TERMS OF REFERENCE

CONSULTING SERVICES FOR WATER SURVEYS WITHIN CAMP JOHN HAY

1. BACKGROUND

The Philippines has experienced what is claimed by experts as the worst El Niño event since the years 2015 and 2016. This is even aggravated by the enhanced effects of global warming. As of February 2024, 41 provinces in the Philippines are affected by drought, leading to economic losses in various sectors, particularly in agriculture, which has a direct impact to food sustenance. This has even prompted the declaration of a state of calamity in multiple provinces since 2023. The country has seen the impacts of this phenomenon; with only 11 storms affecting the country in 2023, the fewest in 25 years. Around 77% of provinces were in drought in May 2024, with up to 80% reduction in rainfall in some areas.

The effects are already being experienced by Camp John Hay, for one, as early as February 2024, there is a sharp incidence of forest fires (VOA, Happy Hallow), aggravated by drier conditions. The low volume of springs is also being experienced even as the El Nino has been declared by the PAGASA to have weakened and the onset of rainy season is incumbent.

This project centers on the possibility of additional and alternative sources of water, its implementation and development.

2. Project Context and Rationale

The project is supportive of the thrust in the Updated Philippine Development Plan (PDP), under *Chapter 12: Expand and Upgrade Infrastructure*, which acknowledges that for economic transformation to be realized, it must be built on sustainable, resilient, integrated, and modern infrastructure systems as a solid foundation. Among these foundations is the ***access to safe and adequate water and sanitation services***. It acknowledges that communities and industries must be serviced and assisted by green infrastructures that are not only adaptive and resilient against shocks and natural disturbances, but also contribute toward a low-carbon future.

Further, the project also aligns with the Updated PDP in that it acknowledges the challenges the country is facing and among this is the ***limited water resources***.

> *"Water-related data collection remains inadequate. The inability of the government to properly assess the state of water resources in the country is due to insufficient and scant water-related data collection, in as far as time–space sampling frequency and consideration of climate projections on water cycle are concerned.*"

The project is also responsive to the objectives of the Comprehensive Integrated Master Development Plan (CIMDP) of the John Hay Art and Forest Park *"To provide a continuous and sustainable water supply for the entire development"* embodied in its Utility Infrastructure Plan.

This project aims to identify additional and possible water sources. For Camp John Hay, specifically more in the John Hay Special Economic Zone, in the selection of a source or sources of water supply, adequacy and reliability of the available supply should be considered the overriding criteria. Adequacy of supply requires that the source be large enough to meet the water demand. Frequently, total dependence on a single source is undesirable, and in some cases, diversification is essential for reliability.

The project will provide management a solid basis for decision - making for both the JHMC and the BCDA towards actions on concrete economic prospect/s out of the tremendous potential of water sources within Camp John Hay.

3. Contracting Entity (JHMC)

In 1991, American military presence in the Philippines ended, leading to the enactment of Republic Act. No. 7227, also known as the Bases Conversion and Development Act of 1992. This legislation facilitated the establishment of the Bases Conversion and Development Authority (BCDA), with the main mandate to oversee the conversion of former military bases into productive and beneficial endeavors. The BCDA assumed ownership and control of Camp John Hay, ensuring its transition into a new era of purposeful utilization and national economic growth.

Pursuant to Presidential Proclamation No. 198 series of 1993, the Camp John Hay Reservation was turned over to the Bases Conversion and Development Authority (BCDA). Subsequently, Executive Order (EO) 103 issued on June 29, 1993, with amendments made by EO 31 series of 1998 established the John Hay Poro Point Development Corporation (JPDC) as a subsidiary and implementing arm of BCDA. The primary purpose of JPDC is to efficiently manage and develop Camp John Hay into a multifaceted center for environmental, economic, and social progress in Northern Luzon and the country in general.

By virtue of Executive Order 132 on October 3, 2002, the John Hay Poro Point Development Corporation (JPDC) underwent a division, resulting in the creation of two distinct corporate government entities: the John Hay Management Corporation (JHMC) and the Poro Point Management Corporation (PPMC). This division was aligned with the directives of Presidential Proclamation 420 issued on July 5, 1994, which designated John Hay as a Special Economic Zone. Furthermore, Executive Order 62 established the policies and guidelines to effectively implement the provisions of Republic Act 7227. Certain portions of the John Hay Special Economic Zone (JHSEZ) were leased out with the specific objective of transforming Camp John Hay into a comprehensive family – oriented tourism complex. This development also encompasses the establishment of a multi-purpose forest watershed and a center for human resource development. By virtue of Presidential Proclamation No. 198 issued on June 29, 1993, the John Hay Air Station was turned over to the Bases Conversion and Development Authority (BCDA) and declared for tourism, human resource development center and multiple-use forest watershed reservation. Subsequently, the John Hay Air Station/Camp John Hay was renamed Club John Hay.

4. Objectives:

The overall objective of the consultancy services for Water Surveys in Camp John Hay under this

TOR are the following:

4.1 To conduct hydrogeological investigation and assessments with resistivity survey (georesistivity test for groundwater formation / prospecting) towards:

- Determination of potential water source within the JHSEZ.
- Determination of general area's aquifer characteristics
- Determination of the composition and thickness of the different geological units below ground surface.
- Determination of the thickness and depth of potential aquifer layer/s and selection of favorable site/s for drilling of well/s.
- Assessment and evaluation of groundwater potential based on the georesistivity test for groundwater formation / prospecting) survey results.
- Determination of surface and groundwater quality.
- Preparation of preliminary well design, design of connecting pipes from the well to the existing water tank and scope of works for well construction.

4.2 To determine the best sites and locations where core drilling for water source can be done in the JHSEZ.

5. Scope of Work

Generally, the scope of work for the consultant is to provide all the labor, instrument/equipment, materials and supplies, vehicles, etc., necessary to carry out the study and in particular, conduct:

5.1 Detailed geodetic mapping activities, field surveys, and geological and geotechnical investigation & exploration of potential water-bearing areas in the John Hay Special Economic Zone and identified portions of the John Hay Reservation Area;

5.2 Conduct of geo-resistivity (groundwater) surveys within fifteen (15) best sites in the JHSEZ and the JHRA, and as a result, assess and determine the most probable location for water drilling as an additional water sources.

5.2.1 Provide all the professional and expert services, labor, instrument/equipment, materials and supplies, vehicles, etc., necessary to carry out the study.

5.2.2 As needed, facilitate the application and shall cover all necessary fees such as application fees and permits with local and national government agencies that may require permit for the said study.

5.2.3 Submit a comprehensive report bearing sub-surface interpretations, water well design recommendations, groundwater table, hydrological influences and liquefaction potential as a result of the hydrogeological investigation and assessments with resistivity survey (georesistivity test for groundwater formation / prospecting) studies that will be integral to the drilling phase of the deep well.

5.2.4 Include in the comprehensive report the specifications and **estimated** cost of the drilling phase and construction of well based on the study including the appropriate methodology of the drilling.

5.2.5 Include a report on the delineation of geological structures relevant to hydrogeology, especially presence and lithological contacts and active faultlines which might traverse the areas concerned and identify possible and potential movement areas.

The consultant is required to submit the Final Report in four (4) bound original signed copies to John Hay Management Corporation must bear the following:

i. Field Survey Methodology and Survey Layout
ii. Geologic map covering the project site showing geologic formations and structures within the project scope and location
iii. Vicinity maps in scale 1:50,000
iv. Deduced Resistivity Values
v. Specific Yield
vi. Point Location Plan in scale of 1:250 reflecting the coordinates of the survey points
vii. Narrative / Discussion of Survey Results, with illustrations and geotagged photos to include
-Interpretation of sounding points
-Layers
-Depth of solid boundaries
-Geophysical survey data (Resistivity Values)
-Interpreted Aquifer type
- Correlation of sounding points
viii. Conclusion and Recommendations

The abovementioned services shall be conducted by the Consultant in accordance with the instructions and directions made or to be made by the JHMC at any time before completion. The consultant shall conduct consultation and coordination with JHMC in relation to the undertaking of its responsibilities.

5.3 Develop the detailed technical framework, outlines and methodology in coming up with the geotechnical assessment and investigation Final Reports relative to the Water Surveys in Camp John Hay;

5.4 Assign work to respective specialists in the team; compile inputs and results; and prepare the Final Reports;

6. Roles of JHMC

6.1 Ensure the availability of focal persons for the project;

6.2 Provide personnel for ensuring guidance to locations of the project, and the safety and security of consultants during conduct of field and other related surveys;

6.3 Provide necessary and pertinent documents the consultant may need from time to time, as relayed and communicated to the management;

6.4 Conduct regular or as needed meetings with the consultant to facilitate the consultancy project and its related outputs.

7. Area of Coverage

The Consulting Services for the Water Surveys within Camp John Hay shall cover the fifteen (15) sites within the John Hay Special Economic Zone and JHRA

8. End Products / Outputs

8.1 The consultant shall submit a "Water Surveys in Camp John Hay" and from the same, derive recommendations, relevant technical information in accordance with the recommended outputs as stated in the table below.

Table 1: Outputs and Deliverables Schedule		
Deliverables	**Timeline**	**Remarks**
Inception Report (25% of the ABC)	**By Week 1 - 2**	
Detailed technical framework, outlines and methodology with corresponding reports based on the TOR relative to the consultancy project on "Water Surveys in Camp John Hay"		These reports may be interchanging and can be submitted earlier for a collaborative review with JHMC
Conduct sub-surface geological investigation and assessment within selected priority locations within the John Hay Special Economic Zone that may have a potential as water sources, according to the expert technical evaluation of areas within the JHSEZ.	By week 2-4	
Report on the conducted geological surveys using resistivity for groundwater prospecting (hydrogeological analysis) applicable to the JHSEZ and sites identified in the JHRA.		
Georesistivity (groundwater) survey Final Reports.	By Week 4-5	
Report on best sites for Core Drilling or equivalent recommendatory / technical report.		
Final Report (25%) Final versions of all technical detailed reports, assessments and recommendations	By Week 6 By Week 6	

9. Project Key Personnel

The bidder shall provide the key personnel and experts upon the effectivity of the contract and the key activities that they are to undertake:

Key Personnel and Qualifications	Key Activities
Water Resources Engineer/ Team Leader / Supervising Geologist / Engineer The Team Leader/ Water Resources Engineer / Supervising Geologist shall have at least a Bachelor's degree (preferably Master's Degree) in Engineering or equivalent, with at least FIVE (5) years of professional experience in the field of water resources planning, studies, assessments and design of multipurpose water resource projects;	a) Monitor the progress of all technical assessments and geotechnical analyses ensuring that deadlines relating to delivery schedules are met; b) Take the lead in undertaking assessment studies; c) Take the lead and assign/ delegate other tasks/ activities to the members of the Consultancy Team and support staff as may be required during the conduct of the water surveys in Camp John Hay, including, but not limited to: (1) review and evaluation of the of all pertinent technical reports, analyses and recommendations and cost optimization; and (2) review and investigation of the existing legal and institutional arrangements, among others; d) Ensure the timely delivery and quality control of all required outputs; in particular, the Inception Report, Status/ Interim Report, and Final Reports; e) Ensure that JHMC is furnished the prints and electronic copy of the abovementioned deliverables/ reports, including all necessary tables, figures, maps and drawings to facilitate and expedite complete review of the submissions.
Survey Head Must have at least five (5) years experience in the field of surveying and should be familiar with the latest technologies in surveying and related assessments. Must be a Licensed Geodetic Engineer.	Review available maps and survey data for the project area, if any; a. Study and determination of items and methods of groundwater investigation using resistivity responsible for gathering information and reporting results of evaluation of areas covered by the project sites b. Relevant maps and survey data shall include but not be limited to topographic maps, cadastral maps, and benchmarks from the National Mapping and Resource Information Authority (NAMRIA), and local government units and other agencies and institutions; c. Conduct field surveys to collect spatial data on GPS, and other navigation systems; d. Establish accurate geodetic control points and networks to precisely locate and map the survey area; e. Measure and record the elevation, topography, and other physical features of the land to create detailed maps and models relevant to groundwater prospecting; f. Use geophysical methods like electrical resistivity to measure the

Key Personnel and Qualifications	Key Activities
	subsurface properties and identify potential groundwater sources; g. Analyze the collected geospatial and geophysical data to generate maps, cross-sections, and other visualizations that can help locate and characterize groundwater aquifers; h. Collaborate with hydrogeologists, geologists, and other specialists to interpret the survey findings and determine the most promising areas for groundwater exploration
Encoder / Clerk / Administrative Staff	a. Manage and serve as the facilitator for logistics in the conduct of detailed field surveys in the project service area; b. Supervise encoding of survey data, and subsequently analyze said data to estimate project affected areas, in coordination with the team supervisors. c. be in charge for administrative and clerical tasks d. be in charge of coordination with JHMC on schedules pertinent to the accomplishment of the TOR and coverage of the surveys d. Providing general support to the geodetic engineer and other specialists in the successful completion of the georesistivity survey
Technical Personnel/ Technician / Support Staff	a. Setting up and operating the geophysical equipment used for electrical resistivity measurements, such as electrodes, cables, and data loggers. b. Ensuring the proper functioning and maintenance of the survey equipment throughout the field work. c. Assisting in the placement and positioning of electrodes at predetermined locations based on the survey design. d. Helping to measure and record the surface features, such as topography and vegetation, that may affect the geophysical data. e. Providing manual labor support for tasks like digging electrode holes, clearing vegetation, and transporting equipment. f. Maintaining detailed field notes and records of the survey activities, including electrode locations, measurement parameters, and any issues encountered. g. Ensuring the safety of the survey team and the public during field operations by following established protocols and guidelines.

The Team Leader shall take the lead in the review and evaluation of TECHNICAL RESULTS AND REPORTS for the project. The members of the Consulting Team shall be required to provide data/ information as needed by the other experts and/or by the Team Leader related to the conduct of the water surveys in CJH. They will be integral to the options analysis/ scheme selection comprised in the *Water Surveys in Camp John Hay.*

In addition to the above, each of the members of the consultancy team shall prepare inputs to the Inception Report, Interim Report, and other reports specific to their assigned tasks.

Prints and electronic copies of the reports specific to the members' assigned tasks, including tables, figures and plans shall also be required to be submitted to JHMC to facilitate review. All raw data, up to and including, those used in the survey and mapping and hydrologic studies must also be submitted to JHMC in the manner specified.

10. Contract Duration

The contract duration shall be 45 calendar days commencing from the signing of the contract which can be renewed subject to JHMC's assessment of the consultant's performance.

11. Mode of Payment

In accordance with **Table 1 Outputs and Deliverables Schedule**

11.1 submit a Billing Request at the end of the consultancy engagement corresponding request for progress payment indicating the Statement of Work Accomplished and the reports submitted, *e.g Report for the Water Surveys in Camp John Hay".* The Statement of Work Accomplished should reflect the cumulative value of the works it executed to that date.

11.2 JHMC – EAMD shall check the consultant's billing and their corresponding submissions / reports and certify the amount to be paid to the consultant as one time payment.

11.3 The one time payment will only be made after the consultant submits the FINAL REPORT as accepted and reviewed by JHMC.

11.4 Payment and the Contract shall not take effect until the winning consultant has provided to JHMC a Performance Security. The amount of which shall be equal to a percentage of the total contract value as required under Section 39.2 of the RIRR of RA 9184

Form of Performance Security	**Amount of Performance Security (Not less than the required percentage of the Total Contract Price)**
a) Cash or cashier's / manager's check issued by a Universal of Commercial Bank.	Consulting Services - Five Percent (5%)
b) Bank draft/guarantee or irrevocable letter of credit issued by a Universal or Commercial Bank: Provided, however, That it shall be confirmed or authenticated by a Universal or Commercial Bank, if issued by a foreign bank.	
c) Surety bond callable upon demand issued by a surety or insurance company duly certified by the Insurance Commission as authorized to issue such security.	Thirty percent (30%)

11.5 The Performance Security may only be released by JHMC after the issuance of a Certificate of Final Acceptance

12. Procedure for the Evaluation of Proposals

The Consulting Firm shall be selected using the Quality-Cost Based Evaluation/Selection (QCBE/QCBS) procedure under Republic Act (RA) No. 9184, or the Government Procurement Reform Act (GPRA), and its Revised Implementing Rules and Regulations (IRR) and based on the following criteria:

Evaluation Criteria	Weight
Consultant must meet a minimum technical score of 70%	
Qualification of Personnel to be assigned to the project (Based on CV submission. This is to be done rating the overall score of all personnel **based on the qualifications set in Item 9**, with 40% of its overall average set in the Team Leader and the remaining 60% for its other team members) No. of Years of industry experience – 20% ❑Rank 1 – 20% ❑ Rank 2 – 15% ❑ Rank 3 - 12 %	***20%***
Similar projects completed within the last five (5) years – 20% ❑ Less than 5 projects completed in the last 5 years = 10% ❑ 6 to 10 projects completed in the last 5 years = 15% ❑ More than 10 similar projects completed in the last 5 years = 20%	***20%***
Similar Projects conducted for government institutions within the last five (5) years – 20% ❑ Less than 5 government projects in the last 5 years = 15% ❑ 6 or more government projects in the last 5 years = 20 %	***20%***
Client Feedback (Based on Certification from clients for Completed Projects) Computation: Satisfaction Rating of their top 5 Clients via averaging = % weight	***20%***

Evaluation Criteria	Weight
Outstanding -5 Very Satisfactory – 4 Satisfactory – 3 Below Average – 2	
Plan of Approach or Methodology Proposal	***20%***
TOTAL	***100%***