

**BOQ & Estimated cost for Tankage jobs, Gantry erection and Associated Pipeline Jobs at Thinchupangkha, Paro, Bhutan**

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	Earth work in excavation in all types of soil excluding soft rock, hard rock as classified in specification for a depth upto 4 mts including removal of vegetation, shrubs and debris etc.,cutting and dressing of sides in slopes,levelling,grading and ramming of bottoms,dewatering of accumulated water from any source and keeping the surface dry for subsequent works and disposal or stacking of excavated material within a lead of 100 M as decided including shoring and strutting.But note that no seperate payment shall be made on account of shoring, shuttering,bottom ramming which are included in this item.	CU.M	1000		
2	Hard rock Excavation upto specified depths for work in foundations including trenches; sleepers; manholes pits etc. in all kinds of hard rock etc. by chiseling (Pneumatic or manual or any other agreed method) including removal of vegetation; shrubs and debris; levelling; grading and ramming of bottoms; and disposal or stacking of excavated material within a lead of 100M as decided excluding shoring and strutting. Mode of measurement shall be stack basis & 30% voids shall be deducted from the stack measurement for arriving at net payable measurements. job to be executed upto depth of 5m excavation for under ground tanks .	CU.M	1500		
3	SAND FILLING Supplying and filling river fine sand of approved quality under floors, in foundation, plinth, in trenches etc. of any compacted thickness, transportation for all leads, lifts, loading and unloading, spreading in layers of thickness not exceeding 15cms at all depths, compacting mechanically or by saturation to minimum 90% of maximum laboratory dry density(modified proctor) including dressing as required etc. complete, as directed by site engineer. Kindly note- Sand filling shall be of local available river sand around the location	CU.M	2500		
4	Providing, laying , consolidating n curing plain cement concrete (P.C.C.) as required including the cost of centering and shuttering etc. as directed, with cement of approved make as specified. The rates are applicable for all heights / depths and floors including scaffolding, unless otherwise specified. P.C.C. 1:2:4 mix (1 cement: 2 coarse sand:4 graded stone aggregates of 20 mm nominal size)	CU.M	100		
5	Providing and laying in postion RCC 1:1.5:3 nominal mix using 20mm and down size graded crushed stone aggregate in sub structure and superstructure of all types including placing of concrete,providing pockets,openings, recesses, chamfering wherever required etc., vibrating, tamping, curing and rendering if reqd. to give a smooth and even surface etc. all complete (excluding the cost of reinforcement, but including the cost of centring and shuttering)for all height -below and above plinth level in any shape, position, thickness etc. all complete as specified and directed. Only steel shuttering will be used so as to obtain required finish. The height of shuttering shall not exceed 1.5 m per lift of concrete	CU.M	740		
6	Supplying and placing in position high yield deformed bars for reinforcement conforming to IS:1139/cold twisted deformed bars reinforcement conforming to IS:1786 for R.C.C. work including straighening;cutting; bending to required shapes and lengths as per details,placing in position and binding with 16 SWG black soft annealed binding wire at every intersection,supplying and placing with proper cover blocks,supports,overlaps,welding ,spacers for all heights and depths etc. all complete as directed. Make-IISCO, SAIL, TISCO	MT	58		
7	SUPPLY; LAY/INSTALL AND CONNECT FOLLOWING HOT DIP GALVANISED STRIPS/WIRES OF FOLLOWING SIZES FOR GROUNDING THE SYSTEM AS PER TENDER SPECS ;STRIP/WIRE SHALL RUN ON WALL; COLUMN; ROOF; TRUSS; TIE; NEUTRAL OF THE SYSTEM EMBEDDED IN FLOOR OR BURIED DIRECTLY UNDERGROUND. INSTALLATION SHALL INCLUDE SUPPLY AND INSTALLATION OF GI CLAMPS; GI SPACERS ; GI HARDWARE; GI PIPE SLEEVES .WHILE PASSING THROUGH WALL OR COMING OUT OF FLOOR CHISELING OF WALL/FLOOR & MAKING IT GOOD IS ALSO INCLUDED . JOINTING SHALL BE AS PER IS:2709 AND ALSO AS INSTRUCTED BY BPCL SITE ENGINEER. 40 MM X 6 MM GI STRIP	RM	200		

8	SUPPLY; LAY/INSTALL AND CONNECT FOLLOWING HOT DIP GALVANISED STRIPS/WIRES OF FOLLOWING SIZES FOR GROUNDING THE SYSTEM AS PER TENDER SPECS ;STRIP/WIRE SHALL RUN ON WALL; COLUMN; ROOF; TRUSS; TIE; NEUTRAL OF THE SYSTEM EMBEDDED IN FLOOR OR BURIED DIRECTLY UNDERGROUND. INSTALLATION SHALL INCLUDE SUPPLY AND INSTALLATION OF GI CLAMPS; GI SPACERS ; GI HARDWARE; GI PIPE SLEEVES .WHILE PASSING THROUGH WALL OR COMING OUT OF FLOOR CHISELING OF WALL/FLOOR & MAKING IT GOOD IS ALSO INCLUDED . JOINTING SHALL BE AS PER IS:2709 AND ALSO AS INSTRUCTED BY BPCL SITE ENGINEER. 50 MM X 6 MM GI STRIP	RM	175		
9	INSTALLATION and TESTING OF EARTHING PITS AS SPECIFIED IN CODES and STANDARDS. THE INSTALLATION RATES SHALL INCLUDE EXCAVATION, CONSTRUCTION OF THE EARTH PITS INCLUDING ALL MATERIALS REQUIRED FOR CONSTRUCTION OF EARTH PITS, PLACING THE ROD AND FIXING TEST LINKS ON THOSE PIPE/ROD/PLATE ELECTRODES IN TEST PITS AND CONNECTING TO MAIN EARTH GRID CONDUCTORS AS PER CODES and STANDARDS.  GI PIPE ELECTRODE OF 100MM DIA, MIN 3 M LONG AND SIDE FILL COMPOUNDS, FUNNEL WITH MESH, TEST LINKS, INSPECTION CHAMBER ETC. AS PER LATEST VERSION OF IS:3043 AND INSTALLATION DRAWING as attached with Tender documents.	EA	26		
10	FABRICATION OF UNDER GROUND STORAGE VESSELS and supply of steel plates as per attached specification :Fabrication of U/G tanks including handling of steel plates meant for tank fabrication from storage point at site to fabrication site as directed. Rolling of MS plates 8mm thick for shell and 10mm thick cone and central plate; fabricating; assembling tank material in accordance with drawing No. S/CE/0002. Welding ; conducting DP test; for obtaining good quality welds; preheating/cooling; if required; due to the climatic conditions shall be at contractor's cost. Cost should include all consumable like gas; approved quality electrodes; electricity; water etc. and providing all machinery; welding sets tools and tackles required for erection; providing temporary scaffolding and labour for completing the job as per drawing and specifications and return of unused/scrap material to the store. Drawing :- S/CE/0002 to be referred as attached in tender documents  Note: The quantity of steel plates mentioned above is tentative, however the contractor has to supply the steel plates required to complete the tank fabrication as per drawings and specifications. (Payment to the contractor shall be made only for the final fabrication quantity of steel plates).	MT	150		
11	STRUCTURALS STRUCTURALS U/G TANK: Supplying; fabricating; welding and assembling steel structure such as external ring; stiffeners; pad plates etc.; as per drawing No. S/ CE/0002. including cost of steel members; labour; consumable; etc. complete for the U/G tanks as per specifications. Steel structural to be of SAIL / TISCO / IISCO make and should conform to IS : 2062/226.	MT	48		
12	NOZZLES AND MANHOLES SHELL MANHOLES FOR 200 kl U/G TANK: Supplying , Fabricating and Fixing Shell manhole 600mm dia including cover flange; flange for manhole; collar; approved quality M.S. bolts; gaskets etc.; complete to be fabricated; supplied and fitted by contractor including providing; fabricating welding; cutting; fixing 100mm dia/75mm dia/150mm dia pad connections including providing approved quality studs on pads. Party to refer drawing:- S/CE/0002. Rate includes supply of all materials. Steel to be used of SAIL/TISCO/IISCO make and should conform to IS 2062/226	EA	20		
13	Supplying ; Fabricating ; Fixing and Welding of earthing boss as per our standard drawing and practice.Kindly refer drawing :-S/CE/0002	EA	26		

14	DRAIN SUMP FOR U/G TANK: Supplying and fixing the following tank fittings as per our standard drawings/specifications: Drain sump as per drawing no. S/CE/0002. Rate includes Supply of All materials. Steel to be used of SAIL/TISCO/IISCO make and should conform to IS 2062/226. Job shall also include fabrication and fixing of reinforcement pad on inner surface of sump as per drawing.	EA	10		
15	DIP PIPE FOR U/G TANK: Supplying, Fabrication and fixing 80 mm dia dip pipe on tanks; including fittings 80 mm dia. Gate valve. Providing and fixing dip cap and nipple with dip slot and locking arrangement as per Co's standard practice. Fabricating and fixing nozzle and make necessary pad connections for dip pipe; on the tank shell and at the bottom of inside of the tanks is also in contractor's scope. For Tank Diameter upto 4.00m. Detail specification of material and make of 80 mm dia dip pipe, 80 mm gate valves is attached with tender documents.	EA	5		
16	Supplying transportation, fixing of 6" size Slot Dipping Device as per BPCL Standard specifications, complete in all respect as directed by site in charge	No.	5		
17	Supply/Fixing of Tyros valves (80mm NB) on the top vent pipes, including pressure release & testing for 200 mm water column in vapour pressure (positive pressure) & 25mm water column in vacuum pressure complete in all respect as directed.	EA	5		
18	Supplying & installation of manometer U tube including its stand/ clamps etc. as per CO's standard practice & specifications and finally fixing on vent pipe. Also providing 9mm dia gun metal gate valve, nipple arrangement with copper tubing for fixing the manometers.	No.	5		
19	VENT PIPE FOR U/G TANK: Supplying, Fabricating and installing 80mm NB vent pipes; 4.0 meter long including 80mm NB nozzle to be welded on the manhole cover flange and also 80mm. NB flange on top of the vent pipe. Detail specification of material and make of 80 mm vent pipe and 80 mm SORF flange is attached with tender documents.	EA	10		
20	Fill PIPE FOR U/G TANK: Supplying, Fabricating and installing 100 mm NB Fill pipes; 4.0 meter long including 100 mm NB nozzle to be welded on the manhole cover flange and also 100 mm NB flange on top of the fill pipe. Detail specification material and make of 100 mm fill pipe and 100 mm SORF flange is attached with tender documents.	EA	10		
21	APPURTENANCES FREE VENT MESH FOR U/G TANK: Supplying/Fixing/installing 11 mesh double screen of GI with thread and socket kind arrangement including 80mm dia NB flange; with thread and socket arrangement for free vent is attached with tender documents.	EA	5		
22	MECHANICAL - Lowering the tank into the pit using chain pulley block/crane and positioning the tank in the pit incl. tightening the holding down bolts. Any damage to the tank and/or doping at the time of lowering should be made good by the contractor. Kindly note --party to quote for 200 kl horizontal tank with dimensions--4 mtrs dia X 17 mtrs length and average weight of 20 tonnes. Kindly also note that party has to transport the tank from stockyard till site of erection by making all the necessary arrangements like-crane, labour etc. (Approax -100 mtrs away)	EA	10		
23	MECHANICAL - Pressure testing the tank with water to a pressure of 0.36Kg/ sq.cm incl. supply of pure water, fixing 50mm dia pipe 3.67m high and emptying the same after testing and cleaning the internal surface of the tank. 200 KL. Kindly note that water and all necessary hydrotesting equipments have to be arranged by Party. Pls note that this hydrotesting to be carried out before lowering of tanks into Tank pit	EA	10		
24	MECHANICAL - Pressure testing the tank with water to a pressure of 0.36Kg/ sq.cm incl. supply of pure water, fixing 50mm dia pipe 3.67m high and emptying the same after testing and cleaning the internal surface of the tank. 200 KL. Kindly note that water and all necessary hydrotesting equipments have to be arranged by Party. Pls note that this hydrotesting to be carried out after lowering of tanks into Tank pit	EA	10		

25	CALIBRATION U/G TANK :Calibration of U.G tanks using Calibrated water meter. Providing temporary connection for calibration including cost of water; disposal of water after calibration. Calibration to be done for 200 kl underground tank. Including necessary calibration chart divided in cm scale and suitability for calculation in mm using differential method.	EA	10		
26	SURFACE PREPARATION AND PAINTING U/G TANK: Scrapping external surface of tank upto base metal and painting the same with 2 coats of tank mastic; followed by 2 coats of tar plastic paint( each coat of 2.5mm thickness) inclusive of cost of paint/primer labour etc.; complete; paints should be of first quality Asian/Berger/J&N/Shalimar or equivalent as per approved list of paint manufacturers attached with tender documents.	Sq.M	3000		
27	HOLDING DOWN ARRANGEMENT FOR U/G TANK: Providing and erecting holding down bolts with anchor plate; HD strap and turn buckle arrangement as per Drg.No.E&P/STD/UG/200kl/R1 attached with tender documents (set means a pair of 38mm dia x 1m long H.D bolts; a pair of turn buckles and a pair of 610mm x 610mm x 12 mm anchor plates + 150mm x 12mm H.D.straps).Please note that rate shall be quoted for 200 KL tank holding down arrangement. Detail specification of material and make of HD bolts, turn buckle is attached with tender documents. Anchor Plates Steel to be of SAIL/TISCO/IISCO make and should conform to IS 2062/226	SET	100		
28	Supplying, fabriacting and erecting in position bolted and or welded MS grating fabricated as per drawing/standards in walk way,platforms, stair treads etc. made out of MS Flats 25x5mm(outer strip) and 25x 3 mm (inner strips) at 40mm c/c etc. including cutting to required size, nosing, straightening if required,making the edges smooth, removing the burrs, fixing, welding, preparation of fabrication drawing and preparing the surface for painting, surface cleaning, wire brushing, removal of mills dust, rust, oil etc. and applying two coats of zinc phosphate primer and two coats of Aluminium/Black synthetic enamel paint after fabrication complete in all respects as directed by site engineer.Party to refer BPCL drawing as attached in tender documents. Steel to be used of SAIL/TISCO/IISCO make and should conform to IS 2062/226	MT	5		
29	Providing, fabricating and erection of shop fabricated swing platform made of MS grating (outer strip:25X4 mm flats and inner strips: 25X3 mm flats) including cost of hooks MS chain and associated gusset plate , swivel rod , nuts , washers etc. complete as directed by Site Engineer and as per drawings provided including 1 coat of primer at shop and 1 coat at site , followed by 2 coats of first quality enamel paint at site of shade and quality approved by Site engineer including cost of primer and paint.Scope also includes supply and installation of 16 SWG MS sheet drum filled with iron filing as counter weight with painting scheme as outlined above as per drawing. Party to refer BPCL drawing as attached in tender documents	EA	4		
30	Supplying; fabricating; erecting in position; bolted and / or welded Structural steel works at all levels; including all buildup sections / compound sections made out of rolled sections and / or plates in trusses; rafters; purlins; wind ties; coloumns; portals; platforms; staircases; (excluding chequered plates and gratings) ladders; stoppers; brackets sag rods; supports for equipment and accessories; hand railings posts cutting to required size as per approved drawings; straightening if required bolting/ welding of joints (including sealing the joints of the box sections with continuous welding wherever specified) finishing edges by grinding; fixing in line and level with temporary staging and removal of same after erection; grouting with ordinary grout or non-shrink grout as specified; including preparation of detailed fabrication drawings; preparing surface for painting; surface cleaning; wire brushing; removal of mill scale; dust; rust; oil; grease Rate including painting as per specification enclosed. All structural steel shall conform to IS-2062 and of SAIL/TISCO/IISCO make only.	MT	9		
31	BRICK MASONRY CL.50 BELOW PLINTH Providing and laying Brick work with bricks having compressive strength not less than 50 kg/sq.cm in foundation and plinth in Cement mortar 1:5(1 cement: 5 Coarse sand) as per specifications in one or more brick thickness including providing openings, recesses ,scaffolding,staging, curing, finishing the joints flush below ground level and raking out joints etc. all complete, as per directions of site engineer. Kindly note---Actual scope of job involves brick masonry work-both below and above the plinth level.	CU.M	35		
32	PAVER BLOCK Providing and laying 80 mm thick factory made cement concrete interlocking paver block of M-40 grade made by block making machine with strong vibratory compaction and of approved size and design/shape laid in required colour and pattern over and including 50 mm thick compacted bed of coarse sand, filling the joints with coarse sand etc. all complete as per the directions of site engineer.	Sq.M	1050		
33	Providing 15 mm cement plaster of specified mix, including preparation of surface, curing and cleaning the site etc complete:1:4 (1 cement : 3 fine sand : 1 Coarse sand) Note : The rates are applicable for all heights / depths and floors including scaffolding , unless otherwise specified.	Sq.M	260		

34	WHITE WASHING Providing and applying white wash three or more coats with lime to give an even shade including cleaning and preparation of surfaces, supply of glue and indigo(neel) necessary scaffolding etc. complete for all heights.	Sq.M	260		
35	<p>PIPELINE</p> <p>ABOVE GROUND PIPING CARBON STEEL API 5L GRADE A/B: Supplying, fabrication including cutting; edge preparation; fitup; welding and erection of above ground pipeline over pedestals; overheads on racks and at all elevations ;connecting with equipment nozzles; tapping for pressure gauges; sample connection; etc. This also includes supply and fixing of gasket; bolts nuts; wherever required and all other inline fittings; flanges; line elbows; reducers; tees ; alignment; cleaning and flushing by water; hydrostatic testing as specified in tender ; draining; drying; completing all such works in all respects as per the specification; drawings and instruction of Site In charge. 150mm dia pipe-line.</p> <p>KINDLY NOTE- FOLLOWING JOBS ARE NOT INCLUDED IN THE ABOVE ITEM :</p> <p>1] FLANGE/VALVE JOINTS - WITH SUPPLY OF NUT, BOLTS, GASKETS ETC.</p> <p>2] WELDING OF SORF/BLIND FLANGES WITH PIPELINE</p> <p>THE ABOVE TWO POINTS WILL BE PAID SEPARATELY AS MENTIONED IN DIFFERENT ITEMS IN THE TENDER . Detail specification of material and make of 150 mm NB API 5L Grade CS Pipe, Elbows-90deg &amp; 45 deg, Reducers, Tees is attached with tender documents.</p>	RM	260		
36	<p>PIPELINE</p> <p>ABOVE GROUND PIPING CARBON STEEL API 5L GRADE A/B: Supplying, fabrication including cutting; edge preparation; fitup; welding and erection of above ground pipeline over pedestals; overheads on racks and at all elevations ;connecting with equipment nozzles; tapping for pressure gauges; sample connection; etc. This also includes supply and fixing of gasket; bolts nuts; wherever required and all other inline fittings; flanges; line elbows; reducers; tees ; alignment; cleaning and flushing by water; hydrostatic testing as specified in tender ; draining; drying; completing all such works in all respects as per the specification; drawings and instruction of Site In charge. 100mm dia pipe-line.</p> <p>KINDLY NOTE- FOLLOWING JOBS ARE NOT INCLUDED IN THE ABOVE ITEM :</p> <p>1] FLANGE/VALVE JOINTS - WITH SUPPLY OF NUT, BOLTS, GASKETS ETC.</p> <p>2] WELDING OF SORF/BLIND FLANGES WITH PIPELINE</p> <p>THE ABOVE TWO POINTS WILL BE PAID SEPARATELY AS MENTIONED IN DIFFERENT ITEMS IN THE TENDER . Detail specification of material and make of 100 mm NB API 5L Grade CS Pipe, Elbows-90deg &amp; 45 deg, Reducers, Tees is attached with tender documents.</p>	RM	20		
37	<p>PIPELINE</p> <p>ABOVE GROUND PIPING CARBON STEEL API 5L GRADE A/B: Supplying, fabrication including cutting; edge preparation; fitup; welding and erection of above ground pipeline over pedestals; overheads on racks and at all elevations ;connecting with equipment nozzles; tapping for pressure gauges; sample connection; etc. This also includes supply and fixing of gasket; bolts nuts; wherever required and all other inline fittings; flanges; line elbows; reducers; tees ; alignment; cleaning and flushing by water; hydrostatic testing as specified in tender ; draining; drying; completing all such works in all respects as per the specification; drawings and instruction of Site In charge. 80mm dia pipe-line.</p> <p>KINDLY NOTE- FOLLOWING JOBS ARE NOT INCLUDED IN THE ABOVE ITEM :</p> <p>1] FLANGE/VALVE JOINTS - WITH SUPPLY OF NUT, BOLTS, GASKETS ETC.</p> <p>2] WELDING OF SORF/BLIND FLANGES WITH PIPELINE</p> <p>THE ABOVE TWO POINTS WILL BE PAID SEPARATELY AS MENTIONED IN DIFFERENT ITEMS IN THE TENDER . Detail specification of material and make of 80 mm NB API 5L Grade CS Pipe, Elbows-90deg &amp; 45 deg, Reducers, Tees is attached with tender documents.</p>	RM	40		
38	<p>PIPELINE</p> <p>Supplying &amp; Welding the supplied forged CS SORF/WNRF flange of class 150 PSI on the pipelines / fittings using approved make / size of welding rod confirming to IS 814; with three runs of weld on the outside and one run inside including cutting and beveling ends as necessary; cleaning of internal / external surfaces where welding is to be done; grinding of welds; etc.; as directed-150mm.</p> <p>Detail specification of material and make of CS SORF/WNRF flange of class 150 PSI is attached with tender documents.</p>	EA	85		
39	<p>PIPELINE</p> <p>Supplying &amp; Welding the supplied forged CS SORF/WNRF flange of class 150 PSI on the pipelines / fittings using approved make / size of welding rod confirming to IS 814; with three runs of weld on the outside and one run inside including cutting and beveling ends as necessary; cleaning of internal / external surfaces where welding is to be done; grinding of welds; etc.; as directed-100mm.</p> <p>Detail specification of material and make of CS SORF/WNRF flange of class 150 PSI is attached with tender documents.</p>	EA	75		

40	<p>PIPELINE</p> <p>Supplying &amp; Welding the supplied forged CS SORF/WNRF flange of class 150 PSI on the pipelines / fittings using approved make / size of welding rod conforming to IS 814; with three runs of weld on the outside and one run inside including cutting and beveling ends as necessary; cleaning of internal / external surfaces where welding is to be done; grinding of welds; etc.; as directed-75 mm. Detail specification of material and make of CS SORF/WNRF flange of class 150 PSI is attached with tender documents.</p>	EA	60		
41	<p>PIPELINE</p> <p>Charges for making flanged joints/fixing blank flanges class 150 lb including supplying and fixing 3mm thick compressed asbestos fibre gasket conforming to IS 2712; bolts &amp; nuts; double-washers etc.; complete(bolts and nuts should be of approved make like GKW;TVS;TATA etc.) all complete as directed by the Engineer-in-charge:- 150mm</p>	EA	40		
42	<p>PIPELINE</p> <p>Charges for making flanged joints/fixing blank flanges class 150 lb including supplying and fixing 3mm thick compressed asbestos fibre gasket conforming to IS 2712; bolts &amp; nuts; double-washers etc.; complete(bolts and nuts should be of approved make like GKW;TVS;TATA etc.) all complete as directed by the Engineer-in-charge:- 100 mm</p>	EA	30		
43	<p>PIPELINE</p> <p>Charges for making flanged joints/fixing blank flanges class 150 lb including supplying and fixing 3mm thick compressed asbestos fibre gasket conforming to IS 2712; bolts &amp; nuts; double-washers etc.; complete(bolts and nuts should be of approved make like GKW;TVS;TATA etc.) all complete as directed by the Engineer-in-charge:- 80 mm</p>	EA	20		
44	<p>Supplying &amp; Fixing Flanged Valves CS GATE valves :Transportation of all types of valves from owner;s storage points to contractor#s stores /worksite and installation of valves flanged for 150 lbs.rating including assembly of valves accessories if any and supplying and fixing of gasket; bolts and nuts of approved brands like GKW; TVS; TATA ETC; double washers ; wherever required as per drawings; specification and directions of Site-in-charge.The connection is to be made leak proof at 10.5 Kg/sqm; hydro tested prior to intsallation.</p> <p>150 MM size. Detail specification of material and make of 150 mm NB Gate Valves is attached with tender documents.</p>	EA	43		
45	<p>Supplying &amp; Fixing Flanged Valves CS GATE valves:Transportation of all types of valves from owner;s storage points to contractor#s stores /worksite and installation of valves flanged for 150 lbs.rating including assembly of valves accessories if any and supplying and fixing of gasket; bolts and nuts of approved brands like GKW; TVS; TATA ETC; double washers ; wherever required as per drawings; specification and directions of Site-in-charge.The connection is to be made leak proof at 10.5 Kg/sqm; hydro tested prior to intsallation.</p> <p>100 MM size. Detail specification of material and make of 100 mm NB Gate Valves is attached with tender documents.</p>	EA	16		
46	<p>Supplying &amp; Fixing Flanged Valves : Plug valves : Transportation of all types of valves from owner;s storage points to contractor#s stores /worksite and installation of valves flanged for 150 lbs.rating including assembly of valves accessories if any and supplying and fixing of gasket; bolts and nuts of approved brands like GKW; TVS; TATA ETC; double washers ; wherever required as per drawings; specification and directions of Site-in-charge.The connection is to be made leak proof at 10.5 Kg/sqm; hydro tested prior to intsallation.</p> <p>80 MM size. Detail specification of material and make of 80 mm NB Plug Valves is attached with tender documents.</p>	EA	20		

47	<p>Supplying &amp; Fixing Flanged STRAINER :Transportation of strainers from owner;s storage points to contractor#s stores /worksite and installation of strainer flanged for 150 lbs.rating including assembly of accessories if any and supplying and fixing of gasket; bolts and nuts of approved brands like GKW; TVS; TATA ETC; double washers ; wherever required as per drawings; specification and directions of Site-in-charge.The connection is to be made leak proof at 10.5 Kg/sqm; hydro tested prior to intsalation.</p> <p>150 MM size.</p> <p>Detail specification of material and make of 150 mm NB strainer is attached with tender documents.</p>	EA	8		
48	<p>Supplying &amp; Fixing Flanged Non Return Valve :Transportation of all types of valves from owner;s storage points to contractor#s stores /worksite and installation of valves flanged for 150 lbs.rating including assembly of valves accessories if any and supplying and fixing of gasket; bolts and nuts of approved brands like GKW; TVS; TATA ETC; double washers ; wherever required as per drawings; specification and directions of Site-in-charge.The connection is to be made leak proof at 10.5 Kg/sqm; hydro tested prior to intsalation.</p> <p>150 MM size.</p> <p>Detail specification of material and make of 150 mm NB Non Reurn Flanged Valves is attached with tender documents.</p>	EA	8		
49	"PIPELINE Bend : Supply and fixing as per specifications 90° Bends including transportation; handling; cutting; fitup; welding as per specifications.90° Bends. 150mm dia as per enclosed specification.	EA	28		
50	"PIPELINE Bend : Supply and fixing as per specifications 90° Bends including transportation; handling; cutting; fitup; welding as per specifications.90° Bends. 100mm dia as per enclosed specification.	EA	20		
51	"PIPELINE Bend : Supply and fixing as per specifications 90° Bends including transportation; handling; cutting; fitup; welding as per specifications.90° Bends. 80mm dia as per enclosed specification.	EA	30		
52	<p>"Painting</p> <p>Supplying and applying primer on the prepared surface including all labour; scaffolding; consumables; equipments; primer etc. complete as per specifications (primer shall be applied within 8 hours of surface preparation)</p> <p>One coat of Inorganic zinc silicate primer at 65 micron." Pls note that paint shall be procured from Approved list of paint manufacturers attached with tender documents.</p>	Sq.M	150		
53	<p>"Painting</p> <p>""Supplying and applying paints on the prepared surface including all labour; scaffolding; consumables; equipments; paints etc. complete as per specifications.(primer shall be applied within 8 hours of surface preparation)</p> <p>One coat of tie epoxy coat 75 micron.Pls note that paint shall be procured from Approved list of paint manufacturers attached with tender documents.</p>	Sq.M	150		
54	<p>"Painting</p> <p>Supply and Applying single coat of Acrylic Aliphatic Polyurethane finish paint (camouflage painting for Pipe Line and Tanks of BPCL approved make) Volume solids should be minimum 45%. Erection of Scaffolding at all heights for Pipe Line/Tank painting as per std. Specification of BPCL. The rate inclusive of all materials and labour charges etc complete.</p> <p>DFT of 40 Microns for each coat.Pls note that paint shall be procured from Approved list of paint manufacturers attached with tender documents.</p>	Sq.M	150		
55	<p>Blast Cleaning</p> <p>Blast cleaning of pipe-line external surface confirming to Swedish standard SA2.5 using iron grit or copper slag.</p>	Sq.M	150		
56	<p>PIPELINE</p> <p>To fabricate in field/ shop various pipe fittings from API 5L Gr A/B pipes supplied by BPCL including transportation; handling; cutting; fitup; welding as per specifications. Tees 150mmX150mmX150mm</p>	EA	20		
57	<p>PIPELINE</p> <p>To fabricate in field/ shop various pipe fittings from API 5L Gr A/B pipes supplied by BPCL including transportation; handling; cutting; fitup; welding as per specifications. Tees 150mmX150mmX100mm</p>	EA	10		
58	<p>PIPELINE</p> <p>To fabricate in field/ shop various pipe fittings from API 5L Gr A/B pipes supplied by BPCL including transportation; handling; cutting; fitup; welding as per specifications. Tees 150mmX150mmX80mm</p>	EA	10		

59	PIPELINE To fabricate in field/ shop various pipe fittings from API 5L Gr A/B pipes supplied by BPCL including transportation; handling; cutting; fitup; welding as per specifications. Tees 100mmX100mmX100mm	EA	2		
60	PIPELINE To fabricate in field/ shop various pipe fittings from API 5L Gr A/B pipes supplied by BPCL including transportation; handling; cutting; fitup; welding as per specifications. Tees 100mmX100mmX80mm	EA	2		
61	Continuity jumper providing; fabrication & fixing of continuity jumpers for providing electrical continuity of the pipeline across the flange joint; made from copper flat of different sizes as per tender specifications. Aluminium jumpers of 25mm X 3 mm over flange joints.	EA	200		
62	Installation including Transportation of loading arm from owner's storage yard till the installation site and installing the same at all heights using proper scaffolding and also includes assembly of sub-assemblies under the directions of Site Engineer, all complete including supply and fitting necessary washers, bolts, gasket of approved quality.	EA	4		
63	Installation including Transportation of Bulkmeter from owner's storage yard till the installation site and installing the same at all heights using proper scaffolding and also includes assembly of sub-assemblies under the directions of Site Engineer, all complete including supply and fitting necessary washers, bolts, gasket of approved quality.	EA	4		
64	Installation including Transportation of Verticle turbine pump( 60 kl/hr ) from owner's storage yard till the installation site and installing the same including assembly of sub-assemblies and lowering the same in 4 m dia underground tank under the directions of Site Engineer, all complete including supply and fitting necessary washers, bolts , gaskets of approved quality	EA	10		
65	ROOFING COLOUR COATED HI PROFILE SHEETING Supplying and fixing permanently colour coated hi rib profiled sheets of rib depth 28 - 30 mm with 190 - 250 mm pitch distance. Hi profiled sheets shall be minimum 0.5 TCT galvalume or zincalume steel sheet having minimum yield strength of 550 Mpa, with a coating of mass of minimum 150 gsm (Aluminium Zinc alloy). The Galvalume steel sheet shall be finished with 20 microns of silicon modified polyester (SMP) colour coating (approved colour) over an epoxy primer coat of 5 micron. The sheet shall also have a back coat of 5 microns on reverse side over 5 microns primer coat. The sheet shall be fixed over the purlins with hexagonal head self drilling fasteners of 12 - 14 x 55 mm long including neoprene/EPDM washer on each crest of sheet. The maximum end lap of sheet shall be 150 mm and sealed with silicon sealant. The work shall include of all labour, equipments, materials, submission of shop drawings, cost of consumables, fasteners, washers etc. Payment would be made on the basis of roof area covered by the sheets.	Sq.M	200		
66	ROOFING COLOUR COATED HI PROFILE RIDGE Supplying and fixing of colour coated hi profile ridge as per same specifications of sheeting as per above specification.	RM	15		
67	Supply and Installation of Tank Lorry Decantation Hose as per enclosed spec	EA	4		