

FORM OF PRICE PROPOSAL

Bidders are required to fill up all blank spaces in this Bid Form

To

**CITY ENGINEER
WATER WORKS PROJECTS
GANDHIDHAM MUNICIPAL CORPORATION**

SUB:

Design, Engineering, Supply, Construction, Installation, Testing and Commissioning of Integrated Water Supply Infrastructure including Water Distribution Systems for Meghpar Kumbhardi and Meghpar Borichi Areas; Construction of 56 MLD Capacity Water Treatment Plant at Rambaugh; Construction of Ground Service Reservoirs (GSRs), Pumping Stations and Miscellaneous Water Supply Works within GDMC Area; Providing and Installation of Grid-Connected Solar Rooftop Systems at Various Locations; and Providing, Supplying, Lowering, Laying, Jointing, Testing and Commissioning of MS Bulk Water Pipeline from Varsamedi to Rambaugh including all Civil, Mechanical, Electrical, Instrumentation Works and Allied Appurtenances under Gandhidham Municipal Corporation.

We have examined the Conditions of Contract, Employer's Requirements, Schedules, Addenda Nos _____ and the matters set out in the Appendix hereto. We have understood and checked these documents and have not found any errors in them. We accordingly offer to design, execute commission and to maintain for the five years the said Works and remedy any defects, fit for purpose in conformity with these documents and the enclosed Proposal, for the fixed lump sum of Rs. _____ or other such sums as may be determined in accordance with the terms and conditions of the Contract. The above amounts are in accordance with the Price Schedules herewith and are made part of this bid.

We confirm our agreement with the appointment of Dispute Adjudication Board of General Condition of Contract.

We agree to abide by this Bid until 120 days and it shall remain binding upon us and maybe accepted at any time before that date. We acknowledge that the Appendix forms part of our Bid.

If our bid is accepted, we will provide the specified performance security, commence the Works as soon as reasonably possible after receiving the Employer's Representative's notice to commence, and complete the Works in accordance with the above-named documents within the time stated in the Appendix to Technical Proposal.

Unless and until a formal Agreement is prepared and executed, this Bid, together with your written, acceptance thereof, shall constitute a binding contract between us.

We understand that you are not bound to accept the lowest or any bid you may receive.

We are, Gentlemen

Yours faithfully

Signature _____ in the capacity of _____ duly authorized
to sign bids for and on behalf of

Address

Date _____

**APPENDIX
TO
PRICE PROPOSAL**

APPENDIX TO PRICE PROPOSAL

Conditions of Contract

Employer's name and address	CITY ENGINEER WATER WORKS PROJECTS GANDHIDHAM MUNICIPAL CORPORATION
Contractor's name and address	<hr/> <hr/> <hr/> <hr/>
Phone No. :	<hr/>
Fax No. :	
E-mail :	
Time for notice to commence	7 Days
Name and address of the Employer's Representative/Engineer	To be nominated by Employer at the time of Award of Contract
Time for Completion of construction of Works	The successful bidder will be expected to complete the execution works within Twenty Four (24) months, including Three (3) month successful free trial run & including monsoon period and acceptance of plant. After getting work order Contractor will complete the submission and approval of layout, HFD, Unit sizing, GAD and major structure design and drawings within 2 months period from the date of issue of Work Order. After completion of these 2 months, execution work will start.. If the site is not clear to start the work, the time limit shall be considered from the date of possession given to successful bidder to commence the work.
Validity Period of Tender Offered	120 days from the date of opening of the price bid
Defects liability period	60 months after commissioning
Period for O & M Contract	Five years from the date of issue of certificate for completion / taking over certificate
Language for communications	English
Electronic transmission systems	
Confidential Details	<hr/> <hr/> <hr/> <hr/>

Currency of all payments	Indian Rupees
Amount of insurance for work	Total cost of work
Amount of third party insurance	As per law per occurrence, number of occurrences: maximum three
Periods for submission of insurance	
Evidence of insurance	30 days from commencement date
Relevant policies	60 days -do-
Number of members of Arbitral Tribunal	{ As per the Arbitration and Conciliation Act 1996, India along with its latest amendments.
Members of Dispute Adjudication Board (if not agreed) to be nominated by	
Arbitration rules	
Language of arbitration	English
Place of arbitration	Gandhidham , Gujarat, India
Procedural Law	Indian as governed by the Arbitration and Conciliation Act, 1996, India and its latest amendments.
Limit of Retention Money	7% of the construction contract price. (5% S.D. + 2% to be recovered from bill)
Payments in Local Currencies	In Indian Rupees
Time for access to the Site	Within 15 days from the date of Letter of Work Order Acceptance / Letter of Intent
Amount of performance security	5% of contract price
Damages for delay	10% of the remaining value of work
Deductions	: 1% of contract price for construction workers welfare cum force all R.A. Bills & final Bill (1% of contract price)

PRICE SCHEDULE –B

UNIT WISE PRICE SCHEDULE FOR CONSTRUCTION PHASE

PRICE SCHEDULE – B


SUMMARY OF SCHEDULE OF PRICE (CONSTRUCTION PHASE)

GANDHIDHAM MUNICIPAL CORPORATION

NAME OF WORK: Design, Engineering, Supply, Construction, Installation, Testing and Commissioning of Integrated Water Supply Infrastructure including Water Distribution Systems for Meghpar Kumbhardi and Meghpar Borichi Areas; Construction of 56 MLD Capacity Water Treatment Plant at Rambaugh; Construction of Ground Service Reservoirs (GSRs), Pumping Stations and Miscellaneous Water Supply Works within GDMC Area; Providing and Installation of Grid-Connected Solar Rooftop Systems at Various Locations; and Providing, Supplying, Lowering, Laying, Jointing, Testing and Commissioning of MS Bulk Water Pipeline from Varsamedi to Rambaugh including all Civil, Mechanical, Electrical, Instrumentation Works and Allied Appurtenances under Gandhidham Municipal Corporation.

Percentage of lump sum cost shall be quoted within the following guide line:

percentage of lump sum cost shall be quoted within the following guide line.

	Design, Engineering, Supply, Construction, Installation, Testing and Commissioning of Integrated Water Supply Infrastructure including Water Distribution Systems for Meghpar Kumbhardi and Meghpar Borichi Areas; Construction of 56 MLD Capacity Water Treatment Plant at Rambaugh; Construction of Ground Service Reservoirs (GSRs), Pumping Stations and Miscellaneous Water Supply Works within GDMC Area; Providing and Installation of Grid-Connected Solar Rooftop Systems at Various Locations; and Providing, Supplying, Lowering, Laying, Jointing, Testing and Commissioning of MS Bulk Water Pipeline from Varsamedi to Rambaugh including all Civil, Mechanical, Electrical, Instrumentation Works and Allied Appurtenances under Gandhidham Municipal Corporation.				
Sr. No.	Description	Sub Estimate No.	Amount		
1	WATER DISTRIBUTION SYSTEM AT MEGHPAR KUMBHARDI SCHEDULE B1	01	Rs.		
2	WATER DISTRIBUTION SYSTEM AT MEGHPAR BORICHI SCHEDULE B2	02	Rs.		
3	CONSTRUCTION OF 56 MLD WTP AT RAMBAUGH SCHEDULE B3	03	Rs.		
4	MISCALLANEOUS GSR & VARIOUS WATER WORKS AT GDMC AREA SCHEDULE B4	04	Rs.		
5	PROVIDING OF SOLAR ROOF TOP AT VARIOUS PLACES SCHEDULE B5	05	Rs.		

6	PROVIDING AND LAYING MS BULK PIPELINE FROM VARSAMEDI TO RAMBAUGH SCHEDULE B6	06	Rs.	
7	PROVIDING AND LAYING DI EXPRESS PIPELINE AT GDMC AREA SCHEDULE B7	07	Rs.	
8	ROAD RESTORATION WORK SCHEDULE B8	08	Rs.	
Total Amount			Rs.	

I / We agree to abide by the above conditions fully.

Signature of Contractor:

Name :

Company's Seal :

Date :

City Engineer, Water Works (Project)

Gandhidham Municipal Corporation

Gandhidham

PRICE SCHEDULE – B

Price bid		
SR. NO.	Description	Amount
1	SCHEDULE B	
2	SCHEDULE C	
	TOTAL COST	

Signature of Contractor:

Name :

Company's Seal :

Date :

City Engineer, Water Works (Project)

Gandhidham Municipal Corporation

Gandhidham

PRICE SCHEDULE – B1

SR. NO.	Description	Unit	Qty.	Rate	Amount
1	Excavation for pipe line trenches for water supply, sewerage line, manhole etc. all with shoring and strutting if required as per required gradient and line including safety provisions using site rails and stacking excavated stuff including up to all required lead cleaning the site etc. complete for all lifts and strata as specified.				
	In all sorts of soil & soft murrum	Cu. Mt	13749.515		
	In hard murrum, boulders incl. macadam road	Cu. Mt	34373.7875		
	In soft rock and/or masonry in CM or LM or Lime Concrete	Cu. Mt	20624.2725		
	In hard rock and / or in C. C. 1:2:4 or RCC	Cu. Mt	10312.13625		
2	Refilling the pipeline trenches incl. ramming, watering, consolidating desposal of surplus stuff as directed within a radius of 3 km.	Cu. Mt	67541.305		
3	Providing and supplying D. I. K-7 grade pipes for following nominal bore diameter with internal cement mortar lining including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete. (IS 8329-2000).				
	100 mm dia	Meter	57173		
	150 mm dia	Meter	9512		
	200 mm dia	Meter	2259		
	250 mm dia	Meter	1715		
	300 mm dia	Meter	5201		
	350 mm dia	Meter	659		
	500 mm dia	Meter	15		
4	Lowering, laying and jointing C. I. S & S Spun pipes suitable for Tyton joints / Mortar lined D. I. Pipes of various classes with CI / MS specials of following diameters in proper position, grade and alignment as directed by Engineer-in-charge including hydraulic testing etc. comp.				
	100 mm dia	Meter	57173		

	150 mm dia	Meter	9512		
	200 mm dia	Meter	2259		
	250 mm dia	Meter	1715		
	300 mm dia	Meter	5201		
	350 mm dia	Meter	659		
	500 mm dia	Meter	15		
5	Manufacture, Supply & Delivery of Ductile Iron Flange socket spigot bends, tees, reducers or any other specials as per BS-EN-545/1995 Class-A series K12 suitable for use with D.I. Pipes manufactured as per IS:8329/1994 delivery of specials is to be made to site of works including all taxes, loading, unloading, carting, stacking, insurance, inspection charges, octroi etc. complete.				
	socket & spigot type				
	80 to 300 mm dia	kg.	68524		
	350 mm & above	kg.	5000		
6	Providing and supplying ISI mark CI / D/F Sluice Valves as per IS:14846 (Latest Edition) of following class and diameter including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete				
	PN-1.6 with hand wheel / cap operated (PD type short body)				
	250 mm dia Sluice Valve	No.	1		
	300 mm dia Sluice Valve	No.	2		
	350 mm dia Sluice Valve	No.	1		
7	Lowering, laying and jointing in position following C. I./ D/F Reflux valves, Butterfly valves, Sluice valves and Air valves including cost of all labour, jointing material, including nut bolts and giving satisfactory hydraulic testing, etc. complete.				
	250 mm dia Sluice Valve	No.	1		
	300 mm dia Sluice Valve	No.	2		
	350 mm dia Sluice Valve	No.	1		
8	Construction of valves Chambers in brick masonry using common burnt clay building brick, locally available in C.M 1:6 foundation concrete 150 mm thick, CC Copping in M-15 grade (1:2:4), cement Plaster 12 mm thick using cement : mortar in Proportion 1:3 with Niru finishing				

	curing and 16 mm thick MS frame & cover with material. (With 16 mm thick M.S cover Plate) complete.				
	For Sluice Valve				
	1.3 mt. x 1.3 mt. x 1.0 mt.	No.	4		
	House Connection Arrangement				
9	Providing, Supplying, Lowering, Laying, Jointing and Fixing House Service Connection from D.I. Water Distribution Main up to Property Line using U.P.V.C. Pipe (SCH-40) including all necessary fittings and accessories such as U.P.V.C. couplings, elbows, brass female elbows, bib tap, clamps, and fixing arrangement; providing and fixing of suitable size D.I. Service Saddle, making hole in existing D.I. pipeline, ferrule connection, and ensuring watertight joint. The work shall include excavation of trench in all types of strata, lowering, laying and jointing of pipe, hydraulic testing, refilling of trenches with proper compaction, disposal of surplus material within specified lead, cutting of road surface (WBM/BT/CC/RCC) wherever required and restoration of the same to original condition including providing and laying PCC (1:4:8) where necessary. The item also includes all labour, materials, tools & plants, conveyance, lead & lift, taxes, duties, and all incidental charges complete as per relevant IS codes, GWSSB/R&B specifications and as directed by the Engineer-in-Charge.	No.	11740		
10	Drilling of 500 mm dia Horizontal borehole for watermain pipeline under the railway/national highway tracks incl all starta with required length including fixing of 400 mm dia MS casing pipe of minimum 6 mm thick Or IRS Casing Pipe with welding pushing etc. complete. Provding & fixing various size of pipe for 193.7 mm/219.1 mm/ 244.5 mm dia watermain of GI/ MS pipe of minimum 6.3 mm thick for railway/National Highway premises as per instructuions & regulations of Railway Authority/NHAI & under supervision of Railway authority incl providing supplying & fixing of space at specified interval if required in between casing pipe and water main ISI make sluice				

	valve of required size at both side at railway boundry with construction of brickege pavement incl CC encasing 1:3:6 in 10 mtr lenght of pipe at both side incl providing & fixing of MS/Iron manhole frame with cover for valve chamber with locking arrangement etc complete with all material labour fabrication, hydraulic testing, of pipe and valve etc complete for 45 m lenght which includes horizontal pushing and with all open excavation.				
	MS casing pipe + water Main size 193.7 mm	Nos.	1		
	MS casing pipe + water Main size 219.1 mm	Nos.	1		
11	Drilling of 600 mm dia Horizontol borehole for watermain pipeline under the railway/national highway tracks incl all starta with required length including fixing of 500 mm dia MS casing pipe of minimum 8 mm thick Or IRS Casing Pipe with welding pushing etc. complete. Provding & fixing various size of pipe for 273.1 mm/ 323.9 mm/ 355.6 mm dia watermain of GI/ MS pipe of minimum 6.3 mm thick for railway/National Highway premises as per instructuions & regulations of Railway Authority/NHAI & under supervision of Railway authority incl providing supplying & fixing of space at specified interval if required in between casing pipe and water main ISI make slucie valve of required size at both side at railway boundry with construction of brickege pavement incl CC encasing 1:3:6 in 10 mtr lenght of pipe at both side incl providing & fixing of MS/Iron manhole frame with cover for valve chamber with locking arrangement etc complete with all material labour fabrication, hydraulic testing, of pipe and valve etc complete for 45 m lenght which includes horizontal pushing and with all open excavation.				
	MS casing pipe + water Main size 323.9 mm	Nos.	3		

12	<p>Designing structurally and aesthetically complying provisions of relevant Indian standards and constructing RCC elevated service reservoir ESR of the following capacity and height using latest soil investigation report of proposed site seismic zone wind speed zone including</p> <p>(1) Container shape any suitable type (or as specified)</p> <p>(2) Staging consisting of column brace / shaft / combination column-brace and shaft as appropriate (or as specified) and</p> <p>(3) Appropriate foundation system. This includes excavation in all types of soil strata including Hard Rock, casting 100 mm thick PCC leveling course in M10. Refilling the beat with proper soil and disposing of the surplus stock at all required lead.</p> <p>(4) This will also include cement plaster in CM 1:2 which approved waterproofing compound all over inside container (i.e. Walls, base, top slab/dome bottom etc. all)</p> <p>(5) All types of labour and material charges of lowering, laying, erecting / hoisting and joining of pipe assembly of inlet, outlet, overflow, washout and bypass arrangement as per hydraulic design are including.</p> <p>(6) Providing and fixing of any accessories specified, CI manhole frame, and covers, water level indicator, lightning conductor, GI pipe railing around walkway of roof level, at gallery and around landing of inside shaft adequate cowl type ventilators or Lantern type ventilators with stainless steel jail.</p> <p>(7) Scope of work includes constructing RCC spiral staircase with adequate tie beams, staircase footing, RCC chambers for valves, ventilating shaft and ventilators as well as door in shaft. SS grating to be provided to outlet pipe (inside container) for safety</p>	Nos.	1		
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	<p>(8) Including providing and applying three coats of cement paint (as specified) to the whole structure(9) it also includes satisfactory water tightness test as per relevant IS code and painting name of scheme and capacity of the tank as per direction of engineer in charge.List of Indian standards for designing of ESRNote: the structural design of ESR shall be in accordance with provisions of relevant Indian standards(1) IS 3370 Part I and II 2009 or latest revision(1.1) IS 3370 part III and IV 1965 or latest revision(2) IS 458-2000 all latest revision(3) IS 11682-1985 for latest revision(4) IS 1893-2002 part I to V or latest revision(5) IS 13920-1993 or latest revision(6) IS 875 part I to III 1987 or latest revision(7) IS 11089-1987 all latest revision</p>				
	<p>General Specifications: (1) The minimum concrete grade for RCC shall be M30. Proportion of concrete ingredients shall be as per mix design using weigh batching. (2) HYSD (Fe 415) or higher grade reinforcing bars conforming to IS1786 /1138 or CRS/TMT bars Shelby use as per detailed specification (3) In case of Columbus dressed I type staging having more than 8 columns internal horizontal bracing is obligatory one bracing Shelby at foundation level in case of individual footings (4) Minimum size / thickness of various components shall be provided as per design criteria /specifications /IS code (or as per practice). Capacity of the ESR shall be considered excluding free board. (5) Minimum dimensions specified for various components in tender data/specifications should be provided. (6) The safe bearing capacity (SBC) / allowable pressure on soil shall be referred from latest SBC test report or tender data sheet. During execution, if poor soil strata or groundwater table is encountered, the SBC shall have to be re ascertained and the design should be revised accordingly. (7) Maximum spacing between horizontal bracings shall be 5 m (story height). (8) The BB machinery cabin with MS Door shall be constructed when spiral</p>				

	<p>staircase is outside the staging.</p> <p>(9) RCC staircase/ MS Staircase shall be provided and fixed for access to roof when height of roof from GL is up to 10m. For ESR having more than 10 m height proper RCC staircase or suitable RCC spiral staircase shall be constructed. Railing should be provided throughout the staircase and around the toe ring beam.</p>				
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	<p>(10) For ESR having height more than 15 m the spiral staircase shall be provided inside the staging with effective tie beams in more than One Direction.</p> <p>(11) Water level indicator shall be provided and fixed float type electronic (as specified)</p> <p>(12) The rate shall include providing and fixing pipes, specials and valves required for inlet, outlet, washout, overflow and bypass arrangement. The scope of work includes constructing supporting RC pillars, erecting, laying, fixing and joining pipes and specials up to five m length from face of staging (outermost column)</p> <p>(13) DI pipes and specials shall only be used</p> <p>(14) The rate shall include cost of dewatering during execution making all arrangements with any dewatering techniques</p> <p>(15) The structure shall be designed properly for uplift due to ground water table specified in data or GWT encountered during execution. No extra payment shall be paid for the same</p> <p>(16) Effective curing shall be carried out up to require period as per specifications</p> <p>(17) Contractor shall engage qualified consulting engineer for designing the structure and shall visit the site for guidance of work at all levels i.e. Below foundation up to GL, above GL (or all lifts up to container) (SBC: Scope of Contractor's)</p> <p>16,00,000 Lit. Cap. of Staging Height of 16 m and Seismic Zone V</p>				
13	Demolition of Brick work and stone masonry including stacking of serviceable materials and disposal of unserviceable materials with all lead and lift (ii) in cement mortar	Cumt.	10000		
14	Demolition and disposal of unserviceable materials with all lead and lift (ii) PCC Lime concrete	Cumt.	2000		
15	Demolition of RCC work including stacking of serviceable materials and disposal of unserviceable materials with all lead and lift.	Cumt.	1700		

16	Supply, laying, testing & commissioning 1.1 kV grade, XLPE insulated, stranded Aluminium conductor, galvanised steel flat strip / round wire armoured, extruded PVC type ST2 sheathed, heavy duty cable (to be laid on wall surface with necessary clamps / in existing cable trench / cable trays / conduit / pipe sleeves at road crossing or floor as per site requirement) conforming to IS:7098 (Part-1) & IEC:60502 (Part-1) of following sizes:				
	3.5 Core x 25 Sq mm	Meter	70		
17	Providing & fitting heat shrink cable termination / jointing kits for 1.1kV grade PVC/ XLPE insulated cable including necessary earth connectivity connection, material & consumables making the termination/ joint complete ensuring the joint resistance is within the permissible limit as per IS, of following types & sizes:				
	Indoor / Outdoor End Termination Kit				
	25 to 50 Sq mm	Each	4		
18	Microprocessor Based LV Variable Frequency Drive				
3	Suppl, installation, testing & commissioning of 415 V Fully automatic microprocessor based Variable Frequency drive for pump control application as per general specification as under: The VFD unit shall have modular construction, 6 Pulse Bridge rectifier, speed control by means of sensorless vector control (open loop), high torque at low frequencies, locking at high and low frequency settings, In-built PID control, frequency accuracy of $\pm 0.1\%$ (min), frequency resolution of ± 0.1 Hz (min), protections against; a) overload (motor and drive), b) short circuit, c) ground fault, d) input / output phase loss (open circuit), e) stalling, f) input / output undervoltage (momentary power loss restart), g) input / output overvoltage, h) over-frequency, i) Input surge, j) over temperature of heatsink, k) loss of remote speed signal etc. The VFD shall also have userfriendly programming software & it shall be capable of at least two level parameter setting with password lock for critical parameters, programming for I/Os, speed search function, copy parameters (upload / download) to other identical unit,				

	tuning to energy saving mode (maximum efficiency), event / fault recording (last 5 faults in non-volatile memory) & RS 485 communication port (MODBUS RTU protocol) with required software.				
	30 KW	No.	2		
19	Control Panel Board				
4	Auto transformer starter suitable for local & remote pump control application consisting of Auto Transformer (vacuum impregnated, air cooled having three (3) tapplings at 50%, 65% and 80%), incomer MCCB / MPCB, overload relay and contactors as per Type II coordination including digital MFM with RS 485 communication port, analogue type ammeter with selector switch, run hour meter, required protective relays & control accessories.				
	A. T. S. from 31 to 35 HP	Each	2		
20	11 kV Two Pole Structure Assembly: SITC of 11 kV double pole 9 meter high structure made of 6" X 3" 'I' section girder, 4" X 2" channels, clamps, nuts, bolts, stay wires including earthing system with following accessories duly connected with ACSR conductors as per approved drawing & in compliance with requirement of IEC. (a) 11 kV, 200 A drop out fuses with Synthetic Resin Bonded Paper (SRBP) tubes: 1 Set (01 piece per phase). (b) 11 kV, 400 A G.O.D. switch complete with earth switch, insulators, operating handle with galvanised pipe, square bar: 1 Set. (c) 11 kV lightning arrestor with clamps: 3 Nos. (d) 11 kV Disc Insulators (70KN): 3 Nos. (e) 11 kV Pin Insulators (5KN): 3 Nos. (f) 20 mm dia. GI Stay Sets Complete: 2 Set.				
	11 kV Double Pole Structure Assembly	Each	1		

21	<p>ITC of outdoor type, three phase, oil immersed, power transformer of required KVA & voltage ratio, copper double wound, vector group - Dyn11, HV delta connected & LV star connected with neutral brought out connected to provide separate earthing terminals, bushing / cable box on HV side and cable box on LV side suitable for cables or bus duct as per requirement with standard fittings, conforming to IS: 2026 - 2011 with its latest amendment including first fill of transformer oil & following accessories.(a) Oil conservator with filling holes with cap and prismatic oil level gauge. (b) Silica Gel dehydrating breather charged with silica gel (c) Oil drain cum sampling valve with plug (d) Oil filter valve (e) Lifting Eyes / Hooks / Lugs (f) Two earthing terminal (g) Diagram and rating plate (h) Air release plug (i) Explosion vent with diaphragm (j) Thermometer pocket (k) Four bi-directional plain roller with base channel with hauling holes (l) Fixed / Separate type radiator banks (m) Off circuit externally operated tapping switch (For rating < 1000 kVA) (n) 100 mm stem type oil temperature indicator (For rating < 500 kVA) (o) Bucholtz relay with shut off valve (For rating \geq 500 KVA) (p) 150 mm dial type oil temperature indicator with Alarm / Trip contact (For rating \geq 500 kVA) (q) 150 mm dial type winding temperature indicator with Alarm / Tip contact (For rating \geq 1000 kVA) (r) Marshalling box (For rating \geq 500 kVA) (s) 150 mm dia. magnetic type oil gauge (For rating \geq 1600 kVA) (t) Inspection cover & Jacking lugs (For rating \geq 1600 kVA) For transformer rating of 1600 KVA and higher nitrogen injection fire protection system (NIFPS) is to be provided.</p>				
	160 Kva Rating & 11/3.3 Voltage Ratio (kV)	Set	1		

22	Above 80 A, upto & including 250 A, 3 & 4 Pole, Air Break Fixed MCCB conforms to IS / IEC 60947-2 with trip free mechanism, current limiting type with Thermal-Magnetic / Microprocessor release (O / C, S / C & E / F) with adjustable settings & having minimum 2NO+2NC potential free auxiliary contacts with all necessary Electro-Mechanical protections & interlocks etc. MCCB module, when used as Incommer / Bus Coupler, shall have enclosure dimensions-1800(H) x 600(W) x 600 (D) & following technical features:				
	4 Pole, MCCB with Breaking Capacity of Icu=25 KA at 415V (Ics =100% of Icu), TM release	No.	3		
23	Providing and fixing of Lighting & Auxiliary Works				
	LED light fittings 20–40 W	No.	8		
	External LED flood light	No.	2		
	Exhaust fan (300 mm)	No.	2		
	Industrial socket (16 A)	No.	2		
24	Supply & laying GI ladder type cable trays with side channels of size - 75 x 15 x 15 mm / 100 x 15 x 15 mm & rungs of size - 35 x15 x 15 mm spaced at 250 mm apart, fabricated from 2 mm thick sheet steel in standard length of 2.5 meter, duly hot dipped galvanized after fabrication as per IS 2629-1989/ IS 4759-1984 including accessories such as coupler plates/ fish plates, bends, tees, reducers, elbows, covers and electro-galvanized hardware etc, erected on existing support as per specification and instruction of Engineer-in-charge.				
	150(W) x 75(H) x 2.0 mm Thick	Rmt	50		
25	Providing & fitting heavy duty brass cable glands (nickel-plated) with washers & rubber ring conforming to IS, suitable for 3, 3½ & 4 core cables of following type & sizes:				
	32 mm gland size for 25 sq mm cable of 3 to 4 Core	No.	12		
26	Cable Terminals (Lugs) Providing & fitting crimping type Cable Terminals (Lugs) conforming to IS of following types and sizes				
	25 sq mm Aluminium Tubular Terminals	No.	12		

27	Providing & fixing of Danger board & Safety signage	Set	1		
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Signature of Contractor :

Name :

Company's Seal :

Date :

Additional City Engineer, Water Works (Project)

Gandhidham Municipal Corporation

Gandhidham

PRICE SCHEDULE – B2

SR. NO.	Description	Unit	Qty.	Rate	Amount
1	Excavation for pipe line trenches for water supply, sewerage line, manhole etc. all with shoring and strutting if required as per required gradient and line including safety provisions using site rails and stacking excavated stuff including up to all required lead cleaning the site etc. complete for all lifts and strata as specified.				
	In all sorts of soil & soft murrum	Cu. Mt	18013.322		
	In hard murrum, boulders incl. macadam road	Cu. Mt	45033.305		
	In soft rock and/or masonry in CM or LM or Lime Concrete	Cu. Mt	27019.983		
	In hard rock and / or in C. C. 1:2:4 or RCC	Cu. Mt	13509.9915		
2	Refilling the pipeline trenches incl. ramming, watering, consolidating desposal of surplus stuff as directed within a radius of 3 km.	Cu. Mt	58997.9785		
3	Providing and supplying D. I. K-7 grade pipes for following nominal bore diameter with internal cement mortar lining including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete. (IS 8329-2000).				
	100 mm dia	Meter	112878		
	200 mm dia	Meter	24149		
	250 mm dia	Meter	637		
	300 mm dia	Meter	2018		
	350 mm dia	Meter	2705		
	450 mm dia	Meter	6227		
	500 mm dia	Meter	2062		
	600 mm dia	Meter	3923		
	700 mm dia	Meter	7730		

4	Lowering, laying and jointing C. I. S & S Spun pipes suitable for Tyton joints / Mortar lined D. I. Pipes of various classes with CI / MS specials of following diameters in proper position, grade and alignment as directed by Engineer-in-charge including hydraulic testing etc. comp.				
	100 mm dia	Meter	112878		
	200 mm dia	Meter	24149		
	250 mm dia	Meter	637		
	300 mm dia	Meter	2018		
	350 mm dia	Meter	2705		
	450 mm dia	Meter	6227		
	500 mm dia	Meter	2062		
	600 mm dia	Meter	3923		
	700 mm dia	Meter	7730		
5	Manufacture, Supply & Delivery of Ductile Iron Flange socket spigot bends, tees, reducers or any other specials as per BS-EN-545/1995 Class-A series K12 suitable for use with D.I. Pipes manufactured as per IS:8329/1994 delivery of specials is to be made to site of works including all taxes, loading, unloading, carting. stacking, insurance, inspection charges, octroi etc. complete.				
	socket & spigot type				
	80 to 300 mm dia	kg.	80000		
	350 mm & above	kg.	80000		
	Sluice Valve				
6	Providing and supplying ISI mark CI / D/F Sluice Valves as per IS:14846 (Latest Edition) of following class and diameter including all taxes. insurance. transportation, freight charges, octroi, inspection charges. loading, unloading. conveyance to departmental stores, stacking etc. complete				
	PN-1 with hand wheel / cap operated (PD type short body)				
	100 mm dia Sluice Valve	No.	24		
	200 mm dia Sluice Valve	No.	18		
	300 mm dia Sluice Valve	No.	3		
	450 mm dia Sluice Valve	No.	3		
	600 mm dia Sluice Valve	No.	3		
	700 mm dia Sluice Valve	No.	3		
7	Lowering, laying and jointing in position following C. I./ D/F Reflux valves, Butterfly valves, Sluice valves and Air valves including cost of all labour, jointing material, including nut				

	bolts and giving satisfactory hydraulic testing, etc. complete.				
	100 mm dia Sluice Valve	No.	24		
	200 mm dia Sluice Valve	No.	18		
	300 mm dia Sluice Valve	No.	3		
	450 mm dia Sluice Valve	No.	3		
	600 mm dia Sluice Valve	No.	3		
	700 mm dia Sluice Valve	No.	3		
8	Construction of valves Chambers in brick masonry using common burnt clay building brick, locally available in C.M 1:6 foundation concrete 150 mm thick, CC Coping in M-15 grade (1:2:4), cement Plaster 12 mm thick using cement : mortar in Proportion 1:3 with Niru finishing curing and 16 mm thick MS frame & cover with material. (With 16 mm thick M.S cover Plate) complete.				
	For Sluice Valve				
	1.3 mt. x 1.3 mt. x 1.0 mt.	No.	54		
9	Providing and casting in situ C.C. in grade M-15 (approx. corresp. to prop. 1:2:4) (proportions as per mix design or as per Table 9 of IS456 2000 in masses by weigh batching) using granite, quartzite trap metal of size 6 mm to 20 mm for RCC work, including scaffolding centering, form work, needle vibrated consolidation, curing comp. up to 6 meter depth or height (excluding cost of reinforcement and neat finishing) with centering and shuttering / deshuttering etc. comp for structure for other than water retaining. (with form work)				
	For Thrust Block	Cu. Mt	75		
	House Connection Arrangement				
10	Providing, Supplying, Lowering, Laying, Jointing and Fixing House Service Connection from D.I. Water Distribution Main up to Property Line using U.P.V.C. Pipe (SCH-40) including all necessary fittings and accessories such as U.P.V.C. couplings, elbows, brass female elbows, bib tap, clamps, and fixing arrangement; providing and fixing of suitable size D.I. Service Saddle, making hole in existing D.I. pipeline, ferrule connection, and ensuring watertight joint. The work shall include excavation of trench in all types of strata, lowering, laying and jointing	Nos.	13326		

	<p>of pipe, hydraulic testing, refilling of trenches with proper compaction, disposal of surplus material within specified lead, cutting of road surface (WBM/BT/CC/RCC) wherever required and restoration of the same to original condition including providing and laying PCC (1:4:8) where necessary.</p> <p>The item also includes all labour, materials, tools & plants, conveyance, lead & lift, taxes, duties, and all incidental charges complete as per relevant IS codes, GWSSB/R&B specifications and as directed by the Engineer-in-Charge.</p>				
11	<p>Drilling of 900 mm dia Horizontal borehole for watermain pipeline under the railway/national highway tracks incl all starta with required length including fixing of 800 mm dia MS casing pipe of minimum 12 mm thick Or IRS Casing Pipe with welding pushing etc. complete.</p> <p>Providing & fixing various size of pipe for 406.4 mm/457 mm/ 508 mm dia watermain of GI/ MS pipe of minimum 6.3 mm thick for railway/National Highway premises as per instructions & regulations of Railway Authority/NHAI & under supervision of Railway authority incl providing supplying & fixing of space at specified interval if required in between casing pipe and water main ISI make sluice valve of required size at both side at railway boundry with construction of brickege pavement incl CC encasing 1:3:6 in 10 mtr lenght of pipe at both side incl providing & fixing of MS/Iron manhole frame with cover for valve chamber with locking arrangement etc complete with all material labour fabrication, hydraulic testing, of pipe and valve etc complete for 45 m lenght which includes horizontal pushing and with all open excavation.</p>				
	MS casing pipe + water Main size 508 mm	Nos.	2		

12	Drilling of 1300 mm dia Horizontal borehole for watermain pipeline under the railway/national highway tracks incl all starta with required length including fixing of 1200 mm dia MS casing pipe of minimum 16 mm thick Or IRS Casing Pipe with welding pushing etc. complete. Provding & fixing various size of pipe for 559 mm/ 610 mm/ 660 mm dia watermain of GI/ MS pipe of minimum 6.3 mm thick for railway/National Highway premises as per instructuions & regulations of Railway Authority/NHAI & under supervision of Railway authority incl providing supplying & fixing of space at specified interval if required in between casing pipe and water main ISI make slucie valve of required size at both side at railway boundry with construction of brickege pavement incl CC encasing 1:3:6 in 10 mtr lenght of pipe at both side incl providing & fixing of MS/Iron manhole frame with cover for valve chamber with locking arrangement etc complete with all material labour fabrication, hydraulic testing, of pipe and valve etc complete for 45 m lenght which includes horizontal pushing and with all open excavation.				
	MS casing pipe + water Main size 711 mm	Nos.	1		
13	Designing structurally and aesthetically complying provisions of relevant Indian standards and constructing RCC elevated service reservoir ESR of the following capacity and height using latest soil investigation report of proposed site seismic zone wind speed zone including (1) Container shape any suitable type (or as specified) (2) Staging consisting of column brace / shaft / combination column-brace and shaft as appropriate (or as specified) and (3) Appropriate foundation system. This includes excavation in all types of soil strata including Hard Rock, casting 100 mm thick PCC leveling course in M10. Refilling the beat with proper soil and disposing of the surplus stock at all required lead. (4) This will also include cement plaster in CM 1:2 which approved waterproofing compound all over inside container (i.e. Walls, base, top slab/dome bottom etc. all) (5) All types of labour and material charges of lowering, laying, erecting / hoisting and joining of pipe assembly of inlet, outlet, overflow,	Nos.	1		

	<p>washout and bypass arrangement as per hydraulic design are including.</p> <p>(6) Providing and fixing of any accessories specified, CI manhole frame, and covers, water level indicator, lightning conductor, GI pipe railing around walkway of roof level, at gallery and around landing of inside shaft adequate cowl type ventilators or Lantern type ventilators with stainless steel jail.</p> <p>(7) Scope of work includes constructing RCC spiral staircase with adequate tie beams, staircase footing, RCC chambers for valves, ventilating shaft and ventilators as well as door in shaft. SS grating to be provided to outlet pipe (inside container) for safety</p>				
	<p>(8) Including providing and applying three coats of cement paint (as specified) to the whole structure</p> <p>(9) it also includes satisfactory water tightness test as per relevant IS code and painting name of scheme and capacity of the tank as per direction of engineer in charge.</p> <p>List of Indian standards for designing of ESR Note: the structural design of ESR shall be in accordance with provisions of relevant Indian standards</p> <p>(1) IS 3370 Part I and II 2009 or latest revision (1.1) IS 3370 part III and IV 1965 or latest revision</p> <p>(2) IS 458-2000 all latest revision (3) IS 11682-1985 for latest revision (4) IS 1893-2002 part I to V or latest revision (5) IS 13920-1993 or latest revision (6) IS 875 part I to III 1987 or latest revision (7) IS 11089-1987 all latest revision</p>				

	<p>General Specifications:(1) The minimum concrete grade for RCC shall be M30. Proportion of concrete ingredients shall be as per mix design using weigh batching.(2) HYSD (Fe 415) or higher grade reinforcing bars conforming to IS1786 /1138 or CRS/TMT bars Shelby use as per detailed specification(3) In case of Columbus dressed I type staging having more than 8 columns internal horizontal bracing is obligatory one bracing Shelby at foundation level in case of individual footings(4) Minimum size / thickness of various components shall be provided as per design criteria /specifications /IS code (or as per practice). Capacity of the ESR shall be considered excluding free board.(5) Minimum dimensions specified for various components in tender data/ specifications should be provided.(6) The safe bearing capacity (SBC) / allowable pressure on soil shall be referred from latest SBC test report or tender data sheet. During execution, if poor soil strata or groundwater table is encountered, the SBC shall have to be re ascertained and the design should be revised accordingly.(7) Maximum spacing between horizontal bracings shall be 5 m (story height).(8) The BB machinery cabin with MS Door shall be constructed when spiral staircase is outside the staging.(9) RCC staircase/ MS Staircase shall be provided and fixed for access to roof when height of roof from GL is up to 10m. For ESR having more than 10 m height proper RCC staircase or suitable RCC spiral staircase shall be constructed. Railing should be provided throughout the staircase and around the toe ring beam.</p>				
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	<p>(10) For ESR having height more than 15 m the spiral staircase shall be provided inside the staging with effective tie beams in more than One Direction.</p> <p>(11) Water level indicator shall be provided and fixed float type electronic (as specified)</p> <p>(12) The rate shall include providing and fixing pipes, specials and valves required for inlet, outlet, washout, overflow and bypass arrangement. The scope of work includes constructing supporting RC pillars, erecting, laying, fixing and joining pipes and specials up to five m length from face of staging (outermost column)</p> <p>(13) DI pipes and specials shall only be used</p> <p>(14) The rate shall include cost of dewatering during execution making all arrangements with any dewatering techniques</p> <p>(15) The structure shall be designed properly for uplift due to ground water table specified in data or GWT encountered during execution. No extra payment shall be paid for the same</p> <p>(16) Effective curing shall be carried out up to require period as per specifications</p> <p>(17) Contractor shall engage qualified consulting engineer for designing the structure and shall visit the site for guidance of work at all levels i.e. Below foundation up to GL, above GL (or all lifts up to container)</p> <p>Staging Height of 20 m and Seismic Zone V-30,00,000 LIT. CAP. ESR</p>				
14	<p>Supply, installation, testing & commissioning of horizontal split casing centrifugal pump motor set of specified duty parameters & guaranteed efficiency of following MOC with specified capacity, horizontal foot mounted TEFC squirrel cage induction motor (with minimum IE-3 efficiency class), working on three phase AC supply with 50 Hz \pm 3%, 415 V \pm 10%, rated speed 1450 RPM along with fabricated MS base frame, coupling, coupling guard, foundation bolts etc. as per relevant IS.</p> <p>M.O.C.: Impeller & Wearing Rings: Bronze LTB II IS: 318, Casing: CI FG 260 IS: 210, Shaft: SS 410, Shaft Sleeve: Bronze LTB II IS: 318 or SS 410, Mechanical Seal (Above 30 kW), Base Frame: MS. (3w+1s)</p>	Nos.	4		
	Capacity- 32.37 MLD				
	pump discharge = 490 m ³ /hr				
	Pump Head 50 M				
	Eff. Of pump - 80%				

	Required Motor Rating -112 HP >>>>RPM				
	Required Motor Rating - 84 KW				
	Sp gravity - 1.00				
15	Demolition of Brick work and stone masonry including stacking of serviceable materials and disposal of unserviceable materials with all lead and lift (ii) in cement mortar	Cumt.	1000		
16	Demolition and disposal of unserviceable materials with all lead and lift (ii) PCC Lime concrete	Cumt.	2000		
17	Demolition of RCC work including stacking of serviceable materials and disposal of unserviceable materials with all lead and lift.	Cumt.	1700		
18	Excavation for pipe line trenches for water supply, sewerage line, manhole etc. all with shoring and strutting if required as per required gradient and line including safety provisions using site rails and stacking excavated stuff including up to all required lead cleaning the site etc. complete for all lifts and strata as specified				
	In all sorts of soil & soft murrum Upto 1.50 mt depth	Cu. Mt	3300		
	In hard murrum, boulders incl. macadam road Upto 1.50 mt depth	Cu. Mt	4125		
	In hard murrum, boulders incl. macadam road Upto 1.50 mt depth	Cu. Mt	825		
19	Refilling the pipeline trenches incl. ramming, watering, consolidating desposal of surplus stuff as directed within a radius of 3 km.	Cu. Mt	12815.27		
20	Providing and supplying D. I. K-9 grade pipes for following nominal bore diameter with internal cement mortar lining including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete. (IS 8329-2000). Rate for DI pipe based on wholesale Price Index of Pig Iron as 149.2 for the month of Jan-22. For Sewerage project cement mortar lining shall be with sulphate resistance cement				
	700 mm dia	RMT	5500		
21	Lowering, laying and jointing C. I. S & S Spun pipes suitable for Tyton joints / Mortar lined D. I. Pipes of various classes with CI / MS specials of following diameters in proper position, grade and alignment as directed by Engineer-in-charge including hydraulic testing etc. comp.				

	700 mm dia	RMT	5500		
22	Pump House Designing (Aesthetically) and constructing RCC frame structure of pump room with positive suction/Negative suction With gantry Structure (Min Height 4.5 m) upto 6.00 m plinth level to top slab bea, bottom (10*15=150 Sqmt.) With Gantry Structure Min Height 4.5 Mtr	Sqm	150		
23	C.I. D/F VALVES: BUTTERFLY VALVE: Providing and supplying ISI mark CI / D/F Butterfly Valves as per IS:13095 (Latest Edition) of following class and diameter including all taxes. insurance. transportation, freight charges, octroi, inspection charges. loading, unloading. conveyance to departmental stores, stacking etc. complete				
	Butterfly valves IS 13095 with ISI mark PN 1.6				
	700 mm dia	Nos	2		
24	Lowering, laying and jointing in position following C. I./ D/F Reflux valves, Butterfly valves, Sluice valves and Air valves including cost of all labour, jointing material, including nut bolts and giving satisfactory hydraulic testing, etc. complete.				
	Sluice valves, Butterfly valves, Reflux valves				
	700 mm dia	Nos	2		
25	AIR VALVE: Providing & Supplying of C.I Air valves of approved make & quality of following class and diameter including all taxes, insurance, transportation, freight charges, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete.				
	150 mm dia	Nos	11		
26	Lowering, laying and jointing in position following C. I./ D/F Reflux valves, Butterfly valves, Sluice valves and Air valves including cost of all labour, jointing material, including nut bolts and giving satisfactory hydraulic testing, etc. complete.				
	Air valves double ball Flanged				
	150 mm dia	Nos	11		

27	<p>Full Bore Electromagnetic Flow Meter- Regular Power operated Design, Supply, Installation, Testing, Commissioning of Full Bore Electromagnetic flow meter with factory calibration, Inbuilt Battery Power Operated, flanged connection, Flow sensor, Indicator, transmitter and totaliser with all accessories viz. surge arrestor, associated cables, cabinets, hardwares, etc complete as per following specifications</p> <p>Flow Meter/ Sensor:DC pulsed type, IP 68 Protection, Flanged process connection as per IS 1538 or equivalent standard, SS304/ Metallic Alloy Flow Tube, SS316/ SS 316 L/ Hastelloy Sensor, SS316/ Hastelloy Grounding Ring/ Inbuilt Grounding Electrode, Neoprene/Polyurethane/ Hard Rubber/ Rilsan lining, SS304/ Die Cast Aluminium/ Carbon steel with Anticorrosive Paint Coil Housing with Junction Box, CS flanges. Flow Transmitter/ Converter (Remote Field Mounted):Microprocessor based, Modular design, 2 line LCD for indication of actual flow rate, forward, reverse, sum totaliser display, $\pm 0.5\%$ accuracy at 0.3 to 4 m/sec velocity, 4 to 20 mA with HART/Modbus output, one scalable pulse, one status output, IP 67 protection, Die cast aluminium/ polycarbonate/ SS316 with Anticorrosive Paint/ PU finish with glass window enclosure, Inbuilt EEPROM and Data Logger, 20 meters cable length for sensor to transmitter communication etc alongwith wall mounted/ stand mounted cabinet.</p>				
	700 mm dia	Nos	1		
28	<p>Supply, installation, testing & commissioning of horizontal split casing centrifugal pump motor set of specified duty parameters & guaranteed efficiency of following MOC with specified capacity, horizontal foot mounted TEFC squirrel cage induction motor (with minimum IE-3 efficiency class), working on three phase AC supply with 50 Hz $\pm 3\%$, 415 V $\pm 10\%$, rated speed 1450 RPM along with fabricated MS base frame, coupling, coupling guard, foundation bolts etc. as per relevant IS.</p> <p>M.O.C.: Impeller & Wearing Rings: Bronze LTB II IS: 318, Casing: CI FG 260 IS: 210 , Shaft: SS 410, Shaft Sleeve: Bronze LTB II IS: 318 or SS 410, Mechanical Seal (Above 30 kW), Base Frame: MS. (2w+1s)</p>	Nos	3		
	pump discharge = 1360 m3/hr				
	Pump Head 47 M				

	Eff. Of pump - 85%				
	Required Motor Rating -275 HP >>>>RPM				
	Required Motor Rating - 205 KW				
	Sp gravity - 1.00				
29	Supply, testing & commissioning of flange ends Expansion Bellow as per EJMA standards of overall length of minimum 300 mm, designed for 15 mm axial compression and 5 mm axial extension with tie rods etc. of following MOC & pressure ratings MOC: Bellows: SA 240 Gr. 304; Internal Sleeve: SA 240 Gr. 304; Weldends: IS 2062 Gr. B; Flanges: IS 2062 Gr. B (Drilling as per IS 1538 /IS 6392) & Limit Rods & Nuts: CS - IS 1367.				
	700 mm dia	Nos	2		
30	PRESSURE MEASURING SYSTEM Supply, installation, testing & commissioning of Diaphragm Type pressure guage having 150 mm dial with isolation ball valve in SS 316, necessary fittings / accessories in SS 316 (3 way 2 valve manifold, nipples, coupling etc.) complete in all respects and as per specification. Range : 0 - 6 Kg/cm2 (at each pump's delivery side)	Nos	3		
31	LEVEL MEASURING SYSTEM Supply, installation, testing and commissioning of Ultrasonic Level Transmitter along with 10 meter cable between Sensor and Transmitter, all mounting accessories, hardware, etc. complete in all respects and as per specification and having following measurement ranges for liquid (Sewage) application: Meas. Range: upto 10 mtr. The scope also includes providing 4" flanged, puddle pipe approximate 300 mm long including fixing of the same in civil structure slabe of pump house for mounting of transmitter	Nos	1		
32	Supply, laying, testing & commissioning 1.1 kV grade, XLPE insulated, stranded Aluminium conductor, galvanised steel flat strip / round wire armoured, extruded PVC type ST2 sheathed, heavy duty cable (to be laid on wall surface with necessary clamps / in existing cable trench / cable trays / conduit / pipe sleeves at road crossing or floor as per site requirement) conforming to IS:7098 (Part-1) & IEC:60502 (Part-1) of following sizes:				
	3.5 Core x 25 Sq mm	Meter	150		

33	Providing & fitting heat shrink cable termination / jointing kits for 1.1kV grade PVC/ XLPE insulated cable including necessary earth connectivity connection, material & consumables making the termination/ joint complete ensuring the joint resistance is within the permissible limit as per IS, of following types & sizes:				
	Indoor / Outdoor End Termination Kit				
	25 to 50 Sq mm	Each	3		
	Microprocessor Based LV Variable Frequency Drive				
34	Suppl, installation, testing & commissioning of 415 V Fully automatic microprocessor based Variable Frequency drive for pump control application as per general specification as under: The VFD unit shall have modular construction, 6 Pulse Bridge rectifier, speed control by means of sensorless vector control (open loop), high torque at low frequencies, locking at high and low frequency settings, In-built PID control, frequency accuracy of ± 0.1 % (min), frequency resolution of ± 0.1 Hz (min), protections against; a) overload (motor and drive), b) short circuit, c) ground fault, d) input / output phase loss (open circuit), e) stalling, f) input / output undervoltage (momentary power loss restart), g) input / output overvoltage, h) over-frequency, i) Input surge, j) over temperature of heatsink, k) loss of remote speed signal etc. The VFD shall also have userfriendly programming software & it shall be capable of at least two level parameter setting with password lock for critical parameters, programming for I/Os, speed search function, copy parameters (upload / download) to other identical unit, tuning to energy saving mode (maximum efficiency), event / fault recording (last 5 faults in non-volatile memory) & RS 485 communication port (MODBUS RTU protocol) with required software.				
	205 KW	No.	3		
	Control Panel Board				
35	Auto transformer starter suitable for local & remote pump control application consisting of Auto Transformer (vacuum impregnated, air cooled having three (3) tapings at 50%, 65% and 80%), incomer MCCB / MPCB, overload relay and contactors as per Type II coordination including digital MFM with RS 485 communication port, analogue type ammeter				

	with selector switch, run hour meter, required protective relays & control accessories.				
	A. T. S. from 151 to 160 HP	Each	3		
36	<p>11 kV Two Pole Structure Assembly: SITC of 11 kV double pole 9 meter high structure made of 6" X 3" 'I' section girder, 4" X 2" channels, clamps, nuts, bolts, stay wires including earthing system with following accessories duly connected with ACSR conductors as per approved drawing & in compliance with requirement of IEC.</p> <p>(a) 11 kV, 200 A drop out fuses with Synthetic Resin Bonded Paper (SRBP) tubes: 1 Set (01 piece per phase).</p> <p>(b) 11 kV, 400 A G.O.D. switch complete with earth switch, insulators, operating handle with galvanised pipe, square bar: 1 Set.</p> <p>(c) 11 kV lightning arrestor with clamps: 3 Nos.</p> <p>(d) 11 kV Disc Insulators (70KN): 3 Nos.</p> <p>(e) 11 kV Pin Insulators (5KN): 3 Nos.</p> <p>(f) 20 mm dia. GI Stay Sets Complete: 2 Set.</p>				
	11 kV Double Pole Structure Assembly	Each	1		

37	<p>ITC of outdoor type, three phase, oil immersed, power transformer of required KVA & voltage ratio, copper double wound, vector group-Dyn11, HV delta connected & LV star connected with neutral brought out connected to provide separate earthing terminals, bushing /cable box on HV side and cable box on LV side suitable for cables or bus duct as per requirement with standard fittings, conforming to IS: 2026 - 2011 with its latest amendment including first fill of transformer oil & following accessories.(a) Oil conservator with filling holes with cap and prismatic oil level gauge. (b) Silica Gel dehydrating breather charged with silica gel (c) Oil drain cum sampling valve with plug (d) Oil filter valve (e) Lifting Eyes / Hooks / Lugs (f) Two earthing terminal (g) Diagram and rating plate (h) Air release plug (i) Explosion vent with diaphragm (j) Thermometer pocket (k) Four bi-directional plain roller with base channel with hauling holes (l) Fixed / Separate type radiator banks (m) Off circuit externally operated tapping switch (For rating < 1000 kVA) (n) 100 mm stem type oil temperature indicator (For rating < 500 kVA) (o) Bucholtz relay with shut off valve (For rating ≥ 500 KVA) (p) 150 mm dial type oil temperature indicator with Alarm / Trip contact (For rating ≥ 500 kVA) (q) 150 mm dial type winding temperature indicator with Alarm / Trip contact (For rating ≥ 1000 kVA) (r) Marshalling box (For rating ≥ 500 kVA) (s) 150 mm dia. magnetic type oil gauge (For rating ≥ 1600 kVA) (t) Inspection cover & Jacking lugs (For rating ≥ 1600 kVA) For transformer rating of 1600 KVA and higher nitrogen injection fire protection system (NIFPS) is to be provided.(1w+1s)</p>				
	160 Kva Rating & 11/3.3 Voltage Ratio (kV)	Set	2		
38	<p>Above 80 A, upto & including 250 A, 3 & 4 Pole, Air Break Fixed MCCB conforms to IS / IEC 60947-2 with trip free mechanism, current limiting type with Thermal-Magnetic / Microprocessor release (O / C, S / C & E / F) with adjustable settings & having minimum 2NO+2NC potential free auxiliary contacts with all necessary Electro-Mechanical protections & interlocks etc. MCCB module, when used as Incommer / Bus Coupler, shall have enclosure dimensions- 1800(H) x 600(W) x 600 (D) & following technical features:</p>				

	4 Pole, MCCB with Breaking Capacity of Icu=25 KA at 415V (Ics =100% of Icu), TM release	No.	3		
39	Providing and fixing of Lighting & Auxiliary Works				
	LED light fittings 20–40 W	No.	10		
	External LED flood light	No.	2		
	Exhaust fan (300 mm)	No.	2		
	Industrial socket (16 A)	No.	2		
40	Supply & laying GI ladder type cable trays with side channels of size - 75 x 15 x 15 mm / 100 x 15 x 15 mm & rungs of size - 35 x 15 x 15 mm spaced at 250 mm apart, fabricated from 2 mm thick sheet steel in standard length of 2.5 meter, duly hot dipped galvanized after fabrication as per IS 2629-1989/ IS 4759-1984 including accessories such as coupler plates/ fish plates, bends, tees, reducers, elbows, covers and electro-galvanized hardware etc, erected on existing support as per specification and instruction of Engineer-in-charge.				
	150(W) x 75(H) x 2.0 mm Thick	Rmt	100		
41	Providing & fitting heavy duty brass cable glands (nickel-plated) with washers & rubber ring conforming to IS, suitable for 3, 3½ & 4 core cables of following type & sizes:				
	32 mm gland size for 25 sq mm cable of 3 to 4 Core	No.	25		
42	Cable Terminals (Lugs) Providing & fitting crimping type Cable Terminals (Lugs) conforming to IS of following types and sizes				
	25 sq mm Aluminium Tubular Terminals	No.	25		
43	Providing & fixing of Danger board & Safety signage	Set	1		
TOTAL OF SCHEDULE B2					

Signature of Contractor :

Name :

Company's Seal :

Date :

Additional City Engineer, Water Works (Project)

Gandhidham Municipal Corporation

Gandhidham

PRICE SCHEDULE – B 3

SR. NO.	Description	Amount
B 3.1	DEMOLITION WORK	
B 3.2	WATER TREATMENT PLANT (WTP) - 56 MLD	
B 3.3	ELECTRICAL COSTING	
B 3.4	MECHNICAL COSTING	
B 3.5	INSTRUMENTATION COSTING	
TOTAL Cost of SCHEDULE B3		

B 3.1 - DEMOLITION WORK

Item No	Description	QTY.	Unit	Rate	Amount Rs. Rs.
1	Demolition of Brick work and stone masonry including stacking of serviceable materials and disposal of unserviceable materials with all lead and lift (ii) in cement mortar	1984.00	Cumt.		
2	Demolition and disposal of unserviceable materials with all lead and lift (ii) PCC Lime concrete	770.00	Cumt.		
3	Demolition of RCC work including stacking of serviceable materials and disposal of unserviceable materials with all lead and lift.	455.00	Cumt.		
4	Dismantling steel work including distempering and stacking the material with all leads and lift.	46775.00	Kg		

Signature of Contractor :
 Name :
 Company's Seal :
 Date :

Additional City Engineer, Water Works (Project)
 Gandhidham Municipal Corporation
 Gandhidham

PRICE SCHEDULE – B 3.2 WATER TREATMENT PLANT (WTP) - 56 MLD

Sr. No.	Description	Qty	Unit	Rate	Amount in Rs
1	Cleaning and Grubbing land including uprooting trunk, vegetations, grass, bushes, shrubs, sapling and trees girth upto 300 mm, removal of trunks of trees stumps of trees cut earlier and disposal of unserviceable material to be used auctioned land within the estate including removal and disposal of top organic soil not exceeding 150 mm thickness as per MORT&H specification.	0.10	Ha		
2	Unconventional WTP - 56 MLD Designing (hydraulic, process, structural and aesthetic), constructing and commissioning high rate Unconventional Water Treatment Plant(i.e. Non Mechanical) consisting of Civil, Mechanical and Electrical components of various sub-works as given below; including necessary hydraulic testing and trial run for 3 months, etc. complete as directed by Engineer-in-charge (turn-key job). The design shall conform to IS / CPHEEO Manual.	56.00	MLD		
2.1	Aeration Fountain/Cascade aerator				
2.2	Mixing channel with ventury flume/partial flume and flow measuring devices.				
2.3	Flocculator				
	RCC Hopper bottom units having slope >45 Deg as per hydraulic and process design with detention period 15 minutes and surface loading rate 8000 litres/hour/sq.m and depth 2.5m using PVC FlocModules @45 deg fabricated from square tubes with supporting arrangement and sludge collecting pipes as per detail.				
2.4	Tube Settlers				
	RCC Hopper bottom units having slope >45 Deg as per hydraulic and process design with detention period 40 to 60 minutes(as specified) and surface loading rate 6500 litres/hour/sq.m with 3 m depth using PVC tube settler Modules @60 deg fabricated from tubes with supporting arrangement as well as sludge drain pipes as per detail specifications.				
2.5	Rapid sand gravity filters.				

	Filter House(RCC framed structure with infill brick masonry walls) and RCC filter beds with sand and gravel bedding as per hydraulic and process design adopting 6000 Litres/hour/sq.m filtration rate with 2m water above sand media with under drainage system and inlet, outlet, backwash (rate 600 LPM per sq.M) piping and valves/gates arrangement as per design and detail specifications.				
2.6	Chemical house				
	RCC framed structure with brick masonry infill walls .ground floor and first flour area as per data/specifications shall be provided. Minimum clear head room for doors, passages, galleries etc. shall be 2.10 m. It shall be 2.40 m in case of Alum dosing tank.				
	Alum tanks 2 Nos. with mixing, carrying ,dosing with piping arrangement.				
2.7	Gravity feed gas chlorinator with 100% stand by.TCI solution withmixing carrying and dosing arrangement with piping.				
2.8	Bye-pass arrangement.				
2.9	External and internal electrification as per planning and specifications.				
2.1	Laboratory room with equipments as per planning and specifications. All platform of granite.				
2.11	Wash water tanks of capacity equal to 2% of designed quantity of iltered water in a day (+) 10% with 8 to 10 m head (as specified) Wash water tank shall be constructed on RCC column/slabs only.				
2.12	Wash water pumps with 100% standby.				
2.13	Air blowers capable of delivering 750 to 833 LPM per sq.M of freeair flow area at 0.35 to 0.4 Kg/sq.M at the under drains (100% standby).(For capacity of FP more than 10 MLD)				
2.14	Drainage arrangements as per planning and design.				
2.15	Sanitary block with necessary water supply and drainage arrangements . Bathroom with shower facility.				
2.16	All vehicle access roads shall be of RCC and balance of Paver block type.				

2.17	Rates given below are inclusive of uplift pressure if any and dewatering during the entire work using any appropriate technique.				
2.18	All channels should be with inside china mosaic/epoxy coated.				
	All railing should be SS railing (SS 304) as per latest IS standard.				
	External paint should be of weather proof coating.				
	All Window shall be of Anodised Aluminum section with wired glasses, also provided with grill/jaali/aluminium weldmesh to prevent birds entry.				
	Roof top of all unit of the WTP is approachable through staircase. All staircase of entire WTP should be RCC only.				
	Fire safety equipment , Safety kit to be kept handy.				
	Opening of window & door should be framed with granite. All platform for kitchen/laboratory shall be of granite and fixed in sandwich with bottom of kota/white marble.				
	All building terrace shall be finished with high quality water proofing like china mosaic flooring with proper slope and drainage for rain water.				
	Flooring of Loading area shall be of stone flooring and open/other space shall be of paver block pitching.				
	<p>Notes</p> <p>(1) Conditions from Sr. No. 1 to 1.18 shall from a part and parcle of the tender and must be incorporated in draft tender papers of conventional treatment plants.</p> <p>(2) The necessary changes should be carried out as per Site condition and project requirements at the time of preparing DTP's Inlet chamber can be dropped when Aerator is proposed otherwise it should be included.</p> <p>(3) Hydraulic design criteria approved by Technical committee shall be referred and item description shall be modified accordingly</p> <p>(4) Structural design criteria appoved by technical committee shall be applicable for design.</p>				

	<p>(5) Design flow shall be specified in M3/hour in data sheet considering 22 hours WTP run time in a day to treat requirement water quantity of a day of population to be served with design rate of water supply. No separate overloading provision shall be kept in any tender clause .</p> <p>(6) All other details shall be as per design criteria and detail specifications and as directed by Engineer in Charge</p> <p>(7) The rates includes excavation ,refilling and throwing away extra stuff as directed</p>				
3	<p>Providing and applying Epoxy paint of approved make to concrete surface for RCC Sump or any other structure including cleaning the surface by scrapping and air blowers to the satisfaction of Engineer-in-charge necessary scaffolding etc. complete with all leads and lifts and giving satisfactory hydraulic test for water tightness as per IS codes. Two coat for new Surface</p>	5920.00	Sqm		
4	<p>Designing(aesthetically & structurally) and constructing Pump room as per design and drawing with positive & Negative section With Gantry in pump room including doors & windows of aluminium section and window grill of iron/Aluminium, rolling shutter with GI strips & GI covers etc. complete up to height from Plinth in pump room, In RCC (SRC/slag cement) frame structure including Brick/Autoclaved cement concrete block masonry fillers walls of min 200 mm thickness with 15 mm thick inside plaster in 1:2 cement mortar & two coats of 20 mm thick sand faced outside plaster with weather plaster proof painting outside & acrylic painting inside with Aluminium frame & shutters partly glazed doors & Aluminium Frame & shutters with fully glazed windows having extruded Aluminium frame colour anodized/powder coating of size 127 mm X 38.1 mm X 1.35 mm weighing 1.38 kg/m & door shutters of 127 mm X 38.1 mm X 1.35 mm weighing 1.35 kg/m & window shutters of 122.20 mm X 31.75 mm X 1.10 mm weighing 1.20 kg/m with 5 mm transparent float glass in all shutters. including powder coated Aluminium fittings & fixtures with transparent silicon sealant glass fixing to the frame with granite jams & sills & lintels on</p>	265.60	Sqm		

	outer sides of wall openings. Window grill of iron should be provided. Pump room Floor is Mirror Polished Kotastone of thickness 25 mm directed by Engineer in charge.				
5	<p>Providing and laying integrated cement based water proofing treatment of required thickness over the roof, chaina mosaic fitting and finally finishing the surface with white cement slurry and slopping out terrace slabs with following specification laid to required slope not flatter than 1:80 (the thickness of water proofing treatment near rainwater outlet or the lowest point of the finished slope shall not be less than 45mm, including treating the vertical surface of the parapet wall up to 20cms . height above finished level of terracing including finishing the top with joint less water proofing plaster, curing, testing etc. complete. Rate is including five years performance of guarantee bond to be given on stamp paper. (No extra shall be paid for increase in thickness for proper slope).</p> <p>(A) Applying and grouting a slurry coat of neat cement using 2.75 kg/sqm. of cement admixed with properly water proofing compound conforming to IS -2645 incl. cleaning the surface before treatment (B) Providing and laying cement concrete 1:5:10 (1-Cement:5-fine sand:10-graded brickbat aggregates 40mm nominal size) and curing complete excluding cost of form working (C) After Two Days of proper curing applying a second floor of cement slurry (D) Finishing</p>	258.15	Sqm		

	the surface with china mosaic pieces laid on 10mm thick joint less cement plaster of mix 1:3(1 cement :3 coarse sand)admixed with proprietary water proofing compound conforming to IS :2645 and finally finishing the surface with trowel with neat cement slurry (E) The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing for final taste. All above operation to be done in order and as directed and specified by the Engineer In Charge.				
6	Providing and fixing to wall, ceiling and floor 10 Kg/cm ² working pressure polythene pipes of 110 mm dia low density complete with special flange compression type fittings, wall clip etc including making good the wall , ceiling & floor	120.00	Rmt		
7	Supplying and fixing stainless steel hand Railing of Grade 304 (16 gauge thick sections) with glossy finish consisting of 32mm x 32mm size vertical posts 900 Height at maximum spacing @ 750 mm c/c with suitable cups at top rail of 50 mm x 50 mm & intermediate horizontal rails 3 nos of 16 mm x 16 mm size etc complete at all levels including bending to required profile. Tungsten insert gas welding & all required accessories, grinding & labour etc complete as per design fixing with base slab/concrete or side wall/RCC by hilti or equivalent fastener and plates as per Drawing and instruction of Engineer-in-Charge. .(work for all floors)	800.00	Rmt		
	Total of BOQ-02				

Signature of Contractor :

Name :

Company's Seal :

Date :

Additional City Engineer, Water Works (Project)

Gandhidham Municipal Corporation

Gandhidham

PRICE SCHEDULE – B 3.3 - Electrical Estimate

Sr. No.	Item	Unit	Qty	Rate	Total Amount
1	11 kV Four Pole Structure Assembly:				
	<p>SITC of 11 kV double pole 9 meter high structure made of 6" X 3" 'I" section girder, 4" X 2" channels, clamps, nuts, bolts, stay wires including earthing system with following accessories duly connected with ACSR conductors as per approved drawing & in compliance with requirement of IEC.</p> <p>(a) 11 kV, 200 A drop out fuses with Synthetic Resin Bonded Paper (SRBP) tubes: 2 Set (01 piece per phase / circuit).</p> <p>(b) 11 kV, 400 A G.O.D. switch complete with earth switch, insulators, operating handle with galvanised pipe, square bar: 2 Set.</p> <p>(c) 11 kV lightning arrestor with clamps: 3 Nos.</p> <p>(d) 11 kV Disc Insulators (70KN): 9 Nos.</p> <p>(e) 11 kV Pin Insulators (5KN): 6 Nos.</p> <p>(f) 20 mm dia. GI. Stay Set Complete: 2 Set</p>	LOT	1		
2	Transformer				

	<p>SITC of outdoor type, three phase, oil immersed, distribution transformer of required KVA & voltage ratio, copper double wound, vector group - Dyn11, HV delta connected & LV star connected with neutral brought out connected to provide separate earthing terminals, bushing / cable box on HV side and cable box on LV side suitable for cables or bus duct as per requirement with standard fittings, conforming to IS: 1180 (Part-1) / 2014 with its latest amendment including first fill of transformer oil & following accessories.</p> <p>(a) Oil conservator with filling holes with cap and prismatic oil level gauge.</p> <p>(b) Silica Gel dehydrating breather charged with silica gel</p> <p>(c) Oil drain cum sampling valve with plug</p> <p>(d) Oil filter valve</p> <p>(e) Lifting Eyes / Hooks / Lugs</p> <p>(f) Two earthing terminal</p> <p>(g) Diagram and rating plate</p> <p>(h) Air release plug</p> <p>(i) Explosion vent with diaphragm</p> <p>(j) Thermometer pocket</p> <p>(k) Four bi-directional plain roller with base channel with hauling holes</p> <p>(l) Fixed / Separate type radiator banks</p> <p>(m) Off circuit externally operated tapping switch (For rating < 1000 kVA)</p> <p>(n) 100 mm stem type oil temperature indicator (For rating < 500 kVA)</p> <p>(o) Bucholtz relay with shut off valve (For rating \geq 500 KVA)</p> <p>(p) 150 mm dial type oil temperature indicator with Alarm / Trip contact (For rating \geq 500 kVA)</p> <p>(q) 150 mm dial type winding temperature indicator with Alarm / Trip contact (For rating \geq 1000 kVA)</p> <p>(r) Marshalling box (For rating \geq 500 kVA)</p> <p>(s) 150 mm dia. magnetic type oil gauge (For rating \geq 1600 kVA)</p> <p>(t) Inspection cover & Jacking lugs (For rating \geq 1600 kVA)</p> <p>For transformer having oil storage capacity for 2000 liters and higher, nitrogen injection fire protection system (NIFPS) is to be provided.</p>	Nos	2		
	11/0.433 KV ,630 KVA ,LEVEL-2				
3	11kV Panel				

	<p>Supply, installation, testing & commissioning both side extensible, Indoor type HV Switchgear panel confirming to IS-3427, IS-2516 (Part- I & II.sec.1) & IEC-60056 & IEC-62271-100/200 for use on 3phase, 50 Hz, unearthed AC supply system and having breaking/ ruptuing capacity of 500 MVA (26.3 kA for 3sec) complete with spring charged mechanism, ON-OFF mechanical push button, operation counters, Breaker TNC switch, Breaker L/R switch, necessary auxiliary switches, closing coil, shunt trip, protection relays & Indicators etc., complete.</p> <p>The panel shall comprise of air insulated busbars provided with heat shrinkable PVC sleeves. The VCB trolley shall comprise of three vacuum interrupters with epoxy support insulators and self aligning finger type isolating contacts and necessary mechanical interlocks, safety shutters, isolating plugs. Enclosure shall be openable from front as well as rear end.</p> <p>The breaker shall be Manual cum motorised mechanism with following accessories.</p> <p>a) 96 x 96 mm square flush mounting type Ammeter & Volt meter with selector switches</p> <p>b) Multi function meter</p> <p>c) Double core, cast resin type current transofrmer having ratio as per requirement, one core for metering & one core for protection having required class of accuracy.</p> <p>d) Instantaneous under voltage relay & Temperature rise tripping Relay,</p> <p>e) Triple pole IDMTL two over current and one earth fault relay with current setting range 50-200% and 10-40%</p> <p>f) Electrical closing. coil & shunt trip coil operating on 110 V DC.</p> <p>g) Auxiliary relay for anti pumping device.</p> <p>h) Three limb, drawout type, feeder connected, cast resin insulated, three phase Potential transformer having ratio & burden as per requirement & Class 0.5 accuracy.</p> <p>i) Annunciator Windows, Common Hooter / Alarm bell operating on 230 AC/ 110 V DC.</p> <p>j) Cable boxes suitable to terminate 3 core XLPE cable of required size (As per design).</p> <p>k) 230V AC to 110 V DC power pack for closing & tripping circuit common.</p> <p>l) Breaker ON-OFF, Auto trip and spring</p>	Lot	1		
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	<p>charged indicators.</p> <p>m) Phase indicating & panel illumination lamps with plug socket.</p> <p>n) Space Heater with Thermostat.</p>				
	<p>11 kV HV Switchgear Panel- Comprising of 630 A Vacuum circuit breaker for 1 no. Incomer, 2no. O / G feeders for 11/0.433 kV distribution transformers</p>				
4	DG SET				
	<p>Supplying and erecting, commissioning and testing of Diesel Generating set confirming to IS: 4722:1968 & BS:5514 having continuous rating, 3 phase, 415 volts, 50 cycles A.C. supply comprising of a totally enclosed air/water cooled diesel engine with multi-cylinders developing suitable BHP not less than following capacity at 1500 RPM with 10% overload for one hour in 24 hours with standard accessories like fly wheel, lubricating oil cooler, "A" class governor, heavy duty fuel wheel and lubricating oil filter, oil bath air filler, lubricating oil pressure gauge, end exhaust manifold, standard set of tools with adjustable spanners, screw drivers, cylinder head to cover, joint cylinder head to exhaust, element lube oil filter, 12/24 volts electric starting equipment complete with standard heavy duty battery, dynamo, cut-outs, ammeter, necessary wiring. pressure gauge, starter etc and heavy duty Residential type exhaust silencer and vertical hot air duct both logged with asbestos rope, save oil trays, exhaust piping of required length, standard wall/floor mounted fuel with level indicator and piping and drip proof alternator, self excited, self regulated, screen protected With excitation system, capable of delivering the rated system output at 415 volts, 3 phase, 0.8 PF, 50 Hz, 4 wire, running at 1500 RPM, conforming to IS- 4722-1968 with voltage regulation 5% of rated voltage from no load to full load. Both the engine and alternator fitted on a common fabricated steel base plate with antivibration mounting engine and alternator both connected to each other by flexible flange coupling and with floor/wall mounted control panel box comprising of voltmeter ammeter, selector switches, ACB/MCCB/MCB of adequate capacity, indicator lamps duly wired with HRC fuses. The alternator & control panel shall be connected with provided</p>	Nos	1		

	suitable capacity armoured cable and complete with Acoustic enclosure (canopy) made out of 16 SWG CRCA Sheet, sound absorbing material Rockwool of 64 density & 100 mm thick conforming to IS:8183/PU Foam of 40 Density- at least 40 mm. The resin bonded rockwool covered from inside the canopy by perforated sheet with 3/4 mm holes, sound level not more than 75 dB at a distance of 1 mtr, as per PVCT norms. Erection, commissioning and satisfactory testing as per requirement with first filling of fuel, oil, etc. with guarantee / Warrantee of complete system for Two years. & with obtaining all necessary certificate from Electrical Inspector. (Including Labour)				
	Continuous rating of 160 KVA, BHP not less than 197 BHP				
5	LT Panel				
	Design, engineering, procurement, installation, testing and commissioning of LT panel with totally enclosed type as per IS: 2147 & IS-8623, operation on three phase, 415V, 50Hz, neutral effectively grounded, IP 55, with instrument compartments indicating lamps, control contactors as per IS: 13947, relays and control fuses air insulated. Incoming & Outgoing feeder details shall be as per Load list & tender specifications.				
	LT PMCC Panel	Nos	1		
	CWR Panel	Nos	1		
	Clarifloculator Panel	Nos	1		
	Filter House Panel	Nos	1		
	Chlorination Panel	Nos	1		
	Centrifuge Building Panel	Nos	1		
	MLDB & MPDB	Nos	2		
6	415V L.T APFCR PANEL				
	Design, engineering, procurement, installation, testing and commissioning of Capacitor Panel for LV Auxiliary Load 110 KVAR on each section of bus, 415V, 3Ph, 50Hz, APP, Capacitor bank with appropriate stages and consisting of modular Capacitor Units conforming to IS: 13585 with its latest Amendments with TPN MCCB (Over load, S.C & Earth Fault Protection) as Incomer. Utilisation category A'; Ics=Icu, Digital Ammeter of 96x96 size with selector switch--suitable ratio, current transformer - 3 nos. etc. complete as per tender specifications and as	Nos	2		

	directed by the Engineer-in-Charge. All feeder shall be suitable for PLC-SCADA compatible.				
7	HT Power Cables				
	Supply, laying, testing & commissioning 6.6 / 6.6 kV (UE) grade, XLPE insulated, stranded Aluminium conductor, galvanised steel flat strip / round wire armoured, extruded PVC type ST2 sheathed, heavy duty cable (to be laid on wall surface with necessary clamps / in existing cable trench / cable trays / conduit / pipe sleeves at road crossing or floor as per site requirement) conforming to IS: 7098 (Part- 2) & IEC: 60502(Part-2) of following sizes: *6.6kV (UE) = 11kV (E)				
	11KV (U/E) 3C X 300 Sq.mm , AL ,XLPE , armoured cable	Nos	150		
8	LT Power Cables & Bus Duct				
	Supply, laying, testing & commissioning 1.1 kV grade, XLPE insulated, stranded Copper/Aluminium conductor, galvanised steel flat strip / round wire armoured, extruded PVC type ST2 sheathed, heavy duty cable (to be laid on wall surface with necessary clamps / in existing cable trench / cable trays / conduit / pipe sleeves at road crossing or floor as per site requirement) conforming to IS: 7098 (Part-1) & IEC: 60502 (Part-1) of following sizes:				
	(a) 1.1KV ,3.5C X 300 sq.mm. AL XLPE	Nos	150		
	(b)415 LT MCC panel to ACDB, LDB & PBD,Outgoing Feeder				
	(i) 1.1KV 3C X 2.5 Sq.mm Cu cable	Nos	2200		
	(ii) 1.1KV 4C X 2.5 Sq.mm Cu cable	Nos	2750		
	(iii) 1.1KV , 3Cx 6 Sq.mm Al , cable	Nos	400		
	(iv) 1.1KV 4C X 6 Sq.mm AL cable	Nos	210		
	(v) 1.1KV 4C X 25 Sq.mm AL cable	Nos	220		
	(vi) 1.1KV 3C X 50 Sq.mm AL cable	Nos	175		
	(vii) 1.1KV 3C X 95 Sq.mm AL cable	Nos	220		
	(vii) 1.1KV 3C X 25 Sq.mm AL cable	Nos	275		
9	HT CABLE TERMINATION				

	Double compression brass cable glands and crimping type bimetallic lugs/ sockets with necessary tools and equipments as specified in tender specifications and IS. The glands and lugs/sockets shall be suitable for cable size and type mentioned above. The job also includes, if necessary, supply and fixing of extension busbar of same material on MCCB or panel board terminal / connector to connect more than one no. of parallel cables or to connect higher size cable to lower size unit. The job also includes earthing the glands and armour of the cable with common earth bar or flexible copper mesh & HT Cable termination Kit Suitable size Heat shrinkable cable end termination kit for 11 KV, 3C cable with weather proof double compression cable glands, crimping type lugs, joints supporting structure etc. suitable for selected power cable.				
	(a) Indoor type cable termination Kit 11 KV (UE) XLPE screen HT termination kit HT cable -300sqmm	Nos	10		
	(b) Out door type cable termination Kit 11 KV (UE) XLPE screen HT termination kit HT cable -300 sqmm	Nos	5		
10	Cable Trays				
	Supply , Installation, Testing and commissioning approved make Ladder/ Perforated C type cable tray. Made from pre-galvanized CR sheet steel. The cable tray should be bended as per IS 2062/1079 . with coupler plate / Fish plate and GI hardware like nut - bolt and washers etc. erected on existing support as per Specification and as per instruction of engineer in charge.Galvanised Iron Cable Trays. Including necessary supports, welding, insert plates, etc. complete with necessary bends, tees gross, covers, reducer, cover attachment, adjustable elbow, connectors & y branch, barrier strips and supporting ,erection hardware and accessories.make as per detail engineering & tender specifications.				
	(a) 150 mm wide (Channel size 75X15X2 mm & runner size 35X15X2 mm) GI ladder type cable tray with GI couplers plate & nut bolts	Lot	1		
	(b) 300 mm wide (Channel size 75X15X2 mm & runner size 35X15X2 mm) GI ladder type cable tray with GI couplers plate & nut bolts				

	(c) 750 mm wide (Channel size 75X15X2 mm & runner size 35X15X2 mm) GI ladder type cable tray with GI couplers plate & nut bolts				
	(d) 150 mm wide X 35X2 mm thick GI perforated type cable tray with GI couplers plate & nut bolts				
	(e) 300 mm wide 35X2 mm thick GI perforated type cable tray with GI couplers plate & nut bolts				
11	Ligting-Indoor & Outdoor				
11.1	<p>Point wiring for Light / Fan/ Bell/ Primary Point with 2-1.5 sq. mm & earth wire of 1.5 sq. mm (green) both are of ISI marked 1.1 kv grade FRLS PVC insulated multi strand copper wires upto max length of 10 mt, in below type of pipe erected with 6A Tissino Type ISI marked flush type switch / bell push and accessories erected on Metal / PVC/Wooden Box covered with 3 mm thick PC(Polycarbonate) /Acrylic/Laminated sheet. with necessary Lamp holder/ceiling rose / H.D.Connector as directed.</p> <p>(a) with medium class Rigid PVC pipe and accessories erected flushed on wall/ceiling complete</p>	Pt	150		
11.2	<p>Point wiring for independent PLUG with following size mains earth wire of 1.5 sq.mm (green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires upto 10 mt length, in following below of pipe erected complete with ISI marked 3 / 5 Pin socket and tissino type switch erected with earth continuity connection erected on Metal / PVC/Wooden box covered with 3 mm thick PC(Polycarbonate) / Acrylic/Laminated sheet.</p> <p>[B] 6/16A Plug and 16 amp switch with 2-2.5 sq. mm Cu. Mains from mcb d b boards.</p> <p>(a) with medium class Rigid PVC pipe and accessories erected flushed on wall/ceiling complete</p>	Pt	50		

11.3	<p>Supplying and erecting LED indoor fittings with LEDs of wattage 0.2 Watt to 0.5 Watt assembled on single MCPCB, with housing used as a heat sink shall be made of thick sheet Steel conforming to IS: 513/CRCA/ aluminium die cast powder coated and high U.V. & corrosion resistance with diffuser with company mark/name 160V to 270V, Power Factor more than 0.95, THD < 15%, CCT 3000 K to 6500K, Luminaire efficacy > 85 lumens/watt, LED LED driver efficiency > 85 % (fitting required LM-79 & LM-80 Certificates)(NOTE: Below description have shown ranges of Wattage capacity of LED fittings. The Engineer incharge may select any wattage capacity between the ranges shown.)</p> <p>(A) Tube Light with integral driver (v) 36-40 Watts, Surge-2 KV, IP-20, conventional 4 feet(Cat III)</p>	Nos	85		
11.4	<p>Supplying and erecting LED street light / Flood light fittings with High power White LEDs wattage of 3 Watt and above assembled on single MCPCB, efficiency more than 130 lm/w and corrosion free High pressure die cast aluminium housing with smooth finish powder coated and heat sink extruded aluminium with diffuser and Polycarbonate optics/ lenses with company mark/name engraved or embossed 160 to 270 V, Power Factor more than 0.95, THD < 10 %, CCT 3000 K to 5700K, Uniformity ratio > 0.45, Luminaire efficacy > 100 lumens/watt . LED driver efficiency > 85 %.(fittings required LM-79 & LM-80 certificates)(NOTE: Below description have shown ranges of Wattage capacity of LED fittings. The Engineer incharge may select any wattage capacity between the ranges shown.)</p> <p>(A) Street Light (IP-65), Surge protection - 4KV integral and ,Light must have 440VAC line supply with over-voltage protection. (iii) above 24 to 36 watts(Cat-III)</p>	Nos	55		
11.5	<p>Supplying & erecting Steel tubular pole (Swaged) confirming to IS - 2713 (Part-II) 1980. Manufacturing process of steel tubular pole should be as per IS specification. Basic steel tube should be ISI Marked. Pole should be painted by one coat of Zinc comet Primer and two coat of Aluminium /approved paint to be erected on / in existing Foundation. The</p>				

	length of poles are as below. (A) 7.5 mtr. Long Swaged Steel tubular pole				
i)	(i) pole as per IS code 410-SP-4 with 300 X 300 X 4 mm base plate with necessary G.I. J Bolts (Approximate Pole weight 67 Kg) For burial erection	Nos	40		
11.6	Providing & erecting Approved make Ceiling Fan with double ball bearing ISI mark with Condenser 230 volt A.C.50 Hz 1200 mm sweep complete having 3 blades aluminium body and blade sets having ornamental design shanks , canopy erected with earthing. [Make shall be approved by Engineer in Charge]	Nos	30		
11.7	Supplying & erecting single phase approved make industrial exhaust fan suitable for medium duty ring mounted low noise operation suitable for medium duty having following dia size and maximum speed in RPM [D] 450 mm dia 900 RPM (Cat-II)	Nos	60		
12	Earthing & Lightning Protection System: Providing EARTHING & Lighting protection for Pump house, Electrical penel room, Out side Pump house area & Switchyard area equipments including Earthing pits, Electrode, GI Strips, MS Strip as per IS 3043 & IEEE 80 & tender specifications.				
12.1	Providing and erecting Pipe type earthing with 40 mm dia 2.5 mtr long 'B' grade G.I. pipe with necessary coupling buch buried in specially prepared earth pit & G.I. earth wire of 8 SWG erected & connected as directed (For panel)	Nos	35		
12.2	For using salt and charcoal / coke as required for pipe type earthing.	Nos	70		

12.3	Supplying & erecting funnel type earthing having earth plate of following size buried in specifically prepared earth pit 3 mtr. below ground with 40 kg. charcoal and salt with alternate layers of charcoal & salt, 20mm.dia. G.I. pipe with Funnel with a wire mesh for watering & bricks masonry block, C.I. Cover complete as per para 7.3 of IS 3043 with necessary length of double Galvanised Iron / copper earth wire No 6 SWG bolted with lug to the plate and covered in 12 mm dia. G.I. pipe 2.5 mtr long complete connected to the nearest switch gear with end socket as per direction & duly tested by earth tester confirming to IS (As per drawing) with following specification (C) with 60 x 60x 0.315 cms. Copper earth Plate	Nos	15		
12.4	Providing and erecting required size HOT deep Galvanised iron strip for earthing of H.T. , OCB/ ACB/ Transformer LT panel board, Motors etc. using proper clamp.	Kg	1200		
12.5	Providing and erecting required size Copper strip for earthing of H.T. OCB / ACB/ Transformer, LT panel board, Motors etc. using copper clamp.	Kg	200		
12	SAFETY ACCESSORIES				
	(a)Providing and fixing printed instruction chart both in English and Gujarati and duly framed with front glasses, for treatment of person suffering from Electric shock with minimum 50" diagonally size.	NOS	20		
	(b)Providing pair of rubber hand gloves.	SET	20		
	(c)Supplying rubber matting of following 12 mm thickness as per IS:15652/IEC 61111	SQ.MTR	75		
	(d)Supplying stand first AID box with antiseptic cream, medicine for use on wounds due burn, crepe bandage, gauge bandage, medicated ready to use bandage (Band-aid) adhesive tape for medicinal user, Scissors, anti-septic solution (Savlon or similar) etc. (All above contents shall be of standard makes)	NO	20		
	(e)Supplying FIRE bucket round bottom of 9 litres capacity made out of 24 gauge G.I. sheet with extra handle at bottom duly painted white inside and Red out side with FIRE mark, filled with dry-sand and kept on existing stand provided or hung on wall hook.	NOS	20		

	(f)Supplying & erecting floor mounting stand for keeping four nos.of FIRE buckets comprising 1500mm in length 900 mm height frame made out of Jomm x 30 mm x 4 mm angle iron with cross supports for legs,welded with 4 hooks and duly painted with one coat of red lead and two coats of approved enamelled silver paints	NOS	15		
	(g)Supplying & erecting carbon dioxide (CO2) fire extinguisher user of following capacity with necessary clamps made from 50 x 6 mm M.S. Flat with nut & bolts grouted in wall complete. [B] For 5.5 / 6.5 KG Capacity	Nos	15		
	(h)Supplying & erection D.C.P type fire extinguisher for following capacity cartridge type with gun metal cap 150 gram CO2 gas cartridge ,powder and brackets confirming to IS 2171 1985 and complete erected with necessary clamps made from 50 x 6 mm MS (1)For 10 KG Capacity	Nos	15		
	TOTAL OF BOQ 3				

Signature of Contractor :

Name :

Company's Seal :

Date :

Additional City Engineer, Water Works (Project)

Gandhidham Municipal Corporation

Gandhidham

PRICE SCHEDULE – B 3.4 MECHANICAL ESTIMATE

Sr. No.	Item	Quantities	Unit	Rate	Amount
1	Supply, installation, testing & commissioning of Flocculator mixer, suitable for installing on rotating bridge in flocculation zone of Clariflocculator Tank of size 41.0 m Diameter with its all accessories, Mounting bracket, central shaft, Paddles, Gear Box, 1.5 KW induction motor with DOL starter, working on three phase AC supply with 50 Hz \pm 5%, 415 V \pm 10%. Rated speed of Flocculator shall be 4 RPM and should have following material of construction. Type of Flocculator shall be Paddle type mixer. Each Flocculator mixer shall have 8 nos. of paddles of size 2.5 m height and 0.35 m width. Thickness of each Paddle shall be 5 mm. The service factor of Gear Box shall not be less than 2.0. Material of Construction- Central Shaft : MSEP,	1	Nos		

	Paddles: MSEP, Gear Box : Cast Iron housing, Motor : Cast Iron body, Mounting Bracket : Mild Steel Epoxy painted.				
2	Supplying, erecting, testing & commissioning of peripheral driven Rotating half bridge sludge scrapper for clariflocculator of size 18.0 m diameter including its all accessories, gear drive and motor etc.. The walkway bridge should be 1.2 m wide and have truss design with MS grating on floor of bridge. PU Sleeved wheels resting on peripheral wall with slip ring assembly to be provided. The Motor should be 1.5 KW induction motor with DOL starter, working on three phase AC supply with 50 Hz \pm 5%, 415 V \pm 10%. The revolution per hour for scrapper should not be more than 1. The Material of Construction should be Mild Steel Epoxy painted (MSEP).	1	Nos		
3	Supplying, erecting, testing & commissioning of FRP weir plate of size 500 mm wide X 5 mm thick, circumference of inside wall of outlet launder of clariflocculator of size 18.0 m diameter including its all fasteners etc.	129	RM		
4	Supplying, erecting, testing & commissioning of Telescopic valve in SS 316 MOC as per Clariflocculator dimension.	1	Nos		
5	Supplying, erecting, testing & commissioning of Twin Lobe Blowers of capacity 2100 m ³ /hr at 0.40 kg/cm ² pressure with its all accessories like Base frame, Pulley, V-Belts and Motor etc. Motor should be installed at same base frame and base frame should have adjustable screw to align motor with Blower. The Motor should be induction motor with Star Delta starter, working on three phase AC supply with 50 Hz \pm 5%, 415 V \pm 10%. The Blower RPM should not be more than 1200 rpm. The Material of Construction should be as follow. Casing : CI-FG-260, IS210, Lobes : CI-FG-260, IS210, Shaft : EN 24 BS:970 Part-1, Gears : EN-353 case hardened, Common Base Frame : MS Fabricated, Epoxy Painted	2	Nos		

6	Supplying, erecting, testing & commissioning of Filter Backwash Tank Filling Pump, having Submersible centrifugal type, of capacity 140 m ³ /hr at 15 mWC with its all accessories like Auto Coupling, Duckfoot bend, Guide pipe & Its bracket, Lifting Chain and Pump Monitoring Unit, PVC insulated Cable etc. Motor should be integrated with Pump body and have IP68 ingress protection. The Motor should be cooled by surrounding water. Pump should have double mechanical seal and both seal should have Sic Vs Sic faces. The Length of Guide pipe, Lifting Chain and Cable should be 3.5m, 5m and 10m respectively. Pump should have all necessary protections like oil leakage, seal leakage etc. The Material of Construction shall be as follows; Casing - CI IS210 Gr FG 260, Casing wear ring/wear plate - CI IS210 Gr FG 260, Shaft - AISI 410, Impeller / Impeller Nut - CF8M, Auto Coupling Unit - Cast Iron, Motor Rotor (up to 90 kW rating) - Copper Bar base / Aluminum Die cast, Motor Rotor (above 90 kW rating) - Copper Bar base, Guide rail pipe - Heavy duty, SS 304, Lifting Chain - SS304.	2	Nos		
7	Supplying, erecting, testing & commissioning of V-wire under drain system for RSF beds made from stainless steel screen with base pipe of HDPE pipes with other accessories for one bed having two compartment & size of each bed is as per design. The system shall be consist of required length of lateral. each having MOC SS 304 with 300 micron slot screen based on 3" HDPE pipe. The air distribution shall be done uniformly and shall cover all laterals individually.	528	Sq. Mt		
8	Supplying, erecting, testing & commissioning of Fine sand, Graded & dried filter media (IS 8419 Part 1 compliant) in RSF tanks	563	m ³		
9	Supplying, erecting, testing & commissioning of Coarse Gravels as a supporting media in RSF tanks	338	m ³		
	Total Of BOQ 4				

Signature of Contractor :

Name :

Company's Seal :

Date :

Additional City Engineer, Water Works (Project)

Gandhidham Municipal Corporation

Gandhidham

PRICE SCHEDULE – B 3.5 INSTRUMENTATION ESTIMATE

Sr. No.	Item	Unit	Qty	Rate	Total Amount
1	PLC PANEL WITH SCADA FOR WTP WITH UPS				
	Instrumentation control panel with PLC : (01 No.) - Floor mounted front operated cubical panel board having IP 55 protection along with PLC, alarm for controlling of WTP field instruments like flow meters, level transmitter, pressure transmitter, etc. Instrumentation system shall be redundant with 100% hot back up.	Nos	1		
	SCADA system cabine & its accessories: Supply & erection of Computer based control desk for monitoring 2 Nos. of Industrial computer, printers & associated hardware & software , chairs , cupboard, 1 no colour printer and 1 no 132 column dot matric printer suitable for extendable system as per tender specifications & drawing				
	Un-interruptable power supply with nickel cadmium battery as per technical specification with back up power for 60 mini minimum or better.(01 Set).				
2	Flowmeter				
	Design, Supply, Installation, Testing, Commissioning of Full Bore Electromagnetic flow meter with factory calibrated, Regular Power Operated, flanged connection, Flow sensor, Indicator, transmitter and totaliser with all accessories viz. surge arrestor, associated cables, cabinets, hardwares, etc complete as per following specifications: DC Pulsed type, IP 68 Protection, Flanged process connection as per IS 1538 or equivalent standard, SS304/ Metallic Alloy Flow Tube, SS316/ SS 316 L/ Hastelloy Sensor, SS316/ Hastelloy Grounding Ring/ Inbuilt Grounding Electrode, Neoprene/ Polyurethane/ Hard Rubber/ Rilsan lining, SS304/ Die Cast Aluminium/ Carbon steel with Anticorrosive Paint Coil Housing with Junction Box, CS flanges. Microprocessor based, Modular design, 2 line LCD for indication of actual flow rate, forward, reverse, sum totaliser display, ±0.5% accuracy at 0.3 to 4 m/sec velocity, 4	Nos	2		

	to 20 mA with HART/Modbus output, one scalable pulse, one status output, IP 67 protection, Die cast aluminium/ polycarbonate/ SS316 with Anticorrosive Paint/ PU finish with glass window enclosure, Inbuilt EEPROM and Data Logger, 20 meters cable length for sensor to transmitter communication etc alongwith wall mounted/ stand mounted cabinet.				
	700mm Nominal Bore				
3	Ultrasonic Type Level Transmitter with Integral Display :				
	Ultrasonic Type Level Transmitter with Integral Display : Design, Supply, Installation, Testing and Commissioning of Non Contact Ultrasonic Type Level Transmitter with Integral Display. Sensor with Head Mounted Transmitter: The sensor should be non contact type, field mounting type, housing shall have minimum IP65 protection, PP/ PVC Sensor MOC, Microprocessor based indicator with LED / LCD digital display, panel/ wall mounting type, power supply shall be 110- 240 Vac or 15 to 36 Vdc, 50 Hz \pm 10 %. Accessories: Mounting bracket, nut, bolts etc as per system requirement and Hook up diagram of the Instruments. Level Transmitter shall be suitable for following Range. 0 to 15 Meter	Nos	2		
4	Pressure Gauge				
	Design, Supply, Installation, Testing, Commissioning of Bourdon Type Pressure Gauge, \pm 1% accuracy, Direct bottom 1/2" NPT (M) process connection, IP 67, Glycerine filled, SS304 Case with Bayonet Type Bezel, SS316 L Bourdon Tube, SS 316 Movement material, Aluminium dial with black graduation on white background, Micro Zero adjustable pointer, neoprene gasket, Blow out disc, shatter proof glass, SS tag plate etc as per IS 3624.				
	150 MM Dial Size ,0 to 10 Kg/Cm ²	Nos	18		
5	PH & Turbidity Analyser				
	Providing, installation, testing and commissioning of Ph & Turbidity Analyser : Range - Selective 0 to 4000 NTU, Accuracy: \pm 2% of reading or \pm 0.02NTU; Compliance to US EPA180.1, With inbuilt	Nos	2		

	transmitter with 4-20 mA output , Relay contacts & Modbus communication				
6	CHLORINE ANALYSER				
	Providing, Installation, Testing and Commissioning of CHLORINE ANALYSER for Water Application: Range: 0.05 to 20 ppm, Power Supply 230 VAC, Input: 2 Digital Sensors - one for chlorine and second for pH, Output: 4-20mA HART, IP 66/67 Protection / Tx protection cover required / Sensor Range 0-14 pH , able to transmit digital signal to transmitter, calibration data can be transferred to Transmitter , process temp: 65 deg cen/ Sensor range:0.05 to 20 mg/l.	Nos	1		
7	ULTRASONIC OPEN CHANEL FLOW METER				
	Providing, Installation, Testing and Commissioning of ULTRASONIC OPEN CHANEL FLOW METER (Upto 5 metre Head rise) for Water Application : Principle : Time of Flight / Sensor MOC PP / Power Supply: 24 V DC / Output: 4- 20mA / Display: Integral display for programming and Display Reading / IP 66/ Accuracy $\pm 1\%$				
8	Rate of Flow Indicator				
8.1	Providing, Installation, Testing and Commissioning of Rate of Flow Indicator in Inlet and Outlet Filter House: Measuring Range: 0 - 6 metre / Field mounted Transmitter with LCD Display / Power Supply: 230 VAC / Output : 4-20mA with HART / IP66 / Sensor 0-6 metre / Principle Time of Flight / Housing PVDF / IP68 Protection with accessoreis for filter beds	Nos	8		
9	Float/ Displacer Type Level Switch:				

9.1	Design, Supply, Installation, Testing and Commissioning of Top mounted Displacer Type level switches with 2 nos SPDT contacts of Micro switch rated 5 A, potential free power supply, Material of wetted parts shall be SS 316 and the material of accessories shall be SS. IP 65 or equivalent degree of protection for enclosure, suitable for sump, ESR, tank, vessels and underground reservoirs. The top mounted level switches shall be supplied with still tubes to suit the requirement. Accessories like name plate, mating flange, gaskets, fasteners, bolts & nuts, etc. shall be supplied with the Level Switch of following Range. 0 to 5 Meter	Nos	7		
10	Loss of Head Indicator (DPT type)				
	Providing, Installation, Testing and Commissioning of Loss of Head Indicator (DPT type) in Filter Beds: Measuring Range: 0 - 3 metre / Field mounted Transmitter with LCD Display / Power Supply: 230 VAC / Output : 4-20mA with HART / IP66 / Sensor 0-3 metre / Principle Time of Flight / Housing PVDF / IP68 Protection	Nos	8		
11	Float & Board Type Level Indicator				
	Design, Supply, Installation, Testing and Commissioning of Float & Board Type Level Indicator, guided construction, Full Range Travel, FRP/ SS316 MOC of Float and Guide Wire Rope, minimum 6" wide x aluminum powder coating with black graduations and numerical on calibrated gauge board, Red color pointer, protection conduit, Elbow pulley, Tensioner, Anchor, Rope Fastner, Gauge Brackets, Counter Weight for rope type probe, spacer between the probes, etc complete with calibration of following sizes. 0 to 5 meter				
12	Cabling with required ferrules, glands, etc in complete including power, instrument and communication cable as per engineers direction.				
	For WTP & CWR	Lot	1		
13	CABLE TRAYS				

	Supply , Installation, Testing and commissioning approved make Ladder/ Perforated C type cable tray. Made from pre-galvanized CR sheet steel. The cable tray should be bended as per IS 2062/1079 . with coupler plate / Fish plate and GI hardware like nut - bolt and washers etc. erected on existing support as per Specification and as per instruction of engineer in charge.Galvanised Iron Cable Trays. Including necessary supports, welding, insert plates, etc. complete with necessary bends, tees gross, covers, reducer, cover attachment, adjustable elbow, connectors & y branch, barrier strips and supporting ,erection hardware and accessoseries.make as per detail engineering & tender specifications.				
	(d) 150 mm wide X 35X2 mm thick GI perforated type cable tray with GI couplers plate & nut bolts	mtr	350		
	(e)300 mm wide 35X2 mm thick GI perforated type cable tray with GI couplers plate & nut bolts	mtr	125		
	TOTAL OF BOQ 5				

Signature of Contractor :

Name :

Company's Seal :

Date :

Additional City Engineer, Water Works (Project)

Gandhidham Municipal Corporation

Gandhidham

PRICE SCHEDULE – B 4

SR. NO.	Description	Unit	Qty.	Rate	Amount
1	<p style="text-align: center;">RCC GSR</p> <p>Preparing structural design of RCC Under Ground / Partially under ground / above high ground level Reservoir of required capacity as per relevant I.S. standards and constructing the same, including excavation in all types of soil strata (including rock) including shoring strutting if required, for loose soil / to protect from collapse, casting 100 mm thick P.C.C. levelling course in M-15, Refilling the pit with proper soil and disposing of the surplus stuff at all lead. Including cement plaster in CM 1:2 with approved water proofing compound to all over inside container (i.e. walls, base, top slab/dome bottom etc. all). Including all types of labour and material charges of lowering, laying, erecting / hosting and jointing of pipe assembly to inlet, outlet overflow, washout and bye pass arrangement as per hydraulic design. Providing and fixing accessories, CI Manhole frame and cover, water level indicator, adequate cowl type ventilators or lantern type ventilator with stainless steel jail. RCC chambers for valves. Providing and applying three coats of cement paint / snowcem to the out side face of structure. It also includes satisfactory water tightness test as per relevant I.S. code and painting name of scheme and capacity on the tank as per direction of engineer in charge.</p> <p style="text-align: center;">List of Indian Standards for Design of GSR / SUMP:-</p> <p>The structural design of GSR shall be in accordance with provisions relevant I.S standards</p> <p>(1) I.S. 3370 part I & II 2009 or Its latest revision</p> <p>(1.1) I.S. 3370 part III & IV 1965 or Its latest revision</p> <p>(2) I.S. 456 – 2000 or Its latest revision.</p> <p>(3) I.S. 1893 – 2000 – 1984 or Its latest revision.</p> <p>(4) I.S. 875, Part – 1 to 3, 1987 or Its latest revision.</p>	Nos	2		

	<p>General Specifications:-</p> <p>(1) Water depth in container shall be adopted as per data of tender. Capacity shall be calculated excluding free board of the reservoir. If water depth is not specified, the suitable water depth / acceptable to field engineer in accordance with hydraulic requirement</p> <p>(2) Shape of container shall be adopted in accordance with data. In absence of data circular shape shall be adopted.</p> <p>(3) Size shall be fixed as per availability of space (land area) at site / acceptable engineer in charge.</p> <p>(4) Effect of overlapping of pressure bulbs on soil due near by structure and proposed sump should be considered.</p> <p>(5) Care shall be taken that no damage should occur to nearby existing structure. Compensation shall be paid for the same by agency.</p> <p>(6) The minimum concrete grade for RCC shall be M-30.</p> <p>(7) HYSD Fe 415 / 500 grade reinforcing bars confirming to I.S. 1786 / 1139 shall be considered in design. CRS / TMT bars shall be provided. In saline atmosphere corrosion resistance stainless steel / HCR rebar shall be provided. Any other steel can be used with approval of C.E./ in situation of non availability in market without extra cost.</p> <p>(8) Minimum size (or thickness) of various components shall be provided as per tender criteria / specifications in absence as per I.S./ Std. practice of G.W.S.S.B. Minimum dimensions specified for various components in tender data / specifications shall be provided without fail.</p> <p>(9) The safe bearing capacity (SBC) shall be referred from SBC test report. In absence of report it shall be referred from data(CONTRACTOR'S SCOPE) sheet. If poor soil is found / water table is met with during excavation SBC shall be scientifically ascertained and design shall be revise. No extra shall be paid for increase in quantity.</p> <p>(10) DI pipes and special shall only be used if type is not specified in tender.</p> <p>(11) The rate shall include cost of dewatering during excavation making all arrangement when water table meets within depth.</p>				
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	<p>(12) The structure shall be designed properly to resist uplift due to ground water table specified in data or actual ground water table meets with during excavation. If GWT / Uplift is mentioned in tender and during excavation it dose not meet 7.5% rate shall be reduced.(13) SS pipes railing shall be provided over sump periphery when sump height is ≥ 1.5 meter above ground level.(14.a) RCC staircase/RCC Steps should be provided from GL to sump top slab based on the height of the GSR above/below the ground.(14.b) RCC Staircase with SS railing to be provided inside reservoir container. BB Masonry staircabin to be provided to cover the same with MS safety door having locking arrangement.(15) Appearance of structure should be aesthetically good looking acceptable to authority.(16) Any change in size, shape, depth below GL, height above GL, water depth, F.B., size of member etc can be permitted in exceptional case due to site condition or hydraulic design requirement by C.E. No extra shall be paid for change.(17) Any change in data, dimensions, shape, water depth, reduction in size if permitted by competent authority and if it reduces quantity then payment shall be reduced prorated.(18) When capacity of GSR / Sump is > 20 lakh litres two or suitable compartments acceptable to executive engineer shall be designed and provided.(19) Agency shall engage qualified (at least graduate) consulting engineer for designing the structure and he / she shall visit the site for guidance of work. (20) 75% part rate shall be payable for concrete, reinforcement and plastering items of container until satisfactory hydraulic testing for water tightness is performed as per tender condition. Till the work shall be treated as incomplete.Above conditions / general specifications Sr. No. 1 to 20 are part and parcel of tender (contract) and prevail over other provisions in tender.15,00,000 Lit. Cap. and Seismic Zone V</p>				
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2	Supply, installation, testing & commissioning of horizontal split casing centrifugal pump motor set of specified duty parameters & guaranteed efficiency of following MOC with specified capacity, horizontal foot mounted TEFC squirrel cage induction motor (with minimum IE-3 efficiency class), working on three phase AC supply with 50 Hz \pm 3%, 415 V \pm 10%, rated speed 1450 RPM along with fabricated MS base frame, coupling, coupling guard, foundation bolts etc. as per relevant IS. M.O.C.: Impeller & Wearing Rings: Bronze LTB II IS: 318, Casing: CI FG 260 IS: 210 , Shaft: SS 410, Shaft Sleeve: Bronze LTB II IS: 318 or SS 410, Mechanical Seal (Above 30 kW), Base Frame: MS.				
	Required Motor Rating -75 HP >>>>RPM Required Motor Rating - 60 KW Sp gravity - 1.00	Nos	10		
	Required Motor Rating -40 HP >>>>RPM Required Motor Rating - 30 KW Sp gravity - 1.00	Nos	10		
	Required Motor Rating -25 HP >>>>RPM Required Motor Rating - 20 KW Sp gravity - 1.00	Nos	10		
	Required Motor Rating -100 HP >>>>RPM Required Motor Rating - 75 KW Sp gravity - 1.00	Nos	10		
3	Auto Transformer Starter suitable for local & remote pump control application consisting of Auto Transformer (vacuum impregnated, air cooled having three (3) tapings at 50%, 65% and 80%), incomer MCCB / MPCB, overload relay and contactors as per Type II coordination including digital MFM with RS 485 communication port, analogue type ammeter with selector switch, run hour meter, required protective relays & control accessories.				
	Required Motor Rating -75 HP >>>>RPM	Nos	10		
	Required Motor Rating -40 HP >>>>RPM	Nos	10		
	Required Motor Rating -25 HP >>>>RPM	Nos	10		

4	Microprocessor based soft starter, fully automatic 415V suitable for local & remote pump control application consisting of incomer MCCB of suitable rating, semi conductor fuses, microprocessor based soft starter with built in by pass arrangement (conforming to IS/ IEC 60947-4-1-2-3) with RS 485 communication port, external display unit with keypad including temperature scanner with minimum 10 channels - suitable for accepting RTD (Pt 100) / thermister inputs, digital MFM with RS 485 communication port, analogue type ammeter with selector switch, run hour meter, required protective relays & control accessories.				
	Required Motor Rating -100 HP >>>>RPM	Nos	10		
5	Providing, supplying, Lowering, laying and jointing in Position of IS 14846 Sluice valves (CI/DI) of following class and diameter including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to site, stacking etc complete. (PN-1.6 Marked). PN-1.6 with hand wheel / cap operated (PD type short body)				
	200 mm	Nos	15		
	250 mm	Nos	20		
	300 mm	Nos	20		
	350 mm	Nos	15		
	400 mm	Nos	20		
	450 mm	Nos	15		
	500 mm	Nos	5		
	600 mm	Nos	5		
TOTAL OF SCHEDULE B4					

Signature of Contractor :
Name :
Company's Seal :
Date :

Additional City Engineer, Water Works (Project)
Gandhidham Municipal Corporation
Gandhidham

PRICE SCHEDULE – B 5

SR. NO.	Description	Unit	Qty.	Rate	Amount
1	<p>Supply, Installation, Testing & Commissioning of following size of Grid Tied Solar Power Plant with Solar Panels (ALMM approved): Frame Material : Anodized Aluminum alloy Frame With Twin Wall Profile, Front Cover : High Transmission Low-Iron Tempered Glass (AR Coated), High efficiency and positive power tolerance Pmax: 0/+5, Module Efficiency should be approx. 18%-21%, Normal operating temperature 45°C, Junction Box with Waterproof IP67 & MC4 Compatible and Enclosed with Bypass diodes, 100% Electroluminescence test to ensure error free Modules, Thep. temp. co-efficient of the PV module shall equal or better than - 0.45%/degree C. Solar PV modules of minimum fill factor 75% to be used. Unit Production:- 4 to 5 Unit /kw /day (Actual)(1Year Avg) With 10 year Product warranty and 25 year Linear Power Warranty., Solar Inverter: MPPT Range: 80-1000 V, Max efficiency: 97.5% - 98.9%, O/p Frequency: 50/60Hz, Operating Altitude (m) ≤4000, O/p Power Factor: ~1, O/P THDi: <3%, Operating Temperature Range: -25~60°C, Anti-islanding Protection:</p>	KW	149		

	Integrated, Input Reverse Polarity Protection Integrated, Insulation Resistor Detection Integrated, Residual Current Monitoring Unit Integrated, Output Over Current Protection Integrated, Output Short Circuit Protection Integrated, Output Over Voltage Protection Integrated, Protection Degree: IP65, User Interface LCD & APP, Datalogger & Communication: GPRS / Wi-Fi, Module Mounting Structure: Seamless Box Pipe / 'C' Channel of suitable size for rooftop solar installations with good stability against wind & weight load., Hot Dipped Galvanized steel coils. suitable arrangement for base plate for foundation, solar panel mounting, the structure should be suitable for carry the load of solar panel, wiring, sprinkler system etc. with necessary foundation work/wall mount, j bolt, anchor fastener etc. the nut bolt used for installation of structure should be (SS 304) quality. and Balance of System with necessary Switchgears (Suitable size and protection of ACDB & DCDB), inter connecting wiring, earthing system, lightning arrester system, all liaisoning work with various gov. department like state nodal agency, DISCOM & CEIG is included in agency scope				
TOTAL OF SCHEDULE B5					

Signature of Contractor :
Name :
Company's Seal :
Date

Additional City Engineer, Water Works (Project)
Gandhidham Municipal Corporation
Gandhidham

PRICE SCHEDULE – B 6

SR. NO.	Description	Unit	Qty.	Rate	Amount
1	Excavation for pipe line trenches for water supply, sewerage line, manhole etc. all with shoring and strutting if required as per required gradient and line including safety provisions using site rails and stacking excavated stuff including up to all required lead cleaning the site etc. complete for all lifts and strata as specified				

	In all sorts of soil & soft murrum	Cu. Mt	2888.28		
	In hard murrum, boulders incl. macadam road	Cu. Mt	7220.7		
	In soft rock and/or masonry in CM or LM or Lime Concrete	Cu. Mt	4332.42		
2	Refilling the pipeline trenches incl. ramming, watering, consolidating desposal of surplus stuff as directed within a radius of 3 km.	Cu. Mt	12093.2		
3	Manufacture, Supply & Delivery of Electric Resistance Welded (Up to 400mm)/Submerged Arc Welded(Above 400mm) M.S.Pipe having beveled ends plate or coil conforming to IS-3589-2001 or its latest revision/ ammendment for following thickness outside diameter at GWSSB store or site anywhere in Gujarat State including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading conveyance to Departmental stores, stacking etc. all complete. (Rate for MS Pipe based on the ex. works price of HR Coil as Rs.58500 per MT - withouth GST (Above 3.15 mm to 10 mm) & Rs. 59000.00 per MT without GST (Above 10 mm) as onJan-23.(WPI Index of H. R Coil of Dec-22 is 144)				
	I/S Solvent free Liquid Epoxy Lining (406 micron) + O/S 3 LPE Coated M. S. Pipe				
	508 mm dia (OD) & 5.0 mm thickness	RMT	8023		
4	Lowering, laying, jointing & welding in position to correct line & level M.S Pipe with outside 3 LPE coating & inside solvent free liquid epoxy lining on pedestal or chairs upon prepared formation or prepared bedding in trenches the rated include conveyance from store to site of work loading, unloading, heat shrink sleev jointing hydrotesting etc. complete				
	508 mm dia (OD) & 5.0 mm thickness	RMT	8023		
5	Pump House Designing (Aesthetically) and constructing RCC frame structure of pump room with positive suction/Negative suction With gantry Structure (Min Height 4.5 m) upto 6.00 m plinth level to top slab bea, bottom (10*12.5=125 Sqmt.) With Gantry Structure Min Height 4.5 Mtr	Sqm	124		

6	C.I. D/F VALVES: BUTTERFLY VALVE: Providing and supplying ISI mark CI / D/F Butterfly Valves as per IS:13095 (Latest Edition) of following class and diameter including all taxes. insurance. transportation, freight charges, octroi, inspection charges. loading, unloading. conveyance to departmental stores, stacking etc. complete				
	Butterfly valves IS 13095 with ISI mark PN 1.6				
	500 mm dia	Nos	12		
7	Lowering, laying and jointing in position following C. I./ D/F Reflux valves, Butterfly valves, Sluice valves and Air valves including cost of all labour, jointing material, including nut bolts and giving satisfactory hydraulic testing, etc. complete.				
	Sluice valves, Butterfly valves, Reflux valves				
	500 mm dia	Nos	12		
8	AIR VALVE: Providing & Supplying of C.I Air valves of approved make & quality of following class and diameter including all taxes, insurance, transportation, freight charges, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete.				
	150 mm dia Air valves double acting (DS2)	Nos	9		
9	Lowering, laying and jointing in position following C. I./ D/F Reflux valves, Butterfly valves, Sluice valves and Air valves including cost of all labour, jointing material, including nut bolts and giving satisfactory hydraulic testing, etc. complete.				
	Air valves double ball Flanged				
	150 mm dia	Nos	9		

10	<p>Full Bore Electromagnetic Flow Meter- Regular Power operated Design, Supply, Installation, Testing, Commissioning of Full Bore Electromagnetic flow meter with factory calibration, Inbuilt Battery Power Operated, flanged connection, Flow sensor, Indicator, transmitter and totaliser with all accessories viz. surge arrestor, associated cables, cabinets, hardwares, etc complete as per following specifications</p> <p>Flow Meter/ Sensor:DC pulsed type, IP 68 Protection, Flanged process connection as per IS 1538 or equivalent standard, SS304/ Metallic Alloy Flow Tube, SS316/ SS 316 L/ Hastelloy Sensor, SS316/ Hastelloy Grounding Ring/ Inbuilt Grounding Electrode, Neoprene/Polyurethane/ Hard Rubber/ Rilsan lining, SS304/ Die Cast Aluminium/ Carbon steel with Anticorrosive Paint Coil Housing with Junction Box, CS flanges. Flow Transmitter/ Converter (Remote Field Mounted):Microprocessor based, Modular design, 2 line LCD for indication of actual flow rate, forward, reverse, sum totaliser display, $\pm 0.5\%$ accuracy at 0.3 to 4 m/sec velocity, 4 to 20 mA with HART/Modbus output, one scalable pulse, one status output, IP 67 protection, Die cast aluminium/ polycarbonate/ SS316 with Anticorrosive Paint/ PU finish with glass window enclosure, Inbuilt EEPROM and Data Logger, 20 meters cable length for sensor to transmitter communication etc alongwith wall mounted/ stand mounted cabinet.</p>				
	150 mm dia	Nos	6		
	250 mm dia	Nos	6		
	300 mm dia	Nos	6		
	400 mm dia	Nos	8		
	450 mm dia	Nos	8		
	500 mm dia	Nos	2		

11	Drilling of 900 mm dia Horizontal borehole for watermain pipeline under the railway/national highway tracks incl all starta with required length including fixing of 800 mm dia MS casing pipe of minimum 12 mm thick Or IRS Casing Pipe with welding pushing etc. complete. Provding & fixing various size of pipe for 406.4 mm/ 457 mm/ 508 mm dia watermain of GI/ MS pipe of minimum 6.3 mm thick for railway/National Highway premises as per instructuions & regulations of Railway Authority/NHAI & under supervision of Railway authority incl providing supplying & fixing of space at specified interval if required in between casing pipe and water main ISI make slucie valve of required size at both side at railway boundry with construction of brickege pavement incl CC encasing 1:3:6 in 10 mtr lenght of pipe at both side incl providing & fixing of MS/Iron manhole frame with cover for valve chamber with locking arrangement etc complete with all material labour fabrication, hydraulic testing, of pipe and valve etc complete for 45 m lenght which includes horizontal pushing and with all open excavation.				
	MS casing pipe + water Main size 508 mm	Nos	1		
12	Supply, installation, testing & commissioning of horizontal split casing centrifugal pump motor set of specified duty parameters & guaranteed efficiency of following MOC with specified capacity, horizontal foot mounted TEFC squirrel cage induction motor (with minimum IE-3 efficiency class), working on three phase AC supply with 50 Hz \pm 3%, 415 V \pm 10%, rated speed 1450 RPM along with fabricated MS base frame, coupling, coupling guard, foundation bolts etc. as per relevant IS. M.O.C.: Impeller & Wearing Rings: Bronze LTB II IS: 318, Casing: CI FG 260 IS: 210 , Shaft: SS 410, Shaft Sleeve: Bronze LTB II IS: 318 or SS 410, Mechanical Seal (Above 30 kW), Base Frame: MS. (1w+1s)	Nos	2		
	Capacity- 12 MLD				
	pump discharge = 500 m3/hr				
	Pump Head 14 M				
	Eff. Of pump - 80%				
	Required Motor Rating -35 HP >>>>RPM				
	Required Motor Rating - 26 KW				
	Sp gravity - 1.00				

13	Supply, testing & commissioning of flange ends Expansion Bellow as per EJMA standards of overall length of minimum 300 mm, designed for 15 mm axial compression and 5 mm axial extension with tie rods etc. of following MOC & pressure ratings MOC: Bellows: SA 240 Gr. 304; Internal Sleeve: SA 240 Gr. 304; Weldends: IS 2062 Gr. B; Flanges: IS 2062 Gr. B (Drilling as per IS 1538 /IS 6392) & Limit Rods & Nuts: CS - IS 1367.				
	500 mm dia	Nos	7		
14	PRESSURE MEASURING SYSTEM Supply, installation, testing & commissioning of Diaphragm Type pressure guage having 150 mm dial with isolation ball valve in SS 316, necessary fittings / accessories in SS 316 (3 way 2 valve manifold, nipples, coupling etc.) complete in all respects and as per specification. Range : 0 - 6 Kg/cm2 (at each pump's delivery side)	Nos	2		
15	LEVEL MEASURING SYSTEM Supply, installation, testing and commissioning of Ultrasonic Level Transmitter along with 10 meter cable between Sensor and Transmitter, all mounting accessories, hardware, etc. complete in all respects and as per specification and having following measurement ranges for liquid (Sewage) application: Meas. Range: upto 10 mtr. The scope also includes providing 4" flanged, puddle pipe approximate 300 mm long including fixing of the same in civil structure slabe of pump house for mounting of transmitter	Nos	30		
16	REFLUX VALVE / DUAL PLATE CHECK VALVE: Providing and supplying of ISI mark C.I D/F Refluxr valves as per IS:5312 (Latest Edition) of following class and diameter including all taxes, insurance, transportation, freight charges, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete.				
	500 mm dia Reflux valves PN 1.6 IS 5312 with ISI mark	Nos	2		

17	Lowering, laying and jointing in position following C. I./ D/F Reflux valves, Butterfly valves, Sluice valves and Air valves including cost of all labour, jointing material, including nut bolts and giving satisfactory hydraulic testing, etc. complete.				
	Sluice valves, Butterfly valves, Reflux valves				
	500 mm dia	Nos	2		
18	WATER HAMMER CONTROL DEVICE: Providing, supplying and delivery of Water Hammer Control Devices for use on various pumping main of following class and diameter including all taxes, insurance, transportation, freight charges, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete.				
	500 mm dia Zero Velocity valves with M.S body (Class-15)	Nos	1		
19	Lowering, laying and jointing in position following C. I./ D/F Reflux valves, Butterfly valves, Sluice valves and Air valves including cost of all labour, jointing material, including nut bolts and giving satisfactory hydraulic testing, etc. complete.				
	Sluice valves, Butterfly valves, Reflux valves				
	500 mm dia	Nos	1		
TOTAL OF SCHEDULE B6					

Signature of Contractor :

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Company's Seal :

Date

Additional City Engineer, Water Works (Project)

Gandhidham Municipal Corporation

Gandhidham

PRICE SCHEDULE – B 7

SR. NO.	Description	Unit	Qty.	Rate	Amount
1	Excavation for pipe line trenches for water supply, sewerage line, manhole etc. all with shoring and strutting if required as per required gradient and line including safety provisions using site rails and stacking excavated stuff including up to all required lead cleaning the site etc. complete for all lifts and strata as specified				
	In all sorts of soil & soft murrum Upto 1.50 mt depth	Cu. Mt	960		
	In hard murrum, boulders incl. macadam road Upto 1.50 mt depth	Cu. Mt	3360		
	E/W in In Soft rock & masonry in CM or LM or Lime Concrete Upto 1.50 mt depth (in Cu. Mt)	Cu. Mt	480		
2	Refilling the pipeline trenches incl. ramming, watering, consolidating desposal of surplus stuff as directed within a radius of 3 km.	Cu. Mt	4144.51		
3	Providing and supplying D. I. K-7 grade pipes for following nominal bore diameter with internal cement mortar lining including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete. (IS 8329-2000).				
4	600 mm dia	Meter	2000		
5	Lowering, laying and jointing C. I. S & S Spun pipes suitable for Tyton joints / Mortar lined D. I. Pipes of various classes with CI / MS specials of following diameters in proper position, grade and alignment as directed by Engineer-in-charge including hydraulic testing etc. comp.				
	600 mm dia	Meter	2000		
6	Manufacture, Supply & Delivery of Ductile Iron Flange socket spigot bends, tees, reducers or any other specials as per BS-EN-545/1995 Class-A series K12 suitable for use with D.I. Pipes manufactured as per IS:8329/1994 delivery of specials is to be made to site of works including all taxes, loading, unloading, carting. stacking, insurance, inspection charges, octroi etc. complete.				

	socket & spigot type				
	350 mm & above	kg.	5000		
7	Providing and supplying ISI mark CI / D/F Sluice Valves as per IS:14846 (Latest Edition) of following class and diameter including all taxes. insurance. transportation, freight charges, octroi, inspection charges. loading, unloading. conveyance to departmental stores, stacking etc. complete				
	PN-1.6 with hand wheel / cap operated (PD type short body)				
	600 mm dia Sluice Valve	No.	2		
8	Lowering, laying and jointing in position following C. I./ D/F Reflux valves, Butterfly valves, Sluice valves and Air valves including cost of all labour, jointing material, including nut bolts and giving satisfactory hydraulic testing, etc. complete.				
	600 mm dia Sluice Valve	No.	2		
9	Construction of valves Chambers in brick masonry using common burnt clay building brick, locally available in C.M 1:6 foundation concrete 150 mm thick, CC Coving in M-15 grade (1:2:4), cement Plaster 12 mm thick using cement : mortar in Proportion 1:3 with Niru finishing curing and 16 mm thick MS frame & cover with material. (With 16 mm thick M.S cover Plate) complete.				
	For Sluice Valve & Flow Meter				
	1.3 mt. x 1.3 mt. x 1.0 mt.	No.	4		
10	Supply, testing & commissioning of flange ends Expansion Bellow as per EJMA standards of overall length of minimum 300 mm, designed for 15 mm axial compression and 5 mm axial extension with tie rods etc. of following MOC & pressure ratings MOC: Bellows: SA 240 Gr. 304; Internal Sleeve: SA 240 Gr. 304; Weldends: IS 2062 Gr. B; Flanges: IS 2062 Gr. B (Drilling as per IS 1538 /IS 6392) & Limit Rods & Nuts: CS - IS 1367.				
	600 mm dia	No.	2		

11	Full Bore Electromagnetic Flow Meter- Regular Power operated Design, Supply, Installation, Testing, Commissioning of Full Bore Electromagnetic flow meter with factory calibration, Inbuilt Battery Power Operated, flanged connection, Flow sensor, Indicator, transmitter and totaliser with all accessories viz. surge arrestor, associated cables, cabinets, hardwares, etc complete as per following specifications Flow Meter/ Sensor:DC pulsed type, IP 68 Protection, Flanged process connection as per IS 1538 or equivalent standard, SS304/ Metallic Alloy Flow Tube, SS316/ SS 316 L/ Hastelloy Sensor, SS316/ Hastelloy Grounding Ring/ Inbuilt Grounding Electrode, Neoprene/Polyurethane/ Hard Rubber/ Rilsan lining, SS304/ Die Cast Aluminium/ Carbon steel with Anticorrosive Paint Coil Housing with Junction Box, CS flanges. Flow Transmitter/ Converter (Remote Field Mounted):Microprocessor based, Modular design, 2 line LCD for indication of actual flow rate, forward, reverse, sum totaliser display, $\pm 0.5\%$ accuracy at 0.3 to 4 m/sec velocity, 4 to 20 mA with HART/Modbus output, one scalable pulse, one status output, IP 67 protection, Die cast aluminium/ polycarbonate/ SS316 with Anticorrosive Paint/ PU finish with glass window enclosure, Inbuilt EEPROM and Data Logger, 20 meters cable length for sensor to transmitter communication etc alongwith wall mounted/ stand mounted cabinet.				
	600 mm dia	No.	2		
12	Providing and casting in situ C.C. in grade M- 15 (approx. corresp. to prop. 1:2:4) (proportions as per mix design or as per Table 9 of IS456 2000 in masses by weigh batching) using granite, quartzite trap metal of size 6 mm to 20 mm for RCC work, including scaffolding centering, form work, needle vibrated consolidation, curing comp. up to 6 meter depth or height (excluding cost of reinforcement and neat finishing) with centering and shuttering / deshuttering etc. comp for structure for other than water retaining. (with form work)				
	For Thrust Block	Cu. Mt	5		

13	Water Bound Macadam (Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with vibratory roller 8-10 tonnes in stages to proper grade and camber, applying and brooming requisite type of screening/ binding Materials to fill up the interstices of coarse aggregate, watering and compacting to the required density.) The grading of metal should be in uniform layers with the size between 40 to 63 mm. using screening type A, 13.20 mm size aggregate and 7% stone dust as filler including spreading watering and consolidation by vibratory roller etc complete.	Cu. Mt	450		
14	Providing and casting in situ controlled cement concrete M-200 for R.C.C. solid slab including centering, scaffolding, curing and finishing complete	Cu. Mt	600		
TOTAL OF SCHEDULE B7					

Signature of Contractor :

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Additional City Engineer, Water Works (Project)

Gandhidham Municipal Corporation

Gandhidham

PRICE SCHEDULE – B 8

SR. NO.	Description	Unit	Qty.	Rate	Amount
1	Construction of 200mm thick Granular Sub Base (Grading I) by providing coarse graded Black Trap material, mixing by mechanical means / rotavator, spreading in uniform layers with motor grader as per required slope and gradient on prepared surface and compacting with vibratory roller at OMC to achieve the desired compaction complete as per MORT & H clause 401	Cu. Mt.	11000		
2	Providing, laying, spreading and compacting graded stone aggregates to Wet Mix Macadam in 150 mm thickness as per MORT & H specification including premixing the material with water at OMC in mechanical mix plant, carriage of mixed material by tippers to site, laying in uniform layers with paver or motor grader in sub base / base course on well prepared surface and compacting with vibratory	Cu. Mt.	9200		

	roller to achieve the desired density. complete as per MORT & H clause 406				
3	Providing and laying 50 mm thick compacted bitumenous macadam (BM) with Emulsion tack coat @ 2.50 Kg./ 10 Sqmt using crushed stone aggregate as per MORT & H gradation VG-30 grade bitumen at the rate of 3.40% by weight of total mix (i.e. 34kg/mt by wt. of total mix) for binding including heating and mixing the asphalt and aggregates by continuous batch mix plant and transporting the mix and spreading the same by paver finisher and consolidation with vibratory road roller including using all necessary equipments, tools, plants, including cost of all materials, firewood, oil, lubricants, labour charges etc. complete.	M.T.	450		
4	Providing & laying 30 mm. thick Compacted Bitumen Concrete(BC) with BT aggregate as per M.O.R.T.&H.gradation & asphalt grade VG-30 for mixing at the rate of 54 Kg./M.T. i.e. 5.40% of total weight of total mix including heating the aggregate & asphalt in continuous batch mix plant & spreading the same by sensor paver finisher & consolidation with vibratory roller & flushing sand @ 0.30 Cum/ 100 Smt. including providing all materials wquipments, tools & plants, fire wood, oil, kerosene, labour charges etc complete using constructors own machinery drum mix plant & paver finisher etc complete.	M.T.	270		
5	Providing and laying in position Control concrete M-300 grade concrete for using cement content as per approved design mix, improve workability without impiring strength and durability as per direction of the engineer-in-charge. (Min cement level as per latest IS 456 shall be maintained) (Cement level 410kg) for Trimix C.C. Road with trimix vacuum dewatering system work with power trowling sheet form with M.S. Channles, surface vibrator , finishing with floor hardner necessary all equipments, all labour charges complete.	Cu. Mt.	9200		
TOTAL OF SCHEDULE B8					

Signature of Contractor :
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Additional City Engineer, Water Works (Project)
 Gandhidham Municipal Corporation
 Gandhidham

PRICE SCHEDULE – C OPERATION AND MAINTANANCE FOR 5 YEARS

Sr. No.	Description	Qty	Unit	RATE	Amount in Rs
1	Operation and Maintanance For year 1				
2	Operation and Maintanance For year 2				
3	Operation and Maintanance For year 3				
4	Operation and Maintanance For year 4				
5	Operation and Maintanance For year 5				
	Total Cost of 5 years of O&M				
	Total of schedule C				

Signature of Contractor :
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 Company's Seal :
 Date

Additional City Engineer, Water Works (Project)
 Gandhidham Municipal Corporation
 Gandhidham

PREAMBLE

1. As mentioned in the Conditions of contract, the Contract being a lump sum type turnkey Contract for Raw Water and Treated Water Pipeline, WTP, Pump house with Pipeline work & ESR on EPC basis, the provision of measurement will be applicable only for the assessment of value of work done for inclusion in any interim certificate for part payment to the Contractor.
2. The Schedule specifies the procedure for all such assessment of the items for Civil/Mechanical/Electrical/Instrumentation works specified in Schedule B.
3. Each item of Schedule B has been divided into broad components. The Employer's Representative shall assess the value of each component as indicated in paragraph 6 herein below.
4. Percentages are indicated against each component of each item of Civil Mechanical/Electrical/Instrumentation works specified in Schedule B, based on the Employer's best appreciation of the value of the component as related to the total costs of the concerned item as whole. A head titled (any other unforeseen work(s) / item(s)) is included in each breakdown of schedule and **the tenderer shall at the time of tendering indicate any additional items which he considers necessary but cannot be covered by any of the heads indicated in the breakup.**
5. The percentage breakup as indicated in the Schedule may differ from that corresponding to the tenderer's scheme and design and he should take this into account while quoting his lump sum prices for the items specified in Schedule-B
6. The contractor shall, **after approval of his detailed hydraulic as well as structural designs and drawings, furnish to the Employer's Representative an initial bill of quantities to all major items, to be reviewed and updated periodically with the Employer's Representative.** This bill of quantities will be used **for assessment of percentage progress of the component at any stage.** By measurement jointly taken by the Employer's Representative and the Contractor, **mutually agreed and entered in the measurement books in the form and by the method approved by the Employer's Representative, and signed jointly by both the parties**
7. The payment on running bills & final bill will be regulated as per percentage shown in each item.
8. 2% amount of all running bills shall be recovered and kept in deposit and shall be released as per Clause 11 of General Instructions of Section II, Part-B of Vol. I.
9. Percentage (%) of total cost means cost quoted in Schedule-B and finally approved by the employer.

SCHEDULE OF MILE STONE PAYMENT (EPC WORK)

MILE STONE PAYMENT BREAK-UP FOR CIVIL WORKS

Sr. No.	Item Description	Percentage Mile Stone Payment
1.	WATER RETAINING STRUCTURES ABOVE GROUND	
a.	On completion of Excavation, PCC, Footings	20%
b.	On completion of Base slab /Raft	20%
c.	On completion of 50% Side Walls	20%
d.	On completion of 100% Side Walls	20%
e.	On completion of Finishing Items	10%
f.	On completion of Hydraulic Test	5%
g.	On testing, commissioning and trial runs	5%
2.	BELOW GROUND WATER RETAINING STRUCTURES	
a.	On completion of Excavation, PCC	20%
b.	On completion of Raft Slab / Footings	20%
c.	On completion of 50% Side Walls	20%
d.	On completion of 100% Side Walls	20%
e.	On completion of Finishing Items	10%
f.	On completion of Hydraulic Test	5%
g.	On testing, commissioning and trial runs	5%
3.	BELOW GROUND WATER RETAINING STRUCTURES WITH SUPER STRUCTURE (PUMP HOUSE, ETC.)	
a.	On completion of Excavation, PCC	10%
b.	On completion of Raft Slab / Footings	20%
c.	On completion of 50% Side Walls	20%
d.	On completion of 100% Side Walls	20%
e.	On completion of Column/Beam up to Roof Slab	5%
f.	On completion of Roof Slab	5%
g.	On completion of Masonry in super Structure	5%
h.	On completion of Finishing, Flooring & Misc. Items	5%
i.	On completion of Hydraulic Test	5%
j.	On testing, commissioning and trial runs	5%
4.	DOUBLE STOREY BUILDINGS	
a.	On completion of Excavation, PCC	10%
b.	On completion of Plinth Level	10%
c.	On completion of Column/Beam up to First Floor Slab	10%
d.	On completion of First Floor Slab	10%
e.	On completion of Column/Beam up to Second / Roof Floor Slab	10%
f.	On completion of Second / Roof Floor Slab	10%
g.	On completion of Masonry in super Structure (GF)	10%
h.	On completion of Masonry in super Structure (FF)	10%
i.	On completion of Flooring (GF & FF)	10%
j.	On completion of Misc./Finishing Items	5%
k.	On testing, commissioning and trial runs	5%
5.	SINGLE STOREY BUILDINGS	
a.	On completion of Excavation, PCC	10%
b.	On completion of Plinth Level	20%
c.	On completion of Column/Beam up to First Floor / Roof Slab	15%

Sr. No.	Item Description	Percentage Mile Stone Payment
d.	On completion of First Floor/Roof Slab	20%
e.	On completion of Masonary in super Structure	15%
f.	On completion of Misc./Finishing Items	15%
g.	On testing, commissioning and trial runs	5%
MISCELLANEOUS WORK		
6.	ANY OTHER TO COMPLETE THE WORK IN ALL RESPECTS / ANY OTHER UNFORESEEN WORKS	
a.	On 50% completion of Work	45%
b.	On 100% completion of Work	50%
c.	On testing, commissioning and trial runs of all other works	5%

Signature of Contractor:

Name :

Company's Seal :

Date :

Additional City Engineer, Water Works (Project)

Gandhidham Municipal Corporation

Gandhidham

Mile Stone Payment Breakup for Piping, Mechanical, Electrical & Instrumentation works along with spares as specified

No.	Items	Percentage Mile Stone Payment
1.	On supply of equipment, pipes, specials, valves, accessories, instruments etc. including spares at site (after inspection as applicable), along with literature, drawings, operating pamphlets, manual etc. as required.	70%
2.	On erection of equipment, pipes, specials, valves, instruments and necessary accessories including installation of mechanical / electrical / instrumentation system / equipment, cabling, etc. complete.	15%
3.	On Erection / Installation of Complete Plant & No load trial run	10%
4.	On testing, commissioning and satisfactory trial runs and submission of PBG	5%
		100%

Signature of Contractor :

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Company's Seal :

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Gandhidham Municipal Corporation

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