

Bill No.1: Preliminaries

Item No.	Description of Works	Unit	Qty.	Unit Price	Total Price
				US\$	US\$
1	Mobilization				
1.1	This item should include site office for the use of the Engineer's and Employer's staffs with the necessary facilities, furniture, computers, printers, photocopier, fax machine, as described in the specifications, equipment, supplies, maintenance of traffic, temporary works, etc, which are required for the completion of the works as per the specifications. This item includes also all obligations, and liabilities conferred on the contractor by the bidding documents, and all tests required for the completion of the work.	L.S	1		
	Total of Bill (1) Preliminaries ... carried to main summary				-

Bill No.2: Supplying and Installation

Item No.	Description of Works	Unit	Qty.	Unit Price	Total Price
				US\$	US\$
2	Supplying, transporting and installing the following pipes, manholes and fittings, where no mix of pipes and fittings makes should be allowed, and all such supplies should have recent manufacturing dates:				
	Supplying, transporting and unloading in the specified stores of the contractor the following pipes, manholes and fittings, all to be new and not used before or renewed.				
2.1	Supply, install and test DN 16" uPVC (marked with quality approved tag) . Supplies have to match PWA Specifications. Each Pipe has to be 3m long plus coupler from one side with its own rubber, thickness of each pipe is not less than (11.5 mm) and including 120cm length nipple pipes with its coupler from one side at the beginning and end of the sewer line.(This item will be measured from the outside face of the manhole to the outside face of the other manhole).Inspection by mirror and hydrostatic test have to be done for sewer lines according to the General Technical Specifications for Sewerage Systems section 4.12 and as direction of the Engineer.	L.M	214		
2.2	Supply, install and test DN 12" uPVC (marked with quality approved tag) . Supplies have to match PWA Specifications. Each Pipe has to be 3m long plus coupler from one side with its own rubber, thickness of each pipe is not less than (9.2mm) and including 120cm length nipple pipes with its coupler from one side at the beginning and end of the sewer line.(This item will be measured from the outside face of the manhole to the outside face of the other manhole).Inspection by mirror and hydrostatic test have to be done for sewer lines according to the General Technical Specifications for Sewerage Systems section 4.12 and as direction of the Engineer.	L.M	2200		
2.3	Supply, install and test DN 10" uPVC (marked with quality approved tag) . Supplies have to match PWA Specifications. Each Pipe has to be 3m long plus coupler from one side with its own rubber, thickness of each pipe is not less than (7.3mm) and including 120cm length nipple pipes with its coupler from one side at the beginning and end of the sewer line.(This item will be measured from the outside face of the manhole to the outside face of the other manhole).Inspection by mirror and hydrostatic test have to be done for sewer lines according to the General Technical Specifications for Sewerage Systems section 4.12 and direction of the Engineer.	L.M	1450		

Bill No.2: Supplying and Installation

Item No.	Description of Works	Unit	Qty.	Unit Price	Total Price
				US\$	US\$
2.4	Supply, install and test DN 8" uPVC (marked with quality approved tag) . Supplies have to match PWA Specifications. Each Pipe has to be 3m long plus coupler from one side with its own rubber, thickness of each pipe is not less than (5.9mm)and including 120cm length nipple pipes with its coupler from one side at the beginning and end of the sewer line.(This item will be measured from the outside face of the manhole to the outside face of the other manhole).Inspection by mirror and hydrostatic test have to be done for sewer lines according to the General Technical Specifications for Sewerage Systems section 4.12 and direction of the Engineer.	L.M	11000		
2.5	Supply and install of 100cm inside diameter precast reinforced concrete manhole: class A section, painted with two coats of Latex Bituminous Emulsion from outside and Epoxy TAR from inside, completed with fittings, heavy duty cover with capacity of 25 tons and frame, heavy duty step irons, benching, leveling concrete, concrete connection head between manhole and sewer pipe, reinforced concrete joint around manhole steel cover, rubber gaskets, accessories and including Excavation, damp proofing, backfilling (3/8" class A gravel) and reinstatement, all according to the GTS for Sewerage Systems section 3.9, Construction and Installation of Pipes in Water Supply and Sewerage Trenches section 5 in the Planning and Design Guidelines, and all needed as shown in Drawings and satisfaction of the Engineer. This item for the following Invert Level Depth:				
	a) invert depth $d \leq 1.55m$	No.	375		
	b) invert depth $1.55m < d \leq 2.00m$	No.	80		
	c) invert depth $2.0 < d \leq 2.5m$	No.	55		
2.6	Supply and install of 125cm inside diameter reinforced precast concrete class A sections, painted with two coats of Latex Bituminous Emulsion from outside and epoxy TAR from inside, completed with fittings, heavy duty cover with capacity of 25 tons and frame, heavy duty step irons, benching, leveling concrete, concrete connection head between manhole and sewer pipe, reinforced concrete joint around manhole steel cover, rubber gaskets, accessories and including Excavation, damp proofing, backfilling (3/8" class A gravel) and reinstatement, all according to the GTS for Sewerage Systems section 3.9, Construction and Installation of Pipes in Water Supply and Sewerage Trenches section 5 in the Planning and Design Guidelines, and all needed as shown in Drawings and satisfaction of the Engineer. This item for the following Invert Level Depth:				
	a) invert depth $2.5 < d \leq 3.5m$	No.	75		
	b) invert depth $3.5 < d$	No.	25		

Bill No.2: Supplying and Installation

Item No.	Description of Works	Unit	Qty.	Unit Price	Total Price
				US\$	US\$
2.7	Supply and construct manholes cast-in-situ reinforced concrete bases, painted with two coats of Latex Bituminous Emulsion from outside and epoxy TAR from inside, completed with fittings, heavy duty cover with capacity of 25 tons and frame, heavy duty step irons, benching, leveling concrete, concrete connection head between manhole and sewer pipe, reinforced concrete joint around manhole steel cover, rubber gaskets, accessories and including Excavation, damp proofing, backfilling (3/8" class A gravel) and reinstatement, all according to the GTS for Sewerage Systems section 3.9, Construction and Installation of Pipes in Water Supply and Sewerage Trenches section 5 in the Planning and Design Guidelines, and all needed as shown in Drawings and satisfaction of the Engineer. This item for the following Invert Level Depth:.				
	a) invert depth 2.0m>d	No.	2		
	b) invert depth 2.0<d<=2.5m	No.	15		
2.8	Supply and construct ,manholes, cast-in-situ reinforced concrete bases with Precast concrete leveling ring of thickness between 50 and 150 mm, painted with two coats Latex Bituminous Emulsion from outside and epoxy TAR from inside, completed with fittings, heavy duty cover with capacity of 25 tons and frame, heavy duty step irons, benching, leveling concrete, concrete connection head between manhole and sewer pipe, reinforced concrete joint around manhole steel cover, rubber gaskets, accessories and including Excavation, damp proofing, backfilling (3/8" class A gravel) and reinstatement, all according to the GTS for Sewerage Systems section 3.9, Construction and Installation of Pipes in Water Supply and Sewerage Trenches section 5 in the Planning and Design Guidelines, and all needed as shown in Drawings and satisfaction of the Engineer. This item for the following Invert Level Depth:				
	a) invert depth 2.5<d<=3.0m	No.	23		
	b) invert depth 3.0<d<=3.5m	No.	17		
	c) invert depth 3.5<d	No.	7		
2.9	Supplying and installation of drop fittings, drop pipes and plain concrete B200. All according to the GTS for Sewerage Systems section 3.9(ii-l), Construction and Installation of Water Supply and Sewerage Trenches section 5.4(Drop Manholes) in the Planning and Design Guidelines, drawings and direction of the Engineer.				
	a) 60<=d<115	No.	2		
	b) 115<d	No.	4		
	Total of Bill (2) Supplying and Installation ... carried to main summary				

Bill No.3: Earth Works

Item No.	Description of Works	Unit	Qty.	Unit	Total Price
				US\$	US\$
3	EARTH WORKS:				
3.1	<p>Excavation: Clearing, grubbing of top soil (if any) to a depth of 300 mm from the natural ground level as specified in item 2.2(ii) in the General Technical Specifications for Sewerage Systems (GTS) and unclassified trench excavations which deems to include whatever type and nature (sand, clay, mixed soil or rock) needed to bury 16" nominal diameter pipelines (width of trench is not less than 95cm) according to the GTS for Sewerage systems section 2, clauses: 2.4(i,iii,iv,v), 2.6(i,iv.). According to the Construction and Installation of Pipes in Water Supply and Sewerage Trenches section 3, clauses: 3.2.1, 3.2.2, 3.3, 3.4, 3.6 in the Planning and Design Guidelines. According to Drawings and direction of the Engineer.</p> <p>Back-filling sections of trenches in or Adjacent to Streets for the pipelines mentioned above in two stages:</p> <p>A) Soft back-filling (surrounding the pipe) by using sand placed 150 mm below the invert level up to 200 mm over the crown of the pipe and for the full width of the trench with suitable compaction, and laying of green warning tape over this stage.</p> <p>B)Final back-filling for the remainder of the trench by using approved common backfill material which shall not contain granite blocks, masonry rubble, asphalt pavement or any material larger than 150 mm in any dimension provided that this material is not more than 25% of the volume of backfill material. The trench must be filled and leveled in layers not exceeding 250mm wetted and compacted to 95 percent of the maximum dry density. If the excavated material is not approved by the engineer to be used as backfill material, the contractor shall remove it from the site to approved dumps and to supply the required common backfill material at his own cost. The last top layer (250 mm) of the trench shall be done by using approved base course material for trenches adjacent to street. All related works to this item must be implemented in accordance with Section (2)- clauses 2.9(i), 2.9(ii-A), 2.9(iii), 2.9(iv),2.9(v) , 2.11(i-ii) & 2.12 of the(GTS Sewerage Systems) or Equivalent and dwgs and direction of the engineer.. This item for the following invert level depth:</p>				
	a) invert depth $d \leq 2m$	L.M	50		
	b) invert depth $2.0 < d \leq 2.5m$	L.M	158		
	c) invert depth $2.5 < d \leq 3.5m$	L.M	344		
	d) invert depth $3.5 < d$	L.M	50		

Bill No.3: Earth Works

Item No.	Description of Works	Unit	Qty.	Unit	Total Price
				US\$	US\$
3.2	<p>Excavation: Clearing, grubbing of top soil (if any) to a depth of 300 mm from the natural ground level as specified in item 2.2(ii) in the General Technical Specifications for Sewerage Systems (GTS) and unclassified trench excavations which deems to include whatever type and nature (sand, clay, mixed soil or rock) needed to bury 12" nominal diameter pipelines (width of trench is not less than 85cm) according to the GTS for Sewerage systems section 2, clauses: 2.4(i,iii,iv,v), 2.6(i,iv.). According to the Construction and Installation of Pipes in Water Supply and Sewerage Trenches section 3, clauses: 3.2.1, 3.2.2, 3.3, 3.4, 3.6 in the Planning and Design Guidelines. According to Drawings and direction of the Engineer.</p> <p>Back-filling sections of trenches in or Adjacent to Streets for the pipelines mentioned above in two stages:</p> <p>A) Soft back-filling (surrounding the pipe) by using sand placed 150 mm below the invert level up to 200 mm over the crown of the pipe and for the full width of the trench with suitable compaction, and laying of green warning tape over this stage.</p> <p>B) Final back-filling for the remainder of the trench by using approved common backfill material which shall not contain granite blocks, masonry rubble, asphalt pavement or any material larger than 150 mm in any dimension provided that this material is not more than 25% of the volume of backfill material. The trench must be filled and leveled in layers not exceeding 250mm wetted and compacted to 95 percent of the maximum dry density. If the excavated material is not approved by the engineer to be used as backfill material, the contractor shall remove it from the site to approved dumps and to supply the required common backfill material at his own cost. The last top layer (250 mm) of the trench shall be done by using approved base course material for trenches adjacent to street. On the other hand where trenches in street , it shall be done by using 200mm base course material from the last top layer, placed, wetted and compacted to not less than 95 % of the modified Proctor density for the two cases. All related works to this item must be implemented in accordance with Section (2)- clauses 2.9(i), 2.9(ii-A), 2.9(iii), 2.9(iv),2.9(v) , 2.11(i-ii) & 2.12 of the(GTS Sewerage Systems) or Equivalent and dwgs and direction of the engineer.. This item for the following invert level depth:</p>				
	a) invert depth $d \leq 2m$	L.M	750		
	b) invert depth $2.0 < d \leq 2.5m$	L.M	570		
	c) invert depth $2.5 < d \leq 3.5m$	L.M	290		
	d) invert depth $3.5 < d$	L.M	50		

Bill No.3: Earth Works

Item No.	Description of Works	Unit	Qty.	Unit	Total Price
				US\$	US\$
3.3	<p>Excavation: Clearing, grubbing of top soil (if any) to a depth of 300 mm from the natural ground level as specified in item 2.2(ii) in the General Technical Specifications for Sewerage Systems (GTS) and unclassified trench excavations which deems to include whatever type and nature (sand, clay, mixed soil or rock) needed to bury 10" nominal diameter pipelines (width of trench is not less than 80cm) according to the GTS for Sewerage systems section 2, clauses: 2.4(i,iii,iv,v), 2.6(i,iv,vi). According to the Construction and Installation of Pipes in Water Supply and Sewerage Trenches section 3, clauses: 3.2.1, 3.2.2, 3.3, 3.4, 3.6 in the Planning and Design Guidelines. According to Drawings and direction of the Engineer.</p> <p>Back-filling sections of trenches in or Adjacent to Streets for the pipelines mentioned above in two stages:</p> <p>A) Soft back-filling (surrounding the pipe) by using sand placed 150 mm below the invert level up to 200 mm over the crown of the pipe and for the full width of the trench with suitable compaction, and laying of green warning tape over this stage.</p> <p>B)Final back-filling for the remainder of the trench by using approved common backfill material which shall not contain granite blocks, masonry rubble, asphalt pavement or any material larger than 150 mm in any dimension provided that this material is not more than 25% of the volume of backfill material. The trench must be filled and leveled in layers not exceeding 250mm wetted and compacted to 95 percent of the maximum dry density. If the excavated material is not approved by the engineer to be used as backfill material, the contractor shall remove it from the site to approved dumps and to supply the required common backfill material at his own cost. The last top layer (250 mm) of the trench shall be done by using approved base course material for trenches adjacent to street. On the other hand where trenches in street , it shall be done by using 200mm base course material from the last top layer, placed, wetted and compacted to not less than 95 % of the modified Proctor density for the two cases. All related works to this item must be implemented in accordance with Section (2)- clauses 2.9(i), 2.9(ii-A), 2.9(iii), 2.9(iv),2.9(v) , 2.11(i-ii) & 2.12 of the(GTS Sewerage Systems) or Equivalent and dwgs and direction of the engineer.. This item for the following invert level depth:</p>				
	a) invert depth $d \leq 2m$	L.M	620		
	b) invert depth $2.0 < d \leq 2.5m$	L.M	80		
	c) invert depth $2.5 < d \leq 3.5m$	L.M	240		
	d) invert depth $3.5 < d$	L.M	420		

Bill No.3: Earth Works

Item No.	Description of Works	Unit	Qty.	Unit	Total Price
				US\$	US\$
3.4	<p>Excavation: Clearing, grubbing of top soil (if any) to a depth of 300 mm from the natural ground level as specified in item 2.2(ii) in the General Technical Specifications for Sewerage Systems (GTS) and unclassified trench excavations which deems to include whatever type and nature (sand, clay, mixed soil or rock) needed to bury 8" nominal diameter pipelines (width of trench is not less than 75cm) according to the GTS for Sewerage systems section 2, clauses: 2.4(i,iii,iv,v), 2.6(i,iv,vi). According to the Construction and Installation of Pipes in Water Supply and Sewerage Trenches section 3, clauses: 3.2.1, 3.2.2, 3.3, 3.4, 3.6 in the Planning and Design Guidelines. According to Drawings and direction of the Engineer.</p> <p>Back-filling sections of trenches in or Adjacent to Streets for the pipelines mentioned above in two stages:</p> <p>A) Soft back-filling (surrounding the pipe) by using sand placed 150 mm below the invert level up to 200 mm over the crown of the pipe and for the full width of the trench with suitable compaction, and laying of green warning tape over this stage.</p> <p>B)Final back-filling for the remainder of the trench by using approved common backfill material which shall not contain granite blocks, masonry rubble, asphalt pavement or any material larger than 150 mm in any dimension provided that this material is not more than 25% of the volume of backfill material. The trench must be filled and leveled in layers not exceeding 250mm wetted and compacted to 95 percent of the maximum dry density. If the excavated material is not approved by the engineer to be used as backfill material, the contractor shall remove it from the site to approved dumps and to supply the required common backfill material at his own cost. The last top layer (250 mm) of the trench shall be done by using approved base course material for trenches adjacent to street. On the other hand where trenches in street , it shall be done by using 200mm base course material from the last top layer, placed, wetted and compacted to not less than 95 % of the modified Proctor density for the two cases. All related works to this item must be implemented in accordance with Section (2)- clauses 2.9(i), 2.9(ii-A), 2.9(iii), 2.9(iv),2.9(v) , 2.11(i-ii) & 2.12 of the(GTS Sewerage Systems) or Equivalent and dwgs and direction of the engineer.. This item for the following invert level depth:</p>				
	a) invert depth $d \leq 2m$	L.M	8630		
	b) invert depth $2.0 < d \leq 2.5m$	L.M	700		
	c) invert depth $2.5 < d \leq 3.5m$	L.M	450		
	d) invert depth $3.5 < d$	L.M	40		

Bill No.3: Earth Works

Item No.	Description of Works	Unit	Qty.	Unit	Total Price
				US\$	US\$
3.5	<p>Excavation for road crossing sewer pipe lines: Clearing, grubbing of top soil (if any) to a depth of 300 mm from the natural ground level as specified in item 2.2(ii) in the General Technical Specifications for Sewerage Systems (GTS) and unclassified trench excavations which deems to include whatever type and nature (sand, clay, mixed soil or rock) needed to bury 10" nominal diameter pipelines (width of trench is not less than 80cm) according to the GTS for Sewerage systems section 2, clauses: 2.4(i,iii,iv,v), 2.6(i,iv,vi). According to the Construction and Installation of Pipes in Water Supply and Sewerage Trenches section 3, clauses: 3.2.1, 3.2.2, 3.3, 3.4, 3.6 in the Planning and Design Guidelines. According to Drawings and direction of the Engineer.</p> <p>Back-filling sections of trenches in or Adjacent to Streets for the pipelines mentioned above in two stages:</p> <p>A) Soft back-filling (surrounding the pipe) by using sand placed 150 mm below the invert level up to 200 mm over the crown of the pipe and for the full width of the trench with suitable compaction, and laying of green warning tape over this stage.</p> <p>B) Final back-filling for the remainder of the trench by using backfilling (3/8" class A gravel), the contractor shall remove backfill material from the site to approved dumps at his own cost. The last top layer (250 mm) of the trench shall be done by using approved base course material for trenches adjacent to street. On the other hand where trenches in street, it shall be done by using 200mm base course material from the last top layer, placed, wetted and compacted to not less than 95 % of the modified Proctor density for the two cases. All related works to this item must be implemented in accordance with Section (2)- clauses 2.9(i) and 2.9(ii-A) of the(GTS Sewerage Systems) or Equivalent, dwgs and direction of the engineer. This item for the following invert level depth:</p>				
	a) invert depth $d \leq 2m$	L.M	40		
	b) invert depth $2.0 < d \leq 2.5m$	L.M	30		
	c) invert depth $2.5 < d \leq 3.5m$	L.M	10		
	d) invert depth $3.5 < d$	L.M	30		

Bill No.3: Earth Works

Item No.	Description of Works	Unit	Qty.	Unit	Total Price
				US\$	US\$
3.6	<p>Excavation for road crossing sewer pipe lines: Clearing, grubbing of top soil (if any) to a depth of 300 mm from the natural ground level as specified in item 2.2(ii) in the General Technical Specifications for Sewerage Systems (GTS) and unclassified trench excavations which deems to include whatever type and nature (sand, clay, mixed soil or rock) needed to bury 8" nominal diameter pipelines (width of trench is not less than 75cm) according to the GTS for Sewerage systems section 2, clauses: 2.4(i,iii,iv,v), 2.6(i,iv,vi). According to the Construction and Installation of Pipes in Water Supply and Sewerage Trenches section 3, clauses: 3.2.1, 3.2.2, 3.3, 3.4, 3.6 in the Planning and Design Guidelines. According to Drawings and direction of the Engineer.</p> <p>Back-filling sections of trenches in or Adjacent to Streets for the pipelines mentioned above in two stages:</p> <p>A) Soft back-filling (surrounding the pipe) by using sand placed 150 mm below the invert level up to 200 mm over the crown of the pipe and for the full width of the trench with suitable compaction, and laying of green warning tape over this stage.</p> <p>B) Final back-filling for the remainder of the trench by using backfilling (3/8" class A gravel), the contractor shall remove backfill material from the site to approved dumps at his own cost. The last top layer (250 mm) of the trench shall be done by using approved base course material for trenches adjacent to street. On the other hand where trenches in street, it shall be done by using 200mm base course material from the last top layer, placed, wetted and compacted to not less than 95 % of the modified Proctor density for the two cases. All related works to this item must be implemented in accordance with Section (2)- clauses 2.9(i) and 2.9(ii-A) of the(GTS Sewerage Systems) or Equivalent and dwgs and direction of the engineer..</p> <p>This item for the following invert level depth:</p>				
	a) invert depth $d \leq 2m$	L.M	900		
	b) invert depth $2.0 < d \leq 2.5m$	L.M	190		
	c) invert depth $2.5 < d \leq 3.5m$	L.M	100		
	d) invert depth $3.5 < d$	L.M	30		
3.7	Such unsuitable material should be excavated and removed from the bottom of the trench to at least 150 mm below the bottom of the pipe, or to the depth required by the specifications. They should be replaced with an approved clean and stable sand or fine aggregate material. All according to the Construction and Installation of Pipes in Water Supply and Sewerage Trenches section 3.3(A,B) in the Planning and Design Guidelines and direction of the Engineer.	L.M	500		
	Note 1 : Unit prices of all items of earth works shall include the following: Cleaning the site from all surplus back-fill materials, results of excavations, and repair all damages due to the excavations (concrete or stone walls, concrete or asphalt yards, existing pipe lines and utilities, cesspools, sidewalks, etc...), all shall be reinstated to a condition equal to that before the work began.				
	Note 2 : Unauthorized excavation: If the bottom of any excavation is taken out beyond the limits indicated or prescribed, the resulting void shall be backfilled and thoroughly compacted in layers of 150mm, with the following: <ul style="list-style-type: none"> • Selected screened gravel or sand fill if the excavation was for a pipeline, or • Class B-150 concrete if the excavation was for a structure or a manhole. 				
	Total of Bill(3) Earth Works ... carried to main summary				

Bill No.4 : Miscellaneous Works

Item No.	Description of Works	Unit	Qty.	Unit Price	Total Price
				US\$	US\$
4	Miscellaneous Works				
4.1	Reinforced concrete encasement (type B250) of sewer pipeline that has less than 90cm depth (from ground level to the top of the pipe), including reinforcing steel, formwork. As shown on drawings and to the satisfaction of the Engineer.	M ³	180		
4.2	Plain concrete blinding (B200) to the required levels, as shown to the drawings and to the direction of the engineer.	M ³	80		
4.3	100mm thickness B250 reinforced concrete including 8mm steel mesh reinforcement. All according to the direction of the Engineer.	M ³	80		
4.4	Plain concrete B150 with riprap (Stones)	M ³	40		
4.5	Reinstatement the asphalt where the pipelines pass underneath asphalted roads and in the main road crossing according to the (GTS) section 2 clauses 2.13B and 2.14G and including application of primary coat (MCO).	L.M	8000		
4.6	Supply and laying precast reinforced concrete pipes 800mm diameters (single pipe culvert) including excavation, preparation, bedding, back filling, head walls, end walls, aprons inlet and outlet protections, tar or bituminous painting to surfaces permanently in contact with back filled material and all necessary works, all according to specifications, drawings and direction of the engineer.	L.M	10		
Total of Bill (4) Miscellaneous Works ... carried to main summary					

Main Summary

ITEM	DESCRIPTION	Total USD
Bill 1	Preliminaries	
Bill 2	Supplying and Installation Works	
Bill 3	Earth Works	
Bill 4	Miscellaneous Works	
	Grand Total - Excluding Value Added Tax:	

The sum of :

Contractor:

Authorized Person:

Signature / stamp :

Date: