

**JASHV****Construction and Supply**

Paramount Village, Bumagao Road, Sto. Tomas Proper, Baguio City
VAT Reg. TIN: 271-233-250-000 Tel Nos.: 09182134136/ 09275182421
Design, Estimate, Supply, Lay-out, Install, Supervise, Maintenance

Date : 13 May 2022

For : **ENGR. MARK P. TORRES**
Vice President
Engineering and Social Support Department
Bases Conversion and Development Authority (BCDA)

Attention : **ENGR. VERGEL Q. PARAS**
Project Manager

Project : CONSTRUCTION OF TWO DEEP WELL UNITS AT WALLACE AIR
STATION, PORO POINT, SAN FERNANDO, LA UNION

Subject : **PROPOSED VARIATION AND REQUEST FOR EXTENSION OF TIME**

Dear Sir,

This has reference to our request for suspension of work dated 07 April 2022 due to the negative outcome of the original program of works stipulated in our contract.

In view of the foregoing, we would like to propose a variation intended to attain the project's primary objective of replicating the existing well supplying the PAF Wallace Air Station with the following:

1. Discontinue drilling on Deep Well 01 (200m) and seal the hole to prevent contaminants from entering the well.
2. Cancel drilling on Deep Well 02 (115m) since the Geo-Resistivity report indicate that the same aquifer is supposed to be shared by Deep Well 01 and Deep Well 02 but proved to be different with the actual strata encountered during drilling.
3. Drill exploratory wells at alternative locations within the bounds of the PAF compound and possibly develop into a production well if potable water with sustainable output is detected.
4. For item (3), shallow wells are hereby proposed based on our investigation of existing nearby wells as well as accounts of professionals in the same field who has previous knowledge of the strata in our area of concern.
5. Proceed with the construction of one (1) Chlorination house at the water tank location.
6. Restore the previously excavated original pipeline trench. New pipeline alignment is hereby proposed; and
7. Upgrade transformers (Medium to Low Voltage) to ensure sufficient supply of electricity for the proposed wells.

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Corollary to the above, we request an extension of time for project completion from one hundred twenty (120) to one hundred sixty-five (165) calendar days. Said extension will give us adequate time to complete the activities we enumerated herein.

We are attaching the following documents for your perusal:

1. Summary of Deductive and Additive cost items
2. Revised Bill of Quantities
3. Detailed Unit Price Analysis for new items
4. Site Development Plan with new Pipe Alignment
5. Section of Shallow Well
6. Proposed revision of the Project Implementing Schedule

Your kind and immediate attention on this matter highly appreciated.

Thank you and warm regards.

Yours truly,



ADELAIDA J. BAG-AYAN
General Manager




**CONSTRUCTION OF TWO (2) UNITS OF DEEP WELL AT WALLACE AIR STATION
PORO POINT, SAN FERNANDO, LA UNION**

DESCRIPTION	ORIGINAL BILL OF QUANTITIES	DESCRIPTION	REVISED BILL OF QUANTITIES
GENERAL REQUIREMENTS		GENERAL REQUIREMENTS	
FACILITIES FOR THE ENGINEER	430,500.00	FACILITIES FOR THE ENGINEER	576,187.50
OTHER GENERAL REQUIREMENTS	564,952.50	OTHER GENERAL REQUIREMENTS	632,992.50
CONSTRUCTION OF DEEP WELL 1 AT VES-1 (200 M DEPTH)	3,517,644.90	CONSTRUCTION OF DEEP WELL 1 AT VES-1 (200 M DEPTH)	2,108,158.50
CONSTRUCTION OF DEEP WELL 2 AT VES-9 (115 M DEPTH)	2,355,091.20		-
	-	CONSTRUCTION OF SHALLOW WELL 01 to 05	4,347,527.10
SUPPLY AND INSTALLATION OF ELECTRO-MECHANICAL EQUIPMENT (SUBMERSIBLE PUMP MOTOR ASSEMBLY)	2,482,195.00	SUPPLY AND INSTALLATION OF ELECTRO-MECHANICAL EQUIPMENT (SUBMERSIBLE PUMP MOTOR ASSEMBLY)	2,169,532.37
CONSTRUCTION OF TWO (2) CHLORINATION HOUSES		CONSTRUCTION OF ONE (1) CHLORINATION HOUSE	
STRUCTURAL WORKS	920,044.66	STRUCTURAL WORKS	552,423.48
ARCHITECTURAL WORKS	413,510.93	ARCHITECTURAL WORKS	245,975.27
PLUMBING AND SANITARY WORKS	518,051.98	PLUMBING AND SANITARY WORKS	507,520.48
MECHANICAL WORKS	18,708.90	MECHANICAL WORKS	11,212.95
ELECTRICAL WORKS	147,688.12	ELECTRICAL WORKS	81,668.34
CONSTRUCTION OF MAIN LINE FROM DEEP WELL TO ELEVATED WATER TANK	2,974,219.50	CONSTRUCTION OF MAIN LINE FROM DEEP WELL TO ELEVATED WATER TANK	2,746,001.90
		UPGRADING OF TRANSFORMERS	1,083,109.49
TOTAL ORIGINAL AMOUNT	14,342,607.69	TOTAL REVISED AMOUNT	15,062,309.87

Prepared by:


ENGR. JOSEPH C. FONTANOZ
Project-in-Charge


Submitted by:



VICTOR S. BAGAYAN
General Manager





REVISED BILL OF QUANTITIES
CONSTRUCTION OF TWO (2) UNITS OF DEEP WELL AT WALLACE AIR STATION
PORO POINT, SAN FERNANDO, LA UNION

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST PHP	TOTAL COST PHP
	I. GENERAL REQUIREMENTS				
PART A	FACILITIES FOR THE ENGINEER				
A.1.1a1	Rental of Field Office for the Engineer	Month	5.50	24,780.00	136,290.00
A.1.1.a2	Operation and Maintenance of Field Office for the Engineer	Month	5.50	18,585.00	102,217.50
A.1.1.b1	Furniture and Equipment for the Field Office of the Engineer	Month	5.50	21,000.00	115,500.00
A.1.1.b2	Furnishing Supplies and Consumables Stores for the Field Office for the Engineer (To be supplied on 1st month)	Lump Sum	1.00	42,000.00	42,000.00
A.1.1.b3	Furnishing Supplies and Consumables Stores for the Field Office for the Engineer (To be supplied monthly)	Month	5.50	17,010.00	93,555.00
A.1.5 (1)	Communication Facility for the Engineer, Rental Basis	Month	5.50	15,750.00	86,625.00
	TOTAL COST - PART A				576,187.50
PART B	OTHER GENERAL REQUIREMENTS				
B.5	Project Billboards / Signboards	Each	3.00	3,097.50	9,292.50
B.7 (1)	Occupational Safety and Health Program	Month	5.50	45,360.00	249,480.00
B.9	Mobilization / Demobilization	Lump Sum	1.00	283,500.00	283,500.00
B.4 (10)	Miscellaneous Survey and Staking	Lump Sum	1.00	90,720.00	90,720.00
	TOTAL COST - PART B				632,992.50
	TOTAL COST - GENERAL REQUIREMENTS				1,209,180.00

Prepared by:

 ENGR. JOSEPH C. FONTANOZ
 Project-in-Charge, JASHV

Submitted by:

 ENGR. VICTOR S. BIG-AYAN
 Project Manager, JASHV


Checked and Reviewed by:

 RAMON V. LIWANAG
 Resident Architect, BCDA

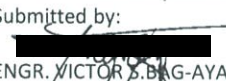

 VERGEL Q. PARAS
 Project Manager, BCDA

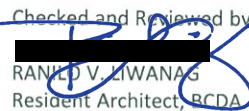
LEGEND

	Revised Quantity
	New Item

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST PHP	TOTAL COST PHP
	II. CONSTRUCTION OF DEEP WELL 1 AT VES-1 (200 M DEPTH)				
	SOURCE DEVELOPMENT - WELL DRILLING				
C.1	Drilling of 400mm diameter pilot borehole from ground surface to 30 meters including strata sampling every 1 meter of penetration or less when change of formation	lot	30.00	4,956.00	148,680.00
C.2	Furnishing of 400mm diameter steel welded casing with minimum wall thickness of 7.5mm	meters	30.00	5,575.50	167,265.00
C.3	Installation of 400mm diameter welded steel casing (Conductor pipes)	meters	30.00	3,469.20	104,076.00
C.4	Drilling of 300mm diameter pilot borehole from 30 meters to 90 meters including strata sampling every 1 meter of penetration or less when change of formation	meters	60.00	4,956.00	297,360.00
C.5	Furnishing of 300mm diameter steel welded casing with minimum wall thickness of 7.5mm	meters	90.00	2,973.60	267,624.00
C.6	Installation of 300mm diameter welded steel casing	meters	90.00	2,478.00	223,020.00
C.7	Drilling of 250mm diameter pilot borehole from 90 meters to 200 meters including strata sampling every 1 meter of penetration or less when change of formation	meters	52.00	4,956.00	257,712.00
C.8	Furnishing of 150mm diameter steel welded casing with minimum wall thickness of 7.5mm	meters	150.00	2,378.88	356,832.00
C.9	Perforation of 250 mm diameter welded steel casing	meters	84.00	1,239.00	104,076.00
C.10	Installation of 150mm diameter welded steel casing	meters	142.00	929.25	131,953.50
C.13	Geophysical Logging (Self potential and interpretation of result)	lot	1.00	49,560.00	49,560.00
	TOTAL - CONSTRUCTION OF DEEP WELL 1 AT VES-1 (200 M DEPTH)				2,108,158.50

Prepared by:

 ENGR. JOSEPH C. FONTANOZ
 Project-in-Charge, JASHV

Submitted by:

 ENGR. VICTOR S. BAG-AYAN

Checked and Reviewed by:

 RANELO V. LIWANAG
 Resident Architect, BCDA


 VERZEL Q. PARAS
 Project Manager, BCDA

LEGEND

	Revised Quantity
	New Item

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST PHP	TOTAL COST PHP
	II. CONSTRUCTION OF ONE (1) SHALLOW WELL				
	SOURCE DEVELOPMENT - WELL DRILLING				
D.1	Drilling of 230mm diameter pilot borehole from ground surface to 6.0 meters including strata sampling every 1 meter of penetration or less when change of formation	lot	6.00	4,956.00	29,736.00
D.2	Furnishing of 200mm diameter steel welded casing with minimum wall thickness of 6.5mm	meters	6.00	5,575.50	33,453.00
D.3	Installation of 200mm diameter welded steel casing (Conductor pipes)	meters	6.00	3,469.20	20,815.20
D.4	Drilling of 175mm diameter pilot borehole from 6.0 meters to 24 meters including strata sampling every 1 meter of penetration or less when change of formation	meters	18.00	4,956.00	89,208.00
D.5	Furnishing of 150mm diameter steel welded casing with minimum wall thickness of 6.5mm	meters	24.00	2,378.88	57,093.12
D.6	Installation of 150mm diameter welded steel casing	meters	24.00	2,478.00	59,472.00
D.7	Perforation of 150 mm diameter welded steel casing	meters	15.00	1,239.00	18,585.00
D.8	Furnishing and Installation of Gravel Pack Materials	meters	18.00	1,177.05	21,186.90
D.9	Furnishing and Installation of Centralizers	units	5.00	4,956.00	24,780.00
D.10	Geophysical Logging (Self potential and interpretation of result)	lot	1.00	49,560.00	49,560.00
D.11	Well Developing: Surging, Blocking, Swabbing & Bailing (Cleaning & clearing)	lot	1.00	74,340.00	74,340.00
D.12	Preliminary Pumping test	hrs	12.00	2,478.00	29,736.00
D.13	Continuous constant discharge rate, pumping test	hrs	72.00	2,478.00	178,416.00
D.14	Step Drawdown Pumping Test	lump sum	1.00	74,340.00	74,340.00
D.15	Well disinfection	lot	1.00	24,780.00	24,780.00
D.16	Cement grouting annulus around 250mm diameter blank welded steel casing	meters	6.00	1,610.70	9,664.20
D.17	Well completion, includes construction of concrete pedestal.	lot	1.00	49,560.00	49,560.00
D.18	Comprehensive Water Quality Analysis	lot	1.00	24,780.00	24,780.00
	TOTAL - CONSTRUCTION OF ONE (1) SHALLOW WELL				869,505.42
	TOTAL - CONSTRUCTION OF FIVE (5) SHALLOW WELLS				4,347,527.10

Prepared by:

ENGR. JOSEPH C. FONTANOS
Project-in-Charge, JASHV

Submitted by:

ENGR. VICTOR S. BAG-AYAN
Project Manager, JASHV

Checked and Reviewed by:

RAMIRO V. LIWANAG
Resident Architect, BCDA

VERGEL Q. PARAS
Project Manager, BCDA

LEGEND

	Revised Quantity
	New Item

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST PHP	TOTAL COST PHP
	IV. SUPPLY AND INSTALLATION OF ELECTRO-MECHANICAL EQUIPMENT (SUBMERSIBLE PUMP MOTOR ASSEMBLY)				
A	FOR ONE (1) SHALLOW WELL				
1102b	Electro-Mechanical Supply	lot	1.00	384,346.47	384,346.47
	Installation, Testing and Commissioning	lot	1.00	49,560.00	49,560.00
	SUB - TOTAL				433,906.47
B	FOR SHALLOW WELL 2				
1201(1)a	Electro-Mechanical Supply	lot	1.00	384,346.47	384,346.47
	Installation, Testing and Commissioning	lot	1.00	49,560.00	49,560.00
	SUB - TOTAL				433,906.47
	FOR SHALLOW WELL 3				
C	Electro-Mechanical Supply	lot	1.00	384,346.47	384,346.47
	Installation, Testing and Commissioning	lot	1.00	49,560.00	49,560.00
	SUB - TOTAL				433,906.47
D	FOR SHALLOW WELL 4				
1201(1)a	Electro-Mechanical Supply	lot	1.00	384,346.47	384,346.47
	Installation, Testing and Commissioning	lot	1.00	49,560.00	49,560.00
	SUB - TOTAL				433,906.47
E	FOR SHALLOW WELL 5				
1201(1)a	Electro-Mechanical Supply	lot	1.00	384,346.47	384,346.47
	Installation, Testing and Commissioning	lot	1.00	49,560.00	49,560.00
	SUB - TOTAL				433,906.47
	TOTAL - SUPPLY AND INSTALLATION OF ELECTRO-MECHANICAL EQUIPMENT				2,169,532.37

Prepared by:

ENGR. JOSEPH C. FONTANOZ
Project Manager, JASHV

Submitted by:

ENGR. VICTOR S. BAG-AYAN
Project Manager, JASHV

Checked and Reviewed by:

RANJO V. ZIWANAG
Resident Architect, BCDA

VERGEL Q. PARAS
Project Manager, BCDA

LEGEND

	Revised Quantity
	New Item

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST PHP	TOTAL COST PHP
	V. CONSTRUCTION OF TWO (2) CHLORINATION HOUSES				
	STRUCTURAL WORKS				
	STRUCTURAL EARTHWORK				
803 (1) a	Structure Excavation (includes Hauling and Disposal Cost)	cu.m.	29.27	743.40	21,759.32
803 (3) a	Foundation Fill, Gravel Bedding	cu.m.	3.27	2,007.18	6,563.48
515 (3)	Structural Backfilling (using Excavated Materials)	cu.m.	23.78	619.50	14,731.71
1000 (1)	Soil Poisoning	liters	6.66	1,724.89	11,487.75
	CONCRETE WORKS				
	Cast-In Place Concrete, 28 Mpa				
900 (8)	Structural Concrete 28 MPa @ 28 days	cu.m.	4.93	6,814.50	33,595.49
	Cast-In Place Concrete, 34.50 Mpa				
900 (9)	Structural Concrete, 34.50 MPa @ 28 days	cu.m.	15.92	7,495.95	119,321.55
	Reinforcing Steel, Grade 40				
902 (1) a	Reinforcing Steel Grade 40	kgs.	910.00	80.54	73,286.85
	Reinforcing Steel, Grade 60				
902 (1) b	Reinforcing Steel Grade 60	kgs.	1,085.54	86.73	94,148.88
	Formworks and Falsework				
903 (2)	Formworks and Falseworks	sq.m.	61.22	1,393.88	85,333.03

	METAL WORKS				
	Furnished, Fabricated and Erected				
1047 (2) a	Structural Steel, Purlins (LC Sections)	kgs.	365.57	112.75	41,217.65
1047 (2) d-4	Structural Steel, Steel Beam Connections (Angle Bar Sections)	kgs.	124.74	88.59	11,050.53
1047 (2) f-1	Structural Steel, Steel Beams (Channel Bar Section)	kgs.	101.19	88.59	8,964.27
1047 (3) a-1	Metal Structure Accessories, Connection Bolts, Ø12mm x 40 mm Connection Bolts w/ Std Nuts & Washer, ASTM A325	ea.	61.60	38.66	2,381.26
1047 (3) a-4	Metal Structure Accessories, Anchor Bolts, Ø16mm x 200mm w/ Std Nuts & Washer, ASTM F1554 (depth of embedment = 150mm)	ea.	17.60	312.23	5,495.21
1047 (6) a	Metal Structure Accessories, Base Plates (includes non-shrink grout)	kgs.	8.13	166.34	1,352.31
1047 (6) c	Metal Structure Accessories, Stiffener Plates	kgs.	7.25	92.00	666.97
1047 (6) d	Metal Structure Accessories, Bent Plates	kgs.	2.47	102.22	252.48
1047 (7) b	Metal Structure Accessories, Ø12mm Sagrods	kgs.	215.38	96.64	20,814.75
	TOTAL COST - STRUCTURAL WORKS				552,423.48

Prepared by:

ENGR. JOSEPH C. FONTANOS
Project-in-Charge, JASHV

Submitted by:

ENGR. VICTOR S. BAYG-AYAN
Project Manager, JASHV

Checked and reviewed by:

RANILLO V. LIWANAG
Resident Architect, BCDA


VERGEL Q. PARAS
Project Manager, BCDA


LEGEND


	Revised Quantity
	New Item

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST PHP	TOTAL COST PHP
	V. CONSTRUCTION OF TWO (2) CHLORINATION HOUSES				
	ARCHITECTURAL WORKS				
1003	CARPENTRY AND JOINERY				
1003 (1) a.3a	Ceiling Finish: 6mm Thk Fiber Cement Board, Wood Finish (Soffit of Eaves)	sq.m.	5.35	483.26	2,585.43
1004	FINISHING HARDWARE				
1004 (2) d	Lockset Series 4000, Lever Type, Function 86 (Entrance Lock), Grade 1	set	2.00	6,814.50	13,629.00
1004 (2) j	Metal Threshold	set	1.00	867.30	867.30
1004 (2) l	Butt Hinges 100mm x 114 x 3mm (4" x 4 1/2") (pair /set)	set	3.00	557.55	1,672.65
1004 (2) p	Flushbolt (Top and Bottom of Inactive Leaf)	set	1.00	805.35	805.35
1005	STEEL WINDOW				
1005 (7) b.1	Louver Window, Steel (45mm Thk, Fixed with Stainless Steel Insect Screen, 1 Panel, Type A= 2000mm W x 1850mm H)	set	1.00	19,824.00	19,824.00
1005 (7) b.2	Louver Window, Steel (45mm Thk, Fixed with Stainless Steel Insect Screen, 1 Panel, Type B= 1000mm W x 1850mm H)	set	1.00	9,912.00	9,912.00
1006	STEEL DOORS AND FRAMES				
1006 (4) b.1	Steel Louver Door (45mm Thk,with Stainless Steel Insect Screen, including Door Jamb, Double Leaf, Type A= 1400mm W x 2100mm H)	set	1.00	28,497.00	28,497.00
	Steel Matting Wall (2" x 2") w/ 1-1/2" G.I. Pipe Frame	set	1.00	33,118.47	33,118.47
1014	PREPAINTED METAL SHEETS				
1014 (1) c.2	Preformed Prepaintedl Metal Roofing, Galvalume Ga. 24, including Preformed Metal Gutter, Ga.24, bended materials, flashings, ridge roll and other attachment accessories necessary to complete work. (DN Hi Rib 1030)	sq.m	17.36	929.25	16,131.78
1014 (1) c.3	Preformed Prepainted Metal Siding, Galvalume Ga. 24, including flashings and other attachment accessories necessary to complete work.	sq.m	15.84	1,115.10	17,663.18
1021	CEMENT FLOOR FINISH				
1021 (1) a	Cement Floor Finish, Plain	sq.m.	13.86	173.46	2,404.16
1027	CEMENT PLASTER FINISH/ DECORATIVE STONE				
1027 (1)	Cement Plaster Finish (on Concrete Masonry Units)	sq.m.	79.26	346.92	27,496.88
1027 (1) b.1	Cement Plaster Finish: 20mm Ø Groove Liner	l.m.	48.00	185.85	8,920.80
1032	PAINTING, VARNISHING AND OTHER RELATED WORKS				
1032 (1) a.2	Masonry Painting	sq.m.	75.26	185.85	13,987.07
1032 (1) a.3	Steel Painting	sq.m.	52.58	185.85	9,771.99
1032 (8)	Painting Works: Painting on Fiber Cement Board Ceiling	sq.m	5.35	185.85	994.30

1034	DAMP PROOFING				
1034 (1) b	Damp proofing : Polyethylene Sheet Vapor Barrier, 6mils	sq.m.	11.98	92.93	1,113.24
1046	MASONRY WORKS				
1046 (2) a.2	CHB Non Load Bearing (including Reinforcing Steel), 150mm thk.	sq.m.	39.63	923.06	36,580.67
	TOTAL COST - ARCHITECTURAL WORKS				245,975.27

Prepared by:

 ENGR. JOSEPH C. FONTANOS
 Project-in-Charge, JASHV

Submitted by:

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 Project Manager, JASHV

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 Resident Architect, BCDA

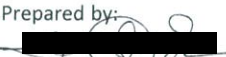

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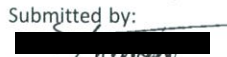
LEGEND


	Revised Quantity
	New Item

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST PHP	TOTAL COST PHP
	V. CONSTRUCTION OF TWO (2) CHLORINATION HOUSES				
	PLUMBING AND SANITARY WORKS				
	WATER SYSTEM				
	Cold Water Line				
	Steel Pipe conforming to ASTM A53, including pipe and fittings, miscellaneous consumables and other necessary accessories to complete the system				
	Steel Pipes including fittings				
1002 (29) i.2	150 mm dia.	meter	16.00	2,378.88	38,062.08
1002 (29) c.2	50 mm dia.	meter	12.00	390.29	4,683.42
1002 (29) a.2	40 mm dia.	meter	2.00	273.23	546.46
	Valves and devices including grooves/flanges, gaskets, bolts & nuts, adaptors, tagging, sealant and all other necessary accessories to complete the system				
1201 (12) a9	Gate Valve, 100 mm dia.	each	2.00	29,736.00	59,472.00
1201 (12) a6	Gate Valve, 50 mm dia.	each	8.00	14,868.00	118,944.00
1201 (12) c9	Check Valve, 100 mm dia.	each	2.00	27,258.00	54,516.00
1201 (12) f11	Wye Strainer, 150 mm dia.	each	2.00	22,302.00	44,604.00
1201 (12) f6	Wye Strainer, 50 mm dia.	each	2.00	10,531.50	21,063.00
1201 (12) k9	Sleeve Type Coupling, 100 mm dia.	each	2.00	4,336.50	8,673.00
1201 (12) k6	Sleeve Type Coupling, 50 mm dia.	each	2.00	2,478.00	4,956.00
1201 (12) h8	Flow Meter, 75 mm dia.	each	2.00	18,585.00	37,170.00
1002 (30) a	Air Release and Vacuum Valve for Exposed Pipe	each	2.00	6,814.50	13,629.00
1201 (13)	Chlorine Metering Pump, Capacity = 0.72 GPH, 150 PSI, includes controller and other accessories to complete the system	set	2.00	34,692.00	69,384.00
	Testing and Disinfecting	lot	1.00	12,390.00	12,390.00
	SUB - TOTAL				488,092.96

	STORM AND DRAINAGE SYSTEM				
	Unplasticized Polyvinyl Chloride (uPVC) conforming to ASTM D2729 series 1000, including pipe and fittings, structural earthworks, miscellaneous consumables and other necessary accessories to complete the system				
	Drain Pipe including fittings				
1001 (1) a5.7	200 mm dia.	meter	2.00	991.20	1,982.40
1001 (1) a4.7	150 mm dia.	meter	6.00	619.50	3,717.00
	High Density Poly-ethylene (HDPE) Pipe PE 80 / SDR 26, conforming to ASTM D 3350, ASTM D 1238, ASTM F 714, and ASTM D 3261, including pipe and fittings, pipe clamps and other necessary accessories to complete the system				
	Downspout including fittings				
1001 (1) c2.3	75 mm dia.	meter	18.00	74.34	1,338.12
1017 (7) a	Area Drain including excavation, disposal, gravel bedding, concrete, rebars, formworks, anchor bar welded to angle bar, galvanized angle bar, flat bar grating, and other accessories to complete the works	each	1.00	4,956.00	4,956.00
1001 (7) a	Junction Box including excavation, backfill, disposal, gravel bedding, concrete, rebars, formworks, and other accessories to complete the works	each	1.00	4,956.00	4,956.00
	Testing	lot	1.00	1,858.50	1,858.50
	SUB - TOTAL				18,808.02
	PLUMBING FIXTURES				
1017 (1) b.1	Roof Strainer, 75 mm dia.	each	2.00	309.75	619.50
	SUB - TOTAL				619.50
	TOTAL COST - PLUMBING AND SANITARY WORKS				507,520.48

Prepared by:

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 Project-in-Charge, JASHV

Submitted by:

 ENGR. VICTOR S. DAG-AYAN
 Project Manager, JASHV


Checked and Reviewed by:

 RAMLO V. LIWANAG
 Resident Architect, BCDA



 VERGEL Q. PARAS
 Project Manager, BCDA


LEGEND

	Revised Quantity
	New Item

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST PHP	TOTAL COST PHP
	V. CONSTRUCTION OF TWO (2) CHLORINATION HOUSES				
	MECHANICAL WORKS				
1200	VENTILATION SYSTEM				
1200 (5)b.3	EF: Wall Mounted Propeller Type Exhaust Fan complete w/ gravity shutter damper,equipment supports, insect screen, disconnect switch and other std. accessories. 306cmh(180cfm), 19W, 220V, 1ph, 60 hz, TEFC.	set	1.00	4,026.75	4,026.75
1200 (43)	Testing and Commissioning for Ventilation units	lot	1.00	3,717.00	3,717.00
	SUB - TOTAL				7,743.75
1202	FIRE PROTECTION SYSTEM				
1202 (6) a1	FE: 4.5 kg(10 lbs), ABC Dry Chemical, Siliconized Mono Ammonium Phosphate Dry Chemical, Wall Mounted Multi-Purpose Portable \fire Extinguisher complete w/ Hose and Horn, wall bracket, ULFM approved.	set	1.00	3,469.20	3,469.20
	SUB - TOTAL				3,469.20
	TOTAL COST - MECHANICAL WORKS				11,212.95

Prepared by:

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 RAMILO V. LIWANAG
 Resident Architect, BCDA

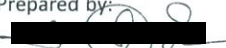

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 Project Manager, BCDA

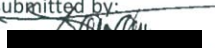
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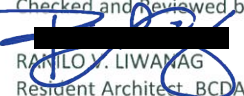
	Revised Quantity
	New Item


ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST PHP	TOTAL COST PHP
	V. CONSTRUCTION OF TWO (2) CHLORINATION HOUSES				
	ELECTRICAL WORKS				
1103	LIGHTING SYSTEM				
1100	CONDUITS, BOXES & FITTINGS (CONDUIT WORKS / CONDUIT ROUGH-INS)				
1100 (2)a	Intermediate Metal Conduit (IMC), 15mm dia.	meter	13.00	252.76	3,285.83
1100 (3)a	Flexible Metal Conduit (FMC), 15mm dia.	meter	1.00	148.68	148.68
1100 (13)a	Straight Connector, 15mm dia.	piece	2.00	43.19	86.39
1100 (8)a	Utility Box, 101mm x 54mm x 54mm, Ga. 16	piece	4.00	99.12	396.48
1100 (8)b	Octagonal Junction Box, 101mm x 101mm x 54mm, Ga. 16	piece	2.00	99.12	198.24
1100 (8)c	Square Box, 101mm x 101mm x 54mm, Ga. 16	piece	2.00	92.93	185.85
1101	WIRES AND WIRING DEVICES (including connectors, tapes, etc.)				
1101 (2) b2	Electric Wire, 3.5mm ² THHN/THWN-2	meter	29.00	59.47	1,724.69
1101 (2) b2.1	Electric Wire, 3.5mm ² TW (G)	meter	15.00	59.47	892.08
1101 (3)	Light Switch, 15A, 1P, 230V, 60Hz, One-Gang, Grounding Type	set	2.00	309.75	619.50
1101 (15)	Single Convenience Outlet/Receptacle (GT), 250V, 15A, 2P (For Emergency Light)	set	2.00	340.73	681.45
1103	LIGHTING FIXTURES AND LAMPS				
1103 (3)h	Type " E1 ", Enclosed and Gasketed Luminaire with 40W LED, 230V, 60Hz, Surface Mounted.	set	1.00	1,672.65	1,672.65
1103 (3)l	Emergency Lighting Fixture, 2 x 2.5W LED Lamp, 230V, 60Hz.	set	1.00	5,947.20	5,947.20
1103 (4).29.2	Testing and Commissioning	lot	1.00	4,956.00	4,956.00
	SUB - TOTAL				
1102	POWER SYSTEM				
1100	CONDUITS, BOXES & FITTINGS (CONDUIT WORKS / CONDUIT ROUGH-INS)				
1100 (2)a	Intermediate Metal Conduit (IMC), 15mm dia.	meter	13.00	252.76	3,285.83
1100 (1)a	Rigid Steel Conduit (RSC), 15mm dia.	meter	12.00	178.42	2,140.99
1100(9)c.1	Service Entrance Cap, 15mm dia.	piece	1.00	117.71	117.71
1100(9)b.1	Conduit Clamp, 15mm dia. (complete with Expansion Shield)	piece	6.00	55.76	334.53
1100 (3)a	Flexible Metal Conduit (FMC), 15mm dia.	meter	3.00	148.68	446.04
1100 (13)a	Straight Connector, 15mm dia.	piece	4.00	43.37	173.46
1100 (8)a	Utility Box, 101mm x 54mm x 54mm, Ga. 16	piece	1.00	99.12	99.12

1101	WIRES AND WIRING DEVICES (including connectors, tapes, etc.)				
1101 (2) b2	Electric Wire, 3.5mm ² THHN/THWN-2	meter	21.00	59.47	1,248.91
1101 (2) b3	Electric Wire, 5.5mm ² THHN/THWN-2	meter	24.00	74.34	1,784.16
1101 (2) b2.1	Electric Wire, 3.5mm ² TW (G)	meter	11.00	59.47	654.19
1101 (2) b3.1	Electric Wire, 5.5mm ² TW (G)	meter	13.00	74.34	966.42
1101 (19)	Duplex Convenience Outlet/Receptacle (GT), 250V, 15A, 2P, Wall Mounted, Weatherproof	set	2.00	278.78	557.55
1102	POWER LOAD CENTER, SWITCHGEAR AND PANELBOARDS, AND OTHER OVERCURRENT PROTECTION DEVICES				
1102 (2)29.2.1	Panelboard, PPCH, Main: 30AT/100AF, 1P, 2W + G, 230V, 60Hz, MCCB, 18KAIC, Branches: 4 - 20AT/100AF, 1P, MCCB, Other Components: 1 - Current Limiting Fuse (CLF), 1 - Indicator Lights (R). Complete with terminal lugs, ground bus, nameplate, etc.. Surface Mounted in NEMA 1 Enclosure. (Located at Chlorination House)	set	1.00	34,692.00	34,692.00
1102 (24) a1.1	Enclosed Circuit Breaker, 20AT/100AF, 1P, 230V, in NEMA 1 Enclosure	set	1.00	7,434.00	7,434.00
1102 (30) b.1	Kilowatt-Hour Meter, Class 100, 1Phase, 230V. (Base only)	set	1.00	743.40	743.40
1102 (35).29.2	Testing and Commissioning	lot	1.00	6,195.00	6,195.00
	SUB - TOTAL				
	TOTAL COST - ELECTRICAL WORKS				81,668.34

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 Project-in-Charge, JASHV

Submitted by:

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 Resident Architect, BCDA

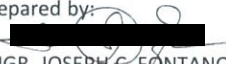

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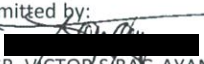
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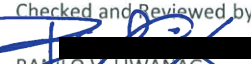
	Revised Quantity
	New Item


ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST PHP	TOTAL COST PHP
	II. CONSTRUCTION OF MAIN LINE FROM DEEP WELL TO ELEVATED WATER TANK				
	Construction of Pipelines (for 150mm Steel Pipes)				
1012(a)	Installation of Pipelines (150 mm dia Steel Pipes)	ln. m.	0.00	2,378.88	-
1012(b)	Installation of Pipelines (50 mm dia PVC Pipes)	ln. m.	1650.00	306.76	506,150.09
	Installation of Pipes at Well Head and Water Tank (50mm PPR pipes including fittings)	lot	5.00	27,899.80	139,499.01
101(3)b3	Removal of Actual Structures/Obstruction, PCCP	sq. m.	318.00	1,115.10	354,601.80
1602(2)	Pipeline Trench Excavation (Ordinary Soil)	cu. m.	531.50	619.50	329,264.25
1602(2)	Pipeline Trench Excavation (Rock)	cu. m.	181.50	1,867.72	338,990.40
1601(1)	Fill and Backfill	cu. m.	713.00	433.65	309,192.45
311(1)c1	Portland Cement Concrete Pavement, Unreinforced, 0.29m thick, @14 days	sq. m.	318.00	2,416.050	768,303.90
	TOTAL - CONSTRUCTION OF MAIN LINE FROM DEEP WELL TO WATER TANK				2,746,001.90

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST PHP	TOTAL COST PHP
	VIII. UPGRADING OF TRANSFORMERS				
A	Electrical Works	lot	1.00	1,083,109.49	1,083,109.49
	TOTAL -UPGRADING OF TRANSFORMERS				1,083,109.49

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Submitted by:

 ENGR. VICTOR S. BAG-AYAN
 Project Manager, JASHV

Checked and Reviewed by:

 RAMILO Y. LIWANAG
 Resident Architect, BCDA


 VERGEL Q. PARAS
 Project Manager, BCDA

LEGEND

	Revised Quantity
	New Item

CONSTRUCTION OF TWO DEEP WELL UNITS
Wallace Air Station, Poro Point, San Fernando City, La Union

Item No./Description : Electrical Works
Unit of Measurement : lot
Output per hour :

Quantity : 1.00

	Designation	No. of Person	No. of Hours	Hourly Rate	Amount
A.	Labor				
A.1	Electrician	3.00	32.00	106.25	10,200.00
A.2	Laborer	4.00	32.00	56.25	7,200.00
Sub - Total for A					17,400.00
	Name and Capacity	No of Units	No. of Hours	Hourly Rate	Amount
B.	Equipment				
Sub - Total for B					-
C.	Total (A + B)				17,400.00
D.	Output : 1.00				
E.	Direct Unit Cost (C ÷ D)				17,400.00
	Name and Specification	Unit	Quantity	Unit Cost	Amount
F.	Materials				
F.1	Arrester, Lightning 10kV	unit	1.00	4,117.50	4,117.50
F.2	Connector, Split bolt 400MCM	pcs	3.00	2,569.32	7,707.96
F.3	Fuse Link, 10 Amps	pcs	3.00	313.54	940.62
F.4	Transformer, Dist, 75-kVA ST	units	3.00	267,204.40	801,613.20
F.5	Wire, #6/7 (14mm ²) cu, bare	m	5.00	147.62	738.10
F.6	Wire, TW #400 MCM (200mm@) poly	m	25.00	1,666.52	41,663.00
Sub - Total for F					856,780.38
G.	Direct Unit Cost (E + F)				874,180.38
H.	Overhead, Contingencies & Miscellaneous (OCM)			10% of G	87,418.04
I.	Contractor's Profit (CP)			8% of G	69,934.43
J.	Value Added Tax (VAT)			5% of (G + H + I)	51,576.64
K.	Total Unit Cost			(G + H + I + J)	1,083,109.49

Prepared by:

Engr. Joseph C. Fontanoz
Project-in-Charge

Noted:

Adelaida J. San-ayan
General Manager

CONSTRUCTION OF TWO DEEP WELL UNITS
Wallace Air Station, Poro Point, San Fernando City, La Union

DETAILED UNIT PRICE ANALYSIS (DUPA)

Item No./Description : Electromechanical Works
Unit of Measurement : lot
Output per hour :

Quantity : 1.00

	Designation	No. of Person	No. of Hours	Hourly Rate	Amount
A.	Labor				
	Sub - Total for A				-
	Name and Capacity	No of Units	No. of Hours	Hourly Rate	Amount
B.	Equipment				
	Sub - Total for B				-
C.	Total (A + B)				-
D.	Output per hour : 1.00				
E.	Direct Unit Cost (C ÷ D)				-
	Name and Specification	Unit	Quantity	Unit Cost	Amount
F.	Materials				
F.1	Submersible pump 18gpm x 150ft TDH spline type coupling, all stainless construction, complete with built-in non-return valve, cable guard, and strainer; directly coupled to submersible motor 1.5Hp, 230Vac, 1phase, 60Hz, 1.15SF, spline type shaft with starting capacitor box to include riserpipes, fittings and valves, std 4" with complete accessories	1.00	set	126,215.00	126,215.00
F.2	Reduced Voltage auto-transformer magnetic starter motor control panel for 1.5HP, 220V, 1- phase, 60Hz complete w/ combination circuit breaker, thermal overload relay, over/under voltage protection device, anti-single phasing, phase failure relay, start/stop push buttons switches, liquid level control LH type w/ sensing electrodes, lighting arrester, pressure switch control, H-O-A selector switch and pilot lights completely wired and installed, with NEMA 1 enclosure, includes accessories and appurtenances	1.00	set	64,690.00	64,690.00
F.3	Conduits, Boxes and Fittings	1.00	lot	16,305.00	16,305.00
F.4	Wires, Cables, and Accessories	1.00	lot	96,297.00	96,297.00
F.5	Electro-Mechanical Supply	1.00	lot	6,700.00	6,700.00
	Sub - Total for F				310,207.00
G.	Direct Unit Cost (E + F)				310,207.00
H.	Overhead, Contingencies & Miscellaneous (OCM)			10% of G	31,020.70
I.	Contractor's Profit (CP)			8% of G	24,816.56
J.	Value Added Tax (VAT)			5% of (G + H + I)	18,302.21
K.	Total Unit Cost			(G + H + I + J)	384,346.47

Prepared by:

Engr. Joseph C. Fontanoz
Project-in-Charge

Noted:

Adelaida J. Bagayao
General Manager

CONSTRUCTION OF TWO DEEP WELL UNITS
Wallace Air Station, Poro Point, San Fernando City, La Union

DETAILED UNIT PRICE ANALYSIS (DUPA)

Item No./Description : Steel Matting Wall (2" x 2") w/ 1-1/2" G.I. Pipe Frame
Unit of Measurement : set
Output per hour :

Quantity : 1.00

	Designation	No. of Person	No. of Hours	Hourly Rate	Amount
A.	Labor				
A.1	Project Supervisor	1.00	24.00	131.25	3,150.00
A.2	Welder	2.00	24.00	75.00	3,600.00
A.3	Laborer	3.00	24.00	56.25	4,050.00
	Sub - Total for A				10,800.00
	Name and Capacity	No of Units	No. of Hours	Hourly Rate	Amount
B.	Equipment				
B.1	Welding Machine	1.00	40.00	-	-
	Sub - Total for B				-
C.	Total (A + B)				10,800.00
D.	Output : 1.00				
E.	Direct Unit Cost (C ÷ D)				10,800.00
	Name and Specification	Unit	Quantity	Unit Cost	Amount
F.	Materials				
F.1	2" x 2" Steel Matting	pcs	4.00	900.00	3,600.00
	1-1/2" GI Pipe S40	pcs	6.00	1,755.00	10,530.00
	Special Welding Rods	kg	10.00	180.00	1,800.00
	Sub - Total for F				15,930.00
G.	Direct Unit Cost (E + F)				26,730.00
H.	Overhead, Contingencies & Miscellaneous (OCM)			10% of G	2,673.00
I.	Contractor's Profit (CP)			8% of G	2,138.40
J.	Value Added Tax (VAT)			5% of (G + H + I)	1,577.07
K.	Total Unit Cost			(G + H + I + J)	33,118.47

Prepared by:

Engr. Joseph C. Fontanoz
Project-in-Charge

Noted:

Adelina L. Bagayan
General Manager

CONSTRUCTION OF TWO DEEP WELL UNITS
Wallace Air Station, Poro Point, San Fernando City, La Union

DETAILED UNIT PRICE ANALYSIS (DUPA)

Item No./Description : Installation of Pipes at Well Head and Water Tank (50mm PPR pipes and fittings) Quantity : 1.00
Unit of Measurement : lot
Output per hour :

	Designation	No. of Person	No. of Hours	Hourly Rate	Amount
A.	Labor				
A.1	Project Supervisor	1.00	8.00	131.25	1,050.00
A.2	Plumber	2.00	8.00	75.00	1,200.00
A.3	Laborer	4.00	8.00	56.25	1,800.00
	Sub - Total for A				4,050.00
	Name and Capacity	No of Units	No. of Hours	Hourly Rate	Amount
B.	Equipment				
B.1					
	Sub - Total for B				-
C.	Total (A + B)				4,050.00
D.	Output : 1.00				
E.	Direct Unit Cost (C ÷ D)				4,050.00
	Name and Specification	Unit	Quantity	Unit Cost	Amount
F.	Materials				
F.1	50mm x 4m PPR Pipe PN16	pcs	4.00	2,531.25	10,125.00
F.2	50mm PPR Female Union Patente	pcs	2.00	1,825.20	3,650.40
F.3	2" Sleeve Type Coupling	pcs	2.00	1,890.00	3,780.00
F.4	50mm PPR Elbow	pcs	4.00	201.15	804.60
F.5	50mm PPR Coupling	pcs	1.00	108.00	108.00
	Sub - Total for F				18,468.00
G.	Direct Unit Cost (E + F)				22,518.00
H.	Overhead, Contingencies & Miscellaneous (OCM)			10% of G	2,251.80
I.	Contractor's Profit (CP)			8% of G	1,801.44
J.	Value Added Tax (VAT)			5% of (G + H + I)	1,328.56
K.	Total Unit Cost			(G + H + I + J)	27,899.80

Prepared by:

Engr. Joseph C. Fontanoz
Project-in-Charge

Noted:

Adelaida J. Bagayan
General Manager

CONSTRUCTION OF TWO DEEP WELL UNITS
Wallace Air Station, Poro Point, San Fernando City, La Union

DETAILED UNIT PRICE ANALYSIS (DUPA)

Item No./Description : Installation of Pipelines (50mm dia PVC Pipes)
Unit of Measurement : meter
Output per hour : 10.86 m/hr

Quantity : 1.00

	Designation	No. of Person	No. of Hours	Hourly Rate	Amount
A.	Labor				
A.1	Project Supervisor	1.00	1.00	131.25	131.25
A.2	Plumber	2.00	1.00	75.00	150.00
A.3	Laborer	4.00	1.00	56.25	225.00
	Sub - Total for A				506.25
	Name and Capacity	No of Units	No. of Hours	Hourly Rate	Amount
B.	Equipment				
B.1					
	Sub - Total for B				-
C.	Total (A + B)				506.25
D.	Output : 10.86				
E.	Direct Unit Cost (C ÷ D)				46.64
	Name and Specification	Unit	Quantity	Unit Cost	Amount
F.	Materials				
F.1	50mm x 6m PVC Pipe	pcs	0.17	995.00	168.85
F.2	Sand	cu m	0.03	750.00	22.50
F.3	50m Caution Tape	pcs	0.02	480.00	9.60
	Sub - Total for F				200.95
G.	Direct Unit Cost (E + F)				247.59
H.	Overhead, Contingencies & Miscellaneous (OCM)			10% of G	24.76
I.	Contractor's Profit (CP)			8% of G	19.81
J.	Value Added Tax (VAT)			5% of (G + H + I)	14.61
K.	Total Unit Cost			(G + H + I + J)	306.76

Prepared by:

Engr. Joseph C. Fontana
Project-in-Charge

Noted:

Adelaida J. Bagayin
General Manager

CONSTRUCTION OF TWO DEEP WELL UNITS
Wallace Air Station, Poro Point, San Fernando City, La Union

Item No./Description : Pipeline Trench Excavation (Rock)
Unit of Measurement : cu. m
Output per hour : 1.19 cu. m/hr

Quantity : 1.00

	Designation	No. of Person	No. of Hours	Hourly Rate	Amount
A.	Labor				
A.1	Project Supervisor	1.00	1.00	131.25	131.25
A.2	Laborer	3.00	1.00	56.25	168.75
Sub - Total for A					300.00
	Name and Capacity	No of Units	No. of Hours	Hourly Rate	Amount
B.	Equipment				
B.1	Backhoe (incl. Diesel and Operator)	1.00	1.00	1,500.00	1,500.00
Sub - Total for B					1,500.00
C.	Total (A + B)				1,800.00
D.	Output per hour : 1.19				
E.	Direct Unit Cost (C ÷ D)				1,507.44
	Name and Specification	Unit	Quantity	Unit Cost	Amount
F.	Materials				
Sub - Total for F					-
G.	Direct Unit Cost (E + F)				1,507.44
H.	Overhead, Contingencies & Miscellaneous (OCM)			10% of G	150.74
I.	Contractor's Profit (CP)			8% of G	120.60
J.	Value Added Tax (VAT)			5% of (G + H + I)	88.94
K.	Total Unit Cost			(G + H + I + J)	1,867.72

Prepared by:

Engr. Joseph C. Fontaroz
Project-in-Charge

Noted:

Adelaida J. Dagayan
General Manager

PROJECT NAME: **CONSTRUCTION OF TWO (2) UNITS DEEP WELL AT WALLACE AIR STATION, CITY OF SAN FERNANDO, LA UNION**

LOCATION: **WALLACE AIR STATION, PORO POINT FREEPORT ZONE, CITY OF SAN FERNANDO, LA UNION**

SUMMARY OF NEW ITEM QUOTATIONS

NO.	ITEM DESCRIPTION	QTY	UNIT	ALMI ORO ENTERPRISES	PARKLANE COMMERCIAL CORPORATION	PN16 PIPES TRADING
PVC PIPES						
I.	PVC PIPES (50 mm x 6 m)	1	PC.	995.00	1,024.00	1,050.00
PPR PIPES						
NO.	ITEM DESCRIPTION	QTY	UNIT	PARKLANE COMMERCIAL CORPORATION	PN16 PIPES TRADING	ROYU INDUSTRIAL CORPORATION
II.	PPR PIPE PN16 (50 mm x 4 m)	4	MTS.	10,125.00	12,150.00	11,643.76
III.	PPR FEMALE UNION (50 mm)	2	MTS.	3,650.40	4,380.48	4,197.96
IV.	PPR Coupling 2 inches	2	MTS.	3,780.00	4,536.00	4,347.00
V.	PPR Elbow 50 mm	4	MTS.	804.60	965.52	925.28
VI.	PPR Coupling 50 mm	1	MTS.	108.00	129.60	124.20
ELECTROMECHANICAL WORKS						
NO.	ITEM DESCRIPTION	QTY	UNIT	EASTMAN	JAMMOTOR CONTROL PLUMBING SUPPLIES TRADING	JAE IND'L SUPPLY & ENGINEERING SERVICES
I.	Submersible Pump and Submersible Motor	1	SET	213,813.00	257,600.00	250,000.00
STEEL MATTING WITH G.I. FRAME						
NO.	ITEM DESCRIPTION	QTY	UNIT	PHILIPPINE TOPWOOD INDUSTRIES AND TRADING CORPORATION	TALICO INDUSTRIAL AND CONSTRUCTION INC.	UNION CONSTRUCTION SUPPLY
I.	Steel Matting (2" x 2")	1	PC.	900.00	920.00	935.00
II.	G.I Pipe S40 (1-1/2")	1	PC.	1,755.00	1,800.00	1,790.00
CAUTION TAPE FOR PIPE LAYING & WELDING ROD						
NO.	ITEM DESCRIPTION	QTY	UNIT	PHILIPPINE TOPWOOD INDUSTRIES AND TRADING CORPORATION	TALICO INDUSTRIAL AND CONSTRUCTION INC.	UNION CONSTRUCTION SUPPLY
I.	Special Welding Rods	1	KG.	180.00	180.00	185.00
II.	Caution Tape (50 m)	1	PC.	480.00	540.00	557.00

PREPARED AND VALIDATED BY:

CHECKED AND REVIEWED BY:

JEMMERIE M. YCO
PROJECT ENGINEER

KANILO V. LIWANAG
RESIDENT ARCHITECT

VERGEL Q. PARAS
PROJECT MANAGER