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ATTACHMENT B

SCOPE OF WORK (SOW)

Geotechnical Evaluation and Report for StarKist Atuu Tanks

This Geotechnical Evaluation and Report (GER) project will benefit the water supply in the Territory of American Samoa. The GER will support the design and construction of the proposed StarKist Atuu water storage tanks (WST), which shall provide the Central Water System with the extra water storage needed.

The new WSTs shall improve the overall Central Water System pressure from Atuu back to the drinking water source location in Nuuuli and Fagaima.

December 2024

Section 1: Provision by ASPA

ASPA Water Engineers, Right of Way (ROW), Archaeology and Survey Divisions will provide the following:

- Water Engineers and ROW will provide the initial Land Use Permit (LUP) from the Department of Commerce approving the use of the land for water tanks.
- ASPA shall provide the ASPA assigned project engineer to manage project.
- ROW shall provide the easement signed by StarKist to proceed with GER at the tank site.
- Archeological services to assist with obtaining Section 106 permit requirements.
- ROW services to assist with obtaining engineers and surveyor's access to project site.
- ROW services will obtain the project site lease from StarKist.
- With this RFP or immediately after, the ASPA Survey Division will provide a topographical survey of the area in Autodesk Civil 3D format of project tank site and surrounding area.
- ASPA Water Department documents related to our tank design standard details and specifications
- A recent request for quotes to supply and deliver WSTs to ASPA, which indicates additional information and specifications used in the purchase and installation of WSTs.
- Other available data and materials as requested by the selected firm if available.

Section 2: GER Project Location

The StarKist Atuu WST project is located on StarKist leased property. StarKist leased this property from Samoa Tuna Packing (STP). It is located across from the StarKist plant in the village of Atuu.

This site has two abandoned 100 KGAL tanks (28 FT DIA, 21 FT HT, each), which were constructed by STP. StarKist has never used these tanks and has no need to use them in the future. StarKist has agreed that ASPA can remove the existing two tanks and associated piping to install larger ASPA WSTs. StarKist has leased the area around the STP tanks as well

ASPA shall lease this site from StarKist at no cost to ASPA, and ASPA will operate these proposed WSTs over its life time.

Figure 1 below shows the aerial image of the site where the two existing STP tanks are located. The existing fence dimensions are shown, and they are 51 FT by 82 FT.

This figure also shows a potential proposed booster station to boost water from mainline to proposed WSTs (approx. 12FT by 15FT building). The location of this booster station has not been confirmed. The need for this booster station has not been confirmed at this time either, but it should be noted as a future possibility.

Figure 1: Aerial View of Existing Site



Figure 2 below shows the existing access driveway down to the two STP tanks. The selected bidder can locate the final access driveway at a different location to maximize the useable volume of water at the proposed WSTs site.

Note, that the existing tanks inlet/outlet/drainage piping are installed 1 FT above ground.

Figure 2: Picture of the Existing Access Driveway down to the two STP Tanks



Figure 3: Picture of the Front View of the Two Existing STP Tanks, Perimeter Fence, Roadway Below and the StarKist Plant across the Street



Section 3: GER General SOW

1. The GER shall assist ASPA with the proposed StarKist Atuu WST's site planning, design, cost estimating, construction and safe 40 year life time operation.
2. At a minimum, the selected firm will develop the GER including two recommended geotechnical, subgrade improvement and site layout alternatives of different scale, magnitude, cost and complexity based on achieving the ASPA desired results as explained in section 4.
 - a. Alternative one shall consider a smaller scale scenario (two tanks) at an estimated cost of approximately \$50K to \$200K for the geotechnical, subgrade improvement and site improvements recommendation.
 - b. Alternative two shall consider a larger scale scenario (two larger tanks if feasible) at an estimated cost of approximately \$200K to \$500K for the geotechnical, subgrade improvement and site improvements recommendation.
3. Each recommended alternative in the GER as mentioned above shall include drawings (existing and proposed), thorough site improvement cost estimates, as lead by and recommended by their professional Engineer.
 - a. Proposed site layout drawings shall be provided showing WSTs conceptual drawings (tanks, access driveway, site drainage, tanks drainage, existing retaining wall, and existing features around tank within 50 FT of site)
 - b. Proposed site layout drawings also include: 1) site grading, 2) tank foundation subgrade/fill platform cross sections, 3) tank overflow/drain pipe with discharge location, 4) site drainage, 5) concrete access driveway, 6) inlet/outlet pipes with required valves, 3 FT cover 7) perimeter fence/gate 10 around tank, 8) 6 inches thick gravel perimeter over geotechnical fabric 15 FT around tanks and 9) tree root protection (if needed). And, any other recommended (ASPA approved) site and adjacent site improvements.
4. The selected firm shall conduct a series of pre-geotechnical evaluation meetings with the ASPA Water Division project engineer during the project kickoff and initial phase to fully understand the situation at the proposed StarKist Atuu Tank site and specific project elements and requirements.
5. The selected firm is expected to conduct pre/post-award site visits to become familiar with field conditions including accessibility and physical obstructions. Bid submission indicates familiarity and acceptance of field conditions. No claim for additional compensation will be allowed which is based upon a misunderstanding or lack of knowledge, examination, and inspection of any of the above items by the Offeror.

6. The bidder shall provide a schedule including all major tasks required for GER. The schedule shall be presented in narrative and chart formats. GER schedule shall be updated every two months.
7. Provide structural analysis and design calculations for all and every structure necessary to complete the requirement of this SOW such as but not limited to; tank foundation, pavement design, retaining wall (if any) and as needed and requested by ASPA.
8. Provide presentations of GER at 50%, and 100% final completion, in person or virtual.
9. Provide three (3) hard bound copies and electronic copies (AutoCAD, pdf, and spreadsheet) of all final deliverables.
10. Measurement for payment shall be made as a lump sum (LS). Full compensation includes a lump sum cost for all equipment, labor and materials. Payment will be made as the work proceeds, after presentation of paid invoices or documentation of direct costs by the contractor showing specific costs and supporting evidence of the charges of suppliers, subcontractors, and others. When the total of such payments is less than the lump sum contract price, the balance remaining will be included in the final contract payment. Payment of the lump sum contract price will constitute full compensation for completion of the work set forth in this SOW.

Section 4: GER Incorporated ASPA WST Planning for the StarKist Atuu Site

- ❖ As shown in Figure 1 the site's existing perimeter fence is 51 FT by 82 FT. The selected firm's evaluation and report shall recommend the maximum sized proposed perimeter fence based on safety first, viability, practical use for the largest possible useable volume at this site, with two tanks. Note, ASPA can lease a larger fenced perimeter than the existing one. The proposed security fence shall be set back 10 feet away from the outside of each tank.
- ❖ This site requires a WST total useable volume between 0.5 MGAL to 1 MGAL and a volume closer to 1 MGAL would be more ideal and preferred. However 1 MGAL may not be feasible or cost effective.
 - However given the site constraints and long narrow space, definitely one large tank is not feasible, but likely two tanks (same sizes working as one) would fit.
- ❖ Initial site size estimates indicated that the largest WST would likely have a nominal diameter of 40 FT, nominal height of 32 FT to 40 FT with useable volume of 0.3 to 0.36 MGAL each. Idea is to construct two tanks which would provide a total of 0.6 to 1 MGAL of useable volume. The GER shall determine the recommended number of

WSTs and each WST largest viable and cost effective nominal diameter, height and useable volume for this site.

- ❖ Each WST shall be 10 FT minimum apart from each other from closest outside edge to outside edge.
- ❖ ASPA's maximum nominal height of WST is 43 FT. Maximum nominal height and diameter shall be determined by this evaluation and report. The final accepted maximum nominal height and diameter for WST shall be approved by ASPA.

Section 5: Further GER Requirements

Furnish all labor, materials, tools, equipment, and supervision for conducting an adequate sub-surface soils investigation at the proposed StarKist Atuu tank site. The consultant shall conduct and prepare a GER of the selected area to allow the determination of soil and subgrade conditions and the impact of findings on the proposed tanks designs, construction, and operation. Recommendations shall be based on best professional practices and tanks 40 year life time safe operation. Provide geotechnical profile logs. Other information included in the GER is as follows:

1. Soil bearing capacity for entire proposed area footprint of the Water Storage Tanks (WST) based on a minimum of four (4) samples taken from within the WST foundation footprint.
2. Overall tank site assessment. Ambient soil sulfate content (SO₄).
3. Seismic assessment. Evaluate the site's seismicity to ensure the tank's structural design meets local earthquake-resistant standards.
4. Recommendations to support the WST construction. Note, since hurricane intensity is increasing due to climate change, ASPA's design wind speed is 200mph.
5. Recommendations to verify the geotechnical ground model and parameters during construction.
6. Presence of any substance in addition to SO₄ which may be detrimental to the long-term strength of concrete or the steel reinforcing bars.
7. Minimum depth of foundation.
8. This report shall assist with the tank foundation design, grading design and will provide the hardened subgrade/fill platform for the water tank with necessary geogrids (if needed), slope stabilization/retaining wall (if any) and proper grading for drainage away from site.

9. Slope stability analysis: Conduct stability modeling to identify risks of landslides or slips, especially under wet conditions.
10. Liquefaction potential: Assess if the soil could lose strength and stiffness during seismic events.
11. Flood risk: Assess the possibility of water accumulation at the site during heavy rainfall.
12. Note, the report's tank foundation design does not include the design of the reinforced concrete ring portion of the tank foundation, since this will be provided by the tank manufacturer during the Request for Quotes of the tanks.
13. The report shall contain, but not be limited to, the requirements of latest ASCE7-16, IBC2018 and AWWA D103-09 and AWWA D103-19 standards, or the latest code.
14. The evaluation includes the boring of the site at sufficient depth, locations and intervals to ensure the life time safe operation of proposed WSTs.
15. The GER includes the recommended and estimated settlement of the final WSTs foundation over time and over the 40 year life time of the WST. Predict both total and differential settlement to avoid structural damage.
16. Tank buoyancy resistance: Account for forces from potential groundwater uplift.
17. Soil improvement needs: Determine if stabilization or reinforcement is required for weak soils.
18. Excavation and retaining structures: Design temporary or permanent retaining systems for sloped sites.