XXIII. APPENDICES

119. The following Appendices are attached to and part of this Consent Decree:

"Appendix A" is a list of pipe segments that are inaccessible for CCTV inspection; and

"Appendix B" is a map of the Sewer Capacity Assurance Projects, Route 1 – Dededo.

Dated and entered this 9th day of August, 2024.

FRANCES M. TYDINGCO-GATEWOOD
CHIEF JUDGE

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of *United States v. Guam Waterworks Authority and the Government of Guam*, Civil No. 24-00004.

FOR THE UNITED STATES OF AMERICA:

TODD KIM
Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice

BETHANY ENGEL
Digitally signed by BETHANY ENGEL
Date: 2024.01.30 16:57:07 -05'00'

Date

BETHANY ENGEL
KAYCI G. HINES
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
Washington, D.C. 20044-7611
Telephone: 202-514-6892

SHAWN N. ANDERSON
United States Attorney
Districts of Guam and the NMI

MIKEL W. SCHWAB
Assistant United States Attorney
Suite 500, Sirena Plaza
108 Hernan Cortez
Hagåtña, Guam 96910
Telephone: 671-472-7332

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of *United States v. Guam Waterworks Authority and the Government of Guam*, Civil No. 24-00004.

FOR THE U.S. ENVIRONMENTAL PROTECTION AGENCY:

SYLVIA QUAST Digitally signed by SYLVIA QUAST Date: 2023.10.31 12:07:32 -07'00'

Date

SYLVIA QUAST
Regional Counsel
U.S. Environmental Protection Agency, Region IX

OF COUNSEL:
JANET MAGNUSON
Assistant Regional Counsel
U.S. Environmental Protection Agency, Region IX
Office of Regional Counsel

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of *United States v. Guam Waterworks Authority and the Government of Guam*, Civil No. 24-00004 .

FOR THE U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF ENFORCEMENT AND COMPLIANCE ASSURANCE:

12/08/23
DATE

JOSEPH THEIS
Digitally signed by JOSEPH THEIS
Date: 2023.12.08 08:49:22 -05'00'

JOSEPH G. THEIS
Acting Director
Office of Civil Enforcement
Water Enforcement Division
U.S. Environmental Protection Agency

12/4/23
DATE

CHRISNA BAPTISTA
Digitally signed by CHRISNA BAPTISTA
Date: 2023.12.04 14:53:42 -05'00'

CHRISNA BAPTISTA
Attorney Advisor
Office of Civil Enforcement
Water Enforcement Division
U.S. Environmental Protection Agency

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of *United States v. Guam Waterworks Authority and the Government of Guam*, Civil No. 24-00004.

FOR THE GUAM WATERWORKS AUTHORITY:

Date

MIGUEL C. BORDALLO, P.E.
General Manager

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of *United States v. Guam Waterworks Authority and the Government of Guam*, Civil No. 24-00004.

FOR THE GOVERNMENT OF GUAM:

10/23/23
Date

DOUGLAS B. MOYLAN
ATTORNEY GENERAL OF GUAM

Date

LOU LEON GUERRERO
GOVERNOR OF GUAM

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of *United States v. Guam Waterworks Authority and the Government of Guam*, Civil No. 24-00004..

FOR THE GOVERNMENT OF GUAM:

Date

DOUGLAS B. MOYLAN
ATTORNEY GENERAL OF GUAM

10/24/23
Date

LOURDES A. LEON GUERRERO
GOVERNOR OF GUAM

Exhibit D

ATTACHMENT 1
TASK ORDER FORM

Indefinite Delivery/Indefinite Quantity (ID/IQ) Professional Project/Construction Management for Islandwide Sewer Collection/Transmission System
Repair, Rehabilitation, and Replacement Project

Task Order No. [02], consisting of 6 pages.

In accordance with Paragraph 1.01 of the Agreement Between Owner and Engineer for Professional Services – Task Order Edition, dated [ ] ("Agreement"), Owner and Engineer agree as follows:

1. Background Data

a. Effective Date of Task Order:

b. Owner: Guam Waterworks Authority

c. Engineer: Brown and Caldwell

d. Specific Project (title): Sewer Gravity, Force Main, and Pump Station Assessment, Capacity Verification, and Design Services

e. Specific Project (description): Provide GWA with gravity sewer, force main, and pump station assessment and design in Agat-Santa Rita and Umatac-Merizo.

2. Services of Engineer

A. The specific services to be provided or furnished by Engineer under this Task Order are:

SCOPE OF WORK

This Task Order 2 ("TO No. 2") will be performed by Brown and Caldwell ("Engineer") under the GWA ID/IQ Project Management/Construction Management for Islandwide sewer Collection/Transmission System, Repair, Rehabilitation, and Replacement contract ("Contract"). TO No. 2 consists of the assessment and design of the Gravity Sewer, Force Main, and Pump Stations identified in Attachments A, B, and C for the Agat-Santa Rita and Umatac-Merizo areas.

The scope of work for TO No. 2 is outlined below and is further defined in Attachments D, E, and F.

1. Phase 1 – Gravity Sewer
   A. Project Management
   B. Gravity main Condition Inspection and Assessment
   C. Agat-Santa Rita/Umatac-Merizo Condition Assessment Report
   D. Additional Gravity Main Condition Assessment Report
   E. Acute and Short-Term Gravity Main Work Plan
   F. Capacity Verification
   G. Long-Term Gravity Main Work Plan

H. Preliminary Engineering/Basis of Design
I. 30% Design
J. 60% Design
K. 90% Design
L. 100% Design
M. Construction Bid Support and Support During Construction

2. Phase 2 – Force Mains
   A. Project Management
   B. Force Main Inspection
   C. Force Main Assessment Report
   D. Force Main Capacity Verification
   E. Preliminary Design/Basis of Design Report
   F. 30% Design
   G. 60% Design
   H. 90 % Design
   I. 100% Design
   J. Construction Bid Support and Support During Construction
3. Phase 3 – Pump Stations
   A. Project Management
   B. Pump Station Preliminary Plan
   C. Pump Station Condition Assessment
   D. Pump Station Capacity Verification
   E. Preliminary/Basis of Design
   F. 30% Design
   G. 60% Design
   H. 90% Design
   I. 100% Design
   J. Support During Construction

The scope of work for each phase in Attachments D, E, and F indicate Engineer Responsibilities, Owner Responsibilities, and Deliverables.

The execution of TO No. 2 authorizes the Engineer to proceed with items 1.A to 1.H, 2.A to 2.E, and 3.A to 3.E above and as defined in Attachments D, E, and F. Engineer shall begin work on the remaining scope items list above only after an amendment to TO No. 2 is executed, which will be negotiated between the Owner and the Engineer.

B. All of the services included above comprise Basic Services for purposes of Engineer's compensation under this Task Order.

3. Additional Services

Additional Services that may be authorized or necessary under this Task Order are set forth as Additional Services in Part 2—Additional Services, of Exhibit A, "Engineer's Services for Task Order," of the Agreement modified for this specific Task Order, and attached to and incorporated as part of this Task Order.

4. Owner's Responsibilities

Owner shall have those responsibilities set forth in Article 2 and Exhibit B of the Agreement, under this Task Order, subject to the following: None

5. Task Order Schedule

In addition to any schedule provisions provided in Exhibit A under this Task Order or elsewhere, the parties shall meet the following schedule:

Party	Action	Schedule
Engineer	**Conduct and complete require CCTV inspections of Gravity Mains and provide data to Owner for submittal to USEPA.**	**By March 7, 2025**
Engineer	**Conduct meetings and Assist Owner with review and assessment of CCTV.**	**Within 30 days of completion of CCTV**
Engineer	**Assist Owner with compiling and reporting CCTV assessment, through the Gravity Main Condition Assessment Report to be delivered to USEPA.**	**Within 12 months of Effective Date of Task Order.**
Owner	**Assist Engineer with requested data, as necessary.**	**Within 14 days of receipt from Engineer.**
Owner	**Submit any additional CCTV completed to Engineer, for assessment and reporting.**	**Within 14 days of receipt of additional CCTV data.**
Engineer	**Conduct and complete assessment of pump stations and ejector stations and their associated force mains within scope.**	**Within 180 days of Effective Date of Task Order.**

6. Payments to Engineer

A. Owner shall pay Engineer for services rendered under this Task Order based on the attached approved Task Order No. 2 Scope of Work and Fee

Description of Service	Amount	Basis of Compensation
1. Phase 1 – Gravity Sewer		
a. Task 1 – Project Management	$146,423	Lump Sum
b. Task 2 – Gravity Main Condition Inspection and Assessment	$557,873	Lump Sum
c. Task 3 – Agat-Santa Rita/Umatac-Merizo Condition Assessment Report	$103,133	Lump Sum
d. Task 4 – Additional Gravity Main Condition Assessment Report	$179,057	T&M
e. Task 5 – Acute and Short-Term Gravity Main	$94,378	Lump Sum

Work Plan		
f. Task 6 – Capacity Verification	$34,536	Lump Sum
g. Task 7 – Long-Term Gravity Main Work Plan	$107,331	Lump Sum
h. Task 8 – Preliminary Engineering/Basis of Design	$1,046,118	T&M
2. Phase 2 – Force Main		
a. Project Management	$143,811	Lump Sum
b. Force Main Inspection	$259,887	Lump Sum
c. Force Main Assessment Report	$68,233	Lump Sum
d. Force Main Capacity Verification	$32,643	Lump Sum
e. Preliminary Design/Basis of Design Report	$251,192	T&M
3. Phase 3 – Pump Station		
a. Project Management	$131,564	Lump Sum
b. Pump Station Preliminary Plan	$73,986	Lump Sum
c. Pump Station Condition Assessment	$167,781	Lump Sum
d. Pump Station Capacity Verification	$34,490	Lump Sum
e. Preliminary Design/Basis of Design Report	$331,813	T&M
TOTAL COMPENSATION (lines 1, 2, and 3)	$3,764,249	
GRT (5.263%)	$198,113	
Grand Total Task Order 2	$3,962,362	

Compensation items and totals based in whole or in part on Hourly Rates or Direct Labor are estimates only. Lump sum amounts and estimated totals included in the breakdown by phases incorporate Engineer's labor, overhead, profit, reimbursable expenses (if any), and Consultants' charges, if any. For lump sum items, Engineer may alter the distribution of compensation between individual phases (line items) to be consistent with services actually rendered, but shall not exceed the total lump sum compensation amount unless approved in writing by the Owner.

B. The terms of payment are set forth in Article 4 of the Agreement and in the applicable governing provisions of Exhibit C of the Agreement.

7. Consultants retained as of the Effective Date of the Task Order: Not Applicable

8. Other Modifications to Agreement and Exhibits:

a. The following replaces and supersedes Agreement, Article 6, Paragraph 6.02.A:

For each design performed or furnished, Engineer shall be responsible for Design Services during Construction as well as all duties required in performance of the Engineer as the Construction/Project manager as defined in the Scope of Work and/or Task Order. Engineer, as

both designer and Construction/Project Manager, shall be responsible for design and Shop Drawing review, review and response to Requests for Information and Contractor claims, Construction Contract administration, processing of Change Orders and submittals, revisions to the Construction Contract Documents during construction, construction observation and review, review of Contractor's payment applications, and all other necessary Construction Phase administrative, engineering, and professional services.

b. The following replaces and supersedes Agreement, Article 7, Paragraph 7.01.A.15

Construction Management – Represent the owner's interest and provide technical expertise in the oversight of the project, directly for the owner. Primary duties shall be to observe and monitor contractor activities at a construction site to meet a project's goals, plans, specifications, schedule, and safety standards as defined in the Task Order.

9. Attachments: ATTACHMENT A – October 9, 2024, Brown and Caldwell, Task Order No. 2 Scope of Work and Fee Proposal.

10. Other Documents Incorporated by Reference: Not Applicable

11. Terms and Conditions

Execution of this Task Order by Owner and Engineer shall make it subject to the terms and conditions of the Agreement (as modified above), which Agreement is incorporated by this reference. Engineer is authorized to begin performance upon its receipt of a copy of this Task Order signed by Owner.

The Effective Date of this Task Order is [ ]

OWNER: Guam Waterworks Authority	ENGINEER:
By: _____	By: _____
Print Name: MIGUEL C. BORDALLO, P.E.	Print Name: _____
Title: General Manager	Title: _____
	Engineer License or Firm's Certificate No. (if required): _____
	State of: _____
DESIGNATED REPRESENTATIVE FOR TASK ORDER:	DESIGNATED REPRESENTATIVE FOR TASK ORDER:
Name: _____	Name: _____
Title:	

_____	Title: _____
Address: _____	Address: _____
E-Mail Address: _____	Email Address: _____
Phone: _____	Phone: _____

Engineering Department Approval:

By: _____
BRETT RAILEY, P.E.
GWA Acting Asst. General Manager - Engineering

Certified Funds Available:	Approved as to Form:
By: _____ TALING M. TAITANO, CPA, CGFM GWA Chief Financial Officer	By: _____ THERESA G. ROJAS, ESQ. GWA Legal Counsel

Contract Amount: **$** 3,962,362.00
Contingency: **$** _____
Amount Certified: **$** 3,962,362.00
Funding Source: Bond, IFCIP

Task Order 2 - Phase 1: Gravity Sewer Mains

This document accompanies Task Order 2 of S22-02-BND Indefinite Delivery/Indefinite Quantity (ID/IQ) Professional Project/Construction Management for Island-wide Sewer Collection/Transmission system Repair, Rehabilitation, and Replacement Project.

Phase 1 of Task Order 2 of the Sewer Repair, Rehabilitation, and Replacement Indefinite Delivery/Indefinite Quantity (IDIQ) consists of:

- Gravity sewer CCTV condition assessment
- Assessment reporting
- Hydraulic modelling
- Capacity Evaluation
- Design services through construction for the replacement of gravity sewer segments identified in the 2018 WRMPU with capacity issues, and trenchless rehabilitation for segments with significant structural defects.

Elements of this phase are further described below and are separated into individual tasks. Assumptions, inclusions, and exclusions are listed in the subtasks below.

Task 1 - Project Management

1. Project Management Plan: Prepare a Project Management Plan (PMP) that includes the following elements:
   a. Project Description
   b. Scope of work
   c. Work Plan
   d. Typical monthly progress report
   e. Quality Assurance and Quality Control Plan
   f. Communication Plan
   g. Documentation Plan
   h. Subcontractors and organizational chart
2. Project Schedule: Submit a schedule that meets required milestones. Update schedule at all phases of the project, including monthly meetings, dates for completion of engineering design studies, milestone tasks, and dates for review periods. The schedule may include program development (owner's requirements) and environmental permit approvals. The schedule will be based on the proposed target dates.
3. Progress Reports: Submit monthly progress/status reports to support monthly billings.
4. Meetings and Coordination: Attend regularly scheduled meetings and coordinate with entities within and, as appropriate, outside the project team. Identify and facilitate milestone meetings. Prepare meeting minutes.
5. Coordinate and communicate with local and federal agencies, including Guam Environmental Protection Agency (GEPA), Department of Public Works (DPW), Department of Parks and Recreation (DPR), US Fish and Wildlife Services (USFWS) throughout the course of the project to ensure review and permitting process adheres to project schedule.

Task 2: Gravity Main Condition Inspection and Assessment

Perform closed-circuit television (CCTV) inspection and assessment documentation, in accordance with the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Condition Program (PACP), on gravity sewer mainline segments listed in Attachments A, B, and C, (approximately 24,000 lf). Additionally, inspect, assess, and document all accessible manholes along the gravity sewer lines in Attachments A, B, and C in accordance with NASSCO's Manhole Assessment and Condition Program (MACP). Phase 1 includes the following:

1. Conduct field sewer CCTV and Manhole inspections
    a. Obtain sufficient condition data and an understanding of the gravity sewer pipe system failure modes.
    b. Prior to work, secure DPW Highway Encroachment permit.
    c. Provide roadway traffic control.
2. CCTV Inspection and Cleaning
    a. Perform the inspection in accordance with NASSCO PACP.
    b. Television inspection equipment shall have accurate footage counter that will display on the monitor and record the camera distance from the centerline of the starting manhole. The camera shall be of the remotely operated pan and tilt type. The rotating camera and light head configuration shall have the capability of panning 360° with pan and tilt capability, providing a full view of the pipe to ensure complete inspection of the mainline pipe and service laterals.
    c. Prior to performing CCTV inspection activities, consultant shall clean the sewer lines(s) to be televised.
    d. Just prior to performing the video inspection procedure, water must be introduced into the nearest upstream manhole until observed at the nearest downstream manhole. This will ensure that any pipe segments with bellies are easily identified during CCTV inspection.
    e. Fats, Oil, and Grease (FOG) shall be evacuated, as much as practical, from the pipeline and the pipeline kept clear of any FOG during the CCTV inspection process.
    f. Main Line Inspection
        i. Prior to the beginning of each CCTV inspection, manhole identification numbers, as provided by GWA, shall be displayed in the title and shall become a part of the video record.
        ii. Perform the inspection on all mainline sections from manhole to manhole
        iii. The interior of the pipe shall be carefully inspected to determine the location and extent of all NASSCO defects.
        iv. Immediately notify GWA of any identified acute defects (NASSCO Structural Grade 5 defects).
        v. Identify locations where clean water is leaking into the sewers.
        vi. Locate service connections

Assumptions

1. Sewer manholes are easily accessible and are not buried, paved over, or welded.
2. Access to sewer easements is maintained and accessible with CCTV and cleaning vehicles/equipment.
3. GIS locations of assets to be inspected are generally accurate.
4. Cleaning required for CCTV inspection can be achieved with a maximum of three passes with standard jetting equipment. Removal of encrustations is excluded.
5. Cleaning debris can be disposed at the Umatac-Merizo WWTP and/or the Tipalao Septic Receiving Station.
6. More than one attempt from each direction to CCTV a segment is excluded if hindered by reasons beyond Consultant's control.

Consultant Responsibilities/Deliverables:

1. Furnish a video file of each CCTV inspection in standard NASSCO PACP/MACP format
2. Furnish pictures of each manhole inspection in standard NASSCO MACP format
3. Furnish PACP/MACP inspection reports in PDF format, including NASSCO ratings
4. Furnish a summary sheet, in excel format, of all inspections

GWA Responsibilities:

1. Provide updated GIS, with current Asset IDs, for all gravity sewer main pipelines and manholes included in the work area.
2. If needed, clear access paths for sewer lines within sewer easements.
3. Assist, as necessary, in securing the DPW highway encroachment permit.

Task 3 – Agat-Santa Rita/Umatac-Merizo Condition Assessment Report

Prepare and submit a Gravity Main Condition Assessment Report for the gravity sewer pipelines and manholes in Attachments A, B, and C. This task will involve analyzing the CCTV data from Phase 1 and determining the structural and operational conditions, failure modes, and make recommendations for additional cleaning need (if any), maintenance, repair, rehabilitation, or replacement of system assets, as needed.

Evaluate the sewer assets' likelihood of failure (LoF) and consequence of failure (CoF),and provide recommendations for repair or rehabilitation timeline. Consultant shall work with GWA to develop risk criteria.

Include an Association of Cost Engineering International (AACEI) Class 5 Conceptual opinion of Probable Construction Cost (OPCC) estimate for repairs, rehabilitation, and replacements.

Upon completion of the Condition Assessment Report, provide a GIS shapefile containing structural and operational defects and condition ratings. Additionally, the GIS shapefile will include modifications to the sewer collection system connectivity based upon discrepancies observed in the field. Discrepancies will be recorded separately and summarized in a brief GIS discrepancy report.

Assumptions

1. Likelihood of Failure criteria will be based solely upon the structural condition rating determined during condition assessment.
2. Report will be prepared in consultant's standard template format, unless otherwise requested.

Consultant Responsibilities/Deliverables

1. Draft Condition Assessment Report. Submit an electronic PDF file of the draft report for review and comment. The report will include the following:
   a. NASSCO PACP structural and operational overall condition ratings for gravity sewer lines.
   b. NASSCO MACP structural and operational overall condition ratings for manholes.
   c. Identify and prioritize sewer lines and manholes for rehabilitation, repair, or replacement, including acute defects.
   d. Provide maps showing the sewer lines and manholes prioritized for repair, rehabilitation, and replacement.
   e. Provide estimated cost for the sewer lines and manholes recommended for repair, rehabilitation, or replacement
   f. Work with GWA to develop CoF criteria, weights, and rankings.
   g. Final Condition Assessment Report. The final report will address client comments on draft and will be submitted as an electronic PDF file.
2. GIS Database shapefile that includes the following asset attribute information:
   a. NASSCO PACP structural and operational condition ratings for gravity sewer mains
   b. NASSCO MACP structural and operational condition ratings for manholes

GWA Responsibilities

1. Provide Condition Assessment Report Template, if available.
2. Provide comments on the Draft Condition Assessment Report.
3. Provide input and make final decision on risk criteria and ratings for consequence of failure analysis

Task 4 – Additional Gravity Main Condition Assessment Report

The intent of this task is to develop a Gravity Main Condition Assessment report for gravity sewer assets outside the Phase 1 and Phase 2 areas. Additional sewer segments beyond the areas contained in Attachments A, B, and C of Phases 1 and 2 shall be as specified and directed by GWA. Under this Phase, consultant will review GWA provided CCTV videos and completed PACP/MACP inspection forms to evaluate conditions, perform a LoF and CoF analyses, and make recommendations for repair, rehabilitation, and/or replacement. Consultant does not take responsibility for the accuracy and completeness of the information contained in the NASSCO Inspection Forms.

Assumptions

1. Assessments for assets outside Attachments A, B, and C are limited to 100,000 LF of gravity sewer pipe and associated manholes.
2. NASSCO Inspection Forms will be provided as PDF files and in GIS Shapefile database.
    a. Consultant will rely on the completed NASSCO Inspection Forms to perform the LoF and CoF analyses. It is acknowledged that conditions may have changed since the date of inspection, but the assessment and recommendation shall be based on the inspection data provided.
    b. CCTV videos will be reviewed to determine the appropriate remedy - repair, rehabilitation, or replacement.
3. Consultant is not liable for the accuracy and completeness of the information contained in the furnished NASSCO Inspection Forms.
4. CoF criteria defined in Task 2 will be applied to this task.
5. All CCTV videos and NASSCO Inspection Forms to be included in this report will be provided to Consultant by May 9, 2025, which is nine (9) months after the Effective Date of GWA's Consent Decree.
6. The Final Condition Assessment report for gravity mains will be submitted by February 9, 2026, which is nine (9) months after receiving the last NASSCO Inspection Form and 18 months from the Consent Decree Effective Date.
7. The party performing the CCTV inspection will identify and report to GWA, any acute defects during data collection. Consultant is not liable for the failure to report acute defects of assets outside of Attachments A, B, and C.

Consultant Responsibilities/Deliverables

1. Draft Condition Assessment Report. Submit an electronic PDF file of the draft report for review and comment. The report will include the following:
    a. NASSCO PACP structural and operational overall condition ratings for gravity sewer lines
    b. NASSCO MACP structural and operational overall condition ratings for manholes.
    c. LoF and CoF analyses for each asset.
    d. Identify and prioritize sewer lines and manholes for rehabilitation, repair, or replacement
    e. Provide maps showing the sewer lines and manholes prioritized for repair, rehabilitation, and replacement
    f. Provide estimated cost for the sewer lines and manholes recommended for repair, rehabilitation, or replacement

2. Final Condition Assessment Report. Final report will address client comments on draft and will be submitted as an electronic PDF file.

GWA Responsibilities

1. Provide GIS database with completed NASSCO PACP and MACP structural and operational condition grades for each asset.
2. Provide PDF files of completed NASSCO PACP and MACP forms to be included in this Condition Assessment Report.
3. Provide CCTV video files for all assets that are included in this task.

Task 5 – Acute and Short-Term Gravity Main Work Plan

Upon GWA approval of the Gravity Main Condition Assessment reports, prepare and submit a Gravity main Work Plan for review and approval that organizes all necessary Gravity Main Repair, Rehabilitation, and Replacement work recommended in the Assessment Reports. The Gravity Main Work Plan shall include a prioritization list and project packages that prioritizes segments with acute defects, segments that eliminate SSOs, and segments that reduce I&I.

Assumptions

1. Prioritization and packaging will be based on LoF and CoF results from the Condition Assessment Report(s).
2. Prioritization and packaging is limited to the assets contained in the Condition Assessment Report(s). Assets not included in the Condition Assessment Report(s) are excluded from CIP packaging.

Consultant Responsibilities

1. Acute and Short-Term Gravity Main Work Plan
    a. Using the results and recommendations in the Gravity Main Assessment Report(s), develop a 5-year CIP program that prioritizes all acute defects and short-term repair, rehabilitation, and replacement work.
        i. Acute defects shall be prioritized first and scheduled to be completed no later than 24 months after they are identified.
        ii. Work with GWA on identifying project financing mechanisms, budgets, and schedule to develop project packages.
        iii. Perform an AACEI Class 5 cost estimate for project packages.
        iv. Develop a design and construction schedule for the CIP program such that the projects included in this Gravity Main Work Plan are completed within 5-years of the report submittal date.

Deliverables

1. Draft Acute Defects Gravity Main Work Plan in electronic format.
2. Final Acute Defects Gravity Main Work Plan in electronic format.
3. Final Microsoft Project (.msp) file for Acute Defects schedule.
4. Draft Gravity Main Work Plan in electronic format.
5. Final Gravity Main Work Plan in electronic format.
6. Final Microsoft Project (.msp) file for 5-year Gravity Main CIP schedule.

GWA Responsibilities

1. Review and comment on Draft Gravity Main Work Plan within 30 days.
2. Identify and establish financing mechanisms and budgets to implement 5-year CIP program.

Task 6 – Capacity Verification

Review the DRAFT Capacity Evaluation Report (completed under separate project) for the gravity main sewer lines identified in Attachments A, B, and C based on the latest flow metering data. The Capacity Evaluation Report shall be supplemented with a technical memorandum (TM) documenting this verification. The TM will validate the capacity of sewer mains within the areas shown in Attachments A, B, and C and identify current or future flow bottlenecks within the project scope. This TM shall include a hydraulic assessment and a Flow Model update to determine hydraulic capacity of the project scope areas and confirm areas of the scope of work expected to cause or contribute to SSOs that will be eliminated through repair/rehabilitation/replacement under this Task Order.

Assumptions

1. Flow model calibration used as the basis for the Storm Technical Memorandum and recent work in the Central Basin shall be relied on for this Task; flow metering for the segments in Attachments A, B, and C is excluded.

Consultant Responsibilities/Deliverables

1. Perform a hydraulic assessment of the gravity sewer mains identified in Attachments A, B, and C using existing data.
    a. Submit a Flow Model update for the gravity sewer mains identified in Attachments A, B, and C.
    b. Flow Model will incorporate physical changes to the wastewater collection system, changes to capacity, and new data gathered through December 31, 2022
    c. Flow Model will incorporate newly collected survey data for the sewer segments, such as invert elevations, pipe sizes, and pipe material.
2. Draft and Final Capacity Assurance Report(s) that includes the results of the hydraulic assessment and flow model.

GWA Responsibilities

1. Provide requested information related to the gravity sewer model, including changes to the system since 2012.

Task 7 – Long-Term Gravity Main Work Plan

Upon approval of the Gravity Main Condition Assessment Report(s) and after reviewing the Draft Capacity Evaluation Report, develop a long-term Gravity Main Work Plan that:

1. Identifies and schedules the design and construction of all necessary Long-Term Gravity Main Rehabilitation and Replacement work based on the Condition Assessment Report and GWA's Draft Capacity Evaluation Report
2. Meets the capacity criterion established in the Storm Technical Memorandum dated January 4, 2023.
3. Proposes an annual commitment of Gravity Main rehabilitation or replacement of at least three (3) miles per year.
4. The Long-Term Gravity Main Work Plan shall also consider the results from GWA's Capacity Evaluation Report

Assumptions

1. Work Plan will be submitted in consultant's standard deliverable format.

Consultant Responsibilities/Deliverables

1. Draft Long Term Gravity Main Plan
    a. Assets will be prioritized based on LoF and CoF results from the Condition Assessment Report(s).

b. Develop distinct Capital Improvement Project (CIP) summaries that describe logical grouping of main repair/rehabilitation/replacement projects, scopes of work, design, and construction packages. CIP summaries and packages shall consider: financing constraints, economic feasibility, type of construction, and proximity of assets.
c. Draft Long Term Gravity Main Plan shall include maps indicating the locations and assets included in each CIP project.
d. Consultant shall evaluate alternative contracting methods (design-bid-build, design-build, etc) to successfully execute the Long-Term Gravity Main Work Plan and provide a recommendation.
e. Consultant shall perform an AACEI Class 5 estimate for each recommended CIP.
f. Cost estimate shall include adjustments for inflation to the year the CIP is scheduled to be contracted.
g. The draft Long-Term Gravity Main Work Plan will be submitted in two documents:
h. Brief Technical Memorandum outlining the prioritization considerations, and:
i. CIP packaging method.

2. Final Long Term Gravity Main Plan
   a. Incorporate GWA's comments from the Draft Long Term Gravity Main Plan into a Final Long Term Gravity Main Plan.

GWA Responsibilities

1. Provide financing information to inform the packaging and scheduling of CIPs.
2. Review and comment on Draft Long-Term Gravity Main Work Plan.

Task 8 –Preliminary Engineering/Basis of Design

Define objective, design criteria, and methodology that shall be used to prepare the design to repair, rehabilitate, or replace gravity sewer mains and manholes within Attachments A, B, and C, or as directed by GWA.

Assumptions (applicable to Tasks 8 through 12)

1. Sewer lines within Attachments A, B, and C identified in the 2018 Water Resources Master Plan (WRMP) that have inadequate capacity can be upsized using open-cut replacement methods. Other sewer lines within the Task Order scope can be rehabilitated using trenchless technologies, such as CIPP.
   a. Approximately 11,000 LF of pipe identified in the 2018 WRMP must be upsized due to capacity issues. Replacement for this pipe will be open-cut excavation.
   b. Approximately 13,000 LF of other pipe sections will be CIPP.
2. All lines identified in Attachment A, B, and C are in existing right of way or an easement. Review of easements and property records are excluded. Any pipeline realignment is assumed to be within existing ROW or utility easements.
3. Design will show existing water, storm, and telecommunication utilities, but will not show any relocation or re-alignment for any conflicts.
4. Design is scoped as a design-bid-build method of delivery.
5. Open-cut replacement design assumes maximum depth of 17 feet and excavatable soil conditions. Unusual soil conditions or consolidated formation excavation are not considered.
6. Dewatering performance specification is included but means and methods will be provided by contractor.
7. Geotechnical investigations conducted to design the gravity sewer repair, rehabilitation, or replacement will also include gathering data relative to the design portions of Phase 2 (Forcemains) and Phase 3 (Pump stations) of Task Order 2, unless otherwise stated by GWA.
8. Planimetric and topographic field survey conducted to design the gravity sewer repair, rehabilitation, or replacement will also include gathering data relative to the design portions of

Phase 2 (Forcemains) and Phase 3 (Pump stations) of Task Order 2, unless otherwise stated by GWA.

Exclusions (applicable to Tasks 8 through 12)

1. Permitting and land acquisition for pipe realignment.
2. Permitting and environmental study requirements for stream crossings.
3. Landscaping, including tree cutting, relocation, or vegetation restoration.
4. Stream restoration.
5. Property and land acquisition.
6. Biological Assessments. If required by USFWS or Guam Department of Agriculture, a biological assessment will be added through a task order amendment.
7. Preparation of an Archaeological Monitoring and Discovery Plan (AMDP) and archaeological monitoring is excluded to conduct geotechnical investigations. Consultant shall first consult with the Guam State Historic Preservation Office (SHPO) to determine archaeological requirements. The task order shall be amended as necessary based on SHPO's requirements.

Consultant Responsibilities/Deliverables

Under this task, Consultant shall conduct, as necessary:

1. Research and field investigations: Engineer shall gather data and conduct field investigations to identify existing conditions of the task order scope and aid in identifying optimal solutions. Efforts may include, but are not limited to:
    a. Review of record drawings
    b. Interviews with GWA staff
    c. Consult with SHPO and environmental regulatory agencies to determine permitting requirements for geotechnical investigations.
    d. Conduct field investigations and utility clearances to confirm location and layout of existing utilities within the proposed locations to avoid utility conflicts.
    e. Perform geotechnical explorations, including desktop studies, and reporting.
        i. Geotechnical desktop survey using available existing information to provide preliminary guidance for the project and inform the selection of an appropriate geotechnical investigation.
        ii. Field exploration and soil testing to characterize materials and determine engineering properties of the identified lines in Attachment A, B, and C.
            1) Soil borings will be conducted (one for every 1,000 LF) of pipeline and at each pump station. Borings will be further refined after the geotechnical desktop survey.
        iii. Preparation of Geotechnical Report. The report will include recommendations, summary of surface and subsurface conditions, seismicity, laboratory test data, and a site plan showing the exploratory locations and proposed alignments.
        iv. Geotechnical consultation services to support design development. This shall include ongoing consultation with the project team during design, plan, and specification review, and as requested, attendance of design team meetings.
        v. Geotechnical studies and explorations under this Phase will include information to perform the design activities in Phase 2 and Phase 3 of Task Order No. 2, which are the design of force mains and pump stations, respectively.
    f. Perform planimetric and topographic field survey to include surface features, buildings, driveways, roadways visible infrastructure and utilities, and location of the right of way or easements.
        i. The planimetric and topographic field survey under this Phase will be used in the development of the design documents for Phase 2 and Phase 3 of Task Order No. 2, which are the design of force mains and pump stations, respectively.

g. Identify demolition, grading, and operational requirements.

2. Basis of Design Report (BODR)
   a. After the research and field investigation phase, prepare a BODR to include the following:
      i. Projected flow rates
      ii. Design objectives
      iii. Route/alignment evaluation
      iv. Design Criteria
      v. Design Methodology
      vi. Easement Requirements
      vii. Description of existing wastewater system
      viii. Models and Results from Capacity Evaluation Report
      ix. Surrounding infrastructure, utility, and easement considerations.
      x. Proposed construction schedule with major work items.
      xi. Construction Cost Estimates – Develop a Class 4 cost estimate according to the AACE International Cost Estimates Classification System.

Deliverables

1. Geotechnical Report
2. Basis of Design Report
3. Pre-Design workshop with GWA project team to review approach, methodologies, findings, and determine design basis, including agenda, minutes, and documentation of comments.

GWA Responsibilities

1. Attend Pre-Design workshop.
2. Provide as-builts of existing water and wastewater infrastructure within Attachments A, B, and C.
3. Assist, as needed, with agency coordination and obtaining permits.
4. Review and provide comment(s) on BODR within 30-days.

Phase 9 - 30% Design Documents

Upon approval of the BODR, prepare 30% design drawings to refine and agree upon the general arrangement of the proposed design.

Consultant Responsibilities

1. Conduct monthly design review meetings with GWA to review the design process, status, issues, decision points, and project schedule.
2. 30% Preliminary Design Documents to include the following:
   a. Multidisciplinary plans
   b. Specification list
   c. Erosion Control Plan
   d. By-pass pumping plan (if required)
   e. Traffic Control plan
   f. Class 3 AACEI Preliminary Construction Cost estimate.
3. Initiate communication with Guam Environmental Protection Agency, Departments of Public Works, and other relevant agencies to identify all required permits. Task order will be amended to conduct studies or analyses required by local and Federal agencies.
4. Coordinate with relevant agencies, such as GEPA and DPW, throughout the design process. Incorporate any relevant regulation requirements into the design.

Deliverables

1. 3 sets (11” x 17”) hard copies of the design documents
2. Digital copy of the design documents and cost estimate.

GWA Responsibilities

1. Review and comment on the 30% design submittal and provide comments within 30 days.
2. Provide access to GWA property and easements.
3. Provide as-builts of existing water and wastewater infrastructure within Attachments A, B, and C.
4. Assist, as needed, with agency coordination and obtaining permits.

Task 10 – 60% Design

Refined multidisciplinary plans and specifications to obtain approval from GWA on the complete arrangement of the proposed design.

Consultant Responsibilities/Deliverables

1. 60% Design Documents
    a. Refined multidisciplinary plans and specifications, addressing comments from the 30% design submittal
        i. Detail Drawings
        ii. Plan and Profile Sheets
        iii. GWA Standard Details/ BC Standard Details
        iv. Draft specification sections, with review by BC's Subject Matter Experts
        v. GWA and BC's QA/QC comments on the 30% design submittal shall be reflected on the plans.
2. Class 2 AACEI cost estimate.
    a. Continuous coordination with relevant agencies, including DPW and GEPA.

Deliverables

1. 4 sets (11" x 17") hard copies of the design documents
2. Draft specification sections.
3. 30% Design comment log
4. Digital copy of the design documents and cost estimate.

GWA Responsibilities

1. Review and comment on the 60% design submittal and provide comments within 30 days.
2. Assist, as needed, with agency coordination and obtaining permits.

Task 11 – 90% Design

Completion of all construction documents with the appropriate level of detail, addressing comments from the 60% design submittal

Consultant Responsibilities/Deliverables

1. 90% Design Documents
    a. Plan Sheets
    b. Plan and Profile
    c. Detail Drawings
    d. Revised specifications
    e. BC Standard Detail Drawing/ GWA Standard Details
    f. GWA and BC's QA/QC comments on the 60% design submittal shall be reflected on the plans.
2. Review and prepare contract documents.
3. Class 1 AACEI construction cost estimate

4. Continuous coordination with relevant agencies.

Submittals

1. 4 sets (11" x 17") hard copies of the design documents
2. Revised specifications
3. Digital copy of the design documents and cost estimate
4. 60% Design comment log.

GWA Responsibilities

1. Review and comment on the 90% design submittal and provide comments within 30 days.
2. Assist, as needed, with agency coordination and obtaining permits.
3. Provide front-end document template suited for construction delivery method.

Task 12 – 100% Design

Completion of final documents prepared for bidding.

Consultant Responsibilities/Deliverables

1. 100% Design Documents
    a. Final set of drawings for bidding to include the following:
        i. Plan Sheets
        ii. Plan and Profile
        iii. Detail Drawings
        iv. BC Standard Detail Drawing/ Client Standard Details
        v. GWA and BC's QA/QC comments on the 90% design submittal shall be reflected on the plans.
    b. Finalized Specifications
2. Final construction cost estimate based on quantity takeoffs and requirements of the 100% design plans and specifications.
3. Final coordination and submittal of 100% design documents to relevant agencies.

Deliverables

1. 4 sets (11" x 17") hard copies of the design documents
2. 1 set (24" x 36") hard copy of design documents
3. Digital copy of the design documents and cost estimate.

GWA Responsibilities

1. Provide final approval of design documents and construction costs.

Task 13 – Construction Bid Support and Support During Construction

Provide technical assistance to GWA during construction bidding phase. This task includes technical support in reviewing all submittals and requests submitted by the Contractor during construction.

Consultant Responsibilities/Deliverables

1. Prepare answers to bidders' Requests for Information (RFIs) regarding the bid packages during the bidding phase.
2. Assist GWA in preparing contract solicitation addenda.
3. Coordinate the Pre-Bid Conference, including the preparation of meeting agenda, sign-in sheets, and record minutes and providing formal responses to technical questions.

4. Assist with reviewing construction proposals received. This shall include a bid analysis, review of bid proposal prices, and conformance with contract requirements and the Guam Procurement Code. A letter of recommendation of award shall be prepared.
5. Prepare final “Issued for construction” conformed plans and specifications incorporating addenda and changes during the bid phase.
6. Review shop drawings, design calculations, samples, test results and other data required to be submitted by the contractor for conformance with the contract documents. Document and provide responses to GWA. This shall include assisting the review of the Quality Control Plan for complete content.
7. The design consultant shall chair and record the meeting minutes with any other governmental agencies.
8. Review requests for clarification or interpretation submitted by contractor and provide responses to GWA.
9. Evaluate substitution requests to determine acceptability of substitute materials and equipment proposed by the contractor and provided recommendations to GWA.
10. If requested by the construction or project manager, attend the construction kick off meeting and construction/final inspections.
11. Perform preliminary and final inspections and submit punch list.
12. Provide Final Record Drawings based on marked-up construction drawings (i.e., as-builts).

GWA Responsibilities

1. Provide Engineer with necessary information such as RFIs submitted by the Contractor.

Task Order 2 - Phase 2: Sewer Force Main

This document accompanies Task Order 2 of S22-02-BND Indefinite Delivery/Indefinite Quantity (ID/IQ) Professional Project/Construction Management for Island-wide Sewer Collection/Transmission system Repair, Rehabilitation, and Replacement Project.

Phase 2 of the Sewer Repair, Rehabilitation, and Replacement Indefinite Delivery/Indefinite Quantity (IDIQ) Task order 2 involves the assessment, capacity analysis, and design of the force mains associated with Pump Station (PS) 16, and PS 17, located in Umatac and Merizo. Elements of this phase are further described below and are separated into individual tasks below.

Task 1 - Project Management

1. Project Management Plan: Prepare a Project Management Plan (PMP) that includes the following items:
    a. Project Description
    b. Scope of work
    c. Work Plan
    d. Typical monthly progress report and invoicing
    e. Quality Assurance and Quality Control Plan
    f. Communication Plan
    g. Documentation Plan
    h. Subcontractors and organizational chart
2. Project Schedule: Submit a schedule that meets required milestones. Update schedule at all phases of the project, including monthly meetings, dates for completion of engineering design studies, milestone tasks, and dates for review periods. The schedule may include program development (owner's requirements) and environmental permit approvals. The schedule should be based on the proposed target dates.
3. Progress Reports: Submit monthly progress/status reports to support monthly billings.
4. Meetings and Coordination: Attend regularly-scheduled meetings and coordinate with entities within and, as appropriate, outside the project team. Identify and facilitate milestone meetings. Prepare meeting minutes.
    a. Coordinate and communicate with local and federal agencies, including Guam Environmental Protection Agency (GEPA), Department of Public Works (DPW), Department of Parks and Recreation (DPR), US Fish and Wildlife Services (USFWS) throughout the course of the project to ensure review and permitting process adheres to project schedule.
    b. Meetings will include:
        i. Project Kickoff Meeting
        ii. Monthly Update Meetings
        iii. Report Deliverable Workshop

Task 2 –Force Main Condition Assessment

Consultant shall complete a Force Main condition assessment for the force mains from PS 16 and PS 17. This assessment shall include the force main and appurtenances, such as valves, air relief valves, drains, connection, and connection. At a minimum, the assessment shall:

1. Inspect and determine functionality.

2. Identify effects, such as inoperable valves, exposed corrosion, leaks, cracks, or other conditions that contribute to the failure of the Force Main.
3. Evaluate all metallic appurtenances to determine if corrosion protective measures are necessary.
4. Conduct an external pipe inspection of the exterior of each Force Main wherever the pipe segment is exposed to assess structural damage and the integrity of protective coatings using visual inspection and technology suitable to the pipe. Suitable technology shall be no less than ultrasonic testing, magnetic flux leakage, or broadband electromagnetic testing, or a technology approved by GWA.
5. Conduct pressure monitoring for the PS 17 Force Main to measure the maximum predicted transient pressure that can be expected under normal, peak flow, and emergency conditions.
6. Review operating data available from GWA.
7. Determine the Force Main's probable time of failure based on the condition assessment.

Assumptions

1. The force mains and infrastructure for accessing the interior of the force mains are in suitable condition to allow for the inspections described in this proposal to be performed without undue risk to BC personnel, BC subcontractor personnel, and equipment provided and used to deliver services under this task order.
2. The force main is accessible for the Piper device without addition of fitting or valves or other modifications to the existing plumbing tree and that the device can be deployed through removal of the bonnet from an existing check valve.
3. GWA will grant access to use water from sources within the project area for the purposes of inspection operations. Water usage and/or permit fees have been excluded from the proposed fee.
4. GWA shall provide a local disposal site for water and/or materials removed by BC from the pipelines. Disposal fees have been excluded from the proposed fee.
5. DPW Building permit not required.
6. Both pumps at PS 16 and PS 17 are operable and the INGU Pipers tool can be deployed within the pump stations' valve vault box by removing one check-valve and inserting the Pipers tool,
7. A retrieval device can be installed at the terminating manhole of the force main.
8. One pump at both PS can be temporarily shut down so that the inspection equipment may be deployed.
9. Force mains will be inspected by BC using the INGU Pipers screening level to acquire the following data:
    - Acoustic
    - Pressure
    - Magnetometer

Consultant Responsibilities

1. Review Available Information, including, but not limited to:
    a. Record documents of the force mains, as-built drawings, and specifications
    b. Record documents related to prior force main and infrastructure repair, rehabilitation, and replacement
    c. GIS data for force mains, access structures, connections, and other assets.
    d. Operations and maintenance records for the force mains.

e. Force Mains flow rate data, such as expected nominal flow rates, and flow rate hydrographs over 2-weeks of normal operations
f. Access to GWA staff knowledgeable about the force mains' operational and maintenance issues, prior inspections, previous rehabilitations and other GWA and third-party work in the project area.

2. Inspection Planning, In-Person Workshop
    a. BC will perform inspection planning services that includes conducting site visits and preparation of a Work Plan describing the means and methods for the inspections to be performed during the project. BC will include a planned schedule for when the inspections are to be performed and the duration of the inspections.
    b. BC will organize and lead an in-person/remote workshop at GWA facilities. BC Project Management and Technical staff will attend and present at the workshop, with additional BC technical staff attending remotely. The workshop is to be attended by GWA designated sewer collections system operations and maintenance staff, plus GWA engineering and management staff.
    c. The purpose of the workshop will be to inform GWA staff of planned BC work efforts, anticipated results, schedule, clarify roles and responsibilities, and to coordinate GWA and BC communication requirements. During the workshop, BC will engage with GWA staff to provide comments, ask questions about the inspection means and methods to be used for this project, and provide guidance to BC as GWA sees necessary.
3. Permitting
    a. Permitting is assumed to be minimal for this project and limited to Highway Encroachment Permit.
    b. BC will prepare and submit necessary traffic control plans.
4. Force Main Inspections using Pipers Technology
    a. BC will execute the force main inspections according to the Work Plan, using the INGU Pipers tool.
    b. Field services, such as the physical Pipers deployment/capture and traffic control, will be provided by BC and its subcontractors under BC supervision and GWA operator presence, as determined by GWA.
    c. Equipment required for the deployment and capture of the Pipers tool will be provided by BC and its subcontractors under BC supervision.
    d. Pipers setup, Pipers data acquisition, and Pipers data download and field QC verification of the data will be performed by BC staff.
    e. Pre-Inspection Planning and Meeting
        i. Conduct a pre-project planning meeting with BC staff and its subcontractors to plan, prepare, and coordinate the execution of the force main pipeline inspections.
        ii. BC will use the Pipers tool to collect the following data:
            1. Acoustic data for detection and location of pipeline leaks
            2. Acoustic data for detection and location of air pockets or entrained air within the pipeline.
            3. Pressure data for detection of changes in vertical pipeline alignment and presence of deposits within the pipeline.
            4. Magnetometer data for qualitative detection and location of pipeline features, changes in pipe material, or areas of potential wall loss.

5. Data Acquisition, QC Review, and Validation
    a. BC and its subcontractors will conduct the Pipers inspections of the force main pipelines.

b. Deployment and Capture
    i. Pipers inspection tools and Pipers dummy devices to be physically deployed and captured through existing force main infrastructure.
    ii. BC staff will prepare the Pipers tools to acquire data described in 4.e.ii above.
    iii. BC staff will oversee deployment of the Pipers dummy device in the first force main pipeline at the upstream deployment site.
    iv. Once notification is received from the capture team that the Pipers dummy device has been successfully captured, the first Pipers inspection tool will be deployed.
    v. Once notification is received from the capture team that the first Pipers inspection tool has been successfully captured, the second Pipers inspection tool will be deployed.
c. Data Acquisition and Data Validation
    i. Once the second Pipers inspection tool is retrieved, data will be downloaded and QC-reviewed to verify the validity of the data.
    ii. If data are not valid, BC staff will notify deployment team that redeployment is necessary for either or both tools. Data Acquisition steps above will be repeated, as necessary.
    iii. Once valid data are verified for the first force main pipeline, repeat the above for the second force main pipeline.
    iv. Once data are validated for both force main pipelines, capture team will notify deployment team that the inspections are successful, and demobilization may begin.

Deliverables

1. Inspection planning meeting agenda and minutes.
2. Draft and Final Inspection Work Plan.

GWA Responsibilities

1. Obtain USEPA approval of Inspection Work Plan.
2. Participate in site visits.
3. Provide access to the pump stations.
4. Operate pumps, as requested by BC, to deploy and retrieve Pipers tool.

Task 3 – Force Main Condition Assessment Report

Prepare and submit a Force Main Condition Assessment report for the PS 16 and PS 17 force mains. This task will involve analyzing the INGU Pipers data from Task 2. Report will include a description of the field efforts, field observations, and data results. Report will also include a discussion of the results, potential impact of the findings, and recommendations for additional inspections and next steps.

Consultant Responsibilities

1. Data Analysis and Reporting

a. BC staff will assemble and transmit data to INGU. INGU will analyze the acquired data and report results to BC. Draft report on results in PDF format will be delivered to BC for QC-review and comments. INGU Draft Report will include:
    i. Leak Detection – Report of positive identification of leak, detected within the measurement sensitivity of Pipers, and approximate longitudinal position along the pipeline. Listing of detected leaks and locations in table format within PDF report.
    ii. Air/Gas Pocket Detection – Report of positive identification of air pockets or entrained air, detected within the measurement sensitivity of Pipers, and approximate linear location along the pipeline. Listing of detected air pockets or entrained air and locations in table format within PDF report.
    iii. Pressure Data – Report on measured pressure as a function of longitudinal position along the force main pipeline. Graphic comparison of pressure data and expected force main elevations (per record drawings) vs. longitudinal position.
    iv. Magnetic inspection
        1) Report of identified magnetic features, detected within the measurement sensitivity of the Pipers, and approximate longitudinal positions.
        2) Determination whether identified magnetic features are attributable to reductions in pipe wall metal content (e.g., wall-thinning due to corrosion or erosion), or additions in metal content (e.g., repair clamp sleeves installed on the exterior of the pipe).
        3) Determination whether identified magnetic features are attributable to force main features such as joints, valves, etc.
        4) Listing of magnetic and pipeline features and locations in table format within PDF report.
    v. Overview Graph – Graphic comparison of force main elevations vs longitudinal position along the force main with pressure data, location of leaks, location of air pockets and entrained air, and location of magnetic features.
    vi. BC will review the INGU Draft Report and provide comments and corrections. These comments and corrections will be incorporated into an INGU Final Report submitted to BC.

2. Draft Assessment Report
    a. Develop and deliver a Draft Report for GWA review and comment. Report will include:
        i. Description of the field efforts
        ii. Observations during field efforts
        iii. Data results of the inspections.
        iv. Discussion of the results
        v. Potential impact of the findings
        vi. Recommendations for additional inspections/next steps. A copy of the INGU Final Report will be included.
    b. In-Person Workshop
        i. Organize and lead an in-person/remote workshop at GWA facilities to jointly review the Draft Report and discuss BC findings. During the workshop, BC will engage with GWA staff to provide comments, ask questions about the inspection findings, and give guidance to BC as GWA sees necessary.
        ii. BC Project Management and Technical staff will attend and present at the workshop. The workshop is to be attended by GWA designated sewer collections system operations and maintenance staff, plus GWA engineering and management staff.

3. Final Report
    a. Compile GWA Draft Report review comments, incorporate input, then develop and deliver a Final Report.

GWA Responsibilities

1. Review and provide comments on Draft Condition Assessment Report
2. Attend and participate in an in-person/remote workshop
3. Approve the Final Condition Assessment Report

Deliverables

1. Prepare and submit a Draft Condition Assessment Report describing results of the inspections for GWA review and comment
2. Organize and lead an in-person/virtual workshop at GWA facilities to review the Draft Condition Assessment Report and discuss findings.
3. Prepare and submit a Final Report describing the results of the project inspection efforts, including INGU's analysis of the acquired data

Task 4 – Force Main Capacity Verification

Perform a hydraulic analysis for PS 16 and PS 17 force mains. This verification shall include updating flow models and an analysis on future flow discharge from the pump stations to determine required hydraulic capacity of the force mains. The Technical Memorandum (TM) shall include recommendations to upgrade the capacity of the force mains, if necessary.

Assumptions

1. Flow metering for PS 16 and PS 17 force mains is excluded.

Consultant Responsibilities/Deliverables

1. Perform a hydraulic assessment of PS 16 and PS 17 force mains.
2. Submit a Flow Model.
    a. Flow Model will be calibrated according to the Chartered Institution of Water and Environmental Management (CIWEM) Code of Practice for the Hydraulic Modelling of Urban Drainage Systems Version 01 and consistent with the Storm Technical Memorandum.
    b. Flow Model will incorporate physical changes to the wastewater collection system, changes to capacity, and new data gathered through December 31, 2022
    c. Flow Model will be updated with newly collected survey data for the force mains, such as invert elevations, pipe sizes, and pipe material.
3. Draft and Final Hydraulic TMs that include the results of the hydraulic assessment and flow model.

GWA Responsibilities

1. Provide requested information related to the force main sewer model, including changes to the system since 2012.

Task 5 –Preliminary Engineering/Basis of Design

Define objective, design criteria, and methodology that shall be used to prepare the design to repair, rehabilitate, or replace PS 16 and PS 17 sewer force mains and appurtenances.

Assumptions (applicable to Tasks 5 through 10)

1. The force mains for PS 16 and PS 17 are in existing right of way or an easement. Review of easements and property records are excluded. Any realignments will be within existing ROW or utility easements.
2. Design will show existing water, storm, and telecommunication utilities, but will not show any relocation or re-alignment for any conflicts.
3. Design is scoped as a design-bid-build method of delivery.
4. For budgeting purposes, both force mains are assumed to need to open-cut replacement either due to capacity issues or severe structural defects. Design assumes excavatable soil conditions. Unusual soil conditions or consolidated formation excavation are not considered.
5. Dewatering performance specification is included but means and methods will be provided by contractor.
6. Geotechnical investigations for the force main design will be accomplished under Phase 1 of Task Order 2 (Gravity Sewer), unless otherwise stated by GWA.
7. Planimetric and topographic field survey for the force main design will be accomplished under Phase 1 of Task Order 2 (Gravity Sewer), unless otherwise stated by GWA.

Exclusions (applicable to Tasks 5 through 10)

1. Permitting and land acquisition for pipe realignment.
2. Permitting and environmental study requirements for stream crossings.
3. Landscaping, including tree cutting, relocation, or vegetation restoration.
4. Stream restoration work.
5. Property and land acquisition.
6. Biological Assessments. If required by USFWS or Guam Department of Agriculture, a biological assessment will be added through a task order amendment.
7. Preparation of an Archaeological Monitoring and Discovery Plan (AMDP) and archaeological monitoring is excluded to conduct geotechnical investigations. Consultant shall first consult with the Guam State Historic Preservation Office (SHPO) to determine archaeological requirements for performing geotechnical investigations The task order shall be amended as necessary based on SHPO's requirements.
8. Construction management services.

Consultant Responsibilities/Deliverables

Under this task, Consultant shall conduct, as necessary:

1. Research and field investigations: Engineer shall gather data and conduct field investigations to identify existing conditions of the task order scope and aid in identifying optimal solutions. Efforts may include, but are not limited to:
    a. Review of record drawings
    b. Interviews with GWA staff
    c. Consult with SHPO and environmental regulatory agencies to determine permitting requirements for geotechnical investigations.

d. Conduct field investigations and utility clearances to confirm location and layout of existing utilities within the proposed locations to avoid utility conflicts.
e. Geotechnical investigations
f. Perform planimetric and topographic field survey to include surface features, buildings, driveways, roadways visible infrastructure and utilities, and location of the right of way or easements.
g. The planimetric and topographic field survey under this Phase will be used in the development of the design documents for Phase 2 and Phase 3 of Task Order No. 2, which are the design of force mains and pump stations, respectively.
h. Identify demolition, grading, and operational requirements.

2. Basis of Design Report (BODR)
    a. After the research and field investigation phase, prepare a BODR to include the following:
        i. Projected flow rates
        ii. Design objectives
        iii. Route/alignment evaluation
        iv. Design Criteria
        v. Design Approach
        vi. Easement Requirements
        vii. Description of existing wastewater system
        viii. Models and Results from Capacity Evaluation Report
        ix. Surrounding infrastructure, utility, and easement considerations.
        x. Proposed construction schedule with major work items.
        xi. Construction Cost Estimates – Develop a Class 4 cost estimate according to the AACE International Cost Estimates Classification System.
3. Conduct a pre-design workshop to review approach, methodologies, findings, and determine design basis. Prepare workshop agenda, minutes, and documentation of comments.

Deliverables

1. Geotechnical Report
2. Basis of Design Report
3. Pre-Design workshop agenda, minutes, and documentation of comments.

GWA Responsibilities

1. Attend Pre-Design workshop.
2. Provide as-builts of existing water and wastewater infrastructure within Attachments A, B, and C.
3. Provide access to GWA facilities related to PS 16 and PS 17 force mains.
4. Assist, as needed, with agency coordination and obtaining permits.
5. Review and provide comment(s) on BODR within 30-days.

Task 6 –30% Design Documents

Upon approval of the BODR, prepare 30% design drawings to refine and agree upon the general arrangement of the proposed design.

Consultant Responsibilities/Deliverables

1. Conduct monthly design review meetings with GWA to review the design process, status, issues, decision points, and project schedule.
2. 30% Preliminary Design Documents to include the following:
    a. Multidisciplinary plans
    b. Specification list
    c. Erosion Control Plan
    d. By-pass pumping plan (if required)
    e. Traffic Control plan
    f. Class 3 AACEI Preliminary Construction Cost estimate.
3. Initiate communication with Guam Environmental Protection Agency, Departments of Public Works, and other relevant agencies to identify all required permits. Task order will be amended to conduct studies or analyses required by local and Federal agencies.
4. Coordinate with relevant agencies, such as GEPA and DPW, throughout the design process. Incorporate any relevant regulation requirements into the design.

Submittals

1. 4 sets (11" x 17") hard copies of the 30% design documents
2. Digital copy of the 30% design documents

GWA Responsibilities

1. Review and comment on the 30% design submittal and provide comments within 30 days.
2. Provide access to GWA property and easements.
3. Provide as-builts of existing water and wastewater infrastructure within Attachments A, B, and C.
4. Assist, as needed, with agency coordination and obtaining permits.

Task 7 – 60% Design

Refined multidisciplinary plans and specifications to obtain approval from the client on the complete arrangement of the proposed design.

Consultant Responsibilities

1. 60% Design Documents
    a. Refined multidisciplinary plans and specifications, addressing comments from the 30% design submittal
        i. Detail Drawings
        ii. Plan and Profile Sheets
        iii. GWA Standard Details/ BC Standard Details
        iv. Draft specification sections, with review by BC's subject matter experts
        v. GWA and BC's QA/QC comments on the 30% design submittal shall be reflected on the plans.
2. Cost estimate update and shall be a Class 2 estimate in accordance with the AACE International Cost Estimate Classification System.
3. Continuous coordination with relevant agencies.

Deliverables

1. 4 sets (11" x 17") hard copies of the 60% design documents
2. Draft specification sections.
3. 30% Design comment log
4. Digital copy of the 60% design documents and cost estimate.

GWA Responsibilities

1. Review and comment on the 60% design submittal and provide comments within 30 days.
2. Assist, as needed, with agency coordination and obtaining permits.

Task 8 – 90% Design

Completion of all construction documents with the appropriate level of detail, addressing comments from the 60% design submittal

1. 90% Design Documents
    a. Plan Sheets
    b. Plan and Profile
    c. Detail Drawings
    d. Revised specifications
    e. BC Standard Detail Drawing/ GWA Standard Details
    f. GWA and BC's QA/QC comments on the 60% design submittal shall be reflected on the plans.
2. Review and prepare contract documents.
3. Class 1 AACEI construction cost estimate
4. Continuous coordination with relevant agencies.

Submittals

1. 4 sets (11" x 17") hard copies of the 90% design documents
2. Revised specifications
3. Digital copy of the 90% design documents and cost estimate
4. 60% Design comment log.

GWA Responsibilities

1. Review and comment on the 90% design submittal and provide comments within 30 days.
2. Assist, as needed, with agency coordination and obtaining permits.
3. Provide front-end document template suited for construction delivery method.

Task 9 – 100% Design

Completion of final documents prepared for bidding.

Consultant Responsibilities/Deliverables

1. 100% Design Documents
    a. Final set of drawings for bidding to include the following:
        i. Plan Sheets
        ii. Plan and Profile

iii. Detail Drawings
iv. BC Standard Detail Drawing/ Client Standard Details
v. GWA and BC's QA/QC comments on the 90% design submittal shall be reflected on the plans.

b. Finalized Specifications

2. Final construction cost estimate based on quantity takeoffs and requirements of the 100% design plans and specifications.
3. Final coordination and submittal of 100% design documents to relevant agencies.

Deliverables

1. 4 sets (11" x 17") hard copies of the design documents
2. 1 set (24" x 36") hard copy of design documents
3. Digital copy of the design documents and cost estimate.

GWA Responsibilities

1. Provide final approval of design documents and construction costs.

Task 10 – Construction Bid Support and Support During Construction

Provide technical assistance to GWA during construction bidding phase. This task includes technical support in reviewing all submittals and requests submitted by the Contractor during construction.

Consultant Responsibilities/Deliverables

1. Prepare answers to bidders' Requests for Information (RFIs) regarding the bid packages during the bidding phase.
2. Assist GWA in preparing contract solicitation addenda.
3. Coordinate the Pre-Bid Conference, including the preparation of meeting agenda, sign-in sheets, and record minutes and providing formal responses to technical questions.
4. Assist with reviewing construction proposals received. This shall include a bid analysis, review of bid proposal prices, and conformance with contract requirements and the Guam Procurement Code. A letter of recommendation of award shall be prepared.
5. Prepare final "Issued for construction" conformed plans and specifications incorporating addenda and changes during the bid phase.
6. Review shop drawings, design calculations, samples, test results and other data required to be submitted by the contractor for conformance with the contract documents. Document and provide responses to GWA. This shall include assisting the review of the Quality Control Plan for complete content.
7. The design consultant shall chair and record the meeting minutes with any other governmental agencies.
8. Review requests for clarification or interpretation submitted by contractor and provide responses to GWA.
9. Evaluate substitution requests to determine acceptability of substitute materials and equipment proposed by the contractor and provided recommendations to GWA.
10. If requested by the construction or project manager, attend the construction kick off meeting and construction/final inspections.
11. Perform preliminary and final inspections and submit punch list.

12. Provide Final Record Drawings based on marked-up construction drawings (i.e., as-builts).

GWA Responsibilities

1. Provide Engineer with necessary information such as RFIs submitted by the Contractor.

Task Order 2 - Phase 3: Sewage Pump Stations

This document accompanies Task Order 2 of contract S22-02-BND Indefinite Delivery/Indefinite Quantity (ID/IQ) Professional Project/Construction Management for Islandwide Sewer Collection/Transmission system Repair, Rehabilitation, and Replacement Project.

Phase 3 of the Sewer Repair, Rehabilitation, and Replacement Indefinite Delivery/Indefinite Quantity (IDIQ) Task order 2 involves Pump Station (PS) 16, PS 17, Ejector Station (ES) 3, and ES 6. For those PS and ES, this phase consists of pump station condition assessment, hydraulic modelling, and design services through construction. Elements of this phase are further described below and are separated into individual tasks.

Task 1 - Project Management

1. Project Management Plan: Prepare a Project Management Plan (PMP) that includes the following items:
   a. Project Description
   b. Scope of work (from contract)
   c. Work Plan
   d. Typical monthly progress report
   e. Quality Assurance and Quality Control Plan
   f. Communication Plan
   g. Documentation Plan
   h. Subcontractors and organizational chart
2. Project Schedule: Submit a schedule that meets required milestones. Update schedule at all phases of the project, including monthly meetings, dates for completion of engineering design studies, milestone tasks, and dates for review periods. The schedule may include program development (owner's requirements) and environmental permit approvals. The schedule should be based on the proposed target dates.
3. Progress Reports: Submit monthly progress/status reports to support monthly billings.
4. Meetings and Coordination: Attend regularly-scheduled meetings and coordinate with entities within and, as appropriate, outside the project team. Identify and facilitate milestone meetings. Prepare meeting minutes.
   a. Coordinate and communicate with local and federal agencies, including Guam Environmental Protection Agency (GEPA), Department of Public Works (DPW), Department of Parks and Recreation (DPR), US Fish and Wildlife Services (USFWS) throughout the course of the project to ensure review and permitting process adheres to project schedule.

Task 2 –Pump Station Preliminary Plan

Develop and submit a work plan for PS 16, PS 17, ES 3, and ES 6 that establishes a preliminary design schedule that prioritizes Pump Station improvements based on current known conditions for each of these four Pump Stations.

The work plan shall include an estimated scope of work for each pump station to bring each pump station into compliance with the acceptance criteria delineated in the Consent Decree (CD), schedule of the condition assessment, and schedule of key implementation dates.

Assumptions

1. GWA will conduct EPA Coordination.

Consultant Responsibilities/Deliverables

1. Preliminary Work Plan shall include an estimated scope of work for each pump station based on the known conditions to bring each pump station into compliance with the acceptance criteria set under CD Paragraph V.A 31. Consultant shall:
   a. Review existing condition assessment information and prior studies.
   b. Review of existing operations plans, operational data, and asset management data.
   c. Review available engineering drawings.
   d. Interview pump station operators, maintenance, and engineering staff.
2. The preliminary work plan shall include a schedule for a pump station condition assessment that identifies key implementation dates for the following milestones:
   a. Execute design contract
   b. Compete Condition Assessment
   c. Issue a notice to proceed with design
   d. Execute construction contract
   e. Issue a notice to proceed with construction
   f. Complete Construction
3. Scheduling shall be in accordance with the timeline mentioned in Consent Decree Paragraph V.A 30.

Deliverables:

1. Draft Pump Station Preliminary Work Plan.
2. Final Pump Station Preliminary Work Plan.

GWA Responsibilities

3. Provide all data, drawings, and information relating to the pump stations.
4. Provide opportunities to interview GWA operation staff.
5. Review and provide comments for the Engineer to adjust work plans if necessary.

Task 3 – Sewage Pump Station Condition Assessment

Assess the condition of PS 16, PS 17, ES 3, and ES 6 through observation, direct inspection, investigation, and monitoring. This task will develop and utilize the assessment to identify operation issues, evaluate the overall performance of the system, update station condition profiles, and assess the rate of deterioration of the pump station assets.

Assumptions

1. GWA has adequate records of pump information, such as manufacturer, year installed, and pump characteristics.
2. Assessment of generators is limited to determining generator's capacity for normal and peak-flow operations, and fuel storage capacity.

Exclusions

1. Coordination with USEPA.
2. Removal or extraction of pump station components, such as pumps.

Consultant Responsibilities

1. Inspect each pump station and ejector station using modern industry standard technologies, tool, and practices, to perform:
    a. Structural Assessment
    b. Mechanical Assessment
    c. Electrical Assessment
    d. Civil Assessment
2. Comprehensive analysis of the pump's characteristics including:
    a. Designed Horsepower
    b. Power Demands
    c. Designed Flows
    d. Installation Date
    e. Preferred Operating Region
3. Comprehensive analysis of the pump station's characteristics including:
    a. Average flows
    b. Overall Power Demand
    c. Wet Well Capacity
    d. System Curve
    e. Piping and valve condition
    f. Results from the Force Main Condition Assessment in Phase 2 shall be mentioned and incorporated into the pump station condition assessment report.
4. Upon completion of the condition assessments, prepare and submit a pump station condition assessment report for PS 16, PS 17, ES 3, and ES 6. Report will include:
    a. Description of the field efforts
    b. Observations during field efforts
    c. Data results of the inspections.
    d. Discussion of the results
    e. Potential impact of the findings
    f. Recommendations for additional inspections/next steps

Deliverables

5. Prepare and submit a Draft Condition Assessment Report describing results of the inspections for GWA review and comment.
1. Prepare and submit a Final Condition Assessment Report that incorporates comments from the Draft report.

GWA Responsibilities

1. Review and provide comments on Draft Condition Assessment Report.
2. Provide comments from EPA to Engineer for any adjustments to the assessment.
3. Provide access to pump stations.
4. Provide assistance, as requested, to conduct assessments, such as operate pumps.

Task 4 – Pump Station Capacity Verification

Perform a hydraulic analysis for PS 16, PS 17, ES 3, and ES 6. This verification shall include updates to the flow model, and an analysis on future flow discharge from the pump station. This report shall include recommendations to upgrade the capacity of the pump stations, if necessary.

Exclusions

1. Flow metering is excluded.

Consultant Responsibilities/Deliverables

1. Perform a hydraulic assessment of PS 16, PS 17, ES 3, and ES 6.
2. Submit a Flow Model.
    a. Flow Model will be calibrated according to the Chartered Institution of Water and Environmental Management (CIWEM) Code of Practice for the Hydraulic Modelling of Urban Drainage Systems Version 01 and consistent with the Storm Technical Memorandum.
    b. Flow Model will incorporate physical changes to the wastewater collection system, changes to capacity, and new data gathered through December 31, 2022
    c. Flow Model will be updates with newly collected survey data and additional information provided by GWA.
3. Draft and Final Hydraulic TMs that includes the results of the hydraulic assessment and flow model.

GWA Responsibilities

1. Provide requested information related to the PS and ES hydraulic model, including changes to the system since 2012.
2. Provide additional information needed to incorporate into the hydraulic model.

Task 5 – Preliminary Engineering/Basis of Design

Define objective, design criteria, and methodology that shall be used to prepare the design to repair or replace pump stations as necessary. The preliminary design considers all issues stated in the sewage pump station work plan.

Assumptions (applicable to Tasks 5 through 10)

1. For budgeting purposes, all electrical, mechanical, and control components will be replaced.
2. All work will only be done within the fenced area of the existing pump stations and ejector stations, and ROW.
3. Civil design will have sufficient information from the gravity sewer and force main design work to proceed directly into 60% design. Coordination of pump stations scope will be accomplished throughout the 30% design stages of TO Phase 1 (Gravity Sewer) and Phase 2 (Force Mains).
4. Existing structures, such as the pump station building and below-grade structures, are in structurally sound condition and do not require major renovation
5. Geotechnical investigations for the force main design will be accomplished under Phase 1 of Task Order 2 (Gravity Sewer), unless otherwise stated by GWA.
6. Planimetric and topographic field survey for the force main design will be accomplished under Phase 1 of Task Order 2 (Gravity Sewer), unless otherwise stated by GWA.
7. Geotechnical services will consist of one boring at each pump station.
8. All pump stations are identified in Attachment B.

Exclusions (applicable to Tasks 5 through 9)

1. Stormwater improvements.
2. Potholing and/or subsurface utility investigations.
3. Stream restoration work.
4. Property and land acquisition.
5. Biological assessments. If required by USFWS or Guam Department of Agriculture, a biological assessment will be added through a task order amendment.
6. Preparation of an Archaeological Monitoring and Discovery Plan (AMDP) and archaeological monitoring is excluded to conduct geotechnical investigations. Consultant shall first consult with the Guam State Historic Preservation Office (SHPO) to determine archaeological requirements for performing geotechnical investigations The task order shall be amended as necessary based on SHPO's requirements.

Consultant Responsibilities/Deliverables

Under this task, Consultant shall conduct, as necessary:

1. Research and field investigations: Engineer shall gather data and conduct field investigations to identify existing conditions of the task order scope and aid in identifying optimal solutions. Efforts may include, but are not limited to:
    a. Review of record drawings
    b. Interviews with GWA staff
    c. Consult with SHPO and environmental regulatory agencies to determine permitting requirements for geotechnical investigations.
    d. Conduct field investigations and utility clearances to confirm location and layout of existing utilities within the proposed locations to avoid utility conflicts.
    e. Geotechnical investigations
        i. The geotechnical investigations performed under Phase 1 (Gravity Sewer) will be used in the development of the design documents for this Phase.
    f. Perform planimetric and topographic field survey to include surface features, buildings, driveways, roadways visible infrastructure and utilities, and location of the right of way or easements.
        i. The planimetric and topographic field survey performed under Phase 1 (Gravity Sewer) will be used in the development of the design documents for this Phase.
    g. Identify demolition, grading, and operational requirements.
2. Basis of Design Report (BODR)
    a. After the research and field investigation phase, prepare a BODR to include the following:
        i. Projected flow rates
        ii. Design objectives
        iii. Design Criteria
        iv. Design Approach
        v. Easement Requirements
        vi. Description of existing wastewater pump station
        vii. Models and Results from GWA's Capacity Evaluation Report to determine pump station pumping requirements
        viii. Surrounding infrastructure, utility, and easement considerations.
        ix. Proposed construction schedule with major work items.

x. Construction Cost Estimates – Develop a Class 4 cost estimate according to the AACE International Cost Estimates Classification System.

3. Conduct a pre-design workshop to review approach, methodologies, findings, and determine design basis. Prepare workshop agenda, minutes, and documentation of comments.

Deliverables

1. Geotechnical Report
2. Basis of Design Report
3. Pre-Design workshop agenda, minutes, and documentation of comments.

GWA Responsibilities

1. Attend Pre-Design workshop.
2. Provide as-builts of existing water and wastewater infrastructure within Attachments A, B, and C.
3. Provide access to GWA facilities.
4. Assist, as needed, with agency coordination and obtaining permits.
5. Review and provide comment(s) on BODR within 30-days.

Task 6 –30% Design Documents

Upon approval of the BODR, prepare 30% design drawings to refine and agree upon the general arrangement of the proposed design.

Consultant Responsibilities/Deliverables

1. Conduct monthly design review meetings with GWA to review the design process, status, issues, decision points, and project schedule.
2. 30% Preliminary Design Documents to include the following:
   a. Multidisciplinary plans
   b. Specification list
   c. Erosion Control Plan
   d. By-pass pumping plan (if required)
   e. Traffic Control plan
   f. Class 3 AACEI Preliminary Construction Cost estimate.
3. Initiate communication with Guam Environmental Protection Agency, Departments of Public Works, and other relevant agencies to identify all required permits. Task order will be amended to conduct studies or analyses required by local and Federal agencies.
4. Coordinate with relevant agencies, such as GEPA and DPW, throughout the design process. Incorporate any relevant regulation requirements into the design.

Submittals

1. 4 sets (11” x 17”) hard copies of the design documents
2. Digital copy of the design documents
3. Digital copy of the BODR.

GWA Responsibilities

1. Review and comment on the 30% design submittal and provide comments within 30 days.
2. Provide access to GWA property and easements.
3. Provide as-builts of existing water and wastewater infrastructure within Attachments A, B, and C.
4. Assist, as needed, with agency coordination and obtaining permits.

Task 7 – 60% Design

Refined multidisciplinary plans and specifications to obtain approval from the client on the complete arrangement of the proposed design.

Consultant Responsibilities

1. 60% Design Documents
    a. Refined multidisciplinary plans and specifications, addressing comments from the 30% design submittal
    b. Detail Drawings
    c. Plan and Profile Sheets
    d. GWA Standard Details/ BC Standard Details
    e. Draft specification sections, with review by BC's subject matter experts
    f. GWA and BC's QA/QC comments on the 30% design submittal shall be reflected on the plans.
    g. Cost estimate update and shall be a Class 2 estimate in accordance with the AACE International Cost Estimate Classification System.
    h. Continuous coordination with relevant agencies.

Deliverables

1. 4 sets (11" x 17") hard copies of the design documents
2. Draft specification sections.
3. 30% Design comment log
4. Digital copy of the design documents and cost estimate.

GWA Responsibilities

1. Review and comment on the 60% design submittal and provide comments within 30 days.
2. Assist, as needed, with agency coordination and obtaining permits.

Task 8 – 90% Design

Completion of all construction documents with the appropriate level of detail, addressing comments from the 60% design submittal

1. 90% Design Documents
    a. Plan Sheets
    b. Plan and Profile
    c. Detail Drawings
    d. Revised specifications
    e. BC Standard Detail Drawing/ GWA Standard Details
    f. GWA and BC's QA/QC comments on the 60% design submittal shall be reflected on the plans.

2. Review and prepare contract documents, including front-end contract documents.
3. Class 1 AACEI construction cost estimate
4. Continuous coordination with relevant agencies.

Submittals

1. 4 sets (11" x 17") hard copies of the design documents
2. Revised specifications
3. Digital copy of the design documents and cost estimate
4. 60% Design comment log.

GWA Responsibilities

1. Review and comment on the 90% design submittal and provide comments within 30 days.
2. Assist, as needed, with agency coordination and obtaining permits.
3. Provide front-end document template suited for construction delivery method.

Task 9 – 100% Design

Completion of final documents prepared for bidding.

Consultant Responsibilities/Deliverables

1. 100% Design Documents
    a. Final set of drawings for bidding to include the following:
        i. Plan Sheets
        ii. Plan and Profile
        iii. Detail Drawings
        iv. BC Standard Detail Drawing/ Client Standard Details
        v. GWA and BC's QA/QC comments on the 90% design submittal shall be reflected on the plans.
    b. Finalized Specifications
2. Final construction cost estimate based on quantity takeoffs and requirements of the 100% design plans and specifications.
3. Final coordination and submittal of 100% design documents to relevant agencies.

Deliverables

1. 4 sets (11" x 17") hard copies of the design documents
2. 1 set (24" x 36") hard copy of design documents
3. Digital copy of the design documents and cost estimate.

GWA Responsibilities

1. Provide final approval of design documents and construction costs.

Task 10 – Construction Bid Support and Support During Construction

Provide technical assistance to GWA during construction bidding phase. This task includes technical support in reviewing all submittals and requests submitted by the Contractor during construction.

Consultant Responsibilities/Deliverables

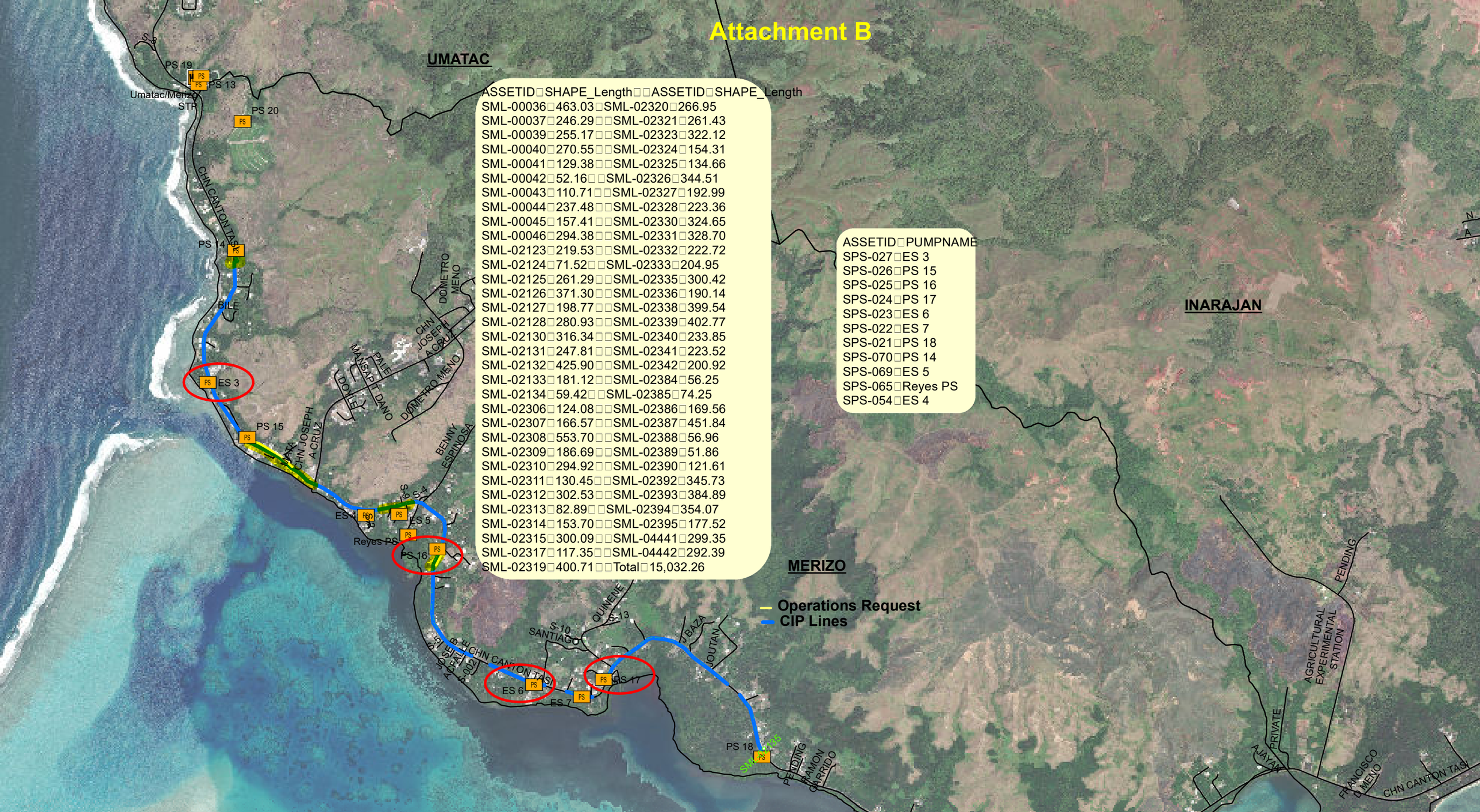
1. Prepare answers to bidders' Requests for Information (RFIs) regarding the bid packages during the bidding phase.
2. Assist GWA in preparing contract solicitation addenda.
3. Coordinate the Pre-Bid Conference, including the preparation of meeting agenda, sign-in sheets, and record minutes and providing formal responses to technical questions.
4. Assist with reviewing construction proposals received. This shall include a bid analysis, review of bid proposal prices, and conformance with contract requirements and the Guam Procurement Code. A letter of recommendation of award shall be prepared.
5. Prepare final "Issued for construction" conformed plans and specifications incorporating addenda and changes during the bid phase.
6. Review shop drawings, design calculations, samples, test results and other data required to be submitted by the contractor for conformance with the contract documents. Document and provide responses to GWA. This shall include assisting the review of the Quality Control Plan for complete content.
7. The design consultant shall chair and record the meeting minutes with any other governmental agencies.
8. Review requests for clarification or interpretation submitted by contractor and provide responses to GWA.
9. Evaluate substitution requests to determine acceptability of substitute materials and equipment proposed by the contractor and provided recommendations to GWA.
10. If requested by the construction or project manager, attend the construction kick off meeting and construction/final inspections.
11. Perform preliminary and final inspections and submit punch list.
12. Provide Final Record Drawings based on marked-up construction drawings (i.e., as-builts).

GWA Responsibilities

1. Provide Engineer with necessary information such as RFIs submitted by the Contractor.

Attachment A

Attachment B



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SML-00041	129.38	SML-02325	134.66
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SML-00044	237.48	SML-02328	223.36
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SML-02124	71.52	SML-02333	204.95
SML-02125	261.29	SML-02335	300.42
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SML-02130	316.34	SML-02340	233.85
SML-02131	247.81	SML-02341	223.52
SML-02132	425.90	SML-02342	200.92
SML-02133	181.12	SML-02384	56.25
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SML-02306	124.08	SML-02386	169.56
SML-02307	166.57	SML-02387	451.84
SML-02308	553.70	SML-02388	56.96
SML-02309	186.69	SML-02389	51.86
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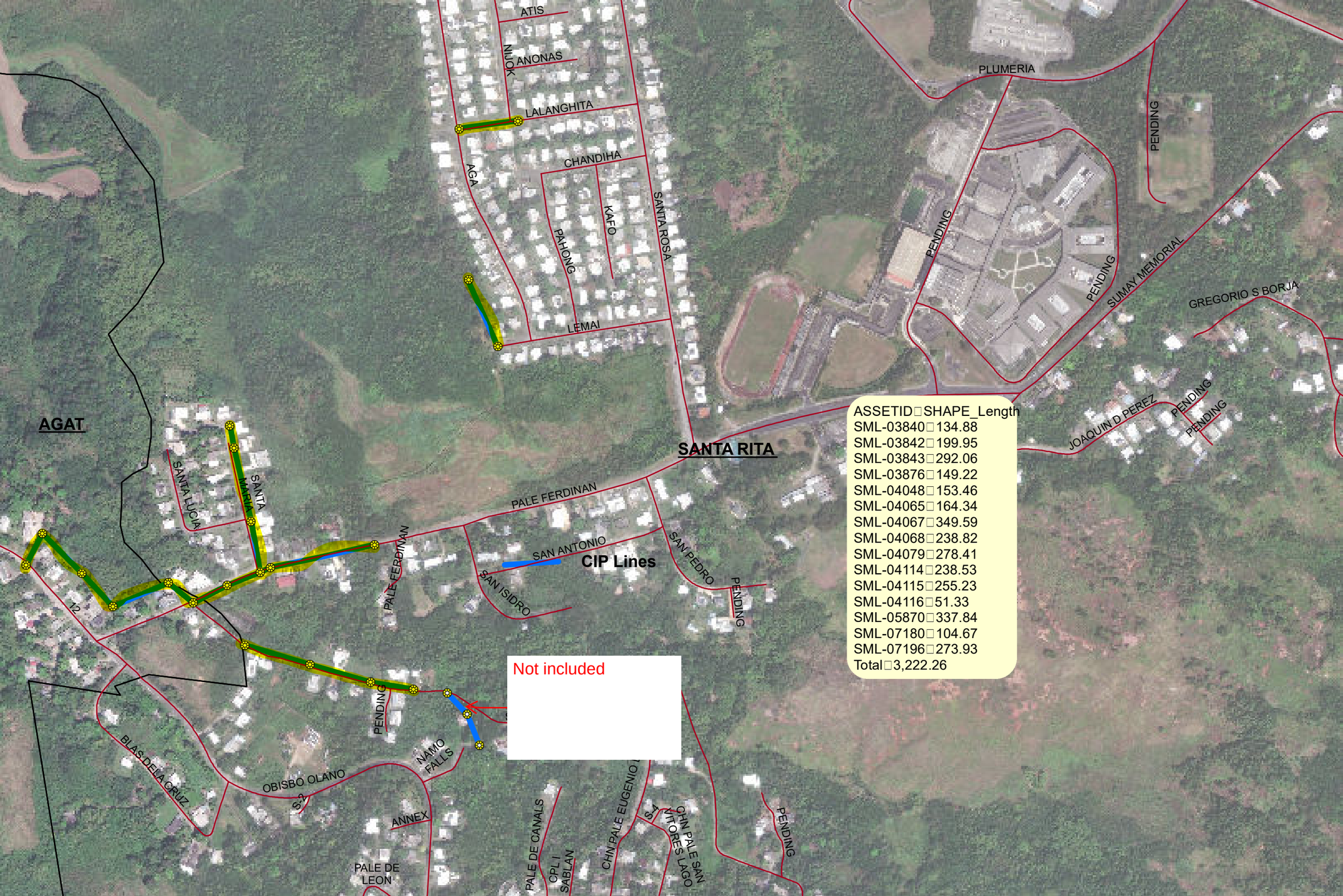
SPS-065	Reyes PS
SPS-054	ES 4

Attachment C



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SML-04068	238.82
SML-04079	278.41
SML-04114	238.53
SML-04115	255.23
SML-04116	51.33
SML-05870	337.84
SML-07180	104.67
SML-07196	273.93
Total	3,222.26

Guam Waterworks Authority
Indefinite Delivery/Indefinite Quantity (ID/IQ) Professional Project/Construction
GWA Project No. S22-02-BND
Task Order No. 2 - Sewer Gravity, Force Main, and Pump Station Assessment, Capacity Verification, and Design Services

Task Order 2 Budget Summary

Phase	Tasks	BC Fee	Expenses	Subconsultants	Subtotal	Tax	Grand Total
Phase 1	Tasks 1 - 8	$1,074,484	$6,644	$1,187,721	$2,268,849	$119,410	$2,388,259
Phase 2	Tasks 1 - 5	$569,739	$21,027	$165,000	$755,766	$39,776	$795,542
Phase 3	Tasks 1 - 5	$702,685	$36,949	$0	$739,634	$38,927	$778,561
Total For All Three Phases Through the Preliminary Engineering/BODR Tasks							$3,962,362
Phase 1	Tasks 9 - 13	$1,278,937	$1,100	$473,550	$1,753,587	$92,292	$1,845,879
Phase 2	Tasks 6 - 10	$795,717	$1,100	$0	$796,817	$41,937	$838,754
Phase 3	Tasks 6 - 10	$1,093,242	$2,200	$0	$1,095,442	$57,654	$1,153,096
Total For All Three Phases From 30% to Construction Support Services Tasks							$3,837,729
Grand Total for Task Order 2							$7,800,091

Guam Waterworks Authority
Indefinite Delivery/Indefinite Quantity (ID/IQ) Professional Project/Construction Management for Islandwide Sewer Collection/Transmission System Repair, Rehabilitation, and
GWA Project No. S22-02-BND

Task Order No. 2 - Sewer Gravity, Force Main, and Pump Station Assessment, Capacity Verification, and Design Services

Phase 1: Gravity Sewer Mains

Task	Description	BC Fee	Expenses	Subconsultants	Subtotal
1	Project Management	$146,423	$0	$0	$146,423
2	CCTV Assessment	$66,404	$1,694	$489,775	$557,873
3	A/SR/UM Gravity Condition Assessment Report	$102,583	$550	$0	$103,133
4	Additional Condition Assessment Reporting	$177,957	$1,100	$0	$179,057
5	Acute/Short-Term Work Plan	$93,828	$550	$0	$94,378
6	Capacity Assurance Report	$33,436	$1,100	$0	$34,536
7	Long-Term Work Plan	$106,781	$550	$0	$107,331
8	Preliminary Design/Basis of Design Report	$347,072	$1,100	$697,946	$1,046,118
Tasks 1 to 8 Totals		$1,074,484	$6,644	$1,187,721	$2,268,849
Tasks 1 to 8 TAX					$119,410
Tasks 1 to 8 Grand Total					$2,388,259
9	30% Design	$483,201	$0	$473,550	$956,751
10	60% Design	$329,831	$0	$0	$329,831
11	90% Design	$226,029	$0	$0	$226,029
12	100% Design	$146,230	$0	$0	$146,230
13	Services During Construction	$93,646	$1,100	$0	$94,746
Tasks 9 to 13 Totals		$1,278,937	$1,100	$473,550	$1,753,587
Tasks 9 to 13 Tax					$92,292
Tasks 9 to 13 Grand Total					$1,845,879.00
Phase 1: Totals		$2,353,421	$7,744	$1,661,271	$4,022,436.00
		Tax			$211,702
		Phase 1 Grand Total			$4,234,138

Guam Waterworks Authority
Indefinite Delivery/Indefinite Quantity (ID/IQ) Professional Project/Construction Management for Islandwide Sewer Collection/Transmission System Repair, Rehabilitation, and GWA Project No. S22-02-BND

Task Order No. 2 - Sewer Gravity, Force Main, and Pump Station Assessment, Capacity Verification, and Design Services

Phase 2: Sewer Force Mains

Task	Description	BC Fee	Expenses	Subconsultants	Subtotal
1	Project Management	$143,811	$0	$0	$143,811
2	Forcemain Inspection	$76,060	$18,827	$165,000	$259,887
3	Forcemain Assessment Report	$67,683	$550	$0	$68,233
4	Forcemain Capacity Verification	$32,093	$550	$0	$32,643
5	Preliminary Design/Basis of Design Report	$250,092	$1,100	$0	$251,192
Tasks 1 to 5 Totals		$569,739	$21,027	$165,000	$755,766.00
Tasks 1 to 5 TAX					$39,776
Tasks 1 to 5 Grand Total					$795,542
6	30% Design	$228,648	$0	$0	$228,648
7	60% Design	$198,883	$0	$0	$198,883
8	90% Design	$165,635	$0	$0	$165,635
9	100% Design	$113,090	$0	$0	$113,090
10	Services During Construction	$89,461	$1,100	$0	$90,561
Tasks 6 to 8 Totals		$795,717	$1,100	$0	$796,817.00
Tasks 6 to 10 TAX					$41,937
Tasks 6 to 10 Grand Total					$838,754
Phase 2: Totals		$1,365,456	$22,127	$165,000	$1,552,583
		Tax			$81,713
		Phase 2 Grand Total			$1,634,296

Guam Waterworks Authority
Indefinite Delivery/Indefinite Quantity (ID/IQ) Professional Project/Construction Management for Islandwide Sewer Collection/Transmission System Repair, Rehabilitation, and
GWA Project No. S22-02-BND

Task Order No. 2 - Sewer Gravity, Force Main, and Pump Station Assessment, Capacity Verification, and Design Services

Phase 3: Pump Stations

Task	Description	BC Fee	Expenses	Subconsultants	Subtotal
1	Project Management	$131,564	$0	$0	$131,564
2	Pump Station Preliminary Plan	$72,842	$1,144	$0	$73,986
3	Pump Station Condition Assessment	$133,626	$34,155	$0	$167,781
4	Pump Station Capacity Verification	$33,940	$550	$0	$34,490
5	Preliminary Design/Basis of Design	$330,713	$1,100	$0	$331,813
Tasks 1 to 5 Totals		$702,685	$36,949	$0	$739,634
Tasks 1 to 5 TAX					$38,927
Tasks 1 to 5 Grand Total					$778,561
6	30% Design	$366,143	$0	$0	$366,143
7	60% Design	$264,282	$0	$0	$264,282
8	90% Design	$204,556	$0	$0	$204,556
9	100% Design	$156,419	$0	$0	$156,419
10	Bid Support/Svs During Construction	$101,842	$2,200	$0	$104,042
Tasks 6 to 8 Totals		$1,093,242	$2,200	$0	$1,095,442
Tasks 6 to 10 TAX					$57,654
Tasks 6 to 10 Grand Total					$1,153,096
Phase 2: Totals		$1,795,927	$39,149	$0	$1,835,076.00
		Tax			$96,581
		Phase 3 Grand Total			$1,931,657

Exhibit E

This is **EXHIBIT K**, consisting of 2 pages, referred to in and part of the **Agreement between Owner and Engineer for Professional Services – Task Order Edition** dated July 12, 2024.

Amendment to Owner-Engineer Agreement No. 1

1. Background Data:

a. Effective Date of Task Order: July 12, 2024

b. Owner: Guam Waterworks Authority

c. Engineer: Brown and Caldwell

d. Specific Project: Indefinite Delivery/Indefinite Quantity (IDIQ) for Professional Project/Construction Management for Islandwide Sewer Collection/Transmission System Repair, Rehabilitation, and Replacement

2. Nature of Amendment

This Amendment No. 1 to the IDIQ for Professional Project/Construction Management for Islandwide Sewer Collection/Transmission System Repair, Rehabilitation, and Replacement Owner-Engineer Agreement ("IDIQ") contract will increase the contract amount by $3,951,894 to allow for the partial execution of Task Order No. 2. The total contract amount is, therefore, $4,851,894 through this Amendment No.1 to the IDIQ Owner-Engineer Agreement.

Task Order No. 2 of this IDIQ includes the condition assessment and design of gravity sewer, force mains, and pump stations in Santa Rita, Agat, Umatac, and Merizo. Task Order No. 2 is necessary to address Consent Decree requirements. Initially, only the condition assessment (including CCTV/cleaning) and preliminary engineering tasks of Task Order No. 2 will be executed for an amount of $3,962,362.

An additional amendment will be necessary to execute the design, bid support services, and engineering support services tasks of Task Order No. 2. Actual amount of these remaining tasks of Task Order No. 2 will be renegotiated after further defining the design scope through the initial execution of this task order.

3. Task Order Summary (Reference only)

Through this Amendment No. 1 to the IDIQ Owner-Engineer Agreement, this contract includes the following Task Orders:

1. Task Order No. 1 – D/B Contract Support, NASSCO Training, Tamuning-Tumon HS PM/CM
2. Task Order No. 2 – Agat-SR, Umatac-Merizo Gravity Sewer, Force Main, and Pump Station Condition Assessment and Design

Summary of Task Orders and Cost

Task Order	Contract Document	Amount
Task Order No. 1	Original Task Order	$989,532
Task Order No. 2	Original Task Order	$3,962,362
IDIQ Owner-Engineer Contracted Amount		$4,951,894

4. Agreement Summary

IDIQ Contract Amount	
Original Agreement Contract Amount	$1,000,000
Amendment No. 1 Net Increase	$3,951,894
Revised Agreement Contract Amount Through Amendment No. 1	$4,951,894

The foregoing Task Order Summary is for reference only and does not alter the terms of the Task Order, including those set forth in Exhibit C.

Owner and Engineer hereby agree to modify the above-referenced Task Order as set forth in this Amendment. All provisions of the Agreement and Task Order not modified by this or previous Amendments remain in effect. The Effective Date of this Amendment is XXXXX.

OWNER:		ENGINEER:	
By:	_____	By:	_____
Title:	_____	Title:	Senior Vice President
Date Signed:	_____	Date Signed:	_____