | |
| | | | | | | 6.26 | |
| | | | | | ***say*** | ***6.00*** | |
| ***5.21*** | 522 | **Crack Prevention Courses** | | | | | |
| | Case - I | **Stress Absorbing Membrane (SAM) crack width less than 6 mm** | | | | | |
| | | Providing 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 clause 521, 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 | 0.240 | 551.00 | 132.24 | L-12 |
| | | Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | **b) Machinery** | | | | | |
| | | Mechanical broom @ 1250 sqm per hour | hour | 6.000 | 473.00 | 2838.00 | P&M-031 |
| | | Air compressor 250 cfm | hour | 6.000 | 658.00 | 3948.00 | P&M-001 |
| | | Bitumen pressure distributor @ 1750 sqm per hour | hour | 6.000 | 1509.00 | 9054.00 | P&M-004 |

**DIRECTLY USED ITEMS**

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | Hydraulic Chip spreader | hour | 6.000 | 3640.00 | 21840.00 | P&M-025 |
| | | Smooth wheeled road roller 8-10 tonne | hour | 6.000 | 783.00 | 4698.00 | P&M-044 |
| | | **c) Material** | | | | | |
| | | Modified binder | tonne | 9.450 | 58000.00 | 548100.00 | M-078 |
| | | Crushed stone aggregates 5.6 mm size | cum | 105.000 | 1300.00 | 136500.00 | M-050 |
| | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 147098.29 | |
| | | **e) Overheads @ 10 % on (a+b+c+d)** | | | | 87675.25 | |
| | | **f) Contractors profit @ 10 % on (a+b+c+d+e)** | | | | 96442.78 | |
| | | **g) Cess @1% on (a+b+c+d+e+f)** | | | | 10608.71 | |
| | | Cost for 10500 sqm= a+b+c+d+e+f+g | | | | 1071479.27 | |
| | | **Rate per sqm = (a+b+c+d+e+f+g)/10500** | | | | 102.05 | |
| | | | | | ***say*** | ***102.00*** | |

Case - II **Stress Absorbing Membrane (SAM) with crack width 6 mm to 9 mm**

Providing and laying of a stress absorbing membrane over a cracked road surface, with crack width 6 to 9 mm after cleaning with a mechanical broom, using modified binder complying with clause 521, sprayed at the rate of 11 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm, 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 | 0.240 | 551.00 | 132.24 | L-12 |
| | | Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | **b) Machinery** | | | | | |
| | | Mechanical broom @ 1250 sqm per hour | hour | 6.000 | 473.00 | 2838.00 | P&M-031 |
| | | Air compressor 250 cfem capacity | hour | 6.000 | 658.00 | 3948.00 | P&M-001 |
| | | Bitumen pressure distributor @ 1750 sqm per hour | hour | 6.000 | 1509.00 | 9054.00 | P&M-004 |
| | | Hydraulic Chip spreader | hour | 6.000 | 3640.00 | 21840.00 | P&M-025 |
| | | Smooth wheeled road roller 8-10 tonne | hour | 6.000 | 783.00 | 4698.00 | P&M-044 |
| | | **c) Material** | | | | | |
| | | Modified binder | tonne | 11.550 | 58000.00 | 669900.00 | M-078 |
| | | Crushed stone chipping 11.2 mm size | cum | 105.000 | 1800.00 | 189000.00 | M-051 |
| | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 182237.17 | |
| | | **e) Overheads @ 10 % on (a+b+c+d)** | | | | 90395.42 | |
| | | **f) Contractors profit @ 10 % on (a+b+c+d+e)** | | | | 117658.68 | |
| | | **g) Cess @1% on (a+b+c+d+e+f)** | | | | 12942.46 | |
| | | Cost for 10500 sqm= a+b+c+d+e+f+g | | | | 1307187.97 | |
| | | **Rate per sqm = (a+b+c+d+e+f+g)/10500** | | | | 124.49 | |
| | | | | | ***say*** | ***124.00*** | |

Case III **Stress Absorbing Membrane (SAM) crack width above 9 mm and cracked area above 50 %**

Providing and laying a single coatn of a stress absorbing membrane over a cracked road surface, with crack width above 9 mm and cracked area above 50 % after cleaning with a mechanical broom, using modified binder complying with clause 521, sprayed at the rate of 15 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.

***Unit = sqm***

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | ***Taking output = 10500 sqm*** | | | | | |
| | | **a) Labour** | | | | | |
| | | Mate | day | 0.240 | 551.00 | 132.24 | L-12 |
| | | Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | **b) Machinery** | | | | | |
| | | Mechanical broom @ 1250 sqm per hour | hour | 6.000 | 473.00 | 2838.00 | P&M-031 |
| | | Air compressor 250 cfem capacity | hour | 6.000 | 658.00 | 3948.00 | P&M-001 |
| | | Bitumen pressure distributor @ 1750 sqm per hour | hour | 6.000 | 1509.00 | 9054.00 | P&M-004 |
| | | Hydraulic Chip spreader | hour | 6.000 | 3640.00 | 21840.00 | P&M-025 |
| | | Smooth wheeled road roller 8-10 tonne | hour | 6.000 | 783.00 | 4698.00 | P&M-044 |
| | | **c) Material** | | | | | |
| | | Modified binder | tonne | 15.750 | 58000.00 | 913500.00 | M-078 |
| | | Crushed stone aggregates 11.2 mm size | cum | 126.000 | 1800.00 | 226800.00 | M-051 |
| | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 239172.24 | |
| | | **e) Overheads @ 10 % on (a+b+c+d)** | | | | 142554.25 | |
| | | **f) Contractors profit @ 10 % on (a+b+c+d+e)** | | | | 156809.67 | |
| | | **g) Cess @1% on (a+b+c+d+e+f)** | | | | 17249.06 | |
| | | Cost for 10500 sqm= a+b+c+d+e+f+g | | | | 1742155.46 | |
| | | **Rate per sqm = (a+b+c+d+e+f+g)/10500** | | | | 165.92 | |
| | | | | | ***say*** | ***166.00*** | |
| Case IV | | **Case - IV : Bitumen Impregnated Geotextile** | | | | | |
| | | Providing and laying a bitumen impregnated geotextile layer after cleaning the road surface, geotextile conforming to requirements of clause 704.3, laid over a tack coat with 1.05 kg per sqm of paving grade bitumen 80 - 100 penetration and constructed to the requirement of clause 704.4.5 | | | | | |
| | | ***Unit = sqm*** | | | | | |
| | | ***Taking output = 3500 sqm*** | | | | | |
| | | **a) Labour** | | | | | |
| | | Mate | day | 0.560 | 551.00 | 308.56 | L-12 |
| | | Mazdoor | day | 12.000 | 424.00 | 5088.00 | L-13 |
| | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | **b) Machinery** | | | | | |
| | | Mechanical broom @ 1250 sqm per hour | hour | 2.800 | 473.00 | 1324.40 | P&M-031 |
| | | Air compressor 250 cfem capacity | hour | 2.800 | 658.00 | 1842.40 | P&M-001 |
| | | Bitumen pressure distributor @ 1750 sqm per hour | tonne | 2.000 | 1509.00 | 3018.00 | P&M-004 |
| | | Pneumatic roller | hour | 2.000 | 1708.00 | 3416.00 | P&M-037 |
| | | **c) Material** | | | | | |
| | | Paving grade bitumen of 80 - 100 penetration @ 1.05 kg per sqm | tonne | 3.680 | 57924.00 | 213160.32 | M-075 |
| | | Geotextile including 10 % for overlaps | sqm | 3850.000 | 54.00 | 207900.00 | M-108 |
| | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 88114.05 | |
| | | **e) Overheads @ 10 % on (a+b+c+d)** | | | | 52518.77 | |
| | | **f) Contractors profit @ 10 % on (a+b+c+d+e)** | | | | 57770.65 | |
| | | **g) Cess @1% on (a+b+c+d+e+f)** | | | | 6354.77 | |
| | | Cost for 10500 sqm= a+b+c+d+e+f+g | | | | 641831.92 | |
| | | **Rate per sqm = (a+b+c+d+e+f+g)/3500** | | | | 183.38 | |
| | | | | | ***say*** | ***183.00*** | |

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | NOTE | As bitumen overlay construction shallfollow 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 500 m, of 7 m widecarriagway. This can be conveniently overlaid by a bitumenious course in a day | | | | | |
| **8.3** | 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 | | | | | |
| | | **ii) English and Roman** | | | | | |
| | | Hyphens and the like not to be measured and paid for | | | | | |
| | | Detail for 100 letters of 16 cm height. | | | | | |
| | | Unit = per cm height per letter | | | | | |
| | | **a) Labour** | | | | | |
| | | Mate | day | 0.07 | 551.00 | 38.57 | |
| | | Painter lst class | day | 1.25 | 593.00 | 741.25 | |
| | | Mazdoor | day | 0.50 | 424.00 | 212.00 | |
| | | **b) Material** | | | | | |
| | | Paint | Litre | 0.50 | 450.00 | 225.00 | |
| | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 245.31 | |
| | | **d) Overheads @ 10 % on (a+b+c)** | | | | 146.21 | |
| | | **e) Contractors profit @ 10 % on (a+b+c+d)** | | | | 160.83 | |
| | | **f) Cess @1% on (a+b+c+d+e)** | | | | 17.69 | |
| | | Cost for 1600 cm = a+b+c+d+e+f | | | | 1786.86 | |
| | | **Rate per cm height per letter = (a+b+c+d+e+f)/1600** | | | | 1.12 | |
| | | | | | ***say*** | ***1.10*** | |
| **8.8** | 803 | **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 | | | | | |
| | | ***Unit = sqm*** | | | | | |
| | | ***Taking output = 40 sqm*** | | | | | |
| | | **a) Labour** | | | | | |
| | | Mate | day | 0.12 | 551.00 | 66.12 | |
| | | Painter | day | 2.00 | 593.00 | 1186.00 | |
| | | Mazdoor | day | 1.00 | 424.00 | 424.00 | |
| | | **b) Material** | | | | | |
| | | Paint conforming to requirement of clause 803.3. | Litre | 6.00 | 450.00 | 2700.00 | |
| | | Add for scaffolding @ 1% of labour cost where required | | | | 27.00 | |
| | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 887.67 | |
| | | **d) Overheads @ 10 % on (a+b+c)** | | | | 529.08 | |
| | | **e) Contractors profit @ 10 % on (a+b+c+d)** | | | | 581.99 | |
| | | **f) Cess @1% on (a+b+c+d+e)** | | | | 64.02 | |
| | | Cost for 40 sqm = a+b+c+d+e+f | | | | 6465.88 | |
| | | **Rate per sqm = (a+b+c+d+e+f)/40** | | | | 161.65 | |
| | | | | | ***say*** | ***162.00*** | |
| **8.9** | 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 | 0.03 | 551.00 | 16.53 | |
| | | Painter | day | 0.45 | 593.00 | 266.85 | |
| | | Mazdoor | day | 0.25 | 424.00 | 106.00 | |
| | | **b) Material** | | | | | |

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | Paint ready mixed approved brand. | Litre | 1.25 | 450.00 | 562.50 | |
| | | Add @ 1% on cost of material for scaffolding | | | | 5.63 | |
| | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 193.03 | |
| | | **d) Overheads @ 10 % on (a+b+c)** | | | | 115.05 | |
| | | **e) Contractors profit @ 10 % on (a+b+c+d)** | | | | 126.56 | |
| | | **f) Cess @1% on (a+b+c+d+e)** | | | | 13.92 | |
| | | Cost for 10 sqm = a+b+c+d+e+f | | | | 1406.07 | |
| | | **Rate per sqm = (a+b+c+d+e+f)/10** | | | | 140.61 | |
| | | | | | ***say*** | ***141.00*** | |
| **12.6** | Sub-analysis (A) | **Cement mortar1:3 (1cement :3 sand)** | | | | | |
| | | ***Unit = 1 cum*** | | | | | |
| | | ***Taking output = 1 cum*** | | | | | |
| | | **a) Materials** | | | | | |
| | | Cement | MT | 0.51 | 9100.00 | 4641.00 | |
| | | Sand | cum | 1.05 | 650.00 | 682.50 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.04 | 551.00 | 22.04 | |
| | | Mazdoor | day | 0.90 | 424.00 | 381.60 | |
| | | Total Material and Labour = (a+b) | | | | 5727.00 | |
| | Sub-analysis (B) | **Cement mortar1:2 (1cement :2 sand)** | | | | | |
| | | ***Unit = 1 cum*** | | | | | |
| | | ***Taking output = 1 cum*** | | | | | |
| | | **a) Materials** | | | | | |
| | | Cement | MT | 0.67 | 9100.00 | 6097.00 | |
| | | Sand | cum | 0.93 | 650.00 | 604.50 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.04 | 551.00 | 22.04 | |
| | | Mazdoor | day | 0.90 | 424.00 | 381.60 | |
| | | Total Material and Labour = (a+b) | | | | 7105.00 | |
| | Sub-analysis (D) | **Cement mortar1:6 (1cement :6 sand)** | | | | | |
| | | ***Unit = 1 cum*** | | | | | |
| | | ***Taking output = 1 cum*** | | | | | |
| | | **a) Materials** | | | | | |
| | | Cement | MT | 0.29 | 9100.00 | 2639.00 | |
| | | Sand | cum | 1.20 | 650.00 | 780.00 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.04 | 551.00 | 22.04 | |
| | | Mazdoor | day | 0.90 | 424.00 | 381.60 | |
| | | Total Material and Labour = (a+b) | | | | 3823.00 | |
| **12.7** | 1400 | **Stone masonry work in cement mortar 1:3 in foundation complete as drawing and Technical Specification** | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 5 cum*** | | | | | |
| | (A) | **Square Rubble Coursed Rubble Masonry (first sort)** | | | | | |
| | | **a) Material** | | | | | |
| | | Stone | cum | 5.50 | 605.00 | 3327.50 | M-169 |
| | | Through and bond stone (35no.x0.24mx0.24mx0.39m = 0.79 cu.m) | each | 35.00 | 15.00 | 525.00 | M-182 |
| | | Cement mortar 1:3 (Rate as in Item 12.6 A sub-analysis) | cum | 1.50 | 5727.00 | 8590.50 | Item 12.6 (A) |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.66 | 551.00 | 363.66 | L-12 |

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | Mason | day | 7.50 | 593.00 | 4447.50 | L-11 |
| | | Mazdoor | day | 9.00 | 424.00 | 3816.00 | L-13 |
| | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 4247.74 | |
| | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 5063.58 | |
| | | **e) Contractors profit @ 10 % on (a+b+c+d)** | | | | 3038.15 | |
| | | **f) Cess @1% on (a+b+c+d+e)** | | | | 334.20 | |
| | | Cost for 5 cum = a+b+c+d+e+f | | | | 33753.83 | |
| | | **Rate per cum (a+b+c+d+e+f)/5** | | | | 6750.77 | |
| | | | | | ***say*** | ***6751.00*** | |
| | 1405.3 | **B) Random Rubble Masonry** ( coursed/uncoursed ) | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 5 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Stone | cum | 5.50 | 605.00 | 3327.50 | |
| | | Through and bond stone (35nos.x0.24mx0.24mx0.39m = 0.79 cu.m) | Nos | 35.00 | 15.00 | 525.00 | |
| | | Cement mortar 1:3 (Rate as in item 12.6 A) | cum | 1.55 | 5727.00 | 8876.85 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.62 | 551.00 | 341.62 | |
| | | Mason | day | 6.00 | 593.00 | 3558.00 | |
| | | Mazdoor | day | 9.00 | 424.00 | 3816.00 | |
| | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 4121.71 | |
| | | **d) Overheads @ 20 % on (a+b+c)** | | | | 4913.34 | |
| | | **e) Contractors profit @ 10 % on (a+b+c+d)** | | | | 2948.00 | |
| | | **f) Cess @1% on (a+b+c+d+e)** | | | | 324.28 | |
| | | Cost for 5 cum = a+b+c+d+e+f | | | | 32752.30 | |
| | | **Rate per cum (a+b+c+d+e+f)/5** | | | | 6550.46 | |
| | | | | | ***say*** | ***6550.00*** | |
| | @ | The labour already considered in cement mortar has been taken into account while proposing labour for masonry works. | | | | | |
| **12.7 (Add)** | 1400 | **Stone masonry work in cement mortar 1:6 in foundation complete as drawing and Technical Specification** | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 5 cum*** | | | | | |
| | 1405.3 | **B) Random Rubble Masonry** ( coursed/uncoursed ) | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 5 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Stone | cum | 5.50 | 605.00 | 3327.50 | |
| | | Through and bond stone (35nos.x0.24mx0.24mx0.39m = 0.79 cu.m) | Nos | 35.00 | 15.00 | 525.00 | |
| | | Cement mortar 1:3 (Rate as in item 13.6 D) | cum | 1.55 | 3823.00 | 5925.65 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.62 | 551.00 | 341.62 | |
| | | Mason | day | 6.00 | 593.00 | 3558.00 | |
| | | Mazdoor | day | 9.00 | 424.00 | 3816.00 | |
| | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3526.74 | |
| | | **d) Overheads @ 20 % on (a+b+c)** | | | | 4204.10 | |
| | | **e) Contractors profit @ 10 % on (a+b+c+d)** | | | | 2522.46 | |
| | | **f) Cess @1% on (a+b+c+d+e)** | | | | 277.47 | |

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | Cost for 5 cum = a+b+c+d+e+f | | | | 28024.54 | |
| | | **Rate per cum (a+b+c+d+e+f)/5** | | | | 5604.91 | |
| | | | | | ***say*** | ***5605.00*** | |
| | @ | The labour already considered in cement mortar has been taken into account while proposing labour for masonry works. | | | | | |
| **12.8** | 1500, 1700 & 2100 | **Plain/Reinforced cement concrete in open foundation complete as per drawing and technical specifications** | | | | | |
| | A | **PCC Grade M15** | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 15 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 4.13 | 9100.00 | 37583.00 | |
| | | Coarse sand | cum | 6.75 | 650.00 | 4387.50 | |
| | | 40 mm Aggregate | cum | 8.10 | 1900.00 | 15390.00 | |
| | | 20 mm Aggregate | cum | 4.05 | 1900.00 | 7695.00 | |
| | | 10 mm Aggregate | cum | 1.35 | 1800.00 | 2430.00 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.86 | 551.00 | 473.86 | |
| | | Mason | day | 1.50 | 593.00 | 889.50 | |
| | | Mazdoor | day | 20.00 | 424.00 | 8480.00 | |
| | | **c) Machinery** | | | | | |
| | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.00 | 291.00 | 1746.00 | |
| | | Generator 63 KVA | hour | 6.00 | 883.00 | 5298.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***5,625.00*** | | | |
| | | **d) Formwork @ 4% on cost of concrete i.e.cost of material, labour and machinery** | | | | 3374.91 | |
| | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 17689.95 | |
| | | **f) Overheads @ 20 % on (a+b+c+d+e)** | | | | 21087.54 | |
| | | **g) Contractors profit @ 10 % on (a+b+c+d+e+f)** | | | | 12652.53 | |
| | | **h) Cess @1% on (a+b+c+d+e+f+g)** | | | | 1391.78 | |
| | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 140569.57 | |
| | | **Rate per cum (a+b+c+d+e+f+g+h)/15** | | | | 9371.30 | |
| | | | | | ***say*** | ***9371.00*** | |
| | Note | Nedle Vibrator is an item of minor T & P which is already included in overhead charges. Hence not added in rate analysis of cement concrete works. | | | | | |
| **12.8** | B | **PCC Grade M20** | | | | | |
| | | ***Unit : cum*** | | | | | |
| | | ***Taking output = 15 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 5.16 | 9100.00 | 46956.00 | |
| | | Coarse sand | cum | 6.75 | 650.00 | 4387.50 | |
| | | 40 mm Aggregate | cum | 5.40 | 1900.00 | 10260.00 | |
| | | 20 mm Aggregate | cum | 5.40 | 1900.00 | 10260.00 | |
| | | 10 mm Aggregate | cum | 2.70 | 1800.00 | 4860.00 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.86 | 551.00 | 473.86 | |
| | | Mason | day | 1.50 | 593.00 | 889.50 | |
| | | Mazdoor | day | 20.00 | 424.00 | 8480.00 | |
| | | **c) Machinery** | | | | | |
| | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.00 | 291.00 | 1746.00 | |

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | Generator 33 KVA | hour | 6.00 | 506.00 | 3036.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6,090.00*** | | | |
| **12.8** | C | **RCC Grade M20** | | | | | |
| | | Unit = cum | | | | | |
| | Case I | **Using concrete mixer** | | | | | |
| | | ***Taking output = 15 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 5.21 | 9100.00 | 47411.00 | |
| | | Coarse sand | cum | 6.75 | 650.00 | 4387.50 | |
| | | 20 mm Aggregate | cum | 8.10 | 1900.00 | 15390.00 | |
| | | 10 mm Aggregate | cum | 5.40 | 1800.00 | 9720.00 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.86 | 551.00 | 473.86 | |
| | | Mason | day | 1.50 | 593.00 | 889.50 | |
| | | Mazdoor | day | 20.00 | 424.00 | 8480.00 | |
| | | **c) Machinery** | | | | | |
| | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.00 | 291.00 | 1746.00 | |
| | | Generator 33 KVA | hour | 6.00 | 506.00 | 3036.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6,103.00*** | | | |
| | Case II | **With Batching Plant, Transit Mixer and Conrete Pump** | | | | | |
| | | ***Unit : cum*** | | | | | |
| | | ***Taking Output = 120 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 41.66 | 9100.00 | 379106.00 | |
| | | Coarse Sand | cum | 54.00 | 650.00 | 35100.00 | |
| | | 20 mm Aggregate | cum | 64.80 | 1900.00 | 123120.00 | |
| | | 10 mm Aggregate | cum | 43.20 | 1800.00 | 77760.00 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.84 | 551.00 | 462.84 | |
| | | Mason | day | 3.00 | 593.00 | 1779.00 | |
| | | Mazdoor | day | 18.00 | 424.00 | 7632.00 | |
| | | **c) Machinery** | | | | | |
| | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | |
| | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | |
| | | Loader 1 cum capacity | hour | 6.00 | 1838.00 | 11028.00 | |
| | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | |
| | | Lead beyond 1 km, L-lead in km | T-km | 300L | 80.00 | 0.00 | L= 0 |
| | | Concrete Pump | hour | 6 | 2726.00 | 16356.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***5,802.00*** | | | |
| | | **d) Formwork @ 4% on cost of concrete i.e.cost of material, labour and machinery** | | | | 27845.87 | |
| | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 145956.93 | |
| | | **f) Overheads @ 20 % on (a+b+c+d+e)** | | | | 173989.93 | |
| | | **g) Contractors profit @ 10 % on (a+b+c+d+e+f)** | | | | 104393.96 | |
| | | **h) Cess @1% on (a+b+c+d+e+f+g)** | | | | 11483.34 | |
| | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1159816.87 | |
| | | **Rate per cum = ( a+b+c+d+e+f+g+h )/120** | | | | 9665.14 | |
| | | | | | ***say*** | ***9665.00*** | |
| **12.8** | D | **PCC Grade M25** | | | | | |
| | | Unit = cum | | | | | |
| | Case I | **Using concrete Mixer** | | | | | |

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | ***Taking output = 15 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 5.99 | 9100.00 | 54509.00 | |
| | | Coarse sand | cum | 6.75 | 650.00 | 4387.50 | |
| | | 40 mm Aggregate | cum | 5.40 | 1900.00 | 10260.00 | |
| | | 20 mm Aggregate | cum | 5.40 | 1900.00 | 10260.00 | |
| | | 10 mm Aggregate | cum | 2.70 | 1800.00 | 4860.00 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.86 | 551.00 | 473.86 | |
| | | Mason | day | 1.50 | 593.00 | 889.50 | |
| | | Mazdoor | day | 20.00 | 424.00 | 8480.00 | |
| | | **c) Machinery** | | | | | |
| | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.00 | 291.00 | 1746.00 | |
| | | Generator 33 KVA | hour | 6.00 | 506.00 | 3036.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6,594.00*** | | | |
| | Case II | **With Batching Plant, Transit Mixer and Conrete Pump** | | | | | |
| | | ***Unit : cum*** | | | | | |
| | | ***Taking Output = 120 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 47.95 | 9100.00 | 436345.00 | |
| | | Coarse sand | cum | 54.00 | 650.00 | 35100.00 | |
| | | 40 mm Aggregate | cum | 43.20 | 1900.00 | 82080.00 | |
| | | 20 mm Aggregate | cum | 43.20 | 1900.00 | 82080.00 | |
| | | 10 mm Aggregate | cum | 21.60 | 1800.00 | 38880.00 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.84 | 551.00 | 462.84 | |
| | | Mason | day | 3.00 | 593.00 | 1779.00 | |
| | | Mazdoor | day | 18.00 | 424.00 | 7632.00 | |
| | | **c) Machinery** | | | | | |
| | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | |
| | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | |
| | | Loader 1 cum capacity | hour | 6.00 | 1838.00 | 11028.00 | |
| | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | |
| | | Transit Mixer 4 cum capacity lead | T-Km | 300L | 80.00 | 0.00 | L= 0 |
| | | Concrete Pump | hour | 6 | 2726.00 | 16356.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6,297.00*** | | | |
| | | **d) Formwork @ 3.75% of cost of concrete i.e.cost of material, labour and machinery** | | | | 28332.97 | |
| | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 158029.97 | |
| | | **f) Overheads @ 20 % on (a+b+c+d+e)** | | | | 188381.76 | |
| | | **g) Contractors profit @ 10 % on (a+b+c+d+e+f)** | | | | 113029.05 | |
| | | **h) Cess @1% on (a+b+c+d+e+f+g)** | | | | 12433.20 | |
| | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1255752.79 | |
| | | **Rate per cum = ( a+b+c+d+e+f+g+h)/120** | | | | 10464.61 | |
| | | | | | ***say*** | ***10465.00*** | |
| **12.8** | E | **RCC Grade M25** | | | | | |
| | | Unit = cum | | | | | |
| | Case I | **Using concrete Mixer** | | | | | |
| | | ***Taking output = 15 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 6.05 | 9100.00 | 55055.00 | |

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | Coarse sand | cum | 6.75 | 650.00 | 4387.50 | |
| | | 20 mm Aggregate | cum | 8.10 | 1900.00 | 15390.00 | |
| | | 10 mm Aggregate | cum | 5.40 | 1800.00 | 9720.00 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.86 | 551.00 | 473.86 | |
| | | Mason | day | 1.50 | 593.00 | 889.50 | |
| | | Mazdoor | day | 20.00 | 424.00 | 8480.00 | |
| | | **c) Machinery** | | | | | |
| | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.00 | 291.00 | 1746.00 | |
| | | Generator 33 KVA | hour | 6.00 | 506.00 | 3036.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6,612.00*** | | | |
| | Case II | **With Batching Plant, Transit Mixer and Conrete Pump** | | | | | |
| | | ***Unit : cum*** | | | | | |
| | | ***Taking Output = 120 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 48.38 | 9100.00 | 440258.00 | |
| | | Coarse sand | cum | 54.00 | 650.00 | 35100.00 | |
| | | 20 mm Aggregate | cum | 64.80 | 1900.00 | 123120.00 | |
| | | 10 mm Aggregate | cum | 43.20 | 1800.00 | 77760.00 | |
| | | Admixer | Kg | 193.52 | 64.00 | 12385.28 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.84 | 551.00 | 462.84 | |
| | | Mason | day | 3.00 | 593.00 | 1779.00 | |
| | | Mazdoor | day | 18.00 | 424.00 | 7632.00 | |
| | | **c) Machinery** | | | | | |
| | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | |
| | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | |
| | | Loader 1 cum capacity 1 cum | hour | 6.00 | 1838.00 | 11028.00 | |
| | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | |
| | | Transit Mixer 4 cum capacity lead beyond 1 Km, L - lead in Kilometer | T-Km | 300L | 80.00 | 0.00 | L= 0 |
| | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6,415.00*** | | | |
| **12.8** | F | **PCC Grade M30** | | | | | |
| | | Unit = cum | | | | | |
| | Case I | **Using Concrete Mixer** | | | | | |
| | | ***Taking output = 15 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 6.08 | 9100.00 | 55328.00 | |
| | | Coarse sand | cum | 6.75 | 650.00 | 4387.50 | |
| | | 40 mm Aggregate | cum | 5.40 | 1900.00 | 10260.00 | |
| | | 20 mm Aggregate | cum | 5.40 | 1900.00 | 10260.00 | |
| | | 10 mm Aggregate | cum | 2.70 | 1800.00 | 4860.00 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.86 | 551.00 | 473.86 | |
| | | Mason | day | 1.50 | 593.00 | 889.50 | |
| | | Mazdoor | day | 20.00 | 424.00 | 8480.00 | |
| | | **c) Machinery** | | | | | |
| | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.00 | 291.00 | 1746.00 | |
| | | Generator 33 KVA | hour | 6.00 | 506.00 | 3036.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6,649.00*** | | | |
| | Case II | **Using Batching Plant, Transit Mixer and Conrete Pump** | | | | | |
| | | ***Unit : cum*** | | | | | |

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | ***Taking Output = 120 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 48.60 | 9100.00 | 442260.00 | |
| | | Coarse sand | cum | 54.00 | 650.00 | 35100.00 | |
| | | 40 mm Aggregate | cum | 43.20 | 1900.00 | 82080.00 | |
| | | 20 mm Aggregate | cum | 43.20 | 1900.00 | 82080.00 | |
| | | 10 mm Aggregate | cum | 21.60 | 1800.00 | 38880.00 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.84 | 551.00 | 462.84 | |
| | | Mason | day | 3.00 | 593.00 | 1779.00 | |
| | | Mazdoor | day | 18.00 | 424.00 | 7632.00 | |
| | | **c) Machinery** | | | | | |
| | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | |
| | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | |
| | | Loader 1 cum capacity | hour | 6.00 | 1838.00 | 11028.00 | |
| | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | |
| | | Transit Mixer 4 cum capacity lead beyond 1 Km, L - lead in Kilometer | T-Km | 300L | 80.00 | 0.00 | L= 0 |
| | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6,346.00*** | | | |
| **12.8** | G | **RCC Grade M30** | | | | | |
| | Case I | **Using Concrete Mixer** | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 15 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 6.10 | 9100.00 | 55510.00 | |
| | | Coarse sand | cum | 6.75 | 650.00 | 4387.50 | |
| | | 20 mm Aggregate | cum | 8.10 | 1900.00 | 15390.00 | |
| | | 10 mm Aggregate | cum | 5.40 | 1800.00 | 9720.00 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.86 | 551.00 | 473.86 | |
| | | Mason | day | 1.50 | 593.00 | 889.50 | |
| | | Mazdoor | day | 20.00 | 424.00 | 8480.00 | |
| | | **c) Machinery** | | | | | |
| | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.00 | 291.00 | 1746.00 | |
| | | Generator 33 KVA | hour | 6.00 | 506.00 | 3036.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6,643.00*** | | | |
| | Case II | **Using Batching Plant, Transit Mixer and Conrete Pump** | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 120 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 48.80 | 9100.00 | 444080.00 | |
| | | Coarse sand | cum | 54.00 | 650.00 | 35100.00 | |
| | | 20 mm Aggregate | cum | 64.80 | 1900.00 | 123120.00 | |
| | | 10 mm Aggregate | cum | 43.20 | 1800.00 | 77760.00 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.84 | 551.00 | 462.84 | |
| | | Mason | day | 3.00 | 593.00 | 1779.00 | |
| | | Mazdoor | day | 18.00 | 424.00 | 7632.00 | |
| | | **c) Machinery** | | | | | |
| | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | |
| | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | |
| | | Loader 1 cum capacity | hour | 6.00 | 1838.00 | 11028.00 | |

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | |
| | | Transit Mixer 4 cum capacity lead beyond | T-Km | 300L | 80.00 | 0.00 | L= 0 |
| | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6,343.00*** | | | |
| **12.8** | H | **RCC Grade M35** | | | | | |
| | Case I | **Using Concrete Mixer** | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 15 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 6.33 | 9100.00 | 57603.00 | |
| | | Coarse sand | cum | 6.75 | 650.00 | 4387.50 | |
| | | 20 mm Aggregate | cum | 8.10 | 1900.00 | 15390.00 | |
| | | 10 mm Aggregate | cum | 5.40 | 1800.00 | 9720.00 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.86 | 551.00 | 473.86 | |
| | | Mason | day | 1.50 | 593.00 | 889.50 | |
| | | Mazdoor | day | 20.00 | 424.00 | 8480.00 | |
| | | **c) Machinery** | | | | | |
| | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.00 | 291.00 | 1746.00 | |
| | | Generator 33 KVA | hour | 6.00 | 506.00 | 3036.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6,782.00*** | | | |
| | Case II | **Using Batching Plant, Transit Mixer and Conrete Pump** | | | | | |
| | | ***Unit ; cum*** | | | | | |
| | | ***Taking Output = 120 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 50.64 | 9100.00 | 460824.00 | |
| | | Coarse sand | cum | 54.00 | 650.00 | 35100.00 | |
| | | 20 mm Aggregate | cum | 64.80 | 1900.00 | 123120.00 | |
| | | 10 mm Aggregate | cum | 43.20 | 1800.00 | 77760.00 | |
| | | Admixer | Kg | 202.56 | 64.00 | 12963.84 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.84 | 551.00 | 462.84 | |
| | | Mason | day | 3.00 | 593.00 | 1779.00 | |
| | | Mazdoor | day | 18.00 | 424.00 | 7632.00 | |
| | | **c) Machinery** | | | | | |
| | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | |
| | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | |
| | | Loader 1 cum capacity | hour | 6.00 | 1838.00 | 11028.00 | |
| | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | |
| | | Transit Mixer 4 cum capacity lead beyond1 Km, L - lead in Kilometer | T-Km | 300L | 80.00 | 0.00 | L= 0 |
| | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6,591.00*** | | | |
| | | **d) Formwork @ 3% on cost of concrete i.e.cost of material, labour and machinery** | | | | 23724.86 | |
| | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 164213.99 | |
| | | **f) Overheads @ 20 % on (a+b+c+d+e)** | | | | 195753.51 | |
| | | **g) Contractors profit @ 10 % on (a+b+c+d+e+f)** | | | | 117452.10 | |
| | | **h) Cess @1% on (a+b+c+d+e+f+g)** | | | | 12919.73 | |
| | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1304892.87 | |
| | | **Rate per cum = ( a+b+c+d+e+f+g+h )/120** | | | | 10874.11 | |
| | | | | | ***say*** | ***10874.00*** | |

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | **Rate per cum (a+b+c+d)/120 Excluding GST, OH,CP & Cess** | | | | ***6788.00*** | |
| | | Note: Where ever concrete is carried out using batching plant, transit mixer, concrete pump, admixers @ 0.4% of weight of cement may be added for achieving desired slump of concrete. | | | | | |
| **12.11** | 1200, 1500 & 1700 | **Plain/Reinforced cement concrete, in well foundation complete as per drawing and technical specification** | | | | | |
| | C | **Bottom Plug**<br>Concrete to be placed using tremie pipe | | | | | |
| | Case I | **Using Concrete Mixer** | | | | | |
| | (i) | **PCC Grade M20** | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 15 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 5.55 | 9100.00 | 50505.00 | |
| | | Coarse sand | cum | 6.75 | 650.00 | 4387.50 | |
| | | 40 mm Aggregate | cum | 5.40 | 1900.00 | 10260.00 | |
| | | 20 mm Aggregate | cum | 5.40 | 1900.00 | 10260.00 | |
| | | 10 mm Aggregate | cum | 2.70 | 1800.00 | 4860.00 | |
| | | Admixer | Kg | 18.60 | 64.00 | 1190.40 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.90 | 551.00 | 495.90 | |
| | | Mason | day | 1.50 | 593.00 | 889.50 | |
| | | Mazdoor | day | 20.00 | 424.00 | 8480.00 | |
| | | **c) Machinery** | | | | | |
| | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.00 | 291.00 | 1746.00 | |
| | | Generator 33 KVA | hour | 6.00 | 506.00 | 3036.00 | |
| | | Light Crane 3 tonnes capacity for handling tremie pipe | hour | 6.00 | 490.00 | 2940.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6604.00*** | | | |
| | Note | 10% extra cement may be added where under water concreting is involved. | | | | | |
| | Case II | **Using Batching Plant, Transit Mixer and Crane/concrete pump** | | | | | |
| | | ***Unit ; cum*** | | | | | |
| | | ***Taking Output = 120 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 44.40 | 9100.00 | 404040.00 | |
| | | Coarse sand | cum | 54.00 | 650.00 | 35100.00 | |
| | | 20 mm Aggregate | cum | 64.80 | 1900.00 | 123120.00 | |
| | | 10 mm Aggregate | cum | 43.20 | 1800.00 | 77760.00 | |
| | | Admixer | Kg | 148.80 | 64.00 | 9523.20 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.88 | 551.00 | 484.88 | |
| | | Mason | day | 3.00 | 593.00 | 1779.00 | |
| | | Mazdoor | day | 18.00 | 424.00 | 7632.00 | |
| | | **c) Machinery** | | | | | |
| | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | |
| | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | |
| | | Loader 1 cum capacity | hour | 6.00 | 1838.00 | 11028.00 | |
| | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | |
| | | Transit Mixer 4 cum capacity, lead beyond 1 Km, L - lead in Kilometer | T-Km | 300L | 80.00 | 0.00 | L= 0 |
| | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | |

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6089.00*** | | | |
| | (ii) | **PCC Grade M25** | | | | | |
| | Case I | **Using Concrete Mixer** | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 15 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 5.99 | 9100.00 | 54509.00 | |
| | | Coarse sand | cum | 6.75 | 650.00 | 4387.50 | |
| | | 40 mm Aggregate | cum | 5.40 | 1900.00 | 10260.00 | |
| | | 20 mm Aggregate | cum | 5.40 | 1900.00 | 10260.00 | |
| | | 10 mm Aggregate | cum | 2.70 | 1800.00 | 4860.00 | |
| | | Admixer | Kg | 21.60 | 64.00 | 1382.40 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.90 | 551.00 | 495.90 | |
| | | Mason | day | 1.50 | 593.00 | 889.50 | |
| | | Mazdoor | day | 20.00 | 424.00 | 8480.00 | |
| | | **c) Machinery** | | | | | |
| | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.00 | 291.00 | 1746.00 | |
| | | Generator 33 KVA | hour | 6.00 | 506.00 | 3036.00 | |
| | | Light Crane of 3 tonnes capacity for handling tremie pipe | hour | 6.00 | 490.00 | 2940.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6884.00*** | | | |
| | Case II | **Using Batching Plant, Transit Mixer and Crane/concrete pump** | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 120 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 47.88 | 9100.00 | 435708.00 | |
| | | Coarse sand | cum | 54.00 | 650.00 | 35100.00 | |
| | | 20 mm Aggregate | cum | 64.80 | 1900.00 | 123120.00 | |
| | | 10 mm Aggregate | cum | 43.20 | 1800.00 | 77760.00 | |
| | | Admixer | Kg | 172.80 | 64.00 | 11059.20 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.88 | 551.00 | 484.88 | |
| | | Mason | day | 3.00 | 593.00 | 1779.00 | |
| | | Mazdoor | day | 18.00 | 424.00 | 7632.00 | |
| | | **c) Machinery** | | | | | |
| | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | |
| | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | |
| | | Loader 1 cum capacity | hour | 6.00 | 1838.00 | 11028.00 | |
| | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | |
| | | Transit Mixer 4 cum capacity, lead beyond 1 Km, L - lead in Kilometer | T-Km | 300L | 80.00 | 0.00 | L= 0 |
| | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6366.00*** | | | |
| | (iii) | **PCC Grade M30** | | | | | |
| | Case I | **Using Concrete Mixer** | | | | | |
| | | ***Unit = 1 cum*** | | | | | |
| | | ***Taking output = 15 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 6.08 | 9100.00 | 55328.00 | |
| | | Coarse sand | cum | 6.75 | 650.00 | 4387.50 | |
| | | 40 mm Aggregate | cum | 5.40 | 1900.00 | 10260.00 | |
| | | 20 mm Aggregate | cum | 5.40 | 1900.00 | 10260.00 | |

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | 10 mm Aggregate | cum | 2.70 | 1800.00 | 4860.00 | |
| | | Admixer | Kg | 21.60 | 64.00 | 1382.40 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.90 | 551.00 | 495.90 | |
| | | Mason | day | 1.50 | 593.00 | 889.50 | |
| | | Mazdoor | day | 20.00 | 424.00 | 8480.00 | |
| | | **c) Machinery** | | | | | |
| | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.00 | 291.00 | 1746.00 | |
| | | Generator 33 KVA | hour | 6.00 | 506.00 | 3036.00 | |
| | | Light Crane of 3 tonnes capacity for handling tremie pipe | hour | 6.00 | 490.00 | 2940.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6938.00*** | | | |
| | Case II | **Using Batching Plant, Transit Mixer and Crane/concrete pump** | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 120 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 48.64 | 9100.00 | 442624.00 | |
| | | Coarse sand | cum | 54.00 | 650.00 | 35100.00 | |
| | | 20 mm Aggregate | cum | 64.80 | 1900.00 | 123120.00 | |
| | | 10 mm Aggregate | cum | 43.20 | 1800.00 | 77760.00 | |
| | | Admixer | Kg | 172.80 | 64.00 | 11059.20 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.88 | 551.00 | 484.88 | |
| | | Mason | day | 3.00 | 593.00 | 1779.00 | |
| | | Mazdoor | day | 18.00 | 424.00 | 7632.00 | |
| | | **c) Machinery** | | | | | |
| | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | |
| | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | |
| | | Loader 1 cum capacity | hour | 6.00 | 1838.00 | 11028.00 | |
| | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | |
| | | Transit Mixer 4 cum capacity, lead beyond 1 Km, L - lead in Kilometer | T-Km | 300L | 80.00 | 0.00 | L= 0 |
| | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6423.00*** | | | |
| | (iv) | **PCC Grade M35** | | | | | |
| | Case I | **Using Concrete Mixer** | | | | | |
| | | ***Unit = 1 cum*** | | | | | |
| | | ***Taking output = 15 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 6.29 | 9100.00 | 57239.00 | |
| | | Coarse sand | cum | 6.75 | 650.00 | 4387.50 | |
| | | 40 mm Aggregate | cum | 5.40 | 1900.00 | 10260.00 | |
| | | 20 mm Aggregate | cum | 5.40 | 1900.00 | 10260.00 | |
| | | 10 mm Aggregate | cum | 2.70 | 1800.00 | 4860.00 | |
| | | Admixer | Kg | 21.60 | 64.00 | 1382.40 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.90 | 551.00 | 495.90 | |
| | | Mason | day | 1.50 | 593.00 | 889.50 | |
| | | Mazdoor | day | 20.00 | 424.00 | 8480.00 | |
| | | **c) Machinery** | | | | | |
| | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.00 | 291.00 | 1746.00 | |
| | | Generator 33 KVA | hour | 6.00 | 506.00 | 3036.00 | |
| | | Light Crane of 3 tonnes capacity for handling tremie pipe | hour | 6.00 | 490.00 | 2940.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***7066.00*** | | | |

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | Case II | **Using Batching Plant, Transit Mixer and Crane/concrete pump** | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 120 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 50.28 | 9100.00 | 457548.00 | |
| | | Coarse sand | cum | 54.00 | 650.00 | 35100.00 | |
| | | 20 mm Aggregate | cum | 64.80 | 1900.00 | 123120.00 | |
| | | 10 mm Aggregate | cum | 43.20 | 1800.00 | 77760.00 | |
| | | Admixer | Kg | 172.80 | 64.00 | 11059.20 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.88 | 551.00 | 484.88 | |
| | | Mason | day | 3.00 | 593.00 | 1779.00 | |
| | | Mazdoor | day | 18.00 | 424.00 | 7632.00 | |
| | | **c) Machinery** | | | | | |
| | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | |
| | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | |
| | | Loader 1 cum capacity | hour | 6.00 | 1838.00 | 11028.00 | |
| | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | |
| | | Transit Mixer 4 cum capacity, lead beyond 1 Km, L - lead in Kilometer | T-Km | 300L | 80.00 | 0.00 | L= 0 |
| | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | ***6548.00*** | | | |
| | | Add 5% of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreteing with tremie pipe.. | | | | 35724.15 | |
| | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 165593.08 | |
| | | **e) Overheads @ 20 % on (a+b+c+d)** | | | | 197397.46 | |
| | | **f) Contractors profit @ 10 % on (a+b+c+d+e)** | | | | 118438.48 | |
| | | **g) Cess @1% on (a+b+c+d+e+f)** | | | | 13028.23 | |
| | | Cost for 120 cum = a+b+c+d+e+f+g | | | | 1315851.48 | |
| | | **Rate per cum = ( a+b+c+d+e+f+g )/120** | | | | 10965.43 | |
| | | | | | ***Say*** | ***10965.00*** | |
| | F | **Well cap** | | | | | |
| | iv) | **RCC Grade M35** | | | | | |
| | Case II | **Using Batching Plant, Transit Mixer and Conrete Pump** | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 120 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 50.64 | 9100.00 | 460824.00 | |
| | | Coarse sand | cum | 54.00 | 650.00 | 35100.00 | |
| | | 20 mm Aggregate | cum | 64.80 | 1900.00 | 123120.00 | |
| | | 10 mm Aggregate | cum | 43.20 | 1800.00 | 77760.00 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.84 | 551.00 | 462.84 | |
| | | Mason | day | 3.00 | 593.00 | 1779.00 | |
| | | Mazdoor | day | 18.00 | 424.00 | 7632.00 | |
| | | **c) Machinery** | | | | | |
| | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | |
| | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | |
| | | Loader(capacity 1 cum) | hour | 6.00 | 1838.00 | 11028.00 | |
| | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |

**DIRECTLY USED ITEMS**

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | |
| | | Lead beyond 1 Km, L - lead in Kilometer | T-Km | 300L | 80.00 | 0.00 | L= 0 |
| | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | |
| | | Formwork @ 3% of (a+b+c) | | | | 23335.95 | |
| | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 161522.08 | |
| | | **e) Overheads @ 20 % on (a+b+c+d)** | | | | 192544.57 | |
| | | **f) Contractors profit @ 10 % on (a+b+c+d+e)** | | | | 115526.74 | |
| | | **g) Cess @1% on (a+b+c+d+e+f)** | | | | 12707.94 | |
| | | Cost for 120 cum = a+b+c+d+e+f+g | | | | 1283502.12 | |
| | | **Rate per cum = ( a+b+c+d+e+f+g )/120** | | | | 10695.85 | |
| | | | | | ***Say*** | ***10696.00*** | |
| | Note | Where ever concrete is carried out using batching plant, transit mixer, concrete pump, admixers @ 0.4% of weight of cement may be added for achieving desired slump of concrete. | | | | | |
| **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 remaning earth locally for road work. | | | | | |
| | | **I) Ordinary soil** | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 10 cum*** | | | | | |
| | A | **Manual Means** | | | | | |
| | | **(i) Depth upto 3 m** | | | | | |
| | | **a) Labour** | | | | | |
| | | Mate | day | 0.320 | 551.00 | 176.32 | L-12 |
| | | Mazdoor | day | 8.000 | 424.00 | 3392.00 | L-13 |
| | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 719.37 | |
| | | **c) Overheads @ 10 % on (a+b)** | | | | 428.77 | |
| | | **d) Contractors profit @ 10 % on (a+b+c)** | | | | 471.65 | |
| | | **e) Cess @1% on (a+b+c+d)** | | | | 51.88 | |
| | | Cost for 10 cum = a+b+c+d+e | | | | 5239.99 | |
| | | **Rate per cum = (a+b+c+d+e)/10** | | | | 524.00 | |
| | | | | | ***say*** | ***524.00*** | |
| | Note | Cost of dewatering may be added where required upto 10 % of labour cost Assessment for dewatering shall be made as per site conditions.. | | | | | |
| | B | **Mechanical Means** | | | | | |
| | | **(i) Depth upto 3 m** | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 300 cum*** | | | | | |
| | | **a) Labour** | | | | | |
| | | Mate | day | 0.32 | 551 | 176.32 | |
| | | Mazdoor | day | 8.00 | 424 | 3392.00 | |
| | | **b) Machinery** | | | | | |
| | | Hydraulic excavator 1.0 cum bucket capac | hour | 6.00 | 2044 | 12264.00 | |
| | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3191.80 | |
| | | **d) Overheads @ 10 % on (a+b+c)** | | | | 1902.41 | |
| | | **e) Contractors profit @ 10 % on (a+b+c+d)** | | | | 2092.65 | |
| | | **f) Cess @1% on (a+b+c+d+e)** | | | | 230.19 | |
| | | Cost for 300 cum = a+b+c+d+e+f | | | | 23249.37 | |
| | | **Rate per cum = (a+b+c+d+e+f)/300** | | | | 77.50 | |

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | | | | ***say*** | ***78.00*** | |
| | Note | Cost of dewatering upto 5% of (a+b) may be added, where required. Assessment for dewatering shall be made as per site conditions.. | | | | | |
| **13.6** | Section 1600 & 2200 | **Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and technical specifications** | | | | | |
| | | ***Output : MT*** | | | | | |
| | | ***Taking output = 1 MT*** | | | | | |
| | | **a) Material** | | | | | |
| | | HYSD bars including 5% overlaps and wastage | MT | 1.05 | 67000.00 | 70350.00 | |
| | | Binding wire | kg | 6.00 | 105.00 | 630.00 | |
| | | **b) Labour for cutting, bending, shifting to site, tying and placing in position** | | | | | |
| | | Mate | day | 0.34 | 551.00 | 187.34 | |
| | | Blacksmith | day | 2.00 | 593.00 | 1186.00 | |
| | | Mazdoor | day | 6.50 | 424.00 | 2756.00 | |
| | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 15142.04 | |
| | | **d) Overheads @ 20 % on (a+b+c)** | | | | 18050.28 | |
| | | **e) Contractors profit @ 10 % on (a+b+c+d)** | | | | 10830.17 | |
| | | **f) Cess @1% on (a+b+c+d+e)** | | | | 1191.32 | |
| | | **Rate for per MT (a+b+c+d+e+f)** | | | | 120323.15 | |
| | | | | | ***say*** | ***120323.00*** | |
| **14.1** | 1500 &1600 1700 | **Furnishing and Placing Reinforced/Prestressed cement concrete in super-structure as per drawing and Technical Specification** | | | | | |
| | A | **RCC Grade M20** | | | | | |
| | Case II | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 120 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 40.92 | 9100.00 | 372372.00 | |
| | | Coarse sand | cum | 54.00 | 650.00 | 35100.00 | |
| | | 20 mm Aggregate | cum | 64.80 | 1900.00 | 123120.00 | |
| | | 10 mm Aggregate | cum | 43.20 | 1800.00 | 77760.00 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.84 | 551.00 | 462.84 | |
| | | Mason | day | 3.00 | 593.00 | 1779.00 | |
| | | Mazdoor | day | 18.00 | 424.00 | 7632.00 | |
| | | **c) Machinery** | | | | | |
| | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | |
| | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | |
| | | Loader | hour | 6.00 | 1838.00 | 11028.00 | |
| | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | Transit Mixer 4 cum capacity lead upto 1 Km | hour | 15.00 | 1265.00 | 18975.00 | |
| | | Lead beyond 1 Km, L - lead in Kilometer | T-Km | 300L | 80.00 | 0.00 | L= 0 |
| | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | |
| | | ***Basic Cost of Labour, Material & Mechinery (a+b+c) for 120 cum*** | | **689413.00** | | | |
| | (i) | **For solid slab super-structure, 20-30% of (a+b+c)** | | | | | |
| | (p) | **Height upto 5m** | | | | | |
| | | Basic Cost of Labour, Material & Mechinery (a+b+c) for 120 cum | | | | 689413.00 | |

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | **d) Formwork and staging 20 % of (a+b+c)** | | | | 137882.60 | |
| | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 166782.79 | |
| | | **f) Overheads @ 20 % on (a+b+c+d+e)** | | | | 198815.68 | |
| | | **g) Contractors profit @ 10 % on (a+b+c+d+e+f)** | | | | 119289.41 | |
| | | **h) Cess @1% on (a+b+c+d+e+f+g)** | | | | 13121.83 | |
| | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1325305.31 | |
| | | **Rate per cum (a+b+c+d+e+f+g+h)/120** | | | | 11044.21 | |
| | | | | | ***say*** | ***11044.00*** | |
| B | | **RCC Grade M25** | | | | | |
| Case II | | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 120 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 47.95 | 9100.00 | 436345.00 | |
| | | Coarse sand | cum | 54.20 | 650.00 | 35230.00 | |
| | | 20 mm Aggregate | cum | 64.80 | 1900.00 | 123120.00 | |
| | | 10 mm Aggregate | cum | 43.20 | 1800.00 | 77760.00 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.84 | 551.00 | 462.84 | |
| | | Mason | day | 3.00 | 593.00 | 1779.00 | |
| | | Mazdoor | day | 18.00 | 424.00 | 7632.00 | |
| | | **c) Machinery** | | | | | |
| | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | |
| | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | |
| | | Loader | hour | 6.00 | 1838.00 | 11028.00 | |
| | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | Transit Mixer 4 cum capacity lead upto 1 Km | hour | 15.00 | 1265.00 | 18975.00 | |
| | | Lead beyond 1 Km, L - lead in Kilometer | T-Km | 300L | 80.00 | 0.00 | L= 0 |
| | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | |
| | | ***Basic Cost of Labour, Material & Mechinery (a+b+c) for 120 cum*** | | **753516.00** | | | |
| | | **For formwork and staging add the following:** | | | | | |
| (i) | | **For solid slab super-structure, 20-30% of (a+b+c)** | | | | | |
| (p) | | **Height upto 5m** | | | | | |
| | | Basic Cost of Labour, Material & Mechinery (a+b+c) for 120 cum | | | | 753516.00 | |
| | | **d) Formwork and staging 20 % of (a+b+c)** | | | | 150703.20 | |
| | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 182290.59 | |
| | | **f) Overheads @ 20 % on (a+b+c+d+e)** | | | | 217301.96 | |
| | | **g) Contractors profit @ 10 % on (a+b+c+d+e+f)** | | | | 130381.18 | |
| | | **h) Cess @1% on (a+b+c+d+e+f+g)** | | | | 14341.93 | |
| | | Cost for 120 cum= a+b+c+d+e+f+g+h | | | | 1448534.86 | |
| | | **Rate per cum (a+b+c+d+e+f+g+h)/120** | | | | 12071.12 | |
| | | | | | ***say*** | ***12071.00*** | |
| C | | **RCC Grade M 30** | | | | | |
| Case II | | **Using Batching Plant, Transit Mixer and Concrete Pump.** | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 120 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 48.79 | 9100.00 | 443989.00 | |

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | Coarse sand | cum | 54.60 | 650.00 | 35490.00 | |
| | | 20 mm Aggregate | cum | 64.80 | 1900.00 | 123120.00 | |
| | | 10 mm Aggregate | cum | 43.20 | 1800.00 | 77760.00 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.88 | 551.00 | 484.88 | |
| | | Mason | day | 3.00 | 593.00 | 1779.00 | |
| | | Mazdoor | day | 19.00 | 424.00 | 8056.00 | |
| | | **c) Machinery** | | | | | |
| | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | |
| | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | |
| | | Loader | hour | 6.00 | 1838.00 | 11028.00 | |
| | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | Transit Mixer 4 cum capacity lead upto 1 Km | hour | 15.00 | 1265.00 | 18975.00 | |
| | | Lead beyond 1 Km, L - lead in Kilometer | T-Km | 300L | 80.00 | 0.00 | L= 0 |
| | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | |
| | | ***Basic Cost of Labour, Material & Mechinery (a+b+c) for 120 cum*** | | **761866.00** | | | |
| | | **For formwork and staging add the following:** | | | | | |
| (i) | | **For solid slab super-structure, 20-30% of (a+b+c)** | | | | | |
| (p) | | **Height upto 5m** | | | | | |
| | | Basic Cost of Labour, Material & Mechinery (a+b+c) for 120 cum | | | | 761866.00 | |
| | | **d) Formwork and staging 20 % of (a+b+c)** | | | | 152373.20 | |
| | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 184310.62 | |
| | | **f) Overheads @ 20 % on (a+b+c+d+e)** | | | | 219709.96 | |
| | | **g) Contractors profit @ 10 % on (a+b+c+d+e+f)** | | | | 131825.98 | |
| | | **h) Cess @1% on (a+b+c+d+e+f+g)** | | | | 14500.86 | |
| | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1464586.62 | |
| | | **Rate per cum (a+b+c+d+e+f+g+h)/120** | | | | 12204.89 | |
| | | | | | ***say*** | ***12205.00*** | |
| | | **Rate per cum (a+b+c+d)/120 ( including formwork and excluding GST, OH, CP & Cess)** | | | | ***7619.00*** | |
| | | **Rate per cum (a+b+c+d)/120 ( excluding formwork and excluding GST, OH, CP & Cess)** | | | | ***6349.00*** | |
| E | | **PSC Grade M-40** | | | | | |
| Case 1 | | **Using concret mixer.** | | | | | |
| | | ***Unit = 1 cum*** | | | | | |
| | | ***Taking output = 15 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 6.45 | 9100.00 | 58695.00 | |
| | | Coarse sand | cum | 6.75 | 650.00 | 4387.50 | |
| | | 20 mm Aggregate | cum | 8.10 | 1900.00 | 15390.00 | |
| | | 10 mm Aggregate | cum | 5.40 | 1800.00 | 9720.00 | |
| | | Admixture @ 0.4% of cement | kg | 25.80 | 64.00 | 1651.20 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.96 | 551.00 | 528.96 | |
| | | Mason | day | 2.00 | 593.00 | 1186.00 | |
| | | Mazdoor | day | 22.00 | 424.00 | 9328.00 | |
| | | **c) Machinery** | | | | | |
| | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.00 | 291.00 | 1746.00 | |
| | | Generator 33 KVA | hour | 6.00 | 506.00 | 3036.00 | |

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| | | ***Basic Cost of Labour, Material & Mechinery (a+b+c) for 15 cum*** | | **105669.00** | | | |
| | Case II | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | ***Unit = cum*** | | | | | |
| | | ***Taking output = 120 cum*** | | | | | |
| | | **a) Material** | | | | | |
| | | Cement | MT | 51.60 | 9100.00 | 469560.00 | |
| | | Coarse sand | cum | 54.00 | 650.00 | 35100.00 | |
| | | 20 mm Aggregate | cum | 64.80 | 1900.00 | 123120.00 | |
| | | 10 mm Aggregate | cum | 43.20 | 1800.00 | 77760.00 | |
| | | Admixture @ 0.4% of cement | kg | 206.40 | 64.00 | 13209.60 | |
| | | Admixer | Kg | 216.00 | 64.00 | 13824.00 | |
| | | **b) Labour** | | | | | |
| | | Mate | day | 0.94 | 551.00 | 517.94 | |
| | | Mason | day | 3.50 | 593.00 | 2075.50 | |
| | | Mazdoor | day | 20.00 | 424.00 | 8480.00 | |
| | | **c) Machinery** | | | | | |
| | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | |
| | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | |
| | | Loader | hour | 6.00 | 1838.00 | 11028.00 | |
| | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | Transit Mixer 4 cum capacity lead upto 1 Km | hour | 15.00 | 1265.00 | 18975.00 | |
| | | Lead beyond 1 Km, L - lead in Kilometer | T-Km | 300L | 80.00 | 0.00 | L= 0 |
| | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | |
| | | ***Basic Cost of Labour, Material & Mechinery (a+b+c) for 120 cum*** | | **814835.00** | | | |
| | | **For formwork and staging add the following:** | | | | | |
| | (i) | **For solid slab super-structure, 18-28% of (a+b+c)** | | | | | |
| | (p) | **Height upto 5m** | | | | | |
| | | Basic Cost of Labour, Material & Mechinery (a+b+c) for 120 cum | | | | 814835.00 | |
| | | **d) Formwork and staging 18 % of (a+b+c)** | | | | 146670.30 | |
| | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 193839.47 | |
| | | **f) Overheads @ 20 % on (a+b+c+d+e)** | | | | 231068.95 | |
| | | **g) Contractors profit @ 10 % on (a+b+c+d+e+f)** | | | | 138641.37 | |
| | | **h) Cess @1% on (a+b+c+d+e+f+g)** | | | | 15250.55 | |
| | | Cost for 120 cum= a+b+c+d+e+f | | | | 1540305.64 | |
| | | **Rate per cum (a+b+c+d+e+f)/120** | | | | 12835.88 | |
| | | | | | ***say*** | ***12836.00*** | |

Note

1.Where ever concrete is carried out using batching plant, transit mixer, concrete pump, admixers conforming IS: 9103 @ 0.4% of weight of cement may be added for achieving desired slump of concrete.

2. Cement provided for various components of the super structure is for estimating purpose only. Actual quantity of cement will be as per approved mix design. Similarly, the provision for coarse and fine aggregates is for estimating purpose and the exact quantity shall be as per the mix design.

3. The items like needle and surface vibrators are part of minor T & P which is already covered under the overhead charges. As such these items have not been added seperately in the rate analysis.

## DIRECTLY USED ITEMS

| Sr No | Ref. to MoRTH Spec. | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|
| **14.2** | 1600 | **A) Supplying ,fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications** | | | | | |
| | | ***Unit = 1 MT*** | | | | | |
| | | ***Taking output = 1 MT*** | | | | | |
| | | **a) Material** | | | | | |
| | | HYSD bars including 5% for laps and wast | MT | 1.05 | 67000.00 | 70350.00 | |
| | | Binding wire | Kg | 8.00 | 105.00 | 840.00 | |
| | | **b) Labour** for cutting, bending, tying and placing in position | | | | | |
| | | Mate | day | 0.44 | 551.00 | 242.44 | |
| | | Blacksmith | day | 3.00 | 593.00 | 1779.00 | |
| | | Mazdoor | day | 8.00 | 424.00 | 3392.00 | |
| | | ***Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)*** | | **76604.00** | | | |
| 8.9 | 803 | **Painting on Steel Surfaces with aluminium paint** | | | | | |
| | | Providing and applying two coats of ready mix aluminium paint of approved brand on steel surface through cleaning of surface to give an even shade | | | | | |
| | | ***Unit = sqm*** | | | | | |
| | | ***Taking output = 10 sqm*** | | | | | |
| | | **a) Labour** | | | | | |
| | | Mate | day | 0.03 | 551.00 | 16.53 | L-12 |
| | | Painter | day | 0.45 | 593.00 | 266.85 | L-18 |
| | | Mazdoor | day | 0.25 | 424.00 | 106.00 | L-13 |
| | | **b) Material** | | | | | |
| | | Paint ready mixed approved brand | Litre | 1.25 | 180.00 | 225.00 | |
| | | Add @ 1% on cost of material for scaffolding | | | | 2.25 | |
| | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 124.31 | |
| | | **d) Overheads @ 10 % on (a+b+c)** | | | | 74.09 | |
| | | **e) Contractors profit @ 10 % on (a+b+c+d)** | | | | 81.50 | |
| | | **f) Cess @1% on (a+b+c+d+e)** | | | | 8.97 | |
| | | Cost for 10 sqm = a+b+c+d+e+f | | | | 905.50 | |
| | | **Rate per sqm (a+b+c+d+e+f)/10** | | | | 90.55 | |
| | | | | | ***say*** | ***91.00*** | |

## CHAPTER - 1

## CARRIAGE OF MATERIALS

***Preamble:***

1 The rate analysis of loading and unloading of various items include stacking.

2 The rate analysis for loading and unloading has been given both by manual and mechanical means. Means of loading/unloading appropriate to the work and site is to be adopted.

3 The rate analysis for haulage of materials has been made in terms of tonne-kilometre (t.km) for ease of adoption depending upon the lead in km and load in tonnes.

4 The cost of carriage will vary depending upon the riding surface of the road. Provision has accordingly been made considering surfaced roads, unsurfaced gravel roads and katcha tracks.

5 Analysis for carriage of materials is exclusive of the loading, unloading and stacking and this has to be added as applicable.

6 Carriage of materials if done by boats shall be paid at the same rates as given for carriage of materials by road.

7 Analysis and the rates for the Carriage of materials on Hill roads has been made available for judicious application according to site locations.

## CHAPTER-1
## CARRIAGE OF MATERIALS

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 1.1 | | | **Loading and Unloading of Stone Boulder/ Stoneaggregates/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 = 5.5 cum*** | | | | | |
| | | | **Time required for** | | | | | |
| | | | i) Positioning of tipper at loading point | | 1 Min | | | |
| | | | ii) Loading by front end loader 1 cum bucket capacity @ 25 cum per hour | | 13 Min | | | |
| | | | iii) Manoeuvring, reversing, dumping and turning for return | | 2 Min | | | |
| | | | iv) Waiting time, unforeseen contingencies etc | | 4 Min | | | |
| | | | v) Extra | | 13 Min | | | |
| | | | Total | | **33.000** | | | |
| | | | **a) Machinery** | | | | | |
| | | | Tipper 5.5 tonnes capacity | hour | 0.330 | 916.00 | 302.28 | P&M-048 |
| | | | Front end-loader 1 cum bucket capacity @ 25 cum/hour | hour | 0.330 | 1838.00 | 606.54 | P&M-017 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 183.22 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 109.20 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 120.12 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 13.21 | |
| | | | Cost for 5.5 cum = a+b+c+d+e | | | | 1334.57 | |
| | | | **Rate per cum = (a+b+c+d+e)/ 5.5** | | | | 242.65 | |
| | | **Not** | **Unloading will be by tipping.** | | | ***say*** | ***243.00*** | |
| 1.2 | | | **Loading and Unloading of Boulders by Manual Means** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 5.5 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.110 | 551.00 | 60.61 | L-12 |
| | | | Mazdoor for loading and unloading | day | 0.750 | 424.00 | 318.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tipper 5.5 tonne capacity | hour | 0.750 | 916.00 | 687.00 | P&M-048 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 214.83 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 128.04 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 140.85 | |
| | | | **f) Cess @ 1 % on (a+b+c+d+e)** | | | | 15.49 | |
| | | | Cost for5.5 cum = a+b+c+d+e+f | | | | 1564.82 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/5.5** | | | | 284.51 | |
| | | **Not** | Unloading will be by tipping. | | | ***say*** | ***285.00*** | |
| 1.3 | | | **Loading and Unloading of Cement or Steel by Manual Means and Stacking.** | | | | | |
| | | | ***Unit = tonne*** | | | | | |
| | | | ***Taking output = 10 tonnes*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor for loading and unloading | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Truck 10 tonne capacity | hour | 2.000 | 778.00 | 1556.00 | P&M-057 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 493.53 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 294.16 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 323.58 | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **f) Cess @ 1 % on (a+b+c+d+e)** | | | | 35.59 | |
| | | | Cost for10 tonnes = a+b+c+d+e+f | | | | 3594.94 | |
| | | | **Rate per tonnes = (a+b+c+d+e+f)/10** | | | | 359.49 | |
| | | | | | | ***say*** | ***359.00*** | |
| **1.4** | | | **Cost of Haulage Excluding Loading and Unloading** | | | | | |
| | | | 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*** | | | | | |
| | | **(i)** | **Surfaced Road** | | | | | |
| | | | Speed with load : 25 km / hour. | | | | | |
| | | | Speed while Returning empty :35 km / hour. | | | | | |
| | | | **a) Machinery.** | | | | | |
| | | | **Tipper 10 tonne capacity** | | | | | |
| | | | Time taken for onward haulage with load | hour | 0.400 | 916.00 | 366.40 | P&M-048 |
| | | | Time taken for empty return trip. | hour | 0.290 | 916.00 | 265.64 | P&M-048 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 127.42 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 75.95 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 83.54 | |
| | | | **e) Cess @ 1 % on (a+b+c+d)** | | | | 9.19 | |
| | | | cost for 100 t km = a+b+c+d+e | | | | 928.14 | |
| | | | **Rate per t.km = (a+b+c+d+e)/100** | | | | 9.28 | |
| | | | | | | ***say*** | ***9.30*** | |
| **1.4** | | **(ii)** | **Unsurfaced Graveled Road** | | | | | |
| | | | 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 | 916.00 | 458.00 | P&M-048 |
| | | | Time taken for empty return trip | hour | 0.330 | 916.00 | 302.28 | P&M-048 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 153.27 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 91.36 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 100.49 | |
| | | | **e) Cess @ 1 % on (a+b+c+d)** | | | | 11.05 | |
| | | | Cost for 100 t .km = a+b+c+d+e | | | | 1116.45 | |
| | | | Rate per t.Km =( a+b+c+d+e)/100 | | | | 11.16 | |
| | | | | | | ***say*** | ***11.20*** | |
| **1.4** | | **(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** | | | | | |
| | | | **Tipper 10 tonnes capacity** | | | | | |
| | | | Time taken for onward haulage | hour | 1.000 | 916.00 | 916.00 | P&M-048 |
| | | | Time taken for empty return trip | hour | 0.670 | 916.00 | 613.72 | P&M-048 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 308.39 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 183.81 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 202.19 | |
| | | | **e) Cess @ 1 % on (a+b+c+d)** | | | | 22.24 | |
| | | | Cost for 100 t .km = a+b+c+d+e | | | | 2246.35 | |
| | | | **Rate per t.Km = (a+b+c+d+e)/100** | | | | 22.46 | |
| | | | | | | ***say*** | ***22.50*** | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **FOR HILL ROADS** | | | | | |
| 1.5 | | | **Loading and Unloading of Stone Boulder / Stone aggregates / Sand / Kanker /Moorum / Lime / Shingle / Earth / Excavated Rock and Kerb Stone for hill roads.** | | | | | |
| | | | 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 = 3.5 cum*** | | | | | |
| | | | **Time required for** | | | | | |
| | | | i) Positioning of tipper at loading point | | 1 Min | | | |
| | | | ii) Loading by front end loader 1 cum bucket capacity @ 25 cum per hour | | 8 Min | | | |
| | | | iii) Manoeuvring, reversing, dumping and turning for return | | 2 Min | | | |
| | | | iv) Waiting time, unforeseen contingencies etc | | 4 Min | | | |
| | | | v) Extra | | 6 Min | | | |
| | | | Total | | **21** Min | | | |
| | | | **a) Machinery** | | | | | |
| | | | Tipper 5.5 tonnes capacity | hour | 0.210 | 916.00 | 192.36 | P&M-048 |
| | | | Front end-loader 1 cum bucket capacity @ 25 cum/hour | hour | 0.210 | 1838.00 | 385.98 | P&M-017 |
| | | | **b) GST (multiplying factor 0.2016)on (a)** | | | | 116.59 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 69.49 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 76.44 | |
| | | | **e) Cess @ 1 % on (a+b+c+d)** | | | | 8.41 | |
| | | | Cost for 3.5 cum = a+b+c+d+e | | | | 849.27 | |
| | | | **Rate per cum = (a+b+c+d+e)/ 3.5** | | | | 242.65 | |
| | | **Not** | Unloading will be by tipping. | | | ***say*** | ***243.00*** | |
| 1.6 | | | **Loading and Unloading of Stone Boulder / Stone aggregates / Sand / Kanker/Moorum / Lime / Shingle / Earth / Excavated Rock and Kerb Stones by Manual Means for hill roads.** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 3.5 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.070 | 551.00 | 38.57 | L-12 |
| | | | Mazdoor for loading and unloading | day | 0.480 | 424.00 | 203.52 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tipper 5.5 tonne capacity | hour | 0.480 | 916.00 | 439.68 | P&M-048 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 137.44 | |
| | | | **d) Overhead charges @ 10 % on** | | | | 81.92 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 90.11 | |
| | | | **f) Cess @ 1 % on (a+b+c+d+e)** | | | | 9.91 | |
| | | | Cost for 3.5 cum = a+b+c+d+e+f | | | | 1001.15 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/3.5** | | | | 286.04 | |
| | | **Not** | Unloading will be by tipping. | | | ***say*** | ***286.00*** | |
| 1.7 | | | **Loading and Unloading of Cement / Steel / Structural Steel / RC Pipe / Wooden Logs / Bricks / Bitumen and Timber etc, by Manual Means and Stacking for hill roads.** | | | | | |
| | | | ***Unit = tonne*** | | | | | |
| | | | ***Taking output = 7 tonnes*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.060 | 551.00 | 33.06 | L-12 |
| | | | Mazdoor for loading and unloading | day | 1.400 | 424.00 | 593.60 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Truck 10 tonne capacity | hour | 1.400 | 778.00 | 1089.20 | P&M-057 |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 345.92 | |
| | | | **d) Overhead charges @ 10 % on** | | | | 206.18 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 226.80 | |
| | | | **f) Cess @ 1 % on (a+b+c+d+e)** | | | | 24.95 | |
| | | | Cost for10 tonnes = a+b+c+d+e+f | | | | 2519.71 | |
| | | | **Rate per tonnes = (a+b+c+d+e+f)/7** | | | | 359.96 | |
| | | | | | | ***say*** | ***360.00*** | |
| **1.8** | | | **Cost of Haulage Excluding Loading and Unloading on hill roads** | | | | | |
| | | | Haulage of materials by tipper excluding cost of loading, unloading and stacking. | | | | | |
| | | | ***Unit = t.km*** | | | | | |
| | | | ***Taking output 7 tonnes load and lead 10 km = 70 t.km*** | | | | | |
| | | **(i)** | **Surfaced Road** | | | | | |
| | | | Speed with load : 25 km / hour. | | | | | |
| | | | Speed while Returning empty :35 km / hour. | | | | | |
| | | | **a) Machinery.** | | | | | |
| | | | **Tipper 10 tonne capacity** | | | | | |
| | | | Time taken for onward haulage with load | hour | 0.400 | 916.00 | 366.40 | P&M-048 |
| | | | Time taken for empty return trip. | hour | 0.290 | 916.00 | 265.64 | P&M-048 |
| | | | **b) GST (multiplying factor 0.2016)on (a)** | | | | 127.42 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 75.95 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 83.54 | |
| | | | **e) Cess @ 1 % on (a+b+c+d)** | | | | 9.19 | |
| | | | cost for 100 t km = a+b+c+d+e | | | | 928.14 | |
| | | | **Rate per t.km = (a+b+c+d+e)/70** | | | | 13.26 | |
| | | | | | | ***say*** | ***13.30*** | |
| **1.8** | | **(ii)** | **Unsurfaced Graveled Road** | | | | | |
| | | | 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 | 916.00 | 458.00 | P&M-048 |
| | | | Time taken for empty return trip | hour | 0.330 | 916.00 | 302.28 | P&M-048 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 153.27 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 91.36 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 100.49 | |
| | | | **e) Cess @ 1 % on (a+b+c+d)** | | | | 11.05 | |
| | | | Cost for 100 t .km = a+b+c+d+e | | | | 1116.45 | |
| | | | Rate per t.Km = (a+b+c+d+e)/70 | | | | 15.95 | |
| | | | | | | ***say*** | ***16.00*** | |
| **1.8** | | **(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** | | | | | |
| | | | **Tipper 10 tonnes capacity** | | | | | |
| | | | Time taken for onward haulage | hour | 1.000 | 916.00 | 916.00 | P&M-048 |
| | | | Time taken for empty return trip | hour | 0.670 | 916.00 | 613.72 | P&M-048 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 308.39 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 183.81 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 202.19 | |
| | | | **e) Cess @ 1 % on (a+b+c+d)** | | | | 22.24 | |
| | | | Cost for 100 t .km = a+b+c+d+e | | | | 2246.35 | |
| | | | **Rate per t.Km = (a+b+c+d+e)/70** | | | | 32.09 | |
| | | | | | | ***say*** | ***32.10*** | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 1.9 | | | **Cost of Haulage of Bitumen Excluding Loading and Unloading on hill roads.** | | | | | |
| | | | **Haulage of materials by truck excluding cost of loading, unloading and stacking.** | | | | | |
| | | | ***Unit = t.km*** | | | | | |
| | | | ***Taking output 5 tonnes load and lead 10 km = 50 t.km*** | | | | | |
| | | **(i)** | **Surfaced Road** | | | | | |
| | | | Speed with load : 25 km / hour. | | | | | |
| | | | Speed while Returning empty :35 km / hour. | | | | | |
| | | | **a) Machinery.** | | | | | |
| | | | **Tipper 10 tonne capacity** | | | | | |
| | | | Time taken for onward haulage with load | hour | 0.400 | 778.00 | 311.20 | P&M-057 |
| | | | Time taken for empty return trip. | hour | 0.290 | 778.00 | 225.62 | P&M-057 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 108.22 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 64.50 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 70.95 | |
| | | | **e) Cess @ 1 % on (a+b+c+d)** | | | | 7.80 | |
| | | | cost for 100 t km = a+b+c+d+e | | | | 788.29 | |
| | | | **Rate per t.km = (a+b+c+d+e)/50** | | | | 15.77 | |
| | | | | | | ***say*** | ***15.80*** | |
| | | **(ii)** | **Unsurfaced Graveled Road** | | | | | |
| | | | 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 | 778.00 | 389.00 | P&M-057 |
| | | | Time taken for empty return trip | hour | 0.330 | 778.00 | 256.74 | P&M-057 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 130.18 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 77.59 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 85.35 | |
| | | | **e) Cess @ 1 % on (a+b+c+d)** | | | | 9.39 | |
| | | | Cost for 100 t .km = a+b+c | | | | 948.25 | |
| | | | Rate per t.Km = (a+b+c)/50 | | | | 18.97 | |
| | | | | | | ***say*** | ***19.00*** | |
| | | **(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** | | | | | |
| | | | **Tipper 10 tonnes capacity** | | | | | |
| | | | Time taken for onward haulage | hour | 1.000 | 778.00 | 778.00 | P&M-057 |
| | | | Time taken for empty return trip | hour | 0.670 | 778.00 | 521.26 | P&M-057 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 261.93 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 156.12 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 171.73 | |
| | | | **e) Cess @ 1 % on (a+b+c+d)** | | | | 18.89 | |
| | | | Cost for 100 t .km = a+b+c | | | | 1907.93 | |
| | | | **Rate per t.Km = (a+b+c)/50** | | | | 38.16 | |
| | | | | | | ***say*** | ***38.20*** | |

## Chapter – 2

## SITE CLEARANCE

**Preamble:**

1 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 m.

2 The rates include Tools & Plants (T&P) and scaffolding required for items of dismantling.

3 Carriage of dismantled materials, bushes, branches of tree, etc. has been catered with a tractor-trolley of 3 tonnes capacity with manual loading and unloading @ 2 trips per hour within a lead of 1000 m. This will be economical for such works as compared with a tipper.

4 The dismantling of structures has been catered both by manual and mechanical means. The Engineer can use his discretion depending upon quantum of work and particular site conditions.

5 Rate analysis for removing of stumps and roots has also been provided separately.

6 Dismantling of Hume pipes has been catered manually as pipes can be easily rolled by men to a suitable stacking place within the right-of-way.

7 For dismantling of structures, which remain submerged in water, the cost may be enhanced by 50 per cent. If site conditions warrant lowering of water level to facilitate dismantling, the cost may be enhanced by additional 25 per cent.

8 Dismantling of utilities, like, water supply lines, electric and telephone lines is required to be done under the supervision of concerned departments with prior information to the user public.

9 In certain items of dismantling, like, pipe culverts, utilities, etc. excavation in earth and dismantling of masonary works is not included in this analysis for which suitable notes have been inserted in respective Chapters. These items are required to be priced separately based on actual quantities at site and nature of work.

10 The dismantled materials should be examined and a realistic assessment and provision should be made after due process for the salvage value for such materials, which can be utilized for works or auctioned.

11 In case where lead for disposal is more than 1000 m, extra cost of carriage is required to be added based on tonne-kilometerage as per Chapter 1.

12 All minor Tools & Plants (T&P) items required for dismantling have been considered to have been included in overhead charges.

## CHAPTER-2
## SITE CLEARANCE

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 2.1 | 201 | | **Cutting of Trees, including cutting of Trunks, Branches and Removal** | | | | | |
| | | | Cutting of trees, including cutting of trunks, branches and removal of stumps, roots, stacking of serviceable material with all lifts and up to a lead of 1000 metres and earth filling in the depression/pit. | | | | | |
| | | | ***Unit = Each*** | | | | | |
| | | (i) | **Girth from 300 mm to 600 mm** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Mazdoors for cutting trees including cutting, refilling, compaction of backfilling and stacking of serviceable materials within 1000 metres lead by manual means. | day | 0.600 | 424.00 | 254.40 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.100 | 530.00 | 53.00 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 64.19 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 38.26 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 42.09 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 4.63 | |
| | | | **Rate for each tree = a+b+c+d+e+f** | | | | 467.59 | |
| | | | | | | ***say*** | ***468.00*** | |
| 2.1 | | (ii) | **Girth from 600 mm to 900 mm** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoors for cutting trees including cutting, refilling, compaction of backfilling, and stacking of serviceable materials within 1000 metres lead by manual means | day | 0.900 | 424.00 | 381.60 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.300 | 530.00 | 159.00 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 113.43 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 67.61 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 74.37 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 8.18 | |
| | | | **Rate for each tree = a+b+c+d+e+f** | | | | 826.23 | |
| | | | | | | ***say*** | ***826.00*** | |
| 2.1 | | (iii) | **Girth from 900 mm to 1800 mm** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoors for cutting trees including cutting, refilling, compaction of backfilling and stacking of serviceable materials within 1000 metres | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.400 | 530.00 | 212.00 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 222.58 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 132.67 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 145.93 | |
| | | | **f) Cess @ 1 % on (a+b+c+d+e)** | | | | 16.05 | |
| | | | **Rate for each tree = a+b+c+d+e+f** | | | | 1621.31 | |
| | | | | | | ***say*** | ***1621.00*** | |
| 2.2 | 201 | | **Clearing Grass and Removal of Rubbish** | | | | | |
| | | | 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*** | | | | | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 2.000 | 551.00 | 1102.00 | L-12 |
| | | | Mazdoor | day | 50.000 | 424.00 | 21200.00 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 4496.08 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 2679.81 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 2947.79 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 324.26 | |
| | | | **Rate per Hectare = a+b+c+d+e** | | | | 32749.94 | |
| | | | | | | ***say*** | ***32750.00*** | |
| **2.3** | **201** | | **Clearing and Grubbing Road Land .** | | | | | |
| | | | Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness. | | | | | |
| | | | ***Unit = Hectare*** | | | | | |
| | | | ***Taking output = 1 Hectare*** | | | | | |
| | | **(i)** | **By Manual Means:-** | | | | | |
| | | **A** | **In area of light jungle** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 6.000 | 551.00 | 3306.00 | L-12 |
| | | | Mazdoor | day | 150.000 | 424.00 | 63600.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 1.000 | 530.00 | 530.00 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 13595.10 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 8103.11 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 8913.42 | |
| | | | **f) Cess @ 1 % on (a+b+c+d+e)** | | | | 980.48 | |
| | | | **Rate for each tree = a+b+c+d+e+f** | | | | 99028.11 | |
| | | | | | | ***say*** | ***99028.00*** | |
| **2.3 (i)** | | **B** | **In area of thorny jungle** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 8.000 | 551.00 | 4408.00 | L-12 |
| | | | Mazdoor | day | 200.000 | 424.00 | 84800.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 2.000 | 530.00 | 1060.00 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 18198.03 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 10846.60 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 11931.26 | |
| | | | **f) Cess @ 1 % on (a+b+c+d+e)** | | | | 1312.44 | |
| | | | **Rate for each tree = a+b+c+d+e+f** | | | | 132556.33 | |
| | | | | | | ***say*** | ***132556.00*** | |
| **2.3** | | **(ii)** | **By Mechanical Means** | | | | | |
| | | **A** | **In area of light jungle** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.160 | 551.00 | 88.16 | L-12 |
| | | | Mazdoor | day | 4.000 | 424.00 | 1696.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer 80 HP with attachment for removal of trees & stumps | hour | 10.000 | 5045.00 | 50450.00 | P&M-014 |
| | | | Tractor-trolley | hour | 1.000 | 530.00 | 530.00 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 10637.25 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 6340.14 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 6974.16 | |
| | | | **f) Cess @ 1 % on (a+b+c+d+e)** | | | | 767.16 | |

## CHAPTER-2
## SITE CLEARANCE

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **Rate for each tree = a+b+c+d+e+f** | | | | 77482.87 | |
| | | | | | | ***say*** | ***77483.00*** | |
| **2.3 (ii)** | | **B** | **In area of thorny jungle** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.240 | 551.00 | 132.24 | L-12 |
| | | | Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer 80 HP with attachment for removal of trees & stumps | hour | 12.000 | 5045.00 | 60540.00 | P&M-014 |
| | | | Tractor-trolley | hour | 1.500 | 530.00 | 795.00 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 12904.67 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 7691.59 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 8460.75 | |
| | | | **f) Cess @ 1 % on (a+b+c+d+e)** | | | | 930.68 | |
| | | | **Rate for each tree = a+b+c+d+e+f** | | | | 93998.93 | |
| | | | | | | ***say*** | ***93999.00*** | |
| **2.4** | **202** | | **Dismantling of Structures** | | | | | |
| | | | 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 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor for dismantling and loading | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.270 | 530.00 | 143.10 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 118.77 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 70.79 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 77.87 | |
| | | | **f) Cess @ 1 % on (a+b+c+d+e)** | | | | 8.57 | |
| | | | Cost for 1.25 cum = a+b+c+d+e+f | | | | 865.14 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/ 1.25** | | | | 692.11 | |
| | | | | | | ***say*** | ***692.00*** | |
| **2.4 (i)** | | **B** | **Cement Concrete Grade M-15 & M-20** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.050 | 551.00 | 27.55 | L-12 |
| | | | Mazdoor for dismantling and loading | day | 1.250 | 424.00 | 530.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.270 | 530.00 | 143.10 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 141.25 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 84.19 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 92.61 | |
| | | | **f) Cess @ 1 % on (a+b+c+d+e)** | | | | 10.19 | |
| | | | Cost for 1.25 cum = a+b+c+d+e+f | | | | 1028.89 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/ 1.25** | | | | 823.11 | |
| | | | | | | ***say*** | ***823.00*** | |
| **2.4 (i)** | | **C** | **Prestressed / Reinforced cement concrete grade M-20 & above** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.150 | 551.00 | 82.65 | L-12 |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Blacksmith | day | 0.250 | 593.00 | 148.25 | L-02 |
| | | | Mazdoor for dismantling, loading and unloading | day | 3.500 | 424.00 | 1484.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.270 | 530.00 | 143.10 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 374.57 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 223.26 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 245.58 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 27.01 | |
| | | | Cost for 1.25 cum = a+b+c+d+e+f | | | | 2728.42 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/ 1.25** | | | | 2182.74 | |
| | | | | | | ***say*** | ***2183.00*** | |
| **2.4** | | **II** | **By Mechanical Means for items No. 202( b)& ( c)** | | | | | |
| | | **A** | **Cement Concrete Grade M-15 & M-20** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Mazdoor for loading and unloading | day | 0.250 | 424.00 | 106.00 | L-13 |
| | | | Mazdoor with Pneumatic breaker | day | 0.250 | 424.00 | 106.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Air Compressor 250 cfm with 2 leads of pneumatic breaker @ 1.5 cum per hour | hour | 0.670 | 658.00 | 440.86 | P&M-001 |
| | | | Tractor-trolley | hour | 0.270 | 530.00 | 143.10 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 162.69 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 96.97 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 106.66 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 11.73 | |
| | | | Cost for 1.25 cum = a+b+c+d+e+f | | | | 1185.03 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/ 1.25** | | | | 948.02 | |
| | | | | | | ***say*** | ***948.00*** | |
| **2.4 II** | | **B** | **Prestressed / reinforced cement concrete grade M-20 & above** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.050 | 551.00 | 27.55 | L-12 |
| | | | Mazdoor with Pneumatic breaker | day | 0.660 | 424.00 | 279.84 | L-14 |
| | | | Blacksmith | day | 0.250 | 593.00 | 148.25 | L-02 |
| | | | Mazdoor for loading and unloading | day | 0.250 | 424.00 | 106.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Air Compressor 250 cfm with 2 leads of pneumatic breaker @ 1.00 cum per hour | hour | 1.000 | 658.00 | 658.00 | P&M-001 |
| | | | Tractor-trolley | hour | 0.270 | 530.00 | 143.10 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 274.73 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 163.75 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 180.12 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 19.81 | |
| | | | Cost for 1.25 cum = a+b+c+d+e+f | | | | 2001.15 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/ 1.25** | | | | 1600.92 | |
| | | | | | | ***say*** | ***1601.00*** | |
| **2.4** | | **(ii)** | **Dismantling Brick / Tile work** | | | | | |
| | | **A** | **In lime mortar** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Mazdoor for dismantling, loading and unloading | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.270 | 530.00 | 143.10 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 73.81 | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 43.99 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 48.39 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 5.32 | |
| | | | Cost for 1.25 cum = a+b+c+d+e+f | | | | 537.63 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/ 1.25** | | | | 430.10 | |
| | | | | | | ***say*** | ***430.00*** | |
| **2.4 (ii)** | | **B** | **In cement mortar** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.030 | 551.00 | 16.53 | L-12 |
| | | | Mazdoor for dismantling, loading and unloading | day | 0.750 | 424.00 | 318.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.270 | 530.00 | 143.10 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 96.29 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 57.39 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 63.13 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 6.94 | |
| | | | Cost for 1.25 cum = a+b+c+d+e+f | | | | 701.38 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/ 1.25** | | | | 561.10 | |
| | | | | | | ***say*** | ***561.00*** | |
| **2.4 (ii)** | | **C** | **In mud mortar** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Mazdoor for dismantling and loading | day | 0.400 | 424.00 | 169.60 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.270 | 530.00 | 143.10 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 65.26 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 38.90 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 42.79 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 4.71 | |
| | | | Cost for 1.25 cum = a+b+c+d+e+f | | | | 475.38 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/ 1.25** | | | | 380.30 | |
| | | | | | | ***say*** | ***380.00*** | |
| **2.4 (ii)** | | **D** | **Dry brick pitching or brick soling** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.014 | 551.00 | 7.71 | L-12 |
| | | | Mazdoor for Dismantling, loading and unloading | day | 0.350 | 424.00 | 148.40 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.270 | 530.00 | 143.10 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 60.32 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 35.95 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 39.55 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 4.35 | |
| | | | Cost for 1.25 cum = a+b+c+d+e+f | | | | 439.38 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/ 1.25** | | | | 351.50 | |
| | | | | | | ***say*** | ***352.00*** | |
| **2.4** | | **(iii)** | **Dismantling Stone Masonry** | | | | | |
| | | **A** | **Rubble stone masonry in lime mortar** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.024 | 551.00 | 13.22 | L-12 |
| | | | Mazdoor for dismantling, loading and unloading. | day | 0.600 | 424.00 | 254.40 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.270 | 530.00 | 143.10 | P&M-053 |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 82.80 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 49.35 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 54.29 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 5.97 | |
| | | | Cost for 1.25 cum = a+b+c+d+e+f | | | | 603.13 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/ 1.25** | | | | 482.50 | |
| | | | | | | ***say*** | ***483.00*** | |
| **2.4 (iii)** | | **B** | **Rubble stone masonry in cement mortar.** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.030 | 551.00 | 16.53 | L-12 |
| | | | Mazdoor for dismantling, loading and unloading. | day | 0.750 | 424.00 | 318.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.270 | 530.00 | 143.10 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 96.29 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 57.39 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 63.13 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 6.94 | |
| | | | Cost for 1.25 cum = a+b+c+d+e+f | | | | 701.38 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/ 1.25** | | | | 561.10 | |
| | | | | | | ***say*** | ***561.00*** | |
| **2.4 (iii)** | | **C** | **Rubble Stone Masonry in mud mortar.** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Mazdoor for dismantling, loading and unloading. | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.270 | 530.00 | 143.10 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 73.81 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 43.99 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 48.39 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 5.32 | |
| | | | Cost for 1.25 cum = a+b+c+d+e+f | | | | 537.63 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/ 1.25** | | | | 430.10 | |
| | | | | | | ***say*** | ***430.00*** | |
| **2.4 (iii)** | | **D** | **Dry rubble masonry** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.018 | 551.00 | 9.92 | L-12 |
| | | | Mazdoor for dismantling, loading and unloading. | day | 0.450 | 424.00 | 190.80 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.270 | 530.00 | 143.10 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 69.31 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 41.31 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 45.44 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 5.00 | |
| | | | Cost for 1.25 cum = a+b+c+d+e+f | | | | 504.88 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/ 1.25** | | | | 403.90 | |
| | | | | | | ***say*** | ***404.00*** | |
| **2.4 (iii)** | | **E** | **Dismantling stone pitching/ dry stone spalls.** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Mazdoor for dismantling, loading and unloading. | day | 0.400 | 424.00 | 169.60 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.270 | 530.00 | 143.10 | P&M-053 |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 65.26 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 38.90 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 42.79 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 4.71 | |
| | | | Cost for 1.25 cum = a+b+c+d+e+f | | | | 475.38 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/ 1.25** | | | | 380.30 | |
| | | | | | | ***say*** | ***380.00*** | |
| **2.4 (iii)** | | F | **Dismantling boulders laid in wire crates including opening of crates and stacking dismantled materials.** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Mazdoor for dismantling, loading and unloading | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.270 | 530.00 | 143.10 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 73.81 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 43.99 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 48.39 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 5.32 | |
| | | | Cost for 1.25 cum = a+b+c+d+e+f | | | | 537.63 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/ 1.25** | | | | 430.10 | |
| | | | | | | ***say*** | ***430.00*** | |
| **2.4** | | (iv) | **Wood Work wrought framed and fixed in frames of trusses upto a height of 5 m above plinth level** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.060 | 551.00 | 33.06 | L-12 |
| | | | Carpenter | day | 0.500 | 593.00 | 296.50 | L-04 |
| | | | Mazdoor for dismantling, loading and unloading. | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.270 | 530.00 | 143.10 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 180.77 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 107.74 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 118.52 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 13.04 | |
| | | | Cost for 1.25 cum = a+b+c+d+e+f | | | | 1316.73 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/ 1.25** | | | | 1053.38 | |
| | | | | | | ***say*** | ***1053.00*** | |
| **2.4** | | (v) | **Steel Work in all types of sections upto a height of 5 m above plinth level excluding cutting of rivet.** | | | | | |
| | | | ***Unit = tonne*** | | | | | |
| | | | ***Taking output = 1 tonne*** | | | | | |
| | | A | **Including dismembering** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.140 | 551.00 | 77.14 | L-12 |
| | | | Blacksmith | day | 1.000 | 593.00 | 593.00 | L-02 |
| | | | Mazdoor for dismantling, loading and unloading | day | 2.500 | 424.00 | 1060.00 | L-13 |
| | | | Add 2.5 per cent of cost of labour for gas cutting, ropes, pulleys etc. | | | | 43.25 | |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.170 | 530.00 | 90.10 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 375.68 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 223.92 | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 246.31 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 27.09 | |
| | | | **Rate per tonne = a+b+c+d+e+f** | | | | 2736.49 | |
| | | | | | | ***say*** | ***2736.00*** | |
| **2.4 (v)** | | **B** | **Excluding dismembering.** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.220 | 551.00 | 121.22 | L-12 |
| | | | Mazdoor for dismantling, loading and unloading | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | Blacksmith | day | 0.500 | 593.00 | 296.50 | L-02 |
| | | | Add 2.5 per cent of cost of labour for gas cutting, ropes, pulleys etc. | | | | 31.64 | |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.170 | 530.00 | 90.10 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 279.71 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 166.72 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 183.39 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 20.17 | |
| | | | **Rate per tonne = a+b+c+d+e+f** | | | | 2037.45 | |
| | | | | | | ***say*** | ***2037.00*** | |
| **2.4 (v)** | | **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 | 551.00 | 5.51 | L-12 |
| | | | Blacksmith | day | 0.130 | 593.00 | 77.09 | L-02 |
| | | | Mazdoor | day | 0.130 | 424.00 | 55.12 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 27.76 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 16.55 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 18.20 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 2.00 | |
| | | | Cost for 10 rivets = a+b+c+d+e | | | | 202.23 | |
| | | | **Rate for each rivet = ( a+b+c+d+e)/10** | | | | 20.22 | |
| | | | | | | ***say*** | ***20.00*** | |
| **2.4** | | **(vi)** | **Scraping 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 | 551.00 | 77.14 | L-12 |
| | | | Mazdoor | day | 3.500 | 424.00 | 1484.00 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 314.73 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 187.59 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 206.35 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 22.70 | |
| | | | **Rate per1000 Nos = a+b+c+d+e** | | | | 2292.51 | |
| | | | | | | ***say*** | ***2293.00*** | |
| **2.4 (iv)** | | **B** | **In mud mortar** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.050 | 551.00 | 27.55 | L-12 |
| | | | Mazdoor | day | 1.250 | 424.00 | 530.00 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 112.40 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 67.00 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 73.70 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 8.11 | |
| | | | **Rate per1000 Nos = a+b+c+d+e** | | | | 818.76 | |
| | | | | | | ***say*** | ***819.00*** | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 2.4 | | (vii) | **Scraping of Stone from Dismantled Stone Masonry** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | A | **In cement and lime mortar** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.060 | 551.00 | 33.06 | L-12 |
| | | | Mazdoor | day | 1.400 | 424.00 | 593.60 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 126.33 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 75.30 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 82.83 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 9.11 | |
| | | | **Rate per cum = a+b+c+d+e** | | | | 920.23 | |
| | | | | | | ***say*** | ***920.00*** | |
| 2.4 (vii) | | B | **In Mud mortar** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| | | | Mazdoor | day | 0.300 | 424.00 | 127.20 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 26.75 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 15.95 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 17.54 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 1.93 | |
| | | | **Rate per cum = a+b+c+d+e** | | | | 194.88 | |
| | | | | | | ***say*** | ***195.00*** | |
| 2.4 | | (viii) | **Scarping Plaster in Lime or Cement Mortar from Brick/ Stone Masonry** | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 100 sqm*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.160 | 551.00 | 88.16 | L-12 |
| | | | Mazdoor for scarping and loading | day | 4.000 | 424.00 | 1696.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.320 | 530.00 | 169.60 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 393.88 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 234.76 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 258.24 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 28.41 | |
| | | | Cost for 100 sqm = a+b+c+d+e+f | | | | 2869.05 | |
| | | | **Rate per sqm = (a+b+c+d+e+f)/100** | | | | 28.69 | |
| | | | | | | ***say*** | ***29.00*** | |
| 2.4 | | (ix) | **Removing all type of Hume Pipes and Stacking within a lead of 1000 metres including Earthwork and Dismantling of Masonry Works.** | | | | | |
| | | | ***Unit = metre*** | | | | | |
| | | | ***Taking output = 1 metre*** | | | | | |
| | | A | **Up to 600 mm dia** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Mazdoor | day | 0.520 | 424.00 | 220.48 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 46.67 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 27.82 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 30.60 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 3.37 | |
| | | | **Rate per meter = a+b+c+d+e** | | | | 339.96 | |
| | | | | | | ***say*** | ***340.00*** | |
| 2.4 (ix) | | B | **Above 600 mm to 900 mm dia** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.030 | 551.00 | 16.53 | L-12 |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Mazdoor | day | 0.700 | 424.00 | 296.80 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 63.17 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 37.65 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 41.42 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 4.56 | |
| | | | **Rate per meter = a+b+c+d+e** | | | | 460.13 | |
| | | | | | | ***say*** | ***460.00*** | |
| **2.4 (ix)** | | **C** | **Above 900 mm** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.050 | 551.00 | 27.55 | L-12 |
| | | | Mazdoor | day | 1.200 | 424.00 | 508.80 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 108.13 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 64.45 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 70.89 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 7.80 | |
| | | | **Rate per meter = a+b+c+d+e** | | | | 787.62 | |
| | | | | | | ***say*** | ***788.00*** | |
| | | **Note** | 1. The excavation of earth, dismantling of stone masonry work in head walls and protection works 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. | | | | | |
| **2.5** | **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** | | | | | |
| | | | Mate | day | 0.060 | 551.00 | 33.06 | L-12 |
| | | | Mazdoor for dismantling, loading and unloading | day | 1.500 | 424.00 | 636.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.380 | 530.00 | 201.40 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 175.48 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 104.59 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 115.05 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 12.66 | |
| | | | **Rate per cum = a+b+c+d+e+f** | | | | 1278.24 | |
| | | | | | | ***say*** | ***1278.00*** | |
| **2.5 I** | | **B** | **Granular courses** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor for dismantling, loading and unloading. | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.330 | 530.00 | 174.90 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 125.18 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 74.61 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 82.07 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 9.03 | |
| | | | **Rate per cum = a+b+c+d+f** | | | | 911.83 | |
| | | | | | | ***say*** | ***912.00*** | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 2.5 | | II A | **By Mechanical Means**<br>**Bituminous course** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| | | | Mazdoor | day | 0.300 | 424.00 | 127.20 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.380 | 530.00 | 201.40 | P&M-053 |
| | | | Farm tractor with ripper @ 60 cum per hour | hour | 0.020 | 511.00 | 10.22 | P&M-055 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 69.42 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 41.38 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 45.51 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 4.95 | |
| | | | **Rate per cum = a+b+c+d+f** | | | | 505.59 | |
| | | | | | | ***say*** | ***506.00*** | |
| 2.6 | 202 | | **Dismantling of Cement Concrete Pavement**<br>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 lead of 1000 metres, stacking serviceable and unserviceable materials separately<br>***Unit = cum***<br>***Taking output = 1 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.030 | 551.00 | 16.53 | L-12 |
| | | | Semi skilled mazdoor for operating pneumatic tools | day | 0.500 | 424.00 | 212.00 | L-14 |
| | | | Mazdoors as helpers including loading and unloading | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Air compressor 250 cfm with two leads for pneumatic cutters/ hammers @ 1 cum per hour | hour | 1.000 | 658.00 | 658.00 | P&M-001 |
| | | | Tractor-trolley | hour | 0.400 | 530.00 | 212.00 | P&M-053 |
| | | | Joint Cutting Machine with 2-3 blades | hour | 1.000 | 143.00 | 143.00 | P&M-083 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 293.03 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 174.66 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 192.12 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 21.13 | |
| | | | **Rate per cum = a+b+c+d+f** | | | | 2134.47 | |
| | | | | | | ***say*** | ***2134.00*** | |
| | | Note | The above analysis is for removal of complete pavement. In case full depth repair work is required to be done after dismantling, provision of a concrete cutting and sawing machine may be added for 0.25 hours. | | | | | |
| 2.7 | 202 | | **Dismantling of Guard Rails**<br>Dismantling 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.<br>***Unit = running metre***<br>***Taking output = 1 metre*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| | | | Mazdoor including loading and unloading | day | 0.150 | 424.00 | 63.60 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.050 | 530.00 | 26.50 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 19.27 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 11.49 | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 12.64 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 1.39 | |
| | | | **Rate per metre = a+b+c+d+e+f** | | | | 140.40 | |
| | | | | | | ***say*** | ***140.00*** | |
| **2.8** | **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 metre | | | | | |
| | | | ***Unit = running metre*** | | | | | |
| | | | ***Taking output = 10 metre*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| | | | Mazdoor including loading and unloading | day | 0.150 | 424.00 | 63.60 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.200 | 530.00 | 106.00 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 35.30 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 21.04 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 23.15 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 2.55 | |
| | | | Cost for 10 m = a+b+c+d+e+f | | | | 257.15 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/10** | | | | 25.72 | |
| | | | | | | ***say*** | ***26.00*** | |
| **2.9** | **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 metre | | | | | |
| | | | ***Unit = running metre*** | | | | | |
| | | | ***Taking output = 10 metre*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.015 | 551.00 | 8.27 | L-12 |
| | | | Mazdoor including loading and unloading | day | 0.225 | 424.00 | 95.40 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.300 | 530.00 | 159.00 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 52.95 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 31.56 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 34.72 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 3.82 | |
| | | | Cost for 10 m = a+b+c+d+e+f | | | | 385.72 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/10** | | | | 38.57 | |
| | | | | | | ***say*** | ***39.00*** | |
| **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 upto 1000 m and back filling of pit. | | | | | |
| | | | ***Unit = Each*** | | | | | |
| | | | ***Taking output = one KM stone*** | | | | | |
| | | **A** | **5th KM stone** | | | | | |
| | | | Quantity of cement concrete = 0.392 cum | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.130 | 551.00 | 71.63 | L-12 |
| | | | Mazdoor | day | 0.750 | 424.00 | 318.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.150 | 530.00 | 79.50 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 94.58 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 56.37 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 62.01 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 6.82 | |
| | | | **Rate for one 5th KM stone =** | | | | 688.91 | |
| | | | | | | ***say*** | ***689.00*** | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | B | | **Ordinary KM Stone** | | | | | |
| | | | Quantity of cement concrete = 0.269 cum | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Mazdoor | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.100 | 530.00 | 53.00 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 55.65 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 33.17 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 36.48 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 4.01 | |
| | | | **Rate for one ordinary KM stone =** | | | | 405.33 | |
| | | | | | | ***say*** | ***405.00*** | |
| | C | | **Hectometre Stone** | | | | | |
| | | | Quantity of cement concrete = 0.048 cum | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.004 | 551.00 | 2.20 | L-12 |
| | | | Mazdoor | day | 0.100 | 424.00 | 42.40 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.020 | 530.00 | 10.60 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 11.13 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 6.63 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 7.30 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 0.80 | |
| | | | **Rate for one Hectometre stone = a+b+c+d+e+f** | | | | 81.06 | |
| | | | | | | ***say*** | ***81.00*** | |
| **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 material with all lifts and up to a lead of 1000 metres, stacking serviceable material and unserviceable material separately. | | | | | |
| | | | ***Unit = running metre*** | | | | | |
| | | | ***Taking output = 30 metres*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.150 | 551.00 | 82.65 | L-12 |
| | | | Mazdoor including loading and unloading | day | 3.000 | 424.00 | 1272.00 | L-13 |
| | | | Blacksmith | day | 0.750 | 593.00 | 444.75 | L-02 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.150 | 530.00 | 79.50 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 378.79 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 225.77 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 248.35 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 27.32 | |
| | | | Cost for 30 metres = a+b+c+d+e+f | | | | 2759.13 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/30** | | | | 91.97 | |
| | | | | | | ***say*** | ***92.00*** | |
| **2.12** | **202** | | **Dismantling of CI Water Pipe Line** | | | | | |
| | | | Dismantling of CI water pipe line 600 mm 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 | | | | | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | ***Unit = running metre*** | | | | | |
| | | | ***Taking output = 10 metres*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.090 | 551.00 | 49.59 | L-12 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | Plumber | day | 0.250 | 593.00 | 148.25 | L-02 |
| | | | **b) Machinery** | | | | | |
| | | | Truck 10 tonne capacity | hour | 0.250 | 778.00 | 194.50 | P&M-057 |
| | | | Light Crane 3 tonne capacity | hour | 0.500 | 490.00 | 245.00 | P&M-013 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 299.44 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 178.48 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 196.33 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 21.60 | |
| | | | Cost for 10 metres = a+b+c+d+e+f | | | | 2181.19 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/10** | | | | 218.12 | |
| | | | | | | ***say*** | ***218.00*** | |
| | | **Note** | The rate analysis does not include any excavation in earth or dismantling of masonry works which are to be measured and paid separately. | | | | | |
| **2.13** | **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 | 551.00 | 55.10 | L-12 |
| | | | Mazdoor | day | 2.500 | 424.00 | 1060.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Crane 5 tonne capacity | hour | 0.300 | 827.00 | 248.10 | P&M-070 |
| | | | Truck flat body 10 tonne | hour | 1.000 | 778.00 | 778.00 | P&M-057 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 431.67 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 257.29 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 283.02 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 31.13 | |
| | | | Cost for 10 metres = a+b+c+d+e+f | | | | 3144.31 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/10** | | | | 314.43 | |
| | | | | | | ***say*** | ***314.00*** | |
| | | **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 | | | | | |

## CHAPTER-2
## SITE CLEARANCE

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | ***Unit = each*** | | | | | |
| | | | ***Taking output = 30 Nos*** | | | | | |
| | | | ***a) Labour*** | | | | | |
| | | | Mate | day | 0.480 | 551.00 | 264.48 | L-12 |
| | | | Mazdoor | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | Electrician/Lineman | day | 2.000 | 593.00 | 1186.00 | L-02 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 1.500 | 530.00 | 795.00 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1307.47 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 779.30 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 857.23 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 94.29 | |
| | | | Cost for 30 poles = a+b+c+d | | | | 9523.77 | |
| | | | **Rate per pole = (a+b+c+d)/30** | | | | 317.46 | |
| | | | | | | ***say*** | ***317.00*** | |

## Chapter – 3

## EARTHWORK, EROSION CONTROL AND DRAINAGE

**Preamble:**

1 The rates have been analysed using mechanical means. Manual means for certain items have also been provided which can be used for areas inaccessible to machines and also for small jobs.

2 In the rate analyses of earthwork, compacted volume of earth has been considered.

3 Cutting of earth by dozer has been proposed where the cut earth can be utilized for filling for embankment within a lead upto 100 m.

4 Where lead for transporting of earth is more than 100 m, excavator and tipper have been provided.

5 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-kilometerage.

6 The replacement of unsuitable soil by suitable soil shall be provided separately in the estimate. The rate analysis for removal of unsuitable soil does not provide for replacement by suitable soil.

7 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 and, therefore, the input of dozer for spreading earth can be deleted.

8 For narrow and restricted areas, plate compactor has been proposed for compaction to achieve the desired density.

9 In case excavated rock is found suitable for incorporation in works, suitable credit for the available rock shall be given.

10 For excavation of structures refer to Chapter 11 dealing with items of Foundation.

11 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.

12 For inhabited areas, controlled blasting with limited charges of explosives has been provided. This involves smaller drill holes and additional requirement of electric detonators. Provision has been made accordingly.

13 Any work involved for crossing of water courses for irrigation purpose, etc. will be priced under respective items, like, excavation, grubbing, clearing, etc. for which rate analysis have separately been made.

14 Earth excavated from drains can be used in roadway berms. Hence carriage for disposal of same is not provided.

15 In case of rock fill embankment, it is assumed that material is available at site from rock cutting.

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 3.1 | 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 upto1000 metres. | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 1.800 | 551.00 | 991.80 | L-12 |
| | | | Mazdoor | day | 45.000 | 424.00 | 19080.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Truck 5.5 cum capacity | hour | 10.000 | 778.00 | 7780.00 | P&M-057 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 5614.92 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 3346.67 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 3681.34 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 404.95 | |
| | | | Cost of 120 cum = a+b+c+d+e+f | | | | 40899.68 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/120** | | | | 340.83 | |
| | | | | | | ***say*** | ***341.00*** | |
| | | 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. | | | | | |
| 3.2 | 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 | 551.00 | 1542.80 | L-12 |
| | | | Mazdoor | day | 70.000 | 424.00 | 29680.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Truck 5.5 cum capacity | hour | 10.000 | 778.00 | 7780.00 | P&M-057 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 7862.96 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 4686.58 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 5155.23 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 567.08 | |
| | | | Cost of 120 cum = a+b+c+d+e+f | | | | 57274.65 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/120** | | | | 477.29 | |
| | | | | | | ***say*** | ***477.00*** | |
| | | 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. | | | | | |
| 3.3 | 301 | | **Excavation in Soil with Dozer with lead upto 100 metres** | | | | | |
| | | | Excavation for road way in soil by mechanical means including cutting and pushing the earth to site of embankment upto a distance of 100 metres (average lead50 metres), including trimming bottom and side slopes in accordance with requirements of lines, grades and cross sections. | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 180 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer, 80 HP @ 30 cum per hour | hour | 6.000 | 5045.00 | 30270.00 | P&M-014 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 6282.28 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 3744.44 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 4118.88 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 453.08 | |
| | | | Cost for 180 cum = a+b+c+d+e+f | | | | 45760.76 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/180** | | | | 254.23 | |
| | | | | | | ***say*** | ***254.00*** | |
| **3.4** | 301 | | **Excavation in Ordinary Rock with Dozer with lead upto 100 metres** | | | | | |
| | | | Excavation for roadway in ordinary rock by deploying a dozer, 80 HP including cutting and pushing the cut earth to site of embankment upto a distance of 100 metres ( average lead 50 metres ), trimming bottom and side slopes in accordance with the requirements of lines, grades and cross sections. | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 108 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.120 | 551.00 | 66.12 | L-12 |
| | | | Mazdoor | day | 3.000 | 424.00 | 1272.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer, 80 HP @ 20 cum per hour | hour | 6.000 | 5045.00 | 30270.00 | P&M-014 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 6372.20 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 3798.03 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 4177.84 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 459.56 | |
| | | | Cost for 108 cum = a+b+c+d+e+f | | | | 46415.75 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/108** | | | | 429.78 | |
| | | | | | | ***say*** | ***430.00*** | |
| **3.5** | 301 | | **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 0utput = 180 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.220 | 551.00 | 121.22 | L-12 |
| | | | Mazdoor | day | 3.000 | 424.00 | 1272.00 | L-13 |
| | | | Driller | day | 2.000 | 551.00 | 1102.00 | L-06 |
| | | | Blaster | day | 0.250 | 551.00 | 137.75 | L-03 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer, 80 HP @ 30 cum per hour | hour | 6.000 | 5045.00 | 30270.00 | P&M-014 |
| | | | Air compressor, 250 cfm with 2 jack hammer | hour | 6.000 | 658.00 | 3948.00 | P&M-001 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Tipper10 tonne capacity | hour | 11.250 | 916.00 | 10305.00 | P&M-048 |
| | | | **c) Materials** | | | | | |
| | | | Gelatin 80 per cent | kg | 63.000 | 166.00 | 10458.00 | M-104 |
| | | | Electric Detonators @ 1 detonator for 2 gelatin sticks of 125 gms each | each | 252.000 | 11.59 | 2920.68 | M-094 /100 |
| | | | Credit for excavated rock found suitable for use @ 50 per cent quantity blasted | cum | 90.000 | (270.00) | (24300.00) | M-089 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 9528.15 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 5679.08 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 6246.99 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 687.17 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Cost for 180 cum = a+b+c+d+e+f+g | | | | 69404.04 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/180** | | | | 385.58 | |
| | | | | | | ***say*** | ***386.00*** | |
| | | Note | 1. The quality 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. | | | | | |
| **3.6** | 301 | | **Excavation in Soil using Hydraulic Excavator CK 90 and Tippers with Disposal upto 1000 metres.** | | | | | |
| | | | Excavation for roadwork in soil with hydraulic excavator of 0.9 cum bucket capacity 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 = 360 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic excavator 0.9 cum bucket capacity @ 60 cum per hour | hour | 6.000 | 2044.00 | 12264.00 | P&M-026 |
| | | | Tipper 5.5 cum capacity, 4 trips per hour. | hour | 16.000 | 916.00 | 14656.00 | P&M-048 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 5606.92 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 3341.90 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 3676.09 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 404.37 | |
| | | | Cost for 360 cum = a+b+c+d+e+f | | | | 40841.36 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/360** | | | | 113.45 | |
| | | | | | | ***say*** | ***113.00*** | |
| **3.7** | 301 | | **Excavation in Ordinary Rock using Hydraulic Excavator CK-90 and Tippers with Disposal upto 1000 metres.** | | | | | |
| | | | Excavation for roadway in ordinary rock with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, transporting to embankment site within all lifts and lead upto 1000 m, trimming bottom and side slopes in accordance with requirements of lines, grades and cross sections. | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 240 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic Excavator 0.90 cum bucket capacity @ 36 cum per hour | hour | 6.000 | 2044.00 | 12264.00 | P&M-026 |
| | | | Tipper 5.5 cum capacity, 4 trips per hour. | hour | 11.000 | 916.00 | 10076.00 | P&M-048 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 4683.59 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 2791.57 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 3070.72 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 337.78 | |
| | | | Cost for 240 cum = a+b+c+d+e+f | | | | 34115.74 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/240** | | | | 142.15 | |
| | | | | | | ***say*** | ***142.00*** | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 3.8 | 301 | | **Excavation in Hard Rock (blasting prohibited)** | | | | | |
| | | | Excavation for roadway in hard rock (blasting prohibited) with rock breakers including breaking rock, loading in tippers and disposal within all lifts and lead upto 1000 metres, trimming bottom and side slopes in accordance with requirements of lines, grades and cross sections. | | | | | |
| | | A | **Mechanised** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 36 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.400 | 551.00 | 220.40 | L-12 |
| | | | Mazdoor for trimming slopes including mannul loading in truck | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic excavator with rock breaker attachment @ 6 cum per hour | hour | 6.000 | 2044.00 | 12264.00 | P&M-026 |
| | | | Tipper 5.5 cum capacity, 1 trip per hour. | hour | 6.500 | 916.00 | 5954.00 | P&M-048 |
| | | | Credit for excavated rock found suitable for use @ 50 per cent of excavated quantity | cum | 18.000 | (270.00) | (4860.00) | M-089 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3592.19 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 2141.06 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2355.17 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 259.07 | |
| | | | Cost for 36 cum = a+b+c+d+e+f | | | | 26165.89 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/36** | | | | 726.83 | |
| | | | | | | ***say*** | ***727.00*** | |
| | | Note | 1. The quality 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 restricted/reduced to that extent. | | | | | |
| | | | 3.Being small quantity, manual loading will be economical in this case and has been provided accordingly. | | | | | |
| 3.8 | | B | **Manual Method** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 16 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 1.640 | 551.00 | 903.64 | L-12 |
| | | | Mazdoor including loading in truck | day | 16.000 | 424.00 | 6784.00 | L-13 |
| | | | Chiseller | day | 24.000 | 551.00 | 13224.00 | L-05 |
| | | | Blacksmith | day | 1.000 | 593.00 | 593.00 | L-02 |
| | | | **b) Machinery** | | | | | |
| | | | Tipper 5.5 cum capacity, 1 trip per hour. | hour | 2.900 | 916.00 | 2656.40 | P&M-048 |
| | | | Credit for excavated rock found suitable for use @ 50 per cent of excavated | cum | 8.000 | (270.00) | (2160.00) | M-089 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 4435.41 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 2643.65 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2908.01 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 319.88 | |
| | | | Cost for 16 cum = a+b+c+d+e+f | | | | 32307.99 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/16** | | | | 2019.25 | |
| | | | | | | ***say*** | ***2019.00*** | |
| | | Note | 1. Credit is considered for 50 per cent 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. | | | | | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| **3.9** | 301 | | **Excavation in Hard Rock (controlled blasting) with disposal upto 1000 metres**<br>Excavation for roadway in hard rock with controlled 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<br>***Unit = cum***<br>***Taking output = 180 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.220 | 551.00 | 121.22 | L-12 |
| | | | Mazdoor | day | 3.000 | 424.00 | 1272.00 | L-13 |
| | | | Driller | day | 2.000 | 551.00 | 1102.00 | L-06 |
| | | | Blaster | day | 0.500 | 551.00 | 275.50 | L-03 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer 80 HP @ 30 cum per hour | hour | 6.000 | 5045.00 | 30270.00 | P&M-014 |
| | | | Air compressor, 250 cfm with 2 jack hammers | hour | 6.000 | 658.00 | 3948.00 | P&M-001 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Tipper 5.5 cum capacity, 4 trips per hour. | hour | 8.200 | 916.00 | 7511.20 | P&M-048 |
| | | | **c) Materials** | | | | | |
| | | | Gelatin 80 per cent | kg | 63.000 | 166.00 | 10458.00 | M-104 |
| | | | Electric Detonators @ 1 detonator for1/2 gelatin stick of 125 gms each | each | 1008.000 | 11.59 | 11682.72 | M-094 /100 |
| | | | Credit for excavated rock found suitable for use @ 50 per cent quantity blasted | cum | 90.000 | (270.00) | (24300.00) | M-089 |
| | | | Add 5 per cent of cost of a+b+c towards muffling arrangements to guard against any rock fly off during blasting | | | | 3883.43 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 11542.02 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 6879.41 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 7567.35 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 832.41 | |
| | | | Cost for 180 cum = a+b+c+d+e+f+g | | | | 84073.26 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/180** | | | | 467.07 | |
| | | | | | | ***say*** | ***467.00*** | |
| | | | **Note** 1. Credit is considered for 50 per cent of quantity of blastered rock, if found suitable for construction..<br>2. In case some rock is issued to the contractor at site, the item of carriage shall be reduced to that extent. | | | | | |
| **3.10** | 301 | | **Excavation in Marshy Soil**<br>Excavation for roadway in marshy soil with hydraulic excavator 0.9 cum bucket capacity including cutting and loading in tippers and disposal with in all lifts and lead upto 1000 metres, trimming of bottom and side slopes in accordance with requirements of lines, grades and cross sections.<br>***Unit = cum***<br>***Taking output = 300 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic excavator 0.90 cum bucket capacity @ 50 cum per hour | hour | 6.000 | 2044.00 | 12264.00 | P&M-026 |
| | | | Tipper 5.5 cum capacity, 4 trips per hour. | hour | 13.640 | 916.00 | 12494.24 | P&M-048 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 5171.10 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 3082.14 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 3390.36 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 372.94 | |
| | | | Cost for 300 cum = a+b+c+d+e+f | | | | 37666.86 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/300** | | | | 125.56 | |
| | | | | | | ***say*** | ***126.00*** | |
| **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. | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 360 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Excavator0.90 cum bucket capacity @ 60 cum per hour | hour | 6.000 | 2044.00 | 12264.00 | P&M-026 |
| | | | Tipper 5.5 cum capacity, 4 trips per hour. | hour | 16.360 | 916.00 | 14985.76 | P&M-048 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 5673.39 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 3381.52 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 3719.68 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 409.16 | |
| | | | Cost for 360 cum = a+b+c+d+e+f | | | | 41325.59 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/360** | | | | 114.79 | |
| | | | | | | ***say*** | ***115.00*** | |
| | | Note | This item does not include replacement of unsuitable soil by suitable soil. Replacement, where required, is to be provided and paid separately under clause 305. | | | | | |
| **3.12** | 303 | | **Presplitting of Rock Excavation Slopes** | | | | | |
| | | | 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 80 HP 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 | 0.600 | 551.00 | 330.60 | L-12 |
| | | | Mazdoor | day | 15.000 | 424.00 | 6360.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Air compressor 250 cfm with 2 leads @ 20 cum per hour | hour | 6.000 | 658.00 | 3948.00 | P&M-001 |
| | | | Dozer, 80 HP | hour | 6.000 | 5045.00 | 30270.00 | P&M-014 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | **c) Materials** | | | | | |
| | | | Gelatin 80 per cent | kg | 42.000 | 166.00 | 6972.00 | M-104 |
| | | | Electric Detonators @ 1 detonator for 1/2 gelatin stick of 125 gms each | each | 672.000 | 11.59 | 7788.48 | M-094 /100 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 13446.13 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 8014.32 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 8815.75 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 969.73 | |
| | | | Cost for 400 sqm = a+b+c+d+e+f+g | | | | 97943.01 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/400** | | | | 244.86 | |
| | | | | | | ***say*** | ***245.00*** | |
| | | Note | In case blasted rock is used to the contractor against payment for constructed work, the cost of carriage shall be reduced 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) | **Ordinary soil** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 10 cum*** | | | | | |
| | | A | **Manual Means (Depth upto 3 m)** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.320 | 551.00 | 176.32 | L-12 |
| | | | Mazdoor | day | 8.000 | 424.00 | 3392.00 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 719.37 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 428.77 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 471.65 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 51.88 | |
| | | | Cost for 10 cum = a+b+c+d+e | | | | 5239.99 | |
| | | | **Rate per cum = (a+b+c+d+e)/10** | | | | 524.00 | |
| | | | | | | ***say*** | ***524.00*** | |
| | | Note | Cost of dewatering may be added where required upto 10 per cent of labour cost Assessment for dewatering shall be made as per site conditions.. | | | | | |
| **3.13 (i)** | | B | **Mechanical Means (Depth upto 3 m)** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 300 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.320 | 551.00 | 176.32 | L-12 |
| | | | Mazdoor | day | 8.000 | 424.00 | 3392.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic excavator 1.0 cum bucket capacity | hour | 6.000 | 2044.00 | 12264.00 | P&M-026 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3191.80 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 1902.41 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2092.65 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 230.19 | |
| | | | Cost for 300 cum = a+b+c+d+e+f | | | | 23249.37 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/300** | | | | 77.50 | |
| | | | | | | ***say*** | ***78.00*** | |
| | | Note | Cost of dewatering upto 5 per cent of (a+b) may be added, where required. Assessment for dewatering shall be made as per site conditions.. | | | | | |
| **3.13** | | (ii) | **Ordinary Rock (not requiring blasting)** | | | | | |
| | | A | **Manual Means (Depth upto 3 m)** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 10 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.400 | 551.00 | 220.40 | L-12 |
| | | | Mazdoor | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 899.22 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 535.96 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 589.56 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 64.85 | |
| | | | Cost for 10 cum = a+b+c+d+e | | | | 6549.99 | |
| | | | **Rate per cum = (a+b+c+d+e)/10** | | | | 655.00 | |
| | | | | | | ***say*** | ***655.00*** | |
| | | Note | Cost of dewatering upto 10 per cent of labour cost may be added, where required. Assessment for dewatering shall be made as per site conditions.. | | | | | |
| **3.13 (ii)** | | B | **Mechanical Means** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 216 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.240 | 551.00 | 132.24 | L-12 |
| | | | Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic excavator 1.0 cum bucket capacity | hour | 6.000 | 2044.00 | 12264.00 | P&M-026 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3011.95 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 1795.22 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1974.74 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 217.22 | |
| | | | Cost for 216 cum = a+b+c+d+e+f | | | | 21939.37 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/216** | | | | 101.57 | |
| | | | | | | ***say*** | ***102.00*** | |
| | | Note | 1.Cost of dewatering upto 5 per cent of (a+b), may be added, where required Assessment for dewatering shall be made as per site conditions. | | | | | |
| | | | 2.In case of rock, foundation beyond3 m is not dug and hence not included. | | | | | |
| **3.13** | | (iii) | **Hard Rock ( requiring blasting )** | | | | | |
| | | A | **Manual Means** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 10 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | i) Mate | day | 0.530 | 551.00 | 292.03 | L-12 |
| | | | ii) Driller | day | 0.840 | 551.00 | 462.84 | L-06 |
| | | | iii) Blaster | day | 0.400 | 551.00 | 220.40 | L-03 |
| | | | iv) Mazdoor | day | 12.000 | 424.00 | 5088.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Air Compressor 250 cfm with 2 jack hammer @ 15 cum per hour | hour | 0.667 | 658.00 | 438.89 | P&M-001 |
| | | | **c) Material** | | | | | |
| | | | Blasting Material | kg | 3.500 | 166.00 | 581.00 | M-104 |
| | | | Detonator electric | each | 14.000 | 11.59 | 162.26 | M-094 /100 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1460.68 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 870.61 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 957.67 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 105.34 | |
| | | | Cost for 10 cum = a+b+c+d+e+f+g | | | | 10639.72 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/10** | | | | 1063.97 | |
| | | | | | | ***say*** | ***1064.00*** | |
| | | Note | Cost of dewatering @ 10 per cent of labour cost may be added, where required Assessment for dewatering shall be made as per site conditions. | | | | | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 3.13 | | (iv) | **Hard Rock ( blasting prohibited )** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 10 cum*** | | | | | |
| | | A | **Mechanical Means** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.200 | 551.00 | 110.20 | L-12 |
| | | | Mazdoor | day | 5.000 | 424.00 | 2120.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Air Compressor 250 cfm with 2 leads of pneumatic breaker @ 1 cum per hour | hour | 10.000 | 658.00 | 6580.00 | P&M-001 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1776.14 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 1058.63 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1164.50 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 128.09 | |
| | | | Cost for 10 cum = a+b+c+d+e+f | | | | 12937.56 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/10** | | | | 1293.76 | |
| | | | | | | ***say*** | ***1294.00*** | |
| | | Note | 1. Cost of dewatering upto 5 per cent of (a+b), may be added, where required Assessment for dewatering shall be made as per site conditions. | | | | | |
| | | | 2.In case of rock, foundation beyond 3 m is not dug and hence not included. | | | | | |
| 3.13 | | (v) | **Marshy soil** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 10 cum*** | | | | | |
| | | A | **Manual means ( upto 3 m depth)** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate/Supervisor | day | 0.400 | 551.00 | 220.40 | L-12 |
| | | | Mazdoor | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 2.670 | 530.00 | 1415.10 | P&M-053 |
| | | | **c) Material** | | | | | |
| | | | Selected earth for refilling | cum | 5.000 | 212.00 | 1060.00 | M-163 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1398.20 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 833.37 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 916.71 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 100.84 | |
| | | | Cost for 10 cum = a+b+c+d+e+f+g | | | | 10184.62 | |
| | | | **Rate per cum = ( a+b+c+d+e+f+g)/ 10** | | | | 1018.46 | |
| | | | | | | ***say*** | ***1018.00*** | |
| | | Note | 1. Cost of dewatering @ 30 per cent of (a), may be added, where required Assessment for dewatering shall be made as per site conditions. | | | | | |
| | | | 2. Shoring & strutting 20 per cent 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 (v) | | B | **Mechanical Means** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | i) Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | ii) Mazdoor for dressing sides, bottom and backfilling | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic excavator 1.0 cum bucket capacity @ 60 cum per hour | hour | 0.170 | 2044.00 | 347.48 | P&M-026 |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Tipper 5.5 cum capacity, 4 trips per hour. | hour | 0.450 | 916.00 | 412.20 | P&M-048 |
| | | | **c) Material** | | | | | |
| | | | Selected earth for refilling | cum | 5.000 | 212.00 | 1060.00 | M-163 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 546.69 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 325.85 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 358.43 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 39.43 | |
| | | | Cost for 10 cum = a+b+c+d+e+f+g | | | | 3982.16 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/10** | | | | 398.22 | |
| | | | | | | ***say*** | ***398.00*** | |

Note 1. Cost of dewatering @ 20 per cent of (a+b) may be added, where required

2. Shoring & strutting @ 10 per cent of (a+b), 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

**3.14** 305.4.3 **Scarifying Existing Granular Surface to a Depth of 50 mm by Manual Means**

Scarifying the existing granular road surface to a depth of 50 mm and disposal of scarified material within all lifts and leads upto 1000 metres.

***Unit = sqm***

***Taking output = 100 sqm***

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **a) Labour** | | | | | | | |
| Mate | day | 0.200 | 551.00 | 110.20 | L-12 |
| Mazdoor including loading and unloading | day | 5.000 | 424.00 | 2120.00 | L-13 |
| **b) Machinery** | | | | | |
| Tractor-trolley | hour | 1.670 | 530.00 | 885.10 | P&M-053 |
| **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 628.04 | |
| **d) Overhead charges @ 10 % on (a+b+c)** | | | | 374.33 | |
| **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 411.77 | |
| **f) Cess @ 1% on (a+b+c+d+e)** | | | | 45.29 | |
| Cost for 100 sqm = a+b+c+d+e+f | | | | 4574.73 | |
| **Rate per sqm = (a+b+c+d+e+f)/100** | | | | 45.75 | |
| | | | ***say*** | ***46.00*** | |

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 Existing Bituminous Surface to a depth of 50 mm by Mechanical Means**

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.

***Unit = sqm***

***Taking output = 100 sqm***

| | | | | | |
|---|---|---|---|---|---|
| **a) Labour** | | | | | |
| Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| Mazdoor | day | 0.250 | 424.00 | 106.00 | L-13 |
| **b) Machinery** | | | | | |
| Tractor with ripper attachment @ 60 cum per hour | hour | 0.080 | 511.00 | 40.88 | P&M-055 |
| Front end loader 1 cum bucket capacity @ 25 cum per hour | hour | 0.200 | 1838.00 | 367.60 | P&M-017 |
| Tipper 5.5 cum capacity, 4 trips per hour. | hour | 0.230 | 916.00 | 210.68 | P&M-048 |
| **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 147.30 | |
| **d) Overhead charges @ 10 % on (a+b+c)** | | | | 87.80 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 96.58 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 10.62 | |
| | | | Cost for 100 sqm = a+b+c+d+e+f | | | | 1072.97 | |
| | | | **Rate per sqm = (a+b+c+d+e+f)/100** | | | | 10.73 | |
| | | | | | | ***say*** | ***11.00*** | |
| **3.16** | 305 | | **Construction of Embankment with Material obtained from Borrowpits**<br>Construction of embankment 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 = 100 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic Excavator1 cum bucket capacity @ 60 cum per hour | hour | 1.670 | 2044.00 | 3413.48 | P&M-026 |
| | | | Tipper 10 tonne capacity | tonne. km | 160 x L | 18.00 | 8640.00 | Lead =3 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 864.00 | |
| | | | Dozer 80 HP for spreading @ 200 cum per hour | hour | 0.500 | 5045.00 | 2522.50 | P&M-014 |
| | | | Motor grader for grading @ 100 cum per hour | hour | 1.000 | 3247.00 | 3247.00 | P&M-032 |
| | | | Water tanker6 KL capacity | hour | 4.000 | 724.00 | 2896.00 | P&M-060 |
| | | | Three wheel 80-100 kN Statis Roller | hour | 1.000 | 969.00 | 969.00 | P&M-059 |
| | | | **c) Material** | | | | | |
| | | | Cost of water | KL | 24.000 | 71.00 | 1704.00 | M-189 |
| | | | Compensation for earth taken from private land | cum | 100.000 | 0.00 | 0.00 | M-092 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 4979.93 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 2968.20 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 3265.02 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 359.15 | |
| | | | Cost for 100 cum = a+b+c+d+e+f+g | | | | 36274.32 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/100** | | | | 362.74 | |
| | | | | | | ***say*** | ***363.00*** | |
| | | **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**<br>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 = 100 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Mazdoor | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer 80 HP for spreading @ 200 cum per hour | hour | 0.500 | 5045.00 | 2522.50 | P&M-014 |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Motor grader for grading @ 100 cum per hour | hour | 1.000 | 3247.00 | 3247.00 | P&M-032 |
| | | | Water tanker6 KL capacity | hour | 4.000 | 724.00 | 2896.00 | P&M-060 |
| | | | Three wheel 80-100 kN Statis Roller | hour | 1.000 | 969.00 | 969.00 | P&M-059 |
| | | | **c) Material** | | | | | |
| | | | Cost of water | KL | 24.000 | 71.00 | 1704.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 2330.80 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 1389.23 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 1528.16 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 168.10 | |
| | | | Rate for 100 cum = a+b+c+d+e+f+g | | | | 16977.81 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/100** | | | | 169.78 | |
| | | | | | | ***say*** | ***170.00*** | |
| | | Note | In case the earth cutting is done by dozer and pushed for filling in the embankment, the input of dozer in the cost of embankment shall be deleted as the same is already provided in the cost of excavation. However, if the earth is dumped by tippers from roadway cutting, the input of dozer for spreading is required to be provided. | | | | | |
| **3.18** | 305 | | **Construction of Subgrade and Earthen Shoulders** | | | | | |
| | | | Construction of sub-grade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2 | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 100 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic excavator1 cum bucket capacity @ 60 cum per hour | hour | 1.670 | 2044.00 | 3413.48 | P&M-026 |
| | | | Tipper 10 tonne capacity | tonne.km | 175xL | 18.00 | 9450.00 | Lead =3 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 945.00 | |
| | | | Dozer 80 HP for spreading @ 200 cum per hour | hour | 0.500 | 5045.00 | 2522.50 | P&M-014 |
| | | | Motor grader for grading @ 50 cum per hour | hour | 2.000 | 3247.00 | 6494.00 | P&M-032 |
| | | | Water tanker with 6 km lead | hour | 4.000 | 724.00 | 2896.00 | P&M-060 |
| | | | Three wheel 80-100 kN Statis Roller | hour | 1.250 | 969.00 | 1211.25 | P&M-059 |
| | | | **c) Material** | | | | | |
| | | | Cost of water | KL | 24.000 | 71.00 | 1704.00 | M-189 |
| | | | Compensation for earth taken from private land | cum | 100.000 | 0.00 | 0.00 | M-092 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 5862.99 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 3494.53 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 3843.98 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 422.84 | |
| | | | Cost for 100 cum = a+b+c+d+e+f+g | | | | 42706.61 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/100** | | | | 427.07 | |
| | | | | | | ***say*** | ***427.00*** | |
| **3.19** | 305.3.4 | | **Compacting Original Ground** | | | | | |
| | | Case-I | **Compacting original ground supporting sub-grade** | | | | | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | 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 = 600 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.120 | 551.00 | 66.12 | L-12 |
| | | | Mazdoor | day | 3.000 | 424.00 | 1272.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor with ripper attachment | hour | 9.000 | 511.00 | 4599.00 | P&M-055 |
| | | | Motor grader for grading | hour | 6.000 | 3247.00 | 19482.00 | P&M-032 |
| | | | Water tanker 6 KL capacity | hour | 4.000 | 724.00 | 2896.00 | P&M-060 |
| | | | Three wheel 80-100 kN Statis Roller | hour | 7.500 | 969.00 | 7267.50 | P&M-059 |
| | | | **c) Material** | | | | | |
| | | | Cost of water | KL | 24.000 | 71.00 | 1704.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 7516.98 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 4480.36 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 4928.40 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 542.12 | |
| | | | Cost for 600 cum = a+b+c+d+e+f+g | | | | 54754.48 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/600** | | | | 91.26 | |
| | | | | | | ***say*** | ***91.00*** | |
| **3.19** | | 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 embankment construction. | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 600 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor with ripper attachment | hour | 6.000 | 511.00 | 3066.00 | P&M-055 |
| | | | Three wheel 80-100 kN Statis Roller | hour | 7.500 | 969.00 | 7267.50 | P&M-059 |
| | | | Water tanker6 KL capacity | hour | 4.000 | 724.00 | 2896.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Cost of water | KL | 24.000 | 71.00 | 1704.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 3190.44 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 1901.60 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 2091.76 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 230.09 | |
| | | | Cost for 600 cum = (a+b+c+d+e+f+g) | | | | 23239.47 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/600** | | | | 38.73 | |
| | | | | | | ***say*** | ***39.00*** | |
| **3.20** | 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. | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 10 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.200 | 551.00 | 110.20 | L-12 |
| | | | Mazdoor | day | 5.000 | 424.00 | 2120.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer 80 HP @ 100 cum per hour | hour | 0.100 | 5045.00 | 504.50 | P&M-014 |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 551.32 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 328.60 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 361.46 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 39.76 | |
| | | | Cost for 10 cum = (a+b+c+d+e+f) | | | | 4015.84 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/10** | | | | 401.58 | |
| | | | | | | ***say*** | ***402.00*** | |
| **3.21** | | | **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 = 300 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer, 80 HP | hour | 6.000 | 5045.00 | 30270.00 | P&M-014 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 6282.28 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 3744.44 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 4118.88 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 453.08 | |
| | | | Cost for 300 cum = (a+b+c+d+e+f) | | | | 45760.76 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/300** | | | | 152.54 | |
| | | | | | | ***say*** | ***153.00*** | |
| **3.22** | 307 | | **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 | 551.00 | 66.12 | L-12 |
| | | | Mazdoor for preparation of ground and fetching of sods | day | 3.000 | 424.00 | 1272.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Water tanker including watering for 3 months | hour | 2.000 | 724.00 | 1448.00 | P&M-060 |
| | | | Tractor-trolley | hour | 1.000 | 530.00 | 530.00 | P&M-053 |
| | | | **c) Material** | | | | | |
| | | | Farm yard manure @ 0.18 cum per 100 sqm at site of work | cum | 0.180 | 141.00 | 25.38 | M-167 |
| | | | Cost of water | KL | 12.000 | 71.00 | 852.00 | M-189 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 845.41 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 503.89 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 554.28 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 60.97 | |
| | | | Cost for 100 sqm = a+b+c+d+e+f+g | | | | 6158.05 | |
| | | | **Rate per 100 sqm = (a+b+c+d+e+f+g)/100** | | | | 61.58 | |
| | | | | | | ***say*** | ***62.00*** | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| **3.23** | 308 | | **Seeding and Mulching** | | | | | |
| | | | Preparation of seed bed on previously laid top soil, furnishing and placing of seeds, fertilizer, mulching material, applying bituminous emulsion at the rate of 0.23 litres per sqm and laying and fixing jute netting, including watering for 3 months all as per clause 308. | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 240 sqm*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.400 | 551.00 | 220.40 | L-12 |
| | | | Mazdoor | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Water tanker 6 KL capacity including watering for 3 months | hour | 14.000 | 724.00 | 10136.00 | P&M-060 |
| | | | Tractor-trolley | hour | 2.400 | 530.00 | 1272.00 | P&M-053 |
| | | | **c) Material** | | | | | |
| | | | Seeds | kg | 3.600 | 354.00 | 1274.40 | M-162 |
| | | | Sludge/Farm yard manure @ 0.18 cum per 100 sqm | cum | 0.430 | 141.00 | 60.63 | M-167 |
| | | | Bitumen Emulsion | litre | 55.200 | 55.00 | 3036.00 | M-077 |
| | | | Jute netting, open weave, 2.5 cm square opening | sqm | 264.000 | 15.00 | 3960.00 | M-121 |
| | | | Cost of water for 3 months | KL | 84.000 | 71.00 | 5964.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 6080.95 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 3624.44 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 3986.88 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 438.56 | |
| | | | Cost for 240 sqm = a+b+c+d+e+f+g | | | | 44294.26 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/240** | | | | 184.56 | |
| | | | | | | ***say*** | ***185.00*** | |
| **3.24** | 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 50 metres (average lead 25 metres) | | | | | |
| | | | ***Unit = metre*** | | | | | |
| | | | ***Taking output = 10 metres*** | | | | | |
| | | A | **Mechanical means** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| | | | Mazdoor for dressing of bed and side of drain | day | 0.250 | 424.00 | 106.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic Excavator 0.3 cum bucket capacity @ 30 metres per hour | hour | 0.330 | 2044.00 | 674.52 | P&M-026 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 158.46 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 94.45 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 103.89 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 11.43 | |
| | | | Cost for 10 metres = a+b+c+d+e+f | | | | 1154.26 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/10** | | | | 115.43 | |
| | | | | | | ***say*** | ***115.00*** | |
| **3.24** | | B | **Manual Means** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 179.84 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 107.19 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 117.91 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 12.97 | |
| | | | Cost for 10 metres = a+b+c+d+e | | | | 1309.99 | |
| | | | **Rate per metre = (a+b+c+d+e)/10** | | | | 131.00 | |
| | | | | | | ***say*** | ***131.00*** | |
| | | Note | Where lining of drain is provided, quantity 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. | | | | | |
| **3.25** | 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 requirement of clause 301 to 309. Excavated material to be used in embankment at site. | | | | | |
| | | | ***Unit = metre*** | | | | | |
| | | | ***Taking output = 10 metres*** | | | | | |
| | | A | **Mechanical Means** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Mazdoor for dressing of bed and side of drain | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic Excavator 0.3 cum bucket capacity @ 15 metres per hour | hour | 0.670 | 2044.00 | 1369.48 | P&M-026 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 321.05 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 191.36 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 210.49 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 23.15 | |
| | | | Cost for 10 metres = a+b+c+d+e+f | | | | 2338.55 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/10** | | | | 233.86 | |
| | | | | | | ***say*** | ***234.00*** | |
| **3.25** | | B | **Manual Means** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.120 | 551.00 | 66.12 | L-12 |
| | | | Mazdoor | day | 3.000 | 424.00 | 1272.00 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 269.76 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 160.79 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 176.87 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 19.46 | |
| | | | Cost for 10 metres = a+b+c+d+e | | | | 1965.00 | |
| | | | **Rate per metre = (a+b+c+d+e)/10** | | | | 196.50 | |
| | | | | | | ***say*** | ***197.00*** | |
| **3.26** | 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 relevant item in this chapter | | | | | |
| **3.27** | 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 3 mm to 6 mm depending upon size of material surrounding the pipe, with 150 mm bedding below the pipe and 300 mm cushion above the pipe, cross section of excavation 450 x 550 mm. Excavated material to be utilised in roadway at site. | | | | | |
| | | | ***Unit = metre*** | | | | | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | ***Taking output = 10 metres*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor for excavation and back filling | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Perforated pipe of cement concrete, internal dia 100 mm | metre | 10.000 | 150.00 | 1500.00 | M-135 |
| | | | Crushed stone as per table 300-3 | cum | 2.400 | 1450.00 | 3480.00 | M-012 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1179.37 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 702.94 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 773.24 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 85.06 | |
| | | | Cost for 10 metres = a+b+c+d+e+f | | | | 8590.65 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/10** | | | | 859.07 | |
| | | | | | | ***say*** | ***859.00*** | |
| | | Note | Type of pipe may be modified depending upon provision in design. | | | | | |
| **3.28** | 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. | | | | | |
| | | | ***Unit = metre*** | | | | | |
| | | | ***Taking output = 10 metres*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Mazdoor for excavation and back filling with aggregates | day | 1.500 | 424.00 | 636.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Crushed stone as per table 300-3 | cum | 1.350 | 1450.00 | 1957.50 | M-012 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 525.07 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 312.96 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 344.26 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 37.87 | |
| | | | Cost for 10 metres = a+b+c+d+e+f | | | | 3824.68 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/10** | | | | 382.47 | |
| | | | | | | ***say*** | ***382.00*** | |
| **3.29** | 309 | | **Underground Drain at Edge of Pavement** | | | | | |
| | | | Construction of an underground drain 1 m x 1 m (inside dimensions) lined with RCC-20 cm thick and covered with RCC slab10 cm in thickness on urban roads. | | | | | |
| | | | ***Unit = Running metre*** | | | | | |
| | | | ***Taking output = one metre*** | | | | | |
| | | | a) Earthwork in soil | cum | 1.500 | 78.00 | 117.00 | Item No. 3.13 |
| | | | b) RCC work M-20 | cum | 0.500 | 9665.00 | 4832.50 | Item 12.8 (C) RCC |
| | | | **Rate per metre = (a+b) (Including GST,OH,CP &Cess)** | | | | 4949.50 | |
| | | | Rates for these items may be taken from chapters on earth work and substructures respectively. | | | ***say*** | ***4950.00*** | |
| **3.30** | 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 8-10 tonne smooth wheeled roller, complete as per clause 310. | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 3500sqm*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.280 | 551.00 | 154.28 | L-12 |
| | | | Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Mazdoor skilled | day | 1.000 | 508.00 | 508.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Smooth 3 wheeled steel roller 8-10 tonnes | hour | 3.000 | 783.00 | 2349.00 | P&M-044 |
| | | | Water tanker 6 KL, one trip per hour | hour | 3.000 | 724.00 | 2172.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Cost of water | KL | 18.000 | 71.00 | 1278.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1815.46 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 1082.07 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 1190.28 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 130.93 | |
| | | | Cost for 3500 sqm = a+b+c+d+e+f+g | | | | 13224.02 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/3500** | | | | 3.78 | |
| | | | | | | ***say*** | ***4.00*** | |
| **3.31** | 313 | | **Construction of Rock fill Embankment**<br>Construction of rock fill embankment 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.<br>***Unit = cum***<br>***Taking output = 100 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 1.500 | 424.00 | 636.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer 80 HP for spreading @ 200 cum per hour | hour | 0.500 | 5045.00 | 2522.50 | P&M-014 |
| | | | Three wheel 80-100 kN Statis Roller | hour | 1.000 | 969.00 | 969.00 | P&M-059 |
| | | | Water tanker 6 KL, one trip per hour | hour | 2.000 | 724.00 | 1448.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Cost of water | KL | 12.000 | 71.00 | 852.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1300.23 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 774.98 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 852.48 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 93.77 | |
| | | | Cost for 100 cum = a+b+c+d+e+f+g | | | | 9471.00 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/100** | | | | 94.71 | |
| | | | | | | ***say*** | ***95.00*** | |
| | | 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 300 mm, breaking charges will have to be added. | | | | | |
| | | | **EARTH WORK ON HILL ROAD** | | | | | |
| **3.32** | 301 | (i) | **Excavation in Hill Area in Soil by Mechanical Means (Dipositing of excavated earth with all lifts and lead upto 1000 m**<br>Excavation in soil in hilly area by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with all lifts and lead upto 1000 metres.<br>***Unit = cum***<br>***Taking output = 260 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.240 | 551.00 | 132.24 | L-12 |
| | | | Mazdoor for trimming slopes and helping in excavation etc. | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer D-50 @ 43.28 cum per hour | hour | 6.000 | 3398.00 | 20388.00 | P&M-014 |
| | | | Front end loader | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Tipper 5.5cum capacity, 4 trips per hour. | hour | 12.000 | 916.00 | 10992.00 | P&M-048 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 9088.98 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 5417.32 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 5959.05 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 655.50 | |
| | | | Cost for 260 cum = a+b+c+d+e+f | | | | 66205.09 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/260** | | | | 254.63 | |
| | | | | | | ***say*** | ***255.00*** | |
| | | (ii) | **Depositing of excavated earth on the barren valley side.** | | | | | |
| | | | Excavation in soil in hilly area by mechanical means including cutting and trimming of side slopes and disposing of excavated earth on the Barren Valley side. | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 260 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.240 | 551.00 | 132.24 | L-12 |
| | | | Mazdoor for trimming slopes and helping in excavation etc. | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer D-50 @ 43.28 cum per hour | hour | 6.000 | 3398.00 | 20388.00 | P&M-014 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 4649.75 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 2771.40 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 3048.54 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 335.34 | |
| | | | Cost for 260 cum = a+b+c+d+e+f | | | | 33869.27 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/260** | | | | 130.27 | |
| | | | | | | ***say*** | ***130.00*** | |
| **3.33** | 301 | (i) | **Excavation in Hilly Area in Ordinary Rock by Mechanical Means not Requiring Blasting (Disposal of cut material with all lift and lead upto 1000m)** | | | | | |
| | | | Excavation in hilly area in ordinary rock not requiring blasting by mechanical means including cutting and trimming of slopes and disposal of cut material with all lift and lead upto 1000 metres. | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 170 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.320 | 551.00 | 176.32 | L-12 |
| | | | Mazdoor | day | 8.000 | 424.00 | 3392.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer D-50 @ 28.32 cum per hour | hour | 6.000 | 3398.00 | 20388.00 | P&M-014 |
| | | | Front end loader | hour | 7.000 | 1838.00 | 12866.00 | P&M-017 |
| | | | Tipper 5.5cum capacity, 4 trips per hour. | hour | 7.000 | 916.00 | 6412.00 | P&M-048 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 8716.04 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 5195.04 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 5714.54 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 628.60 | |
| | | | Cost for 170 cum = a+b+c+d+e+f | | | | 63488.54 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/170** | | | | 373.46 | |
| | | | | | | ***say*** | ***373.00*** | |
| | | (ii) | **Disposal of excavated earth on the barren valley side.** | | | | | |
| | | | Excavation in hilly area in ordinary rock not requiring blasting by mechanical means including cutting and trimming of slopes and disposal of excavated earth on the barren valley side. | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 170 cum*** | | | | | |

| Sr No | Ref. to MoRTH/DSR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.320 | 551.00 | 176.32 | L-12 |
| | | | Mazdoor | day | 8.000 | 424.00 | 3392.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer D-50 @ 28.32 cum per hour | hour | 6.000 | 3398.00 | 20388.00 | P&M-014 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 4829.59 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 2878.59 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 3166.45 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 348.31 | |
| | | | Cost for 170 cum = a+b+c+d+e+f | | | | 35179.26 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/170** | | | | 206.94 | |
| | | | | | | ***say*** | ***207.00*** | |
| **3.34** | 301 | (i) | **Excavation in Hilly Areas in Hard Rock Requiring Blasting (Disposal of cut material with all lift and lead upto 1000 m).** | | | | | |
| | | | Excavation in hilly areas in hard rock requiring blasting, by mechanical means including trimming of slopes and disposal of cut material with all lifts and lead upto 1000 metres. | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 170 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.490 | 551.00 | 269.99 | L-12 |
| | | | Mazdoor | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | Driller | day | 2.000 | 551.00 | 1102.00 | L-06 |
| | | | Blaster | day | 0.250 | 551.00 | 137.75 | L-03 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer D-50 @ 28.32 cum per hour | hour | 6.000 | 3398.00 | 20388.00 | P&M-014 |
| | | | Air compressor 250 cfm with two jack hammer @ 20 cum per hour | hour | 5.000 | 658.00 | 3290.00 | P&M-001 |
| | | | Front end loader | hour | 7.000 | 1838.00 | 12866.00 | P&M-017 |
| | | | Tipper 5.5cum capacity, 4 trips per hour. | hour | 7.000 | 916.00 | 6412.00 | P&M-048 |
| | | | **c) Materials** | | | | | |
| | | | Gelatine 80 per cent | kg | 35.000 | 166.00 | 5810.00 | M-104 |
| | | | Electric Detonators @ 1 Detonator for 2 Gelatine sticks of 125 gms each | each | 140.000 | 11.59 | 1622.60 | M-094 /100 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 11317.49 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 6745.58 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 7420.14 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 816.22 | |
| | | | Cost for 170 cum = a+b+c+d+e+f+g | | | | 82437.77 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/170** | | | | 484.93 | |
| | | | | | | ***say*** | ***485.00*** | |
| | | (ii) | **Disposal of excavated earth on the barren valley side.** | | | | | |
| | | | Excavation in hilly areas in hard rock requiring blasting, by mechanical means including trimming of slopes and disposal of excavated earth on the barren valley side. | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 170 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.490 | 551.00 | 269.99 | L-12 |
| | | | Mazdoor | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | Driller | day | 2.000 | 551.00 | 1102.00 | L-06 |
| | | | Blaster | day | 0.250 | 551.00 | 137.75 | L-03 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer D-50 @ 28.32 cum per hour | hour | 6.000 | 3398.00 | 20388.00 | P&M-014 |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Air compressor 250 cfm with two jack hammer @ 20 cum per hour | hour | 5.000 | 658.00 | 3290.00 | P&M-001 |
| | | | **c) Materials** | | | | | |
| | | | Gelatine 80 per cent | kg | 35.000 | 166.00 | 5810.00 | M-104 |
| | | | Electric Detonators @ 1 Detonator for 2 Gelatine sticks of 125 gms each | each | 140.000 | 11.59 | 1622.60 | M-094 /100 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 7431.04 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 4429.14 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 4872.05 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 535.93 | |
| | | | Cost for 170 cum = a+b+c+d+e+f+g | | | | 54128.50 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/170** | | | | 318.40 | |
| | | | | | | ***say*** | ***318.00*** | |
| **3.35** | 1600 & 300 | (i) | **Excavation in Hilly Areas in Soil by Manual Means** | | | | | |
| | | (A) | Excavation in soil in Hilly Area by Manual Means including cutting and trimming of side slopes and disposing of excavated earth with a lift upto 1.5 m and a lead upto 20 m as per drawing and Technical Specification Clause 1603.1 | | | | | |
| | | | ***Unit = Cum*** | | | | | |
| | | | ***Taking output = 120 cum.*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 2.400 | 551.00 | 1322.40 | L-12 |
| | | | Mazdoor (Unskilled) | day | 60.000 | 424.00 | 25440.00 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 5395.30 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 3215.77 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 3537.35 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 389.11 | |
| | | | Cost for 120 cum = a+b+c+d+e | | | | 39299.93 | |
| | | | **Rate per cum = (a+b+c+d+e)/120** | | | | 327.50 | |
| | | | | | | ***say*** | ***328.00*** | |
| | | (B) | Deduct for quantum of earthwork of all types disposal directly by throwing into the valley without involving any lead and lift. | | | | | |
| | | | Ordinary and Hard Soil/Hard Shale, Soil containing shingle or small size boulders. | | | | | |
| | | | ***Unit = Cum*** | | | | | |
| | | | ***Taking output = 1 cum.*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mazdoor (Unskilled) | day | 0.200 | 424.00 | 84.80 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 17.10 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 10.19 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 11.21 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 1.23 | |
| | | | Cost for 1 cum = a+b+c+d+e | | | | 124.53 | |
| | | | **Rate per cum = (a+b+c+d+e)/1** | | | | 124.53 | |
| | | | | | | ***say*** | ***125.00*** | |
| | | (ii) | **Excavation in Hilly Area in Ordinary Rock by Manual Means** | | | | | |
| | | (A) | Excavation in Ordinary Rock using Manual Means including loading in a truck and carrying of excavated material to embankment site with a lift upto 1.5 m and lead upto 20 m as per Clause 1603.2. | | | | | |
| | | | ***Unit = Cum*** | | | | | |
| | | | ***Taking output = 120 cum.*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 5.280 | 551.00 | 2909.28 | L-12 |
| | | | Mazdoor (Unskilled) | day | 132.000 | 424.00 | 55968.00 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 11869.66 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 7074.69 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate in Rs. | Cost in Rs. | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 7782.16 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 856.04 | |
| | | | Cost for 120 cum = a+b+c+d+e | | | | 86459.83 | |
| | | | **Rate per cum = (a+b+c+d+e)/120** | | | | 720.50 | |
| | | | | | | ***say*** | ***721.00*** | |
| | | (B) | Deduct for quantum of earthwork of all types disposal directly by throwing into the valley without involving any lead and lift. | | | | | |
| | | | Ordinary and Hard Rock | | | | | |
| | | | ***Unit = Cum*** | | | | | |
| | | | ***Taking output = 1 cum.*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mazdoor (Unskilled) | day | 0.320 | 424.00 | 135.68 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 27.35 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 16.30 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 17.93 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 1.97 | |
| | | | Cost for 1 cum = a+b+c+d+e | | | | 199.23 | |
| | | | **Rate per cum = (a+b+c+d+e)/1** | | | | 199.23 | |
| | | | | | | ***say*** | ***199.00*** | |

## Chapter – 4

## SUB-BASES, BASES (NON-BITUMINOUS) AND SHOULDERS

**Preamble:**

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, two alternatives as under have been provided.

a. Mix in place method

b. Plant mix method

3 Construction of shoulders: - Earthen, Hard and Paved shoulders have been considered, the rates applicable are for subgrade, sub-base and different layers of pavement respectively.

4 In the case of improvement of subgrade with lime stabilization, soil is assumed to be available at the site and has not been provided for. Only lime has been catered. In the case of lime stabilization of sub-base, soil has been provided to form the sub-base.

5 While providing for the rate of materials, detailed local enquires should be made and prevailing market rates ascertained from concerned suppliers in the area keeping in view the location of crushing plants and lead involved.

6 The quantities considered in the output are the compacted quantities. The quantities of aggregates provided in the rate analysis under the head material are the uncompacted quantities.

| Sl. No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 4.1 | 401 | | **Granular Sub-Base with Close 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 = 225 cum (450 tonne)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.400 | 551.00 | 220.40 | L-12 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | Mazdoor | day | 8.000 | 424.00 | 3392.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Wet mix plant @ 75 tonne capacity per hour | hour | 6.000 | 1794.00 | 10764.00 | P&M-093 |
| | | | Electric generator 125 KVA | hour | 6.000 | 1135.00 | 6810.00 | P&M-018 |
| | | | Water tanker 6 KL capacity 5 km lead with one trip per hour | hour | 4.500 | 724.00 | 3258.00 | P&M-060 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Tipper 10 tonne | tonne. km | 450 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover loading and unloading | | | | 0.00 | |
| | | | Motor Grader 110 HP | hour | 6.000 | 3247.00 | 19482.00 | P&M-032 |
| | | | Vibratory roller 8-10 t | hour | 6.000 | 969.00 | 5814.00 | P&M-059 |
| | | | **c) Material** | | | | | |
| | | | Close graded Granular sub-base Material as per table 400-1 | | | | | |
| | | | **For Grading-I Material** | | | | | |
| | | | 53 mm to 9.5 mm @ 50 per cent | cum | 144.000 | 900.00 | 129600.00 | M-013 |
| | | | 9.5 mm to 2.36 mm @ 20 per cent (graded) | cum | 57.000 | 780.00 | 44460.00 | M-017 |
| | | | 2.36 mm below @ 30 per cent | cum | 86.400 | 700.00 | 60480.00 | M-020 |
| | | | Cost of water | KL | 27.000 | 71.00 | 1917.00 | M-189 |
| | | | **OR** | | | | | |
| | | | **For Grading-II Material** | | | | | |
| | | | 26.5 mm to 9.5 mm @ 35 per cent | cum | 100.800 | 850.00 | 85680.00 | M-015 |
| | | | 9.5 mm to 2.36 mm @ 25 per cent (graded) | cum | 72.000 | 780.00 | 56160.00 | M-017 |
| | | | 2.36 mm below @ 40 per cent | cum | 115.200 | 700.00 | 80640.00 | M-020 |
| | | | Cost of water | KL | 27.000 | 71.00 | 1917.00 | M-189 |
| | | | **OR** | | | | | |
| | | | **For Grading-III Material** | | | | | |
| | | | 9.5 mm to 4.75 mm @ 35 per cent | cum | 100.800 | 800.00 | 80640.00 | M-016 |
| | | | 4.75 mm to 2.36 mm @ 12.5 per | cum | 36.000 | 750.00 | 27000.00 | M-018 |
| | | | 2.36 mm below @ 52.5 per cent | cum | 151.200 | 700.00 | 105840.00 | M-020 |
| | | | Cost of water | KL | 27.000 | 71.00 | 1917.00 | M-189 |
| 4.1A | | (i) | **Rate per cum for grading-I Material** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 60125.47 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 35836.69 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 39420.36 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 4336.24 | |
| | | | Cost for 225 cum = a+b+c+d+e+f+g | | | | 437960.16 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/225** | | | | 1946.49 | |
| | | | | | | ***say*** | ***1946.00*** | |

| Sl. No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 4.1A | | (ii) | **Rate per cum for grading-II Material** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 57694.17 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 34387.56 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 37826.31 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 4160.89 | |
| | | | Cost for 225 cum = a+b+c+d+e+f+g | | | | 420250.33 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/225** | | | | 1867.78 | |
| | | | | | | ***say*** | ***1868.00*** | |
| 4.1A | | (iii) | **Rate per cum for grading-III Material** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 55879.77 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 33306.12 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 36636.73 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 4030.04 | |
| | | | Cost for 225 cum = a+b+c+d+e+f+g | | | | 407034.06 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/225** | | | | 1809.04 | |
| | | | | | | ***say*** | ***1809.00*** | |
| | | **Note** | Any one of the grading for material may be adopted as per design | | | | | |
| 4.1 | | **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 rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401 | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 300 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.480 | 551.00 | 264.48 | L-12 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | Mazdoor unskilled | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Motor Grader 110 HP @ 50 cum | hour | 6.000 | 3247.00 | 19482.00 | P&M-032 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.000 | 969.00 | 5814.00 | P&M-059 |
| | | | Tractor - Rotavator | hour | 12.000 | 494.00 | 5928.00 | P&M-054 |
| | | | Water tanker 6 KL capacity | hour | 3.000 | 724.00 | 2172.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Close graded Granular sub-base Material as per table 400-1 | | | | | |
| | | | **For Grading-I Material** | | | | | |
| | | | 53 mm to 9.5 mm @ 50 per cent | cum | 192.000 | 900.00 | 172800.00 | M-013 |
| | | | 9.5 mm to 2.36 mm @ 20 per cent | cum | 76.000 | 780.00 | 59280.00 | M-017 |
| | | | 2.36 mm below @ 30 per cent | cum | 115.200 | 700.00 | 80640.00 | M-020 |
| | | | Cost of water | KL | 18.000 | 71.00 | 1278.00 | M-189 |
| | | | **OR** | | | | | |
| | | | **For Grading-II Material** | | | | | |
| | | | 26.5 mm to 9.5 mm @ 35 per cent | cum | 134.400 | 850.00 | 114240.00 | M-015 |
| | | | 9.5 mm to 2.36 mm @ 25 per cent | cum | 96.000 | 780.00 | 74880.00 | M-017 |
| | | | 2.36 mm below @ 40 per cent | cum | 153.600 | 700.00 | 107520.00 | M-020 |
| | | | Cost of water | KL | 18.000 | 71.00 | 1278.00 | M-189 |
| | | | **OR** | | | | | |
| | | | **For Grading-III Material** | | | | | |
| | | | 9.5 mm to 4.75 mm @ 35 per cent | cum | 134.400 | 800.00 | 107520.00 | M-016 |
| | | | 4.75 mm to 2.36 mm @ 12.5 per | cum | 48.000 | 750.00 | 36000.00 | M-018 |
| | | | 2.36 mm below @ 52.5 per cent | cum | 201.600 | 700.00 | 141120.00 | M-020 |
| | | | Cost of water | KL | 18.000 | 71.00 | 1278.00 | M-189 |
| 4.1B | | (i) | **Rate per cum for grading-I Material** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 71147.56 | |

| Sl. No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 42406.20 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 46646.82 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 5131.15 | |
| | | | Cost for 300 cum = a+b+c+d+e+f+g | | | | 518246.21 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/300** | | | | 1727.49 | |
| | | | | | | ***say*** | ***1727.00*** | |
| **4.1B** | | **(ii)** | **Rate per cum for grading-II Material** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 67905.83 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 40474.03 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 44521.43 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 4897.36 | |
| | | | Cost for 300 cum = a+b+c+d+e+f+g | | | | 494633.13 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/300** | | | | 1648.78 | |
| | | | | | | ***say*** | ***1649.00*** | |
| **4.1B** | | **(iii)** | **Rate per cum for grading-III Material** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 65486.63 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 39032.11 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 42935.32 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 4722.89 | |
| | | | Cost for 300 cum = a+b+c+d+e+f+g | | | | 477011.43 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/300** | | | | 1590.04 | |
| | | | | | | ***say*** | ***1590.00*** | |
| | | **Note** | Any one of the grading for material may be adopted as per design | | | | | |
| **4.2** | **401** | | **Granular Sub-Base with Coarse Graded Material (Table:- 400- 2)** | | | | | |
| | | | Construction of granular sub-base by providing coarse graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401. | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 300 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.400 | 551.00 | 220.40 | L-12 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | Mazdoor | day | 8.000 | 424.00 | 3392.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Mortar Grader 110 HP @ 50 cum per hour | hour | 6.000 | 3247.00 | 19482.00 | P&M-032 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.000 | 969.00 | 5814.00 | P&M-059 |
| | | | Water tanker 6 KL capacity | hour | 3.000 | 724.00 | 2172.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | For coarse graded Granular sub-base Materials per table 400-2 | | | | | |
| | | | **For grading-I Material** | | | | | |
| | | | 53 mm to 26.5 mm @ 35 per cent | cum | 134.400 | 900.00 | 120960.00 | M-029 |
| | | | 26.5 mm to 4.75 mm @ 45 per cent | cum | 172.800 | 850.00 | 146880.00 | M-026 |
| | | | 2.36 mm below @ 20 per cent (Coarse Sand) | cum | 76.800 | 700.00 | 53760.00 | M-022 |
| | | | Cost of water | KL | 18.000 | 71.00 | 1278.00 | M-189 |
| | | | **OR** | | | | | |
| | | | **For Grading-II Material** | | | | | |
| | | | 26.5 mm to 4.75 mm @ 75 per cent | cum | 288.000 | 850.00 | 244800.00 | M-026 |
| | | | 2.36 mm below @ 25 per cent | cum | 96.000 | 700.00 | 67200.00 | M-022 |
| | | | Cost of water | KL | 18.000 | 71.00 | 1278.00 | M-189 |
| | | | **OR** | | | | | |

| Sl. No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **For Grading-III Material** | | | | | |
| | | | 9.5 mm to 4.75 mm @ 66 per cent | cum | 255.000 | 800.00 | 204000.00 | M-025 |
| | | | 2.36 mm below @ 34 per cent | cum | 129.000 | 700.00 | 90300.00 | M-022 |
| | | | Cost of water | KL | 18.000 | 71.00 | 1278.00 | M-189 |
| 4.2 | | (i) | **Rate per cum for grading-I Material** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 71562.84 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 42653.72 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 46919.10 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 5161.10 | |
| | | | Cost for 300 cum = a+b+c+d+e+f+g | | | | 521271.16 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/300** | | | | 1737.57 | |
| | | | | | | ***say*** | ***1738.00*** | |
| 4.2 | | (ii) | **Rate per cum for grading-II Material** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 69627.48 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 41500.19 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 45650.21 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 5021.52 | |
| | | | Cost for 300 cum = a+b+c+d+e+f+g | | | | 507173.80 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/300** | | | | 1690.58 | |
| | | | | | | ***say*** | ***1691.00*** | |
| 4.2 | | (iii) | **Rate per cum for grading-III Material** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 66059.16 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 39373.36 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 43310.69 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 4764.18 | |
| | | | Cost for 300 cum = a+b+c+d+e+f+g | | | | 481181.79 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/300** | | | | 1603.94 | |
| | | | | | | ***say*** | ***1604.00*** | |
| | | **Note** | Any one of the grading for material may be adopted as per design | | | | | |
| 4.3 | 402 | | **Lime 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 rotavator with 3 per cent slaked lime having minimum content of 70 per cent 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 (525 tonne)*** | | | | | |
| | | **A** | **By Mechanical Means** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.360 | 551.00 | 198.36 | L-12 |
| | | | Skilled mazdoor for alignment and geometrics | day | 1.000 | 508.00 | 508.00 | L-15 |
| | | | Mazdoor for spraying lime | day | 8.000 | 424.00 | 3392.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor with ripper and rotavator attachments @ 60 cum per hour for ripping and 25 cum per hour for mixing | hour | 12.000 | 511.00 | 6132.00 | P&M-055 |
| | | | Motor Grader 110 HP @ 50 cum per hour | hour | 6.000 | 3247.00 | 19482.00 | P&M-032 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.00x0.65* | 969.00 | 3779.10 | P&M-059 |
| | | | Water tanker 6 KL capacity | hour | 12.000 | 724.00 | 8688.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Lime at site | tonne | 15.750 | 15000.00 | 236250.00 | M-188 |
| | | | Cost of water | KL | 72.000 | 71.00 | 5112.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 57161.96 | |

| Sl. No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 34070.34 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 37477.38 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 4122.51 | |
| | | | Cost for 300 cum = a+b+c+d+e+f+g | | | | 416373.65 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/300** | | | | 1387.91 | |
| | | | | | | ***say*** | ***1388.00*** | |
| | | **Note** | * Though vibratory roller is required only for 3 hours as per norms, but the same has to be available at site for 6 hours as other machines for spreading and mixing will take 6 hours. The usage rates of roller have been multiplied with a factor of 0.65. | | | | | |
| **4.3** | | **B** | **By Manual Means** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 150 cum (263 tonnes)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 1.440 | 551.00 | 793.44 | L-12 |
| | | | Mazdoor skilled | day | 1.000 | 508.00 | 508.00 | L-15 |
| | | | Mazdoor | day | 35.000 | 424.00 | 14840.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Three wheel 80-100 kN Static Roller | hour | 2.500 | 969.00 | 2422.50 | P&M-059 |
| | | | Water tanker 6 KL capacity | hour | 6.000 | 724.00 | 4344.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Lime at site | tonne | 8.000 | 15000.00 | 120000.00 | M-188 |
| | | | Cost of water | KL | 36.000 | 71.00 | 2556.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 29325.53 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 17478.95 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 19226.84 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 2114.95 | |
| | | | Cost for 150 cum= a+b+c+d+e+f+g | | | | 213610.21 | |
| | | | **Rate per cum =( a+b+c+d+e+f+g)/150** | | | | 1424.07 | |
| | | | | | | ***say*** | ***1424.00*** | |
| **4.4** | **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 per cent slaked lime with minimum content of 70 per cent of CaO, grading with motor grader and compacting with the road roller at OMC to achieve at least 98 per cent of the max dry density to form a layer of sub base. | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 300 cum (525 tonnes)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.480 | 551.00 | 264.48 | L-12 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | Mazdoor | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Excavator 1.00 cum bucket capacity | hour | 6.000 | 2044.00 | 12264.00 | P&M-026 |
| | | | Tipper for carriage of soil | tonne. km | 525 x L | 18.00 | 28350.00 | Lead =3 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 2835.00 | |
| | | | Motor Grader 110 HP @ 50 cum per hour | hour | 6.000 | 3247.00 | 19482.00 | P&M-032 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.000 | 969.00 | 5814.00 | P&M-059 |
| | | | Tractor with Rotavator and blade @ 25 cum per hour | hour | 12.000 | 494.00 | 5928.00 | P&M-054 |
| | | | Water tanker 6 KL capacity | hour | 12.000 | 724.00 | 8688.00 | P&M-060 |

| Sl. No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **c) Material** | | | | | |
| | | | Lime at site | tonne | 15.750 | 15000.00 | 236250.00 | M-188 |
| | | | Cost of water | KL | 72.000 | 71.00 | 5112.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 66577.09 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 39682.06 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 43650.26 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 4801.53 | |
| | | | Cost for 300 cum = a+b+c+d+e+f+g | | | | 484954.42 | |
| | | | **Rate per cum= (a+b+c+d+e+f+g)/300** | | | | 1616.51 | |
| | | | | | | ***say*** | ***1617.00*** | |
| **4.5** | **403** | | **Cement Treated Soil 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 the 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 (525 tonnes)*** | | | | | |
| | | | **For 4 per cent quantity of cement by weight of soil** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.480 | 551.00 | 264.48 | L-12 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | Mazdoor | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Excavator 1.00 cum bucket capacity | hour | 6.000 | 2044.00 | 12264.00 | P&M-026 |
| | | | Tipper for carriage of soil | tonne.km | 525 x L | 18.00 | 28350.00 | Lead =3 km & P&M- |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 2835.00 | |
| | | | 10.75 | hour | 6.000 | 3247.00 | 19482.00 | P&M-032 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.000 | 969.00 | 5814.00 | P&M-059 |
| | | | Tractor with Rotavator and blade @ 25 cum per hour | hour | 12.000 | 494.00 | 5928.00 | P&M-054 |
| | | | Water tanker 6 KL capacity | hour | 12.000 | 724.00 | 8688.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Cement at site (@ 4 per cent of 525 tonne) | tonne | 21.000 | 9100.00 | 191100.00 | M-081 |
| | | | Cost of water | KL | 72.000 | 71.00 | 5112.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 57474.85 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 34256.83 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 37682.52 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 4145.08 | |
| | | | Cost for 300 cum = a+b+c+d+e+f+g | | | | 418652.76 | |
| | | | **Rate per cum= (a+b+c+d+e+f+g)/300** | | | | 1395.51 | |
| | | | | | | ***say*** | ***1396.00*** | |
| **4.8** | **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 | 551.00 | 506.92 | L-12 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | Mazdoor | day | 21.000 | 424.00 | 8904.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Motor Grader 110 HP | hour | 6.000 | 3247.00 | 19482.00 | P&M-032 |

| Sl. No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Three wheel 80-100 kN Static Roller | hour | 6.000 | 969.00 | 5814.00 | P&M-059 |
| | | | Water tanker 6 KL capacity | hour | 18.000 | 724.00 | 13032.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Screening type 'B' or coarse sand | cum | 720.000 | 650.00 | 468000.00 | M-004 |
| | | | Cost of water | KL | 108.000 | 71.00 | 7668.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 105723.66 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 63014.66 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 69316.12 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 7624.77 | |
| | | | Cost for 600 cum = a+b+c+d+e | | | | 770102.13 | |
| | | | **Rate per cum = ( a+b+c+d+e)/600** | | | | 1283.50 | |
| | | | | | | ***say*** | ***1284.00*** | |
| **4.9** | **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 8-10 tonnes 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 | 551.00 | 5554.08 | L-12 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | Mazdoor | day | 250.000 | 424.00 | 106000.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.000 | 969.00 | 5814.00 | P&M-059 |
| | | | or | | | | | |
| | | | Smooth 3 wheeled steel roller @ 30cum/hour | hour | 12.000 | | | |
| | | | Water tanker 6 KL capacity | hour | 24.000 | 724.00 | 17376.00 | P&M-060 |
| | | | **c) Material ( Refer table 400 - 7, 8 & 9 )** | | | | | |
| **4.9A** | | **(i)** | **Grading-I** | | | | | |
| | | | **Aggregate** | | | | | |
| | | | Grading-I 90 mm to 45 mm@ 1.21cum per 10 sqm for compacted thickness of 100 mm | cum | 435.600 | 950.00 | 413820.00 | M-039 |
| | | | **Stone Screening** | | | | | |
| | | | Type A 13.2 mm for **grading-I** @ 0.27 cum per 10 sqm | cum | 97.200 | 1820.00 | 176904.00 | M-052 |
| | | | **OR** | | | | | |
| | | | Crushable type such as Moorum or Gravel for **grading-I** @ 0.30 cum per 10 sqm | cum | 108.000 | 350.00 | 37800.00 | M-007 |
| | | | **Binding material** | | | | | |
| | | | Binding Material @ 0.08cum per 10 sqm for grading I material | cum | 28.800 | 350.00 | 10080.00 | M-007 |
| | | | Cost of water | KL | 144.000 | 71.00 | 10224.00 | M-189 |
| **4.9A (i)** | | **(a)** | **Using Scrining Crushable type such as Moorum or Gravel** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 120476.98 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 71808.11 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 78988.92 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 8688.78 | |
| | | | Cost for 360 cum = a+b+c+d+e+f+g | | | | 877566.87 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/360** | | | | 2437.69 | |
| | | | | | | ***say*** | ***2438.00*** | |
| | | | **OR** | | | | | |

| Sl. No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 4.9A (i) | | (b) | **Using Scrining Type-A (13.2mm agg.)** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 150552.48 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 89734.06 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 98707.46 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 10857.82 | |
| | | | Cost for 360 cum = a+b+c+d+e+f+g | | | | 1096639.90 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/360** | | | | 3046.22 | |
| | | | | | | ***say*** | ***3046.00*** | |
| 4.9A | | (ii) | **Grading-II** | | | | | |
| | | | **a) Aggregate** | | | | | |
| | | | Grading-II 63 mm to 45 mm /Grading-III 53 mm to 22.4 mm@ 0.91 cum per 10 sqm for compacted thickness of 75 mm | cum | 435.600 | 980.00 | 426888.00 | M-038 |
| | | | **b) Stone Screening** | | | | | |
| | | | Type A 13.2 mm for grading-II@ 0.12 cum per 10 sqm | cum | 57.600 | 1820.00 | 104832.00 | M-052 |
| | | | **OR** | | | | | |
| | | | Crushable type such as Moorum or Gravel for **grading II &III** @ 0.22 cum per 10 sqm | cum | 105.590 | 350.00 | 36956.50 | M-007 |
| | | | **OR** | | | | | |
| | | | Type B11.2 mm for grading-III @ 0.18 cum per 10 sqm | cum | 86.400 | 1800.00 | 155520.00 | M-051 |
| | | | **c) Binding material** | | | | | |
| | | | Binding Material @ 0.06cum per 10 sqm for grading II material | cum | 28.800 | 350.00 | 10080.00 | M-007 |
| | | | Cost of water | KL | 144.000 | 71.00 | 10224.00 | M-189 |
| 4.9A (ii) | | (a) | **Using Scrining Crushable type such as Moorum or Gravel** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 122941.44 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 73277.00 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 80604.70 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 8866.52 | |
| | | | Cost for 360 cum = a+b+c+d+e+f+g | | | | 895518.24 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/360** | | | | 2487.55 | |
| | | | | | | ***say*** | ***2488.00*** | |
| | | | **OR** | | | | | |
| 4.9A (ii) | | (b) | **Using Scrining Type-A (13.2mm agg.)** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 138657.27 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 82644.14 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 90908.55 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 9999.94 | |
| | | | Cost for 360 cum = a+b+c+d+e+f+g | | | | 1009993.98 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/360** | | | | 2805.54 | |
| | | | | | | ***say*** | ***2806.00*** | |
| 4.9A (ii) | | (c) | **Using Scrining Type-B (11.2mm agg.)** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 148875.97 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 88734.81 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 97608.29 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 10736.91 | |
| | | | Cost for 360 cum = a+b+c+d+e+f+g | | | | 1084428.06 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/360** | | | | 3012.30 | |
| | | | | | | ***say*** | ***3012.00*** | |

| Sl. No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 4.9A | | (iii) | **c)Grading-III** | | | | | |
| | | | **Aggregate** | | | | | |
| | | | Grading-III 53 mm to 22.4 mm@ 0.91 cum per 10 sqm for compacted thickness of 75 mm | cum | 435.600 | 1010.00 | 439956.00 | M-036 |
| | | | **Stone Screening** | | | | | |
| | | | Type B 11.2 mm for grading-III @ 0.18 cum per 10 sqm | cum | 86.400 | 1800.00 | 155520.00 | M-051 |
| | | | **OR** | | | | | |
| | | | Crushable type such as Moorum or Gravel for grading II &III @ 0.22 cum per 10 sqm | cum | 105.590 | 350.00 | 36956.50 | M-007 |
| | | | **Binding material** | | | | | |
| | | | Binding Material @ 0.06cum per 10 sqm for grading II material | cum | 28.800 | 350.00 | 10080.00 | M-007 |
| | | | Cost of water | KL | 144.000 | 71.00 | 10224.00 | M-189 |
| 4.9A (iii) | | (a) | **Using Scrining Crushable type such as Moorum or Gravel** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 125575.95 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 74847.25 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 82331.98 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 9000.98 | |
| | | | Cost for 360 cum = a+b+c+d+e+f+g | | | | 914652.74 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/360** | | | | 2540.70 | |
| | | | | | | ***say*** | ***2541.00*** | |
| | | | **OR** | | | | | |
| 4.9A (iii) | | (b) | **Using Scrining Type-B (11.2mm agg.)** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 151510.48 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 90305.06 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 99335.56 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 10926.91 | |
| | | | Cost for 360 cum = a+b+c+d+e+f+g | | | | 1103618.09 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/360** | | | | 3065.61 | |
| | | | | | | ***say*** | ***3066.00*** | |
| | | | ( Anyone of the aggregate grading, screening and binding material may be used as per design) | | | | | |
| 4.9 | | B | **By Mechanical Means:** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 360 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.680 | 551.00 | 374.68 | L-12 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | Mazdoor | day | 15.000 | 424.00 | 6360.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Motor grader 110 HP @ 50cum/hr. for spreading | hour | 7.200 | 3247.00 | 23378.40 | P&M-032 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.000 | 969.00 | 5814.00 | P&M-059 |
| | | | or | | | | | |
| | | | Smooth 3 wheeled steel roller @ 30cum/hr. | hour | 12.000 | | | |
| | | | Water tanker 6 KL capacity | hour | 24.000 | 724.00 | 17376.00 | P&M-060 |
| | | | **c) Material ( Refer table 400 - 7, 8 & 9 )** | | | | | |
| 4.9B | | (i) | **Grading-I** | | | | | |
| | | | **Aggregate** | | | | | |

| Sl. No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Grading-I 90 mm to 45 mm@ 1.21cum per 10 sqm for compacted thickness of 100 mm | cum | 435.600 | 950.00 | 413820.00 | M-039 |
| | | | **Stone Screening** | | | | | |
| | | | Type A 13.2 mm for **grading-I** @ 0.27 cum per 10 sqm | cum | 97.200 | 1820.00 | 176904.00 | M-052 |
| | | | **OR** | | | | | |
| | | | Crushable type such as Moorum or Gravel for **grading-I** @ 0.30 cum per 10 sqm | cum | 108.000 | 350.00 | 37800.00 | M-007 |
| | | | **Binding material** | | | | | |
| | | | Binding Material @ 0.08cum per 10 sqm for grading I material | cum | 28.800 | 350.00 | 10080.00 | M-007 |
| | | | Cost of water | KL | 144.000 | 71.00 | 10224.00 | M-189 |
| **4.9B (i)** | | (a) | **Using Scrining Crushable type such as Moorum or Gravel** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 104058.48 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 62022.16 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 68224.37 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 7504.68 | |
| | | | Cost for 360 cum = a+b+c+d+e+f+g | | | | 757972.77 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/360** | | | | 2105.48 | |
| | | | | | | ***say*** | ***2105.00*** | |
| | | | **OR** | | | | | |
| **4.9B (i)** | | (b) | **Using Scrining Type-A (13.2mm agg.)** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 134133.97 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 79948.11 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 87942.92 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 9669.97 | |
| | | | Cost for 360 cum = a+b+c+d+e+f+g | | | | 977042.05 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/360** | | | | 2714.01 | |
| | | | | | | ***say*** | ***2714.00*** | |
| **4.9B** | | (ii) | **c) Grading-II** | | | | | |
| | | | **Aggregate** | | | | | |
| | | | Grading-II 63 mm to 45 mm /Grading-III 53 mm to 22.4 mm@ 0.91 cum per 10 sqm for compacted thickness of 75 mm | cum | 435.600 | 980.00 | 426888.00 | M-038 |
| | | | **Stone Screening** | | | | | |
| | | | Type A 13.2 mm for grading-II@ 0.12 cum per 10 sqm | cum | 57.600 | 1820.00 | 104832.00 | M-052 |
| | | | **OR** | | | | | |
| | | | Crushable type such as Moorum or Gravel for **grading II &III** @ 0.22 cum per 10 sqm | cum | 105.590 | 350.00 | 36956.50 | M-007 |
| | | | **OR** | | | | | |
| | | | Type B11.2 mm for grading-III @ 0.18 cum per 10 sqm | cum | 86.400 | 1800.00 | 155520.00 | M-051 |
| | | | **Binding material** | | | | | |
| | | | Binding Material @ 0.06cum per 10 sqm for grading II material | cum | 28.800 | 350.00 | 10080.00 | M-007 |
| | | | Cost of water | KL | 144.000 | 71.00 | 10224.00 | M-189 |
| **4.9B (ii)** | | (a) | **Using Scrining Crushable type such as Moorum or Gravel** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 106522.94 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 63491.05 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 69840.16 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 7682.42 | |
| | | | Cost for 360 cum = a+b+c+d+e+f+g | | | | 775924.15 | |

| Sl. No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **Rate per cum = (a+b+c+d+e+f+g)/360** | | | | 2155.34 | |
| | | | | | | ***say*** | ***2155.00*** | |
| | | | **OR** | | | | | |
| **4.9B (ii)** | | **(b)** | **Using Scrining Type-A (13.2mm agg.)** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 122238.76 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 72858.18 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 80144.00 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 8812.09 | |
| | | | Cost for 360 cum = a+b+c+d+e+f+g | | | | 890396.11 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/360** | | | | 2473.32 | |
| | | | | | | ***say*** | ***2473.00*** | |
| **4.9B (ii)** | | **(c)** | **Using Scrining Type-B (11.2mm agg.)** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 132457.47 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 78948.86 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 86843.74 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 9552.81 | |
| | | | Cost for 360 cum = a+b+c+d+e+f+g | | | | 964833.96 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/360** | | | | 2680.09 | |
| | | | | | | ***say*** | ***2680.00*** | |
| **4.9B** | | **(iii)** | **c)Grading-III** | | | | | |
| | | | **Aggregate** | | | | | |
| | | | Grading-III 53 mm to 22.4 mm@ 0.91 cum per 10 sqm for compacted thickness of 75 mm | cum | 435.600 | 1010.00 | 439956.00 | M-036 |
| | | | **Stone Screening** | | | | | |
| | | | Type B11.2 mm for grading-III @ 0.18 cum per 10 sqm | cum | 86.400 | 1800.00 | 155520.00 | M-051 |
| | | | **OR** | | | | | |
| | | | Crushable type such as Moorum or Gravel for grading II &III @ 0.22 cum per 10 sqm | cum | 105.590 | 350.00 | 36956.50 | M-007 |
| | | | **Binding material** | | | | | |
| | | | Binding Material @ 0.06cum per 10 sqm for grading II material | cum | 28.800 | 350.00 | 10080.00 | M-007 |
| | | | Cost of water | KL | 144.000 | 71.00 | 10224.00 | M-189 |
| **4.9B (iii)** | | **(a)** | **Using Scrining Crushable type such as Moorum or Gravel** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 109157.44 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 65061.30 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 71567.43 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 7872.42 | |
| | | | Cost for 360 cum = a+b+c+d+e+f+g | | | | 795114.17 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/360** | | | | 2208.65 | |
| | | | | | | ***say*** | ***2209.00*** | |
| | | | **OR** | | | | | |
| **4.9B (iii)** | | **(b)** | **Using Scrining Type-B (11.2mm agg.)** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 135091.97 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 80519.11 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 88571.02 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 9742.81 | |
| | | | Cost for 360 cum = a+b+c+d+e+f+g | | | | 984023.99 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/360** | | | | 2733.40 | |
| | | | | | | ***say*** | ***2733.00*** | |

| Sl. No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | Note | As three wheeled smooth rollers are also very commonly used, the same has been provided as an alternative. | | | | | |
| 4.10 | 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 400.7 transporting the aggregates obtained from breaking of cement concrete slabs at a lead of L 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 | 551.00 | 2292.16 | L-12 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | Mazdoor for crushing broken cement concrete pavement/slabs into aggregate | day | 102.000 | 424.00 | 43248.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Motor Grader,110 HP @ 50 cum/hr. | hour | 6.000 | 3247.00 | 19482.00 | P&M-032 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.000 | 969.00 | 5814.00 | P&M-059 |
| | | | or | | | | | |
| | | | Smooth 3 wheeled steel roller @ 30cum/hr. | hour | 12.000 | | | |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Tipper 10 tonne capacity | tonne. km | 720 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | | | Water tanker 6 KL capacity with 5 km lead @ 1 trip per hour | hour | 12.000 | 724.00 | 8688.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Material available from dismantled concrete slab after crushing / breaking and only carriage is required to be provided | | | | | |
| | | | Cost of water | KL | 72.000 | 71.00 | 5112.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 19490.72 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 11617.09 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 12778.80 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1405.67 | |
| | | | Cost for 360 cum = a+b+c+d+e+f+g | | | | 141972.44 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/360** | | | | 394.37 | |
| | | | | | | ***say*** | ***394.00*** | |
| | | 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 L 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. | | | | | |

| Sl. No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 4.11 | 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 | 551.00 | 308.56 | L-12 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | Mazdoor | day | 12.000 | 424.00 | 5088.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Mechanical broom hydraulic @ 1250 sqm per hour | hour | 6.000 | 473.00 | 2838.00 | P&M-031 |
| | | | Hydraulic self propelled chips spreader | hour | 6.000 | 3640.00 | 21840.00 | P&M-025 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Tipper 10 tonne capacity | hour | 6.000 | 916.00 | 5496.00 | P&M-048 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.00x0.65* | 969.00 | 3779.10 | P&M-059 |
| | | | Bitumen pressure distributor @ 1750 sqm per hour | hour | 4.280 | 1509.00 | 6458.52 | P&M-004 |
| | | | **c) Material** | | | | | |
| | | | Crushed stone aggregate 11.2 mm size | cum | 97.500 | 1800.00 | 175500.00 | M-051 |
| | | | Bitumen (80-100 grade) | tonne | 0.250 | 57924.00 | 14481.00 | M-074 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 49963.17 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 29779.64 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 32757.60 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 3603.34 | |
| | | | Cost for 7500 sqm = a+b+c+d+e+f+g | | | | 363936.93 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/7500** | | | | 48.52 | |
| | | | | | | ***say*** | ***49.00*** | |
| | | **Note** | Though vibratory roller is required only for 3 hours as per norms, the same is required to be available at site for 6 hours to match with other machines. The usage rates of vibratory roller may be multiplied with a factor of 0.65. | | | | | |
| 4.12 | 406 | | **Wet Mix Macadam** | | | | | |
| | | | 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. | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 225 cum (495 tonnes)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.480 | 551.00 | 264.48 | L-12 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | Mazdoor | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Wet mix plant of 75 tonne hourly capacity | hour | 9.000 | 1794.00 | 16146.00 | P&M-094 |
| | | | Electric generator 125 KVA | hour | 6.000 | 1135.00 | 6810.00 | P&M-018 |
| | | | Front end loader 1 cum capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Paver finisher | hour | 6.000 | 1386.00 | 8316.00 | P&M-035 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6x0.65 | 969.00 | 3779.10 | P&M-059 |
| | | | or | | | | | |

| Sl. No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Smooth 3 wheeled steel roller @ 8-10 tonnes. | hour | 12.000 | | | |
| | | | Water tanker 6 KL capacity | hour | 3.000 | 724.00 | 2172.00 | P&M-060 |
| | | | Tipper | tonne. km | 495 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | | | **c) Material ( Table 400-11)** | | | | | |
| | | | 45 mm to 22.4 mm@ 30 per cent | cum | 89.100 | 1010.00 | 89991.00 | M-034 |
| | | | 22.4 mm to 2.36 mm @ 40 per cent | cum | 118.800 | 1020.00 | 121176.00 | M-031 |
| | | | 2.36 mm to 75 micron@ 30 per cent | cum | 89.100 | 700.00 | 62370.00 | M-022 |
| | | | Cost of water | KL | 18.000 | 71.00 | 1278.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 66243.05 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 39482.96 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 43431.26 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 4777.44 | |
| | | | Cost for 225 cum = a+b+c+d+e+f+g | | | | 482521.29 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/225** | | | | 2144.54 | |
| | | | | | | ***say*** | ***2145.00*** | |
| | | **Note** | 1. Though vibratory roller is required only for 3 hours as per norms, the same is required to be available at site for 6 hours to match with other machines. The usage rates of vibratory roller may be multiplied with a factor of 0.65<br>2. As three wheeled smooth steel rollers are commonly in use, the same has been provided as an alternative which can be used if the thickness of individual layer does not exceed 100 mm.. | | | | | |
| **4.13** | **407** | | **Construction of Median and Island with Soil Taken from Roadway Cutting**<br>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 407 | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output =21 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.240 | 551.00 | 132.24 | L-12 |
| | | | Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Water tanker 6 KL with 5 km lead and 1 trip per hour | hour | 1.000 | 724.00 | 724.00 | P&M-060 |
| | | | Plate compactor @ 3.5 cum per hour | hour | 6.000 | 382.00 | 2292.00 | P&M-086 |
| | | | **c) Material** | | | | | |
| | | | Cost of water | KL | 6.000 | 71.00 | 426.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1233.44 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 735.17 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 808.69 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 88.96 | |
| | | | Cost for 21 cum = a+b+c+d+e+f+g | | | | 8984.50 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/21** | | | | 427.83 | |
| | | | | | | ***say*** | ***428.00*** | |

| Sl. No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | 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. | | | | | |
| 4.14 | 407 | | **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 407 | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 21 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.160 | 551.00 | 88.16 | L-12 |
| | | | Mazdoor | day | 4.000 | 424.00 | 1696.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Water tanker with 5 km lead | hour | 1.000 | 724.00 | 724.00 | P&M-060 |
| | | | Plate Compactor @ 3.5 cum per hour | hour | 6.000 | 382.00 | 2292.00 | P&M-086 |
| | | | Hydraulic Excavator1.0 cum bucket capacity @60 cum per hour | hour | 0.500 | 2044.00 | 1022.00 | P&M-026 |
| | | | Tipper 10 tonne capacity | tonne. km | 52.5 x L | 18.00 | 2835.00 | Lead =3 km & P&M-058 |
| | | | Add 10 per cent of cost of transportation to cover cost of loading and unloading | | | | 283.50 | |
| | | | c) Material | | | | | |
| | | | Cost of water | KL | 6.000 | 71.00 | 426.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1888.32 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 1125.50 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 1238.05 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 136.19 | |
| | | | Cost for 21 cum = a+b+c+d+e+f+g | | | | 13754.72 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/ 21** | | | | 654.99 | |
| | | | | | | ***say*** | ***655.00*** | |
| | | 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. | | | | | |
| 4.15 | | | **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. | | | | | |
| 4.17 | 410 | | **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 410 to form a layer of sub-base/Base | | | | | |

| Sl. No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 360 cum*** | | | | | |
| | | A | **By Mix in Place Method** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.480 | 551.00 | 264.48 | L-12 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | Mazdoor | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor attached with rotavator @ 25 cum per hour | hour | 12.000 | 494.00 | 5928.00 | P&M-054 |
| | | | Motor grader 110 HP | hour | 6.000 | 3247.00 | 19482.00 | P&M-032 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.000 | 969.00 | 5814.00 | P&M-059 |
| | | | Water tanker 6 KL capacity | hour | 6.000 | 724.00 | 4344.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Aggregate at site | | | | | |
| | | | **i) For 53 mm maximum size** | | | | | |
| | | | 63 mm to 45 mm @ 33 per cent | cum | 157.460 | 980.00 | 154310.80 | M-038 |
| | | | 22.5 mm to 5.6 mm@ 32 per cent | cum | 151.060 | 1590.00 | 240185.40 | M-032 |
| | | | Below 5.6 mm @ 35 per cent | cum | 166.680 | 1300.00 | 216684.00 | M-030 |
| | | | Cost of water | KL | 36.000 | 71.00 | 2556.00 | M-189 |
| | | | **Or** | | | | | |
| | | | **ii) For 45 mm maximum size** | | | | | |
| | | | 45 mm to 22.5 mm@ 5 per cent | cum | 24.120 | 1010.00 | 24361.20 | M-034 |
| | | | 22.4 mm to 5.6 mm@ 50 per cent | cum | 237.600 | 1590.00 | 377784.00 | M-032 |
| | | | Below 5.6 mm@ 45 per cent | cum | 213.480 | 1300.00 | 277524.00 | M-030 |
| | | | Cost of water | KL | 36.000 | 71.00 | 2556.00 | M-189 |
| 4.17A | | (i) | **For 53 mm maximum size** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 132012.66 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 78683.73 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 86552.11 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 9520.73 | |
| | | | Cost for 360.0cum = a+b+c+d+e+f+g | | | | 961593.91 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/360** | | | | 2671.09 | |
| | | | **or** | | | ***say*** | ***2671.00*** | |
| 4.17A | | (ii) | **For 45 mm maximum size** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 145820.04 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 86913.37 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 95604.71 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 10516.52 | |
| | | | Cost for 360.0cum = a+b+c+d+e+f+g | | | | 1062168.32 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/360** | | | | 2950.47 | |
| | | | | | | ***say*** | ***2950.00*** | |
| | | Note | Any one of the aggregate grading may be adopted | | | | | |
| 4.17 | | B | **By Mixing Plant :** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 225 cum (450 tonnes)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.280 | 551.00 | 154.28 | L-12 |
| | | | Mazdoor skilled | day | 1.000 | 508.00 | 508.00 | L-15 |

| Sl. No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Wet mix plant @ 75 tonne per hour | hour | 6.000 | 1794.00 | 10764.00 | P&M-094 |
| | | | Electric generator 125 KVA | hour | 6.000 | 1135.00 | 6810.00 | P&M-018 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Motor grader 110 HP | hour | 6.000 | 3247.00 | 19482.00 | P&M-032 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.000 | 969.00 | 5814.00 | P&M-059 |
| | | | Water tanker 6 KL capacity | hour | 3.000 | 724.00 | 2172.00 | P&M-060 |
| | | | Tipper 10 tonne capacity | tonne.km | 450 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | | | **c) Material** | | | | | |
| | | | Aggregate at site | | | | | |
| | | | **i) For 53 mm maximum size** | | | | | |
| | | | 63 mm to 45 mm @ 33 per cent | cum | 98.400 | 980.00 | 96432.00 | M-038 |
| | | | 22.5 mm to 5.6 mm@ 32 per cent | cum | 94.410 | 1590.00 | 150111.90 | M-032 |
| | | | Below 5.6 mm @ 35 per cent | cum | 104.180 | 1300.00 | 135434.00 | M-030 |
| | | | **Or** | | | | | |
| | | | **ii) For 45 mm maximum size** | | | | | |
| | | | 45 mm to 22.5 mm@ 5 per cent | cum | 15.060 | 1010.00 | 15210.60 | M-034 |
| | | | 22.4 mm to 5.6 mm@ 50 per cent | cum | 148.500 | 1590.00 | 236115.00 | M-032 |
| | | | Below 5.6 mm@ 45 per cent | cum | 133.430 | 1300.00 | 173459.00 | M-030 |
| | | | Cost of water | KL | 18.000 | 71.00 | 1278.00 | M-189 |
| **4.17 B** | | (i) | **For 53 mm maximum size** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 88956.84 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 53021.10 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 58323.21 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 6415.55 | |
| | | | Cost for 225cum = a+b+c+d+e+f+g | | | | 647970.88 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/225** | | | | 2879.87 | |
| | | | | | | ***say*** | ***2880.00*** | |
| **4.17 B** | | (ii) | **For 45 mm maximum size** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 97844.32 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 58318.32 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+** | | | | 64150.15 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 7056.52 | |
| | | | Cost for 360.0cum = a+b+c+d+e+f+g | | | | 712708.19 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/360** | | | | 1979.74 | |
| | | | | | | ***say*** | ***1980.00*** | |
| **4.18** | | | **Preparation of sub grade** | | | | | |
| | | (A) | Preparation of sub grade by excavating earth to an average depth of 22.50 cm, dressing to camber and consolidating with road roller, making good the undulations etc. and disposal of surplus earth, lead upto 50 m. | | | | | |
| | | | ***Unit = Sq.m.*** | | | | | |
| | | | ***Taking output = 100 Sq.m.*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 1.800 | 551.00 | 991.80 | L-12 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |

| Sl. No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Mazdoor for consolidation of sub- | day | 0.270 | 424.00 | 114.48 | L-13 |
| | | | Mazdoor for watch & ward | day | 0.054 | 424.00 | 22.90 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Three wheel 80-100 kN Static Roller | hour | 0.430 | 969.00 | 416.67 | M-189 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1850.25 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 1102.81 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1213.09 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 133.44 | |
| | | | Cost for 100 Sq.m. = a+b+c+d+e+f | | | | 13477.44 | |
| | | | **Rate per Sq.m. = (a+b+c+d+e+f)/ 100** | | | | 134.77 | |
| | | | | | | ***say*** | ***135.00*** | |

**(B)** Consolidation of sub-grade with road roller of 8 to 12 tonne capacity including making good the undulations etc. with earth or quarry spoils etc. and rerolling the sub grade.

***Unit = Sq.m.***

***Taking output = 100 Sq.m.***

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | **a) Labour** | | | | | |
| | | | Mazdoor for watch & ward | day | 0.054 | 424.00 | 22.90 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Three wheel 80-100 kN Static Roller | hour | 0.430 | 969.00 | 416.67 | M-189 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 88.62 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 52.82 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 58.10 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 6.39 | |
| | | | Cost for 100 Sq.m. = a+b+c+d+e+f | | | | 645.50 | |
| | | | **Rate per Sq.m. = (a+b+c+d+e+f)/ 100** | | | | 6.46 | |
| | | | | | | ***say*** | ***6.46*** | |

## Chapter – 5

## BASES AND SURFACE COURSES (BITUMINOUS)

**Preamble:**

1 Various alternatives for machines and materials have been provided. The one that suits a particular situation and design may be adopted.

2 The outputs considered for construction equipment are for compacted quantities of relevant items and not for loose quantities.

3 In case of prime coat and tack coat, average quantities of binder indicated in specifications have been taken.

4 Tack coat and prime coat, wherever provided, are required to be measured and paid separately.

5 Cleaning of surface is a part of the item of 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 cases where such coats are not required to be done, cleaning of surface shall be included and paid.

6 Rolling of bituminous courses is required to be done as per Clause 501.6 of MORD Specifications. Provision in the analysis has been made accordingly. 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 adequate number of road rollers as per provision in the rate analysis are deployed at site.

7 Spreading of bituminous materials shall be done by mechanical means except in areas where a mechanical paver cannot have access.

8 Hot Mazdoor is the one who work for Bitumen heating/spreading or spreading of hot bituminous mix. He will be paid the same wages. However, he will be provided safety kits containing normally gumboots, hand gloves, dark goggles, barnol, country soap, coconut oil, tarring outfits, etc. For this purpose, additional 0.5 per cent sundries have been provided in the analysis of rates in addition to the normal sundries covered by overheads.

9 Where the proposed aggregates fail to pass the stripping value test, an approved adhesion agent shall be added to the binder as per Clause 507.2.4 with the approval of the Engineer and cost of the adhesion agent shall be added under the subhead of materials.

10 The Factor for usage of rollers has been taken as 0.65 in case of Bituminous Macadam only.

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| 5.1 | 502 | | **Prime Coat**<br>Providing and applying primer coat with 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.<br>***Unit = sqm***<br>***Taking output = 3500 sqm*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Mechanical broom @ 1250 sqm per hour | hour | 2.800 | 473.00 | 1324.40 | P&M-031 |
| | | | Air compressor 250 cfm | hour | 2.800 | 658.00 | 1842.40 | P&M-001 |
| | | | Bitumen pressure distributor @ 1750 sqm per hour | hour | 2.000 | 1509.00 | 3018.00 | P&M-004 |
| | | | Water tanker 6 KL capacity @ 1 trip per hour | hour | 1.000 | 724.00 | 724.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Bitumen emulsion @ 0.6 kg per sqm | tonne | 2.100 | 55000.00 | 115500.00 | M-077 |
| | | | Cost of water | KL | 6.000 | 71.00 | 426.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 24943.34 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 14867.02 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 16353.72 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1798.91 | |
| | | | Cost for 3500 sqm = a+b+c+d+e+f+g | | | | 181689.87 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/3500** | | | | 51.91 | |
| | | | | | | ***say*** | ***52.00*** | |
| | | **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. | | | | | |
| 5.2 | 503 | | **Tack Coat**<br>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/granular surface cleaned with mechanical broom.<br>***Unit = sqm***<br>***Taking output = 3500 sqm*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Mechanical broom @ 1250 sqm per hour | hour | 2.800 | 473.00 | 1324.40 | P&M-031 |
| | | | Air compressor 250 cfm | hour | 2.800 | 658.00 | 1842.40 | P&M-001 |
| | | | Emulsion pressure distributor @ 1750 sqm per hour | hour | 2.000 | 1509.00 | 3018.00 | P&M-004 |
| | | | **c) Material** | | | | | |
| | | | Bitumen emulsion @ 0.2 kg per sqm | tonne | 0.700 | 55000.00 | 38500.00 | M-077 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 9188.30 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 5476.52 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 6024.17 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 662.66 | |
| | | | Cost for 3500 sqm = a+b+c+d+e+f+g | | | | 66928.53 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/3500** | | | | 19.12 | |
| | | | | | | ***say*** | ***19.00*** | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | Note | 1. 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 actual quantity approved by the Engineer after preliminary trials referred to in clause No. 503.4.3<br><br>2. An output of 3500 sqm has been considered in case of prime coat and tack coat which can be covered by bituminous courses on the same day. | | | | | |
| 5.3 | 504 | | **Bituminous Macadam**<br>Providing and laying bituminous macadam with 100-120 TPH hot mix plant producing an average output of 75 tonnes per hour 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<br>***Unit = cum***<br>***Taking output = 205 cum (450 tonnes)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mazdoor working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction | day | 16.000 | 424.00 | 6784.00 | L-13 |
| | | | Skilled mazdoor for checking line & levels | day | 5.000 | 508.00 | 2540.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Batch mix HMP 100-120 TPH @ 75 tonne per hour actual output | hour | 6.000 | 32730.00 | 196380.00 | P&M-021 |
| | | | Mechanical broom hydraulic @ 1250 sqm per hour | hour | 2.200 | 473.00 | 1040.60 | P&M-031 |
| | | | Air compressor 250 cfm | hour | 2.200 | 658.00 | 1447.60 | P&M-001 |
| | | | Paver finisher hydrostatic with sensor control @ 75 cum per hour | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Generator 250 KVA | hour | 6.000 | 1154.00 | 6924.00 | P&M-081 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Tipper 10 tonne capacity | tonne. km | 450 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | | | Smooth wheeled roller 8-10 tonnes for initial break down | hour | 6.00x0.65* | 783.00 | 3053.70 | P&M-044 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.00x0.65* | 969.00 | 3779.10 | P&M-059 |
| | | | Finish rolling with 6-8 tonnes smooth wheeled tandem roller. | hour | 6.00x0.65* | 1641.00 | 6399.90 | P&M-045 |
| | | | **c) Material** | | | | | |
| | | | i) Bitumen@ 3.3 per cent of mix | tonne | 14.850 | 57924.00 | 860171.40 | M-074 |
| | | | weight of mix = 205 x 2.2 = 450 tonne | | | | | |
| | | | **ii) Aggregate**<br>Total weight of mix = 450 tonnes<br>Weight of bitumen = 14.85 tonnes<br>Weight of aggregate = 450 -14.85 = 435.15 tonnes<br>***Taking density of aggregate = 1.5 ton/cum*** | | | | | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Volume of aggregate = 290.1 cum | | | | | |
| | | | ***Grading I ( 40 mm nominal size )** | | | | | |
| | | | 37.5 - 25 mm 15 per cent | cum | 43.510 | 1910.00 | 83104.10 | M-049 |
| | | | 25 - 10 mm 45 per cent | cum | 130.550 | 1860.00 | 242823.00 | M-046 |
| | | | 10 - 5 mm 25 per cent | cum | 72.530 | 1550.00 | 112421.50 | M-040 |
| | | | 5 mm and below15 per cent | cum | 43.510 | 1300.00 | 56563.00 | M-030 |
| | | | **or** | | | | | |
| | | | **GradingII(19 mm nominal size)** | | | | | |
| | | | 25 - 10 mm 40 per cent | cum | 116.040 | 1860.00 | 215834.40 | M-046 |
| | | | 10 - 5 mm 40 per cent | cum | 116.040 | 1550.00 | 179862.00 | M-040 |
| | | | 5 mm and below 20 per cent | cum | 58.020 | 1300.00 | 75426.00 | M-030 |
| | | | * Any one of the alternative may be adopted as per approved design | | | | | |
| | | (i) | **for Grading I ( 40 mm nominal size )** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 326189.76 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 194419.45 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 213861.40 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 23524.75 | |
| | | | Cost for 205 cum = a+b+c+d+e+f+g | | | | 2376000.10 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/205 (For Grading I)** | | | | 11590.24 | |
| | | | | | | ***say*** | ***11590.00*** | |
| | | (ii) | **for GradingII(19 mm nominal size)** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 321393.85 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 191560.94 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 210717.03 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 23178.87 | |
| | | | Cost for 205 cum = a+b+c+d+e+f+g | | | | 2341066.23 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/205 (For Grading-II)** | | | | 11419.84 | |
| | | | | | | ***say*** | ***11420.00*** | |
| | | **Note** | *1. Although the rollers are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 450 tonnes considered in this analysis. To cater for the idle period of these rollers, their usage rates have been multiplied by a factor of 0.65. | | | | | |
| | | | 2.Quantity of Bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula. | | | | | |
| | | | 3. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative overheads of the contractor. | | | | | |
| | | | 4. 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. | | | | | |
| **5.4** | **505** | | **Bituminous Penetration Macadam** | | | | | |
| | | | Construction of penetration macadam over prepared Base by providing a layer of compacted crushed coarse aggregate using chips spreader with alternate applications of bituminous binder and key aggregates and rolling with a smooth wheeled steel roller 8-10 tonne capacity to achieve the desired degree of compaction | | | | | |
| | | **A** | **50 mm thick** | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 4500 sqm (225 cum)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.320 | 551.00 | 176.32 | L-12 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Mazdoor including for brooming of key aggregates | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic self propelled chip spreader both for aggregates and key aggregates@ 1500 sqm per hour for 4500 x 2 sqm = 9000 sqm | hour | 6.000 | 3640.00 | 21840.00 | P&M-025 |
| | | | Bitumen pressure distributor for @ 1750 sqm per hour | hour | 2.570 | 1509.00 | 3878.13 | P&M-004 |
| | | | Tipper 5.5 cum capacity for carriage of aggregates from stockpile to chip spreader | hour | 10.000 | 916.00 | 9160.00 | P&M-048 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.000 | 969.00 | 5814.00 | P&M-059 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | **c) Material** | | | | | |
| | | | Bitumen@ 5 kg per sqm | tonne | 22.500 | 57924.00 | 1303290.00 | M-074 |
| | | | Crushed stone coarse aggregate passing 45 mm and retained on 2.8 mm sieve @ 0.06 cum per sqm | cum | 270.000 | 790.00 | 213300.00 | M-033 |
| | | | Key aggregates passing 22.4 mm and retained on 2.8 mm sieve @ 0.015 cum per sqm | cum | 67.500 | 1020.00 | 68850.00 | M-031 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 330804.72 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 197170.12 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 216887.13 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 23857.58 | |
| | | | Cost for 4500 sqm = a+b+c+d+e+f+g | | | | 2409616.00 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/4500** | | | | 535.47 | |
| | | | | | | ***say*** | ***535.00*** | |
| | | **Note** | 2 tippers will be needed to match the capacity of chip spreader and front end loader. | | | | | |
| **5.4** | | **B** | **75 mm thick** | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 4500 sqm (337.5 cum compacted).*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.400 | 551.00 | 220.40 | L-12 |
| | | | Mazdoor including for brooming of key aggregates | day | 8.000 | 424.00 | 3392.00 | L-13 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic self propelled chip spreader both for aggregates and key aggregates@ 1500 sqm per hour for 4500 x 2 sqm | hour | 6.000 | 3640.00 | 21840.00 | P&M-025 |
| | | | Bitumen pressure distributor for@ 1750 sqm per hour | hour | 2.570 | 1509.00 | 3878.13 | P&M-004 |
| | | | Tipper 5.5 cum capacity for carriage of aggregates from stockpile to chip spreader | hour | 10.000 | 916.00 | 9160.00 | P&M-048 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.000 | 969.00 | 5814.00 | P&M-059 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | **c) Material** | | | | | |
| | | | Bitumen@ 6.8 kg per sqm | tonne | 30.600 | 57924.00 | 1772474.40 | M-074 |
| | | | Crushed stone coarse aggregate (loose passing 63 mm and retained on 2.8 mm sieve @ 0.09 cum per sqm | cum | 405.000 | 820.00 | 332100.00 | M-037 |
| | | | Key aggregates passing 26.5 mm and retained on 2.8 mm sieve @ 0.018 cum per sqm | cum | 81.000 | 850.00 | 68850.00 | M-026 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 449522.22 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 267929.52 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 294722.47 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 32419.47 | |
| | | | Cost for 4500 sqm = a+b+c+d+e+f+g | | | | 3274366.61 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/4500** | | | | 727.64 | |
| | | | | | | ***say*** | ***728.00*** | |

**Note** 2 tippers and 2 rollers will be needed to match the capacity of chip spreader and front end loader.

**5.5** **506** **Built-up-Spray Grout**

Providing, laying and rolling of built-up-spray grout layer over prepared base consisting of a two layer composite construction of compacted crushed coarse aggregates using motor grader for aggregates. key stone chips spreader may be used with application of bituminous binder after each layer, and with key aggregates placed on top of the second layer to serve as a Base conforming to the line, grades and cross-section specified, the compacted layer thickness being 75 mm

***Unit = sqm***

***Taking output = 3000 sqm (225 cum)***

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.400 | 551.00 | 220.40 | L-12 |
| | | | Mazdoor including for brooming of key aggregates | day | 8.000 | 424.00 | 3392.00 | L-13 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic self propelled chip spreader both for aggregates and key aggregates@ 1500 sqm per hour for 3000 x 3 sqm | hour | 6.000 | 3640.00 | 21840.00 | P&M-025 |
| | | | Bitumen pressure distributor for 3000 x 2 sqm @ 1750 sqm per hour | hour | 3.430 | 1509.00 | 5175.87 | P&M-004 |
| | | | Tipper 5.5 cum capacity | hour | 10.000 | 916.00 | 9160.00 | P&M-048 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.000 | 969.00 | 5814.00 | P&M-059 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | **c) Material** | | | | | |
| | | | Bitumen30 kg per 10 sqm @ 15 kg per 10 sqm for each layer | tonne | 9.000 | 57924.00 | 521316.00 | M-074 |
| | | | Crushed stone coarse aggregate passing 53 mm and retained on 2.8 mm sieve @ 0.5 cum per 10 sqm for each layer | cum | 300.000 | 850.00 | 255000.00 | M-035 |
| | | | Key aggregates passing 22.4 mm and retained on 2.8 mm sieve @ 0.13 cum per 10 sqm | cum | 39.000 | 1020.00 | 39780.00 | M-031 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 176146.44 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 104988.87 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 115487.76 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 12703.65 | |
| | | | Cost for 3000 sqm = a+b+c+d+e+f+g | | | | 1283068.99 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/3000** | | | | 427.69 | |
| | | | | | | ***say*** | ***428.00*** | |
| | | **Note** | 2 tippers will be needed to match the capacity of hydraulic chip spreader and front end loader. | | | | | |
| **5.6** | **507** | | **Dense Bituminous Macadam** | | | | | |
| | | | Providing and laying dense graded bituminous macadam with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 to 4.5 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. 507 complete in all respects. | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 195 cum (450 tonnes)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mazdoor working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction | day | 16.000 | 424.00 | 6784.00 | L-13 |
| | | | Skilled mazdoor for checking line & levels | day | 5.000 | 508.00 | 2540.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Batch mix HMP @ 75 tonne per hour | hour | 6.000 | 20099.00 | 120594.00 | P&M-022 |
| | | | Paver finisher hydrostatic with sensor control @ 75 cum per | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Generator 250 KVA | hour | 6.000 | 1154.00 | 6924.00 | P&M-081 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Tipper 10 tonne capacity | tonne. km | 450 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | | | smooth wheeled roller 8-10 tonnes for initial break down rolling. | hour | 6.00x0.65* | 783.00 | 3053.70 | P&M-044 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.00x0.65* | 969.00 | 3779.10 | P&M-059 |
| | | | Finish rolling with 6-8 tonnes smooth wheeled tandem roller. | hour | 6.00x0.65* | 1641.00 | 6399.90 | P&M-045 |
| | | | **c) Materials** | | | | | |
| | | | Bitumen @ 4.25 per cent of weight of mix | tonne | 19.130 | 57924.00 | 1108086.12 | M-074 |
| | | | Aggregate | | | | | |
| | | | Total weight of mix = 450 tonnes | | | | | |
| | | | Weight of bitumen = 19.13 tonnes | | | | | |
| | | | Weight of aggregate = 450 -19.13 = 430.87 tonnes | | | | | |
| | | | ***Taking density of aggregate = 1.5 ton/cum*** | | | | | |
| | | | Volume of aggregate = 287.25 cum | | | | | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **Grading - I40 mm (Nominal Size)** | | | | | |
| | | | 37.5 - 25 mm 22 per cent | cum | 63.190 | 1910.00 | 120692.90 | M-049 |
| | | | 25 - 10 mm 13 per cent | cum | 37.340 | 1860.00 | 69452.40 | M-046 |
| | | | 10 -4.75 mm 19 per cent | cum | 54.580 | 1550.00 | 84599.00 | M-040 |
| | | | 4.75 mm and below 44 per cent | cum | 126.390 | 1300.00 | 164307.00 | M-030 |
| | | | Filler @ 2 per cent of weight of aggregates. | tonne | 8.620 | 15000.00 | 129300.00 | M-188 |
| | | | **or** | | | | | |
| | | | **Grading - II19 mm (Nominal Size)** | | | | | |
| | | | 25 - 10 mm 30 per cent | cum | 86.160 | 1860.00 | 160257.60 | M-046 |
| | | | 10 - 5 mm 28 per cent | cum | 80.430 | 1550.00 | 124666.50 | M-040 |
| | | | 5 mm and below 40 per cent | cum | 114.900 | 1300.00 | 149370.00 | M-030 |
| | | | Filler @ 2 per cent of weight of aggregates. | tonne | 8.620 | 15000.00 | 129300.00 | M-188 |
| | | | * Any one of the alternative may be adopted as per approved design | | | | | |
| | | (i) | **For Grading-I ( 40 mm nominal size )** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 375194.73 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 223627.97 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 245990.77 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 27058.98 | |
| | | | Cost for 205 cum = a+b+c+d+e+f+g | | | | 2732957.41 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/195 (For Grading I)** | | | | 14015.17 | |
| | | | | | | ***say*** | ***14015.00*** | |
| | | (ii) | **For Grading-II (19 mm nominal size)** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 374235.68 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 223056.34 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 245361.98 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 26989.82 | |
| | | | Cost for 205 cum = a+b+c+d+e+f+g | | | | 2725971.58 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/195 (For Grading-II)** | | | | 13979.34 | |
| | | | | | | ***say*** | ***13979.00*** | |

**Note** *1. Although the roller are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 450 tonnes considered in this analysis. To cater for the idle period of these rollers, their usage rates have been multiplied by a factor of 0.65.

2.Quantity of Bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.

3. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative overheads of the contractor.

4. 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.

5. The individual density for each size of aggregates to be used for construction I.e. 37.5-25 mm, 25-10 mm etc. should be found in the laboratory and accordingly the quantities should be ammended for use in field. The average density of 1.5 tonne/cum is only a reference density in this Data Book.

6. 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 per cent by weight of dry aggregates.

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| 5.7 | 508 | | **Semi-Dense Bituminous Concrete**<br>Providing and laying semi dense bituminous concrete with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.5 to 5 per cent 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 MoRTH specification clause No. 508 complete in all respects<br>***Unit = cum***<br>***Taking output = 195 cum (450 tonnes)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mazdoor working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction | day | 16.000 | 424.00 | 6784.00 | L-13 |
| | | | Skilled mazdoor for checking line & levels | day | 5.000 | 508.00 | 2540.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Batch mix HMP @ 75 tonne per hour | hour | 6.000 | 20099.00 | 120594.00 | P&M-022 |
| | | | Paver finisher hydrostatic with sensor control @ 75 cum per hour | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Generator 250 KVA | hour | 6.000 | 1154.00 | 6924.00 | P&M-081 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Tipper 10 tonne capacity | tonne. km | 450 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | | | Smooth wheeled roller 8-10 tonnes for initial break down rolling. | hour | 6.00x0.65* | 783.00 | 3053.70 | P&M-044 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.00x0.65* | 969.00 | 3779.10 | P&M-059 |
| | | | Finish rolling with 6-8 tonnes smooth wheeled tandem roller | hour | 6.00x0.65* | 1641.00 | 6399.90 | P&M-045 |
| | | | **c) Material** | | | | | |
| | | | *** Grading I: 13 mm (Nominal Size)** | | | | | |
| | | | i) Bitumen@ 4.5 per cent of weight of mix | tonne | 20.250 | 57924.00 | 1172961.00 | M-074 |
| | | | **ii) Aggregate**<br>Total weight of mix = 450 tonnes<br>Weight of bitumen = 20.25 tonnes<br>Weight of aggregate = 450-20.25 = 429.75 tonnes<br>Taking density of aggregate = 1.5 ton/cum<br>Volume of aggregate = 286.5 cum | | | | | |
| | | | 13.2 - 10 mm20 per cent | cum | 57.300 | 1580.00 | 90534.00 | M-044 |
| | | | 10 - 5 mm 38 per cent | cum | 108.870 | 1550.00 | 168748.50 | M-040 |
| | | | 5 mm and below 40 per cent | cum | 114.600 | 1300.00 | 148980.00 | M-030 |
| | | | Filler @ 2 per cent of weight of aggregates. | tonne | 8.620 | 15000.00 | 129300.00 | M-188 |
| | | | **or** | | | | | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **Grading II: 10 mm (Nominal Size)** | | | | | |
| | | | Bitumen@5 per cent of weight of mix | tonne | 22.500 | 57924.00 | 1303290.00 | M-074 |
| | | | weight of mix = 450 tonne | | | | | |
| | | | Aggregate | | | | | |
| | | | Total weight of mix = 450 tonnes | | | | | |
| | | | Weight of bitumen = 22.5 tonnes | | | | | |
| | | | Weight of aggregate = 450 -22.50 = 427.50 tonnes | | | | | |
| | | | Taking density of aggregate = 1.5 ton/cum | | | | | |
| | | | Volume of aggregate = 285 cum | | | | | |
| | | | 9.5 - 4.75 mm@ 57 per cent | cum | 162.450 | 1550.00 | 251797.50 | M-040 |
| | | | 4.75 and below@ 41 per cent | cum | 116.850 | 1300.00 | 151905.00 | M-030 |
| | | | Filler @ 2 per cent of weight of aggregates. | tonne | 8.620 | 15000.00 | 129300.00 | M-188 |
| | | | ***Any one of the alternative may be adopted as per approved design** | | | | | |
| | | (i) | **for Grading -I ( 13 mm nominal size )** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 382066.48 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 227723.75 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 250496.13 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 27549.95 | |
| | | | Cost for 205 cum = a+b+c+d+e+f+g | | | | 2783007.35 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/195 (For Grading I)** | | | | 14271.83 | |
| | | | | | | ***say*** | ***14272.00*** | |
| **5.7** | | (ii) | **for Grading-II(10 mm nominal size)** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 407421.51 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 242836.16 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 267119.77 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 29383.17 | |
| | | | Cost for 205 cum = a+b+c+d+e | | | | 2967700.65 | |
| | | | **Rate per cum = (a+b+c+d+e)/195 (For Grading-II)** | | | | 15218.98 | |
| | | | | | | ***say*** | ***15219.00*** | |
| | | **Note** | *1. Although the rollers are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 450 tonnes considered in this analysis. To cater for the idle period of these rollers, their usage rates have been multiplied by a factor of 0.65<br>2.Quantity of Bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.<br>3. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative overheads of the contractor.<br>4. In case SDBC is laid over freshly laid tack coat, provision of broom and 2 mazdoor shall be deleted as the same has been included in the cost of tack coat.<br>5. The quantity of Bitumen to be adjusted as per job mix formula. | | | | | |
| **5.8** | **509** | | **Bituminous Concrete** | | | | | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Providing and laying bituminous concrete with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.4 to 5.6 per cent 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 MORTH specification clause No. 509 complete in all respects | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 191 cum (450 tonnes)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mazdoor working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction | day | 16.000 | 424.00 | 6784.00 | L-13 |
| | | | Skilled mazdoor for checking line & levels | day | 5.000 | 508.00 | 2540.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Batch mix HMP @ 75 tonne per hour | hour | 6.000 | 20099.00 | 120594.00 | P&M-022 |
| | | | Paver finisher hydrostatic with sensor control @ 75 cum per hour | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Generator 250 KVA | hour | 6.000 | 1154.00 | 6924.00 | P&M-081 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Tipper 10 tonne capacity | tonne. km | 450 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | | | Smooth wheeled roller 8-10 tonnes for initial break down rolling. | hour | 6.00x0.65* | 783.00 | 3053.70 | P&M-044 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.00x0.65* | 969.00 | 3779.10 | P&M-059 |
| | | | Finish rolling with 6-8 tonnes smooth wheeled tandem roller. | hour | 6.00x0.65* | 1641.00 | 6399.90 | P&M-045 |
| | | | **c) Material** | | | | | |
| | | | i) Bitumen@ 5 per cent of weight of mix | tonne | 22.500 | 57924.00 | 1303290.00 | M-074 |
| | | | **ii) Aggregate** | | | | | |
| | | | Total weight of mix = 450 tonnes | | | | | |
| | | | Weight of bitumen = 22.5 tonnes | | | | | |
| | | | Weight of aggregate = 450 -22.50 = 427.50 tonnes | | | | | |
| | | | ***Taking density of aggregate = 1.5 ton/cum*** | | | | | |
| | | | Volume of aggregate = 285 cum | | | | | |
| | | | **Grading - I-19 mm (Nominal Size)** | | | | | |
| | | | 20 - 10 mm 35 per cent | cum | 99.750 | 1850.00 | 184537.50 | M-045 |
| | | | 10 - 5 mm 23 per cent | cum | 65.550 | 1550.00 | 101602.50 | M-040 |
| | | | 5 mm and below 40 per cent | cum | 114.000 | 1300.00 | 148200.00 | M-030 |
| | | | Filler @ 2 per cent of weight of aggregates. | tonne | 8.620 | 15000.00 | 129300.00 | M-188 |
| | | | **or** | | | | | |
| | | | **Grading - II-13 mm (Nominal Size)** | | | | | |
| | | | 13.2 - 10 mm30 per cent | cum | 85.500 | 1580.00 | 135090.00 | M-044 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | 10 - 5 mm 25 per cent | cum | 71.250 | 1550.00 | 110437.50 | M-040 |
| | | | 5 mm and below43 per cent | cum | 122.550 | 1300.00 | 159315.00 | M-030 |
| | | | Filler @ 2 per cent of weight of aggregates. | tonne | 8.620 | 15000.00 | 129300.00 | M-188 |

***Any one of the alternative may be adopted as per approved design**

**(i) for Grading-I ( 13 mm nominal size )**

| | | |
|---|---|---|
| **d)** | **GST (multiplying factor 0.2016) on (a+b+c)** | 413598.03 |
| **e)** | **Overhead charges @ 10 % on (a+b+c+d)** | 246517.56 |
| **f)** | **Contractor's profit @ 10 % on (a+b+c+d+e)** | 271169.31 |
| **g)** | **Cess @ 1% on (a+b+c+d+e+f)** | 29828.62 |
| | Cost for 205 cum = a+b+c+d+e+f+g | 3012691.06 |
| | **Rate per cum = (a+b+c+d+e+f+g)/191 (For Grading I)** | 15773.25 |
| | | ***say*** ***15773.00*** |

**5.8 (ii) for Grading-II(10 mm nominal size)**

| | | |
|---|---|---|
| **d)** | **GST (multiplying factor 0.2016) on (a+b+c)** | 407651.34 |
| **e)** | **Overhead charges @ 10 % on (a+b+c+d)** | 242973.14 |
| **f)** | **Contractor's profit @ 10 % on (a+b+c+d+e)** | 267270.45 |
| **g)** | **Cess @ 1% on (a+b+c+d+e+f)** | 28044.22 |
| | Cost for 205 cum = a+b+c+d+e+f+g | 2968019.19 |
| | **Rate per cum = (a+b+c+d+e+f+g)/191 (For Grading-II)** | 15539.37 |
| | | ***say*** ***15539.00*** |

**Note** *1. Although the rollers are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 450 tonnes considered in this analysis. To cater for the idle period of these rollers, their usage rates have been multiplied by a factor of 0.65

2.Quantity of Bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.

3. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative overheads of the contractor.

4. 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.

5. The individual density for each size of aggregates to be used for construction i.e. 37.5-25 mm, 25-10 mm etc. should be found in the laboratory and accordingly the quantities should be ammended for use in field. The average density of 1.5 tonne/cum is only a reference density in this Data Book.

6. 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 per cent by weight of dry aggregates.

**5.9** 510 **Surface Dressing**

Providing and laying surface dressing as wearing course in 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 = 9000 sqm***

**Case -1 :-19 mm nominal chipping size**

**a) Labour**

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Mate | day | 0.440 | 551.00 | 242.44 | L-12 |
| | | | Mazdoor | day | 9.000 | 424.00 | 3816.00 | L-13 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Mechanical broom @ 1250 sqm per hour | hour | 7.200 | 473.00 | 3405.60 | P&M-031 |
| | | | Air compressor 250 cfm | hour | 7.200 | 658.00 | 4737.60 | P&M-001 |
| | | | Hydraulic self propelled chip spreader @ 1500 sqm per hour | hour | 6.000 | 3640.00 | 21840.00 | P&M-025 |
| | | | Tipper 10 tonne capacity for carriage of stone chips from stockpile on road side to chip spreader | hour | 6.000 | 916.00 | 5496.00 | P&M-048 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Bitumen pressure distributor | hour | 6.000 | 1509.00 | 9054.00 | P&M-004 |
| | | | Smooth wheeled roller 8-10 tonne weight | hour | 6.000 | 783.00 | 4698.00 | P&M-044 |
| | | | **c) Material** | | | | | |
| | | | Bitumen@ 1.20 kg per sqm | tonne | 10.800 | 57924.00 | 625579.20 | M-074 |
| | | | Crushed stone chipping,19 mm nominal size @ 0.015 cum per sqm | cum | 135.000 | 1900.00 | 256500.00 | M-053 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 190998.43 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 113841.13 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 125225.24 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 13772.35 | |
| | | | Cost for 9000 sqm = a+b+c+d+e+f+g | | | | 1391249.99 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/9000** | | | | 154.58 | |
| | | | | | | ***say*** | ***155.00*** | |
| **5.9** | | **Case - II** | **13 mm nominal size chipping** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.440 | 551.00 | 242.44 | L-12 |
| | | | Mazdoor | day | 9.000 | 424.00 | 3816.00 | L-13 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Mechanical broom @ 1250 sqm per hour | hour | 7.200 | 473.00 | 3405.60 | P&M-031 |
| | | | Air compressor 250 cfm | hour | 7.200 | 658.00 | 4737.60 | P&M-001 |
| | | | Hydraulic self propelled chip spreader @ 1500 sqm per hour | hour | 6.000 | 3640.00 | 21840.00 | P&M-025 |
| | | | Tipper 10 tonne capacity for carriage of stone chips from stockpile on road side to chip spreader | hour | 6.000 | 916.00 | 5496.00 | P&M-048 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Bitumen pressure distributor @ 1750 sqm per hour | hour | 6.000 | 1509.00 | 9054.00 | P&M-004 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.000 | 969.00 | 5814.00 | P&M-059 |
| | | | **c) Material** | | | | | |
| | | | Bitumen@ 1.00 kg per sqm | tonne | 9.000 | 57924.00 | 521316.00 | M-074 |
| | | | Crushed stone chipping,13 mm nominal size @ 0.01 cum per sqm | cum | 90.000 | 1820.00 | 163800.00 | M-052 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 151515.63 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 90308.13 | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 99338.94 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 10927.28 | |
| | | | Cost for 9000 sqm = a+b+c+d+e+f+g | | | | 1103655.62 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/9000** | | | | 122.63 | |
| | | | | | | ***say*** | ***123.00*** | |
| | | **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 pre-coated as per clause 510.2.5<br><br>2.Input for the second coat, where required, will be the same as per the lst coat mentioned above | | | | | |
| **5.10** | **511** | | **Open - Graded Premix Surfacing**<br>Providing, laying and rolling of open - graded premix surfacing of 20 mm thickness composed of 13.2 mm to 5.6 mm aggregates either using penetration grade bitumen or cut-back or emulsion to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a smooth wheeled roller 8-10 tonne capacity, finished to required level and grades.<br>***Unit = sqm***<br>***Taking output = 10250 sqm (205 cum)*** | | | | | |
| | | **(i)** | **Case - I: Mechanical method using Penetration grade Bitumen and HMP of appropriate capacity not less than 75 tonnes/hour .** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mazdoor working with HMP, road sweeper, paver and roller | day | 16.000 | 424.00 | 6784.00 | L-13 |
| | | | Skilled mazdoor for checking line & levels | day | 5.000 | 508.00 | 2540.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | i) Batch type HMP 75 tonne per hour | hour | 6.000 | 20099.00 | 120594.00 | P&M-023 |
| | | | ii) Electric Generator Set 250 KVA | hour | 6.000 | 1154.00 | 6924.00 | P&M-081 |
| | | | iii) Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | iv) Tipper 10 tonne capacity | tonne. km | 450 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | | | v) Paver finisher hydrostatic with sensor attachment | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | iv) Smooth wheeled /tandem roller 8-10 tonnes weight | hour | 6.000 | 1641.00 | 9846.00 | P&M-045 |
| | | | **c) Material** | | | | | |
| | | | Bitumen@ 14.60 kg per 10 sqm | tonne | 14.970 | 57924.00 | 867122.28 | M-074 |
| | | | Crushed stone chipping,13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm | cum | 276.750 | 1600.00 | 442800.00 | M-043 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 300622.52 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 179180.56 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 197098.62 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 21680.85 | |
| | | | Cost for 10250 sqm = a+b+c+d+e | | | | 2189765.67 | |
| | | | **Rate per sqm = (a+b+c+d+e)/10250** | | | | 213.64 | |
| | | | | | | ***say*** | ***214.00*** | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|

**Note** If a premix sand seal coat of 'B' type is proposed, the same is required to be provided over the open graded premix carpet immediately on the same day. As the same HMP and other machines will be used for laying of premix sand seal coat, out of 6 effective working hours, 4.00 hours may be utilised for laying of premix carpet and balance 2.00 hours for the seal coat. The rate for the premix sand seal coat under clause 513 (case II) has been worked out accordingly by utilising the HMP for 2.00 hours for the purpose of seal coat. In case type 'A' seal coat is proposed, HMP can be worked for six hours for the premix carpet as type 'A' seal coat does not require the use of HMP.

**5.10** **(ii)** **Case - II: Open-Graded Premix Surfacing using cationic Bitumen Emulsion**

***Unit = sqm***

***Taking output = 900 sqm (24.3 cum)***

| | | | | | | |
|---|---|---|---|---|---|---|
| **a)** | **Labour** | | | | | |
| | Mate | day | 0.800 | 551.00 | 440.80 | L-12 |
| | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| **b)** | **Machinery** | | | | | |
| | Concrete mixer 0.4/0.28 cum capacity | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | Smooth wheeled steel roller 8-10 tonne | hour | 6.000 | 783.00 | 4698.00 | P&M-044 |
| **c)** | **Material** | | | | | |
| | Cationic Bitumen Emulsion @ 21.50 kg per 10 sqm | tonne | 1.940 | 55000.00 | 106700.00 | M-073 |
| | Crushed stone aggregates 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm | cum | 24.300 | 1600.00 | 38880.00 | M-043 |
| **d)** | **GST (multiplying factor 0.2016) on (a+b+c)** | | | | 32480.34 | |
| **e)** | **Overhead charges @ 10 % on (a+b+c+d)** | | | | 19359.31 | |
| **f)** | **Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 21295.25 | |
| **g)** | **Cess @ 1% on (a+b+c+d+e+f)** | | | | 2342.48 | |
| Cost for 900 sqm = a+b+c+d+e+f+g | | | | | 236590.18 | |
| **Rate per sqm = (a+b+c+d+e+f+g)/900** | | | | | 262.88 | |
| | | | | ***say*** | ***263.00*** | |

**5.11** **512** **Close Graded Premix Surfacing/Mixed Seal Surfacing**

**Case I** Mechanical means using HMP of appropriate capacity not less than 75 tonnes/hour.

Providing, laying and rolling of close-graded premix surfacing material of 20 mm thickness composed of 11.2 mm to 0.09 mm (Type-a) or 13.2 mm to 0.09 mm (Type-b) aggregates using penetration grade bitumen to the required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a Smooth wheeled roller 8-10 tonne capacity, and finishing to required level and grade.

***Unit = sqm***

***Taking output = 10250 sqm (205 cum)***

| | | | | | | |
|---|---|---|---|---|---|---|
| **a)** | **Labour** | | | | | |
| | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | Mazdoor working with HMP, road sweeper, paver and roller | day | 16.000 | 424.00 | 6784.00 | L-13 |
| | Skilled mazdoor for checking line & levels | day | 5.000 | 508.00 | 2540.00 | L-15 |
| **b)** | **Machinery** | | | | | |
| | i) HMP of appropicate capacity. | hour | 6.000 | 32730.00 | 196380.00 | P&M-021 |
| | ii) Electric Generator Set 250 KVA | hour | 6.000 | 1154.00 | 6924.00 | P&M-081 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | iii) Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | iv) Tipper 10 tonne capacity | tonne. km | 450 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | | | v) Paver finisher hydrostatic with sensor attachment | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | iv) Smooth wheeled8-10 tonnes weight | hour | 6.000 | 783.00 | 4698.00 | P&M-044 |
| | | | **c) Material** | | | | | |
| | | | **Type - A** | | | | | |
| | | | * Bitumen@ 22 kg per 10 sqm | tonne | 22.500 | 57924.00 | 1303290.00 | M-074 |
| | | | Stone crushed aggregates 11.2 mm to 0.09 @ 0.27 cum per 10 sqm | cum | 276.750 | 1500.00 | 415125.00 | M-041 |
| | | | **or** | | | | | |
| | | | **Type - B** | | | | | |
| | | | Bitumen @ 19 kg per 10 sqm | tonne | 19.480 | 57924.00 | 1128359.52 | M-074 |
| | | | Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm | cum | 276.750 | 1200.00 | 332100.00 | M-042 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 397215.27 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 236752.91 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 260428.20 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 28642.47 | |
| | | | Cost for 10250 sqm = a+b+c+d+e+f+g | | | | 2893352.69 | |
| | | | **Rate per sqm =(a+b+c+d+e+f+g)/10250** | | | | 282.28 | |
| | | | | | | ***say*** | ***282.00*** | |
| | | | * Any one of the alternative may be adopted | | | | | |
| **5.12** | **513** | | **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 | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 10250 sqm (92.25 cum)*** | | | | | |
| | | (i) | **Case - I : Type A** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.240 | 551.00 | 132.24 | L-12 |
| | | | Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic self propelled chip spreader | hour | 6.000 | 3640.00 | 21840.00 | P&M-025 |
| | | | Tipper 5.5 cum capacity | hour | 6.000 | 916.00 | 5496.00 | P&M-048 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Bitumen pressure distributor @ 1750 sqm per hour | hour | 6.000 | 1509.00 | 9054.00 | P&M-004 |
| | | | Smooth wheeled roller 8 -10 tonne weight | hour | 6.000 | 783.00 | 4698.00 | P&M-044 |
| | | | **c) Material** | | | | | |
| | | | Bitumen@ 9.80 kg per 10 sqm | tonne | 10.050 | 57924.00 | 582136.20 | M-074 |
| | | | Crushed stone chipping of 6.7 mm size defined as 100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm | cum | 92.250 | 1300.00 | 119925.00 | M-050 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 152581.65 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 90943.51 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 100037.86 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 11004.16 | |
| | | | Cost for 10250 sqm = a+b+c+d+e+f+g | | | | 1111420.62 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/10250** | | | | 108.43 | |
| | | | | | | ***say*** | ***108.00*** | |

**Note** Since seal coat is provided immediately over the bituminous layers, mechanical broom for clearing has not been catered.

**5.12** **(ii)** **Case - II : Type B**

Providing and laying of premix sand seal coat with HMP of appropriate capacity not less than 75 tonnes/ hours using crushed stone chipping 6.7 mm size and penetration bitumen of suitable grade.

***Unit = sqm***

***Taking output = 7858 sqm (47.16 cum)***

| | | | | | | |
|---|---|---|---|---|---|---|
| **a)** | **Labour** | | | | | |
| | Mate | day | 0.160 | 551.00 | 88.16 | L-12 |
| | Mazdoor | day | 4.000 | 424.00 | 1696.00 | L-13 |
| **b)** | **Machinery** | | | | | |
| | HMP of 75 tonnes/hour. | hour | 2.000 | 20099.00 | 40198.00 | P&M-023 |
| | Electric Generator Set 250 KVA | hour | 2.000 | 1154.00 | 2308.00 | P&M-081 |
| | Front end loader 1 cum bucket capacity | hour | 2.000 | 1838.00 | 3676.00 | P&M-017 |
| | Tipper 10 tonne capacity | tonne. km | 104 x 'L' | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | Paver finisher hydrostatic with sensor attachment | hour | 2.000 | 3847.00 | 7694.00 | P&M-034 |
| | Smooth wheeled 8-10 tonnes capacity | hour | 2.000 | 783.00 | 1566.00 | P&M-044 |
| **c)** | **Material** | | | | | |
| | Bitumen@ 6.80 kg per 10 sqm | tonne | 5.340 | 57924.00 | 309314.16 | M-074 |
| | Crushed stone chipping of 6.7 mm size defined as passing 11.2 mm sieve and retained on 2.36 mm sieve applied @ 0.06 cum per 10 sqm | cum | 47.160 | 1300.00 | 61308.00 | M-050 |
| | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 86254.22 | |
| | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 51410.25 | |
| | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 56551.28 | |
| | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 6220.64 | |
| | Cost for 7858 sqm = a+b+c+d+e+f+g | | | | 628284.71 | |
| | **Rate per sqm = (a+b+c+d+e+f+g)/7858** | | | | 79.95 | |
| | | | | ***say*** | ***80.00*** | |

**Note** Since seal coat is required to be provided over the premix carpet on the same day, out of the 6 working hours of the HMP, 4.00 hours are proposed to be utilised for the premix carpet and the balance 2.00 hours for the seal coat. Hence 2.00 hours have been considered for this case. This may be linked to rate analysis worked out under clause 511.

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| 5.14 | 515 | | **Mastic Asphalt**<br>Providing and laying 25 mm thick mastic asphalt wearing course with paving grade bitumen meeting the requirements given in table 500-29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated finegrained hard stone chipping of 13.2 mm nominal size at the rate of 0.005cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces is not less than 1000C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515.<br>***Unit = sqm***<br>***Taking output = 35.00 sqm (0.87 cum ) assuming a density of 2.3 tonnes/cum.-2 tonnes*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.440 | 551.00 | 242.44 | L-12 |
| | | | Mazdoor | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | Mazdoor skilled | day | 1.000 | 508.00 | 508.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Mechanical broom @ 1250 sqm per hour | hour | 0.060 | 473.00 | 28.38 | P&M-031 |
| | | | Air compressor 250 cfm | hour | 0.060 | 658.00 | 39.48 | P&M-001 |
| | | | Mastic cooker 1 tonne capacity | hour | 6.000 | 135.00 | 810.00 | P&M-030 |
| | | | Bitumen boiler 1500 litres | hour | 6.000 | 348.00 | 2088.00 | P&M-005 |
| | | | Tractor for towing and positioning of mastic cooker and bitumen boiler | hour | 1.000 | 530.00 | 530.00 | P&M-053 |
| | | | **c) Material**<br>Base mastic (without coarse aggregates) = 60 per cent<br>Coarse aggregate (6.3mm to 13.2 mm) = 40 per cent .<br>Proportion of material required for mastic asphalt with coarse aggregates (based on mix design done for a specific case) | | | | | |
| | | | I) Bitumen 85/25 or 30/40 @ 10.2 per cent by weight of mix. 2 x 10.2/100 = 0.204 | tonne | 0.200 | 57924.00 | 11584.80 | M-074 |
| | | | ii) Fine aggregate passing 2.36mm and retained on 0.075mm sieve @ 31.9 per cent by weight of mix = 2 x 31.9/100 = 0.638 tonnes = 0.638/1.625 = 0.39 | cum | 0.390 | 700.00 | 273.00 | M-021 |
| | | | iii) Lime stone dust filler with calcium content not less than 80 per cent by weight @ 17.92 per cent by weight of mix = 2 x 17.92/100 = 0.36 | tonne | 0.360 | 15000.00 | 5400.00 | M-188 |
| | | | iv) Coarse aggregates 6.3 mm to 13.2 mm @ 40 per cent by weight of mix = 2 x 40/100 = 0.8 MT = 0.8/1.456 = 0.55 | cum | 0.550 | 1600.00 | 880.00 | M-043 |
| | | | v) Pre-coated stone chips of 13.2 mm nominal size for skid resistance = 35 x 0.005/10 = 0.018 | cum | 0.020 | 2107.00 | 42.14 | M-142 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | vi) Bitumen for coating of chips @ 2 per cent by weight = 0.018 x 1.456 x 2/100 = 0.0005 MT = 0.5kg | kg | 0.500 | 58.00 | 29.00 | M-074 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 5381.76 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 3207.70 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 3528.47 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 388.13 | |
| | | | Cost for 35.00 sqm = a+b+c+d+e+f+g | | | | 39201.30 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/35** | | | | 1120.04 | |
| | | | | | | ***say*** | ***1120.00*** | |

**Note**
1.The rates for 50 mm & 40 mm 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 for a specific case and is meant for estimating purposes only. Actual design is required to be done for each case.

**5.15** 516 **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) 5 mm thickness**

***Unit = sqm***

***Taking output = 16000 sqm (80 cum)***

***Taking density of 2.2 tonnes per cum***

weight of mix = 176 tonnes

| | | | | | | |
|---|---|---|---|---|---|---|
| **a) Labour** | | | | | | |
| Mate | day | 0.240 | 551.00 | 132.24 | L-12 | |
| Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 | |
| **b) Machinery** | | | | | | |
| Mechanical broom | hour | 6.000 | 473.00 | 2838.00 | P&M-031 | |
| Air compressor 250 cfm | hour | 6.000 | 658.00 | 3948.00 | P&M-001 | |
| Mobile slurry seal equipment | hour | 6.000 | 1328.00 | 7968.00 | P&M-033 | |
| Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 | |
| Tipper 5.5 cum capacity for carriage of aggregate from stockpile on road side to slurry equipment, bitumen emulsion and filler. | hour | 6.000 | 916.00 | 5496.00 | P&M-048 | |
| Pneumatic tyred roller with individual wheel load not exceeding 1.5 tonnes | hour | 6.000 | 1708.00 | 10248.00 | P&M-037 | |
| Water tanker6 KL capacity | hour | 2.000 | 724.00 | 1448.00 | P&M-060 | |
| **c) Material** | | | | | | |
| Residual Binder @ 11 per cent of mix 80 x 2.2 x 0.11 | tonne | 19.360 | 55000.00 | 1064800.00 | M-077 | |
| Fine aggregate 4.75 mm and below 87 per cent of total mix,80 x 2.2 x 0.87 = 153.12 tonnes. Taking density1.5, = 153.12/1.5 = 102.08 cum | cum | 102.080 | 1300.00 | 132704.00 | M-030 | |
| Filler @ 2 per cent of total mix = 80 x 2.2 x 0.02 | tonne | 3.520 | 15000.00 | 52800.00 | M-188 | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Cost of water | KL | 12.000 | 71.00 | 852.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 261436.14 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 155824.24 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 171406.66 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 18854.73 | |
| | | | Cost for 16000 sqm = a+b+c+d+e | | | | 1904328.01 | |
| | | | **Rate per sqm = (a+b+c+d+e)/16000** | | | | 119.02 | |
| | | | | | | ***say*** | ***119.00*** | |
| **5.15** | | **(ii)** | **3 mm thickness** | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 20000 sqm (60 cum)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.200 | 551.00 | 110.20 | L-12 |
| | | | Mazdoor | day | 5.000 | 424.00 | 2120.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Mechanical broom | hour | 6.000 | 473.00 | 2838.00 | P&M-031 |
| | | | Air compressor 250 cfm | hour | 6.000 | 658.00 | 3948.00 | P&M-001 |
| | | | Mobile slurry seal equipment | hour | 6.000 | 1328.00 | 7968.00 | P&M-033 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Tipper 5.5 cum capacity for carriage of aggregate from stockpile on road side to slurry equipment, bitumen emulsion and filler | hour | 6.000 | 916.00 | 5496.00 | P&M-048 |
| | | | Water tanker6 KL capacity | hour | 2.000 | 724.00 | 1448.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Residual Binder @ 13 per cent of mix = 60 x 2.2 x 0.13 | tonne | 17.160 | 55000.00 | 943800.00 | M-077 |
| | | | Fine aggregate 3 mm and below 85 per cent of total mix, 60x 2.2 x 0.85 = 112.2 tonnes. Taking density 1.5, | cum | 74.800 | 700.00 | 52360.00 | M-022 |
| | | | Filler @ 2 per cent of total mix = 60x 2.2 x 0.02 | tonne | 2.640 | 15000.00 | 39600.00 | M-188 |
| | | | Cost of water | KL | 12.000 | 71.00 | 852.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 216028.15 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 128759.64 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 141635.60 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 15579.92 | |
| | | | Cost for 30000 sqm = a+b+c+d+e+f+g | | | | 1573571.51 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/20000** | | | | 78.68 | |
| | | | | | | ***say*** | ***79.00*** | |
| **5.15** | | **(iii)** | **1.5 mm thickness** | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 24000 sqm (36 cum)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.200 | 551.00 | 110.20 | L-12 |
| | | | Mazdoor | day | 5.000 | 424.00 | 2120.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Mechanical broom | hour | 6.000 | 473.00 | 2838.00 | P&M-031 |
| | | | Air compressor 250 cfm | hour | 6.000 | 658.00 | 3948.00 | P&M-001 |
| | | | Mobile slurry seal equipment | hour | 6.000 | 1328.00 | 7968.00 | P&M-033 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Tipper 5.5 cum capacity for carriage of aggregate from stockpile on road side to slurry equipment, bitumen emulsion and filler. | hour | 6.000 | 916.00 | 5496.00 | P&M-048 |
| | | | Water tanker6 KL capacity | hour | 2.000 | 724.00 | 1448.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Residual Binder @ 16 per cent of mix, 36 x 2.2 x 0.16 | tonne | 12.670 | 55000.00 | 696850.00 | M-077 |
| | | | Fine aggregate 2.36 mm and below,82 per cent of total mix,36x 2.2 x 0.82 = 64.94 tonnes. Taking density 1.5 | cum | 43.300 | 700.00 | 30310.00 | M-022 |
| | | | Filler @ 2 per cent of total mix = 36x 2.2 x 0.02 | tonne | 1.580 | 15000.00 | 23700.00 | M-188 |
| | | | Cost of water | KL | 12.000 | 71.00 | 852.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 158592.31 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 94526.05 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 103978.66 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 11437.65 | |
| | | | Cost for 24000 sqm = a+b+c+d+e+f+g | | | | 1155202.87 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/24000** | | | | 48.13 | |
| | | | | | | ***say*** | ***48.00*** | |
| | | **Note** | 1.Tack coat, if required to be provided, before laying slurry seal may be measured and paid separately | | | | | |
| **5.17** | **518** | | **Fog Spray** | | | | | |
| | | | Providing and applying low viscosity bitumen emulsion for sealing cracks less than 3 mm wide or incipient fretting or disintegration in an existing bituminous surfacing. | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 10500 sqm*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.120 | 551.00 | 66.12 | L-12 |
| | | | Mazdoor | day | 3.000 | 424.00 | 1272.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Mechanical broom @ 1250 sqm per hour | hour | 6.000 | 473.00 | 2838.00 | P&M-031 |
| | | | Air compressor 250 cfm | hour | 6.000 | 658.00 | 3948.00 | P&M-001 |
| | | | Bitumen emulsion pressure distributor @ 1750 sqm per hour | tonne | 6.000 | 1509.00 | 9054.00 | P&M-004 |
| | | | **c) Material** | | | | | |
| | | | Bitumen emulsion @ 0.75 kg per sqm | tonne | 7.880 | 55000.00 | 433400.00 | M-077 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 90836.55 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 54141.47 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 59555.61 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 6551.12 | |
| | | | Cost for 10500 sqm = a+b+c+d+e+f+g | | | | 661662.87 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/10500** | | | | 63.02 | |
| | | | | | | ***say*** | ***63.00*** | |
| | | | 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 | 551.00 | 88.16 | L-12 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Mazdoor for precoating of grit | day | 4.000 | 424.00 | 1696.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Crushed stone grit 3 mm size @ 3.75 kg per sqm | cum | 26.250 | 780.00 | 20475.00 | M-024 |
| | | | Bitumen emulsion for precoating grit @ 2 per cent of grit,39.38 x 0.02 | tonne | 0.790 | 55000.00 | 43450.00 | M-077 |
| | | | | | | | 65709.16 | |
| | | | | | | | 6.26 | |
| | | | | | | *say* | ***6.00*** | |
| **5.18** | **519** | | **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 output = 205 cum (450 tonne)*** | | | | | |
| | | (i) | **Using bitumen emulsion and 9.5 mm or 13.2 mm size aggregate** | | | | | |
| | | | **Composition of mix** (450 tonne) is assumed to be as under:- | | | | | |
| | | | Bitumen Emulsion 8 per cent | By weight of total mix | | | | |
| | | | Filler2 per cent | | | | | |
| | | | Total aggregates 90 per cent | | | | | |
| | | | **Proportion of aggregates** | | | | | |
| | | | 19 mm to 9.5 mm25 per cent | | | | | |
| | | | 9.5 mm to 6 mm29 per cent | | | | | |
| | | | 6 mm to 0.075 mm 36 per cent | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mazdoor | day | 16.000 | 424.00 | 6784.00 | L-13 |
| | | | Mazdoor skilled | day | 5.000 | 508.00 | 2540.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Drum mix plant for cold mixes of appropriate capacity but not less than 75 tonnes/hour. | hour | 6.000 | 449.00 | 2694.00 | P&M-077 |
| | | | Electric generator 125 KVA | hour | 6.000 | 1135.00 | 6810.00 | P&M-018 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Tipper 10 tonne capacity | tonne. km | 450 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | | | Paver finisher | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Pneumatic tyred roller 12-15 tonnes | hour | 6.00x0.65* | 1708.00 | 6661.20 | P&M-037 |
| | | | Smooth wheeled steel tandem roller 6-8 tonnes | hour | 6.00x0.65* | 1641.00 | 6399.90 | P&M-045 |
| | | | **c) Material** | | | | | |
| | | | Bitumen emulsion @ 8 per cent | tonne | 36.000 | 55000.00 | 1980000.00 | M-077 |
| | | | Filler (lime)@ 2 per cent | tonne | 9.000 | 15000.00 | 135000.00 | M-188 |
| | | | Aggregates size 19 to 9.5 mm - 450 x 0.25 x 1/1.5 | cum | 75.000 | 1850.00 | 138750.00 | M-045 |
| | | | Aggregates size 9.5 to 6 mm - 450 x 0.29 x 1/1.5 | cum | 87.000 | 1550.00 | 134850.00 | M-040 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Aggregates size 6 to 0.075 mm - 450 x 0.36 x 1/1.5 | cum | 108.000 | 1300.00 | 140400.00 | M-030 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 523245.13 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 311870.71 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 343057.78 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 37736.36 | |
| | | | Cost for 205 cum = a+b+c+d+e+f+g | | | | 3811371.92 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/205** | | | | 18592.06 | |
| | | | | | | ***say*** | ***18592.00*** | |
| | | | **(Applicable to cases I to IV)** | | | | | |
| | | | **Note** 1.Density of aggregates has been assumed 1.5 gms/cc | | | | | |
| | | | 2. Tack coat where provided will be measured and paid separately. | | | | | |
| | | | *3. Though the rollers are required only for 3.5 hours each as per norms of output, but these are required to be available at site for 6 hours as the drum mix plant and the paver would take 6 hours for mixing and paving. To cater for the idle period, their usage rates have been multiplied by a factor of 0.65 | | | | | |
| **5.18** | | **(ii)** | **Using bitumen emulsion and 19 mm or 26.5 mm nominal size aggregate** | | | | | |
| | | | **Composition of mix** (450 tonne) is assumed to be as under:- | | | | | |
| | | | Bitumen Emulsion 8 per cent | | | | | |
| | | | Filler2 per cent | | | | | |
| | | | Total aggregates 90 per cent | | | | | |
| | | | **Proportion of aggregates** | | | | | |
| | | | 37.5 mm to 19 mm25 per cent | | | | | |
| | | | 19 mm to 6 mm 30 per cent | | | | | |
| | | | 6 mm to 0.075 mm 35 per cent | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mazdoor | day | 16.000 | 424.00 | 6784.00 | L-13 |
| | | | Mazdoor skilled | day | 5.000 | 508.00 | 2540.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Drum mix plant for cold mixes 60-90 tonne per hour producing average output of 75 tonnes per hour | hour | 6.000 | 449.00 | 2694.00 | P&M-077 |
| | | | Electric generator 125 KVA | hour | 6.000 | 1135.00 | 6810.00 | P&M-018 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Tipper 10 tonne capacity | tonne. km | 450 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | | | Paver finisher | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Pneumatic tyred roller 12-15 tonnes | hour | 6.00x0.65* | 1708.00 | 6661.20 | P&M-037 |
| | | | Smooth wheeled steel tandom roller 6-8 tonnes | hour | 6.00x0.65* | 1641.00 | 6399.90 | P&M-045 |
| | | | **c) Material** | | | | | |
| | | | Bitumen emulsion @ 8 per cent | tonne | 36.000 | 55000.00 | 1980000.00 | M-077 |
| | | | Filler (lime)@ 2 per cent | tonne | 9.000 | 15000.00 | 135000.00 | M-188 |
| | | | Aggregates size 37.5 to 19 mm - 450 x 0.25 x 1/1.5 | cum | 75.000 | 1900.00 | 142500.00 | M-048 |
| | | | Aggregates size 19 to 6 mm - 450 x 0.3 x 1/1.5 | cum | 90.000 | 1600.00 | 144000.00 | M-047 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Aggregates size 6 to 0.075 mm - 450 x 0.35 x 1/1.5 | cum | 105.000 | 1300.00 | 136500.00 | M-030 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 525059.53 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 312952.15 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 344247.36 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 37867.21 | |
| | | | Cost for 205 cum = a+b+c+d+e+f+g | | | | 3824588.19 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/205** | | | | 18656.53 | |
| | | | | | | ***say*** | ***18657.00*** | |

**Note** 1.Density of aggregates has been assumed 1.5 gms/cc

2. Tack coat where provided will be measured and paid separately.

*3. Though the rollers are required only for 3.5 hours each as per norms of output, but these are required to be available at site for 6 hours as the drum mix plant and the paver would take 6 hours for mixing and paving. To cater for the idle period, their usage rates have been multiplied by a factor of 0.65

**5.18 (iii) Using cutback bitumen and 9.5 mm or 13.2 mm nominal size aggregate**

**Composition of mix** (450 tonne) is assumed to be as under:-

Cutback bitumen 5 per cent
Filler (lime) 2 per cent
Total aggregates 93 per cent

**Proportion of aggregates**

19 mm to 9.5 mm26 per cent
9.5 mm to 6 mm31 per cent
6 mm to 0.075 mm 36 per cent

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | **a) Labour** | | | | | |
| | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | Mazdoor | day | 16.000 | 424.00 | 6784.00 | L-13 |
| | | Mazdoor skilled | day | 5.000 | 508.00 | 2540.00 | L-15 |
| | | **b) Machinery** | | | | | |
| | | Drum mix plant for cold mixes 60-90 tonne per hour producing average output of 75 tonnes per hour | hour | 6.000 | 449.00 | 2694.00 | P&M-077 |
| | | Electric generator 125 KVA | hour | 6.000 | 1135.00 | 6810.00 | P&M-018 |
| | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | Tipper 10 tonne capacity | tonne. km | 450 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | | Paver finisher | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | Pneumatic tyred roller 12-15 tonnes | hour | 6.00x0.65* | 1708.00 | 6661.20 | P&M-037 |
| | | Smooth wheeled steel tandem roller 6-8 tonnes | hour | 6.00x0.65* | 1641.00 | 6399.90 | P&M-045 |
| | | **c) Material** | | | | | |
| | | Cutback bitumen @ 5 per cent | tonne | 22.500 | 63348.00 | 1425330.00 | M-076 |
| | | Filler (lime)@ 2 per cent | tonne | 9.000 | 15000.00 | 135000.00 | M-188 |
| | | Aggregates size 19 to 9.5 mm - 450 x 0.26 x 1/1.5 | cum | 78.000 | 1850.00 | 144300.00 | M-045 |
| | | Aggregates size 9.5 to 6 mm - 450 x 0..31 x 1/1.5 | cum | 93.000 | 1550.00 | 144150.00 | M-040 |
| | | Aggregates size 6 to 0.075 mm - 450 x 0.36 x 1/1.5 | cum | 108.000 | 1300.00 | 140400.00 | M-030 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 414417.42 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 247005.94 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 271706.53 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 29887.72 | |
| | | | Cost for 205 cum = a+b+c+d+e+f+g | | | | 3018659.55 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/205** | | | | 14725.17 | |
| | | | | | | ***say*** | ***14725.00*** | |

**Note** 1.Density of aggregates has been assumed 1.5 gms/cc

2. Tack coat where provided will be measured and paid separately.

*3. Though the rollers are required only for 3.5 hours each as per norms of output, but these are required to be available at site for 6 hours as the drum mix plant and the paver would take 6 hours for mixing and paving. To cater for the idle period, their usage rates have been multiplied by a factor of 0.65

**5.18 (iv) Using cutback bitumen and 19 mm or 26.5 mm nominal size aggregate**

**Composition of mix** (450 tonne) is assumed to be as under:-

Cutback bitumen 5 per cent
Filler2 per cent
Total aggregates 93 per cent
**Proportion of aggregates**
37.5 mm to 19 mm25 per cent
19 mm to 6 mm 30 per cent
6 mm to 0.075 mm 38 per cent

| | | | | | | |
|---|---|---|---|---|---|---|
| **a) Labour** | | | | | | |
| Mate | day | 0.840 | 551.00 | 462.84 | L-12 | |
| Mazdoor | day | 16.000 | 424.00 | 6784.00 | L-13 | |
| Mazdoor skilled | day | 5.000 | 508.00 | 2540.00 | L-15 | |
| **b) Machinery** | | | | | | |
| Drum mix plant for cold mixes 60-90 tonne per hour producing output of 75 tonnes per hour | hour | 6.000 | 449.00 | 2694.00 | P&M-077 | |
| Electric generator 125 KVA | hour | 6.000 | 1135.00 | 6810.00 | P&M-018 | |
| Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 | |
| Tipper 10 tonne capacity | tonne. km | 450 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 | |
| Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | | |
| Paver finisher | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 | |
| Pneumatic tyred roller 12-15 tonnes. | hour | 6.00x0.65* | 1708.00 | 6661.20 | P&M-037 | |
| Smooth wheeled steel tandem roller 6-8 tonnes | hour | 6.00x0.65* | 1641.00 | 6399.90 | P&M-045 | |
| **c) Material** | | | | | | |
| Cutback bitumen on @ 5 per cent | tonne | 22.500 | 63348.00 | 1425330.00 | M-076 | |
| Filler (lime)@ 2 per cent | tonne | 9.000 | 15000.00 | 135000.00 | M-188 | |
| Aggregates size 37.5 to 19 mm - 450 x 0.25 x 1/1.5 | cum | 75.000 | 1900.00 | 142500.00 | M-048 | |
| Aggregates size 19 to 6 mm - 450 x 0.3 x 1/1.5 | cum | 90.000 | 1600.00 | 144000.00 | M-047 | |
| Aggregates size 6 to 0.075 mm - 450 x0.38 x 1/1.5 | cum | 114.000 | 1300.00 | 148200.00 | M-030 | |
| **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 415596.78 | | |
| **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 247708.87 | | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 272479.76 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 29972.77 | |
| | | | Cost for 205 cum = a+b+c+d+e+f+g | | | | 3027250.12 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/205** | | | | 14767.07 | |
| | | | | | | ***say*** | ***14767.00*** | |

**Note** 1.Density of aggregates has been assumed 1.5 gms/cc

2. Tack coat where provided will be measured and paid separately.

*3. Though the rollers are required only for 3.5 hours each as per norms of output, but these are required to be available at site for 6 hours as the drum mix plant and the paver would take 6 hours for mixing and paving. To cater for the idle period, their usage rates have been multiplied by a factor of 0.65

**5.19** 520 **Sand Asphalt Base Course**

Providing, laying and rolling sand-asphalt base course composed of sand, mineral filler and bituminous binder on a prepared sub-grade or sub-base to the lines, levels, grades and cross sections as per the drawings including mixing in a plant of suitable type and capacity, transporting, laying, compacting and finishing.

***Unit = cum***

***Taking output = 205 cum (450 tonne)***

| | | | | | | |
|---|---|---|---|---|---|---|
| **a) Labour** | | | | | | |
| Mate | day | 0.840 | 551.00 | 462.84 | L-12 | |
| Mazdoor | day | 16.000 | 424.00 | 6784.00 | L-13 | |
| Mazdoor skilled | day | 5.000 | 508.00 | 2540.00 | L-15 | |
| **b) Machinery** | | | | | | |
| Hot Mix Plant of appropriate capacity but not less than 75 tonnes/hour | hour | 6.000 | 20099.00 | 120594.00 | P&M-023 | |
| Electric generator set 250 KVA | hour | 6.000 | 1154.00 | 6924.00 | P&M-081 | |
| Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 | |
| Tipper 10 tonne capacity | tonne. km | 450 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 | |
| Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | | |
| Paver finisher | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 | |
| smooth wheeled roller 8-10 tonnes for initial break down rolling. | hour | 6.00x0.65 | 783.00 | 3053.70 | P&M-044 | |
| Three wheel 80-100 kN Static Roller | hour | 6.00x0.65 | 969.00 | 3779.10 | P&M-059 | |
| Finish rolling with 6-8 tonnes smooth wheeled tandem rollers. | hour | 6.00x0.65 | 1641.00 | 6399.90 | P&M-045 | |
| **c) Material** | | | | | | |
| **Composition of mix (450 tonne) is assumed to be as under:-** | | | | | | |
| Density 2.20 tonne per cum | | | | | | |
| Weight450 tonne | | | | | | |
| Bitumen5 per cent | | | | | | |
| Filler2 per cent | | | | | | |
| Sand of size 4.75 to 0.075 mm 93 per cent | | | | | | |
| Bitumen@ 5 per cent | tonne | 22.500 | 57924.00 | 1303290.00 | M-074 | |
| Filler (lime)@ 2 per cent | tonne | 9.000 | 15000.00 | 135000.00 | M-188 | |
| Sand of size 4.75 to 0.075 mm - 450 x 0.93 x 1/1.5 | cum | 288.620 | 650.00 | 187603.00 | M-004 | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 365004.97 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 217554.55 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 239310.01 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 26324.10 | |
| | | | Cost for 205 cum = a+b+c+d+e+f+g | | | | 2658734.17 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/205** | | | | 12969.43 | |
| | | | | | | ***say*** | ***12969.00*** | |

**Note** 1. Tack coat will be measured and paid separately

2. Although the rollers are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 450 tonnes considered in this analysis. To cater for the idle period of this roller, their usage rates has been multiplied by a factor of 0.65

**5.21** 522 **Crack Prevention Courses**

**(i) Stress absorbing membrane (SAM) crack width less than 6 mm**

Providing 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 clause 521, 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 | 0.240 | 551.00 | 132.24 | L-12 | |
| Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 | |
| **b) Machinery** | | | | | | |
| Mechanical broom @ 1250 sqm per hour | hour | 6.000 | 473.00 | 2838.00 | P&M-031 | |
| Air compressor 250 cfm | hour | 6.000 | 658.00 | 3948.00 | P&M-001 | |
| Bitumen pressure distributor @ 1750 sqm per hour | hour | 6.000 | 1509.00 | 9054.00 | P&M-004 | |
| Hydraulic Chip spreader | hour | 6.000 | 3640.00 | 21840.00 | P&M-025 | |
| Smooth wheeled road roller 8-10 tonne | hour | 6.000 | 783.00 | 4698.00 | P&M-044 | |
| **c) Material** | | | | | | |
| Modified binder | tonne | 9.450 | 58000.00 | 548100.00 | M-078 | |
| Crushed stone aggregates 5.6 mm size | cum | 105.000 | 1300.00 | 136500.00 | M-050 | |
| **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 147098.29 | | |
| **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 87675.25 | | |
| **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 96442.78 | | |
| **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 10608.71 | | |
| Cost for 10500 sqm = a+b+c+d+e+f+g | | | | 1071479.27 | | |
| **Rate per sqm = (a+b+c+d+e+f+g)/10500** | | | | 102.05 | | |
| | | | ***say*** | ***102.00*** | | |

**5.21** **(ii) Stress absorbing membrane (SAM) with crack width 6 mm to 9 mm**

Providing and laying of a stress absorbing membrane over a cracked road surface, with crack width 6 to 9 mm after cleaning with a mechanical broom, using modified binder complying with clause 521, sprayed at the rate of 11 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm, 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 | 0.240 | 551.00 | 132.24 | L-12 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Mechanical broom @ 1250 sqm per hour | hour | 6.000 | 473.00 | 2838.00 | P&M-031 |
| | | | Air compressor 250 cfm capacity | hour | 6.000 | 658.00 | 3948.00 | P&M-001 |
| | | | Bitumen pressure distributor @ 1750 sqm per hour | hour | 6.000 | 1509.00 | 9054.00 | P&M-004 |
| | | | Hydraulic Chip spreader | hour | 6.000 | 3640.00 | 21840.00 | P&M-025 |
| | | | Smooth wheeled road roller 8-10 tonne | hour | 6.000 | 783.00 | 4698.00 | P&M-044 |
| | | | **c) Material** | | | | | |
| | | | Modified binder | tonne | 11.550 | 58000.00 | 669900.00 | M-078 |
| | | | Crushed stone chipping 11.2 mm size | cum | 105.000 | 1800.00 | 189000.00 | M-051 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 182237.17 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 108619.14 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 119481.06 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 13142.92 | |
| | | | Cost for 10500 sqm = a+b+c+d+e+f+g | | | | 1327434.53 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/10500** | | | | 126.42 | |
| | | | | | | ***say*** | ***126.00*** | |
| **5.21** | | **(iii)** | **Stress absorbing membrane (SAM) crack width above 9 mm and cracked area above 50 per cent** | | | | | |
| | | | Providing and laying a single coat of a stress absorbing membrane over a cracked road surface, with crack width above 9 mm and cracked area above 50 per cent after cleaning with a mechanical broom, using modified binder complying with clause 521, sprayed at the rate of 15 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm, 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 | 0.240 | 551.00 | 132.24 | L-12 |
| | | | Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Mechanical broom @ 1250 sqm per hour | hour | 6.000 | 473.00 | 2838.00 | P&M-031 |
| | | | Air compressor 250 cfm capacity | hour | 6.000 | 658.00 | 3948.00 | P&M-001 |
| | | | Bitumen pressure distributor @ 1750 sqm per hour | hour | 6.000 | 1509.00 | 9054.00 | P&M-004 |
| | | | Hydraulic Chip spreader | hour | 6.000 | 3640.00 | 21840.00 | P&M-025 |
| | | | Smooth wheeled road roller 8-10 tonne | hour | 6.000 | 783.00 | 4698.00 | P&M-044 |
| | | | **c) Material** | | | | | |
| | | | Modified binder | tonne | 15.750 | 58000.00 | 913500.00 | M-078 |
| | | | Crushed stone aggregates 11.2 mm size | cum | 126.000 | 1800.00 | 226800.00 | M-051 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 239172.24 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 142554.25 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 156809.67 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 17249.06 | |
| | | | Cost for 10500 sqm = a+b+c+d+e+f+g | | | | 1742155.46 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/10500** | | | | 165.92 | |
| | | | | | | ***say*** | ***166.00*** | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | Note | In case 2nd coat is also required to be provided, material provided for the 2nd coat shall be as per table 500-47. | | | | | |
| 5.22 | 519.3 | | **Recipe Cold Mix** | | | | | |
| | | | 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 519.3 | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 205 cum (450 tonnes)*** | | | | | |
| | | (i) | **75 mm thickness** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 1.000 | 551.00 | 551.00 | L-12 |
| | | | Mazdoor | day | 12.000 | 424.00 | 5088.00 | L-13 |
| | | | Mazdoor skilled | day | 5.000 | 508.00 | 2540.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Batch type cold mixing plant 100-120 TPH capacity producing an average output of 75 tonne per hour | hour | 6.000 | 23790.00 | 142740.00 | P&M-064 |
| | | | Electric generator 125 KVA | hour | 6.000 | 1135.00 | 6810.00 | P&M-018 |
| | | | Front end loader 1 cum capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Paver finisher hydrostatic with sensor control @ 75 cum per hour | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Tipper 10 tonne capacity | tonne. km | 450 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | | | Pneumatic tyred roller12-15 tonnes. | hour | 6.00x0.65* | 1708.00 | 6661.20 | P&M-037 |
| | | | Smooth wheeled steel roller6-8 tonnes. | hour | 6.00x0.65* | 783.00 | 3053.70 | P&M-044 |
| | | | Water tanker6 KL capacity | hour | 1.000 | 724.00 | 724.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Bitumen emulsion @ 45 litres per tonne | tonne | 20.250 | 55000.00 | 1113750.00 | M-077 |
| | | | Crushed stone aggregates 40 mm nominal size | cum | 297.000 | 1900.00 | 564300.00 | M-055 |
| | | | Cost of water | KL | 6.000 | 71.00 | 426.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 379159.99 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 225991.39 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 248590.53 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 27344.96 | |
| | | | Cost for 10500 sqm = a+b+c+d+e+f+g | | | | 2761840.77 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/205** | | | | 13472.39 | |
| | | | | | | ***say*** | ***13472.00*** | |
| | | Note | **(Case I to III)** | | | | | |
| | | | 1. These mixes are considered suitable for minor repair work and temporary road surface improvement. | | | | | |
| | | | 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. | | | | | |
| | | | *4.Both the rollers have to be available at site to match with the output of batch mixing plant and paver finisher. A multiplying factor of 0.65 has been adopted to cater for the idling period of road rollers. | | | | | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| 5.22 | | (ii) | **40 mm thickness** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 1.000 | 551.00 | 551.00 | L-12 |
| | | | Mazdoor | day | 12.000 | 424.00 | 5088.00 | L-13 |
| | | | Mazdoor skilled | day | 5.000 | 508.00 | 2540.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Batch type cold mixing plant100-120 TPH capacity producing an average output of 75 tonne per hour | hour | 6.000 | 23790.00 | 142740.00 | P&M-064 |
| | | | Electric generator 125 KVA | hour | 6.000 | 1135.00 | 6810.00 | P&M-018 |
| | | | Front end loader 1 cum capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Paver finisher hydrostatic with sensor control @ 75 cum per hour | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Tipper 10 tonne capacity | tonne. km | 450 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | | | Pneumatic tyred roller 12-15 tonnes. | hour | 6.00x0.65* | 1708.00 | 6661.20 | P&M-037 |
| | | | Smooth wheeled steel roller 6-8 tonnes. | hour | 6.00x0.65* | 783.00 | 3053.70 | P&M-044 |
| | | | Water tanker6 KL capacity | hour | 1.000 | 724.00 | 724.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Bitumen emulsion @ 70 litres per tonne | tonne | 31.500 | 55000.00 | 1732500.00 | M-077 |
| | | | Crushed stone aggregates 14 mm nominal size | cum | 287.000 | 1820.00 | 522340.00 | M-052 |
| | | | Cost of water | KL | 6.000 | 71.00 | 426.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 495440.85 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 295298.48 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 324828.32 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 35731.12 | |
| | | | Cost for 10500 sqm = a+b+c+d+e+f+g | | | | 3608842.67 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/205** | | | | 17604.11 | |
| | | | | | | ***say*** | ***17604.00*** | |
| 5.22 | | (iii) | **25 mm thickness** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 1.000 | 551.00 | 551.00 | L-12 |
| | | | Mazdoor | day | 12.000 | 424.00 | 5088.00 | L-13 |
| | | | Mazdoor skilled | day | 5.000 | 508.00 | 2540.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Batch type cold mixing plant 100-120 TPH capacity producing an average output of 75 tonne per hour | hour | 6.000 | 23790.00 | 142740.00 | P&M-064 |
| | | | Electric generator 125 KVA | hour | 6.000 | 1135.00 | 6810.00 | P&M-018 |
| | | | Front end loader 1 cum capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Paver finisher hydrostatic with sensor control @ 75 cum per hour | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Tipper 10 tonne capacity | tonne. km | 450 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | | | Pneumatic tyred roller | hour | 6.00x0.65* | 1708.00 | 6661.20 | P&M-037 |
| | | | Smooth wheeled steel roller | hour | 6.00x0.65* | 783.00 | 3053.70 | P&M-044 |
| | | | Water tanker6 KL capacity | hour | 1.000 | 724.00 | 724.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Bitumen emulsion @ 85 litres per tonne | tonne | 38.250 | 55000.00 | 2103750.00 | M-077 |
| | | | Crushed stone aggregates 6 mm nominal size | cum | 270.000 | 1300.00 | 351000.00 | M-050 |
| | | | Cost of water | KL | 6.000 | 71.00 | 426.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 535742.71 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 319319.66 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 351251.63 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 38637.68 | |
| | | | Cost for 10500 sqm = a+b+c+d+e+f+g | | | | 3902405.58 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/205** | | | | 19036.12 | |
| | | | | | | ***say*** | ***19036.00*** | |
| **5.23** | | | **Open - Graded Premix Surfacing** | | | | | |
| | | | MORTH - 508.2; IRC: SP : 100 - 2004, chapter 6.5 Using Cold Mix Binder (Exceeds IS 8887 : 2004 of SS-2) Providing, laying and rolling open graded premix carpet of 20mm thickness copmposed of 13.2 mm to 5.6 mm aggregates using Cold Mix Binder (Tailor made ) to reguired line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a three wheel 80-100 KN static roller capacity, finished to required level and grades to be followed by seal coat (Application: Cold OGPC as per Design mix & Implementation by Manufacturer's discretion only) | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 900 s1m (24.3 cum)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.800 | 551.00 | 440.80 | L-12 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | Mazdoor skilled | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Concrete mixer 0.4/0.28 cum capacity | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Smooth wheeled steel roller 8-10 tonne | hour | 5.000 | 783.00 | 3915.00 | P&M-044 |
| | | | **c) Material** | | | | | |
| | | | Cold mix binder @ 2.0-2.3 kg per sqm | tonne | 1.940 | 66861.00 | 129710.34 | M-197 |
| | | | Crushed stone aggregates 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm | cum | 24.300 | 1600.00 | 38880.00 | M-043 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 36961.37 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 22030.15 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 24233.17 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 2665.65 | |
| | | | Cost for 900 sqm = a+b+c+d+e+f+g | | | | 269230.48 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/900** | | | | 299.14 | |
| | | | | | | ***say*** | ***299.00*** | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| 5.24.1 | | | **Seal Coat** | | | | | |
| | | | MORTH - 510 ; IRC: SP : 100 - 2004, chapter 6.5 & 6.2 Using Cold Mix Binder (Exceeds IS 8887 : 2004 of SS-2) Providing, laying and rolling of seal coat sealing the voids i a bituminous surface laid to the specified levels, grade and cross fall using Cold Mix Binder and stone chips passing 6.3 mm and IS sieve (Application: Seal Coat (A), Liquid Seal Coat as per Design mix & implementation by Manufacturers's discretion only) | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 10250 sqm (92.25 cum)*** | | | | | |
| | | *(i)* | ***Case - I : Type A*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.240 | 551.00 | 132.24 | L-12 |
| | | | Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic Self propelled chip spreader | hour | 6.000 | 3640.00 | 21840.00 | P&M-025 |
| | | | Tipper 5.5 cum capacity | hour | 6.000 | 916.00 | 5496.00 | P&M-048 |
| | | | Front end loader 1 cum bucket capacity | | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Bitumen pressure distributor @ 1750 sqm per hour | | 6.000 | 1509.00 | 9054.00 | P&M-004 |
| | | | Smooth wheeled roller 8-10 tonne weight | | 6.000 | 783.00 | 4698.00 | P&M-044 |
| | | | **c) Material** | | | | | |
| | | | Cold mix binder @ 1.2-1.4 kg per sqm | tonne | 13.330 | 66861.00 | 891257.13 | M-197 |
| | | | Crushed stone chip passing 6.3 mm sieve applied @ 0.09 cum per 10 sqm | cum | 92.250 | 1300.00 | 119925.00 | M-050 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 214900.43 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 128087.48 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 140896.23 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 15498.59 | |
| | | | Cost for 10250 sqm = a+b+c+d+e+f+g | | | | 1565357.10 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/10250** | | | | 152.72 | |
| | | | | | | ***say*** | ***153.00*** | |
| 5.24.2 | | *(ii)* | **Case - II : Type B** | | | | | |
| | | | MORTH - 510 ; IRC: SP : 100 - 2004, chapter 6.5 Using Cold Mix Binder (Exceeds IS 8887 : 2004 of SS-2) Providing, laying and rolling of seal coat sealing the voids i a bituminous surface laid to the specified levels, grade and cross fall using Cold Mix Binder and stone chips passing 9.5 mm and IS sieve & retain on 2.36 mm IS sieve (Application: Seal Coat (C), as per Design mix & implementation by Manufacturers's discretion only) | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 7858 sqm (47.16 cum)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.160 | 551.00 | 88.16 | L-12 |
| | | | Mazdoor | day | 4.000 | 424.00 | 1696.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Drum mix plant for cold mixes of appropriate capacity but not less than 75 tonnes/hour. | hour | 2.000 | 449.00 | 898.00 | P&M-077 |
| | | | Electric Generator set 250 KVA | hour | 2.000 | 1154.00 | 2308.00 | P&M-081 |
| | | | Front end loader 1 cum bucket capacity | hour | 2.000 | 1838.00 | 3676.00 | P&M-017 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Tipper 10 tonne capacity | tonne. km | 104x'L' | 87.00 | 0.00 | Lead =0 km & P&M-047 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | | |
| | | | Paver finisher hydrostatic with sensor attachment | hour | 2.000 | 3847.00 | 7694.00 | P&M-034 |
| | | | Smooth wheeled 8-10 tonnes capacity | hour | 2.000 | 783.00 | 1566.00 | P&M-044 |
| | | | **c) Material** | | | | | |
| | | | Cold mix binder @ 1.0-1.2 kg per sqm | tonne | 8.640 | 66861.00 | 577679.04 | M-197 |
| | | | Crushed stone chip passing 9.5 mm sieve and retained on 2.36 mm sieve applied @ 0.06 cum per 10 sqm | cum | 47.150 | 1300.00 | 61295.00 | M-050 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 132431.08 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 78933.13 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 86826.44 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 9550.91 | |
| | | | Cost for 7858 sqm = a+b+c+d+e+f+g | | | | 964641.76 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/7858** | | | | 122.76 | |
| | | | | | | ***say*** | ***123.00*** | |

**5.25.1 Close Graded Premix Surfacing/Mixed Seal Surfacing**

**Case I Mechanical means using HMP of appropriate capacity not less than 75 tonnes/hour.**

MORTH - 511 ; IRC: SP : 100 - 2004, chapter 6.5 Using Cold Mix Binder (Exceeds IS 8887 : 2004 of SS-2) Providing, laying and rolling of close graded premix surfacing material of 20 mm thickness composed of 11.2 mm to 0.09 mm (Type A) or 13.2 mm to 0.09 mm (Type B) aggregates using using Cold Mix Binder to the required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a smooth wheeled roller 8-10 ton cappacity and finishing to required level and grade (Application: Cold MiSS (Mix Seal Surfacing as per Designmix & Implementation by Manufacturer's discretion only)

***Unit = sqm***
***Taking output = 10250 sqm (205 cum)***

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **a) Labour** | | | | | | | |
| Mate | day | 0.840 | 551.00 | 462.84 | L-12 | | |
| Mazdoor working with WMP, road sweeper, paver and roller | day | 16.000 | 424.00 | 6784.00 | L-13 | | |
| Skilled mazdoor for checking line & levels | day | 5.000 | 508.00 | 2540.00 | L-15 | | |
| **b) Machinery** | | | | | | | |
| Drum mix plant for cold mixes of appropriate capacity but not less than 75 tonnes/hour. | hour | 5.000 | 449.00 | 2245.00 | P&M-077 | | |
| Electric Generator set 250 KVA | hour | 6.000 | 1154.00 | 6924.00 | P&M-081 | | |
| Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 | | |
| Tipper 10 tonne capacity | tonne. km | 104x'L' | 87.00 | 0.00 | Lead =0 km & P&M-047 | | |
| Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | | | | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Paver finisher hydrostatic with sensor attachment | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Smooth wheeled 8-10 tonnes capacity | hour | 6.000 | 783.00 | 4698.00 | P&M-044 |
| | | | **c) Material** | | | | | |
| | | | **Type - A** | | | | | |
| | | | Cold mix binder @ 3.0 kg per sqm | tonne | 30.750 | 66861.00 | 2055975.75 | M-197 |
| | | | Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27cum per 10 sqm | cum | 276.750 | 1500.00 | 415125.00 | M-041 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 509819.10 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 303868.37 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 334255.21 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 36768.07 | |
| | | | Cost for 10250 sqm = a+b+c+d+e+f+g | | | | 3713575.34 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/10250** | | | | 362.30 | |
| | | | | | | ***say*** | ***362.00*** | |
| **5.25.2** | | | **Close Graded Premix Surfacing/Mixed Seal Surfacing** | | | | | |
| | | **Case I** | **Mechanical means using HMP of appropriate capacity not less than 75 tonnes/hour.** | | | | | |
| | | | **MORTH - 511 ; IRC: SP : 100 - 2004, chapter 6.6 Using Cold Mix Binder (Exceeds IS 8887 : 2004 of SS-2)** | | | | | |
| | | | Providing, laying and rolling of close graded premix surfacing material of 20 mm thickness composed of 11.2 mm to 0.09 mm (Type A) or 13.2 mm to 0.09 mm (Type B) aggregates using using Cold Mix Binder to the required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a smooth wheeled roller 8-10 ton cappacity and finishing to required level and grade (Application: Cold MSS (Mix Seal Surfacing as per Designmix & Implementation by Manufacturer's discretion only) | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 10250 sqm (205 cum)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mazdoor working with WMP, road sweeper, paver and roller | day | 16.000 | 424.00 | 6784.00 | L-13 |
| | | | Skilled mazdoor for checking line & levels | day | 5.000 | 508.00 | 2540.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Drum mix plant for cold mixes of appropriate capacity but not less than 75 tonnes/hour. | hour | 5.000 | 449.00 | 2245.00 | P&M-077 |
| | | | Electric Generator set 250 KVA | hour | 6.000 | 1154.00 | 6924.00 | P&M-081 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Tipper 10 tonne capacity | tonne. km | 104x'L' | 87.00 | 0.00 | Lead =0 km & P&M-047 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | | |
| | | | Paver finisher hydrostatic with sensor attachment | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Smooth wheeled 8-10 tonnes capacity | hour | 6.000 | 783.00 | 4698.00 | P&M-044 |
| | | | **c) Material** | | | | | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **Type - B** | | | | | |
| | | | Cold mix binder @ 3.3 kg per sqm | tonne | 33.830 | 66861.00 | 2261907.63 | M-197 |
| | | | Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27cum per 10 sqm | cum | 276.750 | 1200.00 | 332100.00 | M-042 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 534597.13 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 318636.86 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 350500.55 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 38555.06 | |
| | | | Cost for 10250 sqm = a+b+c+d+e+f+g | | | | 3894061.07 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/10250** | | | | 379.91 | |
| | | | | | | ***say*** | ***380.00*** | |
| **5.26** | | | **MORTH - 504 IRC: SP : 100 - 2004, chapter 7.1 Using Cold Mix Binder (Exceeds IS 8887 : 2004 of SS-2)** | | | | | |
| | | | Providing, laying and rolling of cold BM (50 mm) on prepared base consisting of a mixture of unheated mineral aggregate (19 mm nominal size) and Cold Mix Binder, including mixing in a plant of suitable type and capacity, transporting, laying, compacting and finsishing to specified grades and levels (Application: Cold BM as per Designmix & Implementation by manufacturer's discretion only) | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 205 cum (450 tonnes)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mazdoor working with CMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction. | day | 16.000 | 424.00 | 6784.00 | L-13 |
| | | | Skilled mazdoor for checking line & levels | day | 5.000 | 508.00 | 2540.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Drum mix plant for cold mixes of appropriate capacity but not less than 75 tonnes/hour. | hour | 6.000 | 449.00 | 2694.00 | P&M-077 |
| | | | Mechanical broom hydraulic @ 1250 sqm per hour | hour | 2.200 | 473.00 | 1040.60 | P&M-031 |
| | | | Air Compressor 250 cfm | hour | 2.200 | 658.00 | 1447.60 | P&M-001 |
| | | | Paver finisher hydrostatic with sensor control @ 75 cum per hour | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Electric Generator set 250 KVA | hour | 6.000 | 1154.00 | 6924.00 | P&M-081 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Tipper 10 tonne capacity | tonne. km | 104x'L' | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | | |
| | | | Smooth wheeled roller 8-10 tonnes for initial break down rolling. | hour | 6.00x0.65* | 783.00 | 3053.70 | P&M-044 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.00x0.65* | 969.00 | 3779.10 | P&M-059 |
| | | | Finish rolling with 6-8 tonnes smooth wheeled tandem rollers. | hour | 6.00x0.65* | 1641.00 | 6399.90 | P&M-045 |
| | | | **c) Material** | | | | | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **Type - B** | | | | | |
| | | | Cold mix binder @ 5.5% by Wt. of mix<br>Weight of mix=205x2.2=450 tonne<br>Aggregate<br>Total weight of mix = 450 tonnes<br>Weight of bitumen=24.75 tonnes<br>Weight of aggregate = 450 - 24.75 = 425.25 tonnes<br>Taking density of aggregate = 1.5 ton/cum<br>Volume of aggregate=283.50 cum | tonne | 24.750 | 66861.00 | 1654809.75 | M-197 |
| | | | Grading II (19 mm nominal size) | | | | | |
| | | | 25-10 mm 40 per cent | cum | 113.400 | 1860.00 | 210924.00 | M-046 |
| | | | 10-5 mm 40 per cent | cum | 113.400 | 1550.00 | 175770.00 | M-040 |
| | | | 5m and below 20 per cent | cum | 56.700 | 1300.00 | 73710.00 | M-030 |
| | | | * Any one of the alternative may be adopted as per approved design | | | | | |
| | | (ii) | For Grading II (19 mm nominal size) | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 440385.02 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 262483.45 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 288731.80 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 31760.50 | |
| | | | Cost for 205 cum = a+b+c+d+e+f+g | | | | 3207810.26 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/205 (For Grading II)** | | | | 15647.85 | |
| | | | | | | ***say*** | ***15648.00*** | |
| | | **Note** | *1. Although the rollers are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 450 tonnes considered in this analysis. To cater for the idle period of these rollers, their usage rates have be multiplied by a factor of 0.65.<br><br>2. Quantity of bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.<br>3. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative overheads of the contractor.<br>4. 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 oost of tack coat | | | | | |
| **5.27** | | | **MORTH - 504 IRC: SP : 100 - 2004, chapter 7.2 Using Cold Mix Binder (Exceeds IS 8887 : 2004 of SS-2)**<br>Providing, laying of Semi Dense Bituminous Concrete with 100-120 TPH HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading (9.5 mm nominal size), premixed with cold mix binder @ 7.5% by weight of mix, transporting the cold mix to work site, laying with a hydrostatic paver finisher with sensor control to required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction (Application: Cold BM as per Designmix & Implementation by manufacturer's discretion only)<br>***Unit = cum***<br>***Taking output = 195 cum (450 tonnes)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Mazdoor working with CMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction. | day | 16.000 | 424.00 | 6784.00 | L-13 |
| | | | Skilled mazdoor for checking line & levels | day | 5.000 | 508.00 | 2540.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Drum mix plant for cold mixes of appropriate capacity but not less than 75 tonnes/hour. | hour | 6.000 | 449.00 | 2694.00 | P&M-077 |
| | | | Paver finisher hydrostatic with sensor control @ 75 cum per hour | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Electric Generator set 250 KVA | hour | 6.000 | 1154.00 | 6924.00 | P&M-081 |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Tipper 10 tonne capacity | tonne. km | 104x'L' | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | | |
| | | | Smooth wheeled roller 8-10 tonnes for initial break down rolling. | hour | 6.00x0.65* | 783.00 | 3053.70 | P&M-044 |
| | | | Three wheel 80-100 kN Static Roller | hour | 6.00x0.65* | 969.00 | 3779.10 | P&M-059 |
| | | | Finish rolling with 6-8 tonnes smooth wheeled tandom rollers. | hour | 6.00x0.65* | 1641.00 | 6399.90 | P&M-045 |
| | | | **c) Material** | | | | | |
| | | | Cold mix binder @ 7.5% by Wt. of mix | tonne | 33.750 | 66861.00 | 2256558.75 | M-197 |
| | | | Weight of mix=450 tonne | | | | | |
| | | | Aggregate | | | | | |
| | | | Total weight of mix = 450 tonnes | | | | | |
| | | | Weight of bitumen=33.75 tonnes | | | | | |
| | | | Weight of aggregate = 450 - 33.75 = 416.25 tonnes | | | | | |
| | | | Taking density of aggregate = 1.5 ton/cum | | | | | |
| | | | Volume of aggregate=277.50 cum | | | | | |
| | | | 9.5 - 4.75 mm @ 57 per cent | cum | 158.175 | 1550.00 | 245171.25 | M-040 |
| | | | 4.75 and below W 43 per cent | cum | 119.325 | 1300.00 | 155122.50 | M-030 |
| | | | * Any one of the alternative may be adopted as per approved design | | | | | |
| | | (ii) | For Grading II (9.50 mm nominal size) | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 549077.77 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 327267.78 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 359994.56 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 39599.40 | |
| | | | Cost for 195 cum = a+b+c+d+e+f+g | | | | 3999539.55 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/195 (For Grading II)** | | | | 20510.46 | |
| | | | | | | ***say*** | ***20510.00*** | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | **Note** | *1. Although the rollers are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 450 tonnes considered in this analysis. To cater for the idle period of these rollers, their usage rates have be multiplied by a factor of 0.65.<br>2. Quantity of bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.<br>3. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative overheads of the contractor.<br>4. In case SDBC is laid over freshly laid tack coat, provision of broom and 2 mazdoors for the same shall be deleted as the same has been included in the oost of tack coat<br>5. The quantity of Bitumen to be adjusted as per job mix formula. | | | | | |
| **5.28** | **16.57.2** | | Providing and laying Bituminous concrete using crushed stone aggregates of specified grading, premixed with bituminous binder and filler, transporting the hot mix to work site by tippers, laying with paver finisher equiped with electronic sensor to the required grade, level and alignment and rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction and density as per specification, complete and as per directions of Engineer-in-Charge. | | | | | |
| | | **(a)** | **40/50 mm compacted thickness with bitumen of grade VG-30 @ 5.5% (percentage by weight of total mix) and lime filler @ 3% (percentage by weight of Aggregate) and waste plastic additive @ 8% (percentage by weight of bitumen) prepared in Batch Type Hot Mix Plant of 100- 120 TPH capacity.**<br>Details of cost for 191 cum (450 tonnes) | | | | | |
| | | | **a) Material** | | | | | |
| | | | Paving Asphalt VG-30 of approved quality'<br>@5.50% (percentage by weight of total mix)<br>Aggregate<br>Total weight of mix = 450 tonnes<br>Weight of bitumen = 24.75 tonnes<br>Weight of aggregate = 450 -24.75 = 425.25 tonnes<br>Taking density of aggregate = 1.5 tonne/cum<br>Volume of aggregate =425.25/1.5 = 283.50cum<br>Grading - II/19 mm (Nominal Size)<br>13.2 - 10mm size = 30% of 283.50 = 85.05 cum<br>10 - 5mm size = 25% of 283.50 = 70.88 cum<br>5mm and below = 42% of 283.50 = 119.07 cum,<br>Waste Plastic @ 8% of the weigh of bitumen i.e. 24.75*8% | tonne | 24.750 | 41549.00 | 1028337.75 | M-198 |
| | | | Waste plastic additive | tonne | 1.980 | 42000.00 | 83160.00 | M-199 |
| | | | Stone Aggregate (Single size) :12.5 mm nominal size ( Qty = 85.5 * 50 /100 ) | cum | 42.750 | 1820.00 | 77805.00 | M-052 |
| | | | Stone Aggregate (Single size) :10 mm nominal size ( Qty = 85.5 * 50 /100) | cum | 42.750 | 1800.00 | 76950.00 | M-051 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Stone Aggregate (Single size) :10 mm nominal size(Qty = 70.88 * 50 /100 ) | cum | 35.440 | 1800.00 | 63792.00 | M-051 |
| | | | Stone Aggregate (Single size) :06 mm nominal size( Qty = 70.88 * 50 /100) | cum | 35.440 | 1300.00 | 46072.00 | M-050 |
| | | | Stone chippings/ screenings 4.75 mm nominal size ( Qty = 283.5 * 40 /100) | cum | 113.400 | 1500.00 | 170100.00 | M-041 |
| | | | Dry hydrated lime (factory made) | quintal | 127.600 | 300.00 | 38280.00 | M-200 |
| | | | **b) Transport** | | | | | |
| | | | Carriage of Tar bitumen | tonne | 24.750 | 0.00 | 0.00 | |
| | | | Carriage of Stone aggregate below 40 mm nominal size | cum | 275.000 | 0.00 | 0.00 | |
| | | | Carriage of Lime (consitering density of lime as 1.29 T per cum) V = 12.758/1.29 = 9.89 cum | cum | 9.890 | 0.00 | 0.00 | |
| | | | Tipper -5 Cum, Tipper 10 tonne capacity (Taken 10 km average lead)Km | tonne/ km | 4,500.000 | 0.00 | 0.00 | |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | 10 per cent of cost of carriage | | 0.00 | |
| | | | **c) MACHINERY/ HIRE CHARGES:** | | | | | |
| | | | Hot mix Plant -120 TPH capacity | hour | 3.000 | 15000.00 | 45000.00 | P&M-095 |
| | | | Hot mix Plant 100 TPH Capacity | hour | 3.000 | 13681.00 | 41043.00 | P&M-096 |
| | | | Paver finisher Hydrostatic with sensor control 100 TPH | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Generator 250 KVA | hour | 6.000 | 1154.00 | 6924.00 | P&M-081 |
| | | | Front end loader 1 cum bucket capacity (incl POL) | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Smooth Wheeled Roller 8 to 10 tonne for initial break down rolling.(6*0.65) | hour | 3.900 | 783.00 | 3053.70 | P&M-044 |
| | | | Vibratory roller 8 to 10 tonne for intermediate rolling.(6*0.65) | hour | 3.900 | 856.00 | 3338.40 | P&M-062 ( A) |
| | | | Tandem Road Roller, Finish rolling with 6-8 tonnes smooth wheeled tandem roller.(6*0.65) | hour | 3.900 | 1641.00 | 6399.90 | P&M-045 |
| | | | **d) Labour** | | | | | |
| | | | Mate | each | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Beldar working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction | each | 14.000 | 424.00 | 5936.00 | L-13 |
| | | | Skilled Beldar (for floor rubbing etc.) for checking line & levels | each | 5.000 | 508.00 | 2540.00 | L-15 |
| | | | **Other Costs** | | | | | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 349434.21 | |
| | | | **f) Overhead charges @ 10 % on (a+b+c+d+e)** | | | | 208273.88 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 229101.27 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 25201.14 | |
| | | | Cost for 191 cum(450 Tonne) (a+b+c+d+e+f+g+h) | | | | **2545315.09** | |
| | | | **Cost per cum. (a+b+c+d+e+f+g+h)/191** | | | | 13326.26 | |
| | | | | | | **Say** | **13326.30** | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | 16.57.6 | (b) | **40/50 mm compacted thickness with bitumen of grade VG-30 @ 5.5% (percentage by weight of total mix) and lime filler @ 3% (percentage by weight of Aggregate) and waste plastic additive @ 8% (percentage by weight of bitumen) prepared in drum Type Hot Mix Plant of 60-90 TPH capacity.** | | | | | |
| | | | Details of cost for 191 cum (450 tonnes) | | | | | |
| | | | **a) Material** | | | | | |
| | | | Paving Asphalt VG-30 of approved quality, @5.50% (percentage by weight of total mix) | tonne | 24.750 | 41549.00 | 1028337.75 | M-198 |
| | | | Aggregate<br>Total weight of mix = 450 tonnes<br>Weight of bitumen = 24.75 tonnes<br>Weight of aggregate = 450 -24.75 = 425.25 tonnes<br>Taking density of aggregate = 1.5 tonne/cum<br>Volume of aggregate = 425.25/ 1.5=283.50cum<br>Grading - II/19 mm (Nominal Size)<br>13.2 - 10mm size = 30% of 283.50 = 85.05 cum<br>10 - 5mm size = 25% of 283.50 = 70.88 cum<br>5mm and below = 42% of 283.50 = 119.07 cum<br>Waste Plastic @ 8% of the weigh of bitumen i.e. 24.75*8% | | | | | |
| | | | Waste plastic additive | tonne | 1.980 | 42000.00 | 83160.00 | M-199 |
| | | | Stone Aggregate (Single size) :12.5 mm nominal size ( Qty = 85.5 * 50 /100 ) | cum | 42.750 | 1820.00 | 77805.00 | M-052 |
| | | | Stone Aggregate (Single size) :10 mm nominal size ( Qty = 85.5 * 50 /100) | cum | 42.750 | 1800.00 | 76950.00 | M-051 |
| | | | Stone Aggregate (Single size) :10 mm nominal size (Qty = 70.88 * 50 /100 ) | cum | 35.440 | 1800.00 | 63792.00 | M-051 |
| | | | Stone Aggregate (Single size) :06 mm nominal size ( Qty = 70.88 * 50 /100) | cum | 35.440 | 1300.00 | 46072.00 | M-050 |
| | | | Stone chippings/ screenings 4.75 mm nominal size ( Qty = 283.5 * 40 /100) | cum | 113.400 | 1500.00 | 170100.00 | M-041 |
| | | | Dry hydrated lime (factory made) | quintal | 127.600 | 300.00 | 38280.00 | M-200 |
| | | | **b) Transport**<br>@5.50% (percentage by weight of total mix | | | | | |
| | | | Carriage of Tar bitumen | tonne | 24.750 | 0.00 | 0.00 | |
| | | | Carriage of Stone aggregate below 40 mm nominal size Lime Filler @ 2% (percentage by weight of aggregate) | cum | 275.000 | 0.00 | 0.00 | |
| | | | Carriage of Lime (consitering density of lime as 1.29 T per cum) V = 12.758/1.29 = 9.89 cum | cum | 9.890 | 0.00 | 0.00 | |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Tipper -5 Cum<br>Tipper 10 tonne capacity (Taken 10 km average lead) 450 x 10 = 4500 tonne Km | tonne/ km | 4,500.000 | 0.00 | 0.00 | |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | 10 per cent of cost of carriage | | 0.00 | |
| | | | **c) MACHINERY/ HIRE CHARGES:** | | | | | |
| | | | Drum Type HMP of 60-90 TPH capacity<br>@ 75 tonne per hour actual output | hour | 6.000 | 10712.00 | 64272.00 | P&M-097 |
| | | | Paver finisher Hydrostatic with sensor control 100 TPH | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Generator 250 KVA | hour | 6.000 | 1154.00 | 6924.00 | P&M-081 |
| | | | Front end loader 1 cum bucket capacity (incl POL) | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Smooth Wheeled Roller 8 to 10 tonne for initial break down rolling.(6*0.65) | hour | 3.900 | 783.00 | 3053.70 | P&M-044 |
| | | | Vibratory roller 8 to 10 tonne for intermediate rolling.(6*0.65) | hour | 3.900 | 856.00 | 3338.40 | P&M-062 ( A) |
| | | | Tandem Road Roller,<br>Finish rolling with 6-8 tonnes smooth wheeled tandem roller.(6*0.65) | hour | 3.900 | 1641.00 | 6399.90 | P&M-045 |
| | | | **d) Labour** | | | | | |
| | | | Mate | each | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Beldar<br>working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction | each | 14.000 | 424.00 | 5936.00 | L-20 |
| | | | Skilled Beldar (for floor rubbing etc.) for checking line & levels | each | 5.000 | 508.00 | 2540.00 | L-15 |
| | | | **Other Costs** | | | | | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 345045.17 | |
| | | | **f) Overhead charges @ 10 % on (a+b+c+d+e)** | | | | 205657.88 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 226223.66 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 24884.60 | |
| | | | Cost for 191 cum(450 Tonne) (a+b+c+d+e+f+g+h) | | | | **2513344.90** | |
| | | | **Cost per cum. (a+b+c+d+e+f+g+h)/191** | | | | 13158.87 | |
| | | | Cost per cum ( Per Tonne). | | | **Say** | **13158.90** | |
| **5.29** | 16.57..3 | | Providing and laying Bituminous concrete using crushed stone aggregates of specified grading, premixed with bituminous binder and filler, transporting the hot mix to work site by tippers, laying with paver finisher equiped with electronic sensor to the required grade, level and alignment and rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction and density as per specification, complete and as per directions of Engineer-in-Charge. | | | | | |
| | | (a) | **40/50 mm compacted thickness with bitumen of grade PMB-40 @ 5.5% (percentage by weight of total mix) and lime filler @ 3% (percentage by weight of Aggregate) prepared in Batch Type Hot Mix Plant of 100-120 TPH capacity.** | | | | | |
| | | | Details of cost for 191 cum (450 tonnes) | | | | | |
| | | | **a) Material** | | | | | |
| | | | Bitumen grade PMB - 40, @5.50% (percentage by weight of total mix) | tonne | 24.750 | 37030.00 | 916492.50 | M-078 (A) |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Aggregate<br>Total weight of mix = 450 tonnes<br>Weight of bitumen = 24.75 tonnes<br>Weight of aggregate = 450 -24.75<br>= 425.25 tonnes<br>Taking density of aggregate = 1.5 tonne/cum<br>Volume of aggregate =425.25/1.5<br>= 283.50cum<br>Grading - II/19 mm (Nominal Size)<br>13.2 - 10mm size = 30% of 283.50<br>= 85.05 cum<br>10 - 5mm size = 25% of 283.50 = 70.88 cum<br>5mm and below= 42% of 283.50 = 119.07 cum | | | | | |
| | | | Stone Aggregate (Single size) :12.5 mm nominal size ( Qty = 85.5 * 50 /100 ) | cum | 42.750 | 1820.00 | 77805.00 | M-052 |
| | | | Stone Aggregate (Single size) :10 mm nominal size ( Qty = 85.5 * 50 /100) | cum | 42.750 | 1800.00 | 76950.00 | M-051 |
| | | | Stone Aggregate (Single size) :10 mm nominal size (Qty = 70.88 * 50 /100 ) | cum | 35.440 | 1800.00 | 63792.00 | M-051 |
| | | | Stone Aggregate (Single size) :06 mm nominal size ( Qty = 70.88 * 50 /100) | cum | 35.440 | 1300.00 | 46072.00 | M-050 |
| | | | Stone chippings/ screenings 4.75 mm nominal size ( Qty = 283.5 * 40 /100) | cum | 113.400 | 1500.00 | 170100.00 | M-041 |
| | | | Dry hydrated lime (factory made) | quintal | 127.600 | 300.00 | 38280.00 | M-200 |
| | | | **b) Transport** | | | | | |
| | | | Carriage of Tar Bitumen | tonne | 24.750 | 0.00 | 0.00 | |
| | | | Carriage of Stone aggregate below 40 mm nominal size | cum | 275.000 | 0.00 | 0.00 | |
| | | | Lime Filler @ 2% (percentage by weight of aggregate)<br>Carriage of Lime,<br>(consitering density of lime as 1.29 T per cum) V = 12.758/1.29 = 9.89 cum | cum | 9.890 | 0.00 | 0.00 | |
| | | | Tipper 10 tonne capacity (Taken 10 km average lead) 450 x 10 = 4500 tonne Km<br>Tipper -5 Cum | tonne/ km | 4,500.000 | 0.00 | 0.00 | |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | 10 per cent of cost of carriage | | 0.00 | |
| | | | **c) MACHINERY/ HIRE CHARGES:** | | | | | |
| | | | Hot mix Plant -120 TPH capacity | hour | 3.000 | 16471.00 | 49413.00 | P&M-095 |
| | | | Hot mix Plant 100 TPH Capacity | hour | 3.000 | 13681.00 | 41043.00 | P&M-096 |
| | | | Paver finisher Hydrostatic with sensor control 100 TPH | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Generator 250 KVA | hour | 6.000 | 1154.00 | 6924.00 | P&M-081 |
| | | | Front end loader 1 cum bucket capacity (incl POL) | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Smooth Wheeled Roller 8 to 10 tonne for initial break down rolling.(6*0.65) | hour | 3.900 | 783.00 | 3053.70 | P&M-044 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Vibratory roller 8 to 10 tonne for intermediate rolling.(6*0.65) | hour | 3.900 | 856.00 | 3338.40 | P&M-062 ( A) |
| | | | Tandem Road Roller, Finish rolling with 6-8 tonnes smooth wheeled tandem roller.(6*0.65) | hour | 3.900 | 1641.00 | 6399.90 | P&M-045 |
| | | | **d) Labour** | | | | | |
| | | | Mate | each | 0.840 | 400.00 | 336.00 | L-12 |
| | | | Beldar | each | 14.000 | 424.00 | 5936.00 | L-20 |
| | | | working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction | | | | | |
| | | | Skilled Beldar (for floor rubbing etc.) for checking line & levels | each | 5.000 | 508.00 | 2540.00 | L-15 |
| | | | **Other Costs** | | | | | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 310985.24 | |
| | | | **f) Overhead charges @ 10 % on (a+b+c+d+e)** | | | | 185357.07 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 203892.78 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 22428.21 | |
| | | | Cost for 191 cum(450 Tonne) | | | | 2265248.80 | |
| | | | Cost per cum ( Per Tonne). | | | | 11859.94 | |
| | | | | | | **Say** | **11859.90** | |
| **5.30** | 16.57.4 | | Providing and laying Bituminous concrete using crushed stone aggregates of specified grading, premixed with bituminous binder and filler, transporting the hot mix to work site by tippers, laying with paver finisher equiped with electronic sensor to the required grade, level and alignment and rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction and density as per specification, complete and as per directions of Engineer-in-Charge. | | | | | |
| | | (a) | **440/50 mm compacted thickness with bitumen of grade CRMB-60 @ 5.5% (percentage by weight of total mix) and lime filler @ 3% (percentage by weight of Aggregate) prepared in Batch Type Hot Mix Plant of 100-120 TPH capacity.** | | | | | |
| | | | Details of cost for 191 cum (450 tonnes) | | | | | |
| | | | **a) Material** | | | | | |
| | | | Modified Bitumen Refinary produced CRMB - 60, '@5.50% (percentage by weight of total mix) | tonne | 24.750 | 35116.00 | 869121.00 | M-078 (B) |
| | | | Aggregate<br>Total weight of mix = 450 tonnes<br>Weight of bitumen = 24.75 tonnes<br>Weight of aggregate = 450 -24.75 = 425.25 tonnes<br>Taking density of aggregate = 1.5 tonne/cum<br>Volume of aggregate =425.25/1.5 = 283.50cum<br>Grading - II/19 mm (Nominal Size)<br>13.2 - 10mm size = 30% of 283.50 = 85.05 cum<br>10 - 5mm size = 25% of 283.50 = 70.88 cum<br>5mm and below = 42% of 283.50 = 119.07 cum | | | | | |
| | | | Stone Aggregate (Single size) : 12.5 mm nominal size ( Qty = 85.5 * 50 /100 ) | cum | 42.750 | 1820.00 | 77805.00 | M-052 |

| Sl. No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks / Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Stone Aggregate (Single size) : 10 mm nominal size ( Qty = 85.5 * 50 /100) | cum | 42.750 | 1800.00 | 76950.00 | M-051 |
| | | | Stone Aggregate (Single size) : 10 mm nominal size (Qty = 70.88 * 50 /100 ) | cum | 35.440 | 1800.00 | 63792.00 | M-051 |
| | | | Stone Aggregate (Single size) : 06 mm nominal size ( Qty = 70.88 * 50 /100) | cum | 35.440 | 1300.00 | 46072.00 | M-050 |
| | | | Stone chippings/ screenings 4.75 mm nominal size ( Qty = 283.5 * 40 /100) | cum | 113.400 | 1500.00 | 170100.00 | M-041 |
| | | | Dry hydrated lime (factory made) | quintal | 127.600 | 300.00 | 38280.00 | M-200 |
| | | | **b) Transport** | | | | | |
| | | | Carriage of Bitumen | tonne | 24.750 | 0.00 | 0.00 | |
| | | | Carriage of Stone aggregate below 40 mm nominal size | cum | 275.000 | 0.00 | 0.00 | |
| | | | Lime Filler @ 2% (percentage by weight of aggregate) | | | | | |
| | | | Carriage of Lime (consitering density of lime as 1.29 T per cum) V = 12.758/1.29 = 9.89 cum | cum | 9.890 | 0.00 | 0.00 | |
| | | | Tipper 10 tonne capacity (Taken 10 km average lead) 450 x 10 = 4500 tonne Km Tipper -5 Cum | tonne/ km | 4,500.000 | 0.00 | 0.00 | |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | 10 per cent of cost of carriage | | 0.00 | |
| | | | **c) MACHINERY/ HIRE CHARGES:** | | | | | |
| | | | Hot mix Plant -120 TPH capacity | hour | 3.000 | 16471.00 | 49413.00 | P&M-095 |
| | | | Hot mix Plant 100 TPH Capacity | hour | 3.000 | 13681.00 | 41043.00 | P&M-096 |
| | | | Paver finisher Hydrostatic with sensor control 100 TPH | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Generator 250 KVA | hour | 6.000 | 1154.00 | 6924.00 | P&M-081 |
| | | | Front end loader 1 cum bucket capacity (incl POL) | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Smooth Wheeled Roller 8 to 10 tonne for initial break down rolling.(6*0.65) | hour | 3.900 | 783.00 | 3053.70 | P&M-044 |
| | | | Vibratory roller 8 to 10 tonne for intermediate rolling.(6*0.65) | hour | 3.900 | 856.00 | 3338.40 | P&M-062 ( A) |
| | | | Tandem Road Roller, Finish rolling with 6-8 tonnes smooth wheeled tandem roller.(6*0.65) | hour | 3.900 | 1641.00 | 6399.90 | P&M-045 |
| | | | **d) Labour** | | | | | |
| | | | Mate | each | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Beldar working with HMP, mechanical broom, paver, roller, asphalt cutter & assistance for setting out lines, levels and layout of construction | each | 14.000 | 424.00 | 5936.00 | L-13 |
| | | | Skilled Beldar (for floor rubbing etc.) for checking line & levels | each | 5.000 | 508.00 | 2540.00 | L-15 |
| | | | **Other Costs** | | | | | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 301460.71 | |
| | | | **f) Overhead charges @ 10 % on (a+b+c+d+e)** | | | | 179680.16 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 197648.17 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 21741.30 | |
| | | | Cost for 191 cum(450 Tonne) | | | | 2195871.18 | |
| | | | Cost per cum ( Per Tonne). | | | | 11496.71 | |
| | | | | | | **Say** | **11496.70** | |

## Chapter – 6

## CEMENT CONCRETE PAVEMENT

**Preamble:**

1 High capacity batch mix plants of 75 cum/hour (effective output) has been considered in the rate analysis of cement concrete pavement works.

2 While tippers have been provided for tranportation of dry lean cement concrete and rolled cement concrete, transit truck mixers have been considered for the cement concrete pavement.

3 Super plasticizer admixture has been provided to improve workability with reduced water cement ratio.

4 Cement 43 grade has been catered for the cement concrete pavement i.e., for pavement quality concrete to get higher strength. However, for dry lean concrete, cement of 33 grade may be preferred.

5 While a slip form paver has been catered for the top layer of concrete pavement, a mechanical paver has been provided for dry lead and roller cement concrete.

6 Materials provided in the rate analysis are for estimating prupose. Exact quantity of materiasl be determined for the job mix formula.

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| *6.1* | *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 (990 tonne)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 1.120 | 551.00 | 617.12 | L-12 |
| | | | Mazdoor skilled | day | 6.000 | 508.00 | 3048.00 | L-15 |
| | | | Mazdoor | day | 22.000 | 424.00 | 9328.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Cement concrete batch mix plant @ 75 cum per hour | hour | 6.000 | 5170.00 | 31020.00 | P&M-068 |
| | | | Electric generator 100 KVA | hour | 6.000 | 938.00 | 5628.00 | P&M-080 |
| | | | Paver with electronic sensor | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Vibratory roller 8-10 t capacity | hour | 8.000 | 969.00 | 7752.00 | P&M-059 |
| | | | Water tanker6 KL capacity | hour | 8.000 | 724.00 | 5792.00 | P&M-060 |
| | | | Tipper | tonne.km | 990 x L | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | | | **c) Material** | | | | | |
| | | | Crushed stone coarse aggregate of 25 mm and 12.5 mm nominal sizes graded as per table 600-1 @ 0.90 cum/cum of concrete conforming to clause 602.2.4. | cum | 405.000 | 1870.00 | 757350.00 | M-052 and M-054 |
| | | | Coarse Sand as per IS: 383 @ 0.45 cum/cum of concrete | cum | 203.000 | 650.00 | 131950.00 | M-004 |
| | | | Cement @ 150 kg/cum of concrete | tonne | 67.500 | 9100.00 | 614250.00 | M-081 |
| | | | Cost of water | KL | 48.000 | 71.00 | 3408.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 323417.43 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 192767.06 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 212043.76 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 23324.81 | |
| | | | Cost for 205 cum = a+b+c+d+e+f+g | | | | 2355806.18 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/450** | | | | 5235.12 | |
| | | | | | | ***say*** | ***5235.00*** | |
| | | | ***Note*** Quantity provided for aggregate is for estimating purpose. Exact quantity shall be as per mix design. | | | | | |
| *6.2* | *602* | | **Cement Concrete Pavement** | | | | | |
| | | | **Construction of un-reinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with 43 grade cement @ 400 kg per cum, coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, for M40 Grade having minimum 28 days flexural strength of 4.5 Mpa, using approved admixtures, 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.** | | | | | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 1050 cum (2415 tonne)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 2.000 | 551.00 | 1102.00 | L-12 |
| | | | Mazdoor skilled | day | 15.000 | 508.00 | 7620.00 | L-15 |
| | | | Mazdoor | day | 35.000 | 424.00 | 14840.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Road Sweeper @ 1250 sqm per hour | hour | 2.800 | 473.00 | 1324.40 | P&M-031 |
| | | | Front end loader 1 cum bucket capacity | hour | 18.000 | 1838.00 | 33084.00 | P&M-017 |
| | | | Cement concrete batch mix plant @ 175 cum per hour (effective output) | hour | 6.000 | 3770.00 | 22620.00 | P&M-067 |
| | | | Electric generator 250 KVA | hour | 6.000 | 1154.00 | 6924.00 | P&M-081 |
| | | | Slip form paver with electronic sensor | hour | 6.000 | 3690.00 | 22140.00 | P&M-006 |
| | | | Water tanker6 KL capacity | hour | 36.000 | 724.00 | 26064.00 | P&M-060 |
| | | | Transit truck agitator 5 cum capacity. | tonne.km | 2415xL | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | | | Concrete joint cutting machine . | hour | 12.000 | 143.00 | 1716.00 | P&M-083 |
| | | | Texturing machine . | hour | 12.000 | 301.00 | 3612.00 | P&M-088 |
| | | | **c) Material** | | | | | |
| | | | Crushed stone coarse aggregates of 25mm and 12.5mm nominal size @ 0.90 cum/cum of concrete conforming to clause 602.2.4. . | cum | 945.000 | 1870.00 | 1767150.00 | M-052 and M-054 |
| | | | Sand as per IS: 383 and conforming to clause 602.2.4 @ 0.45 cum/cum of concrete | cum | 473.000 | 650.00 | 307450.00 | M-004 |
| | | | Cement 43 grade @ 400 kg/cum of concrete | tonne | 414.000 | 9100.00 | 3767400.00 | M-081 |
| | | | 32 mm mild steel dowel bars of grade S 240 | tonne | 9.450 | 67000.00 | 633150.00 | M-126 |
| | | | 16 mm deformed steel tie bars of grade S 415 | tonne | 1.170 | 67000.00 | 78390.00 | M-082 |
| | | | Separation Membrane of impermeable plastic sheeting 125 micron thick | sqm | 3675.000 | 32.00 | 117600.00 | M-164 |
| | | | Pre moulded Joint filler, 25 mm thick for expansion joint. | sqm | 16.330 | 950.00 | 15513.50 | M-141 |
| | | | Joint sealant | kg | 875.000 | 340.00 | 297500.00 | M-120 |
| | | | Sealant primer | kg | 116.670 | 281.00 | 32784.27 | M-097 |
| | | | Plastic sheath,1.25 mm thick for dowel bars | sqm | 46.670 | 2.00 | 93.34 | M-138 |
| | | | Curing compound | liter | 1850.000 | 59.00 | 109150.00 | M-090 |
| | | | Super plastisizer admixture IS marked as per 9103-1999 @ 0.5 per cent by weight of cement | kg | 2070.000 | 64.00 | 132480.00 | M-180 |
| | | | Cost of water | KL | 216.000 | 71.00 | 15336.00 | M-189 |
| | | | Add 1 per cent 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. | | | | 72739.97 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1509537.15 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 899732.06 | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 989705.27 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 108867.58 | |
| | | | Cost for 1050cum = a+b+c+d+e+f+g | | | | 10995625.54 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/1050** | | | | 10472.02 | |
| | | | | | | ***say*** | ***10472.00*** | |
| | | *Note* | The quantities for cement, coarse aggregate and fine aggregates are for estimating only .The exact quantities will be as per mix design. | | | | | |
| **6.3** | *603* | | **Rolled Cement Concrete Base** | | | | | |
| | | | **Construction of rolled cement concrete base course with coarse and fine aggregate conforming to IS:383, the size of coarse aggregate not exceeding 25 mm with minimum, aggregate cement ratio15:1 and minimum cement content of 200 kg/cum, aggregate gradation to be as per table 600-4 after blending, mixing in batching plant at optimum moisture content, transporting to site, laying with a paver with electronic sensor, compacting with 8-10 tonnes smooth wheeled vibratory roller to achieve, the designed flexural strength, finishing and curing.** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 450 cum (990 tonne)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 1.200 | 551.00 | 661.20 | L-12 |
| | | | Mazdoor skilled | day | 7.000 | 508.00 | 3556.00 | L-15 |
| | | | Mazdoor | day | 23.000 | 424.00 | 9752.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Front end loader 1 cum bucket capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Cement concrete batch mix plant @ 75 cum per hour | hour | 6.000 | 5170.00 | 31020.00 | P&M-068 |
| | | | Electric generator 100 KVA | hour | 6.000 | 938.00 | 5628.00 | P&M-080 |
| | | | Paver with electronic sensor @ 75 cum/hr. | hour | 6.000 | 3847.00 | 23082.00 | P&M-034 |
| | | | Vibratory roller 8-10 t capacity | hour | 8.000 | 969.00 | 7752.00 | P&M-059 |
| | | | Water tanker with 5 km lead 6 KL capacity | hour | 8.000 | 724.00 | 5792.00 | P&M-060 |
| | | | Tipper | tonne.km | 990xL | 18.00 | 0.00 | Lead =0 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage to cover cost of loading and unloading | | | | 0.00 | |
| | | | **c) Material** | | | | | |
| | | | Crushed stone coarse aggregates of 25mm and 12.5mm nominal size @ 0.90 cum/cum of concrete conforming to clause 602.2.3. | cum | 405.000 | 1870.00 | 757350.00 | M-052 and M-054 |
| | | | Sand as per IS: 383 and conforming to clause 602.2.3 @ 0.45 cum/cum of concrete | cum | 203.000 | 650.00 | 131950.00 | M-004 |
| | | | Cement @ 200 kg/cum of concrete | tonne | 90.000 | 9100.00 | 819000.00 | M-081 |
| | | | Cost of water | KL | 48.000 | 71.00 | 3408.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 364891.81 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 217487.10 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 239235.81 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 26315.94 | |
| | | | Cost for 450cum = a+b+c+d+e+f+g | | | | 2657909.86 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/450** | | | | 5906.47 | |
| | | | | | | ***say*** | ***5906.00*** | |
| | | *Note* | The quantities for cement, coarse aggregate and fine aggregates are for estimating only .The exact quantities will be as per mix design. | | | | | |

## Chapter–8

## TRAFFIC SIGNS, MARKINGS AND OTHER APPURTENANCES

**Preamble:**

1 Rate analysis for fencing has been done for two different heights, i.e., 1.20 m and 1.80 m. 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 fencing with mesh size of 75X25 mm

c) Welded steel wire fabric with mesh size of 75X50 mm

3 Kerbstone laying and road marking has been provided for laying by mechanical means.

4 Back filling of foundatin of boudary pillars has been proposed with stone spalls, tightly packed and compacted.

5 The item pertaining to road traffic signals has not been analysed as this is a specialised work and rates can be obtained from firms having specialisation for design and installation of this work.

6 For metal beam crash barrier, a 'W' shaped beam of size 311 x 83 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 150 x 75 x 5 mm with a spacer of channel section 150 x 75 x 5 mm, 330 mm long.

7 Printing of letters and signs is required to be measured and paid separately. A separate rate for lettering has been prepared and included in this chapter for this purpose.

8 Two support have been provided for direction and place identification signs where size is more than 0.9 sqm. Only one support is provided for size upto 0.9 sqm.

9 The traffic signs proposed are of retro-reflectorised type made of encapsulated lens type reflective sheeting fixed over almunium sheeting as per Clause 801.3 and installation.

10 The size, location of traffic signs shall be as per IRC:67.

11 The rates for rigid, semi-regid and flexible crash barriershave been included.

12 Provision has been made for a crance for installation of overhead signs.

13 Separate rates have been derived for Tubular steel railing with RCC posts and MS steel posts.

14 The organisation and financial aspects are required to be finalised in consultation with administrative and traffic authorities.

15 The rate for message display board for gantry mounted variable message sign is required to be ascertained from the market, this being a commercially produced item by specialised firms.

16 The rate analysis for traffic impact attenuators at abutments and piers have been inlcuded.

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 like coastal areas.

18 **Ducts for Utility Services Along and Across the Expressway/Highways :**

The running metre cost of duct along the road including inspection chambers (where applicable) or across the road will 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 metre 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.

Alternatively, wherever space permits, cluster of trees, shrubs and plants can be grown by the road side 6 m away from the edge of the roadway. This will intercept the annoying sound waves and fumes from road vehicles.

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 8.1 | 408 | | **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-10 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 408** | | | | | |
| | | | ***Unit = Running metre*** | | | | | |
| | | | ***Taking output = 360 metre*** | | | | | |
| | | A. | **Using Concrete Mixer** | | | | | |
| | | | **Cement Concrete** | | | | | |
| | | | Cement concrete of grade M20 = 12.60 cum | | | | | |
| | | | Cement concrete of grade M10 for base= 11.61 cum | | | | | |
| | | | Total Concrete = **24.21 cu.m** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.720 | 551.00 | 396.72 | L-12 |
| | | | Mason | day | 2.000 | 593.00 | 1186.00 | L-11 |
| | | | Mazdoor | day | 16.000 | 424.00 | 6784.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Kerb casting machine @ 60 metres/hour | hour | 6.000 | 407.00 | 2442.00 | P&M-029 |
| | | | Concrete mixer 0.48/0.28 cum capacity | hour | 12.000 | 291.00 | 3492.00 | P&M-009 |
| | | | Water tanker6 KL capacity | hour | 5.000 | 724.00 | 3620.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Crushed stone aggregate 20 mm nominal size 59 per cent | cum | 21.790 | 1900.00 | 41401.00 | M-053 |
| | | | Coarse sand 30 per cent | cum | 10.900 | 650.00 | 7085.00 | M-005 |
| | | | Cement 11 per cent | tonne | 5.700 | 9100.00 | 51870.00 | M-081 |
| | | | Cost of water | KL | 30.000 | 71.00 | 2130.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 24273.99 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 14468.07 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 15914.88 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1750.64 | |
| | | | Cost for 360 meter = a+b+c+d+e+f+g | | | | 176814.30 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g)/360** | | | | 491.15 | |
| | | | | | | ***say*** | ***491.00*** | |
| | | B | **Using Concrete Batching and Mixing Plant** | | | | | |
| | | | **Cement Concrete** | | | | | |
| | | | Cement concrete of grade M20 = 12.60 cum | | | | | |
| | | | Cement concrete of grade M10 for base = 11.61 cum | | | | | |
| | | | Total Concrete = **24.21 cu.m** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.120 | 551.00 | 66.12 | L-12 |
| | | | Mason | day | 1.000 | 593.00 | 593.00 | L-11 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Kerb casting machine @ 60 metres/hour | hour | 6.000 | 407.00 | 2442.00 | P&M-029 |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Concrete batching and mixing plant @ 15 cum/hr. | hour | 1.600 | 3154.00 | 5046.40 | P&M-003 |
| | | | Water tanker6 KL capacity | hour | 5.000 | 724.00 | 3620.00 | P&M-060 |
| | | | Tipper 5.5 cum capacity | hour | 6.000 | 916.00 | 5496.00 | P&M-048 |
| | | | **c) Material** | | | | | |
| | | | Crushed stone aggregate 20 mm nominal size 59 per cent | cum | 21.790 | 1900.00 | 41401.00 | M-053 |
| | | | Coarse sand 30 per cent | cum | 10.900 | 650.00 | 7085.00 | M-004 |
| | | | Cement 11 per cent | tonne | 5.700 | 9100.00 | 51870.00 | M-081 |
| | | | Cost of water | KL | 30.000 | 71.00 | 2130.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 24312.46 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 14491.00 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 15940.10 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1753.41 | |
| | | | Cost for 360 meter = a+b+c+d+e+f+g | | | | 177094.49 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g)/360** | | | | 491.93 | |
| | | | | | | ***say*** | ***492.00*** | |
| **8.2** | 408 | | **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 M10 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 408** | | | | | |
| | | A | **Using Concrete Mixer** | | | | | |
| | | | ***Unit = Running metre*** | | | | | |
| | | | ***Taking output = 300 metre length*** | | | | | |
| | | | **Cement Concrete** | | | | | |
| | | | Cement concrete of grade M20= 17.48 cum | | | | | |
| | | | Cement concrete of grade M10 for base = 23.18 cum | | | | | |
| | | | Total Concrete = **40.66 cum** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.720 | 551.00 | 396.72 | L-12 |
| | | | Mason | day | 2.000 | 593.00 | 1186.00 | L-11 |
| | | | Mazdoor | day | 16.000 | 424.00 | 6784.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Kerb casting machine @ 50 metres/hour for laying kerb and channel | hour | 6.000 | 407.00 | 2442.00 | P&M-029 |
| | | | Concrete mixer 0.48/0.28 | hour | 16.000 | 291.00 | 4656.00 | P&M-009 |
| | | | Water tanker6 KL capacity | hour | 6.000 | 724.00 | 4344.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Crushed stone aggregate 20 mm nominal size 60 per cent | cum | 36.590 | 1900.00 | 69521.00 | M-053 |
| | | | Coarse sand 30 per cent | cum | 18.300 | 650.00 | 11895.00 | M-005 |
| | | | Cement 10 per cent | tonne | 9.010 | 9100.00 | 81991.00 | M-081 |
| | | | Cost of water | KL | 36.000 | 71.00 | 2556.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 37451.58 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 22322.33 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 24554.56 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 2701.00 | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Cost for 300 meter = a+b+c+d+e+f+g | | | | 272801.19 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g)/300** | | | | 909.34 | |
| | | | | | | ***say*** | ***909.00*** | |
| **8.2** | | **B** | **Using Concrete Batching and Mixing Plant** | | | | | |
| | | | ***Unit = Running metre*** | | | | | |
| | | | ***Taking output = 300 metre length*** | | | | | |
| | | | **Cement Concrete** | | | | | |
| | | | Cement concrete of grade M20= 17.48 cum | | | | | |
| | | | Cement concrete of grade M10 for base = 23.18 cum | | | | | |
| | | | Total Concrete = **40.66 cum** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.120 | 551.00 | 66.12 | L-12 |
| | | | Mason | day | 1.000 | 593.00 | 593.00 | L-11 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Kerb casting machine @ 50 metres/hour for laying kerb and channel | hour | 6.000 | 407.00 | 2442.00 | P&M-029 |
| | | | Concrete batching and mixing plant @ 15 cum/hr. | hour | 2.700 | 3154.00 | 8515.80 | P&M-003 |
| | | | Water tanker6 KL capacity | hour | 6.000 | 724.00 | 4344.00 | P&M-060 |
| | | | Tipper of 5.5 cum capacity | hour | 6.000 | 916.00 | 5496.00 | P&M-048 |
| | | | **c) Material** | | | | | |
| | | | Crushed stone aggregate 20 mm nominal size 60 per cent | cum | 36.590 | 1900.00 | 69521.00 | M-053 |
| | | | Coarse sand 30 per cent | cum | 18.300 | 650.00 | 11895.00 | M-004 |
| | | | Cement 10 per cent | tonne | 9.010 | 9100.00 | 81991.00 | M-081 |
| | | | Cost of water | KL | 36.000 | 71.00 | 2556.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 37954.81 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 22622.27 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 24884.50 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 2737.30 | |
| | | | Cost for 300 meter = a+b+c+d+e+f+g | | | | 276466.80 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g)/300** | | | | 921.56 | |
| | | | | | | ***say*** | ***922.00*** | |
| **8.3** | 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*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.120 | 551.00 | 66.12 | L-12 |
| | | | Painter | day | 2.000 | 593.00 | 1186.00 | L-18 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Paint | Litre | 0.700 | 450.00 | 315.00 | M-131 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 401.41 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 239.25 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 263.18 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 28.95 | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Cost for 1600 cm = a+b+c+d+e+f | | | | 2923.91 | |
| | | | **Rate per cm height per letter = (a+b+c+ d+e+f)/1600** | | | | 1.83 | |
| | | | | | | ***say*** | ***1.80*** | |
| **8.3** | | **(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 | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.070 | 551.00 | 38.57 | L-12 |
| | | | Painter Ist class | day | 1.250 | 593.00 | 741.25 | L-18 |
| | | | Mazdoor | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Paint | Litre | 0.500 | 450.00 | 225.00 | M-131 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 245.31 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 146.21 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 160.83 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 17.69 | |
| | | | Cost for 1600 cm = a+b+c+d+e+f | | | | 1786.86 | |
| | | | **Rate per cm height per letter = (a+b+c +d+e+f)/1600** | | | | 1.12 | |
| | | | | | | ***say*** | ***1.10*** | |
| **8.5** | **801** | | **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 with area not exceeding 0.9 sqm supported on a mild steel single angle iron post 75 x 75 x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing** | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 0.9 sqm*** | | | | | |
| | | | **i) Excavation for foundation** | cum | 0.220 | 524.00 | 115.28 | Item No. 3.13 |
| | | | **ii) Cement concrete M15 grade** | cum | 0.120 | 9371.00 | 1124.52 | Item 12.8 (A) |
| | | | **iii) Painting angle iron post two coats** | sqm | 0.430 | 141.00 | 60.63 | Item 8.9 |
| | | | **(Including GST,OH,CP &Cess of i,ii & iii)** | | | | | |
| | | | **a) Labour (For fixing at site)** | | | | | |
| | | | Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| | | | Mazdoor | day | 0.200 | 424.00 | 84.80 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Mild steel angle iron 75 mm x 75 mm x 6 mm,2.85 metres long | kg | 19.000 | 50.73 | 963.87 | M-179 /1000 |
| | | | Aluminium sheeting fixed with encapsulated lens type reflective sheeting of size 0.9 sqm | sqm | 0.900 | 170.00 | 153.00 | M-061 |
| | | | Add 2 per cent of cost of materials for drilling holes, nuts, bolts, fabrication etc. | | | | | |
| | | | **c) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.020 | 530.00 | 10.60 | P&M-053 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 245.50 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 146.33 | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 160.96 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 17.71 | |
| | | | Cost for 0.9 sqm =i+ii+iii+ a+b+c+d+e+f+g | | | | 3088.71 | |
| | | | **Rate per sqm (for sign having area upto 0.9 sqm) = (I+ii+iii+a+b+c+d+e+f+g)/0.90** | | | | 3431.90 | |
| | | | | | | | ***say*** | ***3432.00*** |
| | | 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-15 and painting may be taken from respective chapters | | | | | |
| **8.6** | 801 | | **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 with area exceeding 0.9 sqm supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm, 2 Nos. firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing** | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 1.50 sqm*** | | | | | |
| | | | **i) Excavation for foundation** | cum | 0.430 | 524.00 | 225.32 | Item No. 3.13 |
| | | | **ii) Cement concrete M15 grade** | cum | 0.240 | 9371.00 | 2249.04 | Item 12.8 (A) |
| | | | **iii) Painting angle iron post 2 coats** | sqm | 0.860 | 141.00 | 121.26 | Item 8.9 |
| | | | **(Including GST,OH,CP &Cess of i,ii & iii)** | | | | | |
| | | | **a) Labour (For fixing at site)** | | | | | |
| | | | Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| | | | Mazdoor | day | 0.300 | 424.00 | 127.20 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Mild steel angle iron 75 mm x 75 mm x 6 mm, 2.85 metres long, 2 nos | kg | 38.000 | 50.73 | 1927.74 | M-179 /1000 |
| | | | Aluminium sheeting fixed with encapsulated lens type reflective sheeting | sqm | 1.500 | 170.00 | 255.00 | M-061 |
| | | | Add 2 per cent of cost of materials for drilling holes, nuts, bolts, fabrication etc. | | | | | |
| | | | **c) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.020 | 530.00 | 10.60 | P&M-053 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 468.93 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 279.50 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 307.45 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 33.82 | |
| | | | Cost for 1.5 sqm =I+ii+ii+ a+b+c+d+e+f+g | | | | 6011.37 | |
| | | | **Rate per sqm ( for sign having area more than 0.9 sqm) = i+ii+iii+a+b+c+d+e+f+g)/1.50** | | | | 6679.30 | |
| | | | | | | | ***say*** | ***6679.00*** |
| | | 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-15 and painting may be taken from respective chapters | | | | | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 8.8 | 803 | | **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 | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 40 sqm*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.120 | 551.00 | 66.12 | L-12 |
| | | | Painter | day | 2.000 | 593.00 | 1186.00 | L-18 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Paint conforming to requirement of clause 803.3. | Litre | 6.000 | 450.00 | 2700.00 | M-132 |
| | | | Add for scaffolding @ 1 per cent of labour cost where required | | | | 27.00 | |
| | | | Add @ 5 per cent cost of labour and materials to prepare the surface by filling minuts roughness on the surface and priming the surface before laying 2 coats of painting. | | | | 218.81 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 931.78 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 555.37 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 610.91 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 67.20 | |
| | | | Cost for 40 sqm = a+b+c+d+e+f | | | | 6787.19 | |
| | | | **Rate per sqm = (a+b+c+d+e+f)/40** | | | | 169.68 | |
| | | | | | | ***say*** | ***170.00*** | |
| 8.9 | 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 | 0.030 | 551.00 | 16.53 | L-12 |
| | | | Painter | day | 0.450 | 593.00 | 266.85 | L-18 |
| | | | Mazdoor | day | 0.250 | 424.00 | 106.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Paint ready mixed approved brand. | Litre | 1.250 | 450.00 | 562.50 | M-131 |
| | | | Add @ 1 per cent on cost of material for scaffolding | | | | 5.63 | |
| | | | Add @ 5 per cent cost of labour and materials to prepare the surface by filling minuts roughness on the surface and priming the surface before laying 2 coats of painting. | | | | 47.59 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 202.63 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 120.77 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 132.85 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 14.61 | |
| | | | Cost for 10 sqm = a+b+c+d+e+f | | | | 1475.96 | |
| | | | **Rate per sqm= (a+b+c+d+e+f)/10** | | | | 147.60 | |
| | | | | | | ***say*** | ***148.00*** | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 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 | 0.030 | 551.00 | 16.53 | L-12 |
| | | | Painter | day | 0.500 | 593.00 | 296.50 | L-18 |
| | | | Mazdoor | day | 0.200 | 424.00 | 84.80 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Paint ready mixed of approved brand. | Litre | 1.500 | 450.00 | 675.00 | M-131 |
| | | | Add @ 1 per cent on cost of material for scaffolding | | | | 6.75 | |
| | | | Add @ 5 per cent cost of labour and materials to prepare the surface by filling minuts roughness on the surface and priming the surface before laying 2 coats of painting. | | | | 53.64 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 228.46 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 136.17 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 149.79 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 16.48 | |
| | | | Cost for 10 sqm = a+b+c+d+e+f | | | | 1664.12 | |
| | | | **Rate per sqm= (a+b+c+d+e+f)/10** | | | | 166.41 | |
| | | | | | | ***say*** | ***166.00*** | |
| 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 | 0.090 | 551.00 | 49.59 | L-12 |
| | | | Painter | day | 0.550 | 593.00 | 326.15 | L-18 |
| | | | Mazdoor | day | 1.550 | 424.00 | 657.20 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Road marking Paint as per IS :164 | Litre | 1.480 | 450.00 | 666.00 | M-132 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 342.51 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 204.15 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 224.56 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 24.70 | |
| | | | Cost for 10 sqm = a+b+c+d+e+f | | | | 2494.86 | |
| | | | **Rate per sqm= (a+b+c+d+e+f)/10** | | | | 249.49 | |
| | | | | | | ***say*** | ***249.00*** | |
| 8.11 | | (ii) | **Up to 10 cm in width** | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | Taking output = 10 sqm | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.070 | 551.00 | 38.57 | L-12 |
| | | | Painter | day | 0.350 | 593.00 | 207.55 | L-18 |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Mazdoor | day | 1.350 | 424.00 | 572.40 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Road marking paint | Litre | 1.480 | 450.00 | 666.00 | M-132 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 299.28 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 178.38 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 196.22 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 21.58 | |
| | | | Cost for 10 sqm = a+b+c+d+e+f | | | | 2179.98 | |
| | | | **Rate per sqm= (a+b+c+d+e+f)/10** | | | | 218.00 | |
| | | | | | | ***say*** | ***218.00*** | |
| **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 | 0.060 | 551.00 | 33.06 | L-12 |
| | | | Painter Ist class | day | 0.300 | 593.00 | 177.90 | L-18 |
| | | | Mazdoor | day | 1.250 | 424.00 | 530.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Road marking paint | Litre | 0.900 | 450.00 | 405.00 | M-132 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 231.03 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 137.70 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 151.47 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 16.66 | |
| | | | Cost for 10 sqm = a+b+c+d+e+f | | | | 1682.82 | |
| | | | **Rate per sqm= (a+b+c+d+e+f)/10** | | | | 168.28 | |
| | | | | | | ***say*** | ***168.00*** | |
| **8.12** | | (ii) | **Up to 10 cm in width** | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | Taking output = 10 sqm | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.070 | 551.00 | 38.57 | L-12 |
| | | | Painter Ist class | day | 0.350 | 593.00 | 207.55 | L-18 |
| | | | Mazdoor | day | 1.350 | 424.00 | 572.40 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Road marking Paint | Litre | 0.900 | 450.00 | 405.00 | M-132 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 246.66 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 147.02 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 161.72 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 17.79 | |
| | | | Cost for 10 sqm = a+b+c+d+e+f | | | | 1796.71 | |
| | | | **Rate per sqm= (a+b+c+d+e+f)/10** | | | | 179.67 | |
| | | | | | | ***say*** | ***180.00*** | |
| **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.** | | | | | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 600 sqm*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.030 | 551.00 | 16.53 | L-12 |
| | | | Mazdoor | day | 0.750 | 424.00 | 318.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Road marking machine @ 60 sqm per hour | hour | 10.000 | 128.00 | 1280.00 | P&M-043 |
| | | | Tractor-trolley | hour | 0.500 | 530.00 | 265.00 | P&M-053 |
| | | | **c) Material** | | | | | |
| | | | Hot applied thermoplastic compound | Litre | 1500.000 | 209.00 | 313500.00 | M-118 |
| | | | Reflectorising glass beads | kg | 150.000 | 243.00 | 36450.00 | M-152 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 70928.83 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 42275.84 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 46503.42 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 5115.38 | |
| | | | Cost for 600 sqm = a+b+c+d+e+f+g | | | | 516653.00 | |
| | | | **Rate per sqm = a+b+c+d+e+f+g)/600** | | | | 861.09 | |
| | | | | | | ***say*** | ***861.00*** | |
| | | 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 | 9371.00 | 22021.85 | Item 12.8 (A) |
| | | | **b) Steel reinforcement @ 5 kg per sqm** | kg | 22.080 | 120.32 | 2656.67 | Item 13.6/1000 |
| | | | **c) Excavation in soil for foundation** | cum | 1.680 | 524.00 | 880.32 | Item No. 3.13 |
| | | | **d) Painting two coats on concrete surface** | sqm | 9.850 | 162.00 | 1595.70 | Item 8.8 |
| | | | **e) Lettering on km post (average 30 letters of 10 cm height each)** | per cm per letter | 1800.000 | 1.10 | 1980.00 | Item 8.3 |
| | | | **(Including GST,OH,CP &Cess of a,b,c,d & e)** | | | | | |
| | | | **Transportation and fixing** | | | | | |
| | | | **f) Labour** | | | | | |
| | | | Mate | day | 0.260 | 551.00 | 143.26 | L-12 |
| | | | Mason | day | 0.600 | 593.00 | 355.80 | L-11 |
| | | | Mazdoor including loading/unloading | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | | **g) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 6.000 | 530.00 | 3180.00 | P&M-053 |
| | | | **h) GST (multiplying factor 0.2016) on (f+g)** | | | | 1254.57 | |
| | | | **i) Overhead charges @ 10 % on (f+g+h)** | | | | 747.76 | |
| | | | **j) Contractor's profit @ 10 % on (f+g+h+i)** | | | | 822.54 | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **k) Cess @ 1% on (f+g+h+i+j)** | | | | 90.48 | |
| | | | Cost for 6 Nos. 5th km stone = a+b+c+ d+e +f+g+h +i +j+k | | | | 38272.95 | |
| | | | **Rate for each 5th km stone = (a+b+c+d+e +f+g+h+i+j+k)/6** | | | | 6378.83 | |
| | | | | | | ***say*** | ***6379.00*** | |
| **8.14** | **(ii)** | | **Ordinary kilometer stone (precast)** | | | | | |
| | | | ***Unit = Nos.*** | | | | | |
| | | | ***Taking output = 14 Nos.*** | | | | | |
| | | | **a) M-15 grade of concrete** | cum | 3.770 | 9371.00 | 35328.67 | Item 12.8 (A) |
| | | | **b) Steel reinforcement @ 5 kg per sqm** | kg | 26.320 | 120.32 | 3166.82 | Item 13.6/1000 |
| | | | **c) Excavation in soil for foundation** | cum | 2.770 | 524.00 | 1451.48 | Item No. 3.13 |
| | | | **d) Painting two coats on concrete surface** | sqm | 11.410 | 162.00 | 1848.42 | Item 8.8 |
| | | | **e) Lettering on km post ( average 12 letters of 10 cm height each)** | per cm per letter | 1680.000 | 1.10 | 1848.00 | Item 8.3 |
| | | | **(Including GST,OH,CP &Cess of a,b,c,d & e)** | | | | | |
| | | | **Transportation and fixing** | | | | | |
| | | | **f) Labour** | | | | | |
| | | | Mate | day | 0.320 | 551.00 | 176.32 | L-12 |
| | | | Mason | day | 1.000 | 593.00 | 593.00 | L-11 |
| | | | Mazdoor | day | 7.000 | 424.00 | 2968.00 | L-13 |
| | | | **g) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 6.000 | 530.00 | 3180.00 | P&M-053 |
| | | | **h) GST (multiplying factor 0.2016) on (f+g)** | | | | 1394.53 | |
| | | | **i) Overhead charges @ 10 % on (f+g+h)** | | | | 831.19 | |
| | | | **j) Contractor's profit @ 10 % on (f+g+h+i)** | | | | 914.30 | |
| | | | **k) Cess @ 1% on (f+g+h+i+j)** | | | | 100.57 | |
| | | | Cost for 14 Nos. ordinary km stone = (a+b+ c +d+e+f+g+h+i+j+k) | | | | 53801.30 | |
| | | | **Rate for each ordinary km stone = (a+b+c +d+e+f+g+h+i+j+k)/14** | | | | 3842.95 | |
| | | | | | | ***say*** | ***3843.00*** | |
| **8.14** | **(iii)** | | **Hectometer stone (precast)** | | | | | |
| | | | ***Unit = Nos.*** | | | | | |
| | | | ***Taking output = 33 Nos.*** | | | | | |
| | | | **a) M-15 grade of concrete** | cum | 1.580 | 9371.00 | 14806.18 | Item 12.8 (A) |
| | | | **b) Steel reinforcement @ 5 kg per sqm** | kg | 66.000 | 120.32 | 7941.12 | Item 13.6/1000 |
| | | | **c) Excavation in soil for foundation** | cum | 1.390 | 524.00 | 728.36 | Item No. 3.13 |
| | | | **d) Painting two coats on concrete surface** | sqm | 6.270 | 162.00 | 1015.74 | Item 8.8 |
| | | | **e) Lettering on km post (average 1 letter of 10 cm height each)** | per cm per letter | 330.000 | 1.10 | 363.00 | Item 8.3 |
| | | | **(Including GST,OH,CP &Cess of a,b,c,d & e)** | | | | | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **Transportation and fixing** | | | | | |
| | | | **f) Labour** | | | | | |
| | | | Mate | day | 0.340 | 551.00 | 187.34 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 7.000 | 424.00 | 2968.00 | L-13 |
| | | | **g) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 6.000 | 530.00 | 3180.00 | P&M-053 |
| | | | **h) GST (multiplying factor 0.2016) on (f+g)** | | | | 1456.53 | |
| | | | **i) Overhead charges @ 10 % on (f+g+h)** | | | | 868.14 | |
| | | | **j) Contractor's profit @ 10 % on (f+g+h+i)** | | | | 954.95 | |
| | | | **k) Cess @ 1% on (f+g+h+i+j)** | | | | 105.04 | |
| | | | Cost for 33 Nos. Hectometer stone = (a+b +c +d+e+f+ g+h+i+j+k) | | | | 35463.90 | |
| | | | **Rate for each Hectometer stone = (a+b +c +d+e+f+ g+h+i+j+k) 33** | | | | 1074.66 | |
| | | | | | | ***say*** | ***1075.00*** | |
| | | Note | The rate for excavation, cement concrete, steel reinforcement, painting and lettering may be taken from respective chapters. | | | | | |
| **8.16** | 806 | | **Boundary pillar** | | | | | |
| | | | **Reinforced cement concrete M15 grade boundary pillars of standard design as per IRC:25-1967, fixed in position including finishing and lettering but excluding painting.** | | | | | |
| | | | ***Unit = Each*** | | | | | |
| | | | Taking output = 57 Nos. | | | | | |
| | | | **a) M-15 grade of the boundary stone** | cum | 1.250 | 9371.00 | 11713.75 | Item 12.8 (A) |
| | | | **b) Steel reinforcement** | kg | 79.800 | 120.32 | 9601.54 | Item 13.6/1000 |
| | | | **c) Excavation in soil** | cum | 10.720 | 524.00 | 5617.28 | Item No. 3.13 |
| | | | **d) Lettering, each 10 cm high** | per letter per cm high | 2280.000 | 1.10 | 2508.00 | Item 8.3 |
| | | | **(Including GST,OH,CP &Cess of a,b,c & d)** | | | | | |
| | | | **Transportation and fixing** | | | | | |
| | | | **e) Labour** | | | | | |
| | | | Mate | day | 0.570 | 551.00 | 314.07 | L-12 |
| | | | Mazdoor | day | 14.250 | 424.00 | 6042.00 | L-13 |
| | | | **f) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 6.000 | 530.00 | 3180.00 | P&M-053 |
| | | | **g) Material** | | | | | |
| | | | Stone spall | cum | 11.970 | 300.00 | 3591.00 | M-008 |
| | | | **h) GST (multiplying factor 0.2016) on (e+f+g)** | | | | 2646.42 | |
| | | | **i) Overhead charges @ 10 % on (e+f+g+h)** | | | | 1577.35 | |
| | | | **j) Contractor's profit @ 10 % on (e+f+g+h+i)** | | | | 1735.08 | |
| | | | **k) Cess @ 1% on (f+g+h+i+j)** | | | | 190.86 | |
| | | | Cost for 57 Nos. boundary pillar = (a+b +c+d +e+ f+g+h+i+j+k) | | | | 48717.35 | |
| | | | **Rate for each boundary pillar = (a+b+c+d+e+ f+g+h+i+j+k)/57** | | | | 854.69 | |
| | | | | | | ***say*** | ***855.00*** | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | 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 | 807 | | **G.I Barbed Wire Fencing 1.2 Metre High**<br>**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 807** | | | | | |
| | | | ***Unit = per running metre*** | | | | | |
| | | | Taking output = 30 metres | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.090 | 551.00 | 49.59 | L-12 |
| | | | Blacksmith | day | 0.250 | 593.00 | 148.25 | L-02 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Barbed wire 335 metres length @ 9.38 kg per 100 metres | kg | 31.420 | 102.00 | 3204.84 | M-063 |
| | | | MS angle iron 40 mm x 40mm x 6 mm, 23 metres in length @ 3.5 kg per metre | kg | 80.500 | 50.73 | 4083.77 | M-179 /1000 |
| | | | Add for GI staple binding wire, drilling holes etc. @ 2 per cent of the cost of material | | | | 145.77 | |
| | | | **c) Painting** | | | | | |
| | | | Applying two coats of painting on exposed surface of angle iron posts ( Rate as per item no. 8.9) | sqm | 2.110 | 141.00 | 297.51 | Item 8.9 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1709.61 | |
| | | | **e) Overhead charges @ 10 % on (a+b+d)** | | | | 1018.98 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+d+e)** | | | | 1120.88 | |
| | | | **g) Cess @ 1% on (a+b+d+e+f)** | | | | 123.30 | |
| | | | Cost for 30 metres fencing = a+b+c+d+e+f+g | | | | 12750.50 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g)/30** | | | | 425.02 | |
| | | | | | | ***say*** | ***425.00*** | |
| | | 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 | 807 | | **G.I Barbed Wire Fencing 1.8 Metre High**<br>**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 807** | | | | | |
| | | | ***Unit = per running metre*** | | | | | |
| | | | Taking output = 30 metres | | | | | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.120 | 551.00 | 66.12 | L-12 |
| | | | Blacksmith | day | 0.400 | 593.00 | 237.20 | L-02 |
| | | | Mazdoor | day | 2.500 | 424.00 | 1060.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Barbed wire 428 metres length @ 9.38 kg per 100 metres | kg | 40.150 | 102.00 | 4095.30 | M-063 |
| | | | MS angle iron 50 mm x 50 mm x 6 mm,33.8 metres in length @ 4.5 kg per metre | kg | 152.000 | 50.73 | 7710.96 | M-179 /1000 |
| | | | Add for GI staple, binding wire, drilling holes etc. @ 2 per cent of the cost of material | | | | 236.13 | |
| | | | **c) Painting** | | | | | |
| | | | Applying two coats of painting on exposed surface of angle iron posts (Including GST,OH,CP &Cess ) | sqm | 3.960 | 141.00 | 558.36 | Item 8.9 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 2702.59 | |
| | | | **e) Overhead charges @ 10 % on (a+b+d)** | | | | 1610.83 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+d+e)** | | | | 1771.91 | |
| | | | **g) Cess @ 1% on (a+b+d+e+f)** | | | | 194.91 | |
| | | | Cost for 30 metres fencing = a+b+c+d+e+f+g | | | | 20244.31 | |
| | | | **Rate per metre fencing = (a+b+c +d+e+f+g)/30** | | | | 674.81 | |
| | | | | | | ***say*** | ***675.00*** | |

**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 | 551.00 | 66.12 | L-12 |
| Welder | day | 1.000 | 593.00 | 593.00 | L-02 |
| Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| **b) Material** | | | | | |
| i) Angle iron for posts 50 x 50 x 6 mm | kg | 106.000 | 50.73 | 5377.38 | M-179 /1000 |
| ii) Runner flat 50 x 5 mm | kg | 26.000 | 50.73 | 1318.98 | M-179 /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 | 69.00 | 10419.00 | M-191 |
| **OR** | | | | | |
| 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 | | | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | 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 | | | | | |
| | | | **c) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.100 | 530.00 | 53.00 | P&M-053 |
| | | | **d) Painting** | | | | | |
| | | | Painting two coats including priming | sqm | 8.000 | 141.00 | 1128.00 | Item 8.9 |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 3764.98 | |
| | | | **f) Overhead charges @ 10 % on (a+b+c+e)** | | | | 2244.05 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+e+f)** | | | | 2468.45 | |
| | | | **h) Cess @ 1% on (a+b+c+e+f+g)** | | | | 270.87 | |
| | | | Cost for 30 metre = a+b+c+d+e+f+g+h | | | | 28551.83 | |
| | | | **Rate per metre = (a+b+c+d+e+f+h)/30** | | | | 951.73 | |
| | | | | | | ***say*** | ***952.00*** | |
| | | **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** | cum | 1.300 | 524.00 | 681.20 | Item No. 3.13 |
| | | | **ii) Foundation concrete M-15 grade PCC 6 x 0.6 x 0.6 x 0.3** | cum | 0.650 | 9371.00 | 6091.15 | Item 12.8 (A) |
| | | | **iii) Painting of pipe** | sqm | 4.710 | 141.00 | 664.11 | Item 8.9 |
| | | | **iv) Painting of channel section 6 nos,1.8 metres each 0.2 x 1.8 x 6 = 2.16** | sqm | 2.160 | 141.00 | 304.56 | Item 8.9 |
| | | | **(Including GST,OH,CP &Cess of i,ii,iii & iv)** | | | | | |
| | | | **a) Labour (For fixing at site)** | | | | | |
| | | | Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| | | | Mazdoor | day | 0.250 | 424.00 | 106.00 | L-13 |
| | | | Plumber | day | 0.010 | 593.00 | 5.93 | L-02 |
| | | | **b) Material** | | | | | |
| | | | Steel pipe 50 mm external dia as per IS:1239 | metre | 30.000 | 280.00 | 8400.00 | M-175 |
| | | | Medium weight steel channel (ISMC series) 100 mm x 50 mm,10.8 metres length @ 9.2 kg per metre | kg | 99.360 | 50.73 | 5040.53 | M-179 /1000 |
| | | | Add for drilling holes @ 2 per cent of cost of channels | | | | 100.81 | |
| | | | **c) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.040 | 530.00 | 21.20 | P&M-053 |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 2757.88 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 1643.79 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 1808.17 | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 198.90 | |
| | | | Cost for 10 metre =i+ii+iii+iv+ a+b+c+d+e+f+g | | | | 27829.74 | |
| | | | **Rate per metre = (i+ii+iii+iv+a+b+c+d+e+f+g)/10** | | | | 2782.97 | |
| | | | | | | ***say*** | ***2783.00*** | |
| **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, 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** | cum | 1.300 | 524.00 | 681.20 | Item No. 3.13 |
| | | | **ii) Foundation concrete M - 15 grade PCC 6 x 0.6 x 0.6 x 0.3** | cum | 0.650 | 9371.00 | 6091.15 | Item 12.8 (A) |
| | | | **iii) RCC M - 20 for pre cast posts 6 nos of 1.8 metres each** | cum | 0.320 | 11044.00 | 3534.08 | Item 14.1(A) |
| | | | **iv) Painting of pipe** | sqm | 4.710 | 141.00 | 664.11 | Item 8.9 |
| | | | **(Including GST,OH,CP &Cess of i,ii,iii & iv)** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| | | | Mazdoor | day | 0.350 | 424.00 | 148.40 | L-13 |
| | | | Plumber | day | 0.010 | 593.00 | 5.93 | L-02 |
| | | | **b) Material** | | | | | |
| | | | Steel pipe 50 mm dia as per IS:1239 | metre | 30.000 | 280.00 | 8400.00 | M-175 |
| | | | **c) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.250 | 530.00 | 132.50 | P&M-053 |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1752.38 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 1044.47 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 1148.92 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 126.38 | |
| | | | Cost for 10 metre =i+ii+iii+iv+ a+b+c+d+e+f+g | | | | 23735.03 | |
| | | | **Rate per metre = (i+ii+iii+iv+a+b+c+d+e+f+g)/10** | | | | 2373.50 | |
| | | | | | | ***say*** | ***2374.00*** | |
| **8.22** | 809 | | **Reinforced Cement Concrete Crash Barrier** | | | | | |
| | | | **Provision of an Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with M-20 grade concrete with HYSD reinforcement conforming to IRC:21 and dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board, keyed to the structure on which it is built and installed as per design given in the enclosure to MOST circular No. RW/NH - 33022/1/94-DO III dated 24 June 1994 as per dimensions in the approved drawing and at locations directed by the Engineer, all as specified** | | | | | |
| | | | ***Unit = Linear metre*** | | | | | |
| | | | Taking output = 10 m | | | | | |
| | | (i) | **a) M 20 grade concrete** | | | | | |
| | | | **M 20 grade concrete (Including GST,OH,CP &Cess)** | cum | 3.000 | 11044.00 | 33132.00 | Item 14.1(A) |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **c) Material** | | | | | |
| | | | HYSD steel reinforcement including dowel bars | tonne | 0.280 | 67000.00 | 18760.00 | M-082 |
| | | | Pre-moulded asphalt filler board | sqm | 0.320 | 71.00 | 22.72 | M-144 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3876.52 | |
| | | | **e) Overhead charges @ 10 % on (b+c+d)** | | | | 2310.53 | |
| | | | **f) Contractor's profit @ 10 % on (b+c+d+e)** | | | | 2541.58 | |
| | | | **g) Cess @ 1% on (b+c+d+e+f)** | | | | 279.57 | |
| | | | Cost for 10 metre = a+b+c+d+e+f+g | | | | 61368.96 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g)/10** | | | | 6136.90 | |
| | | | | | | ***say*** | ***6137.00*** | |
| | | Note | i) Excavation and backfilling are incidental to work and not to be measured separately. | | | | | |
| | | | ii) Rate for RCC M 20 may be taken from chapter on super structure. | | | | | |
| **8.23** | 810 | | **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 810** | | | | | |
| | | | ***Unit = Running metre*** | | | | | |
| | | | Taking output = 4.5 metre length | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.060 | 551.00 | 33.06 | L-12 |
| | | | Blacksmith | day | 0.500 | 593.00 | 296.50 | L-02 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.100 | 530.00 | 53.00 | P&M-053 |
| | | | **c) Material** | | | | | |
| | | | Corrugated sheet,3 mm thick, "W" beam section railing,4.5 m in length | kg | 41.210 | 50.73 | 2090.58 | M-179 /1000 |
| | | | Channel post 150 x 75 x 5 mm,1.8 m long,3 Nos @ 16.4 kg per metre | kg | 88.560 | 50.73 | 4492.65 | M-179 /1000 |
| | | | Spacer 150 x 75 x 5 mm channel 0.33 m long,3 Nos @ 16.4 kg per metre | kg | 16.240 | 50.73 | 823.86 | M-179 /1000 |
| | | | Nuts and bolts | kg | 20.000 | 120.00 | 2400.00 | M-130 |
| | | | Add 25 per cent of the cost of material for fabrication, nuts, bolts and washers etc.) | | | | 2451.77 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 2633.99 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 1569.94 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 1726.94 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 189.96 | |
| | | | Cost for 4.5 metre = a+b+c+d+e+f+g | | | | 19186.25 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g)/4.5** | | | | 4263.61 | |
| | | | | | | ***say*** | ***4264.00*** | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 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 810** | | | | | |
| | | | ***Unit = Running metre*** | | | | | |
| | | | Taking output = 4.5 metre length | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.060 | 551.00 | 33.06 | L-12 |
| | | | Blacksmith | day | 0.500 | 593.00 | 296.50 | L-02 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.100 | 530.00 | 53.00 | P&M-053 |
| | | | **c) Material** | | | | | |
| | | | Corrugated sheet,3 mm thick, "Thrie" beam section railing,4.5 m in length | kg | 72.940 | 71.00 | 5178.74 | M-088 |
| | | | Channel post 150 x 75 x 5 mm, 2 m long,3 Nos @ 16.4 kg per metre | kg | 98.400 | 50.73 | 4991.83 | M-179 /1000 |
| | | | Spacer 150 x 75 x 5 mm channel 0.546 m long,3 Nos | kg | 26.860 | 50.73 | 1362.61 | M-179 /1000 |
| | | | Nuts and bolts | kg | 30.000 | 120.00 | 3600.00 | M-130 |
| | | | Add 15 per cent of the cost of material for fabrication, nuts, bolts and washers etc.) | | | | 2269.98 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 3671.08 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 2188.08 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 2406.89 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 264.76 | |
| | | | Cost for 4.5 metre = a+b+c+d+e+f+g | | | | 26740.53 | |
| | | | **Rate per metre= (a+b+c+d+e+f+g)/4.5** | | | | 5942.34 | |
| | | | | | | ***say*** | ***5942.00*** | |
| | | Note | In the case of median crash barrier, 'W' metal beam or 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 450 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.** | | | | | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | ***Unit = Running metre*** | | | | | |
| | | | Taking output = 15 metre | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.120 | 551.00 | 66.12 | L-12 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | Blacksmith | day | 1.000 | 593.00 | 593.00 | L-02 |
| | | | **b) Material** | | | | | |
| | | | i) RS Joist 100 x 75 mm - 16.5 m @ 11.5 kg per metre | kg | 190.000 | 50.73 | 9638.70 | M-179 /1000 |
| | | | ii) Struts - 2 Nos. for terminal posts,2 m long each 2 x 2 x 11.50 | kg | 46.000 | 50.73 | 2333.58 | M-179 /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 | 50.73 | 9557.53 | M-179 /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 | 823.00 | 53495.00 | M-177 |
| | | | Add 5 per cent of cost of material for drilling, gripping, fixing, fabrication and welding consumables | | | | 3751.24 | |
| | | | **c) Painting** | | | | | |
| | | | Applying 2 coats of painting on exposed surface | sqm | 16.500 | 141.00 | 2326.50 | Item 8.9 |
| | | | **d) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.250 | 530.00 | 132.50 | P&M-053 |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+d)** | | | | 16211.80 | |
| | | | **f) Overhead charges @ 10 % on (a+b+d+e)** | | | | 9662.75 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+d+e+f)** | | | | 10629.02 | |
| | | | **h) Cess @ 1% on (a+b+d+e+f+g)** | | | | 1169.19 | |
| | | | Cost for 15 m = a+b+c+d+e+f+g+h | | | | 120414.93 | |
| | | | **Rate per m = (a+b+c+d+e+f+g+h)/15** | | | | 8027.66 | |
| | | | | | | ***say*** | ***8028.00*** | |

**Note** The items of excavations and cement concrete works will be measured and included separately as per the approved designs and drawings.

**8.27** Suggestive **Street Lighting**

**Providing and erecting street light mounted on a steel circular hollow pole of standard specifications for street lighting, 9 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 | 551.00 | 16.53 | L-12 |
| | | | Mazdoor | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | Electrician | day | 0.250 | 593.00 | 148.25 | L-02 |
| | | | **b) Material** | | | | | |
| | | | i) Steel circular hollow pole of standard specification for street lighting to mount light at 9 m height above road level | each | 1.000 | 10625.00 | 10625.00 | M-171 |
| | | | ii) Sodium vapour lamp | each | 1.000 | 2125.00 | 2125.00 | M-168 |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Add 5 per cent of cost of material for holder, electric cable, insulation, ladder, scaffolding etc | | | | 637.50 | |
| | | | **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 | 141.00 | 810.75 | Item 8.9 |
| | | | **For fixing in Footpath** | | | | | |
| | | | Providing two coats of alluminium paint over steel circular hollow pipe with overhang on one side | sqm | 4.630 | 141.00 | 652.83 | Item 8.9 |
| | | | (Including GST,OH,CP &Cess of C) | | | | | |
| | | (i) | **For Fixing in Median** | | | | | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 2774.88 | |
| | | | **e) Overhead charges @ 10 % on (a+b+d)** | | | | 1653.92 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+d+e)** | | | | 1819.31 | |
| | | | **g) Cess @ 1% on (a+b+d+e+f)** | | | | 200.12 | |
| | | | **Rate per light for fixing in Median= a+b+c+d+e+f+g** | | | | 21676.09 | |
| | | | | | | ***say*** | ***21676.00*** | |
| | | (ii) | **For fixing in Footpath** | | | | | |
| | | | **Rate per light for Fixing in Footpath = a+b+c+d+e** | | | | 20865.34 | |
| | | | | | | ***say*** | ***20865.00*** | |
| | | 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 | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Mazdoor | day | 0.400 | 424.00 | 169.60 | L-13 |
| | | | Electrician | day | 0.200 | 593.00 | 118.60 | 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 | 6500.00 | 6500.00 | M-170 |
| | | | ii) Sodium vapour lamp 70 watt | each | 1.000 | 2125.00 | 2125.00 | M-168 |
| | | | Add 1 per cent of cost of material for holder, electric cable, insulation, ladder, scaffolding etc | | | | 86.25 | |
| | | | **c) Painting** | | | | | |
| | | | Providing two coats of alluminium paint over steel circular hollow pipe | sqm | 2.760 | 141.00 | 389.16 | Item 8.9 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1816.51 | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) Overhead charges @ 10 % on (a+b+d)** | | | | 1082.70 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+d+e)** | | | | 1190.97 | |
| | | | **g) Cess @ 1% on (a+b+d+e+f)** | | | | 131.01 | |
| | | | **Rate per light = a+b+c+d+e+f+g** | | | | 13620.82 | |
| | | | | | | ***say*** | ***13621.00*** | |
| | | 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 (Including GST,OH,CP &Cess of a)** | cum | 2.360 | 5605.00 | 13227.80 | Item 12.7 (Addl) B) |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.050 | 551.00 | 27.55 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | Mazdoor skilled | day | 0.250 | 508.00 | 127.00 | L-15 |
| | | | **c) Material** | | | | | |
| | | | Reinforced Cement Concrete pipe 300 mm dia | metre | 20.000 | 490.00 | 9800.00 | M-151 |
| | | | Granular soil with PI less than 6 for bedding and sides of pipe (0.6 x 0.6 x 20 m) | cum | 7.200 | 500.00 | 3600.00 | M-009 |
| | | | Collar for joints 300 mm dia | each | 9.000 | 143.00 | 1287.00 | M-083 |
| | | | Cement mortar 1:2 for joints (Excluding GST,OH,CP &Cess) | cum | 0.020 | 7105.00 | 142.10 | Item 12.6 (B) |
| | | | **d) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.500 | 530.00 | 265.00 | P&M-053 |
| | | | **e) GST (multiplying factor 0.2016) on (b+c+d)** | | | | 3159.61 | |
| | | | **f) Overhead charges @ 10 % on (b+c+d+e)** | | | | 1883.23 | |
| | | | **g) Contractor's profit @ 10 % on (b+c+d+e+f)** | | | | 2071.55 | |
| | | | **h) Cess @ 1% on (b+c+d+e+f+g)** | | | | 227.87 | |
| | | | Cost for 20 metre = a+b+c+d+e+f+g+h | | | | 36242.71 | |
| | | | **Rate per metre = (a+b+c+d+e+f+h)/20** | | | | 1812.14 | |
| | | | | | | ***say*** | ***1812.00*** | |
| **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. (Including GST,OH,CP &Cess)** | cum | 3.370 | 5605.00 | 18888.85 | Item 12.7 (Addl) B) |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.050 | 551.00 | 27.55 | L-12 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | Mazdoor skilled | day | 0.250 | 508.00 | 127.00 | L-15 |
| | | | **c) Material** | | | | | |
| | | | Reinforced Cement Concrete pipe 300 mm dia | metre | 40.000 | 490.00 | 19600.00 | M-151 |
| | | | Granular soil with PI less than 6 for bedding and sides of pipe (0.6 x 0.6 x 40 m) | cum | 14.400 | 500.00 | 7200.00 | M-009 |
| | | | Collar for joints 300 mm dia | each | 18.000 | 143.00 | 2574.00 | M-083 |
| | | | Cement mortar 1:2 for joints (Excluding GST,OH,CP &Cess) | cum | 0.040 | 7105.00 | 284.20 | Item 12.6 (B) |
| | | | **d) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 1.000 | 530.00 | 530.00 | P&M-053 |
| | | | **e) GST (multiplying factor 0.2016) on (b+c+d)** | | | | 6288.06 | |
| | | | **f) Overhead charges @ 10 % on (b+c+d+e)** | | | | 3747.88 | |
| | | | **f) Overhead charges @ 10 % on (b+c+d+e)** | | | | 4122.67 | |
| | | | **h) Cess @ 1% on (b+c+d+e+f+g)** | | | | 453.49 | |
| | | | Cost for 20 metre = a+b+c+d+e+f+g+h | | | | 64691.70 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g+h)/20** | | | | 3234.59 | |
| | | | | | | ***say*** | ***3235.00*** | |
| **8.29** | | (iii) | **Triple rRow for three utility services** | | | | | |
| | | | ***Unit = Running metre*** | | | | | |
| | | | Taking output = 20metres | | | | | |
| | | | **a) Random Rubble brick/Brick masonry in cement mortar 1:6 for head wall both sides. (Including GST,OH,CP &Cess)** | cum | 4.380 | 5605.00 | 24549.90 | Item 12.7 (Addl) B) |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.160 | 551.00 | 88.16 | L-12 |
| | | | Mazdoor | day | 3.000 | 424.00 | 1272.00 | L-13 |
| | | | Mazdoor skilled | day | 1.000 | 508.00 | 508.00 | L-15 |
| | | | **c) Material** | | | | | |
| | | | Reinforced Cement Concrete pipe 300 mm dia | metre | 60.000 | 490.00 | 29400.00 | M-151 |
| | | | Granular soil with PI less than 6 for bedding and sides of pipe (0.6 x 0.6 x 60 m) | cum | 21.600 | 500.00 | 10800.00 | M-009 |
| | | | Collar for joints 300 mm dia | each | 27.000 | 143.00 | 3861.00 | M-083 |
| | | | Cement mortar 1:2 for joints (Excluding GST,OH,CP &Cess) | cum | 0.060 | 7105.00 | 426.30 | Item 12.6 (B) |
| | | | **d) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 1.500 | 530.00 | 795.00 | P&M-053 |
| | | | **e) GST (multiplying factor 0.2016) on (b+c+d)** | | | | 9505.53 | |
| | | | **f) Overhead charges @ 10 % on (b+c+d+e)** | | | | 5665.60 | |
| | | | **g) Contractor's profit @ 10 % on (b+c+d+e+f)** | | | | 6232.16 | |
| | | | **h) Cess @ 1% on (b+c+d+e+f+g)** | | | | 685.54 | |
| | | | Cost for 20 metre = a+b+c+d+e+f+g+h | | | | 93789.19 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g+h)/20** | | | | 4689.46 | |
| | | | | | | ***say*** | ***4689.00*** | |

**Note** 1.Inspection chamber at both ends is the responsibility of the agency who is laying the duct. Hence not included.

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | 2.The rates for stone masonry / brick masonry and cement mortar to be adopted from respective clauses. | | | | | |
| 8.35 | Suggestive | | **Road Markers/Road Stud with Lense Reflector** | | | | | |
| | | | **Providing and fixing of road stud 100x 100 mm, die-cast in aluminium, resistant to corrosive effect of salt and grit, fitted with lense reflectors, installed in concrete or asphaltic surface by drilling hole 30 mm upto a depth of 60 mm and bedded in a suitable bituminous grout or epoxy mortar, all as per BS 873 part 4:1973** | | | | | |
| | | | ***Unit = Nos*** | | | | | |
| | | | Taking output = 50Nos | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Aluminium studs 100 x 100 mm fitted with lense reflectors | each | 50.000 | 567.00 | 28350.00 | M-062 |
| | | | Add 10 per cent of cost of material for fixing and installation | | | | 2835.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 6376.82 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 3800.79 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 4180.87 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 459.90 | |
| | | | Cost for 50 studs = a+b+c+d+e+f | | | | 46449.42 | |
| | | | **Rate per studs = (a+b+c+d+e+f)/50** | | | | 928.99 | |
| | | | | | | ***say*** | ***929.00*** | |
| 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 = Running metre*** | | | | | |
| | | | Taking output = 68 Nos. | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Mazdoor | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Traffic cones with 150 mm reflective sleeve | each | 68.000 | 1545.00 | 105060.00 | M-186 |
| | | | **c) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.100 | 530.00 | 53.00 | P&M-053 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 21235.74 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 12657.18 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 13922.89 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1531.52 | |
| | | | Cost for 68 Nos. = a+b+c+d+e+f+g | | | | 154683.35 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g)/68** | | | | 2274.76 | |
| | | | | | | ***say*** | ***2275.00*** | |
| 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 450, 'A' frame painted with 2 coats of yellow paint, complete as per IRC:SP:55-2001** | | | | | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | ***Unit = each*** | | | | | |
| | | | Taking output = one steel portable barricade | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Mazdoor | day | 0.250 | 424.00 | 106.00 | L-13 |
| | | | Painter | day | 0.500 | 593.00 | 296.50 | L-18 |
| | | | Welder | day | 0.250 | 593.00 | 148.25 | L-02 |
| | | | **b) Material** | | | | | |
| | | | Angle iron 45 x 45 x 5 mm | kg | 25.000 | 50.73 | 1268.25 | M-179 /1000 |
| | | | MS sheet 300 mm wide,2.5 m long and 2.6 mm thick | kg | 15.000 | 50.73 | 760.95 | M-179 /1000 |
| | | | Paint | litre | 0.500 | 450.00 | 225.00 | M-131 |
| | | | Add 2 per cent of cost of steel for welding consumables, nuts & bolts and drilling holes | | | | 40.58 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 575.88 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 343.24 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 377.57 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 41.53 | |
| | | | **Rate per barricade = a+b+c+d+e+f** | | | | 4194.77 | |
| | | | | | | ***say*** | ***4195.00*** | |
| **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 of450, complete as per IRC:SP:55-2001** | | | | | |
| | | | ***Unit = each*** | | | | | |
| | | | Taking output = one barricade | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.050 | 551.00 | 27.55 | L-12 |
| | | | Mazdoor | day | 0.300 | 424.00 | 127.20 | L-13 |
| | | | Painter | day | 0.600 | 593.00 | 355.80 | L-18 |
| | | | Welder | day | 0.300 | 593.00 | 177.90 | L-02 |
| | | | **b) Material** | | | | | |
| | | | Angle iron 50 x 50 x 5 mm,2 m long,2 Nos. | kg | 15.000 | 50.73 | 760.95 | M-179 /1000 |
| | | | MS sheet of 12 SWG,3 Nos of 200 mm width and 4 m length | kg | 50.000 | 50.73 | 2536.50 | M-179 /1000 |
| | | | Paint | litre | 1.000 | 450.00 | 450.00 | M-131 |
| | | | Add 1 per cent of cost of steel for welding consumables, nuts & bolts and drilling holes | | | | 65.95 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 907.57 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 540.94 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 595.04 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 65.45 | |
| | | | **Rate per barricade = a+b+c+d+e+f** | | | | 6610.85 | |
| | | | | | | ***say*** | ***6611.00*** | |
| **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 of450, complete as per IRC:SP:55-2001** | | | | | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | ***Unit = each*** | | | | | |
| | | | Taking output = one barricade | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.050 | 551.00 | 27.55 | L-12 |
| | | | Mazdoor | day | 0.300 | 424.00 | 127.20 | L-13 |
| | | | Painter | day | 0.600 | 593.00 | 355.80 | L-18 |
| | | | Carpenter | day | 0.600 | 593.00 | 355.80 | L-04 |
| | | | **b) Material** | | | | | |
| | | | Timber | cum | 0.180 | 28685.00 | 5163.30 | M-185 |
| | | | Add 1 per cent of cost of timber for nuts & bolts, nails, etc. | | | | 51.63 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1225.99 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 730.73 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 803.80 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 88.42 | |
| | | | **Rate per barricade = a+b+c+d+e+f** | | | | 8930.22 | |
| | | | | | | ***say*** | ***8930.00*** | |
| **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 | 551.00 | 132.24 | L-12 |
| | | | Mazdoor | day | 3.000 | 424.00 | 1272.00 | L-13 |
| | | | Painter | day | 1.000 | 593.00 | 593.00 | L-18 |
| | | | Mason | day | 2.000 | 593.00 | 1186.00 | L-11 |
| | | | **b) Material** | | | | | |
| | | | Brick | each | 1800.000 | 12.00 | 21600.00 | M-079 |
| | | | Cement | kg | 22.000 | 9.10 | 200.20 | M-081 /1000 |
| | | | Sand | cum | 0.090 | 650.00 | 58.50 | M-005 |
| | | | Paint | litre | 1.250 | 450.00 | 562.50 | M-131 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 5161.86 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 3076.63 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 3384.29 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 372.27 | |
| | | | **Rate per barricade = a+b+c+d+e+f** | | | | 37599.49 | |
| | | | | | | ***say*** | ***37599.00*** | |
| **8.45** | **suggest ive** | | **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:55-2001** | | | | | |
| | | | ***Unit = each*** | | | | | |
| | | | Taking output = one drum delineator | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Mazdoor | day | 0.250 | 424.00 | 106.00 | L-13 |
| | | | Painter | day | 0.250 | 593.00 | 148.25 | L-18 |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **b) Material** | | | | | |
| | | | Steel drum 300 mm dia 1.2 m high/empty bitumen drum | each | 1.000 | 71.00 | 71.00 | M-172 |
| | | | Paint | litre | 0.500 | 450.00 | 225.00 | M-131 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 113.15 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 67.44 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 74.19 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 8.16 | |
| | | | **Rate per drum delineator = a+b+c+d+e+f** | | | | 824.21 | |
| | | | | | | ***say*** | ***824.00*** | |
| **8.46** | 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 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Flag of red color cloth 600 x 600 mm | each | 1.000 | 69.00 | 69.00 | M-099 |
| | | | Wooden staff for fastening of flag 25 mm dia, one m long | each | 1.000 | 71.00 | 71.00 | M-196 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 118.15 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 70.42 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 77.46 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 8.52 | |
| | | | **Rate per flagman = a+b+c+d** | | | | 860.59 | |
| | | | | | | ***say*** | ***861.00*** | |
| **8.47** | 3.9 | | **Cement mortar 1 : 4 (1 cement : 4 fine sand)** | | | | | |
| | | | Details of cost for 1 Cu.m. | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Belder | Each | 0.600 | 424.00 | 254.40 | L-20 |
| | | | Bhisti | Each | 0.300 | 424.00 | 127.20 | L-21 |
| | | | **b) Material** | | | | | |
| | | | Cement | Tonne | 0.380 | 9100.00 | 3458.00 | M-081 |
| | | | Fine Sand | Cu.m. | 1.070 | 650.00 | 695.50 | M-006 |
| | | | **c) Transport** | | | | | |
| | | | Carriage of Cement | Tonne | 0.380 | 0.00 | 0.00 | |
| | | | Carriage of Fine Sand | Cu.m. | 1.070 | 0.00 | 0.00 | |
| | | | **d) Other Costs** | | | | | |
| | | | Sundries | | | LS | 10.31 | M-209 |
| | | | Hire and running charges of mech mixer | | | LS | 20.63 | |
| | | | | | | Cost of 1 Cu.m. | 4566.04 | |
| | | | | | | Cost per Cu.m. | 4566.04 | |
| | | | | | | **Say** | **4566.00** | |
| **8.48** | 16.68 | | **Providing and laying 60mm thick faciory made cement concrete interlocking paver block of M - 30 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over and including 50mm thick compacted bed of coarse sand, filling the joints with line sand etc. all complete as per the direction of Engineer-in-charge.** | | | | | |
| | | | Details of cost for 10.00 sqm | | | | | |
| | | | **a) Material** | | | | | |
| | | | Interlocking C.C. paver block ( 60 mm thick, M-30) | sqm | 10.000 | 420.00 | 4200.00 | M-203 |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Bedding layer - 50mm thick<br>Coarse sand =10x0.050=0.50 cum | cum | 0.500 | 650.00 | 325.00 | M-005 |
| | | | Fine sand | cum | 0.150 | 650.00 | 97.50 | M-006 |
| | | | **b) Transport** | | | | | |
| | | | Carriage of Coarse sand | cum | 0.500 | 0.00 | 0.00 | |
| | | | Carriage of Fine sand | cum | 0.150 | 0.00 | 0.00 | |
| | | | Laying charges (Bassed on actual observation) | | | | | |
| | | | **c) Labour** | | | | | |
| | | | Mason (1st Class) | day | 0.500 | 593.00 | 296.50 | L-11 |
| | | | Mason (2nd Class) | day | 0.500 | 551.00 | 275.50 | L-10 |
| | | | Beldar | day | 1.000 | 424.00 | 424.00 | L-20 |
| | | | Coolie | day | 0.500 | 424.00 | 212.00 | L-21 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1175.43 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 700.59 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 770.65 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 84.77 | |
| | | | **Rate per 10 Sqm = (a+b+c+d+e+f+g)** | | Cost for 10.00 sqm | | 8561.94 | |
| | | | | | | Cost per Sqm. | 856.19 | |
| | | | | | | **Say** | **856.20** | |
| **8.49** | 16.86.1 | | **Providing and laying gang saw cut 18 mm thick, mirror polished pre moulded and pre polished machine cut granite stone of required size and shape of approved shade, colour and texture in footpath, flooring cut granite stone of required size and shape of approved shade, colour and texture in footpath, flooring in road side plazas and similar locations, laid over 20mm thick base of cement mortar 1:4 (1cement : 4 coarse sand) including grouting the joints with white cement mixed with matching pigment, epoxy touch ups etc. complete as per direction of Engineer-in-Charge.** | | | | | |
| | | (i) | **With granite stone of area less than 0.50 sqm.** | | | | | |
| | | | Detail of cost for 0.50 sqm. | | | | | |
| | | | **a) Material**<br>Mirror polished granite 0.5 sqm.<br>Waste @5% = 0.025 +0.5 = 0.525 sqm. | | | | | |
| | | | Granite of any colour, 18 mm thick | sqm | 0.525 | 1739.00 | 912.98 | M-201 |
| | | | **(slab area upto 0.50 sqm)** | | | | | |
| | | | Mason (1st Class) | day | 0.560 | 593.00 | 332.08 | L-11 |
| | | | Beldar | day | 0.050 | 424.00 | 21.20 | L-20 |
| | | | Coolie | day | 0.050 | 424.00 | 21.20 | L-21 |
| | | | **c) Other Costs** | | | | | |
| | | | Base Cement mortar 1 : 4 (1 cement : 4 coarse sand) Rate as per item 8.47.<br>SH: Cement Mortars (Excluding GST,OH,CP &Cess) | cum | 0.012 | 4566.00 | 54.79 | Item 8.47 |
| | | | Sundries | | | LS | 48.40 | M-209 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 280.36 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 167.10 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 183.81 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 20.22 | |
| | | | **Rate per 0.50 sqm = (a+b+c+d+e+f+g)** | | Cost for 0.50 sqm | | **2042.14** | |
| | | | | | | Cost per sqm. | 4084.28 | |
| | | | | | | **Say** | **4084.30** | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 8.50 | 16.87.1 | | **Providing and laying gang saw cut 30 mm thick, mirror polished pre moulded and pre polished machine cut granite stone of required size and shape of approved shade, colour and texture in footpath, flooring in road side plazas and similar locations, laid over 20mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement mixed with matching pigment, epoxy touch ups etc. complete as per direction of Engineer-in-Charge.** | | | | | |
| | | (a) | **With granite stone of area less than 0.50 sqm.** | | | | | |
| | | | Detail of cost for 0.5 sqm. | | | | | |
| | | | **a) Material** | | | | | |
| | | | Mirror polished granite 0.50 sqm.<br>Waste @5% = 0.025 +0.5 = 0.525 sqm. | | | | | |
| | | | Granite stone slab 30mm thick | sqm | 0.525 | 1890.00 | 992.25 | M-202 |
| | | | **b) Labour** | | | | | |
| | | | Mason (1st Class) | day | 0.560 | 593.00 | 332.08 | L-11 |
| | | | Beldar | day | 0.050 | 424.00 | 21.20 | L-20 |
| | | | Coolie | day | 0.050 | 424.00 | 21.20 | L-21 |
| | | | **c) Other Costs** | | | | | |
| | | | Base Cement mortar 1 : 4 (1 cement : 4 coarse sand) Rate as per item 8.47. SH: Cement Mortars (Excluding GST,OH,CP &Cess) | cum | 0.012 | 4566.00 | 54.79 | Item 8.47 |
| | | | Sundries | | | LS | 48.40 | M-209 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 296.34 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 176.63 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 194.29 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 21.37 | |
| | | | **Rate per 0.50 sqm = (a+b+c+d+e+f+g)** | | Cost for 0.50 sqm | | 2158.55 | |
| | | | | | | Cost per Sqm. | 4317.10 | |
| | | | | | | **Say** | **4317.10** | |
| 8.51 | 16.88 | | **Providing and laying matt finished vitrified tile of size 100x100x16mm having water absorption less than 0.5% and conforming to IS: 15622 of approved make in all colours and shades in out door floors such as footpath, court yard multi models etc., laid on 20mm thick base of cement mortar 1:4 (1cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc. complete as direction of Engineer-in-Charge.** | | | | | |
| | | | Detail of cost for 1 sqm. | | | | | |
| | | | **a) Material** | | | | | |
| | | | Matt finished vitrified tile 100x100 x16mm | sqm | 1.000 | 1100.00 | 1100.00 | M-204 |
| | | | Cement | tonne | 0.0033 | 9100.00 | 30.03 | M-081 |
| | | | **b) Labour** | | | | | |
| | | | Mason (1st Class) | day | 0.200 | 593.00 | 118.60 | L-11 |
| | | | Coolie | day | 0.200 | 424.00 | 84.80 | L-21 |
| | | | **c) Other Costs** | | | | | |
| | | | Base Cement mortar 1 : 4 (1 cement : 4 coarse sand) Rate as per item 8.47. SH: Cement Mortars (Excluding GST,OH,CP &Cess) | cum | 0.024 | 4566.00 | 109.58 | Item 8.47 |
| | | | Sundries | | | LS | 101.17 | M-209 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 311.31 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 185.55 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 204.10 | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 22.45 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)** | | | Cost per sqm | 2267.59 | |
| | | | | | | **Say** | **2267.60** | |
| **8.52** | 16.89 | | **Providing and laying matt finished vitrified tile of size 300x300x9.8mm having with water absorption less than 0.5% and conforming to IS: 15622 of approved make in all colours and shades in for outdoor floors such as footpath, court yard, multi modals location etc., laid on 20mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc. complete as per direction of Engineerin-Charge.** | | | | | |
| | | | Detail of cost for 1 sqm. | | | | | |
| | | | **a) Material** | | | | | |
| | | | Vitrified tile 300x300 x9.8mm | sqm | 1.000 | 559.50 | 559.50 | M-205 |
| | | | Cement | tonne | 0.0033 | 9100.00 | 30.03 | M-081 |
| | | | **b) Labour** | | | | | |
| | | | Mason (1st Class) | day | 0.200 | 593.00 | 118.60 | L-11 |
| | | | Coolie | day | 0.200 | 424.00 | 84.80 | L-21 |
| | | | **c) Other Costs** | | | | | |
| | | | Base Cement mortar 1 : 4 (1 cement : 4 coarse sand) Rate as per item 8.47. SH: Cement Mortars (Excluding GST,OH,CP &Cess) | cum | 0.024 | 4566.00 | 109.58 | Item 8.47 |
| | | | Sundries | | | LS | 91.16 | M-209 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 200.32 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 119.40 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 131.34 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 14.45 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)** | | | Cost per sqm | 1459.18 | |
| | | | | | | **Say** | **1459.20** | |
| **8.53** | 16.90 | | **Providing and laying tactile tile (for vision impaired persons as per standards) of size 300x300 x 9.8 mm having with water absorption less than 0.5% and conforming to IS:15622 of approved make in all colours and shades in for outdoor floors such as footpath, court yard, multi modals location etc., laid on 20mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc. complete as per direction of Engineer-in-Charge.** | | | | | |
| | | | Detail of cost for 1 sqm. | | | | | |
| | | | **a) Material** | | | | | |
| | | | Tactile tile 300x300 x9.8mm | sqm | 1.000 | 1050.00 | 1050.00 | M-206 |
| | | | Cement | tonne | 0.0033 | 9100.00 | 30.03 | M-081 |
| | | | **b) Labour** | | | | | |
| | | | Mason (1st Class) | day | 0.200 | 593.00 | 118.60 | L-11 |
| | | | Coolie | day | 0.200 | 424.00 | 84.80 | L-21 |
| | | | **c) Other Costs** | | | | | |
| | | | Base Cement mortar 1 : 4 (1 cement : 4 coarse sand) Rate as per item 8.47. SH: Cement Mortars (Excluding GST,OH,CP &Cess) | cum | 0.024 | 4566.00 | 109.58 | Item 8.47 |
| | | | Sundries with Carrage | | | LS | 84.01 | M-209 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 297.77 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 177.48 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 195.23 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 21.48 | |
| | | | | | | Cost per sqm | 2168.98 | |
| | | | | | | **Say** | **2169.00** | |

| Sr No | Ref. to MoRTH / DSR Spec. | | Description | Unit | Quantity | Rate in Rs | Cost in Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 8.54 | | | **Providing and laying factory made chamfered edge Cement Concrete paver blocks in footpath, parks, lawns, drive ways or light traffic parking etc, of required strength, thickness & size/ shape, made by table vibratory method using PU mould, laid in required colour & pattern over 50mm thick compacted bed of sand, compacting and proper embedding/laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand. complete all as per direction of Engineer-in- Charge.** | | | | | |
| | | (i) | **60mm thick cement concrete paver block of M-35 grade with approved colour, design & pattern.** | | | | | |
| | | | Detail of cost for 10 sqm. | | | | | |
| | | | **a) Material** | | | | | |
| | | | Coloured inter locking C.C. paver Block | sqm | 10.000 | 472.50 | 4725.00 | M-207 |
| | | | Fine sand | cum | 0.500 | 650.00 | 325.00 | M-006 |
| | | | **b) Transport** | | | | | |
| | | | Carriage of Fine Sand | cum | 0.500 | 0.00 | 0.00 | |
| | | | **c) Labour** | | | | | |
| | | | Mason (1st Class) | day | 0.500 | 593.00 | 296.50 | L-11 |
| | | | Mason (2nd Class) | day | 0.500 | 551.00 | 275.50 | L-10 |
| | | | Beldar | day | 1.000 | 424.00 | 424.00 | L-20 |
| | | | Coolie | day | 0.500 | 424.00 | 212.00 | L-21 |
| | | | **c) Other Costs** | | | | | |
| | | | Sundries | | | LS | 68.75 | M-209 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1275.47 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 760.22 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 836.24 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 91.99 | |
| | | | **Total** | | Details of cost for 10 sqm | | 9290.67 | |
| | | | | | | Cost per sqm | 929.07 | |
| | | | | | | **Say** | **929.10** | |
| | | (ii) | **80 mm thick C.C. paver block of M-30 grade with approved color design and pattern.** | | | | | |
| | | | Detail of cost for 10 sqm. | | | | | |
| | | | **a) Material** | | | | | |
| | | | Interlocking C.C. paver block (80 mm thick, M-30) | sqm | 10.000 | 470.00 | 4700.00 | M-208 |
| | | | Fine sand | cum | 0.150 | 650.00 | 97.50 | M-006 |
| | | | Coarse sand | cum | 0.500 | 650.00 | 325.00 | M-005 |
| | | | **b) Transport** | | | | | |
| | | | Carriage of Fine Sand | cum | 0.150 | 0.00 | 0.00 | |
| | | | Carriage of Coarse Sand | cum | 0.500 | 0.00 | 0.00 | |
| | | | **c) Labour** | | | | | |
| | | | Mason (1st Class) | day | 0.500 | 593.00 | 296.50 | L-11 |
| | | | Mason (2nd Class) | day | 0.500 | 551.00 | 275.50 | L-10 |
| | | | Beldar | day | 1.000 | 424.00 | 424.00 | L-20 |
| | | | Coolie | day | 0.500 | 424.00 | 212.00 | L-21 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1276.23 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 760.67 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 836.74 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 92.04 | |
| | | | | | | Details of cost for 10 sqm | 9296.18 | |
| | | | | | | Cost per sqm | 929.62 | |
| | | | | | | **Say** | **929.60** | |

## Chapter – 9

## PIPE CULVERTS

**Preamble:**

1 Pipe culverts of sizes 1000 mm and 1200 mm dia in single row and double row which are generally used on roads, have been included. Providing and laying of pipe has been included in the rate analysis. Items of auxiliary works such as excavation, bedding, backfilling, concrete and masonry shall be analysed, as provided under the respective sections and paid for separately.

2 Analysis has been given separately for NP2 pipes for ease of adoption.

3 Cost of any river training and protection work like stone pitching, apron, curtain wall etc. may be analysed under the respective item included in Chapter 16.

4 The joining of pipes is proposed by collar joints.

5 Chain & pulley for lifting the pipes is considered part of overheads.

6 The thickness of first class bedding has been taken as 150 mm. The height of bedding has been taken as 1/10th of overall height of pipe in the analysis. This may be modified as per thickness indicated in the approved drawing.

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 9.1 | 408 | | **PCC 1:3:6 in Foundation** | | | | | |
| | | | Plain cement concrete 1:3:6 mix 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 | 0.640 | 551.00 | 352.64 | L-12 |
| | | | Mason | day | 1.000 | 593.00 | 593.00 | L-11 |
| | | | Mazdoor | day | 15.000 | 424.00 | 6360.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | 40mm Aggregate at site | cum | 13.800 | 1900.00 | 26220.00 | M-055 |
| | | | Sand at site | cum | 6.900 | 650.00 | 4485.00 | M-005 |
| | | | Cement at site | tonne | 3.300 | 9100.00 | 30030.00 | M-081 |
| | | | Cost of water | KL | 18.000 | 71.00 | 1278.00 | M-189 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer0.4/ 0.28 cum | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator set 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | Water tanker6 KL capacity | hour | 3.000 | 724.00 | 2172.00 | P&M-060 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 15376.56 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 9164.92 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 10081.41 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1108.96 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g | | | | 112004.49 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/15** | | | | 7466.97 | |
| | | | | | | ***say*** | ***7467.00*** | |
| | | **Note** | Vibrator is a part of minor T & P which is already included in overhead charges of the contractor. | | | | | |
| 9.2 | 2900 | | **Laying Reinforced Cement Concrete Pipe NP2 / Prestressed Concrete Pipe on First Class Bedding in Single Row .** | | | | | |
| | | | Laying Reinforced cement concrete pipe NP2/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 | 0.180 | 551.00 | 99.18 | L-12 |
| | | | Mason | day | 0.500 | 593.00 | 296.50 | L-11 |
| | | | Mazdoor | day | 4.000 | 424.00 | 1696.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Sand at site | cum | 0.070 | 650.00 | 45.50 | M-005 |
| | | | Cement at site | tonne | 0.050 | 9100.00 | 455.00 | M-081 |
| | | | RCC pipe NP-2/prestressed concrete pipe including collar at site | metre | 12.500 | 1800.00 | 22500.00 | M-149 |
| | | | Granular material passing 5.6 mm sieve for bedding | cum | 4.500 | 500.00 | 2250.00 | M-009 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 5512.18 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 3285.44 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 3613.98 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 397.54 | |
| | | | Cost for 12.5 metres = a+b+c+d+e+f | | | | 40151.32 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/12.5** | | | | 3212.11 | |
| | | | | | | ***say*** | ***3212.00*** | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | Note | 1. In case of cement craddle bedding, quantity of PCC M15 is to be calculated as per design and priced separately and added .<br>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 | | | | | |
| 9.2 | | B | **1200 mm dia** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.280 | 551.00 | 154.28 | L-12 |
| | | | Mason | day | 1.000 | 593.00 | 593.00 | L-11 |
| | | | Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Sand at site | cum | 0.090 | 650.00 | 58.50 | M-005 |
| | | | Cement at site | tonne | 0.070 | 9100.00 | 637.00 | M-081 |
| | | | RCC pipe NP-2/prestressed concrete pipe including collar at site | metre | 12.500 | 2210.00 | 27625.00 | M-150 |
| | | | Granular material passing 5-6 mm sieve for class bedding | cum | 5.000 | 500.00 | 2500.00 | M-009 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 6876.93 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 4098.87 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 4508.76 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 495.96 | |
| | | | Cost for 12.5 metres = a+b+c+d+e+f | | | | 50092.30 | |
| | | | **Rate per metre= (a+b+c+d+e+f)/12.5** | | | | 4007.38 | |
| | | | | | | ***say*** | ***4007.00*** | |
| | | Note | 1. In case of cement craddle bedding, quantity of PCC M15 is to be calculated as per design and priced separately and added .<br>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 | | | | | |
| 9.3 | 2900 | | **Laying Reinforced Cement Concrete Pipe NP2 / Prestressed Concrete Pipe on First Class Bedding in Double Row .**<br>Laying Reinforced cement concrete pipe NP2 / 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 .<br>***Unit = metre***<br>***Taking output = 12.5 metres ( 10 pipes of 2.5 m length each in two rows.)*** | | | | | |
| | | A | **1000 mm dia** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.360 | 551.00 | 198.36 | L-12 |
| | | | Mason | day | 1.000 | 593.00 | 593.00 | L-11 |
| | | | Mazdoor | day | 8.000 | 424.00 | 3392.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Sand at site | cum | 0.140 | 650.00 | 91.00 | M-005 |
| | | | Cement at site | tonne | 0.100 | 9100.00 | 910.00 | M-081 |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | RCC pipe NP-2/prestressed concrete pipe including collar at site | metre | 25.000 | 1800.00 | 45000.00 | M-149 |
| | | | Granular material passing 5.6 mm sieve for bedding | cum | 12.500 | 500.00 | 6250.00 | M-009 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 11377.17 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 6781.15 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 7459.27 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 820.52 | |
| | | | Cost for 12.5 metres = a+b+c+d+e+f | | | | 82872.47 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/12.5** | | | | 6629.80 | |
| | | Note | 1. In case of cement craddle bedding, quantity of PCC M15 is to be calculated as per design and priced separately and added . | | | | ***say*** ***6630.00*** | |
| | | | 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 | | | | | |
| **9.3** | | **B** | **1200 mm dia** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.560 | 551.00 | 308.56 | L-12 |
| | | | Mason | day | 2.000 | 593.00 | 1186.00 | L-11 |
| | | | Mazdoor | day | 12.000 | 424.00 | 5088.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Sand at site | cum | 0.180 | 650.00 | 117.00 | M-005 |
| | | | Cement at site | tonne | 0.140 | 9100.00 | 1274.00 | M-081 |
| | | | RCC pipe NP-2 /prestressed concrete pipe including collar at site | metre | 25.000 | 2210.00 | 55250.00 | M-150 |
| | | | Granular material passing 5-6 mm sieve for class bedding | cum | 13.750 | 500.00 | 6875.00 | M-009 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 14131.87 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 8423.04 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 9265.35 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 1019.19 | |
| | | | Cost for 12.5 metres = a+b+c+d | | | | 102938.01 | |
| | | | **Rate per metre= (a+b+c+d)/12.5** | | | | 8235.04 | |
| | | Note | 1. In case of cement craddle bedding, quantity of PCC M15 is to be calculated as per design and priced separately and added . | | | | ***say*** ***8235.00*** | |
| | | | 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 | | | | | |

## Chapter – 10

## MAINTENANCE OF ROADS

**Preamble:**

1 In the case of rain cuts, it has been assumed that some material cut by rain, approximately 25 per cent will be available at site which can be retrieved and re-used and the balance 75 per cent 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 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 dozer on the valley side. In case there is any objection to this arrangement due to particular site conditions, resources like loader and tipper will have to be provided for disposal of earth/debris for the lead involved.

5 The item like slurry seal, fog spray, crack preventation courses, surface dressing for maintenance works have already been included in chapter 5 and are not being repeated in this chapter.

6 The cost of other items like repair of ruts and undulation maintenance of earthen shoulders, cross drainage works, minor and major bridges and miscelleneous items like turfing and arboriculture, painting and lettering on km stones, repair to signage, repair to footpath, street lighting, railing dividers, separators and under passes for pedestrains has been given in the "Report of the Committee on Norms for Maintenance of Roads In India" Published by IRC in January 2001 which may be referred for guidance.

7 The repair items related to bridges have been given in chapter 16

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| **10.1** | **3002** | | **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 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Excavator1.0 cum bucket capacity @ 60 cum per hour | hour | 0.130 | 2044.00 | 265.72 | P&M-026 |
| | | | Tipper ( L is average lead in km for borrow earth) | tonne. km | 12 x L | 18.00 | 648.00 | Lead =3 km & P&M-058 |
| | | | Add 10 per cent of cost of carriage towards loading and unloading charges. | | | | 64.80 | |
| | | | Plate compactor | hour | 0.500 | 382.00 | 191.00 | P&M-086 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 415.62 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 247.72 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 272.49 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 29.97 | |
| | | | Cost for 10 cum = a+b+c+d+e+f | | | | 3027.40 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/10** | | | | 302.74 | |
| | | | | | | ***say*** | ***303.00*** | |
| | | **Note** | Only 75 per cent 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 | | | | | |
| **10.2** | **3003** | | **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 | 551.00 | 99.18 | L-12 |
| | | | Mazdoor | day | 4.500 | 424.00 | 1908.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Excavator1.0 cum bucket capacity @ 60 cum per hour | hour | 0.250 | 2044.00 | 511.00 | P&M-026 |
| | | | Tipper ( L is average lead in km for borrow earth) | tonne. km | 24xL | 18.00 | 1296.00 | Lead =3 km & P&M-058 |
| | | | Add 10 per cent of cost of transportation to cover cost of loading and unloading | | | | 129.60 | |
| | | | Plate compactor @ 25 sqm per hour | hour | 12.000 | 382.00 | 4584.00 | P&M-086 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1719.20 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 1024.70 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1127.17 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 123.99 | |
| | | | Cost for 100 sqm = a+b+c+d+e+f | | | | 12522.84 | |
| | | | **Rate per sqm = (a+b+c+d+e+f)100** | | | | 125.23 | |
| | | | | | | ***say*** | ***125.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| **10.3** | **3003** | | **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 | 551.00 | 55.10 | L-12 |
| | | | Mazdoor | day | 2.500 | 424.00 | 1060.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Plate compactor @ 25 sqm per hour | hour | 4.000 | 382.00 | 1528.00 | P&M-086 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 532.85 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 317.60 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 349.36 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 38.43 | |
| | | | Cost for 100 sqm = a+b+c+d | | | | 3881.34 | |
| | | | **Rate per sqm on = (a+b+c+d)100** | | | | 38.81 | |
| | | | | | | ***say*** | ***39.00*** | |
| | | **Note** | The earth stripped from earthen shoulders to be dumped on the side slopes locally for disposal. | | | | | |
| **10.4** | **3004.2** | | **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 511, 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 (205 cum)(405 tonne)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | Day | 3.760 | 551.00 | 2071.76 | L-12 |
| | | | Mazdoor | Day | 90.000 | 424.00 | 38160.00 | L-13 |
| | | | Mazdoor skilled | Day | 4.000 | 508.00 | 2032.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Air compressor 250 cfm | hour | 6.000 | 658.00 | 3948.00 | P&M-001 |
| | | | HMP 100-110 TPH Capacity | hour | 6.000 | 32730.00 | 196380.00 | P&M-021 |
| | | | Tipper 10 tonnes capacity | hour | 45.000 | 916.00 | 41220.00 | P&M-048 |
| | | | Smooth wheeled roller 8-10 tonnes | hour | 12.000 | 783.00 | 9396.00 | P&M-044 |
| | | | **c) Material** | | | | | |
| | | | Crushed stone aggregates nominal size 13.2mm | cum | 184.500 | 1820.00 | 335790.00 | M-052 |
| | | | Crushed stone aggregates nominal size 11.2mm | cum | 92.250 | 1800.00 | 166050.00 | M-051 |
| | | | Bitumen 80/100 | tonne | 14.970 | 57924.00 | 867122.28 | M-075 |
| | | | Bitumen emulsion for tack coat including vertical sides of pot hole. | tonne | 2.460 | 55000.00 | 135300.00 | M-077 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 362369.96 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 215984.00 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 237582.40 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 26134.06 | |
| | | | Cost for 10250 sqm = a+b+c+d+e | | | | 2639540.46 | |
| | | | **Rate per sqm = (a+b+c+d+e)/10250** | | | | 257.52 | |
| | | | | | | ***say*** | ***258.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 10.5 | 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*** | | | | | |
| | | | ***Taking out put = 4900 sqm (196 cum)(450 Tonnes)*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | Day | 2.920 | 551.00 | 1608.92 | L-12 |
| | | | Mazdoor | Day | 70.000 | 424.00 | 29680.00 | L-13 |
| | | | Mazdoor skilled | Day | 3.000 | 508.00 | 1524.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Air compressor 250 cfm | hour | 6.000 | 658.00 | 3948.00 | P&M-001 |
| | | | HMP 100-110 TPH Capacity | hour | 6.000 | 25480.00 | 152880.00 | P&M-022 |
| | | | Tipper 10 tonnes capacity | hour | 45.000 | 916.00 | 41220.00 | P&M-048 |
| | | | Smooth wheeled roller 8-10 tonnes | hour | 12.000 | 783.00 | 9396.00 | P&M-044 |
| | | | **c) Material** | | | | | |
| | | | I) Bitumen | tonne | 22.500 | 57924.00 | 1303290.00 | M-075 |
| | | | ii) Bitumen emulsion for tack coat . | tonne | 1.180 | 55000.00 | 64900.00 | M-077 |
| | | | iii) Aggregates | | | | | |
| | | | **Grading I - 19mm(Nominal size)** | | | | | |
| | | | 20-10mm 35 per cent | cum | 99.750 | 1860.00 | 185535.00 | M-051,M-052,M-053 and M-054 |
| | | | 10-5 mm 23 per cent | cum | 65.550 | 800.00 | 52440.00 | M-025 |
| | | | 5mm and below40 per cent | cum | 114.000 | 967.00 | 110238.00 | M-021,M-022 and M-024 |
| | | | Add 5 per cent for wastage | | | | 17410.65 | |
| | | | or | | | | | |
| | | | **Grading-II 13mm (Nominal size)** | | | | | |
| | | | 13.2-10 mm 30 per cent | cum | 85.500 | 1810.00 | 154755.00 | M-051 and M-052 |
| | | | 10-5 mm 25 per cent | cum | 71.250 | 800.00 | 57000.00 | M-025 |
| | | | 5 mm and Below43 per cent | cum | 122.550 | 967.00 | 118505.85 | M-021,M-022 and M-024 |
| | | | Filler 2 per cent | tonne | 9.000 | 15000.00 | 135000.00 | M-188 |
| | | | Add 5 per cent for wastage | | | | 23263.04 | |
| | | | Any one of the above alternatives of aggregate i.e. 19mm or 13mm nominal size may be adopted as per approved design. | | | | | |
| 10.5 | | (i) | **for grading I Material** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 397972.63 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 237204.32 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 260924.75 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 28701.72 | |
| | | | Cost for 4900 cum = a+b+c+d+e+f+g | | | | 2898873.99 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/4900** | | | | 591.61 | |
| | | | | | | ***say*** | ***592.00*** | |
| 10.5 | | (ii) | **for grading II Material** | | | | | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 422749.32 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 251972.01 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 277169.21 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 30488.61 | |
| | | | Cost for 4900 cum = a+b+c+d+e+f+g | | | | 3079349.96 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/4900** | | | | 628.44 | |
| | | | | | | ***say*** | ***628.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | Note | For detailed working of quantities of aggregates, refer item 5.8 of chapter 5 | | | | | |
| 10.6 | 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 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Slow-curing bitumen emulsion | Kg | 33.000 | 55.00 | 1815.00 | M-077 |
| | | | Stone crusher dust | cum | 0.020 | 700.00 | 14.00 | M-021 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 458.65 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 273.37 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 300.71 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 33.08 | |
| | | | Cost for 500sqm = a+b+c+d+e+f | | | | 3340.85 | |
| | | | **Rate per meter = (a+b+c+d+e+f)/500** | | | | 6.68 | |
| | | | | | | ***say*** | ***7.00*** | |
| 10.7 | 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 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | **Stone crusher dust finer than 3mm with not more than 10 per cent passing 0.075 sieve.** | cum | 6.250 | 700.00 | 4375.00 | M-021 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1061.84 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 632.89 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 696.18 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 76.58 | |
| | | | Cost for 3500sqm = a+b+c+d+e+f | | | | 7734.57 | |
| | | | **Rate per meter = (a+b+c+d+e+f)/3500** | | | | 2.21 | |
| | | | | | | ***say*** | ***2.21*** | |
| 10.8 | (A) 3004.3.2 | | **Fog Seal** | | | | | |
| | (B) 3004.3.4 | | **Crack Prevention courses.** | | | | | |
| | (C) 3004.5 | | **Slurry Seal** | | | | | |
| | (D) 3004.6 | | **Surface Dressing for maintenance works.** | | | | | |
| | | | The above mentioned items have already been included in Chapter 5. | | | | | |
| 10.9 | 3005.1 | | **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 | | | | | |
| | | | ***Unit = running metre*** | | | | | |
| | | | ***Taking output = 10 metres*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | Chiseller | day | 0.500 | 551.00 | 275.50 | L-05 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **b) Material** | | | | | |
| | | | Epoxy primer | kg | 2.500 | 281.00 | 702.50 | M-097 |
| | | | Epoxy compound with accessories for preparing epoxy mortar | kg | 10.000 | 257.00 | 2570.00 | M-095 |
| | | | **c) Machinery** | | | | | |
| | | | Air compressor 250 cfm for cleaning | hour | 0.050 | 658.00 | 32.90 | P&M-001 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 769.09 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 458.40 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 504.24 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 55.47 | |
| | | | Cost for 10 metres = a+b+c+d+e+f+g | | | | 5602.14 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g)/10** | | | | 560.21 | |
| | | | | | | ***say*** | ***560.00*** | |
| **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 | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Primer | kg | 0.250 | 207.50 | 51.88 | M-146 |
| | | | Sealant | kg | 1.000 | 340.00 | 340.00 | M-120 |
| | | | **c) Machinery** | | | | | |
| | | | Air compressor 250 cfm for cleaning | hour | 0.050 | 658.00 | 32.90 | P&M-001 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 132.82 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 79.16 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 87.08 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 9.58 | |
| | | | Cost for 10 metres = a+b+c+d+e+f+g | | | | 967.46 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g)/10** | | | | 96.75 | |
| | | | | | | ***say*** | ***97.00*** | |
| **10.11** | **3000** | | **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 | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 94.36 | |
| | | | **c) Overhead charges @ 10 % on** | | | | 56.24 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 61.87 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 6.81 | |
| | | | Cost for 10 metres = a+b+c+d+e | | | | 687.36 | |
| | | | **Rate per metre = (a+b+c+d+e)/10** | | | | 68.74 | |
| | | | | | | ***say*** | ***69.00*** | |
| **10.12** | **3000** | | **Land Slide Clearance in soil** | | | | | |
| | | (i) | 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 | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 100 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer 180 HP @ 60 cum per hour | hour | 1.670 | 5045.00 | 8425.15 | P&M-014 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1788.43 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 1065.96 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1172.56 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 128.98 | |
| | | | Cost for 100 cum = a+b+c+d+e+f | | | | 13027.12 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/100** | | | | 130.27 | |
| | | | | | | ***say*** | ***130.00*** | |
| | | | **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. | | | | | |
| | | | **(ii)** Clearance of land slides in soil and ordinary rock by a bull-dozer D 50 A-15 and disposal of the same on the valley side | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 100 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer D 50 A-15 | hour | 1.670 | 3398.00 | 5674.66 | P&M-014 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1233.93 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 735.46 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 809.01 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 88.99 | |
| | | | Cost for 100 cum = a+b+c+d+e+f | | | | 8988.09 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/100** | | | | 89.88 | |
| | | | | | | ***say*** | ***90.00*** | |
| **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 (Boll Dozer D 50) | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 100 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.090 | 551.00 | 49.59 | L-12 |
| | | | Mazdoor | day | 1.500 | 424.00 | 636.00 | L-13 |
| | | | Driller | day | 0.750 | 551.00 | 413.25 | L-06 |
| | | | Blaster | day | 0.070 | 551.00 | 38.57 | L-03 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer D 50 @ 60 cum per hour | hour | 1.670 | 3398.00 | 5674.66 | P&M-014 |
| | | | Air compressor 250 cfm with two jack hammer | hour | 2.500 | 658.00 | 1645.00 | P&M-001 |
| | | | **c) Materials** | | | | | |
| | | | Gelatine 80 per cent @ 35 kg per 100 cum | kg | 17.500 | 166.00 | 2905.00 | M-104 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Electric Detonators @ 1 Detonator for 2 Gelatine sticks of 125 gms each | each | 70.000 | 11.59 | 811.30 | M-094 /100 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 2454.15 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 1462.75 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 1609.03 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 176.99 | |
| | | | Cost for 100 cum = a+b+c+d+e+f+g | | | | 17876.29 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/100** | | | | 178.76 | |
| | | | | | | ***say*** | ***179.00*** | |
| | | Note | Credit for the rock if found acceptable as construction material shall be afforded | | | | | |
| **10.14** | 3000 | | **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 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Dozer D-50 @ 850 cum per hour | hour | 5.880 | 3398.00 | 19980.24 | P&M-014 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 4207.86 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 2508.02 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2758.82 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 303.47 | |
| | | | Cost for 5000 cum = a+b+c+d+e+f | | | | 30650.49 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/5000** | | | | 6.13 | |
| | | | | | | ***say*** | ***6.00*** | |
| | | 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** | 1900 | | **Maintenance of WBM Road** | | | | | |
| | | | Maintenance of WBM road including filling up of pot holes, ruts and rectifying corrugated surface, damaged edges and ravelling as per technical specification clause 1906. | | | | | |
| | | | ***Unit = Sqm.*** | | | | | |
| | | | ***Taking output = affected area @ 5% in 1 km = 1000 x 3.75 x 0.05 = 187.5 Sqm.*** | | | | | |
| | | | ***Quantity = 187.5 x 0.075 = 14.06 cum*** | | | | | |
| | | | **a) Rate as per item No. 4.9 A (iii) (a)** | cum | 14.060 | 2541.00 | 35726.46 | |
| | | | **b) Add 50% for Extra efforts involved on maintenance to be done in small reaches** | | | | 17863.23 | |
| | | | Cost for 187.5 Sqm. = a+b | | | | 53589.69 | |
| | | | **Rate per Sqm = (a+b)/187.5** | | | | 285.81 | |
| | | | | | | ***say*** | ***286.00*** | |
| | | Note : | ***The cost of 25% retrived material may be deducted from rates.*** | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| **10.16** | | | **Maintenance of Hume Pipe** | | | | | |
| | | | Maintenance of Hume Pipe Culvert by way of Cleaning, Clearing, Erosion repair, repairs to cracks, parapet wall and protection work as per drawing and technical specification Clasue 1908. | | | | | |
| | | | ***Unit = One No. Hume Pipe (1000 mm dia)*** | | | | | |
| | | | ***Taking output = One No. H. P. Culvert*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.100 | 551.00 | 55.10 | L-12 |
| | | | Mazdoor (Unskilled) | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | Mason 2nd Class | day | 1.400 | 551.00 | 771.40 | |
| | | | **b) Material** | | | | | |
| | | | Cement, Sand, Brick, Boulder etc. | L.S. | | | 200.00 | P&M-014 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 292.42 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 174.29 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 191.72 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 21.09 | |
| | | | Cost for one No., Hume Pipe Culvert = a+b+c+d+e+f | | | | 2130.02 | |
| | | | **Rate per Hume Pipe Culvert = (a+b+c+d+e+f)** | | | | 2130.02 | |
| | | | | | | ***say*** | ***2130.00*** | |
| **10.17** | | | **Maintenance of Culverts Slab type** | | | | | |
| | | | Maintenance of Slab type Culvert by way of Cleaning, Clearing, Erosion repair, repairs to cracks, parapet wall and protection work as per drawing and technical specification Clasue 1908. | | | | | |
| | | | ***Unit = One No. Culvert (2 m span)*** | | | | | |
| | | | ***Taking output = One No. Slab Culvert*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.200 | 551.00 | 110.20 | L-12 |
| | | | Mazdoor (Unskilled) | day | 4.000 | 424.00 | 1696.00 | L-13 |
| | | | Mason 2nd Class | day | 1.000 | 551.00 | 551.00 | |
| | | | **b) Material** | | | | | |
| | | | Cement, Sand, Brick, Boulder etc. | L.S. | | | 500.00 | P&M-014 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 576.01 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 343.32 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 377.65 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 41.54 | |
| | | | Cost for one No., Slab Culvert = a+b+c+d+e+f | | | | 4195.72 | |
| | | | **Rate per Slab Culvert = (a+b+c+d+e+f)** | | | | 4195.72 | |
| | | | | | | ***say*** | ***4196.00*** | |
| **10.18** | | | **Maintenance of Causeway** | | | | | |
| | | | Maintenance of Causeway by way of minor Surface repairs, replacing Guide Posts, repair of flood gauges, removal of debris, providing boulders and protection work and painting as per technical specifications Clause 1909. | | | | | |
| | | | ***Unit = One metre*** | | | | | |
| | | | ***Taking output = 50 metre causeway*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.800 | 551.00 | 440.80 | L-12 |
| | | | Mazdoor (Unskilled) | day | 1.600 | 424.00 | 678.40 | L-13 |
| | | | Mason 1st Class/Painter 1st Class | day | 4.000 | 593.00 | 2372.00 | |
| | | | **b) Material** | | | | | |
| | | | Cement, Sand, Brick, Boulder etc. | L.S. | | | 350.00 | P&M-014 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 774.39 | |
| | | | **d) Overhead charges @ 10 % on** | | | | 461.56 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 507.72 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 55.85 | |
| | | | Cost for 50 metre = a+b+c+d+e+f | | | | 5640.72 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/50** | | | | 112.81 | |
| | | | | | | ***say*** | ***113.00*** | |
| **10.19** | | | **Maintenance of Road signs** | | | | | |
| | | | Maintenance of Road signs by way of cleaning and repainting of mandatory /regulatory/cautionary/informatory and place identifications sign board as per drawings and technical specifications Clause 1910. | | | | | |
| | | | ***Unit = 1 km*** | | | | | |
| | | | ***Taking output = one km*** | | | | | |
| | | | ***All types of signs in one km*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.090 | 551.00 | 49.59 | L-12 |
| | | | Mazdoor (Unskilled) | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | Painter 1st Class | day | 0.125 | 593.00 | 74.13 | |
| | | | **b) Material** | | | | | |
| | | | Cement, Sand, Brick, Boulder etc. | L.S. | | | 270.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 250.33 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 149.21 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 164.13 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 18.05 | |
| | | | Cost for one km = a+b+c+d+e+f | | | | 1823.44 | |
| | | | **Rate per km = (a+b+c+d+e+f)** | | | | 1823.44 | |
| | | | | | | ***say*** | ***1823.00*** | |
| **10.20** | 1900 | | **Cutting of branches of trees shrubs and trimming of grass and weeds** | | | | | |
| | | (i) | Cutting of branches of tress and shrubs from the road way or with in R.O.W. including disposal of wood and leaves to suitable location as per technical specification Clause 1914. | | | | | |
| | | | ***Unit = 1 tree*** | | | | | |
| | | | ***Taking output = 10 trees of 900 mm average girth*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.120 | 551.00 | 66.12 | L-12 |
| | | | Mazdoor (Skilled) | day | 1.000 | 508.00 | 508.00 | L-15 |
| | | | Mazdoor (Unskilled) | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 286.70 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 170.88 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 187.97 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 20.68 | |
| | | | Cost for 10 trees = a+b+c+d+e | | | | 2088.35 | |
| | | | **Rate per tree= (a+b+c)/10** | | | | 208.84 | |
| | | | | | | ***say*** | ***209.00*** | |
| | | (ii) | Cutting of shrubs from the road way or with in R.O.W. and disposal of shrubs to suitable location as per technical specification Clause 1914. | | | | | |
| | | | ***Unit = Each*** | | | | | |
| | | | ***Taking output = 100 nos. shrubs*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor (Unskilled) | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 179.84 | |
| | | | **c) Overhead charges @ 10 % on** | | | | 107.19 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 117.91 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 12.97 | |
| | | | Cost for 100 shrubs = a+b+c+d+e | | | | 1309.99 | |
| | | | **Rate per shrub= (a+b+c+d+e)/100** | | | | 13.10 | |
| | | | | | | ***say*** | ***13.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | (iii) | Triming of grass and weeds from the shoulders/berms and disposing off the same to suitable locations as per technical specifications Clause 1914. | | | | | |
| | | | ***Unit = Sqm.*** | | | | | |
| | | | ***Taking output = 1500 Sqm.*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.400 | 551.00 | 220.40 | L-12 |
| | | | Mazdoor (Unskilled) | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 899.22 | |
| | | | **c) Overhead charges @ 10 % on** | | | | 535.96 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 589.56 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 64.85 | |
| | | | Cost for 1500 sqm = a+b+c+d+e | | | | 6549.99 | |
| | | | **Rate per sqm = (a+b+c+d+e)/1500** | | | | 4.37 | |
| | | | | | | ***say*** | ***4.00*** | |
| **10.21** | | | **White washing of parapet walls of CD work and tree trunks** | | | | | |
| | | | White washing two coats on parapet walls and tree trunks including preparation of surface by cleaning scraping etc. as per technical specifications Clause 1915. | | | | | |
| | | | ***Unit = sqm.*** | | | | | |
| | | | ***Taking output = 9 sqm.*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| | | | Mazdoor (Unskilled) | day | 0.143 | 424.00 | 60.63 | L-13 |
| | | | Mazdoor (White washer) | day | 0.143 | 424.00 | 60.63 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Lime | quintel | 0.045 | 1500.00 | 67.50 | |
| | | | Fevicol adhesive | kg | 0.100 | 135.00 | 13.50 | |
| | | | Indigo | kg | 0.013 | 130.00 | 1.69 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 42.23 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 25.17 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 27.69 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 3.05 | |
| | | | Cost for 9 sqm = a+b+c+d | | | | 307.60 | |
| | | | **Rate per sqm = (a+b+c+d)/9** | | | | 34.18 | |
| | | | | | | ***say*** | ***34.00*** | |
| | | **Note :** | For analysis of rates for maintenance works bitumen grade S-90 has been taken. User may modify as per site requirements. | | | | | |
| **10.22** | **3000** | | **Land Slide Clearance in soil** | | | | | |
| | | (i) | Clearance of land slides in soil and ordinary rock by a Hydrolic Excavator including loding in a truck and carrying of excavated material to embankment site with a lift upto 1.5 m and lead upto 20 m. | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 100 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.008 | 551.00 | 4.41 | L-12 |
| | | | Mazdoor | day | 0.200 | 424.00 | 84.80 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic excavator 0.9 cum bucket capacity @ 60 cum per hour | hour | 1.670 | 2044.00 | 3413.48 | P&M-026 |
| | | | Tipper 5.5 cum capacity, | hour | 0.320 | 916.00 | 293.12 | P&M-048 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 765.24 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 456.11 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 501.72 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 55.19 | |
| | | | Cost for 100 cum = a+b+c+d+e+f | | | | 5574.07 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/100** | | | | 55.74 | |
| | | | | | | ***say*** | ***56.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| **10.23** | | | **Snow Clearance on Roads with Backhoe-loader** | | | | | |
| | | (i) | Snow clearance from road surface by a Backhoe-loader and disposing it on the valley side | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 5000 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.200 | 551.00 | 110.20 | L-12 |
| | | | Mazdoor | day | 5.000 | 424.00 | 2120.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Backhoe-loader | hour | 10.200 | 2200.00 | 22440.00 | P&M-098 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 4973.51 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 2964.37 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 3260.81 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 358.69 | |
| | | | Cost for 100 cum = a+b+c+d+e+f | | | | 36227.58 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/5000** | | | | 7.25 | |
| | | | | | | ***say*** | ***7.00*** | |

Note i)Labour provided will not be cutting the snow. They will be guiding the Backhoeloader operator on the alignment of the road as entire surface gets covered with snow and the edges of the road are not visible. Also they will keep a watch on the hill side for any eventuality of avalanches, slide etc.

## Chapter – 11
## HORTICULTURE

**Preamble:**

1. The items of turfing with sods andf seeding and mulching have been included in the chapter of earthwork.

2. The 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.

4. Selection from above may be made as per actual situation and design.

5. Rates for wrought iron and mild welded work has been included to cater for any miscelleneous work in connection with horticulture, fencing and traffic sign.

6. 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.

7. As grass and plantation need more care, one mate has been provided for every 10 mazdoors in case of horticulture.

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 11.1 | 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 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 89.92 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 53.60 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 58.96 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 6.49 | |
| | | | Cost for 15 cum= a+b+c+d+e | | | | 655.01 | |
| | | | **Rate per cum = (a+b+c+d+e)/15** | | | | 43.67 | |
| | | | | | | ***say*** | ***44.00*** | |
| 11.2 | 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 | 0.170 | 551.00 | 93.67 | L-12 |
| | | | Mazdoor for grassing | day | 0.750 | 424.00 | 318.00 | L-13 |
| | | | Mazdoor for maintenance for 30 days | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Water tanker6 KL capacity | hour | 0.500 | 724.00 | 362.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Doob grass | kg | 100.000 | 18.00 | 1800.00 | M-112 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 604.33 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 360.20 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 396.22 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 43.58 | |
| | | | Cost for 100 sqm = a+b+c+d+e+f+g | | | | 4402.00 | |
| | | | **Rate per sqm= (a+b+c+d+e+f+g)/100** | | | | 44.02 | |
| | | | | | | ***say*** | ***44.00*** | |
| 11.2 | | (ii) | **In rows 7.5 cm apart in either direction** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.220 | 551.00 | 121.22 | L-12 |
| | | | Mazdoor for grassing. | day | 1.250 | 424.00 | 530.00 | L-13 |
| | | | for maintenance for 30 days | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Water tanker6 KL capacity | hour | 0.750 | 724.00 | 543.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Doob grass | kg | 200.000 | 18.00 | 3600.00 | M-112 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1051.99 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 627.02 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 689.72 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 75.87 | |
| | | | Cost for 100 sqm = a+b+c+d+e+f+g | | | | 7662.82 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/100** | | | | 76.63 | |
| | | | | | | ***say*** | ***77.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | Note | In the case of horticulture one mate has been provided for every 10 mazdoors as maintenance of grass and plants require more care. | | | | | |
| 11.3 | 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 | 0.150 | 551.00 | 82.65 | L-12 |
| | | | Mazdoor for preparation of ground | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | Mali for fetching doobs grass roots and grassing at 15 cm apart | day | 1.000 | 551.00 | 551.00 | L-09 |
| | | | **b) Machinery** | | | | | |
| | | | Water tanker6 KL capacity | hour | 0.500 | 724.00 | 362.00 | P&M-060 |
| | | | Tractor with tiller | hour | 0.010 | 530.00 | 5.30 | P&M-053 |
| | | | **c) Material** | | | | | |
| | | | Supply of farm yard manure at site of work | cum | 0.180 | 141.00 | 25.38 | M-167 |
| | | | Fine grass | kg | 100.000 | 18.00 | 1800.00 | M-113 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 612.53 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 365.09 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 401.60 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 44.18 | |
| | | | Cost for 100 sqm = a+b+c+d+e+f+g | | | | 4461.73 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/100** | | | | 44.62 | |
| | | | | | | ***say*** | ***45.00*** | |
| 11.4 | 307 | | **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 | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 100 sqm*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mali | day | 10.000 | 551.00 | 5510.00 | L-09 |
| | | | **b) Machinery** | | | | | |
| | | | Water tanker6 KL capacity | hour | 15.000 | 724.00 | 10860.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Cost of water | KL | 90.000 | 71.00 | 6390.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 4588.42 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 2734.84 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 3008.33 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 330.92 | |
| | | | Cost for 100 sqm = a+b+c+d+e+f+g | | | | 33422.51 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/100** | | | | 334.23 | |
| | | | | | | ***say*** | ***334.00*** | |
| 11.5 | 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 of0.6 cum per 100 sqm | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 100 sqm*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.250 | 551.00 | 137.75 | L-12 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Mazdoor for preparation of ground | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | Mali for fetching doobs grass roots hedges and grassing at 10 cm apart | day | 1.500 | 551.00 | 826.50 | L-09 |
| | | | **b) Machinery** | | | | | |
| | | | Water tanker6 KL capacity | hour | 0.500 | 724.00 | 362.00 | P&M-060 |
| | | | Tractor with tiller | hour | 0.010 | 530.00 | 5.30 | P&M-053 |
| | | | **c) Material** | | | | | |
| | | | Supply of farm yard manure at site of work @ 0.6 cum per 100 sqm | cum | 0.600 | 141.00 | 84.60 | M-167 |
| | | | Fine grass | kg | 100.000 | 18.00 | 1800.00 | M-113 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 733.85 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 437.40 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 481.14 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 52.93 | |
| | | | Cost for 100 sqm = a+b+c+d+e+f+g | | | | 5345.47 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/100** | | | | 53.45 | |
| | | | | | | ***say*** | ***53.00*** | |
| **11.6** | **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** | | | | | |
| | | | Mali | day | 10.000 | 551.00 | 5510.00 | L-09 |
| | | | **b) Machinery** | | | | | |
| | | | Water tanker6 KL capacity | hour | 20.000 | 724.00 | 14480.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Cost of water | KL | 60.000 | 71.00 | 4260.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 4888.80 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 2913.88 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 3205.27 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 352.58 | |
| | | | Cost for 100 sqm = a+b+c+d+e+f+g | | | | 35610.53 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/100** | | | | 356.11 | |
| | | | | | | ***say*** | ***356.00*** | |
| **11.7** | **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 = 100metre*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 1.400 | 551.00 | 771.40 | L-12 |
| | | | Mazdoor for digging of trench 60 cm wide and 45 cm deep | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | 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 | 424.00 | 1696.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Water tanker6 KL capacity | hour | 0.500 | 724.00 | 362.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Cost of hedge plants 2 rows at 30 cm apart | each | 2x340 | 13.00 | 8840.00 | M-116 |
| | | | Supply of farm yard manure at site of work | cum | 4.670 | 141.00 | 658.47 | M-167 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Pesticide | kg | 0.250 | 361.00 | 90.25 | M-136 |
| | | | Cost of water | KL | 3.000 | 71.00 | 213.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 3401.22 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 2027.23 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 2229.96 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 245.30 | |
| | | | Cost for 100 metres = a+b+c+d+e+f+g | | | | 24774.83 | |
| | | | **Rate per metre = a+b+c+d+e+f+g)/100** | | | | 247.75 | |
| | | | | | | ***say*** | ***248.00*** | |
| | | **(b)** | **Maintenance of hedge for one year** | | | | | |
| | | | ***Unit = Running metre*** | | | | | |
| | | | ***Taking output = 100 m*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 3.000 | 551.00 | 1653.00 | L-12 |
| | | | Mazdoor | day | 30.000 | 424.00 | 12720.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Water tanker6 KL capacity | hour | 5.000 | 724.00 | 3620.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Manure sludge/Farm yard manure | cum | 2.000 | 141.00 | 282.00 | M-167 |
| | | | Pesticide | kg | 0.500 | 361.00 | 180.50 | M-136 |
| | | | Cost of water | KL | 30.000 | 71.00 | 2130.00 | M-189 |
| | | | Cost of hedge plants @ 10 per cent casualty | each | 68.000 | 13.00 | 884.00 | M-116 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 4328.25 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 2579.78 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 2837.75 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 312.15 | |
| | | | Cost for 100 metres = a+b+c+d+e+f+g | | | | 31527.43 | |
| | | | **Rate per metre = a+b+c+d+e+f+g)/100** | | | | 315.27 | |
| | | | | | | ***say*** | ***315.00*** | |
| **11.8** | **307** | | **Planting and Maintaining of Flowering Plants and Shrubs** | | | | | |
| | | **(a)** | **Planting flowering plants and shrubs in central verge** | | | | | |
| | | | ***Unit = Running metres 200 plants and 800 shrubs in two rows in one km length of road where width of verge is 3m and above.*** | | | | | |
| | | | ***Taking output = 1000 metres*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 1.200 | 551.00 | 661.20 | L-12 |
| | | | Mazdoor | day | 12.000 | 424.00 | 5088.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Water tanker6 KL capacity | hour | 6.000 | 724.00 | 4344.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Plants | each | 200.000 | 50.00 | 10000.00 | M-100 |
| | | | Shrubs | each | 800.000 | 25.00 | 20000.00 | M-166 |
| | | | Manure sludge/Farm yard manure | cum | 63.640 | 141.00 | 8973.24 | M-167 |
| | | | Pesticide | kg | 0.500 | 361.00 | 180.50 | M-136 |
| | | | Cost of water | KL | 36.000 | 71.00 | 2556.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 10443.47 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 6224.64 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 6847.11 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 753.18 | |
| | | | **Rate per Km = (a+b+c+d+e+f+g)/1000** | | | | 76071.34 | |
| | | | | | | ***say*** | ***76071.00*** | |
| **11.8** | | **(b)** | **Maintenance of flowering plants and shrubs in central verge for one year** | | | | | |
| | | | ***Unit = km*** | | | | | |
| | | | ***Taking output = one km*** | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 36.000 | 551.00 | 19836.00 | L-12 |
| | | | Mazdoor | day | 365.000 | 424.00 | 154760.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Water tanker6 KL capacity | hour | 90.000 | 724.00 | 65160.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Manure Sludge / farm yard manure at site | cum | 10.000 | 141.00 | 1410.00 | M-167 |
| | | | Cost of water | KL | 180.000 | 71.00 | 12780.00 | M-189 |
| | | | Replacement of casualties @ 10 per cent | | | | | |
| | | | Plants | each | 20.000 | 50.00 | 1000.00 | M-100 |
| | | | Shrubs | each | 80.000 | 25.00 | 2000.00 | M-166 |
| | | | Pesticides | kg | 1.500 | 361.00 | 541.50 | M-136 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 51909.48 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 30939.70 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 34033.67 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 3743.70 | |
| | | | **Rate per Km for one year = (a+b+c+d+e+f+g)** | | | | 378114.05 | |
| | | | | | | ***say*** | ***378114.00*** | |
| **11.9** | **307** | | **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 | | | | | |
| | | | ***Unit = Each*** | | | | | |
| | | | ***Taking output = 10 trees*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 1.700 | 551.00 | 936.70 | L-12 |
| | | | Mazdoor for planting | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | Mazdoor for maintenance for one year | day | 15.000 | 424.00 | 6360.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Water tanker6 KL capacity | hour | 30.000 | 724.00 | 21720.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Sapling 2 m high 25 mm dia | each | 10.000 | 103.00 | 1030.00 | M-160 |
| | | | Farm yard manure | cum | 0.940 | 141.00 | 132.54 | M-167 |
| | | | Pesticide | kg | 0.500 | 361.00 | 180.50 | M-136 |
| | | | Cost of water | KL | 12.000 | 71.00 | 852.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 6463.24 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 3852.30 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 4237.53 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 466.13 | |
| | | | Cost for 10 trees = a+b+c+d+e+f+g | | | | 47078.94 | |
| | | | **Rate per trees = (a+b+c+d+e+f+g)/10** | | | | 4707.89 | |
| | | | | | | ***say*** | ***4708.00*** | |
| **11.10** | **308** | | **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 | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 100 sqm*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.120 | 551.00 | 66.12 | L-12 |
| | | | Mazdoor | day | 3.000 | 424.00 | 1272.00 | L-13 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **b) Machinery** | | | | | |
| | | | Water tanker6 KL capacity | hour | 0.500 | 724.00 | 362.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Cost of water | KL | 3.000 | 71.00 | 213.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 385.68 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 229.88 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 252.87 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 27.82 | |
| | | | Cost for 100 sqm = a+b+c+d+e+f+g | | | | 2809.37 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)** | | | | 28.09 | |
| | | | | | | ***say*** | ***28.00*** | |
| **11.11** | **308.2** | | **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 | | | | | |
| | | | ***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 | 141.00 | 141.00 | M-167 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 28.43 | |
| | | | **c) Overhead charges @ 10 % on (a+b)** | | | | 16.94 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 18.64 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 2.05 | |
| | | | **Rate per cum = (a+b+c)** | | | | 207.06 | |
| | | | | | | | ***207.00*** | |
| **11.14** | | **New** | **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** | | | | | |
| | | | Mate | day | 0.050 | 551.00 | 27.55 | L-12 |
| | | | Mason | day | 0.250 | 593.00 | 148.25 | L-11 |
| | | | Mazdoor | day | 0.250 | 424.00 | 106.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Brick 2nd class including carriage | each | 230.000 | 12.00 | 2760.00 | M-079 |
| | | | Cement mortar 1:6 (Excluding GST,OH,CP &Cess) | cum | 0.030 | 3823.00 | 114.69 | Item 12.6 (D) |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 636.35 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 379.28 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 417.21 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 45.89 | |
| | | | **Rate per tree guard = a+b+c+d+e+f** | | | | 4635.22 | |
| | | | | | | ***say*** | ***4635.00*** | |
| **11.15** | | **New** | **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*** | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.002 | 551.00 | 1.10 | L-12 |
| | | | Mason | day | 0.050 | 593.00 | 29.65 | L-11 |
| | | | Mazdoor | day | 0.050 | 424.00 | 21.20 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Brick 2nd class including carriage | each | 50.000 | 12.00 | 600.00 | M-079 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 131.43 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 78.34 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 86.17 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 9.48 | |
| | | | Cost for 10 metre = a+b+c+d+e+f | | | | 957.37 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/10** | | | | 95.74 | |
| | | | | | | ***say*** | ***96.00*** | |
| **11.16** | | **New** | **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 | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Blacksmith | day | 0.150 | 593.00 | 88.95 | L-02 |
| | | | Mazdoor | day | 0.070 | 424.00 | 29.68 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Empty bitumen drum | each | 1.000 | 71.00 | 71.00 | M-172 |
| | | | MS sheet 50 x 0.5 mm | kg | 0.650 | 50.73 | 32.97 | M-179 /1000 |
| | | | Rivets 6 mm dia and 10 mm in length | each | 22.000 | 1.00 | 22.00 | M-158 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 51.53 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 30.72 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 33.79 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 3.72 | |
| | | | **Rate for each tree guard = a+b+c+d+e+f** | | | | 375.38 | |
| | | | | | | ***say*** | ***375.00*** | |
| **11.17** | | **New** | **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 | | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Blacksmith | day | 0.200 | 593.00 | 118.60 | L-02 |
| | | | Mazdoor | | 0.200 | 424.00 | 84.80 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Empty bitumen drum | each | 1.500 | 71.00 | 106.50 | M-172 |
| | | | MS sheet50 x 0.5 mm | kg | 0.650 | 50.73 | 32.97 | M-179 /1000 |
| | | | Rivets 6 mm dia and 10 mm in length | each | 50.000 | 1.00 | 50.00 | M-158 |
| | | | MSplate30 x 3 mm | kg | 1.300 | 50.73 | 65.95 | M-179 /1000 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 96.94 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 57.78 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 63.56 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 6.99 | |
| | | | **Rate for each tree guard = a+b+c+d+e+f** | | | | 706.13 | |
| | | | | | | ***say*** | ***706.00*** | |
| **11.18** | | **New** | **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 | | | | | |
| | | | ***Unit = quintal*** | | | | | |
| | | | ***Taking output = one quintal*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.450 | 551.00 | 247.95 | L-12 |
| | | | Blacksmith/ welder for cutting to design and shape and jointing | day | 2.000 | 593.00 | 1186.00 | L-02 |
| | | | Mazdoor for fixing and helper for Blacksmith/welder | day | 2.500 | 424.00 | 1060.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Angle, tees, channels etc | quintal | 1.050 | 5072.80 | 5326.44 | M-179 /10 |
| | | | Deduct the cost of scrap | quintal | 0.050 | (1690.93) | (84.55) | M-179/10/3 |
| | | | Add 5 per cent of cost of material for welding rods and other welding accessories | | | | 262.09 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1612.38 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 961.03 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1057.13 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 116.28 | |
| | | | **Rate per quintal = a+b+c+d** | | | | 11744.75 | |
| | | | | | | ***say*** | ***11745.00*** | |
| **11.19** | | | **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 | 0.050 | 551.00 | 27.55 | L-12 |
| | | | Blacksmith | day | 0.250 | 593.00 | 148.25 | L-02 |
| | | | Mazdoor | day | 0.250 | 424.00 | 106.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | MS iron 25 x 6 mm | kg | 19.200 | 50.73 | 974.02 | M-179 /1000 |
| | | | MS iron 25 x 3 mm | kg | 9.600 | 50.73 | 487.01 | M-179 /1000 |
| | | | Add 5 per cent of cost of material for riveting, bolting and welding accessories | | | | | |
| | | | **c) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.040 | 530.00 | 21.20 | P&M-053 |
| | | | **d) Painting** | | | | | |
| | | | Painting two coats including priming | sqm | 1.770 | 141.00 | 249.57 | Item 8.9 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 355.63 | |
| | | | **f) Overhead charges @ 10 % on (a+b+c+e)** | | | | 211.97 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+e+f)** | | | | 233.16 | |
| | | | **h) Cess @ 1% on (a+b+c+e+f+g)** | | | | 25.65 | |
| | | | **Rate per tree guard =a+b+c+d+e+f+g+h** | | | | 2840.01 | |
| | | | | | | ***say*** | ***2840.00*** | |
| | | **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** | | **New** | **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 | 0.050 | 551.00 | 27.55 | L-12 |
| | | | Blacksmith | day | 0.250 | 593.00 | 148.25 | L-02 |
| | | | Welder | day | 0.250 | 593.00 | 148.25 | L-02 |
| | | | Mazdoor | day | 0.250 | 424.00 | 106.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | MS angle 30 x 30 x 3 mm | kg | 13.500 | 50.73 | 684.86 | M-179 /1000 |
| | | | MS iron 25 x 3 mm | kg | 18.000 | 50.73 | 913.14 | M-179 /1000 |
| | | | Steel wire 3 mm dia | kg | 6.000 | 170.00 | 1020.00 | M-192 |
| | | | Add 5 per cent of cost of material for riveting, bolting and welding accessories | | | | 130.90 | |
| | | | **c) Machinery** | | | | | |
| | | | Tractor-trolley | hour | 0.040 | 530.00 | 21.20 | P&M-053 |
| | | | **d) Painting** | | | | | |
| | | | Painting two coats including priming | sqm | 1.500 | 141.00 | 211.50 | Item 8.9 |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 645.15 | |
| | | | **f) Overhead charges @ 10 % on (a+b+c+e)** | | | | 384.53 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+e+f)** | | | | 422.98 | |
| | | | **h) Cess @ 1% on (a+b+c+e+f+g)** | | | | 46.53 | |
| | | | **Rate per tree guard = a+b+c+d+e+f+g+h** | | | | 4910.84 | |
| | | | | | | ***say*** | ***4911.00*** | |
| **11.21** | | **New** | **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 | | | | | |
| | | | ***Unit = Hectare*** | | | | | |
| | | | ***Taking output = one hectare*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | **i) Planting** | | | | | |
| | | | Mate | day | 2.500 | 551.00 | 1377.50 | L-12 |
| | | | Mazdoor | day | 25.000 | 424.00 | 10600.00 | L-13 |
| | | | **ii) For Maintenance for one year** | | | | | |
| | | | Mate | day | 5.000 | 551.00 | 2755.00 | L-12 |
| | | | Mazdoor | day | 50.000 | 424.00 | 21200.00 | L-13 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **b) Machinery** | | | | | |
| | | | Dozer D 50 @ 1000 sqm/hour | hour | 10.000 | 3398.00 | 33980.00 | P&M-015 |
| | | | Water tanker6 KL capacity (for planting) | hour | 3.000 | 724.00 | 2172.00 | P&M-060 |
| | | | Water tanker6 KL capacity (for maintenance) | hour | 25.000 | 724.00 | 18100.00 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Sapling 1 to 1.5 m high 2 cm dia stem | each | 290.000 | 82.40 | 23896.00 | M-160 x 0.8 |
| | | | Add 10 per cent of sapling | each | 29.000 | 82.40 | 2389.60 | M-160 x 0.8 |
| | | | Decayed farm yard/sludge manure (planting) | cum | 60.900 | 141.00 | 8586.90 | M-167 |
| | | | Decayed farm yard/sludge manure (maintenance) | cum | 4.000 | 141.00 | 564.00 | M-167 |
| | | | Pesticides for planting | kg | 0.500 | 361.00 | 180.50 | M-136 |
| | | | Pesticides for maintenance | kg | 1.500 | 361.00 | 541.50 | M-136 |
| | | | Cost of water | KL | 18.000 | 71.00 | 1278.00 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 25728.39 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 15334.94 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 16868.43 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1855.53 | |
| | | | **Rate per hectare = a+b+c+d+e** | | | | 187408.29 | |
| | | | | | | ***say*** | ***187408.00*** | |

**Note** Cost of fencing to be provided as per size of plot and approved design, measured and paid separately

## Chapter – 12
## FOUNDATION

**Preamble:**

1 Excavation for structures has been provided both by manual and mechanical means.

2 The earth excavated from foundation has been proposed to be backfilled and balance quantity utilised for road works locally except for marshy soil where disposal has been provided.

3 In case of rocks, excavation has been considered upto a depth of 3 m only.

4 Embedment of foundation in soft and hard rocks has been provided as required by the specifications.

5 Dewatering has been provided in excavation for foundation on percentage basis. In case less dewatering is required or is not required at all for a particular site condition, the same may be reduced/omitted.

6 Mixing of cement concrete has been considered by using concrete mixer and batching plant. The rate can be adopted depending upon availability of equipment and as approved by the Engineer.

7 Concrete batching plant is considered to be placed within 10 (ten) km of the bridge site.

8 The coarse and fine aggregate for cement concrete shall be as per IS:383.

9 Description of items has been given very briefly. Relevant Clause of MoRT&H Specifications have to be referred for detailed specification.

10 The rate for well foundation has been included for diametre varying from 6 m to 12 m. Well for twin D type has also been included.

11 Pneumatic sinking is a specialised job. All safety precautions as per IS:4138 are required to be taken. Medical supervision for such works is considered very essential. Depth of Pneumatic sinking has been restricted to 30 m below normal water level.

12 Rates for various type of piles like bored cast-in-situ, driven precast RCC pile and driven steel piles of H section have been included. If the steel casting in case of driven pile is required to be retained the same is required to be priced separately.

13 Pile driving rigs including vibratory hammers are considered to be self contained with power units and necessary accessories required for driving.

14 The quantity of concrete which is required to be stripped off upto a minimum height of 600 mm above the designed top level of the pile has been taken into account in the rate.

15 The levelling course below the pile cap is proposed with M 15 grade concrete.

16 Rates for Steel reinforcement for cement concrete works are provided separately.

17 Appendix-4 of IRC:78-2000 has to be referred regarding precautions to be taken during sinking of wells.

18 In case of blasting during sinking of wells the inner face of the curb is required to be protected with the steel plates of thickness not less than 10 mm upto top level of well curb. For height above top of curb, the thickness of steel plate may be reduced to 6 mm. This extra height of steel lining should be limited to 3 m.

19 The concrete mix used in bottom plug shall have a minimum cement content of 330 kg/cum and a slump of abot 150 mm to permit easy flow of concrete through tremie to fill-up all cavaties.

20 Necessary safety precautions shall be taken for excavation on open foundations for which guidance may be taken from IS:3764.

21 A levelling course of 100 mm thickness in M 10 (1:3:6) shall be provided before laying open foundations.

22 In the case of open foundation, dewatering shall not be permitted from the time of placing of concrete upto 24 hours after placement.

23 In case of open foundations in rock, the trenches around the footing shall be fillied-up with concrete of M 15 grade upto a level of 0.6 m for hard rock and 1.5 m for soft rock above the foundation level. The portion above this shall be filled by boulders grouted with cement.

24 When there are two or more compartments in a well, the lower edge of the cutting edge of the middle stems of such wells shall be kept about 300 mm above that of outer stems to prevent rocking.

25 The well curb shall be in RCC of mix not leaner than M 25 grade with minimum steel reinforcement of 72 kg/cum excluding bond rods.

26 The top of bottom plug shall be atleast 300 mm above top of curb.

27 No dewatering shall be carried out within 7 days of casting of bottom plug.

28 In case of cement concrete piles, the minimum grade of concrete shall be M 35 with minimum cement content of 400 kg/cum.

29 The top of the pile shall project 50 mm into the pile cap and reinforcement of pile shall be fully anchored in pile cap.

30 The minimum thickness of pile cap should be atleast 0.6 m or 1.5 times the diametre of the pile whichever is more.

31 Guidance for piles is to be obtained from IS:2911.

32 Concrete in driven cast-in-situ piles shall be cast upto a minimum height of 600 mm above the designed top level of pile, which shall be stripped off to obtain sound concrete either before final set or after 3 days.

33 In remote areas, for isolated slab culvert/box culvert upto 2 m span, concrete can be hand mixed in accordance with Clause 806 of MORD Specifications. Therefore, in the analysis, for items of concrete, the alternative of hand mixing has also been considered.

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 12.1 | 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 (without de-watering)** | | | | | |
| | | I | **Ordinary soil** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 10 cum*** | | | | | |
| | | A | **Manual Means** | | | | | |
| | | (i) | **Depth upto 3 m** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.140 | 551.00 | 77.14 | L-12 |
| | | | Mazdoor | day | 3.500 | 424.00 | 1484.00 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 314.73 | |
| | | | **c) Overhead charges @ 20 % on (a+b)** | | | | 375.17 | |
| | | | **d) Contractor's profit @ 10 % on (a+b)** | | | | 225.10 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 24.76 | |
| | | | Cost for 10 cum = a+b+c+d+e | | | | 2500.90 | |
| | | | **Rate per cum = (a+b+c+d+e)/10** | | | | 250.09 | |
| | | | | | | ***say*** | ***250.00*** | |
| | | (i) b | **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 (with de-watering)** | | | | | |
| | | I | **Ordinary soil** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 10 cum*** | | | | | |
| | | A | **Manual Means** | | | | | |
| | | (i) | **Depth upto 3 m** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.150 | 551.00 | 82.65 | L-12 |
| | | | Mazdoor | day | 3.850 | 424.00 | 1632.40 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 345.75 | |
| | | | **c) Overhead charges @ 20 % on (a+b)** | | | | 412.16 | |
| | | | **d) Contractor's profit @ 10 % on (a+b)** | | | | 247.30 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 27.20 | |
| | | | Cost for 10 cum = a+b+c+d+e | | | | 2747.46 | |
| | | | **Rate per cum = (a+b+c+d+e)/10** | | | | 274.75 | |
| | | | | | | ***say*** | ***275.00*** | |
| 12.1 (I) A | | (ii) | **Depth 3 m to 6 m (without de-watering)** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate/Supervisor | day | 0.180 | 551.00 | 99.18 | L-12 |
| | | | Mazdoor | day | 4.500 | 424.00 | 1908.00 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 404.65 | |
| | | | **c) Overhead charges @ 20 % on (a+b)** | | | | 482.37 | |
| | | | **d) Contractor's profit @ 10 % on (a+b)** | | | | 289.42 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 31.84 | |
| | | | Cost for 10 cum = a+b+c+d+e | | | | 3215.46 | |
| | | | **Rate per cum = (a+b+c+d+e)/10** | | | | 321.55 | |
| | | | | | | ***say*** | ***322.00*** | |
| | | (ii) b | **Depth 3 m to 6 m (with de-watering)** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate/Supervisor | day | 0.210 | 551.00 | 115.71 | L-12 |
| | | | Mazdoor | day | 5.180 | 424.00 | 2196.32 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 466.11 | |
| | | | **c) Overhead charges @ 20 % on (a+b)** | | | | 555.63 | |
| | | | **d) Contractor's profit @ 10 % on (a+b)** | | | | 333.38 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 36.67 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Cost for 10 cum = a+b+c+d+e | | | | 3703.82 | |
| | | | **Rate per cum = (a+b+c+d+e)/10** | | | | 370.38 | |
| | | | | | | ***say*** | ***370.00*** | |
| **12.1 (I) A** | | **(iii)** | **Depth above 6 m (without de-watering)** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate/Supervisor | day | 0.240 | 551.00 | 132.24 | L-12 |
| | | | Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 539.53 | |
| | | | **c) Overhead charges @ 20 % on (a+b)** | | | | 643.15 | |
| | | | **d) Contractor's profit @ 10 % on (a+b)** | | | | 385.89 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 42.45 | |
| | | | Cost for 10 cum = a+b+c+d+e | | | | 4287.26 | |
| | | | **Rate per cum = (a+b+c+d+e)/10** | | | | 428.73 | |
| | | | | | | ***say*** | ***429.00*** | |
| | | **(iii) b** | **Depth above 6 m (with de-watering)** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate/Supervisor | day | 0.290 | 551.00 | 159.79 | L-12 |
| | | | Mazdoor | day | 7.200 | 424.00 | 3052.80 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 647.66 | |
| | | | **c) Overhead charges @ 20 % on (a+b)** | | | | 772.05 | |
| | | | **d) Contractor's profit @ 10 % on (a+b)** | | | | 463.23 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 50.96 | |
| | | | Cost for 10 cum = a+b+c+d+e | | | | 5146.49 | |
| | | | **Rate per cum = (a+b+c+d+e)/10** | | | | 514.65 | |
| | | | | | | ***say*** | ***515.00*** | |
| **12.1 (I)** | | **B** | **Mechanical Means** | | | | | |
| | | **(i)** | **Depth upto 3 m (without de-watering)** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 240 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.320 | 551.00 | 176.32 | L-12 |
| | | | Mazdoor | day | 8.000 | 424.00 | 3392.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic excavator 1.0 cum bucket capacity | hour | 6.000 | 2044.00 | 12264.00 | P&M-026 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3191.80 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 3804.82 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2282.89 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 251.12 | |
| | | | Cost for 240 cum = a+b+c+d+e+f | | | | 25362.95 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/240** | | | | 105.68 | |
| | | | | | | ***say*** | ***106.00*** | |
| | | **(i) c** | **Depth upto 3 m (with de-watering)** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 240 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.336 | 551.00 | 185.14 | L-12 |
| | | | Mazdoor | day | 8.400 | 424.00 | 3561.60 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic excavator 1.0 cum bucket capacity | hour | 6.300 | 2044.00 | 12877.20 | P&M-026 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3351.39 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 3995.07 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2397.04 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 263.67 | |
| | | | Cost for 240 cum = a+b+c+d+e+f | | | | 26631.11 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/240** | | | | 110.96 | |
| | | | | | | ***say*** | ***111.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 12.1 (I) B | | (ii) | **Depth 3 m to 6 m (without de-watering)** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 210 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.320 | 551.00 | 176.32 | L-12 |
| | | | Mazdoor | day | 8.000 | 424.00 | 3392.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic excavator 1.0 cum bucket capacity | hour | 6.000 | 2044.00 | 12264.00 | P&M-026 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3191.80 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 3804.82 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2282.89 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 251.12 | |
| | | | Cost for 210 cum = a+b+c+d+e+f | | | | 25362.95 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/210** | | | | 120.78 | |
| | | | | | | ***say*** | ***121.00*** | |
| | | (ii) c | **Depth 3 m to 6 m (with de-watering)** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 210 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.344 | 551.00 | 189.54 | L-12 |
| | | | Mazdoor | day | 8.600 | 424.00 | 3646.40 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic excavator 1.0 cum bucket capacity | hour | 6.450 | 2044.00 | 13183.80 | P&M-026 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3431.18 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 4090.18 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2454.11 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 269.95 | |
| | | | Cost for 210 cum = a+b+c+d+e+f | | | | 27265.16 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/210** | | | | 129.83 | |
| | | | | | | ***say*** | ***130.00*** | |
| 12.1 (I) B | | (iii) | **Depth above 6m (without de-watering)** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 180 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.400 | 551.00 | 220.40 | L-12 |
| | | | Mazdoor | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic excavator 1.0 cum bucket capacity | hour | 6.000 | 2044.00 | 12264.00 | P&M-026 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3371.64 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 4019.21 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2411.53 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 265.27 | |
| | | | Cost for 180 cum = a+b+c+d+e+f | | | | 26792.05 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/180** | | | | 148.84 | |
| | | | | | | ***say*** | ***149.00*** | |
| | | (iii) c | **Depth above 6m (with de-watering)** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 180 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.440 | 551.00 | 242.44 | L-12 |
| | | | Mazdoor | day | 11.000 | 424.00 | 4664.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic excavator 1.0 cum bucket capacity | hour | 6.600 | 2044.00 | 13490.40 | P&M-026 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3708.80 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 4421.13 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2652.68 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 291.79 | |
| | | | Cost for 180 cum = a+b+c+d+e+f | | | | 29471.24 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/180** | | | | 163.73 | |
| | | | | | | ***say*** | ***164.00*** | |
| **12.1** | | **II** | **Ordinary Rock (not requiring blasting)** | | | | | |
| | | **A** | **Manual Means** | | | | | |
| | | **(i)** | **Depth upto 3 m (without de-watering)** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 10 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.200 | 551.00 | 110.20 | L-12 |
| | | | Mazdoor | day | 5.000 | 424.00 | 2120.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 449.61 | |
| | | | **c) Overhead charges @ 20 % on (a+b)** | | | | 535.96 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 321.58 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 35.37 | |
| | | | Cost for 10 cum = a+b+c+d+e | | | | 3572.72 | |
| | | | **Rate per cum = (a+b+c+d+e)/10** | | | | 357.27 | |
| | | | | | | ***say*** | ***357.00*** | |
| | | **(ii)** | **Depth upto 3 m (with de-watering)** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 10 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.220 | 551.00 | 121.22 | L-12 |
| | | | Mazdoor | day | 5.500 | 424.00 | 2332.00 | L-13 |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 494.57 | |
| | | | **c) Overhead charges @ 20 % on (a+b)** | | | | 589.56 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 353.74 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 38.91 | |
| | | | Cost for 10 cum = a+b+c+d+e | | | | 3930.00 | |
| | | | **Rate per cum = (a+b+c+d+e)/10** | | | | 393.00 | |
| | | | | | | ***say*** | ***393.00*** | |
| **12.1 (II)** | | **B** | **Mechanical Means** | | | | | |
| | | | **Depth upto 3 m (without de-watering)** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 180 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.240 | 551.00 | 132.24 | L-12 |
| | | | Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic excavator 1.0 cum bucket capacity | hour | 6.000 | 2044.00 | 12264.00 | P&M-026 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3011.95 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 3590.44 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2154.26 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 236.97 | |
| | | | Cost for 180 cum = a+b+c+d+e+f | | | | 23933.86 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/180** | | | | 132.97 | |
| | | | | | | ***say*** | ***133.00*** | |
| | | **C** | **Depth upto 3 m (with de-watering)** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 180 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.264 | 551.00 | 145.46 | L-12 |
| | | | Mazdoor | day | 6.600 | 424.00 | 2798.40 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic excavator 1.0 cum bucket capacity | hour | 6.600 | 2044.00 | 13490.40 | P&M-026 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3313.15 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 3949.48 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2369.69 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 260.67 | |
| | | | Cost for 180 cum = a+b+c+d+e+f | | | | 26327.25 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/180** | | | | 146.26 | |
| | | | | | | ***say*** | ***146.00*** | |
| **12.1** | | **III** | **Hard Rock ( requiring blasting )** | | | | | |
| | | **A** | **Manual Means** | | | | | |
| | | | **Without de-watering** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 10 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.350 | 551.00 | 192.85 | L-12 |
| | | | Driller | day | 0.500 | 551.00 | 275.50 | L-06 |
| | | | Blaster | day | 0.250 | 551.00 | 137.75 | L-03 |
| | | | Mazdoor | day | 8.000 | 424.00 | 3392.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Air Compressor 250 cfm with 2 jack hammer for drilling. | hour | 1.000 | 658.00 | 658.00 | P&M-001 |
| | | | **c) Material** | | | | | |
| | | | Blasting Material | kg | 3.500 | 166.00 | 581.00 | M-104 |
| | | | Detonator electric | each | 14.000 | 11.59 | 162.26 | M-094/100 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1088.51 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 1297.57 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 778.54 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 85.64 | |
| | | | Cost for 10 cum = a+b+c+d+e+f+g | | | | 8649.62 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/10** | | | | 864.96 | |
| | | | | | | ***say*** | ***865.00*** | |
| | | **B** | **With de-watering** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 10 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.385 | 551.00 | 212.14 | L-12 |
| | | | Driller | day | 0.550 | 551.00 | 303.05 | L-06 |
| | | | Blaster | day | 0.275 | 551.00 | 151.53 | L-03 |
| | | | Mazdoor | day | 8.800 | 424.00 | 3731.20 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Air Compressor 250 cfm with 2 jack hammer for drilling. | hour | 1.100 | 658.00 | 723.80 | P&M-001 |
| | | | **c) Material** | | | | | |
| | | | Blasting Material | kg | 3.500 | 166.00 | 581.00 | M-104 |
| | | | Detonator electric | each | 14.000 | 11.59 | 162.26 | M-094/100 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1182.38 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 1409.47 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 845.68 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 93.03 | |
| | | | Cost for 10 cum = a+b+c+d+e+f+g | | | | 9395.54 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/10** | | | | 939.55 | |
| | | | | | | ***say*** | ***940.00*** | |
| **12.1** | | **IV** | **Hard Rock ( blasting prohibited )** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 10 cum*** | | | | | |
| | | **A** | **Mechanical Means (without de-watering)** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.200 | 551.00 | 110.20 | L-12 |
| | | | Mazdoor | day | 5.000 | 424.00 | 2120.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Air Compressor 250 cfm with 2 leads of pneumatic breaker | hour | 6.000 | 658.00 | 3948.00 | P&M-001 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1245.53 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 1484.75 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 890.85 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 97.99 | |
| | | | Cost for 10 cum = a+b+c+d+e+f | | | | 9897.32 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/10** | | | | 989.73 | |
| | | | | | | ***say*** | ***990.00*** | |
| | | B | **Mechanical Means (with de-watering)** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.220 | 551.00 | 121.22 | L-12 |
| | | | Mazdoor | day | 5.500 | 424.00 | 2332.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Air Compressor 250 cfm with 2 leads of pneumatic breaker | hour | 6.600 | 658.00 | 4342.80 | P&M-001 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1370.08 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 1633.22 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 979.93 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 107.79 | |
| | | | Cost for 10 cum = a+b+c+d+e+f | | | | 10887.04 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/10** | | | | 1088.70 | |
| | | | | | | ***say*** | ***1089.00*** | |
| **12.1** | | V | **Marshy Soil** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 10 cum*** | | | | | |
| | | | **Depth upto 3 m** | | | | | |
| | | A | **Manual means (without de-watering)** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate/Supervisor | day | 0.400 | 551.00 | 220.40 | L-12 |
| | | | Mazdoor | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley for removal. | hour | 2.670 | 530.00 | 1415.10 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1184.50 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 1412.00 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 847.20 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 93.19 | |
| | | | Cost for 10 cum = a+b+c+d+e+f | | | | 9412.39 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/10** | | | | 941.24 | |
| | | | | | | ***say*** | ***941.00*** | |
| | | B | **Manual means (with de-watering)** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate/Supervisor | day | 0.520 | 551.00 | 286.52 | L-12 |
| | | | Mazdoor | day | 13.000 | 424.00 | 5512.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley for removal. | hour | 2.670 | 530.00 | 1415.10 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1454.27 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 1733.58 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1040.15 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 114.42 | |
| | | | Cost for 10 cum = a+b+c+d+e+f | | | | 11556.04 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/10** | | | | 1155.60 | |
| | | | | | | ***say*** | ***1156.00*** | |
| **12.1 (V)** | | A | **Mechanical Means (without de-watering)** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor for dressing sides, bottom and backfilling | day | 2.000 | 424.00 | 848.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic excavator 1.0 cum bucket capacity @ 60 cum per hour | hour | 0.170 | 2044.00 | 347.48 | P&M-026 |
| | | | Tipper 5.5 cum capacity, 4 trips per hour. | hour | 0.450 | 916.00 | 412.20 | P&M-048 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 332.99 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 396.95 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 238.17 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 26.20 | |
| | | | Cost for 10 cum = a+b+c+d+e+f | | | | 2646.07 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/10** | | | | 264.61 | |
| | | | | | | ***say*** | ***265.00*** | |
| | | B | **Mechanical Means (with de-watering)** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.096 | 551.00 | 52.90 | L-12 |
| | | | Mazdoor for dressing sides, bottom and backfilling | day | 2.400 | 424.00 | 1017.60 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Hydraulic excavator 1.0 cum bucket capacity @ 60 cum per hour | hour | 0.204 | 2044.00 | 416.98 | P&M-026 |
| | | | Tipper 5.5 cum capacity, 4 trips per | hour | 0.540 | 916.00 | 494.64 | P&M-048 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 399.60 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 476.34 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 285.81 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 31.44 | |
| | | | Cost for 10 cum = a+b+c+d+e+f | | | | 3175.31 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/10** | | | | 317.53 | |
| | | | | | | ***say*** | ***318.00*** | |
| | | VI | **Back Filling in Marshy Foundation Pits** | | | | | |
| | | | ***Unit : Cum*** | | | | | |
| | | | ***Taking Output : 6 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.120 | 551.00 | 66.12 | L-12 |
| | | | Mazdoor for dressing sides, bottom and backfilling | day | 3.000 | 424.00 | 1272.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley for transportation | hour | 2.000 | 530.00 | 1060.00 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 483.46 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 576.32 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 345.79 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 38.04 | |
| | | | Cost for 6 cum = a+b+c+d+e+f | | | | 3841.73 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/6** | | | | 640.29 | |
| | | | | | | ***say*** | ***640.00*** | |
| **12.2** | 304 | | **Filling Annular Space Around Footing in Rock** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking out put = 1 cum*** | | | | | |
| | | | Lean cement concrete 1:3:6 nominal mix. Rate may be taken as per item 12.4. | | | | | |
| **12.3** | 304 | | **Sand Filling in Foundation Trenches as per Drawing & Technical Specification** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| | | | Mazdoor | day | 0.300 | 424.00 | 127.20 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Sand (assuming 20 per cent voids) | cum | 1.200 | 650.00 | 780.00 | M-006 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 184.00 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 219.34 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 131.61 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 14.48 | |
| | | | **Rate per cum = a+b+c+d+e+f** | | | | 1462.14 | |
| | | | | | | ***say*** | ***1462.00*** | |
| **12.4** | 2100 | | **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.** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.640 | 551.00 | 352.64 | L-12 |
| | | | Mason | day | 1.000 | 593.00 | 593.00 | L-11 |
| | | | Mazdoor | day | 15.000 | 424.00 | 6360.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | 40 mm Aggregate | cum | 13.500 | 1900.00 | 25650.00 | M-055 |
| | | | coarse Sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | cement | tonne | 3.450 | 9100.00 | 31395.00 | M-081 |
| | | | Cost of water | KL | 18.000 | 71.00 | 1278.00 | M-189 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | Water tanker 6 KL capacity | hour | 2.000 | 724.00 | 1448.00 | P&M-060 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 15371.22 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 18323.47 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 10994.08 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1209.35 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g | | | | 122144.26 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/15** | | | | 8142.95 | |
| | | | | | | ***say*** | ***8143.00*** | |
| | | **Note** | Vibrator is a part of minor T & P which is already included in overhead charges of the contractor. | | | | | |
| **12.5** | 1300 | | **Brick Masonry Work in Cement Mortar 1:3 in Foundation complete excluding Pointing and Plastering, as per Drawing and Technical Specifications.** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 5 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Bricks Ist class | each | 2500.000 | 12.00 | 30000.00 | M-079 |
| | | | Cement mortar 1:3 (Rate as in Item 12.6 A sub-analysis) (Excluding GST,OH,CP &Cess) | cum | 1.200 | 5727.00 | 6872.40 | Item 12.6 (A) |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.480 | 551.00 | 264.48 | L-12 |
| | | | Mason | day | 4.000 | 593.00 | 2372.00 | L-11 |
| | | | Mazdoor | day | 8.000 | 424.00 | 3392.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 8648.82 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 10309.94 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 6185.96 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 680.46 | |
| | | | Cost for 5 cum = a+b+c+d+e+f | | | | 68726.06 | |
| | | | **Rate per cum (a+b+c+d+e+f)/5** | | | | 13745.21 | |
| | | | | | | ***say*** | ***13745.00*** | |
| **12.6** | Sub-analysis | **(A)** | **Cement Mortar 1:3 (1 cement : 3 sand)** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | | **a) Materials** | | | | | |
| | | | Cement | tonne | 0.510 | 9100.00 | 4641.00 | M-081 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Sand | cum | 1.050 | 650.00 | 682.50 | M-005 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 0.900 | 424.00 | 381.60 | L-13 |
| | | | Total Material and Labour = (a+b) | | | ***say*** | **5727.00** | |
| | Sub-analysis (Addl.) | (B) | **Cement Mortar1:2 (1cement :2 sand)** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | | **a) Materials** | | | | | |
| | | | Cement | tonne | 0.672 | 9100.00 | 6115.20 | M-081 |
| | | | Sand | cum | 0.930 | 650.00 | 604.50 | M-005 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 0.900 | 424.00 | 381.60 | L-13 |
| | | | Total Material and Labour = (a+b) | | | ***say*** | **7123.00** | |
| | Sub-analysis (Addl.) | (C) | **Cement Mortar1:4 (1cement :4 sand)** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | | **a) Materials** | | | | | |
| | | | Cement | tonne | 0.403 | 9100.00 | 3667.30 | M-081 |
| | | | Sand | cum | 1.120 | 650.00 | 728.00 | M-005 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 0.900 | 424.00 | 381.60 | L-13 |
| | | | Total Material and Labour = (a+b) | | | ***say*** | **4799.00** | |
| | Sub-analysis (Addl.) | (D) | **Cement Mortar1:6 (1cement :6 sand)** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | | **a) Materials** | | | | | |
| | | | Cement | tonne | 0.288 | 9100.00 | 2620.80 | M-081 |
| | | | Sand | cum | 1.337 | 650.00 | 869.05 | M-005 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 0.900 | 424.00 | 381.60 | L-13 |
| | | | Total Material and Labour = (a+b) | | | ***say*** | **3893.00** | |
| **12.7** | 1400 | | **Stone Masonry Work in Cement Mortar 1:3 in Foundation complete as per Drawing and Technical Specifications.** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 5 cum*** | | | | | |
| | 1405.4 | (A) | **Square Rubble Coursed Rubble Masonry (first sort)** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Stone | cum | 5.500 | 605.00 | 3327.50 | M-169 |
| | | | Through and bond stone | each | 35.000 | 15.00 | 525.00 | M-182 |
| | | | (35no.x0.24mx0.24mx0.39m = 0.79 cu.m) | | | | | |
| | | | Cement mortar 1:3 (Rate as in Item 12.6 A sub-analysis) (Excluding GST,OH,CP &Cess) | cum | 1.500 | 5727.00 | 8590.50 | Item 12.6 (A) |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.660 | 551.00 | 363.66 | L-12 |
| | | | Mason | day | 7.500 | 593.00 | 4447.50 | L-11 |
| | | | Mazdoor | day | 9.000 | 424.00 | 3816.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 4247.74 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 5063.58 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 3038.15 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 334.20 | |
| | | | Cost for 5 cum = a+b+c+d+e+f | | | | 33753.83 | |
| | | | **Rate per cum (a+b+c+d+e+f)/5** | | | | 6750.77 | |
| | | | | | | ***say*** | ***6751.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | 1405.3 | (B) | **Random Rubble Masonry** ( coursed/uncoursed ) ***Unit = cum*** ***Taking output = 5 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Stone | cum | 5.500 | 605.00 | 3327.50 | M-148 |
| | | | Through and bond stone (35nos.x0.24mx0.24mx0.39m = 0.79 cu.m) | each | 35.000 | 15.00 | 525.00 | M-182 |
| | | | Cement mortar 1:3 (Rate as in Item 12.6 A sub-analysis) (Excluding GST,OH,CP &Cess) | cum | 1.550 | 5727.00 | 8876.85 | Item 12.6 (A) |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.620 | 551.00 | 341.62 | L-12 |
| | | | Mason | day | 6.000 | 593.00 | 3558.00 | L-11 |
| | | | Mazdoor | day | 9.000 | 424.00 | 3816.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 4121.71 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 4913.34 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2948.00 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 324.28 | |
| | | | Cost for 5 cum = a+b+c+d+e+f | | | | 32752.30 | |
| | | | **Rate per cum (a+b+c+d+e+f)/5** | | | | 6550.46 | |
| | | | | | | ***say*** | ***6550.00*** | |
| | | **Note** | The labour already considered in cement mortar has been taken into account while proposing labour for masonry works. | | | | | |
| 12.8 | 1500, 1700 & 2100 | | **Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical Specifications.** | | | | | |
| | | **A (i)** | **PCC Grade M15** ***Unit = cum*** ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 4.130 | 9100.00 | 37583.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 40 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-055 |
| | | | 20 mm Aggregate | cum | 4.050 | 1900.00 | 7695.00 | M-053 |
| | | | 10 mm Aggregate | cum | 1.350 | 1800.00 | 2430.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.860 | 551.00 | 473.86 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 63 KVA | hour | 6.000 | 883.00 | 5298.00 | P&M-019 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***5625.000*** | | | |
| | | | **d) Formwork** @ 4 per cent on cost of concrete i.e. cost of material, labour and machinery | | | | 3374.91 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 17689.95 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 21087.54 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 12652.53 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1391.78 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 140569.57 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 9371.30 | |
| | | | | | | ***say*** | ***9371.00*** | |
| | | **Note** | Needle Vibrator is an item of minor T & P which is already included in overhead charges. Hence not added in rate analysis of cement concrete works. | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 12.8 | | B | **PCC Grade M20** | | | | | |
| | | | ***Unit : cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 5.160 | 9100.00 | 46956.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 40 mm Aggregate | cum | 5.400 | 1900.00 | 10260.00 | M-055 |
| | | | 20 mm Aggregate | cum | 5.400 | 1900.00 | 10260.00 | M-053 |
| | | | 10 mm Aggregate | cum | 2.700 | 1800.00 | 4860.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.860 | 551.00 | 473.86 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6090.000*** | | | |
| | | | **d) Formwork** @ 4 per cent on cost of concrete i.e. cost of material, labour and machinery | | | | 3653.95 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 19152.57 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 22831.08 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 13698.65 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1506.85 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 152191.96 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 10146.13 | |
| | | | | | | ***say*** | ***10146.00*** | |
| 12.8 | | C | **RCC Grade M20** | | | | | |
| | Case I | | **Using Concrete Mixer** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 5.210 | 9100.00 | 47411.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.860 | 551.00 | 473.86 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6103.000*** | | | |
| | | | **d) Formwork** @ 4 per cent on (a+b+c) | | | | 3661.35 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 19191.35 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 22877.31 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 13726.39 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1509.90 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 152500.16 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 10166.68 | |
| | | | | | | ***say*** | ***10167.00*** | |
| 12.8 C | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | ***Unit : cum*** | | | | | |
| | | | ***Taking Output = 120 cum*** | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 41.660 | 9100.00 | 379106.00 | M-081 |
| | | | Coarse Sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader 1 cum capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Lead beyond 1 km, L-lead in km | tonne. km | 300L | 80.00 | 0.00 | P&M-050 Lead= 0 km |
| | | | Concrete Pump | hour | 6 | 2726.00 | 16356.00 | P&M-007 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***5802.000*** | | | |
| | | | **d) Formwork** @ 4 per cent on cost of concrete i.e. cost of material, labour and machinery | | | | 27845.87 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 145956.93 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 173989.93 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 104393.96 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 11483.34 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1159816.87 | |
| | | | **Rate per cum = ( a+b+c+d+e+f+g+h )/120** | | | | 9665.14 | |
| | | | | | | ***say*** | ***9665.00*** | |
| **12.8** | | **D** | **PCC Grade M25** | | | | | |
| | | **Case I** | **Using Concrete Mixer** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 5.990 | 9100.00 | 54509.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 40 mm Aggregate | cum | 5.400 | 1900.00 | 10260.00 | M-055 |
| | | | 20 mm Aggregate | cum | 5.400 | 1900.00 | 10260.00 | M-053 |
| | | | 10 mm Aggregate | cum | 2.700 | 1800.00 | 4860.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.860 | 551.00 | 473.86 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6594.000*** | | | |
| | | | **d) Formwork** @ 3.75 per cent of (a+b+c) | | | | 3708.82 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 20686.31 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 24659.40 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 14795.64 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1627.52 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 164379.55 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 10958.64 | |
| | | | | | | ***say*** | ***10959.00*** | |
| **12.8 D** | | **Case II** | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | ***Unit : cum*** | | | | | |
| | | | ***Taking Output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 47.950 | 9100.00 | 436345.00 | M-081 |
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 40 mm Aggregate | cum | 43.200 | 1900.00 | 82080.00 | M-055 |
| | | | 20 mm Aggregate | cum | 43.200 | 1900.00 | 82080.00 | M-053 |
| | | | 10 mm Aggregate | cum | 21.600 | 1800.00 | 38880.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.000 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.000 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader 1 cum capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 6.000 | 1265.00 | 7590.00 | P&M-049 |
| | | | Transit Mixer 4 cum capacity lead beyond 1 Km, L - lead in Kilometer | tonne. km | 300L | 80.00 | 0.00 | P&M-050 Lead= 0 km |
| | | | Concrete Pump | hour | 6.000 | 2726.00 | 16356.00 | P&M-007 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6202.000*** | | | |
| | | | **d) Formwork** @ 3.75 per cent of cost of concrete i.e. cost of material, labour and machinery | | | | 27906.03 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 155648.68 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 185543.11 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 111325.87 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 12245.85 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1236830.38 | |
| | | | **Rate per cum = ( a+b+c+d+e+f+g+h )/120** | | | | 10306.92 | |
| | | | | | | ***say*** | ***10307.00*** | |
| **12.8** | | **E** | **RCC Grade M25** | | | | | |
| | | **Case I** | **Using Concrete Mixer** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 6.050 | 9100.00 | 55055.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.860 | 551.00 | 473.86 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6612.000*** | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **d) Formwork** @ 3.75 per cent of a+b+c. | | | | 3719.17 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 20744.04 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 24728.21 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 14836.93 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1632.06 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 164838.27 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 10989.22 | |
| | | | | | | ***say*** | ***10989.00*** | |
| **12.8 E** | | **Case II** | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | ***Unit: cum*** | | | | | |
| | | | ***Taking Output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 48.380 | 9100.00 | 440258.00 | M-081 |
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader 1 cum capacity 1 cum | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Transit Mixer 4 cum capacity lead beyond 1 Km, L - lead in Kilometer | tonne. km | 300L | 80.00 | 0.00 | P&M-050 Lead= 0 km |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6311.000*** | | | |
| | | | **d) Formwork** @ 3.75 per cent on cost of concrete i.e. cost of material, labour and machinery | | | | 28398.71 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 158396.63 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 188818.84 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 113291.30 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 12462.04 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1258666.36 | |
| | | | **Rate per cum = ( a+b+c+d+e+f+g+h )/120** | | | | 10488.89 | |
| | | | | | | ***say*** | ***10489.00*** | |
| **12.8** | | **F** | **PCC Grade M30** | | | | | |
| | | **Case I** | **Using Concrete Mixer** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 6.080 | 9100.00 | 55328.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 40 mm Aggregate | cum | 5.400 | 1900.00 | 10260.00 | M-055 |
| | | | 20 mm Aggregate | cum | 5.400 | 1900.00 | 10260.00 | M-053 |
| | | | 10 mm Aggregate | cum | 2.700 | 1800.00 | 4860.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.860 | 551.00 | 473.86 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6649.000*** | | | |
| | | | **d) Formwork** @ 3.50 per cent of cost of concrete i.e. cost of material, labour and machinery | | | | 3490.23 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 20807.36 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 24803.69 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 14882.21 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1637.04 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 165341.39 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 11022.76 | |
| | | | | | | ***say*** | ***11023.00*** | |
| **12.8 F** | | **Case II** | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | ***Unit : cum*** | | | | | |
| | | | ***Taking Output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 48.600 | 9100.00 | 442260.00 | M-081 |
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 40 mm Aggregate | cum | 43.200 | 1900.00 | 82080.00 | M-055 |
| | | | 20 mm Aggregate | cum | 43.200 | 1900.00 | 82080.00 | M-053 |
| | | | 10 mm Aggregate | cum | 21.600 | 1800.00 | 38880.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader 1 cum capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Transit Mixer 4 cum capacity lead beyond 1 Km, L - lead in Kilometer | tonne. km | 300L | 80.00 | 0.00 | P&M-050 Lead= 0 km |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6346.000*** | | | |
| | | | **d) Formwork** @ 3.50 per cent of cost of concrete i.e. cost of material, labour and machinery | | | | 26651.13 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 158883.37 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 189399.07 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 113639.44 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 12500.34 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1262534.19 | |
| | | | **Rate per cum = ( a+b+c+d+e+f+g+h )/120** | | | | 10521.12 | |
| | | | | | | ***say*** | ***10521.00*** | |
| **12.8** | | **G** | **RCC Grade M30** | | | | | |
| | | **Case I** | **Using Concrete Mixer** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 6.100 | 9100.00 | 55510.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.860 | 551.00 | 473.86 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6643.000*** | | | |
| | | | **d) Formwork** @ 3.5 per cent on cost of concrete i.e. cost of material, labour and machinery | | | | 3487.15 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 20788.99 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 24781.80 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 14869.08 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1635.60 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 165195.48 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 11013.03 | |
| | | | | | | ***say*** | ***11013.00*** | |
| **12.8 G** | | **Case II** | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 48.800 | 9100.00 | 444080.00 | M-081 |
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader 1 cum capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Transit Mixer 4 cum capacity lead beyond 1 Km, L - lead in Kilometer | tonne. km | 300L | 80.00 | 0.00 | P&M-050 Lead= 0 km |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6343.000*** | | | |
| | | | **d) Formwork** @ 3.5 per cent of cost of concrete i.e. cost of material, labour and machinery | | | | 26639.23 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 158812.43 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 189314.50 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 113588.70 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 12494.76 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1261970.46 | |
| | | | **Rate per cum = ( a+b+c+d+e+f+g+h )/120** | | | | 10516.42 | |
| | | | | | | ***say*** | ***10516.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 12.8 | | H | **RCC Grade M35** | | | | | |
| | | Case I | **Using Concrete Mixer** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 6.330 | 9100.00 | 57603.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.860 | 551.00 | 473.86 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6782.000*** | | | |
| | | | **d) Formwork** @ 3 per cent on a+b+c | | | | 3051.78 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 21123.17 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 25180.16 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 15108.10 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1661.89 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 167850.96 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 11190.06 | |
| | | | | | | ***say*** | ***11190.00*** | |
| 12.8 H | | Case II | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | ***Unit ; cum*** | | | | | |
| | | | ***Taking Output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 50.640 | 9100.00 | 460824.00 | M-081 |
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader1 cum capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Transit Mixer 4 cum capacity lead beyond 1 Km, L - lead in Kilometer | tonne. km | 300L | 80.00 | 0.00 | P&M-050 Lead= 0 km |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6483.000*** | | | |
| | | | **d) Formwork** @ 3 per cent on cost of concrete i.e. cost of material, labour and machinery | | | | 23335.95 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 161522.08 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 192544.57 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 115526.74 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 12707.94 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1283502.12 | |
| | | | **Rate per cum = ( a+b+c+d+e+f+g+h )/120** | | | | 10695.85 | |
| | | | | | | ***say*** | ***10696.00*** | |
| | | **Note:** | Where ever concrete is carried out using batching plant, transit mixer, concrete pump, Admixtures @ 0.4 per cent of weight of cement may be added for achieving desired slump of concrete. | | | | | |
| | | | **WELL FOUNDATION** | | | | | |
| **12.9** | **1200** | | **Providing and Constructing Temporary Island 16 m diameter for Construction of Well Foundation for 8m dia. Well.** | | | | | |
| | | **A** | **Assuming depth of water 1.0 m and height of island to be 1.25 m.** | | | | | |
| | | | ***Unit = 1 No*** | | | | | |
| | | | ***Taking output = 1 No.*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Earth (compacted) | cum | 251.200 | 0.00 | 0.00 | M-092 |
| | | | Sand bags | each | 750.000 | 11.00 | 8250.00 | M-159 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.400 | 551.00 | 220.40 | L-12 |
| | | | Mazdoor for filling sand bags, stitching and placing | day | 15.000 | 424.00 | 6360.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Crane with grab 1 cum capacity | hour | 20.000 | 1166.00 | 23320.00 | P&M-012 |
| | | | Consumables @ 2.5 per cent of (c) above | | | | 583.00 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 7808.65 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 9308.41 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 5585.05 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 614.36 | |
| | | | **Rate per No. (a+b+c+d+e+f+g)** | | | | 62049.87 | |
| | | | | | | ***say*** | ***62050.00*** | |
| | | **Note** | It is assumed that earth will be available within the working space of crane with grab bucket. | | | | | |
| **12.9** | | **B** | **Assuming depth of water 4.0 m and height of island 4.5 m.** | | | | | |
| | | | ***Unit = 1No*** | | | | | |
| | | | ***Taking output = 1 No*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Earth (compacted) | cum | 904.320 | 0.00 | 0.00 | M-092 |
| | | | Sand bags | each | 6000.000 | 11.00 | 66000.00 | M-159 |
| | | | Wooden ballies 8" Dia and 9 m long | each | 95.000 | 580.00 | 55100.00 | M-194 |
| | | | Wooden ballies 2" Dia for bracing | metre | 190.000 | 45.00 | 8550.00 | M-193 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 5.600 | 551.00 | 3085.60 | L-12 |
| | | | Mazdoor for piling 8" dia ballies for piling 8" dia ballies | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | Mazdoor for bracing with 2" dia ballies | day | 12.000 | 424.00 | 5088.00 | L-13 |
| | | | Mazdoor for filling sand bags, stitching and placing | day | 110.000 | 424.00 | 46640.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Crane with grab 1 cum capacity | hour | 50.000 | 1166.00 | 58300.00 | P&M-012 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Consumables and other arrangements for piling ballies @ 2.5 per cent of (a+b+c). | | | | 6259.89 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 51741.75 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 61679.45 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 37007.67 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 4070.84 | |
| | | | **Rate per No. (a+b+c+d+e+f+g)** | | | | 411155.20 | |
| | | | | | | ***say*** | ***411155.00*** | |
| | | **Note** | For other well diameters rate can be worked out on the basis of cross-sectional area of well. The diameter of the island shall be in the conformity with clause 1203.2 of MoRTH specifications. | | | | | |
| **12.9** | | **C** | **Providing and constructing one span service road to reach island location from one pier location to another pier location** | | | | | |
| | | | Assuming span length 30 m, width of service road 10m and depth of water 1m | | | | | |
| | | | ***Unit = 1 meter*** | | | | | |
| | | | ***Taking output = 30 metre*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Earth | cum | 450.000 | 0.00 | 0.00 | M-092 |
| | | | Sand bags | each | 300.000 | 11.00 | 3300.00 | M-159 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.240 | 551.00 | 132.24 | L-12 |
| | | | Mazdoor for filling sand bags, stitching and placing | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Front end Loader 1 cum capacity | hour | 27.000 | 1838.00 | 49626.00 | P&M-017 |
| | | | Tipper 5.5 cum capacity | hour | 28.000 | 916.00 | 25648.00 | P&M-048 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 16380.05 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 19526.06 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 11715.64 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1288.72 | |
| | | | Cost for 30 m (a+b+c+d+e+f+g) | | | | 130160.71 | |
| | | | **Rate per m (a+b+c+d+e+f+g)/30** | | | | 4338.69 | |
| | | | | | | ***say*** | ***4339.00*** | |
| **12.10** | **1200 & 1900** | | **Providing and Laying Cutting Edge of Mild Steel weighing 40 kg per metre for Well Foundation complete as per Drawing and Technical Specification.** | | | | | |
| | | | ***Unit = 1 MT*** | | | | | |
| | | | ***Taking output = 1 MT*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Structural steel in plates, angles, etc including 5 per cent wastage | tonne | 1.050 | 50728.00 | 53264.40 | M-179 |
| | | | Nuts & bolts | Kg | 20.000 | 120.00 | 2400.00 | M-130 |
| | | | **b) Labour** | | | | | |
| | | | **(for cutting, bending, making holes, joining, welding and erecting in position)** | | | | | |
| | | | Mate | day | 1.320 | 551.00 | 727.32 | L-12 |
| | | | Fitter | day | 5.500 | 593.00 | 3261.50 | L-08 |
| | | | Blacksmith | day | 5.500 | 593.00 | 3261.50 | L-02 |
| | | | Welder | day | 5.500 | 593.00 | 3261.50 | L-02 |
| | | | Mazdoor | day | 16.500 | 424.00 | 6996.00 | L-13 |
| | | | Electrodes, cutting gas and other consumables @ 10 per cent of cost of (a) above | | | | 5566.44 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 15873.71 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 18922.47 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 11353.48 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 1248.88 | |
| | | | **Rate per MT (a+b+c+d+e+f)** | | | | 126137.20 | |
| | | | | | | ***say*** | ***126137.00*** | |
| **12.11** | **1200, 1500 & 1700** | | **Plain/Reinforced Cement Concrete, in Well Foundation complete as per Drawing and Technical Specification.** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | **A** | **Well curb** | | | | | |
| | | **(i)** | **RCC M20 Grade** | | | | | |
| | | | Same as for 12.8 © Case I except for formwork which shall be@ 20 per cent of the cost of concrete instead of 4 per cent. | | | | | |
| | | **Case I** | **Using Concrete Mixer** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6103.00 | **12.8 (C) Case I** |
| | | | **d) formwork** @ 20 per cent of the cost of concrete | | | | 1220.60 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1476.44 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1760.01 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1056.01 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 116.16 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11732.22 | |
| | | | | | | ***say*** | ***11732.00*** | |
| **12.11 A (i)** | | **Case II** | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 5802.00 | **12.8 (C) Case II** |
| | | | **d) formwork** @ 20 per cent of the cost of concrete | | | | 1160.40 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1403.62 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1673.20 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1003.92 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 110.43 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11153.57 | |
| | | | | | | ***say*** | ***11154.00*** | |
| **12.11 A** | | **(ii)** | **RCC M25 Grade** | | | | | |
| | | | Same as for 12.8 (E) I except for formwork which shall be@ 20 per cent of the cost of concrete instead of 3.75 per cent. | | | | | |
| | | **Case I** | **Using Concrete Mixer** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6612.00 | **Item 12.8 (E) I** |
| | | | **d) formwork** @ 20 per cent of the cost of concrete | | | | 1322.40 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1599.58 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1906.80 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1144.08 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 125.85 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 12710.71 | |
| | | | | | | ***say*** | ***12711.00*** | |
| **12.11 A (ii)** | | **Case II** | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6415.00 | **Item 12.8 (E) II** |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **d) formwork** @ 20 per cent of the cost of concrete | | | | 1283.00 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1551.92 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1849.98 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1109.99 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 122.10 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 12331.99 | |
| | | | | | | ***say*** | ***12332.00*** | |
| **12.11 A** | | **(iii)** | **RCC M35 Grade** | | | | | |
| | | | Same as for 12.8 (H) I except for formwork which shall be@ 20 per cent of the cost of concrete instead of 3.0 per cent. | | | | | |
| | | **Case I** | **Using Concrete Mixer** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6782.00 | **Item 12.8 (H) I** |
| | | | **d) formwork** @ 20 per cent of the cost of concrete | | | | 1356.40 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1640.70 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1955.82 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1173.49 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 129.08 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 13037.49 | |
| | | | | | | ***say*** | ***13037.00*** | |
| **12.11 A (iii)** | | **Case II** | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6591.00 | **Item 12.8 (H) II (SA)** |
| | | | **d) formwork** @ 20 per cent of the cost of concrete | | | | 1318.20 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1594.49 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1900.74 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1140.44 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 125.45 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 12670.32 | |
| | | | | | | ***say*** | ***12670.00*** | |
| | | **Note.** | If curb concrete is carried out within steel liner, cost of formwork shall be excluded. | | | | | |
| **12.11** | | **B** | **Well steining** | | | | | |
| | | **(I)** | **PCC M15 Grade** | | | | | |
| | | | Same as for 12.8 (A) ( SA) except for formwork which shall be @ 10 per cent of the cost of concrete instead of 4 per cent. | | | | | |
| | | **Case I** | **Using Concrete Mixer** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 5625.00 | **Item 12.8 A (SA)** |
| | | | **d) formwork** @ 10 per cent of the cost of concrete | | | | 562.50 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1247.40 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1486.98 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 892.19 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 98.14 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 9912.21 | |
| | | | | | | ***say*** | ***9912.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 12.11 B | | (ii) | **PCC M20 Grade**<br>Same as for 12.8 (B) except for formwork which shall be @ 10 per cent of the cost of concrete instead of 4 per cent. | | | | | |
| | | Case I | **Using Concrete Mixer** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6090.00 | Item 12.8 (B) |
| | | | **d) formwork** @ 10 per cent of the cost of concrete | | | | 609.00 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1350.52 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1609.90 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 965.94 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 106.25 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 10731.61 | |
| | | | | | | ***say*** | ***10732.00*** | |
| 12.11 B | | (iii) | **RCC M20 Grade**<br>Same as for 12.8 (C) I except for formwork which shall be @ 10 per cent of the cost of concrete instead of 4 per cent. | | | | | |
| | | Case I | **Using Concrete Mixer** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6103.00 | Item 12.8 (C) I |
| | | | **d) formwork** @ 10 per cent of the cost of concrete | | | | 610.30 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1353.40 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1613.34 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 968.00 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 106.48 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 10754.52 | |
| | | | | | | ***say*** | ***10755.00*** | |
| 12.11 B (iii) | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** | | | | 5802.00 | Item 12.8 (C) II (SA) |
| | | | **d) formwork** @ 10 per cent of the cost of concrete | | | | 580.20 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1286.65 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1533.77 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 920.26 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 101.23 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 10224.11 | |
| | | | | | | ***say*** | ***10224.00*** | |
| 12.11 B | | (iv) | **PCC M25 Grade**<br>Same as for 12.8 (D) except for formwork which shall be @ 10 per cent of the cost of concrete instead of 4 per cent. | | | | | |
| | | Case I | **Using Concrete Mixer** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6594.00 | Item 12.8 (D) I |
| | | | **d) formwork** @ 10 per cent of the cost of concrete | | | | 659.40 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1462.29 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1743.14 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1045.88 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 115.05 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11619.76 | |
| | | | | | | ***say*** | ***11620.00*** | |
| **12.11 B (iv)** | | **Case II** | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6297.00 | **Item 12.8 (D) II (SA)** |
| | | | **d) formwork** @ 10 per cent of the cost of concrete | | | | 629.70 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1396.42 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1664.62 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 998.77 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 109.87 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11096.38 | |
| | | | | | | ***say*** | ***11096.00*** | |
| **'12.11 B** | | **(v)** | **RCC M25 Grade** | | | | | |
| | | | Same as for 12.8 (E) I except for formwork which shall be @ 10 per cent of the cost of concrete instead of 3.5 per cent. | | | | | |
| | | **Case I** | **Using Concrete Mixer** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6612.00 | **Item 12.8 (E) I** |
| | | | **d) formwork** @ 10 per cent of the cost of concrete | | | | 661.20 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1466.28 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1747.90 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1048.74 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 115.36 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11651.48 | |
| | | | | | | ***say*** | ***11651.00*** | |
| **12.11 B (v)** | | **Case II** | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6415.00 | **Item 12.8 (E) II** |
| | | | **d) formwork** @ 10 per cent of the cost of concrete | | | | 641.50 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1422.59 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1695.82 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1017.49 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 111.92 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11304.32 | |
| | | | | | | ***say*** | ***11304.00*** | |
| **'12.11 B** | | **(vi)** | **PCC M30 Grade** | | | | | |
| | | | Same as for 12.8 (F) I except for formwork which shall be @ 10 per cent of the cost of concrete instead of 3.5 per cent. | | | | | |
| | | **Case I** | **Using Concrete Mixer** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) ( excluding GST, OH, CP & Cess) | | | | 6649.00 | **Item 12.8 (F) I** |
| | | | **d) formwork** @ 10 per cent of the cost of concrete | | | | 664.90 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1474.48 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1757.68 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1054.61 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 116.01 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11716.68 | |
| | | | | | | ***say*** | ***11717.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 12.11 B (vi) | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6346.00 | Item 12.8 (F) II |
| | | | **d) formwork** @ 10 per cent of the cost of concrete | | | | 634.60 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1407.29 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1677.58 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1006.55 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 110.72 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11182.74 | |
| | | | | | | ***say*** | ***11183.00*** | |
| '12.11 B | | (vii) | **RCC M30 Grade** | | | | | |
| | | | Same as for 12.8 (G) I except for formwork which shall be @ 10 per cent of the cost of concrete instead of 3.5 per cent. | | | | | |
| | | Case I | **Using Concrete Mixer** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6643.00 | Item 12.8 (G) I |
| | | | **d) formwork** @ 10 per cent of the cost of concrete | | | | 664.30 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1473.15 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1756.09 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1053.65 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 115.90 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11706.09 | |
| | | | | | | ***say*** | ***11706.00*** | |
| 12.11 B (vii) | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6343.00 | Item 12.8 (G) II |
| | | | **d) formwork** @ 10 per cent of the cost of concrete | | | | 634.30 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1406.62 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1676.78 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1006.07 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 110.67 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11177.44 | |
| | | | | | | ***say*** | ***11177.00*** | |
| '12.11 B | | (viii) | **RCC M35 Grade** | | | | | |
| | | | Same as for 12.8 (H) except for formwork which shall be @ 10 per cent of the cost of concrete instead of 3 per cent. | | | | | |
| | | Case I | **Using Concrete Mixer** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6782.00 | 12.8 (H) |
| | | | **d) formwork** @ 10 per cent of the cost of concrete | | | | 678.20 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1503.98 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1792.84 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1075.70 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 118.33 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11951.05 | |
| | | | | | | ***say*** | ***11951.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 12.11 B | (viii) | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) ( excluding GST, OH, CP & Cess) | | | | 6591.00 | |
| | | | **d) formwork** @ 10 per cent of the cost of concrete | | | | 659.10 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1461.62 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1742.34 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1045.41 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 114.99 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11614.46 | |
| | | | | | | ***say*** | ***11614.00*** | |
| '12.11 B | | (ix) | **RCC M40 Grade** | | | | | |
| | | | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 51.600 | 9100.00 | 469560.00 | M-081 |
| | | | Coarse Sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | Admixture | kg | 206.000 | 64.00 | 13184.00 | M-180 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Meson | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.000 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader 1 cum capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.000 | 1265.00 | 18975.00 | P&M-049 |
| | | | Transit Mixer 4 cum capacity for lead beyond 1 km. | tonne. km | 300xL | 80.00 | 0.00 | Lead= 0 , P&M-050 |
| | | | Concrete Pump | hour | 6.000 | 2726.00 | 16356.00 | P&M-007 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***53319.000*** | | | |
| | | | **d) Formwork** @ 10 per cent on cost of concrete i.e. cost of material, labour and machinery | | | | 79978.48 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 177360.29 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 211424.72 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 126854.83 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 13954.03 | |
| | | | cost of 120 cum = a+b+c+d+e+f+g+h | | | | 1409357.19 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 11744.64 | |
| | | | | | | ***say*** | ***11745.00*** | |
| 12.11 C | | C | **Bottom Plug** | | | | | |
| | | | Concrete to be placed using tremie pipe | | | | | |
| | | | Note: 10% extra cement to be added where under water concreting is involved | | | | | |
| | | (i) | **PCC Grade M20** | | | | | |
| | | Case I | **Using Concrete Mixer** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 5.550 | 9100.00 | 50505.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 40 mm Aggregate | cum | 5.400 | 1900.00 | 10260.00 | M-055 |
| | | | 20 mm Aggregate | cum | 5.400 | 1900.00 | 10260.00 | M-053 |
| | | | 10 mm Aggregate | cum | 2.700 | 1800.00 | 4860.00 | M-051 |
| | | | Admixture | Kg | 18.600 | 64.00 | 1190.40 | M-180 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.900 | 551.00 | 495.90 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | Light Crane 3 tonnes capacity for handling tremie pipe | hour | 6.000 | 490.00 | 2940.00 | P&M-013 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6604.000*** | | | |
| | | | Add 5 per cent of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.. | | | | 4566.42 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 20889.13 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 24901.17 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 14940.70 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1643.48 | |
| | | | cost of 15 cum = a+b+c+d+e+f+g | | | | 165991.20 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/15** | | | | 11066.08 | |
| | | | | | | ***say*** | ***11066.00*** | |
| **12.11 C (i)** | **Case II** | | **Using Batching Plant, Transit Mixer and Crane/concrete pump** | | | | | |
| | | | ***Unit ; cum*** | | | | | |
| | | | ***Taking Output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 44.400 | 9100.00 | 404040.00 | M-081 |
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | Admixture | Kg | 148.800 | 64.00 | 9523.20 | M-180 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.880 | 551.00 | 484.88 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader 1 cum capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Transit Mixer 4 cum capacity, lead beyond 1 Km, L - lead in Kilometer | tonne. km | 300L | 80.00 | 0.00 | P&M-050 Lead= 0 km |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6089.000*** | | | |
| | | | Add 5 per cent of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.. | | | | 32971.95 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 153941.36 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 183507.88 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 110104.73 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 12111.52 | |
| | | | cost of 120 cum = a+b+c+d+e+f+g | | | | 1223263.52 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/120** | | | | 10193.86 | |
| | | | | | | ***say*** | ***10194.00*** | |
| **'12.11 C** | | **(ii)** | **PCC Grade M25** | | | | | |
| | | **Case I** | **Using Concrete Mixer** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 5.990 | 9100.00 | 54509.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 40 mm Aggregate | cum | 5.400 | 1900.00 | 10260.00 | M-055 |
| | | | 20 mm Aggregate | cum | 5.400 | 1900.00 | 10260.00 | M-053 |
| | | | 10 mm Aggregate | cum | 2.700 | 1800.00 | 4860.00 | M-051 |
| | | | Admixture | Kg | 21.600 | 64.00 | 1382.40 | M-180 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.900 | 551.00 | 495.90 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | Light Crane of 3 tonnes capacity for handling tremie pipe | hour | 6.000 | 490.00 | 2940.00 | P&M-013 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6884.000*** | | | |
| | | | Add 5 per cent of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.. | | | | 4776.22 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 21777.34 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 25959.97 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 15575.98 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1713.36 | |
| | | | cost of 15 cum = a+b+c+d+e+f+g | | | | 173049.17 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/15** | | | | 11536.61 | |
| | | | | | | ***say*** | ***11537.00*** | |
| **12.11 C (ii)** | | **Case II** | **Using Batching Plant, Transit Mixer and Crane/concrete pump** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 47.880 | 9100.00 | 435708.00 | M-081 |
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | Admixture | Kg | 172.800 | 64.00 | 11059.20 | M-180 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.880 | 551.00 | 484.88 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader 1 cum capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Transit Mixer 4 cum capacity, lead beyond 1 Km, L - lead in Kilometer | tonne. km | 300L | 80.00 | 0.00 | P&M-050 Lead= 0 km |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6366.000*** | | | |
| | | | Add 5 per cent of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe. | | | | 34632.15 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 160969.99 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 191886.44 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 115131.87 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 12664.51 | |
| | | | cost of 120 cum = a+b+c+d+e+f+g+h | | | | 1279115.04 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/120** | | | | 10659.29 | |
| | | | | | | ***say*** | ***10659.00*** | |
| **'12.11 C** | | **(iii)** | **PCC Grade M30** | | | | | |
| | | **Case I** | **Using Concrete Mixer** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 6.080 | 9100.00 | 55328.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 40 mm Aggregate | cum | 5.400 | 1900.00 | 10260.00 | M-055 |
| | | | 20 mm Aggregate | cum | 5.400 | 1900.00 | 10260.00 | M-053 |
| | | | 10 mm Aggregate | cum | 2.700 | 1800.00 | 4860.00 | M-051 |
| | | | Admixture | Kg | 21.600 | 64.00 | 1382.40 | M-180 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.900 | 551.00 | 495.90 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | Light Crane of 3 tonnes capacity for handling tremie pipe | hour | 6.000 | 490.00 | 2940.00 | P&M-013 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6938.000*** | | | |
| | | | Add 5 per cent of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe. | | | | 4817.17 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 21950.71 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 26166.64 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 15699.98 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1727.00 | |
| | | | cost of 15 cum = a+b+c+d+e+f+g | | | | 174426.80 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/15** | | | | 11628.45 | |
| | | | | | | ***say*** | ***11628.00*** | |
| **12.11 C (iii)** | | **Case II** | **Using Batching Plant, Transit Mixer and Crane/concrete pump** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 48.640 | 9100.00 | 442624.00 | M-081 |
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | Admixture | Kg | 172.800 | 64.00 | 11059.20 | M-180 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.880 | 551.00 | 484.88 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader 1 cum capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Transit Mixer 4 cum capacity, lead beyond 1 Km, L - lead in Kilometer | tonne. km | 300L | 80.00 | 0.00 | P&M-050 Lead= 0 km |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6423.000*** | | | |
| | | | Add 5 per cent of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe.. | | | | 34977.95 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 162433.96 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 193631.60 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 116178.96 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 12779.69 | |
| | | | cost of 120 cum = a+b+c+d+e+f+g+h | | | | 1290748.24 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/120** | | | | 10756.24 | |
| | | | | | | ***say*** | ***10756.00*** | |
| **'12.11 C** | | **(iv)** | **PCC Grade M35** | | | | | |
| | | **Case I** | **Using Concrete Mixer** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 6.290 | 9100.00 | 57239.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 40 mm Aggregate | cum | 5.400 | 1900.00 | 10260.00 | M-055 |
| | | | 20 mm Aggregate | cum | 5.400 | 1900.00 | 10260.00 | M-053 |
| | | | 10 mm Aggregate | cum | 2.700 | 1800.00 | 4860.00 | M-051 |
| | | | Admixture | Kg | 21.600 | 64.00 | 1382.40 | M-180 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.900 | 551.00 | 495.90 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | Light Crane of 3 tonnes capacity for handling tremie pipe | hour | 6.000 | 490.00 | 2940.00 | P&M-013 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***7066.000*** | | | |
| | | | Add 5 per cent of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe. | | | | 4912.72 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 22355.23 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 26648.85 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 15989.31 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1758.82 | |
| | | | cost of 15 cum = a+b+c+d+e+f+g | | | | 177641.23 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/15** | | | | 11842.75 | |
| | | | | | | ***say*** | ***11843.00*** | |
| **12.11 C (iv)** | | **Case II** | **Using Batching Plant, Transit Mixer and Crane/concrete pump** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 50.280 | 9100.00 | 457548.00 | M-081 |
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | Admixture | Kg | 172.800 | 64.00 | 11059.20 | M-180 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.880 | 551.00 | 484.88 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader 1 cum capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Transit Mixer 4 cum capacity, lead beyond 1 Km, L - lead in Kilometer | tonne. km | 300L | 80.00 | 0.00 | P&M-050 Lead= 0 km |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | ***Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)*** | | ***6548.000*** | | | |
| | | | Add 5 per cent of cost of material and labour towards cost of forming sump, protective bunds, chiselling and making arrangements for under water concreting with tremie pipe. | | | | 35724.15 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 165593.08 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 197397.46 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 118438.48 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 13028.23 | |
| | | | cost of 120 cum = a+b+c+d+e+f+g | | | | 1315851.48 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/120** | | | | 10965.43 | |
| | | | | | | ***say*** | ***10965.00*** | |
| **12.11** | | **D** | **Intermediate plug** | | | | | |
| | | **(i)** | **Grade M20 PCC** | | | | | |
| | | | Same as in bottom plug concrete, excluding cost of forming sump, protective bunds, chiseling etc. | | | | | |
| | | **Case I** | **Using Concrete Mixer** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6604.00 | **Item 12.11 C (i ) I** |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1331.37 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 1587.07 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 952.24 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 104.75 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)** | | | | 10579.43 | |
| | | | | | | ***say*** | ***10579.00*** | |
| **12.11 D (i)** | | **Case II** | **Using Batching Plant, Transit Mixer and Crane/concrete pump** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6089.00 | **Item 12.11 C (i ) II** |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1227.54 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 1463.31 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 877.99 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 96.58 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)** | | | | 9754.42 | |
| | | | | | | ***say*** | ***9754.00*** | |
| **'12.11 D** | | **(ii)** | **Grade M25 PCC** | | | | | |
| | | | Same as in bottom plug concrete, excluding cost of forming sump, protective bunds, chiseling etc. | | | | | |
| | | **Case I** | **Using Concrete Mixer** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6884.00 | **Item 12.11 C (ii ) I** |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1387.81 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 1654.36 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 992.62 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 109.19 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)** | | | | 11027.98 | |
| | | | | | | ***say*** | ***11028.00*** | |
| **12.11 D (ii)** | | **Case II** | **Using Batching Plant, Transit Mixer and Crane/concrete pump** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** | | | | 6366.00 | **Item 12.11 C (ii ) II** |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1283.39 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 1529.88 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 917.93 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 100.97 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)** | | | | 10198.17 | |
| | | | | | | ***say*** | ***10198.00*** | |
| **12.11 D** | | **(iii)** | **Grade M30 PCC** | | | | | |
| | | | Same as in bottom plug concrete, excluding cost of forming sump, protective bunds, chiseling etc. | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | Case I | **Using Concrete Mixer** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6938.00 | Item 12.11 C ( iii) I |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1398.70 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 1667.34 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 1000.40 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 110.04 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)** | | | | 11114.48 | |
| | | | | | | ***say*** | ***11114.00*** | |
| **12.11 D (iii)** | | Case II | **Using Batching Plant, Transit Mixer and Crane/concrete pump** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) ( excluding GST, OH, CP & Cess) | | | | 6423.00 | Item 12.11 C ( iii) II |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1294.88 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 1543.58 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 926.15 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 101.88 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)** | | | | 10289.49 | |
| | | | | | | ***say*** | ***10289.00*** | |
| **12.11** | | **E** | **Top plug** | | | | | |
| | | **(i)** | **Grade M15 PCC** | | | | | |
| | | | Same as Item 12.8(a) excluding formwork | | | | | |
| | | Case I | **Using Concrete Mixer** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 5625.00 | Item 12.8 (a) |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1134.00 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 1351.80 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 811.08 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 89.22 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)** | | | | 9011.10 | |
| | | | | | | ***say*** | ***9011.00*** | |
| **'12.11 E** | | **(ii)** | **Grade M20 PCC** | | | | | |
| | | | Same as Item 12.8(b) excluding formwork | | | | | |
| | | Case I | **Using Concrete Mixer** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** | | | | 6090.00 | Item 12.8 (b) |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1227.74 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 1463.55 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 878.13 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 96.59 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)** | | | | 9756.01 | |
| | | | | | | ***say*** | ***9756.00*** | |
| **'12.11 E** | | **(iii)** | **Grade M25 PCC** | | | | | |
| | | | Same as Item 12.8 (d) excluding formwork | | | | | |
| | | Case I | **Using Concrete Mixer** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6594.00 | Item 12.8 (D) I |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1329.35 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 1584.67 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 950.80 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 104.59 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)** | | | | 10563.41 | |
| | | | | | | ***say*** | ***10563.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 12.11 E (iii) | | Case II | **Using Batching Plant, Transit Mixer and Crane/concrete pump** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) ( excluding GST, OH, CP & Cess) | | | | 6297.00 | Item 12.8 (D) II (SA) |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1269.48 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 1513.30 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 907.98 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 99.88 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)** | | | | 10087.64 | |
| | | | | | | ***say*** | ***10088.00*** | |
| '12.11 E | | (iv) | **Grade M30 PCC** | | | | | |
| | | | Same as Item 12.8(f) excluding formwork | | | | | |
| | | Case I | **Using Concrete Mixer** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6649.00 | Item 12.8 (F) I |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1340.44 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 1597.89 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 958.73 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 105.46 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)** | | | | 10651.52 | |
| | | | | | | ***say*** | ***10652.00*** | |
| 12.11 E (iv) | | Case II | **Using Batching Plant, Transit Mixer and Crane/concrete pump** | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** ( excluding GST, OH, CP & Cess) | | | | 6346.00 | Item 12.8 (F) II |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 1279.35 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 1525.07 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 915.04 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 100.65 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)** | | | | 10166.11 | |
| | | | | | | ***say*** | ***10166.00*** | |
| 12.11 | | F | **Well cap** | | | | | |
| | | (i) | **RCC Grade M20** | | | | | |
| | | Case I | **Using Concrete Mixer** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 5.120 | 9100.00 | 46592.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.860 | 551.00 | 473.86 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | Form Work @ 4 per cent of a+b+c | | | | 3628.59 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 19019.64 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 22672.62 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 13603.57 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1496.39 | |
| | | | cost of 15 cum = a+b+c+d+e+f+g | | | | 151135.67 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/15** | | | | 10075.71 | |
| | | | | | | ***say*** | ***10076.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 12.11 F (i) | | Case II | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 40.920 | 9100.00 | 372372.00 | M-081 |
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader (capacity 1 cum) | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Lead beyond 1 Km, L - lead in Kilometer | tonne. km | 300L | 80.00 | 0.00 | P&M-050 Lead= 0 km |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | Formwork @ 4 per cent of (a+b+c) | | | | 27576.51 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 144545.05 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 172306.88 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 103384.13 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 11372.25 | |
| | | | cost of 120 cum = a+b+c+d+e+f+g | | | | 1148597.66 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/120** | | | | 9571.65 | |
| | | | | | | ***say*** | ***9572.00*** | |
| 12.11 F | | (ii) | **RCC Grade M25** | | | | | |
| | | Case I | **Using Concrete Mixer** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 6.050 | 9100.00 | 55055.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.860 | 551.00 | 473.86 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | Form Work @ 3.75 per cent of a+b+c | | | | 3719.17 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 20744.04 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 24728.21 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 14836.93 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1632.06 | |
| | | | cost of 15 cum = a+b+c+d+e+f+g | | | | 164838.27 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/15** | | | | 10989.22 | |
| | | | | | | ***say*** | ***10989.00*** | |
| 12.11 F (ii) | | Case II | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 48.400 | 9100.00 | 440440.00 | M-081 |
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader (capacity 1 cum) | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Lead beyond 1 Km, L - lead in Kilometer | tonne. km | 300L | 80.00 | 0.00 | P&M-050 Lead= 0 km |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | Formwork @ 3.75 per cent of ( a+b+c) | | | | 28405.53 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 158434.69 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 188864.21 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 113318.53 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 12465.04 | |
| | | | cost of 120 cum = a+b+c+d+e+f+g | | | | 1258968.84 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/120** | | | | 10491.41 | |
| | | | | | | ***say*** | ***10491.00*** | |
| **12.11 F** | | **(iii)** | **RCC Grade M30** | | | | | |
| | | **Case I** | **Using Concrete Mixer** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 6.100 | 9100.00 | 55510.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.860 | 551.00 | 473.86 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | Formwork @ 3.5 per cent of (a+b+c) | | | | 3487.15 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 20788.99 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 24781.80 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 14869.08 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1635.60 | |
| | | | cost of 15 cum = a+b+c+d+e+f+g | | | | 165195.48 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/15** | | | | 11013.03 | |
| | | | | | | ***say*** | ***11013.00*** | |
| **12.11 F (iii)** | | **Case II** | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 48.790 | 9100.00 | 443989.00 | M-081 |
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader (capacity 1 cum) | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Lead beyond 1 Km, L - lead in Kilometer | tonne. km | 300L | 80.00 | 0.00 | P&M-050 Lead= 0 km |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | Formwork @ 3.5 per cent of (a+b+c) | | | | 26636.04 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 158793.44 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 189291.86 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 113575.12 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 12493.26 | |
| | | | cost of 120 cum = a+b+c+d+e+f+g | | | | 1261819.56 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/120** | | | | 10515.16 | |
| | | | | | | ***say*** | ***10515.00*** | |
| **12.11 F** | | **(iv)** | **RCC Grade M35** | | | | | |
| | | **Case I** | **Using Concrete Mixer** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 6.330 | 9100.00 | 57603.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.860 | 551.00 | 473.86 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | Formwork @ 3 per cent of (a+b+c) | | | | 3051.78 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 21123.17 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 25180.16 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 15108.10 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1661.89 | |
| | | | cost of 15 cum = a+b+c+d+e+f+g | | | | 167850.96 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/15** | | | | 11190.06 | |
| | | | | | | ***say*** | ***11190.00*** | |
| **12.11 F (iv)** | | **Case II** | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 50.640 | 9100.00 | 460824.00 | M-081 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader (capacity 1 cum) | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Lead beyond 1 Km, L - lead in Kilometer | tonne. km | 300L | 80.00 | 0.00 | P&M-050 Lead= 0 km |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | Formwork @ 3 per cent of (a+b+c) | | | | 23335.95 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 161522.08 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 192544.57 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 115526.74 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 12707.94 | |
| | | | cost of 120 cum = a+b+c+d+e+f+g | | | | 1283502.12 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/120** | | | | 10695.85 | |
| | | | | | | ***say*** | ***10696.00*** | |
| | | **Note** | Where ever concrete is carried out using batching plant, transit mixer, concrete pump, Admixtures @ 0.4 per cent of weight of cement may be added for achieving desired slump of concrete. | | | | | |
| **'12.11 F** | | **(v)** | **RCC M40 Grade** | | | | | |
| | | | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 52.200 | 9100.00 | 475020.00 | M-081 |
| | | | Coarse Sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | Admixture | kg | 206.000 | 64.00 | 13184.00 | M-180 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.000 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader 1 cum capacity | hour | 6.000 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer 4 cum capacity for lead upto 1 km. | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Transit Mixer 4 cum capacity for lead beyond 1 km. | tonne. km | 300.L | 80.00 | 0.00 | P&M-050 Lead= 0 km |
| | | | Concrete Pump | hour | 6.000 | 2726.00 | 16356.00 | P&M-007 |
| | | | Formwork @ 3 per cent on cost of concrete i.e. cost of material, labour and machinery | | | | 24157.35 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 167207.48 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 199321.93 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 119593.16 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 13155.25 | |
| | | | cost of 120 cum = a+b+c+d+e+f+g | | | | 1328680.01 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/120** | | | | 11072.33 | |
| | | | | | | ***say*** | ***11072.00*** | |
| **12.12** | Section 1200 | | **Sinking of 6 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.** | | | | | |
| | | | ***Unit = Running Meter.*** | | | | | |
| | | | ***Taking output = 1 m*** | | | | | |
| | | | **Diameter of well - 6 m.** | | | | | |
| | | **A** | **Sandy Soil** | | | | | |
| | | **(i)** | **Depth below bed level upto 3.0 M** | | | | | |
| | | | Rate of sinking = 0.50 m per hour. | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.120 | 551.00 | 66.12 | L-12 |
| | | | Sinker ( skilled ) | day | 1.000 | 508.00 | 508.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 2.000 | 424.00 | 848.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 2.000 | 1040.00 | 2080.00 | P&M-075 |
| | | | Consumables in sinking @10 per cent of (b) | | | | 208.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 747.96 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 891.62 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 534.97 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 58.85 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 5943.52 | |
| | | | | | | ***say*** | ***5944.00*** | |
| **12.12 A** | | **(ii)** | **Beyond 3m upto 10m depth** | | | | | |
| | | | Rate of sinking = 0.33 m per hour. | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.150 | 551.00 | 82.65 | L-12 |
| | | | Sinker | day | 1.250 | 508.00 | 635.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 2.500 | 424.00 | 1060.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories | hour | 3.000 | 1040.00 | 3120.00 | P&M-075 |
| | | | Consumables in sinking @10 per cent of (b) | | | | 312.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1050.27 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 1251.98 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 751.19 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 82.63 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 8345.72 | |
| | | | | | | ***say*** | ***8346.00*** | |
| **12.12 A** | | **(iii)** | **Beyond 10m upto 20m** | | | | | |
| | | **a** | Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | | 11th m | 5% | 8763.000 | | | |
| | | | 12th m | 5% | 9201.000 | | | |
| | | | 13th m | 5% | 9661.000 | | | |
| | | | 14th m | 5% | 10144.000 | | | |
| | | | 15th m | 5% | 10651.000 | | | |
| | | | 16th m | 5% | 11184.000 | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | 17th m | 5% | 11743.000 | | | |
| | | | 18th m | 5% | 12330.000 | | | |
| | | | 19th m | 5% | 12947.000 | | | |
| | | | 20th m | 5% | 13594.000 | | | |
| | | | Total Cost from 10m upto 20m | | 110218.000 | | | |
| | | | ***Avg Rate per metre*** | | ***11022.000*** | | | |
| **12.12 A** | | **(iv)** | **Beyond 20m upto 30 m** | | | | | |
| | | a | Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | b | Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour. | | | Including 20% for Kentledge | | |
| | | | 21st m | 7.5% | 14614.000 | 17537.00 | | |
| | | | 22nd m | 7.5% | 15710.000 | 18852.00 | | |
| | | | 23rd m | 7.5% | 16888.000 | 20266.00 | | |
| | | | 24th m | 7.5% | 18155.000 | 21786.00 | | |
| | | | 25th m | 7.5% | 19517.000 | 23420.00 | | |
| | | | 26th m | 7.5% | 20981.000 | 25177.00 | | |
| | | | 27th m | 7.5% | 22555.000 | 27066.00 | | |
| | | | 28th m | 7.5% | 24247.000 | 29096.00 | | |
| | | | 29th m | 7.5% | 26066.000 | 31279.00 | | |
| | | | 30th m | 7.5% | 28021.000 | 33625.00 | | |
| | | | Total Cost from 20m upto 30m | | 206754.000 | 248104.00 | | |
| | | | ***Avg Rate per metre*** | | ***20675.000*** | ***24810.00*** | | |
| **12.12 A** | | **(v)** | **Beyond 30m upto 40 m** | | | | | |
| | | **a** | Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour. | | | Including 20% for Kentledge | | |
| | | | 31st m | 10% | 30823.000 | 36988.00 | | |
| | | | 32nd m | 10% | 33905.000 | 40686.00 | | |
| | | | 33rd m | 10% | 37296.000 | 44755.00 | | |
| | | | 34th m | 10% | 41026.000 | 49231.00 | | |
| | | | 35th m | 10% | 45129.000 | 54155.00 | | |
| | | | 36th m | 10% | 49642.000 | 59570.00 | | |
| | | | 37th m | 10% | 54606.000 | 65527.00 | | |
| | | | 38th m | 10% | 60067.000 | 72080.00 | | |
| | | | 39th m | 10% | 66074.000 | 79289.00 | | |
| | | | 40th m | 10% | 72681.000 | 87217.00 | | |
| | | | Total Cost from 30m upto 40m | | 491249.000 | 589498.00 | | |
| | | | ***Avg Rate per metre*** | | ***49125.000*** | ***58950.00*** | | |
| **12.12** | | **B** | **Clayey Soil ( 6m dia. Well )** | | | | | |
| | | | ***Unit = Running Meter.*** | | | | | |
| | | | ***Taking output = 1 meter*** | | | | | |
| | | **(i)** | **Depth below bed level upto 3.0 M** | | | | | |
| | | | Rate of sinking = 0.33 m per hour. | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.150 | 551.00 | 82.65 | L-12 |
| | | | Sinker ( skilled ) | day | 1.500 | 508.00 | 762.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 2.250 | 424.00 | 954.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories | hour | 3.000 | 1040.00 | 3120.00 | P&M-075 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 312.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1054.50 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 1257.03 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 754.22 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 82.96 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 8379.36 | |
| | | | | | | ***say*** | ***8379.00*** | |
| **12.12 B** | | **(ii)** | **Beyond 3m upto 10m depth** | | | | | |
| | | | Rate of sinking = 0.17 m per hour. | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.300 | 551.00 | 165.30 | L-12 |
| | | | Sinker | day | 3.000 | 508.00 | 1524.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 4.500 | 424.00 | 1908.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 6.000 | 1040.00 | 6240.00 | P&M-075 |
| | | | Air compressor with pneumatic chisel attachment for cutting hard clay. | hour | 2.000 | 723.00 | 1446.00 | P&M-063 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 768.60 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 2429.66 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 2896.31 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1737.79 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 191.16 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 19306.82 | |
| | | | | | | ***say*** | ***19307.00*** | |
| **12.12 B** | | **(iii)** | **Beyond 10 m upto 20 m** | | | | | |
| | | **a** | Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add for dewatering @ 5 per cent of cost, if required. | | | Including for dewatering @ 5% of cost, if required | | |
| | | | 11th m | 5% | 20272.000 | 21286.00 | | |
| | | | 12th m | 5% | 21286.000 | 22350.00 | | |
| | | | 13th m | 5% | 22350.000 | 23468.00 | | |
| | | | 14th m | 5% | 23468.000 | 24641.00 | | |
| | | | 15th m | 5% | 24641.000 | 25873.00 | | |
| | | | 16th m | 5% | 25873.000 | 27167.00 | | |
| | | | 17th m | 5% | 27167.000 | 28525.00 | | |
| | | | 18th m | 5% | 28525.000 | 29951.00 | | |
| | | | 19th m | 5% | 29951.000 | 31449.00 | | |
| | | | 20th m | 5% | 31449.000 | 33021.00 | | |
| | | | Total Cost from 10m upto 20m | | 254982.000 | 267731.00 | | |
| | | | ***Avg Rate per metre*** | | ***25498.000*** | ***26773.00*** | | |
| **12.12 B** | | **(iv)** | **Beyond 20m upto 30 m** | | | | | |
| | | **a** | Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 5 per cent of cost for dewatering of the cost, if required | | | | | |
| | | **c** | Add 25 per cent of cost for Kentledge including supports, loading arrangement and Labour ). | | | Including 25% for Kentledge | Including 5% for dewatering, if required | |
| | | | 21st m | 7.5% | 33808.000 | 42260.00 | 44373.00 | |
| | | | 22nd m | 7.5% | 36344.000 | 45430.00 | 47702.00 | |
| | | | 23rd m | 7.5% | 39070.000 | 48838.00 | 51280.00 | |
| | | | 24th m | 7.5% | 42000.000 | 52500.00 | 55125.00 | |
| | | | 25th m | 7.5% | 45150.000 | 56438.00 | 59260.00 | |
| | | | 26th m | 7.5% | 48536.000 | 60670.00 | 63704.00 | |
| | | | 27th m | 7.5% | 52176.000 | 65220.00 | 68481.00 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | 28th m | 7.5% | 56089.000 | 70111.00 | 73617.00 | |
| | | | 29th m | 7.5% | 60296.000 | 75370.00 | 79139.00 | |
| | | | 30th m | 7.5% | 64818.000 | 81023.00 | 85074.00 | |
| | | | Total Cost from 20m upto 30m | | 478287.000 | 597860.00 | 627755.00 | |
| | | | ***Avg Rate per metre*** | | ***47829.000*** | ***59786.00*** | ***62776.00*** | |
| **12.12 B** | | **(v)** | **Beyond 30m upto 40 m** | | | | | |
| | | **a** | Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 5 per cent of cost for dewatering, if required | | | | | |
| | | **c** | Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour). | | | Including 20% for Kentledge | Including 5% for dewatering, if required | |
| | | | 31st m | 10% | 71300.000 | 85560.00 | 89838.00 | |
| | | | 32nd m | 10% | 78430.000 | 94116.00 | 98822.00 | |
| | | | 33rd m | 10% | 86273.000 | 103528.00 | 108704.00 | |
| | | | 34th m | 10% | 94900.000 | 113880.00 | 119574.00 | |
| | | | 35th m | 10% | 104390.000 | 125268.00 | 131531.00 | |
| | | | 36th m | 10% | 114829.000 | 137795.00 | 144685.00 | |
| | | | 37th m | 10% | 126312.000 | 151574.00 | 159153.00 | |
| | | | 38th m | 10% | 138943.000 | 166732.00 | 175069.00 | |
| | | | 39th m | 10% | 152837.000 | 183404.00 | 192574.00 | |
| | | | 40th m | 10% | 168121.000 | 201745.00 | 211832.00 | |
| | | | Total Cost from 30m upto 40m | | 1136335.000 | 1363602.00 | 1431782.00 | |
| | | | ***Avg Rate per metre*** | | ***113634.000*** | ***136360.00*** | ***143178.00*** | |
| **12.12** | | **C** | **Soft Rock (6m dia well )** | | | | | |
| | | | ***Unit = Running Meter.*** | | | | | |
| | | | ***Taking output = 1 m*** | | | | | |
| | | | **Depth in Soft rock strata up to 3m** | | | | | |
| | | | Rate of sinking = 0.25 m per hour. | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.920 | 551.00 | 506.92 | L-12 |
| | | | Sinker ( skilled ) | day | 3.000 | 508.00 | 1524.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 20.000 | 424.00 | 8480.00 | L-14 |
| | | | Diver | day | 0.500 | 869.00 | 434.50 | L-07 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 4.000 | 1040.00 | 4160.00 | P&M-075 |
| | | | Air compressor with pneumatic breakers | hour | 3.500 | 723.00 | 2530.50 | P&M-063 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 669.05 | |
| | | | Add for dewatering @ of 5 per cent of (a+b), if required | | | | 915.25 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3874.80 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 4619.00 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2771.40 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 304.85 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 30790.27 | |
| | | | | | | ***say*** | ***30790.00*** | |
| **12.12** | | **D** | **Hard Rock (6m dia well )** | | | | | |
| | | | ***Unit = Running Meter*** | | | | | |
| | | | ***Taking output = 1 m*** | | | | | |
| | | | **Depth in hard rock strata upto 3 m** | | | | | |
| | | | Rate of sinking = 0.17 m per hour. | | | | | |
| | | | **a) Material** | | | | | |
| | | | Gelatine 80 per cent | Kg | 4.000 | 166.00 | 664.00 | M-104 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Electric Detonators | each | 18.000 | 11.59 | 208.62 | M-094/100 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 1.560 | 551.00 | 859.56 | L-12 |
| | | | Driller | day | 2.000 | 551.00 | 1102.00 | L-06 |
| | | | Blaster | day | 0.250 | 551.00 | 137.75 | L-03 |
| | | | Mazdoor | day | 12.000 | 424.00 | 5088.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 4.000 | 508.00 | 2032.00 | L-15 |
| | | | **c) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 6.000 | 1040.00 | 6240.00 | P&M-075 |
| | | | Hire & running charges of compressor with pneumatic breaker/Jack hammer for drilling. | hour | 2.000 | 723.00 | 1446.00 | P&M-063 |
| | | | Dewatering @ 5 per cent of cost of (b+c), if required. | | | | 845.27 | |
| | | | Consumables in sinking @ 10 per cent of cost of (b). | | | | 768.60 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 3909.39 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 4660.24 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 2796.14 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 307.58 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g)** | | | | 31065.15 | |
| | | | | | | ***say*** | ***31065.00*** | |
| **12.13** | Section 1200 | | **Sinking of 7 m external diameter well ( other than pneumatic method of sinking ) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.** | | | | | |
| | | | ***Unit = Running Meter.*** | | | | | |
| | | | ***Taking output = 1 m*** | | | | | |
| | | | **Diameter of well - 7 m.** | | | | | |
| | | **A** | **Sandy Soil** | | | | | |
| | | **(i)** | **Depth below bed level upto 3.0 M** | | | | | |
| | | | Rate of sinking = 0.30 m per hour. | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.150 | 551.00 | 82.65 | L-12 |
| | | | Sinker ( skilled ) | day | 1.250 | 508.00 | 635.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 2.500 | 424.00 | 1060.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 3.250 | 1040.00 | 3380.00 | P&M-075 |
| | | | Consumables in sinking @10 per cent of (b) | | | | 338.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1107.92 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 1320.71 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 792.43 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 87.17 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 8803.88 | |
| | | | | | | ***say*** | ***8804.00*** | |
| **12.13 A** | | **(ii)** | **Beyond 3m upto 10m depth** | | | | | |
| | | | Rate of sinking = 0.22 m per hour. | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.180 | 551.00 | 99.18 | L-12 |
| | | | Sinker | day | 1.500 | 508.00 | 762.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 3.000 | 424.00 | 1272.00 | L-14 |
| | | | **b) Machinery** | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 4.500 | 1040.00 | 4680.00 | P&M-075 |
| | | | Consumables in sinking @10 per cent of (b) | | | | 468.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1467.89 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 1749.81 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1049.89 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 115.49 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 11664.26 | |
| | | | | | | ***say*** | ***11664.00*** | |
| **12.13 A** | | **(iii)** | **Beyond 10m upto 20m** | | | | | |
| | | **a** | Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | | 11th m | 5% | 12247.000 | | | |
| | | | 12th m | 5% | 12859.000 | | | |
| | | | 13th m | 5% | 13502.000 | | | |
| | | | 14th m | 5% | 14177.000 | | | |
| | 0.165 | | 15th m | 5% | 14886.000 | | | |
| | | | 16th m | 5% | 15630.000 | | | |
| | | | 17th m | 5% | 16412.000 | | | |
| | | | 18th m | 5% | 17233.000 | | | |
| | | | 19th m | 5% | 18095.000 | | | |
| | | | 20th m | 5% | 19000.000 | | | |
| | | | Total Cost from 10m upto 20m | | 154041.000 | | | |
| | | | ***Avg Rate per metre*** | | ***15404.000*** | | | |
| **12.13 A** | | **(iv)** | **Beyond 20m upto 30 m** | | | | | |
| | | **a** | Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour). | | | Including 20% for Kentledge | | |
| | | | 21st m | 7.5% | 20425.000 | 24510.00 | | |
| | | | 22nd m | 7.5% | 21957.000 | 26348.00 | | |
| | | | 23rd m | 7.5% | 23604.000 | 28325.00 | | |
| | | | 24th m | 7.5% | 25374.000 | 30449.00 | | |
| | | | 25th m | 7.5% | 27277.000 | 32732.00 | | |
| | | | 26th m | 7.5% | 29323.000 | 35188.00 | | |
| | | | 27th m | 7.5% | 31522.000 | 37826.00 | | |
| | | | 28th m | 7.5% | 33886.000 | 40663.00 | | |
| | | | 29th m | 7.5% | 36427.000 | 43712.00 | | |
| | | | 30th m | 7.5% | 39159.000 | 46991.00 | | |
| | | | Total Cost from 20m upto 30m | | 288954.000 | 346744.00 | | |
| | | | ***Avg Rate per metre*** | | ***28895.000*** | ***34674.00*** | | |
| **12.13 A** | | **(v)** | **Beyond 30m upto 40 m** | | | | | |
| | | **a** | Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 20 per cent of cost for Kentledge including supports, loading arrangement, and Labour etc. | | | Including 20% for Kentledge | | |
| | | | 31st m | 10% | 43075.000 | 51690.00 | | |
| | | | 32nd m | 10% | 47383.000 | 56860.00 | | |
| | | | 33rd m | 10% | 52121.000 | 62545.00 | | |
| | | | 34th m | 10% | 57333.000 | 68800.00 | | |
| | | | 35th m | 10% | 63066.000 | 75679.00 | | |
| | | | 36th m | 10% | 69373.000 | 83248.00 | | |
| | | | 37th m | 10% | 76310.000 | 91572.00 | | |
| | | | 38th m | 10% | 83941.000 | 100729.00 | | |
| | | | 39th m | 10% | 92335.000 | 110802.00 | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | 40th m | 10% | 101569.000 | 121883.00 | | |
| | | | Total Cost from 30m upto 40m | | 686506.000 | 823808.00 | | |
| | | | ***Avg Rate per metre*** | | ***68651.000*** | ***82381.00*** | | |
| 12.13 | | B | **Clayey Soil ( 7m dia. Well )** | | | | | |
| | | | ***Unit = Running Meter.*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | (I) | **Depth below bed level upto 3.0 M** | | | | | |
| | | | Rate of sinking = 0.22 m per hour. | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.180 | 551.00 | 99.18 | L-12 |
| | | | Sinker ( skilled ) | day | 1.500 | 508.00 | 762.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 3.000 | 424.00 | 1272.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 4.500 | 1040.00 | 4680.00 | P&M-075 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 468.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1467.89 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 1749.81 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1049.89 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 115.49 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 11664.26 | |
| | | | | | | ***say*** | ***11664.00*** | |
| 12.13 B | | (ii) | **Beyond 3m upto 10m depth** | | | | | |
| | | | Rate of sinking = 0.17 m per hour. | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.260 | 551.00 | 143.26 | L-12 |
| | | | Sinker | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 4.000 | 424.00 | 1696.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 6.000 | 1040.00 | 6240.00 | P&M-075 |
| | | | Air compressor with pneumatic chisel attachment for cutting hard clay. | hour | 3.250 | 723.00 | 624.00 | P&M-063 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 686.40 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 2097.78 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 2500.69 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1500.41 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 165.05 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 16669.59 | |
| | | | | | | ***say*** | ***16670.00*** | |
| 12.13 B | | (iii) | **Beyond 10 m upto 20 m** | | | | | |
| | | a | Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | b | Add for dewatering @ 5 per cent of cost, if required. | | | Including for dewatering @ 5% of cost, if required | | |
| | | | 11th m | 5% | 17503.000 | 18378.00 | | |
| | | | 12th m | 5% | 18378.000 | 19297.00 | | |
| | | | 13th m | 5% | 19297.000 | 20262.00 | | |
| | | | 14th m | 5% | 20262.000 | 21275.00 | | |
| | | | 15th m | 5% | 21275.000 | 22339.00 | | |
| | | | 16th m | 5% | 22339.000 | 23456.00 | | |
| | | | 17th m | 5% | 23456.000 | 24629.00 | | |
| | | | 18th m | 5% | 24629.000 | 25860.00 | | |
| | | | 19th m | 5% | 25860.000 | 27153.00 | | |
| | | | 20th m | 5% | 27153.000 | 28511.00 | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Total Cost from 10m upto 20m | | 220152.000 | 231160.00 | | |
| | | | ***Avg Rate per metre*** | | ***22015.000*** | ***23116.00*** | | |
| **12.13 B** | | **(iv)** | **Beyond 20m upto 30 m** | | | | | |
| | | **a** | Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 5 per cent of cost for dewatering on the cost, if required | | | | | |
| | | **c** | Add 25 per cent of cost for Kentledge including supports, loading arrangement and Labour | | | Including 25% for Kentledge | Including 5% for dewatering, if required | |
| | | | 31st m | 7.5% | 29189.000 | 36486.00 | 38310.00 | |
| | | | 32nd m | 7.5% | 31378.000 | 39223.00 | 41184.00 | |
| | | | 33rd m | 7.5% | 33731.000 | 42164.00 | 44272.00 | |
| | | | 34th m | 7.5% | 36261.000 | 45326.00 | 47592.00 | |
| | | | 35th m | 7.5% | 38981.000 | 48726.00 | 51162.00 | |
| | | | 36th m | 7.5% | 41905.000 | 52381.00 | 55000.00 | |
| | | | 37th m | 7.5% | 45048.000 | 56310.00 | 59126.00 | |
| | | | 38th m | 7.5% | 48427.000 | 60534.00 | 63561.00 | |
| | | | 39th m | 7.5% | 52059.000 | 65074.00 | 68328.00 | |
| | | | 40th m | 7.5% | 55963.000 | 69954.00 | 73452.00 | |
| | | | Total Cost from 30m upto 40m | | 412942.000 | 516178.00 | 541987.00 | |
| | | | ***Avg Rate per metre*** | | ***41294.000*** | ***51618.00*** | ***54199.00*** | |
| **12.13 B** | | **(v)** | **Beyond 30m upto 40 m** | | | | | |
| | | **a** | Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 5 per cent of cost for dewatering, if required | | | | | |
| | | **c** | Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour). | | | Including 20% for Kentledge | Including 5% for dewatering, if required | |
| | | | 31st m | 10% | 61559.000 | 73871.00 | 77565.00 | |
| | | | 32nd m | 10% | 67715.000 | 81258.00 | 85321.00 | |
| | | | 33rd m | 10% | 74487.000 | 89384.00 | 93853.00 | |
| | | | 34th m | 10% | 81936.000 | 98323.00 | 103239.00 | |
| | | | 35th m | 10% | 90130.000 | 108156.00 | 113564.00 | |
| | | | 36th m | 10% | 99143.000 | 118972.00 | 124921.00 | |
| | | | 37th m | 10% | 109057.000 | 130868.00 | 137411.00 | |
| | | | 38th m | 10% | 119963.000 | 143956.00 | 151154.00 | |
| | | | 39th m | 10% | 131959.000 | 158351.00 | 166269.00 | |
| | | | 40th m | 10% | 145155.000 | 174186.00 | 182895.00 | |
| | | | Total Cost from 30m upto 40m | | 981104.000 | 1177325.00 | 1236192.00 | |
| | | | ***Avg Rate per metre*** | | ***98110.000*** | ***117733.00*** | ***123619.00*** | |
| **12.13** | | **C** | **Soft Rock ( 7m dia well )** | | | | | |
| | | | ***Unit = Running Meter.*** | | | | | |
| | | | ***Taking output = 1 m*** | | | | | |
| | | | **Depth in soft rock strata upto 3m** | | | | | |
| | | | Rate of sinking = 0.22 m per hour. | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.580 | 551.00 | 319.58 | L-12 |
| | | | Sinker ( skilled ) | day | 4.000 | 508.00 | 2032.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 10.000 | 424.00 | 4240.00 | L-14 |
| | | | Diver | day | 0.750 | 869.00 | 651.75 | L-07 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 4.500 | 1040.00 | 4680.00 | P&M-075 |
| | | | Air compressor with pneumatic breakers | hour | 3.750 | 723.00 | 2711.25 | P&M-063 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 739.13 | |
| | | | Add for dewatering @ of 5 per cent of (a+b), if required | | | | 768.69 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3254.31 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 3879.34 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2327.61 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 256.04 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 25859.70 | |
| | | | | | | ***say*** | ***25860.00*** | |
| **12.13** | | **D** | **Hard Rock ( 7m dia well )** | | | | | |
| | | | ***Unit = Running Meter*** | | | | | |
| | | | ***Taking output = 1 m*** | | | | | |
| | | | **Depth in Hard rock strata up to 3 m** | | | | | |
| | | | Rate of sinking = 0.17 m per hour. | | | | | |
| | | | **a) Material** | | | | | |
| | | | Gelatine 80 per cent | Kg | 7.000 | 166.00 | 1162.00 | M-104 |
| | | | Electric Detonators | each | 30.000 | 11.59 | 347.70 | M-094/100 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 1.600 | 551.00 | 881.60 | L-12 |
| | | | Driller | day | 2.000 | 551.00 | 1102.00 | L-06 |
| | | | Blaster | day | 0.250 | 551.00 | 137.75 | L-03 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 4.000 | 508.00 | 2032.00 | L-15 |
| | | | Diver | day | 0.500 | 869.00 | 434.50 | L-07 |
| | | | **c) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 6.000 | 1040.00 | 6240.00 | P&M-075 |
| | | | Hire & running charges of compressor with pneumatic breaker/Jack hammer for drilling. | hour | 2.000 | 723.00 | 1446.00 | P&M-063 |
| | | | Dewatering @ 5 per cent of cost of (b+c), if required. | | | | 995.29 | |
| | | | Consumables in sinking @ 10 per cent of cost of (b). | | | | 868.13 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 4693.04 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 5594.40 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 3356.64 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 369.23 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g)** | | | | 37292.28 | |
| | | | | | | ***say*** | ***37292.00*** | |
| **12.14** | Section 1200 | | **Sinking of 8 m external diameter well ( other than pneumatic method of sinking ) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.** | | | | | |
| | | | ***Unit = Running Meter.*** | | | | | |
| | | | ***Taking output = 1 m*** | | | | | |
| | | | **Diameter of well - 8 m.** | | | | | |
| | | **A** | **Sandy Soil** | | | | | |
| | | **(i)** | **Depth below bed level upto 3.0 M** | | | | | |
| | | | Rate of sinking @ 0.25 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.180 | 551.00 | 99.18 | L-12 |
| | | | Sinker ( skilled ) | day | 1.500 | 508.00 | 762.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 3.000 | 424.00 | 1272.00 | L-14 |
| | | | **b) Machinery** | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 4.000 | 1040.00 | 4160.00 | P&M-075 |
| | | | Consumables in sinking @10 per cent of (b) | | | | 416.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1352.57 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 1612.35 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 967.41 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 106.42 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 10747.93 | |
| | | | | | | ***say*** | ***10748.00*** | |
| **12.14 A** | | **(ii)** | **Beyond 3m upto 10m depth** | | | | | |
| | | | Rate of sinking @ 0.20 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.250 | 551.00 | 137.75 | L-12 |
| | | | Sinker | day | 1.750 | 508.00 | 889.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 3.500 | 424.00 | 1484.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 5.000 | 1040.00 | 5200.00 | P&M-075 |
| | | | Consumables in sinking @10 per cent of (b) | | | | 520.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1659.32 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 1978.01 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1186.81 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 130.55 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 13185.44 | |
| | | | | | | ***say*** | ***13185.00*** | |
| **12.14 A** | | **(iii)** | **Beyond 10m upto 20m** | | | | | |
| | | **a** | Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | | 11th m | 5% | 13845.000 | | | |
| | | | 12th m | 5% | 14537.000 | | | |
| | | | 13th m | 5% | 15264.000 | | | |
| | | | 14th m | 5% | 16027.000 | | | |
| | | | 15th m | 5% | 16828.000 | | | |
| | | | 16th m | 5% | 17669.000 | | | |
| | | | 17th m | 5% | 18552.000 | | | |
| | | | 18th m | 5% | 19480.000 | | | |
| | | | 19th m | 5% | 20454.000 | | | |
| | | | 20th m | 5% | 21477.000 | | | |
| | | | Total Cost from 10m upto 20m | | 174133.000 | | | |
| | | | ***Avg Rate per metre*** | | ***17413.000*** | | | |
| **12.14 A** | | **(iv)** | **Beyond 20m upto 30 m** | | | | | |
| | | **a** | Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour. | | | Including 20% for Kentledge | | |
| | | | 21st m | 7.5% | 23088.000 | 27706.00 | | |
| | | | 22nd m | 7.5% | 24820.000 | 29784.00 | | |
| | | | 23rd m | 7.5% | 26682.000 | 32018.00 | | |
| | | | 24th m | 7.5% | 28683.000 | 34420.00 | | |
| | | | 25th m | 7.5% | 30834.000 | 37001.00 | | |
| | | | 26th m | 7.5% | 33147.000 | 39776.00 | | |
| | | | 27th m | 7.5% | 35633.000 | 42760.00 | | |
| | | | 28th m | 7.5% | 38305.000 | 45966.00 | | |
| | | | 29th m | 7.5% | 41178.000 | 49414.00 | | |
| | | | 30th m | 7.5% | 44266.000 | 53119.00 | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Total Cost from 20m upto 30m | | 326636.000 | 391964.00 | | |
| | | | ***Avg Rate per metre*** | | ***32664.000*** | ***39196.00*** | | |
| **12.14 A** | | **(v)** | **Beyond 30m upto 40 m** | | | | | |
| | | **a** | Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 20 per cent of cost for Kentledge including supports, loading arrangement, and Labour | | | Including 20% for Kentledge | | |
| | | | 31st m | 10% | 48693.000 | 58432.00 | | |
| | | | 32nd m | 10% | 53562.000 | 64274.00 | | |
| | | | 33rd m | 10% | 58918.000 | 70702.00 | | |
| | | | 34th m | 10% | 64810.000 | 77772.00 | | |
| | | | 35th m | 10% | 71291.000 | 85549.00 | | |
| | | | 36th m | 10% | 78420.000 | 94104.00 | | |
| | | | 37th m | 10% | 86262.000 | 103514.00 | | |
| | | | 38th m | 10% | 94888.000 | 113866.00 | | |
| | | | 39th m | 10% | 104377.000 | 125252.00 | | |
| | | | 40th m | 10% | 114815.000 | 137778.00 | | |
| | | | Total Cost from 30m upto 40m | | 776036.000 | 931243.00 | | |
| | | | ***Avg Rate per metre*** | | ***77604.000*** | ***93124.00*** | | |
| **12.14** | | **B** | **Clayey Soil ( 8m dia. Well )** | | | | | |
| | | | ***Unit = Running Meter.*** | | | | | |
| | | | ***Taking output = 1 meter*** | | | | | |
| | | **(i)** | **Depth from bed level upto 3.0 M** | | | | | |
| | | | Rate of sinking @ 0.18 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.220 | 551.00 | 121.22 | L-12 |
| | | | Sinker ( skilled ) | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | hour | 3.500 | 424.00 | 1484.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | | 5.500 | 1040.00 | 5720.00 | P&M-075 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 572.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1796.91 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 2142.03 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1285.22 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 141.37 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 14278.75 | |
| | | | | | | ***say*** | ***14279.00*** | |
| **12.14 B** | | **(ii)** | **Beyond 3m upto 10m depth** | | | | | |
| | | | Rate of sinking @ 0.17 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.320 | 551.00 | 176.32 | L-12 |
| | | | Sinker | day | 2.500 | 508.00 | 1270.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 4.500 | 424.00 | 1908.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 6.000 | 1040.00 | 6240.00 | P&M-075 |
| | | | Air compressor with pneumatic chisel attachment for cutting hard clay. | hour | 3.500 | 723.00 | 2530.50 | P&M-063 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 877.05 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 2621.18 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 3124.61 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1874.77 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 206.22 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 20828.65 | |
| | | | | | | ***say*** | ***20829.00*** | |
| **12.14 B** | | **(iii)** | **Beyond 10 m upto 20 m** | | | | | |
| | | **a** | Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add for dewatering @ 5 per cent of cost, if required. | | | Including for dewatering @ 5% of cost, if required | | |
| | | | 11th m | 5% | 21870.000 | 22964.00 | | |
| | | | 12th m | 5% | 22964.000 | 24112.00 | | |
| | | | 13th m | 5% | 24112.000 | 25318.00 | | |
| | | | 14th m | 5% | 25318.000 | 26584.00 | | |
| | | | 15th m | 5% | 26584.000 | 27913.00 | | |
| | | | 16th m | 5% | 27913.000 | 29309.00 | | |
| | | | 17th m | 5% | 29309.000 | 30774.00 | | |
| | | | 18th m | 5% | 30774.000 | 32313.00 | | |
| | | | 19th m | 5% | 32313.000 | 33929.00 | | |
| | | | 20th m | 5% | 33929.000 | 35625.00 | | |
| | | | Total Cost from 10m upto 20m | | 275086.000 | 288841.00 | | |
| | | | ***Avg Rate per metre*** | | ***27509.000*** | ***28884.00*** | | |
| **12.14 B** | | **(iv)** | **Beyond 20m upto 30 m** | | | | | |
| | | **a** | Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 5 per cent of cost for dewatering on the cost, if required | | | | | |
| | | **c** | Add 25 per cent of cost for Kentledge including supports, loading arrangement and Labour ). | | | Including 25% for Kentledge | Including 5% for dewatering, if required | |
| | | | 31st m | 7.5% | 36474.000 | 45593.00 | 47873.00 | |
| | | | 32nd m | 7.5% | 39210.000 | 49013.00 | 51464.00 | |
| | | | 33rd m | 7.5% | 42151.000 | 52689.00 | 55323.00 | |
| | | | 34th m | 7.5% | 45312.000 | 56640.00 | 59472.00 | |
| | | | 35th m | 7.5% | 48710.000 | 60888.00 | 63932.00 | |
| | | | 36th m | 7.5% | 52363.000 | 65454.00 | 68727.00 | |
| | | | 37th m | 7.5% | 56290.000 | 70363.00 | 73881.00 | |
| | | | 38th m | 7.5% | 60512.000 | 75640.00 | 79422.00 | |
| | | | 39th m | 7.5% | 65050.000 | 81313.00 | 85379.00 | |
| | | | 40th m | 7.5% | 69929.000 | 87411.00 | 91782.00 | |
| | | | Total Cost from 30m upto 40m | | 516001.000 | 645004.00 | 677255.00 | |
| | | | ***Avg Rate per metre*** | | ***51600.000*** | ***64500.00*** | ***67726.00*** | |
| **12.14 B** | | **(v)** | **Beyond 30m upto 40 m** | | | | | |
| | | **a** | Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 5 per cent of cost for dewatering, if required | | | | | |
| | | **c** | Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour). | | | Including 20% for Kentledge | Including 5% for dewatering, if required | |
| | | | 31st m | 10% | 76922.000 | 92306.00 | 96921.00 | |
| | | | 32nd m | 10% | 84614.000 | 101537.00 | 106614.00 | |
| | | | 33rd m | 10% | 93075.000 | 111690.00 | 117275.00 | |
| | | | 34th m | 10% | 102383.000 | 122860.00 | 129003.00 | |
| | | | 35th m | 10% | 112621.000 | 135145.00 | 141902.00 | |
| | | | 36th m | 10% | 123883.000 | 148660.00 | 156093.00 | |
| | | | 37th m | 10% | 136271.000 | 163525.00 | 171701.00 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | 38th m | 10% | 149898.000 | 179878.00 | 188872.00 | |
| | | | 39th m | 10% | 164888.000 | 197866.00 | 207759.00 | |
| | | | 40th m | 10% | 181377.000 | 217652.00 | 228535.00 | |
| | | | Total Cost from 30m upto 40m | | 1225932.000 | 1471119.00 | 1544675.00 | |
| | | | ***Avg Rate per metre*** | | ***122593.000*** | ***147112.00*** | ***154468.00*** | |
| 12.14 | | C | **Soft Rock ( 8m dia well )** | | | | | |
| | | | ***Unit = Running Meter.*** | | | | | |
| | | | ***Taking output = 1 m*** | | | | | |
| | | | **Depth in soft rock strata upto 3m** | | | | | |
| | | | Rate of sinking @ 0.20 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.680 | 551.00 | 374.68 | L-12 |
| | | | Sinker ( skilled ) | day | 4.000 | 508.00 | 2032.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 12.000 | 424.00 | 5088.00 | L-14 |
| | | | Diver | day | 1.000 | 869.00 | 869.00 | L-07 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 5.000 | 1040.00 | 5200.00 | P&M-075 |
| | | | Air compressor with pneumatic breakers | hour | 3.750 | 723.00 | 2711.25 | P&M-063 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 791.13 | |
| | | | Add for dewatering @ of 5 per cent of (a+b), if required | | | | 853.30 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3612.54 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 4306.38 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2583.83 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 284.22 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 28706.33 | |
| | | | | | | ***say*** | ***28706.00*** | |
| 12.14 | | D | **Hard Rock ( 8m dia well )** | | | | | |
| | | | ***Unit = Running Meter*** | | | | | |
| | | | ***Taking output = 1 m*** | | | | | |
| | | | **Depth in hard rock strata upto 3 m** | | | | | |
| | | | Rate of sinking @ 0.17 m/hour | | | | | |
| | | | **a) Material** | | | | | |
| | | | Gelatine 80 per cent | Kg | 8.000 | 166.00 | 1328.00 | M-104 |
| | | | Electric Detonators | each | 32.000 | 11.59 | 370.88 | M-094/100 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 1.090 | 551.00 | 600.59 | L-12 |
| | | | Driller | day | 2.000 | 551.00 | 1102.00 | L-06 |
| | | | Blaster | day | 0.250 | 551.00 | 137.75 | L-03 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 4.000 | 508.00 | 2032.00 | L-15 |
| | | | **c) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 6.000 | 1040.00 | 6240.00 | P&M-075 |
| | | | Hire & running charges of compressor with pneumatic breaker/Jack hammer for drilling. | hour | 2.000 | 723.00 | 1446.00 | P&M-063 |
| | | | Dewatering @ 5 per cent of cost of (b+c), if required. | | | | 1001.92 | |
| | | | Consumables in sinking @ 10 per cent of cost of (b). | | | | 1235.23 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 4833.23 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 5761.52 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 3456.91 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 380.26 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g)** | | | | 38406.29 | |
| | | | | | | ***say*** | ***38406.00*** | |
| **12.15** | Section 1200 | | **Sinking of 9 m external diameter well ( other than pneumatic method of sinking ) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.** | | | | | |
| | | | ***Unit = Running Meter.*** | | | | | |
| | | | ***Taking output = 1 m*** | | | | | |
| | | | **Diameter of well - 9 m.** | | | | | |
| | | **A** | **Sandy Soil** | | | | | |
| | | **(i)** | **Depth below bed level upto 3.0 M** | | | | | |
| | | | Rate of sinking @ 0.25 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.190 | 551.00 | 104.69 | L-12 |
| | | | Sinker ( skilled ) | day | 1.500 | 508.00 | 762.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 3.250 | 424.00 | 1378.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 4.000 | 1040.00 | 4160.00 | P&M-075 |
| | | | Consumables in sinking @10 per cent of (b) | | | | 416.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1375.05 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 1639.15 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 983.49 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 108.18 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 10926.56 | |
| | | | | | | ***say*** | ***10927.00*** | |
| **12.15 A** | | **(ii)** | **Beyond 3m upto 10m depth** | | | | | |
| | | | Rate of sinking @ 0.18 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.270 | 551.00 | 148.77 | L-12 |
| | | | Sinker | day | 1.750 | 508.00 | 889.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 4.000 | 424.00 | 1696.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 5.500 | 1040.00 | 5720.00 | P&M-075 |
| | | | Consumables in sinking @10 per cent of (b) | | | | 572.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1819.60 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 2169.07 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1301.44 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 143.16 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 14459.04 | |
| | | | | | | ***say*** | ***14459.00*** | |
| **12.15 A** | | **(iii)** | **Beyond 10m upto 20m** | | | | | |
| | | **a** | Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | | 11th m | 5% | 15182.000 | | | |
| | | | 12th m | 5% | 15941.000 | | | |
| | | | 13th m | 5% | 16738.000 | | | |
| | | | 14th m | 5% | 17575.000 | | | |
| | | | 15th m | 5% | 18454.000 | | | |
| | | | 16th m | 5% | 19377.000 | | | |
| | | | 17th m | 5% | 20346.000 | | | |
| | | | 18th m | 5% | 21363.000 | | | |
| | | | 19th m | 5% | 22431.000 | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | 20th m | 5% | 23553.000 | | | |
| | | | Total Cost from 10m upto 20m | | 190960.000 | | | |
| | | | ***Avg Rate per metre*** | | ***19096.000*** | | | |
| **12.15 A** | | **(iv)** | **Beyond 20m upto 30 m** | | | | | |
| | | **a** | Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour. | | | Including 20% for Kentledge | | |
| | | | 21st m | 7.5% | 25319.475 | 30383.00 | | |
| | | | 22nd m | 7.5% | 27218.000 | 32662.00 | | |
| | | | 23rd m | 7.5% | 29259.000 | 35111.00 | | |
| | | | 24th m | 7.5% | 31453.000 | 37744.00 | | |
| | | | 25th m | 7.5% | 33812.000 | 40574.00 | | |
| | | | 26th m | 7.5% | 36348.000 | 43618.00 | | |
| | | | 27th m | 7.5% | 39074.000 | 46889.00 | | |
| | | | 28th m | 7.5% | 42005.000 | 50406.00 | | |
| | | | 29th m | 7.5% | 45155.000 | 54186.00 | | |
| | | | 30th m | 7.5% | 48542.000 | 58250.00 | | |
| | | | Total Cost from 20m upto 30m | | 358185.475 | 429823.00 | | |
| | | | ***Avg Rate per metre*** | | ***35819.000*** | ***42982.00*** | | |
| **12.15 A** | | **(v)** | **Beyond 30m upto 40 m** | | | | | |
| | | **a** | Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 20 per cent of cost for Kentledge including supports, loading arrangement, and Labour | | | Including 20% for Kentledge | | |
| | | | 31st m | 10% | 53396.200 | 64075.00 | | |
| | | | 32nd m | 10% | 58736.000 | 70483.00 | | |
| | | | 33rd m | 10% | 64610.000 | 77532.00 | | |
| | | | 34th m | 10% | 71071.000 | 85285.00 | | |
| | | | 35th m | 10% | 78178.000 | 93814.00 | | |
| | | | 36th m | 10% | 85996.000 | 103195.00 | | |
| | | | 37th m | 10% | 94596.000 | 113515.00 | | |
| | | | 38th m | 10% | 104056.000 | 124867.00 | | |
| | | | 39th m | 10% | 114462.000 | 137354.00 | | |
| | | | 40th m | 10% | 125908.000 | 151090.00 | | |
| | | | Total Cost from 30m upto 40m | | 851009.200 | 1021210.00 | | |
| | | | ***Avg Rate per metre*** | | ***85101.000*** | ***102121.00*** | | |
| **12.15** | | **B** | **Clayey Soil ( 9m dia. Well )** | | | | | |
| | | | ***Unit = Running Meter.*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | **(i)** | **Depth below bed level upto 3.0 M** | | | | | |
| | | | Rate of sinking 0.17 m / hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.240 | 551.00 | 132.24 | L-12 |
| | | | Sinker ( skilled ) | day | 2.250 | 508.00 | 1143.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 3.750 | 424.00 | 1590.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 5.750 | 1040.00 | 5980.00 | P&M-075 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 598.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1903.76 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 2269.40 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1361.64 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 149.78 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 15127.82 | |
| | | | | | | ***say*** | ***15128.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 12.15 B | | (ii) | **Beyond 3m upto 10m depth** | | | | | |
| | | | Rate of sinking 0.15 m / hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.340 | 551.00 | 187.34 | L-12 |
| | | | Sinker | day | 2.500 | 508.00 | 1270.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 5.000 | 424.00 | 2120.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 6.500 | 1040.00 | 6760.00 | P&M-075 |
| | | | Air compressor with pneumatic chisel attachment for cutting hard clay. | hour | 3.750 | 723.00 | 2711.25 | P&M-063 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 947.13 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 2821.54 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 3363.45 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2018.07 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 221.99 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 22420.77 | |
| | | | | | | ***say*** | ***22421.00*** | |
| 12.15 B | | (iii) | **Beyond 10 m upto 20 m** | | | | | |
| | | **a** | Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add for dewatering @ 5 per cent of cost, if required. | | | Including for dewatering @ 5% of cost, if required | | |
| | | | 11th m | 5% | 23542.000 | 24719.00 | | |
| | | | 12th m | 5% | 24719.000 | 25955.00 | | |
| | | | 13th m | 5% | 25955.000 | 27253.00 | | |
| | | | 14th m | 5% | 27253.000 | 28616.00 | | |
| | | | 15th m | 5% | 28616.000 | 30047.00 | | |
| | | | 16th m | 5% | 30047.000 | 31549.00 | | |
| | | | 17th m | 5% | 31549.000 | 33126.00 | | |
| | | | 18th m | 5% | 33126.000 | 34782.00 | | |
| | | | 19th m | 5% | 34782.000 | 36521.00 | | |
| | | | 20th m | 5% | 36521.000 | 38347.00 | | |
| | | | Total Cost from 10m upto 20m | | 296110.000 | 310915.00 | | |
| | | | ***Avg Rate per metre*** | | ***29611.000*** | ***31092.00*** | | |
| 12.15 B | | (iv) | **Beyond 20m upto 30 m** | | | | | |
| | | **a** | Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 5 per cent of cost for dewatering on the cost, if required | | | | | |
| | | **c** | Add 25 per cent of cost for Kentledge including supports, loading arrangement and Labour ). | | | Including 25% for Kentledge | Including 5% for dewatering, if required | |
| | | | 31st m | 7.5% | 39260.000 | 49075.00 | 51529.00 | |
| | | | 32nd m | 7.5% | 42205.000 | 52756.00 | 55394.00 | |
| | | | 33rd m | 7.5% | 45370.000 | 56713.00 | 59549.00 | |
| | | | 34th m | 7.5% | 48773.000 | 60966.00 | 64014.00 | |
| | | | 35th m | 7.5% | 52431.000 | 65539.00 | 68816.00 | |
| | | | 36th m | 7.5% | 56363.000 | 70454.00 | 73977.00 | |
| | | | 37th m | 7.5% | 60590.000 | 75738.00 | 79525.00 | |
| | | | 38th m | 7.5% | 65134.000 | 81418.00 | 85489.00 | |
| | | | 39th m | 7.5% | 70019.000 | 87524.00 | 91900.00 | |
| | | | 40th m | 7.5% | 75270.000 | 94088.00 | 98792.00 | |
| | | | Total Cost from 30m upto 40m | | 555415.000 | 694271.00 | 728985.00 | |
| | | | ***Avg Rate per metre*** | | ***55542.000*** | ***69427.00*** | ***72899.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 12.15 B | | (v) | **Beyond 30m upto 40 m** | | | | | |
| | | a | Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | b | Add 5 per cent of cost for dewatering, if required | | | | | |
| | | c | Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour). | | | Including 20% for Kentledge | Including 5% for dewatering, if required | |
| | | | 31st m | 10% | 82797.000 | 99356.00 | 104324.00 | |
| | | | 32nd m | 10% | 91077.000 | 109292.00 | 114757.00 | |
| | | | 33rd m | 10% | 100185.000 | 120222.00 | 126233.00 | |
| | | | 34th m | 10% | 110204.000 | 132245.00 | 138857.00 | |
| | | | 35th m | 10% | 121224.000 | 145469.00 | 152742.00 | |
| | | | 36th m | 10% | 133346.000 | 160015.00 | 168016.00 | |
| | | | 37th m | 10% | 146681.000 | 176017.00 | 184818.00 | |
| | | | 38th m | 10% | 161349.000 | 193619.00 | 203300.00 | |
| | | | 39th m | 10% | 177484.000 | 212981.00 | 223630.00 | |
| | | | 40th m | 10% | 195232.000 | 234278.00 | 245992.00 | |
| | | | Total Cost from 30m upto 40m | | 1319579.000 | 1583494.00 | 1662669.00 | |
| | | | ***Avg Rate per metre*** | | ***131958.000*** | ***158349.00*** | ***166267.00*** | |
| 12.15 | | C | **Soft Rock ( 9m dia well )** | | | | | |
| | | | ***Unit = Running Meter.*** | | | | | |
| | | | ***Taking output = 1 m*** | | | | | |
| | | | **Depth in soft rock strata up to 3m** | | | | | |
| | | | Rate of sinking 0.15 m / hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.760 | 551.00 | 418.76 | L-12 |
| | | | Sinker ( skilled ) | day | 4.000 | 508.00 | 2032.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 14.000 | 424.00 | 5936.00 | L-14 |
| | | | Diver | day | 1.200 | 869.00 | 1042.80 | L-07 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 6.500 | 1040.00 | 6760.00 | P&M-075 |
| | | | Air compressor with pneumatic breakers | hour | 4.000 | 723.00 | 2892.00 | P&M-063 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 965.20 | |
| | | | Add for dewatering @ of 5 per cent of (a+b), if required | | | | 1002.34 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 4243.50 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 5058.52 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 3035.11 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 333.86 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 33720.09 | |
| | | | | | | ***say*** | ***33720.00*** | |
| 12.15 | | D | **Hard Rock ( 9m dia well )** | | | | | |
| | | | ***Unit = Running Meter*** | | | | | |
| | | | ***Taking output = 1 m*** | | | | | |
| | | | **Depth in hard rock strata upto 3 m** | | | | | |
| | | | Rate of sinking 0.15 m / hour | | | | | |
| | | | **a) Material** | | | | | |
| | | | Gelatine 80 per cent | Kg | 10.000 | 166.00 | 1660.00 | M-104 |
| | | | Electric Detonators | each | 40.000 | 11.59 | 463.60 | M-094/100 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 1.170 | 551.00 | 644.67 | L-12 |
| | | | Driller | day | 2.000 | 551.00 | 1102.00 | L-06 |
| | | | Blaster | day | 0.250 | 551.00 | 137.75 | L-03 |
| | | | Mazdoor | day | 22.000 | 424.00 | 9328.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 4.000 | 508.00 | 2032.00 | L-15 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Diver | day | 1.000 | 869.00 | 869.00 | L-07 |
| | | | **c) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 7.000 | 1040.00 | 7280.00 | P&M-075 |
| | | | Hire & running charges of compressor with pneumatic breaker/Jack hammer for drilling. | hour | 2.500 | 723.00 | 1807.50 | P&M-063 |
| | | | Dewatering @ 5 per cent of cost of (b+c), if required. | | | | 1160.05 | |
| | | | Consumables in sinking @ 10 per cent of cost of (b). | | | | 1411.34 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 5623.82 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 6703.95 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 4022.37 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 442.46 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g)** | | | | 44688.51 | |
| | | | | | | ***say*** | ***44689.00*** | |
| **12.16** | 1200 | | **Sinking of 10 m external diameter well ( other than pneumatic method of sinking ) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.** | | | | | |
| | | | ***Unit = Running Meter*** | | | | | |
| | | | ***Taking output = 1 m*** | | | | | |
| | | | Diameter of well - 10 m. | | | | | |
| | | **A** | **Sandy Soil** | | | | | |
| | | **(i)** | **Depth below bed level upto 3.0 M** | | | | | |
| | | | Rate of sinking 0.20 m / hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.200 | 551.00 | 110.20 | L-12 |
| | | | Sinker ( skilled ) | day | 1.500 | 508.00 | 762.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 3.500 | 424.00 | 1484.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 5.000 | 1040.00 | 5200.00 | P&M-075 |
| | | | Consumables in sinking @10 per cent of (b) | | | | 520.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1628.16 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 1940.87 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1164.52 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 128.10 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 12937.85 | |
| | | | | | | ***say*** | ***12938.00*** | |
| **12.16 A** | | **(ii)** | **Beyond 3m upto 10m depth** | | | | | |
| | | | Rate of sinking 0.17 m / hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.310 | 551.00 | 170.81 | L-12 |
| | | | Sinker | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 4.250 | 424.00 | 1802.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 5.750 | 1040.00 | 5980.00 | P&M-075 |
| | | | Consumables in sinking @10 per cent of (b) | | | | 598.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1928.67 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 2299.10 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1379.46 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 151.74 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 15325.78 | |
| | | | | | | ***say*** | ***15326.00*** | |
| **12.16 A** | | **(iii)** | **Beyond 10m upto 20m** | | | | | |
| | | **a** | Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | | 11th m | 5% | 16092.000 | | | |
| | | | 12th m | 5% | 16897.000 | | | |
| | | | 13th m | 5% | 17742.000 | | | |
| | | | 14th m | 5% | 18629.000 | | | |
| | | | 15th m | 5% | 19560.000 | | | |
| | | | 16th m | 5% | 20538.000 | | | |
| | | | 17th m | 5% | 21565.000 | | | |
| | | | 18th m | 5% | 22643.000 | | | |
| | | | 19th m | 5% | 23775.000 | | | |
| | | | 20th m | 5% | 24964.000 | | | |
| | | | Total Cost from 10m upto 20m | | 202405.000 | | | |
| | | | ***Avg Rate per metre*** | | ***20241.000*** | | | |
| **12.16 A** | | **(iv)** | **Beyond 20m upto 30 m** | | | | | |
| | | **a** | Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour. | | | Including 20% for Kentledge | | |
| | | | 21st m | 7.5% | 26836.000 | 32203.00 | | |
| | | | 22nd m | 7.5% | 28849.000 | 34619.00 | | |
| | | | 23rd m | 7.5% | 31013.000 | 37216.00 | | |
| | | | 24th m | 7.5% | 33339.000 | 40007.00 | | |
| | | | 25th m | 7.5% | 35839.000 | 43007.00 | | |
| | | | 26th m | 7.5% | 38527.000 | 46232.00 | | |
| | | | 27th m | 7.5% | 41417.000 | 49700.00 | | |
| | | | 28th m | 7.5% | 44523.000 | 53428.00 | | |
| | | | 29th m | 7.5% | 47862.000 | 57434.00 | | |
| | | | 30th m | 7.5% | 51452.000 | 61742.00 | | |
| | | | Total Cost from 20m upto 30m | | 379657.000 | 455588.00 | | |
| | | | ***Avg Rate per metre*** | | ***37966.000*** | ***45559.00*** | | |
| **12.16 A** | | **(v)** | **Beyond 30m upto 40 m** | | | | | |
| | | **a** | Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 20 per cent of cost for Kentledge including supports, loading arrangement, and Labour etc. | | | Including 20% for Kentledge | | |
| | | | 31st m | 10% | 56597.000 | 67916.00 | | |
| | | | 32nd m | 10% | 62257.000 | 74708.00 | | |
| | | | 33rd m | 10% | 68483.000 | 82180.00 | | |
| | | | 34th m | 10% | 75331.000 | 90397.00 | | |
| | | | 35th m | 10% | 82864.000 | 99437.00 | | |
| | | | 36th m | 10% | 91150.000 | 109380.00 | | |
| | | | 37th m | 10% | 100265.000 | 120318.00 | | |
| | | | 38th m | 10% | 110292.000 | 132350.00 | | |
| | | | 39th m | 10% | 121321.000 | 145585.00 | | |
| | | | 40th m | 10% | 133453.000 | 160144.00 | | |
| | | | Total Cost from 30m upto 40m | | 902013.000 | 1082415.00 | | |
| | | | ***Avg Rate per metre*** | | ***90201.000*** | ***108242.00*** | | |
| **12.16** | | **B** | **Clayey Soil (10m dia. Well )** | | | | | |
| | | | ***Unit = Running Meter*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | **(i)** | **Depth below bed level upto 3.0 M** | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Rate of sinking 0.18m/hour. | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.250 | 551.00 | 137.75 | L-12 |
| | | | Sinker ( skilled ) | day | 2.500 | 508.00 | 1270.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 5.500 | 424.00 | 2332.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 6.000 | 1040.00 | 6240.00 | P&M-075 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 624.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 2137.72 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 2548.29 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1528.98 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 168.19 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 16986.93 | |
| | | | | | | ***say*** | ***16987.00*** | |
| **12.16 B** | | **(ii)** | **Beyond 3m upto 10m depth** | | | | | |
| | | | Rate of sinking 0.15m/hour. | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.400 | 551.00 | 220.40 | L-12 |
| | | | Sinker | day | 3.000 | 508.00 | 1524.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 5.500 | 424.00 | 2332.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 6.000 | 1040.00 | 6240.00 | P&M-075 |
| | | | Air compressor with pneumatic chisel attachment for cutting hard clay | hour | 4.000 | 723.00 | 2892.00 | P&M-063 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 913.20 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 2846.91 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 3393.70 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2036.22 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 223.98 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 22622.41 | |
| | | | | | | ***say*** | ***22622.00*** | |
| **12.16 B** | | **(iii)** | **Beyond 10 m upto 20 m** | | | | | |
| | | **a** | Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add for dewatering @ 5 per cent of cost, if required. | | | Including for dewatering @ 5% of cost, if required | | |
| | | | 11th m | 5% | 23754.000 | 24942.00 | | |
| | | | 12th m | 5% | 24942.000 | 26189.00 | | |
| | | | 13th m | 5% | 26189.000 | 27498.00 | | |
| | | | 14th m | 5% | 27498.000 | 28873.00 | | |
| | | | 15th m | 5% | 28873.000 | 30317.00 | | |
| | | | 16th m | 5% | 30317.000 | 31833.00 | | |
| | | | 17th m | 5% | 31833.000 | 33425.00 | | |
| | | | 18th m | 5% | 33425.000 | 35096.00 | | |
| | | | 19th m | 5% | 35096.000 | 36851.00 | | |
| | | | 20th m | 5% | 36851.000 | 38694.00 | | |
| | | | Total Cost from 10m upto 20m | | 298778.000 | 313718.00 | | |
| | | | ***Avg Rate per metre*** | | ***29878.000*** | ***31372.00*** | | |
| **12.16 B** | | **(iv)** | **Beyond 20m upto 30 m** | | | | | |
| | | **a** | Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | **b** | Add 5 per cent of cost for dewatering on the cost, if required | | | | | |
| | | **c** | Add 25 per cent of cost for Kentledge including supports, loading arrangement and Labour ). | | | Including 25% for Kentledge | Including 5% for dewatering, if required | |
| | | | 31st m | 7.5% | 39615.000 | 49519.00 | 51995.00 | |
| | | | 32nd m | 7.5% | 42586.000 | 53233.00 | 55895.00 | |
| | | | 33rd m | 7.5% | 45780.000 | 57225.00 | 60086.00 | |
| | | | 34th m | 7.5% | 49214.000 | 61518.00 | 64594.00 | |
| | | | 35th m | 7.5% | 52905.000 | 66131.00 | 69438.00 | |
| | | | 36th m | 7.5% | 56873.000 | 71091.00 | 74646.00 | |
| | | | 37th m | 7.5% | 61138.000 | 76423.00 | 80244.00 | |
| | | | 38th m | 7.5% | 65723.000 | 82154.00 | 86262.00 | |
| | | | 39th m | 7.5% | 70652.000 | 88315.00 | 92731.00 | |
| | | | 40th m | 7.5% | 75951.000 | 94939.00 | 99686.00 | |
| | | | Total Cost from 30m upto 40m | | 560437.000 | 700548.00 | 735577.00 | |
| | | | ***Avg Rate per metre*** | | ***56044.000*** | ***70055.00*** | ***73558.00*** | |
| **12.16 B** | | **(v)** | **Beyond 30m upto 40 m** | | | | | |
| | | **a** | Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 5 per cent of cost for dewatering, if required | | | | | |
| | | **c** | Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour). | | | Including 20% for Kentledge | Including 5% for dewatering, if required | |
| | | | 31st m | 10% | 83546.000 | 100255.00 | 105268.00 | |
| | | | 32nd m | 10% | 91901.000 | 110281.00 | 115795.00 | |
| | | | 33rd m | 10% | 101091.000 | 121309.00 | 127374.45 | |
| | | | 34th m | 10% | 111200.000 | 133440.00 | 140112.00 | |
| | | | 35th m | 10% | 122320.000 | 146784.00 | 154123.20 | |
| | | | 36th m | 10% | 134552.000 | 161462.00 | 169535.10 | |
| | | | 37th m | 10% | 148007.000 | 177608.00 | 186488.40 | |
| | | | 38th m | 10% | 162808.000 | 195370.00 | 205138.50 | |
| | | | 39th m | 10% | 179089.000 | 214907.00 | 225652.35 | |
| | | | 40th m | 10% | 196998.000 | 236398.00 | 248217.90 | |
| | | | Total Cost from 30m upto 40m | | 1331512.000 | 1597814.00 | 1677704.90 | |
| | | | ***Avg Rate per metre*** | | ***133151.000*** | ***159781.00*** | ***167770.00*** | |
| **12.16** | | **C** | **Soft Rock (10m dia well )** | | | | | |
| | | | ***Unit = Running Meter.*** | | | | | |
| | | | ***Taking output = 1 m*** | | | | | |
| | | | **Depth in soft rock strata upto 3m** | | | | | |
| | | | Rate of sinking 0.14m/hour. | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.860 | 551.00 | 473.86 | L-12 |
| | | | Sinker ( skilled ) | day | 4.000 | 508.00 | 2032.00 | L-15 |
| | | | Sinking helper ( semi-skilled ) | day | 16.000 | 424.00 | 6784.00 | L-14 |
| | | | Diver | day | 1.400 | 869.00 | 1216.60 | L-07 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 7.000 | 1040.00 | 7280.00 | P&M-075 |
| | | | Air compressor with pneumatic breakers | hour | 4.250 | 723.00 | 3072.75 | P&M-063 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 1035.28 | |
| | | | Add for dewatering @ 5 per cent of cost, if required | | | | 569.40 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 4528.72 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 5398.52 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 3239.11 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 356.30 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 35986.54 | |
| | | | | | | ***say*** | ***35987.00*** | |
| **12.16** | | **D** | **Hard Rock (10m dia well )** | | | | | |
| | | | ***Unit = Running Meter.*** | | | | | |
| | | | ***Taking output = 1 m*** | | | | | |
| | | | **Depth in hard rock strata upto 3 m** | | | | | |
| | | | Rate of sinking 0.12 m/ hour. | | | | | |
| | | | **a) Material** | | | | | |
| | | | Gelatine 80 per cent | Kg | 11.000 | 166.00 | 1826.00 | M-104 |
| | | | Electric Detonators | each. | 44.000 | 11.59 | 509.96 | M-094/100 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 1.270 | 551.00 | 699.77 | L-12 |
| | | | Driller | day | 2.000 | 551.00 | 1102.00 | L-06 |
| | | | Blaster | day | 0.250 | 551.00 | 137.75 | L-03 |
| | | | Mazdoor | day | 24.000 | 424.00 | 10176.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 4.000 | 508.00 | 2032.00 | L-15 |
| | | | **c) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 8.500 | 1040.00 | 8840.00 | P&M-075 |
| | | | Hire & running charges of compressor with pneumatic breaker/Jack hammer or drill | hour | 3.000 | 723.00 | 2169.00 | P&M-063 |
| | | | Dewatering @ 5 per cent of cost (c), if required. | | | | 550.45 | |
| | | | Consumables in sinking @ 10 per cent of cost of (b+c). | | | | 2570.70 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 6171.71 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 7357.07 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 4414.24 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 485.57 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g)** | | | | 49042.22 | |
| | | | | | | ***say*** | ***49042.00*** | |
| **12.17** | 1200 | | **Sinking of 11 m external diameter well ( other than pneumatic method of sinking ) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.** | | | | | |
| | | | ***Unit = Running Meter*** | | | | | |
| | | | ***Taking output = 0.50 m*** | | | | | |
| | | | **Diameter of well - 11 m.** | | | | | |
| | | **A** | **Sandy Soil** | | | | | |
| | | **(i)** | **Depth from bed level upto 3.0 M** | | | | | |
| | | | Rate of sinking @ 0.15 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.210 | 551.00 | 115.71 | L-12 |
| | | | Sinker ( skilled ) | day | 1.500 | 508.00 | 762.00 | L-15 |
| | | | Sinking helper (semi-skilled) | day | 3.300 | 424.00 | 1399.20 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 6.000 | 1040.00 | 6240.00 | P&M-075 |
| | | | Consumables in sinking @10 per cent of (b) | | | | 624.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1842.81 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 2196.74 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1318.05 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 144.99 | |
| | | | Cost for 0.5m = a+b+c+d+e+f | | | | 14643.50 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/0.50** | | | | 29287.00 | |
| | | | | | | ***say*** | ***29287.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 12.17 A | | (ii) | **Beyond 3m upto 10m depth** | | | | | |
| | | | Rate of sinking @ 0.13 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.320 | 551.00 | 176.32 | L-12 |
| | | | Sinker | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | Sinking helper (semi-skilled) | day | 4.500 | 424.00 | 1908.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 4.000 | 1040.00 | 4160.00 | P&M-075 |
| | | | Consumables in sinking @10 per cent of (b) | | | | 416.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1547.55 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 1844.77 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1106.86 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 121.76 | |
| | | | Cost for 0.5m = a+b+c+d+e+f | | | | 12297.26 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/0.50** | | | | 24594.52 | |
| | | | | | | ***say*** | ***24595.00*** | |
| 12.17 A | | (iii) | **Beyond 10m upto 20m** | | | | | |
| | | **a** | Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | | 11th m | 5% | 25824.000 | | | |
| | | | 12th m | 5% | 27115.000 | | | |
| | | | 13th m | 5% | 28471.000 | | | |
| | | | 14th m | 5% | 29895.000 | | | |
| | | | 15th m | 5% | 31390.000 | | | |
| | | | 16th m | 5% | 32960.000 | | | |
| | | | 17th m | 5% | 34608.000 | | | |
| | | | 18th m | 5% | 36338.000 | | | |
| | | | 19th m | 5% | 38155.000 | | | |
| | | | 20th m | 5% | 40063.000 | | | |
| | | | Total Cost from 10m upto 20m | | 324819.000 | | | |
| | | | ***Avg Rate per metre*** | | ***32482.000*** | | | |
| 12.17 A | | (iv) | **Beyond 20m upto 30 m** | | | | | |
| | | **a** | Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour. | | | Including 20% for Kentledge | | |
| | | | 21st m | 7.5% | 43068.000 | 51682.00 | | |
| | | | 22nd m | 7.5% | 46298.000 | 55558.00 | | |
| | | | 23rd m | 7.5% | 49770.000 | 59724.00 | | |
| | | | 24th m | 7.5% | 53503.000 | 64204.00 | | |
| | | | 25th m | 7.5% | 57516.000 | 69019.00 | | |
| | | | 26th m | 7.5% | 61830.000 | 74196.00 | | |
| | | | 27th m | 7.5% | 66467.000 | 79760.00 | | |
| | | | 28th m | 7.5% | 71452.000 | 85742.00 | | |
| | | | 29th m | 7.5% | 76811.000 | 92173.00 | | |
| | | | 30th m | 7.5% | 82572.000 | 99086.00 | | |
| | | | Total Cost from 20m upto 30m | | 609287.000 | 731144.00 | | |
| | | | ***Avg Rate per metre*** | | ***60929.000*** | ***73114.00*** | | |
| 12.17 A | | (v) | **Beyond 30m upto 40 m** | | | | | |
| | | **a** | Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 20 per cent of cost for Kentledge including supports, loading arrangement, and Labour etc. | | | Including 20% for Kentledge | | |
| | | | 31st m | 10% | 90829.000 | 108995.00 | | |
| | | | 32nd m | 10% | 99912.000 | 119894.00 | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | 33rd m | 10% | 109903.000 | 131884.00 | | |
| | | | 34th m | 10% | 120893.000 | 145072.00 | | |
| | | | 35th m | 10% | 132982.000 | 159578.00 | | |
| | | | 36th m | 10% | 146280.000 | 175536.00 | | |
| | | | 37th m | 10% | 160908.000 | 193090.00 | | |
| | | | 38th m | 10% | 176999.000 | 212399.00 | | |
| | | | 39th m | 10% | 194699.000 | 233639.00 | | |
| | | | 40th m | 10% | 214169.000 | 257003.00 | | |
| | | | Total Cost from 30m upto 40m | | 1447574.000 | 1737090.00 | | |
| | | | ***Avg Rate per metre*** | | ***144757.000*** | ***173709.00*** | | |
| 12.17 | | B | **Clayey Soil (11 m dia. Well )** | | | | | |
| | | | ***Unit = Running Meter*** | | | | | |
| | | | ***Taking output = 0.50 meter*** | | | | | |
| | | (i) | **Depth from bed level upto 3.0 M** | | | | | |
| | | | Rate of sinking @ 0.10 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.260 | 551.00 | 143.26 | L-12 |
| | | | Sinker ( skilled ) | day | 2.500 | 508.00 | 1270.00 | L-15 |
| | | | Sinking helper (semi-skilled) | day | 4.000 | 424.00 | 1696.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 5.000 | 1040.00 | 5200.00 | P&M-075 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 520.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1779.98 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 2121.85 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1273.11 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 140.04 | |
| | | | Cost for 0.5m = a+b+c+d+e+f | | | | 14144.24 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/0.50** | | | | 28288.48 | |
| | | | | | | ***say*** | ***28288.00*** | |
| 12.17 B | | (ii) | **Beyond 3m upto 10m depth** | | | | | |
| | | | Rate of sinking @ 0.08 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.430 | 551.00 | 236.93 | L-12 |
| | | | Sinker | day | 3.500 | 508.00 | 1778.00 | L-15 |
| | | | Sinking helper (semi-skilled) | day | 5.750 | 424.00 | 2438.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 6.000 | 1040.00 | 6240.00 | P&M-075 |
| | | | Air compressor with pneumatic chisel attachment for cutting hard clay | hour | 4.250 | 723.00 | 3072.75 | P&M-063 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 931.28 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 2962.91 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 3531.97 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2119.18 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 233.11 | |
| | | | Cost for 0.5m = a+b+c+d+e+f | | | | 23544.13 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/0.50** | | | | 47088.26 | |
| | | | | | | ***say*** | ***47088.00*** | |
| 12.17 B | | (iii) | **Beyond 10 m upto 20 m** | | | | | |
| | | **a** | Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | b | Add for dewatering @ 5 per cent of cost, if required. | | | Including for dewatering @ 5% of cost, if required | | |
| | | | 11th m | 5% | 49443.000 | 51915.00 | | |
| | | | 12th m | 5% | 51915.000 | 54511.00 | | |
| | | | 13th m | 5% | 54511.000 | 57237.00 | | |
| | | | 14th m | 5% | 57237.000 | 60099.00 | | |
| | | | 15th m | 5% | 60099.000 | 63104.00 | | |
| | | | 16th m | 5% | 63104.000 | 66259.00 | | |
| | | | 17th m | 5% | 66259.000 | 69572.00 | | |
| | | | 18th m | 5% | 69572.000 | 73051.00 | | |
| | | | 19th m | 5% | 73051.000 | 76704.00 | | |
| | | | 20th m | 5% | 76704.000 | 80539.00 | | |
| | | | Total Cost from 10m upto 20m | | 621895.000 | 652990.00 | | |
| | | | ***Avg Rate per metre*** | | ***62190.000*** | ***65299.00*** | | |
| **12.17 B** | | **(iv)** | **Beyond 20m upto 30 m** | | | | | |
| | | **a** | Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 5 per cent of cost for dewatering on the cost, if required | | | | | |
| | | **c** | Add 25 per cent of cost for Kentledge including supports, loading arrangement and Labour | | | Including 25% for Kentledge | Including 5% for dewatering, if required | |
| | | | 31st m | 7.5% | 82457.000 | 103071.00 | 108225.00 | |
| | | | 32nd m | 7.5% | 88641.000 | 110801.00 | 116341.00 | |
| | | | 33rd m | 7.5% | 95289.000 | 119111.00 | 125067.00 | |
| | | | 34th m | 7.5% | 102436.000 | 128045.00 | 134447.00 | |
| | | | 35th m | 7.5% | 110119.000 | 137649.00 | 144531.00 | |
| | | | 36th m | 7.5% | 118378.000 | 147973.00 | 155372.00 | |
| | | | 37th m | 7.5% | 127256.000 | 159070.00 | 167024.00 | |
| | | | 38th m | 7.5% | 136800.000 | 171000.00 | 179550.00 | |
| | | | 39th m | 7.5% | 147060.000 | 183825.00 | 193016.00 | |
| | | | 40th m | 7.5% | 158090.000 | 197613.00 | 207494.00 | |
| | | | Total Cost from 30m upto 40m | | 1166526.000 | 1458158.00 | 1531066.00 | |
| | | | ***Avg Rate per metre*** | | ***116653.000*** | ***145816.00*** | ***153107.00*** | |
| **12.17 B** | | **(v)** | **Beyond 30m upto 40 m** | | | | | |
| | | **a** | Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 5 per cent of cost for dewatering, if required | | | | | |
| | | **c** | Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour). | | | Including 20% for Kentledge | Including 5% for dewatering, if required | |
| | | | 31st m | 10% | 173899.000 | 208679.00 | 219113.00 | |
| | | | 32nd m | 10% | 191289.000 | 229547.00 | 241024.00 | |
| | | | 33rd m | 10% | 210418.000 | 252502.00 | 265127.00 | |
| | | | 34th m | 10% | 231460.000 | 277752.00 | 291640.00 | |
| | | | 35th m | 10% | 254606.000 | 305527.00 | 320803.00 | |
| | | | 36th m | 10% | 280067.000 | 336080.00 | 352884.00 | |
| | | | 37th m | 10% | 308074.000 | 369689.00 | 388173.00 | |
| | | | 38th m | 10% | 338881.000 | 406657.00 | 426990.00 | |
| | | | 39th m | 10% | 372769.000 | 447323.00 | 469689.00 | |
| | | | 40th m | 10% | 410046.000 | 492055.00 | 516658.00 | |
| | | | Total Cost from 30m upto 40m | | 2771509.000 | 3325811 | 3492101 | |
| | | | ***Avg Rate per metre*** | | ***277151.000*** | ***332581.00*** | ***349210.00*** | |
| **12.17** | | **C** | **Soft Rock (11m dia well )** | | | | | |
| | | | ***Unit = Running Meter.*** | | | | | |
| | | | ***Taking output = 0.50 m*** | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **Depth in soft rock strata upto 3m** | | | | | |
| | | | Rate of sinking @ 0.06 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.950 | 551.00 | 523.45 | L-12 |
| | | | Sinker ( skilled ) | day | 4.250 | 508.00 | 2159.00 | L-15 |
| | | | Sinking helper (semi-skilled) | day | 18.000 | 424.00 | 7632.00 | L-14 |
| | | | Diver | day | 1.500 | 869.00 | 1303.50 | L-07 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 8.000 | 1040.00 | 8320.00 | P&M-075 |
| | | | Air compressor with pneumatic breakers | hour | 4.500 | 723.00 | 3253.50 | P&M-063 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 1157.35 | |
| | | | Add for dewatering @ 5 per cent of cost, if required | | | | 636.54 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 5037.04 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 6004.48 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 3602.69 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 396.30 | |
| | | | Cost for 0.5m = a+b+c+d+e+f | | | | 40025.85 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/0.50** | | | | 80051.70 | |
| | | | | | | ***say*** | ***80052.00*** | |
| **12.17** | | **D** | **Hard Rock (11m dia well )** | | | | | |
| | | | ***Unit = Running Meter.*** | | | | | |
| | | | ***Taking output = 0.50 m*** | | | | | |
| | | | **Depth in hard rock upto 3 m** | | | | | |
| | | | Rate of sinking @ 0.05 m/hour | | | | | |
| | | | **a) Material** | | | | | |
| | | | Gelatine 80 per cent | Kg | 12.000 | 166.00 | 1992.00 | M-104 |
| | | | Electric Detonators | each. | 48.000 | 11.59 | 556.32 | M-094/100 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 1.350 | 551.00 | 743.85 | L-12 |
| | | | Driller | day | 2.000 | 551.00 | 1102.00 | L-06 |
| | | | Blaster | day | 0.250 | 551.00 | 137.75 | L-03 |
| | | | Mazdoor | day | 26.000 | 424.00 | 11024.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 4.000 | 508.00 | 2032.00 | L-15 |
| | | | **c) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 10.000 | 1040.00 | 10400.00 | P&M-075 |
| | | | Hire & running charges of compressor with pneumatic breaker/Jack hammer or drill | hour | 3.500 | 723.00 | 2530.50 | P&M-063 |
| | | | Dewatering @ 5 per cent of cost (c), if required. | | | | 646.53 | |
| | | | Consumables in sinking @ 10 per cent of cost of (b+c). | | | | 2797.01 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 6846.73 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 8161.74 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 4897.04 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 538.67 | |
| | | | Cost for 0.5m = a+b+c+d+e+f+g | | | | 54406.14 | |
| | | | **Rate per metre = (a+b+c+d)/0.50** | | | | 108812.28 | |
| | | | | | | ***say*** | ***108812.00*** | |
| **12.18** | 1200 | | **Sinking of 12 m external diameter well ( other than pneumatic method of sinking ) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.** | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | ***Unit = Running Meter*** | | | | | |
| | | | ***Taking output = 0.25 m*** | | | | | |
| | | | Diameter of well - 12 m. | | | | | |
| | | **A** | **Sandy Soil** | | | | | |
| | | **(i)** | **I) Depth below bed level upto 3.0 M** | | | | | |
| | | | Rate of sinking @ 0.05 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.220 | 551.00 | 121.22 | L-12 |
| | | | Sinker ( skilled ) | day | 1.750 | 508.00 | 889.00 | L-15 |
| | | | Sinking helper (semi-skilled) | day | 4.000 | 424.00 | 1696.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 6.000 | 1040.00 | 6240.00 | P&M-075 |
| | | | Consumables in sinking @10 per cent of (b) | | | | 624.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1929.36 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 2299.92 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1379.95 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 151.79 | |
| | | | Cost for 0.25m = a+b+c+d+e+f | | | | 15331.24 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/0.25** | | | | 61324.96 | |
| | | | | | | ***say*** | ***61325.00*** | |
| **12.18 A** | | **(ii)** | **Beyond 3m upto 10m depth** | | | | | |
| | | | Rate of sinking @ 0.038 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.370 | 551.00 | 203.87 | L-12 |
| | | | Sinker | day | 2.500 | 508.00 | 1270.00 | L-15 |
| | | | Sinking helper (semi-skilled) | day | 4.750 | 424.00 | 2014.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 6.500 | 1040.00 | 6760.00 | P&M-075 |
| | | | Consumables in sinking @10 per cent of (b) | | | | 676.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 2202.25 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 2625.22 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1575.13 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 173.26 | |
| | | | Cost for 0.25m = a+b+c+d+e+f | | | | 17499.73 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/0.25** | | | | 69998.92 | |
| | | | | | | ***say*** | ***69999.00*** | |
| **12.18 A** | | **(iii)** | **Beyond 10m upto 20m** | | | | | |
| | | **a** | Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | | 11th m | | 5% | 73499.000 | | |
| | | | 12th m | | 5% | 77174.000 | | |
| | | | 13th m | | 5% | 81032.700 | | |
| | | | 14th m | | 5% | 85084.335 | | |
| | | | 15th m | | 5% | 89338.552 | | |
| | | | 16th m | | 5% | 93805.480 | | |
| | | | 17th m | | 5% | 98495.754 | | |
| | | | 18th m | | 5% | 103420.542 | | |
| | | | 19th m | | 5% | 108591.569 | | |
| | | | 20th m | | 5% | 114021.147 | | |
| | | | Total Cost from 10m upto 20m | | | 924463.079 | | |
| | | | ***Avg Rate per metre*** | | | ***92446.000*** | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 12.18 A | | (iv) | **Beyond 20m upto 30 m** | | | | | |
| | | a | Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | b | Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour. | | | Including 20% for Kentledge | | |
| | | | 21st m | 7.5% | 122573.000 | 147088.00 | | |
| | | | 22nd m | 7.5% | 131766.000 | 158119.00 | | |
| | | | 23rd m | 7.5% | 141648.000 | 169978.00 | | |
| | | | 24th m | 7.5% | 152272.000 | 182726.00 | | |
| | | | 25th m | 7.5% | 163692.000 | 196430.00 | | |
| | | | 26th m | 7.5% | 175969.000 | 211163.00 | | |
| | | | 27th m | 7.5% | 189167.000 | 227000.00 | | |
| | | | 28th m | 7.5% | 203355.000 | 244026.00 | | |
| | | | 29th m | 7.5% | 218607.000 | 262328.00 | | |
| | | | 30th m | 7.5% | 235003.000 | 282004.00 | | |
| | | | Total Cost from 20m upto 30m | | 1734052.000 | 2080862.00 | | |
| | | | ***Avg Rate per metre*** | | ***173405.000*** | ***208086.00*** | | |
| 12.18 A | | (v) | **Beyond 30m upto 40 m** | | | | | |
| | | a | Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | b | Add 20 per cent of cost for Kentledge including supports, loading arrangement, and Labour etc. | | | Including 20% for Kentledge | | |
| | | | 31st m | 10% | 258503.000 | 310204.00 | | |
| | | | 32nd m | 10% | 284353.000 | 341224.00 | | |
| | | | 33rd m | 10% | 312788.000 | 375346.00 | | |
| | | | 34th m | 10% | 344067.000 | 412880.00 | | |
| | | | 35th m | 10% | 378474.000 | 454169.00 | | |
| | | | 36th m | 10% | 416321.000 | 499585.00 | | |
| | | | 37th m | 10% | 457953.000 | 549544.00 | | |
| | | | 38th m | 10% | 503748.000 | 604498.00 | | |
| | | | 39th m | 10% | 554123.000 | 664948.00 | | |
| | | | 40th m | 10% | 609535.000 | 731442.00 | | |
| | | | Total Cost from 30m upto 40m | | 4119865.000 | 4943840 | | |
| | | | ***Avg Rate per metre*** | | ***411987.000*** | ***494384.00*** | | |
| 12.18 | | B | **Clayey Soil (12 m dia. Well )** | | | | | |
| | | | ***Unit = Running Meter.*** | | | | | |
| | | | ***Taking output = 0.25 meter.*** | | | | | |
| | | (i) | **Depth below bed level upto 3.0 M** | | | | | |
| | | | Rate of sinking @ 0.04 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.300 | 551.00 | 165.30 | L-12 |
| | | | Sinker ( skilled ) | day | 3.000 | 508.00 | 1524.00 | L-15 |
| | | | Sinking helper (semi-skilled) | day | 4.500 | 424.00 | 1908.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 6.250 | 1040.00 | 6500.00 | P&M-075 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 650.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 2166.66 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 2582.79 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1549.68 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 170.46 | |
| | | | Cost for 0.25m = a+b+c+d+e+f | | | | 17216.89 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/0.25** | | | | 68867.56 | |
| | | | | | | ***say*** | ***68868.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 12.18 B | | (ii) | **Beyond 3m upto 10m depth** | | | | | |
| | | | Rate of sinking @ 0.03 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.480 | 551.00 | 264.48 | L-12 |
| | | | Sinker | day | 3.750 | 508.00 | 1905.00 | L-15 |
| | | | Sinking helper (semi-skilled) | day | 6.000 | 424.00 | 2544.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 8.330 | 1040.00 | 8663.20 | P&M-075 |
| | | | Air compressor with pneumatic chisel attachment for cutting hard clay. | hour | 4.500 | 723.00 | 3253.50 | P&M-063 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 1191.67 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3592.88 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 4282.95 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2569.77 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 282.67 | |
| | | | Cost for 0.25m = a+b+c+d+e+f | | | | 28550.12 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/0.25** | | | | 114200.48 | |
| | | | | | | | ***say*** ***114200.00*** | |
| 12.18 B | | (iii) | **Beyond 10 m upto 20 m** | | | | | |
| | | **a** | Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add for dewatering @ 5 per cent of cost, if required. | | | | Including for dewatering @ 5% of cost, if required | |
| | | | 11th m | 5% | 119911.000 | 125907.00 | | |
| | | | 12th m | 5% | 125907.000 | 132202.00 | | |
| | | | 13th m | 5% | 132202.000 | 138812.00 | | |
| | | | 14th m | 5% | 138812.000 | 145753.00 | | |
| | | | 15th m | 5% | 145753.000 | 153041.00 | | |
| | | | 16th m | 5% | 153041.000 | 160693.00 | | |
| | | | 17th m | 5% | 160693.000 | 168728.00 | | |
| | | | 18th m | 5% | 168728.000 | 177164.00 | | |
| | | | 19th m | 5% | 177164.000 | 186022.00 | | |
| | | | 20th m | 5% | 186022.000 | 195323.00 | | |
| | | | Total Cost from 10m upto 20m | | 1508233.000 | 1583645.00 | | |
| | | | ***Avg Rate per metre*** | | ***150823.000*** | ***158365.00*** | | |
| 12.18 B | | (iv) | **Beyond 20m upto 30 m** | | | | | |
| | | **a** | Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 5 per cent of cost for dewatering on the cost, if required | | | | | |
| | | **c** | Add 25 per cent of cost for Kentledge including supports, loading arrangement and Labour | | | Including 25% for Kentledge | Including 5% for dewatering, if required | |
| | | | 31st m | 7.5% | 199974.000 | 249968.00 | 262466.00 | |
| | | | 32nd m | 7.5% | 214972.000 | 268715.00 | 282151.00 | |
| | | | 33rd m | 7.5% | 231095.000 | 288869.00 | 303312.00 | |
| | | | 34th m | 7.5% | 248427.000 | 310534.00 | 326061.00 | |
| | | | 35th m | 7.5% | 267059.000 | 333824.00 | 350515.00 | |
| | | | 36th m | 7.5% | 287088.000 | 358860.00 | 376803.00 | |
| | | | 37th m | 7.5% | 308620.000 | 385775.00 | 405064.00 | |
| | | | 38th m | 7.5% | 331767.000 | 414709.00 | 435444.00 | |
| | | | 39th m | 7.5% | 356650.000 | 445813.00 | 468104.00 | |
| | | | 40th m | 7.5% | 383399.000 | 479249.00 | 503211.00 | |
| | | | Total Cost from 30m upto 40m | | 2829051.000 | 3536316 | 3713131 | |
| | | | ***Avg Rate per metre*** | | ***282905.000*** | ***353632.00*** | ***371313.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 12.18 B | | (v) | **Beyond 30m upto 40 m** | | | | | |
| | | a | Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | b | Add 5 per cent of cost for dewatering, if required | | | | | |
| | | c | Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour). | | | Including 20% for Kentledge | Including 5% for dewatering, if required | |
| | | | 31st m | 10% | 421739.000 | 506087.00 | 531391.00 | |
| | | | 32nd m | 10% | 463913.000 | 556696.00 | 584531.00 | |
| | | | 33rd m | 10% | 510304.000 | 612365.00 | 642983.00 | |
| | | | 34th m | 10% | 561334.000 | 673601.00 | 707281.00 | |
| | | | 35th m | 10% | 617467.000 | 740960.00 | 778008.00 | |
| | | | 36th m | 10% | 679214.000 | 815057.00 | 855810.00 | |
| | | | 37th m | 10% | 747135.000 | 896562.00 | 941390.00 | |
| | | | 38th m | 10% | 821849.000 | 986219.00 | 1035530.00 | |
| | | | 39th m | 10% | 904034.000 | 1084841.00 | 1139083.00 | |
| | | | 40th m | 10% | 994437.000 | 1193324.00 | 1252990.00 | |
| | | | Total Cost from 30m upto 40m | | 6721426.000 | 8065712 | 8468997 | |
| | | | ***Avg Rate per metre*** | | ***672143.000*** | ***806571.00*** | ***846900.00*** | |
| 12.18 | | C | **Soft Rock (12m dia well )** | | | | | |
| | | | ***Unit = Running Meter*** | | | | | |
| | | | ***Taking output = 0.25 m*** | | | | | |
| | | | **Depth in soft rock strata upto 3m** | | | | | |
| | | | Rate of sinking @ 0.025 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 1.060 | 551.00 | 584.06 | L-12 |
| | | | Sinker ( skilled ) | day | 4.500 | 508.00 | 2286.00 | L-15 |
| | | | Sinking helper (semi-skilled) | day | 20.000 | 424.00 | 8480.00 | L-14 |
| | | | Diver | day | 1.750 | 869.00 | 1520.75 | L-07 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 10.000 | 1040.00 | 10400.00 | P&M-075 |
| | | | Air compressor with pneumatic chisel attachment for cutting hard clay. | hour | 4.750 | 723.00 | 3434.25 | P&M-063 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 1383.43 | |
| | | | Add for dewatering @ 5 per cent, if required | | | | 760.88 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 5816.03 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 6933.08 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 4159.85 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 457.58 | |
| | | | Cost for 0.25m = a+b+c+d+e+f | | | | 46215.91 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/0.25** | | | | 184863.64 | |
| | | | | | | ***say*** | ***184864.00*** | |
| 12.18 | | D | **Hard Rock (12m dia well )** | | | | | |
| | | | ***Unit = Running Meter*** | | | | | |
| | | | ***Taking output = 0.25 m*** | | | | | |
| | | (i) | **Depth in hard rock strata upto 3 m** | | | | | |
| | | | Rate of sinking @ 0.020 m/hour | | | | | |
| | | | **a) Material** | | | | | |
| | | | Gelatine80 per cent | Kg | 14.000 | 166.00 | 2324.00 | M-104 |
| | | | Electric detonator | each. | 56.000 | 11.59 | 649.04 | M-094/100 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 1.440 | 551.00 | 793.44 | L-12 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Driller | day | 2.000 | 551.00 | 1102.00 | L-06 |
| | | | Blaster | day | 0.250 | 551.00 | 137.75 | L-03 |
| | | | Mazdoor | day | 28.000 | 424.00 | 11872.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 4.500 | 508.00 | 2286.00 | L-15 |
| | | | **c) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 12.500 | 1040.00 | 13000.00 | P&M-075 |
| | | | Hire & running charges of compressor with pneumatic breaker/Jack hammer or drill | hour | 4.000 | 723.00 | 2892.00 | P&M-063 |
| | | | Dewatering @ 5 per cent, if | | | | 794.60 | |
| | | | Consumables in sinking @ 10 per cent of (c). | | | | 1668.66 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 7563.93 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 9016.68 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 5410.01 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 595.10 | |
| | | | Cost for 0.25m = a+b+c+d+e+f+g | | | | 60105.21 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g)/0.25** | | | | 240420.84 | |
| | | | | | | | ***say*** ***240421.00*** | |
| **12.19** | 1200 | | **Sinking of Twin D Type well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.** | | | | | |
| | | | ***Unit = Running Meter*** | | | | | |
| | | | ***Taking output = 1 m*** | | | | | |
| | | | **Dimensions of well.** | | | | | |
| | | | Overall length = 12 m | | | | | |
| | | | Overall width = 6 m | | | | | |
| | | **A** | **Sandy Soil** | | | | | |
| | | **(i)** | **Depth from bed level upto 3.0 M** | | | | | |
| | | | Rate of sinking @ 0.18 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.200 | 551.00 | 110.20 | L-12 |
| | | | Sinker ( skilled ) | day | 1.250 | 508.00 | 635.00 | L-15 |
| | | | Sinking helper (semi-skilled) | day | 3.750 | 424.00 | 1590.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 5.500 | 1040.00 | 5720.00 | P&M-075 |
| | | | Consumables in sinking @10 per cent of (b) | | | | 572.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1739.24 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 2073.29 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1243.97 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 136.84 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 13820.54 | |
| | | | | | | | ***say*** ***13821.00*** | |
| **12.19 A** | | **(ii)** | **Beyond 3m upto 10m depth** | | | | | |
| | | | Rate of sinking @ 0.17 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.300 | 551.00 | 165.30 | L-12 |
| | | | Sinker | day | 1.500 | 508.00 | 762.00 | L-15 |
| | | | Sinking helper (semi-skilled) | day | 4.000 | 424.00 | 1696.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 5.880 | 1040.00 | 6115.20 | P&M-075 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Consumables in sinking @10 per cent of (b) | | | | 611.52 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1884.96 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 2247.00 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1348.20 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 148.30 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 14978.48 | |
| | | | | | | ***say*** | ***14978.00*** | |
| **12.19 A** | | **(iii)** | **Beyond 10m upto 20m** | | | | | |
| | | **a** | Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | | 11th m | 5% | 15727.000 | | | |
| | | | 12th m | 5% | 16513.000 | | | |
| | | | 13th m | 5% | 17339.000 | | | |
| | | | 14th m | 5% | 18206.000 | | | |
| | | | 15th m | 5% | 19116.000 | | | |
| | | | 16th m | 5% | 20072.000 | | | |
| | | | 17th m | 5% | 21076.000 | | | |
| | | | 18th m | 5% | 22130.000 | | | |
| | | | 19th m | 5% | 23237.000 | | | |
| | | | 20th m | 5% | 24399.000 | | | |
| | | | Total Cost from 10m upto 20m | | 197815.000 | | | |
| | | | ***Avg Rate per metre*** | | ***19782.000*** | | | |
| **12.19 A** | | **(iv)** | **Beyond 20m upto 30 m** | | | | | |
| | | **a** | Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour. | | | Including 20% for Kentledge | | |
| | | | 21st m | 7.5% | 26229.000 | 31475.00 | | |
| | | | 22nd m | 7.5% | 28196.000 | 33835.00 | | |
| | | | 23rd m | 7.5% | 30311.000 | 36373.00 | | |
| | | | 24th m | 7.5% | 32584.000 | 39101.00 | | |
| | | | 25th m | 7.5% | 35028.000 | 42034.00 | | |
| | | | 26th m | 7.5% | 37655.000 | 45186.00 | | |
| | | | 27th m | 7.5% | 40479.000 | 48575.00 | | |
| | | | 28th m | 7.5% | 43515.000 | 52218.00 | | |
| | | | 29th m | 7.5% | 46779.000 | 56135.00 | | |
| | | | 30th m | 7.5% | 50287.000 | 60344.00 | | |
| | | | Total Cost from 20m upto 30m | | 371063.000 | 445276.00 | | |
| | | | ***Avg Rate per metre*** | | ***37106.000*** | ***44528.00*** | | |
| **12.19 A** | | **(v)** | **Beyond 30m upto 40 m** | | | | | |
| | | **a** | Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add 20 per cent of cost for Kentledge including supports, loading arrangement, and Labour etc. | | | Including 20% for Kentledge | | |
| | | | 31st m | 10% | 55316.000 | 66379.00 | | |
| | | | 32nd m | 10% | 60848.000 | 73018.00 | | |
| | | | 33rd m | 10% | 66933.000 | 80320.00 | | |
| | | | 34th m | 10% | 73626.000 | 88351.00 | | |
| | | | 35th m | 10% | 80989.000 | 97187.00 | | |
| | | | 36th m | 10% | 89088.000 | 106906.00 | | |
| | | | 37th m | 10% | 97997.000 | 117596.00 | | |
| | | | 38th m | 10% | 107797.000 | 129356.00 | | |
| | | | 39th m | 10% | 118577.000 | 142292.00 | | |
| | | | 40th m | 10% | 130435.000 | 156522.00 | | |
| | | | Total Cost from 30m upto 40m | | 881606.000 | 1057927.00 | | |
| | | | ***Avg Rate per metre*** | | ***88161.000*** | ***105793.00*** | | |
| **12.19** | | **B** | **Clayey Soil (Twin D Type Well )** | | | | | |
| | | | ***Unit = Running Meter*** | | | | | |
| | | | ***Taking output = 1 meter*** | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | (i) | **Depth below bed level upto 3.0 M** | | | | | |
| | | | Rate of sinking @ 0.16 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.260 | 551.00 | 143.26 | L-12 |
| | | | Sinker ( skilled ) | day | 2.500 | 508.00 | 1270.00 | L-15 |
| | | | Sinking helper (semi-skilled) | day | 4.000 | 424.00 | 1696.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 6.250 | 1040.00 | 6500.00 | P&M-075 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 650.00 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 2068.27 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 2465.51 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1479.30 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 162.72 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 16435.06 | |
| | | | | | | ***say*** | ***16435.00*** | |
| **12.19 B** | | (ii) | **Beyond 3m upto 10m depth** | | | | | |
| | | | Rate of sinking @ 0.15 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.450 | 551.00 | 247.95 | L-12 |
| | | | Sinker | day | 3.250 | 508.00 | 1651.00 | L-15 |
| | | | Sinking helper (semi-skilled) | day | 6.000 | 424.00 | 2544.00 | L-14 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 6.670 | 1040.00 | 6936.80 | P&M-075 |
| | | | Air compressor with pneumatic chisel attachment for cutting hard clay. | hour | 4.500 | 723.00 | 3253.50 | P&M-063 |
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 1019.03 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3155.50 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 3761.56 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2256.93 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 248.26 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 25074.53 | |
| | | | | | | ***say*** | ***25075.00*** | |
| **12.19 B** | | (iii) | **Beyond 10 m upto 20 m** | | | | | |
| | | **a** | Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | **b** | Add for dewatering @ 5 per cent of cost, if required. | | | Including for dewatering @ 5% of cost, if required | | |
| | | | 11th m | 5% | 26328.000 | 27644.00 | | |
| | | | 12th m | 5% | 27644.000 | 29026.00 | | |
| | | | 13th m | 5% | 29026.000 | 30477.00 | | |
| | | | 14th m | 5% | 30477.000 | 32001.00 | | |
| | | | 15th m | 5% | 32001.000 | 33601.00 | | |
| | | | 16th m | 5% | 33601.000 | 35281.00 | | |
| | | | 17th m | 5% | 35281.000 | 37045.00 | | |
| | | | 18th m | 5% | 37045.000 | 38897.00 | | |
| | | | 19th m | 5% | 38897.000 | 40842.00 | | |
| | | | 20th m | 5% | 40842.000 | 42884.00 | | |
| | | | Total Cost from 10m upto 20m | | 331142.000 | 347698.00 | | |
| | | | ***Avg Rate per metre*** | | ***33114.000*** | ***34770.00*** | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 12.19 B | | (iv) | **Beyond 20m upto 30 m** | | | | | |
| | | a | Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | b | Add 5 per cent of cost for dewatering on the cost, if required | | | | | |
| | | c | Add 25 per cent of cost for Kentledge including supports, loading arrangement and Labour ). | | | Including 25% for Kentledge | Including 5% for dewatering, if required | |
| | | | 31st m | 7.5% | 43905.000 | 54881.00 | 57625.00 | |
| | | | 32nd m | 7.5% | 47198.000 | 58998.00 | 61948.00 | |
| | | | 33rd m | 7.5% | 50738.000 | 63423.00 | 66594.00 | |
| | | | 34th m | 7.5% | 54543.000 | 68179.00 | 71588.00 | |
| | | | 35th m | 7.5% | 58634.000 | 73293.00 | 76958.00 | |
| | | | 36th m | 7.5% | 63032.000 | 78790.00 | 82730.00 | |
| | | | 37th m | 7.5% | 67759.000 | 84699.00 | 88934.00 | |
| | | | 38th m | 7.5% | 72841.000 | 91051.00 | 95604.00 | |
| | | | 39th m | 7.5% | 78304.000 | 97880.00 | 102774.00 | |
| | | | 40th m | 7.5% | 84177.000 | 105221.00 | 110482.00 | |
| | | | Total Cost from 30m upto 40m | | 621131.000 | 776415.00 | 815237.00 | |
| | | | ***Avg Rate per metre*** | | ***62113.000*** | ***77642.00*** | ***81524.00*** | |
| 12.19 B | | (v) | **Beyond 30m upto 40 m** | | | | | |
| | | a | Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter | | | | | |
| | | b | Add 5 per cent of cost for dewatering, if required | | | | | |
| | | c | Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour). | | | Including 20% for Kentledge | Including 5% for dewatering, if | |
| | | | 31st m | 10% | 92595.000 | 111114.00 | 116670.00 | |
| | | | 32nd m | 10% | 101855.000 | 122226.00 | 128337.00 | |
| | | | 33rd m | 10% | 112041.000 | 134449.00 | 141171.00 | |
| | | | 34th m | 10% | 123245.000 | 147894.00 | 155289.00 | |
| | | | 35th m | 10% | 135570.000 | 162684.00 | 170818.00 | |
| | | | 36th m | 10% | 149127.000 | 178952.00 | 187900.00 | |
| | | | 37th m | 10% | 164040.000 | 196848.00 | 206690.00 | |
| | | | 38th m | 10% | 180444.000 | 216533.00 | 227360.00 | |
| | | | 39th m | 10% | 198488.000 | 238186.00 | 250095.00 | |
| | | | 40th m | 10% | 218337.000 | 262004.00 | 275104.00 | |
| | | | Total Cost from 30m upto 40m | | 1475742.000 | 1770890.00 | 1859434.00 | |
| | | | ***Avg Rate per metre*** | | ***147574.000*** | ***177089.00*** | ***185943.00*** | |
| 12.19 | | C | **Soft Rock (Twin D Type Well )** | | | | | |
| | | | ***Unit = Running Meter*** | | | | | |
| | | | ***Taking output = 1 m*** | | | | | |
| | | | **Depth in soft rock strata upto 3m** | | | | | |
| | | | Rate of sinking @ 0.12 m/hour | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.860 | 551.00 | 473.86 | L-12 |
| | | | Sinker ( skilled ) | day | 4.500 | 508.00 | 2286.00 | L-15 |
| | | | Sinking helper (semi-skilled) | day | 15.000 | 424.00 | 6360.00 | L-14 |
| | | | Diver | day | 1.500 | 869.00 | 1303.50 | L-07 |
| | | | **b) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 8.330 | 1040.00 | 8663.20 | P&M-075 |
| | | | Air compressor with pneumatic breakers | hour | 6.000 | 723.00 | 4338.00 | P&M-063 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Consumables in sinking @ 10 per cent of (b) | | | | 1300.12 | |
| | | | Add for dewatering @ 5 per cent, if required | | | | 715.07 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 5128.65 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 6113.68 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 3668.21 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 403.50 | |
| | | | **Rate per metre = (a+b+c+d+e+f)** | | | | 40753.79 | |
| | | | | | | ***say*** | ***40754.00*** | |
| **12.19** | | **D** | **Hard Rock (Twin D Type Well )** | | | | | |
| | | | ***Unit = Running Meter*** | | | | | |
| | | | ***Taking output = 1 m*** | | | | | |
| | | | **Depth in hard rock strata upto 3 m** | | | | | |
| | | | Rate of sinking @ 0.10 m/hour | | | | | |
| | | | **a) Material** | | | | | |
| | | | Geletine80 per cent | Kg | 10.000 | 166.00 | 1660.00 | M-104 |
| | | | Electric detonators | each. | 40.000 | 11.59 | 463.60 | M-094/100 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 1.340 | 551.00 | 738.34 | L-12 |
| | | | Driller | day | 2.000 | 551.00 | 1102.00 | L-06 |
| | | | Blaster | day | 0.250 | 551.00 | 137.75 | L-03 |
| | | | Mazdoor | day | 25.000 | 424.00 | 10600.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 4.250 | 508.00 | 2159.00 | L-15 |
| | | | **c) Machinery** | | | | | |
| | | | Hire & running charges of crane with grab bucket of 0.75 cum capacity and accessories. | hour | 10.000 | 1040.00 | 10400.00 | P&M-075 |
| | | | Hire & running charges of compressor with pneumatic breaker/Jack hammer or drill | hour | 3.000 | 723.00 | 2169.00 | P&M-063 |
| | | | Dewatering @ 5 per cent of cost of (b+c), if required. | | | | 1365.30 | |
| | | | Consumables in sinking @ 10 per cent of (b). | | | | 1393.43 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 6489.19 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 7735.52 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 4641.31 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 510.54 | |
| | | | **Rate per metre = (a+b+c+d+e+f+g)** | | | | 51564.98 | |
| | | | | | | ***say*** | ***51565.00*** | |
| **12.20** | **1200** | | **Pneumatic sinking of wells with equipment of approved design, drawing and specifications worked by competent and trained personnel and comprising of compression and decompression chambers, reducers, two air locks separately for men and plant & materials, arrangement for supply of fresh air to working chambers, check valves, exhaust valves, shafts made from steel plates of riveted construction not less than 6 mm thick to withstand an air pressure of 0.50 MPa, controlled blasting of hard rock where required, staircases and 1 m wide landing plateforms with railing, arrangement for compression and decompression, electric lighting of 50 V maximum, proper rooms for rest and medical examinations and compliance with safety precautions as per IS:4138, all as per clause1207.6 of MoRTH Specifications.** | | | | | |
| | | | ***Unit - 1 cum*** | | | | | |
| | | | ***Taking output = 5 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | M35 grade RCC corbel provided for supporting of equipment (Dimensions as per ground conditions). Rate may be adopted vide Item 12.8 (H) | Cum | 8.000 | 10874.00 | 86992.00 | Item 12.8 (H) |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | HYSD bar reinforcement in corbel | tonne | 0.480 | 67000.00 | 32160.00 | M-082 |
| | | | **Blasting material** | | | | | |
| | | | Gelatine 80 per cent | Kg | 1.500 | 166.00 | 249.00 | M-104 |
| | | | Electric detonators | each | 6.000 | 11.59 | 69.54 | M-094/100 |
| | | | **b) Labour** | | | | | |
| | | | Medical Officer | day | 0.500 | 1490.00 | 745.00 | L-16 |
| | | | Para medical personnel | day | 1.000 | 869.00 | 869.00 | L-19 |
| | | | Mate | day | 1.860 | 551.00 | 1024.86 | L-12 |
| | | | Driller | day | 1.000 | 551.00 | 551.00 | L-06 |
| | | | Blaster | day | 0.500 | 551.00 | 275.50 | L-03 |
| | | | Mazdoor (for cutting, blasting, cleaning, removal of Material etc.) | day | 30.000 | 424.00 | 12720.00 | L-13 |
| | | | Mazdoor (Skilled) (for fixation and removal of adopter for air lock, carrying out mechanical and electrical operations and repairs and other skilled jobs.) | day | 10.000 | 508.00 | 5080.00 | L-15 |
| | | | Diver | day | 4.000 | 869.00 | 3476.00 | L-07 |
| | | | **c) Machinery** | | | | | |
| | | | (i) Induction, deinduction and erection of plant and equipment including all components and accessories for pneumatic method of well sinking. | hour | 6.000 | input | | P&M-082 |
| | | | Induction and deinduction | L.S | | | 95000.00 | |
| | | | Erection at site and commissioning | L.S | | | 145000.00 | |
| | | | Usage of plant and equipment for pneumatic method of well sinking | hour | 6.000 | 5508.00 | 33048.00 | P&M-038 |
| | | | Air compressor 250 cfm, 2 nos. | hour | 2 x 6 | 658.00 | 7896.00 | P&M-001 |
| | | | Hire and running charges of crane of 15 tonne capacity | hour | 6.000 | 902.00 | 5412.00 | P&M-072 |
| | | | Motorised barge of 20 tonne capacity | hour | 6.000 | 2278.00 | 13668.00 | P&M-066 |
| | | | Boat to carry atleast 20 persons | hour | 6.000 | 2278.00 | 13668.00 | P&M-066 |
| | | | Electric generating set 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | Tipper 10 tonne capacity | hour | 6.000 | 916.00 | 5496.00 | P&M-048 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 76495.89 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 91187.96 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 54712.78 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 6018.41 | |
| | | | Cost for 5 cum = a+b+c+d+e+f+g (see notes below) | | | | 694850.94 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/5** | | | | 138970.19 | |
| | | | | | | ***say*** | ***138970.00*** | |

**Note**

1.The cost of induction, deinduction and erection of equipment shall be divided by the total quantity of pneumatic sinking for all the wells of a particular bridge to arrive at the per cum rate on account of this item.

2.Cost of pneumatic sinking per cum of individual wells will be added to the cost indicated at (1) above to arrive at the final rate of pneumatic sinking per cum.

3.The cost of induction and deinduction will depend upon the distance involved for shifting of equipment which may be assessed in individual cases as per actual ground conditions at the time of making of cost estimates.

4.In case pneumatic sinking is involved on a dry bed, the provision of barge and boat may be omitted.

5.The necessity and dimensions of the corbel will be as per actual ground conditions.

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | 6.Small equipments like welding sets, pumps, vibrators, pneumatic tools, portable lamps, fire extinguishers, hose pipes etc., have not been included as the same are covered as items of minor T&P under overhead charges. | | | | | |
| | | | 7.Depth of sinking shall be restricted to 30 m. | | | | | |
| **12.21** | 1207 | | **Sand Filling in Wells complete as per Drawing and Technical Specifications.** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Sand (assuming 20 per cent voids ) | cum | 1.200 | 650.00 | 780.00 | M-006 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| | | | Mazdoor | day | 0.300 | 424.00 | 127.20 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 184.00 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 219.34 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 131.61 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 14.48 | |
| | | | **Rate per cum (a+b+c+d+e+f)** | | | | 1462.14 | |
| | | | | | | ***say*** | ***1462.00*** | |
| **12.22** | 1200 & 1900 | | **Providing Steel Liner 10 mm thick for Curbs and 6 mm thick for Steining of Wells including Fabricating and Setting out as per Detailed Drawing.** | | | | | |
| | | | ***Unit = 1 MT*** | | | | | |
| | | | ***Taking output = 1 MT*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | i) Structural steel including 5 per cent wastage | tonne | 1.050 | 50728.00 | 53264.40 | M-179 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 1.240 | 551.00 | 683.24 | L-12 |
| | | | Fitter | day | 6.000 | 593.00 | 3558.00 | L-08 |
| | | | Blacksmith | day | 5.000 | 551.00 | 2755.00 | L-01 |
| | | | Welder | day | 5.000 | 593.00 | 2965.00 | L-02 |
| | | | Mazdoor | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | Electrodes, cutting gas and other consumables @ 5 per cent on cost a (a) above. | | | | 2663.22 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 14137.98 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 16853.37 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 10112.02 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 1112.32 | |
| | | | **Rate for per MT (a+b+c+d+e+f)** | | | | 112344.55 | |
| | | | | | | ***say*** | ***112345.00*** | |
| **12.23** | 1100 & 1700 | | **Bored cast-in-situ M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and Technical Specifications and removal of excavated earth with all lifts and lead upto 1000 m.** | | | | | |
| | | | **Pile diameter-750 mm** | | | | | |
| | | | ***Unit = meter*** | | | | | |
| | | | ***Taking output = 15 m*** | | | | | |
| | | | **a) Materials** | | | | | |
| | | | PCC Grade M35 | cum | 6.620 | 10965.00 | 72588.30 | Item 12.11 (C) iv |
| | | | Rate for concrete may be adopted same as for bottom plug vide item no. 12.11( C ) (IV) ( Including GST, OH, CP & Cess) | | | | | |
| | | | Concrete to be cast with a tremie pipe 200mm dia. | | | | | |
| | | | **b) Machinery( for boring and construction )** | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Hire and running charges of hydraulic piling rig with power unit and complete accessories including shifting from one bore location to another. | hour | 6.000 | 10129.00 | 60774.00 | P&M-036 |
| | | | Hire and running charges of light crane for lowering reinforcement cage | hour | 0.500 | 490.00 | 245.00 | P&M-013 |
| | | | Hire and running charges of Bentonite pump | hour | 6.000 | Rate included in piling rig | | |
| | | | Loader I cum bucket capacity. | hour | 0.300 | 1838.00 | 551.40 | P&M-017 |
| | | | Tipper 5.5 cum capacity for disposal of muck from pile bore hole | hour | 0.300 | 916.00 | 274.80 | P&M-048 |
| | | | Bentonite | kg | 300.000 | 14.00 | 4200.00 | M-071 |
| | | | **c) Labour** | | | | | |
| | | | Mate/Supervisor | day | 0.140 | 551.00 | 77.14 | L-12 |
| | | | Mazdoor | day | 3.500 | 424.00 | 1484.00 | L-13 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 13629.44 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 16247.16 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 9748.29 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1072.31 | |
| | | | Cost for 15 m = a+b+c+d+d+e+f+g | | | | 180891.84 | |
| | | | **Rate per metre (a+b+c+d+e+f+g)/15** | | | | 12059.46 | |
| | | | | | | ***say*** | ***12059.00*** | |
| **12.24** | 1100, 1600 & 1700 | | **Bored cast-in-situ M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and Technical Specifications and removal of excavated earth with all lifts and lead upto 1000 m.** | | | | | |
| | | | **Pile diameter-1000 mm** | | | | | |
| | | | ***Unit = meter*** | | | | | |
| | | | ***Taking output = 10 m*** | | | | | |
| | | | **a) Materials** | | | | | |
| | | | PCC Grade M35 | cum | 7.850 | 10965.00 | 86075.25 | Item 12.11 (C) iv |
| | | | **Rate for concrete may be adopted same as for bottom plug vide item no. 12.11( C ) (IV) ( Including GST, OH, CP & Cess)** | | | | | |
| | | | Concrete to be cast with a tremie pipe 200mm dia. | | | | | |
| | | | **b) Machinery( for boring and construction )** | | | | | |
| | | | Hire and running charges of hydraulic piling rig with power unit and complete accessories including shifting from one bore location to another. | hour | 6.000 | 10129.00 | 60774.00 | P&M-036 |
| | | | Hire and running charges of light crane for lowering reinforcement cage | hour | 0.500 | 490.00 | 245.00 | P&M-013 |
| | | | Hire and running charges of Bentonite pump | hour | 6.000 | Rate included in piling rig | | |
| | | | Loader I cum bucket capacity. | hour | 0.400 | 1838.00 | 735.20 | P&M-017 |
| | | | Tipper 5.5 cum capacity for disposal of muck from pile bore hole | hour | 0.400 | 916.00 | 366.40 | P&M-048 |
| | | | Bentonite | kg | 350.000 | 14.00 | 4900.00 | M-071 |
| | | | **c) Labour** | | | | | |
| | | | Mate/Supervisor | day | 0.160 | 551.00 | 88.16 | L-12 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Mazdoor | day | 4.000 | 424.00 | 1696.00 | L-13 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 13871.04 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 16535.16 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 9921.10 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1091.32 | |
| | | | Cost for 10 m = a+b+c+d+d+e+f+g | | | | 196298.63 | |
| | | | **Rate per metre (a+b+c+d+e+f+g)/10** | | | | 19629.86 | |
| | | | | | | ***say*** | ***19630.00*** | |
| **12.25** | 1100 & 1700 | | **Bored cast-in-situ M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and Technical Specifications and removal of excavated earth with all lifts and lead upto 1000 m.** | | | | | |
| | | | **Pile diameter-1200 mm** | | | | | |
| | | | ***Unit = meter*** | | | | | |
| | | | ***Taking output = 9 m*** | | | | | |
| | | | **a) Materials** | | | | | |
| | | | PCC Grade M35 | cum | 10.170 | 10965.00 | 111514.05 | Item 12.11 (C) iv |
| | | | Rate for concrete may be adopted same as for bottom plug vide item no. 12.11( C ) (IV) ( Including GST, OH, CP & Cess) Concrete to be cast with a tremie pipe 200mm dia. | | | | | |
| | | | **b) Machinery( for boring and construction )** | | | | | |
| | | | Hire and running charges of hydraulic piling rig with power unit and complete accessories including shifting from one bore location to another. | hour | 6.000 | 10129.00 | 60774.00 | P&M-036 |
| | | | Hire and running charges of light crane for lowering reinforcement cage | hour | 0.500 | 490.00 | 245.00 | P&M-013 |
| | | | Hire and running charges of Bentonite pump | hour | 6.000 | Rate included in piling rig | | |
| | | | Loader I cum bucket capacity. | hour | 0.500 | 1838.00 | 919.00 | P&M-017 |
| | | | Tipper 5.5 cum capacity for disposal of muck from pile bore hole | hour | 0.500 | 916.00 | 458.00 | P&M-048 |
| | | | Bentonite | kg | 385.000 | 14.00 | 5390.00 | M-071 |
| | | | **c) Labour** | | | | | |
| | | | Mate/Supervisor | day | 0.180 | 551.00 | 99.18 | L-12 |
| | | | Mazdoor | day | 4.500 | 424.00 | 1908.00 | L-13 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 14070.31 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 16772.70 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 10063.62 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1107.00 | |
| | | | Cost for 9 m = a+b+c+d+d+e+f+g | | | | 223320.86 | |
| | | | **Rate per metre (a+b+c+d+e+f+g)/9** | | | | 24813.43 | |
| | | | | | | ***say*** | ***24813.00*** | |
| **12.26** | 1100 & 1700 | | **Driven cast-in-place vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification** | | | | | |
| | | | **Pile diameter - 750 mm** | | | | | |
| | | | ***Unit = Running meter*** | | | | | |
| | | | ***Taking output = 40 metre*** | | | | | |
| | | | **a) Materials** | | | | | |
| | | | PCC Grade M35 | cum | 17.660 | 10965.00 | 193641.90 | Item 12.11 (C) iv |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Rate for concrete may be adopted same as for bottom plug vide item no. 12.11( C ) (IV) ( Including GST, OH, CP & Cess) | | | | | |
| | | | **b) Materials Pile shoes** | | | | | |
| | | | i) C.I. shoes for the pile | Kg | 160.000 | 66.00 | 10560.00 | M-080 |
| | | | ii) M.S. clamps for shoe @ 35 Kg per pile of 15 m | Kg | 70.000 | 257.00 | 17990.00 | M-124 |
| | | | iii) Steel helmet and cushion block on top of casing head during driving | Kg | 50.000 | 212.00 | 10600.00 | M-173 |
| | | | **c) Machinery** | | | | | |
| | | | Hire and running charges of piling rig Including double acting pile driving hammer complete with power unit and accessories.. | hour | 6.000 | 7335.00 | 44010.00 | P&M-085 |
| | | | Hiring and running charges for light crane 5 tonnes lifting capacity for lowering reinforcement and handling steel casing. | hour | 0.500 | 827.00 | 413.50 | P&M-070 |
| | | | **d) Labour** | | | | | |
| | | | Mate/Supervisor | day | 0.120 | 551.00 | 66.12 | L-12 |
| | | | Mazdoor | day | 3.000 | 424.00 | 1272.00 | L-13 |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 17118.18 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 20405.96 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 12243.58 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1346.79 | |
| | | | Cost for 40 m = a+b+c+d+e+f+g+h | | | | 329668.03 | |
| | | | **Rate per metre (a+b+c+d+e+f+g+h)/40** | | | | 8241.70 | |
| | | | | | | ***say*** | ***8242.00*** | |
| | | **Note** | 1.The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.<br>2.In case steel lining is included in the design for driven cast-in-situ pile and is planned to be retained, the same may be included in the rate analysis. In case the temporary steel casing used during casting is planned to be removed, an additional cost @ 0.50 per cent of cost of concrete may be provided to cover its usage. | | | | | |
| **12.27** | 1100 & 1700 | | **Driven cast-in-place vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification**<br>**Pile diameter - 1000 mm**<br>***Unit = Running meter***<br>***Taking output = 30 metre***<br>**a) Materials** | | | | | |
| | | | PCC Grade M35 | cum | 23.550 | 10965.00 | 258225.75 | Item 12.11 (C) iv |
| | | | **Rate for concrete may be adopted same as for bottom plug vide item no. 12.11( C ) (IV) ( Including GST, OH, CP & Cess)** | | | | | |
| | | | **b) Materials Pile shoes** | | | | | |
| | | | i) C.I. shoes for the pile | Kg | 160.000 | 66.00 | 10560.00 | M-080 |
| | | | ii) M.S. clamps for shoe @ 35 Kg per pile of 15 m | Kg | 70.000 | 257.00 | 17990.00 | M-124 |
| | | | iii) Steel helmet and cushion block on top of casing head during driving | Kg | 50.000 | 212.00 | 10600.00 | M-173 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **c) Machinery** | | | | | |
| | | | Hire and running charges of piling rig Including double acting pile driving hammer complete with power unit and accessories. | hour | 6.000 | 7335.00 | 44010.00 | P&M-085 |
| | | | Hiring and running charges for light crane 5 tonnes lifting capacity for lowering reinforcement and handling steel casing. | hour | 0.500 | 827.00 | 413.50 | P&M-070 |
| | | | Hire and running charges for light crane for lowering reinforcement cage. | hour | 0.500 | 490.00 | 245.00 | P&M-013 |
| | | | **d) Labour** | | | | | |
| | | | Mate/Supervisor | day | 0.160 | 551.00 | 88.16 | L-12 |
| | | | Mazdoor | day | 4.000 | 424.00 | 1696.00 | L-13 |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 17257.50 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 20572.03 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 12343.22 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1357.75 | |
| | | | Cost for 30 m = a+b+c+d+e+f+g+h | | | | 395358.91 | |
| | | | **Rate per metre (a+b+c+d+e+f+g+h)/30** | | | | 13178.63 | |
| | | | | | | ***say*** | ***13179.00*** | |
| | | **Note** | 1.The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.<br>2.In case steel lining is included in the design for driven cast-in-situ pile and is planned to be retained, the same may be included in the rate analysis. In case the temporary steel casing used during casting is planned to be removed, an additional cost @ 0.50 per cent of cost of concrete may be provided to cover its usage. | | | | | |
| **12.28** | 1100 & 1700 | | **Driven cast-in-place vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification**<br><br>**Pile diameter - 1200 mm**<br>***Unit = Running meter***<br>***Taking output = 20 metre*** | | | | | |
| | | | **a) Materials** | | | | | |
| | | | PCC Grade M35 | cum | 22.610 | 10965.00 | 247918.65 | Item 12.11 (C) iv |
| | | | **Rate for concrete may be adopted same as for bottom plug vide item no. 12.11( C ) (IV) ( Including GST, OH, CP & Cess)** | | | | | |
| | | | **b) Materials Pile shoes** | | | | | |
| | | | i) C.I. shoes for the pile | Kg | 160.000 | 66.00 | 10560.00 | M-080 |
| | | | ii) M.S. clamps for shoe @ 35 Kg per pile of 15 m | Kg | 70.000 | 257.00 | 17990.00 | M-124 |
| | | | iii) Steel helmet on top of casing head during driving | Kg | 50.000 | 212.00 | 10600.00 | M-173 |
| | | | **c) Machinery** | | | | | |
| | | | Hire and running charges of piling rig Including double acting pile driving hammer complete with power unit and accessories. | hour | 6.000 | 7335.00 | 44010.00 | P&M-085 |
| | | | Hiring and running charges for light crane 5 tonnes lifting capacity for lowering reinforcement and handling steel casing. | hour | 0.500 | 827.00 | 413.50 | P&M-070 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **d) Labour** | | | | | |
| | | | Mate/Supervisor | day | 0.180 | 551.00 | 99.18 | L-12 |
| | | | Mazdoor | day | 4.500 | 424.00 | 1908.00 | L-13 |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 17253.07 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 20566.75 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 12340.05 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1357.41 | |
| | | | Cost for 20 m = a+b+c+d+e+f+g+h | | | | 385016.61 | |
| | | | **Rate per metre (a+b+c+d+e+f+g+h)/20** | | | | 19250.83 | |
| | | | | | | ***say*** | ***19251.00*** | |
| | | **Note** | 1.The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.<br>2.In case steel lining is included in the design for driven cast-in-situ pile and is planned to be retained, the same may be included in the rate analysis. In case the temporary steel casing used during casting is planned to be removed, an additional cost @ 0.50 per cent of cost of concrete may be provided to cover its usage. | | | | | |
| **12.37** | 1100 | | **Pile Load Test on single Vertical Pile in accordance with IS:2911(Part-IV)** | | | | | |
| | | | ***Unit = 1 MT*** | | | | | |
| | | | ***Taking output = 1 MT*** | | | | | |
| | | | a) Initial and routine load test | tonne | 1.000 | 450.00 | | |
| | | | b) Lateral load test | tonne | 1.000 | 6400.00 | | |
| | | **Note** | Although, this item is incidental to work and is not required to be included in BOQ of contract, the same is required to be added in the estimate to assess cost of work. | | | | | |
| **12.38** | 1100 , 1500 & 1700 | | **Cement Concrete for Reinforced Concrete in Pile Cap complete as per Drawing and Technical Specification** | | | | | |
| | | **A** | **RCC Grade M20** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | **(i)** | **Using Concrete Mixer** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 5.120 | 9100.00 | 46592.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.900 | 551.00 | 495.90 | L-12 |
| | | | Mason | day | 1.500 | 551.00 | 826.50 | L-10 |
| | | | Mazdoor for concreting | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | Mazdoor for breaking pile head, bending bars, cleaning etc. | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator (capacity 33 KVA) | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | Formwork @ 4 per cent on cost of concrete i.e. cost of a) Material, b) Labour and c) Machinery | | | | 3643.92 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 19099.95 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 22768.35 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 13661.01 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1502.71 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g | | | | 151773.84 | |
| | | | **Rate per metre (a+b+c+d+e+f+g)/15** | | | | 10118.26 | |
| | | | | | | ***say*** | ***10118.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 12.38 A | | (ii) | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 5.120 | 9100.00 | 46592.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-004 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.160 | 551.00 | 88.16 | L-12 |
| | | | Mason | day | 0.380 | 551.00 | 209.38 | L-10 |
| | | | Mazdoor for concreting | day | 2.500 | 424.00 | 1060.00 | L-13 |
| | | | Mazdoor for breaking pile head, bending bars, cleaning etc. | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 0.75 | 3200.00 | 2400.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 0.75 | 938.00 | 703.50 | P&M-080 |
| | | | Loader (capacity 1 cum) | hour | 0.750 | 1838.00 | 1378.50 | P&M-017 |
| | | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | | Lead upto 1 Km | hour | 2.00 | 1265.00 | 2530.00 | P&M-049 |
| | | | Lead beyond 1 Km, L - lead in Kilometer | tonne. km | 37.5L | 80.00 | 0.00 | Lead =0 km & P&M-050 |
| | | | Concrete Pump | hour | 0.75 | 2726.00 | 2044.50 | P&M-007 |
| | | | Formwork @ 4 per cent on cost of concrete i.e. cost of a) Material, b) Labour and c) Machinery | | | | 3477.10 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 18225.58 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 21726.04 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 13035.63 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1433.92 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g | | | | 144825.81 | |
| | | | **Rate per metre (a+b+c+d+e+f+g)/15** | | | | 9655.05 | |
| | | | | | | ***say*** | ***9655.00*** | |
| | | **Note** | The value of a, b and c may be taken as applicable i.e. either using concrete mixer or batching plant. | | | | | |
| 12.38 | | **B** | **RCC Grade M25** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | **(i)** | **Using Concrete Mixer** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 5.990 | 9100.00 | 54509.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.900 | 551.00 | 495.90 | L-12 |
| | | | Mason | day | 1.500 | 551.00 | 826.50 | L-10 |
| | | | Mazdoor for concreting | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | Mazdoor for breaking pile head, bending bars, cleaning etc. | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator (capacity 33 KVA) | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Formwork @ 4 per cent on cost of concrete i.e. cost of a) Material, b) Labour and c) Machinery | | | | 3960.60 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 20759.86 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 24747.07 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 14848.24 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1633.31 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g | | | | 164963.98 | |
| | | | **Rate per metre (a+b+c+d+e+f+g)/15** | | | | 10997.60 | |
| | | | | | | ***say*** | ***10998.00*** | |
| **12.38B** | | **(ii)** | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 5.990 | 9100.00 | 54509.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-004 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.160 | 551.00 | 88.16 | L-12 |
| | | | Mason | day | 0.380 | 551.00 | 209.38 | L-10 |
| | | | Mazdoor for concreting | day | 2.500 | 424.00 | 1060.00 | L-13 |
| | | | Mazdoor for breaking pile head, bending bars, cleaning etc. | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 0.75 | 3200.00 | 2400.00 | P&M-002 |
| | | | Generator 125 KVA | hour | 0.75 | 1135.00 | 851.25 | P&M-018 |
| | | | Loader (capacity 1 cum) | hour | 0.750 | 1838.00 | 1378.50 | P&M-017 |
| | | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | | Lead upto 1 Km | hour | 2.00 | 1265.00 | 2530.00 | P&M-049 |
| | | | Lead beyond 1 Km, L - lead in Kilometer | tonne. km | 37.5L | 80.00 | 0.00 | Lead =0 km & P&M-050 |
| | | | Concrete Pump | hour | 0.75 | 2726.00 | 2044.50 | P&M-007 |
| | | | Formwork @ 4 per cent on cost of concrete i.e. cost of a) Material, b) Labour and c) Machinery | | | | 3799.69 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 19916.46 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 23741.69 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 14245.01 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1566.95 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g | | | | 158262.09 | |
| | | | **Rate per metre (a+b+c+d+e+f+g)/15** | | | | 10550.81 | |
| | | | | | | ***say*** | ***10551.00*** | |
| | | **Note** | The value of a, b and c may be taken as applicable i.e. either using concrete mixer or batching plant. | | | | | |
| **12.38** | | **C** | **RCC Grade M30** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | **(i)** | **Using Concrete Mixer** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 6.100 | 9100.00 | 55510.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.900 | 551.00 | 495.90 | L-12 |
| | | | Mason | day | 1.500 | 551.00 | 826.50 | L-10 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Mazdoor for concreting | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | Mazdoor for breaking pile head, bending bars, cleaning etc. | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator (capacity 33 KVA) | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | Formwork @ 4 per cent on cost of concrete i.e. cost of a) Material, b) Labour and c) Machinery | | | | 4000.64 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 20969.73 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 24997.25 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 14998.35 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1649.82 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g | | | | 166631.69 | |
| | | | **Rate per metre (a+b+c+d+e+f+g)/15** | | | | 11108.78 | |
| | | | | | | ***say*** | ***11109.00*** | |
| **12.38C** | | **(ii)** | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 6.100 | 9100.00 | 55510.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-004 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.160 | 551.00 | 88.16 | L-12 |
| | | | Mason | day | 0.380 | 551.00 | 209.38 | L-10 |
| | | | Mazdoor for concreting | day | 2.500 | 424.00 | 1060.00 | L-13 |
| | | | Mazdoor for breaking pile head, bending bars, cleaning etc. | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 0.75 | 3200.00 | 2400.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 0.75 | 938.00 | 703.50 | P&M-080 |
| | | | Loader (capacity 1 cum) | hour | 0.750 | 1838.00 | 1378.50 | P&M-017 |
| | | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | | Lead upto 1 Km | hour | 2.00 | 1265.00 | 2530.00 | P&M-049 |
| | | | Lead beyond 1 Km, L - lead in Kilometer | tonne. km | 37.5L | 80.00 | 0.00 | Lead =0 km & P&M-050 |
| | | | Concrete Pump | hour | 0.75 | 2726.00 | 2044.50 | P&M-007 |
| | | | Formwork @ 4 per cent on cost of concrete i.e. cost of a) Material, b) Labour and c) Machinery | | | | 3833.82 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 20095.36 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 23954.94 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 14372.97 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1581.03 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g | | | | 159683.66 | |
| | | | **Rate per metre (a+b+c+d+e+f+g)/15** | | | | 10645.58 | |
| | | | | | | ***say*** | ***10646.00*** | |
| | | **Note** | The value of a, b and c may be taken as applicable i.e. either using concrete mixer or batching plant. | | | | | |
| **12.38** | | **D** | **RCC Grade M35** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | **(i)** | **Using Concrete Mixer** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 6.330 | 9100.00 | 57603.00 | M-081 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.900 | 551.00 | 495.90 | L-12 |
| | | | Mason | day | 1.500 | 551.00 | 826.50 | L-10 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | Mazdoor for breaking pile head, bending bars, cleaning etc. | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator (capacity 33 KVA) | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | Formwork @ 4 per cent on cost of concrete i.e. cost of a) Material, b) Labour and c) Machinery | | | | 4084.36 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 21408.56 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 25520.36 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 15312.22 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1684.34 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g | | | | 170118.74 | |
| | | | **Rate per metre (a+b+c+d+e+f+g)/15** | | | | 11341.25 | |
| | | | | | | ***say*** | ***11341.00*** | |
| **12.38D** | | **(ii)** | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 6.330 | 9100.00 | 57603.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-004 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.160 | 551.00 | 88.16 | L-12 |
| | | | Mason | day | 0.380 | 551.00 | 209.38 | L-10 |
| | | | Mazdoor for concreting | day | 2.500 | 424.00 | 1060.00 | L-13 |
| | | | Mazdoor for breaking pile head, bending bars, cleaning etc. | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 0.750 | 3200.00 | 2400.00 | P&M-002 |
| | | | Generator 125 KVA | hour | 0.750 | 1135.00 | 851.25 | P&M-018 |
| | | | Loader (capacity 1 cum) | hour | 0.750 | 1838.00 | 1378.50 | P&M-017 |
| | | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | | Lead upto 1 Km | hour | 2.000 | 1265.00 | 2530.00 | P&M-049 |
| | | | Lead beyond 1 Km, L - lead in Kilometer | tonne. km | 37.5L | 80.00 | 0.00 | Lead =0 km & P&M-050 |
| | | | Concrete Pump | hour | 0.750 | 2726.00 | 2044.50 | P&M-007 |
| | | | Formwork @ 4 per cent on cost of concrete i.e. cost of a) Material, b) Labour and c) Machinery | | | | 3923.45 | |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 20565.16 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 24514.98 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 14708.99 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1617.99 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g | | | | 163416.86 | |
| | | | **Rate per metre (a+b+c+d+e+f+g)/15** | | | | 10894.46 | |
| | | | | | | ***say*** | ***10894.00*** | |
| **12.39** | 1100 & 1700 | | **Levelling Course for Pile cap** | | | | | |
| | | | **Providing and laying of PCC M15 levelling course 100mm thick below the pile cap.** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 4.130 | 9100.00 | 37583.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 40 mm aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-055 |
| | | | 20 mm Aggregate | cum | 4.050 | 1900.00 | 7695.00 | M-053 |
| | | | 10 mm Aggregate | cum | 1.350 | 1800.00 | 2430.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.860 | 551.00 | 473.86 | L-12 |
| | | | Mason | day | 1.500 | 551.00 | 826.50 | L-10 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 16540.85 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 19717.74 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 11830.65 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 1301.37 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g | | | | 131438.47 | |
| | | | **Rate per metre (a+b+c+d+e+f+g)/15** | | | | 8762.56 | |
| | | | | | | ***say*** | ***8763.00*** | |
| **12.40** | 1600 | | **Supplying, Fitting and Placing un-coated HYSD bar Reinforcement in Foundation complete as per Drawing and Technical Specifications.** | | | | | |
| | | | ***Unit = 1 MT*** | | | | | |
| | | | ***Taking output = 1 MT*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | HYSD bars including5 per cent overlaps and wastage | tonne | 1.050 | 67000.00 | 70350.00 | M-082 |
| | | | Binding wire | Kg | 6.000 | 105.00 | 630.00 | M-072 |
| | | | **b) Labour for cutting, bending, shifting to site, tying and placing in position** | | | | | |
| | | | Mate | day | 0.400 | 551.00 | 220.40 | L-12 |
| | | | Blacksmith | day | 2.000 | 593.00 | 1186.00 | L-02 |
| | | | Mazdoor | day | 6.000 | 424.00 | 2544.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 15105.97 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 18007.27 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 10804.36 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 1188.48 | |
| | | | Cost per MT = a+b+c+d+e+f | | | | 120036.48 | |
| | | | | | | ***say*** | **120036.48** | |
| **12.41** | 1600 | | **Supplying, fitting and placing un-coated Mild steel reinforcement complete in foundation as per drawing and technical specification** | | | | | |
| | | | ***Unit = 1 MT*** | | | | | |
| | | | ***Taking output = 1 MT*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | MS bars including 5 per cent overlaps and wastage | tonne | 1.050 | 67000.00 | 70350.00 | M-126 |
| | | | Binding wire | Kg | 6.000 | 105.00 | 630.00 | M-072 |
| | | | **b) Labour for straightening, cutting, bending, shifting to site, tying and placing in position** | | | | | |
| | | | Mate | day | 0.430 | 551.00 | 236.93 | L-12 |
| | | | Blacksmith | day | 2.250 | 593.00 | 1334.25 | L-02 |
| | | | Mazdoor | day | 6.500 | 424.00 | 2756.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 15181.93 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 18097.82 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 10858.69 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 1194.46 | |
| | | | **Rate for per MT (a+b+c+d+e+f)** | | | | 120640.08 | |
| | | | | | | ***say*** | ***120640.00*** | |
| **12.42** | **1900** | | **Providing and Installation of Steel driven Piles with corrosion resistant / Treated Structural Steel including welding of joints, fabrication of Shoe, Cap etc, as per detailed drawing and specification complete and as per direction of the Engineer in charge** | | | | | |
| | | | Unit= 1.00 MT | | | | | |
| | | | Analysis bas on ISWB 600, upto 40 metre depth | | | | | |
| | | | **a) Material** | | | | | |
| | | | Corrosion resistant structural steel Gusset plates welded for joints, shoe / cap arrangement. | tonne | 0.390 | 71000.00 | 27690.00 | M-087 |
| | | | Fabrication and placing in position charges for Corrosion resistant structural steel Gusset plates welded for joints, shoe / cap arrangement at site of work. | tonne | 0.390 | 75409.00 | 29409.51 | Rate in item 12.10 less Input M-179 |
| | | | Corrosion resistant structural steel ISWB 600 | tonne | 5.800 | 71000.00 | 411800.00 | M-087 |
| | | | Fabrication and placing in position charges for corrosion resistant structural steel ISWB 600 at site of work. | tonne | 5.800 | 75409.00 | 437372.20 | Rate in item 12.10 less Input M-179 |
| | | | **b) Materials for Pile shoes** | | | | | |
| | | | Steel helmet and cushion block on top of casing head during driving. | Kg | 50.000 | 212.00 | 10600.00 | M-173 |
| | | | **c) Machinery** | | | | | |
| | | | Hire and running charges of pilling rig including double acting pile driving hammer complete with power unit and accessories. | Hour | 6.000 | 7335.00 | 44010.00 | P&M-085 |
| | | | Hiring and running charges for light crane 5 tonnes lifting capacity for lowering reinforcement and handling steel casing. | Hour | 0.500 | 827.00 | 413.50 | P&M-070 |
| | | | **d) Labour** | | | | | |
| | | | Mate / Supervisor | | 0.180 | 551.00 | 99.18 | L-12 |
| | | | Mazdoor | | 4.500 | 424.00 | 1908.00 | L-13 |
| | | | **e) GST (multiplying factor 0.2016) on (b+c+d)** | | | | 11497.39 | |
| | | | **f) Overhead charges @ 20 % on (b+c+d+e)** | | | | 13705.61 | |
| | | | **g) Overhead charges @ 20 % on (b+c+d+e+f)** | | | | 8223.37 | |
| | | | **h) Cess @ 1% on (b+c+d+e+f+g)** | | | | 9967.29 | |
| | | | Cost for 40.00 metre (0.39 + 5.80 ) = 6.194 MT = a + b + c + d + e + f + g + h | | | Per 6.194 MT | 1006696.05 | |
| | | | Rate per metre (a+b+c+d+e+f+g+h)/(0.394+5.80) | | | Per 1.00 MT | 162527.62 | |
| | | | | | | Say | **162528.00** | |

## Chapter – 13

## SUBSTRUCTURE

**Preamble:**

1 Although, substructure are generally constructed in cement concrete, the rate for brick and stone masonry in CM 1:3 have also been included which can be adopted permitted by design.

2 The cost of formwork will vary with the height and cross-section of the substructure. Provision has been made accordingly.

3 Bridge bearing, being commercial item produced by specialised firms with imported technology and parts, the rates for the same are ascertained by quotation from the market for the approved design and technical specifications.

4 Filter media and backfilling behind abutment are required to be provided as per guidelines in IRC:78- 2000.

5 Weep holes shall be provided as per specifications.

6 In case of roller-cum-rocker bearings, only full circular rollers are to be provided.

7 Bearing shall be set truly level so as to have full and even seating.

8 For elastomeric bearings, the concrete surface shall be leveled such that the variation is not more than 1.5 mm from a straight edge placed in any direction across the area.

9 The bearing should be procured only from those manufacturers who have been prequalified by the Ministry of Road Transport and Highways.

10 The bottoms of girders resting on the bearing shall be plane and truly horizontal.

11 For spans in garde, the bearing shall be placed horizontal by using sole plates for suitbly designed RCC pedestals.

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 13.1 | 1300 & 2200 | | **Brick masonry work in 1:3 in sub-structure complete excluding pointing and plastering, as per drawing and Technical Specifications** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Bricks Ist class | each | 500.000 | 12.00 | 6000.00 | M-079 |
| | | | Cement mortar 1:3 (Rate as in Item 12.6 A sub-analysis) (Excluding GST,OH,CP &Cess) | cum | 0.240 | 5727.00 | 1374.48 | Item 12.6 (A) |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.060 | 551.00 | 33.06 | L-12 |
| | | | Mason | day | 0.800 | 593.00 | 474.40 | L-11 |
| | | | Mazdoor | day | 0.800 | 424.00 | 339.20 | L-13 |
| | | | Add for scaffolding @ 5 per cent of cost of material and labour | | | | 411.06 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1740.25 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 2074.49 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1244.69 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 136.92 | |
| | | | **Rate per cum (a+b+c+d+e+f)** | | | | 13828.55 | |
| | | | | | | ***say*** | ***13829.00*** | |
| 13.2 | 1300 & 2200 | | **Pointing with cement mortar (1:3 ) on brick work in substructure as per Technical Specifications** | | | | | |
| | | | ***Unit = 10 sqm*** | | | | | |
| | | | ***Taking output = 10 sqm*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement mortar 1:3 (Rate as in Item 12.6 )(Excluding GST,OH,CP &Cess) | cum | 0.030 | 5727.00 | 171.81 | Item 12.6 (A) |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mason | day | 0.500 | 593.00 | 296.50 | L-11 |
| | | | Mazdoor | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 141.59 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 168.79 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 101.27 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 11.14 | |
| | | | **Rate per 10 sqm (a+b+c+d+e+f)** | | | | 1125.14 | |
| | | | | | | ***say*** | ***112.50*** | |
| | **Note** | | Scaffolding is already included in item 13.1 | | | | | |
| 13.3 | 1300 & 2200 | | **Plastering with cement mortar (1:3 ) on brick work in sub-structure as per Technical Specifications** | | | | | |
| | | | ***Unit = 10 sqm*** | | | | | |
| | | | ***Taking output = 10 sqm*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement mortar 1:3 (Rate as in Item 12.6) (Excluding GST,OH,CP &Cess) | cum | 0.144 | 5727.00 | 824.69 | Item 12.6 (A) |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mason | day | 0.500 | 593.00 | 296.50 | L-11 |
| | | | Mazdoor | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 273.21 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 325.69 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 195.41 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 21.50 | |
| | | | **Rate per 10 sqm (a+b+c+d+e+f)** | | | | 2171.04 | |
| | | | | | | ***say*** | ***217.10*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | Note | | 1.Scaffolding is already included in item no. 13.1<br>2.The number of masons and Mazdoors already catered in the cement mortar have been taken into account while providing these categories in brick masonry, pointing and plastering. | | | | | |
| 13.4 | 1400 & 2200 | | **Stone masonry work in cement mortar 1:3 for substructure complete as per drawing and Technical Specifications** | | | | | |
| | | A | **Random Rubble Masonry**<br>( coursed/uncoursed )<br>***Unit = cum***<br>***Taking output = 1 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Stone | cum | 1.000 | 605.00 | 605.00 | M-148 |
| | | | Through and bond stone | No | 7.000 | 15.00 | 105.00 | M-182 |
| | | | (7no.x0.24mx0.24mx0.39m = 0.16 cu.m) | | | | | |
| | | | Cement mortar 1:3 (Rate as in Item 12.6) (Excluding GST,OH,CP &Cess) | cum | 0.330 | 5727.00 | 1889.91 | Item 12.6 (A) |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.100 | 551.00 | 55.10 | L-12 |
| | | | Mason | day | 1.200 | 593.00 | 711.60 | L-11 |
| | | | Mazdoor | day | 1.200 | 424.00 | 508.80 | L-13 |
| | | | Add for scaffolding @ 5 per cent of cost of a) Material and b) Labour | | | | 193.77 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 820.35 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 977.91 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 586.74 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 64.54 | |
| | | | **Rate per cum (a+b+c+d)** | | | | 6518.72 | |
| | | | | | | ***say*** | ***6519.00*** | |
| 13.4 | | B | **Coursed rubble masonry (first sort )**<br>***Unit = cum***<br>***Taking output = 1 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Stone | cum | 1.100 | 605.00 | 665.50 | M-148 |
| | | | Through and bond stone | each | 7.000 | 15.00 | 105.00 | M-182 |
| | | | (7no.x0.24mx0.24mx0.39m = 0.16 cu.m) | | | | | |
| | | | Cement mortar 1:3 (Rate as in Item 12.6) (Excluding GST,OH,CP &Cess) | cum | 0.300 | 5727.00 | 1718.10 | Item 12.6 (A) |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.120 | 551.00 | 66.12 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 1.500 | 424.00 | 636.00 | L-13 |
| | | | Add for scaffolding @ 5 per cent of cost of material and labour | | | | 204.01 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 863.70 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 1029.59 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 617.75 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 67.95 | |
| | | | **Rate per cum (a+b+c+d+e+f)** | | | | 6863.22 | |
| | | | | | | ***say*** | ***6863.00*** | |
| 13.4 | | C | **Ashlar masonry ( first sort )** | | | | | |
| | | | **Plain ashlar**<br>***Unit = cum***<br>***Taking output = 1 cum*** | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **a) Material** | | | | | |
| | | | Stone | cum | 1.110 | 605.00 | 671.55 | M-169 |
| | | | Through and bond stone (7no.x0.24mx0.24mx0.39m = 0.16 cu.m) | each | 7.000 | 15.00 | 105.00 | M-182 |
| | | | Cement mortar 1:3 (Rate as in Item 12.6) (Excluding GST,OH,CP &Cess) | cum | 0.330 | 5727.00 | 1889.91 | Item 12.6 (A) |
| | | | **b) Labour for masonry work** | | | | | |
| | | | Mate | day | 0.200 | 551.00 | 110.20 | L-12 |
| | | | Mason | day | 2.500 | 593.00 | 1482.50 | L-11 |
| | | | Mazdoor | day | 2.500 | 424.00 | 1060.00 | L-13 |
| | | | Add for scaffolding @ 5 per cent of cost of a) Material and b) Labour | | | | 265.96 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1125.96 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 1342.22 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 805.33 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 88.59 | |
| | | | **Rate per cum (a+b+c+d+e+f)** | | | | 8947.22 | |
| | | | | | | ***say*** | ***8947.00*** | |
| | **Note** | | The labour already considered in the cement mortar have been taken into account while providing these categories in the stone masonry works. | | | | | |
| **13.5** | **1500, 1700 & 2200** | | **Plain/Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | **A** | **PCC Grade M15** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | Same as Item 12.8 (A) upto 5 m height, except for formwork which shall be 10 per cent instead of 4 per cent of cost of material, labour and machinery. | | | | | |
| | | | Per Cum Basic Cost of Labour, Material & Machinery **(a+b+c)** of Item 12.8 (A) (Excluding GST,OH,CP &Cess) | | | | 5625.00 | Item 12.8 (A) |
| | | | **d) formwork** | | | | | |
| | | | Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 10.000 | | 562.50 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1247.40 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1486.98 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 892.19 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 98.14 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 9912.21 | |
| | | | | | | ***say*** | ***9912.00*** | |
| **13.5** | | **B** | **PCC Grade M20** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | Same as Item 12.8 (B) PCC upto 5 m height, except for formwork which shall be 10 per cent instead of 4 per cent of cost of material, labour and machinery. | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (B) (Excluding GST,OH,CP &Cess)** | | | | 6090.00 | Item 12.8 (B) PCC |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **d) formwork** | | | | | |
| | | | Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 10.000 | | 609.00 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1350.52 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1609.90 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 965.94 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 106.25 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 10731.61 | |
| | | | | | | ***say*** | ***10732.00*** | |
| **13.5** | | **C** | **PCC Grade M25** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | Same as Item 12.8 (D) upto 5 m height with the only change that the provision of form work shall be 10 per cent instead of 3.75 per cent of cost of material, labour and machinery. | | | | | |
| | | Case I | **Using concrete Mixer** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (D) Case I (excluding GST,OH,CP &Cess)** | | | | 6594.00 | Item 12.8 (D) Case I |
| | | | **d) formwork** | | | | | |
| | | | Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 10.000 | | 659.40 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1462.29 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1743.14 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1045.88 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 115.05 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11619.76 | |
| | | | | | | ***say*** | ***11620.00*** | |
| **13.5 C (p)** | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (D) Case II (excluding GST,OH,CP &Cess)** | | | | 6297.00 | Item 12.8 (D) Case II |
| | | | **d) formwork** | | | | | |
| | | | Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 10.000 | | 629.70 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1396.42 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1664.62 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 998.77 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 109.87 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11096.38 | |
| | | | | | | ***say*** | ***11096.00*** | |
| **13.5 C** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | Same as Item 12.8 (D) with the following changes: (i) Add 2 per cent of cost of material, Labour and machinery excluding form work to cater for extra lift. (ii) The provision of form work shall be 12 per cent instead of 3.75 per cent of cost of material, labour and machinery | | | | | |
| | | Case I | **Using concrete Mixer** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (D) Case I (Excluding GST,OH,CP &Cess)** | | | | 6594.00 | Item 12.8 (D) Case I |
| | | | **d) formwork** | | | | | |
| | | | Add 12 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 12.000 | | 791.28 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Add 2 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 2.000 | | 131.88 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1515.46 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1806.52 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1083.91 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 119.23 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 12042.28 | |
| | | | | | | ***say*** | ***12042.00*** | |
| **13.5 C (q)** | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (D) Case II (Excluding GST,OH,CP &Cess)** | | | | 6297.00 | |
| | | | **d) formwork** | | | | | |
| | | | Add 12 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 12.000 | | 755.64 | |
| | | | Add 2 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 2.000 | | 125.94 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1447.20 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1725.16 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1035.09 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 113.86 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11499.89 | |
| | | | | | | ***say*** | ***11500.00*** | |
| **13.5 C** | | **(r)** | **Height above 10m** | | | | | |
| | | | Same as Item 12.8 (D) with the following changes: (i) Add 4 per cent of cost of material, labour and machinery excluding form work to cater for extra lift. (ii) The provision of form work shall be 15 per cent instead of 3.75 per cent of cost of material, labour and machinery. | | | | | |
| | | Case I | **Using concrete Mixer** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (D) Case I (Excluding GST,OH,CP &Cess)** | | | | 6594.00 | Item 12.8 (D) Case I |
| | | | **d) formwork** | | | | | |
| | | | Add 15 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 15.000 | | 989.10 | |
| | | | Add 4 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 4.000 | | 263.76 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1581.93 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1885.76 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1131.46 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 124.46 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 12570.47 | |
| | | | | | | ***say*** | ***12570.00*** | |
| **13.5 C (r)** | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (D) Case II (Excluding GST,OH,CP &Cess)** | | | | 6297.00 | Item 12.8 (D) Case II |
| | | | **d) formwork** | | | | | |
| | | | Add 15 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 15.000 | | 944.55 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Add 4 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 4.000 | | 251.88 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1510.68 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1800.82 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1080.49 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 118.85 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 12004.27 | |
| | | | | | | ***say*** | ***12004.00*** | |
| **13.5** | | **D** | **PCC Grade M30** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | Same as Item 12.8 (F) upto 5 m height with the only change that the provision of form work shall be 10 per cent instead of 3.50 per cent of cost of material, labour and machinery. | | | | | |
| | | Case I | **Using concrete Mixer** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (F) Case I (Excluding GST,OH,CP &Cess)** | | | | 6649.00 | 12.8 (F) Case I |
| | | | **d) formwork** | | | | | |
| | | | Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 10.000 | | 664.90 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1474.48 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1757.68 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1054.61 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 116.01 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11716.68 | |
| | | | | | | ***say*** | ***11717.00*** | |
| **13.5 D (p)** | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (F) Case II (Excluding GST,OH,CP &Cess)** | | | | 6346.00 | 12.8 (F) Case II |
| | | | **d) formwork** | | | | | |
| | | | Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 10.000 | | 634.60 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1407.29 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1677.58 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1006.55 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 110.72 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11182.74 | |
| | | | | | | ***say*** | ***11183.00*** | |
| **13.5 D** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | Same as Item 12.8 (F) with the following changes: (i) Add 2 per cent of cost of material, Labour and machinery excluding form work to cater for extra lift. (ii) The provision of form work shall be 12 per cent instead of 3.50 per cent of cost of material, labour and machinery. | | | | | |
| | | Case I | **Using concrete Mixer** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (F) Case I (Excluding GST,OH,CP &Cess)** | | | | 6649.00 | 12.8 (F) Case I |
| | | | **d) formwork** | | | | | |
| | | | Add 12 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 12.000 | | 797.88 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Add 2 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 2.000 | | 132.98 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1528.10 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1821.59 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1092.96 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 120.23 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 12142.74 | |
| | | | | | | ***say*** | ***12143.00*** | |
| **13.5 D (q)** | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (F) Case II (Excluding GST,OH,CP &Cess)** | | | | 6346.00 | Item 12.8 (F) Case II |
| | | | **d) formwork** | | | | | |
| | | | Add 12 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 12.000 | | 761.52 | |
| | | | Add 2 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 2.000 | | 126.92 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1458.46 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1738.58 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1043.15 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 114.75 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11589.38 | |
| | | | | | | ***say*** | ***11589.00*** | |
| **13.5 D** | | **(r)** | **Height above 10m** | | | | | |
| | | | Same as Item 12.8 (F) with the following changes: (i) Add 4 per cent of cost of material, labour and machinery excluding form work to cater for extra lift. (ii) The provision of form work shall be 15 per cent instead of 3.50 per cent of cost of material, labour and machinery | | | | | |
| | | Case I | **Using concrete Mixer** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (F) Case I (Excluding GST,OH,CP &Cess)** | | | | 6649.00 | 12.8 (F) |
| | | | **d) formwork** | | | | | |
| | | | Add 15 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 15.000 | | 997.35 | |
| | | | Add 4 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 4.000 | | 265.96 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1595.12 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1901.49 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1140.89 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 125.50 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 12675.31 | |
| | | | | | | ***say*** | ***12675.00*** | |
| **13.5 D (r)** | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (F) Case II (Excluding GST,OH,CP &Cess)** | | | | 6346.00 | Item 12.8 (F) Case II |
| | | | **d) formwork** | | | | | |
| | | | Add 15 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 15.000 | | 951.90 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Add 4 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 4.000 | | 253.84 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1522.43 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1814.83 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1088.90 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 119.78 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 12097.68 | |
| | | | | | | ***say*** | ***12098.00*** | |
| **13.5** | | **E** | **RCC Grade M20** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | Same as Item 12.8 (C) upto 5 m height, except for formwork which shall be 10 per cent instead of 4 per cent of cost of material, labour and machinery. | | | | | |
| | | Case I | **Using concrete Mixer** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (C) Case I (Excluding GST,OH,CP &Cess)** | | | | 6103.00 | Item 12.8 (C) Case I |
| | | | **d) formwork** | | | | | |
| | | | Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 10.000 | | 610.30 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1353.40 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1613.34 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 968.00 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 106.48 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 10754.52 | |
| | | | | | | ***say*** | ***10755.00*** | |
| **13.5 E (p)** | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (C) Case II (Excluding GST,OH,CP &Cess)** | | | | 5802.00 | Item 12.8 (C) Case II |
| | | | **d) formwork** | | | | | |
| | | | Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 10.000 | | 580.20 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1286.65 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1533.77 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 920.26 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 101.23 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 10224.11 | |
| | | | | | | ***say*** | ***10224.00*** | |
| **13.5 E** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | For height, upto 10m, add 2 per cent of cost as above excluding formwork. For cost of formwork add 12 per cent of cost of material, labour and machinery instead of 4 per cent . | | | | | |
| | | Case I | **Using concrete Mixer** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (C) Case I (Excluding GST,OH,CP &Cess)** | | | | 6103.00 | Item 12.8 (C) Case I |
| | | | **d) formwork** | | | | | |
| | | | Add 12 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 12.000 | | 732.36 | |
| | | | Add 2 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 2.000 | | 122.06 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1402.62 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1672.01 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1003.21 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 110.35 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11145.61 | |
| | | | | | | ***say*** | ***11146.00*** | |
| **13.5 E (q)** | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (C) Case II (Excluding GST,OH,CP &Cess)** | | | | 5802.00 | Item 12.8 (C) Case II |
| | | | **d) formwork** | | | | | |
| | | | Add 12 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 12.000 | | 696.24 | |
| | | | Add 2 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 2.000 | | 116.04 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1333.44 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1589.54 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 953.73 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 104.91 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 10595.90 | |
| | | | | | | ***say*** | ***10596.00*** | |
| **13.5 E** | | **(r)** | **Height above 10m**<br>Same as Item 12.8 (C) with the following changes: (i) Add 4 per cent of cost of material, labour and machinery excluding form work to cater for extra lift. (ii) The provision of form work shall be 15 per cent instead of 4 per cent of cost of material, labour and machinery. | | | | | |
| | | Case I | **Using concrete Mixer** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (C) Case I (Excluding GST,OH,CP &Cess)** | | | | 6103.00 | Item 12.8 (C) Case I |
| | | | **d) formwork** | | | | | |
| | | | Add 15 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 15.000 | | 915.45 | |
| | | | Add 4 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 4.000 | | 244.12 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1464.13 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1745.34 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1047.20 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 115.19 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11634.43 | |
| | | | | | | ***say*** | ***11634.00*** | |
| **13.5 E (r)** | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (C) Case II (Excluding GST,OH,CP &Cess)** | | | | 5802.00 | Item 12.8 (C) Case II |
| | | | **d) formwork** | | | | | |
| | | | Add 15 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 15.000 | | 870.30 | |
| | | | Add 4 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 4.000 | | 232.08 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1391.92 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1659.26 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 995.56 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 109.51 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11060.63 | |
| | | | | | | ***say*** | ***11061.00*** | |
| **13.5** | | **F** | **RCC Grade M25** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | Same as Item 12.8 (E) upto 5m height, excluding formwork. For cost of formwork, add 10 per cent of cost of material, labour and machinery instead of 3.75 per cent . | | | | | |
| | | Case I | **Using concrete Mixer** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (E) Case I (Excluding GST,OH,CP &Cess)** | | | | 6612.00 | Item 12.8 (E) Case I |
| | | | **d) formwork** | | | | | |
| | | | Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 10.000 | | 661.20 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1466.28 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1747.90 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1048.74 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 115.36 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11651.48 | |
| | | | | | | ***say*** | ***11651.00*** | |
| **13.5 F (p)** | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (E) Case II (Excluding GST,OH,CP &Cess)** | | | | 6415.00 | Item 12.8 (E) Case II |
| | | | **d) formwork** | | | | | |
| | | | Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 10.000 | | 641.50 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1422.59 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1695.82 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1017.49 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 111.92 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11304.32 | |
| | | | | | | ***say*** | ***11304.00*** | |
| **13.5 F** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | For height, upto 10m, add 1.8 per cent of cost as above excluding formwork. For cost of formwork add 11.8 per cent of cost of material, labour and machinery | | | | | |
| | | Case I | **Using concrete Mixer** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (E) Case I (Excluding GST,OH,CP &Cess)** | | | | 6612.00 | Item 12.8 (E) Case I |
| | | | **d) formwork** | | | | | |
| | | | Add 11.8 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 11.800 | | 780.22 | |
| | | | Add 1.8 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 1.800 | | 119.02 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1514.27 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1805.10 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1083.06 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 119.14 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 12032.81 | |
| | | | | | | ***say*** | ***12033.00*** | |
| **13.5 F (q)** | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (E) Case II (Excluding GST,OH,CP &Cess)** | | | | 6415.00 | Item 12.8 (E) Case II |
| | | | **d) formwork** | | | | | |
| | | | Add 11.8 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 11.800 | | 756.97 | |
| | | | Add 1.8 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 1.800 | | 115.47 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1469.15 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1751.32 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1050.79 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 115.59 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11674.29 | |
| | | | | | | ***say*** | ***11674.00*** | |
| **13.5 F** | | **(r)** | **Height above 10m** | | | | | |
| | | | For height, above 10m, add 4 per cent of cost as above excluding formwork. For cost of formwork add 15 per cent of cost of material, labour and machinery | | | | | |
| | | Case I | **Using concrete Mixer** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (E) Case I (Excluding GST,OH,CP &Cess)** | | | | 6612.00 | Item 12.8 (E) Case I |
| | | | **d) formwork** | | | | | |
| | | | Add 15 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 15.000 | | 991.80 | |
| | | | Add 4 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 4.000 | | 264.48 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1586.25 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1890.91 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1134.54 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 124.80 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 12604.78 | |
| | | | | | | ***say*** | ***12605.00*** | |
| **13.5 F (r)** | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (E) Case II (Excluding GST,OH,CP &Cess)** | | | | 6415.00 | Item 12.8 (E) Case II |
| | | | **d) formwork** | | | | | |
| | | | Add 15 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 15.000 | | 962.25 | |
| | | | Add 4 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 4.000 | | 256.60 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1538.98 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1834.57 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1100.74 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 121.08 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 12229.22 | |
| | | | | | | ***say*** | ***12229.00*** | |
| **13.5** | | **G** | **RCC Grade M30** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | Same as Item 12.8 (G) upto 5m height, excluding formwork. For cost of formwork, add 10 per cent of cost of material, labour and machinery instead of 3.5 per cent . | | | | | |
| | | Case I | **Using concrete Mixer** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (G) Case I (Excluding GST,OH,CP &Cess)** | | | | 6643.00 | Item 12.8 (G) Case I |
| | | | **d) formwork** | | | | | |
| | | | Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 10.000 | | 664.30 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1473.15 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1756.09 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1053.65 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 115.90 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11706.09 | |
| | | | | | | ***say*** | ***11706.00*** | |
| **13.5 G (p)** | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (G) Case II (Excluding GST,OH,CP &Cess)** | | | | 6343.00 | Item 12.8 (G) Case II |
| | | | **d) formwork** | | | | | |
| | | | Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 10.000 | | 634.30 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1406.62 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1676.78 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1006.07 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 110.67 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11177.44 | |
| | | | | | | ***say*** | ***11177.00*** | |
| **13.5 G** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | For height, upto 10m, add 1.6 per cent of cost as above excluding formwork. For cost of formwork add 11.5 per cent of cost of material, labour and machinery | | | | | |
| | | Case I | **Using concrete Mixer** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (G) Case I (Excluding GST,OH,CP &Cess)** | | | | 6643.00 | Item 12.8 (G) Case I |
| | | | **d) formwork** | | | | | |
| | | | Add 11.5 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 11.500 | | 763.95 | |
| | | | Add 1.6 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 1.600 | | 106.29 | |
| | | | **e) GST (multiplying factor 0.2016) (a+b+c+d)** | | | | 1514.67 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1805.58 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1083.35 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 119.17 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 12036.01 | |
| | | | | | | ***say*** | ***12036.00*** | |
| **13.5 G (q)** | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (G) Case II (Excluding GST,OH,CP &Cess)** | | | | 6343.00 | Item 12.8 (G) Case II |
| | | | **d) formwork** | | | | | |
| | | | Add 11.5 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 11.500 | | 729.45 | |
| | | | Add 1.6 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 1.600 | | 101.49 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1446.27 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1724.04 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1034.43 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 113.79 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11492.47 | |
| | | | | | | ***say*** | ***11492.00*** | |
| **13.5 G** | | **(r)** | **Height above 10m** | | | | | |
| | | | For height, above 10m, add 3.5 per cent of cost as above excluding formwork. For cost of formwork add 14 per cent of cost of material, labour and machinery | | | | | |
| | | Case I | **Using concrete Mixer** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (G) Case I (Excluding GST,OH,CP &Cess)** | | | | 6643.00 | Item 12.8 (G) Case I |
| | | | **d) formwork** | | | | | |
| | | | Add 14 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 14.000 | | 930.02 | |
| | | | Add 3.5 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 3.500 | | 232.51 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1573.59 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1875.82 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1125.49 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 123.80 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 12504.23 | |
| | | | | | | ***say*** | ***12504.00*** | |
| **13.5 G (r)** | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (G) Case II (Excluding GST,OH,CP &Cess)** | | | | 6343.00 | Item 12.8 (G) Case II |
| | | | **d) formwork** | | | | | |
| | | | Add 14 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 14.000 | | 888.02 | |
| | | | Add 3.5 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 3.500 | | 222.01 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1502.53 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1791.11 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1074.67 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 118.21 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11939.55 | |
| | | | | | | ***say*** | ***11940.00*** | |
| **13.5** | | **H** | **RCC Grade M35** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | Same as Item 12.8 (H) upto 5m height, excluding formwork. For cost of formwork, add 10 per cent of cost of material, labour and machinery instead of 3 per cent . | | | | | |
| | | Case I | **Using concrete Mixer** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (H) Case I (Excluding GST,OH,CP &Cess)** | | | | 6782.00 | Item 12.8 (H) Case I |
| | | | **d) formwork** | | | | | |
| | | | Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 10.000 | | 678.20 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1503.98 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1792.84 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1075.70 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 118.33 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11951.05 | |
| | | | | | | ***say*** | ***11951.00*** | |
| **13.5 H (p)** | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (H) Case II (Excluding GST,OH,CP &Cess)** | | | | 6591.00 | Item 12.8 (H) Case II |
| | | | **d) formwork** | | | | | |
| | | | Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 10.000 | | 659.10 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1461.62 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1742.34 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1045.41 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 114.99 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11614.46 | |
| | | | | | | ***say*** | ***11614.00*** | |
| **13.5 H** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | For height, upto 10m, add 1.4 per cent of cost as above excluding formwork. For cost of formwork add 11 per cent of cost of material, labour and machinery . | | | | | |
| | | Case I | **Using concrete Mixer** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (H) Case I (Excluding GST,OH,CP &Cess)** | | | | 6782.00 | Item 12.8 (H) Case I |
| | | | **d) formwork** | | | | | |
| | | | Add 11 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 11.000 | | 746.02 | |
| | | | Add 1.4 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 1.400 | | 94.95 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1536.79 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1831.95 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1099.17 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 120.91 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 12211.79 | |
| | | | | | | ***say*** | ***12212.00*** | |
| **13.5 H (q)** | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (H) Case II (Excluding GST,OH,CP &Cess)** | | | | 6591.00 | Item 12.8 (H) Case II |
| | | | **d) formwork** | | | | | |
| | | | Add 11 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 11.000 | | 725.01 | |
| | | | Add 1.4 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 1.400 | | 92.27 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1493.51 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1780.36 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1068.22 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 117.50 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 11867.87 | |
| | | | | | | ***say*** | ***11868.00*** | |
| **13.5 H** | | **(r)** | **Height above 10m** | | | | | |
| | | | For height, above 10m, add 3 per cent of cost as above excluding formwork. For cost of formwork add 13 per cent of cost of material, labour and machinery | | | | | |
| | | Case I | **Using concrete Mixer** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (H) Case I (Excluding GST,OH,CP &Cess)** | | | | 6782.00 | Item 12.8 (H) Case I |
| | | | **d) formwork** | | | | | |
| | | | Add 13 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 13.000 | | 881.66 | |
| | | | Add 3 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 3.000 | | 203.46 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1586.01 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1890.63 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1134.38 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 124.78 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 12602.92 | |
| | | | | | | ***say*** | ***12603.00*** | |
| **13.5 H (r)** | | Case II | **With Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | **Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (H) Case II (Excluding GST,OH,CP &Cess)** | | | | 6591.00 | Item 12.8 (H) Case II |
| | | | **d) formwork** | | | | | |
| | | | Add 13 per cent of cost of material, labour and machinery (a+b+c) for Formwork | | 13.000 | | 856.83 | |
| | | | Add 3 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift | | 3.000 | | 197.73 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1541.34 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1837.38 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 1102.43 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 121.27 | |
| | | | **Rate perm (a+b+c+d+e+f+g+h)** | | | | 12247.98 | |
| | | | | | | ***say*** | ***12248.00*** | |
| | **Note** | | The basic components of this analysis are the same as those of items 13.8 (A to H). The only changes are as under:<br><br>a) Ramps/Stairs: Extra expenditure on structures which are more than 5 m high @ 2 per cent of cost for height upto 10 m and 4 per cent for heights above 10 m will be involved for approaching the work spot by providing higher ramp/stair case for use by the working parties.<br><br>b) The above mentioned percentages have been suitably modified for different categories as cost for various categories varies, whereas effort for access for same height will be similar. As the cost of richer concrete is comparatively more, the percentage to be added has been reduced to maintain the same cost for extra efforts. | | | | | |
| **13.6** | **Section 1600 & 2200** | | **Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and Technical Specifications** | | | | | |
| | | | ***Output: MT*** | | | | | |
| | | | ***Taking output = 1 MT*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | HYSD bars including 5 per cent overlaps and wastage | tonne | 1.050 | 67000.00 | 70350.00 | M-082 |
| | | | Binding wire | kg | 6.000 | 105.00 | 630.00 | M-072 |
| | | | **b) Labour for cutting, bending, shifting to site, tying and placing in position** | | | | | |
| | | | Mate | day | 0.340 | 551.00 | 187.34 | L-12 |
| | | | Blacksmith | day | 2.000 | 593.00 | 1186.00 | L-02 |
| | | | Mazdoor | day | 6.500 | 424.00 | 2756.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 15142.04 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 18050.28 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 10830.17 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 1191.32 | |
| | | | **Rate for per MT (a+b+c+d)** | | | | 120323.15 | |
| | | | | | | ***say*** | ***120323.00*** | |
| **13.7** | **1600 & 2200** | | **Supplying, fitting and placing Mild steel reinforcement complete in sub-structure as per drawing and Technical Specification** | | | | | |
| | | | ***Unit = MT*** | | | | | |
| | | | ***Taking output = 1 MT*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | MS bars including 5 per cent overlaps and wastage | tonne | 1.050 | 67000.00 | 70350.00 | M-126 |
| | | | Binding wire | kg | 6.000 | 105.00 | 630.00 | M-072 |
| | | | **b) Labour for straightening, cutting, bending, shifting to site, tying and placing in position** | | | | | |
| | | | Mate | day | 0.280 | 551.00 | 154.28 | L-12 |
| | | | Blacksmith | day | 1.500 | 593.00 | 889.50 | L-02 |
| | | | Mazdoor | day | 5.500 | 424.00 | 2332.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 14990.13 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 17869.18 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 10721.51 | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 1179.37 | |
| | | | **Rate for per MT (a+b+c+d)** | | | | 119115.97 | |
| | | | | | | ***say*** | ***119116.00*** | |
| **13.8** | **2706 & 2200** | | **Providing weep holes in Brick masonry/Plain/ Reinforced concrete abutment, wing wall/ return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing foce. Complete as per drawing and Technical Specifications** | | | | | |
| | | | ***Unit = Nos.*** | | | | | |
| | | | ***Taking output = 30 Nos.*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | AC pipe 100 mm dia. (including wastage @ 5 per cent ) | metre | 31.500 | 43.00 | 1354.50 | M-056 |
| | | | Average length of weep hole is taken as one metre for the purpose of estimating. | | | | | |
| | | | MS clamp | each. | 30.000 | 81.00 | 2430.00 | M-123 |
| | | | collar for AC pipe (average) taking 10% of above pipe rate | each. | 10.000 | 4.30 | 43.00 | M-056/10 |
| | | | Cement mortar 1:3 (Rate as in Item 12.6) (Excluding GST,OH,CP &Cess) | cum | 0.050 | 5727.00 | 286.35 | Item 12.6 (A) |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.030 | 551.00 | 16.53 | L-12 |
| | | | Mason | day | 0.500 | 593.00 | 296.50 | L-11 |
| | | | Mazdoor | day | 0.250 | 424.00 | 106.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 913.83 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 1089.34 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 653.61 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 71.90 | |
| | | | Cost for 30 m = a+b+c+d+e+f | | | | 7261.56 | |
| | | | **Rate per m (a+b+c+d+e+f)/30** | | | | 242.05 | |
| | | | | | | ***say*** | ***242.00*** | |
| | **Note** | | 1. In case of stone masonry, the size of the weep hole shall be 150 mm x 80 mm or circular with 150 mm diameter. | | | | | |
| | | | 2. For structure in stone masonry, the weep holes shall be deemed to be included in the item of stone masonry work and shall not be paid separately. | | | | | |
| **13.9** | **710.1.4. of IRC:78 & 2200** | | **Back filling behind abutment, wing wall and return wall complete as per drawing and Technical Specification** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 10 cum*** | | | | | |
| | | **A** | **Granular material** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.280 | 551.00 | 154.28 | L-12 |
| | | | Mazdoor | day | 7.000 | 424.00 | 2968.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Granular material | cum | 12.000 | 500.00 | 6000.00 | M-009 |
| | | | **c) Machinery** | | | | | |
| | | | Plate compactor/power rammer | hour | 2.500 | 382.00 | 955.00 | P&M-086 |
| | | | Water Tanker | hour | 0.050 | 724.00 | 36.20 | P&M-060 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 2038.88 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 2430.47 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 1458.28 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 160.41 | |
| | | | Cost for 10 cum of granular backfill = a+b+c+d+e+f+g | | | | 16201.52 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/10** | | | | 1620.15 | |
| | | | | | | ***say*** | ***1620.00*** | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 13.9 | | B | **Sandy material** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.280 | 551.00 | 154.28 | L-12 |
| | | | Mazdoor for filling, watering, ramming etc. | day | 7.000 | 424.00 | 2968.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Sand | cum | 12.000 | 650.00 | 7800.00 | M-006 |
| | | | **c) Machinery** | | | | | |
| | | | Plate compactor/power rammer | hour | 2.500 | 382.00 | 955.00 | P&M-086 |
| | | | Water Tanker | hour | 0.060 | 724.00 | 43.44 | P&M-060 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 2403.22 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 2864.79 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 1718.87 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 189.08 | |
| | | | Cost for 10 cum of sandy backfill = a+b+c+d+e | | | | 19096.68 | |
| | | | **Rate per cum = (a+b+c+d+e)/10** | | | | 1909.67 | |
| | | | | | | ***say*** | ***1910.00*** | |
| 13.10 | 710.1.4. of IRC:78 and 2200 | | **Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRTH 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 Specification.** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 10 cum.*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.320 | 551.00 | 176.32 | L-12 |
| | | | Mazdoor for filling, watering, ramming etc. | day | 7.000 | 424.00 | 2968.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 1.000 | 508.00 | 508.00 | L-15 |
| | | | **b) Material** | | | | | |
| | | | Filter media of stone aggregate conforming to clause 2504.2.2. of MoRTH specifications. | cum | 12.000 | 1450.00 | 17400.00 | M-012 |
| | | | **c) Machinery** | | | | | |
| | | | Water Tanker of 6 KL capacity | hour | 0.060 | 724.00 | 43.44 | P&M-060 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 4252.91 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 5069.73 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 3041.84 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 334.60 | |
| | | | cost for 10 cum of Fiter Media = a+b+c+d+e+f+g | | | | 33794.84 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g)/10** | | | | 3379.48 | |
| | | | | | | ***say*** | ***3379.00*** | |
| 13.11 | 2000, 1000 & 2200 | | **Supplying, fitting and fixing in position true to line and level cast steel rocker bearing conforming to IRC: 83(Pt.-1) section IX and clause 2003 of MoRTH specifications complete including all accessories as per drawing and Technical Specifications.** | | | | | |
| | | | Unit: one tonne capacity | | | | | |
| | | | Considering a 250 tonne capacity bearing for this analysis | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.060 | 551.00 | 33.06 | L-12 |
| | | | Mazdoor (Skilled) | day | 0.500 | 508.00 | 254.00 | L-15 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **b) Material** | | | | | |
| | | | Cast steel rocker bearing assembly of 250 tonne design load capacity duly painted complete with all its components as per drawing and specifications | each. | 1.000 | 344046.00 | 344046.00 | M-065 |
| | | | Add 1 per cent of cost of bearing assembly for foundation anchorage bolts, lifting arrangements, grease and other consumables. | | | | 3440.46 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 70196.62 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 83678.83 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 50207.30 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 5522.80 | |
| | | | Cost for 250 tonnes capacity bearing = a+b+c+d+e+f | | | | 557803.07 | |
| | | | **Rate per tonne capacity = (a+b+c+d+e+f)/250** | | | | 2231.21 | |
| | | | | | | ***say*** | ***2231.00*** | |
| **13.12** | **2000, 1000 & 2200** | | **Supplying, fitting and fixing in position true to line and level forged steel roller bearing conforming to IRC: 83(Pt.-1) section IX and clause 2003 of MoRTH specifications complete including all accessories as per drawing and Technical Specifications.** | | | | | |
| | | | Unit: one tonne capacity<br>Considering a 250 tonne capacity bearing for this analysis | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.060 | 551.00 | 33.06 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 0.500 | 508.00 | 254.00 | L-15 |
| | | | **b) Material** | | | | | |
| | | | Forged steel roller bearing of 250 tonne design load capacity duly painted complete with all its components as per drawing and specifications | each. | 1.000 | 302759.00 | 302759.00 | M-067 |
| | | | Add 1 per cent of cost of bearing assembly for foundation anchorage bolts, lifting arrangements, grease and other consumables. | | | | 3027.59 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 61789.93 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 73657.52 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 44194.51 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 4861.40 | |
| | | | cost for 250 tonnes capacity bearing = a+b+c+d+e+f | | | | 491001.01 | |
| | | | **Rate per tonne capacity = (a+b+c+d+e+f)/250** | | | | 1964.00 | |
| | | | | | | ***say*** | ***1964.00*** | |
| **13.13** | **2000 & 2200** | | **Supplying, fitting and fixing in position true to line and level sliding plate bearing with PTFE surface sliding on stainless steel complete including all accessories as per drawing and Technical Specifications and BS: 5400, section 9.1 & 9.2 (for PTFE) and clause 2004 of MoRTH Specifications.** | | | | | |
| | | | Unit: one tonne capacity<br>Considering a 80 tonne capacity bearing for this analysis | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.060 | 551.00 | 33.06 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 0.500 | 508.00 | 254.00 | L-15 |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **b) Material** | | | | | |
| | | | PTFE sliding plate bearing assembly of 80 tonnes design load capacity duly painted complete with all its components as per drawing and Technical Specifications | each. | 1.000 | 206437.00 | 206437.00 | M-069 |
| | | | Add 1 per cent for foundation anchorage bolts and consumables. | | | | 2064.37 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 42177.23 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 50277.93 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 30166.76 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 3318.34 | |
| | | | cost for 80 tonnes capacity bearing = a+b+c+d+e+f | | | | 335152.69 | |
| | | | **Rate per tonne capacity = (a+b+c+d+e+f)/80** | | | | 4189.41 | |
| | | | | | | ***say*** | ***4189.00*** | |
| **13.14** | **2000 & 2200** | | **Supplying, fitting and fixing in position true to line and level elastomeric bearing conforming to IRC: 83 (Part-II) section IX and clause 2005 of MoRTH specifications complete including all accessories as per drawing and Technical Specifications.** | | | | | |
| | | | Unit: one cubic centimetre<br>Considering an elastomeric bearing of size 500 x 400 x 96 mm for this analysis.<br>Overall volume - 19200 cu.cm<br>Volume of 6 nos. 488 x 388 x 4 mm size reinforcing steel plates = 4545 cu.cm.<br>Hence volume of elastometer = 14655 cu.cm. | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.060 | 551.00 | 33.06 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 0.500 | 508.00 | 254.00 | L-15 |
| | | | **b) Material** | | | | | |
| | | | Elastomeric bearing assembly consisting of 7 layers of elastomer bonded to 6 nos. internal reinforcing steel laminates by the process of vulcanisation, complete with all components as per drawing and Technical Specifications. | each. | 1.000 | 16514.00 | 16514.00 | M-066 |
| | | | Add 1 per cent of cost of bearing assembly for foundation anchorage bolts and consumables. | | | | 165.14 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3505.86 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 4179.21 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2507.53 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 275.83 | |
| | | | Cost for 19200cc of elastomeric bearing = a+b+c+d | | | | 27858.63 | |
| | | | **Rate per cc of elastomeric bearing = (a+b+c+d)/19200** | | | | 1.45 | |
| | | | | | | ***say*** | ***1.00*** | |
| **13.15** | **2000 & 2200** | | **Supplying, fitting and fixing in position true to line and level sliding plate bearing with stainless steel plate sliding on stainless steel plate with mild steel matrix complete including all accessories as per drawing and Technical Specifications.** | | | | | |
| | | | Unit: one tonne capacity | | | | | |

| Sr No | Ref. to MoRTH/ DSR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Considering the sliding bearing of 80 tonnes design capacity for this analysis. | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 0.750 | 424.00 | 318.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 0.350 | 508.00 | 177.80 | L-15 |
| | | | **b) Material** | | | | | |
| | | | Supply of sliding plate bearing of 80 tonne design capacity complete as per drawings and Technical Specifications. | each. | 1.000 | 16514.00 | 16514.00 | M-070 |
| | | | Add 1 per cent of cost of bearing assembly for foundation anchorage bolts and consumables. | | | | 165.14 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3466.91 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 4132.78 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2479.67 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 272.76 | |
| | | | Cost for 80 tonnes of capacity bearing = a+b+c+d+e+f | | | | 27549.10 | |
| | | | **Rate per tonne capacity = (a+b+c+d+e+f)/80** | | | | 344.36 | |
| | | | | | | ***say*** | ***344.00*** | |
| **13.16** | **2000 & 2200** | | **Supplying, fitting and fixing in position true to line and level POT-PTFE bearing consisting of a metal piston supported by a disc or unreinforced elastomer confined within a metal cylinder, sealing rings, dust seals, PTFE surface sliding against stainless steel mating surface, complete assembly to be of cast steel/fabricated structural steel, metal and elastomer elements to be as per IRC: 83 part-I & II respectively and other parts conforming to BS: 5400, section 9.1 & 9.2 and clause 2006 of MoRTH Specifications complete as per drawing and approved Technical Specifications.** | | | | | |
| | | | Unit: one tonne capacity | | | 387.20 | | |
| | | | Considering a Pot bearing assembly of 250 tonne capacity for this analysis. | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor | day | 1.500 | 424.00 | 636.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 0.500 | 508.00 | 254.00 | L-15 |
| | | | **b) Material** | | | | | |
| | | | 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 as per clause 2006 and complete as per drawings and Technical Specifications. | each. | 1.000 | 68782.00 | 68782.00 | M-068 |
| | | | Add 1 per cent of cost of bearing assembly for foundation anchorage bolts and consumables. | | | | 687.82 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 14193.43 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 16919.47 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 10151.68 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 1116.68 | |
| | | | cost for 250 tonnes capacity bearing = a+b+c+d+e+f | | | | 112785.16 | |
| | | | **Rate per tonne capacity = (a+b+c+d+e+f)/250** | | | | 451.14 | |
| | | | | | | ***say*** | ***451.00*** | |

## Chapter – 14
## SUPERSTRUCTURE

**Preamble:**

1 The rate for the wearing coat has been analysed as under in accordance with the provisions of MORD Specifications:

a. Cement concrete wearing coat

b. Ashphaltic concrete wearing coat

c. Bitumen mastic wearing coat

The item may be selected as per approved design

2 The rates are provided for both RCC Railing and M. S. Railing, which can be adopted as per approved design.

3 The length of drainage spout has been provided in such a way that it is connected to the drainage system on the ground in case of flyovers and there is no splashing of water on the structure in case of bridges.

4 The rate for anti-corrosive treatment is ascertained from firms specialised in this work. In this connection Circular No. RW/NH-34041/44/91-S&R dated 21.03.2000 of Ministry of Road Transport and Highways may be referred for further details

5 Expansion joints involving movements exceeding 40 mm are specialised readymade items commercially produced by reputed firms with imported technology and parts. The rates for such joints are ascertained from the firms pre-qualified by the Ministry.

6 The Rates for pre-cast and pre-tensioned girders has also been included.

7 MoRT&H letter No. RW/NH-34059/1/96 S&R dated 30-11-2000 and subsequent corrigendum dated 25-01-2001 may be referred for detailed specifications and provisions for various types of expansion joints.

8 For bridges having wide deck/span length of more than 120 m or/and involving complex movements/rotations in different directions/planes, provision of special type of modular expansion joints such as swivel joists joint are required for which firms specialised in this field may be consulted. Such cases will require prior approval of Ministry.

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 14.1 | 1500 , 1600 & 1700 | | **Furnishing and Placing Reinforced/ Prestressed cement concrete in super-structure as per drawing and Technical Specification** | | | | | |
| | | A Case I | **RCC Grade M20 Using Concrete Mixer** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 5.120 | 9100.00 | 46592.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.860 | 551.00 | 473.86 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | **90715.000** | | | |
| | | | **For formwork and staging add the following:** | | | | | |
| **14.1A Case I** | | (i) | **For solid slab super-structure, 20-30 per cent of (a+b+c)** | | | | | |
| | | (p) | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 90715.00 | |
| | | | **d) Formwork and staging 20 per cent of (a+b+c)** | | | | 18143.00 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 21945.77 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 26160.75 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 15696.45 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1726.61 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+h | | | | 174387.58 | |
| | | | **Rate per cum = (a+b+c+d+e+f+h)/15** | | | | 11625.84 | |
| | | | | | | ***say*** | ***11626.00*** | |
| **14.1A Case I (i)** | | (q) | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 90715.00 | |
| | | | **d) Formwork and staging 25 per cent of (a+b+c)** | | | | 22678.75 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 22860.18 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 27250.79 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 16350.47 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1798.55 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+h | | | | 181653.74 | |
| | | | **Rate per cum = (a+b+c+d+e+f+h)/15** | | | | 12110.25 | |
| | | | | | | ***say*** | ***12110.00*** | |
| **14.1A Case I (i)** | | (r) | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 90715.00 | |
| | | | **d) Formwork and staging 30 per cent of (a+b+c)** | | | | 27214.50 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 23774.59 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 28340.82 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 17004.49 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1870.49 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+h | | | | 188919.89 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **Rate per cum = (a+b+c+d+e+f+h)/15** | | | | 12594.66 | |
| | | | | | | ***say*** | ***12595.00*** | |
| **14.1A Case I** | | **(ii)** | **For T-beam & slab, 25-35 per cent of (a+b+c)** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 90715.00 | |
| | | | **d) Formwork and staging 25 per cent of (a+b+c)** | | | | 22678.75 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 22860.18 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 27250.79 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 16350.47 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1798.55 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+h | | | | 181653.74 | |
| | | | **Rate per cum = (a+b+c+d+e+f+h)/15** | | | | 12110.25 | |
| | | | | | | ***say*** | ***12110.00*** | |
| **14.1A Case I (ii)** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 90715.00 | |
| | | | **d) Formwork and staging 30 per cent of (a+b+c)** | | | | 27214.50 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 23774.59 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 28340.82 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 17004.49 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1870.49 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+h | | | | 188919.89 | |
| | | | **Rate per cum = (a+b+c+d+e+f+h)/15** | | | | 12594.66 | |
| | | | | | | ***say*** | ***12595.00*** | |
| **14.1A Case I (ii)** | | **(r)** | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 90715.00 | |
| | | | **d) Formwork and staging 35 per cent of (a+b+c)** | | | | 31750.25 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 24688.99 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 29430.85 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 17658.51 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1942.44 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+h | | | | 196186.04 | |
| | | | **Rate per cum = (a+b+c+d+e+f+h)/15** | | | | 13079.07 | |
| | | | | | | ***say*** | ***13079.00*** | |
| **14.1A** | | **Case II** | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 40.920 | 9100.00 | 372372.00 | M-081 |
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader | hour | 6.00 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | | Transit Mixer 4 cum capacity lead upto1 Km | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Lead beyond 1 Km, L - lead in Kilometer | tonne.km | 300L | 80.00 | 0.00 | Lead =0 km & P&M-050 |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | **689413.000** | | | |
| | | | **For formwork and staging add the following:** | | | | | |
| **14.1A Case II** | | **(i)** | **For solid slab super-structure, 20-30 per cent of (a+b+c)** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 689413.00 | |
| | | | **d) Formwork and staging 20 per cent of (a+b+c)** | | | | 137882.60 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 166782.79 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 198815.68 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 119289.41 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 13121.83 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1325305.31 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 11044.21 | |
| | | | | | | ***say*** | ***11044.00*** | |
| **14.1A Case II (i)** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 689413.00 | |
| | | | **d) Formwork and staging 25 per cent of (a+b+c)** | | | | 172353.25 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 173732.08 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 207099.67 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 124259.80 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 13668.58 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1380526.38 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 11504.39 | |
| | | | | | | ***say*** | ***11504.00*** | |
| **14.1A Case II (i)** | | **(r)** | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 689413.00 | |
| | | | **d) Formwork and staging 30 per cent of (a+b+c)** | | | | 206823.90 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 180681.36 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 215383.65 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 129230.19 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 14215.32 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1435747.42 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 11964.56 | |
| | | | | | | ***say*** | ***11965.00*** | |
| **14.1A Case II** | | **(ii)** | **For T-beam & slab, 25-35 per cent of (a+b+c)** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 689413.00 | |
| | | | **d) Formwork and staging 25 per cent of (a+b+c)** | | | | 172353.25 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 173732.08 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 207099.67 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 124259.80 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 13668.58 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1380526.38 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 11504.39 | |
| | | | | | | ***say*** | ***11504.00*** | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 14.1A Case II (ii) | | (q) | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 689413.00 | |
| | | | **d) Formwork and staging 30 per cent of (a+b+c)** | | | | 206823.90 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 180681.36 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 215383.65 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 129230.19 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 14215.32 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1435747.42 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 11964.56 | |
| | | | | | | ***say*** | ***11965.00*** | |
| 14.1A Case II (ii) | | (r) | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 689413.00 | |
| | | | **d) Formwork and staging 35 per cent of (a+b+c)** | | | | 241294.55 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 187630.64 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 223667.64 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 134200.58 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 14762.06 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1490968.47 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 12424.74 | |
| | | | | | | ***say*** | ***12425.00*** | |
| 14.1 | | B | **RCC Grade M25** | | | | | |
| | | Case I | **Using Concrete Mixer** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 5.990 | 9100.00 | 54509.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.880 | 551.00 | 484.88 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | **98643.000** | | | |
| | | | **For formwork and staging add the following:** | | | | | |
| 14.1B Case I | | (i) | **For solid slab super-structure, 20-30 per cent of (a+b+c)** | | | | | |
| | | (p) | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 98643.00 | |
| | | | **d) Formwork and staging 20 per cent of (a+b+c)** | | | | 19728.60 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 23863.71 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 28447.06 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 17068.24 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1877.51 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 189628.12 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 12641.87 | |
| | | | | | | ***say*** | ***12642.00*** | |
| **14.1B Case I (i)** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 98643.00 | |
| | | | **d) Formwork and staging 25 per cent of (a+b+c)** | | | | 24660.75 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 24858.04 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 29632.36 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 17779.42 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1955.74 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 197529.31 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 13168.62 | |
| | | | | | | ***say*** | ***13169.00*** | |
| **14.1B Case I (i)** | | **(r)** | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 98643.00 | |
| | | | **d) Formwork and staging 30 per cent of (a+b+c)** | | | | 29592.90 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 25852.36 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 30817.65 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 18490.59 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 2033.97 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 205430.47 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 13695.36 | |
| | | | | | | ***say*** | ***13695.00*** | |
| **14.1B Case I** | | **(ii)** | **For T-beam & slab, 25-35 per cent of (a+b+c)** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | **Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum** | | | | 98643.00 | |
| | | | **d) Formwork and staging 25 per cent of (a+b+c)** | | | | 24660.75 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 24858.04 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 29632.36 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 17779.42 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1955.74 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 197529.31 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 13168.62 | |
| | | | | | | ***say*** | ***13169.00*** | |
| **14.1B Case I (ii)** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 98643.00 | |
| | | | **d) Formwork and staging 30 per cent of (a+b+c)** | | | | 29592.90 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 25852.36 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 30817.65 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 18490.59 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 2033.97 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 205430.47 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 13695.36 | |
| | | | | | | ***say*** | ***13695.00*** | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 14.1B Case I (ii) | | (r) | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 98643.00 | |
| | | | **d) Formwork and staging 35 per cent of (a+b+c)** | | | | 34525.05 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 26846.68 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 32002.95 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 19201.77 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 2112.19 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 213331.64 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 14222.11 | |
| | | | | | | ***say*** | ***14222.00*** | |
| 14.1B | | Case II | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 47.950 | 9100.00 | 436345.00 | M-081 |
| | | | Coarse sand | cum | 54.200 | 650.00 | 35230.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.840 | 551.00 | 462.84 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 18.000 | 424.00 | 7632.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader | hour | 6.00 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | | Transit Mixer 4 cum capacity lead upto1 Km | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Lead beyond 1 Km, L - lead in Kilometer | tonne.km | 300L | 80.00 | 0.00 | Lead =0 km & P&M-050 |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | **753516.000** | | | |
| | | | **For formwork and staging add the following:** | | | | | |
| 14.1B Case II | | (i) | **For solid slab super-structure, 20-30 per cent of (a+b+c)** | | | | | |
| | | (p) | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 753516.00 | |
| | | | **d) Formwork and staging 20 per cent of (a+b+c)** | | | | 150703.20 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 182290.59 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 217301.96 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 130381.18 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 14341.93 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1448534.86 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/120** | | | | 12071.12 | |
| | | | | | | ***say*** | ***12071.00*** | |
| 14.1B Case II (i) | | (q) | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 753516.00 | |
| | | | **d) Formwork and staging 25 per cent of (a+b+c)** | | | | 188379.00 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 189886.03 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 226356.21 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 135813.72 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 14939.51 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1508890.47 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/120** | | | | 12574.09 | |
| | | | | | | ***say*** | ***12574.00*** | |
| **14.1B Case II (i)** | | **(r)** | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 753516.00 | |
| | | | **d) Formwork and staging 30 per cent of (a+b+c)** | | | | 226054.80 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 197481.47 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 235410.45 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 141246.27 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 15537.09 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1569246.08 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/120** | | | | 13077.05 | |
| | | | | | | ***say*** | ***13077.00*** | |
| **14.1B Case II** | | **(ii)** | **For T-beam & slab, 25-35 per cent of (a+b+c)** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 753516.00 | |
| | | | **d) Formwork and staging 25 per cent of (a+b+c)** | | | | 188379.00 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 189886.03 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 226356.21 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 135813.72 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 14939.51 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1508890.47 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/120** | | | | 12574.09 | |
| | | | | | | ***say*** | ***12574.00*** | |
| **14.1B Case II (ii)** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | **Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum** | | | | 753516.00 | |
| | | | **d) Formwork and staging 30 per cent of (a+b+c)** | | | | 226054.80 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 197481.47 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 235410.45 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 141246.27 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 15537.09 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1569246.08 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/120** | | | | 13077.05 | |
| | | | | | | ***say*** | ***13077.00*** | |
| **14.1B Case II (ii)** | | **(r)** | **Height above 10m** | | | | | |
| | | | **d) Formwork and staging 35 per cent of (a+b+c)** | | | | 263730.60 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 205076.91 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 244464.70 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 146678.82 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 16134.67 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1629601.70 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/120** | | | | 13580.01 | |
| | | | | | | ***say*** | ***13580.00*** | |
| **14.1** | | **C** | **RCC Grade M 30** | | | | | |
| | | **Case I** | **Using Concrete Mixer** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 6.100 | 9100.00 | 55510.00 | M-081 |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.900 | 551.00 | 495.90 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 21.000 | 424.00 | 8904.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | **100079.000** | | | |
| | | | **For formwork and staging add the following:** | | | | | |
| **14.1C Case I** | | **(i)** | **For solid slab super-structure, 20-30 per cent of (a+b+c)** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 100079.00 | |
| | | | **d) Formwork and staging 20 per cent of (a+b+c)** | | | | 20015.80 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 24211.11 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 28861.18 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 17316.71 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1904.84 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 192388.64 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 12825.91 | |
| | | | | | | ***say*** | ***12826.00*** | |
| **14.1C Case I (i)** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 100079.00 | |
| | | | **d) Formwork and staging 25 per cent of (a+b+c)** | | | | 25019.75 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 25219.91 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 30063.73 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 18038.24 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1984.21 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 200404.84 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 13360.32 | |
| | | | | | | ***say*** | ***13360.00*** | |
| **14.1C Case I (i)** | | **(r)** | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 100079.00 | |
| | | | **d) Formwork and staging 30 per cent of (a+b+c)** | | | | 30023.70 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 26228.70 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 31266.28 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 18759.77 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 2063.57 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 208421.02 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 13894.73 | |
| | | | | | | ***say*** | ***13895.00*** | |
| **14.1C Case I** | | **(ii)** | **For T-beam & slab, 25-35 per cent of (a+b+c)** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 100079.00 | |
| | | | **d) Formwork and staging 25 per cent of (a+b+c)** | | | | 25019.75 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 25219.91 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 30063.73 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 18038.24 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1984.21 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 200404.84 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 13360.32 | |
| | | | | | | ***say*** | ***13360.00*** | |
| **14.1C Case I (ii)** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 100079.00 | |
| | | | **d) Formwork and staging 30 per cent of (a+b+c)** | | | | 30023.70 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 26228.70 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 31266.28 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 18759.77 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 2063.57 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 208421.02 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 13894.73 | |
| | | | | | | ***say*** | ***13895.00*** | |
| **14.1C Case I (ii)** | | **(r)** | **Height above 10m** | | | | | |
| | | | **Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum** | | | | 100079.00 | |
| | | | **d) Formwork and staging 35 per cent of (a+b+c)** | | | | 35027.65 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 27237.50 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 32468.83 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 19481.30 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 2142.94 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 216437.22 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 14429.15 | |
| | | | | | | ***say*** | ***14429.00*** | |
| **14.1C** | | **Case II** | **Using Batching Plant, Transit Mixer and Concrete Pump.** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 48.790 | 9100.00 | 443989.00 | M-081 |
| | | | Coarse sand | cum | 54.600 | 650.00 | 35490.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.880 | 551.00 | 484.88 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 19.000 | 424.00 | 8056.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader | hour | 6.00 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | | Transit Mixer 4 cum capacity lead upto1 Km | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Lead beyond 1 Km, L - lead in Kilometer | tonne.km | 300L | 80.00 | 0.00 | Lead =0 km & P&M-050 |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | **761866.000** | | | |
| | | | **For formwork and staging add the following:** | | | | | |
| **14.1C Case II** | | **(i)** | **For solid slab super-structure, 20-30 per cent of (a+b+c)** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 761866.00 | |
| | | | **d) Formwork and staging 20 per cent of (a+b+c)** | | | | 152373.20 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 184310.62 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 219709.96 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 131825.98 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 14500.86 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1464586.62 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 12204.89 | |
| | | | | | | ***say*** | ***12205.00*** | |
| **14.1C Case II (i)** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 761866.00 | |
| | | | **d) Formwork and staging 25 per cent of (a+b+c)** | | | | 190466.50 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 191990.23 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 228864.55 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 137318.73 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 15105.06 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1525611.07 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 12713.43 | |
| | | | | | | ***say*** | ***12713.00*** | |
| **14.1C Case II (i)** | | **(r)** | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 761866.00 | |
| | | | **d) Formwork and staging 30 per cent of (a+b+c)** | | | | 228559.80 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 199669.84 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 238019.13 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 142811.48 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 15709.26 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1586635.51 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 13221.96 | |
| | | | | | | ***say*** | ***13222.00*** | |
| **14.1C Case II** | | **(ii)** | **For T-beam & slab, 25-35 per cent of (a+b+c)** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 761866.00 | |
| | | | **d) Formwork and staging 25 per cent of (a+b+c)** | | | | 190466.50 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 191990.23 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 228864.55 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 137318.73 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 15105.06 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1525611.07 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 12713.43 | |
| | | | | | | ***say*** | ***12713.00*** | |
| **14.1C Case II (ii)** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 761866.00 | |
| | | | **d) Formwork and staging 30 per cent of (a+b+c)** | | | | 228559.80 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 199669.84 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 238019.13 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 142811.48 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 15709.26 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1586635.51 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 13221.96 | |
| | | | | | | ***say*** | ***13222.00*** | |
| **14.1C Case II (ii)** | | **(r)** | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 761866.00 | |
| | | | **d) Formwork and staging 35 per cent of (a+b+c)** | | | | 266653.10 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 207349.45 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 247173.71 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 148304.23 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 16313.46 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1647659.95 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 13730.50 | |
| | | | | | | ***say*** | ***13731.00*** | |
| **14.1** | | **D** | **RCC/PSC Grade M35** | | | | | |
| | | **Case I** | **Using Concrete Mixer.** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 6.330 | 9100.00 | 57603.00 | M-081 |
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.900 | 551.00 | 495.90 | L-12 |
| | | | Mason | day | 1.500 | 593.00 | 889.50 | L-11 |
| | | | Mazdoor | day | 21.000 | 424.00 | 8904.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | **102172.000** | | | |
| | | | **For formwork and staging add the following:** | | | | | |
| **14.1D Case I** | | **(i)** | **For solid slab super-structure, 18-28 per cent of (a+b+c)** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum | | | | 102172.00 | |
| | | | **d) Formwork and staging 18 per cent of (a+b+c)** | | | | 18390.96 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 24305.49 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 28973.69 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 17384.21 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1912.26 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 193138.61 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 12875.91 | |
| | | | | | | ***say*** | ***12876.00*** | |
| **14.1D Case I (i)** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 102172.00 | |
| | | | **d) Formwork and staging 23 per cent of (a+b+c)** | | | | 23499.56 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 25335.39 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 30201.39 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 18120.83 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1993.29 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 201322.46 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 13421.50 | |
| | | | | | | ***say*** | ***13422.00*** | |
| **14.1D Case I (i)** | | (r) | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 102172.00 | |
| | | | **d) Formwork and staging 28 per cent of (a+b+c)** | | | | 28608.16 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 26365.28 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 31429.09 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 18857.45 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 2074.32 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 209506.30 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 13967.09 | |
| | | | | | | ***say*** | ***13967.00*** | |
| **14.1D Case I** | | (ii) | **For T-beam & slab, 23-33 per cent of (a+b+c)** | | | | | |
| | | (p) | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 102172.00 | |
| | | | **d) Formwork and staging 23 per cent of (a+b+c)** | | | | 23499.56 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 25335.39 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 30201.39 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 18120.83 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 1993.29 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 201322.46 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 13421.50 | |
| | | | | | | ***say*** | ***13422.00*** | |
| **14.1D Case I (ii)** | | (q) | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 102172.00 | |
| | | | **d) Formwork and staging 28 per cent of (a+b+c)** | | | | 28608.16 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 26365.28 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 31429.09 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 18857.45 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 2074.32 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 209506.30 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 13967.09 | |
| | | | | | | ***say*** | ***13967.00*** | |
| **14.1D Case I (ii)** | | (r) | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 102172.00 | |
| | | | **d) Formwork and staging 33 per cent of (a+b+c)** | | | | 33716.76 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 27395.17 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 32656.79 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 19594.07 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 2155.35 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 217690.14 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 14512.68 | |
| | | | | | | ***say*** | ***14513.00*** | |
| **14.1D Case I** | | (iii) | **For box girder and balanced cantilever, 38-58 per cent of cost of concrete.** | | | | | |
| | | (p) | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 102172.00 | |
| | | | **d) Formwork and staging 38 per cent of (a+b+c)** | | | | 38825.36 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 28425.07 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 33884.49 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 20330.69 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 2236.38 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 225873.99 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 15058.27 | |
| | | | | | | ***say*** | ***15058.00*** | |
| **14.1D Case I (iii)** | | (q) | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 102172.00 | |
| | | | **d) Formwork and staging 48 per cent of (a+b+c)** | | | | 49042.56 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 30484.86 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 36339.88 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 21803.93 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 2398.43 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 242241.66 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 16149.44 | |
| | | | | | | ***say*** | ***16149.00*** | |
| **14.1D Case I (iii)** | | (r) | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 102172.00 | |
| | | | **d) Formwork and staging 58 per cent of (a+b+c)** | | | | 59259.76 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 32544.64 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 38795.28 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 23277.17 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 2560.49 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 258609.34 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 17240.62 | |
| | | | | | | ***say*** | ***17241.00*** | |
| | | **Case II** | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 50.640 | 9100.00 | 460824.00 | M-081 |
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.880 | 551.00 | 484.88 | L-12 |
| | | | Mason | day | 3.000 | 593.00 | 1779.00 | L-11 |
| | | | Mazdoor | day | 19.000 | 424.00 | 8056.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader | hour | 6.00 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer ( capacity 4.0 cu.m ) Transit Mixer 4 cum capacity lead upto1 Km | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Lead beyond 1 Km, L - lead in Kilometer | tonne.km | 300L | 80.00 | 0.00 | Lead =0 km & P&M-050 |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | **778311.000** | | | |
| | | | **For formwork and staging add the following:** | | | | | |
| **14.1D Case II** | | (i) | **For solid slab super-structure, 18-28 per cent of (a+b+c)** | | | | | |
| | | (p) | **Height upto 5m** | | | | | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum | | | | 778311.00 | |
| | | | **d) Formwork and staging 18 per cent of (a+b+c)** | | | | 140095.98 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 185150.85 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 220711.57 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 132426.94 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 14566.96 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1471263.30 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 12260.53 | |
| | | | | | | ***say*** | ***12261.00*** | |
| **14.1D Case II (i)** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 778311.00 | |
| | | | **d) Formwork and staging 23 per cent of (a+b+c)** | | | | 179011.53 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 192996.22 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 230063.75 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 138038.25 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 15184.21 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1533604.96 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 12780.04 | |
| | | | | | | ***say*** | ***12780.00*** | |
| **14.1D Case II (i)** | | **(r)** | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 778311.00 | |
| | | | **d) Formwork and staging 28 per cent of (a+b+c)** | | | | 217927.08 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 200841.60 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 239415.94 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 143649.56 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 15801.45 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1595946.63 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 13299.56 | |
| | | | | | | ***say*** | ***13300.00*** | |
| **14.1D Case II** | | **(ii)** | **For T-beam & slab, 23-33 per cent of (a+b+c)** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 778311.00 | |
| | | | **d) Formwork and staging 23 per cent of (a+b+c)** | | | | 179011.53 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 192996.22 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 230063.75 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 138038.25 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 15184.21 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1533604.96 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 12780.04 | |
| | | | | | | ***say*** | ***12780.00*** | |
| **14.1D Case II (ii)** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 778311.00 | |
| | | | **d) Formwork and staging 28 per cent of (a+b+c)** | | | | 217927.08 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 200841.60 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 239415.94 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 143649.56 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 15801.45 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1595946.63 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 13299.56 | |
| | | | | | | ***say*** | ***13300.00*** | |
| **14.1D Case II (ii)** | | (r) | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 778311.00 | |
| | | | **d) Formwork and staging 33 per cent of (a+b+c)** | | | | 256842.63 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 208686.97 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 248768.12 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 149260.87 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 16418.70 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1658288.29 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 13819.07 | |
| | | | | | | ***say*** | ***13819.00*** | |
| **14.1D Case II** | | (iii) | **For box girder and balanced cantilever, 38-58 per cent of cost of concrete.** | | | | | |
| | | (p) | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 778311.00 | |
| | | | **d) Formwork and staging 38 per cent of (a+b+c)** | | | | 295758.18 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 216532.35 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 258120.31 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 154872.18 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 17035.94 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1720629.96 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 14338.58 | |
| | | | | | | ***say*** | ***14339.00*** | |
| **14.1D Case II (iii)** | | (q) | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 778311.00 | |
| | | | **d) Formwork and staging 48 per cent of (a+b+c)** | | | | 373589.28 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 232223.10 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 276824.68 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 166094.81 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 18270.43 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1845313.30 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 15377.61 | |
| | | | | | | ***say*** | ***15378.00*** | |
| **14.1D Case II (iii)** | | (r) | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 778311.00 | |
| | | | **d) Formwork and staging 58 per cent of (a+b+c)** | | | | 451420.38 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 247913.85 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 295529.05 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 177317.43 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 19504.92 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1969996.63 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 16416.64 | |
| | | | | | | ***say*** | ***16417.00*** | |
| **14.1** | | **E** | **PSC Grade M-40** | | | | | |
| | | **Case** | **Using concrete mixer.** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 15 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 6.450 | 9100.00 | 58695.00 | M-081 |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Coarse sand | cum | 6.750 | 650.00 | 4387.50 | M-005 |
| | | | 20 mm Aggregate | cum | 8.100 | 1900.00 | 15390.00 | M-053 |
| | | | 10 mm Aggregate | cum | 5.400 | 1800.00 | 9720.00 | M-051 |
| | | | Admixture @ 0.4 per cent of cement | kg | 25.800 | 64.00 | 1651.20 | M-180 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.960 | 551.00 | 528.96 | L-12 |
| | | | Mason | day | 2.000 | 593.00 | 1186.00 | L-11 |
| | | | Mazdoor | day | 22.000 | 424.00 | 9328.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Concrete mixer (cap. 0.40/0.28 cum) | hour | 6.000 | 291.00 | 1746.00 | P&M-009 |
| | | | Generator 33 KVA | hour | 6.000 | 506.00 | 3036.00 | P&M-079 |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | **105669.000** | | | |
| | | | **For formwork and staging add the following:** | | | | | |
| **14.1E Case I** | | **(i)** | **For solid slab super-structure, 20-30 per cent of (a+b+c)** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum | | | | 105669.00 | |
| | | | **d) Formwork and staging 20 per cent of (a+b+c)** | | | | 21133.80 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 25563.44 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 30473.25 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 18283.95 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 2011.23 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 203134.67 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 13542.31 | |
| | | | | | | ***say*** | ***13542.00*** | |
| **14.1E Case I (i)** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 105669.00 | |
| | | | **d) Formwork and staging 25 per cent of (a+b+c)** | | | | 26417.25 | |
| | | | **e) GST @ 0.2016 on (a+b+c+d)** | | | | 26628.59 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 31742.97 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 19045.78 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 2095.04 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 211598.63 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 14106.58 | |
| | | | | | | ***say*** | ***14107.00*** | |
| **14.1E Case I (i)** | | **(r)** | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 105669.00 | |
| | | | **d) Formwork and staging 30 per cent of (a+b+c)** | | | | 31700.70 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 27693.73 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 33012.69 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 19807.61 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 2178.84 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 220062.57 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 14670.84 | |
| | | | | | | ***say*** | ***14671.00*** | |
| **14.1E Case I** | | **(ii)** | **For T-beam & slab, 25-35 per cent of (a+b+c)** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 105669.00 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **d) Formwork and staging 25 per cent of (a+b+c)** | | | | 26417.25 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 26628.59 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 31742.97 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 19045.78 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 2095.04 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 211598.63 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 14106.58 | |
| | | | | | | ***say*** | ***14107.00*** | |
| **14.1E Case I (ii)** | | (q) | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 105669.00 | |
| | | | **d) Formwork and staging 30 per cent of (a+b+c)** | | | | 31700.70 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 27693.73 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 33012.69 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 19807.61 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 2178.84 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 220062.57 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 14670.84 | |
| | | | | | | ***say*** | ***14671.00*** | |
| **14.1E Case I (ii)** | | (r) | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum*** | | | | 105669.00 | |
| | | | **d) Formwork and staging 35 per cent of (a+b+c)** | | | | 36984.15 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 28758.88 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 34282.41 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 20569.44 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 2262.64 | |
| | | | Cost for 15 cum = a+b+c+d+e+f+g+h | | | | 228526.52 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/15** | | | | 15235.10 | |
| | | | | | | ***say*** | ***15235.00*** | |
| **14.1E** | | **Case II** | **Using Batching Plant, Transit Mixer and Concrete Pump** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 51.600 | 9100.00 | 469560.00 | M-081 |
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | Admixture @ 0.4 per cent of cement | kg | 206.400 | 64.00 | 13209.60 | M-180 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.940 | 551.00 | 517.94 | L-12 |
| | | | Mason | day | 3.500 | 593.00 | 2075.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader | hour | 6.00 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | | Transit Mixer 4 cum capacity lead upto1 Km | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Lead beyond 1 Km, L - lead in Kilometer | tonne.km | 300L | 80.00 | 0.00 | Lead =0 km & P&M-050 |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | **801011.000** | | | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **For formwork and staging add the following:** | | | | | |
| **14.1E Case II** | | **(i)** | **For solid/voided slab super-structure, 18-28 per cent of (a+b+c)** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 801011.00 | |
| | | | **d) Formwork and staging 18 per cent of (a+b+c)** | | | | 144181.98 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 190550.90 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 227148.78 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 136289.27 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 14991.82 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1514173.75 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 12618.11 | |
| | | | | | | ***say*** | ***12618.00*** | |
| **14.1E Case II (i)** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 801011.00 | |
| | | | **d) Formwork and staging 23 per cent of (a+b+c)** | | | | 184232.53 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 198625.10 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 236773.73 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 142064.24 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 15627.07 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1578333.67 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 13152.78 | |
| | | | | | | ***say*** | ***13153.00*** | |
| **14.1E Case II (i)** | | **(r)** | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 801011.00 | |
| | | | **d) Formwork and staging 28 per cent of (a+b+c)** | | | | 224283.08 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 206699.29 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 246398.67 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 147839.20 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 16262.31 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1642493.55 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 13687.45 | |
| | | | | | | ***say*** | ***13687.00*** | |
| **14.1E Case II** | | **(ii)** | **For T-beam & slab, 23-33 per cent of (a+b+c)** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 801011.00 | |
| | | | **d) Formwork and staging 23 per cent of (a+b+c)** | | | | 184232.53 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 198625.10 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 236773.73 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 142064.24 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 15627.07 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1578333.67 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 13152.78 | |
| | | | | | | ***say*** | ***13153.00*** | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 14.1E Case II (ii) | | (q) | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 801011.00 | |
| | | | **d) Formwork and staging 28 per cent of (a+b+c)** | | | | 224283.08 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 206699.29 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 246398.67 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 147839.20 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 16262.31 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1642493.55 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 13687.45 | |
| | | | | | | ***say*** | ***13687.00*** | |
| 14.1E Case II (ii) | | (r) | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 801011.00 | |
| | | | **d) Formwork and staging 33 per cent of (a+b+c)** | | | | 264333.63 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 214773.48 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 256023.62 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 153614.17 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 16897.56 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1706653.46 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 14222.11 | |
| | | | | | | ***say*** | ***14222.00*** | |
| 14.1E Case II | | (iii) | **For cast-in-situ box girder, segment construction and balanced cantilever, 38-58 per cent of cost of concrete.** | | | | | |
| | | (p) | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 801011.00 | |
| | | | **d) Formwork and staging 38 per cent of (a+b+c)** | | | | 304384.18 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 222847.67 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 265648.57 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 159389.14 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 17532.81 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1770813.37 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 14756.78 | |
| | | | | | | ***say*** | ***14757.00*** | |
| 14.1E Case II (iii) | | (q) | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 801011.00 | |
| | | | **d) Formwork and staging 48 per cent of (a+b+c)** | | | | 384485.28 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 238996.05 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 284898.47 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 170939.08 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 18803.30 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1899133.18 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 15826.11 | |
| | | | | | | ***say*** | ***15826.00*** | |
| 14.1E Case II (iii) | | (r) | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 801011.00 | |
| | | | **d) Formwork and staging 58 per cent of (a+b+c)** | | | | 464586.38 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 255144.43 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 304148.36 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 182489.02 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 20073.79 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 2027452.98 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 16895.44 | |
| | | | | | | ***say*** | ***16895.00*** | |
| **14.1F** | | **F** | **PSC Grade M-45** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 55.800 | 9100.00 | 507780.00 | M-081 |
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | Admixture @ 0.4 per cent of cement | kg | 223.200 | 64.00 | 14284.80 | M-180 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.940 | 551.00 | 517.94 | L-12 |
| | | | Mason | day | 3.500 | 593.00 | 2075.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader | hour | 6.00 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | | Transit Mixer 4 cum capacity lead upto1 Km | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Lead beyond 1 Km, L - lead in Kilometer | tonne.km | 300L | 80.00 | 0.00 | Lead =0 km & P&M-050 |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | **840306.000** | | | |
| | | | **For formwork and staging add the following:** | | | | | |
| **14.1F** | | **(i)** | **For solid slab/voided slab super-structure, 16-26 per cent of cost of concrete (a+b+c)** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 840306.00 | |
| | | | **d) Formwork and staging 16 per cent of (a+b+c)** | | | | 134448.96 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 196510.60 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 234253.11 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 140551.87 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 15460.71 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1561531.25 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 13012.76 | |
| | | | | | | ***say*** | ***13013.00*** | |
| **14.1F** | | **(q)** | **Height 5m to 10m** | | | | | |
| **(i)** | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 840306.00 | |
| | | | **d) Formwork and staging 21 per cent of (a+b+c)** | | | | 176464.26 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 204980.88 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 244350.23 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 146610.14 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 16127.12 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1628838.63 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 13573.66 | |
| | | | | | | ***say*** | ***13574.00*** | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 14.1F (i) | | (r) | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 840306.00 | |
| | | | **d) Formwork and staging 26 per cent of (a+b+c)** | | | | 218479.56 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 213451.17 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 254447.35 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 152668.41 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 16793.52 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1696146.01 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 14134.55 | |
| | | | | | | ***say*** | ***14135.00*** | |
| 14.1F | | (ii) | **For T-beam & slab including launching of precast girders by launching truss upto 40 m span, 21-31 per cent of cost of concrete.** | | | | | |
| | | (p) | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 840306.00 | |
| | | | **d) Formwork and staging 21 per cent of (a+b+c)** | | | | 176464.26 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 204980.88 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 244350.23 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 146610.14 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 16127.12 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1628838.63 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 13573.66 | |
| | | | | | | ***say*** | ***13574.00*** | |
| 14.1F (ii) | | (q) | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 840306.00 | |
| | | | **d) Formwork and staging 26 per cent of (a+b+c)** | | | | 218479.56 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 213451.17 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 254447.35 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 152668.41 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 16793.52 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1696146.01 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 14134.55 | |
| | | | | | | ***say*** | ***14135.00*** | |
| 14.1F (ii) | | (r) | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 840306.00 | |
| | | | **d) Formwork and staging 31 per cent of (a+b+c)** | | | | 260494.86 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 221921.45 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 264544.46 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 158726.68 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 17459.93 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1763453.38 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 14695.44 | |
| | | | | | | ***say*** | ***14695.00*** | |
| 14.1F | | (iii) | **For cast-in-situ box girder, segmental construction and balanced cantilever, 36-56 per cent of cost of concrete.** | | | | | |
| | | (p) | **Height upto 5m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 840306.00 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **d) Formwork and staging 36 per cent of (a+b+c)** | | | | 302510.16 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 230391.74 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 274641.58 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 164784.95 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 18126.34 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1830760.77 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 15256.34 | |
| | | | | | | ***say*** | ***15256.00*** | |
| **14.1F (iii)** | | (q) | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 840306.00 | |
| | | | **d) Formwork and staging 46 per cent of (a+b+c)** | | | | 386540.76 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 247332.31 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 294835.81 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 176901.49 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 19459.16 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1965375.53 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 16378.13 | |
| | | | | | | ***say*** | ***16378.00*** | |
| **14.1F (iii)** | | (r) | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 840306.00 | |
| | | | **d) Formwork and staging 56 per cent of (a+b+c)** | | | | 470571.36 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 264272.88 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 315030.05 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 189018.03 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 20791.98 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 2099990.30 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 17499.92 | |
| | | | | | | ***say*** | ***17500.00*** | |
| **14.1** | | G | **PSC Grade M-50** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 58.800 | 9100.00 | 535080.00 | M-081 |
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | Admixture @ 0.4 per cent of cement | kg | 235.200 | 64.00 | 15052.80 | M-180 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.940 | 551.00 | 517.94 | L-12 |
| | | | Mason | day | 3.500 | 593.00 | 2075.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader | hour | 6.00 | 1838.00 | 11028.00 | P&M-017 |
| | | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | | Transit Mixer 4 cum capacity lead upto1 Km | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Lead beyond 1 Km, L - lead in Kilometer | tonne.km | 300L | 80.00 | 0.00 | Lead =0 km & P&M-050 |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | **868374.000** | | | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **For formwork and staging add the following:** | | | | | |
| **14.1G** | | **(i)** | **For cast-in-situ box girder, segmental construction and balanced cantilever, 35-55 per cent of cost of concrete** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum | | | | 868374.00 | |
| | | | **d) Formwork and staging 35 per cent of (a+b+c)** | | | | 303930.90 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 236336.67 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 281728.31 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 169036.99 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 18594.07 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1878000.94 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 15650.01 | |
| | | | | | | ***say*** | ***15650.00*** | |
| **14.1G (i)** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 868374.00 | |
| | | | **d) Formwork and staging 45 per cent of (a+b+c)** | | | | 390768.30 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 253843.09 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 302597.08 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 181558.25 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 19971.41 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 2017112.13 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 16809.27 | |
| | | | | | | ***say*** | ***16809.00*** | |
| **14.1G (i)** | | **(r)** | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 868374.00 | |
| | | | **d) Formwork and staging 55 per cent of (a+b+c)** | | | | 477605.70 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 271349.51 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 323465.84 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 194079.51 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 21348.75 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 2156223.31 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 17968.53 | |
| | | | | | | ***say*** | ***17969.00*** | |
| **14.1** | | **H** | **PSC Grade M- 55** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 120 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | tonne | 63.500 | 9100.00 | 577850.00 | M-081 |
| | | | Coarse sand | cum | 54.000 | 650.00 | 35100.00 | M-004 |
| | | | 20 mm Aggregate | cum | 64.800 | 1900.00 | 123120.00 | M-053 |
| | | | 10 mm Aggregate | cum | 43.200 | 1800.00 | 77760.00 | M-051 |
| | | | Admixture @ 0.4 per cent of cement | kg | 254.000 | 64.00 | 16256.00 | M-180 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.940 | 551.00 | 517.94 | L-12 |
| | | | Mason | day | 3.500 | 593.00 | 2075.50 | L-11 |
| | | | Mazdoor | day | 20.000 | 424.00 | 8480.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Batching Plant @ 20 cum/hour | hour | 6.00 | 3200.00 | 19200.00 | P&M-002 |
| | | | Generator 100 KVA | hour | 6.00 | 938.00 | 5628.00 | P&M-080 |
| | | | Loader | hour | 6.00 | 1838.00 | 11028.00 | P&M-017 |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Transit Mixer ( capacity 4.0 cu.m ) | | | | | |
| | | | Transit Mixer 4 cum capacity lead upto1 Km | hour | 15.00 | 1265.00 | 18975.00 | P&M-049 |
| | | | Lead beyond 1 Km, L - lead in Kilometer | tonne.km | 300L | 80.00 | 0.00 | Lead =0 km & P&M-050 |
| | | | Concrete Pump | hour | 6.00 | 2726.00 | 16356.00 | P&M-007 |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | **912347.000** | | | |
| | | | **For formwork and staging add the following:** | | | | | |
| **14.1H** | | **(i)** | **For cast-in-situ box girder, segmental construction and balanced cantilever, 35-55 per cent of cost of concrete** | | | | | |
| | | **(p)** | **Height upto 5m** | | | | | |
| | | | Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum | | | | 912347.00 | |
| | | | **d) Formwork and staging 35 per cent of (a+b+c)** | | | | 319321.45 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 248304.36 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 295994.56 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 177596.74 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 19535.64 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 1973099.75 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 16442.50 | |
| | | | | | | ***say*** | ***16443.00*** | |
| **14.1H (i)** | | **(q)** | **Height 5m to 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 912347.00 | |
| | | | **d) Formwork and staging 45 per cent of (a+b+c)** | | | | 410556.15 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 266697.28 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 317920.09 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 190752.05 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 20982.73 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 2119255.30 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 17660.46 | |
| | | | | | | ***say*** | ***17660.00*** | |
| **14.1H (i)** | | **(r)** | **Height above 10m** | | | | | |
| | | | ***Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum*** | | | | 912347.00 | |
| | | | **d) Formwork and staging 55 per cent of (a+b+c)** | | | | 501790.85 | |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 285090.19 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 339845.61 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+f)** | | | | 203907.37 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 22429.81 | |
| | | | Cost for 120 cum = a+b+c+d+e+f+g+h | | | | 2265410.83 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)/120** | | | | 18878.42 | |
| | | | | | | ***say*** | ***18878.00*** | |

**Note** 1.Where ever concrete is carried out using batching plant, transit mixer, concrete pump, admixers conforming IS: 9103 @ 0.4 per cent of weight of cement may be added for achieving desired slump of concrete.

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | 2. Cement provided for various components of the super structure is for estimating purpose only. Actual quantity of cement will be as per approved mix design. Similarly, the provision for coarse and fine aggregates is for estimating purpose and the exact quantity shall be as per the mix design.<br><br>3. The items like needle and surface vibrators are part of minor T & P which is already covered under the overhead charges. As such these items have not been added separately in the rate analysis. | | | | | |
| 14.2 | 1600 | | **Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications**<br>***Unit = 1 MT***<br>***Taking output = 1 MT***<br>**a) Material** | | | | | |
| | | | HYSD bars including 5 per cent for laps and wastage | tonne | 1.050 | 67000.00 | 70350.00 | M-082 |
| | | | Binding wire | Kg | 8.000 | 105.00 | 840.00 | M-072 |
| | | | **b) Labour for cutting, bending, tying and placing in position** | | | | | |
| | | | Mate | day | 0.440 | 551.00 | 242.44 | L-12 |
| | | | Blacksmith | day | 3.000 | 593.00 | 1779.00 | L-02 |
| | | | Mazdoor | day | 8.000 | 424.00 | 3392.00 | L-13 |
| | | | ***Basic Cost of Labour & Material (a+b)*** | | **76604.000** | | | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 15443.25 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 18409.34 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 11045.60 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 1215.02 | |
| | | | **Rate per MT = a+b+c+d+e+f** | | | | 122716.65 | |
| | | | | | | ***say*** | ***122717.00*** | |
| 14.3 | 1800 | | **High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications**<br>***Unit = 1 MT***<br>***Taking output = 0.377 MT***<br>Details of cost for 12T13 strand 40 m long cable (weight = 0.377 MT)<br>**a) Material** | | | | | |
| | | | H.T. Strand @ 9.42 kg/m including 2 per cent for wastage and extra length for jacking | tonne | 0.390 | 74697.00 | 29131.83 | M-119 |
| | | | Sheathing duct ID 66 mm along with 5 per cent extra length 40 x 1.05 = 42 m. | metre | 42.000 | 116.00 | 4872.00 | M-165 |
| | | | Tube anchorage set complete with bearing plate, permanent wedges etc | each | 2.000 | 4894.00 | 9788.00 | M-187 |
| | | | Cement for grouting including 3 per cent wastage @ 3.00 kg/m = 3 x 1.03 x 40 = 123.60 kg (say, = 125 kg) | tonne | 0.130 | 9100.00 | 1183.00 | M-081 |
| | | | Add 0.50 per cent cost of material for Spacers, Insulation tape and miscellaneous items | | | | 2248.74 | |
| | | | **b) Labour**<br>**i) For making and fixing cables, anchorages** | | | | | |
| | | | Mate | day | 0.160 | 551.00 | 88.16 | L-12 |
| | | | Blacksmith | day | 1.000 | 593.00 | 593.00 | L-02 |
| | | | Mazdoor | day | 3.000 | 424.00 | 1272.00 | L-13 |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **ii) For prestressing** | | | | | |
| | | | Mate/Supervisor | day | 0.050 | 551.00 | 27.55 | L-12 |
| | | | Prestressing operator / Fitter | day | 0.250 | 593.00 | 148.25 | L-08 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **iii) For grouting** | | | | | |
| | | | Mate/Supervisor | day | 0.050 | 551.00 | 27.55 | L-12 |
| | | | Mason | day | 0.250 | 593.00 | 148.25 | L-11 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Stressing jack with pump | hour | 2.500 | 170.00 | 425.00 | P&M-040 |
| | | | Grouting pump with agitator | hour | 1.000 | 193.00 | 193.00 | M-111 |
| | | | Generator 33 KVA. | hour | 3.500 | 506.00 | 1771.00 | P&M-079 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 10637.49 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 12680.56 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 7608.34 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 836.92 | |
| | | | Cost for 0.377 MT (a+b+c+d+e+f+g) | | | | 84528.64 | |
| | | | **Rate per MT = (a+b+c+d+e+f+g)/0.377** | | | | 224213.90 | |
| | | | | | | ***say*** | ***224214.00*** | |
| | | **Note** | Cost of HT steel has been taken for delivery at site. Hence carriage has not been considered. | | | | | |
| **14.4** | **2702** | | **Providing and laying Cement concrete wearing coat M-30 grade including reinforcement complete as per drawing and Technical Specifications** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement concrete M30 Grade Refer relevant item of concrete in Item 14.1 ( Excluding formwork and excluding GST, OH, CP & Cess) | cum | 1.000 | 6349.00 | 6349.00 | Item 14.1(C) |
| | | | HYSD bar reinforcement Rate as per item No 14.2( Excluding formwork and excluding GST, OH, CP & Cess) | tonne | 0.080 | 76604.00 | 6128.32 | Item 14.2 A |
| | | | **b) Labour** | | | | | |
| | | | Mazdoor for cleaning deck slab concrete surface. | day | 0.150 | 424.00 | 63.60 | L-13 |
| | | | **c) GST @ 0.2016 on (a+b)** | | | | 2528.25 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 3013.83 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1808.30 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 198.91 | |
| | | | **Rate per cum (a+b+c+d+e+f)** | | | | 20090.21 | |
| | | | | | | ***say*** | ***20090.00*** | |
| **14.5** | **515 & 2702** | | **Mastic Asphalt** | | | | | |
| | | | **Providing and laying 12 mm thick mastic asphalt wearing course on top of deck slab excluding prime coat with paving grade bitumen meeting the requirements given in table 500-29, 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 9.5 mm nominal size at the rate of 0.005cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces not less than 100 deg. C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515.** | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 72.46 sqm (2 tonnes)(0.869 cum) assuming a density of 2.3 tonnes/cum.*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.490 | 551.00 | 269.99 | L-12 |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Mazdoor | day | 11.000 | 424.00 | 4664.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 1.250 | 508.00 | 635.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Mechanical broom @ 1250 sqm per hour | hour | 0.060 | 473.00 | 28.38 | P&M-031 |
| | | | Air compressor 250 cfm | hour | 0.060 | 658.00 | 39.48 | P&M-001 |
| | | | Mastic cooker 1 tonne capacity | hour | 6.000 | 135.00 | 810.00 | P&M-030 |
| | | | Bitumen boiler 1500 litres capacity | hour | 6.000 | 348.00 | 2088.00 | P&M-005 |
| | | | Tractor for towing and positioning of mastic cooker and bitumen boiler | hour | 1.000 | 530.00 | 530.00 | P&M-053 |
| | | | **c) Material** | | | | | |
| | | | Base mastic (without coarse aggregates) = 60 per cent | | | | | |
| | | | Coarse aggregate(3.35mm to 9.5 mm size) = 40 per cent . | | | | | |
| | | | Proportion of material required for mastic asphalt with coarse aggregates (based on mix design done for a specific case) | | | | | |
| | | | **i)** Bitumen 80/100 or 60/70 or 30/40 @ 10.2 per cent by weight of mix. 2 x 10.2/100 = 0.204 | tonne | 0.200 | 57924.00 | 11584.80 | M-074 |
| | | | **ii)** Crusher stone dust @ 31.9 per cent by weight of mix = 2 x 31.9/100 = 0.638 tonnes = 0.638/1.625 = 0.39 | cum | 0.390 | 700.00 | 273.00 | M-021 |
| | | | **iii)** Lime stone dust filler with calcium carbonate content not less than 80 per cent by weight @ 17.92 per cent by weight of mix = 2 x 17.92/100 = 0.36 | tonne | 0.360 | 15000.00 | 5400.00 | M-188 |
| | | | **iv)** Coarse aggregates 9.5 mm to 3.35 mm size @ 40 per cent by weight of mix = 2 x 40/100 = 0.8 MT = 0.8/1.456 = 0.55 | cum | 0.550 | 1800.00 | 990.00 | M-051 |
| | | | **v)** Pre-coated stone chips of 9.5 mm nominal size for skid resistance = 72.46x0.005/10 = 0.036 | cum | 0.040 | 2107.00 | 84.28 | M-142 |
| | | | **vi)** Bitumen for coating of chips @ 2 per cent by weight = 0.036 x 1.456 x 2/100 = 0.001048MT = 1.05kg | kg | 1.050 | 57.92 | 60.82 | M-074/1000 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 5535.48 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 6598.65 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 3959.19 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 435.51 | |
| | | | Cost for 72.46 sqm = a+b+c+d+e+f+g | | | | 43986.58 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/72.46** | | | | 607.05 | |
| | | | | | | ***say*** | ***607.00*** | |

**Note** **1.**The rates for 6 mm or any other thickness 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.

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **4.**This rate analysis is based on design made for a specific case and is meant for estimating purposes only. Actual design is required to be done for each case. | | | | | |
| | | | **5.**The quantity of bitumen works out 17 per cent of the mastic asphalt blocks without aggregates and falls within the standards laid down by MoRTH Specifications. | | | | | |
| **14.6** | **2703, 1500, 1600 & 1700** | | **Construction of precast RCC railing of M30 Grade, aggregate size not exceeding 12 mm, true to line and grade, tolerance of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post for expansion, complete as per approved drawings and technical specifications.** | | | | | |
| | | | ***Unit = 1 RM*** | | | | | |
| | | | ***Taking output = 2 x 24 m span = 48 m*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement concreteM30 Grade Refer relevant item of concrete in Item 14.1(C) by using batching plant, excluding formwork i.e. per cum basic cost (a+b+c) ( Excluding formwork and excluding GST, OH, CP & Cess) | cum | 4.090 | 6349.00 | 25967.41 | Item 14.1(C) |
| | | | No. of vertical posts = (12 + 2)2 = 28 Nos., External area of vertical post 0.25x0.275 = 0.069sqm, Concrete in Vertical posts = 0.069 x 28 = 1.932 cum, Hand rail in 3 tiers = 3 x 24 = 72 m, External area = 0.170 x 0.175 = 0.03 sqm, Concrete in hand rails = 0.03 x 72 = 2.16 cum, Total Concrete = 1.932 + 2.16 = 4.092 cum. (Refer MoRTH SD / 202). | | | | | |
| | | | Add 5 per cent of above cost for form work for casting in casting yard. | | | | 1298.37 | |
| | | | HYSD bar reinforcement Rate as per item No 14.2( Excluding formwork and excluding GST, OH, CP & Cess) | tonne | 0.870 | 76604.00 | 66645.48 | Item 14.2 A |
| | | | Refer MoRTH SD / 202. | | | | | |
| | | | Add 5 per cent of (a) for handling and fixing of precast panels in position | | | | 4695.56 | |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 19879.13 | |
| | | | **c) Overhead charges @ 20 % on (a+b)** | | | | 23697.19 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 14218.31 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 1564.01 | |
| | | | **Rate for 48 m (a+b+c+d+e)** | | | | 157965.46 | |
| | | | **Rate per metre (a+b+c+d+e)/48** | | | | 3290.95 | |
| | | | | | | ***say*** | ***3291.00*** | |
| | | **Note** | 1.Quantities of material have been adopted from standard plans of MoRTH vide drawing no. SD/202. | | | | | |
| | | | 2.48 m length is the total linear length adding both sides of 24 m span. | | | | | |
| **14.7** | **2703, 1500, 1600 & 1700** | | **Construction of RCC railing of M30 Grade in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post for expansion, complete as per approved drawings and technical specifications.** | | | | | |
| | | | ***Unit = 1 RM*** | | | | | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | ***Taking output = 2 x 24 m span = 48 m.*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement concreteM30 Grade Refer relevant item of concrete in Item 14.1(C) by using batching plant, excluding formwork i.e. per cum basic cost (a+b+c) ( Excluding formwork and excluding GST, OH, CP & Cess) | cum | 4.090 | 6349.00 | 25967.41 | Item 14.1(C) |
| | | | No. of vertical posts = (12 + 2)2 = 28 Nos., External area of vertical post 0.25x0.275 = 0.069sqm, Concrete in vehicle posts = 0.069 x 28 = 1.932 cum, Hand rail in 3 tiers = 3 x 24 = 72 m, External area = 0.170 x 0.175 = 0.03 sqm, Concrete in hand rails = 0.03 x 72 = 2.16 cum, Total Concrete = 1.932 + 2.16 = 4.092 cum. (Refer MoRTH SD / 202). | | | | | |
| | | | Add 12 per cent of above cost for form work. | | | | 3116.09 | |
| | | | HYSD bar reinforcement Rate as per item No 14.2(Excluding formwork and excluding GST, OH, CP & Cess) refer MoRTH SD / 202. | tonne | 0.870 | 76604.00 | 66645.48 | Item 14.2 A |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 19298.96 | |
| | | | **c) Overhead charges @ 20 % on (a+b)** | | | | 23005.59 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 13803.35 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 1518.37 | |
| | | | **Rate for 48 m (a+b+c+d+e)** | | | | 153355.25 | |
| | | | **Rate per metre (a+b+c+d+e)/48** | | | | 3194.90 | |
| | | | | | | ***say*** | ***3195.00*** | |
| | | **Note** | **1.** Quantities of material have been adopted from standard plans of MoRTH vide drawing no. SD/202. | | | | | |
| | | | **2.** 48 m length is the total linear length adding both sides of 24 m span. | | | | | |
| **14.8** | **2703.2 & 1900** | | **Providing, fitting and fixing mild steel railing complete as per drawing and Technical Specification** | | | | | |
| | | | ***Unit = 1 RM*** | | | | | |
| | | | ***Taking output = 2 x 50 m span = 100 m*** | | | | | |
| | | | **a) Material:** | | | | | |
| | | | 1) ISMC 100 = 2.806 x 1.05 = 2.946 MT | tonne | 2.950 | 50728.00 | 149647.60 | M-179 |
| | | | 2) MS Flat = 0.964 x 1.05 = 1.012 MT | tonne | 1.010 | 50728.00 | 51235.28 | M-179 |
| | | | 3) MS bars = 0.17 x 1.05 = 0.180 MT | tonne | 0.180 | 50728.00 | 9131.04 | M-179 |
| | | | 4) MS bolts, nuts and washers | tonne | 0.150 | 120000.00 | 18000.00 | M-130*1000 |
| | | | Add @ 5 per cent of cost of material for painting one shop coat with red oxide primer and three coats of synthetic enamel paint and consumables to safeguard against weathering and | | | | 11400.70 | |
| | | | Add for cost of concrete for fixing vertical posts in the performed recess @ 1 per cent of cost of material. | | | | 2280.14 | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Add for electricity charges, welding and drilling equipment, electrodes and other consumables @ 1 per cent of cost of material. | | | | 2280.14 | |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 2.800 | 551.00 | 1542.80 | L-12 |
| | | | Mazdoor (Skilled) | day | 30.000 | 508.00 | 15240.00 | L-15 |
| | | | Mazdoor | day | 40.000 | 424.00 | 16960.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 55987.89 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 66741.12 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 40044.67 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 4404.91 | |
| | | | Cost for 100 m steel railing = a+b+c+d+e+f | | | | 444896.29 | |
| | | | **Rate per metre (a+b+c+d+e+f)/100** | | | | 4448.96 | |
| | | | | | | ***say*** | ***4449.00*** | |
| **14.9** | **2705** | | **Drainage Spouts complete as per drawing and Technical specification** | | | | | |
| | | | ***Unit = 1 No.*** | | | | | |
| | | | ***Taking output = 1 No.*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Corrosion resistant Structural steel including 5 per cent | Kg | 4.000 | 71.00 | 284.00 | M-087/1000 |
| | | | GI pipe 100mm dia | metre | 6.000 | 43.00 | 258.00 | M-056 |
| | | | GI bolt 10 mm Dia | each | 6.000 | 44.60 | 267.60 | M-110 |
| | | | Galvanised MS flat clamp | each | 2.000 | 38.00 | 76.00 | M-101 |
| | | | **b) Labour** | | | | | |
| | | | **For fabrication** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Skilled (Blacksmith, welder etc.) | day | 0.020 | 593.00 | 11.86 | L-02 |
| | | | Mazdoor | day | 0.020 | 424.00 | 8.48 | L-13 |
| | | | **For fixing in position** | | | | | |
| | | | Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| | | | Mason | day | 0.010 | 593.00 | 5.93 | L-11 |
| | | | Mazdoor | day | 0.200 | 424.00 | 84.80 | L-13 |
| | | | Add @ 5 per cent of cost of material and labour for electrodes, cutting gas, sealant, anti-corrosive bituminous paint, mild steel grating etc. | | | | 50.66 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 214.47 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 255.67 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 153.40 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 16.87 | |
| | | | **Rate per metre (a+b+c+d+e+f)** | | | | 1704.27 | |
| | | | | | | ***say*** | ***1704.00*** | |
| | | **Note** | **1.** In case of viaducts in urban areas, the drainage spouts should be connected with suitably located pipelines to discharge the surface run-off to drains provided at ground level. | | | | | |
| | | | **2.** In case of bridges, sufficient length of G.I Pipe shall be provided to ensure that there is no splashing of water from the drainage spout on the structure. | | | | | |
| **14.10** | **2700** | | **PCC M15 Grade leveling course below approach slab complete as per drawing and Technical specification** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | | **Material** | | | | | |
| | | | Concrete, Rate as per item No. 12.8 (A) excluding formworks ( Including GST, OH, CP & Cess) | cum | 1.000 | 9011.00 | 9011.00 | Item 12.8 (A) |
| | | | **Rate per cum** | | | ***say*** | ***9011.00*** | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| **14.11** | **1500, 1600, 1700 & 2704** | | **Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical specification** | | | | | |
| | | | ***Unit = 1 cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement concreteM30 Grade Refer relevant item of concrete in item 12.8(G)by using batching plant, excluding formwork i.e. per cum basic cost (a+b+c) (Excluding GST, OH, CP & Cess) | cum | 1.000 | 6343.00 | 6343.00 | Item 12.8 (G) |
| | | | ( Refer relevant item of concrete in item No. 13.8 (G) except that form work may be added at the rate of 2 per cent of cost against 3.5 per cent provided in the foundation concrete. | | | | 126.86 | |
| | | | HYSD bar reinforcement Rate as per item No 14.2(Excluding GST, OH, CP & Cess) | tonne | 0.050 | 76604.00 | 3830.20 | Item 14.2 A |
| | | | **b) GST (multiplying factor 0.2016) on (a)** | | | | 2076.49 | |
| | | | **c) Overhead charges @ 20 % on (a+b)** | | | | 2475.31 | |
| | | | **d) Contractor's profit @ 10 % on (a+b+c)** | | | | 1485.19 | |
| | | | **e) Cess @ 1% on (a+b+c+d)** | | | | 163.37 | |
| | | | **Rate per cum (a+b+c+d+e)** | | | | 16500.42 | |
| | | | | | | ***say*** | ***16500.00*** | |
| | | **Note** | The grade of reinforced cement concrete may be adopted as M30 for severe conditions and M25 for moderate conditions. | | | | | |
| **14.15** | **800** | | **Crash Barriers** | | | | | |
| | | | The rate analysis for rigid crash barrier in reinforced cement concrete, semi-rigid crash barrier with metal beam and flexible crash barrier with wire ropes have been made and included in chapter-8 on Traffic and Transportation. | | | | | |
| **14.16** | **800** | | **Painting on concrete surface** | | | | | |
| | | | **Providing and applying 2 coats of water based cement paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying paint @ of 1 litre for 2 sqm.** | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 10 sqm*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| | | | Painter | day | 0.250 | 593.00 | 148.25 | L-18 |
| | | | Mazdoor (Skilled) | day | 0.250 | 508.00 | 127.00 | L-15 |
| | | | **b) Material** | | | | | |
| | | | Water based paint of approved quality for cement concrete surface | Litres | 5.000 | 140.00 | 700.00 | M-190 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 197.72 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 235.70 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 141.42 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 15.56 | |
| | | | Cost for 10 sqm (a+b+c+d+e+f) | | | | 1571.16 | |
| | | | **Rate per sqm (a+b+c+d+e+f)/10** | | | | 157.12 | |
| | | | | | | ***say*** | ***157.00*** | |
| **14.17** | **2604** | | **Burried Joint** | | | | | |
| | | | **Providing and laying a burried expansion joint, expansion gap being 20 mm, covered with 12 mm thick, 200 mm wide galvanised weldable structural steel plate as per IS: 2062, placed symmetrical to centre line of the joint, resting freely over the top surface of the deck concrete, welding of 8 mm dia. 100 mm long galvanised nails spaced 300 mm c/c along the centre line of the plate, all as specified in clause 2604.** | | | | | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | ***Unit = Running meter*** | | | | | |
| | | | ***Taking output = 12 m*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Mazdoor | day | 0.400 | 424.00 | 169.60 | L-13 |
| | | | Mazdoor (Skilled) | day | 0.200 | 508.00 | 101.60 | L-15 |
| | | | **b) Material** | | | | | |
| | | | Galvanised M.S plate 200 mm wide,12 mm thick @ 94.20 kg/sqm including 5 per cent | kg | 237.500 | 63.14 | 14995.75 | M-060/1000 |
| | | | Add 1 per cent of cost of steel plate cutting, welding consumables and galvanised | | | | 149.96 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3110.27 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 3707.64 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2224.58 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 244.70 | |
| | | | Cost for 12 m = (a+b+c+d+e+f) | | | | 24715.12 | |
| | | | **Rate per m = (a+b+c+d+e+f)/12** | | | | 2059.59 | |
| | | | | | | ***say*** | ***2060.00*** | |
| | | **Note** | Guidelines laid down vide the MoRTH circular No. RW/NH-34059/1/96-S&R dated 30.11.2000 and subsequent corrigendum dated 25.01.2001 may be reffered for expansion joints. | | | | | |
| **14.18** | **2605** | | **Filler joint** | | | | | |
| | | **(i)** | **Providing & fixing 2 mm thick corrugated copper plate in expansion joint complete as per drawing & Technical Specification.** | | | | | |
| | | | ***Unit = Running meter*** | | | | | |
| | | | ***Taking output = 12 m*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Cutting, bending, carrying & fixing etc. | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 0.500 | 508.00 | 254.00 | L-15 |
| | | | **b) Material** | | | | | |
| | | | Copper plate - 12m long x 250 mm wide | kg | 55.000 | 850.00 | 46750.00 | M-086 |
| | | | Area = 12 x 0.25 = 3 sqm | | | | | |
| | | | Weight = 3 x 0.002 x 8900 = 53.4 kg | | | | | |
| | | | Wastage @ 2.5 per cent = 1.33 kg/54.73 kg say = 55 kg. | | | | | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 9523.19 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 11352.25 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 6811.35 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 749.25 | |
| | | | Cost for 12 m = (a+b+c+d+e+f) | | | | 75674.08 | |
| | | | **Rate per m = (a+b+c+d+e+f)/12** | | | | 6306.17 | |
| | | | | | | ***say*** | ***6306.00*** | |
| **14.18** | | **(ii)** | **Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & Technical Specification.** | | | | | |
| | | | ***Unit = Running meter*** | | | | | |
| | | | ***Taking output = 12 m*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | For carrying, placing & fixing. | | | | | |
| | | | Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| | | | Mazdoor | day | 0.100 | 424.00 | 42.40 | L-13 |
| | | | Mazdoor (Skilled) | day | 0.100 | 508.00 | 50.80 | L-15 |
| | | | **b) Material** | | | | | |
| | | | 20 mm thick compressible fibre board 12 m long x 25 cm deep. | sqm | 3.000 | 798.00 | 2394.00 | M-084 |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Area = 12 x 0.25 = 3 sqm | | | | | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 502.53 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 599.05 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 359.43 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 39.54 | |
| | | | Cost for 12 m = (a+b+c+d+e+f) | | | | 3993.26 | |
| | | | **Rate per m = (a+b+c+d+e+f)/12** | | | | 332.77 | |
| | | | | | | ***say*** | ***333.00*** | |
| **14.18** | | **(iii)** | **Providing and fixing in position 20 mm thick premoulded joint filler in expansion joint for fixed ends of simply supported spans not exceeding 10 m to cater for a horizontal movement upto 20 mm, covered with sealant complete as per drawing and technical specifications.** | | | | | |
| | | | ***Unit = Running meter*** | | | | | |
| | | | ***Taking output = 12 m*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| | | | Mazdoor | day | 0.200 | 424.00 | 84.80 | L-13 |
| | | | Mazdoor (Skilled) | day | 0.100 | 508.00 | 50.80 | L-15 |
| | | | **b) Material** | | | | | |
| | | | Premoulded joint filler 12 m long,20 mm thick and 300 mm deep. | sqm | 3.600 | 950.00 | 3420.00 | M-141 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 717.92 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 855.81 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 513.48 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 56.48 | |
| | | | Cost for 12 m = (a+b+c+d+e+f) | | | | 5704.80 | |
| | | | **Rate per m = (a+b+c+d+e+f)/12** | | | | 475.40 | |
| | | | | | | ***say*** | ***475.00*** | |
| **14.18** | | **(iv)** | **Providing and filling joint sealing compound as per drawings and technical specifications with coarse sand and 6 per cent bitumen by weight** | | | | | |
| | | | ***Unit = Running meter*** | | | | | |
| | | | ***Taking output = 12 m*** | | | | | |
| | | | 12m long x 100 mm wide x 10mm deep recess | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | Mazdoor | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 0.100 | 508.00 | 50.80 | L-15 |
| | | | **b) Material** | | | | | |
| | | | Sand | cum | 0.010 | 650.00 | 6.50 | M-005 |
| | | | Volume 12 x 0.1 x 0.01 = 0.012 cum | | | | | |
| | | | Weight 0.012 x 1400 = 16.8kg | | | | | |
| | | | **Bitumen** | cum | 0.000 | 57924.00 | 0.00 | M-074 |
| | | | 16.8 x 0.06 = 1 kg | | | | | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 56.51 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 67.37 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 40.42 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 4.45 | |
| | | | Cost for 12 m = (a+b+c+d+e+f) | | | | 449.07 | |
| | | | **Rate per m = (a+b+c+d+e+f)/12** | | | | 37.42 | |
| | | | | | | ***say*** | ***37.00*** | |
| | | **Note** | For arriving at the final rate of filler joints per m length and per cm depth of joint filling compound, the rates at Sl. No. i), ii), iii) & iv) shall be added | | | | | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| **14.19** | **2600** | | **Asphaltic Plug joint** | | | | | |
| | | | **Providing and laying of asphaltic plug joint to provide for horizontal movement of 25 mm and vertical movement of 2 mm, depth of joint varying from 75 mm to 100 mm, width varying from 500 mm to 750 mm (in traffic direction), covered with a closure plate of 200mm x 6mm of weldable structural steel conforming to IS: 2062, asphaltic plug to consist of polymer modified bitumen binder, carefully selected single size aggregate of 12.5 mm nominal size and a heat resistant foam caulking/backer rod, all as per approved drawings and specifications.** | | | | | |
| | | | ***Unit = Running meter*** | | | | | |
| | | | ***Taking output = 12 m*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.050 | 551.00 | 27.55 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 0.300 | 508.00 | 152.40 | L-15 |
| | | | **b) Material** | | | | | |
| | | | Crushed stone aggregate 12.5 mm nominal size | cum | 0.750 | 1820.00 | 1365.00 | M-052 |
| | | | Polymer modified bitumen | kg | 77.500 | 58.00 | 4495.00 | M-078/ 1000 |
| | | 2.4 | Galvanised structural steel plate 200 mm wide,6 mm thick, 12 m long (2.4 sqm) @ 47.10 kg/sqm including 5 per cent wastage | kg | 113.000 | 228.00 | 25764.00 | M-103 |
| | | | Add 1 per cent for welding and foam caulking/backer rod and other incidentals. | | | | 322.28 | |
| | | | **c) Machinery** | | | | | |
| | | | Mastic cooker 1 tonne capacity | hour | 1.000 | 135.00 | 135.00 | P&M-030 |
| | | | Smooth 3-wheeled steel roller 8-10 capacity | hour | 0.500 | 783.00 | 391.50 | P&M-044 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 6668.27 | |
| | | | **e) Overhead charges @ 20 % on (a+b+c+d)** | | | | 7949.00 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 4769.40 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 524.63 | |
| | | | Cost for 12 m asphalt plug joint = (a+b+c+d+e+f+g) | | | | 52988.03 | |
| | | | **Rate per m = (a+b+c+d+e+f+g)/12** | | | | 4415.67 | |
| | | | | | | ***say*** | ***4416.00*** | |
| | | **Note** | The nominal size of aggregates shall be 12.5 mm for depth of joint upto 75 mm and 20 mm for joints of depth more than 75 mm. | | | | | |
| **14.20** | **2606** | | **Elastomeric Slab Steel Expansion Joint** | | | | | |
| | | | **Providing and laying of an elastomeric slab steel expansion joint, catering to right or skew (less than 20 deg., moderately curved with maximum horizontal movement upto 50 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation and clause 2606 of MoRTH specifications for road & bridge works.** | | | | | |
| | | | ***Unit = Running meter*** | | | | | |
| | | | ***Taking output = 12 m*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.060 | 551.00 | 33.06 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 0.500 | 508.00 | 254.00 | L-15 |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **b) Material** | | | | | |
| | | | Supply of 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), complete as per approved drawings and standard specification conforming to clause 2606 of MoRT&H Specification | metre | 12.000 | 11591.00 | 139092.00 | M-093 |
| | | | Add 5 per cent of cost of material for anchorage reinforcement, welding and other incidentals. | | | | 6954.60 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 29586.34 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 35268.80 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 21161.28 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 2327.74 | |
| | | | Cost for 12 m = (a+b+c+d+e+f) | | | | 235101.82 | |
| | | | **Rate per m = (a+b+c+d+e+f)/12** | | | | 19591.82 | |
| | | | | | | ***say*** | ***19592.00*** | |
| **14.21** | **2600** | | **Compression Seal Joint** | | | | | |
| | | | **Providing and laying of compression seal joint consisting of steel armoured nosing at two edges of the joint gap suitably anchored to the deck concrete and a preformed chloroprene elastomer or closed cell foam joint sealer compressed and fixed into the joint gap with special adhesive binder to cater for a horizontal movement upto 40 mm and vertical movement of 3 mm.** | | | | | |
| | | | ***Unit = Running meter*** | | | | | |
| | | | ***Taking output = 12 m*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 0.600 | 424.00 | 254.40 | L-13 |
| | | | Mazdoor (Skilled) | day | 0.300 | 508.00 | 152.40 | L-15 |
| | | | **b) Material** | | | | | |
| | | | 1. Galvanised angle sections 100mm x 100mm of 12mm thickness weldable structural steel as per IS: 2062, 2 nos. of 12 m length each @ 17.7 kg/m and 5 per cent wastage. | kg | 446.000 | 228.00 | 101688.00 | M-103 |
| | | | Add 5 per cent of cost of above for structural steel for anchorage, welding and other incidentals. | | | | 5105.84 | |
| | | | 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 | metre | 12.000 | 5151.00 | 61812.00 | M-143 |
| | | | Add 1 per cent of cost of sealing element for lubricant-cum-adhesive and other consumables. | | | | 618.12 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 34202.00 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 40770.96 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 24462.58 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 2690.88 | |
| | | | Cost for 12 m = (a+b+c+d+e+f) | | | | 271779.22 | |
| | | | **Rate per m = (a+b+c+d+e+f)/12** | | | | 22648.27 | |
| | | | | | | ***say*** | ***22648.00*** | |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | Note | **1.** The installation shall be done by the manufacturer or his authorised representative to the satisfaction of the Engineer.<br>**2.** The concreting for joining the expansion joint assembly with the deck has not been included in this analysis as the same is catered in the quantities of RCC deck.<br>**3.** The anchoring bars of the expansion joint assembly shall be welded to the main reinforcement of the deck. | | | | | |
| **14.22** | **2607** | | **Strip Seal Expansion Joint**<br>**Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.**<br>***Unit = Running meter***<br>***Taking output = 12 m*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.050 | 551.00 | 27.55 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 0.250 | 508.00 | 127.00 | L-15 |
| | | | **b) Material** | | | | | |
| | | | Supply of complete assembly of strip seal expansion joint comprising of edge beams, anchorage, strip seal element and complete accessories as per approved specifications and drawings. | metre | 12.000 | 14167.00 | 170004.00 | M-178 |
| | | | Add 5 per cent of cost of material for anchorage reinforcement, welding and other incidentals. | | | | 8529.13 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 36108.91 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 43044.12 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 25826.47 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 2840.91 | |
| | | | Cost for 12 m = (a+b+c+d+e+f) | | | | 286932.09 | |
| | | | **Rate per m = (a+b+c+d+e+f)/12** | | | | 23911.01 | |
| | | | | | | ***say*** | ***23911.00*** | |
| | | Note | **1.** The installation shall be done by the manufacturer or his authorised representative to the satisfaction of the Engineer.<br>**2.** The concreting for joining the expansion joint assembly with the deck has not been included in this analysis as the same is catered in the quantities of RCC deck. | | | | | |
| **14.23** | **2600** | | **Modular Strip / Box Seal Joint**<br>**Providing and laying of a modular strip Box seal expansion joint including anchorage catering to a horizontal movement beyond 70 mm and upto 140mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.**<br>***Unit = Running meter***<br>***Taking output = 12 m*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.060 | 551.00 | 33.06 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 0.400 | 508.00 | 203.20 | L-15 |

| Sr No | Ref. to MoRTH/D SR Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **b) Material** | | | | | |
| | | | Supply of a modular strip/box seal joint 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 | 12.000 | 244696.00 | 2936352.00 | M-127 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 592101.67 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 705822.79 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 423493.67 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 46584.30 | |
| | | | Cost for 12 m Modular strip/box seal joint = (a+b+c+d+e+f) | | | | 4705014.69 | |
| | | | **Rate per m = (a+b+c+d+e+f)/12** | | | | 392084.56 | |
| | | | | | | ***say*** | ***392085.00*** | |
| | | **Note** | **1.** The installation shall be done by the manufacturer or his authorised representative to the satisfaction of the Engineer.<br>**2.** The concreting for joining the expansion joint assembly with the deck has not been included in this analysis as the same is catered in the quantities of RCC deck.<br>**3.** The anchoring bars of the expansion joint assembly shall be welded to the main reinforcement of the deck. | | | | | |
| **14.24** | **2600** | | **Modular Strip / Box Seal Joint** | | | | | |
| | | | **Providing and laying of a modular strip box seal expansion joint catering to a horizontal movement beyond 140mm and upto 210mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.** | | | | | |
| | | | ***Unit = Running meter*** | | | | | |
| | | | ***Taking output = 12 m*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.070 | 551.00 | 38.57 | L-12 |
| | | | Mazdoor | day | 1.250 | 424.00 | 530.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 0.500 | 508.00 | 254.00 | L-15 |
| | | | **b) Material** | | | | | |
| | | | Supply of a modular 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 | 12.000 | 270454.00 | 3245448.00 | M-128 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 654448.15 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 780143.74 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 468086.25 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 51489.49 | |
| | | | Cost for 12 m Modular strip/box seal joint = (a+b+c+d+e+f) | | | | 5200438.20 | |
| | | | **Rate per m = (a+b+c+d+e+f)/12** | | | | 433369.85 | |
| | | | | | | ***say*** | ***433370.00*** | |
| | | **Note** | **1.** The installation shall be done by the manufacturer or his authorised representative to the satisfaction of the Engineer.<br>**2.** The concreting for joining the expansion joint assembly with the deck has not been included in this analysis as the same is catered in the quantities of RCC deck.<br>**3.** The anchoring bars of the expansion joint assembly shall be welded to the main reinforcement of the deck. | | | | | |

## Chapter – 15

## PROTECTION WORKS

**Preamble:**

1 Three types of aprons as under have been catered for:

a. Boulder apron laid dry

b. Boulder apron laid in wire crates

c. Apron laid in cement concrete blocks of M 15 grade

2 A toe wall for toe protection of pitching can be either in random rubble masonry or in nominal mix cement concrete M 10, or in brick masonry. Depending upon the design, the rates may be adopted under respective clauses.

3 Flooring has been proposed in dry rubble stone, rubble stone laid in cement mortar 1:3, cement concrete blocks M 15 and brick on edge laid in cement mortar (CM) 1:3.

4 Curtain walls proposed are of the following types:

b. Coursed rubble stone masonry (1st sort) is CM 1:3

c. Cement concrete M-15 grade

5 The rate analysis for gabionstructures comprising of stone boulders laid in wire crates have been included. Such structures are suited as retaining structures and for crosion control in river training works especially for situations where some settlement of foundation is anticipated. These structures can adjust in minor settlements, being flexible structures, without losing their functional requirement.

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 15.1 | 2503 | | **Providing and laying boulders apron on river bed for protection against scour with stone boulders weighing not less than 40 kg each complete as per drawing and Technical specification.** | | | | | |
| | | A | **Boulder Laid Dry Without Wire Crates.** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Stone | cum | 1.000 | 893.00 | 893.00 | M-003 |
| | | | Stone Spalls | cum | 0.200 | 300.00 | 60.00 | M-008 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mason | day | 0.350 | 593.00 | 207.55 | L-11 |
| | | | Mazdoor * | day | 0.750 | 424.00 | 318.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 302.52 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 360.62 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 216.37 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 23.80 | |
| | | | **Rate per cum = (a+b+c+d+e+f)** | | | | 2403.90 | |
| | | | | | | ***say*** | ***2404.00*** | |
| | | | * Including excavation for trimming for preparation of bed. | | | | | |
| | | | **Note** Nominal excavation required for preparation of bed has been taken into account while making provision for labour. | | | | | |
| 15.2 | 2503 | | **Boulder Apron Laid in Wire Crates** | | | | | |
| | | | **Providing and laying of boulder apron laid in wire crates made with 4mm dia GI wire conforming to IS: 280 & IS:4826 in 100mm x 100mm mesh (weaved diagonally) including 10 per cent extra for laps and joints laid with stone boulders weighing not less than 40 kg each.** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 3 mx1.5mx1.25m = 5.63 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | 4mm GI wire crates woven in mesh size of 100 mm x 100 mm. | sqm | 22.000 | 191.00 | 4202.00 | M-102 |
| | | | Stone | cum | 5.630 | 893.00 | 5027.59 | M-003 |
| | | | Stone Spalls | cum | 1.130 | 300.00 | 339.00 | M-008 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.180 | 551.00 | 99.18 | L-12 |
| | | | Mazdoor (Skilled) | day | 1.500 | 508.00 | 762.00 | L-15 |
| | | | Mazdoor | day | *3.00 | 424.00 | 1272.0 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 2359.08 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 2812.17 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 1687.30 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 185.60 | |
| | | | Cost for 5.63 cum = a+b+c+d+e+f | | | | 18745.92 | |
| | | | **Rate per cum = (a+b+c+d+e+f)/5.63** | | | | 3329.65 | |
| | | | | | | ***say*** | ***3330.00*** | |
| | | | * Including excavation for trimming for preparation of bed. | | | | | |
| | | | **Note** Readymade woven wire crate rolls have been considered in the rate analysis. In case readymade rolls are not available, GI wire 4mm dia. @ 32 kg per 10 sqm may be provided. In that case 2 per cent of the cost of GI wire may be added for weaving the wire crates. | | | | | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 15.3 | 2503 | | **Cement Concrete Blocks (size 0.5 x 0.5 x 0.5 m)** | | | | | |
| | | | **Providing and laying of apron with cement concrete blocks of size 0.5x0.5x0.5 m cast in-situ and made with nominal mix of M-15 grade cement concrete with a minimum cement content of 250 kg/cum as per IRC: 21-2000.** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking out put = 1 cum*** | | | | | |
| | | | Concrete Grade M15 Rate as per item No. 12.8 (A) including GST, OH, CP & Cess. | cum | 1.000 | 9371.00 | 9371.00 | Item 12.8 (A) |
| | | | Add 2 per cent of cost to account for excavation for preparation of bed, nominal surface reinforcement and filling of granular material in recesses between blocks. | | | | 187.42 | |
| | | | **Rate per cum** | | | | 9558.42 | |
| | | | | | | ***say*** | ***9558.00*** | |
| 15.4 | 2504 | | **Providing and laying Pitching on slopes laid over prepared filter media including boulder apron laid dry in front of toe of embankment complete as per drawing and Technical specifications** | | | | | |
| | | A | **Stone/Boulder** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Stone weighing not less than 40kg | cum | 1.000 | 893.00 | 893.00 | M-003 |
| | | | Stone spalls of minimum 25 mm size | cum | 0.200 | 300.00 | 60.00 | M-008 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mason | day | 0.350 | 593.00 | 207.55 | L-11 |
| | | | Mazdoor | day | 0.750 | 424.00 | 318.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 302.52 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 360.62 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 216.37 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 23.80 | |
| | | | **Rate per cum = (a+b+c+d+e+f)** | | | | 2403.90 | |
| | | | | | | ***say*** | ***2404.00*** | |
| 15.4 | | B | **Cement Concrete Blocks of size 0.3x0.3 x0.3 m cast in cement concrete of Grade M15** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | | Concrete Grade M15 Rate as per item No. 12.8 (A) including GST, OH, CP & Cess. | cum | 1.000 | 9371.00 | 9371.00 | Item 12.8 (A) |
| | | | Add 2 per cent of cost to account for nominal surface reinforcement and filling of granular material in recesses between blocks. | | | | 187.42 | |
| | | | **Rate per cum** | | | | 9558.42 | |
| | | | | | | ***say*** | ***9558.00*** | |
| 15.5 | 2504 | | **Providing and laying Filter material underneath pitching in slopes complete as per drawing and Technical specification** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Graded stone aggregate of required size | cum | 1.200 | 1450.00 | 1740.00 | M-012 |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.050 | 551.00 | 27.55 | L-12 |
| | | | Mazdoor (Skilled) | day | 0.250 | 508.00 | 127.00 | L-15 |
| | | | Mazdoor * | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 467.42 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 557.19 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 334.32 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 36.77 | |
| | | | **Rate per cum = (a+b+c+d+e+f)** | | | | 3714.25 | |
| | | | | | | ***say*** | ***3714.00*** | |
| | | | Includes Mazdoor required for trimming of slope to proper profile and preparation of bed. | | | | | |
| **15.7** | **2504.4** | | **Toe protection** | | | | | |
| | | | **A toe wall for toe protection can either be in dry rubble masonry in case of dry rubble pitching or pitching with stones in wire crates or it can be in PCC M15 nominal mix if cement concert block have been used for pitching . Rates for toe wall can be adopted from respective clauses depending upon approved design. The rate for excavation for foundation, dry rubble masonry and PCC M15 have been analysed and given in respective chapters.** | | | | | |
| **15.8** | **2505** | | **Providing and laying Flooring complete as per drawing and Technical specifications laid over cement concert bedding.** | | | | | |
| | | **A** | **Rubble stone laid in cement mortar 1:3** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | | **a) Cement mortor 1:3** (Rate as in Item 12.6 sub-analysis) excluding GST, OH, CP & Cess | cum | 0.330 | 5727.00 | 1889.91 | Item 12.6 (A) |
| | | | **b) Add for cement concrete bedding (M15 Nominal mix) vide Item 12.8 (A) excluding GST, OH, CP & Cess . Quantity shall be adopted as per design ( Assume Rubble stone Flooring thickness 300mm and cement concrete bedding thickness 100mm)** | cum | 0.330 | 5625.00 | 1856.25 | Item 12.8 (A) |
| | | | Add 1 per cent of cost to account for excavation for preparation of bed. | | | | 37.46 | |
| | | | **c) Material** | | | | | |
| | | | Stone | cum | 1.000 | 893.00 | 893.00 | M-003 |
| | | | Stone Spalls | cum | 0.200 | 300.00 | 60.00 | M-008 |
| | | | **d) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mason | day | 0.500 | 593.00 | 296.50 | L-11 |
| | | | Mazdoor (for laying stones, filling of quarry spalls) | day | 1.500 | 424.00 | 636.00 | L-13 |
| | | | **e) GST (multiplying factor 0.2016) on (a+b+c+d)** | | | | 1144.23 | |
| | | | **f) Overhead charges @ 20 % on (a+b+c+d+e)** | | | | 1363.99 | |
| | | | **g) Contractor's profit @ 10 % on (a+b+c+d+e+f)** | | | | 818.40 | |
| | | | **h) Cess @ 1% on (a+b+c+d+e+f+g)** | | | | 90.02 | |
| | | | **Rate per cum = (a+b+c+d+e+f+g+h)** | | | | 9129.84 | |
| | | | | | | ***say*** | ***9130.00*** | |
| | | * | Includes cement mortar for laying and filling of joints. | | | | | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 15.8 | | B | **Cement Concrete blocks Grade M15** | | | | | |
| | | | Concrete Grade M15 block. (Rate as per item No. 12.8 (A) including GST, OH, CP & Cess. | cum | 1.000 | 9371.00 | 9371.00 | Item 12.8 (A) |
| | | | Add for cement concrete bedding (M15 Nominal mix) vide Item 12.8 (A) including GST, OH, CP & Cess. Quantity shall be adopted as per design ( Assume Cement Concrete blocks thickness 300mm and cement concrete bedding thickness 100mm) | cum | 0.330 | 9371.00 | 3092.43 | Item 12.8 (A) |
| | | | Add 1 per cent of cost to account for excavation for preparation of bed. | | | | 124.63 | |
| | | | **Rate per cum** | | | | 12588.06 | |
| | | | | | | ***say*** | ***12588.00*** | |
| 15.9 | 2506 | | **Dry Rubble Flooring** | | | | | |
| | | | **Construction of dry rubble flooring at cross drainage works for relatively less important works.** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 1 cum*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Stone | cum | 1.000 | 893.00 | 893.00 | M-003 |
| | | | Stone Spalls | cum | 0.200 | 300.00 | 60.00 | M-008 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.100 | 551.00 | 55.10 | L-12 |
| | | | Mason | day | 0.500 | 593.00 | 296.50 | L-11 |
| | | | mazdoor | day | 1.500 | 424.00 | 636.00 | L-13 |
| | | | Add 1 per cent of (b) for trimming and preparation of base. | | | | 9.88 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 393.22 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 468.74 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 281.24 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 30.94 | |
| | | | **Rate per cum = (a+b+c+d+e+f)** | | | | 3124.62 | |
| | | | | | | ***say*** | ***3125.00*** | |
| 15.10 | 2507.2 | | **Curtain wall complete as per drawing and Technical specification** | | | | | |
| | | A | **Stone masonry in cement mortar (1:3)** | | | | | |
| | | | **Coursed rubble masonry (1st sort) (Rate as per item No. 12.7 (A) including GST, OH, CP & Cess.** | cum | 1.000 | 6751.00 | 6751.00 | Item 12.7 (A ) |
| | | | **Rate per cum** | | | ***say*** | ***6751.00*** | |
| | | | or | | | | | |
| 15.10 | | B | **Cement concrete Grade M15** | | | | | |
| | | | Concrete Grade M15 Rate as per item No. 12.8 (A) including GST, OH, CP & Cess. | cum | 1.000 | 9371.00 | 9371.00 | Item 12.8 (A) |
| | | | **Rate per cum** | | | ***say*** | ***9371.00*** | |
| | | Note | Other items like excavation for foundation, filling behind wall, filter media, weep holes etc. shall be added separately as per approved design. | | | | | |
| 15.11 | 2507.2 | | **Flexible Apron :Construction of flexible apron 1 m thick comprising of loose stone boulders weighing not less than 40 kg beyond curtain wall.** | | | | | |
| | | | ***Unit = cum*** | | | | | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | *Taking Output = 1 cum* | | | | | |
| | | | **a) Material** | | | | | |
| | | | Stone | cum | 1.000 | 893.00 | 893.00 | M-003 |
| | | | Stone Spalls | cum | 0.200 | 300.00 | 60.00 | M-008 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.050 | 551.00 | 27.55 | L-12 |
| | | | Mason | day | 0.250 | 593.00 | 148.25 | L-11 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | Add 1 per cent of cost of (a+b) for trimming and preparation of bed. | | | | 15.53 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 316.18 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 376.90 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 226.14 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 24.88 | |
| | | | **Rate per cum = (a+b+c+d+e+f)** | | | | 2512.43 | |
| | | | | | | ***say*** | ***2512.00*** | |
| **15.12** | **2503.3** | | **Gabian Structure for Retaining Earth** | | | | | |
| | | | **Providing and construction of a gabian structure for retaining earth with segments of wire crates of size 7 m x 3 m x 0.6 m each divided into 1.5 m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be tied with 4 mm galvanised steel wire** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 7 x 3 x 0.6 = 12.60 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.280 | 551.00 | 154.28 | L-12 |
| | | | Mazdoor | day | 5.000 | 424.00 | 2120.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 2.000 | 508.00 | 1016.00 | L-15 |
| | | | **b) Material** | | | | | |
| | | | Galvanised steel wire crates of mesh size 100 mm x 100 mm woven with 4mm dia. GI wire in rolls of required size. | sqm | 61.000 | 191.00 | 11651.00 | M-102 |
| | | | Stone boulders with least dimension of 200 mm | cum | 12.600 | 893.00 | 11251.80 | M-003 |
| | | | Stone spalls of minimum size 25 mm | cum | 2.520 | 300.00 | 756.00 | M-008 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 5432.93 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 6476.40 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 3885.84 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 427.44 | |
| | | | Cost for 12.60 cum (a+b+c+d+e+f) | | | | 43171.69 | |
| | | | **Rate per cum (a+b+c+d+e+f)/12.60** | | | | 3426.32 | |
| | | | | | | ***say*** | ***3426.00*** | |

**Note** Readymade woven wire crate rolls have been considered in the rate analysis. In case readymade rolls are not available, GI wire 4mm dia. @ 32 kg per 10 sqm may be provided. In that case 2 per cent of the cost of GI wire may be added for weaving the wire crates.

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 15.13 | 2503.3 | | **Gabian Structure for Erosion Control, River Training Works and Protection works** | | | | | |
| | | | **Providing and constructing gabian structures for erosion control, river training works and protection works with wire crates of size 2 m x 1 m x 0.3 m each divided into 1m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 mm x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be securely tied with 4 mm galvanised steel wire.** | | | | | |
| | | | ***Unit = cum*** | | | | | |
| | | | ***Taking output = 2 x 1 x 0.3 x 10 Nos. = 6.00 cum*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.140 | 551.00 | 77.14 | L-12 |
| | | | Mazdoor | day | 2.500 | 424.00 | 1060.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 1.000 | 508.00 | 508.00 | L-15 |
| | | | **b) Material** | | | | | |
| | | | Galvanised steel wire crates of mesh size 100 mm x 100 mm woven with 4mm dia. GI wire in rolls of required size to cover 6.00 cum. | sqm | 65.000 | 191.00 | 12415.00 | M-102 |
| | | | Stone boulders with least dimension of 200 mm | cum | 6.000 | 893.00 | 5358.00 | M-003 |
| | | | Stone spalls of minimum size 25 mm | cum | 1.200 | 300.00 | 360.00 | M-008 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 3987.27 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 4753.08 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 2851.85 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 313.70 | |
| | | | Cost for 6.00 cum (a+b+c+d+e+f) | | | | 31684.04 | |
| | | | **Rate per cum (a+b+c+d+e+f)/6.00** | | | | 5280.67 | |
| | | | | | | ***say*** | ***5281.00*** | |
| | | | Note Readymade woven wire crate rolls have been considered in the rate analysis. In case readymade rolls are not available, GI wire 4mm dia. @ 32 kg per 10 sqm may be provided. In that case 2 per cent of the cost of GI wire may be added for weaving the wire crates. | | | | | |

## Chapter – 16

## REPAIR AND REHABILITATION

**Preamble:**

1 Removal of cement concrete wearing coat and asphaltic wearing coat has been proposed with pneumatic breakers.

2 The rate for external prestressing has been analysed for three different spans of 25, 50 and 100 m.

3 Sealing of cracks has been proposed with cement grout, cement mortar (1:1) grout and epoxy grout by injecting with grout pump through nipples.

4 Bonding of new concrete with old concrete is proposed with epoxy resin.

5 The repair and replacement of following structures has been included -

a) Bridge Bearings

b) Expansion Joints

c) Concrete Railing

d) Mild Steel Railing

e) Crash Barrier

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 16.1 | 2809 | | **Removal of existing cement concrete wearing coat including its disposal complete as per Technical Specification without causing any detrimental effect to any part of the bridge structure and removal of dismantled material with all lifts and lead upto 1000 m** | | | | | |
| | | | ***Unit = Sq m ( Thickness 75 mm)*** | | | | | |
| | | | ***Taking output = 10 sqm*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.060 | 551.00 | 33.06 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Air Compressor 250 cfm with pneumatic breaker/jack hammer along with accessories. | hour | 1.000 | 658.00 | 658.00 | P&M-001 |
| | | | Tractor-trolley. | hour | 0.500 | 530.00 | 265.00 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 278.22 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 165.83 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 182.41 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 20.07 | |
| | | | Cost for 10 sqm = (a+d+c+d+e+f) | | | | 2026.59 | |
| | | | **Rate per sqm = (a+b+c+d+e+f)/10** | | | | 202.66 | |
| | | | | | | ***say*** | ***203.00*** | |
| 16.2 | 2809 | | **Removal of existing asphaltic wearing coat comprising of 50 mm thick asphaltic concert laid over 12 mm thick mastic asphalt including disposal with all lift and lead upto 1000 m.** | | | | | |
| | | | ***Unit = Sq m*** | | | | | |
| | | | ***Taking output = 10 sqm*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.030 | 551.00 | 16.53 | L-12 |
| | | | Mazdoor | day | 0.750 | 424.00 | 318.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Air Compressor 250 cfm with pneumatic breaker. | hour | 0.750 | 658.00 | 493.50 | P&M-001 |
| | | | Tractor-trolley. | hour | 0.400 | 530.00 | 212.00 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 209.67 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 124.97 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 137.47 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 15.12 | |
| | | | Cost for 10 sqm = (a+d+c+d+e+f) | | | | 1527.26 | |
| | | | **Rate per sqm = (a+b+c+d+e+f)/10** | | | | 152.73 | |
| | | | | | | ***say*** | ***153.00*** | |
| 16.3 | 2807 | | **Guniting concrete surface with cement mortar applied with compressor after cleaning surface and spraying with epoxy complete as per Technical Specification** | | | | | |
| | | | ***Unit = Sq m*** | | | | | |
| | | | ***Taking output = 1 sqm*** | | | | | |
| | | | Assuming thickness 25 mm | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement | kg | 16.000 | 9.10 | 145.60 | M-081/1000 |
| | | | Graded sand | cum | 0.040 | 650.00 | 26.00 | M-005 |
| | | | Wire mesh 50mm x 50mm size of 3mm wire | kg | 2.000 | 170.00 | 340.00 | M-192 |
| | | | Epoxy | kg | 0.670 | 257.00 | 172.19 | M-095 |
| | | | Accelerator compound for guniting @ 4 per cent of weight of cement | kg | 0.640 | 64.00 | 40.96 | M-180 |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Add 2 per cent of cost of material for miscellaneous consumables like nozzles, wire brush, cotton waste | | | | 14.50 | |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| | | | Mason | day | 0.040 | 593.00 | 23.72 | L-11 |
| | | | Mazdoor | day | 0.140 | 424.00 | 59.36 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Compressor with guniting equipment along with accessories | hour | 0.100 | 896.00 | 89.60 | P&M-076 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 184.96 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 110.24 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 121.26 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 13.34 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)** | | | | 1347.24 | |
| | | | | | | ***say*** | ***1347.00*** | |
| **16.4** | **2800** | | **Providing and inserting nipples with approved fixing compound after drilling holes for grouting as per Technical Specifications including subsequent cutting/removal and sealing of the hole as necessary of nipples after completion of grouting with Cement/Epoxy** | | | | | |
| | | | ***Unit = Number*** | | | | | |
| | | | ***Taking output = 1 No.*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Nipples | each | 1.000 | 32.00 | 32.00 | M-129 |
| | | | Cement, fixing compound and consumables @ 15 per cent of cost of nipple | | | | 4.80 | |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.010 | 551.00 | 5.51 | L-12 |
| | | | Mazdoor (Skilled) labour for drilling | day | 0.080 | 508.00 | 40.64 | L-15 |
| | | | Mazdoor (Skilled) labour for fixing nipple and sealing inlets | day | 0.080 | 508.00 | 40.64 | L-15 |
| | | | Mazdoor for cutting and removing of nipples | day | 0.040 | 424.00 | 16.96 | L-13 |
| | | | Add 10 per cent of labour cost for drilling holes etc | | | | 10.38 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 30.43 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 18.14 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 19.95 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 2.19 | |
| | | | **Rate per No. = (a+b+c+d)** | | | | 221.64 | |
| | | | | | | ***say*** | ***222.00*** | |
| **16.5** | **2806** | | **Sealing of cracks/porous concrete by injection process through nipples /Grouting complete as per Technical Specification.** | | | | | |
| | | **A** | **Cement Grout** | | | | | |
| | | | ***Unit = kg*** | | | | | |
| | | | ***Taking output = 1 kg*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement including 10 per cent wastage | kg | 1.100 | 9.10 | 10.01 | M-081/1000 |
| | | | Admixtures (anti shrinkage compound) @ 20 per cent of cost of cement | | | | 2.00 | |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor (Skilled) | day | 0.100 | 508.00 | 50.80 | L-15 |
| | | | Mazdoor | day | 0.100 | 424.00 | 42.40 | L-13 |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | **c) Machinery** | | | | | |
| | | | Grout pump with agitator and accessories | hour | 0.100 | 193.00 | 19.30 | M-111 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 33.99 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 20.26 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 22.28 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 2.45 | |
| | | | **Rate per kg = (a+b+c+d+e+f+g)** | | | | 247.57 | |
| | | | | | | ***say*** | ***248.00*** | |
| | | B | **Cement Mortar (1:1) Grouting** | | | | | |
| | | | ***Unit = kg*** | | | | | |
| | | | ***Taking output = 1 kg*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Cement including 10 per cent wastage | kg | 0.550 | 9.10 | 5.01 | M-081/1000 |
| | | | Sand including 10 per cent wastage | kg | 0.550 | 0.43 | 0.24 | M-005/1500 |
| | | | Admixtures (anti shrinkage compound) @ 20 per cent of cost of cement | | | | 1.00 | |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor (Skilled) | day | 0.100 | 508.00 | 50.80 | L-15 |
| | | | Mazdoor | day | 0.100 | 424.00 | 42.40 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Grout pump with agitator and accessories | hour | 0.100 | 193.00 | 19.30 | M-111 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 32.83 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 19.57 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 21.52 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 2.37 | |
| | | | **Rate per kg = (a+b+c+d+e+f+g)** | | | | 239.12 | |
| | | | | | | ***say*** | ***239.00*** | |
| **16.6** | **2800** | | **Patching of damaged concrete surface with polymer concrete and curing compounds, initiator and promoter, available in present formulations, to be applied as per instructions of manufacturer and as approved by the Engineer.** | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 10 sqm for an average thickness of 25mm.*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.060 | 551.00 | 33.06 | L-12 |
| | | | Mazdoor (Skilled) | day | 0.750 | 508.00 | 381.00 | L-15 |
| | | | Mazdoor | day | 0.750 | 424.00 | 318.00 | L-13 |
| | | | **b) Material** | | | | | |
| | | | Pre-packed polymer concrete based on epoxy system complete with curing compound, intiator and promoter including 5 per cent wastage. | kg | 315.000 | 39.00 | 12285.00 | M-145 |
| | | | **c) Machinery** | | | | | |
| | | | Grout pump with agitator and accessories | hour | 2.000 | 193.00 | 386.00 | M-111 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 2702.06 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 1610.51 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 1771.56 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 194.87 | |
| | | | Cost for 10 sqm = a+b+c+d+e+f+g | | | | 19682.06 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/10** | | | | 1968.21 | |
| | | | | | | ***say*** | ***1968.00*** | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | Note | This item is a proprietory item available in market as pre-packed polymer concrete and is required to be applied as per instructions of the manufacturer. | | | | | |
| 16.7 | 2803 | | **Sealing of crack / porous concrete with Epoxy Grout by injection through nipples complete as per clause 2803.1.** | | | | | |
| | | | ***Unit = kg*** | | | | | |
| | | | ***Taking output = 1 kg*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Epoxy including 10 per cent wastage | kg | 1.100 | 257.00 | 282.70 | M-095 |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.080 | 551.00 | 44.08 | L-12 |
| | | | Mazdoor (Skilled) | day | 0.100 | 508.00 | 50.80 | L-15 |
| | | | Mazdoor | day | 0.100 | 424.00 | 42.40 | L-13 |
| | | | **c) Machinery** | | | | | |
| | | | Epoxy Injection gun | hour | 0.100 | 3723.00 | 372.30 | P&M-078 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 159.72 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 95.20 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 104.72 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 11.52 | |
| | | | **Rate per kg = (a+b+c+d+e+f+g)** | | | | 1163.44 | |
| | | | | | | ***say*** | ***1163.00*** | |
| 16.9 | 2807 | | **Removal of defective concrete, cleaning the surface thoroughly, applying the shotcrete mixture mechanically with compressed air under pressure, comprising of cement, sand, coarse aggregates, water and quick setting compound in the proportion as per clause 2807.1., sand and coarse aggregates conforming to IS: 383 and table 1 of IS: 9012 respectively, water cement ratio ranging from 0.35 to 0.50, density of gunite not less than 2000 kg/cum, strength not less than 25 Mpa and workmanship conforming to clause 2807.6.** | | | | | |
| | | | ***unit: sqm*** | | | | | |
| | | | ***Taking output = 10 sqm, 40 mm average thickness.*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | Mazdoor (Skilled) | day | 0.500 | 508.00 | 254.00 | L-15 |
| | | | **b) Machinery** | | | | | |
| | | | Air compressor 250 cfm | hour | 1.000 | 658.00 | 658.00 | P&M-001 |
| | | | Shotcreteing equipment | hour | 1.000 | 896.00 | 896.00 | P&M-076 |
| | | | water tanker 6 KL capacity | hour | 0.020 | 724.00 | 14.48 | P&M-060 |
| | | | **c) Material** | | | | | |
| | | | Cement | kg | 120.000 | 9.10 | 1092.00 | M-081/1000 |
| | | | Sand | cum | 0.150 | 650.00 | 97.50 | M-005 |
| | | | Coarse aggregate of size 4.75mm | cum | 0.150 | 780.00 | 117.00 | M-024 |
| | | | Quick setting compound | kg | 2.500 | 59.00 | 147.50 | M-147 |
| | | | Water | KL | 0.100 | 71.00 | 7.10 | M-189 |
| | | | **d) GST (multiplying factor 0.2016) on (a+b+c)** | | | | 709.15 | |
| | | | **e) Overhead charges @ 10 % on (a+b+c+d)** | | | | 422.68 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+c+d+e)** | | | | 464.95 | |
| | | | **g) Cess @ 1% on (a+b+c+d+e+f)** | | | | 51.14 | |
| | | | Cost for 10 sqm = a+b+c+d+e+f+g | | | | 5165.54 | |
| | | | **Rate per sqm = (a+b+c+d+e+f+g)/10** | | | | 516.55 | |
| | | | | | | ***say*** | ***517.00*** | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 16.10 | 2800 | | **Applying pre-packed cement based polymer mortar of strength 45 Mpa at 28 days for replacement of spalled concrete** | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 10 sqm*** | | | | | |
| | | | Assumed thickness - 10 mm | | | | | |
| | | | **a) Material** | | | | | |
| | | | Acrylic polymer bonding coat | Litre | 1.400 | 371.00 | 519.40 | M-057 |
| | | | pre-packed cement based polymer mortar of strength 45 Mpa at 28 days | kg | 12.000 | 39.00 | 468.00 | M-145 |
| | | | Add 3 per cent of (a ) above for wastage. | | | | 29.62 | |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor (Skilled) | day | 0.500 | 508.00 | 254.00 | L-15 |
| | | | Mazdoor | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 303.42 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 180.85 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 198.93 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 21.88 | |
| | | | Cost for 10 sqm = a+b+c+d+e+f | | | | 2210.14 | |
| | | | **Rate per sqm = (a+b+c+d+e+f)/10** | | | | 221.01 | |
| | | | | | | ***say*** | ***221.00*** | |
| 16.11 | 2805 | | **Eproxy bonding of new concrete to old concrete** | | | | | |
| | | | ***Unit = sqm*** | | | | | |
| | | | ***Taking output = 10 sqm*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Epoxy resin with pot life not less than 60-90 minutes and satisfying testing as per clause 2803.9 | kg | 8.000 | 169.00 | 1352.00 | M-098 |
| | | | Add 3 per cent of (a ) above for wastage. | | | | 40.56 | |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor (Skilled) | day | 0.500 | 508.00 | 254.00 | L-15 |
| | | | Mazdoor | day | 0.500 | 424.00 | 212.00 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 379.13 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 225.97 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 248.57 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 27.34 | |
| | | | Cost for 10 sqm = a+b+c+d+e+f | | | | 2761.61 | |
| | | | **Rate per sqm = (a+b+c+d+e+f)/10** | | | | 276.16 | |
| | | | | | | ***say*** | ***276.00*** | |
| 16.17 | | | **Replacement of Expansion Joints complete as per drawings** | | | | | |
| | | | ***Unit -1 RM*** | | | | | |
| | | | ***Taking output = 12 RM*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Epoxy for bonding new concrete to old concrete @ 0.8 kg/sqm | kg | 9.600 | 257.00 | 2467.20 | M-095 |
| | | | M-30 grade cement concrete excluding GST,OH, CP & Cess (Rate as per items 14.1 C (i) | cum | 3.600 | 7619.00 | 27428.40 | Item 14.1(C) |
| | | | **b) Labour** | | | | | |
| | | | Removal of old expansion joint including breaking of concrete, cutting of lugs and shifting of broken material etc. | | | | | |
| | | | Mate | day | 0.260 | 551.00 | 143.26 | L-12 |
| | | | Mazdoor | day | 0.500 | 424.00 | 2544.00 | L-13 |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Mazdoor (Skilled) | day | 0.500 | 508.00 | 254.00 | L-15 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 6619.91 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 3945.68 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 4340.25 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 477.43 | |
| | | | Cost for replacement of 12 RM = a+b+c+d+e+f | | | | 48220.13 | |
| | | | **Rate per RM = (a+b+c+d+e+f)/12** | | | | 4018.34 | |
| | | | | | | ***say*** | ***4018.00*** | |
| | | Note | The rate for the installation of new expansion joints may be taken from the chapter on superstructure. Broken concrete will have to be replaced which has been included in this analysis. | | | | | |
| **16.18** | | | **Replacement of Damaged Concrete Railing.** | | | | | |
| | | | ***Unit = RM*** | | | | | |
| | | | ***Taking output = 10 RM*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Labour for dismantling old railing and disposal of dismantled material. | | | | | |
| | | | Mate | day | 0.200 | 551.00 | 110.20 | L-12 |
| | | | Mazdoor | day | 5.000 | 424.00 | 2120.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley for disposal of dismantled material | hour | 1.000 | 530.00 | 530.00 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 556.46 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 331.67 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 364.83 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 40.13 | |
| | | | Cost for 10 m = a+b+c+d+e+f | | | | 4053.29 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/10** | | | | 405.33 | |
| | | | | | | ***say*** | ***405.00*** | |
| | | Note | The rate for the provision of new railing may be adopted from the chapter on superstructure. | | | | | |
| **16.19** | | | **Replacement of Crash Barrier.** | | | | | |
| | | | ***Unit = RM*** | | | | | |
| | | | ***Taking output = 10 M*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Labour for dismantling old railing and disposal of dismantled material. | | | | | |
| | | | Mate | day | 0.400 | 551.00 | 220.40 | L-12 |
| | | | Mazdoor | day | 10.000 | 424.00 | 4240.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley for disposal of dismantled material | hour | 1.000 | 530.00 | 530.00 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 1006.06 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 599.65 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 659.61 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 72.56 | |
| | | | Cost for 10 m = a+b+c+d+e+f | | | | 7328.28 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/10** | | | | 732.83 | |
| | | | | | | ***say*** | ***733.00*** | |
| | | Note | The rate for the construction of new crash barrier may be adopted from chapter 8 on Traffic and Transportation. | | | | | |
| **16.20** | | | **Replacement of Damaged Mild Steel Railing** | | | | | |
| | | | ***Unit = RM*** | | | | | |
| | | | ***Taking output = 10 M*** | | | | | |
| | | | **a) Labour** | | | | | |
| | | | Labour for dismantling old railing and disposal of dismantled material. | | | | | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | | Mate | day | 0.160 | 551.00 | 88.16 | L-12 |
| | | | Mazdoor | day | 4.000 | 424.00 | 1696.00 | L-13 |
| | | | **b) Machinery** | | | | | |
| | | | Tractor-trolley for disposal of dismantled material | hour | 1.000 | 530.00 | 530.00 | P&M-053 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 466.53 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 278.07 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 305.88 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 33.65 | |
| | | | Cost for 10 m = a+b+c+d+e+f | | | | 3398.29 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/10** | | | | 339.83 | |
| | | | | | | ***say*** | ***340.00*** | |
| **16.21** | | | **Repair of Crash Barrier** | | | | | |
| | | | **Repair of concrete crash barrier with cement concert of M-30 grade by cutting and trimming the damaged portion to a regular shape, cleaning the area to be repaired thoroughly, applying cement concert after erection of proper form work.** | | | | | |
| | | | ***Unit = Running meter.*** | | | | | |
| | | | ***Taking output = 10 M.*** | | | | | |
| | | | It is assumed that damage is to the extent of 10 per cent of the volume of concrete .This will require 0.30 cum of concrete. | | | | | |
| | | | **a) Manpower*** | | | | | |
| | | | Mate | day | 0.040 | 551.00 | 22.04 | L-12 |
| | | | Mazdoor | day | 1.000 | 424.00 | 424.00 | L-13 |
| | | | * For dismantling and trimming the surface to a regular shape and removal of damaged material. | | | | | |
| | | | **b) Material** | | | | | |
| | | | M-30 grade cement concrete excluding GST,OH, CP & Cess (Rate as per items 14.1 C (i) | cum | 0.300 | 7619.00 | 2285.70 | Item 14.1(C) |
| | | | This may be priced based on the rate given the chapter of superstructure. | | | | | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 550.72 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 328.25 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 361.07 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 39.72 | |
| | | | Cost for 10 m = a+b+c+d+e+f | | | | 4011.50 | |
| | | | **Rate per metre = (a+b+c+d+e+f)/10** | | | | 401.15 | |
| | | | | | | ***say*** | ***401.00*** | |
| **16.22** | | | **Repair of RCC Railing** | | | | | |
| | | | **Carrying out repair of RCC M30 railing to bring it to the original shape.** | | | | | |
| | | | ***Unit = Running meter.*** | | | | | |
| | | | ***Taking output = 10 M.*** | | | | | |
| | | | It is assumed that damage is to the extent of 10 per cent . | | | | | |
| | | | **a) Material** | | | | | |
| | | | M-30 grade cement concrete excluding GST,OH, CP & Cess (Rate as per items 14.1 C (i) | cum | 0.100 | 7619.00 | 761.90 | Item 14.1(C) |
| | | | HYSD bar reinforcement Rate as per item No 14.2(Excluding GST,OH, CP & Cess) | tonne | 0.010 | 76604.00 | 766.04 | Item 14.2 A |
| | | | **b) Labour*** | | | | | |
| | | | Mate | day | 0.020 | 551.00 | 11.02 | L-12 |
| | | | mazdoor | day | 0.200 | 424.00 | 84.80 | L-13 |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| | | * | For dismantling and trimming the surface to a regular shape and removal of damaged material. | | | | | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 327.35 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 195.11 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 214.62 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 23.61 | |
| | | | Cost for 10 m = a+b+c+d+e+f | | | | 2384.45 | |
| | | | **Rate per m = (a+b+c+d)/10** | | | | 238.45 | |
| | | | | | | ***say*** | ***238.00*** | |
| **16.23** | | | **Repair of Steel Railing** | | | | | |
| | | | **Repair of steel railing to bring it to the original shape It is assumed that the damage to the steel railing is to the extent of 10 per cent .** | | | | | |
| | | | ***Unit = Running meter.*** | | | | | |
| | | | ***Taking output = 10 M.*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Mild steel ISMC series | kg | 29.000 | 50.73 | 1471.17 | M-179/1000 |
| | | | Flat iron | kg | 10.000 | 50.73 | 507.30 | M-179/1000 |
| | | | MS Bolt and nuts | kg | 1.000 | 120.00 | 120.00 | M-130 |
| | | | Add 5 per cent of cost of material for painting. | | | | 104.92 | |
| | | | **b) Labour** | | | | | |
| | | | Mate | day | 0.016 | 551.00 | 8.82 | L-12 |
| | | | Mazdoor (Skilled) | day | 0.200 | 508.00 | 101.60 | L-15 |
| | | | Mazdoor | day | 0.200 | 424.00 | 84.80 | L-13 |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 483.56 | |
| | | | **d) Overhead charges @ 10 % on (a+b+c)** | | | | 288.22 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 317.04 | |
| | | | **f) Cess @ 1% on (a+b+c+d+e)** | | | | 34.87 | |
| | | | Cost for 10 m = a+b+c+d+e+f | | | | 3522.30 | |
| | | | **Rate per m = (a+b+c+d+e+f)/10** | | | | 352.23 | |
| | | | | | | ***say*** | ***352.00*** | |

## Chapter – 17
## B. Bridge Works

**eamble :**

The basic approach for the preparation of schedule of rates for Bridge works in indicated as under :

1. **Description of items**

   The description of items is given briefly and linked with relevant clause of MoRT&H's Specifications for Road and Bridge Works, which may be referred for detailed description, provisions and interpretation.

2. **Overhead Charges**

   The rates include over head charges considering the following elements -

   i. Site accomodation, setting up plant, access road, water supply, electricity and general site arrangements.

   ii. Office furniture, equipment and communications.

   iii. Expenditure on

   a) Corporate office of contractor
   b) Site Supervision
   c) Documentation and "as built" drawings

   iv. Mobilisation/de-mobilisation of resources.

   v. Labour camps with minimum amenities and transportation to work sites.

   vi. Light vehicles for site supervision including administrative and managerial

   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, dimensions, trial pits and bore holes, where required

   ix. Watch and ward

   x. Traffic management during construction

   xi. Expenditure on safeguarding environment

   xii. Sundries

   xiii. Financing Expenditure

   xiv. Sales/Turn over tax

   xv. Work Insurance/compensation

3 **20 percent overhead charges has been considered in the schedule of rates**

4. **Contractor Profit**

   10 percent of cost of works. Contractor profit is also added on overhead charges.

5 **Materials**

6 Quantities of materials considered in the rate are approximate for the purpose of estimating and include normal wastages.

7 The transportation cost has to be included seperately in the estimate as per actual distance from the fabrication shop to work site inclusive of loading and unloading and protected stacking in undamaged condition near site as per direction of the Engineer -in -charge.

8 Painting and the specfication of meterials to be used shall be as per section 1900 of MoRT&H Specifications for Road and Bridge Works.

9 One mate has been provided for 25 labours.

10 Carriage cost of bridge components from protected stacks near site has been included for transportation , assembling and erection as per requiremenr based on proved erection programme.

11 Arrangement for traffic during construction shall be as per Clause 112 of MoRT&H Speciffication for Road and Bridge Works.

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 17.1 | 1900 | | **Supply and fabrication of steel work at Fabricators workshop comprising of Main Girders, Cross Girders, Connecting plates, stringers, stiffening plates etc. from steel plates and structural steel of specified grades as per approved drawing including straightening, descaling, degreasing, cutting to size and shape, drilling, welding and grinding, supply of all MS / HTS shop or site bolts, nuts & washers, holding down bolts and nuts etc., trial assembling at workshop, one priming coat of shop paint with red lead paint conforming to IS-102 with all labour, material, cost of paints, consumables, stacking in protected condition etc complete as per specification and as directed by the Engineer in charge (Carriage cost from fabricator workshop to actual bridge site will be paid separately).** | | | | | |
| | | A | **COMPOSITE BRIDGE** | | | | | |
| | Case | (i) | **Worked out based on 40m single span or in Multiples** | | | | | |
| | | | ***Unit = 1 MT*** | | | | | |
| | | | ***Taking output = 425.472 MT*** | | | | | |
| | | | **a) Material** | | | | | |
| | | | Structural steel in plates, angles, etc including 5 per cent wastage | cum | 446.750 | 50728.00 | 22662734.00 | M-179 |
| | | | Nuts & Bolts | Kg | 12764.200 | 120.00 | 1531704.00 | M-130 |
| | | | **b) Labour** (for cutting, bending, making holes, joining, welding and erecting in position) | | | | | |
| | | | Mate | day | 421.220 | 551.00 | 232092.22 | L-12 |
| | | | Fitter | day | 2340.100 | 593.00 | 1387679.30 | L-08 |
| | | | Blacksmith | day | 2340.100 | 593.00 | 1387679.30 | L-02 |
| | | | Welder | day | 2340.100 | 593.00 | 1387679.30 | L-02 |
| | | | Mazdoor | day | 3510.140 | 424.00 | 1488299.36 | L-13 |
| | | | **c)** One coat of ready mixed lead primer painting at the shop conforming to IS:102 before shifting to site as per section 1906.4 | | | | | |
| | | | 3/5 part considered for one coat of primer after cleaning as specified under 1906.2 of section 1900 | sqm | 4995.040 | 141.00 | 704300.64 | Item 8.9 |
| | | | Add @ 1% on cost of material for scaffolding and temporary arrangement for assembling on (a) | | | | 241944.38 | |
| | | | Electrodes, cutting gas and other consumables @ 10 percent of cost of (a) above. (Including GST,OH,CP &Cess of C) | | | | 2419443.80 | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 6063698.08 | |
| | | | **e) Overhead charges @ 10 % on (a+b+d)** | | | | 3614156.56 | |
| | | | **f) Contractor's profit @ 10 % on (a+b+d+f)** | | | | 3007786.75 | |
| | | | **g) Cess @ 1% on (a+b+d+e+f)** | | | | 300778.67 | |
| | | | **Rate for 425.472 MT (a+b+c+d+e+f+g)** | | | | 46429976.36 | |
| | | | **Rate per MT = (a+b+c+d+e+f+g)/425.472** | | | | 109125.81 | |
| | | | | | | ***say*** | ***109126.00*** | |

| Sr No | Ref. to MoRTH Spec. | | Description | Unit | Quantity | Rate Rs | Cost Rs | Remarks/ Input ref. |
|---|---|---|---|---|---|---|---|---|
| 17.2 | 1900 | | **Taking delivery of fabricated steel work from stacks at site as necessary, assembling and erection at site as necessary, assembling and erection of fabricated steel structure to proper line, level and camber as per approved drawings complete in asll respect including transportation and handling supply of all fasteners. Painting of all exposed surfaces of steel work after erection with one coat of red lead conforming to IS-102 and two coats Aluminium paint to IS-2339, grouting of anchor bolts in position, including all labour, consumables, materials, machinery, tools and tackles complete as per specification and as directed by the Engineer in charge** | | | | | |
| | | | COMPOSITE BRIDGE | | | | | |
| | Case | (i) | Worked out based on 40m single span or in Multiples | | | | | |
| | | | ***Unit = 1 MT*** | | | | | |
| | | | ***a)*** Assembling and erection at site including lablour component, erection cum dismantling of Staging, Scaffolding, Falsework etc complete. (A full proof method statement of erection programme at site has to be submitted and get approved before start) | | | | | |
| | | | Formwork, Staging and Cost of erection 15% + 15% = 30% of Item : 17.1 (a+b+c+d) (Excluding GST,OH,CP &Cess) | tonne | 1.000 | 23581.03 | 23581.03 | Item 17.1 |
| | | | ***b)*** One coat of ready mixed, red lead primer painting after erection at site conforming to IS:102 | | | | | |
| | | | 2/5 part considered for one coat of primer after cleaning as specified under 1906 of section 1900 | sqm | 11.740 | 141.00 | 1655.34 | Item 8.9 |
| | | | Two coat of aluminium paint over steel primer after cleaning as specified under 1906 of section 1900 | sqm | 11.740 | 141.00 | 1655.34 | Item 8.9 |
| | | | (Including GST,OH,CP &Cess of b) | | | | | |
| | | | **c) GST (multiplying factor 0.2016) on (a+b)** | | | | 4753.94 | |
| | | | **d) Overhead charges @ 20 % on (a+b+c)** | | | | 5666.99 | |
| | | | **e) Contractor's profit @ 10 % on (a+b+c+d)** | | | | 3400.20 | |
| | | | **f) Cess @ 1% on (a+b+d+e)** | | | | 374.02 | |
| | | | ***Rate per MT = (a + b + c + d+e+f)*** | | | | 41086.86 | |
| | | | | | | **say** | **41087.00** | |