

	BAGUIO WATER DISTRICT	Document Code	TERMS OF REFERENCE
	TERMS OF REFERENCE	Document No.	P&C_ROR_F13
		Effectivity Date	MARCH 2020
		Revision No.	00

SUBJECT: **TERMS OF REFERENCE**

PROJECT: PROPOSED WATERPROOFING OF KM. 8 RESERVOIR (INSTALLATION OF 2.0 MM THICK HDPE LINER)

LOCATION: DONTOGAN, BAGUIO CITY

I. INTRODUCTION

Part of the Baguio Water District's strategic direction is to continuously improve its current water supply geared towards addressing Baguio's current and future water requirements. In line with this objective, Baguio Water District has embarked on the reduction of non-revenue water of KM. 08 Reservoir to increase its present production capability. The project will be implemented by way of tapping the services of private High-Density Polyethylene Liner suppliers for the supply and installation of High-Density Polyethylene Liner at KM. 8 Reservoir, Dontogan, Baguio City.

II. BRIEF DESCRIPTION OF THE PROJECT AND WORK ORDER

The installation of High-Density Polyethylene Liner shall be undertaken at KM. 8 Reservoir as determined by the Baguio Water District.

The total surface of the reservoir shall be covered with High-Density Polyethylene Liner to eliminate the leak of the reservoir.

III. SCOPE OF WORK

The scope of work to be undertaken shall include but must not be limited to the following:

1. Supply and installation of HDPE Liner including welding and anchoring.
2. All labor, materials, equipment and tools, as required for the installation of the HDPE liner.

IV. QUALIFICATION REQUIREMENTS OF SUPPLIERS

Interested bidders must have the following minimum requirements:

1. The bidder shall offer new High-Density Polyethylene (HDPE) geomembrane as supplied from a Manufacturer specializing in the engineering and design of geomembrane liners.

- The Manufacturer shall own and operate its own production plant and fabricate at one location so as to provide full quality control responsibility over the product.
 - The Manufacturer shall have proven track record on the fabrication and manufacture of geomembrane liners and shall follow Quality Assurance procedure audited by a reputable third-party institution other International organization on the place of manufacturer.
 - The Manufacturer shall have been in the industry of offering service and proven experience for more than ten (10) years to substantiate their product quality.
2. With specialty on the supply and installation of High-Density Polyethylene liner for reservoirs.
 3. Must have previous experience on installation of High-Density Polyethylene Liner.

V. PROJECT DURATION

As time is of the essence, the delivery of materials to site upon receipt of the Notice-To-Proceed (NTP) shall not exceed 30 calendar days and the installation of the HDPE liner shall be completed within a duration of 15 calendar days for the 2 (two) spans on which each span must be completed within a week.

VI. TECHNICAL SPECIFICATIONS

6.1 DESIGN SPECIFICATIONS

6.1.1 Design Standards

- a. HDPE shall have a minimum lifespan under sunshine for 25 years and at least 70 years under the earth.
- b. It shall be applicable for installation on top of concrete basins.

6.1.2 HDPE Liner Coverage

- a. Surface area to be covered: 2,865 square meters.

6.1.3 HDPE Details

- a. HDPE sheets color: Black
- b. HDPE thickness: 2.00 mm
- c. HDPE sheets connection: Welded

6.1.4 Anchoring

- a. The HDPE shall be anchored on the existing concrete basin by a galvanized flat iron bolted on the concrete.

- b. The anchoring shall be covered by an HDPE sheet on top via extrusion welding.
- c. Anchoring presented in the drawing shall only serve as the minimum requirements and any errors/lacking requirements shall be corrected by the supplier with prior notice to the Baguio Water District. The supplier should undertake all kinds of procedures or methods to ensure the durability of the geomembrane against leaks.

6.2 MATERIALS

6.2.1 HDPE

- a. Test Report issued and conducted by third party international organization shall be available.
- b. The material shall be non-hazardous, applicable for potable water as specified in the safety data sheet and shall bare an ECM safety mark certification or any equivalent certification.
- c. The material shall pass and conform to ASTM Standards on Tensile Yield Strength, Tensile Break Strength, Tensile Yield Elongation, Tensile Break Elongation, Tear Resistance, Puncture Resistance, Stress Crack Resistance, Dimensional Stability, and Water Vapor Permeability Coefficient. Test results shall be submitted by the supplier.

6.3 SITE PREPARATION, INVESTIGATION AND PHYSICAL DATA

- a. Prior to installation of the High-Density Polyethylene liner, the subgrade shall be free of all sharp or angular objects that may damage the geomembrane. Joint inspection with the supplier's representative and BWD engineers shall be conducted prior to the installation works.
- b. The supplier shall verify the locations and elevations of existing pipelines, structures, grades and utilities, prior to installation. The owner assumes no responsibility for any conclusions or interpretations made by the supplier on the basis of the information made available.

6.4 INSTALLATION

- a. HDPE Geomembrane welding and field installation of the geomembrane, shall be in accordance with the procedures outlined in the Manufacturer's Installation Guide and performed by an Authorized Distributor of the Manufacturer.
- b. HDPE Geomembrane welding and installation shall conform to Occupational Safety Standard for installation and shall be undertaken by a qualified installer certified by the Manufacturer.
- c. Particular care shall be taken in handling, anchoring, and bolting of the sheets and members to avoid abrasion of the geomembrane.
- d. HDPE Geomembrane sheets that will pass the existing pipes shall be cut and shall only be done by trained personnel.
- e. Extrusion welding shall be done on any cut sheets edges outside of the pipes.

6.5 FIELD TESTING

6.5.1 Leak Test

- a. Any leaks disclosed by this testing shall be corrected by the supplier in accordance with the Manufacturer's recommendations.
- b. All kinds of test shall be undertaken by the supplier as the work progresses. All defects found during tests shall be repaired and retested by the supplier at his own expense.
- c. In the event that the installed anchoring and sealing system is found not enough to prevent the leaks, additional application/installation of anchoring and sealing system shall be undertaken by the supplier at his own expense. Such additional applications to prevent the leaks shall not be considered as additional variation order.
- d. After the complete installation of the geomembrane, the reservoir shall be filled with water to be provided by BWD. Any leaks observed shall be repaired/rectified by the supplier at his own expense. A leak test shall be again conducted upon completion of repair and the required additional water to fill the reservoir to its maximum capacity shall be charged to the supplier.

6.6 OTHER REQUIREMENTS

- a. Supplier should be required to submit the following:
 1. Manufacturer's *Distributorship Contract Agreement* authenticated by Philippine Consul (or Apostille) or the Office of the Local Chamber of Commerce within the manufacturer's country of origin.
 2. Manufacturer's *ISO 9001:2015 Certificate* authenticated by Philippine Consul (or Apostille) or the Office of the Local Chamber of Commerce within the manufacturer's country of origin.
 3. Manufacturer's *ISO 45001:2018 Certificate* authenticated by Philippine Consul (or Apostille) or the Office of the Local Chamber of Commerce within the manufacturer's country of origin.
 4. Manufacturer's *ISO 14001:2015 Certificate* authenticated by Philippine Consul (or Apostille) or the Office of the Local Chamber of Commerce within the manufacturer's country of origin.
 5. *Statement of Life Span* authenticated by Philippine Consul (or Apostille) or the Office of the Local Chamber of Commerce within the manufacturer's country of origin.
 6. *Material Safety Data Sheet* authenticated by Philippine Consul (or Apostille) or the Office of the Local Chamber of Commerce within the manufacturer's country of origin that includes:
 - a. hazard identification (there are no environmental hazards identified);
 - b. composition of ingredients;
 - c. toxicological and ecological information; and
 - d. regulatory information
 7. *ECM Mark Certification* or any equivalent certification authenticated by Philippine Consul (or Apostille) or the Office of

the Local Chamber of Commerce within the manufacturer's country of origin.

8. *Technical Data Sheet* for chemical resistance, mechanical properties, environmental stress crack resistance, and thermal aging characteristics authenticated by Philippine Consul (or Apostille) or the Office of the Local Chamber of Commerce within the manufacturer's country of origin.
9. *Application Test of the Technical Information of Material from Third Party* for chemical resistance, mechanical properties, environmental stress crack resistance, and thermal aging characteristics authenticated by Philippine Consul (or Apostille) or the Office of the Local Chamber of Commerce within the manufacturer's country of origin.
10. *Manufacturer's Products Brochures* officially published authenticated by Manufacturer.
11. *Manufacturer's HDPE Geomembrane Production Process* authenticated by Philippine Consul (or Apostille) or the Office of the Local Chamber of Commerce within the manufacture's country of origin
12. *Certificate of Warranty*

6.7 SITE CLEAN-UP

After completion of all installation and testing activities at the project site, all equipment and residual materials shall be removed from the site. The site shall then, as directed and to the satisfaction of the Baguio Water District engineer, be restored to a condition as nearly as possible to that which existed before the project commenced. This work shall include, but not limited to, restoration of fences and structures, leveling of the disturbed ground surfaces, and replacement or compensation for destroyed plants and landscaping.

VII. MINIMUM REQUIRED EQUIPMENT

The following are the minimum required equipment units to be included in the List of Contractor's Equipment Units, which are owned, leased, and/or under purchase agreements:

1. Automatic Wedge Welder
2. Generator Set with sufficient power
3. Extrusion Welder
4. Service Vehicle
5. Delivery Truck

VIII. TERMS OF PAYMENT

The supplier may submit a request for payment of work accomplished. Such request for payment shall be verified and certified by the BWD's Representative.

The BWD shall have the right to deduct from the supplier's progress billing such amount as may be necessary to cover third party liabilities, as well as uncorrected discovered defects in the project.

Payments shall be adjusted by deducting therefore the amounts for advance payments and retention.

IX. LIQUIDATED DAMAGES

When the supplier fails to satisfactory deliver the materials under the contract and complete the installation work within the specified delivery schedule, inclusive of duly granted time extensions, if any, the supplier shall be liable for damages for the delay and shall pay the procuring entity liquidated damages, not by way of penalty, an amount equal to one-tenth (1/10) of one percent (1%) of the cost of the delayed goods scheduled for delivery for every day of delay until such materials are finally delivered, the installation work is completed and accepted by BWD.

BWD need not prove that it has incurred actual damages to be entitled to liquidated damages. Such amount shall be deducted from any money due or which may become due to the supplier, or collected from any securities or warranties posted by the supplier, whichever is convenient to BWD. In no case shall the total sum of liquidated damages exceed ten percent (10%) of the total contract price, in which event BWD may rescind the contract and impose appropriate sanctions over and above the liquidated damages to be paid.

X. WARRANTY

The supplier assures that the materials delivered and used and the installation work are carried out in accordance with the materials and technical specifications required by BWD.

The geomembrane liner shall be guaranteed against manufacturing and workmanship defects for a period of two (2) years from BWD's date of acceptance. Defects discovered within the 2-years warranty period shall be repaired by the supplier at his own expense within seven (7) calendar days upon receipt of the notice to be issued by BWD. The obligation for the warranty shall be covered by either retention money equivalent to at least one percent (1%) of every progress payment or a special bank guarantee equivalent to at least one percent (1%) of the total contract price. The said amounts shall only be released after the lapse of the 2-years warranty period.

XI. APPLICABLE STANDARDS

All pertinent provisions of RA9184 shall be applicable and shall form as an integral part of this Terms of Reference.

Baguio Water District reserves the right to reject any or all bids which deemed disadvantageous to the Baguio Water District.

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