

**BILL OF QUANTITIES**

**SEWERAGE SYSTEM IN HA.BAARAH, MALDIVES**

**CLIENT : MINISTRY OF ENVIRONMENT AND ENERGY**

## SEWERAGE SYSTEM IN HA.BAARAH, MALDIVES

### Preamble Notes

<b>1</b>	<b>General Notes</b>
1.1	The Bill of Quantities shall be read in conjunction with the Instruction to Bidders, General Conditions of Contract, Appendix to bid, Technical Specification and Tender Drawings.
1.2	List of Materials to be supplied by employer is stated in 03-Material list. Only these materials will be supplied by employer and bidders should provide any other materials required in Additions and omissions bill of Material list. Rates for any other materials required ( which are not specified in additions or omissions) should be included in the labor rates.
1.3	The bidders shall provide the quantities and price/rates for the materials listed in 03-Material list based on the BOQ and Drawings. Employer will provide the materials based on these quantities and bidder shall be responsible for any shortage of materials.
1.4	The rates and prices tendered in the priced Bill of Quantities shall, except in so far as it is otherwise provided under the Contract, include all constructional plant, labour, supervision, materials, transportation, installation/erection, profit, together with all general risks, liabilities and obligations set out or implied in the bidding document.
1.5	The rates and prices shall be quoted entirely in Maldivian Rufiyaa.
1.6	A rate or price shall be entered against each item in the Bill of Quantities, whether quantities are stated or not. The cost of items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities and no separate payment shall be made for such un-priced items.
1.7	The whole cost of complying with the provisions of the Contract shall be included in the items provided in the priced Bill of Quantities, and where no items are provided but required for completion of contract works, the cost shall be deemed to be distributed among the rates and prices entered for the related item of work.
1.8	General directions and descriptions of work and materials are not necessarily repeated or summarized in the Bill of Quantities. The Bidder shall refer to relevant sections of the Contract Document to fully understand the item requirements before entering rates or prices against each item in the Bill of Quantities.

## SUMMARY OF BILLS OF QUANTITIES

### ***SEWERAGE SYSTEM IN HA.BAARAH, MALDIVES***

DESCRIPTION	AMOUNT (MRF)	%
Bill №: 01 - GENERAL WORKS	-	
Bill №: 02 - SEWERAGE SYSTEM	-	
TOTAL AMOUNT	-	

SUMMARY OF BILLS OF QUANTITIES  
**SEWERAGE SYSTEM IN HA.BAARAH, MALDIVES**  
**01 GENERAL WORKS**

DESCRIPTION	AMOUNT (MRF)	%
BILL NO. 01 - GENERAL AND PRELIMINARIES	-	
BILL NO. 02 - SITE PREPARATION	-	
BILL NO. 03 - DECOMISSIONING	-	
BILL NO. 04 - OPERATIONAL COST	-	
BILL NO. 05 - ADDITIONS AND OMMISSIONS	-	
TOTAL AMOUNT	-	

## SEWERAGE SYSTEM IN HA.BAARAH, MALDIVES

## 01 GENERAL WORKS

Male', Republic of Maldives

## BILL OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<b>BILL NO. 01 - GENERAL AND PRELIMINARIES</b>					
<b>1.1.00</b>	<b>Project Management cost</b>				
1.1.01	Allow for all on and off site management cost including costs of foreman and assistants, temporary services, telephone, fax, hoardings & similar.	1 Item			
<b>1.2.00</b>	<b>Contractual Requirements</b>				
1.2.01	Provide & Maintain all necessary Insurances, Guarantees and Securities.	1 Item			
<b>1.3.00</b>	<b>Specified Requirements</b>				
1.3.01	Provision and Erection of Notice Boards 3m x 4m size as per drawing and specification, including complete cost and conveyance of materials, labour charges, & etc.	1 Item			
1.3.02	Provision of photographs of important activities of the work during the progress of work as directed by the Engineer.	1 Item			
1.3.03	Provision of videograph of the progress of works, one video tape not more than 30 minutes duration showing the progress during every month.	1 Item			
1.3.04	Submission of shop drawings for approval by the Engineer prior to commencement of work	1 Item			
1.3.05	Detailed survey of each plot and prepare site layout and identify household catchpit and obtain Homeowner & Contractor agreement for each house	1 Item			
1.3.06	Provision and maintaining of adequately equipped Laboratory services as required for site control on the quality of materials and the works as required by the engineer;	1 Item			
1.3.07	Survey of the area of sea outfall	1 Item			
1.3.08	Preparation of the electrical drawings and obtaining approval from MEA	1 Item			
<b>1.4.00</b>	<b>Temporary Works</b>				
1.4.01	Provision of Temporary storage facilities for plant, Equipment and materials	1 Item			
<b>1.5.00</b>	<b>Dewatering</b>				
1.5.01	Dewatering as required as per EPA regulation 2013/R-1697	1 Item			
<b>1.4.00</b>	<b>TOTAL OF BILL No: 01 - Carried Over To Summary</b>				<b>0.00</b>

Sewerage System in Ha.Baarah, Maldives

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<b>BILL NO. 02 - SITE PREPARATION</b>					
<b>2.1.00</b>	Clearing grass, bushes, shrubs, saplings, uprooting rank vegetation all along the pipeline route and removal & disposal of rubbish to approved tips anywhere in the island as directed by the Engineer-in-charge	1.00	Item		
<b>2.2.00</b>	Cutting of trees, including trunks, branching and removal of stumps, roots, stacking of serviceable materials with all lifts and up to all lead within project area and earthfilling in the depression/pit, including excavation & backfilling				
2.2.01	Girth size up to 300mm	1.00	item		
2.2.02	Girth size from 300mm to 600mm	1.00	item		
2.2.03	Girth size from 600mm to above	1.00	item		
<b>2.3.00</b>	Dismantling of existig structures like pillars, walls, slabs and any other structure constructed of Brick or coral stone masonry, cement concrete, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material	1.00	item		
<b>2.5.0</b>	<b>TOTAL OF BILL №: 02 - Carried Over To Summary</b>				<b>0.00</b>

Sewerage System in Ha.Baarah, Maldives

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<b>BILL NO. 03 - DECOMISSIONING</b>				
<b>3.1.00</b>	Decomissioning of existing septic tanks and small bore gravity sewers upon completion and testing and comissioning of new system. Rates shall include for removal of all the existing sludge from the septic tanks and soak wells using proper equipment such as sucker truck; and transfer the contents to STP/Location specified by Engineer. Once all the content has been thoroughly removed the septic tanks should be backfilled with adequate material and compacted	1.00	item		
<b>3.2.00</b>	<b>TOTAL OF BILL №: 03 - Carried Over To Summary</b>				<b>0.00</b>

## Sewerage System in Ha.Baarah, Maldives

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<b>BILL NO. 04 - OPERATIONAL COST</b>				
4.1.00	Operational cost for a period of one year for Sewerage systems	12.00	months		
4.2.00	<b>TOTAL OF BILL №: 04 - Carried Over To Summary</b>				<b>0.00</b>



Sewerage System in Ha.Baarah, Maldives

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<b>BILL NO. 05 - ADDITIONS AND OMISSIONS</b>				
<b>5.1.00</b>	<b>ADDITIONS</b>				
5.1.01	BILL NO. 01 - GENERAL AND PRELIMINARIES				
5.1.02	BILL NO. 02 - SITE PREPARATION				
5.1.03	BILL NO. 03 - DECOMMISSIONING				
5.1.04	BILL NO. 04 - OPERATIONAL COST				
<b>5.2.00</b>	<b>OMMISSIONS</b>				
5.2.01	BILL NO. 01 - GENERAL AND PRELIMINARIES				
5.2.02	BILL NO. 02 - SITE PREPARATION				
5.2.03	BILL NO. 03 - DECOMMISSIONING				
5.2.04	BILL NO. 04 - OPERATIONAL COST				
<b>5.3.00</b>	<b>TOTAL OF BILL №: 05 - Carried Over To Summary</b>				<b>0.00</b>

SUMMARY OF BILLS OF QUANTITIES  
**SEWERAGE SYSTEM IN HA.BAARAH, MALDIVES**  
**02 SEWERAGE SYSTEM**

DESCRIPTION	AMOUNT (MRF)	%
BILL NO. 01 - CIVIL WORK FOR PUMP STATIONS (3 nos.)	-	
BILL NO. 02 - INSTALLATION OF PUMPS	-	
BILL NO. 03 - MECHANICAL AND ELECTRICAL WORKS	-	
BILL NO. 03 - MECHANICAL AND ELECTRICAL WORKS	-	
BILL NO. 04 - GRAVITY SEWER MAINS	-	
BILL NO. 05 - ADMIN BUILDING	-	
BILL NO. 06- SEA OUTFALL	-	
BILL NO. 07- SUPPLY OF O&M EQUIPMENT AND SPARES	-	
BILL NO. 08 - TESTING AND COMMISSIONING	-	
BILL NO. 09- ADDITIONS AND OMISSIONS	-	
<b>TOTAL AMOUNT</b>	-	

## SEWERAGE SYSTEM IN HA.BAARAH, MALDIVES

## 02 SEWERAGE SYSTEM

Male', Republic of Maldives

## BILL OF QUANTITIES

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
<b>BILL NO. 01 - CIVIL WORK FOR PUMP STATIONS (3 nos.)</b>					
<b>1.1.00</b>	<b>General Notes</b> (a) Cement for all structural works shall be Sulphate resistant portland cement to BS4027:1996 unless specified otherwise (b) All structural reinforcement steel shall be epoxy coated reinforcement to ASTM A775 / A775M and Two coats of Bitumastic paint shall be applied on the external surfaces of all structures below ground level. (c) rates shall include the pump sump, valve chamber, control panel cabinet and valves, fittings inside the valve chamber and vent structures (d) All internal concrete surfaces shall be protected with epoxy coating of thickness 500 microns (e) Bituminous coating shall be provided to all external surfaces of concrete works below ground (f) Rates shall include for formwork, cleaning, fabrication, placing, the provision for all necessary temporary fixings and supports including tie wires and chair supports, laps, distribution bars and wastage.				
<b>1.2.00</b>	<b>Excavation Works</b>				
1.2.01	Excavation for PS1	26.50	m3		
1.2.02	Excavation for PS2	23.44	m3		
1.2.03	Excavation for PS3	23.44	m3		
<b>1.3.00</b>	<b>Lean Concrete</b>				
1.3.01	Lean concrete for PS1	2.74	m3		
1.3.02	Lean concrete for PS2	2.74	m3		
1.3.03	Lean concrete for PS3	2.74	m3		
<b>1.4.00</b>	<b>Reinforced Concrete Works</b>				
1.4.01	Reinforced concrete for PS1	7.00	m3		
1.4.02	Reinforced concrete for PS2	6.65	m3		
1.4.03	Reinforced concrete for PS3	6.65	m3		
<b>1.5.00</b>	<b>Plastering works</b>				
1.5.01	PS1	7.11	m2		
1.5.02	PS2	7.11	m2		
1.5.03	PS3	7.11	m2		
<b>1.6.00</b>	<b>Internal Coating</b>				
1.6.01	PS1	64.55	m2		
1.6.02	PS2	58.96	m2		
1.6.03	PS3	58.96	m2		
<b>1.7.00</b>	<b>External Coating</b>				
1.7.01	PS1	71.99	m2		
1.7.02	PS2	71.99	m2		
1.7.03	PS3	71.99	m2		
<b>1.8.00</b>	<b>TOTAL OF BILL No: 01 - Carried Over To Summary</b>				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<b>BILL NO. 02 - INSTALLATION OF PUMPS</b>				
<b>2.1.00</b>	<b>General Notes</b> (a) Rates shall include for installation as per approved drawings (b) rates shall include costs for Power cable, duckfoot bend, discharge connection, guide bars and 6m of stainless steel lifting chain, level control switches as per drawing and specifications. (b) Rates shall include for all internal piping and connections as per detail				
<b>2.2.00</b>	<b>Installation of Pumps</b>				
2.2.01	Submersible Pumps 8.9kW ( <b>Pump Station 01</b> ) - Pump Capacity, Qdp=5.8 l/s, Head=30.5m each	2.00	nos		
2.2.02	Submersible Pumps 8.9kW ( <b>Pump Station 02</b> ) - Pump Capacity Qdp= 5.0 l/s, Head=22.6m each	2.00	nos		
2.2.03	Submersible Pumps 8.9kW ( <b>Pump Station 03</b> ) - Pump Capacity, Qdp=5.5 l/s, Head=27.3m each	2.00	nos		
<b>2.3.00</b>	<b>Vent structures</b>				
2.3.01	Supply and installation of vent structure as per the drawing	2.00	nos.		
<b>2.4.00</b>	Monitoring system for Pump stations including all necessary cabling and wiring or GSM modules.	1.00	Item		
<b>2.5.00</b>	<b>Laying and Installation of Pumping Main</b>				
2.5.01	Pumping main 110mm dia. HDPE PE100 SDR11 PN16 pipe	630.00	m		
2.5.02	Pumping main 160mm dia. HDPE PE100 SDR11 PN16 pipe	550.00	m		
<b>2.6.0</b>	<b>TOTAL OF BILL No: 02 - Carried Over To Summary</b>				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<b>BILL NO. 03 - MECHANICAL AND ELECTRICAL WORKS</b>				
<b>3.1.00</b>	<b>General Notes</b> (a) The rate shall include for any necessary excavation of trenches, backfilling after laying and testing, jointing, installing house connection wyes on the main line, dewatering if absolutely necessary, and any other required accessories, including dismantling of road layers and reinstatement after works (b) The rate shall include for making good any areas affected by below work:				
<b>3.2.00</b>	Main feeder cable from island grid to control panels (3 pump stations and admin building/STP) including , materials and accessories required for complete work:				
3.2.01	25 mm2 4-Core armoured cable (feeder to PS)	300.00	m		
<b>3.3.00</b>	Control Panels with necessary cabling and control wiring as per approved details (3 Pump stations and admin building)	1.00	Item		
<b>3.4.00</b>	Preparation of electrical drawings and obtaining approval from MEA	1.00	Item		
<b>3.5.00</b>	Testing and Commissioning of the complete electrical system	1.00	Item		
<b>3.6.00</b>	<b>TOTAL OF BILL No: 03 - Carried Over To Summary</b>				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
<b>BILL NO. 04 - GRAVITY SEWER MAINS</b>					
<b>4.1.00</b>	<b>General Notes</b> (a) The rate for pipe laying shall comprise excavation of trenches, backfilling after laying and testing, jointing pipes, installing house connection wyes on the main line, dewatering if absolutely necessary, providing granular bedding for pipe laying, including dismantling of road layers and reinstatement after works (b) all gravity sewer pipes shall be UPVC to BS EN1401-1:2009 (c) All gravity sewer mains shall be 160mm dia UPVC of wall thickness & stiffness rated to SN4 & SDR41. (d) All gravity house laterals shall be 110mm dia UPVC of wall thickness & stiffness rated to SN4 & SDR41. (e) All gravity sewer mains shall have minimum 0.4% slope unless specified (f) All gravity sewer pipes shall be jointed using rubber ring push fit jointing method & rubber rings comply with BS 2494 (type2). (h) All sewer pipes shall be buried under earth cover of minimum 0.6 meters				
<b>4.2.00</b>	<b>Pipe laying</b> All pipes are measured in linear meters on plan view. Contractor shall adjust for slopes				
4.2.01	160mm dia, uPVC gravity sewer main (SN4, SDR41)	12,700.00	m		
<b>4.3.00</b>	<b>Maintenance shaft</b> (a) Rates shall include for installation of all connections, concrete protections and necessary ancillary items, as per drawing and technical specifications				
4.3.01	600mm dia. PE/PP Maintenance shaft with concrete protection	161.00	nos.		
<b>4.4.00</b>	<b>House Connection</b>				
4.4.01	Laying of Lateral house connection to main network, not exceeding maximum distance of 6m, including provision and installation of 315mm dia. uPVC House inspection chamber as per detail drawing	457.00	nos.		
<b>4.5.00</b>	<b>Clean out</b> (a) Rates shall include for all connections, concrete protections and necessary ancillary items, as per drawing and technical specifications				
4.5.01	160mm dia. uPVC clean out	127.00	nos.		
<b>4.6.00</b>	<b>TOTAL OF BILL No: 04 - Carried Over To Summary</b>				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<b>BILL NO. 05 - ADMIN BUILDING</b>				
<b>5.1.00</b>	<b>General Notes</b>				
	(a) Lean concrete shall be GRADE C15 and all structural concrete shall be GRADE C30				
	(b) All concrete below ground in contact with ground water shall be done using SRC with waterproofing admixture				
	(c) Bituminous coating shall be provided to all exposed concrete surface:				
	(d) Rates shall include for excavation in all types of hard & soft soils and removing, transporting & stacking the excavated material anywhere in the island and as directed by the Engineer, backfilling with excavated materials from stacks, watering consolidation				
<b>5.2.00</b>	<b>Excavation Works</b>				
5.2.01	Excavation	1.00	item		
<b>5.3.00</b>	<b>Ground Works</b>	1.00	item		
<b>5.4.00</b>	<b>Concrete Works</b>				
5.4.01	Lean concrete	1.00	item		
5.4.02	Reinforced concrete	1.00	item		
<b>5.5.00</b>	<b>Masonry and plastering works</b>				
5.5.01	Masonry works	1.00	item		
5.5.02	Plastering works	1.00	item		
<b>5.6.00</b>	<b>Timber works</b>				
5.6.01	Timber framing work for roof complete	1.00	item		
5.6.02	Internal and external ceiling	1.00	item		
<b>5.7.00</b>	<b>Roofing Works</b>				
5.7.01	Complete roofing works including insulation, gutter, fascia boards, , etc	1.00	item		
<b>5.8.00</b>	<b>Doors and windows</b>				
5.8.01	Supply and installation of all doors and windows	1.00	item		
<b>5.9.00</b>	<b>Finishes</b>				
5.7.01	All finishing work including painting, tiling, etc	1.00	item		
<b>5.10.00</b>	<b>Mechanical and electrical works</b>				
5.10.01	All mechanical and electrical works associated with the building as per drawings and technical specification	1.00	item		
<b>5.11.00</b>	<b>Plumbing and drainage works</b>				
5.11.01	All plumbing and drainage works associated with the building as per drawings and technical specification	1.00	item		
5.11.02	All plumbing and drainage fittings and fixtures associated with the building as per drawings and technical specification	1.00	item		
<b>5.12.00</b>	<b>Fire detection and protection</b>				
	Provision of fire detection and protection as per drawings				
5.12.01	5kg capacity dry chemical powder type Fire Extinguisher	3.00	nos.		
5.12.02	2kg capacity CO2 Fire Extinguisher	3.00	nos.		
5.12.03	Installation of fire blanket	1.00	nos.		
<b>5.13.00</b>	<b>Parking Shed (6m x 3.5m)</b>	1.00	Item		
<b>5.14.00</b>	<b>Boundary Wall and gate</b>	1.00	Item		
<b>5.15.00</b>	<b>TOTAL OF BILL No: 05 - Carried Over To Summary</b>				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
<b>BILL NO. 06- SEA OUTFALL</b>					
<b>6.1.00</b>	Installation of outfall pipeline with concrete ballast block, anchoring and necessary concrete protection as per drawing				
6.1.01	160mm dia, HDPE sea outfall pipe (PE 100, PN16, SDR11). The maximum depth of diffuser head from MSL is 10-15m	300.00	m		
<b>6.2.00</b>	<b>TOTAL OF BILL №: 06 - Carried Over To Summary</b>				



ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
<b>BILL NO. 07- SUPPLY OF O&amp;M EQUIPMENT AND SPARES</b>					
<b>7.1.00</b>	<b>Safety Tools</b> Supply and Delivery of the following safety equipments and tools				
7.1.01	Wooden First Aid Box	3.00	Nr.		
7.1.02	Fire Bucket sand with 3 nos. of round bottom buckets.	3.00	Nr.		
7.1.03	Rubber mat of 1.1kV grade of size 6mm thick.	3.00	Nr.		
7.1.04	Fire Safety Rules chart.	3.00	Nr.		
7.1.05	Shock Treatment Chart	3.00	Nr.		
<b>7.2.00</b>	<b>Maintenance Tools</b> Supply and Delivery of standard maintenance tools / equipments including manuals and catalogues to Engineer's approval.	3.00	sets		
<b>7.3.00</b>	<b>TOTAL OF BILL №: 07 - Carried Over To Summary</b>				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
<b>BILL NO. 08 - TESTING AND COMMISSIONING</b>					
<b>8.1.00</b>	Preparation of all O&M manuals, training documents and as-built drawings	1.00	item		
<b>8.2.00</b>	Provision of two year warranty of system including all required maintenance and provision of spare parts during this period	1.00	item		
<b>8.3.00</b>	Training of employee's nominees in operation and maintenance as per employer's requirement	1.00	item		
<b>8.4.00</b>	Testing and commissioning of system	1.00	item		
<b>8.5.00</b>	<b>TOTAL OF BILL No: 8 - Carried Over To Summary</b>				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<b>BILL NO. 09- ADDITIONS AND OMISSIONS</b>				
<b>9.1.00</b>	<b>ADDITIONS</b>				
9.1.01	BILL NO. 01 - CIVIL WORK FOR PUMP STATIONS (3 nos.)				
9.1.02	BILL NO. 02 - INSTALLATION OF PUMPS				
9.1.03	BILL NO. 03 - MECHANICAL AND ELECTRICAL WORKS				
9.1.04	BILL NO. 04 - GRAVITY SEWER MAINS				
9.1.05	BILL NO. 05 - ADMIN BUILDING				
9.1.06	BILL NO. 06- SEA OUTFALL				
9.1.07	BILL NO. 07- SUPPLY OF O&M EQUIPMENT AND SPARES				
9.1.08	BILL NO. 08 - TESTING AND COMMISSIONING				
<b>9.2.00</b>	<b>OMMISSIONS</b>				
9.2.01	BILL NO. 01 - CIVIL WORK FOR PUMP STATIONS (3 nos.)				
9.2.02	BILL NO. 02 - INSTALLATION OF PUMPS				
9.2.03	BILL NO. 03 - MECHANICAL AND ELECTRICAL WORKS				
9.2.04	BILL NO. 04 - GRAVITY SEWER MAINS				
9.2.05	BILL NO. 05 - ADMIN BUILDING				
9.2.06	BILL NO. 06- SEA OUTFALL				
9.2.07	BILL NO. 07- SUPPLY OF O&M EQUIPMENT AND SPARES				
9.2.08	BILL NO. 08 - TESTING AND COMMISSIONING				
<b>09.3.00</b>	<b>TOTAL OF BILL №: 09 - Carried Over To Summary</b>				

## SEWERAGE SYSTEM IN HA.BAARAH, MALDIVES

## 03 MATERIAL LIST

Male', Republic of Maldives

## BILL OF QUANTITIES

ITEM	DESCRIPTION	QTY	UNIT	MATERIAL RATE	AMOUNT
<b>BILL NO. 01 - SEWERAGE NETWORK</b>					
<b>1.1.00</b>	<b>Sewer Main Pipes</b>				
1.1.01	160mm dia, uPVC Pipe (SN4, SDR41) Rubber ring type . (5.8m in length)		Nos		
1.1.02	110mm dia, uPVC Pipe (SN4, SDR41) Rubber ring type .(5.8m in length)		Nos		
1.1.03	Marker tape 150mm wide (250m roll)		Nos		
<b>1.2.00</b>	<b>Pressure Mains and Outfall</b>				
1.2.01	110 Diameter HDPE Pipe (PE100, PN16, SDR11) (5.8m in length)		Nos		
1.2.02	160 Diameter HDPE Pipe (PE100, PN16, SDR11) (5.8m in length)		Nos		
1.2.03	110 Diameter HDPE 45 degree bend (PE100, PN16, SDR11)		Nos		
1.2.04	110 Diameter HDPE tee junction (PE100, PN16, SDR11)		Nos		
1.2.05	160 Diameter HDPE 45 degree bend (PE100, PN16, SDR11)		Nos		
1.2.06	160 Diameter HDPE tee junction (PE100, PN16, SDR11)		Nos		
1.2.07	160 Diameter HDPE tee junction (PE100, PN16, SDR11)		Nos		
1.2.08	110/160 Diameter HDPE reducer (PE100, PN16, SDR11)		Nos		
1.2.09	110/125 Diameter HDPE reducer (PE100, PN16, SDR11)		Nos		
1.2.10	125/160 Diameter HDPE reducer (PE100, PN16, SDR11)		Nos		
1.2.11	110 Diameter DI Non-Return Valve (PN16)		Nos		
1.2.12	110 Diameter DI Gate Valve (PN16)		Nos		
1.2.13	25mm Diameter SS 316 anchor j-bolt (500mm length)		Nos		
1.2.14	25mm Diameter SS 316 nut		Nos		
1.2.15	25mm Diameter SS 316 washer		Nos		
<b>1.3.00</b>	<b>Maintenance shaft</b>				
1.3.01	600 Diameter DI Cover top With Rubber Seal and Frame set in concrete surround		Nos		
1.3.02	600 Diameter PE/PP Corrugated Shaft (4m in length)		Nos		
1.3.03	Multi profile maintenance shaft base from PE/PP to suit DN150 uPVC Sewer Main		Nos		
1.3.04	Socket plug 160mm diameter for maintenance shaft		Nos		
1.3.05	In-situ insert connector 160mm diameter for maintenance shaft		Nos		
1.3.06	End cap 160mm diameter		Nos		
<b>1.4.00</b>	<b>House inspection Chamber</b>				
1.4.01	315 UpvC inspection chamber with cover,shaft and Base		Nos		
1.4.02	110/160 uPVC Y-Junction with rubber seal-Pushfit type		Nos		
1.4.03	110/110 uPVC 45 degree bend with rubber seal-Pushfit type		Nos		
<b>1.5.00</b>	<b>Cleanouts</b>				
1.5.01	230 Daimeter DI cover with rubber seal and frameset in concrete surround		Nos		
1.5.02	160 Diameter Coupler with Screw end Cap		Nos		
1.5.03	160 Diameter 45 degree bend Push fit type		Nos		
1.5.04	160 Diameter uPVC Y Junction Push fit type		Nos		
1.5.05	160 Diameter uPVC end cap Push fit type		Nos		
<b>1.6.00</b>	<b>Vent Stack</b>				
1.6.01	Teppered Vent pipe 250-150mm (6-8mm thick, 9m length)		Nos		
1.6.02	Vent cowl with carbon filter		Nos		
<b>1.7.00</b>	<b>TOTAL OF BILL №: 01</b>				
<b>BILL NO. 02 - PUMP STATIONS</b>					
<b>2.1.00</b>	<b>Pumps</b>				
2.2.01	Submersible Pumps 8.9kW (Pump Station 01) - Pump Capacity, Qdp=5.8 l/s, Head=30.5m each		Nos.		
2.2.02	Submersible Pumps 8.9kW (Pump Station 02) - Pump Capacity Qdp= 5.0 l/s, Head=22.6m each		Nos.		
2.2.03	Submersible Pumps 8.9kW (Pump Station 03) - Pump Capacity,Qdp=5.5 l/s, Head=27.3m each		Nos.		
2.1.03	Internal Coating Epoxy paint		ltrs		
2.1.04	External Coating Bitumen paint		ltrs		
2.1.05	Guide rail 33mm diameter SS316 (4m length)		Nos		
2.1.06	Guide rail L-Bracket SS316		Nos		
2.1.07	Guide rail 12mm SS316 bolts		Nos		
2.1.08	Guide rail 12mm SS316 nuts		Nos		
2.1.09	Guide rail 12mm washer		Nos		
2.1.10	Lifting Chain 8mm SS316 (4m length)		Nos		
2.1.11	1000x1000 Heavy Duty Cast Iron Cover,Rubber seal and Frame set in concrete surround		Nos		
<b>2.2.00</b>	<b>Control panel</b>				
2.2.01	Control Panels with level indicators 1-4, pump starts, pump stops, trips, ammeters, voltmeters, selector switch, automatic/manual selector switch, emergency stop, alarm, buzzer, alarm reset, gsm/plc module, mcb, mccb, elcb, manual change over switch, bus bar, surge arresters, necessary cabling and control wiring		Nos		
2.2.02	Float Switch with 10m cable		Nos		
2.2.03	25 mm2 4-Core armoured cable (feeder to PS)		m		
2.2.04	Monitoring GSM/PLC System		Nos		
<b>2.2.00</b>	<b>Sewer jetting and Suction Machine/Vehicle ( 1500 litre tank)</b>		Nos		
<b>2.2.00</b>	<b>TOTAL OF BILL №: 02 - Carried Over To Summary</b>				

	BILL NO. 03 - Construction Materials				
<b>3.1.00 Concrete</b>					
3.1.01 Cement (50kg)		Nos			
3.1.02 Course sand (50kg)		Nos			
3.1.03 Aggregate (50kg)		Nos			
3.1.04 Waterproofing Admixture		Nos			
3.1.05 Cement SRC ( 50 Kg bags)		Nos			
<b>3.2.00 Formwork</b>					
3.2.01 Plywood, 12mm thick 4ft x 8ft		Nos			
3.2.02 Timber hardwood, 50x35		Nos			
3.2.03 Nails, 35mm dia. x 1.5" length		Nos			
3.2.04 Mould oil		Nos			
<b>3.3.00 Reinforcement</b>					
3.3.01 Steel deformed bars, 12mm dia x 6m		Nos			
3.3.02 Steel deformed bars, 10mm dia x 6m		Nos			
3.3.03 Steel deformed bars, 6mm dia x 6m		Nos			
3.3.04 Binding wire, 18 gauge		Nos			
<b>3.4.00 Epoxy Coated Reinforcements</b>					
3.4.01 10 mm deformed bar		Nos			
3.4.02 12 mm deformed bar		Nos			
3.4.03 16 mm deformed bar		Nos			
<b>3.5.00 Masonry and Plastering</b>					
3.5.01 Cement solid blocks 300x150x150mm thick					
3.5.02 Fine sand					
<b>3.6.00 Doors and Windows</b>					
3.6.01 1100 x 2100 D1- Aluminium Louvers Door with Aluminium Louvers Panels		Nos			
3.6.02 900 x 2100 D2- Aluminium Louvers Door with Aluminium Louvers Panels		Nos			
3.6.03 900 x 2100 D2a- Aluminium Louvers Door with Aluminium Louvers Panels		Nos			
3.6.04 1500 x 2100 D3- Aluminium Louvers Door with Aluminium Louvers Panels		Nos			
3.6.05 2400 x 1200 W1- Whith Powder Coated Aluminium Window with Reflective Double Glazed Glass Panels		Nos			
3.6.06 1800 x 1200 W2- Whith Powder Coated Aluminium Window with Reflective Double Glazed Glass Panels		Nos			
3.6.07 600 x 700 V1- Whith Powder Coated Aluminium Window with Frosted Glass Panels		Nos			
3.6.08 1200 x 700 V1- Whith Powder Coated Aluminium Window with Frosted Glass Panels		Nos			
3.6.09 1000 x 1000 Exhaust Louver		Nos			
<b>3.7.00 Metal Work</b>					
3.7.01 50mm x 50mm G.I Box Bar Frame (Gate)		Nos			
3.7.02 3 Rows Barb Wire		Nos			
3.7.03 upvc coated wire mesh		Nos			
<b>3.8.00 Painting</b>					
3.8.01 Anti-Corrosive paint		Nos			
3.8.02 Wall sealer paint		Nos			
3.8.03 Emulsion paint		Nos			
3.8.04 Putty		Nos			
<b>3.9.00 Tiling</b>					
3.9.01 600x600mm homogenous tiles (floor)		Nos			
3.9.02 300x300mm homogenous tiles (toilet)		Nos			
3.9.03 Sika Fix T adhesive (25kg bags)		Nos			
<b>3.10.00 Roofing</b>					
3.10.01 38 x 50 Timber Purlins		Nos			
3.10.02 50 x 150 Timber Rafter		Nos			
3.10.03 75 x 200 Timber Ridge Beam		Nos			
3.10.04 Lysaught roofing sheet		Nos			
3.10.05 Ridge Capping		Nos			
3.10.06 End Flashing		Nos			
3.10.07 Lysaught Gutter		Nos			
<b>3.11.00</b>	<b>TOTAL OF BILL №: 03 - Carried Over To Summary</b>				
	<b>BILL NO. 04- ADDITIONS AND OMMISSIONS</b>				
<b>4.1.00 ADDITIONS</b>					
4.1.01					
4.1.02					
4.1.03					
<b>4.2.00 OMMISSIONS</b>					
4.2.01					
4.2.02					
4.2.03					
<b>04.3.00</b>	<b>TOTAL OF BILL №: 04 - Carried Over To Summary</b>				