

**WATER RESOURCES DEPARTMENT
GOVERNMENT OF KARNATAKA**

**SCHEDULE OF RATES
FOR THE YEAR : 2018-19**

Govt Order No. WRD 146 KBN 2017, BENGALURU Dt: 21-12-2017



ಕರ್ನಾಟಕ ಸರ್ಕಾರ

ಸಂಖ್ಯೆ:ಜಸಂಇ 146 ಕೆಬಿಎನ್ 2017

ಕರ್ನಾಟಕ ಸರ್ಕಾರದ ಸಚಿವಾಲಯ,
ವಿಕಾಸ ಸೌಧ,
ಬೆಂಗಳೂರು, ದಿನಾಂಕ:03/12/2018

ಇಂದ:

ಸರ್ಕಾರದ ಪ್ರಧಾನ ಕಾರ್ಯದರ್ಶಿಗಳು,
ಜಲಸಂಪನ್ಮೂಲ ಇಲಾಖೆ,
ಬೆಂಗಳೂರು.

ಇವರಿಗೆ:

1. ವ್ಯವಸ್ಥಾಪಕ ನಿರ್ದೇಶಕರು, ಕೃಷ್ಣಾ ಭಾಗ್ಯ ಜಲ ನಿಗಮ ನಿಯಮಿತ, ಬೆಂಗಳೂರು.
2. ವ್ಯವಸ್ಥಾಪಕ ನಿರ್ದೇಶಕರು, ಕರ್ನಾಟಕ ನೀರಾವರಿ ನಿಗಮ ನಿಯಮಿತ, ಬೆಂಗಳೂರು.
3. ವ್ಯವಸ್ಥಾಪಕ ನಿರ್ದೇಶಕರು, ಕಾವೇರಿ ನೀರಾವರಿ ನಿಗಮ ನಿಯಮಿತ, ಬೆಂಗಳೂರು.
4. ವ್ಯವಸ್ಥಾಪಕ ನಿರ್ದೇಶಕರು, ವಿಶ್ವೇಶ್ವರಯ್ಯ ಜಲ ನಿಗಮ ನಿಯಮಿತ, ಬೆಂಗಳೂರು.
5. ಮುಖ್ಯ ಇಂಜಿನಿಯರ್, ಜಲಸಂಪನ್ಮೂಲ ಅಭಿವೃದ್ಧಿ ಸಂಸ್ಥೆ, ಬೆಂಗಳೂರು.
6. ಮುಖ್ಯ ಇಂಜಿನಿಯರ್(ಅಂತರಾಜ), ಜಲಸಂಪನ್ಮೂಲ ಅಭಿವೃದ್ಧಿ ಸಂಸ್ಥೆ, ಬೆಂಗಳೂರು.
7. ಮುಖ್ಯ ಇಂಜಿನಿಯರ್, ಕೇಂದ್ರ ಯಾಂತ್ರಿಕ ಸಂಸ್ಥೆ, ಬೆಂಗಳೂರು.
8. ನಿರ್ದೇಶಕರು, ಕೆ.ಇ.ಆರ್.ಎಸ್, ಕೆ.ಆರ್.ಎಸ್. ಮಂಡ್ಯ.
9. ನಿರ್ದೇಶಕರು, ವಾಲ್ಮೀ ಧಾರವಾಡ.
10. ನಿರ್ದೇಶಕರು, ಕಾಡಾ, ಕಾಡಾ ನಿರ್ದೇಶನಾಲಯ. ಬೆಂಗಳೂರು.

ಮಾನ್ಯರೇ,

ವಿಷಯ:- ಜಲಸಂಪನ್ಮೂಲ ಇಲಾಖೆಯಲ್ಲಿ 2018-19ನೇ ಸಾಲಿನಿಂದ ಪರಿಷ್ಕರಿಸಿದ ದರಪಟ್ಟಿಯನ್ನು ಅಳವಡಿಸುವ ಕುರಿತು.

ಉಲ್ಲೇಖ:- 1. ಸರ್ಕಾರದ ಆದೇಶ ಸಂಖ್ಯೆ:ಜಸಂಇ 146 ಕೆಬಿಎನ್ 2017, ದಿನಾಂಕ:21/12/2017

2. ಅಧ್ಯಕ್ಷರು, ದರಪಟ್ಟಿ ಸಮಿತಿ ಮತ್ತು ವ್ಯವಸ್ಥಾಪಕ ನಿರ್ದೇಶಕರು, ಕೃ.ಭಾ.ಜ.ನಿ.ನಿ. ಇವರ ದಿನಾಂಕ:30/06/2018ರ ಪತ್ರ.

ಮೇಲ್ಕಂಡ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಉಲ್ಲೇಖಿತ (1)ರ ಸರ್ಕಾರದ ಆದೇಶದಲ್ಲಿ ಶ್ರೀ ಅಂಜುಂ ಪರ್ವೇಜ್, ವ್ಯವಸ್ಥಾಪಕ ನಿರ್ದೇಶಕರು, ಕೃಷ್ಣಾ ಭಾಗ್ಯ ಜಲ ನಿಗಮ ನಿಯಮಿತ ಇವರ ಅಧ್ಯಕ್ಷತೆಯಲ್ಲಿ 2018-19ನೇ ಸಾಲಿನಲ್ಲಿ ಪರಿಷ್ಕರಿಸಿದ ದರವನ್ನು ಅಳವಡಿಸಲು ದರಪಟ್ಟಿ ಸಮಿತಿಯನ್ನು ರಚಿಸಲಾಗಿತ್ತು. ಉಲ್ಲೇಖಿತ (2)ರ ಪತ್ರದಲ್ಲಿ ಅಧ್ಯಕ್ಷರು, ದರಪಟ್ಟಿ ಸಮಿತಿ ಇವರು ದರಪಟ್ಟಿಯ ಕರಡನ್ನು ತಯಾರಿಸಿ ಸರ್ಕಾರಕ್ಕೆ ಮುಂದಿನ ಅಗತ್ಯ ಕ್ರಮಕ್ಕಾಗಿ ಸಲ್ಲಿಸಿದ್ದು, ಈ ದರಪಟ್ಟಿಯನ್ನು ಪರಿಶೀಲಿಸಿ, 2018-19ನೇ ಸಾಲಿನಲ್ಲಿ ಅಳವಡಿಸಲು ನಿರ್ಧರಿಸಲಾಗಿದೆ.

Received on
7/12/18

ಅದರಂತೆ ಜಲಸಂಪನ್ಮೂಲ ಇಲಾಖೆಯಲ್ಲಿ (ಭಾರಿ ಮತ್ತು ಮಧ್ಯಮ ನೀರಾವರಿ) ನಾಲ್ಕು ನಿಗಮಗಳಾದ ಕೃಷ್ಣಾ ಭಾಗ್ಯ ಜಲ ನಿಗಮ ನಿಯಮಿತ, ಕರ್ನಾಟಕ ನೀರಾವರಿ ನಿಗಮ ನಿಯಮಿತ, ಕಾವೇರಿ ನೀರಾವರಿ ನಿಗಮ ನಿಯಮಿತ ಹಾಗೂ ವಿಶ್ವೇಶ್ವರಯ್ಯ ಜಲ ನಿಗಮ ನಿಯಮಿತಗಳಡಿಯಲ್ಲಿ ದಿನಾಂಕ:14/11/2018 ರಿಂದ ಅನ್ವಯವಾಗುವಂತೆ ಪರಿಷ್ಕೃತ ದರಪಟ್ಟಿಯನ್ನು ಜಾರಿಗೆ ತರಲಾಗಿದೆ.

ನಾಲ್ಕು ನಿಗಮಗಳಡಿ ಬರುವ ಎಲ್ಲಾ ಅಧೀಕ್ಷಕ ಅಭಿಯಂತರರು, ಪರಿಷ್ಕೃತ ದರಪಟ್ಟಿಯನ್ನು ದಿನಾಂಕ:14/11/2018 ರಿಂದ ಜಾರಿಗೆ ಬರುವಂತೆ ಪ್ರತ್ಯೇಕ ಅಧಿಸೂಚನೆ ಹೊರಡಿಸುವಂತೆ ಸೂಕ್ತ ನಿರ್ದೇಶನ ನೀಡುವುದು.

ಮುಂದಿನ ಸಾಲಿನಿಂದ ಅನುಸರಿಸಬೇಕಾದ ಕ್ರಮ:

ಅ) ದರಪಟ್ಟಿಯನ್ನು ಪ್ರತಿವರ್ಷ ಪರಿಷ್ಕರಿಸಬೇಕು.

ಆ) ಅಧೀಕ್ಷಕ ಅಭಿಯಂತರರು, ಎಂ ಅಂಡ್ ಇ, ಬೆಂಗಳೂರು ಇವರು ಪ್ರತಿ ವರ್ಷ ಜನವರಿ ತಿಂಗಳಲ್ಲೇ ಸಾಮಗ್ರಿಗಳ ಹಾಗೂ ಕಾರ್ಮಿಕ ಕೂಲಿ ದರಗಳನ್ನು ಡೇಟಾದಲ್ಲಿ ಅಳವಡಿಸಿ ದರಪಟ್ಟಿಯನ್ನು ತಯಾರಿಸಿ ಅಂತಿಮಗೊಳಿಸಿ ಸರ್ಕಾರಕ್ಕೆ ಸಲ್ಲಿಸಬೇಕು.

ತಮ್ಮ ನಂಬುಗೆಯ.

(ಬಿ. ಹರಿನಾರಾಯಣ)

ಸರ್ಕಾರದ ಅಧೀನ ಕಾರ್ಯದರ್ಶಿ(ತಾಂತ್ರಿಕ-5)
ಜಲ ಸಂಪನ್ಮೂಲ ಇಲಾಖೆ

FOREWORD

A Committee was constituted vide G.O No. WRD 146 KBN 2017, Bangalore, dated 21.12.2017 under the Chairmanship of Managing Director, KBJNL, Bangalore with the following members, for preparing the Draft Schedule of Rates for the year 2018-19.

1. Managing Director, : Chairman
Krishna Bhagya Jala Nigama Limited ,
Bengaluru
2. Managing Director, : Member
Karnataka Neeravari Nigama Limited,
Bengaluru
3. Managing Director, : Member
Cauvery Neeravari Nigama Limited,
Bengaluru
4. Managing Director, : Member
Visvesvaraya Jala Nigama Limited,
Bengaluru
5. Deputy Secretary, : Member
Finance Department, (PWD-Finance Cell)
Bengaluru
6. Shri.D.Jagannatha Sagar, : Member
Additional Commissioner of
Commercial Tax Department,Bangalore.
Bangalore.
7. Chief Engineer, : Member
Krishna Bhagya Jala Nigama Limited ,
Almatti.
8. Chief Engineer, : Member
Cauvery Neeravari Nigama Limited,
Mysuru.
9. Chief Engineer, : Member
Visvesvaraya Jala Nigama Limited,
Tumkur.

10. Director, : Member
CADA,
Bengaluru.
11. Chief Engineer, : Member
Irrigation Central Zone,
Munirabad.
12. Chief Engineer, : Member
Irrigation Project Zone,
Kalaburgi.
13. Chief Engineer, : Member Secretary
Water Resources Development
Organisation, Bengaluru.

The specifications for the following chapters have been retained from the SR of 2016-17. However the rates have been revised.

- a) Dam and Allied works
- b) Canal and allied works
- c) Canal Cross drainage works
- d) Tunnel and Allied works
- e) Gates / Hoists and Allied works
- f) Preliminary and Maintenance works
- g) Lift Irrigation works

The following information has been made use of for updating the SR 2016-17:

- (i) Cement: Rates for Cement obtained from ACC Cement Ltd, Zuari cement, and rates provided in the SR of other departments.
- (ii) Steel: Rates of structural steel like Joists, Channels and reinforcement steel for different sizes of dia. obtained from SAIL.
- (iii) Karnataka State Annual Average Consumer Price Index for industrial workers for the year 2014 obtained from Office of the Commissioner of Labour in Karnataka, Bangalore.
- (iv) Paints and Varnishes: Rates obtained from Mysore Paints and Varnishes.
- (v) Whole Sale Price Index of commodities obtained from official website of Economic Advisor, Ministry of Commerce & Industry, GOI.
- (vi) Explosives: Average rates of the rates of Explosives obtained from M/s Konar Explosives & Co. Bangalore, and M/s. Keltech Energies Ltd., Chief Engineers of various zones of WRD are worked out and adopted.

- (vii) Royalty Charges : Commerece and Industries Secretary Notification No: CI/418/MMN/2015 (Part) ,Bangalore. Dated : 12.08.2016 . Mines & Geology is adopted for the SR 2018-19.
- (viii) Additional items , if any required to be included in the SR were asked to be furnished by Chief Engineers with data rates, observed trend in the rates presently quoted by the tenderers and the justification for the utility of such items . However most of the Chief Engineers have not responded and a few representations received were devoid of any detailed analysis, data rate & other details, but contained only requests for adhoc rates approval, which the committee could not considered. The Director, CADA, Bengaluru has furnished the data rates for two additional items ,i.e., for Providing and installing at site of work 80mm and 100mm dia perforrated corrugated PVC Pipes conforming to IS 9271 with pre-wrapped 250gsm Geo-Synthetic filter material by Laser guided trencher machine / by mechanical means including cost of all materials, labours with all lead and lifts. The above said two items are included in the data rate under the chapter Canal and Allied Works.
- (ix) Energy charges: Average of prevailing energy charges for HT-2(b) category of all 5 ESCOMs is considered.
- (x) Rates of other materials are obtained from the Chief Engineers of various zones of WRD for consideration in the SR

Provision for updating the cost of cement and steel on quarterly basis for any fluctuation in the market rates is retained. For coarse and fine aggregates, the proposed rates are based on data rates by revising the basic cost without any lead. The applicable lead from quarry to the work site will have to be added. Further provision for the use of manufactured sand as per IS-383-2007 has been continued in the SR 2018-19.

The capital cost of machineries is worked out by considering the percentage variation in WPI of the following commodities:

- (1) Manufacture of machinery for mining, quarrying and construction.
- (2) Manufactured of metal -forming machinery and machine tools.
- (3) Manufactured of rubber tyres and tubes; retreading and rebuilding of rubber tyres over the period 2015-16 to 2017-18.

The hire charges for the machineries is worked out based on the capital cost of machineries so arrived.

For the preparation of the Schedule of Rates 2018-19,the minimum wages of workers as notified by the Labour Department, Government of Karnataka vide Notification No : KAE/2/LMW/2015 , dated: 06.01.2017 along with applicable VDA is adopted. skilled are revised so that the wages of no worker in these category are less than the wages provided for unskilled category.

The VDA payable for the period 01.4.2018 to 31.3.2019 has been revised based on the increase in State average CP index for Industrial workers for 2017 as published by the State Labour Department,vide Notification No: DES/SIP/PWX/01/2018, Bangalore dated: 16.02.2018.

Computation of Variable Dearness Allowance (VDA):

The state annual average CP index for industrial workers 2017	(CI) :	7106
Base state annual average CP index for industrial workers 2015	(BI) :	5780
Amount of variable DA per point increase in CP index		0.04

Difference in Current & Base index	(CI - BI) :	<u>1326</u>
Variable DA / Day = (Difference in index) x (Rate of DA per point) x 30 / 26		
Variable DA / Day = (1326) x (0.04) x 30 / 26		61.00/Day

All procedures and data adopted for working out lead, lift, loading and unloading charges in the SR 2016-17 are continued for preparing SR 2018-19 also .The variation in rates is commensurate with variation in rates of transport machinery and wages of workers.

For other provisions in the data such as small T & P, Contractor's profit, overheads, hidden cost on labour, insurance charges etc.,the provisions considered in preparation of SR for 2016-17 are continued for preparation of SR for 2018-19. But, however the rate of interest on capital cost has now been reduced to 9% from 11%.

Since Input Tax Credit (ITC) provision is available for G.S.T.Calculation, Material rates and Machinery rates exculsive of G.S.T.,are adopted in the S.R. 2018-19 .

For all items of works brief descriptions are given in the SR. For full details the data sheets shall be referred.


Chairman
SR Committee

**GENERAL NOTES ON SCHEDULE OF RATES
FOR THE YEAR : 2018-19**

1. These general notes are applicable to all chapters of Schedule of Rates to the extent they are relevant.
2. All materials to be used on work shall conform to relevant specifications of Bureau of Indian standards.
- 3 The basic rates, except otherwise specified, are inclusive of initial lead upto 1 km and all lifts. Additional lead, lift, loading and unloading charges, wherever applicable, shall be added to basic rate as per the procedure stipulated under notes in each chapter and under notes to lead, lift, loading and unloading charges. The quantities of materials for working out lead, lift, loading and unloading charges shall be as per the statement of requirement of materials for various items of work included under relevant chapter.
- 4 The total lead for coarse aggregate shall be considered from quarry / dump yard upto work site via., approved crusher location.
- 5 The basic rates are inclusive of cost of all materials including finishing, wastage, machinery, labour, enabling works, small tools & plants, loss on stocks, contractor's profit and overheads and hidden cost on labour inclusive of Labour Welfare fund.
- 6 The basic rates are inclusive of royalty charges on materials as per Secretary Commerce & Industries Notification No:CI/418/MMN (part)/2015, Bangalore.
Dated:12.08.2016.
- 7 The basic rates for concrete items are inclusive of standard finishing to the surfaces.
- 8 The cement content indicated for concrete items in the item description is based on theoretical mix computations. The actual cement content may vary based on trial mix design studies. A suitable clause shall be included in tender document for the work for regulating the payment for any upward or downward variation in cement content.
- 9 The quantities of materials including wastage and requirement for incidentals for working out additional lead, loading and unloading charges shall be as per the statement of requirement of materials under each chapter.
- 10 The basic rates are exclusive of cost of site clearance, de-watering, working under watery situation, de-silting, river diversion arrangements etc., wherever applicable. For items of work involving de-watering and working under watery situation, the basic rates are to be increased by 2 percent for estimate purpose only.
- 11 Rate for Cement and Steel shall be updated every quarter.
- 12 When the market rates for cement / steel fluctuate from the rates specified in the Schedule of rates, the difference in cost of these materials excluding prevailing G.S.T.(present G.S.T. for cement is 28% and for steel is 18%) including contractor's profit & overheads shall be added to or deducted from the basic rate for finished item at the stage of preparation of estimate (difference in rate approved for the quarter and rate provided in SR) and at the stage of preparation of statement of tendered rates and estimated rates (difference in rate approved for the quarter and rate considered for preparing estimate).

GENERAL NOTES ON SCHEDULE OF RATES (contd)

- 13 For operating Clause :13 of PWG-65 / Clause : 34 and 35 of KW-4 of the Contract agreement, the basic rates of affected items of Schedule of Rates shall be recast by considering the rates of Cement and Steel at the time of occurrence of these items.
- 14 Useful rubble and stone chips obtained from excavation shall be issued to the contractor for use on works (including enabling works and aggregate crushing) at the rates specified for these materials in the Schedule of Rates. A suitable clause shall be included in the tender in this regard.
- 15 The rates as provided in the schedule of rates of PWD /KUWSSB /ESCOMs /KPCL be adopted for the items not found in this Schedule of Rates.
- 16 The basic rates mentioned in Schedule of Rates are exclusive of G.S.T. A Separate provision shall be made while preparing the Estimate by considering G.S.T. As applicable and in accordance with the Finance Department Notification prevailing at the time of preparation of Estimate.
- 17 A separate area weightage for the works executed under Malnad Area as in PWD SR for the year should be adopted, when the works under WRD are executed in Malnad Area. The area falling within the Malnad zone should be as per the areas proposed under Malnad Development Act.
- 18 The provision for the use of manufactured sand as per IS-383-2007 has been continued in the SR 2018-19. The M-Sand shall conform to IS code 383 and its latest version. Specific approval of Chief Engineer shall be obtained work wise for using M-Sand. The M-Sand shall be used for concrete works only.
- 19 The cement concrete items rates are worked out in the S.R. , by considering the rates of the natural river sand. If natural river sand is not available for that work, M-Sand may be used in place of river sand and suitable rate analysis should be got approved by the concerned Superintending Engineer.
- 20 In order to reduce the cost of concrete, Ground Granulated Blast Furnace Slag (GGBS) of minimum 380 Sqm/Kg fineness shall be used to replace Ordinary Portland Cement in the cement concrete up to 25 % by weight of the indicated cement content. The rates for such items shall be suitably worked out and got approved by the concerned Superintending Engineer.”

- 21 “Types of cement shall include Ordinary Portland Cement (OPC) conforming to IS 269: 2015 and Portland Slag Cement (PSC) conforming to IS 455: 2015”
- 22 Providing and laying Vetiver grass in lieu of turving grass for slopes of Earthen Embankment may be suitably adopted after getting approval by the concerned Superintending Engineer.


Chairman
SR Committee

SCHEDULE OF RATES

FOR THE YEAR : 2018-19

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WATER RESOURCES DEPARTMENT

CHAPTER - WRD:1

SCHEDULE OF RATES

BASIC DATA

FOR THE YEAR : 2018-19

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**WRD: 1.1. STATEMENT OF RATES FOR MATERIALS
FOR THE YEAR : 2018-19**

SI No.	DESCRIPTION OF MATERIAL	UNIT	RATE in `.
1	2	3	4
I. CONSTRUCTION MATERIALS :			
1	Acetylene gas	cum	404.00
2	Acid resisting mortar mix	kg	60.00
3	Acid resisting tiles	Dozen	224.00
4	Acrylic emulsion paint	ltr	236.00
5	Aluminium beading for glass fixing	Rm	32.00
6	Anti-corrosive bituminuous black paint	ltr	125.00
7	Asphalt 80 / 100 and 85 / 25 Grade	kg	39.00
8	Bentonite	tonne	7336.00
9	Binding wire	kg	57.00
10	Bolts / Nuts / Washers (galvanized general purpose)	kg	90.00
11	Bolts / Nuts / Washers (hot dipped galvanized)	kg	108.00
12	Bolts / Nuts / Washers (MS general purpose)	kg	90.00
13	Bolts / Nuts / Washers (stainless steel)	kg	182.00
14	Burnt bricks	1000 Nos	5723.00
15	Burnt stone slab 100 mm thick	sqm	387.00
16	Cast iron blocks	kg	54.00
17	Cement 43 Gr	tonne	5560.00
18	Cement concrete solid bricks 40 x 20 x 20 cm	Each	39.00
19	Coal tar epoxy paint	ltr	226.00
20	Coarse aggregate 10-4.75 mm	cum	1615.00
21	Coarse aggregate 20-10 mm	cum	1325.00
22	Coarse aggregate 40-20 mm	cum	1015.00
23	Coarse aggregate 80-40 mm	cum	665.00
24	Coir brush	Each	31.00
25	Copper sheet 16 SWG	kg	558.00
26	Coursed rubble stone 300 x 300 x 450 mm	Each	34.00
27	Coursed rubble stone 300 x 300 x 600 mm	Each	41.00
28	Curing Compound	ltr	144.00
29	D - cord	Rm	10.00
30	De-greasing / de-rusting compound	ltr	311.00
31	Detonating fuse coil	Rm	6.00
32	Detonator delay type	Each	12.00
33	Detonator electric	Each	6.00
34	Detonator ordinary	Each	3.00
35	Ductile iron pipe (18 kg / sqcm test pressure) 100 mm dia	Rm	1080.00
36	Ductile iron pipe (18 kg / sqcm test pressure) 150 mm dia	Rm	1561.00
37	Ductile iron pipe (18 kg / sqcm test pressure) 200 mm dia	Rm	2245.00
38	Ductile iron pipe (18 kg / sqcm test pressure) 250 mm dia	Rm	3011.00
39	Ductile iron pipe (18 kg / sqcm test pressure) 300 mm dia	Rm	3805.00
40	Ductile iron pipe (18 kg / sqcm test pressure) 350 mm dia	Rm	4787.00
41	Ductile iron pipe (18 kg / sqcm test pressure) 400 mm dia	Rm	5735.00
42	Ductile iron pipe (18 kg / sqcm test pressure) 450 mm dia	Rm	6837.00

STATEMENT OF RATES FOR MATERIALS (contd)

SI No.	DESCRIPTION OF MATERIAL	UNIT	RATE in `.
1	2	3	4
I.	CONSTRUCTION MATERIALS (Contd) :		
43	Ductile iron pipe (18 kg / sqcm test pressure) 500 mm dia	Rm	7945.00
44	Ductile iron pipe (18 kg / sqcm test pressure) 600 mm dia	Rm	10485.00
45	Ductile iron pipe (18 kg / sqcm test pressure) 700 mm dia	Rm	12021.00
46	Ductile iron pipe (18 kg / sqcm test pressure) 900 mm dia	Rm	18106.00
47	Ductile iron pipe (18 kg / sqcm test pressure) 1100 mm dia	Rm	26594.00
48	Ductile iron pipe (18 kg / sqcm test pressure) 1000 mm dia	Rm	21486.00
49	Ductile iron pipe (18 kg / sqcm test pressure) 1200 mm dia	Rm	34538.00
50	Ductile iron pipe (18 kg / sqcm test pressure) 800 mm dia	Rm	14524.00
51	Empty cement bag	Each	3.00
52	Explosive ANFO	kg	44.00
53	Explosive ANFO high strength booster	kg	60.00
54	Explosive small dia (Kelvex-220 or equivalent)	kg	52.00
55	Fine aggregate / sand (unscreened)	cum	815.00
56	Fine aggregate / sand (screened)	cum	1000.00
57	Manufactured Sand (M-Sand)	cum	1486.00
58	Geo-textile (filter fabric) 200 gsm	sqm	225.00
59	Geo-textile (filter fabric) 250 gsm	sqm	258.00
60	G.I barbed wire 12 x 12 gauge	kg	86.00
61	G.I chain link mesh 10 gauge 50 x 50 mm opening	sqm	255.00
62	G I Pipe 15 mm dia A class	Rm	116.00
63	G I pipe 25 mm dia A class	Rm	176.00
64	G I pipe 40 mm dia B class	Rm	265.00
65	G I pipe 50 mm dia A class	Rm	292.00
66	G I Pipe 80 mm dia B Class	Rm	492.00
67	G I Pipe 100 mm dia B Class	Rm	747.00
68	G.I sheet (corrugated) Class-II 1 mm thick	tonne	66539.00
69	G.I sheet (plain) Class-II 1 mm thick	tonne	62337.00
70	G.I Stretcher wire	kg	83.00
71	Hariyali turfing sods	sqm	30.00
72	Hectometre stone one line dressed	Each	275.00
73	Hemp yarn	kg	94.00
74	Honne wood planks	cum	60140.00
75	Hume pipe with collar 150 mm dia	Rm	356.00
76	Hume pipe with collar 300 mm dia	Rm	733.00
77	Ironite compound	kg	26.00
78	J- Bolts 300 mm long	Each	41.00
79	Jungle wood planks	cum	35068.00
80	Kilometre stone one line dressed	Each	596.00
81	LDPE sheet 500 micron thick	sqm	121.00
82	LDPE sheet 750 micron thick	sqm	178.00
83	LDPE sheet 1000 micron thick	sqm	236.00
84	M.S pipe 200 / 300 mm dia	kg	63.00
85	M.S pipe 32 mm dia	Rm	208.00
86	Murum / Gravel	cum	215.00

STATEMENT OF RATES FOR MATERIALS (contd)

SI No.	DESCRIPTION OF MATERIAL	UNIT	RATE in `.
1	2	3	4
	I. CONSTRUCTION MATERIALS (Contd):		
87	Oxalic acid	ltr	95.00
88	Oxygen gas	cum	84.00
89	Plain glass 4 mm thick	sqm	451.00
90	Pre-stressed concrete pipe (18 kg / sqcm test pressure) 1000 mm dia	Rm	6600.00
91	Pre-stressed concrete pipe (18 kg / sqcm test pressure) 1200 mm dia	Rm	7973.00
92	Pre-stressed concrete pipe (18 kg / sqcm test pressure) 800 mm dia	Rm	5537.00
93	PVC sealing strip	Rm	48.00
94	PVC water stopper 310 mm wide (central bulb type)	Rm	243.00
95	Rapid wire mesh 50 x 50 mm opening non-galvanized	sqm	164.00
96	Reinforcement steel	tonne	49031.00
97	Resin bond Cement capsule	Each	73.00
98	Rivets	kg	95.00
99	Rolling shutter	sqm	2281.00
100	Rolling shutter top cover	Rm	540.00
101	Rough stone 200 x 200 x 750 mm	Each	22.00
102	Rubber bottom seal for gate (flat type)	Rm	219.00
103	Rubber corner seal for gate (music note type teflon claded)	Rm	1158.00
104	Rubber corner seal for gate (music note type uncladed)	Rm	441.00
105	Rubber side seal for gates (music note type teflon claded)	Rm	1049.00
106	Rubber side seal for gate (music note type uncladed)	Rm	368.00
107	Rubber side seal for gate (Z type)	Rm	411.00
108	Size stone 150 to 200 mm height	Each	14.00
109	Size stone 200 to 250 mm height	Each	15.00
110	Size stone 250 to 300 mm height	Each	19.00
111	Shahabad stone slab	sqm	288.00
112	Shalimastic sealing compound	kg	131.00
113	Stainless steel plate / flats	kg	231.00
114	Steel door (frame and Shutter tubular sections)	sqm	6192.00
115	Steel door (frame CRCA sheet Shutter tubular sections)	sqm	5093.00
116	Steel window (tubular frame and tubular section shutter excluding glass)	sqm	2860.00
117	Steel window (tubular frame and Z section shutter excluding glass)	sqm	2247.00
118	Stone chips (Excavated material at work site)	cum	435.00
119	Stone chips (at quarry)	cum	570.00
120	Structural steel angle / channel / beam / bars	tonne	39547.00
121	Structural steel plate / flats	tonne	39547.00
122	Super Plasticizer (Conplast RP-264 or equivalent)	ltr	111.00
123	Synthetic Enamel paint 1st quality	ltr	233.00
124	Tarfelt joint filler board 12 mm thick	sqm	353.00
125	Tarfelt joint filler board 20 mm thick	sqm	556.00
126	Through stones 200 x 200 x 300 to 450 mm long	Each	19.00
127	Through stones 250 x 250 x 450 to 600 mm long	Each	24.00
128	Through stones 300 x 300 x 650 to 750 mm long	Each	31.00

STATEMENT OF RATES FOR MATERIALS (contd)

SI No.	DESCRIPTION OF MATERIAL	UNIT	RATE in `.
1	2	3	4
I. CONSTRUCTION MATERIALS (Contd):			
129	Un-coursed rubble stones(Excavated material at work site)	cum	360.00
130	Un-coursed rubble stones (at quarry)	cum	460.00
131	Water proof cement paint	kg	52.00
132	Water proofing compound	kg	49.00
133	Welding electrodes 4 mm dia (general purpose)	Each	10.00
134	Welding electrodes 4 mm dia (radiographic low hydrogen)	Each	21.00
135	Welding electrodes 4 mm dia (stainless steel)	Each	62.00
136	Weld mess 100 x 50 mm 10 gauge non-galvanized	sqm	242.00
137	Wire brush	Each	53.00
138	Weld mesh 50 x 50 mm 13 gauge	sqm	229.00
139	Wire mesh 20 gauge (50 mm x 50 mm chain link)	sqm	241.00
140	Zinc	kg	222.00
141	Zinc chromate red oxide primer paint	ltr	139.00
142	Zinc rich epoxy primer paint (zinc content - 90 %)	ltr	244.00
143	Ground Granualated Blast Furnance Slag (GGBS)	MT	3500.00
II. MANUFACTURED MATERIALS FOR GATES / HOISTS :			
1	Cast steel Wheel / Pulley / Hub / Plummer / Roller	kg	155.00
2	Cast steel Drum / Gear	kg	190.00
3	Cast steel Pinion	kg	190.00
4	Forged steel Hook / Shackle	kg	210.00
5	Alloy steel Shaft (Corbon steel)	kg	280.00
6	Alloy steel Pin (Stainless steel)	kg	345.00
7	Bronze-alluminium alloy Bearing / Bush	kg	810.00
III. ACCESSORIES FOR MACHINERY / EQUIPMENT :			
1	Air hose 25 mm dia	Rm	204.00
2	Air hose 50 mm dia	Rm	276.00
3	Cardium compound	kg	102.00
4	Casing shoe bit	Each	10720.00
5	Diamond core bit BX size	Each	12239.00
6	Diamond core bit NX size	Each	15512.00
7	Diesel	ltr	69.00
8	Double tube core barrel	Each	14212.00
9	Electric power (HT - 2B category)	Kwhr	8.24
10	Extension rod with coupling sleeve	Rm	4271.00
11	Gear oil HP-90	ltr	234.00
12	Grease GEM-RR3	kg	233.00
13	Jack hammer drill rod 1.5 m	Each	4054.00
14	Jack hammer drill rod 2.5 m	Each	6723.00
15	Lubricant	ltr	238.00

STATEMENT OF RATES FOR MATERIALS (contd)

SI No.	DESCRIPTION OF MATERIAL	UNIT	RATE in `.
1	2	3	4
III.	ACCESSORIES FOR MACHINERY / EQUIPMENT (Contd):		
16	Nozzle for guniting / sand blasting gun	Each	381.00
17	Nylon conveyor belt 3 ply 600 mm width	Rm	2417.00
18	Nylon conveyor belt 3 ply 1000 mm width	Rm	3776.00
19	Paving cylinder	Each	23619.00
20	Petrol	ltr	77.67
21	Rails	tonne	47458.00
22	Reamer shell	Each	5251.00
23	Shutter oil	ltr	33.00
24	Spinning belt	Each	10791.00
25	T.C cross bit 100 mm dia	Each	12422.00
26	T.C cross bit 50 mm dia	Each	4506.00
27	T.C cross bit 75 mm dia	Each	9940.00
28	Tyre and tube set for truck	Set	16019.00
29	Water hose (pressure hose)	Rm	188.00
30	Wire rope (conforming to IS-2266)	kg	163.00

OTES :

1. The rates provided for materials are exclusive of G.S.T .
2. The rates provided for materials are inclusive of royalty charges wherever applicable.
3. The rates provided for materials, except those for which conveyance charges are admissible as per the statement of conveyance charges, are for all leads.
4. The rates provided for useful rubble and stone chips from excavation are at dump yard.
5. The width and length of Size stone shall not be less than 1.5 times the height.
6. Manufactured Sand shall conform to IS-383-2007 . Further Indian Institute of Science, Bangalore, have conducted tests on use of Manufactured Sand in cement mortars and has concluded that it shall conform to IS- 2116 (Reaffirmed-1998). In this regard the guildlines in circular issued by the Government vide Circular No: PW/72/BMS/2013 dated:31.07.2013 & circular No: PW/518/BMS/2014 dated:30.09.2014,shall be followed.

**WRD: 1.2. STATEMENT OF WAGES OF WORKERS
FOR THE YEAR : 2018-19**

SI No.	CATEGORY OF WORKER	Basic wage / Day	Variable	Total wage / Day
		in `.	DA / Day	in `.
		ZONE-I	ZONE-I	ZONE-I
1	2	3	4	5
I.	SKILLED CATEGORY:			
1	Bar bender	405.00	61.00	466.00
2	Black smith / Tin smith / Rivetor	405.00	61.00	466.00
3	Blaster (Licensed)	405.00	61.00	466.00
4	Carpenter CI- I	405.00	61.00	466.00
5	Electrician (Licensed)	405.00	61.00	466.00
6	Fitter CI- I	405.00	61.00	466.00
7	Floor Polisher / Tile Layer	405.00	61.00	466.00
8	Foreman	405.00	61.00	466.00
9	Gauge reader	405.00	61.00	466.00
10	Maistry / Work Inspector	405.00	61.00	466.00
11	MasonCI - I / Brick layer CI- I	405.00	61.00	466.00
12	Mechanic CI- I	405.00	61.00	466.00
13	Operator Air compressor / DG set	405.00	61.00	466.00
14	Operator Batching plant	405.00	61.00	466.00
15	Operator Bus /Ambulance /Lorry /Tanker	449.00	61.00	510.00
16	Operator Concrete / Asphalt mixer	405.00	61.00	466.00
17	Operator Concrete / Asphalt paver	405.00	61.00	466.00
18	Operator Concrete pump / Placer	405.00	61.00	466.00
19	Operator Core drilling machine	395.00	61.00	456.00
20	Operator Crane /Tower crane /Cable way	405.00	61.00	466.00
21	Operator Drilling jumbo / Loco / Winch	405.00	61.00	466.00
22	Operator Grouting /Guniting /Shotcreting	395.00	61.00	456.00
23	Operator Jackhammer/Pneumatic tamper	405.00	61.00	466.00
24	Operator Pump / Ventilation fan	405.00	61.00	466.00
25	Operator Lathe/Drilling/Shearing machine	395.00	61.00	456.00
26	Operator Bending / Planing machine	395.00	61.00	456.00
27	Operator Road roller / Light vehicles	421.00	61.00	482.00
28	Operator Shovel / Scraper / Dozer	405.00	61.00	466.00
29	Operator Spillway / Sluice gate	395.00	61.00	456.00
30	Operator Crusher / Conveyor / Mucker	405.00	61.00	466.00
31	Operator Tipper /Dumper Transit mixer	405.00	61.00	466.00
32	Operator Concrete vibrator	395.00	61.00	456.00
33	Operator Vibratory plain / padfoot roller	395.00	61.00	456.00
34	Operator Wagon drill / Drifter	395.00	61.00	456.00

STATEMENT OF WAGES OF WORKERS (contd)

SI No.	CATEGORY OF WORKER	Basic wage / Day	Variable	Total wage / Day
		in `.	DA / Day	in `.
1	2	ZONE-I	ZONE-I	ZONE-I
		3	4	5
I. SKILLED CATEGORY : (contd)				
35	Painter CI- I	405.00	61.00	466.00
36	Plumber (Licensed) / Pipe fitter	405.00	61.00	466.00
37	Sarang / Khalasi	405.00	61.00	466.00
38	Spun pipe moulder	405.00	61.00	466.00
39	Stone chiseller / cutter CI- I	405.00	61.00	466.00
40	Struct. steel Fabricator /Marker /Erector	405.00	61.00	466.00
41	Welder / Gas Cutter	405.00	61.00	466.00
II. SEMI SKILLED CATEGORY :				
1	Asphalt Sprayer / Boiler attendant	395.00	61.00	456.00
2	Bhisti	395.00	61.00	456.00
3	Carpenter CI- II / Erector shuttering	395.00	61.00	456.00
4	Chavali / Navagani	395.00	61.00	456.00
5	Crowbarman / Jumperman	395.00	61.00	456.00
6	Fitter CI- II	395.00	61.00	456.00
7	Gangman / Head / Survey mazdoor	395.00	61.00	456.00
8	Gardener / Trained mali	395.00	61.00	456.00
9	Helper Air compressor / DG set	395.00	61.00	456.00
10	Helper Batching plant	395.00	61.00	456.00
11	Helper Blaster	395.00	61.00	456.00
12	Helper Bus /Ambulance Lorry /Tanker	395.00	61.00	456.00
13	Helper Bending /Shearing /Planing m/c	395.00	61.00	456.00
14	Helper Carpenter	395.00	61.00	456.00
15	Helper Concrete / Asphalt mixer	395.00	61.00	456.00
16	Helper Concrete / Asphalt paver	395.00	61.00	456.00
17	Helper Core drilling machine	395.00	61.00	456.00
18	Helper Crane /Tower crane /Cable way	395.00	61.00	456.00
19	Helper Drilling jumbo / Loco / Winch	395.00	61.00	456.00
20	Helper Fitter / Fabrication	395.00	61.00	456.00
21	Helper Grouting / Guniting / Shotcreting	395.00	61.00	456.00
22	Helper Jack hammer /Pneumatic tamper	395.00	61.00	456.00
23	Helper Laboratory / Instrumentation	395.00	61.00	456.00
24	Helper Road roller	395.00	61.00	456.00
25	Helper Shovel / Scraper / Dozer	405.00	61.00	466.00
26	Helper Crusher / Conveyor / Mucker	395.00	61.00	456.00

STATEMENT OF WAGES OF WORKERS (contd)

SI No.	CATEGORY OF WORKER	Basic wage / Day in `.	Variable DA / Day	Total wage / Day in `.
		ZONE-I	ZONE-I	ZONE-I
1	2	3	4	5
II. SEMI SKILLED CATEGORY : (contd)				
27	Helper Tipper / Dumper / Transit mixer	395.00	61.00	456.00
28	Helper Vibrator	395.00	61.00	456.00
29	Helper Vibratory plain / padfoot roller	395.00	61.00	456.00
30	Helper Wagon drill / Drifter	395.00	61.00	456.00
31	Lineman Electric / Telephone	395.00	61.00	456.00
32	Mason CI- II / Brick layer CI-II /Moulder	395.00	61.00	456.00
33	Mechanic CI- II	395.00	61.00	456.00
34	Painter CI- II	395.00	61.00	456.00
35	Patkari / Neeraganti / Sowdy	395.00	61.00	456.00
36	Stone Chiseller CI II	405.00	61.00	466.00
37	Stone breaker / Hammerman	395.00	61.00	456.00
38	Valveman / Canal sluice operator	395.00	61.00	456.00
III. UN-SKILLED CATEGORY:				
1	Cement / Asphalt handling mazdoor	385.00	61.00	446.00
2	Civic worker (Scavenger)	385.00	61.00	446.00
3	Heavy mazdoor	385.00	61.00	446.00
4	Light mazdoor	385.00	61.00	446.00
5	Watchman	385.00	61.00	446.00
IV. OTHER CATEGORY :				
1	Boatman	395.00	61.00	456.00
2	Care-taker / conductor / Lift attender	395.00	61.00	456.00
3	Cartman for double bullock cart	385.00	61.00	446.00
4	Cartman for single bullock cart	385.00	61.00	446.00
5	Cook / Messman	395.00	61.00	456.00
6	Dhobi	395.00	61.00	456.00
7	Diploma Engineer	675.00	61.00	736.00
8	Diver with headgear	405.00	61.00	466.00
9	Graduate / Laboratory Assistant	405.00	61.00	466.00
10	Graduate Engineer/ Geologist	873.00	61.00	934.00
11	Horticulture Assistant / Photographer	395.00	61.00	456.00
12	ITI certificate holder / Tracer / Printer	395.00	61.00	456.00
13	Literate mazdoor	425.00	61.00	486.00
14	Stenographer / Computer Operator	465.00	61.00	526.00
15	Telephone / Wireless Operator	465.00	61.00	526.00
16	Typist	460.00	61.00	521.00

**WRD: 1.2. STATEMENT OF WAGES OF WORKERS
FOR THE YEAR : 2018-19**

SI No.	CATEGORY OF WORKER	Basic wage / Day in `.		Variable DA / Day	Total wage / Day in `.	
		ZONE-II	ZONE-III	ZONE-II&III	ZONE-II	ZONE-III
1	2	3	4	5	6	7
I.	SKILLED CATEGORY:					
1	Bar bender	395.00	375.00	61.00	456.00	436.00
2	Black smith / Tin smith / Rivetor	395.00	375.00	61.00	456.00	436.00
3	Blaster (Licensed)	395.00	375.00	61.00	456.00	436.00
4	Carpenter CI- I	395.00	375.00	61.00	456.00	436.00
5	Electrician (Licensed)	395.00	375.00	61.00	456.00	436.00
6	Fitter CI- I	395.00	375.00	61.00	456.00	436.00
7	Floor Polisher / Tile Layer	395.00	375.00	61.00	456.00	436.00
8	Foreman	395.00	375.00	61.00	456.00	436.00
9	Gauge reader	395.00	375.00	61.00	456.00	436.00
10	Maistry / Work Inspector	395.00	375.00	61.00	456.00	436.00
11	MasonCI - I / Brick layer CI- I	395.00	375.00	61.00	456.00	436.00
12	Mechanic CI- I	395.00	375.00	61.00	456.00	436.00
13	Operator Air compressor / DG set	395.00	375.00	61.00	456.00	436.00
14	Operator Batching plant	395.00	375.00	61.00	456.00	436.00
15	Operator Bus /Ambulance /Lorry /Tanker	437.00	407.00	61.00	498.00	468.00
16	Operator Concrete / Asphalt mixer	395.00	375.00	61.00	456.00	436.00
17	Operator Concrete / Asphalt paver	395.00	375.00	61.00	456.00	436.00
18	Operator Concrete pump / Placer	395.00	375.00	61.00	456.00	436.00
19	Operator Core drilling machine	385.00	360.00	61.00	446.00	421.00
20	Operator Crane /Tower crane /Cable way	395.00	375.00	61.00	456.00	436.00
21	Operator Drilling jumbo / Loco / Winch	395.00	375.00	61.00	456.00	436.00
22	Operator Grouting /Guniting /Shotcreting	385.00	360.00	61.00	446.00	421.00
23	Operator Jackhammer/Pneumatic tamper	395.00	375.00	61.00	456.00	436.00
24	Operator Pump / Ventilation fan	395.00	375.00	61.00	456.00	436.00
25	Operator Lathe/Drilling/Shearing machine	385.00	360.00	61.00	446.00	421.00
26	Operator Bending / Planing machine	385.00	360.00	61.00	446.00	421.00
27	Operator Road roller / Light vehicles	410.00	385.00	61.00	471.00	446.00
28	Operator Shovel / Scraper / Dozer	395.00	375.00	61.00	456.00	436.00
29	Operator Spillway / Sluice gate	385.00	360.00	61.00	446.00	421.00
30	Operator Crusher / Conveyor / Mucker	395.00	375.00	61.00	456.00	436.00
31	Operator Tipper /Dumper Transit mixer	395.00	375.00	61.00	456.00	436.00
32	Operator Concrete vibrator	385.00	360.00	61.00	446.00	421.00
33	Operator Vibratory plain / padfoot roller	385.00	360.00	61.00	446.00	421.00
34	Operator Wagon drill / Drifter	385.00	360.00	61.00	446.00	421.00

STATEMENT OF WAGES OF WORKERS (contd)

SI No.	CATEGORY OF WORKER	Basic wage / Day in `.		Variable DA / Day	Total wage / Day in `.	
		ZONE-II	ZONE-III	ZONE-II&III	ZONE-II	ZONE-III
1	2	3	4	5	6	7
I. SKILLED CATEGORY : (contd)						
35	Painter CI- I	395.00	375.00	61.00	456.00	436.00
36	Plumber (Licensed) / Pipe fitter	395.00	375.00	61.00	456.00	436.00
37	Sarang / Khalasi	395.00	375.00	61.00	456.00	436.00
38	Spun pipe moulder	395.00	375.00	61.00	456.00	436.00
39	Stone chiseller / cutter CI- I	395.00	375.00	61.00	456.00	436.00
40	Struct. steel Fabricator /Marker /Erector	395.00	375.00	61.00	456.00	436.00
41	Welder / Gas Cutter	395.00	375.00	61.00	456.00	436.00
II. SEMI SKILLED CATEGORY :						
1	Asphalt Sprayer / Boiler attendant	385.00	360.00	61.00	446.00	421.00
2	Bhisti	385.00	360.00	61.00	446.00	421.00
3	Carpenter CI- II / Erector shuttering	385.00	360.00	61.00	446.00	421.00
4	Chavali / Navagani	385.00	360.00	61.00	446.00	421.00
5	Crowbarman / Jumperman	385.00	360.00	61.00	446.00	421.00
6	Fitter CI- II	385.00	360.00	61.00	446.00	421.00
7	Gangman / Head / Survey mazdoor	385.00	360.00	61.00	446.00	421.00
8	Gardener / Trained mali	385.00	360.00	61.00	446.00	421.00
9	Helper Air compressor / DG set	385.00	360.00	61.00	446.00	421.00
10	Helper Batching plant	385.00	360.00	61.00	446.00	421.00
11	Helper Blaster	385.00	360.00	61.00	446.00	421.00
12	Helper Bus /Ambulance Lorry /Tanker	385.00	360.00	61.00	446.00	421.00
13	Helper Bending /Shearing /Planing m/c	385.00	360.00	61.00	446.00	421.00
14	Helper Carpenter	385.00	360.00	61.00	446.00	421.00
15	Helper Concrete / Asphalt mixer	385.00	360.00	61.00	446.00	421.00
16	Helper Concrete / Asphalt paver	385.00	360.00	61.00	446.00	421.00
17	Helper Core drilling machine	385.00	360.00	61.00	446.00	421.00
18	Helper Crane /Tower crane /Cable way	385.00	360.00	61.00	446.00	421.00
19	Helper Drilling jumbo / Loco / Winch	385.00	360.00	61.00	446.00	421.00
20	Helper Fitter / Fabrication	385.00	360.00	61.00	446.00	421.00
21	Helper Grouting / Guniting / Shotcreting	385.00	360.00	61.00	446.00	421.00
22	Helper Jack hammer /Pneumatic tamper	385.00	360.00	61.00	446.00	421.00
23	Helper Laboratory / Instrumentation	385.00	360.00	61.00	446.00	421.00
24	Helper Road roller	385.00	360.00	61.00	446.00	421.00
25	Helper Shovel / Scraper / Dozer	395.00	375.00	61.00	456.00	436.00
26	Helper Crusher / Conveyor / Mucker	385.00	360.00	61.00	446.00	421.00

STATEMENT OF WAGES OF WORKERS (contd)

SI No.	CATEGORY OF WORKER	Basic wage / Day in `.		Variable DA / Day	Total wage / Day in `.	
		ZONE-II	ZONE-III	ZONE-II&III	ZONE-II	ZONE-III
1	2	3	4	5	6	7
II. SEMI SKILLED CATEGORY : (contd)						
27	Helper Tipper / Dumper / Transit mixer	385.00	360.00	61.00	446.00	421.00
28	Helper Vibrator	385.00	360.00	61.00	446.00	421.00
29	Helper Vibratory plain / padfoot roller	385.00	360.00	61.00	446.00	421.00
30	Helper Wagon drill / Drifter	385.00	360.00	61.00	446.00	421.00
31	Lineman Electric / Telephone	385.00	360.00	61.00	446.00	421.00
32	Mason CI- II / Brick layer CI-II /Moulder	385.00	360.00	61.00	446.00	421.00
33	Mechanic CI- II	385.00	360.00	61.00	446.00	421.00
34	Painter CI- II	385.00	360.00	61.00	446.00	421.00
35	Patkari / Neeraganti / Sowdy	385.00	360.00	61.00	446.00	421.00
36	Stone Chiseller CI II	395.00	375.00	61.00	456.00	436.00
37	Stone breaker / Hammerman	385.00	360.00	61.00	446.00	421.00
38	Valveman / Canal sluice operator	385.00	360.00	61.00	446.00	421.00
III. UN-SKILLED CATEGORY:						
1	Cement / Asphalt handling mazdoor	375.00	350.00	61.00	436.00	411.00
2	Civic worker (Scavenger)	375.00	350.00	61.00	436.00	411.00
3	Heavy mazdoor	375.00	350.00	61.00	436.00	411.00
4	Light mazdoor	375.00	350.00	61.00	436.00	411.00
5	Watchman	375.00	350.00	61.00	436.00	411.00
IV. OTHER CATEGORY :						
1	Boatman with boat	385.00	360.00	61.00	446.00	421.00
2	Care-taker / conductor / Lift attender	385.00	360.00	61.00	446.00	421.00
3	Cartman with double bullock cart	375.00	350.00	61.00	436.00	411.00
4	Cartman with single bullock cart	375.00	350.00	61.00	436.00	411.00
5	Cook / Messman	385.00	360.00	61.00	446.00	421.00
6	Dhobi	385.00	360.00	61.00	446.00	421.00
7	Diploma Engineer	675.00	675.00	61.00	736.00	736.00
8	Diver with headgear	395.00	375.00	61.00	456.00	436.00
9	Graduate / Laboratory Assistant	395.00	375.00	61.00	456.00	436.00
10	Graduate Engineer/ Geologist	873.00	873.00	61.00	934.00	934.00
11	Horticulture Assistant / Photographer	385.00	360.00	61.00	446.00	421.00
12	ITI certificate holder / Tracer / Printer	385.00	360.00	61.00	446.00	421.00
13	Literate mazdoor	415.00	385.00	61.00	476.00	446.00
14	Stenographer / Computer Operator	455.00	425.00	61.00	516.00	486.00

STATEMENT OF WAGES OF WORKERS (contd)

SI No.	CATEGORY OF WORKER	Basic wage / Day in `.		Variable DA / Day	Total wage / Day in `.	
		ZONE-II	ZONE-III	ZONE-II&III	ZONE-II	ZONE-III
1	2	3	4	5	6	7
IV.	OTHER CATEGORY : (contd)					
15	Telephone / Wireless Operator	455.00	425.00	61.00	516.00	486.00
16	Typist	445.00	420.00	61.00	506.00	481.00

NOTES:

1. The wages under Zone-I are applicable to : Bangalore city agglomeration area and all other corporation agglomeration area .
- 2 The wages under Zone-II are applicable to : All District headquarters agglomeration area other than those listed in Zone-I.
- 3 The wages under Zone-III are applicable to: All areas other than those listed in Zone-I & Zone-II.
- 4 The wages of workmen of various categories are subject to revision during currency of SR for any revision in minimum daily wages and VDA by Govt of Karnataka.
- 5 The daily rates of wages and VDA of different categories of workers are computed by dividing the total monthly wage by 26 and rounded off to nearest 50 paise.
- 6 For categories of workers for which provision has not been made in the list the rates prevailing in the Schedule of rates of other departments may be adopted.

**WRD: 1.3. STATEMENT OF HIRE CHARGES OF MACHINERY
FOR THE YEAR : 2018-19**

SI No:	Description of machinery	Unit	Basic Hire charge in `.	Fuel charge in `.	Crew Charge in `.	Total Hire Charge in `.
1	2	3	4	5	6	7
1	Agitator car / Transit mixer 2 cum	Hour	483.00	1044.00	267.00	1794.00
2	Agitator car / Transit mixer 4 cum	Hour	542.00	1044.00	267.00	1853.00
3	Air compressor 5 cmm electric	Hour	46.00	249.00	167.00	462.00
4	Air compressor 7 cmm diesel	Hour	113.00	854.00	214.00	1181.00
5	Air compressor 7 cmm electric	Hour	59.00	332.00	167.00	558.00
6	Air compressor 8.5 cmm diesel	Hour	137.00	1067.00	214.00	1418.00
7	Air compressor 8.5 cmm electric	Hour	73.00	415.00	167.00	655.00
8	Air compressor 15 cmm electric	Hour	71.00	922.00	178.00	1171.00
9	Angle Dozer 90 hp	Hour	791.00	730.00	227.00	1748.00
10	Batching plant 6 cum / hr rated capacity	Hour	86.00	184.00	321.00	591.00
11	Batching plant 15 cum / hr rated capacity	Hour	200.00	332.00	321.00	853.00
12	Batching plant 50 cum / hr rated capacity	Hour	332.00	406.00	321.00	1059.00
13	Bending machine	Hour	26.00	111.00	131.00	268.00
14	Concrete bucket 1.5 cum	Hour	8.00	7.00	---	15.00
15	Concrete hand mixer 45 / 30 ltr	Hour	7.00	5.00	---	12.00
16	Concrete mixer 300 / 200 ltr diesel	Hour	29.00	95.00	223.00	347.00
17	Concrete mixer 300 / 200 ltr (ele)	Hour	26.00	37.00	223.00	286.00
18	Concrete mixer 600 / 400 ltr diesel	Hour	58.00	190.00	223.00	471.00
19	Concrete mixer 600 / 400 ltr (ele)	Hour	53.00	74.00	223.00	350.00
20	Concrete paver 100 sqm / hr	Hour	188.00	24.00	428.00	640.00
21	Concrete pump 25 cum/ hr rated capacity	Hour	627.00	443.00	164.00	1234.00
22	Convey mucker	Hour	501.00	257.00	178.00	936.00
23	Core drilling machine	Hour	171.00	285.00	263.00	719.00
24	Diesel generating set 30 KVA	Hour	44.00	759.00	134.00	937.00
25	Diesel generating set 50 KVA	Hour	69.00	1139.00	134.00	1342.00
26	Diesel loco 45 hp	Hour	161.00	640.00	167.00	968.00
27	Dewatering pump 5 hp diesel	Hour	5.00	95.00	109.00	209.00
28	Dewatering pump 5 hp electric	Hour	2.00	37.00	82.00	121.00
29	Dewatering pump 10 hp diesel	Hour	8.00	190.00	109.00	307.00
30	Dewatering pump 10 hp electric	Hour	3.00	74.00	82.00	159.00
31	Dewatering pump 20 hp diesel	Hour	19.00	380.00	109.00	508.00
32	Dewatering pump 20 hp electric	Hour	7.00	148.00	82.00	237.00
33	Drilling jumbo	Hour	275.00	51.00	178.00	504.00
34	Dumper 5.00 cum	Hour	394.00	478.00	214.00	1086.00
35	Geophysical Ele.resistivity meter	Hour	43.00	---	---	43.00
36	Grouting pump	Hour	13.00	37.00	263.00	313.00

STATEMENT OF HIRE CHARGES OF MACHINEY (contd)

SI No	Description of machinery	Unit	Basic Hire charge in `.	Fuel charge in `.	Crew Charge in `.	Total Hire Charge in `.
1	2	3	4	5	6	7
37	Guniting / sand blasting equipment	Hour	58.00	12.00	219.00	289.00
38	Ice plant with accessories 30 t / day	Hour	90.00	1162.00	134.00	1386.00
39	Jack hammer	Hour	10.00	7.00	334.00	351.00
40	Mobile crane 8 t	Hour	289.00	854.00	231.00	1374.00
41	Mobile crane 25 t	Hour	2623.00	2372.00	222.00	5217.00
42	Needle vibrator 40 mm dia. petrol	Hour	5.00	21.00	158.00	184.00
43	Needle vibrator 40 mm dia. electric	Hour	5.00	7.00	158.00	170.00
44	Needle vibrator 60 mm dia. petrol	Hour	6.00	32.00	158.00	196.00
45	Needle vibrator 60 mm dia. electric	Hour	5.00	11.00	158.00	174.00
46	Pile boring rig with accessories	Hour	711.00	1708.00	223.00	2642.00
47	Planing machine	Hour	58.00	111.00	210.00	379.00
48	Plate shearing machine	Hour	41.00	148.00	131.00	320.00
49	Pneumatic placer 0.5 cum	Hour	92.00	5.00	85.00	182.00
50	Pneumatic tamper	Hour	8.00	7.00	267.00	282.00
51	Pug cutting machine	Hour	11.00	4.00	---	15.00
52	Pusher leg	Hour	5.00	5.00	---	10.00
53	Road roller diesel 10 t	Hour	155.00	854.00	216.00	1225.00
54	Shovel 0.50 cum 75 hp	Hour	494.00	569.00	227.00	1290.00
55	Shovel 0.85 cum 110 hp	Hour	818.00	1044.00	227.00	2089.00
56	Spinning machine	Hour	26.00	111.00	131.00	268.00
57	Stationary derrick crane	Hour	44.00	12.00	---	56.00
58	Tipper 5 cum	Hour	229.00	359.00	167.00	755.00
59	Tipping tub 1.5 cum	Hour	21.00	12.00	---	33.00
60	Tower crane 5 tonne	Hour	660.00	192.00	178.00	1030.00
61	Transformer 250 KVA	Month	2301.00	---	---	2301.00
62	Truck 10 t	Hour	228.00	359.00	173.00	760.00
63	Upright drilling machine / Grinder	Hour	13.00	37.00	164.00	214.00
64	Ventilation fan 20 hp	Hour	4.00	148.00	28.00	180.00
65	Vibrating plate compactor (diesel)	Hour	38.00	95.00	267.00	400.00
66	Vibratory pad foot roller 8 t	Hour	778.00	1233.00	263.00	2274.00
67	Waggon drill	Hour	147.00	12.00	263.00	422.00
68	Water tanker 8000 ltr	Hour	227.00	359.00	173.00	759.00
69	Welding transformer	Hour	8.00	89.00	---	97.00
70	Winch 35 hp electric	Hour	67.00	258.00	267.00	592.00

STATEMENT OF HIRE CHARGES OF MACHINERY (contd)**NOTES:**

1. Hire charges include depreciation, interest, repair charges, miscellaneous charges, insurance and road tax wherever applicable.
2. Fuel charges include cost of diesel / petrol / electric power as applicable and oil / lubricants and other miscellaneous charges.
3. Crew charges include wages of operator and helper on hourly basis.
For the purpose of working out wages of crew on hourly basis the daily wages are converted to yearly wages by multiplying the daily wages with (26 daysx12 months). The yearly wage is then divided by yearly usage of machinery in hours to get hourly wages of operating crew.

Yearly usage of machinery = Life of machinery in hours / Life of machinery in years

Example: Operating crew charges for Deisel Air compressor :

Operator compressor	₹ : 436.00 / Day
Helper compressor	₹ : 421.00 / Day
Life of Air compressor in hours	: 10000 hours
Life of Air compressor in years	: 8 years
Yearly usage of Air compressor (10000 / 8)	: 1250 hours
Operator compressor per hour =	$436.00 \times 26 \times 12 / 1250 =$ ₹ : 108.83
Helper compressor per hour =	$421.00 \times 26 \times 12 / 1250 =$ ₹ : <u>105.08</u>
Total operating crew charges per hour	₹ : 213.91
Rounded off to	₹ : 214.00

4. For batching plants 2 Operators and 2 Helpers are considered for Crew charges.
5. Hire / Fuel / Crew charges are exclusive of provisions towards small T & P, profit, overheads and hidden cost on operating crew. Profit shall be considered only on fuel and operating crew charges.

**WRD: 1.4.1. CONVEYANCE CHARGES FOR MATERIALS BY HEAD LOAD
FOR THE YEAR : 2018-19**

SI No.	Total distance (Total lead includes initial lead)	Earth / Sand / Gravel / Murrum / Lime / Surki / Size stone / Cut stone / Rubble / Coarse aggregate in ` /cum	Cement / Reinforc- ement & Structu- ral steel in ` / t	Shahbad / PCC & BS slabs / CC & Laterite blocks / Wood in ` /cum
1	2	3	4	5
1	Total lead upto 50 m (Initial lead)	Cost included in item basic rates in SR		
2	Total lead upto 100 m	76.90	44.90	97.90
3	Total lead upto 150 m	153.80	89.70	195.80

OTES:

- For total lead upto 150 m (including initial lead) lead charges by head load only shall be adopted irrespective of mode of conveyance.
- For total lead exceeding 150 m conveyance by mechanical means only shall be adopted irrespective of mode of conveyance.
- Loading and unloading charges are not payable for conveyance by head load.
- Unless otherwise specified lead charges for Earth / Sand / Gravel / Aggregates and stones are for loose volume and not for compacted or in-situ volume.
- The rates for lead charges by head load and upto 5 km by any mode are cumulative and inclusive of lead charges for preceding lead.

Example:

Lead charges for conveyance of Earth / Sand for total lead of 100 m shall be corresponding to lead charges ' Total lead upto 100 m ' in the statement of lead charges by head load.

Lead charges for Earth / Sand for total lead of 100 m : 76.90 / cum

WRD: 1.4.2. CONVEYANCE CHARGES FOR MATERIALS BY ANY MODE**FOR THE YEAR : 2018-19**

(Excluding loading and unloading charges)

SI No.	Distance	Earth / Sand / Murum / Gravel / Lime	Rubble / Size stone/ Cut stone/ Coarse aggregate	Cement / Steel / Pipes / AC sheet/ GI sheet/ RCC pole	Shahbad / PCC / BS slabs / CC / Laterite blocks / Wood	Water
		in `./ cum	in `./ cum	in `./ tonne	in `./ cum	in `./ 1000 ltr
1	2	3	4	5	6	7
1	Lead upto 1 km	66.60	101.50	78.80	205.80	60.80
2	Lead more than 1 km upto 2 km	78.60	113.30	86.10	223.10	68.10
3	Lead more than 2 km upto 3 km	89.70	124.80	93.30	240.10	75.30
4	Lead more than 3 km upto 4 km	100.50	135.70	100.20	256.10	82.10
5	Lead more than 4 km upto 5 km	111.20	146.40	106.90	271.90	88.80
6	Every km beyond 5 km upto 30 km	10.30	10.40	6.50	15.30	6.50
7	Every km beyond 30 km	9.70	9.80	6.10	14.40	6.10

NOTES:

1. For total lead exceeding 150 m conveyance by mechanical means only shall be added irrespective of mode of conveyance.
2. Unless otherwise specified lead charges for Earth / Sand / Gravel / Aggregates and stones are for loose volume and not for compacted or in-situ volume.
3. The rates for lead charges upto 5 km by any mode are cumulative and inclusive of lead charges for preceding lead.

Example:

Lead charges for conveyance of Earth / Sand for total lead of 4 kms shall be corresponding to lead charges ' Beyond 3 km upto 4 km ' in the statement of lead charges by any mode.

Lead charges for Earth / Sand for total lead of 4 km : 100.50 / cum

**WRD: 1.4.3. LOADING AND UNLOADING CHARGES FOR MATERIALS
FOR THE YEAR : 2018-19**

SI No.	Distance	Earth / Sand / Murum / Gravel / Lime in `./ cum	Rubble / Size stone/ Cut stone/ Coarse aggregate in `./ cum	Cement / Steel / Pipes / AC sheet/ GI sheet/ RCC pole in `./ tonne	Shahbad / PCC / BS slabs / CC / Laterite blocks / Wood in `./ cum	Water in `./ 1000 ltr
1	2	3	4	5	6	7
1	Loading	129.20	152.50	139.70	134.60	34.50
2	Unloading	18.10	76.25	139.70	134.60	Gravity

OTES:

1. Loading and unloading charges are not payable for conveyance by head load.
2. Loading charges are not payable for conveyance by mechanical means for disposal of excavated materials beyond initial lead of 50 m wherever specified.
3. Loading and unloading charges are not payable for conveyance by mechanical means for disposal of excavated materials beyond initial lead of 1 km wherever specified.
4. The rates for unloading of materials except earth, sand, gravel, coarse aggregate, rubble, size stone and cut stone are inclusive of stacking.
5. Unloading of materials includes stacking wherever applicable.

**WRD: 1.4.4. LIFT CHARGES FOR MATERIALS
FOR THE YEAR : 2018-19**

SI No.	Total lift (Total lift includes initial lift)	Earth / Sand /Gravel/ Murrum / Lime / Surki / Size stone / Cut stone / Rubble / Coarse aggregate in ` / cum	Cement / Reinforc ment ste Str steel in ` / t	Shahbad / PCC / BS slab / CC block / Late- rite / wood in ` /cum
1	2	3	4	5
1	Total lift upto 1.50 m (Initial lift)	Cost included in item basic rates in SR		
2	Total lift upto 3.00 m	13.50	9.60	17.90
3	Total lift upto 4.50 m	26.90	19.20	35.90
4	Total lift upto 6.00 m	40.40	28.80	53.80
5	Total lift upto 7.50 m	53.80	38.50	71.80

NOTES :

- The rates for lift charges are cumulative and inclusive of rates for preceding lift.

Example :

Lift charges for total lift of 6 m shall be corresponding to lift charges " Total lift upto 6.00 m " in the statement of lift charges.

Lift charges for Earth / Sand for total lift of 6 m : 40.40 / cum

- Lift charges are not payable where conveyance of materials is by mechanical means to final placing point.

**WRD: 1.5. ROYALTY RATES ON MATERIALS
FOR THE YEAR : 2018-19**

on No.:

CI 418 MMN 2015(Part), Bangaluru, Dated: 12-08-2016

(Only relevant portions of the Notification are listed in the following table)

SI No.	Name of minor mineral	Area of applicability	Rate in ` / Unit quantity
1	2	3	4
1	Murum	Entire state	20.00 / tonne
2	Ordinary building stones	Entire state	60.00 / tonne
3	Lime stone under title ' Shahabad stone '	Entire state	70.00 / 10 sqm
4	Ordinary sand	Entire state	60.00 / tonne

NOTES :

1. The recovery of royalty charges on materials listed above, wherever applicable, shall be regulated as per Note.5 under " General notes on Schedule of Rates.
2. Royalty charges as applicable to murum shall be considered for Earth / Soil also.
3. Royalty charges as applicable to ordinary building stones shall be considered for coarse aggregate also.
4. Royalty charges as applicable to ordinary sand shall be considered for fine aggregate.
5. Royalty charges as applicable to Shahabad stone shall be considered for Yaragunta / Cudappa stone slabs also.

WATER RESOURCES DEPARTMENT

CHAPTER - WRD:2 DAM AND ALLIED WORKS SCHEDULE OF RATES FOR THE YEAR : 2018-19

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WRD: 2. DAM AND ALLIED WORKS
NOTES ON SCHEDULE OF RATES

1. All notes under General Notes on Schedule of Rates and Notes on Lead, Lift, Loading and un-loading Charges are applicable to Dam and Allied Works also to the extent they are relevant.
2. Unless otherwise specified the basic rates are inclusive of all lifts.
3. Unless otherwise specified the basic rates are inclusive of standard finishing required for concrete surface.
4. The basic rates for concrete items include cost of cleaning / green cutting top surface of previous lift of concrete and providing cement mortar layer before placing concrete for next lift. The proportion of cement mortar shall be same as that of mortar portion in concrete.
5. For concrete, masonry and reinforcement steel items initial lead of 1km is considered in the basic rate.

Additional lead charges for cement and steel shall be worked out by deducting initial lead of 1 km from the total lead and loading and unloading charges shall be allowed in view of rehandling of cement and steel from site store / fabrication yard to work place.

Example : For cement.

Total lead for cement	: 100 km
Less Rehandling lead included in basic rate	: 1 km
Net lead for working out additional lead charges	: 99 km
Additional lead charges / tonne: First 5 kms	∩ : 106.90
Next 25 kms (25 x 6.50	∩ : 162.50
Balance 69 kms (69 x 6.10	∩ : 420.90
Loading & unloading charges	∩ : <u>279.40</u>
Total additional lead charges / tonne	∩ : <u>969.70</u>

Additional lead charges for sand, coarse aggregate, stones and stone chips shall be worked out for total lead involved and 1 km lead charges included in basic rate shall be deducted from the total lead charges. No loading and unloading charges shall be allowed since no rehandling lead is involved for these materials.

Example : For sand.

Total lead for sand from approved sand quarry	: 15 km
Initial lead included in the basic rate in the SR	: 1 km
Additional lead charges / cum : Lead charges for 5 km	∩ : 111.20
Lead charges for next 10 km (10 x 10.30)	∩ : <u>103.00</u>
Total lead charges for 15 km /cum	∩ : 214.20
Less 1 km initial lead charges / cum	∩ : <u>-66.60</u>
Net additional lead charges / cum	∩ : <u>147.60</u>

No loading and un-loading charges shall be added.

NOTES ON SCHEDULE OF RATES (contd)

6. For earth / rockfill embankment works 1 km initial lead is considered in the basic rates. As storing / stacking / re-handling of materials is not involved for these works the lead charges for additional lead shall be worked out for total lead including initial lead of 1 km and then the cost of first km lead shall be deducted. No loading and un-loading charges shall be added as the additional lead does not involve rehandling of materials.

Example : For soil.

Total lead for soil from approved borrow area	:	2 km
Initial lead included in the basic rate in the SR	:	1 km
Additional lead charges : Lead charges for 2 km	∧ :	78.60
Less Lead charges for 1 km	∧ :	<u>-66.60</u>
Additional lead charges / cum	∧ :	12.00

No loading and un-loading charges shall be added.

7. Cement content specified for cement concrete works in the item description is based on theoretical design mix computations and is exclusive of wastage and requirement for any incidentals. The actual cement content may vary based on trial mix studies. A suitable clause shall be included in tender for regulating payment for any upward or downward variation in cement content.
8. The quantities of materials including wastage, requirements for incidentals etc., for working out additional lead charges shall be as per the statement of requirement of materials under this section.
9. The basic rates are exclusive of cost of site clearing and river diversion arrangements such as coffer dams, bunds, diversion channels etc. Separate sub-estimates shall be prepared for all types of coffer dams, bunds, diversion channels etc.

WRD: 2. DAM AND ALLIED WORKS
QUANTITY OF MATERIALS FOR ADDITIONAL LEAD CHARGES

Item No.	Description of work	Unit	Quantity of materials required per unit quantity of work			
			Cement kg	Sand / FA cum	CA cum	Steel kg
WRD:						
2.9.1	Consolidation grouting	tonne	1010.00	---	---	---
2.9.2	Curtain grouting	tonne	1010.00	---	---	---
2.10	25 mm dia. dowel rod 3 m long	Each	3.00	---	---	11.85
2.11	25 mm dia. anchor rod 2.75 m long	Each	2.50	---	---	10.90
2.12	Reinforcement steel	tonne	---	---	---	1025.00
			Cement kg	Sand / FA cum	CA cum	Plums cum
2.13	M-15 CC using 80 mm down CA for PCC	cum	215.10	0.378	0.98	---
2.14	M-10 CC using 80 mm down CA for PCC	cum	194.90	0.378	0.98	---
2.15	M-20 CC using 40 mm down CA gallery	cum	306.00	0.382	0.85	---
2.16	M-15 CC using 40 mm down CA for PCC	cum	245.40	0.407	0.88	---
2.17	M-15 plum CC using 40 mm down CA	cum	209.00	0.360	0.74	0.22
2.18	M-10 CC using 40 mm down CA for PCC	cum	225.20	0.430	0.88	---
2.19	M-15 CC using 20 mm down CA	cum	295.90	0.450	0.77	---
2.20	M-20 CC using 20 mm down CA bridge	cum	336.30	0.430	0.75	---
2.21	Porous CC body drain	Rm	179.70	---	0.44	---
2.22.1	M-20 CC using 20 mm CA solid parapet	Rm	81.80	0.101	0.18	---
2.22.2	M-20 CC 20 mm CA ornamental parapet	Rm	71.40	0.090	0.16	---
2.23	M-25 CC 20 mm down CA wearing coat	cum	368.60	0.410	0.76	---
			Cement kg	Sand / FA cum	CA cum	Hume Pipe kg
2.26	Hume pipe with porous CC for weep hole	Rm	1.10	0.007	0.003	32.00
			Cement kg	Sand / FA cum	Stones cum	Steel kg
2.27	Spillway bridge expansion joint	Rm	---	--	--	24.35
2.28	UCR masonry in CM 1:3 propn.	cum	192.00	0.408	1.01	---
2.29	UCR masonry in CM 1:4 propn.	cum	145.40	0.409	1.01	---
2.30	CR face masonry in CM 1:3 propn	cum	179.80	0.380	1.06	---
2.31	CR face masonry in CM 1:4 propn	cum	136.40	0.380	1.06	---
2.32	Chisel drafted CR face masonry in CM1:3	cum	167.70	0.357	1.08	---
2.33	Chisel drafted CR face masonry in CM1:4	cum	127.30	0.357	1.08	---
2.34.1	Pointing in CM 1:2 propn.	sqm	4.55	0.007	---	---
2.34.2	Pointing in CM 1:3 propn.	sqm	3.33	0.007	---	---

QUANTITY OF MATERIALS FOR ADDITIONAL LEAD CHARGES (contd)

Item No.	Description of work	Unit	Quantity of materials required per unit quantity of work			
			Cement kg	Sand / FA cum	Stones cum	Pipe / Steel kg
WRD:.						
2.35	20 mm th plastering in CM 1:3	sqm	13.10	0.275	---	---
2.36	Guniting 25 mm thick in CM 1:3 propn	sqm	17.10	0.031	---	---
			Soil cum	Sand cum	CA cum	Stones cum
2.41	Impervious hearting embankment	cum	1.26	---	---	---
2.42	Cut-off trench filling	cum	1.26	---	---	---
2.43	Semi-pervious embankment	cum	1.26	---	---	---
2.44	Semi-pervious casing	cum	1.26	---	---	---
2.45	Homogeneous embankment	cum	1.26	---	---	---
2.46	Filling adjacent to structures	cum	1.26	---	---	---
2.47	Rockfill embankment	cum	---	---	---	1.02
2.48	Rock toe (stones from quarry)	cum	---	---	---	1.02
2.49	Rock toe (stones from dump yard)	cum	---	---	---	1.02
			Cement kg	Sand / FA cum	CA cum	Pipe / Steel kg
2.50	Open jointed hume pipe in rock-toe	Rm	---	---	---	80 / ---
2.51	RCC manhole in rock-toe	Each	1313.00	2.000	3.62	80 / 160
			Soil cum	Sand cum	CA cum	Stones cum
2.52	Cross filter drain	cum	---	0.485	0.54	---
2.53.1	Vertical / Inclined filter - Sand layer	cum	---	1.020	---	---
2.53.2	Vertical / Inclined filter - 10 mm CA layer	cum	---	---	1.02	---
2.53.3	Vertical / Inclined filter - 20 mm CA layer	cum	---	---	1.02	---
2.53.4	Vertical / Inclined filter - 40 mm CA layer	cum	---	---	1.02	---
2.53.5	Vertical / Inclined filter - 80 mm CA layer	cum	---	---	1.02	---
2.54	Filter below / behind rock toe	cum	---	0.240	0.78	---
2.55	Filter using filter fabric and 20 mm CA	sqm	---	---	0.41	---
2.56	Sand chimney filter drain	cum	---	1.050	---	---
2.57	Transition filter 900 mm thick	cum	---	0.340	0.68	---
2.58	600 mm revetment with 450 mm filter	sqm	---	0.153	0.31	0.70
2.59	600 mm revetment with 600 mm filter	sqm	---	0.204	0.41	0.70
2.60	600 mm riprap with 450 mm filter	sqm	---	0.153	0.31	0.70
2.61	750 mm riprap with 450 mm filter	sqm	---	0.153	0.31	0.88
2.62	900 mm riprap with 450 mm filter	sqm	---	0.153	0.31	1.05
2.63	Hariyali turfing	sqm	0.08	0.020	---	---
			(sods)			

QUANTITY OF MATERIALS FOR ADDITIONAL LEAD CHARGES (contd)**NOTES:**

1. The quantities of materials specified in the above table are for loose volume.
2. The quantity of cement for cement concrete items includes requirement of cement for any incidental works such as mortar layer at lift joints, repair of honey-comb patches etc.
3. The quantities of materials are inclusive of wastage as under:

Cement	1.00 percent
Sand / Fine aggregate	2.00 percent
Coarse aggregate / Stones / Stone chips	2.00 percent
Steel (Reinforcement & Structural)	2.50 percent

WRD: 2. DAM AND ALLIED WORKS**AMOUNT OF ROYALTY CHARGES INCLUDED IN ITEM RATES**

Item No.	Description of work	Unit	Amount of Royalty charges included in item rate in ` :			
			Earth	Sand	CA	Stone
WRD:						
2.13	M-15 CC using 80 mm down CA PCC	cum	---	39.00	105.95	---
2.14	M-10 CC using 80 mm down CA PCC	cum	---	39.00	105.85	---
2.15	M-20 CC using 40 mm down CA gallery	cum	---	39.40	91.80	---
2.16	M-15 CC using 40 mm down CA	cum	---	42.00	95.05	---
2.17	M-15 plum CC using 40 mm down CA	cum	---	37.15	79.90	34.70
2.18	M-10 CC using 40 mm down CA for PCC	cum	---	44.40	95.05	---
2.19	M-15 CC using 20 mm down CA for PCC	cum	---	46.45	83.15	---
2.20	M-20 CC using 20 mm down CA bridge	cum	---	44.40	81.00	---
2.21	Porous CC body drain	Rm	---	---	47.50	---
2.22.1	M-20 CC using 20 mm CA solid parapet	Rm	---	10.40	19.45	---
2.22.2	M-20 CC 20 mm CA ornamental parapet	Rm	---	9.30	17.30	---
2.23	M-25 CC 20 mm down CA wearing coat	cum	---	42.30	82.10	---
2.26	Hume pipe with porous CC for weep hole	Rm	---	0.70	0.30	---
2.28	UCR masonry in CM 1:3 propn.	cum	---	42.10	---	159.40
2.29	UCR masonry in CM 1:4 propn.	cum	---	42.20	---	159.40
2.30	CR face masonry in CM 1:3 propn	cum	---	39.20	---	167.25
2.31	CR face masonry in CM 1:4 propn	cum	---	39.20	---	167.25
2.32	Chisel drafted CR face masonry in CM1:3	cum	---	36.85	---	170.40
2.33	Chisel drafted CR face masonry in CM1:4	cum	---	36.85	---	170.40
2.34.1	Pointing in CM 1:2 propn.	sqm	---	0.70	---	---
2.34.2	Pointing in CM 1:3 propn.	sqm	---	0.70	---	---

AMOUNT OF ROYALTY CHARGES INCLUDED IN ITEM RATES(contd)

Item No.	Description of work	Unit	Amount of Royalty charges included in item rate in `:			
			Earth	Sand	CA	Stone
WRD:						
2.35	20 mm th plastering in CM 1:3	sqm	---	28.40	---	---
2.36	Guniting 25 mm thick in CM 1:3 propn	sqm	---	3.20	---	---
2.41	Impervious hearting embankment	cum	30.00	---	---	---
2.42	Cut-off trench filling	cum	30.00	---	---	---
2.43	Semi-pervious embankment	cum	30.00	---	---	---
2.44	Semi-pervious casing	cum	30.00	---	---	---
2.45	Homogeneous embankment	cum	30.00	---	---	---
2.46	Filling adjacent to structures	cum	30.00	---	---	---
2.47	Rockfill embankment	cum	---	---	---	160.95
2.48	Rock toe (stones from quarry)	cum	---	---	---	160.95
2.49	Rock toe (stones from dump yard)	cum	---	---	---	160.95
2.51	RCC manhole in rock-toe	Each	---	206.40	390.95	---
2.52	Cross filter drain	cum	---	50.05	58.30	---
2.53.1	Vertical / Inclined filter - Sand layer	cum	---	105.25	---	---
2.53.2	Vertical / Inclined filter - 10 mm CA layer		---	---	110.15	---
2.53.3	Vertical / Inclined filter - 20 mm CA layer		---	---	110.15	---
2.53.4	Vertical / Inclined filter - 40 mm CA layer		---	---	110.15	---
2.53.5	Vertical / Inclined filter - 80 mm CA layer		---	---	110.15	---
2.54	Filter below / behind rock toe	cum	---	24.75	84.25	---
2.55	Filter using filter fabric and 20 mm CA	sqm	---	---	44.30	---
2.56	Sand chimney filter drain	cum	---	108.35	---	---
2.57	Transition filter 900 mm thick	cum	---	35.10	73.45	---
2.58	600 mm revetment with 450 mm filter	sqm	---	15.80	33.50	110.45
2.59	600 mm revetment with 600 mm filter	sqm	---	21.05	44.30	110.45
2.60	600 mm riprap with 450 mm filter	sqm	---	15.80	33.50	110.45
2.61	750 mm riprap with 450 mm filter	sqm	---	15.80	33.50	138.85
2.62	900 mm riprap with 450 mm filter	sqm	---	15.80	33.50	165.70
2.63	Hariyali turfing	sqm	---	2.05	---	---

NOTES:

- In the Govt notification on royalty charges the rates for Earth / Sand / Building stone are on weight basis. For converting the rate per tonne to rate per cum for working-out the royalty charges for various work items following density values are considered as per the circular of Mines & Geology No:GA.BU.E/D.C.B./KA.GA.GU./RA.PA.KO/ 2013-14 dt:13-03-2014.

Sand / Fine aggregate (loose volume)	: 1.72 tonne per cum
Stones/stone chips (loose volume) :	2.63 tonne per cum
Coarse aggregates (loose volume) :	1.80 tonne per cum
Soil (compacted to 95 percent density control)	: 1.50 tonne per cum

**WRD: 2. DAM AND ALLIED WORKS
SCHEDULE OF RATES
FOR THE YEAR : 2018-19**

Item No.	Brief description of work	Unit	Basic Rate in ₹:
1	2	3	4
	EXCAVATION & FOUNDATION TREATMENT WORKS:		
WRD: 2.1.	Excavation for foundation in all kinds of soil including boulders upto 0.60 m dia (0.113 cum) for dam, spillway, intake structure, surface power house and other appurtenant works and placing the excavated soil neatly in specified dump area or disposing off the same as directed including cost of all materials, machinery, labour etc., complete with lead upto 1 km and all lifts.	cum	86.00
WRD: 2.2.	Excavation for foundation in soft rock with-out blasting including boulders upto 0.6 m diameter (0.113 cum) for dam, spillway, intake structure, surface power house and other appurtenant works and placing the excavated material neatly in specified dump area or disposing off the same as directed including cost of all materials, machinert, labour etc., complete with lead upto 1 km and all lifts.	cum	110.00
WRD: 2.3.	Excavation for foundation in soft rock requiring blasting including boulders upto 0.6 m diameter (0.113 cum) for dam, spillway, intake structure, surface power house and other appurtenant works and placing the excavated material neatly in specified dump area or disposing off the same as directed including cost of all materials, machinert, labour etc., complete with lead upto 1 km and all lifts.	cum	190.00
WRD: 2.4.1.	Excavation for foundation in hard rock of all toughness by blasting including boulders above 0.6 m diameter(0.113 cum) for dam, spillway, intake structure, surface power house and other appurtenant works minimising damage to rock beyond specified excavation line by adopting any one or combination of line drilling /pre-splitting /smooth blasting techniques and placing the excavated rock neatly in specified dump area as directed including cost of all materials, machinery, labour etc., complete with lead upto 1 km and all lifts.	cum	358.00
WRD: 2.4.2.	Excavation for foundation in hard rock of all toughness including boulders above 0.6 m diameter (0.113 cum) for dam, spillway, intake structure, surface power house and other appurtenant structures by approved controlled blasting methods including control of vibration by use of delay detonators and control of fly rocks by muffling arrangements		

Item No.	Brief description of work	Unit	Basic Rate in ₹:
1	2	3	4
	etc., and placing the excavated rock neatly in specified dump area as directed including cost of all materials, machinery, labour etc., complete with lead upto 1 km and all lifts.	cum	661.00
WRD: 2.5.	Preparing foundation bed for masonry or concrete by removing all loose material by wedging / chiselling and disposing off the same as directed and cleaning the surface with air and water jet including cost of all materials, machinery, labour etc., complete with lead upto 50 m and all lifts.	sqm	44.00
WRD: 2.6.	Preparing foundation bed for cut-off trench filling in rock portion by removing all loose material by wedging / chiselling and disposing off the same as directed etc., complete with lead upto 50 m and all lifts.	sqm	34.00
WRD: 2.7.	Drilling 50 mm dia. holes vertical or inclined upto 10 degrees to vertical in rock / masonry / concrete by percussion drilling method using waggon drill or any other suitable equipment including cost of all materials, machinery, labour, redrilling through partially set grout wherever required etc., complete.		
2.7.1.	Upto 6 m from surface.	Rm	206.00
2.7.2.	Beyond 6 m upto 12 m from surface.	Rm	226.00
2.7.3.	Beyond 12 m upto 18 m from surface.	Rm	249.00
2.7.4.	Beyond 18 m upto 24 m from surface.	Rm	274.00
2.7.5.	Beyond 24 m upto 30 m from surface.	Rm	301.00
2.7.6.	Beyond 30 m upto 36 m from surface.	Rm	332.00
2.7.7.	Beyond 36 m upto 42 m from surface.	Rm	365.00
2.7.8.	Beyond 42 m upto 48 m from surface.	Rm	401.00
Note:	The item rate for drilling through rock / masonry / concrete includes redrilling through partially set grout, if any, in the portion of the hole already drilled and grouted.		
WRD: 2.8.	Flushing grout holes of all sizes with water and air jets alternatively for an average period of 30 minutes and observing water intake after flushing including cost of all materials, machinery, labour etc., complete.	Rm	55.00
WRD: 2.9.1.	Consolidation grouting with neat cement grout mix of suitable consistency under specified grout pressure as directed in drilled holes by stage grouting method including cost of all materials, machinery, labour, redrilling if necessary etc., complete with lead upto 1 km and all lifts.	tonne	11851.00
WRD:	Curtain grouting with neat cement grout mix of suitable consistency		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
2.9.2.	under specified grout pressure as directed in drilled holes by stage grouting method including cost of all materials, machinery, labour, redrilling if necessary etc., complete with lead upto 1 km and all lifts.	tonne	13125.00
WRD:	Providing and fixing up-heaval gauge with all accessories as per specifications excluding cost of drilling holes including cost of all other materials, machinery, labour, equipments etc., complete.	Each	12502.00
2.9.3.			
WRD:	Providing and fixing 25 mm dia 3 m long cold twisted deformed steel		
2.10.	dowel bars with one end driven into 38 mm dia 1.50 m deep hole drilled in bed rock and other end provided with L - bend for embedding in concrete / masonry of over flow / non-over flow blocks and other appurtenant works including cost of all materials, machinery, labour, drilling and cleaning hole, filling hole with thick cement slurry, driving anchor rod etc., complete with lead upto 1 km and all lifts.	Each	1059.00
WRD:	Providing and fixing 25 mm dia 2.75 m long ribbed steel anchor rods		
2.11.	with one end split and driven firmly using steel wedge into 1.25 m deep 38 mm dia. hole drilled in bed rock and other end provided with L-bend for embedding in concrete / masonry for spillway and appurtenant works including cost of all materials, machinery, labour, steel wedge, drilling and cleaning hole, filling hole with thick cement slurry, driving anchor rod etc., complete with lead upto 1 km and all lifts.	Each	1029.00
	REINFORCEMENT & CEMENT CONCRETE WORKS :		
WRD:	Providing, fabricating and placing in position steel reinforcement bars		
2.12.	for RCC structures including cost of all materials, machinery, labour, cleaning, straightening, cutting, bending, hooking, lapping /welding joints wherever required, tying with 1.25 mm dia. soft annealed steel wire etc., complete with lead upto 1 km and all lifts.	tonne	70225.00
WRD:	Providing and laying in-situ vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 80 mm down approved, clean, hard, graded aggregates for plain concrete works including cost of all materials, machinery, labour, formwork, centering, scaffolding, cleaning, providing mortar layer for lift joints, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 1 km and all lifts. (Cement content : 210 kg / cum with use of super plasticiser)	cum	4472.00
2.13.			

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
WRD: 2.14.	Providing and laying in-situ vibrated M-10 (28 days cube compressive strength not less than 10 N / sq mm) grade cement concrete using 80 mm down approved, clean, hard, graded aggregates for plain concrete works including cost of all materials, machinery, labour, formwork, centering, scaffolding, cleaning, providing mortar layer for lift joints, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 1 km and all lifts. (Cement content : 190 kg / cum with use of super plasticiser)	cum	4318.00
WRD: 2.15.	Providing and laying in-situ vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for RCC works of gallery, sluice, spillway crest, spillway d / s face, energy dissipating structures, training walls, piers, abutments and such other locations including cost of all materials,machinery,labour,formwork, centering, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 1 km and all lifts. (Cement content :300 kg / cum with use of super plasticiser)	cum	5917.00
WRD: 2.16.	Providing and laying in-situ vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for plain concrete works including cost of all materials, machinery, labour, formwork, centering, scaffolding, cleaning, providing mortar layer for lift joints, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 1 km and all lifts. (Cement content : 240 kg / cum with use of super plasticiser)	cum	6009.00
WRD: 2.17.	Providing and laying in-situ vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates with placing and sinking plums of size 150 to 80 mm upto 15 percent for gravity type structures including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 1 km and all lifts. (Cement content:247 kg /cum for batching mixing concrete and 210 kg /cum for finished plum concrete with use of super plasticiser)	cum	5661.00
WRD: 2.18.	Providing and laying in-situ vibrated M-10 (28 days cube compressive strength not less than 10 N / sq mm) grade cement concrete using 40		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
WRD: 2.19.	Providing and laying in-situ vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for plain concrete works including cost of all materials, machinery, labour, formwork, centering, scaffolding, cleaning, providing mortar layer for lift joints, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 1 km and all lifts. (Cement content : 220 kg / cum with use of super plasticiser)	cum	5789.00
WRD: 2.20.	Providing and laying in-situ vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for plain concrete works including cost of all materials, machinery, labour, formwork, centering, scaffolding, cleaning, providing mortar layer for lift joints, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 1 km and all lifts. (Cement content : 290 kg / cum with use of super plasticiser)	cum	6486.00
WRD: 2.21.	Providing and forming porous (with out sand) concrete body drains of size 685 x 685 mm with 230 mm diameter central hole using cement and 20 mm down approved, clean, hard, graded coarse aggregate in 1 : 3.50 proportion by volume including cost of all materials, machinery, labour, formwork, batching, mixing, placing in position, tamping, curing etc., complete with lead upto 1 km and all lifts.	Rm	3057.00
WRD: 2.22.1.	Providing and laying in-situ vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for RCC solid parapet consisting of 350 x 200 mm kerb, 350 x 350 x 1000 mm pillars spaced approximately at 3.35 m c / c, 125 mm thick wall 800 mm height with 125 mm thick and 350 mm wide coping slab for wall and 125 mm thick 400 x 400 mm coping for pillars with top edges of kerb and coping chamfered/rounded as directed including cost of all materials, machinery,		

Item No.	Brief description of work	Unit	Basic Rate in ₹:
1	2	3	4
	labour, formwork, centering, cleaning, scaffolding, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete (excluding cost of providing and placing reinforcement steel and gate) with lead upto 1 km and all lifts. (Cement content : 330 kg / cum with use of super plasticiser)	Rm	2805.00
WRD: 2.22.2.	Providing and laying in-situ vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for RCC ornamental parapet consisting of 350 x 200 mm kerb, 350 x 350 x 1000 mm pillars spaced approximately at 3.5 m apart, 200 x 150 mm posts 800 mm height approximately 300 mm c / c with 125 mm thick and 350 mm wide coping slab for posts 400 x 400 x 125 cm coping slab for pillars with top edges of kerb and coping chamferred or rounded as directed including cost of all materials, machinery, labour, formwork, centering, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete (excluding cost of providing and placing reinforcement steel and gate) with lead upto upto 1 km and all lifts. (Cement content 330 kg / cum with use of super plasticizer)	Rm	2918.00
WRD: 2.23.	Providing and laying insitu M- 25 (28 days cube compressive strength not less than 25 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for wearing coat including cost of all materials, machinery, labour, formwork, cleaning, batching, mixing, placing in position in alternate panels as directed , levelling, compacting, finishing, curing, packing joints with asphalt mortar etc., complete with lead upto 1 km and all lifts. (Cement content : 360 kg / cum with use of super plasticiser)	cum	6939.00
WRD: 2.24.	Pre-cooling to control placement temperature of cement concrete in the range of 18 to 21° C at the concrete placement point by inundation of coarse aggregates by circulating normal water and using flaked ice and water chilled upto 4° C for mixing concrete including cost of all materials, machinery, labour etc., complete with all leads and lifts.	cum	113.00
WRD: 2.25.	Conveying and fixing elastomeric bearings for spillway bridge including cost of all materials (except bearings), machinery, labour, cleaning and preparing surface, mixing and applying adhesive, fixing bearing in correct position etc., complete with all leads and lifts.	Each	484.00
WRD:	Providing and constructing 150 mm dia hume pipe weep holes for		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
2.26.	concrete /masonry walls including cost of all materials,machinery,labour, providing 200 x 200 x 200 mm size porous concrete block made of cement and 20 mm down coarse aggregate in 1 : 4 proportion by volume with 100 mm thick sand backing at the junction of wall and soil back fill etc., complete with lead upto 1 km and all lifts.	Rm	530.00
WRD: 2.27.	Providing and forming expansion joint for spillway bridge consisting of 75 x 75 x 6 mm angles 2 numbers provided with 250 mm long 12 mm dia. anchors fixed to both flanges at 150 mm c / c and 140 x 6 mm plate welded on top of one of the angle including cost of all materials, labour, machinery, providing and fixing 38 mm thick joint filler board matching the thickness of wearing coat, painting etc., complete with lead upto 1 km and all lifts.	Rm	1890.00
MASONRY & GUNITING WORKS :			
WRD: 2.28.	Providing and constructing un-coursed rubble stone masonry using approved stones in cement mortar 1 : 3 proportion by volume including cost of all materials, machinery, labour, scaffolding, ramps, cleaning, packing mortar and wedging stone chips into joints, curing etc.,complete with lead upto 1 km and all lifts.	cum	4294.00
WRD: 2.29.	Providing and constructing un-coursed rubble stone masonry using approved stones in cement mortar 1 : 4 proportion by volume including cost of all materials, machinery, labour, scaffolding, ramps, cleaning, packing mortar and wedging stone chips into joints, curing etc.,complete with lead upto 1 km and all lifts.	cum	4052.00
WRD: 2.30.	Providing and constructing coursed rubble face stone masonry using approved stones in cement mortar 1 : 3 proportion by volume including cost of all materials, machinery, labour, scaffolding, ramps, cleaning, packing mortar and wedging stone chips into joints, curing etc.,complete with lead upto 1 km and all lifts.	cum	4696.00
WRD: 2.31.	Providing and constructing coursed rubble face stone masonry using approved stones in cement mortar 1 : 4 proportion by volume including cost of all materials, machinery, labour, scaffolding, ramps, cleaning, packing mortar and wedging stone chips into joints, curing etc.,complete with lead upto 1 km and all lifts.	cum	4474.00
WRD: 2.32.	Providing and constructing chisel drafted and hammer dressed face stone masonry using approved stones in cement mortar 1 : 3		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	proportion by volume including cost of all materials, machinery, labour, scaffolding, ramps, cleaning, packing mortar and wedging stone chips into joints, curing etc. complete with lead upto 1 km and all lifts.	cum	4928.00
WRD: 2.33.	Providing and constructing chisel drafted and hammer dressed face stone masonry using approved stones in cement mortar 1 : 4 proportion by volume including cost of all materials, machinery, labour, scaffolding, ramps, cleaning, packing mortar and wedging stone chips into joints, curing etc. complete with lead upto 1 km and all lifts.	cum	4711.00
WRD: 2.34.1.	Providing 50 mm deep cement mortar pointing to face stone masonry in CM 1 : 2 proportion by volume including cost of all materials, labour, raking-out and cleaning joints, pressing mortar into joints, scaffolding, finishing, curing etc., complete with lead upto 1 km and all lifts.	sqm	162.00
Note:	If waterproofing compound is added to cement mortar add	sqm	5.00
WRD: 2.34.2.	Providing 50 mm deep cement mortar pointing to face stone masonry in CM 1 : 3 proportion by volume including cost of all materials, labour, raking-out and cleaning joints, pressing mortar into joints, scaffolding, finishing, curing etc., complete with lead upto 1 km and all lifts.	sqm	156.00
Note:	If waterproofing compound is added to cement mortar add	sqm	4.00
WRD: 2.35.	Providing average 20 mm thick cement mortar plastering to stone masonry block joint in CM 1 : 3 proportion by volume including cost of all materials, machinery, labour, raking-out and cleaning joints for 50 mm depth, pressing mortar into joints, finishing surface, curing etc., complete with lead upto 1 km and all lifts.	sqm	280.00
WRD: 2.36.	Providing 25 mm thick guniting to rock or masonry surface in cement mortar 1 : 3 proportion by weight including cost of all materials, machinery, labour, raking-out and cleaning joints, scaffolding wherever required, curing and all other ancillary operations etc., complete with lead upto 1 km and all lifts.	sqm	572.00
	CONTRACTION JOINT WORKS:		
WRD: 2.37.	Providing and constructing contraction joints by fixing 6 SWG 600 mm wide annealed copper sheets in two lines with 8 mm dia. steel dowel rods on either side at one metre interval, forming 125 x 125 mm size groove in between copper strips for filling asphalt, fixing 15 mm dia two legged G.I pipe with U-bend at bottom for circulation of steam at		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	intervals and forming 150 mm dia formed drain behind water seals including cost of all materials, machinery, labour, filling asphalt in groove, circulation of steam through pipe, etc., complete with all leads and lifts	Rm	13269.00
WRD: 2.38.	Providing and constructing contraction joints by fixing 310 mm wide central bulb type approved quality PVC water stop in two lines with 8 mm dia. steel dowel rods on either side at 1 m interval, forming 125 x 125 mm size groove in between two water stops for filling asphalt, fixing 15 mm dia two legged G.I pipe with U-bend at bottom for circulating steam at interval and forming 150 mm dia formed drain behind water seals including cost of all materials, machinery, labour, filling asphalt in groove, circulation of steam through pipes, vulcanizing water seal joints etc., complete with all leads and lifts.	Rm	1972.00
WRD: 2.39.	Providing and constructing contraction joints by fixing 16 SWG 600 mm wide annealed copper sheets in single line with 8 mm dia steel dowel rods on either side at 1 metre interval including cost of all materials, machinery, labour, brazing copper sheet joints etc., complete with all leads and lifts.	Rm	6083.00
WRD: 2.40.	Providing and constructing contraction joints by fixing 230 mm wide central bulb type PVC water stop in single line supported by 10 mm dia. steel dowel rods on either side at 1 metre interval including cost of all materials, machinery, labour, vulcanizing water seal joints etc., complete with all leads and lifts.	Rm	496.00
	EARTH / ROCKFILL EMBANKMENT WORKS :		
WRD: 2.41.	Providing hearting embankment using selected impervious soil from approved borrow areas in layers of 250 to 300 mm (before compaction) including cost of all materials, machinery, labour, all other operations such as collection of soil, spreading soil in layer of specified thickness, sorting out, breaking clods, levelling, sectioning edges / sides, watering, compacting to density control of not less than 95 percent using power roller etc., complete with lead upto 1 km and all lifts.	cum	145.00
WRD: 2.42.	Providing cut-off trench filling using selected impervious soil from approved borrow areas in layers of 250 to 300 mm (before compaction) including cost of all materials, machinery, labour, all other operations such as collection of soil, spreading soil in layer of specified thickness,		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	sorting out, breaking clods, levelling, sectioning edges / sides, watering, compacting to density control of not less than 95 percent using power roller etc., complete with lead upto 1 km and all lifts.	cum	154.00
WRD: 2.43.	Providing casing embankment using semi-pervious soil from approved borrow areas in layers of 250 to 300 mm (before compaction) including cost of all materials, machinery, labour, all other operations such as collection of soil, spreading soil in layer of specified thickness, sorting out, breaking clods, levelling, sectioning edges / sides, watering, compacting to density control of not less than 95 percent using power roller etc., complete with lead upto 1 km and all lifts.	cum	156.00
WRD: 2.44.	Providing casing embankment using semi-pervious soil available from excavation in layers of 250 to 300 mm (before compaction) including cost of all materials, machinery, labour, all other operations such as collection of soil, spreading soil in layer of specified thickness, sorting out, breaking clods, levelling, sectioning edges / sides, watering, compacting to density control of not less than 95 percent using power roller etc., complete with lead upto 1 km and all lifts.	cum	137.00
WRD: 2.45.	Providing homogeneous embankment using homogeneous soil from approved borrow area in layers of 250 to 300 mm (before compaction) including cost of all materials, machinery, labour, all other operations such as collection of soil, spreading soil in layer of specified thickness, sorting out, breaking clods, levelling, sectioning edges /sides, watering, compacting to density control of not less than 95 percent using power roller etc., complete with lead upto 1 km and all lifts.	cum	145.00
WRD: 2.46.	Providing impervious embankment adjacent to masonry / concrete structure and filling trial pits using impervious soil from approved borrow area in layers of 100 to 150 mm (before compaction) including cost of all materials, machinery, labour, all other operations such as collection of soil, picking previous layer, spreading soil in layer of specified thickness, sorting-out, breaking clods, levelling, sectioning edges / sides, watering, compacting to density control of not less than 95 percent using pneumatic tampers / vibrating earth rammers etc., complete with lead upto 1 km and all lifts.	cum	237.00
WRD: 2.47.	Providing and constructing rockfill embankment using 300 mm down graded stones and quarry spalls from approved source including cost of all materials, machinery, labour, spreading stones and spalls in		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	layers, hand packing, wedging, finishing the surface to required slopes as per approved drawings etc., complete with lead upto 1 km and all lifts.	cum	599.00
WRD: 2.48.	Providing and constructing dry rubble rock-toe using rubble and stone chips from approved source including cost of all materials, machinery, labour, hand packing rubble and stone chips, finishing top and sides to required slopes as per approved drawings etc. complete with lead upto 1 km and all lifts.	cum	706.00
WRD: 2.49.	Providing and constructing dry rubble rock-toe using rubble and stone chips from dump yard including cost of all materials, machinery, labour, hand packing rubble and stone chips, finishing top and sides to required slopes as per approved drawings etc., complete with lead upto 1 km and all lifts.	cum	776.00
WRD: 2.50.	Providing and laying 300 mm diameter open jointed hume pipes with collars in rock-toe for drainage including cost of all materials, machinery, labour etc., complete with lead upto 1 km and all lifts.	Rm	932.00
WRD: 2.51.	Providing and constructing 1.20 m internal diameter and average 3 m height RCC manhole consisting of 200 mm thick bed / sides / top slab / 1.5 m long cut-off wall all reinforced with 12 mm dia bars at 300 mm c / c bothways, 600 mm dia and 75 mm thick top cover reinforced with 8 mm dia bars at 150 mm c/c bothways, 12 mm dia rungs at specified intervals, 300 mm dia hume pipe out-let etc., in M-15 (28 days cube compressive strength not less than 15 N / sqmm) grade cement concrete using 20 mm down approved clean , hard, graded aggregates including cost of all materials, machinery, labour, excavation for foundation, formwork, scaffolding, fabricating and placing reinforcement steel, batching, mixing, laying and vibrating concrete, finishing, curing etc., complete as per approved drawings with lead upto 1 km and all lifts.	Each	55610.00
	FILTER & PITCHING WORKS :		
WRD: 2.52.	Providing and constructing longitudinal / cross graded filter drains using sand, 80mm to 20 mm and 20 mm down clean, hard graded aggregates from approved source satisfying specified filter criteria in layers of specified thickness including cost of all materials, machinery, labour, laying to required slopes, compaction etc., complete as per specifications and approved drawings with lead upto 50 m and all lifts.	cum	1393.00
WRD:	Providing and constructing vertical /inclined graded filter media using		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
2.53.	clean, hard graded sand and coarse aggregates from approved source satisfying specified filter criteria in layers of specified thickness including cost of all materials, machinery, labour, laying to required slopes, compacting etc., complete as per specifications and approved drawings with lead upto 50 m and all lifts.		
2.53.1	Sand layer.	cum	1171.00
2.53.2	10 mm down graded coarse aggregate layer	cum	2160.00
2.53.3	20 mm down graded coarse aggregate layer	cum	1900.00
2.53.4	40 mm down graded coarse aggregate layer	cum	1499.00
2.53.5	80 mm down graded coarse aggregate layer	cum	1067.00
WRD: 2.54	Providing and constructing graded filter media below and behind rock-toe consisting of 200 mm thick sand, 250 mm thick 20 to 4.75 mm and 400 mm thick 80 to 20 mm clean, hard, graded coarse aggregates from approved source satisfying specified filter criteria including cost of all materials, machinery, labour, laying to required thickness and slope, compacting etc., complete as per specifications and approved drawings with lead upto 50 m and all lifts.	cum	1311.00
WRD: 2.55.	Providing and laying filter media consisting of two layers of 250 gsm poly-propeline non-woven filter fabric with 400 mm thick 20 mm down clean, hard, graded coarse aggregate in between for vertical / inclined / horizontal filter blanket for embankment including cost of all materials, machinery, labour etc., complete with lead upto 50 m for aggregate and all leads for fabric and all lifts.	sqm	1420.00
WRD: 2.56.	Providing and constructing 450 mm thick chimney filter using clean approved sand satisfying specified filter criteria including cost of all materials, machinery, labour, compacting etc., complete with lead upto 50 m and all lifts.	cum	1177.00
WRD: 2.57.	Providing and constructing 900 mm thick transition cum filter media behind rockfill using sand, 80mm to 20 mm and 20 mm down clean, hard, graded aggregates from approved source satisfying specified filter criteria in layers of 300 mm thickness each including cost of all materials, machinery, labour, laying each layer to required slope, compacting etc., complete as per specifications and approved drawings with lead upto 50 m and all lifts.	cum	1391.00
WRD: 2.58.	Providing and constructing 600 mm thick hand packed rough stone revetment with 650 to 750 mm long through stones at 1.50 m c / c over 450 mm thick graded filter media backing consisting of sand, 10 mm down and 40 mm down approved clean, hard, graded aggregates		

Item No.	Brief description of work	Unit	Basic Rate in ₹:
1	2	3	4
	laid in layers of 150 mm thick each including cost of all materials for revetment and filter, machinery, labour, laying to required slopes as per approved drawings, packing and wedging with stone chips, finishing surface etc., complete with lead upto 50 m and all lifts.	sqm	1258.00
WRD: 2.59.	Providing and constructing 600 mm thick hand packed rough stone revetment with 650 to 750 mm long through stones at 1.50 m c / c over 600 mm thick graded filter media backing consisting of sand, 10 mm down and 40 mm down approved clean, hard, graded aggregates laid in layers of 200 mm thick each including cost of all materials for revetment and filter, machinery, labour, laying to required slopes as per approved drawings, packing and wedging with stone chips, finishing surface etc., complete with lead upto 50 m and all lifts.	sqm	1497.00
WRD: 2.60.	Providing and constructing 600 mm thick hand packed rough stone riprap over 450 mm thick graded filter media backing consisting of sand, 10 mm down and 40 mm down approved clean, hard, graded aggregates laid in layers of 150 mm thick each including cost of all materials for riprap and filter media, machinery, labour, laying to required slopes as per approved drawings, packing and wedging with stone chips etc.,complete with lead upto 50 m and all lifts.	sqm	1195.00
WRD: 2.61.	Providing and constructing 750 mm thick hand packed rough stone riprap over 450 mm thick graded filter media backing consisting of sand, 10 mm down and 40 mm down approved clean, hard, graded aggregates laid in layers of 150 mm thick each including cost of all materials for riprap and filter media, machinery, labour, laying to required slopes as per approved drawings, packing and wedging with stone chips etc.,complete with lead upto 50 m and all lifts.	sqm	1310.00
WRD: 2.62.	Providing and constructing 900 mm thick hand packed rough stone riprap over 450 mm thick graded filter media backing consisting of sand, 10 mm down and 40 mm down approved clean, hard, graded aggregates laid in layers of 150 mm thick each including cost of all materials for riprap and filter media, machinery, labour, laying to required slopes as per approved drawings, packing and wedging with stone chips etc.,complete with lead upto 50 m and all lifts.	sqm	1435.00
WRD: 2.63.	Providing and laying Hariyali or other approved quality turfing sods for slopes of earthen embankment over 20 mm thick fine sand backing including cost of all materials, machinery, labour, preparing surface, spreading and tamping sand, watering for 15 days etc., complete with lead upto 1 km and all lifts.	sqm	161.00

WATER RESOURCES DEPARTMENT

CHAPTER - WRD:3 CANAL AND ALLIED WORKS SCHEDULE OF RATES FOR THE YEAR : 2018-19

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WRD: 3. CANAL AND ALLIED WORKS
NOTES ON SCHEDULE OF RATES

1. All notes under General Notes on Schedule of Rates and Notes on Lead, Lift, Loading and un-loading charges are applicable to Canal and Allied Works also to the extent they are relevant.
2. Unless otherwise specified the basic rates are inclusive of all lifts.
3. For earth / rockfill embankment works 1 km initial lead is considered in the basic rates. As no storing/stacking and re-handling of materials is involved for these works the lead charges for additional lead shall be worked out for total lead including initial lead of 1 km and then the cost of first km lead shall be deducted. No loading and un-loading charges shall be added as the additional lead does not involve rehandling of materials.
 Example : For soil.

Total lead for soil from approved borrow area	: 2 km
Initial lead included in the basic rate in the SR	: 1 km
Additional lead charges : Lead charges for 2 km	` : 78.60
Less Lead charges for 1 km	` : <u>-66.60</u>
Additional lead charges	` : 12.00

No loading and un-loading charges shall be added.

4. Cement content specified for cement concrete works in the item description is based on theoretical design mix computations and is exclusive of wastage and requirement for any incidentals. The actual cement content may vary based on trial mix studies. A suitable clause shall be included in tender for regulating payment for any upward or downward variation in cement content.
- 5 The quantities of materials including wastage, requirements for incidentals etc., for working out additional lead charges shall be as per the statement of requirement of materials under this section.

WRD: 3. CANAL AND ALLIED WORKS
QUANTITY OF MATERIALS FOR ADDITIONAL LEAD CHARGES

Item No.	Description of work	Unit	Quantity of materials required per unit quantity of work			
			Steel kg	Soil cum	Sand cum	Stones cum
WRD:	Using soil from Borrow area :					
3.7	Impervious hearting (Borrow area soil)	cum	---	1.26	---	---
3.8	Semi-pervious casing (Borrow area soil)	cum	---	1.26	---	---
3.9	Homogeneous embankment(Borrow area)	cum	---	1.26	---	---
	Using soil from Dump area :					
3.10	Impervious hearting (Dump area soil)	cum	---	1.26	---	---
3.11	Semi-pervious casing (Dump area soil)	cum	---	1.26	---	---
	Using soil from Canal excavation :					
3.12	Impervious hearting (Canal excavation)	cum	---	1.26	---	---
3.13	Semi-pervious casing (Canal excavation)	cum	---	1.26	---	---
3.14	Embankment for field channel	cum	---	1.26	---	---
			Steel kg	Soil cum	Sand cum	Stones cum
3.15	Rubble and sand filling	cum	---	---	0.410	1.02
3.16	Rubble and murum filling	cum	---	0.41	---	1.02
3.17	250 mm thick Sand blanket	sqm	---	---	0.255	---
			Steel kg	Stone/chips cum	Sand cum	CA cum
3.18	Rock-toe	cum	---	1.170	---	---
3.19	Longitudinal & cross drains	cum	---	---	0.783	0.236
3.20	Inclined filter	cum	---	---	0.612	0.408
3.21	Filter behind & below rock-toe	cum	---	---	0.340	0.679
3.22.1	Filter using filter fabric 200 gsm	sqm	---	---	---	0.205
3.22.2	Filter using filter fabric 250 gsm	sqm	---	---	---	0.205
			Steel kg	Soil cum	Sand cum	Stones cum
3.23	Rockfill casing (stone from quarry)	cum	---	---	---	1.15
3.24	Rockfill casing (dump yard stones)	cum	---	---	---	1.15
3.25	CNS lining 95 % density (borrow area)	cum	---	1.26	---	---
3.26	CNS lining 95 % density (excavation)	cum	---	1.26	---	---
3.27	200x200x750 mm Canal bed level stone	Each	---	---	---	0.03
3.28	Reinforcement steel	kg	1.025	---	---	---

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Item No.	Description of work	Unit	Quantity of materials required per unit quantity of work			
			Slab cum	Cement cum	Sand cum	CA cum
WRD:						
3.29.1	80 mm th. M-15 CC 20 mm CA by paver	sqm	---	23.60	0.041	0.067
3.29.2	100 mm th. M-15 CC 20 mm CA by paver	sqm	---	29.05	0.050	0.082
3.30.1	80 mm th. M-20 CC 20 mm CA by paver	sqm	---	28.75	0.036	0.065
3.30.2	100 mm th. M-20 CC 20 mm CA by paver	sqm	---	35.40	0.044	0.080
3.32.1	M-15 CC (20 mm CA) for side lining	cum	---	277.70	0.480	0.785
3.32.2	M-20 CC (20 mm CA) for side lining	cum	---	338.30	0.417	0.765
3.33	M-15 CC (40 mm CA) for bed lining	cum	---	247.40	0.408	0.737
3.34	M-15 CC (20 mm CA) for bed lining	cum	---	277.70	0.480	0.785
3.35	M-20 CC (40 mm CA) for bed lining	cum	---	277.70	0.422	0.860
3.36	M-20 CC (20 mm CA) for bed lining	cum	---	338.30	0.418	0.760
3.43	Filter around relief pipe	Each	---	---	0.034	0.016
3.44	Fixing Shahbad slab for lining in CM 1:3	sqm	0.030	1.00	0.002	---
3.45	Fixing PCC slab for lining in CM 1:3	sqm	0.050	2.33	0.005	---
3.46	Fixing PCC lug slab in CM 1:3	Rm	0.017	0.60	0.001	---
3.48	Notes:Providing 75 mm sand backing	sqm	---	---	0.077	---
3.51	M-15 PCC slab 550 x 550 x 55 mm	Each	---	5.54	0.009	0.013
3.52	M-15 PCC slab 550 x 300 x 55 mm	Each	---	2.96	0.004	0.007
3.53	M-15 PCC slab 450 x 300 x 30 mm	Each	---	1.95	0.002	0.003
3.54	M-15 PCC slab 450 x 150 x 30 mm	Each	---	1.03	0.001	0.001
3.55	M-15 PCC slab 400 x 400 x 30 mm	Each	---	2.24	0.002	0.003
3.56	M-15 PCC slab 400 x 150 x 30 mm	Each	---	0.96	0.001	0.001
			Murum cum	Cement kg	Sand cum	Stones cum
3.57	UCR in CM 1:5 (quarry stone)	cum	---	115.20	0.410	1.17
3.58	UCR in CM 1:5 (excavated stone)	cum	---	115.20	0.410	1.17
3.59	250 mm thick UCR stone pitching	sqm	---	---	---	0.29
Note:	If 150 mm thick murum bed provided		0.18	---	---	---
3.60	300 mm thick UCR stone pitching	sqm	---	---	---	0.35
Note:	If 150 mm thick murum bed provided		0.18	---	---	---
3.61	450 mm thick UCR stone pitching	sqm	---	---	---	0.50
Note:	If 150 mm thick murum bed provided		0.18	---	---	---
3.62	300 mm thick UCR pitching in CM 1:5	sqm	---	30.23	0.107	0.35
Note:	If 150 mm thick murum bed provided		0.18	---	---	---
3.63	300 mm thick Khandki stone pitching	sqm	---	---	---	0.35
Note:	If 150 mm thick murum bed provided		0.18	---	---	---
3.64	450 mm thick Khandki stone pitching	sqm	---	---	---	0.50
Note:	If 150 mm thick murum bed provided		0.18	---	---	---

QUANTITY OF MATERIALS FOR ADDITIONAL LEAD CHARGES (contd)

Item No.	Description of work	Unit	Quantity of materials required per unit quantity of work			
			Murum cum	Cement kg	Sand cum	Stones cum
WRD: 3.65	300 mm thick Khandki pitching in CM1:5	sqm	---	29.16	0.099	0.35
Note:	If 150 mm thick murum bed provided		0.18	---	---	---
3.66	450 mm thick Khandki pitching in CM1:5	sqm	---	40.70	0.142	0.50
Note:	If 150 mm thick murum bed provided		0.18	---	---	---
3.67	Hariyali turfing	sqm	sod 0.10	---	0.020	---

Notes:

- The quantities of materials specified in the above table are for loose volume.
- The quantity of cement for cement concrete items includes requirement of cement for any incidental works such as mortar layer at lift joints, repair of honeycomb patch etc.
- The quantities of materials are inclusive of wastage as under:

Cement	1.00 percent.
Sand / Fine aggregate	2.00 percent.
Coarse aggregate	2.00 percent.
Stones / Stone chips	2.00 percent.
Steel (Reinforcement / Structural)	2.50 percent.

**WRD: 3. CANAL AND ALLIED WORKS
AMOUNT OF ROYALTY CHARGES INCLUDED IN ITEM RATES**

Item No.	Description of work	Unit	Amount of Royalty charges included in item rate in ` :			
			Earth	Sand	CA	Stone
WRD:	Using soil from Borrow area :					
3.7	Impervious hearting 95 % density	cum	30.00	---	---	---
3.8	Semi-pervious casing 95 % density	cum	30.00	---	---	---
3.9	Homogeneous embankment 95%density	cum	30.00	---	---	---
	Using soil from Dump area :					
3.10	Impervious hearting 95 % density	cum	30.00	---	---	---
3.11	Semi-pervious casing 95 % density	cum	30.00	---	---	---

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Item No.	Description of work	Unit	Amount of Royalty charges included in item rate in `:			
			Earth	Sand	CA	Stone
WRD:	Using soil from Canal excavation :					
3.12	Impervious hearting 95 % density	cum	30.00	---	---	---
3.13	Semi-pervious casing 95 % density	cum	30.00	---	---	---
3.14	Embankment for field channel	cum	30.00	---	---	---
3.15	Rubble and sand filling	cum	---	42.30	---	160.95
3.16	Rubble and murum filling	cum	12.30	---	---	160.95
3.17	250 mm thick Sand blanket	sqm	---	26.30	---	---
3.18	Rock-toe	cum	---	---	---	184.65
3.19	Longitudinal & cross drains	cum	---	80.80	25.50	---
3.20	Inclined filter	cum	---	63.15	44.05	---
3.21	Filter behind & below rock-toe	cum	---	35.10	73.35	---
3.22.1	Filter using filter fabric 200 gsm	sqm	---	---	22.15	---
3.22.2	Filter using filter fabric 250 gsm	sqm	---	---	22.15	---
3.23	Rockfill casing (stone from quarry)	cum	---	---	---	181.45
3.24	Rockfill casing (dump yard stones)	cum	---	---	---	181.45
3.25	CNS lining 95 % density(borrow area)	cum	30.00	---	---	---
3.26	CNS lining 95 % density(excavation)	cum	30.00	---	---	---
3.27	200x200x750 mm Canal bed level stone	Each	---	---	---	4.75
29.1	80 mm th. M-15 CC 20 mm CA by paver	sqm	---	4.25	7.25	---
29.2	100 mm th. M-15 CC 20 mm CA by paver	sqm	---	5.15	8.85	---
30.1	80 mm th. M-20 CC 20 mm CA by paver	sqm	---	3.70	7.00	---
30.2	100 mm th. M-20 CC 20 mm CA by paver	sqm	---	4.55	8.65	---
32.1	M-15 CC (20 mm CA) for side lining	cum	---	49.55	84.80	---
32.2	M-20 CC (20 mm CA) for side lining	cum	---	43.05	82.60	---
3.33	M-15 CC (40 mm CA) for bed lining	cum	---	42.10	79.60	---
3.34	M-15 CC (20 mm CA) for bed lining	cum	---	49.55	84.80	---
3.35	M-20 CC (40 mm CA) for bed lining	cum	---	43.55	92.90	---
3.36	M-20 CC (20 mm CA) for bed lining	cum	---	43.15	82.10	---
3.43	Filter around relief pipe	Each	---	3.50	1.75	---
3.44	Fixing Shahbad slab for lining in CM 1:3	sqm	---	0.21	---	7.00
3.45	Fixing PCC slab for lining in CM 1:3	sqm	---	0.50	---	---
3.46	Fixing PCC lug slab in CM 1:3	Rm	---	0.12	---	---
3.48	Notes: Providing 75 mm sand backing	sqm	---	7.90	---	---
3.51	M-15 PCC slab 550x550x55 mm	Each	---	0.95	1.40	---
3.52	M-15 PCC slab 550x300x55 mm	Each	---	0.41	0.80	---
3.53	M-15 PCC slab 450x300x30 mm	Each	---	0.21	0.32	---
3.54	M-15 PCC slab 450x150x30 mm	Each	---	0.08	0.15	---
3.55	M-15 PCC slab 400x400x30 mm	Each	---	0.21	0.36	---

AMOUNT OF ROYALTY CHARGES INCLUDED IN ITEM RATES (contd)

Item No.	Description of work	Unit	Amount of Royalty charges included in item rate in `:			
			Earth	Sand	CA	Stone
WRD:						
3.56	M-15 PCC slab 400x150x30 mm	Each	---	0.08	0.13	---
3.57	UCR in CM 1:5 (quarry stone)	cum	---	42.30	---	184.65
3.58	UCR in CM 1:5 (excavated stone)	cum	---	42.30	---	184.65
3.59	250 mm thick Stone pitching	sqm	---	---	---	45.75
Note:	If 150 mm thick murum bed provided		5.40	---	---	---
3.60	300 mm thick Stone pitching	sqm	---	---	---	55.25
Note:	If 150 mm thick murum bed provided		5.40	---	---	---
3.61	450 mm thick Stone pitching	sqm	---	---	---	78.90
Note:	If 150 mm thick murum bed provided		5.40	---	---	---
3.62	300 mm thick Stone pitching in CM 1:5	sqm	---	11.05	---	55.25
Note:	If 150 mm thick murum bed provided		5.40	---	---	---
3.63	300 mm thick Khandki stone pitching	sqm	---	---	---	55.25
Note:	If 150 mm thick murum bed provided		5.40	---	---	---
3.64	450 mm thick Khandki stone pitching	sqm	---	---	---	78.90
Note:	If 150 mm th murum bed provided		5.40	---	---	---
3.65	300 mm thick Khandki pitching in CM1:5	sqm	---	10.20	---	55.25
Note:	If 150 mm thick murum bed provided		5.40	---	---	---
3.66	450 mm thick Khandki pitching in CM1:5	sqm	---	14.65	---	78.90
Note:	If 150 mm thick murum bed provided		5.40	---	---	---
3.67	Grass turfing	sqm	---	2.05	---	---

Notes:

- In the Govt notification on royalty charges the rates for Earth / Sand / Building stone are on weight basis. For converting the rate per tonne to rate per cum for working-out the royalty charges for various work items following density values are considered as per the circular of Mines & Geology No:GA.BU.E/D.C.B./KA.GA.GU./RA.PA.KO/ 2013-14 dt:13-03-2014.

Sand / Fine aggregate (loose volume)	: 1.72 tonne per cum
Stones/stone chips (loose volume) :	2.63 tonne per cum
Coarse aggregates (loose volume) :	1.80 tonne per cum
Soil (compacted to 95 percent density control)	: 1.50 tonne per cum

WRD: 3. CANAL AND ALLIED WORKS
SCHEDULE OF RATES
FOR THE YEAR : 2018-19

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	EXCAVATION WORKS :		
WRD: 3.1.	Excavation in all kinds of soil including boulders upto 0.6 m diameter (0.113 cum) for canal , seating of embankment, filter drains /catch water drains etc., and placing the excavated stuff neatly in dump area or for formation of service road / embankment as directed including cost of all materials, machinery,labour, dressing bed and sides to required level and profile etc.,complete with lead upto 1 km and depth of cut upto 18 m.	cum	85.00
Note:	For depth of cut exceeding 8 m from ground level increase the basic rate by 5 percent for the quantity of excavation beyond 18 m depth.		
WRD: 3.2.	Excavation in all kinds of soil including boulders upto 0.60 m diameter (0.113 cum) for field channels , seating of embankment for field channels and placing the excavated stuff neatly for formation of service road / field channel embankment as directed including cost of all materials, machinery, labour, dressing bed and sides to required level and profile etc., complete with lead upto 10 m and lift upto 2 m.	cum	50.00
WRD: 3.3.	Excavation in soft rock without blasting including boulders upto 0.6 m diameter (0.113 cum) for canal , seating of embankment, filter drain / catch water drains etc., and placing the excavated soft rock neatly in dump area or for formation of service road as directed including cost of all materials, machinery,labour, dressing bed and sides to required level and profile etc.,complete with lead upto 1 km and depth of cut upto 18 m.	cum	116.00
Note:	For depth of cut exceeding 8 m from ground level increase the basic rate by 5 percent for the quantity of excavation beyond 18 m depth.		
WRD: 3.4.	Excavation in soft rock without blasting including boulders upto 0.6 m diameter (0.113 cum) for field channels , seating of embankment for field channels etc., and placing the excavated soft rock neatly for formation of service road as directed including cost of all materials, machinery, labour, dressing bed and sides to required level and profile etc., complete with lead upto 10 m and lift upto 2 m.	cum	78.00
WRD: 3.5.	Excavation in soft rock requiring blasting including boulders above 0.6 m upto 1.2 m dia. for canal , seating of embankment, filter drain / catch water drains etc., and placing the excavated rock in dump area or for formation of service road as directed including cost of all materials, machinery, labour, dressing bed and sides to required level and profile		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	etc.,complete with lead upto 1 km and depth of cut upto 18 m. Note: For depth of cut exceeding 8 m from ground level increase the basic rate by 5 percent for the quantity of excavation beyond 18 m depth.	cum	212.00
WRD: 3.6.1.	Excavation in hard rock of all toughness by blasting including boulders above 0.6 m dia. (0.113 cum) for canals , cut-off trench of embankment, filter /catch water drains etc., minimising damage to side slopes of canal in water prism area by adopting any one or combination of line drilling / pre-splitting / smooth blasting techniques and placing the excavated rock neatly in approved dump area as directed including cost of all materials, machinery, labour, levelling bed etc., complete with lead upto 1 km and depth of cut upto 18 m.	cum	431.00
Note:	For depth of cut exceeding 8 m from ground level increase the basic rate by 5 percent for the quantity of excavation beyond 18 m depth.		
WRD: 3.6.2.	Excavation in hard rock of all toughness including boulders above 0.6 m diameter (0.113 cum) for canals , cut-off trench of embankments, filter / catch water drains and other appurtenant structures by approved controlled blasting methods including control of vibrations by use of delay detonators and control of fly-rocks by muffling arrangements and adopting only jack hammers for drilling holes and minimising damage to side slopes of canal in water prism area by adopting any one or combination of line drilling / pre-splitting / smooth blasting techniques including cost of all materials, machinery, labour, placing excavated rock neatly in approved dump area as directed etc.,complete with lead upto 1 km and depth of cut upto 18 m.	cum	726.00
Note:	For depth of cut exceeding 8 m from ground level increase the basic rate by 5 percent for the quantity of excavation beyond 18 m depth.		
	EMBANKMENT WORKS USING BORROW AREA SOIL :		
WRD: 3.7.	Providing hearding embankment using selected impervious soil from approved borrow areas in layers of 250 to 300 mm (before compaction) including cost of all materials,machinery, labour,all other operations such as collection of soil, spreading soil in layer of specified thickness, sorting out, breaking clods, levelling, sectioning edges / sides, watering, compacting each layer to density control of not less than 95 percent or as stipulated using power roller etc., complete with lead upto 1 km and all lifts.	cum	150.00
WRD: 3.8.	Providing casing embankment using semi-pervious / pervious soil from approved borrow areas in layers of 250 to 300 mm (before compaction) including cost of all materials, machinery, labour, all other		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	<p>operations such as collection of soil, spreading soil in layer of specified thickness, sorting out, breaking clods, levelling, sectioning edges / sides, watering, compacting each layer to density control of not less than 95 percent or as stipulated using power roller etc., complete with lead upto 1 km and all lifts.</p>	cum	171.00
WRD: 3.9.	<p>Providing hearting / casing embankment using homogeneous soil from approved borrow areas in layers of 250 to 300 mm (before compaction) including cost of all materials, machinery, labour, all other operations such as collection of soil, spreading soil in layer of specified thickness, sorting out, breaking clods, levelling, sectioning edges / sides, watering, compacting each layer to density control of not less than 95 percent or as stipulated using power roller etc., complete with lead upto 1 km and all lifts.</p>	cum	158.00
WRD: 3.10.	<p>EMBANKMENT WORKS USING DUMP AREA SOIL :</p> <p>Providing hearting embankment using selected impervious soil from approved dump areas in layers of 250 to 300 mm (before compaction) including cost of all materials,machinery, labour,all other operations such as collection of soil, spreading soil in layer of specified thickness, sorting out, breaking clods, levelling, sectioning edges / sides, watering, compacting each layer to density control of not less than 95 percent or as stipulated using power roller etc., complete with lead upto 1 km and all lifts.</p>	cum	143.00
WRD: 3.11.	<p>Providing casing embankment using semi-pervious / pervious soil from approved dump areas in layers of 250 to 300 mm (before compaction) including cost of all materials, machinery, labour, all other operations such as collection of soil, spreading soil in layer of specified thickness, sorting out, breaking clods, levelling, sectioning edges / sides, watering, compacting each layer to density control of not less than 95 percent or as stipulated using power roller etc., complete with lead upto 1 km and all lifts.</p>	cum	145.00
WRD: 3.12.	<p>EMBANKMENT WORKS USING EXCAVATED SOIL :</p> <p>Providing hearting embankment using impervious soil collected in embankment area in heaps as part of disposal of excavated soil from canal in layers of 250 to 300 mm thickness (before compaction),including cost of all materials, machinery, labour, all other operations such as spreading soil in layer of specified thickness, sorting-out, breaking clods, levelling, sectioning edges / sides, watering compacting each layer to</p>		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	<p>density control of not less than 95 percent or as stipulated using power roller etc., complete with lead upto 1 km for water.</p>	cum	74.00
<p>WRD: 3.13.</p>	<p>Providing casing embankment using semi-pervious / pervious soil collected in embankment area in heaps as part of disposal of excavated soil from canal in layer of 250 to 300 mm (before compaction) including cost of all materials,machinery, labour,all other operations such as spreading soil in layer of specified thickness, sorting-out, breaking clods, levelling, sectioning edges / sides, watering, compacting each layer to density control of not less than 95 percent or as stipulated by power roller etc., complete with lead upto 1 km for water.</p>	cum	74.00
<p>WRD: 3.14.</p>	<p>Providing compacted embankment for field irrigation channels with gravely soil from approved borrow area in layers of 100 to 150 mm thickness (before compaction) including cost of all materials, machinery, labour, all other operations such as collection of soil, spreading in layer of specified thickness, sorting-out, breaking clods, levelling, watering, compacting as directed , dressing sides to required slope etc., complete with lead upto 50 m and all lifts.</p>	cum	344.00
	<p>FOUNDATION FILLING WORKS :</p>		
<p>WRD: 3.15.</p>	<p>Providing rubble and sand filling in layers of 250 to 300 mm including cost of all materials,machinery, labour, watering, ramming etc.,complete with lead upto 50 m and all lifts.</p>	cum	1158.00
<p>WRD: 3.16.</p>	<p>Providing rubble and murum filling in layers of 250 to 300 mm including cost of all materials, machinery, labour, watering,ramming etc.,complete with lead upto 50 m and all lifts.</p>	cum	870.00
<p>WRD: 3.17.</p>	<p>Providing and laying 250 mm thick sand blanket below embankment including cost of all materials, machinery, labour, spreading to specified thickness etc., complete with lead upto 50 m and all lifts.</p>	sqm	270.00
<p>WRD: 3.18.</p>	<p>Providing and constructing dry rubble rock-toe using rubble and stone chips from approved source including cost of all materials, machinery, labour, hand packing rubble and stone chips, finishing top and sides to required slopes etc., complete with lead upto 50 m and all lifts.</p>	cum	753.00
<p>WRD: 3.19.</p>	<p>Providing and constructing longitudinal and cross graded filter drains using sand and 20 mm down approved clean, hard, graded aggregates satisfying specified filter creteria in layers of specified thickness including cost of all materials, machinery, labour, laying to required slopes,</p>		

Item No.	Brief description of work	Unit	Basic Rate in ₹:
1	2	3	4
	compaction etc., complete as per specifications and approved drawings with lead upto 50 m and all lifts.	cum	1336.00
WRD: 3.20.	Providing and constructing 500 mm thick vertical or inclined graded filter media consisting of 150 mm thick sand layers and 200 mm thick 20 mm down coarse aggregate layer using approved materials satisfying specified filter criteria including cost of all materials, machinery, labour, laying to specified slope, compaction etc., complete as per specifications and approved drawings with lead upto 50 m and all lifts.	cum	1452.00
WRD: 3.21.	Providing and constructing graded filter media below and behind rock-toe consisting of 200 mm thick sand, 150 mm thick 20 mm down and 150 mm thick 40 mm down clean, hard, graded coarse aggregate layers satisfying specified filter criteria behind rock-toe and 150 mm thick sand, 200 mm thick 20 mm down and 650 mm thick 40 mm down clean, hard, graded coarse aggregates layers satisfying specified filter criteria below rock-toe including cost of all materials, machinery, labour, laying to specified thickness and slope, compaction etc., complete as per specifications and approved drawings with lead upto 50 m and all lifts.	cum	1483.00
WRD: 3.22. 3.22.1 3.22.2	Providing and laying filter media for embankment consisting of 2 layers of poly-propylene non-woven filter fabric and 200 mm thick 20 mm and down approved clean, hard, graded coarse aggregate layer between filter fabric layers for embankment including cost of all materials, machinery, labour, forming toe-drain etc., complete with lead upto 50 m for aggregate and all leads for fabric and all lifts. using 200 gsm filter fabric. using 250 gsm filter fabric.	sqm sqm	932.00 1013.00
	ROCK FILL WORKS :		
WRD: 3.23.	Providing and constructing rockfill casing to canal embankment using graded stones and spalls from approved source including cost of all materials, machinery, labour, spreading stones and spalls in layers, hand packing, wedging, finishing surface to required slopes etc., complete with lead upto 50 m and all lifts.	cum	721.00
WRD: 3.24.	Providing and constructing rockfill casing to canal embankment using graded stones and spalls available in dump yard including cost of all materials, machinery, labour, spreading stones and spalls in layers, hand packing, wedging, finishing surface to required slopes etc., complete with lead upto 50 m and all lifts.	cum	602.00

Item No.	Brief description of work	Unit	Basic Rate in ₹:
1	2	3	4
Note:	Stones and spalls available in dump yard will be issued at specified issue rate in dump yard.		
	CANAL LINING WORKS :		
WRD: 3.25.	Providing cohesive non-swelling (CNS) soil lining to canals using soil from approved borrow area including cost of all materials, labour, machinery, spreading soil in layers of thickness not more than 150 mm, breaking clods, levelling, watering, compacting to density control of not less than 95 percent or as stipulated, dressing to required profile etc., complete with lead upto 1 km and all lifts.	cum	244.00
WRD: 3.26.	Providing cohesive non-swelling (CNS) soil lining to canals using soil collected in heaps along the edge of canal requiring CNS soil lining as part of the disposal of excavated soil from canal excavation in CNS soil reach including including cost of all machinery, labour, spreading in layers of thickness not more than 150 mm, breaking clods, levelling, watering, compacting to density control of not less than 95 percent or as stipulated, dressing to required profile etc., complete with lead upto 50 m and all lifts.	cum	153.00
WRD: 3.27.	Providing and fixing 200 x 200 x 750 mm size top surface neatly dressed canal bed level stone including cost of all materials, labour, excavation, fixing in position to correct level etc., complete with lead upto 50 m and all lifts.	Each	114.00
WRD: 3.28.	Providing, fabricating and placing in position reinforcement steel for RCC works including cost of all materials, machinery,labour, cleaning, straightening, cutting,bending,hooking lapping,welding wherever required, tying with 1.25 mm dia. soft annealed steel wire etc., complete with lead upto 50 m and all lifts.	kg	70.00
WRD: 3.29.1.	Providing and laying 80 mm thick in-situ M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for canal lining deploying batching plant, transit mixers and vibratory cylinder type mechanical paver including cost of all materials, machinery, labour, cleaning, batching, mixing, placing in position,forming contraction joints, fixing PVC joint sealing strips, finishing, curing,shifting of paver from one side to other side of canal etc., complete with lead upto 1 km and all lifts. (Cement content: 23.30 kg / sqm with use of super plasticiser)	sqm	604.00

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
WRD: 3.29.2.	Providing and laying 100 mm thick in-situ M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for canal lining deploying batching plant, transit mixers and vibratory cylinder type mechanical paver including cost of all materials, machinery, labour, cleaning, batching, mixing, placing in position, forming contraction joints, fixing PVC joint sealing strips, finishing, curing, shifting of paver from one side to other side of canal etc., complete with lead upto 1 km and all lifts. (Cement content: 28.90 kg / sqm with use of super plasticiser)	sqm	727.00
WRD: 3.30.1.	Providing and laying 80 mm thick in-situ M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for canal lining deploying batching plant, transit mixers and vibratory cylinder type mechanical paver including cost of all materials, machinery, labour, cleaning, batching, mixing, placing in position, forming contraction joints, fixing PVC joint sealing strips, finishing, curing, shifting of paver from one side to other side of canal etc., complete with lead upto 1 km and all lifts. (Cement content: 28.40 kg / sqm with use of super plasticiser)	sqm	635.00
WRD: 3.30.2.	Providing and laying 100 mm thick in-situ M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for canal lining deploying batching plant, transit mixers and vibratory cylinder type mechanical paver including cost of all materials, machinery, labour, cleaning, batching, mixing, placing in position, forming contraction joints, fixing PVC joint sealing strips, finishing, curing, shifting of paver from one side to other side of canal etc., complete with lead upto 1 km and all lifts. (Cement content: 35.20 kg / sqm with use of super plasticiser)	sqm	761.00
WRD: 3.31. Note:	Dismantling, shifting and re-erecting mechanical concrete paver and DG set with all accessories across canal CD work or such other locations where dismantling, shifting, re-erecting and aligning of paver is necessary for continuing further canal lining work including cost of all materials, machinery, labour etc., complete with all leads and lifts. The rate under this item shall not be considered for local shifting of paver	Each shifting	10121.00

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	from one side to other side of canal. The cost of local shifting of paver is included in concrete lining rates under items 29.a, 29.b, 30.a and 30.b.		
WRD: 3.32.1.	Providing and laying insitu vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for side lining of canal including cost of all materials, machinery, labour, cleaning, batching, mixing, formwork, supports, placing in position, levelling, vibrating, finishing junction of bed and sides to required curvature, finishing side slopes, curing etc., complete with lead upto 50 m and all lifts. (Cement content: 270 kg / cum with use of super plasticiser)	cum	6956.00
WRD: 3.32.2	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for side lining of canal including cost of all materials, machinery, labour, cleaning, batching, mixing, formwork, supports, placing in position, levelling, vibrating, finishing junction of bed and sides to required curvature, finishing side slopes, curing etc., complete with lead upto 50 m and all lifts. (Cement content: 330 kg / cum with use of super plasticiser)	cum	7457.00
WRD: 3.33.	Providing and laying insitu vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for bed lining of canal including cost of all materials, machinery labour, cleaning, batching, mixing, formwork, placing in position, levelling, vibrating, finishing, curing etc., complete with initial lead upto 50 m and all lifts. (Cement content: 240 kg / cum with use of super plasticiser)	cum	5445.00
WRD: 3.34.	Providing and laying insitu vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for bed lining of canal including cost of all materials, machinery labour, cleaning, batching, mixing, formwork, placing in position, levelling, vibrating, finishing, curing etc., complete with initial lead upto 50 m and all lifts. (Cement content: 270 kg / cum with use of super plasticiser)	cum	5855.00
WRD: 3.35.	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for bed lining of canal including cost of all materials, machinery labour, cleaning, batching, mixing, formwork, placing in position, levelling, vibrating, finishing,		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	curing etc., complete with initial lead upto 50 m and all lifts. (Cement content: 270 kg / cum with use of super plasticiser)	cum	5757.00
WRD: 3.36.	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for bed lining of canal including cost of all materials, machinery labour, cleaning, batching,mixing, formwork, placing in position,levelling, vibrating,finishing, curing etc., complete with initial lead upto 50 m and all lifts. (Cement content: 330 kg / cum with use of super plasticiser)	cum	6171.00
WRD: 3.37.	Providing and fixing 50 mm diameter and 125 mm long perforated GI pressure relief pipe with one end closed by perforated GI plate and other end provided with alluminium lid hinged to pipe including cost of all materials, labour, drilling 8 mm dia holes etc., complete with all leads and lifts.	Each	162.00
WRD: 3.38.	Providing and fixing 50 mm diameter and 225 mm long perforated GI pressure relief pipe with one end closed by perforated GI plate and other end provided with alluminium lid hinged to pipe including cost of all materials, labour, drilling 8 mm dia holes etc., complete with all leads and lifts.	Each	207.00
WRD: 3.39.	Providing and fixing 50 mm diameter and 300 mm long perforated GI pressure relief pipe with one end closed by perforated GI plate and other end provided with alluminium lid hinged to pipe including cost of all materials, labour, drilling 8 mm dia holes etc., complete with all leads and lifts.	Each	248.00
WRD: 3.40.	Providing and fixing 50 mm diameter and 450 mm long perforated GI pressure relief pipe with one end closed by perforated GI plate and other end provided with alluminium lid hinged to pipe including cost of all materials, labour, drilling 8 mm dia holes etc., complete with all leads and lifts.	Each	315.00
WRD: 3.41.	Providing and fixing 50 mm diameter and 750 mm long perforated GI pressure relief pipe with one end closed by perforated GI plate and other end provided with alluminium lid hinged to pipe including cost of all materials, labour, drilling 8 mm dia holes etc., complete with all leads and lifts.	Each	444.00
WRD: 3.42.	Drilling 1.00 m deep 32 mm dia pressure relief hole below pressure relief pipe for bed / side lining of canal laid on rock including cost of all		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	materials, machinery, labour etc., complete with all leads and lifts.	Each	298.00
WRD: 3.43.	Providing and forming 350x 350 x 400 mm deep filter drain consisting of 75 mm thick 10 mm down coarse aggregate layer around pressure relief pipe and 75 mm thick sand layer around coarse aggregate layer including cost of all materials, labour, excavation of pit etc., complete with lead upto 50 m and all lifts.	Each	73.00
WRD: 3.44.	Fixing 25 to 40 mm thick Shahabad / Talikota / other similar stone slabs with pointing in CM 1:3 proportion by volume for canal / field channel lining including cost of all materials (excluding stone slabs), labour, preparing surface, cutting slabs to required size, batching and mixing mortar, packing mortar into joints and flush finishing joints neatly, curing etc., complete with lead upto 50 m and all lifts.	sqm	119.00
WRD: 3.45.	Fixing PCC slabs of various sizes in CM 1 : 3 proportion by volume to side slopes of canal including cost of all materials (excluding PCC slabs), labour, preparing surface, batching and mixing mortar, packing mortar into joints and flush finishing joints neatly, curing etc., complete with lead upto 50 m and all lifts.	sqm	104.00
WRD: 3.46.	Fixing PCC lug slabs of various sizes in CM 1 : 3 proportion by volume for supporting PCC slab lining including cost of all materials (excluding PCC lug slabs), labour, necessary excavation, refilling, batching and mixing mortar, packing mortar into joints and flush finishing joints, curing etc., complete with lead upto 50 m and all lifts.	Rm	61.00
WRD: 3.47.	Fixing 300 mm height pre-cast drop for field channel as directed including excavation and refilling to the extent necessary etc., complete with all leads and lifts.	Each	239.00
WRD: 3.48.	Providing and fixing LDPE sheet for bed and sides of canal including cost of all materials, labour, laying and joining as per specifications etc., complete with all leads and lifts.		
3.48.1	Using 500 micron thick LDPE sheet.	sqm	175.00
3.48.2	Using 750 micron thick LDPE sheet.	sqm	256.00
3.48.3	Using 1000 micron thick LDPE sheet.	sqm	338.00
Note:	1. If the surface on which the LDPE sheet is to be laid is too rough and undulating provide average 75 mm thick unscreened sand backing to LDPE sheet. 2. For providing 75 mm thick unscreened sand backing add	sqm	86.00

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
WRD: 3.49.	Providing and fixing 20 mm thick 100 mm depth tarfelt expansion joint filler board for cement concrete lining of canal including cost of all materials, labour etc., complete with all leads and lifts.	Rm	77.00
WRD: 3.50.	Providing and fixing 20 mm thick 150 mm depth tarfelt expansion joint filler board for cement concrete lining of canal including cost of all materials, labour etc., complete with all leads and lifts.	Rm	111.00
WRD: 3.51.	Manufacturing 550 x 550 x 55 mm size PCC lining slabs in M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates including cost of all materials, machinery, labour, formwork, batching, mixing, laying, compacting, finishing, curing etc., complete with lead upto upto 50 m and all lifts. Cement content : 270 kg / cum with use of super plasticiser)	Each	113.00
WRD: 3.52.	Manufacturing 550 x 300 x 55 mm size PCC lug slabs in M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates including cost of all materials, machinery, labour, formwork, batching, mixing, laying, compacting, finishing, curing etc., complete with lead upto upto 50 m and all lifts. Cement content : 270 kg / cum with use of super plasticiser)	Each	79.00
WRD: 3.53.	Manufacturing 450 x 300 x 30 mm size PCC lining slabs in M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 10 mm down approved, clean, hard, graded aggregates including cost of all materials, machinery, labour, formwork, batching, mixing, laying, compacting, finishing, curing etc., complete with lead upto upto 50 m and all lifts. Cement content : 360 kg / cum with use of super plasticiser)	Each	46.00
WRD: 3.54.	Manufacturing 450 x 150 x 30 mm size PCC lug slabs in M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 10 mm down approved, clean, hard, graded aggregates including cost of all materials, machinery, labour, formwork, batching, mixing, laying, compacting, finishing, curing etc., complete with lead upto upto 50 m and all lifts. Cement content : 360 kg / cum with use of super plasticiser)	Each	35.00
WRD: 3.55.	Manufacturing 400 x 400 x 30 mm size PCC lining slabs in M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 10 mm down approved, clean, hard, graded		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	aggregates including cost of all materials, machinery, labour, formwork, batching, mixing, laying, compacting, finishing, curing etc., complete with lead upto upto 50 m and all lifts . Cement content : 360 kg / cum with use of super plasticiser)	Each	49.00
WRD: 3.56.	Manufacturing 400 x 150 x 30 mm size PCC lug slabs in M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 10 mm down approved, clean, hard, graded aggregates including cost of all materials, machinery, labour, formwork, batching, mixing, laying, compacting, finishing, curing etc., complete with lead upto upto 50 m and all lifts . Cement content : 360 kg / cum with use of super plasticiser)	Each	34.00
	MASONRY AND PITCHING WORKS :		
WRD: 3.57.	Providing and constructing uncoursed rubble stone masonry in CM 1:5 proportion by volume for canal side lining using stones and stone chips from approved quarry including cost of all materials, machinery, labour, batching and mixing mortar, packing mortar into joints, wedging stone chips, forming weep holes at specified interval, finishing, curing etc., complete with lead upto 50 m and all lifts .	cum	2763.00
WRD: 3.58.	Providing and constructing uncoursed rubble stone masonry in CM 1:5 proportion by volume for canal side lining using stones and stone chips from canal excavation including cost of all materials, machinery, labour, batching and mixing mortar, packing mortar into joints, wedging stone chips, forming weep holes at specified interval, finishing, curing etc., complete with lead upto 50 m and all lifts .	cum	2732.00
Note:	Stones / stone chips will be issued in dump area at specified issue rate.		
WRD: 3.59.	Providing and constructing 250mm thick dry rubble stone pitching with pin headers at 2 per sqm using stones and stone chips from approved source including cost of all materials, labour, hand packing / wedging stone chips, finishing etc., complete with lead upto 50 m and all lifts .	sqm	243.00
Note:	If 150 mm thick murum bed is to be provided below pitching add	sqm	67.00
WRD: 3.60.	Providing and constructing 300mm thick dry rubble stone pitching with pin headers at 2 per sqm using stones and stone chips from approved source including cost of all materials, labour, hand packing / wedging stone chips, finishing etc., complete with lead upto 50 m and all lifts .	sqm	273.00
Note:	If 150 mm thick murum bed is to be provided below pitching add	sqm	67.00
WRD: 3.61.	Providing and constructing 450mm thick dry rubble stone pitching with pin headers at 2 per sqm using stones and stone chips from approved		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	source including cost of all materials, labour, hand packing / wedging stone chips, finishing etc., complete with lead upto 50 m and all lifts.	sqm	387.00
Note:	If 150 mm thick murum bed is to be provided below pitching add	sqm	67.00
WRD: 3.62.	Providing and constructing 300 mm thick rubble stone pitching set in CM 1 : 5 proportion by volume with pin headers at 2 per sqm in including cost of all materials from approved source, labour, packing stone chips and mortar into joints, finishing, curing etc., complete with lead upto 50 m and all lifts.	sqm	662.00
Note:	If 150 mm thick murum bed is to be provided below pitching add	sqm	67.00
WRD: 3.63.	Providing and constructing 300 mm thick dry size stone pitching using 200 to 250 mm size stones with pin headers at 2 per sqm using stones and stone chips from approved source including cost of all materials, labour, hand packing / wedging stone chips into joints, finishing etc., complete with lead upto 50 m and all lifts.	sqm	354.00
Note:	If 150 mm thick murum bed is to be provided below pitching add	sqm	67.00
WRD: 3.64.	Providing and constructing 450 mm thick dry size stone pitching using 200 to 250 mm size stones with pin headers at 2 per sqm using stones and stone chips from approved source including cost of all materials, labour, hand packing / wedging stone chips into joints, finishing etc., complete with lead upto 50 m and all lifts.	sqm	411.00
Note:	If 150 mm thick murum bed is to be provided below pitching add	sqm	67.00
WRD: 3.65.	Providing and constructing 300 mm thick size stone pitching using 200 to 250 mm size stones with pin headers at 2 per sqm set in CM 1 : 5 proportion by volume with pointing joints in CM 1 : 3 proportion by volume including cost of all materials from approved source, labour, packing stone chips and mortar into joints, finishing, curing etc., complete with lead upto 50 m and all lifts.	sqm	713.00
Note:	If 150 mm thick murum bed is to be provided below pitching add	sqm	67.00
WRD: 3.66.	Providing and constructing 450 mm thick size stone pitching using 200 to 250 mm size stones with pin headers at 2 per sqm set in CM 1 : 5 proportion by volume with pointing joints in CM 1 : 3 proportion by volume including cost of all materials from approved source, labour, packing stone chips and mortar into joints, finishing, curing etc., complete with lead upto 50 m and all lifts.	sqm	905.00
Note:	If 150 mm thick murum bed is to be provided below pitching add	sqm	67.00
WRD: 3.67.	Providing and laying 100 mm thick approved type grass turfing to side slopes of canal including cost of all materials, labour, preparing surface, spraying watering for minimum 15 days etc., complete with lead upto 50 m and all lifts.	sqm	142.00

Item No.	Brief description of work	Unit	Basic Rate in ₹:
1	2	3	4
<u>CADA WORKS</u>			
WRD 3.68	Providing & installing at site of work 80mm dia. Perforated corrugated PVC pipes conforming to IS 9271 with prewrapped 250gsm. Geosynthetic filter material by laser guided trencher machine/by mechanical means including cost of pipe, filter material, pipe accessories and all taxes including all lead and lifts., complete and labour charges only for installation of site at work perforated corrugated PVC pipes including lowering into trenches, laying true to lines, level land and perfect leak proof linking at joints, fittings pipes accessories with all lead and lifts charges including the refilling the trench 50 cm around the pipe with gravel or selected earth available from the excavation etc., complete with all leads and lifts.	Rmt	283.00
WRD 3.69	Providing & installing at site of work 100mm dia. Perforated corrugated PVC pipes conforming to IS 9271 with prewrapped 250gsm. Geosynthetic filter material by laser guided trencher machine/by mechanical means including cost of pipe, filter material, pipe accessories and all taxes including all lead and lifts., complete and labour charges only for installation of site at work perforated corrugated PVC pipes including lowering into trenches, laying true to lines, level land and perfect leak proof linking at joints, fittings pipes accessories with all lead and lifts charges including the refilling the trench 50 cm around the pipe with gravel or selected earth available from the excavation etc., complete with all leads and lifts.	Rmt	341.00

WATER RESOURCES DEPARTMENT

CHAPTER - WRD:4

CANAL CROSS DRAINAGE WORKS

SCHEDULE OF RATES

FOR THE YEAR : 2018-19

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WRD:4. CANAL CROSS DRAINAGE WORKS
NOTES ON SCHEDULE OF RATES

1. All notes under General Notes on Schedule of Rates and Notes on Lead, Lift, Loading and un-loading Charges are applicable to Canal Cross Drainage Works also to the extent they are relevant.
2. Unless otherwise specified the basic rates are inclusive of all lifts.
3. Unless otherwise specified the basic rates are inclusive of standard finishing required for concrete surface.
4. The basic rates for concrete items include cleaning the top surface of previous lift and providing cement mortar layer before placing the concrete for next lift. The proportion of cement mortar shall be same as that of mortar portion in concrete.
- 5 Cement content specified for cement concrete works in the item description is based on theoretical design mix computations and is exclusive of wastage and requirement for any incidentals. The actual cement content may vary based on trial mix studies. A suitable Clause shall be included in tender for regulating payment for any upward or downward variation in cement content.
- 6 The quantities of materials including wastage, requirements for any incidentals etc., for working out additional lead charges shall be as per the statement of requirement of materials under this section.
- 7 The basic rates are exclusive of cost of site clearance and river / nala diversion works such as coffer dams, bunds, diversion channels etc. Separate item rate or lump-sum provisions, wherever required, may be included in the estimate for these works.

WRD: 4. CANAL CROSS DRAINAGE WORKS
QUANTITY OF MATERIALS FOR ADDITIONAL LEAD CHARGES

Item No.	Description of work	Unit	Quantity of materials required per unit quantity of work			
			Steel kg	Cement kg	Sand / FA cum	CA cum
WRD:						
4.5	25 mm dia. anchor rod	Each	9.740	0.51	---	---
4.6	Providing & fixing reinforcement steel	kg	1.025	---	---	---
4.7	Foundation well cutting edge	tonne	1025.000	---	---	---
4.8	M-15 (40 mm CA) for foundation filling	cum	---	245.40	0.428	0.877
4.9	M-15 (80 mm CA) for foundation filling	cum	---	215.20	0.377	0.980
4.10	M-10 (40 mm CA) for foundation filling	cum	---	225.20	0.428	0.877
4.11	M-10 (80 mm CA) for foundation filling	cum	---	194.90	0.377	0.980
4.12	M-20 (40 mm CA) for foundation filling	cum	---	275.80	0.423	0.860
4.13	M-20 (40 mm CA) for sub-structure	cum	---	308.00	0.382	0.850
4.14	M-20 (20 mm CA) for sub-structure	cum	---	338.40	0.418	0.764
4.15	M-15 (20 mm CA) for sub-structure	cum	---	277.80	0.480	0.780
4.16	M-10 (20 mm CA) for sub-structure	cum	---	257.50	0.470	0.770
4.17	M-20 (20 mm CA) for well kerb	cum	---	335.30	0.420	0.760
4.18	M-20 (40 mm CA) for well steining	cum	---	305.00	0.380	0.860
4.19	M-15 (20 mm CA) for well bottom plug	cum	---	353.50	0.410	0.720
4.20	M-15 (40 mm CA) for well top plug	cum	---	242.40	0.430	0.880
4.21	M-20 (20 mm CA) for well cap	cum	---	338.40	0.420	0.760
4.22.1	M-15 (80 mm CA) for piers	cum	---	217.10	0.380	0.980
4.22.2	M-15 (80 mm CA) for abutments	cum	---	217.10	0.380	0.980
4.23.1	M-20 (40 mm CA) for piers	cum	---	308.00	0.380	0.860
4.23.2	M-20 (40 mm CA) for abutments	cum	---	308.00	0.380	0.860
4.24.1	M-10 (40 mm CA) for piers	cum	---	227.20	0.430	0.880
4.24.2	M-10 (40 mm CA) for abutments	cum	---	227.20	0.430	0.880
4.25	M-20 (40 mm CA) for cantilever walls	cum	---	308.00	0.380	0.860
			Stone cum	Cement kg	Sand / FA cum	CA cum
4.26.1	M-15 (40 mm CA) for piers	cum	---	247.50	0.430	0.880
4.26.2	M-15 (40 mm CA) for abutment	cum	---	247.50	0.430	0.880
4.26.3	M-15 (40 mm CA & plums) for piers	cum	0.255	217.10	0.370	0.730
4.26.4	M-15 (40 mm CA & plums) for abutment	cum	0.255	217.10	0.370	0.730
4.27	M-15 (40 mm CA) for cast in-situ pipes	cum	---	247.40	0.430	0.880
4.28	M-15 (80 mm CA) for cast in-situ pipes	cum	---	217.10	0.380	0.980
4.29	M-20 (20 mm CA) for deck slab / kerb	cum	---	338.40	0.420	0.760
4.30.1	M-20 (20 mm CA) for columns	cum	---	338.40	0.420	0.760
4.30.2	M-20 (20 mm CA) for beams	cum	---	338.40	0.420	0.760
4.31	M-20 (20 mm CA) for wearing coat	cum	---	338.40	0.420	0.760

QUANTITY OF MATERIALS FOR ADDITIONAL LEAD CHARGES (contd)

Item No.	Description of work	Unit	Quantity of materials required per unit quantity of work			
			Stone cum	Cement kg	Sand / FA cum	CA cum
WRD:.						
4.32.1	M-20 20 mm CA) for ground level trough	cum	---	338.40	0.420	0.760
4.32.2	M-20 (20 mm CA) for aqueduct trough	cum	---	338.40	0.420	0.760
4.32.3	M-25 (20 mm CA) for aqueduct trough	cum	---	368.60	0.438	0.765
4.32.4	M-30 (20 mm CA) for aqueduct trough	cum	---	398.90	0.438	0.785
4.34	Filling foundation well with sand	cum	---	---	1.050	---
4.35.1	Providing 900 mm Ø bored pile M-20 CC	Rm	---	246.70	0.248	0.464
4.35.2	Providing 1000 mm Ø bored pile M-20 CC	Rm	---	304.50	0.306	0.573
4.35.3	Providing 1100 mm Ø bored pile M-20 CC	Rm	---	368.50	0.370	0.693
4.35.4	Providing 1200 mm Ø bored pile M-20 CC	Rm	---	438.50	0.440	0.825
4.35.5	Providing 1300 mm Ø bored pile M-20 CC	Rm	---	514.70	0.520	0.968
4.35.6	Providing 1400 mm Ø bored pile M-20 CC	Rm	---	596.90	0.600	1.122
4.35.7	Providing 1500 mm Ø bored pile M-20 CC	Rm	---	685.20	0.690	1.289
4.36.1	M-20 (20 mm CA) for piers by pumping	cum	---	378.70	0.448	0.673
4.36.2	M-20 (20 mm) for abutments by pumping	cum	---	378.70	0.448	0.673
4.36.3	M-20 (20 mm) for columns / bracings of aqueduct substructure by pumping	cum	---	378.70	0.448	0.673
4.37.	M-20 (20 mm CA) for aqueduct trough by pumping concrete	cum	---	378.70	0.448	0.673
4.38	UCR masonry in CM 1:4 for sub-structure	cum	1.020	144.50	0.410	---
4.39	UCR masonry in CM 1:4 super structure	cum	1.020	144.50	0.410	---
4.40	CR 2nd sort masonry in CM 1:4 propn	cum	1.020	134.40	0.355	---
4.41	CR 1st sort masonry in CM 1:4 propn	cum	1.020	134.40	0.355	---
4.42	Pointing masonry in CM 1:2 propn	sqm	---	3.88	0.006	---
4.43	Pointing masonry in CM 1:3 propn	sqm	---	2.98	0.007	---
4.44	12 mm th. Plastering in CM 1:3 propn	sqm	---	6.14	0.013	---
4.45	12 mm th. Plastering in CM 1:4 propn	sqm	---	4.80	0.013	---
4.46	20 mm th. Plastering in CM 1:3 propn	sqm	---	10.20	0.022	---
4.47	20 mm th. Plastering in CM 1:4 propn	sqm	---	8.00	0.023	---
			BS Slab cum	Cement kg	Sand / FA cum	CA cum
4.48.1	Roughly dressed BS slab coping in CM	sqm	0.105	7.50	0.002	---
4.48.2	One line dressed BS slab coping in CM	sqm	0.105	7.50	0.002	---
4.48.3	Two line dressed BS slab coping in CM	sqm	0.105	7.50	0.002	---
			Steel kg	Cement kg	Sand / FA cum	CA cum
4.49	M-15 CC coping (20 mm down CA)	cum	---	277.70	0.459	0.815
4.50	Railing	Rm	1.56	3.50	0.003	0.006
4.51.1	Jointing hume pipe 300 mm dia	Joint	---	10.10	0.010	---

QUANTITY OF MATERIALS FOR ADDITIONAL LEAD CHARGES (contd)

Item No.	Description of work	Unit	Quantity of materials required per unit quantity of work			
			Stone cum	Cement kg	Sand / FA cum	CA cum
WRD:						
4.51.2	Jointing hume pipe 450 mm dia	Joint	---	17.50	0.022	---
4.51.3	Jointing hume pipe 600 mm dia	Joint	---	24.80	0.026	---
4.51.4	Jointing hume pipe 700 mm dia	Joint	---	32.50	0.032	---
4.51.5	Jointing hume pipe 800 mm dia	Joint	---	40.00	0.040	---
4.51.6	Jointing hume pipe 900 mm dia	Joint	---	45.00	0.046	---
4.51.7	Jointing hume pipe 1000 mm dia	Joint	---	50.00	0.051	---
4.51.8	Jointing hume pipe 1100 mm dia	Joint	---	57.60	0.061	---
4.51.9	Jointing hume pipe 1200 mm dia	Joint	---	67.70	0.071	---
			Stone cum	Soil cum	Sand / FA cum	CA cum
4.52	Rubble and sand filling for foundation	cum	1.020	---	0.408	---
4.53	CNS soil filling around pipes	cum	---	1.20	---	---
4.54	CNS soil filling above pipes	cum	---	1.20	---	---
			Stone cum	Cement kg	Sand / FA cum	CA cum
4.55	Providing & fixing km stone in M-10 CC	Each	0.100	24.00	0.040	0.090
4.56	Providing & fixing hm stone in M-10 CC	Each	0.010	24.00	0.040	0.090

Notes:

- The quantities of materials specified in the above table are for loose volume.
- The quantity of cement for cement concrete items includes requirement of cement for any incidental works such as mortar layer at lift joints, repair of honey-combs etc.
- The quantities of materials are inclusive of wastage as under:

Cement	1.00 percent.
Sand / Fine aggregate	2.00 percent.
Coarse aggregate	2.00 percent.
Stones / Stone chips	2.00 percent.
Steel (Reinforcement & Structural)	2.50 percent.

WRD: 4. CANAL CROSS DRAINAGE WORKS
AMOUNT OF ROYALTY CHARGES INCLUDED IN ITEM RATES

Item No.	Description of work	Unit	Amount of Royalty charges included in item rate in ` :			
			Earth	Sand	CA	Stone
WRD:						
4.8	M-15 (40 mm CA) for foundation filling	cum	---	44.15	94.70	---
4.9	M-15 (80 mm CA) for foundation filling	cum	---	38.90	105.85	---
4.10	M-10 (40 mm CA) for foundation filling	cum	---	44.15	94.70	---
4.11	M-10 (80 mm CA) for foundation filling	cum	---	38.90	105.85	---
4.12	M-20 (40 mm CA) for foundation filling	cum	---	43.65	92.90	---
4.13	M-20 (40 mm CA) for sub-structure	cum	---	39.40	91.80	---
4.14	M-20 (20 mm CA) for sub-structure	cum	---	43.15	82.50	---
4.15	M-15 (20 mm CA) for sub-structure	cum	---	49.55	84.25	---
4.16	M-10 (20 mm CA) for sub-structure	cum	---	48.50	83.15	---
4.17	M-20 (20 mm CA) for well kerb	cum	---	43.35	82.10	---
4.18	M-20 (40 mm CA) for well steining	cum	---	39.20	92.90	---
4.19	M-15 (20 mm CA) for well bottom plug	cum	---	42.30	77.75	---
4.20	M-15 (40 mm CA) for well top plug	cum	---	44.40	95.05	---
4.21	M-20 (20 mm CA) for well cap	cum	---	43.35	82.10	---
4.22.1	M-15 (80 mm CA) for piers	cum	---	39.20	105.85	---
4.22.2	M-15 (80 mm CA) for abutments	cum	---	39.20	105.85	---
4.23.1	M-20 (40 mm CA) for piers	cum	---	39.20	92.90	---
4.23.2	M-20 (40 mm CA) for abutments	cum	---	39.20	92.90	---
4.24.1	M-10 (40 mm CA) for piers	cum	---	44.40	95.05	---
4.24.2	M-10 (40 mm CA) for abutments	cum	---	44.40	95.05	---
4.25	M-20 (40 mm CA) for cantilever walls	cum	---	39.20	92.90	---
4.26.1	M-15 (40 mm CA) for piers	cum	---	44.40	95.05	---
4.26.2	M-15 (40 mm CA) for abutment	cum	---	44.40	95.05	---
4.26.3	M-15 (40 mm CA & plums) for piers	cum	---	38.20	78.85	40.25
4.26.4	M-15 (40 mm CA & plums) for abutment	cum	---	38.20	78.85	40.25
4.27	M-15 (40 mm CA) for cast in-situ pipes	cum	---	44.40	95.05	---
4.28	M-15 (80 mm CA) for cast in-situ pipes	cum	---	39.20	105.85	---
4.29	M-20 (20 mm CA) for deck slab / kerb	cum	---	43.35	82.10	---
4.30.1	M-20 (20 mm CA) for columns	cum	---	43.35	82.10	---
4.30.2	M-20 (20 mm CA) for beams	cum	---	43.35	82.10	---
4.31	M-20 (20 mm CA) for wearing coat	cum	---	43.35	82.10	---
4.32.1	M-20 (20 mm CA) for ground level trough	cum	---	43.35	82.10	---
4.32.2	M-20 (20 mm CA) for aqueduct trough	cum	---	43.35	82.10	---
4.32.3	M-25 (20 mm CA) for aqueduct trough	cum	---	45.20	82.60	---
4.32.4	M-30 (20 mm CA) for aqueduct trough	cum	---	45.20	84.80	---
4.34	Filling foundation well with sand	cum	---	108.35	---	160.95
4.35.1	Providing 900 mm Ø bored pile M-20 CC	Rm	---	25.60	50.10	---
4.35.2	Providing 1000 mm Ø bored pile M-20 CC	Rm	---	31.60	61.90	---
4.35.3	Providing 1100 mm Ø bored pile M-20 CC	Rm	---	38.20	74.85	---

AMOUNT OF ROYALTY CHARGES INCLUDED IN ITEM RATES (contd)

Item No.	Description of work	Unit	Amount of Royalty charges included in item rate in ` :			
			Earth	Sand	CA	Stone
WRD:.						
4.35.4	Providing 1200 mm Ø bored pile M-20 CC	Rm	---	45.40	89.10	---
4.35.5	Providing 1300 mm Ø bored pile M-20 CC	Rm	---	53.65	104.55	---
4.35.6	Providing 1400 mm Ø bored pile M-20 CC	Rm	---	61.90	121.20	---
4.35.7	Providing 1500 mm Ø bored pile M-20 CC	Rm	---	71.20	139.20	---
4.36.1	M-20 (20 mm CA) for piers by pumping	cum	---	46.25	72.70	---
4.36.2	M-20 (20 mm) for abutments by pumping	cum	---	46.25	72.70	---
4.36.3	M-20 (20 mm) for columns / bracings of aqueduct substructure by pumping	cum	---	46.25	72.70	---
4.37.	M-20 (20 mm CA) for aqueduct trough by pumping concrete	cum	---	46.25	72.70	---
4.38	UCR masonry in CM 1:4 for sub-structure	cum	---	42.30	---	160.95
4.39	UCR masonry in CM 1:4 super structure	cum	---	42.30	---	160.95
4.40	CR 2nd sort masonry in CM 1:4 propn	cum	---	36.65	---	160.95
4.41	CR 1st sort masonry in CM 1:4 propn	cum	---	36.65	---	---
4.42	Pointing masonry in CM 1:2	sqm	---	0.60	---	---
4.43	Pointing masonry in CM 1:3	sqm	---	0.70	---	---
4.44	12 mm th. Plastering in CM 1:3	sqm	---	1.35	---	---
4.45	12 mm th. Plastering in CM 1:4	sqm	---	1.35	---	---
4.46	20 mm th. Plastering in CM 1:3	sqm	---	2.25	---	---
4.47	20 mm th. Plastering in CM 1:4	sqm	---	2.35	---	---
4.48.1	10 cm th. BS slab coping in CM 1:6	sqm	---	0.20	---	16.55
4.48.2	10 cm th. BS slab coping in CM 1:6	sqm	---	0.20	---	16.55
4.48.3	10 cm th. BS slab coping in CM 1:6	sqm	---	0.20	---	16.55
4.49	M-15 CC coping (20 mm down CA)	cum	---	47.35	88.00	---
4.50	Railing	Rm	---	0.30	0.65	---
4.51.1	Jointing hume pipe 300 mm dia	Joint	---	1.05	---	---
4.51.2	Jointing hume pipe 450 mm dia	Joint	---	2.25	---	---
4.51.3	Jointing hume pipe 600 mm dia	Joint	---	2.70	---	---
4.51.4	Jointing hume pipe 700 mm dia	Joint	---	3.30	---	---
4.51.5	Jointing hume pipe 800 mm dia	Joint	---	4.15	---	---
4.51.6	Jointing hume pipe 900 mm dia	Joint	---	4.75	---	---
4.51.7	Jointing hume pipe 1000 mm dia	Joint	---	5.25	---	---
4.51.8	Jointing hume pipe 1100 mm dia	Joint	---	6.30	---	---
4.51.9	Jointing hume pipe 1200 mm dia	Joint	---	7.35	---	---
4.52	Rubble and sand filling	cum	---	42.10	---	160.95
4.53	CNS soil filling around pipes	cum	30.00	---	---	---
4.54	CNS soil filling above pipes	cum	30.00	---	---	---

AMOUNT OF ROYALTY CHARGES INCLUDED IN ITEM RATES (contd)

Item No.	Description of work	Unit	Amount of Royalty charges included in item rate in ` :			
			Earth	Sand	CA	Stone
WRD: 4.55	Providing & fixing km stone in M-10 CC	Each	---	4.15	9.70	15.80
4.56	Providing & fixing hm stone in M-10 CC	Each	---	4.15	9.70	1.60

Notes:

1. In the Govt notification on royalty charges the rates for Earth / Sand / Building stone are on weight basis. For converting the rate per tonne to rate per cum for working-out the royalty charges for various work items following density values are considered as per the circular of Mines & Geology No:GA.BU.E/D.C.B./KA.GA.GU./RA.PA.KO/ 2013-14 dt:13-03-2014.

Sand / Fine aggregate (loose volume)	: 1.72 tonne per cum
Stones/stone chips (loose volume) :	2.63 tonne per cum
Coarse aggregates (loose volume) :	1.80 tonne per cum
Soil (compacted to 95 percent density control)	: 1.50 tonne per cum

WRD: 4. CANAL CROSS DRAINAGE WORKS
SCHEDULE OF RATES
FOR THE YEAR : 2018-19

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	EXCAVATION & FOUNDATION TREATMENT WORKS :		
WRD: 4.1.	Excavation in all kinds of soil including boulders upto 0.60 m dia (0.113 cum) for foundations of canal cross drainage and other appurtenant structures and placing the excavated stuff neatly in specified dump area or disposing off the same as directed including cost of all materials, machinery,labour etc.complete with lead upto 50 m and lift upto 1.5 m.	cum	245.00
WRD: 4.2.	Excavation in soft rock without blasting including boulders upto 0.60 m dia (0.113 cum) for foundations of canal cross drainage and other appurtenant structures and placing the excavated stuff neatly in specified dump area or disposing off the same as directed including cost of all materials, machinery, labour etc., complete with lead upto 50 m and lift upto 1.5 m.	cum	323.00
WRD: 4.3.	Excavation in soft rock requiring blasting including boulders upto 0.60 m dia (0.113 cum) for foundations of canal cross drainage and other appurtenant structures and placing the excavated stuff neatly in specified dump area or disposing off the same as directed including cost of all materials, machinery, labour etc., complete with lead upto 50 m and lift upto 1.5 m.	cum	355.00
WRD: 4.4.1.	Excavation in hard rock of all toughness by blasting including boulders above 0.6 m dia. 0.113 cum) for foundations of canal cross drainage and other appurtenant structures deploying jack hammers for dilling holes and placing the excavated hard rock neatly in specified dump area or stack yard as directed including cost of all materials, machinery, labour etc., complete with lead upto 50 m and lift upto 1.5 m.	cum	633.00
WRD: 4.4.2.	Excavation in hard rock of all toughness including boulders above 0.6 m dia. (0.113 cum) by approved controlled blasting methods for foundations of canal cross drainage and other appurtenant structures adopting only jack hammers for drilling holes and using delay detonators for control of vibrations and by making muffling arrangements for control of fly-rock and by adopting any one or combination of line drilling / pre-splitting / smooth blasting techniques to minimise damage to rock beyond excavation line and placing the excavated hard rock neatly in		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	approved dump area as directed including cost of all materials, machinery, labour etc., complete with lead upto 50 m and lift upto 1.5 m.	cum	832.00
WRD: 4.5.	Providing and fixing 25 mm dia 2.50 m long cold twisted deformed steel anchor rod with 1.25 m length driven into 38 mm dia hole drilled in bed rock and remaining length embedded in concrete / masonry including cost of all materials, machinery, labour, drilling and cleaning hole, filling hole with thick cement slurry, driving anchor rod etc., complete with lead upto 50 m and all lifts.	Each	1008.00
	STEEL AND CEMENT CONCRETE WORKS :		
WRD: 4.6.	Providing, fabricating and placing in position reinforcement steel bars for RCC works including cost of all materials, machinery, labour, cleaning, straightening, cutting, bending, hooking, lapping, welding wherever required, tying with 1.25 mm dia soft annealed steel wire, etc., complete with lead upto 50 and all lifts.	kg	70.00
WRD: 4.7.	Providing, fabricating and fixing in position structural steel cutting edge consisting of 100 x 100 x 10 mm angle and 250 x 12 mm plate for sinking foundation wells including cost of all materials, machinery, labour, cleaning, cutting, bending, welding, providing anchors etc., complete with lead upto 50 m and all lifts.	kg	74.00
WRD: 4.8.	Providing and laying insitu vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for foundation filling including cost of all materials, machinery, labour, formwork, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and depth of foundation upto 1.5 m from surface. Cement content: 240 kg / cum with use of super plasticiser)	cum	5509.00
Note:	For every 1.5 m additional depth below 1.5 m from surface add	cum	39.00
WRD: 4.9.	Providing and laying insitu vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 80 mm down approved, clean, hard, graded aggregates for foundation filling including cost of all materials, machinery, labour, formwork, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and depth of		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	<p>foundation upto 1.5 m from surface. Cement content: 210 kg / cum with use of super plasticiser)</p> <p>Note: For every 1.5 m additional depth below 1.5 m from surface add</p>	cum cum	5202.00 39.00
WRD: 4.10.	<p>Providing and laying insitu vibrated M-10 (28 days cube compressive strength not less than 10 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for foundation filling including cost of all materials, machinery, labour, formwork, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and depth of foundation upto 1.5 m from surface. Cement content: 220 kg / cum with use of super plasticiser)</p> <p>Note: For every 1.5 m additional depth below 1.5 m from surface add</p>	cum cum	5376.00 39.00
WRD: 4.11.	<p>Providing and laying insitu vibrated M-10 (28 days cube compressive strength not less than 10 N / sq mm) grade cement concrete using 80 mm down approved, clean, hard, graded aggregates for foundation filling including cost of all materials, machinery, labour, formwork, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and depth of foundation upto 1.5 m from surface. Cement content: 190 kg / cum with use of super plasticiser)</p> <p>Note: For every 1.5 m additional depth below 1.5 m from surface add</p>	cum cum	5074.00 39.00
WRD: 4.12.	<p>Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for foundation filling including cost of all materials, machinery, labour, formwork, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and depth of foundation upto 1.5 m from surface. Cement content: 270 kg / cum with use of super plasticiser)</p> <p>Note: For every 1.5 m additional depth below 1.5 m from surface add</p>	cum cum	5700.00 39.00
WRD: 4.13.	<p>Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for sub-structure works including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m</p>		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	<p>and lift upto 1.5 m from surface. (Cement content : 300 kg / cum with use of super plasticiser)</p> <p>Note: For every 1.5 m additional lift beyond 1.5 m from surface add</p>	cum	6577.00
4.14.	<p>WRD: Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for sub-structure works including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from surface. (Cement content : 330 kg / cum with use of super plasticiser)</p> <p>Note: For every 1.5 m additional lift beyond 1.5 m from surface add</p>	cum	78.00
4.15.	<p>WRD: Providing and laying insitu vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for sub-structure works including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from surface. (Cement content : 270 kg / cum with use of super plasticiser)</p> <p>Note: For every 1.5 m additional lift beyond 1.5 m from surface add</p>	cum	6984.00
4.16.	<p>WRD: Providing and laying insitu vibrated M-10 (28 days cube compressive strength not less than 10 N /sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for sub-structure works including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from surface. (Cement content : 250 kg / cum with use of super plasticiser)</p> <p>Note: For every 1.5 m additional lift beyond 1.5 m from surface add</p>	cum	78.00
4.17.	<p>WRD: Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for well kerb including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position,levelling, vibrating,finishing,</p>	cum	6378.00
		cum	78.00

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	curing etc., complete with lead upto 50 m and all lifts. (Cement content : 330 kg / cum with use of super plasticiser) Note: If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.	cum	8100.00
WRD: 4.18.	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for well steining including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and all lifts. (Cement content : 300 kg / cum with use of super plasticiser) Note: If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.	cum	7216.00
WRD: 4.19.	Providing and laying insitu M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for well bottom plug by tremie or skip box method including cost of all materials, machinery, labour, batching, mixing, placing in position as per detailed specifications etc., complete with lead upto 50 m and all lifts. (Cement content : 350 kg / cum with use of super plasticiser)	cum	5927.00
WRD: 4.20.	Providing and laying insitu vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for well top plug including cost of all materials, machinery,labour,cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and all lifts. (Cement content : 240 kg / cum with use of super plasticiser) Note: If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.	cum	5015.00
WRD: 4.21.	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for well cap including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and all lifts. (Cement content : 330 kg / cum with use of super plasticiser)	cum	6292.00

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
Note:	If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.		
WRD: 4.22.1	Providing and laying insitu vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 80 mm down approved, clean, hard, graded aggregates for piers including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from surface. (Cement content : 210 kg / cum with use of super plasticiser)	cum	6213.00
Note:	1. For every 1.5 m additional lift beyond 1.5 m from surface add 2. If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.	cum	78.00
WRD: 4.22.2	Providing and laying insitu vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 80 mm down size approved, clean, hard, graded aggregates for abutments including cost of all materials, labour, machinery, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from surface. (Cement content : 210 kg / cum with use of super plasticiser)	cum	6044.00
Note:	1. For every 1.5 m additional lift beyond 1.5 m from surface add 2. If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.	cum	78.00
WRD: 4.23.1	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for piers including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from surface. (Cement content : 300 kg / cum with use of super plasticiser)	cum	7291.00
Note:	1. For every 1.5 m additional lift beyond 1.5 m from surface add 2. If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.	cum	78.00
WRD:	Providing and laying insitu vibrated M-20 (28 days cube compressive		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
4.23.2	<p>strength not less than 20 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for abutments including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from surface. (Cement content : 300 kg / cum with use of super plasticiser)</p> <p>Note: 1. For every 1.5 m additional lift beyond 1.5 m from surface add 2. If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.</p> <p>WRD: Providing and laying insitu vibrated M-10 (28 days cube compressive</p>	cum cum	7094.00 78.00
4.24.1	<p>strength not less than 10 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for piers including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from surface. (Cement content : 220 kg /cum with use of super plasticiser)</p> <p>Note: 1. For every 1.5 m additional lift beyond 1.5 m from surface add 2. If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.</p> <p>WRD: Providing and laying insitu vibrated M-10 (28 days cube compressive</p>	cum cum	6388.00 78.00
4.24.2	<p>strength not less than 10 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for abutments including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from surface. (Cement content : 220 kg /cum with use of super plasticiser)</p> <p>Note: 1. For every 1.5 m additional lift beyond 1.5 m from surface add 2. If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.</p> <p>WRD: Providing and laying insitu vibrated M-20 (28 days cube compressive</p>	cum cum	6219.00 78.00
4.25.	<p>strength not less than 20 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for cantiliver / counterfort retaining walls including cost of all materials, machinery,</p>		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	<p>labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from surface. (Cement content : 300 kg / cum with use of super plasticiser)</p> <p>Note: 1. For every 1.5 m additional lift beyond 1.5 m from surface add 2. If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.</p>	cum cum	7113.00 78.00
<p>WRD: 4.26.1.</p>	<p>Providing and laying insitu vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for piers including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from surface. (Cement content : 240 kg / cum with use of super plasticiser)</p> <p>Note: 1. For every 1.5 m additional lift beyond 1.5 m from surface add 2. If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.</p>	cum cum	6724.00 78.00
<p>WRD: 4.26.2.</p>	<p>Providing and laying insitu vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for gravity type retaining walls / abutments etc., including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from surface. (Cement content: 240 kg / cum with use of super plasticiser)</p> <p>Note: 1. For every 1.5 m additional lift beyond 1.5 m from surface add 2. If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.</p>	cum cum	6577.00 78.00
<p>WRD: 4.26.3.</p>	<p>Providing and laying insitu vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates with placing and sinking plums of size 150 to 80 mm upto 15 percent for piers including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m</p>		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	<p>from surface. (Cement content : 210 kg / cum of plum concrete with use of super plasticiser)</p> <p>Note: 1. For every 1.5 m additional lift beyond 1.5 m from surface add 2. If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.</p>	cum cum	6086.00 78.00
4.26.4.	<p>WRD: Providing and laying insitu vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates with placing and sinking plums of size 150 to 80 mm upto 15 percent for gravity type retaining walls / abutments etc., including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from surface. (Cement content : 210 kg / cum of plum CC with use of super plasticiser)</p> <p>Note: 1. For every 1.5 m additional lift beyond 1.5 m from surface add 2. If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.</p>	cum cum	5918.00 78.00
4.27.	<p>WRD: Providing and laying insitu vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for cast in-situ pipes including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and all lifts. (Cement content : 240 kg / cum with use of super plasticiser)</p> <p>Note: If water is to be brought from other place add lead charges for water at at 500 litres / cum of concrete.</p>	cum	5955.00
4.28.	<p>WRD: Providing and laying insitu vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 80 mm down approved, clean, hard, graded aggregates for cast in-situ pipes including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and all lifts. (Cement content : 210 kg / cum with use of super plasticiser)</p> <p>Note: If water is to be brought from other place add lead charges for water at at 500 litres / cum of concrete.</p>	cum	5647.00
	<p>WRD: Providing and laying insitu vibrated M-20 (28 days cube compressive</p>		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
4.29.	strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for deck slab and kerb including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from surface. (Cement content : 330 kg / cum with use of super plasticiser)	cum	9148.00
Note:	1. For every 1.5 m additional lift beyond 1.5 m from surface add 2. If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.	cum	78.00
WRD: 4.30.1	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for columns including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from surface. (Cement content : 330 kg / cum with use of super plasticiser).	cum	9066.00
Note:	1. For every 1.5 m additional lift beyond 1.5 m from surface add 2. If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.	cum	78.00
WRD: 4.30.2	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for beams and slabs including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50m and lift upto 1.5 m from surface. (Cement content : 330 kg / cum with use of super plasticiser)	cum	9354.00
Note:	1. For every 1.5 m additional lift beyond 1.5 m from surface add 2. If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.	cum	78.00
WRD: 4.31.	Providing and laying insitu M- 20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for wearing coat including cost of all materials, machinery, labour, formwork, cleaning, batching, mixing, placing in position in alternate panels, levelling, compacting, finishing, curing, packing joints with asphalt mortar etc.,		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	complete with lead upto 50 m and all lifts. (Cement content : 330 kg / cum with use of super plasticiser) Note: If water is to be brought from other place add lead charges for water at at 500 litres / cum of concrete.	cum	6042.00
WRD: 4.32.1	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for RCC troughs resting on ground including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and all lifts. (Cement content : 330 kg / cum with use of super plasticiser). Note: If water is to be brought from other place add lead charges for water at at 500 litres / cum of concrete.	cum	7872.00
WRD: 4.32.2	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for RCC troughs for aqueduct including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m and scaffolding height upto 4.5 m from surface. (Cement content : 330 kg / cum with use of super plasticiser) Note: 1. For every 1.5 m additional lift beyond 1.5 m from surface add 2. For every 1.5 m increase in height of scaffolding beyond 4.5 m from surface add 3. If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.	cum cum cum	9228.00 78.00 355.00
WRD: 4.32.3	Providing and laying insitu vibrated M-25 (28 days cube compressive strength not less than 25 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for RCC troughs for aqueduct including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m and scaffolding height upto 4.5 m from surface. (Cement content : 360 kg / cum with use of super plasticiser) Note: 1. For every 1.5 m additional lift beyond 1.5 m from surface add 2. For every 1.5 m increase in height of scaffolding beyond 4.5 m from surface add 3. If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.	cum cum cum	9459.00 78.00 355.00

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
WRD: 4.32.4	Providing and laying insitu vibrated M-30 (28 days cube compressive strength not less than 30 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for RCC troughs for aqueduct including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m and scaffolding height upto 4.5 m from surface. (Cement content : 390 kg / cum with use of super plasticiser)	cum	9703.00
Note:	1. For every 1.5 m additional lift beyond 1.5 m from surface add	cum	78.00
	2. For every 1.5 m increase in height of scaffolding beyond 4.5 m from surface add	cum	355.00
	3. If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.		
	FOUNDATION WELL SINKING WORKS :		
WRD: 4.33.	Sinking 4.50 m diameter RCC wells vertically for foundation of piers and abutments in all kinds of soil, sand and soft rock by kent-ledge or other approved method including cost of all materials, machinery, labour, disposal of excavated material as directed etc., complete with lead upto 50 m for disposal of excavated material.		
	Upto 3 m depth from surface	Rm	16654.00
	Beyond 3 m upto 6 m from surface	Rm	23316.00
	Beyond 6 m upto 9 m from surface	Rm	29977.00
	Beyond 9 m upto 12 m from surface	Rm	36638.00
	Beyond 12 m upto 15 m from surface	Rm	43299.00
	Beyond 15 m upto 18 m from surface	Rm	49963.00
	Beyond 18 m upto 21 m from surface	Rm	56624.00
	Beyond 21 m upto 24 m from surface	Rm	63284.00
	Beyond 24 m upto 27 m from surface	Rm	69946.00
	Beyond 27 m upto 30 m from surface	Rm	76608.00
Note:	For every 0.25 m increase in dia.of well increase basic rate by 12 percent		
WRD: 4.34.	Filling foundation well with sand in layers of 250 to 300 mm and compacting by watering, ramming as directed including cost of all materials, machinery, labour etc., complete with lead upto 50 m and all lifts.	cum	1192.00
	BORED PILE FOUNDATION WORKS:		
WRD: 4.35.	Providing and constructing cast in-situ bored piles (excluding cost of providing and placing in position reinforcement steel) in M-20 (28 days cube compressive strength not less than 20 N / sqmm) grade cement		

CANAL CROSS DRAINAGE WORKS

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	concrete using 20 mm down approved clean, hard, graded aggregates for foundation of piers and abutments including cost of all materials, machinery, labour, cleaning, batching, mixing, placing concrete in position using tremie system, curing etc., complete with lead upto 50 m and all lifts. (Cement content : 380 kg / cum with use of super plasticiser)		
4.35.1	Bored pile 900 mm diameter	Rm	17016.00
4.35.2	Bored pile 1000 mm diameter	Rm	21008.00
4.35.3	Bored pile 1100 mm diameter	Rm	25419.00
4.35.4	Bored pile 1200 mm diameter	Rm	30251.00
4.35.5	Bored pile 1300 mm diameter	Rm	35503.00
4.35.6	Bored pile 1400 mm diameter	Rm	41175.00
4.35.7	Bored pile 1500 mm diameter	Rm	47267.00
Note :	If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.		
	PUMPED CONCRETE WORKS:		
WRD:	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for piers deploying batching plant, transit mixer and concrete pump including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 1 km and all lifts. (Cement content: 370 kg / cum with use of super plasticiser)		
4.36.1		cum	6900.00
Note:	If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.		
WRD:	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for abutments deploying batching plant, transit mixer and concrete pump including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 1 km and all lifts. (Cement content: 370 kg / cum with use of super plasticiser)		
4.36.2		cum	6772.00
Note:	If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
WRD: 4.36.3	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for columns / bracings of aqueduct sub-structure deploying batching plant, transit mixer and concrete pump including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 1 km and all lifts. (Cement content : 370 kg / cum with use of super plasticiser) Note: If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.	cum	8339.00
WRD: 4.37.	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for RCC troughs for aqueduct deploying batching plant, transit mixer and concrete pump including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 1 km and all lifts with height of scaffolding upto 4.50 m from surface. (Cement content : 370 kg / cum with use of super plasticiser) Note: 1. For every 1.5 m increase in height of scaffolding beyond 4.5 m from surface add 2. If water is to be brought from other place add lead charges for water at 500 litres / cum of concrete.	cum	8736.00
WRD: 4.38.	MASONRY WORKS : Providing and constructing un-coursed rubble stone masonry with approved stones in CM 1 : 4 proportion by volume for sub-structure portions of return walls / abutments including cost of all materials, labour, scaffolding, cleaning, batching and mixing mortar, packing mortar and wedging stone chips into joints, finishing, curing etc., complete with lead upto 50 m and depth of foundation upto 1.5 m from surface. Note: For every 1.5 m additional depth below 1.5 m from surface add	cum	3136.00
WRD: 4.39.	MASONRY WORKS : Providing and constructing un-coursed rubble stone masonry with approved stones in CM 1 : 4 proportion by volume for super-structure portions of return walls / abutments including cost of all materials, labour, scaffolding, ramps, cleaning, batching and mixing mortar, packing mortar and wedging stone chips into joints, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from surface. Note: For every 1.5 m additional lift beyond 1.5 m from surface add	cum	3294.00
		cum	78.00

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
WRD: 4.40.	Providing and constructing coursed rubble (size stone) face stone masonry second sort in CM 1 : 4 proportion by volume with stones from approved source including cost of all materials, machinery, labour, scaffolding, ramps, cleaning, batching and mixing mortar, packing mortar and wedging stone chips into joints, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from surface.	cum	3522.00
Note:	For every 1.5 m additional lift beyond 1.5 m from surface add	cum	78.00
WRD: 4.41.	Providing and constructing coursed rubble (size stone) face stone masonry first sort in CM 1 : 4 proportion by volume with stones from approved source including cost of all materials, machinery, labour, scaffolding, ramps, cleaning, batching and mixing mortar, packing mortar and wedging stone chips into joints, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from surface.	cum	3697.00
Note:	For every 1.5 m additional lift beyond 1.5 m from surface add	cum	78.00
WRD: 4.42.	Providing cement mortar pointing to coursed rubble (size stone) face stone masonry in CM 1 : 2 proportion by volume including cost of all materials, labour, scaffolding, raking and cleaning joints for 50 mm depth, batching and mixing mortar, pressing mortar into joints, finishing, curing etc., complete with lead upto 50 m and all lifts.	sqm	150.00
WRD: 4.43.	Providing cement mortar pointing to coursed rubble (size stone) face stone masonry in CM 1 : 3 proportion by volume including cost of all materials, labour, scaffolding, raking and cleaning joints for 50 mm depth, batching and mixing mortar, pressing mortar into joints, finishing, curing etc., complete with lead upto 50 m and all lifts.	sqm	145.00
WRD: 4.44.	Providing 12 mm thick cement mortar plastering in CM 1:3 proportion by volume including cost of all materials, labour, scaffolding, cleaning joints /surface, batching and mixing mortar, smooth finishing, curing etc., complete with lead upto 50 m and all lifts.	sqm	228.00
WRD: 4.45.	Providing 12 mm thick cement mortar plastering in CM 1:4 proportion by volume including cost of all materials, labour, scaffolding, cleaning joints /surface, batching and mixing mortar, smooth finishing, curing etc., complete with lead upto 50 m and all lifts.	sqm	220.00
WRD: 4.46.	Providing 20 mm thick cement mortar plastering in CM 1:3 proportion by volume in two layers including cost of all materials, labour, scaffolding, cleaning joints / surface, batching and mixing mortar, smooth finishing, curing etc., complete with lead upto 50 m and all lifts.	sqm	320.00

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
WRD: 4.47.	Providing 20 mm thick cement mortar plastering in CM 1:4 proportion by volume in two layers including cost of all materials, labour, scaffolding, cleaning joints / surface, batching and mixing mortar, smooth finishing, curing etc., complete with lead upto 50 m and all lifts.	sqm	307.00
COPING & RAILING WORKS :			
WRD: 4.48.1	Providing and fixing 100 mm thick roughly dressed burnt stone slabs for coping set in CM 1 : 6 proportion by volume with pointing to joints in CM 1 : 3 proportion by volume including cost of all materials, labour, batching and mixing mortar, finishing, curing etc., complete with lead upto 50 m and all lifts.	sqm	804.00
WRD: 4.48.2	Providing and fixing 100 mm thick one line dressed burnt stone slabs for coping set in CM 1 : 6 proportion by volume with pointing to joints in CM 1 : 3 proportion by volume including cost of all materials, labour, batching and mixing mortar, finishing, curing etc., complete with lead upto 50 m and all lifts.	sqm	977.00
WRD: 4.48.3	Providing and fixing 100 mm thick two line dressed burnt stone slabs for coping set in CM 1 : 6 proportion by volume with pointing to joints in CM 1 : 3 proportion by volume including cost of all materials, labour, batching and mixing mortar, finishing, curing etc., complete with lead upto 50 m and all lifts.	sqm	1208.00
WRD: 4.49.	Providing and laying insitu M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 20 mm down approved clean, hard, graded aggregates for coping slab including cost of all materials, machinery, labour, formwork, cleaning surface, batching, mixing, placing in position, levelling, compacting, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m. (Cement content : 270 kg / cum with super plasticiser)	cum	7620.00
WRD: 4.50.	Providing and constructing protective railing consisting of cast in-situ railing posts of size 150 x 150 mm at bottom, 100 x 100 mm at top and 750 mm height, placed approximately at 2 m centre to centre in M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved clean, hard, graded aggregates with each post reinforced by 4 numbers 8 mm dia. main bars embedded in kerb concrete for 400 mm depth and 5 numbers 6 mm dia. stirrups and fixing 3 rows of 40 mm dia. GI pipes with two coats of synthetic enamel painting over a coat of red oxide primer paint including cost of all materials, machinery, labour, formwork, supports, fabricating		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	and placing reinforcement bars, batching, mixing, placing in position, compacting, finishing, curing etc., complete with lead upto 50 m and all lifts.	Rm	1414.00
	HUME PIPE LAYING & JOINTING WORKS :		
WRD: 4.51.1	Laying and jointing 300 mm dia. NP- 2 class or IRC standard hume pipes in CM 1 : 2 proportion by volume including cost of all materials (excluding pipes and collars), labour, aligning pipes, batching and mixing mortar, packing joints with hemp and mortar, finishing, curing etc., complete with lead upto 50 m and all lifts.	Joint	419.00
WRD: 4.51.2	Laying and jointing 450 mm dia. NP- 2 class or IRC standard hume pipes in CM 1 : 2 proportion by volume including cost of all materials (excluding pipes and collars), labour, aligning pipes, batching and mixing mortar, packing joints with hemp and mortar, finishing, curing etc., complete with lead upto 50 m and all lifts.	Joint	486.00
WRD: 4.51.3	Laying and jointing 600 mm dia. NP- 2 class or IRC standard hume pipes in CM 1 : 2 proportion by volume including cost of all materials (excluding pipes and collars), labour, aligning pipes, batching and mixing mortar, packing joints with hemp and mortar, finishing, curing etc., complete with lead upto 50 m and all lifts.	Joint	630.00
WRD: 4.51.4	Laying and jointing 700 mm dia. NP- 2 class or IRC standard hume pipes in CM 1 : 2 proportion by volume including cost of all materials (excluding pipes and collars), labour, aligning pipes, batching and mixing mortar, packing joints with hemp and mortar, finishing, curing etc., complete with lead upto 50 m and all lifts.	Joint	691.00
WRD: 4.51.5	Laying and jointing 800 mm dia. NP- 2 class or IRC standard hume pipes in CM 1 : 2 proportion by volume including cost of all materials (excluding pipes and collars), labour, aligning pipes, batching and mixing mortar, packing joints with hemp and mortar, finishing, curing etc., complete with lead upto 50 m and all lifts.	Joint	837.00
WRD: 4.51.6	Laying and jointing 900 mm dia. NP- 2 class or IRC standard hume pipes in CM 1 : 2 proportion by volume including cost of all materials (excluding pipes and collars), labour, aligning pipes, batching and mixing mortar, packing joints with hemp and mortar, finishing, curing etc., complete with lead upto 50 m and all lifts.	Joint	880.00

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
WRD: 4.51.7	Laying and jointing 1000 mm dia. NP- 2 class or IRC standard hume pipes in CM 1 : 2 proportion by volume including cost of all materials (excluding pipes and collars), labour, aligning pipes, batching and mixing mortar, packing joints with hemp and mortar, finishing, curing etc., complete with lead upto 50 m and all lifts.	Joint	977.00
WRD: 4.51.8	Laying and jointing 1100 mm dia. NP- 2 class or IRC standard hume pipes in CM 1 : 2 proportion by volume including cost of all materials (excluding pipes and collars), labour, aligning pipes, batching and mixing mortar, packing joints with hemp and mortar, finishing, curing etc., complete with lead upto 50 m and all lifts.	Joint	1042.00
WRD: 4.51.9	Laying and jointing 1200 mm dia. NP- 2 class or IRC standard hume pipes in CM 1 : 2 proportion by volume including cost of all materials (excluding pipes and collars), labour, aligning pipes, batching and mixing mortar, packing joints with hemp and mortar, finishing, curing etc., complete with lead upto 50 m and all lifts.	Joint	1234.00
BACK FILLING & OTHER WORKS :			
WRD: 4.52.	Providing rubble/ boulder and sand filling behind abutment and return walls in layers including cost of all materials, labour, watering, ramming etc., complete with lead upto 50 m and lift upto 1.5 m.	cum	1240.00
WRD: 4.53.	Providing and filling murrum / gravely soil (CNS soil) for foundation or around pipes including cost of all materials, labour, spreading soil in layers of 100 to 150 mm, breaking clods, watering, compaction by earth masters to achieve density control of not less than 90 percent etc., complete with lead upto 50 m and all lifts.	cum	684.00
WRD: 4.54.	Providing and filling murrum / gravely soil (CNS soil) above pipes including cost of all materials, machinery, labour, spreading soil in layers of 100 to 150 mm thickness, breaking clods, watering, compaction by power roller to achieve density control of not less than 95 percentm etc., complete with lead upto 50 m and all lifts.	cum	416.00
WRD: 4.55.	Providing and fixing one line dressed 1110 x 350 x 250 mm thick IRC standard kilometre stone in M-10 (28 days cube compressive strength not less than 10 N /sqmm) grade cement concrete using 40 mm down approved clean, hard, graded aggregates including cost of all materials, labour, excavating pit of size 750 x 450 x 400 mm, batching and mixing		

CANAL CROSS DRAINAGE WORKS

Item No.	Brief description of work	Unit	Basic Rate in ₹:
1	2	3	4
WRD: 4.56.	<p>concrete, embedding stone in concrete for 300 mm depth, providing two coats synthetic enamel paint of approved quality and colour to exposed surfaces, lettering on stone as directed, finishing, curing etc., complete with lead upto 50 m and all lifts.</p> <p>Providing and fixing one line dressed 650 x 150 x 100 mm thick IRC standard hectometre stone in M-10 (28 days cube compressive strength not less than 10 N / sqmm) grade cement concrete using 40 mm down approved clean, hard, graded aggregates including cost of all materials, labour, excavating pit of size 500 x 450 x 400 mm, batching and mixing concrete, embedding stone in concrete for 300 mm depth, providing two coats synthetic enamel paint of approved quality and colour to exposed surfaces, lettering on stone as directed, finishing, curing etc., complete with lead upto 50 m and all lifts.</p>	Each	1662.00
		Each	1164.00

WATER RESOURCES DEPARTMENT

CHAPTER - WRD:5 LIFT IRRIGATION WORKS SCHEDULE OF RATES FOR THE YEAR : 2018-19

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WRD: 5. LIFT IRRIGATION WORKS
NOTES ON SCHEDULE OF RATES

1. All notes under General Notes on Schedule of Rates and Notes on Lead, Lift, Loading and un-loading Charges are applicable to Lift Irrigation Works also to the extent they are relevant.
2. Unless otherwise specified the basic rates are inclusive of all lifts.
3. Unless otherwise specified the basic rates are inclusive of standard finishing required for concrete surface.
4. The basic rates for concrete items include cleaning the top surface of previous lift and providing cement mortar layer before placing the concrete for next lift. The proportion of cement mortar shall be same as that of mortar portion in concrete.
5. Cement content specified for cement concrete works in the item description is based on theoretical design mix computations and is exclusive of wastage and requirement for any incidentals. The actual cement content may vary based on trial mix studies. A suitable Clause shall be included in tender for regulating payment for any upward or downward variation in cement content.
6. The quantities of materials including wastage, requirements for any incidentals etc., for working out additional lead charges shall be as per the statement of requirement of materials under this section.
7. The basic rates are exclusive of cost of site clearance and river / nala diversion works such as coffer dams, bunds, diversion channels etc. Separate item rate or lump-sum provisions, wherever required, may be included in the estimate for these works.
8. Rates for Electric sub-station items, Lighting inside and outside pump house, Earthing for pump house installation etc., are not included in the SR. Separate item rate or lump-sum provisions may be included in the estimate for these items.
9. Lead charges for steel / heavy machinery and parts, wherever applicable, shall be considered from nearest reputed supplier's / manufacturer's place.

WRD: 5. LIFT IRRIGATION WORKS
QUANTITY OF MATERIALS FOR ADDITIONAL LEAD CHARGES

Item No.	Description of work	Unit	Quantity of materials required per unit quantity of work			
			Steel kg	Cement kg	Sand / FA cum	CA / Stone cum
WRD:						
5.8	Structural steel	kg	1.025	---	---	---
5.9.1	M-15 (40 mm CA) for foundation filling	cum	---	245.40	0.430	0.880
5.9.2	M-20 (40 mm CA) for foundation filling	cum	---	305.00	0.380	0.860
5.10	M-20 (40 mm CA) for bed lining	cum	---	308.00	0.380	0.860
5.11	M-20 (40 mm CA) for side lining	cum	---	308.00	0.380	0.860
5.12	M-20 (20 mm CA) for side lining	cum	---	338.40	0.420	0.760
5.13	M-20 (40 mm CA) for walls / piers	cum	---	308.00	0.380	0.860
5.14	M-20 (20 mm CA) for walls / piers	cum	---	338.40	0.420	0.760
5.15	M-20 (20 mm CA) for columns	cum	---	338.40	0.420	0.760
5.16	M-20 (20 mm CA) for pump floor	cum	---	338.40	0.420	0.760
5.17	M-20 (20 mm CA) for tie-beams / roof	cum	---	338.40	0.420	0.760
5.18	M-20 (20 mm CA) for cut-off wall / apron	cum	---	338.40	0.420	0.760
5.19	M-20 (40 mm CA) for paving	cum	---	275.40	0.430	0.880
5.20	UCR masonry in CM 1:4	cum	---	144.50	0.410	1.030
5.21	Size stone masonry in CM 1:4	cum	---	113.50	0.320	1.020
			Bricks / Nos	Cement kg	Sand / FA cum	CA / Stone cum
5.22	Burnt breck masonry in CM 1:4	cum	497.00	100.70	0.270	---
5.23	CC block masonry in CM 1:4	cum	58.40	59.00	0.160	---
			Steel kg	Cement kg	Sand / FA cum	CA / Stone cum
5.24	CGI sheet roofing	sqm	11.45	---	---	---
5.25	GI sheet ridge	Rm	11.50	---	---	---
5.26	Cement mortar pointing in CM 1:3	sqm	---	3.00	0.006	---
5.27	12 mm thick plastering in CM 1:3	sqm	---	6.10	0.013	---
5.28	20 mm thick plastering in CM 1:3	sqm	---	10.20	0.021	---
5.33.1	Steel door	sqm	---	12.80	0.030	0.03
5.33.2	Steel door	sqm	---	6.00	0.010	0.03
5.34.1	Steel window	sqm	---	8.30	0.016	0.03
5.34.2	Steel window	sqm	---	14.10	0.030	0.03
5.35	Acid resistant tiling / dadoing in CM 1:3	sqm	---	9.30	0.020	---
5.36	Granolithic flooring in CC 1:1:2	sqm	---	21.40	0.014	0.029
5.37	Chain link mesh fencing	Rm	88.00	6.00	0.012	0.024
5.38	Railing	Rm	1.56	4.60	0.008	0.005

QUANTITY OF MATERIALS FOR ADDITIONAL LEAD CHARGES (Contd)

Item No.	Description of work	Unit	Quantity of materials required per unit quantity of work			
			Soil cum	Cement kg	Sand / FA cum	CA / Stone cum
WRD: 5.39	Back-filling	cum	1.20	---	---	---
			Pipe kg	Cement kg	Sand / FA cum	CA / Stone cum
5.40.1	Supplying 800 mm 18 ksc PSC pipe	Rm	420.00	---	---	---
5.40.2	Supplying 1000 mm 18 ksc PSC pipe	Rm	540.00	---	---	---
5.40.3	Supplying 1200 mm 18 ksc PSC pipe	Rm	660.00	---	---	---
5.41.1	Supplying 800 mm K-9 Ductile iron pipe	Rm	265.00	---	---	---
5.41.2	Supplying 1000 mm K-9 Ductile iron pipe	Rm	378.00	---	---	---
5.41.3	Supplying 1200 mm K-9 Ductile iron pipe	Rm	508.00	---	---	---
5.48	Sand blanket below embankment	sqm	---	---	0.225	---
			Soil cum	Cement kg	Sand / FA cum	CA / Stone cum
5.49	Road embankment excavated soil	cum	1.20	---	---	---
5.50	Road embankment borrow area soil	cum	1.20	---	---	---
5.51.1	Grade II metalling	cum	0.32	---	---	1.180
5.51.2	Grade III metalling	cum	0.33	---	---	1.220
5.52	30 cm th dry stone pitching	sqm	---	---	---	0.350

Notes:

- The quantities of materials specified in the above table are for loose volume.
- The quantity of cement for cement concrete items includes requirement of cement for any incidental works such as mortar layer at lift joints, repair of honey-combs etc.
- The quantities of materials are inclusive of wastage as under:

Cement	1.00 percent.
Sand / Fine aggregate	2.00 percent.
Coarse aggregate	2.00 percent.
Stones / Stone chips	2.00 percent.
Steel (Reinforcement & Structural)	2.50 percent.

WRD: 5. LIFT IRRIGATION WORKS
AMOUNT OF ROYALTY CHARGES INCLUDED IN ITEM RATES

Item No.	Description of work	Unit	Amount of Royalty charges included in item rate in ` :			
			Earth	Sand	CA	Stone
WRD:..						
5.9.1	M-15 (40 mm CA) for foundation filling	cum	---	44.40	95.05	---
5.9.2	M-20 (40 mm CA) for foundation filling	cum	---	39.20	92.90	---
5.10	M-20 (40 mm CA) for bed lining	cum	---	39.20	92.90	---
5.11	M-20 (40 mm CA) for side lining	cum	---	39.20	92.90	---
5.12	M-20 (20 mm CA) for side lining	cum	---	43.35	82.10	---
5.13	M-20 (40 mm CA) for walls / piers	cum	---	39.20	92.90	---
5.14	M-20 (20 mm CA) for walls / piers	cum	---	43.35	82.10	---
5.15	M-20 (20 mm CA) for columns	cum	---	43.35	82.10	---
5.16	M-20 (20 mm CA) for pump floor	cum	---	43.35	82.10	---
5.17	M-20 (20 mm CA) for tie-beams / roof	cum	---	43.35	82.10	---
5.18	M-20 (20 mm CA) for cut-off wall / apron	cum	---	43.35	82.10	---
5.19	M-20 (40 mm CA) for paving	cum	---	44.40	95.05	---
5.20	UCR masonry in CM 1:4	cum	---	42.30	---	162.55
5.21	Size stone masonry in CM 1:4	cum	---	33.00	---	160.95
5.22	Burnt breck masonry in CM 1:4	cum	---	27.85	---	---
5.23	CC block masonry in CM 1:4	cum	---	16.50	---	---
5.26	Cement mortar pointing in CM 1:3	sqm	---	0.60	---	---
5.27	12 mm thick plastering in CM 1:3	sqm	---	1.35	---	---
5.28	20 mm thick plastering in CM 1:3	sqm	---	2.15	---	---
5.33.1	Steel door	sqm	---	3.10	2.80	---
5.33.2	Steel door	sqm	---	1.05	2.80	---
5.34.1	Steel window	sqm	---	1.65	3.55	---
5.34.2	Steel window	sqm	---	3.10	3.25	---
5.35	Acid resistant tiling / dadoing in CM 1:3	sqm	---	2.05	---	---
5.36	Granolithic flooring in CC 1:1:2	sqm	---	1.45	3.15	---
5.37	Chain link mesh fencing	Rm	---	1.25	2.60	---
5.38	Railing	Rm	---	0.85	0.55	---
5.39	Back-filling	cum	36.00	---	---	---
5.48	Sand blanket below embankment	sqm	---	23.20	---	---
5.49	Road embankment excavated soil	cum	36.00	---	---	---
5.50	Road embankment borrow area soil	cum	36.00	---	---	---
5.51.1	Grade II metalling	cum	9.60	---	127.45	---
5.51.2	Grade III metalling	cum	9.90	---	131.75	---
5.52	30 cm th dry stone pitching	sqm	---	---	---	55.25

Notes:

In the Govt notification on royalty charges the rates for Earth / Sand / Building stone are on weight basis. For converting the rate per tonne to rate per cum for working-out the royalty charges for various work items following density values are considered as per the circular of Mines & Geology No:GA.BU.E/D.C.B./KA.GA.GU./RA.PA.KO/2013-14 dt:13-03-2014.

Sand / Fine aggregate (loose volume) : 1.72 tonne per cum
 Stones/stone chips (loose volume) : 2.63 tonne per cum
 Coarse aggregates (loose volume) : 1.80 tonne per cum
 Soil (compacted to 95 percent density control) : 1.50 tonne per cum

**WRD: 5. LIFT IRRIGATION WORKS
SCHEDULE OF RATES
FOR THE YEAR : 2018-19**

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
	EXCAVATION & FOUNDATION TREATMENT WORKS :		
WRD: 5.1.1	Excavation in all kinds of soil including boulders upto 0.6 m diameter (0.113 cum) for approach channel, foundation of jack-well / pump house, delivery chamber and appurtenant structures and placing the excavated stuff neatly in specified dump area or disposing off the same as directed including cost of all materials, machinery, labour, working in wet and watery site conditions (excluding dewatering) etc., complete with lead upto 1 km and all lifts.	cum	100.00
WRD: 5.1.2	Excavation in all kinds of soil including boulders upto 0.6 m diameter (0.113 cum) for pipe line trenches, foundation of anchor blocks / saddles and other similar structures and placing the excavated stuff neatly as directed including cost of all materials, machinery, labour, barricading the area, providing danger lights and other safety measures etc.,complete with lead upto 1 km and all lifts.	cum	111.00
WRD: 5.2.1	Excavation in soft rock without blasting including boulders upto 0.6 m diameter (0.113 cum) for approach channel, foundation of jack-well, pump house, delivery chamber and appurtenant structures and placing excavated stuff neatly in specified dump area or disposing off the same as directed including cost of all materials, machinery, labour, working in wet and watery site conditions (excluding dewatering) etc., complete with lead upto 1 km and all lifts.	cum	130.00
WRD: 5.2.2	Excavation in soft rock without blasting including boulders upto 0.6 m diameter (0.113 cum) for pipe line trenches / foundation of anchor blocks / thrust blocks /saddles and other similar structures and placing the excavated stuff neatly as directed including cost of all materials, machinery, labour, barricading the area, providing danger lights and other safety measures etc., complete with lead upto 1 km and all lifts.	cum	183.00
WRD: 5.3.1	Excavation in soft rock requiring blasting including boulders upto 0.6 m diameter (0.113 cum) for approach channel / foundation of jack-well / pump house / delivery chamber and appurtenant structures and placing the excavated stuff neatly in specified dump area or disposing off the same as directed including cost of all materials,		

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
	machinery, labour, working in wet and watery site conditions (excluding dewatering) etc., complete with lead upto 1 km and all lifts.	cum	225.00
WRD: 5.3.2	Excavation in soft rock requiring blasting including boulders upto 0.6 m diameter (0.113 cum) for pipe line trenches / anchor blocks / thrust blocks / saddles and other similar structures and placing the excavated stuff neatly as directed including cost of all materials, machinery, labour, barricading the area, providing danger lights and other safety measures etc., complete with lead upto 1 km and all lifts.	cum	289.00
WRD: 5.4.1	Excavation in hard rock of all toughness including boulders above 0.60 m diameter (0.113 cum) for approach channel / foundation of jack-well / pump house / delivery chamber and appurtenant structures and placing the excavated rock neatly in specified dump area or disposing off the same as directed including cost of all materials, machinery, labour, working in wet and watery site conditions (excluding dewatering) etc., complete with lead upto 1 km and all lifts.	cum	477.00
WRD: 5.4.2	Excavation in hard rock of all toughness including boulders above 0.6 m diameter (0.113 cum) for pipe line trenches / foundation of anchor blocks / thrust blocks / saddles and other similar structures and placing the excavated stuff neatly as directed including cost of all materials, machinery, labour, barricading the area, providing danger lights and other safety measures etc., complete with lead upto 1 km and all lifts.	cum	672.00
WRD: 5.5.1	Excavation in hard rock of all toughness including boulders above 0.6 m diameter (0.113 cum) for approach channel / foundation of jack-well /pump house /delivery chamber and appurtenant structures by approved controlled blasting methods including control of vibrations by use of delay detonators and control of fly-rock by muffling arrangements and adopting only jack hammers for drilling holes and minimising damage to rock beyond excavation line by adopting any one or combination of line drilling / pre-splitting / smooth blasting techniques and placing the excavated rock neatly in specified dump area or disposing off the same as directed including cost of all materials, machinery, labour, working in wet and watery site conditions (excluding dewatering) etc., complete with lead upto 1 km and all lifts.	cum	635.00
WRD: 5.5.2	Excavation in hard rock of all toughness including boulders above 0.6 m diameter (0.113 cum) for pipe line trenches / foundation of		

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
	<p>anchor blocks / saddles and other similar structures by approved controlled blasting methods including control of vibration by use of delay detonators and control of fly-rock by muffling arrangements and adopting only jack hammers for drilling holes and adopting any one or combination of line drilling / pre-splitting / smooth blasting techniques to minimise damage to rock beyond excavation line and placing the excavated rock neatly as directed including cost of all materials, materials, machinery, labour, barricading the area, providing danger lights and other safety measures etc., complete with lead upto 1 km and all lifts.</p>	cum	839.00
WRD: 5.6.	<p>Providing and placing sand bags consisting of empty cement bags filled with 35 to 40 kg locally available sand for forming ring bund including cost of all materials, labour, plugging joints with selected earth, etc., complete with lead upto 50 m and lift upto 1.5 m.</p>	Each	56.00
WRD: 5.7.	<p>Filling clayey soil between two rows of sand bags placed for forming ring bund including cost of all materials, labour, tamping, plugging leakage points etc., complete with lead upto 50 m and lift upto 1.5 m.</p>	cum	381.00
STEEL / CONCRETE & MASONRY WORKS :			
WRD: 5.8.	<p>Supplying, fabricating, erecting structural steel members fabricated from rolled steel sections like channels / angles / beams / rails / plates etc., as per specifications and approved drawings including cost of all materials, machinery, labour, scaffolding, cutting, welding, grinding, cleaning, applying two coats of approved synthetic enamel paint over a coat of zinc chromate red oxide paint etc., complete with lead upto 1 km and all lifts.</p>	tonne	101400.00
WRD: 5.9.1	<p>Providing and laying insitu vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for foundation filling / levelling course including cost of all materials, machinery, labour, formwork, cleaning bed, batching, mixing, placing in position, levelling, vibrating / tamping, finishing, curing etc., complete with lead upto 50 m. (Cement content : 240 kg / cum for use of super plasticiser)</p>	cum	5596.00
WRD: 5.9.2	<p>Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for foundation filling / levelling course including cost of all materials, machinery,</p>		

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
	labour, formwork, cleaning bed, batching, mixing, placing in position, levelling, vibrating / tamping, finishing, curing etc., complete with lead upto 50 m. (Cement content : 300 kg / cum for use of super plasticiser) plasticiser)	cum	6082.00
WRD: 5.10.	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for approach channel / fore-bay / delivery chamber bed lining including cost of all materials, machinery, labour, formwork, cleaning bed, batching, mixing, placing in position as specified, forming drainage holes, levelling,vibrating / tamping, finishing, curing etc., complete with lead upto 50 m. (Cement content : 300 kg / com for use of super plasticiser)	cum	6049.00
WRD: 5.11.	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates for approach channel / fore-bay / delrvery chamber side lining including cost of all materials, machinery, labour, formwork, scaffolding, cleaning surface, batching, mixing, placing in position as specified, forming drainage holes, levelling, vibrating / tamping, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from bed level. (Cement content : 300 kg / com for use of super plasticiser)	cum	7328.00
Note:	For every additional 1.5 m lift beyond 1.5 m from bed level add	cum	40.50
WRD: 5.12.	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved, clean, hard, graded aggregates for approach channel / fore-bay / delrvery chamber side lining including cost of all materials, machinery, labour, formwork, scaffolding, cleaning surface, batching, mixing, placing in position as specified, forming drainage holes, levelling, vibrating / tamping, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from bed level. (Cement content : 330 kg / com for use of super plasticiser)	cum	7588.00
Note:	For every additional 1.5 m lift beyond 1.5 m from bed level add	cum	40.50
WRD: 5.13.	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 40 mm down approved clean, hard,graded aggregates for pump house sub-structure walls / piers / abutments / well steining and similar		

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
	structures including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from foundationlevel. (Cement content :300 kg / cum with use of super plasticiser)	cum	7709.00
Note:	For every 1.5 m additional lift beyond 1.5 m from foundation level add	cum	81.00
WRD: 5.14.	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved clean, hard,graded aggregates for pump house sub-structure walls / piers / abutments / well steining and similar structures including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m from foundationlevel. (Cement content :330 kg / cum with use of super plasticiser)	cum	8156.00
Note:	For every 1.5 m additional lift beyond 1.5 m from foundation level add	cum	81.00
WRD: 5.15.	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved clean, hard, graded aggregates for columns / anchor blocks / thrust blocks / saddles and other similar structures including cost of all materials, machinery, labour, formwork, scaffolding, cleaning,batching, mixing, placing in position,levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m. (Cement content : 330 kg / cum with use of plasticiser)	cum	9011.00
Note:	For every 1.5 m additional lift beyond 1.5 m add	cum	81.00
WRD: 5.16.	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved clean, hard, graded aggregates for pump floor beams / pump floor slab / deck slab and other similar structures including cost of all materials, machinery, labour, formwork, scaffolding, cleaning,batching, mixing, placing in position,levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m. (Cement content : 330 kg / cum with use of plasticiser)	cum	9380.00
Note:	For every 1.5 m additional lift beyond 1.5 m add	cum	81.00
WRD: 5.17.	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using		

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
	<p>20 mm down approved clean, hard, graded aggregates for beams / tie-beams / lintels / chajjas / roof slab and other similar structures including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m. (Cement content: 330 kg / cum with use of super plasticiser)</p>	cum	10039.00
Note:	For every 1.5 m additional lift beyond 1.5 m add	cum	81.00
<p>WRD: 5.18.</p>	<p>Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sq mm) grade cement concrete using 20 mm down approved clean, hard, graded aggregates for cut-off walls / apron and other similar structures at valley crossing of pipe line including cost of all materials, machinery, labour, formwork, scaffolding, cleaning, batching, mixing, placing in position, levelling, vibrating, finishing, curing etc., complete with lead upto 50 m and all lifts. (Cement content : 330 kg / cum with use of plasticiser)</p>	cum	7138.00
<p>WRD: 5.19.</p>	<p>Providing and laying insitu vibrated M-15 (28 days cube compressive strength not less than 15 N / sq mm) grade cement concrete using 40 mm down approved clean, hard, graded aggregates for paving in front of pump house and other locations as directed including cost of all materials, machinery, labour, formwork, cleaning, batching, mixing, placing in position, levelling, vibrating / tamping, finishing top surface in CM 1 : 3 proportion by volume, curing etc., complete with lead upto 50 m and all lifts. (Cement content : 240 kg / com for use of super plasticiser)</p>	cum	5783.00
<p>WRD: 5.20.</p>	<p>Providing and constructing un-coursed rubble stone masonry with approved stones in CM 1 : 4 proportion by volume for retaining walls / ground level reservoirs etc., including cost of all materials, machinery, labour, scaffolding, cleaning, batching and mixing mortar, packing mortar into joints, wedging with stone chips, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m.</p>	cum	3369.00
Note:	For every 1.5 m additional lift beyond 1.5 m add	cum	81.00
<p>WRD: 5.21.</p>	<p>Providing and constructing size stone masonry in CM 1 : 4 proportion by volume for walls using 200 mm height size stones and pin headers from approved source including cost of all materials, machinery, labour, scaffolding, ramps, cleaning, batching and mixing mortar, packing mortar into joints, wedging with stone chips, finishing, curing etc., complete with</p>		

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
	lead upto 50 m and lift upto 1.5 m.	cum	4371.00
Note:	For every 1.5 m additional lift beyond 1.5 m add	cum	81.00
WRD:	Providing and constructing burnt brick masonry in CM 1 : 4 proportion by volume for walls using burnt bricks from approved source including cost of all materials, machinery, labour, scaffolding, ramps, cleaning, batching and mixing mortar, packing mortar into joints, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m.	cum	6068.00
5.22.		cum	81.00
Note:	For every 1.5 m additional lift beyond 1.5 m add		
WRD:	Providing and constructing cement concrete solid block masonry in CM 1 : 4 proportion by volume for walls using CC solid blocks from approved source including cost of all materials, machinery, labour, scaffolding, ramps, cleaning, batching and mixing mortar, packing mortar into joints, finishing, curing etc., complete with lead upto 50 m and lift upto 1.5 m.	cum	4522.00
5.23.		cum	81.00
Note:	For every 1.5 m additional lift beyond 1.5 m add		
WRD:	Providing and fixing 1 mm thick Class-II (600 gms / sqm zinc coating both side inclusive) corrugated G.I sheets for roof with necessary fixtures such as 'J' bolts with nuts, bitumin washers, G.I washers etc., including cost of all materials, machinery, labour, scaffolding etc., complete with lead upto 50 m and all lifts.	sqm	1018.00
5.24.			
WRD:	Providing and fixing 1 mm thick Class-II (600 gms / sqm zinc coating both side inclusive) plain G.I sheets for ridge portion of roof with necessary fixtures such as 'J' bolts with nuts, bitumin washers, G.I washers etc., including cost of all materials, machinery, labour, scaffolding etc., complete with lead upto 50 m and all lifts.	Rm	1094.00
5.25.			
WRD:	Providing cement mortar pointing to rubble stone / size stone masonry in CM 1 : 3 proportion by volume including cost of all materials, labour, raking and cleaning joints for 50 mm depth, pressing mortar into joints, joints, scaffolding, finishing, curing etc., complete with lead upto 50 m and all lifts.	sqm	155.00
5.26.			
WRD:	Providing 12 mm thick cement mortar plastering in CM 1:3 proportion by volume including cost of all materials, machinery, labour, scaffolding, cleaning joints, smooth finishing, curing etc., complete with initial lead upto 50 m and all lifts.	sqm	244.00
5.27.			

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
WRD: 5.28.	Providing 20 mm thick cement mortar plastering in CM 1:3 proportion by volume including cost of all materials, machinery, labour, scaffolding, cleaning joints, smooth finishing, curing etc., complete with initial lead upto 50 m and all lifts.	sqm	341.00
WRD: 5.29.1	Providing and applying two coats of water proof cement paint of approved quality and colour including cost of all materials, labour, scraping and cleaning surface, scaffolding, curing etc., complete with all leads and lifts.	sqm	85.00
WRD: 5.29.2	Providing and applying one coat of water proof cement paint of approved quality and colour including cost of all materials, labour, scraping and cleaning surface, scaffolding, curing etc., complete with all leads and lifts.	sqm	47.00
WRD: 5.30.1	Providing and applying two coats of plastic emulsion paint of approved quality and colour including cost of all materials, labour, scraping and cleaning surface, scaffolding etc. complete with all leads and lifts.	sqm	128.00
WRD: 5.30.2	Providing and applying one coat of plastic emulsion paint of approved quality and colour including cost of all materials, labour, scraping and cleaning surface, scaffolding etc. complete with all leads and lifts.	sqm	64.00
WRD: 5.31.	Providing and fixing push and pull type rolling shutter (excluding top cover) made out of 18 gauge x 75 mm wide cold rolled steel lathes of convex corrugations complete with side guides, bottom rails, inter-locking arrangement by means of alternate end clips, suspension shaft with high tension coil type springs, locking arrangements, pulling hooks, handles and all other fittings and accessories including cost of all materials, labour, machinery, applying two coats of synthetic enamel paint of approved quality over a coat of zinc chromate red oxide primer paint etc., complete with all leads and lifts.	sqm	3039.00
WRD: 5.32.	Providing and fixing top cover to rolling shutter made out of 18 gauge cold rolled steel sheet including cost of all materials, machinery, labour, applying two coats of synthetic enamel paint of approved quality over a coat of zinc chromate red oxide primer paint etc., complete with all leads and lifts.	Rm	879.00
WRD: 5.33.	Providing and fixing steel door made of standard sections with single or double shutter fully panelled or partly panelled and partly glazed with		

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
	4 mm thick plain glass fixed to glazed panels with aluminium beading, all steel sections cut to length, joints mitred and but welded, all corners grinded, 40 x 5 mm size mild steel hold-fasts 40 cm long 2 numbers on each side, all other fixtures like hinges, tower bolts, 6 lever mortise lock, aldrops, handles, stays etc., including cost of all materials, machinery, labour, fixing frame in position, embedding hold-fasts in 15 cm thick CC 1: 3: 6 proportion by volume using 20 mm down approved clean, hard, graded aggregates, applying 2 coats of synthetic enamel paint of approved quality over a coat of zinc chromate red oxide primer paint etc., complete with all leads and lifts.		
5.33.1	Door frame made of 16 gauge CRCA sheets to 60 x 125 mm profile with rebate for shutter fixing and anular space in door frame packed with cement concrete or mortar and shutters made of 16 gauge 60 x 40 mm hollow pipes with 18 gauge M.S sheet of corrugated profile or formed to other specified profile welded to frame for panelled portion and 12 x 3 mm flats welded alround each halve of glazed portion of frame for fixing glass.	sqm	6759.00
5.33.2	Door frame made of 16 gauge 80 x 40 mm hollow sections and shutters made of 16 gauge 60 x 40 mm hollow pipes with 18 gauge M.S sheet of corrugated profile or formed to other specified profile welded to the frame for panelled portion and 12 x 3 mm flats welded alround each halve of glazed portion of frame for fixing glass.	sqm	7973.00
WRD: 5.34.	Providing and fixing steel glazed windows and ventilators with frame and shutters made of extruded / pressed steel sections cut to length, joints mitred anf butt welded, corners grinded, shutters fitted with 4 mm thick plain glass with aluminium beading, 40 x 5 mm size mild steel hold-fasts 40 cm long 2 numbers on each side, all other fixtures like ball hinges, handles, telescopic stays etc., including cost of all materials, machinery, labour, fixing frame in position, emedding hold-fasts in 10 cm thick CC 1:3:6 proportion by volume using 20 mm down approved clean, hard graded aggregates, applying 2 coats of synthetic enamel paint of approved qualityover a coat of zinc chromate red oxide primer paint etc., complete with all leads and lifts.		
5.34.1	Frame made of 18 gauge 40 x 40 mm tubular sections and shutter made of extruded ' Z ' sections conforming to IS-7452 with 12 mm squire guard bars welded to frame at 12 cm centre to centre.	sqm	4863.00
5.34.2	Frame made of 18 gauge 60 x 85 mm CRCA steel sheet with hollow space on back side packed with C.M 1 : 4 proportion by volume and		

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
	shutters made of 18 gauge 40 x 20 mm tubular sections with 12 x 3 mm flats welded to shutter frame around for each halve for fixing glass panes and 12 mm squar guard bars welded to frame at 12 cm centre to centre.	sqm	5638.00
WRD: 5.35.	Providing and fixing acid resistant tiles of approved quality for battery room flooring / dadoing set over a bed of 20 mm thick CM 1 : 3 proportion by volume including cost of all materials, machinery, labour, cleaning surface, batching and mixing mortar, grouting joints with acid resistant mortar mix, finishing, curing etc., complete with lead upto 50 m and all lifts.	sqm	1329.00
WRD: 5.36.	Providing and laying 40 mm thick granolithic flooring for pump floor in C.C 1 : 1 : 2 proportion by volume using 10 mm down approved clean, hard, graded aggregates including cost of all materials, machinery, labour, formwork, cleaning surface, batching and mixing concrete, laying concrete in alternate panels of specified size as directed, levelling, tamping, finishing, curing etc., complete with lead upto 50 m and all lifts. (Cement content : 520 kg / cum with use of super plasticiser)	sqm	327.00
Note:	For adding ironite compound or other floor hardener to concrete add per	sqm	61.00
WRD: 5.37.	Providing and fixing chain link fencing consisting of 3 m long 65 x 65 x 6 mm M.S angles with top 50 cm bent at 30 degree to vertical fixed at 2.5 m intervals in C.C 1 : 3 : 6 proportion by volume using 20 mm down approved clean, hard, graded aggregate for 70 cm depth, fixing 10 gauge 50 x50 mm opening G.I chain link mesh upto 1.8 m height of poles using 8 gauge stretcher wire at top and bottom and 30 x 30 x5 mm M.S angles with bolts /nuts /washers (4 bolts for each pole), fixing 3 rows of 12 x 12 gauge (4 barbs at 7.5 cm c/c) G.I barbed wire for top bent portion of poles, including cost of all materials, machinery, labour, excavation of pit, batching, mixing, laying, tamping and curing of concrete, drilling holes in angles, cleaning angles, applying 2 coats of synthetic enamel paint over a coat of zinc chromate red oxide primer paint to angles etc., complete with lead upto 50 m and all lifts.	Rm	1293.00
WRD: 5.38.	Providing and constructing protective railing consisting of in-situ railing posts of size 150 x 150 mm and 1000 mm height above kerb at 2 m centre to centre (1.20 m height including 300 mm high kerb upto top railing pipe) in M-20 grade cement concrete using 20 mm down approved clean, hard, graded aggregates, each post reinforced with 4 main bars of 8 mm diameter embedded in kerb concrete for a depth of 400 mm and 7 stirrups of 6 mm diameter, 4 rows of 40 mm diameter		

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
	GI pipes for railing including cost of all materials, machinery, labour, cleaning, fabricating and placing reinforcement bars, formwork, batching, mixing, placing and tamping concrete for posts, fixing railing pipes, applying two coats of synthetic enamel paint over a coat of zinc chromate red oxide primer paint for pipes, finishing curing etc., complete with lead upto 50 m and all lifts.	Rm	1917.00
WRD: 5.39.	Filling behind jack well and appurtenant structures using rubble and soil obtained from excavation in layers including cost of all materials, machinery, labour, hand packing, watering and compacting each layer as directed etc., complete with lead upto 50 m.	cum	355.00
	DELIVERY / MANIFOLD / RAISING MAIN PIPES:		
WRD: 5.40.	Supplying and laying Pre-stressed concrete pipes (safe for 18 kg / sqcm test pressure) true to line and level with perfect linking at joint including cost of all materials, machinery, labour, loading, unloading, rolling, lifting and lowering into trench, cleaning socket and spigot with soap solution, applying soft soap to socket and spigot ends, fixing rubber sealing ring in correct position, jointing pipes perfectly by jacking or other approved method, arranging water for testing, giving necessary hydraulic test at specified test pressure etc., complete with lead upto 1 km and all lifts.		
5.40.1	800 mm dia Pre-stressed concrete pipes	Rm	7593.00
5.40.2	1000 mm dia Pre-stressed concrete pipes	Rm	9335.00
5.40.3	1200 mm dia Pre-stressed concrete pipes	Rm	11490.00
Note:	1. The rates shall be updated for any difference in market rates of pipes based on the quotations obtained from the nearest factory. 2. Lead charges shall be considered from the nearest factory and the weight of pipe per Rm for working out lead charges shall be as per the ' Statement of quantity of materials for working out lead charges ' 3. For pipes of any other size the rate per Rm may be increased / decreased proportionate to increase / decrease in diameter of pipe.		
WRD: 5.41.	Supplying and laying ductile iron pipes (safe for 18 kg / sqcm test pressure) true to line and level with perfect linking at joint including cost of all materials, machinery, labour, loading, unloading, rolling, lifting and lowering into trench, cleaning socket and spigot with soap solution, applying soft soap to socket and spigot ends, fixing rubber sealing ring in correct position, jointing pipes perfectly by jacking or other approved method, arranging water for testing, giving necessary hydraulic test at		

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
5.41.1	specified test pressure etc.,complete with lead upto 1 km and all lifts. 800 mm dia Ductile iron pipes	Rm	18902.00
5.41.2	1000 mm dia Ductile iron pipes	Rm	28369.00
5.41.3	1200 mm dia Ductile iron pipes	Rm	46117.00
Note:	1. The rates shall be updated for any difference in market rates of pipes based on the quotations obtained from the nearest factory. 2. Lead charges shall be considered from the nearest factory and the weight of pipe per Rm for working out lead charges shall be as per the 'Statement of quantity of materials for working out lead charges'. 3. For pipes of any other size the rate per Rm may be increased / decreased proportionate to increase / decrease in diameter of pipe.		
WRD: 5.42.	Cutting pre-stressed concrete / ductile iron pipe to required length using suitable cutting tools wherever required and finishing the cut face neatly for perfect jointing including cost of all materials, machinery, labour etc., complete.		
5.42.1	800 mm dia pipes	Each	789.00
Note:	For cutting other pipes the rate per Each may be increased / decreased proportionate to increase / decrease in diameter of pipe.		
WRD: 5.43.	Manufacturing, supplying, laying in position, aligning, jointing, testing and commissioning of electric resistance welded / submerged arc welded mild steel (Fe-410 grade) delivery pipes of specified diameter and plate thickness with flanged ends wherever required and provided with 1 coat 40 micron thick zinc rich epoxy primer paint and 3 coats 100 micron thick each coat coal tar epoxy paint for inner surface and 1 coat of 40 micron thick zinc rich epoxy primer paint and 2 coats of 100 micron thick each coat coal tar epoxy paint for outer surface including cost of all materials, machinery, labour, cutting, bending, welding, finishing, painting,conveying to spot, lowering, aligning, jointing,arranging water for testing, hydraulic testing at fabrication site and after laying and jointing at specified test pressure etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts. Diameter of delivery pipe :mm Thickness of plate :mm.		
Note:	Rate per Rm of pipe = Rate per tonne x Weight of pipe per Rm Weight of pipe per Rm for specified diameter and plate thickness = 0.373 x Diameter of pipe in mm x Plate thickness in mm / 14400		
WRD: 5.44.	Manufacturing, supplying, laying in position, aligning, jointing, testing and commissioning of electric resistance welded /submerged arc welded	tonne	94400.00

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
	<p>mild steel (Fe-410 grade) manifold pipe system of specified diameter and plate thickness with flanged inlets / outlets at specified locations for connecting pump delivery pipes and rising mains and provided with 1 coat of 40 micron thick zinc rich epoxy primer paint and 3 coats of 100 micron thick each coat coal tar epoxy paint for inner surface and exposed outer surface including cost of all materials, machinery, labour, cutting, bending, welding, finishing, painting, conveying to spot, lowering, aligning, jointing, arranging water for testing, hydraulic testing at fabrication site and after laying and jointing at specified test pressure etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts (excluding cost of thrust block for anchoring / encasing manifold pipe).</p> <p>Note: Diameter of manifold pipe :mm Thickness of plate :mm. Rate per Rm of pipe= Rate per tonne x Weight of pipe per Rm Weight of pipe per Rm for specified diameter and plate thickness = 0.976 x Diameter of pipe in mm x Plate thickness in mm / 30000</p> <p>WRD: Manufacturing, supplying, laying in position, aligning, jointing, testing and commissioning of electric resistance welded / submerged arc welded mild steel (Fe-410 grade) rising main of specified diameter and plate thickness provided with flanges / outlets wherever required for connecting to manifold system / for fixing valves and provided with 15 mm thick inner lining of CM 1:1.5 proportion by volume and 25 mm thick outer lining of CM 1:3 proportion by volume (aggregate for outer lining shall be mixture of 80 percent natural sand and 20 percent 6 mm down crushed stone chips) over 13 gauge 50 x 50 mm opening size weld mesh including cost of all materials, machinery, labour, cutting, bending, welding, cement mortar lining, finishing, curing, conveying to spot, lowering, aligning, jointing, arranging water for testing, hydraulic testing at manufacturing site and after laying and jointing at specified test pressure etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts.</p> <p>Note: Diameter of raising main :mm Thickness of plate :mm. Rate per Rm of pipe = Rate per tonne x Weight of pipe per Rm Weight of pipe per Rm for specified diameter and plate thickness = 0.597 x Diameter of pipe in mm x Plate thickness in mm / 24000</p> <p>WRD: Refilling pipe line trenches with available soil obtained from excavation of trenches in layers of 150 mm thickness (before compaction) including cost of all materials, machinery, labour, tamping each layer to specified</p>	tonne	82100.00
5.45.		tonne	90400.00
5.46.			

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
	degree of compaction etc., complete with lead upto 50 m.	cum	260.00
WRD: 5.47.	Removing top soil for an average depth of 15 cm from formation area of service road and removing grass, vegetation, jali-flora and other shrubs, bush / tree stumps by excavating pits, cutting trees upto 30 cm girth etc. including burning or disposal of waste materials and stacking useful wood as directed etc., complete with lead for disposal / stacking upto 50 m and all lifts.	sqm	44.50
Note:	For removing trees of girth more than 30 cm the rates provided under section ' Preliminary and Maintenance works ' may be adopted.		
WRD: 5.48.	Providing and laying 250 mm thick sand blanket below embankment including cost of all materials, machinery , labour, spreading sand to specified thickness etc., complete with lead upto 50 m and all lifts.	sqm	271.00
WRD: 5.49.	Formation of road embankment using surplus soil / murum from earth work excavation for pipe line trench in layers of 25 cm thickness (before compaction) including cost of all materials, machinery, labour, excavation of side gutters, spreading soil in layer of specified thickness, sorting out vegetation / roots, breaking clods, sectioning top surface to specified camber and sides to required slope, watering and ompaction by power roller to achieve specified density control etc., complete with lead upto 50 m and all lifts.	cum	96.00
WRD: 5.50.	Constructing embankment for road formation and at other locations wherever specifird using murum from approved borrow area in layers of 25 cm thickness (before compaction) including cost of all materials, machinery, labour, excavation of side gutters, collection of murum, spreading in layer of specified thickness, sorting out, breaking clods, sectioning top surface to specified camber and sides to required slope, watering and compaction by power roller to achieve specified density control etc., complete with lead upto 1 km and all lifts.	cum	184.00
WRD: 5.51.	Providing, laying, spreading uniformly hard crushed stone aggregate of specified size and gradation from approved sourse to specified width and thickness over rolled water bound macadam service road surface to proper grade and camber, hand packing, spreading and brooming binding material from approved source to fill up interstices of coarse aggregate, watering and compacting using power roller to achieve the specified density control including cost of all materials, machinery, labour etc., complete with lead upto 50 m and all lifts.		

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
5.51.1	Conforming to Grade II size as per ' MORTH ' specifications	cum	1983.00
5.51.2	Conforming to Grade III size as per ' MORTH ' specifications	cum	2162.00
Note:	Cost of providing murrum shoulder for about 250 mm width is covered in rate for metalling. Measurements shall be only for quantity of metalling.		
WRD:	Providing and constructing 300 mm thick dry rubble stone pitching		
5.52.	with pin headers at 2 per sqm using rubble stones and stone chips from approved source including cost of all materials, labour, hand packing, finishing etc.,complete with lead upto 50 m and all lifts.	sqm	275.00
	PUMPS & OTHER ACCESSORIES:		
WRD:	Design, manufacture, supply, erection, trail running, performance testing and commissioning of vertical turbine pump of approved make		
5.53.	conforming to IS: 1710 having specified pump output under specified operating head coupled to HT motor of adequate HP rating operating at 6.6 KV with flexible coupling, self water lubricated thrust bearings, discharge Tee with flanged end for connecting delivery pipe with all other standard accessories and safety devices etc., complete as per specifications, terms and conditions of contract.		
5.53.1	V T pump coupled to more than 1000 hp upto 1500 hp motor	hp	12600.00
5.53.2	V T pump coupled to more than 1500 hp upto 2000 hp motor	hp	13300.00
5.53.3	V T pump coupled to more than 2000 hp upto 2500 hp motor	hp	13990.00
5.53.4	V T pump coupled to more than 2500 hp upto 3000 hp motor	hp	14670.00
5.53.5	V T pump coupled to more than 3000 hp upto 3500 hp motor	hp	15350.00
Note:	i. The lead charges including loading and un-loading for pump and motor shall be on weight basis. The lead charges provided in the SR for transportation of steel may be made applicable for pump and motor. ii Kirloskarwadi (near Meeraj) for pump and Hosur (near Bangalore) for motor may be considered as source of supply for working out lead charges.		
WRD:	Design, fabrication, supply, assembling, testing and commissioning of		
5.54.	HT pump panel board made of sheet metal duly painted with recess for cable entries at bottom suitable for 6.6 KV equipped with vacuum circuit breaker of suitable capacity for 1 number incoming 1600A and 2 numbers 630A outgoing of suitable capacity with aluminium bus bars of 1600 Amp metering panel, protection relays and all other accessories complete with wiring as per specifications and approved drawings.		
5.54.1	Panel board with VCBs and fittings common to all pumps	Set	1485000.00

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
5.54.2	Additional VCB including sheet metal enclosure, extension bus bars, metering and relays complete for each additional pump for mounting on common panel board	Set	524700.00
Note:	Rate for complete set of HT pump panel board = Rate for common VCBs and fittings + (Rate for additional VCB per pump x Number of additional pumps)		
WRD:	Design, fabrication, supply, assembling, testing and commissioning of		
5.55.	Remote control panel made of sheet metal in desk type configuration duly painted with recess for cable entries at the bottom equipped with operating consoles, indicators, annunciation windows, hooters and all other accessories assembled and ready to receive control wires and other connections etc., complete as per specifications and approved drawings.	Each pump	44550.00
Note:	Rate per complete set of Remote control panel = Rate for Remote control panel for each pump x Number of pumps		
WRD:	Supply, installation and commissioning of High tension Power factor		
5.56.	capacitor bank operating at 6.6 KV of specified KVAR rating with all accessories complete as per specifications, terms and conditions of contract.	50 KVAR	39600.00
Note:	Rate for Power Factor Capacitor Bank set per pump = Specified KVAR rating x Rate per 50 KVAR / 50		
WRD:	Supply, installation and commissioning of Load Break Switch with HRO		
5.57.	fuses, CBCT and ELR in painted sheet metal enclosure with operating console complete for use along with Power Factor capacitor bank as per specifications, terms and conditions of contract.	Set	374970.00
WRD:	Supply and installation of Axillary DC supply system of approved make		
5.58.	with battery charger cum DCDB with batteries for 110 A hour complete with all accessories.	Set	678150.00
WRD:	Supplying and installing Temperature scanner suitable for operating at		
5.59.	110 V DC or 230 V AC mounted in a duly painted sheet metal enclosure provided with NO / NC relays for transmitting signal to VCBs for tripping with audible alarm for both windings and bearings RTDs with all other accessories for satisfactory functioning of the system etc., complete as per specifications, terms and conditions of contract.	Set	76730.00

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
WRD: 5.60.	Supplying, installing and commissioning electrode actuated water level transmitter of approved make with all accessories to protect against dry running of pump.	Set	155930.00
WRD: 5.61.	Supplying, installing and commissioning electro-magnetic type flow meter of approved make with all accessories including display panel in the pump house.	Set	1188000.00
WRD: 5.62.	Supply and installation of floor mounting type LTAC panel of approved make fabricated from sheet metal and painted with provision for suitable incoming and specified number of outgoing feeder inlets with metering panel and all other accessories complete for auxiliary supply as per specifications.	Each	376200.00
WRD: 5.63.	Supply and installation of Auxiliary transformer 6.6 KV / 433 Volts 160 KVA copper wound, insulating oil filled with all accessories complete as per specifications.	Set	321750.00
WRD: 5.64.	Fabricating, supplying, erecting, testing and commissioning 6.6 KV 2500A capacity wall entry type bus duct with flexible end connectors to connect transformer and HT motor panel inside pump house with all accessories, supports etc., complete as per specifications and drawings.	Rm	39600.00
WRD: 5.65.	Supplying, laying and connecting xLPE 6.6 KV(E) 3 core cable suitable for 28 KA short circuit rating with end connectors from HT panel to motor, starters, capacitor panels etc., complete as per directions.		
5.65.1	3 core 95 sqmm cable with end connectors	Rm	607.00
5.65.2	3 core 120 sqmm cable with end connectors	Rm	941.00
5.65.3	3 core 240 sqmm cable with end connectors	Rm	1090.00
5.65.4	3 core 400 sqmm cable with end connectors	Rm	1684.00
WRD: 5.66.	Supply, installation and commissioning of soft starter for specified kW load operating at 6.6 KV with load break switch, metering, protection by-pass vacuum contactor with all accessories complete housed in painted sheet metal enclosure.	500 kW	742500.00
Note:	Rate for Soft starter set per pump = Specified kW load x Rate per 500 kW / 500		
WRD: 5.67.	Supplying, installing, testing and commissioning (SITC) electrically actuated wafer type double flanged Butterfly valve PN 1.0 Class conforming to BS:5156 of specified diameter of approved make with gear		

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
	box, electric motor and extension stem and all other accessories for perfect linking with pipes on either side including loading, unloading, lifting and placing in correct position, cleaning ends, inserting gaskets into correct position, jointing pipes and valve to form water tight joints, cost of all jointing materials, machinery, labour etc., complete with all leads and lifts.		
5.67.1	400 mm diameter butterfly valve with accessories	Set	46200.00
5.67.2	500 mm diameter butterfly valve with accessories	Set	79500.00
5.67.3	600 mm diameter butterfly valve with accessories	Set	114500.00
WRD: 5.68.	Supplying, installing, testing and commissioning (SITC) electrically actuated wafer type double flanged Butterfly valve PN 1.6 Class conforming to BS:5156 of specified diameter of approved make with gear box, electric motor and extension stem and all other accessories for perfect linking with pipes on either side including loading, unloading, lifting and placing in correct position, cleaning ends, inserting gaskets into correct position, jointing pipes and valve to form water tight joints, cost of all jointing materials, machinery, labour etc., complete with all leads and lifts.		
5.68.1	400 mm diameter butterfly valve with accessories	Set	51100.00
5.68.2	500 mm diameter butterfly valve with accessories	Set	84300.00
5.68.3	600 mm diameter butterfly valve with accessories	Set	119300.00
WRD: 5.69.	Supplying, installing, testing and commissioning (SITC) electrically actuated double flanged Butterfly valve PN 1.0 Class conforming to IS:513905 of specified diameter of approved make with gear box, electric motor and extension stem and all other accessories for perfect linking with pipes on either side including loading, unloading, lifting and placing in correct position, cleaning ends, inserting gaskets into correct position, jointing pipes and valve to form water tight joints, cost of all jointing materials, machinery, labour etc., complete with all leads and lifts.		
5.69.1	700 mm diameter butterfly valve with accessories	Set	376400.00
5.69.2	800 mm diameter butterfly valve with accessories	Set	469600.00
5.69.3	900 mm diameter butterfly valve with accessories	Set	562400.00
5.69.4	1000 mm diameter butterfly valve with accessories	Set	673100.00
5.69.5	1100 mm diameter butterfly valve with accessories	Set	840300.00
5.69.6	1200 mm diameter butterfly valve with accessories	Set	1061300.00
WRD: 5.70.	actuated double flanged Butterfly valve PN 1.6 Class conforming to IS:513905 of specified diameter of approved make with gear box, electric		

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
	motor and extension stem and all other accessories for perfect linking with pipes on either side including loading, unloading, lifting and placing in correct position, cleaning ends, inserting gaskets into correct position, jointing pipes and valve to form water tight joints, cost of all jointing materials, machinery, labour etc., complete with all leads and lifts.		
5.70.1	700 mm diameter butterfly valve with accessories	Set	422300.00
5.70.2	800 mm diameter butterfly valve with accessories	Set	517700.00
5.70.3	900 mm diameter butterfly valve with accessories	Set	640100.00
5.70.4	1000 mm diameter butterfly valve with accessories	Set	780300.00
5.70.5	1100 mm diameter butterfly valve with accessories	Set	956300.00
5.70.6	1200 mm diameter butterfly valve with accessories	Set	1174900.00
WRD: 5.71.	Supplying and fixing Butterfly valve actuator DOL panel board with push button starter and all other accessories including wiring for specified number of valves etc complete.	Set	376200.00
WRD: 5.72.	Supplying, installing, testing and commissioning (SITC) Cast steel double flanged dual plate Check valve Class 150 conforming to API 594 of approved make of specified diameter and to withstand specified water pressure with all accessories true to line and perfect linking with pipes on either side including loading, unloading, lifting and placing in correct position, cleaning ends, inserting gaskets into correct position, jointing pipes and valve to form water tight joints, cost of all jointing materials, machinery, labour etc., complete with all leads and lifts.		
5.72.1	400 mm diameter check valve with accessories	Set	110200.00
5.72.2	500 mm diameter check valve with accessories	Set	137400.00
5.72.3	600 mm diameter check valve with accessories	Set	171500.00
5.72.4	700 mm diameter check valve with accessories	Set	230500.00
5.72.5	800 mm diameter check valve with accessories	Set	312000.00
5.72.6	900 mm diameter check valve with accessories	Set	419300.00
5.72.7	1000 mm diameter check valve with accessories	Set	564800.00
5.72.8	1100 mm diameter check valve with accessories	Set	760900.00
5.72.9	1200 mm diameter check valve with accessories	Set	1027100.00
WRD: 5.73.	Supplying, installing, testing and commissioning (SITC) Cast steel double flanged dual plate Check valve Class 300 conforming to API 594 of approved make of specified diameter and to withstand specified water pressure with all accessories true to line and perfect linking with pipes on either side including loading, unloading, lifting and placing in		

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
	correct position, cleaning ends, inserting gaskets into correct position, jointing pipes and valve to form water tight joints, cost of all jointing materials, machinery, labour etc., complete with all leads and lifts.		
5.73.1	400 mm diameter check valve with accessories	Set	121700.00
5.73.2	500 mm diameter check valve with accessories	Set	151200.00
5.73.3	600 mm diameter check valve with accessories	Set	189800.00
5.73.4	700 mm diameter check valve with accessories	Set	255500.00
5.73.5	800 mm diameter check valve with accessories	Set	343900.00
5.73.6	900 mm diameter check valve with accessories	Set	463600.00
5.73.7	1000 mm diameter check valve with accessories	Set	623800.00
5.73.8	1100 mm diameter check valve with accessories	Set	841300.00
5.73.9	1200 mm diameter check valve with accessories	Set	1133500.00
WRD:	Supplying, fixing and commissioning C.I Scour valve (sluice valve) of approved make body and seat ring of bronze PN 1.0 conforming to IS: 14846 of specified diameter and to withstand specified pressure with all accessories true to line and perfect linking with pipes on either side including loading, unloading, lifting and placing in position, cleaning ends, inserting gaskets into correct position, jointing pipes and valve to form water tight joint, cost of all jointing materials, machinery, labour etc., complete with all leads and lifts.		
5.74.			
5.74.1	100 mm diameter scour valve with accessories	Set	9680.00
5.74.2	150 mm diameter scour valve with accessories	Set	15000.00
5.74.3	200 mm diameter scour valve with accessories	Set	26490.00
5.74.4	250 mm diameter scour valve with accessories	Set	37690.00
WRD:	Supplying, fixing and commissioning C.I Tamper proof Air valve of approved make, body and seat ring of bronze, PN 1.0 class conforming to IS: 14845 of specified diameter with all fixtures including cost of all materials, machinery, labour etc., complete with all leads and lifts.		
5.75.			
5.75.1	80 mm diameter air valve with accessories	Set	22070.00
5.75.2	100 mm diameter air valve with accessories	Set	25810.00
5.75.3	150 mm diameter air valve with accessories	Set	47500.00
5.75.4	200 mm diameter air valve with accessories	Set	51160.00
WRD:	Supplying, fixing and commissioning C.I Tamper proof Air valve of approved make body and seat ring of bronze PN 1.6 conforming to IS: 14845 of specified diameter with all fixtures including cost of all		
5.76			

Item No.	Brief description of Item	Unit	Basic Rate in `:
1	2	3	4
	materials, machinery, labour etc., complete with all leads and lifts.		
5.76.1	80 mm diameter air valve with accessories	Set	23290.00
5.76.2	100 mm diameter air valve with accessories	Set	28780.00
5.76.3	150 mm diameter air valve with accessories	Set	48190.00
5.76.4	200 mm diameter air valve with accessories	Set	52070.00

WATER RESOURCES DEPARTMENT

CHAPTER - WRD:6 TUNNEL AND ALLIED WORKS SCHEDULE OF RATES FOR THE YEAR : 2018-19

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WRD: 6. TUNNEL AND ALLIED WORKS
NOTES ON SCHEDULE OF RATES

1. All notes under General Notes on Schedule of Rates and Notes on Lead, Lift, Loading and un-loading charges are applicable to Tunnel and Allied Works also to the extent they are relevant.
2. The basic rates are inclusive additional costs for working inside tunnel by way of additional hidden cost on labour.
3. The basic rates are inclusive of scaling loose rock, removal of under-cuts, cleaning bed, lighting and ventilation inside tunnel .
4. Unless otherwise specified the basic rates are inclusive of all lifts.
5. Unless otherwise specified the basic rates are inclusive of standard finishing required for concrete surface.
6. For excavation and concrete lining works of approach / exit channels the basic rates as provided under sections ' Canal and allied works ' and ' Canal cross drainage works" shall be adopted.
7. For intake structure, tunnel portals, retaining walls, pitching works etc., the rates as provided under ' Dam and allied works ' shall be adopted.
8. The lead charges, wherever applicable, for all materials under various items shall be considered only between quarry / source of supply and batching plant / fabrication site. Further conveyance of concrete / fabricated parts / other materials upto final placing site inside tunnel is included in the basic rates upto 1 km.
9. Cement content specified for cement concrete works in the item description is based on theoretical design mix computations and is exclusive of wastage and requirement for any incidentals. The actual cement content may vary based on trial mix studies. Suitable Clause shall be included in tender for regulating payment for any upward or downward variation in cement content.
10. The quantities of materials including wastage, requirements for any incidentals etc., for working out additional lead charges shall be as per the statement of requirement of materials under this section.

WRD: 6. TUNNEL AND ALLIED WORKS
QUANTITY OF MATERIALS FOR ADDITIONAL LEAD CHARGES

Item No.	Description of work	Unit	Quantity of materials required per unit quantity of work			
			Steel kg	Cement kg	Sand / FA cum	CA cum
WRD:..						
6.8	25 mm th. Guniting in CM 1:3 propn	sqm	---	16.80	0.030	---
6.9	25 mm dia rock bolt using wedge	Rm	7.75	---	---	---
6.10	25 mm dia rock bolt using capsule	Rm	7.45	---	---	---
6.11	Permanent steel supports	tonne	1025.00	---	---	---
6.12	Temperary steel supports	tonne	1025.00	---	---	---
			Stone cum	Cement kg	Sand / FA cum	CA cum
6.14	UCR masonry in CM 1:6 propn	cum	0.975	96.00	0.410	---
			Steel kg	Cement kg	Sand / FA cum	CA cum
6.15	Reinforcement steel	tonne	1025.00	---	---	---
6.16	M-10 CC using 40 mm down CA	cum	---	222.00	0.430	0.880
6.17	M-20 CC using 40 mm down CA	cum	---	274.00	0.420	0.870
6.18	M-20 CC using 40 mm down CA	cum	---	304.00	0.430	0.810
6.20	Cement grouting	tonne	---	1010.00	---	---

Notes:

1. The quantities of materials specified in the above table are for loose volume.
2. The quantity of cement for cement concrete items includes requirement of cement for any incidental works such as repair of honey-comb patches etc.
3. The quantities of materials are inclusive of wastage as under:

Cement	1.00 percent.
Sand / Fine aggregate	2.00 percent.
Coarse aggregate	2.00 percent.
Stones / Stone chips	2.00 percent.
Steel (Reinforcement & Structural)	2.50 percent.

WRD: 6. TUNNEL AND ALLIED WORKS
AMOUNT OF ROYALTY CHARGES INCLUDED IN ITEM RATES

Item No.	Description of work	Unit	Amount of Royalty charges included in item rate in ` :			
			Earth	Sand	CA	Stone
WRD:						
6.8	25 mm th. Guniting in CM 1:3 propn	sqm	---	3.10	---	---
6.14	UCR masonry in CM 1:6 propn	cum	---	42.30	---	153.85
6.16	M-10 CC using 40 mm down CA	cum	---	44.40	95.05	---
6.17	M-20 CC using 40 mm down CA	cum	---	43.35	93.95	---
6.18	M-20 CC using 40 mm down CA	cum	---	44.40	87.50	---

Notes:

- In the Govt notification on royalty charges the rates for Earth / Sand / Building stone are on weight basis. For converting the rate per tonne to rate per cum for working-out the royalty charges for various work items following density values are considered as per the circular of Mines & Geology No:GA.BU.E/D.C.B./KA.GA.GU./RA.PA.KO/ 2013-14 dt:13-03-2014.

as given by Mines & Geology Department

Sand / Fine aggregate (loose volume)	: 1.72 tonne per cum
Stones/stone chips (loose volume) :	2.63 tonne per cum
Coarse aggregates (loose volume) :	1.80 tonne per cum

WRD: 6. TUNNEL AND ALLIED WORKS
SCHEDULE OF RATES
FOR THE YEAR : 2018-19

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	EXCAVATION WORKS :		
WRD: 6.1.	Excavation for adit by tunnelling methods in all types of rock including cost of all materials, machinery, labour, ventilation, lighting, drainage, scaling excavated surface, removing and hauling excavated muck outside adit upto specified dump area and all other ancillary operations etc., complete with lead upto 500 m and all lifts.	cum	1993.00
WRD: 6.2.	Excavation for vertical / inclined shaft in all types of soft / hard rock including cost of all materials, machinery, labour, ventilation, lighting, drainage, scaling excavated surface, removing and hauling excavated muck outside shaft upto specified dump area and all other ancillary operations etc., complete with lead upto 1 km and all lifts.	cum	2579.00
WRD: 6.3.	Excavation for tunnel by tunnelling methods in rock not requiring supports including cost of all materials, machinery, labour, ventilation, lighting, drainage, scaling excavated surface, removing under-cuts, removing and hauling excavated muck outside tunnel upto specified dump area and all other ancillary operations etc., complete with lead upto 1 km and all lifts.	cum	2086.00
Note:	Where mucking is to be carried out through vertical or inclined shaft using winch and mucking tub arrangement increase the basic rate per cum by 8.00 percent.		
WRD: 6.4.	Excavation for tunnel by tunnelling methods including excavation for supports in all types of soil / rock strata requiring supports (excluding cost of providing supports) including cost of all other materials,labourmachinery, machinery,ventilation, lighting, drainage, scaling excavated surface, removing and hauling excavated muck outside tunnel upto specified dump area and all other ancillary operations etc., complete with lead upto 1 km and all lifts.	cum	2186.00
Note:	Where mucking is to be carried out through vertical or inclined shaft using winch and mucking tub arrangement increase the basic rate per cum by 8.00 percent.		
WRD: 6.5.	Excavation for tunnel by heading and benching method of tunnelling including excavation for supports in all types of soil/rock strata requiring supports (excluding cost of providing supports) for roof portion before benching including cost of all other materials, machinery, labour, ventilation, lighting, drainage, scaling excavated surface, removing and		

Item No.	Brief description of work	Unit	Basic Rate in ₹:
1	2	3	4
	hauling excavated muck outside tunnel upto specified dump area and all other ancillary operations etc., complete with lead upto 1 km and all lifts.	cum	2312.00
Note:	Where mucking is to be carried out through vertical or inclined shaft using winch and mucking tub arrangement increase the basic rate per cum by 8.00 percent.		
WRD:	Removing and hauling muck overfallen due to natural causes such as geological faults etc., out of tunnel including cost of all materials, machinery, labour, ventilation, drainage, lighting, breaking any large rock fragments if necessary by blasting with all other ancillary operations and disposing off the same in and specified dump area or as directed etc., complete with lead upto 1 km and all lifts.	cum	353.00
6.6.			
	DEWATERING & GUNITING WORKS :		
WRD:	Dewatering tunnel by pumping out water collected by natural drainage inside tunnel including cost of all materials, machinery, labour, ventilation, lighting, drainage, providing sump and all other ancillary operations wherever necessary etc., complete.	kwhr	33.50
6.7.			
WRD:	Providing 25 mm thick guniting to sides and arch of tunnel in CM 1 : 3 proportion by weight including cost of all materials, machinery, labour, ventilation, lighting, drainage and all other ancillary operations etc., complete with lead upto 1 km and all lifts.	sqm	669.00
6.8.			
	TEMPERARY & PERMANENT SUPPORTS :		
WRD:	Providing and fixing 25 mm dia. steel rock bolts with one end provided with mechanical / wedge type anchorage and other end provided with threads for fixing washers and nuts including cost of all materials, machinery, labour, ventilation, lighting, drainage, drilling 32 mm dia holes, providing 150 mm long 20 mm thick steel tapered wedge, providing 10 mm thick and 200 x 200 mm size plate washer and nuts, driving bolt, fixing washers and nuts, tightening bolt by torque wrench and all other ancillary operations etc., complete with lead upto 1 km and all lifts.	Rm	1188.00
6.9.			
WRD:	Providing and fixing 25 mm diameter steel rock bolts with resin bond cement capsule anchorage including cost of all materials, machinery, labour, ventilation, lighting, drainage, drilling 32 mm dia holes, threading one end of bolt for fixing nuts, inserting grout capsule, driving bolt, fixing 10 mm thick 200 x 200 mm size plate washers and nuts, tightening the nuts by torque wrench after hardening of cement grout, and all other ancillary operations etc., complete with lead upto 1 km and all lifts.	Rm	1202.00
6.10.			
WRD:	Providing, fabricating and fixing in position permanent structural steel supports as per details including cost of all materials, machinery,		
6.11.			

TUNNEL AND ALLIED WORKS

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	labour, cutting, bending, welding, grinding, ventilation, lighting, drainage and all other ancillary operations etc., complete with lead upto 1 km and all lifts.	tonne	96990.00
WRD: 6.12.	Providing, fabricating and fixing in position temperary structural steel supports as per details and dismantling and conveying the same to other place or outside the tunnel before concreting including cost of all materials, machinery, labour, ventilation, lighting, drainage, cutting, bending, welding, grinding, and all other ancillary operations etc., complete with lead upto 1 km and all lifts.	tonne	26280.00
WRD: 6.13.	Providing and fixing hard variety cut jungle wood for lagging / blocking locations in tunnel wherever required including cost of all materials, machinery, labour, ventilation, lighting, drainage, fixing in position etc., complete with all leads and lifts.	cum	49710.00
	MASONRY WORKS :		
WRD: 6.14.	Providing and constructing un-coursed rubble stone masonry using approved stones from tunnel excavated muck in CM 1 : 6 proportion by volume for back-filling over cuts / slips on tunnel sides due to geological faults etc., including cost of all materials, machinery, labour, ventilation, lighting, drainage, cleaning, scaffolding, batching and mixing mortar, packing mortar and wedging stone chips into joints, curing, etc., complete with lead upto 1 km and all lifts.	cum	3779.00
Note:	Rubble stones and stone chips from tunnel excavation for masonry shall be issued at dump yard at specified issue rates .		
	REINFORCEMENT & CONCRETE WORKS :		
WRD: 6.15.	Providing, fabricating and placing in position reinforcement steel for tunnel RCC works including cost of all materials, machinery, labour, ventilation, lighting, drainage, cleaning, straightening, cutting, bending, hooking, lapping / welding joints wherever required, tying with 1.25 mm dia. soft annealed steel wire, etc., complete with lead upto 1 km and all lifts.	tonne	79290.00
WRD: 6.16.	Providing and laying insitu vibrated M-10 (28 days cube compressive strength not less than 10 N / sq mm) grade cement concrete using 40 mm down approved, clean, hard, graded aggregates crushed from tunnel excavated rock for filling and levelling over cuts in bed due to geological faults etc., including cost of all materials, machinery, labour, ventilation, lighting, drainage, cleaning bed, batching and mixing concrete, conveying upto placing point in agitator car, placing in position, levelling, compacting, finishing, curing, and all other ancillary operations etc., complete with lead upto 1 km and all lifts. (Cement content: 220 kg / cum with use of super plasticiser)	cum	6013.00

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
Note:	Rubble stones and stone chips from tunnel excavation for crushing coarse aggregate shall be issued at dump yard at specified issue rates .		
WRD: 6.17.	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sqmm) grade cement concrete using 40 mm down approved clean, hard, graded aggregates crushed from tunnel excavated rock for kerb and bed lining including cost of all materials, machinery, labour, ventilation, lighting, drainage, formwork, batching and mixing concrete, conveying upto placing point in agitator car, placing in position, levelling, vibrating, finishing, curing, and all other ancillary operations etc., complete with lead upto 1 km and all lifts. (Cement content : 270 kg / cum with use of super plasticiser)	cum	6863.00
Note:	Rubble stones and stone chips from tunnel excavation for crushing coarse aggregate shall be issued at dump yard at specified issue rates.		
WRD: 6.18.	Providing and laying insitu vibrated M-20 (28 days cube compressive strength not less than 20 N / sqmm) grade cement concrete using 40 mm down approved clean, hard, graded aggregates crushed from tunnel excavated rock for sides and arch lining including cost of all materials, machinery, labour, ventilation, lighting, drainage, formwork, rail mounted shuttering gantry, batching and mixing concrete, conveying upto placing point in agitator car, placing in position using placer pump, levelling, vibrating, finishing, curing, and all other ancillary operations etc., complete with lead upto 1 km and all lifts. (Cement content: 300 kg / cum with use of super plasticiser).	cum	7348.00
Note:	Rubble stones and stone chips from tunnel excavation for crushing coarse aggregate shall be issued at dump yard at specified issue rates.		
	DRILLING & GROUTING WORKS :		
WRD: 6.19.	Drilling 35 mm diameter grout holes in concrete / rock by percussion drilling using jack hammer or stooper drills as directed to specified depth for consolidation / contact grouting including cost of all materials, machinery, labour, ventilation, lighting, drainage, cleaning holes, and all other ancillary operations etc., complete.	Rm	442.00
WRD: 6.20.	Grouting cement slurry in grout holes under specified pressure for consolidation / contact grouting including cost of all materials, labour, machinery, ventilation, lighting, drainage, redrilling wherever necessary, and other ancillary operations etc., complete with lead upto 1 km and all lifts.	tonne	12280.00
WRD: 6.21.	Drilling 75 mm diameter drainage holes vertical or inclined in rock / concrete in tunnel by percussion drilling using waggon drill or other suitable drilling equipment including cost of all materials, machinery, labour, ventilation, lighting, drainage etc., complete.	Rm	383.00

WATER RESOURCES DEPARTMENT

CHAPTER - WRD:7

GATE / HOIST AND ALLIED WORKS SCHEDULE OF RATES FOR THE YEAR : 2018-19

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WRD: 7. GATE / HOIST AND ALLIED WORKS
NOTES ON SCHEDULE OF RATES

1. All notes under General Notes on Schedule of Rates and Notes on Lead, Lift, Loading and un-loading charges are applicable to Gate / Hoist and Allied Works also to the extent they are relevant.
2. All materials / bought out components for embedded parts, gates, hoists and allied works shall conform to relevant Indian standards / technical specifications and approved drawings.
3. The basic rates are inclusive of preparation of designs / drawings / bill of materials etc., as per specifications and other technical data including revisions.
4. The basic rates are inclusive of cost of all materials, machinery, labour, fabrication, erection, commissioning and testing of gates, hoists and other related components as per technical specifications.
5. The basic rates are inclusive of taxes, duties, levies and all other incidental charges except sales tax on works contract. Separate provision shall be made in the estimate towards Sales tax on Works contract at the rate prevailing at the time of preparation of estimate.
6. The basic rates are inclusive of rehandling at fabrication and erection sites.
- 7.a The basic rates are inclusive of 1 km lead and all lifts for structural steel and all leads and lifts for other materials. For working out additional lead charges for structural steel 1 km lead included in basic rate shall be deducted from total lead. The quantity of structural steel for working out additional lead, loading and un-loading charges shall be as per Note: 2 under each item.
- 7.b The basic rates are inclusive of 3 percent provision towards cost of packing, forwarding and transportation of all materials other than structural steel from their source of supply upto work site. No lead charges shall be added for materials other than structural steel.
8. Unless otherwise specified the basic rates are inclusive of standard finish required for all the fabricated and bought out gate and hoist components.
9. The basic rates are inclusive of preparatory works such as rectification of damages, repairing shop painting, cleaning, positioning and anchoring first stage embedments, cleaning surface for field painting etc.

10. The basic rates are exclusive of cost of river diversion dewatering, desilting etc.
11. Unless otherwise specified , the basic rates for all items are on per tonne basis. The rate per set or per number shall be worked out on the basis of rate per tonne and the tonnage computed as per detailed designs or as per empirical formulae furnished in the " Note " under each item.
12. Minimum dry film thickness for zinc rich epoxy primer paint and coal tar epoxy paint shall be 40 microns per coat and 100 microns per coat respectively.

WRD: 7. GATE / HOIST AND ALLIED WORKS
SCHEDULE OF RATES
FOR THE YEAR : 2018-19

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	GATES AND HOISTS FOR DAM :		
WRD: 7.1.	Design, fabrication, supply, erection and commissioning of embedded parts consisting of sill beam, wall plates, seal seats, anchors, anchor girders, yoke girders, tie flats, trunnion supports, rope and pulley supports etc., with all accessories for spillway radial gates including cost of all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and four coats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.	tonne	140400.00
Note:	1. Wt of 1 set embedded parts in tonnes = $0.0177 \times (L^2 \times H \times h)^{0.673}$ Where (L) is length in m = Clear distance between piers. (H) is height of radial gate in m = FRL - Sill level + 0.15 m (h) is head of water above sill of gate in m = FRL - Sill level 2. Quantity of structural steel = 97.9 % of computed weight of 1 set		
WRD: 7.2.	Design, fabrication, supply, erection, testing and commissioning of radial gate consisting of skin plate, stiffeners, horizontal girders, sector arms, trunnion assemblies, tie beam, pulley supports, bracings, rubber seals, clamps etc., with all accessories for spillway including cost of all materials, machinery, labour, cutting, bending, aligning, anchoring, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and three coats of cold applied coal tar epoxy paint, seal fixing etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.	tonne	167500.00
Note:	1. Weight of 1 spillway gate in tonnes = $0.0710 \times (L^2 \times H \times h)^{0.673}$ Where (L) is length in m = Clear distance between piers. (H) is height of radial gate in m = FRL - Sill level + 0.15 m (h) is head of water above sill of gate in m = FRL - Sill level 2. Quantity of structural steel = 92.5 % of computed weight of 1 gate		
WRD: 7.3.	Design, fabrication, supply, erection, testing and commissioning of electrically operated rope drum hoist of adequate capacity consisting		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	<p>of base frames, rope drums, connecting shaft, gear system, brake system, electric motor, wire ropes, gate position indicator, manual operation arrangement etc., with all accessories for spillway radial gate including cost of all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, greasing, providing hand railing and approach staircase with gate to hoist platform, applying two coats of zinc chromate red oxide primer and three coats of approved synthetic enamel paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Hoist capacity in t including 25 % reserve capacity = 1.5 x Wt of gate (Hoist capacity shall be rounded off to next 10 tonne) Weight of hoist with all accessories :175 kg per tonne capacity of hoist. 2. Quantity of structural steel = 39.2 % of computed weight of 1 hoist</p>	tonne capacity	42800.00
	<p>WRD: Design, fabrication, supply, erection and commissioning of 1 metre wide 7.4. catwalk connecting spillway piers / abutments at trunnion platform level including cost of all materials, machinery, labour, cutting, aligning welding, anchoring, finishing, cleaning, applying one coat of zinc rich epoxy primer and two coats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Weight of catwalk : 300 kg per metre length of catwalk. 2. Quantity of structural steel = 95.6 % of computed weight per m length</p>	Rm	23800.00
	<p>WRD: Design, fabrication, supply, erection and commissioning of 7.5. embedded parts consisting of sill beam, slide tracks, seal seats, guide rails, dogging sets for storage of stoplog elements etc., with all accessories for spillway stop log gate elements including cost of all materials, machinery,labour, cutting, aligning, welding,anchoring, finishing,cleaning, applying one coat of zinc rich epoxy primer and fourcoats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Wt of 1 set embedded parts in tonnes = $0.0025 \times (L^2 \times H \times h)^{0.716}$ Where (L) is length = Clear distance between piers + 0.65 m.</p>	tonne	239400.00

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
<p>WRD: Design, fabrication, supply, erection, testing and commissioning of</p> <p>7.6. vertical lift sliding type all interchangeable (except bottom element) stoplog gate elements consisting of skin plate, horizontal and vertical girders, stiffeners, lifting pins, bronze padded slide blocks, guide shoes, rubber seals, clamps etc., with all accessories for spillway including cost of all materials,machinery, labour,cutting,aligning, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and three coats cold applied coal tar epoxy paint, seal fixing etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Total wt of 1 set stoplog elements in t = $0.0553 \times (L^2 \times H \times h)^{0.716}$ Where (L) is length = Clear distance between piers + 0.65 m. (H) is total height of stoplog gate in m = FRL - Sill level + 0.20 m (h) is head of water above sill of gate in m = FRL - Sill level 2. Quantity of structural steel = 83.8 % of computed weight of 1 set</p>	<p>(H) is total height of stoplog gate in m = FRL - Sill level + 0.20 m (h) is head of water above sill of gate in m = FRL - Sill level 2. Quantity of structural steel = 83.8 % of computed weight of 1 set</p>	tonne	111700.00
<p>WRD: Design, fabrication, supply, erection, testing and commissioning of</p> <p>7.7. automatic lifting beam with all accessories for handling, lowering and lifting of spillway stop log gate elements including cost of all materials, machinery, labour, cutting, aligning, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and two coats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other components / materials.</p> <p>Note: 1. Weight of lifting beam in tonnes = $0.02212 \times (L^2 \times H \times h)^{0.716} / n$ Where (L) is length = Clear distance between piers + 0.65 m. (H) is total height of stoplog gate in m = FRL - Sill level + 0.20 m (h) is head of water above sill of gate in m = FRL - Sill level (n) is number of gate elements in 1 set 2. Quantity of structural steel = 94.1 % of computed weight of 1 No.</p>	<p>Design, fabrication, supply, erection, testing and commissioning of automatic lifting beam with all accessories for handling, lowering and lifting of spillway stop log gate elements including cost of all materials, machinery, labour, cutting, aligning, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and two coats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other components / materials.</p>	tonne	138400.00
<p>WRD: Design, fabrication, supply, erection, testing and commissioning of</p> <p>7.8. adequate capacity Class - II type moving gantry crane consisting of rail mounted gantry frame, top platform with hand railing, long / cross</p>	<p>Design, fabrication, supply, erection, testing and commissioning of adequate capacity Class - II type moving gantry crane consisting of rail mounted gantry frame, top platform with hand railing, long / cross</p>		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	<p>travel arrangements, rope drums, gear systems, electric motors, electro-magnetic brake system, cabin, control panel, wire rope, ladder, motorised cable reeling drum etc., with all accessories for operating spillway stop log gate elements and river sluice / canal sluice emergency gates including cost of all materials, machinery, labour, cutting, bending, aligning, anchoring, welding, finishing, cleaning, greasing, applying two coats of zinc chromate red oxide primer and three coats of approved synthetic enamel pain etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Capacity of gantry crane in tonnes including 25 % reserve capacity = 2.5 x (Weight of 1 set of stoplog gate / Number of elements). (Hoist capacity shall be rounded off to next 5 tonne) Weight of moving gantry crane : .25 tonne per tonne capacity of gantry. 2. Quantity of structural steel = 70.4 % of computed weight of gantry.</p>	tonne capacity	231000.00
<p>WRD: 7.9.</p>	<p>Design, fabrication, supply, erection and commissioning of rail track using 45 kg / m standard rails on spillway bridge for movement of gantry crane for handling and operating spillway stoplog gate elements / river sluice / canal sluice emergency gate including cost of all materials, machinery, labour, aligning, anchoring, welding, cleaning, applying one coat of zinc rich epoxy primer and two coats of cold applied coal tar epoxy paint for buffers and rail supporting plates etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Weight of gantry track including fixtures : 100 to 105 kg / Rm of track. (Weight per metre includes rails with fixtures on both sides) 2. Quantity of structural steel = 5.3 % of computed weight of track.</p>	Rm	7600.00
<p>WRD: 7.10.</p>	<p>Design, fabrication, supply, erection and commissioning of embedded parts (without groove liner) consisting of sill beam, wheel tracks, seal seats, guide rails, breast wall liner (upto one vent height plus 1 m above the roof of vent) etc., with all accessories for river / canal sluice service gate including cost of all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, applying one coat zinc rich epoxy primer and four coats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and</p>		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
<p>Note:</p> <p>1. Wt of 1 set embedded parts in tonnes = $0.0444 \times (L^2 \times H \times h)^{0.659}$ Weight of breast wall lining : 250 kg / sqm of breast wall Where (L) is length = Clear vent opening in m + 0.70 m. (H) is height of gate in m = Clear vent height in m + 0.30 m (h) is head of water above sill of gate in m = FRL - Sill level</p> <p>2. Quantity of structural steel = 85.0 % of computed weight of 1 set.</p> <p>WRD:</p> <p>7.11. Design, fabrication, supply, erection and commissioning of embedded parts (with groove liner upto breast wall level) consisting of sill beam, wheel tracks, seal seats, guide rails, breast wall liner (upto one vent height plus 1 m above the roof of vent) etc., with all accessories for river / canal sluice service gate including cost of all materials, machinery, labour, cutting, aligning,anchoring, welding,finishing,cleaning, applying one coat of zinc rich epoxy primer and four coats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note:</p> <p>1. Wt of 1 set embedded parts in tonnes = $0.0444 \times (L^2 \times H \times h)^{0.659}$ Weight of breast wall lining : 250 kg / sqm of breast wall Weight of groove liner : 200 kg / sqm of groove lining Where (L) is length = Clear vent opening in m + 0.70 m. (H) is height of gate in m = Clear vent height in m + 0.30 m (h) is head of water above sill of gate in m = FRL - Sill level</p> <p>2. Quantity of structural steel = 90.5 % of computed weight 1 set.</p> <p>WRD:</p> <p>7.12. Design, fabrication, supply, erection and commissioning of vent liner using 20 mm thick plates with stiffeners and anchors for river sluice / canal sluice vents including cost of all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, applying one coat zinc rich epoxy primer and four coats cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note:</p> <p>1. Weight of vent liner including stiffeners /anchors : 200 kg / sqm area. 2. Quantity of structural steel = 100.0 % of computed weight</p>	<p>lifts including packing / forwarding charges for other materials.</p> <p>tonne</p> <p>182300.00</p> <p>tonne</p> <p>142700.00</p> <p>sqm</p> <p>20600.00</p>		

Item No.	Brief description of work	Unit	Basic Rate in ₹:
1	2	3	4
<p>WRD: 7.13.</p>	<p>Design, fabrication, supply, erection, testing and commissioning of fixed wheel type vertical lift service gate consisting of skin plate, vertical and horizontal girders, wheels, stiffeners, lifting brackets, guide rollers, ballast blocks, teflon claded rubber seals etc., with all accessories for river sluice /canal sluice vent including cost of all materials,machinery, labour, cutting, aligning, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and three coats cold applied coal tar epoxy paint, seal fixing etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Wt of 1 gate in tonnes (including ballast) = $0.0888 (L^2 \times H \times h)^{0.659}$ Where (L) is length = Clear vent opening in m + 0.70 m. (H) is height of gate in m = Clear vent height in m + 0.30 m (h) is head of water above sill of gate in m = FRL - Sill level 2. Quantity of structural steel = 47.5 % of computed weight of 1 gate.</p>	tonne	123400.00
<p>WRD: 7.14.</p>	<p>Design, fabrication, supply, erection, testing and commissioning of adequate capacity rope drum hoist consisting of hoist platform, rope drum, gear system, electric motor, electro-magnetic brake system, hand operation assembly, control panel, wire rope, pulleys, ladder etc., with all accessories for operating river sluice / canal sluice service gate including cost of all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, greasing, applying one coat zinc chromate red oxide primer and three coats of approved synthetic enamel paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Capacity of hoist in tonnes including 25 % reserve capacity = 2.5 x Weight of gate including ballast. (Hoist capacity shall be rounded off to next 5 tonne) Weight of hoist with all accessories: 250 kg per tonne capacity of hoist 2. Quantity of structural steel = 34.0 % of computed weight of 1 hoist.</p>	tonne capacity	53600.00
<p>WRD: 7.15.</p>	<p>Design, fabrication, supply, erection and commissioning of embedded parts (without groove liners) consisting of sill beam, wheel tracks, seal seats, guide rails, breast wall liner upto 1m height above the roof of vent etc., with all accessories for river / canal sluice emergency gate including cost of all materials,machinery,labour, cutting, aligning,welding</p>		

Item No.	Brief description of work	Unit	Basic Rate in ₹:
1	2	3	4
	<p>anchoring, finishing, cleaning, applying one coat of zinc rich epoxy primer and four coats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other components / materials.</p> <p>Note: 1. Wt of 1 set embedded parts in tonnes = $0.0444 \times (L^2 \times H \times h)^{0.659}$ Weight of breast wall lining : 250 kg per sqm of breast wall Where (L) is length = Clear vent opening in m + 0.70 m. (H) is height of gate in m = Clear vent height in m + 0.30 m (h) is head of water above sill of gate in m = FRL - Sill level 2. Quantity of structural steel = 87.0 % of computed weight of 1 set.</p>	tonne	196100.00
<p>WRD: 7.16.</p>	<p>Design, fabrication, supply, erection and commissioning of embedded parts (with groove liners) consisting of sill beam, wheel tracks, seal seats, guide rails, breast wall liner (upto 1 m above the roof of vent), groove liner upto breast wall level etc., with all accessories for river / canal sluice emergency gate including cost of all materials, machinery labour, cutting, aligning, anchoring, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and four coats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Wt of 1 set embedded parts in tonnes = $0.0600 \times (L^2 \times H \times h)^{0.659}$ Weight of breast wall lining : 250 kg / sqm of breast wall Weight of groove liner : 200 kg / sqm of groove lining Where (L) is length = Clear vent opening in m + 0.70 m. (H) is height of gate in m = Clear vent height in m + 0.30 m (h) is head of water above sill of gate in m = FRL - Sill level 2. Quantity of structural steel = 92.7 % of computed weight of 1 set.</p>	tonne	145600.00
<p>WRD: 7.17.</p>	<p>Design, fabrication, supply, erection, testing and commissioning of fixed wheel type vertical lift emergency gate consisting of skin plate, horizontal and vertical girders, wheels, stiffeners, lifting brackets, guide rollers, ballast blocks, teflon claded rubber seals etc.,with all accessories for river sluice / canal sluice vent including cost of all materials, machinery, labour, cutting, aligning, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and three coats of cold applied coal tar epoxy paint, seal fixing etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel</p>		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
<p>Note:</p> <p>1. Wt of 1 gate in tonnes (including ballast) = $0.0888 (L^2 \times H \times h)^{0.659}$ Where (L) is length = Clear vent opening in m + 0.70 m. (H) is height of gate in m = Clear vent height in m + 0.30 m (h) is head of water above sill of gate in m = FRL - Sill level</p> <p>2. Quantity of structural steel = 46.7 % of computed weight of 1 gate.</p> <p>WRD:</p> <p>7.18. Design, fabrication, supply, erection, testing and commissioning of automatic lifting beam with all accessories for handling, lowering and lifting of river sluice / canal sluice emergency gate including cost of all materials, machinery, labour, cutting, aligning, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and two coats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note:</p> <p>1. Weight of lifting beam in tonnes = $0.0090 \times (L^2 \times H \times h)^{0.659}$ Where (L) is length = Clear vent opening in m + 0.70 m. (H) is height of gate in m = Clear vent height in m + 0.30 m (h) is head of water above sill of gate in m = FRL - Sill level</p> <p>2. Quantity of structural steel = 76.3 % of computed weight of 1 beam.</p>	<p>components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>GATES AND HOISTS FOR BARRAGE :</p>	<p>tonne</p> <p>tonne</p>	<p>122800.00</p> <p>185700.00</p>
<p>WRD:</p> <p>7.19. Design, fabrication, supply, erection and commissioning of embedded parts consisting of sill beam, wheel tracks, seal seats, guide rails etc., with all accessories for vertical lift barrage gate including cost of all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and four coats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other components / materials.</p> <p>Note:</p> <p>1. Wt of 1 set of embedded parts in tonnes = $0.0055 (L^2 \times H \times h)^{0.716}$ Where (L) is length = Clear distance between piers in m + 1 m. (H) is total height of gate in m = FRL - Sill level + 0.20 m (h) is head of water above sill of gate in m = FRL - Sill level</p> <p>2. Quantity of structural steel = 82.3 % of computed weight of 1 set.</p>	<p>Design, fabrication, supply, erection and commissioning of embedded parts consisting of sill beam, wheel tracks, seal seats, guide rails etc., with all accessories for vertical lift barrage gate including cost of all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and four coats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other components / materials.</p>	<p>tonne</p>	<p>227900.00</p>

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
<p>WRD: 7.20.</p>	<p>Design, fabrication, supply, erection, testing and commissioning of fixed wheel type vertical lift gate consisting of skin plate, vertical and horizontal girders, wheels, stiffeners, lifting brackets, guide shoes, rubber seals etc., with all accessories for barrage including cost of all materials, machinery, labour, cutting, aligning, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and three coats of cold applied coal tar epoxy paint, seal fixing etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Weight of 1 gate in tonnes = $0.0335 (L^2 \times H \times h)^{0.716}$ Where (L) is length = Clear distance between piers in m + 1 m. (H) is total height of gate in m = FRL - Sill level + 0.20 m (h) is head of water above sill of gate in m = FRL - Sill level 2. Quantity of structural steel = 96.7 % of computed weight of 1 gate.</p>	tonne	124400.00
<p>WRD: 7.21.</p>	<p>Design, fabrication, supply, erection and commissioning of structural steel hoist bridge consisting of columns, beams, bracings, stiffeners, ties, chequered plate covering, hand railing, ladder etc., with all other accessories for supporting rope drum hoist for operating barrage gates including cost of all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, applying two coats of zinc chromate red oxide primer and three coats of approved synthetic enamel paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Columns (with bracings/anchors/stiffeners) : 400 kg per metre height Beams (with cross beams / stiffeners) : 400 kg per metre span Railing / Chequered plate / Ladder etc : 10 % of wt columns / beams Weight proposed includes all columns / beams for 1 hoist. 2. Quantity of structural steel = 97.8 % of computed weight for 1 span.</p>	tonne	110100.00
<p>WRD: 7.22.</p>	<p>Design, fabrication, supply, erection, testing and commissioning of adequate capacity rope drum hoist consisting of hoist platform, rope drums, shafts, pulleys, gear system, electric motor, electro-magnetic brake system, manual operation assembly, gate position indicator, control panel, wire rope etc., with all accessories for operating vertical lift roller gate for barrage including cost of all materials, machinery, labour, cutting, bending, aligning, anchoring, welding, finishing, cleaning, greasing,</p>		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	<p>applying two coats of zinc chromate red oxide primer and three coats of approved synthetic enamel paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Capacity of hoist in t with 25 % reserve capacity = 1.5 x Wt of gate. (Hoist capacity shall be rounded off to next 10 tonne) Weight of hoist with all accessories :100 kg per tonne capacity of hoist 2. Quantity of structural steel = 12.4 % of computed weight for 1 hoist.</p>	tonne capacity	40900.00
	<p>AUTOMATIC OUTFLOW REGULATING GATE FOR BARRAGE / ESCAPE:</p> <p>WRD: 7.23. Design, fabrication, supply, erection and commissioning of embedded parts consisting of sill beam, wall plates, seal seats, first stage anchors, anchor girders, anchor bars, trunnion supports etc., with all accessories for outflow regulating automatic gates for barrage/escape including cost of all all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and four coats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Weight of 1 set embedded parts in tonnes = $0.046 \times (L^2 \times H \times h)^{0.673}$ Where (L) is length = Clear distance between piers in m. (H) is height of gate in m = FSL - Sill level + 0.20 m (h) is head of water above sill of gate in m = FSL - Sill level 2. Quantity of structural steel = 94.0 % of computed weight for 1 set.</p>	tonne	175300.00
	<p>WRD: 7.24. Design, fabrication, supply, erection, testing and commissioning of automatic outflow regulating gate and fulcrum assembly consisting of skin plate, stiffeners, horizontal girders, trunnion assemblies, gate bracket, base plate, rolling surface assembly, link brackets, link assembly, rubber seals, seal clamps etc., with all accessories for barrage / escape including cost of all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and three coats of cold applied coal tar epoxy paint, seal fixing etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p>	tonne	133900.00

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
<p>Note: 1. Wt of gate & fulcrum assembly in tonnes = $0.1325 \times (L^2 \times H \times h)^{0.673}$ Where (L) is length = Clear distance between piers in m. (H) is height of gate in m = FSL - Sill level + 0.20 m (h) is head of water above sill of gate in m = FSL - Sill level 2. Quantity of structural steel = 94.2 % of computed weight for 1 gate.</p> <p>WRD: 7.25. Design, fabrication, supply, erection, testing and commissioning of hoisting cum damping system consisting of low level horizontal lever link, low level long actuating lever, high level vertical lever link, high level short actuating lever, high level hoisting bracket, axle for lever system, friction shoes, supporting box for shoes, rack assembly, ratchet pawl, supporting structure, bracket plate etc., with all accessories for outflow regulating automatic gate including cost of all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, applying one coat zinc rich epoxy primer and three coats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Weight of hoisting cum damping system in tonnes $= 0.0695 \times (L^2 \times H \times h)^{0.673}$ Where (L) is length = Clear distance between piers in m. (H) is height of gate in m = FSL - Sill level + 0.20 m (h) is head of water above sill of gate in m = FSL - Sill level 2. Quantity of structural steel = 94.2 % of computed weight for 1 gate.</p>	<p>GATES AND HOISTS FOR CANAL REGULATORS :</p> <p>WRD: 7.26. Design, fabrication, supply, erection and commissioning of embedded parts consisting of sill beam, wall plates, first stage anchors, anchor girders, anchor bars, trunnion supports, wire rope / pulley supports etc., with all accessories for canal regulator radial gates including cost of all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, applying one coat zinc rich epoxy primer and four coats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Weight of 1 set embedded parts in tonnes = $0.092 \times (L^2 \times H \times h)^{0.673}$ Where (L) is length = Clear distance between piers in m.</p>	tonne	188600.00
		tonne	142800.00

Item No.	Brief description of work	Unit	Basic Rate in ₹:
1	2	3	4
<p>WRD: 7.27.</p>	<p>(H) is height of gate in m = FSL - Sill level + 0.20 m (h) is head of water above sill of gate in m = FSL - Sill level 2. Quantity of structural steel = 95.1 % of computed weight for 1 set.</p> <p>Design, fabrication, supply, erection, testing and commissioning of radial gate consisting of skin plate, stiffeners, horizontal girders, sector arms, trunnion assemblies, tie beam, pulley supports, bracings, rubber seals, seal clamps etc., with all accessories for canal regulator including cost of all materials, machinery, labour, cutting, bending, aligning, anchoring, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and three coats of cold applied coal tar epoxy paint, seal fixing etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p>	tonne	139600.00
<p>Note:</p>	<p>1. Weight of 1 radial gate in tonnes = $0.1685 \times (L^2 \times H \times h)^{0.673}$ Where (L) is length = Clear distance between piers in m. (H) is height of gate in m = FSL - Sill level + 0.20 m (h) is head of water above sill of gate in m = FSL - Sill level 2. Quantity of structural steel = 94.3 % of computed weight for 1 gate.</p>		
<p>WRD: 7.28.</p>	<p>Design, fabrication, supply, erection, testing and commissioning of adequate capacity electrically operated rope drum hoist consisting of hoist platforms, rope drums, connecting shaft, gear system, electric motor, electro- magnetic brake system, control panel, pulleys, wire rope, manual operation system, railing, ladder etc., with all accessories for operating canal regulator radial gate including cost of all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, greasing, applying two coats of zinc chromate red oxide primer and three coats of approved synthetic enamel paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p>	tonne capacity	63200.00
<p>Note:</p>	<p>1. Capacity of hoist in t with 25 % reserve capacity = $2.00 \times Wt$ of gate. (Hoist capacity shall be rounded off to next 5 tonne) Weight of hoist with all accessories: 300 kg per tonne capacity of hoist 2. Quantity of structural steel = 66.4 % of computed weight for 1 hoist.</p>		
<p>WRD: 7.29.</p>	<p>Design, fabrication, supply, erection, testing and commissioning of adequate capacity manually operated rope drum hoist consisting of</p>		

Item No.	Brief description of work	Unit	Basic Rate in ₹:
1	2	3	4
	<p>hoist platforms, rope drums, connecting shaft, gear system, brake system, pulleys, wire rope, manual operation system, railing, ladder etc., with all accessories for operating canal regulator radial gate including cost of all materials, machinery, labour, cutting, aligning anchoring, welding, finishing, cleaning, greasing, applying two coats of zinc chromate red oxide primer and three coats of approved synthetic enamel paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Capacity of hoist in t with 25 % reserve capacity = 2.00 x Wt of gate. (Hoist capacity shall be rounded off to next 5 tonne) Weight of hoist with all accessories: 275 kg per tonne capacity of hoist 2. Quantity of structural steel = 66.4 % of computed weight for 1 hoist.</p> <p>WRD: Design, fabrication, supply, erection and commissioning of embedded parts (with top seal seat) consisting of sill beam, wheel tracks, seal seats, guide rails, groove lining upto top etc., with all accessories for vertical lift roller gate for canal escape / regulator including cost of all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and four coats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Wt of 1 set of embedded parts in tonnes = $0.1332 \times (L^2 \times H \times h)^{0.659}$ Where (L) is length = Clear vent width in m + 0.50 m. (H) is height of gate in m = Clear vent height in m + 0.20 m (h) is head of water above sill of gate in m = FSL - Sill level 2. Quantity of structural steel = 95.4 % of computed weight for 1 set.</p> <p>WRD: Design, fabrication, supply, erection, testing and commissioning of fixed wheel type vertical lift gate (with top seal) consisting of skin plate, stiffeners, horizontal and vertical girders, wheels, guide rollers, rubber seals etc., with all accessories for canal escape / regulator vent including cost of all materials, machinery, labour, cutting, aligning, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and three coats of cold applied coal tar epoxy paint, seal fixing etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts.</p>	<p>tonne capacity</p> <p>tonne</p>	<p>57400.00</p> <p>156200.00</p>

Item No.	Brief description of work	Unit	Basic Rate in ₹:
1	2	3	4
<p>Note:</p>	<p>including packing / forwarding charges for other materials.</p> <p>1. Weight of 1 gate in tonnes = $0.0888 (L^2 \times H \times h)^{0.659}$ Where (L) is length = Clear vent width in m + 0.50 m. (H) is height of gate in m = Clear vent height in m + 0.20 m (h) is head of water above sill of gate in m = FSL - Sill level</p> <p>2. Quantity of structural steel = 92.1 % of computed weight for 1 gate.</p>	tonne	144600.00
<p>WRD: 7.32.</p> <p>Note:</p>	<p>Design, fabrication, supply, erection, testing and commissioning of adequate capacity screw type hoist consisting of supporting structure, platform, railing, ladder etc., with all accessories for operating canal escape / regulator gate including cost of all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, greasing, applying two coats of zinc chromate red oxide primer and three coats of approved synthetic enamel paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>1. Capacity of hoist in t with 25 % reserve capacity = $2.50 \times Wt$ of gate. (Hoist capacity shall be rounded off to next 1 tonne) Weight of hoist with all accessories: 300 kg per tonne capacity of hoist</p> <p>2. Quantity of structural steel = 61.2 % of computed weight for 1 hoist.</p>	tonne capacity	38500.00
<p>WRD: 7.33.</p> <p>Note:</p>	<p>Design, fabrication, supply, erection and commissioning of embedded parts consisting of sill beam, wheel tracks, seal seats, guide rails, gate groove liners etc., with all accessories for canal escape / regulator stoplog gate including cost of all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, applying one coat zinc rich epoxy primer and four coats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>1. Wt of 1 set of embedded parts in tonnes = $0.0665 \times (L^2 \times H \times h)^{0.716}$ Where (L) is length = Clear distance between piers in m + 0.50 m. (H) is total height of stoplog gate in m = FSL - Sill level + 0.30 m (h) is head of water above sill of gate in m = FSL - Sill level</p> <p>2. Quantity of structural steel = 95.9 % of computed weight for 1 set.</p>	tonne	151100.00
<p>WRD: 7.34.</p>	<p>Design, fabrication, supply, erection, testing and commissioning of sliding type interchangeable stoplog gate elements consisting of skin plate, stiffeners, horizontal and vertical girders, lifting hooks, bronze</p>		

Item No.	Brief description of work	Unit	Basic Rate in ₹:
1	2	3	4
<p>Note:</p>	<p>padded slide blocks, guide shoes, rubber seals etc., with all accessories for canal regulator vent including cost of all materials, machinery, labour, cutting, aligning, welding, finishing, cleaning, applying one coats of zinc rich epoxy primer and three coats of cold applied coal tar epoxy paint, seal fixing etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>1. Wt of 1 set of stoplog elements in tonnes = $0.0995 (L^2 \times H \times h)^{0.716}$ Where (L) is length = Clear distance between piers in m + 0.50 m. (H) is total height of stoplog gate in m = FSL - Sill level + 0.30 m (h) is head of water above sill of gate in m = FSL - Sill level</p> <p>2. Quantity of structural steel = 98.5 % of computed weight for 1 gate.</p> <p>GATES AND HOISTS FOR PUMP HOUSE INTAKE:</p>	tonne	132100.00
<p>WRD:</p> <p>7.35.</p> <p>Note:</p>	<p>Design, fabrication, supply, erection and commissioning of embedded parts consisting of liners for trash rack grooves (for coarse and fine screens) with all accessories for pump house intake structure including cost of all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and four coats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>1. Wt of 1 set of embedded parts in tonnes = 100 to 125 kg / m height 2. Quantity of structural steel = 100.0 % of computed weight for 1 set.</p>	tonne	142500.00
<p>WRD:</p> <p>7.36.</p> <p>Note:</p>	<p>Design, fabrication, supply, erection and commissioning of trash racks consisting of a number of panels of suitable height with vertical trash bars welded to structural steel frame at wider interval and provided with weld mesh frame for pump house intake structure including cost of all materials, machinery, labour, cutting, aligning, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and four coats cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>1. Wt of trash rack panels for 1 vent in t = $0.0375 \times (L^2 \times H \times h)^{0.716}$ Where (L) is length = Clear distance between piers in m + 0.20 m.</p>	tonne	105400.00

Item No.	Brief description of work	Unit	Basic Rate in ₹:
1	2	3	4
<p>WRD: 7.37.</p>	<p>(H) is total height of trash rack panels in m (h) is head of water above sill of trash rack in m = FSL - Sill level 2. Quantity of structural steel = 100.0 % of computed weight.</p> <p>Design, fabrication, supply, erection and commissioning of embedded parts consisting of sill beam, wheel tracks, seal seats, guide rails, gate groove liners etc., with all accessories for pump house intake stoplog gate including cost of all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, applying one coat zinc rich epoxy primer and four coats of cold applied coal tar epoxy paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Wt of 1 set of embedded parts in tonnes = $0.0665 \times (L^2 \times H \times h)^{0.716}$ Where (L) is length = Clear distance between piers in m + 0.50 m (H) is total height of stoplog gate in m = FSL - Sill level + 0.30 m (h) is head of water above sill of gate in m = FSL - Sill level 2. Quantity of structural steel = 95.9 % of computed weight for 1 set.</p>	tonne	151100.00
<p>WRD: 7.38.</p>	<p>Design, fabrication, supply, erection, testing and commissioning of sliding type stoplog gate consisting of skin plate, horizontal and vertical girders, lifting hooks, bronze padded slide blocks, stiffeners, guide shoes, rubber seals etc., with all accessories for pump house intake vent including cost of all materials, machinery, labour, cutting, aligning, welding, finishing, cleaning, applying one coats of zinc rich epoxy primer and three coats of cold applied coal tar epoxy paint, seal fixing etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Wt of 1 stoplog gate in tonnes = $0.0995 (L^2 \times H \times h)^{0.716}$ Where (L) is length = Clear distance between piers in m + 0.50 m (H) is total height of stoplog gate in m = FSL - Sill level + 0.30 m (h) is head of water above sill of gate in m = FSL - Sill level 2. Quantity of structural steel = 98.5 % of computed weight for 1 gate.</p>	tonne	132100.00
<p>WRD: 7.39.</p>	<p>Design, fabrication, supply, erection and commissioning of electrically operated mono-rail hoist assembly consisting of electric motor, rope drum, gear system, wire rope with lifting attachment, festoon cabling etc., with all accessories for operating pump house stop-log gate including cost of all materials (excluding providing mono-rail hoist</p>		

Item No.	Brief description of work	Unit	Basic Rate in ₹:
1	2	3	4
	<p>supporting structure and mono-rail with fixtures), machinery, labour, cleaning, greasing etc., complete as per specifications and approved drawings with all leads and lifts.</p> <p>Note: 1. Hoist capacity = 1.50 x weight of stop-gate</p> <p>WRD: Design, fabrication, supply, erection and commissioning of structural steel hoist supporting structure consisting of columns, cross beams, bracings, stiffeners, mono-rail with fixtures etc., with all accessories for electrically operated monorail rope drum hoist for operating pump house intake vertical lift gates including cost of all materials, machinery, labour, cutting, aligning, anchoring, welding, finishing, cleaning, applying two coats of zinc chromate red oxide primer and three coats of synthetic enamel paint etc., complete as per specifications and approved drawings with lead upto 1 km and all lifts for structural steel components and all leads and lifts including packing / forwarding charges for other materials.</p> <p>Note: 1. Columns with bracings / anchors / stiffeners: 150 kg per metre height. Weight proposed above is for each intake vent 2. Mono rail beam with cross beams : 100 kg per metre length 3. Quantity of structural steel = 97.8 % of computed weight for 1 span.</p> <p>WRD: Design, fabrication, supply, erection, testing and commissioning EOT crane consisting of double girder box type construction, rail mounted end carriages with long and cross travel arrangement, main and auxiliary hoists of specified capacity, rails, pendant control, gear boxes, electric motors, brakes, rope drums, wire ropes, sheaves, end buffer stoppers, pendant operated DSL bus bars with all accessories for main and auxiliary hoists for handling pumps and accessories in pump house including cost of all materials, machinery, labour, cutting, aligning, welding, finishing, cleaning, greasing, applying two coats of zinc chromate red oxide primer and three coats of synthetic enamel paint etc., complete as per specifications and approved drawings with all leads and lifts .</p> <p>Note: 1. EOT crane Main hoist capacity = 1.25 x Maximum lifting load in tonne 2. EOT crane auxiliary hoist capacity = 10 % of main hoist 3.. Rate for EOT crane shall be based on capacity of main hoist.</p>	<p>tonne capacity</p> <p>tonne</p> <p>tonne capacity</p>	<p>51800.00</p> <p>110100.00</p> <p>173300.00</p>

WATER RESOURCES DEPARTMENT

CHAPTER - WRD:8

PRILIMINARY AND MAINTENANCE WORKS SCHEDULE OF RATES FOR THE YEAR : 2018-19

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WRD: 8. PRELIMINARY & MAINTENANCE WORKS
NOTES ON SCHEDULE OF RATES

1. All notes under General Notes on Schedule of Rates and Notes on Lead, Lift, Loading and un-loading charges are applicable to Preliminary and Maintenance Works also to the extent they are relevant.
2. The area where jungle growth is thin or the area where the jungle growth is thick with noticeable vacant spots but not large enough to exclude them from measurements shall be classified as thin jungle.
3. The area where the jungle growth is thick without noticeable vacant spots shall be classified as thick jungle.
4. Areas of large vacant spots and areas occupied by structures shall be excluded from measurement for jungle clearance works.
5. In case of jauliflora clearance girth means spread of the bush.
6. Unless otherwise specified the basic rates are inclusive of all lifts.
7. Unless otherwise specified the basic rates are inclusive of standard finishing required for concrete surface.
8. For embankment in breached section 1 km initial lead is considered in the basic rates. As no storing / stacking and re-handling of materials is involved for these works lead charges for additional lead shall be worked out for total lead including initial lead of 1 km and then the cost of first km lead shall be deducted. No loading and un-loading charges shall be added as the additional lead does not involve re-handling of materials.
 Example : For soil.

Total lead for soil from approved borrow area	: 2 km
Initial lead included in the basic rate in the SR	: 1 km
Additional lead charges : Lead charges for 2 km	` : 78.60
Less Lead charges for 1 km	` : <u>-66.60</u>
Additional lead charges / cum	` : 12.00
Quantity of soil required as per statement of requirement of material	1.20 cum
Additional lead charges to be added to basic rate	` : 14.40

 No loading and un-loading charges shall be added.
9. The quantities of materials including wastage, requirements for any incidentals etc., for working out additional lead charges shall be as per the statement of requirement of materials under this section.

WRD: 8. PRELIMINARY & MAINTENANCE WORKS
QUANTITY OF MATERIALS FOR ADDITIONAL LEAD CHARGES

Item No.	Description of work	Unit	Quantity of materials required per unit quantity of work			
			Murum cum	Cement kg	Sand / FA cum	Stone cum
WRD: 8.12	200x200x750 mm boundary stone fixing	Each	0.055	---	---	0.030
			Stone cum	Cement kg	Sand / FA cum	CA cum
8.13	Temporary BM in CC 1:4:8	Each	0.030	9.10	0.025	0.050
8.14	Permanent BM in CC 1:3:6 with UCR wall	Each	0.320	262.00	0.600	1.000
8.16	Reconstruction of revetment	sqm	---	---	0.153	---
8.17	Reconstruction of rock-toe	cum	---	---	0.098	---
8.18	Resetting Shahbad slabs in CM 1:3	sqm	---	1.00	0.002	---
			Soil cum	Cement kg	Sand / FA cum	CA cum
8.22	Impervious hearting with borrow area soil	cum	1.20	---	---	---
8.23	Semipervious casing with borrow area soil	cum	1.20	---	---	---
8.24	Impervious hearting using dump area soil	cum	1.20	---	---	---
8.25	Semipervious casing using dump area soil	cum	1.20	---	---	---
8.30	Cleaning gates by sand blasting	sqm	---	---	0.300	---
8.39	40 mm th shotcreting in CC 1:2:2 propn	sqm	---	25.50	0.031	0.032

Notes:

- The quantities of materials specified in the above table are for loose volume.
- The quantity of cement for cement concrete items includes requirement of cement for any incidental works such as mortar layer at lift joints, repair of honeycombs etc.
- The quantities of materials are inclusive of wastage as under:

Cement	1.00 percent.
Sand / Fine aggregate	2.00 percent.
Coarse aggregate	2.00 percent.
Stones / Stone chips	2.00 percent.

WRD:8. PRELIMINARY & MAINTENANCE WORKS
AMOUNT OF ROYALTY CHARGES INCLUDED IN ITEM RATES

Item No.	Description of work	Unit	Amount of Royalty charges included in item rate in ` :			
			Earth	Sand	CA	Stone
WRD:.						
8.12	200x200x750 mm boundary stone fixing	Each	1.40	---	---	4.75
8.13	Temperary BM in CC 1:4:8	Each	---	2.60	5.40	4.75
8.14	Permanent BM in CC 1:3:6 with UCR wall	Each	---	61.90	108.00	50.50
8.16	Reconstruction of revetment	sqm	---	15.80	---	---
8.17	Reconstruction of rock-toe	cum	---	10.10	---	---
8.18	Resetting Shahbad slabs in CM 1:3	sqm	---	0.20	---	---
8.22	Impervious hearting with borrow area soil	cum	30.00	---	---	---
8.23	Semipervious casing with borrow area soil	cum	30.00	---	---	---
8.24	Impervious hearting using dump area soil	cum	30.00	---	---	---
8.25	Semipervious casing with dump area soil	cum	30.00	---	---	---
8.30	Cleaning gates by sand blasting	sqm	---	30.95	---	---
8.39	40 mm th shotcreting in CC 1:2:2 propn	sqm	---	3.20	3.45	---

Notes:

1. In the Govt notification on royalty charges the rates for Earth / Sand / Building stone are on weight basis. For converting the rate per tonne to rate per cum for working-out the royalty charges for various work items following density values are considered as per the circular of Mines & Geology No:GA.BU.E/D.C.B./KA.GA.GU./RA.PA.KO/ 2013-14 dt:13-03-2014.

Sand / Fine aggregate (loose volume)	: 1.72 tonne per cum
Stones/stone chips (loose volume) :	2.63 tonne per cum
Coarse aggregates (loose volume) :	1.80 tonne per cum
Soil (compacted to 95 percent density control)	: 1.50 tonne per cum

WRD: 8. PRELIMINARY AND MAINTENANCE WORKS
SCHEDULE OF RATES
FOR THE YEAR : 2018-19

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	JUNGLE CLEARANCE :		
WRD: 8.1.1	Clearing thin jungle growth (more than 50 percent open space) including bushes upto 300 mm / parthenium and other weeds including burning or disposing off the same as directed etc., complete.	sqm	1.90
WRD: 8.1.2	Clearing thick jungle growth (less than 50 percent open space) including bushes upto 300 mm / parthenium and other weeds including burning or disposing off the same as directed etc., complete.	sqm	3.00
WRD: 8.2.1	Removing stumps, tree roots, roots of bamboo clusters etc., upto 1.50 m girth including excavation, stacking materials neatly and levelling the surface etc., complete with lead upto 50 m and all lifts.	Each	68.00
WRD: 8.2.2	Removing stumps, tree roots, roots of bamboo cluster etc., with girth above 1.50 m and upto 3.00 m including excavation, stacking materials neatly and levelling area etc., complete with lead upto 50 m and all lifts.	Each	152.00
WRD: 8.2.3	Removing stumps, tree roots, roots of bamboo clusters etc., with girth above 3.00 m and upto 5.00 m including excavation, stacking materials neatly and levelling area etc., complete with lead upto 50 m and all lifts.	Each	488.00
Note:	For every 0.50 m increase in girth beyond 5.00 m add	Each	76.00
WRD: 8.3.	Cutting and stacking bamboos excluding removing stumps and roots etc., complete with lead upto 50 m and all lifts.	Each	20.00
WRD: 8.4.1	Cutting and removing jauliflora bushes upto 1.50 m girth excluding removal of stumps and including burning or disposing off the materials as directed with lead upto 50 m and all lifts.	Each	19.00
WRD: 8.4.2	Cutting and removing jauliflora bushes above 1.50 m upto 3.00 m girth excluding removal of stumps and including burning or disposing off the materials as directed with lead upto 50 m and all lifts.	Each	38.00
WRD: 8.5.1	Cutting trees above 0.30 m and upto 0.60 m girth excluding removal of stumps and including stacking materials neatly as directed with lead		

PRILIMINARY AND MAINTENANCE WORKS

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	upto 50 m and all lifts.	Each	127.00
WRD: 8.5.2	Cutting trees above 0.60 m and upto 1.20 m girth excluding removal of stumps and including stacking materials neatly as directed with lead upto 50 m and all lifts.	Each	443.00
WRD: 8.5.3	Cutting trees above 1.20 m and upto 1.80 m girth excluding removal of stumps and including stacking materials neatly as directed with lead upto 50 m and all lifts.	Each	886.00
WRD: 8.5.4	Cutting trees above 1.80 m and upto 2.40 m girth excluding removal of stumps and including stacking materials neatly as directed with lead upto 50 m and all lifts.	Each	1771.00
WRD: 8.5.5	Cutting trees above 2.40 m and upto 3.00 m girth excluding removal of stumps and including stacking materials neatly as directed with lead upto 50 m and all lifts.	Each	2861.00
Note:	For every 0.50 m increase in girth of tree beyond 3.00 m add	Each	1007.00
WRD: 8.6	Cutting and burning or disposing off Apu / Jundu from marshy areas as directed with lead upto 50 m and all lifts.	sqm	7.05
	PRELIMINARY WORKS :		
WRD: 8.7.	Earthwork excavation for trial pits /borrow pits and other investigation works in all kinds of soil including boulders upto 30 cm diameter and disposing off the excavated soil as directed with lead upto 10 m and lift upto 1.50 m.	cum	298.00
Note:	For excavation beyond 1.50 m depth for every 1.5 m depth add	cum	16.00
WRD: 8.8.	Earthwork excavation for trial pits/ borrow pits and other investigation works in soft rock including disposing off the excavated stuff as directed with lead upto 10 m and lift upto 1.50 m.	cum	436.00
Note:	For excavation beyond 1.50 m depth add for every 1.50 m depth	cum	17.00
WRD: 8.9.	Conducting geophysical investigation studies by electrical resistivity method in stages of 5 m or as directed for sub-surface details such as depth of formations, shear zones, classification of strata, depth of water table etc., including cost of all materials, equipments, labour, analysing and reporting details of field studies conducted etc., complete excluding cost of transportation arrangements.	stage	355.00

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
<p>WRD: 8.10.</p>	<p>Drilling 80 mm dia hole through over-burden using casing shoe bit vertical or inclined upto 10 degrees to vertical as directed including cost of all materials, machinery, labour, water charges, reaming, collection of wash samples at suitable intervals, logging and labelling, supplying honne wood core box, fixing casing pipes (excluding cost of casing pipes) etc., complete for depth upto 30 m from surface.</p> <p>Note: 1. For drilling through over-burden beyond 30 m from surface increase the rate per Rm by 10 percent. 2. For providing HDPE or light black MS casing pipe add the cost of pipe per Rm.</p>	Rm	1347.00
<p>WRD: 8.11.1</p>	<p>Drilling 76 mm dia (NX) core hole in hard rock using diamond core bit vertical / inclined upto 10 degree to vertical as directed including cost of all materials, machinery, labour, water charges, collection of core samples, logging and labelling samples, supplying honne wood core box including cement grouting and redrilling in case of collapse of sides (excluding cost of cement for grouting) etc., complete for depth upto 30 m from surface.</p> <p>Note: 1. For drilling in hard rock beyond 30 m upto 60 m from surface increase the basic rate per Rm for drilling upto 30 m by 25 percent. 2. For drilling in hard rock beyond 60 m upto 90 m from surface increase the basic rate per Rm for drilling upto 30 m by 40 percent.</p>	Rm	6522.00
<p>WRD: 8.11.2</p>	<p>Drilling 47 mm dia (BX) core hole in hard rock using diamond core bit vertical / inclined upto 10 degree to vertical as directed including cost of all materials, machinery, labour, water charges, collection of core samples, logging and labelling samples, supplying honne wood core box including cement grouting and redrilling in case of collapse of sides (excluding cost of cement for grouting) etc., complete for depth upto 30 m from surface.</p> <p>Note: 1. For drilling in hard rock beyond 30 m upto 60 m from surface increase the basic rate per Rm for drilling upto 30 m by 25 percent. 2. For drilling in hard rock beyond 60 m upto 90 m from surface increase the basic rate per Rm for drilling upto 30 m by 40 percent.</p>	Rm	6266.00
<p>WRD: 8.12.</p>	<p>Providing and fixing 200 x 200 x 750 mm roughly dressed boundary / demarcation / chainage/ arrow stones including cost of all materials, labour, engraving marks, excavating pit, fixing in position, murum filling etc., complete with lead upto 50 m and all lifts.</p>	Each	193.00

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
<p>WRD: 8.13.</p>	<p>Providing and fixing 200 x 200 x 750 cm size temporary bench mark stone in CC 1 : 4 : 8 proportion by volume using 40 mm down clean,hard, graded aggregates including cost of all materials, labour, dressing top surface of stone and engraving BM data, excavating pit, batching and mixing concrete,placing concrete around stone and compacting,finishing, curing etc., complete with lead upto 50 m and all lifts.</p> <p>Note: For providing 300 mm thick compacted murum bed in B.C soil area including additional excavation for thickness of murum bedding add.</p>	<p>Each</p> <p>Each</p>	<p>628.00</p> <p>16.00</p>
<p>WRD: 8.14.</p>	<p>Providing and fixing 200 x 200 x 750 mm size permanent bench mark stone in 900 x 900 x 1200 mm size block of CC 1 :3 : 6 proportion by volume using 40 mm down clean, hard, graded aggregates and providing 350 mm thick 300 mm high protective wall of UCR masonry in CM 1 : 5 proportion by volume around BM stone, including cost of all materials, labour, dressing top surface of stone and engraving BM data on top surface, excavation of pit, batching and mixing concrete and mortar, placing concrete around stone and compacting, packing mortar and wedging stone chips into masonry joints, finishing, curing etc., complete with lead upto 50 m and all lifts.</p> <p>MAINTENANCE WORKS :</p>	<p>Each</p>	<p>8175.00</p>
<p>WRD: 8.15.</p>	<p>Removing dry stone rock- toe / rivetment and filter layers below rock-toe / rivetment including stacking all materials separately as directed with lead upto 50 m and all lifts.</p>	<p>cum</p>	<p>268.00</p>
<p>WRD: 8.16.</p>	<p>Re-constructing 600 mm thick hand packed rough stone revetment with through stones at 1.50 m c/c over a backing of 450 mm thick graded filter media consisting of sand, 10 mm and 40 mm down graded aggregates satisfying specified filter criteria laid in layers of 150 mm thick each using sand from approved quarry and stones and filter aggregates obtained from revetment removed for re-construction including cost of sand, labour, laying filter and stones to specified slopes, wedging with stone chips, finishing surface etc., complete with lead upto 50 m and all lifts.</p>	<p>sqm</p>	<p>356.00</p>
<p>WRD: 8.17.</p>	<p>Re-constructing dry rubble rock-toe including filter media below / behind rock-toe consisting of sand 20 mm and 80 mm down graded aggregates satisfying specified filter criteria laid in layers of 150 mm thick each using sand from approved quarry and stones and filter aggregates obtained from rock-toe removed for re-construction including</p>		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	cost of sand, labour, laying filter and stones to specified slopes, wedging with stone chips, finishing surface etc., complete with lead upto 50 m and all lifts.	cum	395.00
WRD: 8.18.	Removing and resetting disturbed Yarguntla /Shahabad /Talikot /PCC / other types of slab lining in CM 1 : 3 proportion by volume with flush pointing in CM 1 : 3 proportion by volume including cost of all materials, 'labour, batching and mixing mortar, finishing, curing etc., complete with lead upto 50 m and all lifts.	sqm	75.00
WRD: 8.19.	Removing and resetting disturbed dry rubble / size stone pitching 250 to 450 mm thick including packing and wedging with stone chips, finishing surface etc., complete with all leads and lifts.	sqm	71.00
WRD: 8.20.	Removing and refixing disturbed chainage/demarcation/hectometre / guard stones including excavation, back filling after re-fixing stone etc. complete with all leads and lifts.	Each	92.00
WRD: 8.21.	Removing and refixing disturbed km stone /sign board / hecto-metre stone etc., including excavation, back filling with available stuff after refixing, forming base platform of size 900 x 900 x 75 mm including watering, ramming etc complete with all leads and lifts.	Each	206.00
WRD: 8.22.	Providing hearting embankment for breached / damaged portion of canal using selected impervious soil from approved borrow areas in layers of 100 to 150 mm (before compaction) including cost of all materials, machinery, labour, all operations such as collection of soil, spreading soil in layer of specified thickness, sorting out, breaking clods, sectioning sides / edges, watering, compacting each layer to density control of not less than 95 percent or as stipulated using power roller or pneumatic / vibrating plate compactors etc., complete with lead upto 1 km and all lifts.	cum	176.00
WRD: 8.23.	Providing casing embankment for breached / damaged portion of canal using pervious /semi-pervious soil from approved borrow areas in layers of 100 to 150 mm (before compaction) including cost of all materials, machinery, labour, all operations such as collection of soil, spreading soil in layer of specified thickness, sorting out, breaking clods, sectioning sides / edges, watering, compacting each layer to density control of not less than 95 percent or as stipulated using power roller		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	or pneumatic / vibrating plate compactors etc., complete with lead upto 1 km and all lifts.	cum	194.00
WRD: 8.24.	Providing hearting embankment for breached / damaged portion of canal using selected impervious soil from approved dump areas in layers of 100 to 150 mm (before compaction) including cost of all materials, machinery, labour, all operations such as collection of soil, spreading soil in layer of specified thickness, sorting out, breaking clods, sectioning sides / edges, watering, compacting each layer to density control of not less than 95 percent or as stipulated using power roller or pneumatic / vibrating plate compactors etc., complete with lead upto 1 km and all lifts.	cum	176.00
WRD: 8.25.	Providing casing embankment for breached / damaged portion of canal using pervious / semi-pervious soil from approved dump areas in layers of 100 to 150 mm (before compaction) including cost of all materials, machinery, labour, all operations such as collection of soil, spreading soil in layer of specified thickness, sorting out, breaking clods, sectioning sides / edges, watering, compacting each layer to density control of not less than 95 percent or as stipulated using power roller or pneumatic / vibrating plate compactors etc., complete with lead upto 1 km and all lifts.	cum	186.00
WRD: 8.26.	Repairing rain cuts / resectioning canal slopes to required lines and grades as directed using available canal side soil including dressing, packing soil, breaking clods, watering, tamping etc., complete with all leads and lifts.	sqm	4.90
WRD: 8.27.	Cleaning drainage gallery, adits, instrumentation galleries etc., by scrubbing / brushing including chiselling and removing leached lime deposit and disposing off all the waste material out side adits in specified location as directed etc., complete with all leads and lifts.	Rm	51.00
WRD: 8.28.	Cleaning dam parapet inner face and top using oxalic acid and water by scrubbing / brushing and washing to remove all surface coatings etc., complete .	Rm	46.00
WRD: 8.29.	Cleaning gates / hoists / embedded parts for re-painting by removing rust, old paint, grease etc., by using wire brush , scrubber, rust remover including cost of all materials, labour, machinery, scaffolding, applying a coat of rust inhibitive compound etc., complete.	sqm	77.00

PRILIMINARY AND MAINTENANCE WORKS

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
WRD: 8.30.	Cleaning gates / hoists / embedded parts to expose fresh metal surface for repainting by sand blasting method as per specifications including cost of all materials, labour, machinery, scaffolding, applying a coat of rust inhibitive compound etc., complete with lead for sand upto 1 km and all lifts.	sqm	533.00
WRD: 8.31.	Providing and applying two coats of zinc chromate red oxide /alluminium primer paint of approved quality to hoist supporting structures /hoists / moving gantry cranes / railings etc., including cost of all materials, labour, removing rust, cleaning surface, scaffolding etc., complete with all leads and all lifts.	sqm	111.00
WRD: 8.32.	Providing and applying two coats of cold applied coal tar epoxy paint of approved quality 100 micron dry film thickness each coat to embedded parts / gates / lifting beam etc., including cost of all materials, labour, removing rust, cleaning surface, scaffolding etc., complete with all leads and all lifts.	sqm	199.00
WRD: 8.33.	Providing and applying two coats of first quality synthetic enamel paint of approved colour to hoist supporting structures / hoists / moving gantry cranes / railings etc., including cost of all materials, labour, labour, removing rust, cleaning surface, scaffolding etc., complete with all leads and all lifts.	sqm	130.00
WRD: 8.34.	Excavation and removal of silt and silt mixed with sand from canal bed in dry condition including disposing off the same in spoil bank or on the canal embankment in layers as directed etc., complete with lead upto 50 m and all lifts.	cum	215.00
WRD: 8.35.	Excavation and removal of silt and silt mixed with sand in slussy condition from canal bed including disposing off the same in spoil bank or on the canal embankment in layers as directed etc., complete with lead upto 50 m and all lifts.	cum	269.00
WRD: 8.36.1	Removing and hauling all kinds of soil / soft rock including boulders upto 0.6 m diameter slipped due to natural causes and disposing off the same in specified dump area or as directed including cost of all materials, labour, forming steps / rampways and all other ancillary operations etc., complete with lead upto 50 m and lift upto 1.5 m.	cum	186.00
Note:	1. The rate under this item is for unit quantity of soil / soft rock in slipped condition.		

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
<p>WRD: 8.36.2</p> <p>Note:</p>	<p>2. The rate under this item shall be adopted where the material can be disposed off within 50 m lead or where the slipped zone is inaccessible for disposal of material by mechanical mode.</p> <p>3. The wieghted average rate applicable to entire quantity based on rates provided under items (36.1) and (37.1) may be considered where the slipped material consists of mixture of soil / soft rock and hard rock.</p> <p>Removing and hauling all kinds of soil / soft rock including boulders upto 0.6 m diameter slipped due to natural causes and disposing off the same in specified dump area or as directed including cost of all materials, machinery, labour, rampways and all other ancillary operations etc., complete with lead upto 1 km and all lifts.</p> <p>1. The rate under this item is for unit quantity of soil / soft rock in slipped condition.</p> <p>2. The wieghted average rate applicable to entire quantity based on rates provided under items (36.2) and (37.2) may be considered where the slipped material consists of mixture of soil / soft rock and hard rock.</p>	<p>cum</p>	<p>81.00</p>
<p>WRD: 8.37.1</p> <p>Note:</p>	<p>Removing and hauling hard rock of all toughness including boulders above 0.6 m diameter slipped due to natural geological causes including breaking large fragments by blasting if necessary and disposing off the same in specified dump area or as directed including cost of all materials, labour, forming steps / rampways and all other ancillary operations etc., complete with lead upto 50 m and lift upto 1.5 m.</p> <p>1. The rate under this item is for unit quantity of hard rock in slipped condition.</p> <p>2. The rate under this item shall be adopted where the material can be disposed off within 50 m lead or where the slipped zone is inaccessible for disposal of material by mechanical mode.</p> <p>3. The wieghted average rate applicable to entire quantity based on rates provided under items (36.1) and (37.1) may be considered where the slipped material consists of mixture of soil / soft rock and hard rock.</p>	<p>cum</p>	<p>314.00</p>
<p>WRD: 8.37.2</p>	<p>Removing and hauling hard rock of all toughness including boulders above 0.6 m diameter slipped due to natural geological causes including breaking large fragments by blasting if necessary and disposing off the same in specified dump area or as directed including cost of all materials, machinery, labour, rampways and all other ancillary operations etc., complete with lead upto 1 km and all lifts.</p>	<p>cum</p>	<p>212.00</p>

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
<p>Note:</p>	<p>1. The rate under this item is for unit quantity of hard rock in slipped condition.</p> <p>2. The wieghted average rate applicable to entire quantity based on rates provided under items (36.2) and (37.2) may be considered where the slipped material consists of mixture of soil / soft rock and hard rock.</p>		
<p>WRD: 8.38.</p>	<p>Cleaning concrete / masonry / rock surface for guniting / shotcreting by sand blasting method and cleaning by air and water jets after sand blasting as per specifications including cost of all materials, machinery, labour, scaffolding etc., complete with lead for sand upto 1 km and all lifts.</p>	<p>sqm</p>	<p>447.00</p>
<p>WRD: 8.39.</p>	<p>Providing 40 mm thick shotcreting in layers to concrete / masonry surface in cement concrete 1 : 2 : 2 proportion by weight using 6 mm down clean, hard, graded aggregates including cost of all materials, machinery, labour, cleaning joints /surface, scaffolding wherever required, curing and all other ancillary operations etc., complete with lead upto 1 km and all lifts.</p>	<p>sqm</p>	<p>1481.00</p>
<p>WRD: 8.40.</p>	<p>Drilling 25 mm / 32 mm dia. Holes vertical or inclined in concrete / masonry / rock by percussion drilling method using jack hammer as directed to specified depth including cost of all materials, machinery, labour, cleaning holes etc., complete.</p>	<p>Rm</p>	<p>276.00</p>
<p>WRD: 8.41.</p>	<p>Providing and applying one coat of zinc rich epoxy primer paint (zinc conten 85 %) of approved quality 40 micron dry film thickness to gates / embedded parts / hoist components including cost of all materials, labour, removing rust, cleaning surface, scaffolding etc., complete with all leads and all lifts.</p>	<p>sqm</p>	<p>107.00</p>
<p>WRD: 8.42.</p>	<p>Providing and applying two coats of anti-corrosive bituminous black paint of approved quality 40 micron dry film thickness each coat to gate components such as horizontal girders /sector arms /bracings /trunnion assembly / yoke girders / stiffeners / foot bridge etc., including cost of all materials, labour, removing rust, cleaning surface, scaffolding etc., complete with all leads and all lifts.</p>	<p>sqm</p>	<p>109.00</p>
<p>WRD: 8.43.</p>	<p>Supplying and fixing bulb type uncladded rubber seals and hot dipped G.I bolts / nuts / washers of approved quality including cost of all materials, labour, removing existing worn out / damaged bulb type</p>		

PRILIMINARY AND MAINTENANCE WORKS

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
	rubber seals from gates, cleaning surface, making holes in new seals, fixing new seals / bolts / nuts / washers tightly in position, scaffolding etc., complete with all leads and all lifts.	Rm	1189.00
WRD: 8.44.	Supplying and fixing bulb type teflon uncladded rubber seals and hot dipped G.I bolts / nuts / washers of approved quality including cost of all materials, labour, removing existing worn out / damaged bulb type rubber seals from gates, cleaning surface, making holes in new seals, fixing new seals / bolts / nuts / washers tightly in position, scaffolding etc., complete with all leads and all lifts.	Rm	1993.00
WRD: 8.45.	Supplying and fixing flat rubber seals and hot dipped G.I bolts / nuts / washers of approved quality including cost of all materials, labour, removing existing worn out / damaged flat type rubber seals from gates cleaning surface, making holes in new seals, fixing new seals / bolts / nuts / washers tightly in position, scaffolding etc., complete with all leads and all lifts.	Rm	1014.00
WRD: 8.46.	Supplying and fixing Z- type rubber seals and hot dipped G.I bolts / nuts / washers of approved quality including cost of all materials, labour, removing existing worn out / damaged Z- type rubber seals from gates cleaning surface, making holes in new seals, fixing new seals / bolts / nuts / washers tightly in position, scaffolding etc., complete with all leads and all lifts.	Rm	1436.00
WRD: 8.47.	Providing and fixing 100 x 50 mm 10 gauge non-galvanized weld mess to concrete / masonry surface including cost of all materials, machinery, labour, fixing weld mesh to exposed reinforcement bars or by driving rafter nails, scaffolding etc., complete with all leads and lifts.	sqm	324.00
WRD: 8.48.	Removing PCC /Shahbad slabs from the side lining of canal carefully and stacking the same on road side / canal bed as directed with lead upto 50 m and all lifts.	sqm	54.00
WRD: 8.49.	Providing and filling / replacing gear oil of approved quality upto the required gauge level for Radicon Gear unit of hoists / gantry cranes including cost of all materials, machinery, labour etc., complete., with all leads and lifts.	ltr	285.00
WRD:	Providing and applying grease of approved quality to gate and hoist		

PRILIMINARY AND MAINTENANCE WORKS

Item No.	Brief description of work	Unit	Basic Rate in `:
1	2	3	4
8.50.	components requiring greasing as part of the annual maintenance using grease gun wherever necessary including cost of all materials,machinery, labour, scaffolding etc., complete with all leads and lifts.	kg	306.00
WRD: 8.51.	Providing and applying cardium compound of approved quality to wire ropes of hoists / gantry cranes as part of the annual maintenance including cost of all materials, machinery, labour etc., complete with all leads and lifts.	kg	153.00

