



**WATER SECURITY & PUBLIC HEALTH ENGINEERING DEPARTMENT
GOVERNMENT OF SIKKIM.
GANGTOK**

Detail Project Report

**“EXTENSION OF SEWERAGE SCHEME FOR JORETHANG TOWN AND ITS
SURROUNDING AREAS IN SOUTH SIKKIM.” (PHASE II)**

ESTIMATED COST :- ₹ 38,93,56,398/-

JULY 2018'



WATER SECURITY & PUBLIC HEALTH ENGINEERING DEPARTMENT
GOVERNMENT OF SIKKIM

TECHNICAL REPORT

Name of Work: "Extension of sewerage scheme for Jorethang town and its surrounding areas in South Sikkim (Phase II)"

Estimated Cost: 38,93,56,398/- (Rupees thirty eight crores ninety three lakhs fifty six thousand three hundred and ninety eight)only.

Background:

State Government is working hard and reluctantly on providing every town in the State with sewerage facility. Jorethang town is one of the towns having given a priority after State capital Gangtok for the same. The project prepared by WS&PHE Department on setting up of sewerage system was sanctioned by the State Level Steering Committee of Urban Development Scheme for Small and Medium Towns (UIDSSMT) of the Central Government on 30th November 2007 amounting to ` 480 lakhs.

Reportedly, the time difference between the formulation of DPR and actual sanction laid to hike in the cost of Ductile Iron pipes which were to be used as the main sewer line. Since it has been 11 long years after the sanction of the mentioned scheme, there has been a rapid growth in the population of Jorethang town and its surrounding areas. Presently, the work which seems to be in the construction stage for a very long period of time (2009) due to land issues both for laterals as well as for the Sewerage treatment Plant (STP), was limited to providing a main sewer line along the Circular Road, i/e covering only around 20% of the current town area.

The civil works were tendered at a cost of ` 121.15 lakhs and awarded to one of the State Government contractors Shri Dilip Agarwal on 23rd February 2009. The actual date of completion was on 2nd March 2011 but due to land issues and public interferences in MajhiGaon areas, the laying of laterals could not be taken up till date. Also the land earmarked for setting up of STP could not be procured and for these reasons, the project seems to have been inordinately delayed.

Proposal:

As per the vision of State Government, it becomes inevitable that the mentioned town be provided with an efficient sewerage system. After detailed field survey / data collections on present number of households and population of Jorethang town, this Phase II DPR has been framed which incorporates a new site finalised for STP at Chirbirey Taar (Government land), which clearly solves the restrictions on land issues from the public holdings.

The DPR totals to ₹ 3893.56 lakhs which provides providing / fitting and laying of DI piped(k9) 250MM dia for the main sewer lines for a total length of 7000 meters, sub-mainlines of 200mm dia DI pipes for 12000 meters and 150mm DI pipes for a length of 3500 meters respectively.

The DPR also provides for setting up of STP based on the Moving Bed Bio Reactor (MBBR) technology and construction of RCC cover for protecting the sewer lines from any damages at a landslide prone zone named 16th Mile. Other items like provisions for repairs of road surfaces, tiled pedestrians, cc footpaths constructed by UD&HD Department have been included in the DPR.

Rates: SOR 2012 and prevailing approved rates of WS&PHED for supply of DI pipes / fittings.


Time: 24 months.

Land: Existing available.

Mode of execution:

Through E-Tender.

Submitted for seeking administrative approval and financial sanction please.


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Assistant Engineer
Jorethang Sub division,
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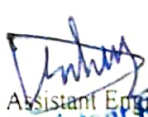
GOVERNMENT OF SIKKIM
WATER SECURITY & PUBLIC HEALTH ENGINEERING DEPARTMENT

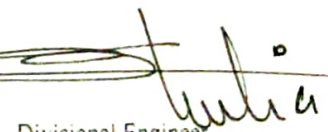
"EXTENSION OF SEWERAGE SCHEME FOR JORETHANG TOWN AND ITS SURROUNDING AREAS
IN SOUTH SIKKIM." (PHASE II)

"GENERAL ABSTRACT"		
Sl. NO.	PARTICULARS	AMOUNT
1	Supply of sewer pipes (DI K9) and other accessories.	INR 106,737,107.00
2	Construction of sewer lines / chambers and setting up of STP (2.50Mld) with allied structures.	INR 153,882,467.00
3	Construction of RCC cover for providing safety to 250mm DI trunkline at 16th mile slip zone.	INR 22,355,406.00
	Sub-total=	INR 282,974,980.00
*	Provision for cost escalation over SOR 2012 @45% on Sl no. 1&2 only (i/c 7.5% annually for 6 years considering year 2019 as the execution year).	INR 79,307,043.00
*	Provision for land compensation for setting up of STP at Chirbirey.	INR 20,000,000.00
*	Provision for 0.5% for detailed topographical survey and investigations on Sub-total.	INR 1,414,875.00
*	Provision for 1% Labour CESS on Sub- total.	INR 2,829,750.00
*	Provision for 1% Contingency on Sub- total.	INR 2,829,750.00
	Total=	INR 389,356,398.00

Rupees (Thirty eight crores ninety three lakhs fifty six thousand three hundred and ninety eight) Only.


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SUPPLY OF DI PIPES AND NECESSARY OTHER ACCESSORIES FOR THE WORK "EXTENSION OF SEWERAGE SCHEME FOR JORETHANG TOWN AND ITS SURROUNDING AREAS IN SOUTH

Sl	Particulars	Quantity	Rate	Amount
1)	D I Pipes (K-9) Under Excise Duty Paid Category (Blue or Red Epoxy) 250 mm dia Main:-	7000 mtrs	4773.75 /mtr	INR 33416250.00
2)	D I Pipes (K-9) Under Excise Duty Paid Category (Blue or Red Epoxy) 200mm dia Sub- Main:-	12000 mtrs	3561.55 /mtr	INR 42738600.00
3)	D I Pipes (K-9) Under Excise Duty Paid Category (Blue or Red Epoxy) 150mm dia Distribution:-	3500 mtrs	2622.95 /mtr	INR 9180325.00
4)	600 mm dia Manhole cover with required settings:-			
A)	SFRC Manhole cover with settings	1400 nos.	3400.00 /no.	INR 4760000.00
B)	CI Manhole cover with settings	50 nos.	7200.00 /no.	INR 360000.00
			sub-total=	INR 90455175.00
			Add 18% GST on sub-total=	INR 16281932.00
			Total=	INR 106737107.00
Rupees (Ten crores sixty seven lakhs thirty seven thousand one hundred and seven) only .				

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CONSTRUCTION OF SEWER LINES AND CHAMBERS FOR THE WORK "EXTENSION OF SEWERAGE SCHEME FOR JORETHANG TOWN AND ITS SURROUNDING AREAS IN SOUTH SIKKIM." (PHASE II)

Sl.	Particulars	Quantity	Rate	Amount
1	Earth work in excavation in foundation trenches including dressing of all sides, watering and ramming including disposal of excavated earth upto 30m lead and 1.5m lift, disposed earth to be leveled and neatly dressed all complete (All kinds of soil)			
	For laying of 250mm dia DI :- 7000 x 1.00 x 1.5 = 10500.00 c			
	For laying of 200mm dia DI :- 12000 x 1.00 x 1.5 = 18000.00 c			
	For laying of 150mm dia DI :- 3500 x 1.00 x 1.5 = 5250.00 c = 33750.00 c	33750.00 cum	164.74	/cum INR 5559975.00
2	Laying / fitting and jointing of 250 mm dia DI pipes (K9) excluding the cost of fittings, trenching, refilling and compacting all complete as per the specific design and	7000.00 mtrs	857.64	/mtr INR 6003480.00
3	Laying / fitting and jointing of 200 mm dia DI pipes (K9) excluding the cost of fittings, trenching, refilling and compacting all complete as per the specific design and	12000.00 mtrs	651.01	/mtr INR 7812120.00
4	Laying / fitting and jointing of 150 mm dia DI pipes (K9) excluding the cost of fittings, trenching, refilling and compacting all complete as per the specific design and	3500.00 mtrs	342.61	/mtr INR 1199135.00
5	Refilling of the trench with available earth including watering, ramming all complete. Vide item no. 1 A = 33750.00 c			
	Deductions for area covered by pipes: 3.14 x 0.25 x 0.25 x 7000 = 1373.75 c 3.14 x 0.20 x 0.2 x 12000 = 1507.20 c 3.14 x 0.15 x 0.15 x 3500 = 247.28 c B = 3128.23 c A-B = 30621.78 c			
	50% stone filling:- 50% mixed filling:-	15310.89 c 15310.89 c	15310.89 cum 15310.89 cum	359.60 68.44 /cum INR 5505795.00 /cum INR 1047877.00
6	Construction of RCC anchor blocks. (Detail analysis per no. enclosed)			
	Dimension of (0.60m X 0.60m X 0.60m)	400.00 nos.	5750.00	/no. INR 2300000.00
7	Construction of RCC anchor blocks. (Detail analysis per no. enclosed)			
	Dimension of (0.60m X 0.60m X 1.00m)	325.00 nos.	8700.00	/no. INR 2827500.00
8	Construction of manhole chamber measuring (0.70mX0.70mX1.20m)(Detail analysis per no. enclosed)	425.00 nos.	57800.00	/no INR 24563000.00
9	Construction of inspection chamber measuring (0.50mX0.50mX0.60m (Detail analysis per no. enclosed)	715.00 nos.	25350.00	/no INR 18125250.00
10		430.00 nos.	10000.00	/no. INR 4300000.00
11	Restoration of roads and making good the same (black top) after laying of pipes, wherever necessary, all complete (Detail analysis per metre length enclosed)	4500.00 mtrs	3900.00	/mtr INR 17550000.00

Reconstruction of pavements / cc footpaths wherever necessary

12 all complete. (Detail analysis per metre length enclosed)

13 Setting up of Sewerage Treatment Plant (2.50 Mld)

14 Provision for allied structures @ STP location

Throwing of the excavated earth / spoils away from the town to a

15 safe and permitted dumping zone all complete.


5500.00	mtrs	1200.00	/mtr	INR 6600000.00
2.50	Mld	15000000.00	/Mld	INR 37500000.00
1.00	Job	10000000.00	L.S	INR 10000000.00

Vide item no. 1 40% of 33750 cum = 13500.00 c
10kms away:

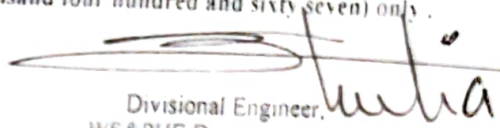
13500.00 cum 221.21 /cum INR 2986335.00

Total= INR 153882467.00

Rupees (Fifteen crores thirty eight lakhs eighty two thousand four hundred and sixty seven) only.


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ESTIMATE FOR PROVIDING RCC COVER FOR SAFETY OF PIPELINE AT 16th MILE SLIP ZONE FOR SEWERAGE SCHEME (PHASE II) AT JORETHANG IN SOUTH SIKKIM."

Sl	Particulars	Quantity	Rate	Amount
1	Excavation in soil in hills area by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with all lifts and lead upto 1000 meters			
	Slip clearance:-			
	1 x 115.00 x 2.50 x 4.25 = 1221.88 cum			
	115.00 x 0.50 x 2.50 x 3.00 = 431.25 cum			
	1 x 150.00 x 2.50 x 3.00 = 1125.00 cum			
	150.00 x 0.50 x 2.50 x 2.50 = 468.75 cum			
	1 x 3.50 x 3.20 x 3.70 = 41.44 cum			
	1 x 4.00 x 3.00 x 3.00 = 36.00 cum			
	185.00 x 0.50 x 3.00 x 2.60 = 721.50 cum			
	1 x 185.00 x 1.80 x 2.15 = 715.95 cum			
	1 x 3.00 x 2.40 x 2.80 = 20.16 cum			
	= 4781.93 cum	4781.93	100.18 /cum	INR 479053.00
2	Earthwork in excavation by mechanical means (Hydraulic excavator) / manually in foundation trenches or drains not exceeding 1.5m in width or 10sqm on plan including dressing pf sides and ramming of bottoms lift upto 1.5m etc all complete			
	RCC Cover:-			
	1 x 500.00 x 3.00 x 1.30 = 1950.00 cum			
	= 1950.00 cum	1950.00	164.74 /cum	INR 321243.00
4	Providing and laying hand packed stone soling in building works with clean hard selected stones etc all complete.(Manual Means)			
	RCC Cover:-			
	1 x 500.00 x 2.50 x 0.15 = 187.50 cum			
	= 187.50 cum	187.50	560.280 /cum	INR 105053.00
5	Providing,laying in position cement concrete of 1:2:4 mix including compacting, curing etc(20mm down stone aggregates) etc all complete.			
	RCC Cover:-			
	1 x 500.00 x 2.50 x 0.10 = 125.00 cum			
	= 125.00 cum	125.00	4608.120 /cum	INR 576015.00
6	Providing and laying in position 1:1.5:3 mix reinforced cement concrete excluding the cost of form work, finishing & reinforcements but including curing etc. all complete.			
	RCC Cover:-			
	Toe /Heel slab BD:-			
	1 x 500.00 x 0.70 x 0.30 = 105.00 cum			
	Stem AB:-			
	1 x 500.00 x 1.80 x $\frac{(0.23+0.30)}{2}$ = 238.50 cum			
	Shear Key:-			
	1 x 500.00 x 0.30 x 0.30 = 45.00 cum			
	Toe /Heel slab BC:-			
	1 x 500.00 x 0.75 x 0.30 = 112.50 cum			
	Stem EF:-			
	1 x 500.00 x 2.10 x $\frac{(0.23+0.30)}{2}$ = 278.25 cum			
	Toe /Heel slab CE:-			
	1 x 500.00 x 0.45 x 0.30 = 67.50 cum			
	Top Slab			
	1 x 500.00 x 2.10 x 0.10 = 105.00 cum			
	= 951.75 cum	951.75	5495.67 /cum	INR 5230504.00
7	Providing, fixing and removing form work for casting R.C.C items as indicated below: (with locally available timber)			
	RCC Cover:-			
	Wall:	3 x 500.00 x 2.10 = 3150.00 sqm	3150.00	380.250 /sqm
	Slab:	1 x 500.00 x 2.10 = 1050.00 sqm	1050.00	473.890 /sqm
				INR 1197788.00
				INR 497585.00

Supplying, bending and placing in position of tor steel reinforcement in all											
8 a.c works i/c cost of binding wires complete											
	Wide item no.	6	170	kg/cum	=	161797.50	kg	1617.98	6728.300	/qt	INR 10886221.00
		951.75	6								
9 Throwing of the slip for a distance of 35kms to a safe and permitted dumping zone etc all complete.											
	Wide item no	1			=	4781.93	cum	9563.85	194.950	/T/Km	INR 1864473.00
						9563850.00	kg	4781.93	87.000	/cum	INR 416027.00
						9563.85	T				
a) Loading/unloading of the slip.											
10 Carriage of stock materials from Gangpok on the surfaced road excluding loading and unloading of materials all complete.											
	Cement	90	Kms			800.00	bags				
	v.i.no.(5)		=	125.00	x	6.400	=	7614.00	bags		
	v.i.no.(6)		=	951.75	x	8.000	=	8414.00	bags		
								4207.00	qts		
								1617.98	qts		
								582.50	501.30	/cum	INR 292006.00

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