UV Disinfection and East Side Village:
Additional Works Addendum

Scope of Work

These Project Addendums will increase the efficiency of operations and longevity of new equipment installed under the UV Disinfection Project and the East Side Village Package 3 Project. The Project will be "design-build" and include the installation of shelters, small booster pumps and scum drains.

American Samoa Power Authority

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Background

ASPA has completed the construction of two UV disinfection reactors, each of which has been in operation for approximately one year. During this period ASPA has identified three improvements needed to help maintain the performance and longevity of the UV reactors; additional scum drains at the Tafuna plant, shelter over each reactor and a booster pump for each UV reactors water supply.

Under current conditions there are no scum drains within the Tafuna UV reactor causing grease and scum to accumulate within the reactor and impede performance. The installation of a scum drain near the head of the reactor will help alleviate some grease and scum.

Each UV reactor is currently open to the sky. Certain maintenance activities cannot be completed in the rain and laborious activities are difficult in the hot sun. In order to improve maintenance procedures and protect sensitive portions of the UV electronics from the rain, a roof for each reactor will be constructed.

Maintenance of the UV reactors requires a weekly power-washing of the bulbs to remove grease and debris. Relying on power washers results in high mechanical failure and the possibility of equipment being reallocated. In place of power washers, a booster pump will be installed on the waterline at each location to provide the pressures needed to clean the reactor units.

The Maleloa Lift Station was recently upgraded as part of the East Side Villages Projects. The recent Project did not completely address structural issues with the lift station columns and roof which currently need extensive structural improvements. Additionally, the recent work provided a new mobile generator, but did not include any protection from the environment.

Project Description

To expedite Project completion time, eliminates change orders and address the unavailability of in-house workforce, ASPA has chosen a “design-build” approach for this work.

The Project will consist of the design and construction of; a roof structure for each UV reactor and the Malaeloa generator, one water booster pump for each UV reactor, a weir and scum drain for the Tafuna UV reactor and the repair of the Malaeloa lift station support columns and roofing materials.

The UV tank area that requiring coverage for Tafuna WWTP and Utulei WWTP are 1,120 sq.ft. and 1,144 sq.ft, respectively. The booster pumps must supply a minimum of 200psi and be completely installed for use. The scum drain within the Tafuna UV reactor will consist of a telescoping valve and be incorporated into the existing pipe system.

The Malaeloa retrofitting works will include the twelve columns supporting the roof and structural beam for lifting the pumps. Six of the columns need minor repair works and the other six will need major works to make sure they maintain their design load bearing capacity. The existing roofing material of the lift station will be replaced and a coinciding roof structure will be constructed to cover the new generator.

Technical Task/Scope

Project Scope: This section summarizes requirement for the A/E services and construction services from an experienced Design/Builder.

1. The Design/Builder shall furnish or arrange for the architectural, engineering and construction services set forth herein and required for completion of the Project.
2. Design/Builder shall be responsible for the quality, completeness, accuracy, and coordination of Design and Construction Documents.
3. Design/Builder shall provide Design Services that meet all environmental and regulatory requirements.
4. Design/Builder shall provide ASPA with a preliminary overall Project schedule covering the planning, design and construction of the Project.
5. The Design/Builder shall participate in, and cooperate with, design-phase, construction-phase, and post-operation commissioning, validation, and other third-party quality assurance and quality control processes that ASPA implements, if any.
6. The Design/Builder shall provide technical specifications for all items to be constructed under this scope for approval by ASPA. Specifications shall be prepared according to the most recent Construction Standards Institute (CSI) format.
7. Design/Builder shall furnish an Engineer's Cost Estimate which shall be prepared for all facilities proposed to be built under this scope. RS Means Estimating Manuals and Guidelines or equal industry standards shall be utilized.
8. Design/Builder shall provide ASPA a project schedule to include all task under this scope and to be presented in Gantt Chart format.
9. All work provided in this scope shall be first approved by ASPA.
10. All designs, drawings, specifications, notes, and other works developed in the performance of this contract shall become the sole property of the ASPA and may be used on any other design without additional compensation to the Contractor.

Permits: Design/Builder shall be responsible for obtaining all necessary permits and other governmental approvals necessary for the development of the Project and shall obtain the same at the times necessary to meet the Project schedule.

Archaeological Monitoring: The Contractor and ASPA will coordinate with ASHPO to insure that compliance with applicable laws are adhered to.

Problem Statement

There is currently no permanent structure covering the UV reactors. This limits the ability to perform maintenance on parts which are very sensitive to oxidation. Scum and floatables currently collect within the UV reactor and impeded treatment.

The structural integrity of support columns and the functionality of the roof on the Malaeloa lift stations are no longer adequate. Additionally, the new generator is completely exposed to the elements.

Project Goals

The objective of this project is to extend the useful life and provide the best performance of the UV reactors, Malealoa Lift Station and new portable generator.

Implementation Approach

General

This work shall be designed and built by a single Design/Builder. The Design/Builder may be a single firm or a team of firms that includes registered Architects and Engineers either employed by or subcontracted to the Design/Builder. Licensing jurisdiction of Architects and Engineers of record shall be verifiable. The Design/Builder shall be the Architect/Engineer-of-Record, whether the Design/Builder utilizes services of licensed architects and engineers employed by its firm or subcontracts with independent architectural and/or engineering firm(s). Design/Builder shall be solely liable for design errors and/or omissions and should be insured as the A-E firm against design errors and omissions.

Preparatory

Before commencing the design and construction work, the Design/Builder shall;

a. Visit and thoroughly inspect the Project Site and any structure(s) or other manmade features to be modified and become familiar with local conditions under which the Project will be constructed and operated;
b. Familiarize itself with the survey, including the location of all existing buildings, utilities, conditions, street, equipment, components and other attributes having or likely to have an impact on the Project;
c. Familiarize itself with the ASPA's layout and design requirements,

drawings, specification, conceptual design objectives, and budget for the Project;

d. Familiarize itself with pertinent Project dates and programming needs, including the Project schedule,
e. Review and analyze all Project geotechnical, Hazardous Substances structural, chemical, electrical, mechanical and construction materials tests, investigations and recommendations.
f. Gather any other information necessary for a thorough understanding of the Project. Claims by Design/Builder resulting from Design/Builder's failure to familiarize itself with the Site or pertinent documents shall be deemed waived.
g. The design information and specifications indicate the "Minimum" requirements and are intended to enable Design/Builder to ascertain the extent of the work involved. Design/Builder are expected to supplement the information included in this specification as required.
h. Design/Builder to apply good engineering practices in the design, selection of equipment , manufacturing, procurement , transportation, fabrication, painting, erection, inspection & testing, commissioning of package etc., wherever same is not clearly spelt out.
i. Drawings and specifications can be found as an attachment to this document.

Shelter Construction

Design, supply and erect three (3) pre-engineered building systems or steel frame and roof structures or concrete structures, including but not limited to primary and secondary structural framing systems, roofing, siding(partial only), roof insulation, and accessories.

a. System Description: Building dimensions, location, orientation and all details that will be used for the design and erection stage shall be the results of the preparatory requirements of this scope.
b. Structural Requirements:
    i. Building Code: IBC and ASCE-7 current edition
    ii. Design Loads:
        - Dead Load: self-weight of building system
        - Roof Live Load: 20 psf
        - Wind Load: Wind speed (3 sec gust) : 160mph
        - Wind Exposure: Maximum consideration
        - Seismic Load: Maximum consideration

- Load Combinations: Comply with Building Code

iii. Structural Analysis & Design:
- Whenever structural engineering software is used, 3D/2D Model Data Input shall be printed as part of the Structural Calculation Document.
- Drawing of the complete mathematical model used to represent the structure in the computer-generated analysis shall be part of the Structural Calculation Document.

c. Design Deliverables:
   i. Stamped Structural Calculation Document
   ii. 3 sets of Engineered Stamped Drawings
   iii. Stamped Anchor Bolt drawings & Letter of Certification.
   iv. Stamped Erection Drawings
   v. Electronic CAD file for all the drawings required.

d. Quality Assurance:
   i. Manufacturer Qualifications: Minimum ten years' experience in producing pre-engineered buildings of the type specified.
   ii. Installer Qualifications: Minimum three years' experience in erection of pre-engineered buildings of the type specified.
   iii. Structural Engineer's Qualifications: Minimum of three years designing; registered in the jurisdiction of the project.

e. Delivery, Storage and Handling:
   i. Store products in manufacturer's unopened packaging until ready for installation. Follow manufacturers recommended storage procedures. Do not allow steel siding and roofing to contact the ground.
   ii. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of authorities having jurisdiction.

f. Equipment:
   i. The Design/Builder is responsible for supplying and storing any and all equipment needed for proper installation as per manufacturer's instructions.
   ii. The Design/Builder shall be responsible for ensuring that all the equipment utilized during this Project meet regulatory and safety standards.

g. Execution:
   i. Design/Builder shall design and construct footing/foundation for the proposed shelters in compliance with the structural

requirements of this scope.

ii. Design/Builder shall design, procure, deliver, erect/construct and inspect each of the three shelters.

iii. Design/Builder shall design, procure, deliver and install power and lighting systems for the shelters. All electrical design and installation shall meet NEC (NFPA 70) requirements. Electrical receptacles shall be provided. Conductors and circuits shall be sized for the specific loads. All wiring shall be run and pulled through conduits.

iv. Design/Builder shall provide Quality Control Plan, Safety Plan and Best Management Practices.

v. Design/Builder may opt to use PEB or steel structures provided no welding on-site is allowed.

h. Testing: Concrete testing shall be performed according to the specifications and associated ASTM standards. Testing procedures are to be described in the Contractor's QA/QC Plan.

i. Warranty: ASPA will be provided with Project warranty to be initiated upon project acceptance. Said warranty will include all labor and materials needed for services due to defects and failure in product or workmanship. Should ASPA detect any defects in product or workmanship, the Contractor shall correct the detected defects by re-performing the services immediately after receipt of notice from ASPA. Such correction shall occur at no additional cost to ASPA.

Booster Pumps

a. General: Design and build pump system for each treatment plant to provide pressure booster pumping system including power and control panels, pressure regulating valves with integral check valves, vibration pads, emergency switches, suction and discharge piping and manifolds, ball drain valves, bypass loops with appropriate valves, low pressure cut-in/cut-off switches, pressure/bladder tank and accessories. The horizontal booster pumping equipment shall be factory installed on a common structural steel skid and shall be completely tested in the factory before shipment. Manufacturer shall assume “unit responsibility” to ensure that all components effectively interface to execute the operation of the designed system.

b. System Operation and Configuration: System shall automatically maintain constant system pressure with the design pump capacity of 10 GPM at against a system pressure 200 PSI at the outlet of the pressure control valve

and hydro pneumatic pressure tank check valve at all times. Suction pressure varies from 20 PSI to 40 PSI. The centrifugal booster pumping system shall include one (1) unit on line and one (1) unit stand-by pump and motor equipment.

c. Pressure Booster Pump: Pumps shall be of centrifugal-horizontal booster pumps directly couple with horizontal electric motor equipped with built-in cut-in and cut-out pressure switches, low pressure cut‑off switches and bypass loops with ball, butterfly, check valves .
    i. Impellers: Cast bronze or SS enclosed type.
    ii. Balancing of Impellers: Each impeller shall be statically and dynamically balanced prior to assembly in pump casing.
    iii. Pump shaft: Stainless steel Type 416.
    iv. Lubrication: Water lubricated type pump.
    v. Pump Bowls: Cast Iron, stainless steel or bronze flanged and bolted.
    vi. Pump Bearings: Bronze, radial type.
    vii. Pump Head: Fabricated steel with continuous bypass for low seal pressure. Cast iron heads are prohibited. Pump head shall be lined same as pump barrel.
    viii. Seal: Mechanical general purpose type, with sleeve mounting. Seal shall be rated at 250 psi maximum.
    ix. Adjustable Spacer Coupling: Removable type required so that pump seal can be replaced without disturbing motor.
    x. Motor: Solid shaft motors balanced to 0.22 mm (0.0085 inch) vibration amplitude shall be operated at any point on the pump head curve without overloading the motor. Conform to NEMA Type 2.
    xi. Pump Barrel: Schedule 40 steel pipe with two-coat "baked" internal lining to meet the potable water requirements of U.S. Food and Drug Administration. Bio-based materials shall be utilized when possible. Unlined pump barrels are prohibited. Provide drain tapping.

d. Hydro pneumatic Tank: Bladder type, hydro pneumatic, designed and constructed in accordance with requirements of the ASME Pressure Vessel Tank which meet Section VIII, Division I standards, NSF/ANSI 61 standards, factory pre charge of 30 PSIG. Tank shall include pre-pressurized, sealed-in air cushion which shall accommodate pressure increases and expanded water volumes in the tank. Tank shall include butyl rubber or polypropylene liner in lower, or water side of chamber. Pressure bladder tank shall have a capacity of at least 90 gallons and with a working pressure 125 PSI (minimum) and 300 PSI (maximum). Unit shall be designed and manufactured for commercial water applications. Insulate

tank as specified. Check valve at hydro pneumatic tank shall include small orifice for undue loading.

e. Power and Control Panel: Class "A" shadow box NEMA 4X enclosure, UL labeled, bonderized double prime coated with baked enamel finish:
    i. Fused disconnect switches with external operating handles.
    ii. Magnetic contactor for each motor with HOA switch.
    iii. Door interlock.
    iv. Thermal overload protection relay for each motor, three leg type.
    v. Running light for each motor.
    vi. Power light for each motor.
    vii. Control transformer, switch, Circuit Breaker, light.
    viii. Lead pump failure protection.
f. Motor and Starter: Maximum 40 degrees C (104 degrees F) ambient temperature rise, drip-proof type motor, ball bearings, voltage and phase as shown in schedule on Electrical drawings, conforming to NEMA Type 4. Motor shall be of such capacity that brake horsepower required by driven equipment at normal rated capacity will not exceed nameplate rating of the motor.
g. Instrumentation: All instrumentation shall be factory installed and shall include the following 115 mm (4-1/2 inch) dial gages with shut-off cock.
    i. Pump pressure gage for each pump.
    ii. System pressure gage.
    iii. Suction pressure gage.
h. Operating and Emergency Controls: The pump station shall receive a 4-20mA signal from each pressure transducer, as provided by the pumping station manufacturer. A pressure transducer signal shall be provided for each pump controller. The differential pressure transducers shall monitor system discharge pressure versus suction line pressure and provide an analog signal 4-20mA to the pump control software, and allow the variable speed pump controller, to provide a variable Volts/Hz output to the motor. Once the pressure drops below the set system pressure, the pump shall start and provide system pressure (as determined by the station operator or program), if this pressure cannot be maintained by one pump, the next pump in sequence shall operate in a lead/lag standby capacity to provide the extra flow and pressure automatically without the use of additional panels or alternators. The sequence of the pumps shall be field adjustable, and completely automatic without additional panels or alternator controls. The pumping system includes multiple pumps as indicated above. In two-pump systems, the first (lead) pump operates initially, and the second pump serves as a standby pump capable of operating concurrently with the lead

pump to add capacity when needed. The second pump also acts as a stand-by pump at lower demands, ready for operation if the lead pump is taken out of service. The pump logic controller shall provide the following standard user-selectable features:

i. Low Suction Pressure Alarm and Cut Out
ii. High Suction Pressure Alarm and Cut Out
iii. Low System Pressure Alarm
iv. High System Pressure Alarm and Cut Out
v. High Temperature Alarm and Cut Out
vi. Low Level Alarm and Cut Out
vii. No-Flow Shut Down
viii. Audible/Visible alarm with push to silence feature
ix. Overload Failure Alarm
x. Pump Failure Alarm
xi. Pump operating order assignments
xii. Minimum run timers to prevent short cycle operation.
xiii. Provide auxiliary contacts for remote communication with the BAS, including the following input/output points:
xiv. Domestic water supply pressure (analog input to BAS)
xv. Alarm condition activated (binary input to BAS)
xvi. Run status of lead pump (binary input to BAS)
xvii. Run status of lag pump (binary input to BAS)
xviii. Run status of standby pump (binary input to BAS)//

i. Factory Test: The booster system and its component parts shall undergo a complete operation flow test from zero to 100 percent design flow rate under the specified suction and net system pressure conditions. The system certification shall include copies of the test and test data as performed in the factory prior to shipment. Performance test certifications should be placed inside the system control panel and two extra copies shall be provided to the COR with the installation manual.

j. PIPING. Design and install water pipe and fittings to supply the UV Tank from the Pump location in accordance with manufacturer's printed specifications and instructions. All piping, including hoses used shall exceed the maximum pressure rating of the pump.

k. PUMP HOUSE. Design and construct pump house for each treatment plant in accordance with pump manufacturer's specifications and requirements. Location shall be approved by ASPA.

l. STARTUP AND TESTING. Make tests as recommended by product manufacturer and listed standards and under actual or simulated operating conditions and prove full compliance with design and specified

requirements. Tests of the various items of equipment shall be performed simultaneously with the system of which each item is an integral part.

i. System Test: After installation is completed provide an operational test of the completed system including flow rates, pressure compliance, alarms and all control functions.
ii. When any defects are detected, correct defects and repeat test at no additional cost or time to ASPA.
iii. ASPA will observe startup and contractor testing of selected equipment. Coordinate the startup and contractor testing schedules with the ASPA. Contractor shall provide a minimum of 10 working days prior to startup and testing.

m. COMMISSIONING. Provide commissioning documentation in accordance with the requirements of this scope. Components provided under this section of the specification will be tested as part of a larger system.
n. DEMONSTRATION AND TRAINING. Provide services of manufacturer's technical representative for four hours to instruct ASPA Personnel in operation and maintenance of the system. Submit training plans and instructor qualifications in accordance with the requirements of this scope.

Telescoping Valve

a. GENERAL. Telescoping valves shall be in the quantity and sizes as specified in plans, schedule and/or specification. The valves shall be the product of a manufacturer having experience in the manufacture of similar sized telescoping valves for the design heads required by the specification.
b. DESIGN. Liberal safety factor shall be used in design of all telescoping valves and associated equipment. Working stresses shall not exceed one fifth of the ultimate strength of the material. Telescoping valve shall be designed for installation in the structures shown on the plans and as specified.
c. WORKMANSHIP
    i. All work shall be performed in accordance with the best modern practice for the manufacture of high-grade machinery. All parts shall have accurately machined mounting and bearing surfaces.
    ii. All parts shall conform accurately to the design dimensions and shall be free of all defects in workmanship or material that will impair their service.
    iii. Telescoping valves shall be completely shop assembled to insure

the proper fit an adjustment of all parts.

d. MATERIALS. All major component materials used in the construction of telescoping valves and appurtenances shall be the best suited for the application and shall conform to the following specifications.

i.	Operator Nut	ASTM B584 Bronze
ii.	Stem	ASTM A276 Type 304(L) or 316(L) Stainless Steel ASTM B98 Bronze
iii.	Bail Slip Tube	ASTM A276 Type 304(L) or 316(L) Stainless Steel
iv.	Floorstand	ASTM A126, Class B Cast Iron, A36 Steel, ASTM A276 Type 304(L) or 316(L) Stainless Steel
v.	Handwheel	ASTM A126, Class B Cast Iron, A36 Steel
vi.	Companion Flange	Cast Iron, Steel, 304 or 316 Stainless Steel
vii.	Fasteners	ASTM A276 Type 304 or 316 Stainless Steel ASTM B98 Bronze
viii.	Seat	UHMW
ix.	Seal	Neoprene ASTMD2000 50-60 Durometer
x.	Stop Collar	Bronze Alloy 954

e. DESIGN.

Telescoping valve shall be designed and sized per the specifications, schedule and /or drawings and shall fit the customer supplied flanged riser pipe. The telescoping valve shall consist of a manual or electric operator, floor stand, stem, bail, slip tube with anti-rotation device and 150 pound companion flange with integral neoprene wiper and UHMW seat. Slip tube can be supplied with bell mouth, V notch or plain top. Rising stem shall be supplied unless otherwise requested. Floor Stand shall be straight for floor mounting or offset for top of wall mounting. A clear plastic stem cover with closed, open, 1/4, 1/2 and 3/4 position indicator decals shall be supplied for rising stem applications.

f. OPERATORS.

Operator shall be hand wheel, hand crank or electric actuator, floor stand mounted. Hand wheel type operators shall be without gear reduction. Coldwell-Wilcox operators will have either single or double gear reduction. All components shall be totally closed with positive mechanical seals. Electric actuator or gearbox manufacturer shall be as selected by CWT or as specified by job specifications. Telescoping valve shall be

manual or electric operator driven through an acme threaded operator sleeve to the keyed acme threaded stem, bail and slip tube assembly.

g. PAINTING.

Steel and cast iron components shall receive manufacturer's standard Tnemec epoxy series N140-1255 pota-pox beige primer and Tnemec series 69 pond 28BL finish prior to shipment. Total system shall be 12-16 mils DFT. Tnemec coal tar epoxy series 46H-413 finish or Tnemec potable epoxy series N140 pota pox finish are available as required. Coal tar epoxy total system shall be 20-26 mils DFT. Tnemec potable epoxy total system shall be 12-16 mils DFT.

h. SHOP TESTING.

Each telescoping valve shall be fully assembled and shop inspected. Each valve shall be fully opened and closed to ensure that it operates freely and seals.

i. INSTALLATION.

Installation shall be in complete accordance with manufacturer's instructions and recommendations. Anchor studs will be set in accordance with approved manufacturer's drawings.

j. START-UP AND TEST

Contractor shall make adjustments required to place system in proper operating condition. Contractor shall conduct functional field test of each telescoping valve in the presence of the owner's representative to demonstrate that each part and all components together function correctly.

Malaloa Repair and Retrofit

a. GENERAL:

i. The Design/Builder shall provide proper selection and identification of the best retrofit options for existing Malaloa Lift Station Building. It includes complete investigation of structural component system e.g. timber roof framing, structural concrete frame & foundation.

ii. It shall be engineered in accordance with the specified code and design loading and shall transfer positive acting loads at each attachment location into an existing structural member.

iii. Design/Builder to furnish labor, material, tools, equipment and services.

iv. Although such work is not specifically indicated, furnish and install supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete

retrofitting.

b. WORK INCLUDED:
    i. Existing Concrete Structural Framing Analysis & Proposed retrofit design.
    ii. Replacement of Existing Roofing Materials.
c. SYSTEM DESCRIPTION: Building dimensions, location, orientation and all details that will be use for the analysis & design stage shall be the results of the preparatory requirements of this scope.
d. STRUCTURAL REQUIREMENTS:
    i. Building Code: IBC and ASCE-7 current edition
    ii. Design Loads:
        - Dead Load: self weight of building system
        - Roof Live Load: 20 psf
        - Concentrated Live Load: 4000lb
        - Wind Load: Wind speed (3 sec gust) : 160mph
        - Wind Exposure: Maximum consideration
        - Seismic Load: Maximum consideration
        - Load Combinations: Comply with Building Code
    iii. Structural Analysis & Design:
        - Whenever structural engineering software is used, 3D/2D Model Data Input shall be printed as part of the Structural Calculation Document.
        - Drawing of the complete mathematical model used to represent the structure in the computer-generated analysis shall be part of the Structural Calculation Document.
e. DELIVERABLES:
    i. Stamped Structural Calculation Document
    ii. 3 sets of Engineered Stamped Drawings
    iii. Electronic Cad file for all the drawings required.
    iv. Manual & Specifications: comply with latest CSI MASTER FORMAT.
f. EXECUTION:
    i. Repair Notes:
        - No repair/retrofitting shall commence unless proper shoring and jacking is provided
        - Column with overstressed section shall be retrofitted as indicated on the plan and surface repair for columns with minor cracking and delamination.
    ii. Surface preparation:

- Locate area to be retrofit. hammer sounding is recommended when locating delamination.
- Removed deteriorated concrete using acceptable methods.
- Prepare surface repair boundaries to prevent feather edged conditions.
- Clean the surface of the exposed reinforcing steel and concrete. ¾" minimum clearance under bar.

iii. Existing Reinforcing steel cleaning, repair and protection:

- All heavy rust and scale should be removed from the rebar to promote maximum bond with repair materials.
- High pressure water or sand cleaning is recommended.
- Replace and/or install rebars per design as needed.

iv. Placement method:

- Prepare and install forms as needed.
- Place concrete into top of form and free falls into the prepared cavity.
- Conventional internal vibrators, rodding of repair material from an access point in the formwork or external vibration of formwork may be used.

g. EXISTING ROOFING MATERIALS.

i. The Design/Builder shall remove, replace and restore the roofing materials to its existing design and material specifications.

ii. Roofing material manufacturer's and submittals are subject for ASPA approval based on technical and aesthetic principles.

iii. DELIVERY, STORAGE, AND HANDLING

- Deliver materials to job site, handle and store in original packages and containers with manufacturer's seals and labels intact. Manufacturer's name, brand, mass, specification number, and lot number shall be shown on labels.
- Store materials in weatherproof shelters having floors which will protect materials from moisture. Store roll materials on end. Avoid prolonged exposure of light or heat sensitive materials to sunlight.
- Place protection to the requirements and satisfaction of this Section before performing the work of other Sections.
- In the event of materials damage by the elements, improper handling or other causes, such materials will be rejected, and shall be replaced at no extra cost to the ASPA. Remove

rejected materials promptly from the site.

Warranty

All manufacture warranties provided with equipment and materials installed during this Project shall be submitted to ASPA prior to completion.

Equipment and Materials

All supplies, materials and equipment shall be maintained by the Contractor in accordance with the manufacturer's specifications in a secured area and away from general public access. Supplies should not be subject to adverse weather conditions prior to use and all applications and installations will be completed in accordance with manufacturer's specifications.