



**CARLOS HILADO MEMORIAL STATE COLLEGE**  
**BIDS AND AWARDS COMMITTEE**  
 Talisay City, Negros Occidental  
 Telefax No.: (034) 712-8404

Project Reference No: **CHMSC 21-014-0208-G**  
 Name of the Project: **PROCUREMENT OF VARIOUS LABORATORY EQUIPMENT FOR SURVEYING CLASS OF CIVIL ENGINEERING**  
 Location of the Project: **TALISAY CAMPUS**

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*BILL OF QUANTITIES*

Date: \_\_\_\_\_

Item No.	Qty	Unit	ARTICLES and DESCRIPTION	Unit Price	Total Price
			<b>LOT 1</b>		
1	2	unit	<b>TOTAL STATIONS</b>		
			Manual, Reflectorless with TSshield™		
			with the ff. features:		
			Angle Measurement: Accuracy: 5"		
			Min. Angle Resolution: 1"		
			Measuring Time: 0.9 seconds		
			Non- prism range: 800 meters		
			Non-prism accuracy: 2 mm + 2 ppm		
			Single prism range: 5,000 meters		
			Prism EDM accuracy: 1.5 mm + 2 ppm		
			Level Compensator: 6 mins.		
			Leveling System: Electronic		
			Memory USB: 4G		
			Battery Life: 28 hours		
			Communications: USB 2.0 slots environmentally protected and compatible with industry standard thumb drives		
			Display: Dual graphic backlit LCD		
			Accessories:		
			Battery and battery charger, Range pole, Aluminum with graduation & level, Prism with holder, Tripod(heavy duty aluminium).		
			NOTE:		
			The supplier shall provide the following:		
			1. Training of faculty on the use/operation of equipment.		
			2. At least one (1) year warranty for defects.		
			3. Certificate of calibration of the equipment.		
			4. Proof of conformity to specified standard/s		
			<b>Sub-ABC = Php 1,078,000.00</b>		
			<b>LOT 2</b>		
2	2	unit	<b>HANDHELD GLOBAL POSITIONING SYSTEM (GPS)</b>		
			with 8 Megapixel autofocus camera and automatic geo-tagging, and Birds Eye Sattellite Imagery Subscription for I year, and can track both		

Signature of Bidder \_\_\_\_\_  
 Name of Firm \_\_\_\_\_  
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Date: \_\_\_\_\_

Item No.	Qty	Unit	ARTICLES and DESCRIPTION	Unit Price	Total Price
			GPS AND GLONASS satellites.		
			with the ff. features:		
			Display Resolution: 272 x 480 pixels (W X H)		
			Display Size: 2" W x 3.5" H (5.06 X 8.93 cm); 4" Diagonal (10.2 cm)		
			Display Type: Bright, Transflective 65k color TFT, dual-orientation		
			touchscreen; sunlight readable		
			Battery: rechargeable lithium-ion up to 16 hours battery life		
			Interface: High-speed USB and NMEA 0183 compatible		
			Electronic Compass: Tilt-compensated 3-axis		
			Waypoints/Favorites/Locations: 4000		
			Routes: 200		
			Track mLog: 10,000 points, 200 saved tracks		
			Water Resistant: IPX7		
			Built-in Memory: 4GB		
			Other Features:		
			High-sensitivity receiver; barometric altimeter; unit-to-unit transfer		
			wirelessly; basemap; ability to add maps; accepts microSD™ card; ability		
			to add additional points of interests; automatic routing with optional		
			mapping for detailed roads; geocaching friendly (paperless); custom		
			maps compatible; Hunt/fish calendar; sun and mood information; tide		
			tables; area calculation; picture viewer; can connect to online community		
			to analyse, categorize and share data.		
			<b>Accessories included:</b>		
			Lithium-ion battery, USB Cable, AC charger, Guide/Manual		
			<b>NOTE:</b>		
			The supplier shall provide the following:		
			1. Training of faculty on the use/operation of equipment.		
			2. At least one (1) year warranty for defects.		
			3. Certificate of calibration of the equipment.		
			4. Proof of conformity to specified standard/s		
			<b>Sub-ABC = Php 122,000.00</b>		

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Date: \_\_\_\_\_

Item No.	Qty	Unit	ARTICLES and DESCRIPTION	Unit Price	Total Price
			<b>LOT 3</b>		
3	2	unit	<b>AIR CONTENT APPARATUS, STANDARD, 1 Liter capacity</b>		
			with the ff. features:		
			Specifications:		
			Meet Standards: ASTM C231, AASHTO T152		
			The testers are made of cast aluminum.		
			The test pot and the upper part are sealed air-tight together by means of two quick-action spring clamps.		
			The air is compressed by means of a built-in hand pump.		
			The pressure gauge is installed recessed in the head of the meter.		
			The scale has an indication range of 0-50 volumetric %		
			Accessory: Filling ring		
			NOTE:		
			The supplier shall provide the following:		
			1. Training of faculty on the use/operation of equipment.		
			2. At least one (1) year warranty for defects.		
			3. Certificate of calibration of the equipment.		
			4. Proof of conformity to standard/s		
			<b>Sub-ABC = Php 100,000.00</b>		
			<b>LOT 4</b>		
4	1	unit	<b>LOS ANGELES (L.A.) ABRASION MACHINE</b>		
			with 1-hp electronically controlled gear-motor that rotates the drum at via enclosed chain drive.		
			with the ff. features:		
			Specifications:		
			Meet Standards: ASTM C131, AASHTO T96		
			Speed: 31-33 revolutions per minute		
			Abrasive charge: 12 hardened steel balls, each 46-48 mm in diameter and weighing 390-445 grams.		
			Other features:		
			High stiffness welded steel frame		
			High resolution graphical display 128 x 80 pixels and 6 keys membrane keyboard		
			Double test procedure: machine is equipped with automatic counter, which can be preset to the required number of revolutions of the drum or the total working time.		

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***BILL OF QUANTITIES***

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Item No.	Qty	Unit	ARTICLES and DESCRIPTION	Unit Price	Total Price
			The drum is rotated by a speed reducer driven by electric motor at specified speed of 31-33 rpm.		
			The machine is supplied with CE compliant safety cabinet with door opening switch with noise reduction.		
			Accessories:		
			Catch Pan		
			12 abrasive charge with the above specifications		
			Safety cabinet with noise reduction		
			NOTE:		
			The supplier shall provide the following:		
			1. Training of faculty on the use/operation of equipment.		
			2. At least one (1) year warranty for defects.		
			3. Certificate of calibration of the equipment.		
			4. Proof of conformity to standard/s		
			<b>Sub-ABC = Php 590,350.00</b>		
			<b>LOT 5</b>		
5	1	unit	<b>MULTI-SPEED COMPRESSION TESTER, Automatic, 50KN capacity</b>		
			with variable test speed from 0.05 to 51 mm per minute.		
			(FOR CBR, MARSHALL TEST AND UNCONFINED COMPRESSION TEST)		
			with the ff. features:		
			Specifications:		
			Power: DC Motor 750 W		
			Data Download: using LAN port		
			USB port for USB memory stick data storage		
			Resolution: 132000 divisions		
			Sampling Frequency: 50 Hz		
			Horizontal clearance (distance between columns): 270 mm		
			Maximum vertical clearance (without accessories): 730 mm		
			Platen travel: 100 mm		
			Touchscreen graphic display: 240x128 pixel		
			Large memory data storage in USB pen drive		
			Meet Standards: ASTM D1883, ASTM D1559, ASTM D5581,		
			AASHTO T245, ASTM D4123, AASHTO T193, ASTM D6927, ASTM D2166		

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*BILL OF QUANTITIES*

Date: \_\_\_\_\_

Item No.	Qty	Unit	ARTICLES and DESCRIPTION	Unit Price	Total Price
			NOTE: The supplier shall provide the following: 1. Training of faculty on the use/operation of equipment. 2. At least one (1) year warranty for defects. 3. Certificate of calibration of the equipment. 4. Proof of conformity to standard/s		
6	1	unit	<b>MARSHALL TEST ACCESSORIES</b> (to be used with the above MULTI SPEED COMPRESSION TESTER in Analog Mode) with the ff. features: Load Cell, 50 KN capacity Adapter to fit load cell (two pieces) Displacement transducer, 25 mm travel Adjustable transducer holder Compression device extension Compression device Stability mould for 4 in. (101.6 mm) diameter specimens NOTE: The supplier shall provide the following: 1. Training of faculty on the use/operation of equipment. 2. At least one (1) year warranty for defects. 3. Certificate of calibration of the equipment. 4. Proof of conformity to standard/s		
7	1	unit	<b>CALIFORNIA BEARING RATIO (CBR) TEST ACCESSORIES</b> (to be used with the above MULTI SPEED COMPRESSION TESTER) with the ff. features: adapter to fit load cell (two pieces) Displacement transducer, 25 mm travel Adjustable transducer holder Adjustable CBR penetration piston		

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***BILL OF QUANTITIES***

Date: \_\_\_\_\_

Item No.	Qty	Unit	ARTICLES and DESCRIPTION	Unit Price	Total Price
			NOTE:		
			The supplier shall provide the following:		
			1. Training of faculty on the use/operation of equipment.		
			2. At least one (1) year warranty for defects.		
			3. Certificate of calibration of the equipment.		
			4. Proof of conformity to standard/s		
8	1	unit	<b>UNCONFINED COMPRESSION TEST ACCESSORIES</b> (to be used with the above MULTI SPEED COMPRESSION TESTER) with the ff. features: 2.5 KN capacity strain gauge load cell Connecting adapter load cell Linear potentiometric displacement transducer, 25 mm travel with cable 6 pin connector Adjustable support for electronic support		

5. 2.5 KN capacity strain gauge load cell  
6. Connecting adapter load cell

The supplier shall provide the following:  
 1. Training of faculty on the use/operation of equipment.  
 2. At least one (1) year warranty for defects.  
 3. Certificate of calibration of the equipment.  
 4. Proof of conformity to standard/s.

Sub ABC - Php 1,069,920.00

**LOT 6  
TRIAXIAL TEST SET**

10 KN capacity with data logger, complete testing for fully consolidated, unconsolidated, and undrained triaxial test, fully and Consolidated triaxial (CT) test.  
 with the ff. features:  
 computerized  
 triaxial cell with 10 KN capacity containing 10 KN DWSU, 10 KN DWSU, 10 KN gauge load cell, 10 KN capacity

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*BILL OF QUANTITIES*

Date: \_\_\_\_\_

Item No.	Qty	Unit	ARTICLES and DESCRIPTION	Unit Price	Total Price
			Linear Transducer, 25 mm travel		
			Connection shaft for triaxial cell piston		
			Additional Specification:		
			50 KN Maximum capacity		
			Speed range: 0.00001 to 50.8 mm/min		
			Maximum sample diameter: 70 mm		
			Minimum vertical clearance: 390 mm		
			Maximum vertical clearance: 725 mm		
			USB port to connect a memory stick (stick included)		
			Effective sampling rate up to 50/second		
			LAN communication, Automatic test start and stop		
			PC connection with data logger for real time monitoring		
			Standard Triaxial Cells and Accessories:		
			Standard triaxial cell for sample sizes 35 to 70 mm dia.		
			Top cap, Porous disc, Membrane(pack of 10),		
			O-ring(pack of 10), Membrane stretcher		
			Two-part split former, Two-part split mould		
			Lateral filter drains(pack of 50), Drainage burette		
			Hand sampler, Water repellent grease, Flaring tool		
			Greaser for triaxial cell, No-volume change valve		
			Pressure System and Cointrol Panels:		
			Triaxial panel 2-way system, air regulators		
			Air compressor (air bank), 3 hp 210 tank capacity, 220V/1-phase		
			Nylon tubing 8x6 mm dia. 10 m coil		
			Nylon tuding, 6x4 mm dia. 20 m coil		
			Digital pressure gauge, Bladder (2pcs.)		
			Water De-Airing System:		
			Vacuum pump, Vacuum gauge		
			Rubber tube ID 6.5 mm x OD 16.5 mm		
			Special oil for vacuum pumps		
			De-airing tank, 23 liters capacity		
			Valve panel for de-airing tank, for connection to the air regulators and		
			Air drying unit		
			Volume change: Automatic Volume change, Transducer extension cable		
			Pore water pressure: Pressure transducer 10 bar, De-airing block		

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Date: \_\_\_\_\_

Item No.	Qty	Unit	ARTICLES and DESCRIPTION	Unit Price	Total Price
			Data Acquisition and Processing:		
			8-Channels data acquisition system for geotechnical tests, 110-240V, 50-60Hz, 1 ph Geodatalog cable connecting loads cells (set of 4)		
			Undrained (uu) triaxial testing geo-analysts template for MS-Excel, compliant to ASTM D2650, Effective stress (CU, CD)		
			NOTE:		
			The supplier shall provide the following:		
			1. Training of faculty on the use/operation of equipment.		
			2. At least one (1) year warranty for defects.		
			3. Certificate of calibration of the equipment.		
			4. Proof of conformity to standard/s		
			<b>Sub-ABC = Php 2,055,200.00</b>		
			<b>LOT 7</b>		
10	1	unit	<b>DIRECT SHEAR TESTING MACHINE</b>		
			direct/residual autoshear digital, automax control system with the ff. features:		
			Speed range: Adjustable 0.00001 to 15.0000 mm/min		
			Maximum shear force, 5000 N		
			Maximum vertical force: 500N or 5000N using 10:1 lever ratio device		
			Speed drive ratio: stepper motor 1/10000 resolution		
			Horizontal travel: preset via firmware up to 20 mm		
			Displacement limits: controlled by optical safety switch		
			Digital Display: LCD 4 row by 20 characters, easy to operate with the membrane keyboard		
			Specimen sizes: 60 and 100 mm square, 50 mm, 60 mm, and 100 mm diameter.		
			Accessories to fit it the analog mode:		
			Load Ring 5000N with adapters		
			Gauge dial 10 mm x 0.002 mm		
			Gauge dial 30 mm x 0.01 mm		
			NOTE:		
			The supplier shall provide the following:		
			1. Training of faculty on the use/operation of equipment.		
			2. At least one (1) year warranty for defects.		

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*BILL OF QUANTITIES*

Date: \_\_\_\_\_

Item No.	Qty	Unit	ARTICLES and DESCRIPTION	Unit Price	Total Price
			3. Certificate of calibration of the equipment.		
			4. Proof of conformity to standard/s		
			<b>Sub-ABC = Php 874,800.00</b>		
			<b>LOT 8</b>		
11	1	unit	<b>STANDARD PENETRATION TEST SET</b>		
			(For Soil) conforming to ASTM D1586/D1586M-18		
			with the ff. features:		
			Drive-weight assembly:		
			63.5 kg hammer		
			Driving head (anvil)		
			Guide permitting free fall of 0.762 meter		
			Overlift capability of at least 100 mmm		
			Drill rod		
			Cathead:		
			operating at approximately 100 revolutions per minute		
			equipped with suitable rope and overhead sheave for lifting drive-weight assembly (typically 25 mm in diameter)		
			Split-spoon sampler		
			conforming to ASTM D1586/D1586M-18		
			Tripod with atleast 4 m clear height and one of legs of the tripod having a ladder to facilitate a person to reach tripod head (containing tripod head with hook)		
			NOTE:		
			The supplier shall provide the following:		
			1. Training of faculty on the use/operation of equipment.		
			2. At least one (1) year warranty for defects.		
			3. Certificate of calibration of the equipment.		
			4. Proof of conformity to standard/s		
			<b>Sub-ABC = Php 804,600.00</b>		

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Item No.	Qty	Unit	ARTICLES and DESCRIPTION	Unit Price	Total Price
12	1	unit	<b>LOT 9</b>		
			<b>OEDOMETER TEST SET</b>		
			with the ff. features:		
			Main features:		
			Compact and robust design		
			3-lever arm ratio		
			Screw jack support		
			Same cell for standard and permeability test		
			Technical specification:		
			Max. loading (using 11:1 beam ratio) of 1848 kg corresponding to 9.061 Mpa (92.40 kgf/cm) on 20 cm specimen (50.47 mm dia.)		
			Overall dimension: 500 H X 200 W X 750 mm L		
			Standard set, analog type:		
			Oedometer front loading to BS 1377, ASTM D2435 (3 pcs)		
			Fix ring cell for 50.47 mm with upper and lower stones		
			Set of slotted steel weights 2x0.25 kg, 1x0.5 kg, 1x1 kg, 1x2 kg, 1x4 kg, 7x8 kg		
			Gauge dial 10 mm x 0.02 mm		
			Bench oedometer to accept up to 3 oedometers		
			NOTE:		
			The supplier shall provide the following:		
			1. Training of faculty on the use/operation of equipment.		
			2. At least one (1) year warranty for defects.		
			3. Certificate of calibration of the equipment.		
			4. Proof of conformity to standard/s		
			<b>Sub-ABC = Php 747,150.00</b>		
13	1	unit	<b>LOT 10</b>		
			<b>WATER HAMMER TEST SET</b>		
			with the ff. features:		
			Structural Specifications:		
			Stainless frame		
			Screws, nuts, plates and all metallic elements in stainless steel.		
			Diagram in the front panel with distribution of the elements similar to the real one.		

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Item No.	Qty	Unit	ARTICLES and DESCRIPTION	Unit Price	Total Price
			Quick connections for adaptation to feed hydraulics source		
			Technical Data:		
			Constant level deposit, in methacrylate.		
			Unload deposit, in methacrylate.		
			Pipe circuits in PVC.		
			Valves to select the circuit.		
			2 adjustable equilibrium chimneys and subsection clips		
			Connections system to the Hydraulics Bench		
			Easy and quick coupling system built-in.		
			Anodized aluminum structure		
			Other features:		
			This unit is supplied with 8 manuals: Required Services, Assembly and Installation, Interface and Control Software, Starting-up, Safety, Maintenance, Calibration & Practices Manuals		
			NOTE:		
			The supplier shall provide the following:		
			1. Training of faculty on the use/operation of equipment.		
			2. At least one (1) year warranty for defects.		
			3. Certificate of calibration of the equipment.		
			4. Proof of conformity to standard/s		
			<b>Sub-ABC = Php 610,000.00</b>		
			<b>LOT 11</b>		
14	1	unit	<b>TILTING FLUME (WITH MODEL DAM AND SPILLWAY)</b>		
			with the ff. features:		
			Description:		
			The unit shall come with an open channel made of transparent working section mounted on a strong framework.		
			The unit shall be supplied with 2.5 meter flume which can be tilted using calibrated screwjack.		
			The unit shall be fitted with pressure tappings and fixing points as well as longitudinal scale. The scale shall be positioned at the top of the channel so that the depth gauges and pitot-static tubes can be positioned at the top of the channel length.		
			The unit shall be incorporated with a sump tank and a water pump.		

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## Section VI. Schedules of Requirements

The delivery schedule expressed as weeks/months stipulates hereafter a delivery date which is the date of delivery to the project site.

Item #	Description	Quantity	Total	Delivered, Weeks/Months
	<b>LOT 1</b>			
1	<b>TOTAL STATIONS</b>	2	2	
	Manual, Reflectorless with TSshield™			
	with the ff. features:			
	Angle Measurement: Accuracy: 5"			
	Min. Angle Resolution: 1"			
	Measuring Time: 0.9 seconds			
	Non- prism range: 800 meters			
	Non-prism accuracy: 2 mm + 2 ppm			
	Single prism range: 5,000 meters			
	Prism EDM accuracy: 1.5 mm + 2 ppm			
	Level Compensator: 6 mins.			
	Leveling System: Electronic			
	Memory USB: 4G			
	Battery Life: 28 hours			
	Communications: USB 2.0 slots environmentally protected and compatible with industry standard thumb drives			
	Display: Dual graphic backlit LCD			
	Accessories:			
	Battery and battery charger, Range pole, Aluminum with graduation & level, Prism with holder, Tripod(heavy duty aluminium).			
	NOTE:			
	The supplier shall provide the following:			
	1. Training of faculty on the use/operation of equipment.			
	2. At least one (1) year warranty for defects.			
	3. Certificate of calibration of the equipment.			
	4. Proof of conformity to specified standard/s			
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	<b>LOT 2</b>			
2	<b>HANDHELD GLOBAL POSITIONING SYSTEM (GPS)</b>	2	2	
	with 8 Megapixel autofocus camera and automatic geo-tagging, and Birds Eye Sattellite Imagery Subscription for I year, and can track both GPS AND GLONASS satellites.			
	with the ff. features:			
	Display Resolution: 272 x 480 pixels (W X H)			
	Display Size: 2" W x 3.5" H (5.06 X 8.93 cm); 4" Diagonal (10.2 cm)			
	Display Type: Bright, Transflective 65k color TFT, dual-orientation touchscreen; sunlight readable			
	Battery: rechargeable lithium-ion up to 16 hours battery life			
	Interface: High-speed USB and NMEA 0183 compatible			
	Electronic Compass: Tilt-compensated 3-axis			
	Waypoints/Favorites/Locations: 4000			
	Routes: 200			
	Track mLog: 10,000 points, 200 saved tracks			
	Water Resistant: IPX7			
	Built-in Memory: 4GB			
	Other Features:			
	High-sensitivity receiver; barometric altimeter; unit-to-unit transfer wirelessly; basemap; ability to add maps; accepts microSD™ card; ability to add additional points of interests; automatic routing with optional mapping for detailed roads; geocaching friendly (paperless); custom maps compatible; Hunt/fish calendar; sun and mood information; tide tables; area calculation; picture viewer; can connect to online community to analyse, categorize and share data.			

	<b>Accessories included:</b>			
	Lithium-ion battery, USB Cable, AC charger, Guide/Manual			
	<b>NOTE:</b>			
	The supplier shall provide the following:			
	1. Training of faculty on the use/operation of equipment.			
	2. At least one (1) year warranty for defects.			
	3. Certificate of calibration of the equipment.			
	4. Proof of conformity to specified standard/s			
	<b>Sub-ABC = Php 122,000.00</b>			
	<b>LOT 3</b>			
3	<b>AIR CONTENT APPARATUS, STANDARD, 1 Liter capacity</b>	2	2	
	with the ff. features:			
	Specifications:			
	Meet Standards: ASTM C231, AASHTO T152			
	The testers are made of cast aluminum.			
	The test pot and the upper part are sealed air-tight together by means of two quick-action spring clamps.			
	The air is compressed by means of a built-in hand pump.			
	The pressure gauge is installed recessed in the head of the meter.			
	The scale has an indication range of 0-50 volumetric %			
	Accessory: Filling ring			
	<b>NOTE:</b>			
	The supplier shall provide the following:			
	1. Training of faculty on the use/operation of equipment.			
	2. At least one (1) year warranty for defects.			
	3. Certificate of calibration of the equipment.			
	4. Proof of conformity to standard/s			
	<b>Sub-ABC = Php 100,000.00</b>			
	<b>LOT 4</b>			
4	<b>LOS ANGELES (L.A.) ABRASION MACHINE</b>	1	1	
	with 1-hp electronically controlled gear-motor that rotates the drum at via enclosed chain drive.			
	with the ff. features:			
	Specifications:			
	Meet Standards: ASTM C131, AASHTO T96			
	Speed: 31-33 revolutions per minute			
	Abrasive charge: 12 hardened steel balls, each 46-48 mm in diameter and weighing 390-445 grams.			
	Other features:			
	High stiffness welded steel frame			
	High resolution graphical display 128 x 80 pixels and 6 keys membrane keyboard			
	Double test procedure: machine is equipped with automatic counter, which can be preset to the required number of revolutions of the drum or the total working time.			
	The drum is rotated by a speed reducer driven by electric motor at specified speed of 31-33 rpm.			
	The machine is supplied with CE compliant safety cabinet with door opening switch with noise reduction.			
	Accessories:			
	Catch Pan			
	12 abrasive charge with the above specifications			
	Safety cabinet with noise reduction			
	<b>NOTE:</b>			
	The supplier shall provide the following:			
	1. Training of faculty on the use/operation of equipment.			
	2. At least one (1) year warranty for defects.			
	3. Certificate of calibration of the equipment.			
	4. Proof of conformity to standard/s			
	<b>Sub-ABC = Php 590,350.00</b>			

	<b>LOT 5</b>			
5	<b>MULTI-SPEED COMPRESSION TESTER, Automatic, 50KN capacity</b>	1	1	
	with variable test speed from 0.05 to 51 mm per minute.			
	(FOR CBR, MARSHALL TEST AND UNCONFINED COMPRESSION TEST)			
	with the ff. features:			
	Specifications:			
	Power: DC Motor 750 W			
	Data Download: using LAN port			
	USB port for USB memory stick data storage			
	Resolution: 132000 divisions			
	Sampling Frequency: 50 Hz			
	Horizontal clearance (distance between columns): 270 mm			
	Maximum vertical clearance (without accessories): 730 mm			
	Platen travel: 100 mm			
	Touchscreen graphic display: 240x128 pixel			
	Large memory data storage in USB pen drive			
	Meet Standards: ASTM D1883, ASTM D1559, ASTM D5581,			
	AASHTO T245, ASTM D4123, AASHTO T193, ASTM D6927, ASTM D2166			
	NOTE:			
	The supplier shall provide the following:			
	1. Training of faculty on the use/operation of equipment.			
	2. At least one (1) year warranty for defects.			
	3. Certificate of calibration of the equipment.			
	4. Proof of conformity to standard/s			
6	<b>MARSHALL TEST ACCESSORIES</b>	1	1	
	(to be used with the above MULTI SPEED COMPRESSION TESTER in Analog Mode)			
	with the ff. features:			
	Load Cell, 50 KN capacity			
	Adapter to fit load cell (two pieces)			
	Displacement transducer, 25 mm travel			
	Adjustable transducer holder			
	Compression device extension			
	Compression device			
	Stability mould for 4 in. (101.6 mm) diameter specimens			
	NOTE:			
	The supplier shall provide the following:			
	1. Training of faculty on the use/operation of equipment.			
	2. At least one (1) year warranty for defects.			
	3. Certificate of calibration of the equipment.			
	4. Proof of conformity to standard/s			
7	<b>CALIFORNIA BEARING RATIO (CBR) TEST ACCESSORIES</b>	1	1	
	(to be used with the above MULTI SPEED COMPRESSION TESTER)			
	with the ff. features:			
	adapter to fit load cell (two pieces)			
	Displacement transducer, 25 mm travel			
	Adjustable transducer holder			
	Adjustable CBR penetration piston			
	NOTE:			
	The supplier shall provide the following:			
	1. Training of faculty on the use/operation of equipment.			
	2. At least one (1) year warranty for defects.			
	3. Certificate of calibration of the equipment.			
	4. Proof of conformity to standard/s			
8	<b>UNCONFINED COMPRESSION TEST ACCESSORIES</b>	1	1	
	(to be used with the above MULTI SPEED COMPRESSION TESTER)			
	with the ff. features:			
	2.5 KN capacity strain gauge load cell			
	Connecting adapter load cell			
	Linear potentiometric displacement transducer, 25 mm travel with cable 6 pin connector			

	Adjustable support for electronic support		
	Extension load cell		
	Compression platen (upper and lower)		
	NOTE:		
	The supplier shall provide the following:		
	1. Training of faculty on the use/operation of equipment.		
	2. At least one (1) year warranty for defects.		
	3. Certificate of calibration of the equipment.		
	4. Proof of conformity to standard/s		
	<b>Sub-ABC = Php 1,069,920.00</b>		
	<b>LOT 6</b>		
9	<b>TRIAXIAL TEST SET</b>	1	1
	50 KN capacity with data logger complete testing for Unconsolidated Undraided (UU), Consolidated Undrained (CU), and Consolidated Drained (CD) Test		
	with the ff. features:		
	Composition:		
	Triaxial load frame 50 KN capacity conforming to ASTM D2850, ASTM D4767,		
	Strain gauge load cell, 10 KN capacity		
	Linear Transducer, 25 mm travel		
	Connection shaft for triaxial cell piston		
	Additional Specification:		
	50 KN Maximum capacity		
	Speed range: 0.00001 to 50.8 mm/min		
	Maximum sample diameter: 70 mm		
	Minimum vertical clearance: 390 mm		
	Maximum vertical clearance: 725 mm		
	USB port to connect a memory stick (stick included)		
	Effective sampling rate up to 50/second		
	LAN communication, Automatic test start and stop		
	PC connection with data logger for real time monitoring		
	Standard Triaxial Cells and Accessories:		
	Standard triaxial cell for sample sizes 35 to 70 mm dia.		
	Top cap, Porous disc, Membrane(pack of 10),		
	O-ring(pack of 10), Membrane stretcher		
	Two-part split former, Two-part split mould		
	Lateral filter drains(pack of 50), Drainage burette		
	Hand sampler, Water repellent grease, Flaring tool		
	Greaser for triaxial cell, No-volume change valve		
	Pressure System and Control Panels:		
	Triaxial panel 2-way system, air regulators		
	Air compressor (air bank), 3 hp 210 tank capacity, 220V/1-phase		
	Nylon tubing 8x6 mm dia. 10 m coil		
	Nylon tubing, 6x4 mm dia. 20 m coil		
	Digital pressure gauge, Bladder (2pcs.)		
	Water De-Airing System:		
	Vacuum pump, Vacuum gauge		
	Rubber tube ID 6.5 mm x OD 16.5 mm		
	Special oil for vacuum pumps		
	De-airing tank, 23 liters capacity		
	Valve panel for de-airing tank, for connection to the air regulators and pressure outlets		
	Air drying unit		
	Volume change: Automatic Volume change, Transducer extension cable		
	Pore water pressure: Pressure transducer 10 bar, De-airing block		
	Data Acquisition and Processing:		
	8-Channels data acquisition system for geotechnical tests, 110-240V, 50-60Hz, 1 ph Geodatalog cable connecting loads cells (set of 4)		
	Undrained (uu) triaxial testing geo-analysts template for MS-Excel, compliant to ASTM D2650, Effective stress (CU, CD)		
	NOTE:		
	The supplier shall provide the following:		
	1. Training of faculty on the use/operation of equipment.		





	Compact and robust design			
	3-lever arm ratio			
	Screw jack support			
	Same cell for standard and permeability test			
	Technical specification:			
	Max. loading (using 11:1 beam ratio) of 1848 kg corresponding to 9.061 Mpa (92.40 kgf/cm) on 20 cm specimen (50.47 mm dia.)			
	Overall dimension: 500 H X 200 W X 750 mm L			
	Standard set, analog type:			
	Oedometer front loading to BS 1377, ASTM D2435 (3 pcs)			
	Fix ring cell for 50.47 mm with upper and lower stones			
	Set of slotted steel weights 2x0.25 kg, 1x0.5 kg, 1x1 kg, 1x2 kg, 1x4 kg, 7x8 kg			
	Gauge dial 10 mm x 0.02 mm			
	Bench oedometer to accept up to 3 oedometers			
	NOTE:			
	The supplier shall provide the following:			
	1. Training of faculty on the use/operation of equipment.			
	2. At least one (1) year warranty for defects.			
	3. Certificate of calibration of the equipment.			
	4. Proof of conformity to standard/s			
	<b>Sub-ABC = Php 747,150.00</b>			
	<b>LOT 10</b>			
13	<b>WATER HAMMER TEST SET</b>	1	1	
	with the ff. features:			
	Structural Specifications:			
	Stainless frame			
	Screws, nuts, plates and all metallic elements in stainless steel.			
	Diagram in the front panel with distribution of the elements similar to the real one.			
	Quick connections for adaptation to feed hydraulics source			
	Technical Data:			
	Constant level deposit, in methacrylate.			
	Unload deposit, in methacrylate.			
	Pipe circuits in PVC.			
	Valves to select the circuit.			
	2 adjustable equilibrium chimneys and subsection clips			
	Connections system to the Hydraulics Bench			
	Easy and quick coupling system built-in.			
	Anodized aluminum structure			
	Other features:			
	This unit is supplied with 8 manuals: Required Services, Assembly and Installation, Ineterface and Control Software, Starting-up, Safety, Maintenance, Calibration & Practices Manuals			
	NOTE:			
	The supplier shall provide the following:			
	1. Training of faculty on the use/operation of equipment.			
	2. At least one (1) year warranty for defects.			
	3. Certificate of calibration of the equipment.			
	4. Proof of conformity to standard/s			
	<b>Sub-ABC = Php 610,000.00</b>			
	<b>LOT 11</b>			
14	<b>TILTING FLUME (WITH MODEL DAM AND SPILLWAY)</b>	1	1	
	with the ff. features:			
	Description:			
	The unit shall come with an open channel made of transparent working section mounted on a strong framework.			
	The unit shall be supplied with 2.5 meter flume which can be tilted using calibrated screwjack.			
	The unit shall be fitted with pressure tappings and fixing points as well as longitudinal scale. The scale shall be positioned at the top of the			

channel so that the depth gauges and pitot-static tubes can be positioned at the top of the channel length.			
The unit shall be incorporated with a sump tank and a water pump.			
The flow rates shall be measured by a flow meter.			
Specifications:			
Flow channel: Clear acrylic; 2500 mm L x 250 mm H x 75 mm W			
Sump Tank: 120 liters capacity; flow rate of up to 2 L/sec			
Venier gauges: 3 units of Vernier caliper			
Utility requirements:			
Electrical Supply: 240 VAC/1-PHASE/50Hz			
Water Supply: Laboratory mains supply			
Accessories:			
Venturi Flume			
Sharp and broad crested weirs			
3 vernier level gauges			
Crump weir			
Adjustable undershot weir			
Model dam and spillway			
NOTE:			
The supplier shall provide the following:			
1. Training of faculty on the use/operation of equipment.			
2. At least one (1) year warranty for defects.			
3. Certificate of calibration of the equipment.			
4. Proof of conformity to standard/s			
<b>Sub-ABC = Php 1,947,980.00</b>			
-x-x-x-x-x-x-x-x-x-x-nothing follows-x-x-x-x-x-x-x-x-x-x-			
<b>TOTAL ABC = Php 10,000,000.00</b>			
PR # 21-016-0119                      01-19-2021/Engr. G. Gerona			
Income 004-164-21-01                01-15-2021			
<b>Note: All items should be delivered within Thirty (30) calendar days upon receipt of notice to proceed.</b>			

# Section VII. Technical Specifications

Item	Specification	Statement of Compliance
		<p>Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidders statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the provisions of ITB Clause 3.1(a.2) and/or GCC Clause 2.1(a.2).</p>
	<b>LOT 1</b>	
1	<b>TOTAL STATIONS</b>	
	Manual, Reflectorless with TSshield™	
	with the ff. features:	
	Angle Measurement: Accuracy: 5"	
	Min. Angle Resolution: 1"	
	Measuring Time: 0.9 seconds	
	Non- prism range: 800 meters	
	Non-prism accuracy: 2 mm + 2 ppm	
	Single prism range: 5,000 meters	
	Prism EDM accuracy: 1.5 mm + 2 ppm	
	Level Compensator: 6 mins.	
	Leveling System: Electronic	
	Memory USB: 4G	
	Battery Life: 28 hours	
	Communications: USB 2.0 slots environmentally protected and compatible with industry standard thumb drives	
	Display: Dual graphic backlit LCD	
	Accessories:	
	Battery and battery charger, Range pole, Aluminum with graduation & level, Prism with holder, Tripod(heavy duty aluminium).	
	NOTE:	
	The supplier shall provide the following:	
	1. Training of faculty on the use/operation of equipment.	
	2. At least one (1) year warranty for defects.	
	3. Certificate of calibration of the equipment.	
	4. Proof of conformity to specified standard/s	
	<b>Sub-ABC = Php 1,078,000.00</b>	

	<b>LOT 2</b>	
2	<b>HANDHELD GLOBAL POSITIONING SYSTEM (GPS)</b>	
	with 8 Megapixel autofocus camera and automatic geo-tagging, and Birds Eye Sattellite Imagery Subscription for I year, and can track both GPS AND GLONASS satellites.	
	with the ff. features:	
	Display Resolution: 272 x 480 pixels (W X H)	
	Display Size: 2" W x 3.5" H (5.06 X 8.93 cm); 4" Diagonal (10.2 cm)	
	Display Type: Bright, Transflective 65k color TFT, dual-orientation touchscreen; sunlight readable	
	Battery: rechargeable lithium-ion up to 16 hours battery life	
	Interface: High-speed USB and NMEA 0183 compatible	
	Electronic Compass: Tilt-compensated 3-axis	
	Waypoints/Favorites/Locations: 4000	
	Routes: 200	
	Track mLog: 10,000 points, 200 saved tracks	
	Water Resistant: IPX7	
	Built-in Memory: 4GB	
	Other Features:	
	High-sensitivity receiver; barometric altimeter; unit-to-unit transfer wirelessly; basemap; ability to add maps; accepts microSD™ card; ability to add additional points of interests; automatic routing with optional mapping for detailed roads; geocaching friendly (paperless); custom maps compatible; Hunt/fish calendar; sun and mood information; tide tables; area calculation; picture viewer;	
	can connect to online community to analyse, categorize and share data.	
	<b>Accessories included:</b>	
	Lithuim-ion battery, USB Cable, AC charger, Guide/Manual	
	<b>NOTE:</b>	
	The supplier shall provide the following:	
	1. Training of faculty on the use/operation of equipment.	
	2. At least one (1) year warranty for defects.	
	3. Certificate of calibration of the equipment.	
	4. Proof of conformity to specified standard/s	
	<b>Sub-ABC = Php 122,000.00</b>	
	<b>LOT 3</b>	
3	<b>AIR CONTENT APPARATUS, STANDARD, 1 Liter capacity</b>	
	with the ff. features:	
	Specifications:	
	Meet Standards: ASTM C231, AASHTO T152	
	The testers are made of cast aluminum.	
	The test pot and the upper part are sealed air-tight together by two quick-action spring clamps.	
	The air is compressed by means of a built-in hand pump.	
	The pressure gauge is installed recessed in the head of the meter.	
	The scale has an indication ranng of 0-50 volumetric %	
	Accessory: Filling ring	
	<b>NOTE:</b>	
	The supplier shall provide the following:	
	1. Training of faculty on the use/operation of equipment.	
	2. At least one (1) year warranty for defects.	
	3. Certificate of calibration of the equipment.	
	4. Proof of conformity to standard/s	
	<b>Sub-ABC = Php 100,000.00</b>	
	<b>LOT 4</b>	
4	<b>LOS ANGELES (L.A.) ABRASION MACHINE</b>	
	with 1-hp electronically controlled gear-motor that rotates the drum at via enclosed chain drive.	
	with the ff. features:	
	Specifications:	

	Meet Standards: ASTM C131, AASHTO T96	
	Speed: 31-33 revolutions per minute	
	Abrasive charge: 12 hardened steel balls, each 46-48 mm in diameter and weighing 390-445 grams.	
	Other features:	
	High stiffness welded steel frame	
	High resolution graphical display 128 x 80 pixels and 6 keys membrane keyboard	
	Double test procedure: machine is equipped with automatic counter, which can be preset to the required number of revolutions of the drum or the total working time.	
	The drum is rotated by a speed reducer driven by electric motor at specified speed of 31-33 rpm.	
	The machine is supplied with CE compliant safety cabinet with door opening switch with noise reduction.	
	Accessories:	
	Catch Pan	
	12 abrasive charge with the above specifications	
	Safety cabinet with noise reduction	
	NOTE:	
	The supplier shall provide the following:	
	1. Training of faculty on the use/operation of equipment.	
	2. At least one (1) year warranty for defects.	
	3. Certificate of calibration of the equipment.	
	4. Proof of conformity to standard/s	
	<b>Sub-ABC = Php 590,350.00</b>	
	<b>LOT 5</b>	
5	<b>MULTI-SPEED COMPRESSION TESTER, Automatic, 50KN capacity</b>	
	with variable test speed from 0.05 to 51 mm per minute.	
	(FOR CBR, MARSHALL TEST AND UNCONFINED COMPRESSION TEST)	
	with the ff. features:	
	Specifications:	
	Power: DC Motor 750 W	
	Data Download: using LAN port	
	USB port for USB memory stick data storage	
	Resolution: 132000 divisions	
	Sampling Frequency: 50 Hz	
	Horizontal clearance (distance between columns): 270 mm	
	Maximum vertical clearance (without accessories): 730 mm	
	Platen travel: 100 mm	
	Touchscreen graphic display: 240x128 pixel	
	Large memory data storage in USB pen drive	
	Meet Standards: ASTM D1883, ASTM D1559, ASTM D5581,	
	AASHTO T245, ASTM D4123, AASHTO T193, ASTM D6927, ASTM D2166	
	NOTE:	
	The supplier shall provide the following:	
	1. Training of faculty on the use/operation of equipment.	
	2. At least one (1) year warranty for defects.	
	3. Certificate of calibration of the equipment.	
	4. Proof of conformity to standard/s	
6	<b>MARSHALL TEST ACCESSORIES</b>	
	(to be used with the above MULTI SPEED COMPRESSION TESTER in Analog Mode)	
	with the ff. features:	
	Load Cell, 50 KN capacity	
	Adapter to fit load cell (two pieces)	
	Displacement transducer, 25 mm travel	
	Adjustable transducer holder	
	Compression device extension	
	Compression device	
	Stability mould for 4 in. (101.6 mm) diameter specimens	
	NOTE:	

	The supplier shall provide the following:	
	1. Training of faculty on the use/operation of equipment.	
	2. At least one (1) year warranty for defects.	
	3. Certificate of calibration of the equipment.	
	4. Proof of conformity to standard/s	
7	<b>CALIFORNIA BEARING RATIO (CBR) TEST ACCESSORIES</b>	
	(to be used with the above MULTI SPEED COMPRESSION TESTER)	
	with the ff. features:	
	adapter to fit load cell (two pieces)	
	Displacement transducer, 25 mm travel	
	Adjustable transducer holder	
	Adjustable CBR penetration piston	
	NOTE:	
	The supplier shall provide the following:	
	1. Training of faculty on the use/operation of equipment.	
	2. At least one (1) year warranty for defects.	
	3. Certificate of calibration of the equipment.	
	4. Proof of conformity to standard/s	
8	<b>UNCONFINED COMPRESSION TEST ACCESSORIES</b>	
	(to be used with the above MULTI SPEED COMPRESSION TESTER)	
	with the ff. features:	
	2.5 KN capacity strain gauge load cell	
	Connecting adapter load cell	
	Linear potentiometric displacement transducer, 25 mm travel with cable 6 pin connector	
	Adjustable support for electronic support	
	Extension load cell	
	Compression platen (upper and lower)	
	NOTE:	
	The supplier shall provide the following:	
	1. Training of faculty on the use/operation of equipment.	
	2. At least one (1) year warranty for defects.	
	3. Certificate of calibration of the equipment.	
	4. Proof of conformity to standard/s	
	<b>Sub-ABC = Php 1,069,920.00</b>	
	<b>LOT 6</b>	
9	<b>TRIAxIAL TEST SET</b>	
	50 KN capacity with data logger complete testing for Unconsolidated Undrained (UU), Consolidated Undrained (CU), and Consolidated Drained (CD) Test	
	with the ff. features:	
	Composition:	
	Triaxial load frame 50 KN capacity conforming to ASTM D2850, ASTM D4767,	
	Strain gauge load cell, 10 KN capacity	
	Linear Transducer, 25 mm travel	
	Connection shaft for triaxial cell piston	
	Additional Specification:	
	50 KN Maximum capacity	
	Speed range: 0.00001 to 50.8 mm/min	
	Maximum sample diameter: 70 mm	
	Minimum vertical clearance: 390 mm	
	Maximum vertical clearance: 725 mm	
	USB port to connect a memory stick (stick included)	
	Effective sampling rate up to 50/second	
	LAN communication, Automatic test start and stop	
	PC connection with data logger for real time monitoring	
	Standard Triaxial Cells and Accessories:	
	Standard triaxial cell for sample sizes 35 to 70 mm dia.	
	Top cap, Porous disc, Membrane(pack of 10),	
	O-ring(pack of 10), Membrane stretcher	

	Two-part split former, Two-part split mould	
	Lateral filter drains(pack of 50), Drainage burette	
	Hand sampler, Water repellent grease, Flaring tool	
	Greaser for triaxial cell, No-volume change valve	
	Pressure System and Control Panels:	
	Triaxial panel 2-way system, air regulators	
	Air compressor (air bank), 3 hp 210 tank capacity, 220V/1-phase	
	Nylon tubing 8x6 mm dia. 10 m coil	
	Nylon tubing, 6x4 mm dia. 20 m coil	
	Digital pressure gauge, Bladder (2pcs.)	
	Water De-Airing System:	
	Vacuum pump, Vacuum gauge	
	Rubber tube ID 6.5 mm x OD 16.5 mm	
	Special oil for vacuum pumps	
	De-airing tank, 23 liters capacity	
	Valve panel for de-airing tank, for connection to the air regulators and pressure outlets	
	Air drying unit	
	Volume change: Automatic Volume change, Transducer extension cable	
	Pore water pressure: Pressure transducer 10 bar, De-airing block	
	Data Acquisition and Processing:	
	8-Channels data acquisition system for geotechnical tests, 110-240V, 50-60Hz, 1 ph Geodatalog cable connecting loads cells (set of 4)	
	Undrained (uu) triaxial testing geo-analysts template for MS-Excel, compliant to ASTM D2650, Effective stress (CU, CD)	
	NOTE:	
	The supplier shall provide the following:	
	1. Training of faculty on the use/operation of equipment.	
	2. At least one (1) year warranty for defects.	
	3. Certificate of calibration of the equipment.	
	4. Proof of conformity to standard/s	
	<b>Sub-ABC = Php 2,055,200.00</b>	
	<b>LOT 7</b>	
10	<b>DIRECT SHEAR TESTING MACHINE</b>	
	direct/residual autoshear digital, automax control system with the ff. features:	
	Speed range: Adjustable 0.00001 to 15.0000 mm/min	
	Maximum shear force, 5000 N	
	Maximum vertical force: 500N or 5000N using 10:1 lever ratio device	
	Speed drive ratio: stepper motor 1/10000 resolution	
	Horizontal travel: preset via firmware up to 20 mm	
	Displacement limits: controlled by optical safety switch	
	Digital Display: LCD 4 row by 20 characters, easy to operate with the membrane keyboard	
	Specimen sizes: 60 and 100 mm square, 50 mm, 60 mm, and 100 mm diameter.	
	Accessories to fit it the analog mode:	
	Load Ring 5000N with adapters	
	Gauge dial 10 mm x 0.002 mm	
	Gauge dial 30 mm x 0.01 mm	
	NOTE:	
	The supplier shall provide the following:	
	1. Training of faculty on the use/operation of equipment.	
	2. At least one (1) year warranty for defects.	
	3. Certificate of calibration of the equipment.	
	4. Proof of conformity to standard/s	
	<b>Sub-ABC = Php 874,800.00</b>	
	<b>LOT 8</b>	
11	<b>STANDARD PENETRATION TEST SET</b>	
	(For Soil) conforming to ASTM D1586/D1586M-18	
	with the ff. features:	
	Drive-weight assembly:	



	63.5 kg hammer	
	Driving head (anvil)	
	Guide permitting free fall of 0.762 meter	
	Overlift capability of at least 100 mmm	
	Drill rod	
	Cathead:	
	operating at approximately 100 revolutions per minute	
	equipped with suitable rope and overhead sheave for lifting drive-weight assembly (typically 25 mm in diameter)	
	Split-spoon sampler	
	conforming to ASTM D1586/D1586M-18	
	Tripod with atleast 4 m clear height and one of legs of the tripod having a ladder to facilitate a person to reach tripod head (containing tripod head with hook)	
	NOTE:	
	The supplier shall provide the following:	
	1. Training of faculty on the use/operation of equipment.	
	2. At least one (1) year warranty for defects.	
	3. Certificate of calibration of the equipment.	
	4. Proof of conformity to standard/s	
	<b>Sub-ABC = Php 804,600.00</b>	
	<b>LOT 9</b>	
12	<b>OEDOMETER TEST SET</b>	
	with the ff. features:	
	Main features:	
	Compact and robust design	
	3-lever arm ratio	
	Screw jack support	
	Same cell for standard and permeability test	
	Technical specification:	
	Max. loading (using 11:1 beam ratio) of 1848 kg corresponding to 9.061 Mpa (92.40 kgf/cm) on 20 cm specimen (50.47 mm dia.)	
	Overall dimension: 500 H X 200 W X 750 mm L	
	Standard set, analog type:	
	Oedometer front loading to BS 1377, ASTM D2435 (3 pcs)	
	Fix ring cell for 50.47 mm with upper and lower stones	
	Set of slotted steel weights 2x0.25 kg, 1x0.5 kg, 1x1 kg, 1x2 kg, 1x4 kg, 7x8 kg	
	Gauge dial 10 mm x 0.02 mm	
	Bench oedometer to accept up to 3 oedometers	
	NOTE:	
	The supplier shall provide the following:	
	1. Training of faculty on the use/operation of equipment.	
	2. At least one (1) year warranty for defects.	
	3. Certificate of calibration of the equipment.	
	4. Proof of conformity to standard/s	
	<b>Sub-ABC = Php 747,150.00</b>	
	<b>LOT 10</b>	
13	<b>WATER HAMMER TEST SET</b>	
	with the ff. features:	
	Structural Specifications:	
	Stainless frame	
	Screws, nuts, plates and all metallic elements in stainless steel.	
	Diagram in the front panel with distribution of the elements similar to the real one.	
	Quick connections for adaptation to feed hydraulics source	
	Technical Data:	
	Constant level deposit, in methacrylate.	
	Unload deposit, in methacrylate.	
	Pipe circuits in PVC.	
	Valves to selct the circuit.	

