



GVB TUMON BUS SHELTERS DESIGN-BUILD RFP DOCUMENTS



PROJECT MANUAL & SPECIFICATIONS



Submitted By:



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GVB BOILER PLATE DOCUMENTS

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SECTION 00310 - BID FORM

Having carefully examined the GVB Tumon Bus Shelter Design-Build RFP & Bid Documents, Drawings, and Specifications, as well as the premises and conditions affecting the work, the undersigned proposes to furnish all labor and materials and to perform all work required by and in strict accordance with the above-named documents for the following sums:

BASE BID

The Base Bid shall be broken down into subtotals for each of the Pay Item Numbers listed below. The bid shall further be broken down between material costs and labor costs for each item. OH+P shall be included in each Pay Item and will be the basis for Change Orders and Directives. Detailed breakdowns of each Pay Item shall be provided by the Contractor upon request by GVB. The contractor shall be responsible for establishing quantities and procurement timetables for construction materials, systems and/or components.

Pay Item Number	Description	Est. Qty	Unit	Material Cost	Labor Cost
1	General Requirements	1	LOT		
	Phase 1				
1a	a. Demolition Work	1	LOT		
1b	b. Civil Work	1	LOT		
1c	c. Electrical Work	1	LOT		
1d	d. Bus Shelter & Amenities	1	LOT		
	Phase 2A				
2a	Demolition Work	1	LOT		
2b	Civil Work	1	LOT		
2c	Electrical Work	1	LOT		
2d	Bus Shelter & Amenities	1	LOT		
	Phase 2B				
2e	Demolition Work	1	LOT		
2f	Civil Work	1	LOT		
2g	Electrical Work	1	LOT		
2h	Bus Shelter & Amenities	1	LOT		
	Phase 3	1	LOT		
3a	Demolition Work	1	LOT		
3b	Civil Work	1	LOT		
3c	Electrical Work	1	LOT		
3d	Bus Shelter & Amenities	1	LOT		

Pay Item Number	Description	Est. Qty	Unit	Material Cost	Labor Cost
	Phase 4A	1	LOT		
4a	Demolition Work	1	LOT		
4b	Civil Work	1	LOT		
4c	Electrical Work	1	LOT		
4d	Bus Shelter & Amenities	1	LOT		
	Phase 4B	1	LOT		
4e	Demolition Work	1	LOT		
4f	Civil Work	1	LOT		
4g	Electrical Work	1	LOT		
4h	Bus Shelter & Amenities	1	LOT		
	Phase 5	1	LOT		
5a	Demolition Work	1	LOT		
5b	Civil Work	1	LOT		
5c	Electrical Work	1	LOT		
5d	Bus Shelter & Amenities	1	LOT		
	Phase 6A	1	LOT		
6a	Demolition Work	1	LOT		
6b	Civil Work	1	LOT		
6c	Electrical Work	1	LOT		
6d	Bus Shelter & Amenities	1	LOT		
	Phase 6B				
6e	Demolition Work	1	LOT		
6f	Civil Work	1	LOT		
6g	Electrical Work	1	LOT		
6h	Bus Shelter & Amenities	1	LOT		
	Phase 7				
7a	Demolition Work	1	LOT		
7b	Civil Work	1	LOT		
7c	Electrical Work	1	LOT		
7d	Bus Shelter & Amenities	1	LOT		

Pay Item Number	Description	Est. Qty	Unit	Material Cost	Labor Cost
	Phase 8				
8a	Demolition Work	1	LOT		
8b	Civil Work	1	LOT		
8c	Electrical Work	1	LOT		
8d	Bus Shelter & Amenities	1	LOT		
	Phase 9				
9a	Demolition Work	1	LOT		
9b	Civil Work	1	LOT		
9c	Electrical Work	1	LOT		
9d	Bus Shelter & Amenities	1	LOT		
	Phase 10				
10a	Demolition Work	1	LOT		
10b	Civil Work	1	LOT		
10c	Electrical Work	1	LOT		
10d	Bus Shelter & Amenities	1	LOT		
11	Engineering Design	1	LOT		
	TOTAL BASE BID				
	ALTERNATE BID ITEMS				
ABI-1	Phase 2 with Cutout				
	Demolition Work	1	LOT		
	Civil Work	1	LOT		
	Electrical Work	1	LOT		
ABI-2	Phase 4 with Cutout				
	Demolition Work	1	LOT		
	Civil Work	1	LOT		
	Electrical Work	1	LOT		
ABI-3	Phase 6 with Cutout				

Pay Item Number	Description	Est. Qty	Unit	Material Cost	Labor Cost
	Demolition Work	1	LOT		
	Civil Work	1	LOT		
	Electrical Work	1	LOT		
ABI-4	Additional Map Pylons	20	EA		
ABI-5	Lotte Hotel Bus Stop (Phase 11)				
ABI-5a	Demolition Work	1	LOT		
ABI-5b	Civil Work	1	LOT		
ABI-5c	Electrical Work	1	LOT		
ABI-5d	Bus Shelter & Amenities	1	LOT		
ABI-5e	Topographic Land Survey	1	LOT		
ABI-5f	Engineering Work	1	LOT		

- a. The successful contractor shall submit a schedule of values for all lump sum cost shown in the bid schedule to be used for progress of payment.
- b. The quantities shown in the Bid Schedules are estimated quantities. The contractor shall be paid for the actual work completed and accepted by the Contracting Officer.
- c. Bids shall include a mandatory general CPM chart for the project that identifies the relationship of the following activities & milestones:
 - NTP date per GVB instructions.
 - Mobilization duration.
 - Building Permit duration.
 - Demolition Activity duration for each phase of work.
 - Material Procurement duration.
 - Construction Activity duration for each phase of work.
 - Occupancy Inspections.
 - Substantial Completion.
 - Project Closeout Activities.

VALUE ENGINEERING

Contractors may submit value-engineering ideas for consideration provided the V.E. recommendations result in a lower cost to the owner, improved (shortened) construction time, and improved overall values for the project. Provide material information, systems description. The contractor shall be responsible for administrative, engineering cost to expedite the V.E items proposed.

TIME OF COMPLETION

The undersigned agrees that the contract time for the total project shall be 190 consecutive calendar days. This timeframe is inclusive of substantial and final completion.

OVERHEAD AND PROFIT

The undersigned affirms that all the above bid prices include overhead and profit, including all fees, taxes,

insurance, coordination costs, material and wage increases, and any other costs affecting the construction and completion of this project in accordance with contract documents.

The undersigned further agrees that the Guam gross receipts tax is included in bid amounts and that should the gross receipts tax be abated during the contract period, the contract sum shall be reduced by the abated amount.

STATUS

The status of the bidder must be given whether individual, co-partnership or corporation. (If co-partnership, give full names of all partners; if corporation give the place in which incorporated and the full name of president and secretary).

CONTRACT AND BOND

The undersigned agrees, if awarded the contract, to execute and deliver to the Owner within ten (10) days after receiving the notice of award or the contract forms, an agreement, and if asked for, a satisfactory performance and payment bond in an amount equal to one hundred percent (100%) of the contract sum.

The surety requested to issue the performance and payment bond will be:

The undersigned hereby authorizes said surety company to disclose any information to the Owner concerning the undersigned's ability to supply a performance and payment bond in the amount of the contract.

Type of Organization

State of Incorporation

Names of Partners or Corporation Officials or Individuals:

LICENSING

The undersigned certifies that he is licensed as a Contractor by the Territory of Guam where the project is located, that such license is in full force and effect, and will remain so throughout the duration of the contract.

Date: _____ BIDDER:

Firm:

By: _____ Title

Address

Telephone _____ Fax

Email

Contractor's License Number

License(s) Type

END OF SECTION 00310

SECTION 01010
SUMMARY OF WORK

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Work covered by the Contract Documents.
2. Contractor's use of the premises.
3. Occupancy requirements.

B. Related Documents:

1. The Contract Documents, as defined within this Section, apply to the work. Additional requirements and information necessary to complete the work may be found in other Documents.
2. Owner's Bid and Contract documents per 01012.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Provide and pay for all labor, materials, services, equipment, permits, fees, licenses, taxes, and other items necessary for the execution, installation and completion of all work indicated in the Contract Documents.
- B. The work involves the design-build construction of the GVB Tumon Bus Shelters along San Vitores Road in Tumon, Guam. Work includes but is not limited to demolition, removal, earthwork, site utilities and site improvements, paving, and planting. Work also includes, but is not limited to, concrete foundations, pre-fabricated bus shelters, pre-fabricated site amenities, and electrical work, complete and ready for use.
- C. Structural, civil, and electrical engineering design work shall be provided by the Contractor.
- D. Coordination: The work of this Contract includes coordination of the entire work of the Project, from the beginning of activity through project close-out and the warranty periods.
- E. Drawings: Preparation of "As-Built" Drawings showing the location of all new work.
- F. The work and appurtenances shall be all in strict accordance with the Contract Documents, except only those items specifically shown, noted, or specified as not in the Contract (NIC), or those materials designated as OFCI.
- G. Summary of References: Work of the Contract can be summarized by reference to the Contract, General Conditions, Supplementary Conditions, Special Provisions, Labor Standards Provisions, Specifications Sections as listed in the Table of Contents bound herewith, Drawings, Addenda and Modifications to the Contract Documents issued subsequent to the initial printing of these Specifications, and including, but not necessarily limited, to printed matter referenced by any of these.

H. Related Sections

Section 01068 – Definitions and Standards

Section 01605 – Products and Substitutions

Section 01340 – Submittals

Section 01500 – Temporary Facilities and Control (Erosion and Sediment Control)

Section 01560 – Environmental Protection

Section 01605 – Product Requirements –

Section 01741 - Construction Waste Management

Section 01705 – Project Closeout

Section 2050 - Demolition and Removal

1.3 CONTRACTOR'S USE OF PREMISES

A. During construction, the Contractor shall have full use of the Project Site and to the immediate area for construction operations. Contractor shall minimize disruption to the activities in and around adjacent roads, streets, buildings and other facilities.

B. The Contractor must limit use of the premises to construction activities only in the areas indicated:

1. Confine operations to areas within the Contract limits indicated. Portions of the Site beyond the areas in which construction operations are permitted are not to be disturbed or used.

2. Keep driveways and entrances serving the public and adjacent buildings and properties clear and useable at all times. Do not use these areas for parking or storage of materials unless approved, in writing, by the Owner's representative.

3. Schedule deliveries to minimize time and space required for storage of materials and equipment on the Project Site.

4. Provide temporary fencing, barricades, signage, traffic control and personnel necessary for public safety.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01012

SUPPLEMENTARY CONDITIONS

PART 1 GENERAL

1.1 PROJECT SITE

- A. The Project Sites are located as shown on Drawing T-1.

1.2 CONTRACT DOCUMENTS

- A. Contract form shall be:
 - 1. GVB Contract
- B. General Conditions shall include:
 - 1. GVB General Conditions
- C. Owner-issued bid and contract documents shall take precedence should there be conflict between the Owner-issued documents and these Specifications.

1.3 CONTRACT RESPONSIBILITIES

A. TIME OF COMPLETION

The work shall commence upon Contract signing and shall be thereafter complete within 190 consecutive calendar days inclusive of substantial completion and final completion. Prerequisites for substantial completion and final completion are indicated in Section 01705 - Project Closeout.

B. TIME EXTENSIONS, CHANGE ORDERS, AND CLAIMS

Time extensions, change orders, and claims requested for the Project are subject to additional Architect / Engineer services and fees that shall be the responsibility of the Contractor. After providing notice of an intended time extension, change order, or claim, the Contractor shall request the Architect / Engineer to provide a fee proposal for additional services to review the request, and for additional services warranted by changes to the Contract Work or Time.

C. OVERHEAD AND PROFIT

The undersigned affirms that all the above bid prices include overhead and profit, including all fees, taxes, insurance, coordination costs, material and wage increases, and any other costs affecting the construction and completion of this project in accordance with contract documents.

The undersigned further agrees that the Guam gross receipts tax is included in bid amounts and that should the gross receipt tax be abated during the contract period, the contract sum shall be reduced by the abated amount.

D. STATUS

The status of the contractor must be given whether individual, co-partnership or corporation. (If co-partnership, give full names of all partners; if corporation give the place in which incorporated and the full name of president and secretary).

E. CONTRACT AND BOND

The undersigned agrees, if awarded the contract, to execute and deliver to the Owner within ten (10) days after receiving the notice of award or the contract forms, an agreement, and if asked for, a satisfactory performance bond and labor and material payment bond in an amount equal to one hundred percent (100%) of the contract sum, at the rate identified during the bid selection process.

The surety requested to issue the performance and payment bond will be:

The undersigned hereby authorizes said surety company to disclose any information to the Owner concerning the undersigned's ability to supply a performance and payment bond in the amount of the contract.

1.4 LIQUIDATED DAMAGES

A. Per GVB Contract General Conditions

1.5 CLIMATIC CONDITIONS

A. The contract time for this Contract allows for the following number of days lost due to adverse climatic conditions in each month. Time extension on account of inclement weather will be allowed only for lost days of work in excess of the limits shown below. Time extension on account of inclement weather on Saturday and Sunday shall be granted only if the Contractor has confirmed, in writing, his intention to work on those days. Allowance for delays will not be given for interior work and other work which can proceed during periods of inclement weather.

<u>Month</u>	<u>Non-Working Days</u>
January	4
February	3
March	3
April	3
May	4
June	5
July	7
August	8
September	8
October	8
November	7
December	5

1.6 FEES

A. The Contractor will be responsible for all processing and payment of fees and payments pursuant to the construction of this Project. Included are Building Permit, Occupancy Certificate, and regulatory agencies fees. The Contractor shall be responsible for submitting the required drawings and other required documents to the respective agencies, coordination with the A/E design team, and following up until permits have been issued.

1.7 DRAWINGS AND SPECIFICATIONS

- A. Upon award of the Construction Contract, the Owner will furnish the Contractor, without charge, four (4) copies of the Design-Build RFP and Bidding Documents. Additional copies requested by the Contractor will be furnished at cost.

1.8 ELECTRONIC DOCUMENTS

- A. With concurrence of GVB, the Architect will release to the Contractor the Design-Build RFP drawings in electronic format. As a condition of release, the Contractor shall sign an Electronic Data Transfer Indemnity Agreement prepared by the Architect.

1.9 ADMINISTRATIVE SUBMATERIALS

- A. Contractor will submit for approval within ten (10) calendar days of award of the Contract, the following, which may also be referred to in other portions of these Specifications:
 - 1. Resume of the project superintendent indicating qualifications to provide project supervision.
 - 2. List of all subcontractors to be used on the project.
 - 3. Schedule of Values.
 - 4. Progress Schedule.
 - 5. Performance and Payment Bonds.
 - 6. Insurance Certificates.

1.10 BONDS

- A. The Contractor shall furnish to the Owner, in a form satisfactory to the Owner, at the Owner's request, a Performance Bond and a Labor and Materials Payment Bond, each in the sum of 100% of the Contract Sum, and with a Bond Rider naming the Contractor as principal, corporate surety satisfactory to the Owner, as surety and any construction lender and lessee (if the Project is leasehold) as additional or dual obligees. The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of his Power of Attorney.

1.11 CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE

- A. The Contractor shall not commence work under this Contract until he has obtained all insurance required hereunder, and such insurance has been submitted to the Owner. The Contractor shall not allow any subcontractor to commence work under his subcontract until all similar insurance required of the subcontractor has been obtained. Approval of the insurance by the Owner shall not relieve or decrease the liability of the Contractor hereunder.
- B. Workman's Compensation and Employer's Liability Insurance: The Contractor shall take out and maintain during the life of this Contract the statutory Workman's Compensation and Employer's Liability Insurance for all of his employees to be engaged in work on the Project under this Contract, and in case any such work is sublet, the Contractor shall require the subcontractor, similarly, to provide Workman's compensation and Employer's Liability Insurance for all of the subcontractor's employees to be engaged in the work.
- C. Bodily Injury Liability and Property Damage Liability Insurance: The Contractor shall take out and maintain during the life of this Contract such Bodily Injury Liability and Property Damage Liability Insurance as shall protect from claims for damages from personal injury, including accidental death, as well as from operations under this Contract, whether such operations be by himself or by any subcontractor or by anyone directly or indirectly employed by either of

them, and the amounts of such insurance shall not be less than:

1. Commercial General Liability Insurance
\$1,000,000 combined single limit of liability for Bodily Injury and Property Damage, including Contractual Liability and Completed Operations.
 2. Automobile Liability Insurance
\$1,000,000 combined single limit of liability for Bodily Injury and Property Damage on all owned, non-owned, or hired autos used on the Project.
- D. Owner's Protective Liability Insurance - The Contractor shall take out and furnish to the Owner and maintain during the life of this contract complete Owner's protective liability insurance in amounts as specified above for bodily injury liability insurance and for property damage liability insurance.
- E. Fire Typhoon Theft and Vandalism Insurance - The Contractor shall insure the building or other work included in this contract against loss or damage by fire typhoon theft and vandalism and against loss or damage covered by the standard extended coverage insurance endorsement, in an insurance company or companies acceptable to the Owner, the amount of the insurance at all times to be at least equal to the amount paid on account of work and materials and plus the value of work or materials furnished or delivered but not yet paid for by the Owner. The policies shall be in the names of the Owner and the Contractor.
- F. Supplemental to Contractor's and Subcontractor's Insurance
1. Flood Hazard Insurance - For projects located on the shoreline or in flood hazard zones, the Contractor during the life of this contract shall secure and maintain Flood Hazard Insurance in the amount equivalent to 100 percent (100%) of the contract amount for all damages. The policies shall be in the name of the Owner and the Contractor.
- G. A certificate of the insurance company as to amount and type of coverage, terms of policies, etc., shall be delivered to the Owner before commencing work.

1.11 PROGRESS PAYMENTS

- A. Application for progress payments shall be made monthly on AIA Document G702 and G703 "Application and Certification for Payment".

1.12 AMERICANS WITH DISABILITIES ACT (ADA)

- A. All person and entities providing work for this project are required to be knowledgeable of the requirements of the American Disabilities Act as it affects their portion of the Work. Do not install work which is not in compliance with ADA. Prior to any fabrication and installation of any work not complying with ADA requirements, notify Architect and secure design direction resolving noncompliant features.

1.13 WARRANTY

- A. All work shall be guaranteed in writing by the Contractor against defects resulting from the use of defective or inferior materials, equipment, or workmanship, for a minimum of one (1) year from the date of substantial completion. Any maintenance service contracts and warranties for equipment in use shall begin as of the same date of the general warranty against defects described herein above.

- B. If, within the guaranty period, repairs or changes required in connection with the guaranteed work, which in the opinion of the Owner or Architect are rendered necessary as a result of the use of materials, equipment, or workmanship, which are inferior, defective, or not in accordance with the terms of the Contract, the Contractor shall within five consecutive working days of request by Owner or Architect and without expense to Owner commence to, in every instance place in satisfactory condition all such guaranteed work and correct all defects therein, and make good all damages to the building or Work or equipment or contents thereof.
- C. Whenever a manufacturer's guaranty on any product exceeds one year, that guaranty shall become part of the Contract. The Contractor shall complete the warranty forms in the name of the Owner and submit such forms to the manufacturer within such time required to validate the warranty. The Contractor shall submit to the Owner the completed warranty forms for the Owner's record that such warranty form was filed with the manufacturer.
- D. Any manufacturers' warranties concerning any items installed will run to the benefit of the Owner, and Contractor agrees not to void or impair or to allow Subcontractors to void or impair any original warranties or guaranties existent or running to the benefit of Owner as to products or items installed in the Project herein contemplated, provided, however, if Architect shall designate installation in a method or manner which shall void or impair the referenced warranties, Owner and Architect shall be advised, in advance, in writing by Contractor of such violation of the manufacturer's recommended installation and impairment of warranty, and Architect and Owner may change such installation to conform with recommended procedures or confirm the method of installation applicable thereto in writing to Contractor.

1.14 BUILDING AND OCCUPANCY PERMITS

- A. Contractor shall make application for, process, pay all changes and obtain building permit(s) for the project, provide copies to Architect and Owner.
- B. Upon Substantial Completion, Contractor shall record the Substantial Completion Certificate with the Government of Guam and deliver to the Owner and Architect an unrestricted Occupancy Permit.

1.15 COMPLIANCE WITH MECHANIC LIEN'S LAW

- A. Contractor shall comply with lien provisions of the Government Code of Guam. Contractor, shall make such submittals to the owner, record required documents, provide releases, publish such notices, post surety bonds as required and take other actions within stipulated time frame for full compliance with the law.

1.16 DEFAULT

- A. The Owner may declare the Contractor in default in accordance with and in the manner described in the general conditions of the Contract for Construction.
 1. Failure to complete the work within the Contract period or any extension thereof.
 2. Failure or refusal to comply with an order of the Owner or Architect within a reasonable time.
 3. Failure or refusal to remove rejected materials.
 4. Failure or refusal to perform anew any defective or unacceptable Work.
 5. Bankruptcy or insolvency, or the making of an assignment for the benefit of creditors.
 6. Failure to pay Subcontractors and suppliers promptly.

- B. Repeated failure to provide a qualified superintendent, competent workmen or subcontractors to carry on the Work in an acceptable manner or failure to prosecute the Work according to the agreed schedule of completion.

PART 2 PRODUCTS - Not Used.

PART 3 EXECUTION - Not Used.

END OF SECTION 01012

SECTION 01068

REFERENCES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Specifications format and content.
 - 2. Quality assurance.
 - 3. Reference standards.
 - 4. Abbreviations.
 - 5. Definitions.
- B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the work of this Section. Additional requirements and information necessary to complete the work of this Section may be found in other Documents.

1.2 SPECIFICATIONS FORMAT AND CONTENT

- A. Specifications Format: The Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's (CSI) 16-Division format numbering system.
- B. The Design-Build RFP Documents issued by the Owner are included with the Specifications. The Owner-issued documents will take precedence should there be any conflict between them and the Specifications.
- C. Specifications Content: The Specifications use certain conventions in language and intended meaning of certain terms, words and phrases when used in particular situations or circumstances. These conventions are explained as follows:
 - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated type. Words and meanings shall be interpreted as appropriate. Words that are implied, but not stated shall be interpolated as the sense required. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and the context of the Contract Documents so indicates.
 - 2. Imperative and streamlined language is used generally in the Specifications. Requirements expressed in imperative mood are to be performed by the Contractor. At certain locations in the text, for clarity, subjective language is used to describe the responsibilities that must be fulfilled indirectly by the Contractor or by others when so noted.
 - a. The words "shall be" shall be included by inference wherever a colon (:) is used within a sentence or phrase.

1.3 QUALITY ASSURANCE

- A. For products or workmanship specified by association, trade, or other consensus standards, the Contractor shall comply with the requirements of the standard, except when more rigid requirements are specified or are required by applicable codes. Such standards are made a part of the Contract Documents by reference.

- B. Conform to the reference standards by the date of issue that was current on the original date of the Contract Documents.
- C. Obtain copies of the standards when required by the Contract Documents.
- D. Maintain a copy of the standards at the Project Site during submittals, planning and progress of the specific work until Final Acceptance.
- E. Should a specified reference standard conflict with the Contract Documents, request clarification from the Owner's representative before proceeding.
- F. Neither the contractual relationship, duties or responsibilities of the parties to the Contract nor those of the Owner's representative shall be altered from the Contract Documents by any mention or inference otherwise in any reference document.

1.4 INDUSTRY STANDARDS AND CODES:

- A. General Applicability of Standards: Applicable standards of the construction industry and Building Codes adopted by the governing agencies have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies were bound herewith.
- B. Referenced Standards (referenced directly in the Contract Documents or by governing regulations) have precedence over unreferenced standards which are recognized in the industry for applicability to the work. Except as otherwise indicated, where compliance with an industry standard is required, comply with the standard in effect as of the date of the Contract Documents.
- C. Conflicting Requirements: Where compliance with two or more standards is specified, and the standards establish different or conflicting requirements for minimum quantities or quality levels, refer the requirements that are different but apparently equal, and uncertainties to the Owner's representative for decision before proceeding.
 - 1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified or it may exceed the minimum within reasonable limits. In complying with these requirements, the indicated numeric values are minimum or maximum, as appropriate for the context of the requirements. Refer uncertainties to the Owner's representative for a decision before proceeding.
- D. Copies of Standards: Each entity engaged in construction of the Project is required to be familiar with the industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound within the Contract Documents.
 - 1. Where copies of standards are needed for the performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.

1.5 ABBREVIATIONS

- A. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations," published by Gale Research Company.

1.6 DEFINITIONS (People and Entities)

- A. Definitions specified herein are included in order to further clarify terms.
- B. Architect-Engineer (of Record): The Architect-Engineer is the person lawfully licensed to practice in professional disciplines such as architecture or civil, structural, mechanical, and electrical engineering.
- C. Installer: The Contractor or another entity engaged by the Contractor, either as employee, subcontractor or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, unpacking, assembly, placing, finishing, curing, adjusting, cleaning, protection or similar operation. Installers are required to be experienced in the operations they are engaged to perform.
 - 1. Experienced: The term "experienced," when used with the term "installer," means having a minimum number of years experience on projects similar in size and scope to this Project, being familiar with the special requirements indicated, and having complied with requirements of the authorities having jurisdiction.
 - 2. Trades: Using terms such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that the requirements specified apply exclusively to tradespersons of the corresponding generic name.
- D. Manufacturer: A person, firm or corporation who makes products.
- E. Owner: The individual, firm, corporation or government entity that owns the Project.
- F. Owner's Representative: The individual, firm or company administering the Contract on behalf of the Owner. Owner's representative may be the Owner him / herself, the Architect of Record, project engineer, Project Manager or other, as designated by the Owner, and includes a duly appointed successor or authorized representative.
- G. Project Field Superintendent: The Contractor's representative at the Project Site who is responsible for continuous field supervision, coordination, quality control, completion of the Project, and for the prevention of accidents, unless another person is designated, in writing, by the Contractor.
- H. Subcontractor: An individual, firm or corporation having a direct contract with the Contractor or with any other subcontractor for performance of a part of the work at the Project Site.
- I. Supplier: A manufacturer, fabricator, supplier, distributor, material man or vendor having a direct contract with the Contractor or with any subcontractor to furnish materials or equipment to be incorporated into the work by the Contractor or any subcontractor, but does not perform labor at the Project Site.
- J. Separate Contractor: An individual, firm or corporation having a direct contract with the Owner for performance of part of the work at the Project Site.
- K. Testing Laboratory: An independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret the results of those inspections or tests.
- L. Trade: See Installer.

M. Utility: Local utility agency providing service to the Project..

1.7 DEFINITIONS (Things, Services, and Dispositions)

- A. Acceptable: Satisfactory to and approved by the Owner's representative.
- B. Approve: The term "approved," when used in conjunction with the Owner representative's action on the Contractor's submittals, applications and requests, is limited to the Owner representative's duties and responsibilities as stated in the Contract.
- C. Change Order: A modification to the Contract.
- D. Clarification Drawing: A graphic interpretation of a Drawing or other Contract Documents issued by the Architect through the Owner's representative.
- E. Construction Operations: Activities of the Contractor at the Project Site.
- F. Directed: Instructed by the Owner's representative.
- G. Experienced (Qualified): When used to describe the "installer", "fabricator" or similar terms; a person, firm or corporation skilled through observation or of participation in the particular activities required to complete the work or a portion of the work to the degree of quality specified.
- H. Final Connections: Complete plumbing, mechanical and electrical connections as required and recommended by the manufacturer for optimum operation of the equipment.
- I. Indicated: The term "indicated" refers to graphic representations, notes or schedules on the Drawings, or other paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Where terms such as "shown," "noted," "scheduled" and "specified" are used, it is to help the reader locate the reference. Location is not limited.
- J. Install: Operations at the Project Site including actual unloading, unpacking, assembly, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations.
1. Final Connections: Complete plumbing, mechanical and electrical connections as required and recommended by the manufacturer for optimum operation of equipment.
- K. Mobilization: To establish and commence work activity at the Project Site.
- L. Partial Occupancy: Partial Occupancy occurs when the Owner begins to occupy part of the Project for its own purposes, such as early fixture set-up, merchandising, etc. Partial Occupancy shall not constitute acceptance of work not in accordance with the Contract Documents.
- M. Premises: Space or property made available to the Contractor for constructing the work.
- N. Project Site: The space available to the Contractor for performing construction operations, either exclusively or in conjunction with others performing other work as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.

- O. Receive: Accepting a delivery. (Entity responsible for accepting a delivery.)
- P. Regulations: The term "Regulations" includes laws, ordinances, statutes and lawful orders issued by authorities having jurisdiction, as well as rules, conventions and agreements within the construction industry that control performance of the work.
- Q. Reviewed: Examined and found acceptable by the Owner's representative.
- R. Substantial Completion: The stage in progress of the work when the work or a designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the work for its intended use.
- S. Substitution: A product that is exchanged for another of the same function and is of equal or better quality.
- T. Supply: To supply, deliver, unload and inspect for damage (same as Furnish).
- U. Unacceptable: Determined not satisfactory by the Owner's representative.

1.8 DRAWING:

- A. Except as otherwise indicated, graphic symbols used on the Drawings are those symbols recognized in the construction industry for the purposes indicated.
- B. Discrepancies: In the event of a discrepancy, as between small scale Drawings and larger scale Details, or between Drawings and Specifications, or within the Specifications, immediately bring the discrepancy to the attention of the Owner's representative / Architect / Engineer for a decision before proceeding with the particular work involved. Work carried out disregarding these instructions is subject to removal and replacement at the Contractor's expense.

PART 2 PRODUCTS - Not Used.

PART 3 EXECUTION - Not Used.

END OF SECTION

SECTION 01150

SCHEDULES, REPORTS, PAYMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Coordination
2. Progress Schedule
3. Submittal Schedule
4. Schedule of Values
5. Payment Requests

B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the work of this Section. Additional requirements and information necessary to complete the work of this Section may be found in other Documents.

1.2 COORDINATION

A. Coordinate both the procedural timing and listing (naming and sequencing) of reports / activities required by the provisions of this Section and other Sections, to afford consistency and logical coordination between submitted reports or lists. Maintain the coordination and correlation between the separate reports by updating on a regular basis. Make the appropriate distribution of each report and updated report to entities involved in the work including the Owner's representative / Architect / Engineer. In particular, provide close coordination of the progress schedule, schedule of values, listing of subcontracts, schedule of submittals, progress reports, and payment requests.

1.3 PROGRESS SCHEDULE

A. The Progress Schedule to comply with requirements set forth in the "General Conditions of the Contract for Construction". Update the Schedule on a regular basis, but no less than every month.

1.4 SUBMITTAL SCHEDULE

A. General: Immediately following development and acceptance of a fully developed Progress Schedule, prepare a complete schedule of work-related Submittals. Correlate the Submittal Schedule with the listing of principal subcontractors, as required by the General Conditions, and with the "listing of products" or "procurement schedule" as specified in "Products and Substitutions" Section 01605 and elsewhere in the Contract Documents.

B. Form: Show the category of the Submittal, name of the subcontractor, generic description of work covered, related Section number, activity or event number on the Progress Schedule, scheduled date for first submission, and blank columns for the actual date of submittal, re-submittal, and final release or acceptance by the Owner's representative / Architect / Engineer.

1.5 SCHEDULE OF VALUES

- A. General: Prepare a Schedule of Values acceptable to the Owner's representative, as required by the General and Supplementary Conditions, in coordination with preparation of the Progress Schedule. Correlate line items with other administrative schedules and forms required for the work, including Progress Schedule, payment request form, listing of subcontractors, schedule of allowances, schedule of alternates, listing of products and principal suppliers and fabricators, and Schedule of Submittals. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of payment requests and progress reports. Break down the principal subcontract amounts into several line items. Round off sums to the nearest whole dollar, but with the total equal to the Contract Sum. Submit three (3) copies of the Schedule of Values to the Owner's representative / Architect / Engineer for review and comment.
- B. Unit Cost Allowances: Where required, identify line item values as a product of unit cost x measured quantity, as estimated from best indications in the Contract Documents.
- C. Schedule Updating: Update the Schedule of Values when Change Orders affect the listing, and when actual performance of the work involves necessary changes of substance to values previously listed.

1.6 PAYMENT REQUESTS

- A. General: Except as otherwise indicated, the sequence of progress payments is to be regular, and each must be consistent with previous applications and payments. It is recognized that certain applications involve extra requirements, including the initial application, application at the time of substantial completion, and the final payment application.
- B. Waivers of Lien: For each payment application, waivers of lien from subcontractors who could lawfully and possibly file a lien arising out of the Contract and related to work covered by payment, may be requested. Submit partial waivers for the amount requested (prior to deduction or retainage) on each item; and when the application shows completion of an item, submit final or full waivers. The Owner reserves the right to designate which entities involved in the work must submit waivers.
- C. Payment Application Times: The "date" for each progress payment is as indicated in the Owner-Contractor Agreement, or if none, as indicated therein - the 30th day of each month.
- D. Application for Payment Form: AIA Document G702 and G703 Continuation Sheets.
- E. Application for Payment Preparation: Except as otherwise indicated, complete every entry provided for on the form, including notarization and execution by an authorized person. Incomplete applications will be returned without action. Entries must match the current data of the Schedule of Values and Progress Schedule. Listings must include the amount of Change Orders approved prior to the last day of the "period of construction" covered by the Application.
- F. Application Transmittal: Submit four (4) signed copies of each Application for Payment, one copy which is to be completed with waivers of lien and similar attachments. Submit each copy with a transmittal form listing those attachments, and recording the appropriate information related to the Application in a manner acceptable to the Owner's representative / Architect / Engineer.

- G. Application Processing: Within seven (7) days of receipt of a properly documented Application, the Owner's representative / Architect / Engineer shall review and certify to the Owner the amount determined to be properly due, or if the form is incorrectly prepared, return to the Contractor for correction. Upon receipt of a certified Application from the Owner's representative / Architect / Engineer, the Owner will make payment within the time allowed by the Contract Documents.
- H. Initial Payment Application: The principal administrative actions and submittals which must precede or coincide with submittal of the first Application for Payment can be summarized as follows, but not necessarily by way of limitation:
1. Listing of subcontractors, testing laboratory, principal suppliers and fabricators.
 2. Listing of Contractor's staff assignments and principal consultants.
 3. Copies of Building Permit (if Contractor's responsibility) and similar authorizations and permits from governing authorities.
 4. Progress Schedule.
 5. Performance and Labor and Materials Payment Bonds.
 6. Schedule of Values.
 7. Certificates of Insurance.
 8. Submittal Schedule.
- I. Application at Time of Substantial Completion: Following issuance of Owner representative's / Architect's / Engineer's final "Certificate of Substantial Completion," and also, in part, as applicable to prior Certificates on portions of completed work as designated, a "special" payment application may be prepared and submitted by the Contractor. The principal administrative actions and submittals which must precede or coincide with such special applications can be summarized as follows, but not necessarily by way of limitation:
1. Occupancy Permit(s) and similar approvals or certifications by governing authorities and franchised services, assuring the Owner's full access and use of completed work.
 2. Final cleaning of the work.
 3. Coordination with the Owner on the changeover of insurance coverage, including proof of extended coverage, as required.
 4. Change of door locks and other Contractor's access provisions to the Owner's property.
 5. Listing of the Contractor's incomplete work, recognized as exceptions to the Certificate of Substantial Completion.
- J. Final Payment Application: The administrative actions and submittals which must precede or coincide with submittal of a final Application for Payment can be summarized as follows, but not necessarily by way of limitation:
1. Warranties, (Guarantees), maintenance agreements, and similar provisions of the Contract Documents.
 2. Test / adjust / balance records, maintenance, instructions, meter readings, startup performance reports, training, and similar changeover information germane to the Owner's occupancy, use, operation and maintenance of completed work.
 3. Turnover of spare materials, parts and tools to the Owner, as specified herein.
 4. Completion of items specified for completion beyond the time of Substantial Completion (regardless of whether or not a special payment application was previously submitted).
 5. Release of liens and other assurances, satisfactory to the Owner, that unsettled claims will be settled, and that work not actually completed and accepted will be completed without undue delay.

6. Transmittal of required project construction records to the Owner.
7. Proof, satisfactory to the Owner, that taxes, fees and similar obligations of the Contractor have been paid.
8. Satisfactory removal of temporary facilities, services, surplus materials, rubbish and similar elements.
9. Consent of surety for final payment, as required.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01205

PROCEDURES AND CONTROLS

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

- A. The Contractor shall be responsible for the control and coordination of all work by his forces, subcontractors and suppliers. Procedures and performance required for this purpose include:
1. Coordination and meetings including meeting minutes.
 2. Pre-Installation Conferences.
 3. Adequate administrative and supervisory personnel.
 4. Maintenance of surveys and records.
 5. Enforcement of trades people and workmanship standards.
 6. Coordination of the various trades and subcontractors.
 7. Conducting of inspections, tests and reports.
 8. Coordination of general installation provisions.
 9. Proper cutting and patching procedures and techniques.
 10. Cleaning and protection of the work.

1.2 COORDINATION AND MEETINGS

- A. General: Prepare and distribute to each entity performing work at the Project Site, a written memorandum of instructions on required coordination of activities, including required notices, reports and attendance at meetings. Prepare similar memoranda for separate contractors where the interfacing of work is required.
- B. Coordination Drawings: Where work by separate entities requires off-site fabrication of products and materials which must be accurately interfaced and closely intermeshed to produce the required results, prepare coordination drawings to interface and sequence the work shown by separate Shop Drawings.

1.3 CONSTRUCTION WASTE MANAGEMENT

- A. Contractor shall either conduct separate construction waste management meetings or discuss goals and issues as part of the following regular meetings:
1. Pre-bid meeting.
 2. Pre-construction meeting.
 3. Pre-fabrication meeting.
 4. Regular job-site meetings.
 5. Job safety meetings.
 6. Special Construction Waste Management meetings.

1.4 PRE-INSTALLATION CONFERENCES

- A. General: Schedule and conduct pre-fabrication and pre-installation meetings as required by the Contract Documents. Pre-fabrication and pre-installation meetings are intended to assist the Contractor in determining beforehand specific project requirements and to

encourage coordination between the various trades. Schedule meetings at times appropriate to the type of work involved. Provide adequate notice to all parties to be involved.

1.5 ADMINISTRATIVE / SUPERVISORY PERSONNEL

- A. General: In addition to a general superintendent and other administrative and supervisory personnel required for performance of the work, provide specific coordination personnel as specified herein.
- B. Project Coordination: Provide a full-time Project Coordinator, who is experienced in the administration and supervision of building construction, including mechanical and electrical work, and who is hereby authorized to act as the general coordinator of interfaces between units of work. For purpose of this provisions, "interface" is defined to include the scheduling and sequencing of work, sharing of access to work spaces, installations, protection of each other's work, cutting and preparation of coordination drawings, inspections, tests, and temporary facilities and services.

1.6 SURVEYS AND RECORDS / REPORTS

- A. General: Working from lines and levels established by property survey, and as shown in relation to the work, establish and maintain bench marks and other dependable markers to set lines and levels for the work at each story of construction and elsewhere on-site as needed to properly locate each element of the entire project. Advise tradesmen performing the work, of the marked lines and levels provided for their use in the layout of work.
- B. Survey Procedures: Verify layout information shown on the Drawings, in relation to the property survey and existing bench marks before proceeding with layout of the actual work. As work proceeds, check every major element for line, level and plumb (where applicable), and maintain an accurate surveyor's log or record book of such checks, available for reference at reasonable times. Record deviations on the Record Drawings.

1.7 TRADESPEOPLE AND WORKMANSHIP STANDARDS

- A. General: Instigate and maintain procedures to ensure that persons performing work at the site are skilled and knowledgeable in the methods and craftsmanship needed to produce the required quality levels for workmanship in the completed work. Coordinate the work of trades and subcontractors. Remove and replace work which does not comply with the workmanship standards as specified and as recognized in the construction industry for the applications indicated. Remove and replace work damaged or deteriorated by faulty workmanship and lack of protection of the work.

1.8 INSPECTIONS, TESTS AND REPORTS

- A. General: Required inspection and testing services, as called for in the Specifications are intended to assist in the determination of probable compliance of the work with requirements, but do not relieve the Contractor of responsibility for compliance, or for general fulfillment of the requirements of the Contract Documents. The specified inspections and tests are not intended to limit the Contractor's quality control program. Afford reasonable access to agencies and companies performing tests and inspections. Provide adequate notification to the testing service of the schedule which impacts performance of the required tests.

B. Contract Conforming Work:

1. Resulting from Contract and Code Required Testing / Inspection: The Contractor to obtain and pay the cost of Testing / Inspection Services. Contractor to provide for work required to patch any damaged work.
2. Resulting from Owner Required Testing / Inspection: The Owner to pay the cost for initial Testing / Inspection Services. Contractor to patch any damaged work as follows:
 - a. Non-conforming Work:
 - 1) The Contractor to pay the cost for initial testing / inspection and other fair costs, if any, incurred by the Owner and Architect which directly result from the testing / inspection requirements of non-conforming work.
 - 2) The Contractor to correct defective work to meet the Contract requirements. Pay for all subsequent costs including, but not limited to, further testing, as may be required. Requests for additional time will generally not be considered when resulting from the installation of and/or correction of defective work.

C. Qualification of Testing Agencies:

1. Except as otherwise indicated, and except where manufacturer's testing facilities are indicated as acceptable, engage independent testing laboratories specializing in the required services, and complying with "Recommended Requirements for Independent Laboratory Qualification" by American Council of Independent Laboratories (ACIL).

- D. Reports: Submit test / inspection reports, including agency's analysis of the results and recommendations, where applicable, in duplicate, except as otherwise indicated, and submit copies directly to the governing authorities where required or when requested.

1.9 DAMAGE CLAIMS

- A. The Contractor will be responsible for adequately securing materials stored at the Project Site, and the work in progress, and to conduct the work in such a way as to not create undue risk of injury or damage to persons or property. It is required that the Contractor adequately fence and sign the Project Site, as necessary, and / or arrange and provide for security personnel to adequately keep unauthorized persons from entering the construction area at any hour of the day or night. Notwithstanding anything to the contrary in the General Conditions, and without limiting the generality of anything contained in the General Conditions, Drawings or Specifications, the Contractor is responsible for all damages to persons and property, including damage to the work of other contractors, that occurs as a result of the Contractor's negligence or the negligence of its employees, agents, representatives, or subcontractors upon the Project, in connection with its operations, use of the Project, or prosecution of the work. The Contractor will indemnify and hold harmless the Owner and all of its officers, agents, employees and consultants from any liability, claims, demands or causes of action of any nature whatsoever for damages of any kind, as above set forth, and the Contractor agrees, at its expense, to defend any legal or other action brought against the Owner founded upon such liability, claim, demand or cause of action and to pay any attorneys' fees incurred by the Owner in connection therewith.

1.10 COORDINATION WITH OTHER CONTRACTORS

- A. Schedule work activity in coordination with all on-site contractors; make adjustments in work activities to accommodate the requirements of other contractors.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 GENERAL INSTALLATION PROVISIONS

- A. **Pre-Installation Conferences:** Well in advance of the start of installation of every major unit of work which requires coordination and interfacing with other work, meet at the Project Site with installers and representatives of manufacturers and fabricators involved in or affected by the unit of work, and in its coordination or integration with other work which has preceded or will follow. At each meeting review the progress of other work and preparations for the particular work under consideration, including requirements of the Contract Documents, options, related Change Orders, purchases, deliveries, Shop Drawings, product data, quality control samples, possible conflicts, compatibility problems, time schedules, weather limitations, temporary facilities, space and access limitations, structural limitations, governing regulations, safety inspection and testing requirements, required performance results, recording requirements, and protection. Record the significant discussions of each conference, record agreements and disagreements, along with a final plan of action. Distribute records of meetings promptly to everyone concerned, including the Owner's representative / Architect / Engineer.
- B. **Installer's Inspection of Conditions:** Require Installer of each major unit of work to inspect substrate to receive work, and conditions under which work will be performed, and to report (in writing to Contractor) unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to Installer.
- C. **Manufacturer's Instructions:** Where installations include manufactured products, comply with the manufacturer's applicable instructions and recommendations for installation to the extent these are more explicit or more stringent than requirements indicated in the Contract Documents.
- D. Inspect each item of materials and equipment immediately prior to installation, and reject damaged and defective items.
- E. Provide attachment and connection devices and methods for securing work properly as it is installed; true to line and level, and within recognized industry tolerances if not otherwise indicated. Allow for expansions and building movements, provide uniform joint widths in exposed work, organized for the best possible visual effect, as approved by the Architect.
- F. Re-check measurements and dimensions of the work as an integral step for starting each installation.
- G. Install work during conditions of temperature, humidity, exposure, forecasted weather, and status of project completion which will ensure the best possible results for each unit of work, and in coordination with the entire work. Isolate each unit of work from incompatible work as necessary to prevent deterioration.
- H. Coordinate enclosure (closing-in) of the work with required inspections and tests to minimize the necessity of uncovering work for that purpose.

- I. Mounting Heights: Where mounting heights are not indicated, mount individual units of the work in compliance with ADAAG or industry-recognized standards for the applications indicated. Refer questionable mounting heights to the Owner's representative / Architect / Engineer for a final decision.

3.2 CUTTING AND PATCHING

- A. General: Do not cut-and-patch structural work in a manner that will result in reduction of the load-carrying capacity or load / deflection ratio; submit proposed cutting and patching of structural elements to the Owner's representative / Architect / Engineer for structural approval before proceeding. Do not cut-and-patch operational elements and safety related components in a manner that will result in decreased operational life, increased maintenance, or decreased safety. Do not cut-and-patch work which is exposed on the exterior or exposed in occupied spaces, in a manner that will result in the reduction of visual qualities or result in substantial evidence of cut-and-patch work, both as judged solely by the Architect. Remove and replace work judged to be cut-and-patched in a visually unsatisfactory or otherwise objectionable manner.
- B. Materials: Except as otherwise indicated or approved, provide materials for cutting-and-patching which will result in equal-or-better work than the work being cut-and-patched, in terms of performance characteristics, and including visual effect, where applicable. Use materials identical to the original materials where feasible, and where recognized that satisfactory results can be produced thereby.
- C. Temporary Support and Protection: Provide adequate temporary support for work to be cut, to prevent failure. Do not endanger other work. Provide adequate protection of other work during cutting-and- patching, to prevent damage, and provide protection of the work from adverse weather exposure.
- D. Cut work by methods least likely to damage work to be retained and adjoining work.
 1. Where physical cutting action is required, cut the work with sawing and grinding tools, not with hammering and chipping tools. Core drill openings through concrete work.
 2. Comply with the requirements of applicable Division 2, Specifications Sections where cutting-and-patching requires excavating and backfilling.
- E. Restore exposed finishes of patched areas, and, where necessary, extend the finish restoration onto the adjoining retained work, in a manner which will eliminate evidence of patching.
 1. Where patching occurs in a smooth, painted surface, extend the final paint coat over the entire unbroken surface containing the patch after the patched areas have received prime and base coats.

3.3 CLEANING AND PROTECTION

- A. General: During handling and installation of work at the Project Site, clean and protect work in progress and the adjoining work on a basis of perpetual maintenance. Apply suitable protective covering over newly installed work where reasonably required to ensure freedom from damage and deterioration at the time of substantial completion; otherwise, clean and perform maintenance on newly installed work as frequently as necessarily throughout the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

- B. Limiting Exposures of Work: To the extent possible through reasonable control and protection methods, supervise performance of the work in a manner and by means which will ensure that none of the work, whether completed or in progress, will be subjected to harmful, dangerous, damaging, or otherwise deleterious exposures during the construction period.

END OF SECTION

SECTION 01310

PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Administrative and supervisory personnel.
2. Submittals.
3. Contractor's quality control.
4. Coordination.
5. Project coordination.
6. Pre-Construction meeting.
7. Progress meetings.
8. Pre-Installation meetings.
9. Schedule of Values.

- B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the work of this Section. Additional requirements and information necessary to complete the work of this Section may be found in other Documents.

1.2 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- A. Project Coordination Administrator: Contractor's Representative experienced in administration, supervision, and quality control of building construction similar to the work of this Project, including mechanical, plumbing and electrical work.
- B. Project Field Superintendent: Contractor's Representative experienced in general field supervision of building construction similar to the work of this Project including finish work, mechanical, plumbing and electrical work; to supervise, direct, inspect and coordinate work of the Contractor, subcontractors, suppliers and installers, and expedite the work to ensure compliance with the Construction Schedule.

1.3 SUBMITTALS

- A. Submit a list of the Contractor's principal staff assignments including Project Coordination Administrator, Project Field Superintendent, Quality Control Representative, and other personnel assigned to the Project Site; identify their duties and responsibilities.
- B. Submit Shop Drawings, product data, and other required submittals in accordance with Section 01330 - Submittal Procedures, for review and compliance with the Contract Documents.
- C. Submit Requests for Information (RFI) and interpretation of Contract Documents in a timely manner.

1.4 CONTRACTOR'S QUALITY CONTROL

- A. Perform project quality control in accordance with requirements in the Contract and as specified in Section 01450 - Quality Control.
- B. Coordinate the scheduling of inspections and testing required by the individual Specification Sections and in accordance with Section 01450 - Quality Control.

1.5 COORDINATION DRAWINGS

- A. Prepare and distribute coordination drawings where close coordination is required for the installation of products and materials fabricated off-site by separate entities, and where limited space availability requires maximum utilization of space for the efficient installation of different components. Show the interrelationship of components shown on separate Shop Drawings. Indicate the required installation sequences.

1.6 PROJECT COORDINATION

- A. Coordinate construction activities and the work of all trades under various Sections of these Specifications and work of the Contract to facilitate the orderly installation of each part of the work. Coordinate construction operations included under different Sections of the Specifications and the Contract that are dependent upon each other for proper installation, connection and operation.
- B. Coordinate the construction activities of this Contract with Contractors retained separately by the Owner.
- C. Where installation of one part of the work is dependent upon installation of other components, either before or after that part of the work, schedule construction activities in a sequence to obtain an uninterrupted installation.
- D. Obtain drawings, manufacturer's product data, instructions, and other data to provide a proper and complete installation.
 - 1. Check field dimensions prior to installing products. Verify necessary clearances and means of access for equipment from storage to the final position.
 - 2. Make data and information available to all trades involved.
- E. Ensure that utility requirements of operating equipment are compatible with the building utilities. Coordinate the work of various Specification Sections for installation and final connection of the equipment.
 - 1. Ensure that mechanical, plumbing and electrical rough-ins have been installed and are properly sized and located.
- F. Coordinate space requirements and the installation of mechanical, plumbing and electrical work indicated diagrammatically on the Drawings. Follow the routing shown for pipes, ducts, conduits and wiring as closely as possible; make runs parallel with the lines of the building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- G. Where space is limited, coordinate the installation of different components to ensure maximum accessibility for required maintenance, service and repairs.
- H. Provide for installation of items scheduled for future installation.

- I. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Prepare memoranda for the Owner's representative, separate contractors, where coordination of their work is required.
- J. In finished areas, conceal pipes, ducts, conduit and wiring within the construction. Coordinate the location of fixtures and outlets with finish elements.
- K. Coordinate completion and clean up of the work of the separate Sections in preparation for completion of the Project.
- L. After occupancy, coordinate access to the Site for correction of defective work and work not in accordance with the Contract Documents, to minimize disruption of the Owner's / Tenant's activities.

1.7 PRE-CONSTRUCTION MEETING

- A. The Owner's representative will schedule a Pre-Construction Meeting after issuance of a Notice to Proceed.
- B. Attendance: Owner's representative, Engineers, Contractor, Project Superintendent and Contractor's Quality Control Representative and other contractors retained by the Owner.
- C. Agenda:
 - 1. Submission of executed Bonds and Insurance Certificates.
 - 2. Distribution of Contract Documents.
 - 3. Submission of the Schedule of Values.
 - 4. Designation of personnel representing the parties to the Contract.
 - 5. Procedures and processing of Requests for Information (RFI), field decisions, submittals, substitutions, applications for payment, change proposals, Change Orders, and contract closeout procedures.
 - 6. Scheduling.
 - 7. Construction facilities and temporary controls.
- D. The Contractor will record minutes of the meeting and distribute copies to the participants and those affected by the decisions made.

1.8 PROGRESS MEETINGS

- A. The Contractor will schedule and administer meetings throughout progress of the work at intervals to be determined.
- B. The Contractor will make arrangements for meetings, prepare an agenda, distribute copies to participants and preside over the meetings.
- C. Attendance: Job Superintendent, Contractor's Quality Control Representative, major subcontractors and suppliers, Architect and the Owner's representative, engineers and subcontractors as appropriate to the agenda for each meeting.
- D. Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of Work progress and/or payment progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems which impede planned progress.
 - 5. Review of submittals schedule and status of submittals.

6. Review of off-site fabrication and delivery schedules.
 7. Maintenance of progress schedule.
 8. Corrective measures to regain projected schedules.
 9. Planned progress during succeeding work period.
 10. Coordination of projected progress.
 11. Maintenance of quality and work standards.
 12. Effect of proposed changes on progress schedule and coordination.
 13. Other business relating to Work.
- E. The Owner's representative will record the minutes and distribute copies to the participants.

1.9 PRE-INSTALLATION MEETING

- A. When required by an individual Specifications Section, or as determined necessary by the Owner's representative, convene a Pre-Installation Meeting at the Project Site prior to commencing the work of that Section.
- B. Require attendance of the parties directly affecting, or affected by the work of the specific Specifications Section.
- C. Notify the required attendees seven (7) days in advance of the meeting date.
- D. Prepare an agenda and preside at the meetings:
 1. Review requirements of the Contract Documents, conditions of installation, preparation, and installation procedures.
 2. Review coordination with related work.
- E. The Contractor shall record minutes of the meetings and distribute copies to the participants and those affected by the decisions made.

1.10 SCHEDULE OF VALUES

- A. Prior to submittal of the first payment application, submit a construction cost breakdown to the Architect in a form and format acceptable to the Architect.

PART 2 PRODUCTS - Not Used.

PART 3 EXECUTION - Not Used.

END OF SECTION

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Submittal procedures.
 2. Product data, Shop Drawings, samples and miscellaneous work.
 3. Assurance / Control submittals.
 - a. Certificates.
 - b. Manufacturer's installation instructions.
 4. Owner representative's action.
- B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the work of this Section. Additional requirements and information necessary to complete the work of this Section may be found in other Documents.

1.2 DEFINITIONS

- A. Product Data: Includes manufacturer's standard printed information on materials, products and systems; not especially prepared for this Project, other than the designation of selections from among available choices printed therein.
- B. Shop Drawings: Include specially-prepared technical data for this Project, including drawings, details, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements and similar information not in standard printed form.
- C. Samples: Include both fabricated and unfabricated physical examination of materials, products and units of work; both as completed units and as smaller portions of units of work; either for limited visual inspection or, where indicated, for more detailed testing and analysis.
- D. Mock-Ups: A special form of samples, which are too large or otherwise inconvenient for handling in the specified manner for transmittal of sample submittals.
- E. Design Calculations: As required to show that component parts of a system meet the design criteria and performance requirements. Manufacturer's published calculations or as certified by a professional engineer. Subject to approval of the Owner's representative, manufacturer or fabricator certifications may be accepted in lieu of calculations.
- F. Miscellaneous Submittals: Includes warranties, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical work records, quality testing

and field measurement data, operating and maintenance materials, extra and overrun stock, devices and similar information; applicable to the work and not processed as product data, shop drawings or samples.

1.3 SUBMITTALS

- A. Submit two (2) copies of a proposed Schedule of Submittals to the Owner's representative within 30 days after receipt of a Notice to Proceed. List all items requiring submittal for review and approval by the Owner's representative.
- B. Schedule of Submittals. Include the following:
 - 1. Indicate the type of submittal: Product Data, Shop Drawing, sample, certificate, warranty, technical representative's report or other submittal.
 - 2. Identify the Specifications Section number, Section paragraph number where the item is specified and a description of the item being submitted.
 - 3. Indicate the scheduled date for initial submittal, date for approval and date for possible re-submittal for each required submittal.
- C. Coordinate the Schedule of Submittals with the Construction Schedule.

1.4 SUBMITTAL PROCEDURES

- A. General:
 - 1. Coordination and Sequencing: Coordinate the preparation and processing of submittals with performance of the work so that the work will not be delayed by submittals. Coordinate and sequence different categories of submittals of the same work, and or interfacing units of work, so that one will not be delayed by coordination of the submittal review with another.
 - 2. Transmit each submittal to the Owner's representative on an Owner-approved transmittal form.
 - 3. On the Transmittal form, provide a place to indicate the Project name, date, "To:", "From: "; names of the Contractor, subcontractors, suppliers, manufacturers, pertinent drawings(s), detail number(s), Specifications Sections, category and type of submittal, purpose, description, distribution record (for both transmittal and submittals), and signature of the transmitter.
 - 4. Identify variations from the Contract Documents and product or system limitations which may affect successful performance of the completed work.
 - 5. Apply the Contractor's stamp, signed or initialed certifying that review, verification of the products required, field dimensions, adjacent construction work and the coordination of information, is in accordance with requirements of the work and the Contract Documents.
 - 6. Provide space for the Owner representative's remarks and "Action" stamp.
 - 7. Sequentially number each transmittal form. Provide the original number and a sequential alphabetic suffix on each re-submittal.

8. Package each submittal appropriately for transmittal handling.
9. Schedule submittals to comply with the scheduling requirements of the Construction Schedule.
10. On each re-submittal, identify all changes made since the previous submission.
11. Distribute copies of reviewed submittals to the field, subcontractors and suppliers, as appropriate. Instruct the parties to promptly report any inability to comply with the provisions.
12. Submittals not required will not be processed.
13. Submittals received from sources other than through the Contractor's office will be returned "without action".
14. Except as otherwise indicated in individual Specifications Sections, comply with the requirements specified herein for each indicated category of submittal. Provide and process intermediate submittals, where required between the initial and final submittals, similar to initial submittals.

B. Product Data:

1. Collect required data into one submittal for each unit of work or system; mark each copy to show which choices or options are applicable to the Project.
2. Include manufacturer's standard printed information such as catalog cuts, manufacturer's published instructions, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, performance curves and other similar items. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked, and special coordination requirements.
3. Mark each copy to identify the applicable products, models, options, and other data. Supplement the manufacturers' standard data with information unique to this Project.
4. Indicate product utility and electrical characteristics, utility connection requirements, and the location of utility outlets for service to functional equipment and appliances.
5. Submit the number of copies the Contractor requires, plus four (4) copies to be retained by the Owner's representative. Submit six (6) sets of product data; three (3) sets will be returned. Maintain one (1) set of product data at the Project Site, available for reference.
6. Do not submit product data or permit its use on the Project until compliance with requirements of the Contract Documents has been confirmed by the Contractor.
7. Do not proceed with the installation of materials, products or systems until the final copy of applicable product data is in the possession of the installer.

C. Shop Drawings:

1. Provide newly prepared information on reproducible sheets, with graphic information at accurate scales, and with the name of the preparer indicated. Show dimensions and notes based on field measurements. Identify materials and products in the work shown. Provide key plans or cross reference to room numbers to identify the location of multiple elements. Indicate compliance with standards and special coordination requirements. Identify deviations from the Contract Documents, check dimensions; check that trades have been coordinated and that no conflict will develop in its installation.
2. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service to functional equipment and appliances.
3. Shop Drawings: Submit for review. After review, produce copies and distribute in accordance with SUBMITTAL PROCEDURES above.
4. Submit in the form of one (1) translucent reproducible transparency and two (2) blueline or blackline prints. The transparency will be returned to the Contractor after review.
5. Do not allow copies of shop drawings without appropriate final "Action" markings by the Owner's representative to be used in connection with the work.

D. Samples:

1. Submit samples to illustrate the functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
2. Include full Project information on each sample submitted.
3. Provide units identical to the final condition of the proposed materials or products of the work. Include "range" samples of not less than three (3) units where unavoidable variations must be expected, and describe or identify variations between the units of each set. Provide a full set of optional samples where selection is required. Include information with each sample to show generic description, source or product name and manufacturer, limitations, and compliance with standards. Submit samples for review and confirmation of color, pattern, texture, and "kind".
4. Submit samples of finishes in the available colors, textures and patterns.
5. Submit the number of samples specified in the individual Specifications Sections; a minimum of two (2), one of which will be retained by the Owner's representative. At Contractor's option, provide preliminary submittal of a single set of samples for review and "Action". Otherwise, initial submittals will be considered the final submittal unless returned with an "Action" mark that requires re-submittal. Submit three (3) sets of samples in the final submittal; two (2) sets will be returned.
6. Maintain one (1) final set of samples at the Project Site, in suitable condition and available for quality control comparisons.
7. The Owner's representative will not "test" samples, except as otherwise indicated, for compliance with other requirements, which are the responsibility of the Contractor.

8. Returned samples intended or permitted to be incorporated into the work are so indicated in the individual Specifications Sections Samples; must be in an undamaged condition at the time of acceptance.
- E. Mock-Ups:
1. Mock-ups and similar samples indicated in individual Specifications Sections are recognized as a special type of sample. Comply with the requirements for “samples”, to the greatest extent possible, and process transmittal forms to provide a record of activity.
- F. Certificates:
1. When specified in individual Specifications Sections, submit certification by the manufacturer Owner’s representative in the quantities specified in Product Data above.
 2. Indicate that the material or product conforms to or exceeds the specified requirements. Submit supporting reference data, affidavits and certifications as appropriate.
 3. Certificates may be recent or previous test results on materials or products, but must be acceptable to the Owner’s representative.
- G. Inspection and Test Reports:
1. Classify each as either “product data” or “shop drawing”, depending upon whether the report is uniquely prepared for the Project or a standard publication or workmanship control testing at the point of production. Process accordingly.
- H. Manufacturer’s Installation Instructions:
1. When specified in individual Specification Sections, submit printed instructions for delivery, storage, assembly, installation, adjusting, and finishing in the quantities specified in Product Data above.
 2. Indicate special procedures, perimeter conditions requiring special attention and special environmental criteria required for the application or installation.
- I. Warranties:
1. Refer to individual Specifications Sections for specific general requirements on warranties, product / workmanship bonds, and maintenance agreements. In addition to copies for the Contractor’s use, furnish two (2) additional executed copies. Furnish two (2) additional copies when required for the maintenance manuals.
- J. Standards:
1. Where copy submittal is indicated, and except where specified integrally with “Product Data”, submit two (2) copies for the Owner representative’s use. Where workmanship at the Project Site and elsewhere is governed by standards, furnish additional copies to the fabricators, installers and others involved in performance of the work.

- K. Closeout Submittals:
 - 2. Refer to individual Specifications Sections and to “closeout” paragraphs for specific requirements on submittal of closeout information, materials, tools and similar items.
- L. Record Document Copies:
 - 1. Submit one (1) set.
- M. Maintenance / Operating Manuals;
 - 1. Submit two (2) bound sets.
- N. Materials and Tools:
 - 1. Refer to individual Specifications Sections for the required quantities of spare parts, extra and overrun stock, maintenance tools and devices, keys, and similar physical units to be submitted.
- O. Administrative Submittals:
 - 1. Submit three (3) copies. No copies will be returned.
- P. General Distribution:
 - 1. Provide additional distribution of submittals to the subcontractor, suppliers, fabricators, installers, governing authorities and others as necessary for proper performance of the work. Include such additional copies in the transmittal when required to receive an “Action” marking before final distribution. Record distributions on the transmittal forms.

1.5 OWNER REPRESENTATIVE'S ACTION

- A. For submittals where action and return is required or requested, the Owner's representative will review each submittal, mark to indicate the action taken, if any, and return promptly, generally within 20 days, excluding delivery time to and from the Contractor. When a submittal is to be reviewed by an off-island consultant or when it must be held for coordination, 25 days will be required for review.
 - 1. Compliance with the specified characteristics is the Contractor's responsibility.
 - 2. No action will be taken on submittals for information, closeout documents, record documents and other submittals for similar purposes.
- B. Action Stamp: Owner's representative will stamp each submittal to be returned to the Contractor with a uniform, self-explanatory “Action” stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
 - 1. "Accepted" or “Approved”: Final Unrestricted Release. When a submittal is marked "Accepted" or “Approved”, that part of the work covered by the submittal may proceed provided it complies with the requirements of the Contract Documents; final acceptance will depend upon that compliance.

2. "Accepted" or "Approved as Noted": Final-But-Restricted Release. When a submittal is marked "Accepted" or "Approved as Noted", that part of the work covered by the submittal may proceed provided it complies with the notations and corrections marked on the submittal and meets requirements of the Contract Documents; final acceptance will depend on that compliance.
 3. "Rejected or Disapproved: Submit Specified Item" or "Revise and Resubmit": Returned for Re-submittal. When a submittal is marked "Rejected or Disapproved: Submit Specified Item", or "Revise and Resubmit," do not proceed with the work covered by the submittal, including purchasing, fabrication, delivery or other activity. Revise or prepare a new submittal in accordance with the notations; re-submit without delay. Repeat as necessary to obtain an acceptable action mark.
 - a. Do not permit submittals marked "Rejected or Disapproved: Submit Specified Item" or "Revise and Resubmit" to be used at the Project Site or elsewhere where work is in progress.
 4. "Returned: Not Required": Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "Returned: Not Required".
- C. Any review and approval by the Owner's representative of any Product Data, Shop Drawings, or Samples is only for conformance to the general design concept of the work and does not extend to consideration of structural integrity, safety, detailed compliance with the Contract Documents or any other obligation of the Contractor. Review and approval of any such data does not relieve the Contractor from its obligation to meet his requirements under the Contract Documents, nor shall it give rise to any claim in favor of the Contractor or any third party against the Owner.

PART 2 PRODUCTS - Not Used.

PART 3 EXECUTION - Not Used.

END OF SECTION

SECTION 01440

REQUESTS FOR INFORMATION

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

- A. Administrative requirements for "RFI's".

1.2 DEFINITIONS

- A. Request for Information (RFI): Contractor's written request for information to confirm, re-verify, or clarify the intent required by the Design-Build RFP Documents.

1.3 SUBMITTALS

- A. Submit RFI's on the Contractor's standard form.

1.4 QUALITY ASSURANCE

- A. Architect's Intent: It is a condition of the Contract for Construction, that prior to signing of the Contract, the Contractor be fully familiar with and clear as to the requirements (Architect's design intent) for this Project as presented in the Design-Build RFP Documents. It is also a condition of the Contract, that prior to signing of the Contract, should there be any aspect of the Contract which is not clear or not complete enough, that the Contractor secure the necessary information in order to attain the required understanding of the Project. The primary reasons for this is so the Owner can receive a fair and complete cost proposal for the Work, without hidden or additional costs and to minimize unnecessary costs to administer the Project during progress of the Work.
- B. Architect's Design-Build RFP Drawings and Specifications
 - 1. Design Intent: It is an accepted historical and understood practice in the industry that the Architect's Drawings and Specifications reasonably and professionally convey the design intent for the Project without necessarily indicating every single condition for the Work, but to the degree necessary for Contractor's to propose a fair and complete cost for the Work, including for Work not indicated, but implied by the Architect's design intent.
 - 2. RFI's - Basis of Communication: Due to the fact that all conditions are not indicated in the Contract Documents, it is understood that additional clarifications will be necessary during the course of the Work for the Contractor to fully achieve all aspects of the Architect's design intent, and that the RFI procedure becomes the administrative basis by which information is formally conveyed between the Architect and the Contractor.
- C. Misuse of the RFI Process: RFI's are not to be used frivolously, including as a method of enlisting the Architect's and Engineer's services for finding information already indicated in the Contract Documents. The Contractor shall be subject to additional fees from the Architect and Engineer upon the determination that the RFI process is misused.
- D. Contractor Initiation: All RFI's must be submitted by the General Contractor.

PART 2 PRODUCTS - Not Used.

PART 3 EXECUTION

3.1 CONTRACTOR'S RESPONSIBILITIES

- A. Examination: Upon discovering a potential aspect of the Work which may require further clarification from the Architect, the Contractor shall thoroughly examine the Contract Documents to ensure that the information is not indicated.
- B. Submittal: When a reasonable search for the needed information has been made without success, complete and submit an RFI.
- C. Contractor's RFI's shall be submitted by the deadline established for the Design-Build RFP.

3.2 ARCHITECT'S RESPONSIBILITIES

- A. Review: Not later than five (5) working days after an RFI is received, return a response to the Contractor on the submittal form. RFI responses may require additional time depending on the coordination required for the response.

END OF SECTION

SECTION 01450
QUALITY CONTROL

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Owner representative's quality assurance (QA).
 - 2. Contractor's quality control (QC).
 - 3. Quality control procedures.
 - 4. Testing and inspection laboratory services.
 - 5. Contractor's field inspection and testing.
 - 6. Contractor's reports.
 - 7. Contractor's testing and inspection reports.
 - 8. Non-compliance check-off list.
 - 9. Completion and inspection of work.
- B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the work of this Section. Additional requirements and information necessary to complete the work of this Section may be found in other Documents.

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM C 802 - Practice for Conducting an Interlaboratory Test Program to Determine the Precision of Test Methods for Construction Materials.
 - 2. ASTM C 1077 - Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.
 - 3. ASTM C 1093 - Practice for Accreditation of Testing Agencies for Masonry.
 - 4. ASTM D 3740 - Practice for Minimum Requirements for Agencies Engaged in Testing and / or Inspection of Soil and Rock as Used in Engineering Design and Construction.
 - 5. ASTM D 4561 - Practice for Quality Control Systems for Organizations Producing and Applying Bituminous Paving Materials.
 - 6. ASTM E 329 - Specification for Agencies Engaged in Construction Inspection and / or Testing.

7. ASTM E 543 - Specification for Agencies Performing Nondestructive Testing.
8. ASTM E 699 - Practice for Evaluation of Agencies Involved in Testing, Quality Assurance, and Evaluating of Building Components.

1.3 SUBMITTALS

- A. Submit four (4) copies of a proposed Contractor Quality Control Plan within fifteen (15) days after receipt of the Notice to Proceed.
- B. Contractor's Quality Control Plan. Indicate the following:
 1. Quality Control Organization: In chart form, showing relationship of the Quality Control organization to other elements of the Contractor's organization.
 2. Names and qualifications of personnel in the Quality Control organization, including the Contractor's Quality Control Representative, inspectors, independent testing and inspection laboratory, independent fire alarm test and certification agency, independent fire sprinkler test and certification agency, independent HVAC test and balance agency, etc.
 3. Procedures for reviewing coordination drawings, Shop Drawings, certificates, certifications and other submittals.
 4. Testing and Inspection Schedule, keyed to the Construction Schedule, indicating tests and inspections to be performed, names of persons responsible for the inspection and testing for each segment of the work, including preparatory, initial and follow-up.
 5. Proposed forms to be used including Contractor's Daily Report, Contractor's Test and Inspection Report, and Non-Compliance Check-Off List.
- C. Independent Testing and Inspection Laboratory. Submit the following:
 1. Name.
 2. Address.
 3. Telephone number.
 4. Name of full-time registered Engineer.

1.4 OWNER REPRESENTATIVE'S QUALITY ASSURANCE

- A. The Owner's representative will inspect the quality of work being installed, review and verify the accuracy of changes in the work, receive and distribute the Contractor's submittals, determine compliance with the Contract Documents and preside at progress and coordination meetings.
- B. The Owner's representative will arrange for factory tests when needed; at the Contractor's cost.
- C. Owner's Field Inspection: The Owner' representative will perform inspections of the work for quality assurance (QA).

1.5 CONTRACTOR'S QUALITY CONTROL REPRESENTATIVE

- A. Qualifications for Contractor's Quality Control Representative: Minimum five (5) years construction quality control or construction management experience on work similar to the work of this Contract.

1.6 CONTRACTOR'S QUALITY CONTROL

- A. The Contractor is responsible for the overall quality of the work performed by the Contractor and subcontractors working under this Contract. The quality of any part of the work must not be less than that required by the Contract Documents. If the Owner's representative determines that the quality of the work does not conform to the Contract Documents, the Owner's representative will notify the Contractor, in writing. The Contractor must correct the identified deficiencies and advise the Owner's representative of the corrective action taken within 7 days of the date of notification.
- B. Monitor quality control over the Contractor's staff, subcontractors, suppliers, manufacturer's, products, services, site conditions and workmanship.
- C. Comply fully with the manufacturer's published instructions, including each step in the sequence of installation.
- D. Should the manufacturer's published instructions conflict with the Contract Documents, request clarification from the Owner's representative before proceeding.
- E. Comply with the specified standards as a minimum quality for the work, except where more stringent tolerances, codes or specified requirements indicate higher standards or more precise workmanship.
- F. Perform the work by persons who are thoroughly qualified and trained in their respective trade to produce workmanship of the specified quality.
- G. Secure products in place with positive anchorage devices, designed and sized to withstand wind and seismic loads, stress, vibration, physical distortion and disfigurement.
- H. Perform tests required by governing authorities and utility agencies having jurisdiction.
- I. Contractor's Field Inspection: The Contractor or his authorized representative(s) shall inspect all work under this Contract for quality control (QC).

1.7 QUALITY CONTROL TESTING:

- A. Field tests made at, or in the vicinity of the Project Site in connection with the actual construction, including but not limited to, concrete batch plants, asphalt batch plants and similar establishments directly involved in the construction process.
 - 1. Field Tests by the Contractor: The Contractor shall perform all field testing specifically required of him in the Contract Specifications and all field tests required by "Applicable Publications" referenced in the Contract Specifications. The cost of testing shall be borne by the Contractor. The Contractor shall furnish all equipment, instruments, qualified personnel and facilities necessary to perform all tests required by the Contract Documents. The required testing services shall be performed by the Contractor or acquired by the Contractor through a qualified

commercial testing laboratory. If a commercial testing laboratory is retained to perform tests under this Contract, all test reports shall be certified by the laboratory. Test reports shall include the acceptable value for each specification item, actual test results obtained, methods used, and a statement that the product, equipment or system conforms or does not conform to the Specifications requirements.

2. Field Tests by Owner: Field tests conducted by the Owner will be made as necessary to assure quality or as otherwise provided herein.
- B. Factory tests made at the point of manufacture of various products shipped to the Project Site as a unit.
- C. Certified tests made by approved testing agencies on material and / or equipment to be incorporated into the Project under the Contract. These tests are those performed by Factory Mutual, Underwriters' Laboratories, Inc., and others.
1. Manufacturer's Certified Tests: Certified tests on materials to be incorporated into the work will be acceptable, provided they are performed by the manufacturer or by Owner's representative approved agencies or laboratories, show that the materials conform to the Specifications, and that tests and certifications meet the requirements of the paragraph entitled "Quality Assurance" below.

1.8 TESTING AND INSPECTION LABORATORY SERVICES

- A. Selection and Payment:
1. Employment and payment for services of an Independent Testing and Inspection Laboratory to perform specified testing and inspection shall be by the Contractor.
 2. Owner Approval of Laboratories: All laboratory work performed under this Contract shall be done by a Laboratory approved by the Owner's representative, whether the laboratory is employed by the Contractor or by others, or is owned and operated by the Contractor. The basis of approval includes the following:
 - a. Laboratories performing work in connection with concrete, steel and bituminous material must conform to American Society for Testing and Materials (ASTM) E 329.
 - b. Laboratories performing work not in connection with concrete, steel and bituminous materials must conform to Sections 3 and 4 of ASTM E 329.
 3. Employment of Independent Testing and Inspection Laboratory in no way relieves the Contractor of his obligation to perform work in accordance with the requirements of the Contract Documents.
- B. Quality Assurance:
1. Comply with the requirements of ASTM C 802, ASTM C 1077, ASTM C 1093, ASTM D 3740, ASTM D 4561, ASTM E 329, ASTM E 543, ASTM E 699 and ASTM E 1691.
 2. Laboratory Staff: Maintain a full-time registered Engineer on staff to review the services provided.
 3. Testing Equipment: Calibrated at reasonable intervals with devices of and accuracy traceable to either National Bureau of Standards or accepted values of

natural physical constraints.

- C. Laboratory Responsibilities:
 - 1. Test samples of mixes submitted by the Contractor.
 - 2. Provide qualified personnel at the Project Site. Cooperate with the Owner's representative and the Contractor in the performance of services.
 - 3. Perform the specified sampling, testing and inspection of products in accordance with the specified standards.
 - 4. Determine compliance of the materials and mixes with requirements of the Contract Documents.
 - 5. Promptly notify the Contractor's Quality Control Representative and the Owner's representative of observed irregularities or non-conformance of work or products.
 - 6. Perform additional tests as required by the Owner's representative.

1.9 CONTRACTOR'S FIELD INSPECTION AND TESTING

- A. Contractor: Test and inspect the work provided under this Contract to ensure that the work is in compliance with the Contract requirements. Required tests and inspections are indicated in the individual Specifications Sections.
- B. Preparatory Inspection: Performed prior to beginning the work and prior to beginning each segment of work and includes:
 - 1. Review of Contract requirements.
 - 2. Review of Shop Drawings and other submittal data after approval and return.
 - 3. Examination to assure that the materials and equipment conform to the Contract requirements.
 - 4. Examination to assure that the required preliminary or preparatory work is complete.
- C. Initial Inspection: Performed when a representative portion of each segment of the work has been completed, and includes:
 - 1. Performance of the required tests.
 - 2. Quality of the workmanship.
 - 3. Review for omissions and dimensional errors.
 - 4. Examination of products used, connections and supports.
 - 5. Approval or rejection of the inspected segment of work.
- D. Follow-Up Inspections: Performed daily and more frequently, as necessary, to ensure that non-complying work has been corrected.
- E. Testing and Inspection: Perform testing and inspection in accordance with requirements of the individual Specifications Sections.

1.10 CONTRACTOR'S WEEKLY REPORTS

- A. Submit weekly reports to the Owner's representative for days that work was performed. Include the following information:
 - 1. Contractor's name and address.
 - 2. Job reference and information.
 - 3. Date, weather, minimum and maximum temperatures, rainfall and other pertinent weather conditions.
 - 4. Daily workforce of the Contractor and subcontractors, by trade.
 - 5. Description of the work started, on-going work, and work completed by each subcontractor.
 - 6. Coordination implemented between the various trades.
 - 7. Approval of substrates received from various trades.
 - 8. Non-conforming and unsatisfactory items to be corrected.
 - 9. Remarks.

1.11 CONTRACTOR'S TESTING AND INSPECTION REPORTS

- A. Prepare and submit a written report of each test and inspection, signed by the Contractor's Quality Control Representative performing the inspection, within two (2) days after the day the inspection was made.
- B. Include the following on the written inspection reports:
 - 1. Cover sheet prominently identifying that the inspection "CONFORMS" or "DOES NOT CONFORM" to the Contract Documents.
 - 2. Date of the inspection and date of the report.
 - 3. Project name, location, solicitation number and Contractor.
 - 4. Names and titles of individuals making the inspection.
 - 5. Description of the Contract requirements for inspection by referencing the Specifications Section.
 - 6. Description of the inspection made, interpretation of the inspection results, and notification of significant conditions at the time of the inspection.
 - 7. Requirements for follow-up inspections.

1.12 NON-COMPLIANCE CHECK-OFF LIST

- A. Maintain Check-Off List of work that does not comply with the Contract Documents, stating specifically what is non-complying, date the faulty work was originally discovered and the date the work was corrected. There is no

requirement to report deficiencies corrected the same day the deficiency was discovered. Submit a copy of the Non-Compliance Check-Off List of non-complying work items on a weekly basis for review at the next Progress / Coordination Meeting.

1.13 COMPLETION AND INSPECTION OF WORK

- A. Prior to final acceptance by the Owner's representative, submit a certification signed by the Contractor stating that all work has been inspected and that all work, except as specifically noted, is complete and in compliance with the Contract Documents.
- B. Record Documents: By Contractor's Quality Control Representative. Ensure that "Record Documents" required by Section 01780 - Closeout Submittals, are marked to show any deviations made during construction and are kept current on a daily basis. Upon completion of the work, certify the accuracy of the "Record Documents" and submit to the Owner's representative.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01500
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Coordination and Approval.
2. Temporary Utilities: Electrical power, lighting, air conditioning and ventilation, water and sanitary facilities.
3. Fencing.
4. Barriers and Enclosures.
5. Erosion Controls: Surface water control and protection of work.
6. Access Roads and Parking Areas.
7. Project Signs.
8. Field Office and Sheds: Temporary buildings.
9. Construction Aids
10. Progress Cleaning and Waste Removal.
11. Ownership of Temporary Facilities and Controls.
12. Removal of Temporary Construction Facilities and Controls.

B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the work of this Section. Additional requirements and information necessary to complete the work of this Section may be found in other Documents.

1.2 COORDINATION AND APPROVAL

A. Coordinate with and obtain approval of the Owner's representative for each temporary facility and control, location, sequence and schedule before starting any temporary work.

1.3 ELECTRICAL POWER

- A. Contractor to provide and pay for electrical power from the local power authority; provide generator when island power is not available.
- B. Provide a temporary electric feeder from the electrical service at a location determined by the local power authority and approved by the Owner's representative.
- C. Provide temporary power panels, wiring and outlets for construction operations with branch wiring and distribution boxes located as required; provide properly sized flexible power cords.

- D. Provide temporary transformers, emergency generators, lines, etc., as necessary for continuous electrical supply to existing buildings affected by the construction of this Project.

1.4 LIGHTING

- A. Provide and maintain lighting for construction operations to achieve a minimum lighting level of 2 footcandles.
- B. Permanent building lighting may be utilized during construction.

1.5 AIR CONDITIONING AND VENTILATION

- A. Provide and pay for cooling devices and cooling, as needed, to maintain the specified conditions for construction operations.
- B. Enclose the building prior to activating the temporary cooling equipment.
- C. Prior to the operation of permanent equipment for temporary purposes, verify that the installation is approved for operation, the equipment is lubricated, ductwork and equipment are clean, unfinished construction procedures will not be detrimental to use of the equipment, and filters are in place. Provide and pay for the operation, maintenance and regular replacement of filters and worn or consumed parts.
- D. Ventilate enclosed areas to assist the cure of materials, dissipate humidity, and prevent the accumulation of dust, fumes, vapors and gases.

1.6 WATER

- A. Provide, maintain and pay for suitable quality drinking water for site personnel.
- B. Provide temporary water lines, maintain and pay for water required for construction, including compaction, grading and dust abatement.

1.7 SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures.
- B. Comply with regulations of the governing authorities having jurisdiction.

1.8 FENCING

- A. Provide 6' high temporary fence around the entire construction area meeting the requirements, if any, of the Department of Public Works; provide vehicular and pedestrian gates with locks.

1.9 BARRIERS AND ENCLOSURES

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from demolition and construction operations in accordance with regulations of OSHA and governing authorities having jurisdiction.
- B. Provide barricades and covered walkways as required by governing authorities having jurisdiction for public rights-of-way.

- C. Protect non-owned vehicular traffic from injury and damage.

1.10 EROSION CONTROL

- A. Provide erosion control measures and facilities satisfactory to the environmental agency having jurisdiction and as required by Section 01560 - Environmental Protection.
- B. Grade the Site to drain. Maintain excavations free of water. Provide, operate and maintain pumping equipment as necessary.
- C. Protect the Project Site from ponding and running water. Provide water barriers as required to protect the Site from soil erosion.

1.11 ACCESS ROADS AND PARKING AREAS

- A. Construct and maintain temporary roads accessing a public thoroughfare to serve the construction area.
- B. Extend or relocate as work progress requires. Provide detours necessary for unimpeded traffic flow.
- C. Provide and maintain access to fire hydrants, free of obstructions.
- D. Parking: Arrange for temporary parking areas to accommodate site personnel's vehicles.
 - 1. When site space is not adequate, provide for off-Site parking.

1.12 PROJECT SIGNS

- A. Provide a 4' x 8' temporary project sign. Use new materials; 3/4" exterior grade plywood with hardwood edge trim; mount on treated 4" x 4" hardwood posts or the fence, as appropriate. Sign design to be provided by the Architect.
- B. Use primer and two coats of exterior paint on the sign background, rear and posts. Use exterior paint for lettering on the face. Have lettering done by a professional sign painter.
- C. Locate the sign(s) as indicated or as directed.
- D. Allow no other signs or advertising of any kind on the Project Site, except safety, directional and warning signs and signs required by law.

1.13 FIELD OFFICE AND SHEDS

- A. Provide a building and sheds adequate in size and accommodation for the Contractor's office and storage.
- B. Provide space for Project meetings with a table and chairs to accommodate 10 persons.
- C. Place the office and sheds at approved locations.

1.14 CONSTRUCTION AIDS

- A. Furnish, install and maintain for the duration of the construction, all scaffolds, shoring, tarpaulins, barricades, canopies, warning signs, steps, bridges, platforms, and other

temporary work necessary for proper completion of the Project and protection of the public and site personnel in compliance with relevant OSHA safety and other regulations.

1.15 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas free of waste materials, debris and rubbish. Maintain the Project Site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces and other closed or remote spaces prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to the start of surface finishing and continue cleaning to prevent the accumulation of dust.
- D. Collect and remove waste materials, debris and rubbish from the Site weekly, daily if necessary, or as directed by the Owner's representative, and dispose off-Site.

1.16 OWNERSHIP OF TEMPORARY FACILITIES AND CONTROLS

- A. Items provided by the Contractor under this Section shall remain the property of the Contractor and all shall be removed from the Project Site immediately upon completion of the work.

1.17 REMOVAL OF TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS

- A. Remove temporary utilities, equipment, facilities and materials prior to the Substantial Completion inspection.
- B. Remove temporary underground installations.
- C. Clean and repair damage caused by installations and temporary work.
- D. Restore existing and permanent facilities used during construction to their original condition, as specified.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 ACCESS PROVISION

- A. Provide ramps, stairs, ladders and similar temporary access elements as reasonably required to perform the work and to facilitate its inspection. Comply with reasonable requests of governing authorities performing inspections. When permanent stairs are available for access during construction, cover finished surfaces with sufficient protection to ensure freedom from damage and deterioration at the time of Substantial Completion.

3.2 SECURITY / PROTECTION PROVISION

- A. The types of temporary security and protection provisions required include, but is not limited to, fire, protection, barricades, warning signs / lights, site enclosure fence, building enclosure

/ lockup, watchman service, personnel security program (theft prevention), environmental protection, and similar provisions intended to minimize property losses, personal injuries and claims for damages at the Project Site.

3.3 EXTERIOR CLOSURES

- A. Temporarily close exterior openings, weather-tight, to provide acceptable working conditions and for the protection of products, to allow for the maintenance of required ambient temperatures identified in the individual Specifications Sections, and to prevent the entry of unauthorized persons. Provide access doors with self-closing hardware and padlocks.

3.4 PROTECTION OF INSTALLED WORK

- A. Protect installed work and provide special protection where specified in individual Specifications Sections.
- B. Provide temporary and removable protection for installed work. Control activity in the immediate area to prevent damage.
- C. Protect finished floors, and other surfaces from traffic, dirt, wear, damage and movement of heavy objects by covering with durable sheet materials.
- D. Prohibit traffic and storage of materials on waterproofed and finished roof surfaces. If traffic or activity is necessary, obtain recommendations for protection from the waterproofing or roofing material manufacturer.
- E. Prohibit traffic from landscape areas into interior work areas.

3.5 PERMANENT FIRE PROTECTION

- A. Complete each fire protection facility at the earliest reasonable date, make ready for emergency use, and inform site personnel of its availability and proper use.

END OF SECTION

SECTION 01560

ENVIRONMENTAL PROTECTION

PART 1 - GENERAL

1.1 DEFINITIONS OF CONTAMINANTS

- A. Sediment: Soil and other debris that has been eroded and transported by runoff water.
- B. Solid Waste: Rubbish, debris, garbage, and other discarded materials resulting from industrial, commercial, and agricultural operations, and from community activities' such material having insufficient liquid content to be free flowing.
- C. Rubbish: A variety of combustible and noncombustible wastes such as ashes, waste materials that result from construction or maintenance and repair work, leaves and tree trimmings.
- D. Chemical Wastes: Includes salts, acids, alkalies, herbicides, pesticides, petroleum-derived products and organic chemicals.
- E. Sewage: Water-carried waste products from residences, public buildings, institutions or other buildings, including excrementitious or other discharge from the bodies of human beings or animals, together with such ground water infiltration and surface water as may be present.
- F. Garbage: Refuse and scraps resulting from preparation, cooling, dispensing, and consumption of food.
- G. Asbestos and Asbestos Materials: Asbestos means actinolite, amosite, anthophyllite, chrysotile, crocidolite, and tremolite. Asbestos materials means asbestos or any material containing asbestos such as asbestos waste, scrap, debris, bags, containers, equipment, and asbestos-contaminated clothing consigned for disposal. Friable asbestos material requires a Waste Disposal Permit. Submit one (1) copy of Guam Environmental Protection Agency (GEPA) permit or license which reflects such agency's approval of the disposal plan as being in compliance with their waste disposal regulations.

1.2 ENVIRONMENTAL PROTECTION REQUIREMENTS

- A. Provide and maintain during the life of the contract, environmental protection as defined herein. Provide environmental protective measures as required to control pollution that develops during normal construction practice.
- B. Provide also environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. Comply with all federal and local statutes and regulations pertaining to environmental protection.

1.3 SUBMITTALS

- A. Environmental protection Plan: Submit two (2) copies of the proposed Environmental Protection Plan (EPP) to the Guam Environmental Protection Agency (GEPA) and 2 copies to the Contracting Officer for review and approval no later than 10 calendar days after receipt of the Notice to Proceed (NTP) with work under this project. Review of the plan by the Contracting Officer and GEPA will be accomplished simultaneously. The Contractor shall not undertake any clearing, grubbing, earthwork, and excavations until the EPP has been approved by the GEPA and the Contracting Officer.

- B. Solid waste Disposal Permit: Submit one (1) copy of local permit or license which reflects Guam Environmental Protection Agency's (GEPA) approval of the disposal plan as being in compliance with their solid waste disposal regulations.
- C. The Contractor must submit an approved Erosion Control Plan (ECP) to Guam EPA, which will be implemented and maintained throughout the duration of the project.

PART 2 - PRODUCT (Not Used)

PART 3 - EXECUTION

3.1 PROTECTION OF NATURAL RESOURCES: The natural resources within the project boundaries and outside the limits of permanent work performed under this contract shall be preserved in their existing condition or restored to an equivalent or improved condition upon completion of the work. Confine construction activities to areas defined by the work schedule, drawings, and specifications.

- A. Land Resources: Except in areas indicated to be cleared, do not remove, cut, deface, injure, or destroy trees or shrubs without special permission from the Contracting Officer.
- B. Protection: Protect existing trees which are to remain and which may be injured, bruised, defaced, or otherwise damaged by construction operations. Remove displaced rocks from uncleared areas. Protect monuments, markers, and works of art.
- C. Repair or Restoration: Repair or restore to their original condition all trees or other landscape features scarred or damaged by the equipment or operations. Obtain approval of the repair or restoration from the Contracting Officer prior to its initiation.
- D. Temporary Construction: At the conclusion of the project, obliterate all signs of temporary construction facilities such as work areas, stockpiles of excess or waste materials, and all other vestiges of construction.
- E. Water Resources: Perform all work in such a manner that any adverse environmental impact on water resources is reduced to a level acceptable to the Contracting Officer.
- F. Oily and Other Hazardous Substances: Take special measures to prevent oily or other hazardous substances from entering the ground, drainage areas, or local bodies of water.

3.2 CONTROL AND DISPOSAL OF SOLID, CHEMICAL, AND SANITARY WASTES: Pick up solid waste and place in containers which are emptied on a regular schedule. The preparation, cooking, and disposing of food are strictly prohibited on the project site. Conduct handling and disposal of waste to prevent contamination of the site and other areas. On completion, leave areas clean and natural looking. Remove signs of temporary construction and activities incidental to construction of the permanent work in place.

- A. Disposal of Rubbish and Debris: Dispose of rubbish and debris in accordance with the requirements specified herein.

Remove rubbish and debris from the project site and dispose of it in compliance with federal and local requirements.
- B. Garbage Disposal: Place garbage in appropriate containers and transport such refuse to an approved landfill for disposal at least once per week. As an alternative, the Contractor may arrange for weekly pickup and disposal service either with the Government of Guam or a privately-owned garbage collection service. The Contractor shall pay all fees associated with obtaining and maintaining garbage collection and disposal services.
- C. Sewage, Odor, and Pest Control: Dispose of sewage through connection to the public

sewage system. Where such system is not available, use chemical toilets or comparably effective units and periodically empty waste into the public sanitary sewage system. Include provisions for pest control and elimination of odors.

- D. Chemical Waste: Store chemical waste in corrosion resistant containers labeled to identify type of waste and date filled. Remove containers from the project site, and dispose of chemical waste in accordance with federal, state, and local regulations. For oil and hazardous material spills which may be large enough to violate federal and local regulations, notify the Contracting Officer immediately and take measures as instructed by the Contracting Officer or appropriate regulatory agencies, at no additional costs to the Owner.
 - E. Petroleum Products: Conduct fueling and lubricating of equipment and motor vehicles in a manner that affords the maximum protection against spills and evaporation. Dispose of lubricants to be discarded and excess oil in accordance with approved procedures meeting federal and local regulations.
- 3.3 DUST CONTROL: Keep dust down at all times, including non-working hours, weekends, and holidays. Sprinkle or treat, with dust suppressors, the soil at the site, haul roads, and other areas disturbed by operations. No dry brooming is permitted. Instead use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing is permitted only for cleaning non-particulate debris, such as steel reinforcing bars. No sandblasting is permitted unless dust therefrom is confined. Only wet cutting of concrete blocks, concrete, and asphalt is permitted. No unnecessary shaking of bags is permitted where bagged cement, concrete mortar, and plaster is used.
- 3.4 NOISE: When available, make the maximum use of "low-noise emission products" as certified by Guam Environmental Protection Agency.

END OF SECTION 01560

SECTION 01600
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Definitions.
 - 2. Products.
 - 3. Product options.
 - 4. Product substitution procedures.
 - 5. Product delivery requirements.
 - 6. Product handling and storage requirements.
- B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the work of this Section. Additional requirements and information necessary to complete the work of this Section may be found in other Documents.

1.2 DEFINITIONS

- A. Products: Items for incorporation into the work, whether purchased specifically for the Project or taken from previously purchased stock. This term includes the terms material, equipment, systems, and other terms of similar intent.
- B. Named Products: Items identified by manufacturer's name, including make or model number or other designation, as shown or listed in the manufacturer's published product literature.
- C. Materials: Products substantially shaped, cut, worked, mixed, finished, refined, or otherwise fabricated, processed, or installed to form a part of the work.
- D. Equipment: Products with operational parts, whether motorized or manually-operated, that require service connections, such as water piping, waste piping and / or electrical wiring.

1.3 PRODUCTS

- A. Provide products that comply with the Contract Documents, and are new and undamaged at the time of installation.
- B. Provide products complete with accessories, trim, finish, safety guards, and other devices and details required for a complete installation and for its intended use and effect.
- C. Provide products of a kind from a single source. When the products specified are available only from a source that does not, or cannot produce the quantity necessary to meet the Project requirements, in compliance with the Project Schedule, contact the

Architect, in writing, to determine the most important product qualities before proceeding. Qualities may include attributes, such as visual appearance, strength, durability and compatibility. When the Architect makes a determination, select products from a source that produces products that possess those qualities to the greatest extent possible.

1.4 PRODUCT OPTIONS

- A. Products: Throughout the Contract Documents products may be specified by a manufacturer's name and catalog number to establish standards of quality and performance, and not for the purpose of limiting competition. Substitute methods and products may be submitted to the Owner's representative for consideration in conformance with the article entitled "Product Substitution Procedures" below.
- B. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.
- C. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting the Specifications requirements. Substitutions may or may not be permitted, as stated in the particular Section specifying the product.
- D. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named, Submit in accordance with the article entitled "Product Substitution Procedures" below.
- E. Standards, Codes and Regulations: Where only compliance with an imposed standard, code or regulation is required, selection from among products which comply with the requirements, including those standards, codes and regulations, is the Contractor's option.
- F. Performance Requirements and Design Criteria: Provide products which have been produced in accordance with the prescriptive requirements for structural capability, anchorage, mixing, fabricating, curing, finishing, testing and similar operations in the manufacturing process.
- G. Prescriptive Requirements: Provide products which have been produced in accordance with the prescriptive requirements using the specified ingredients and components, and complying with the specified testing and similar operations in the manufacturing process.
- H. Visual Matching:
 - 1. Where matching with an established sample is required, final judgment of whether a product matches the specified cost category is available, which matches the sample satisfactorily, and complies with requirements, comply with the Contract Document provisions concerning, "substitutions".
 - 2. Visual Selection: Except as otherwise indicated, where specified product requirements include "...as selected from the manufacturer's standard colors, patterns, textures..." or words of similar effect, the selection of manufacturer and basic product is the Contractor's option, and the subsequent selection of color, pattern and texture is by the Architect.

1.6 SUBSTITUTIONS

- A. Conditions: Contractor's request for substitution will be received and considered when extensive revisions to the Contract Documents are not required, and changes are in keeping with the general intent of the Contract Documents; when timely, fully

documented and properly submitted; and when one or more of following conditions is satisfied, all as judged by the Owner's representative. Otherwise, requests will be returned without action except to record non-compliance with the requirements.

1.7 PRODUCT SUBSTITUTION PROCEDURES

- A. Submit each Request for Substitution on a "Contractor's Substitution Request" form with complete data substantiating compliance of the proposed substitution with the Contract Documents.
- B. A request constitutes a representation that the Contractor:
 - 1. Has investigated the proposed product and determined that it meets or exceeds the quality level of the specified product.
 - 2. Will provide the same warranty for the substitution as for the specified product.
 - 3. Will coordinate the installation and make changes to other work which may be required for the work to be completed at no additional cost to the Owner.
 - 4. Waives claims for additional cost and time extension which may subsequently become apparent.
- C. Substitutions will not be considered when they are indicated or implied on the Shop Drawing or product data submittals, without a separate written request, or when acceptance will require revision of the Contract Documents.
- D. Substitution Submittal Procedure:
 - 1. Submit four (4) copies of the "Contractor's Substitution Request" form for substitution consideration. Limit each request to one (1) proposed substitution.
 - 2. Submit Shop Drawings, product data, and certified test results attesting to the proposed product's equivalence. The burden of proof lies with the proposer.
 - 3. The Architect will notify the Contractor, in writing, of the decision to accept or reject the substitution request.

1.7A Requests for Substitutions:

- 1. Provide a written substitution request, fully documented to show compliance with the requirements for substitutions. Include product data / drawings, description of methods and samples where applicable. The Contractor shall submit a comparison of significant qualities between the specified item and the proposed substitution, including life expectancy, weatherability, durability, fire resistance, compatibility with other materials, susceptibility to defects due to characteristics unique to the product, and product limitations, including other characteristics such as slip resistance, acoustical properties, etc. The Contractor shall submit a statement of effect on construction time, coordination with other affected work, and the Contractor's statement to the effect that the proposed substitution is satisfactory for use in the Project and will result in overall work equal-to-or-better-than the work originally indicated.

2. When not equal-to-or-better, the Contractor shall submit a justification and deductive cost proposal resulting from the substitution.

1.8 PRODUCT DELIVERY REQUIREMENTS

- A. Transport and handle products in accordance with the manufacturer's instructions, using means and methods to prevent damage, deterioration, and loss, including theft.
- B. Schedule product delivery to minimize long-term storage at the Project Site, and to prevent overcrowding of construction spaces.
- C. Coordinate product delivery with the installation schedule to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
- D. Deliver products to the Project Site in undamaged condition, in the manufacturer's original, new, sealed container(s) or packaging system, complete with labels intact and instructions for handling, storing, unpacking, protecting, and installing.
- E. Promptly inspect shipments to ensure that the products comply with the Project requirements, that quantities are correct, products are undamaged, and are properly protected.

1.9 PRODUCT HANDLING AND STORAGE REQUIREMENTS

- A. Store and protect products in accordance with the manufacturers' published instructions, with seals and labels intact and legible.
- B. Store products subject to deterioration above ground, under cover, in a weathertight enclosure and with ventilation adequate to prevent condensation and potential degradation. Maintain temperature and humidity within the range required by the manufacturer's published instructions.
- C. For exterior storage of fabricated products, place on sloped supports, above ground.
- D. Provide off-site storage and protection when the Project Site does not permit on-site storage or proper protection.
- E. Store loose granular materials on solid flat surfaces in a well drained area. Prevent mixing with foreign matter.
- F. Provide equipment and personnel to handle and store products by methods to prevent soiling, disfigurement, and damage.
- G. Arrange storage of products to permit access for inspection. Periodically inspect to verify that the products are undamaged and are maintained in an acceptable condition.

1.10 WARRANTIES

- A. Comply with the Warranty provisions of Section 01012 - Supplementary Conditions.

- B. Categories of Specific Warranties: Warranties on the work are in several categories, including those of the General Conditions, and including, but not necessarily limited to, Sections of Divisions 2 through 16 of these Specifications.
- C. Special Project Warranty (Guarantee): A Warranty specifically written and signed by the Contractor for a defined portion of the work; and, where required, countersigned by the subcontractor, installer, manufacturer or other entity engaged by the Contractor.
- D. Specified Product Warranty: A Warranty which is required by the Contract Documents, to be provided for a manufactured product incorporated into the work.
- E. Coincidental Product Warranty: A Warranty which is not specifically required by the Contract Documents, other than as specified in this Section, but which is available on a product incorporated into the work, by virtue of the fact that the manufacturer has published a Warranty in connection with purchase and use of the product without regards to specific applications.
- F. General Limitations: It is recognized that specific Warranties are intended primarily to protect the Owner against failure of the work to perform as required, and against deficient, defective and faulty materials and workmanship, regardless of the source. Except as otherwise indicated, specific Warranties do not cover failures in the work which result from:
1. Unusual and abnormal phenomena of the elements,
 2. The Owner's misuse, maltreatment or improper maintenance of the work,
 3. Vandalism after the date of Substantial Completion, or
 4. Insurrection or acts of aggression, including war.
- G. Start Date: Warranties will commence on the date of Substantial Completion of the Project unless otherwise agreed to by the Owner's representative.
- H. Reinstatement of Warranty Period: Except as otherwise indicated, when work covered by a special Project Warranty or product Warranty has failed and has been corrected by replacement or restoration, reinstate the Warranty by written endorsement for the original time period, starting on the date of acceptance of the replaced or restored work.
- I. Replacement Cost, Obligations: Except as otherwise indicated, the cost of replacing or restoring failing warranted units or products is the Contractor's obligation, without regard for whether or not the Owner has already benefitted from use through a portion of the anticipated useful service life.
- J. Related Damages and Losses: In connection with the Contractor's correction of warranted work which has failed, remove and replace other work of the Project which has been damaged as a result of the failure, or must be removed and replaced to provide access for correction of the warranted work.
- K. Rejection of Warranties: The Owner reserves the right, at the time of Substantial Completion or thereafter, to reject coincidental product Warranties submitted by the Contractor, which in the opinion of the Owner tend to detract from or confuse interpretation of the requirements of the Contract Documents.

- L. Contractor's Procurement Obligations: Do not purchase, subcontract for, or allow others to purchase or sub-subcontract for materials or units of work for the Project where a special Project Warranty, specified product Warranty, certification or similar commitment is required, until it has been determined that the entities required to countersign such commitment are willing to do so.
- M. Submittal of Warranty Forms: Where a special Project Warranty (Guarantee) or specified product Warranty is required, prepare a written document to contain terms and appropriate identification, ready for execution by the required parties. Submit a draft to the Owner via the Owner's representative for approval and final execution.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01700
EXECUTION REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Examination.
2. Preparation.
3. Execution.
4. Cleaning.

B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the work of this Section. Additional requirements and information necessary to complete the work of this Section may be found in other documents.

1.2 EXAMINATION

A. Visit the Project Site to determine the existing conditions.

1. Take field measurements and verify field conditions, compare field measurements, conditions, locations of survey benchmarks, and other information known to the Contractor, with the Construction Documents before starting the work.
2. Be responsible for determining conditions of the Project Site, including all existing improvements, paving, above and below ground utilities, and existing construction.
3. Contact local utility companies and agencies and make arrangements to obtain utility locations and marking service before the start of work.

B. Review the Contract Documents.

1. Carefully study and compare the Contract Documents with each other.
2. Be responsible for thorough knowledge of the Contract Documents and their relationship to each other.
3. If the Contractor performs work knowing it involves a recognized error, inconsistency, or omission in the Contract Documents, without notice to the Owner's representative, the Contractor assumes responsibility for performance of the work, and is responsible for the cost of corrective work.

C. Verify that existing conditions and substrate surfaces are acceptable and meet the manufacturer's requirements for the application or installation of work.

- D. Verify that the substrate is capable of structurally supporting attachment of the work being applied or installed.
- E. Examine and verify specific conditions described in the individual Specifications Sections.
- F. Verify that utility services are available, of the correct characteristics, and in the correct location for the installation of work.

1.3 PREPARATION

A. Construction Layout:

- 1. Be responsible for the accuracy of measurements, elevations, lines, and grades of the work.
- 2. Do not scale Drawings. Use the dimensions indicated on the Drawings for the laying out of work.
- 3. Errors in construction caused by the Contractor scaling Drawings to obtain measurements for laying out the work is the responsibility of the Contractor. By scaling Drawings, the Contractor assumes responsibility for the performance of such work, and is responsible for the cost of corrective work.
- 4. Perform field work necessary to lay out and maintain work to the dimensions indicated in the Contract Documents.

B. Field Engineering:

- 1. Establish permanent benchmarks on the Project Site referenced to established control points indicated on the Drawings. Record locations, with horizontal and vertical data, on the Project Record Drawings.
- 2. Establish elevations, lines, and levels, for work using survey instrumentation for:
 - a. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
 - b. Grid or axis for structures.
 - c. Building foundations, column locations, and finish floor elevations.
 - d. Location of existing utilities necessary to adjust, move, or relocate existing structures, utility poles, lines, services, and other items located within the Project Site or affected by the work.
- 3. Periodically verify layouts by the same means.

C. Preparation for product Installation:

- 1. Conduct a Pre-Installation Meeting when specified in the individual Specifications Sections.
- 2. Obtain, read, and understand applicable reference standards and manufacturer's published instructions regarding erection, application, and installation of products.

3. Clean substrate surfaces before applying products.
4. Seal cracks and openings of substrates before applying products.
5. Apply manufacturer's required or recommended substrate primer, sealer, or conditioner before applying products in contact or bond.

1.4 EXECUTION

A. Cutting and Patching:

1. Employ skilled and experienced tradesmen to perform cutting and patching work.
2. Submit a written request, in advance of cutting or altering elements which affect:
 - a. Structural integrity of an element.
 - b. Integrity of weather-exposed or moisture-resistant elements.
 - c. Efficiency, maintenance, or safety of an element.
 - d. Visual quality of sight exposed elements.
3. Execute cutting, fitting, and patching to complete work, and to:
 - a. Fit several parts together, to integrate with other work.
 - b. Uncover work to install or correct ill-timed work.
 - c. Remove and replace defective and non-conforming work.
 - d. Remove samples of installed work for testing.
 - e. Provide openings in elements of the work for penetrations of mechanical and electrical work.
4. Execute work by methods that will avoid damage to other work, and will provide proper surfaces to receive patching and finishing.
5. Cut masonry and concrete materials using a masonry saw or core drill.
6. Restore work with new products in accordance with requirements of the Contract Documents.
7. Fit work tight to pipes, sleeves, ducts, conduit, and other penetrations.
8. Maintain the integrity of wall, ceiling, and floor construction; completely seal voids.
9. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to the nearest intersection; for an assembly, refinish the entire unit.
10. Identify any hazardous substance or condition exposed during the work to the Owner's representative for a decision or remedy.

B. Installation:

1. Refer to the installation requirements in individual Specifications Sections.
2. For each product, inspect the substrate and conditions under which the work will be performed. Do not proceed with the work until the unsatisfactory conditions have been corrected.
3. Comply with manufacturer's published installation instructions and recommendations, to the extent that instructions and recommendations are more explicit or stringent than requirements in the Contract Documents.
4. Inspect products ready for installation immediately upon delivery to the Project Site.
 - a. Inspect products immediately before the start of application, installation, or erection.
 - b. Reject damaged and defective products.
5. Verify and check dimensions and measurements before the start of application, installation or erection.
6. Coordinate the closing-in of work with required inspections and tests.
 - a. Do not cover work until inspected and approved by the appropriate person or entity.
 - b. Uncover work that has not been inspected as directed by the Owner's representative.
7. Provide fasteners, attachments, connection devices, and methods as indicated on the Drawings, or as specified.
 - a. Where not indicated or specified, provide appropriate methods necessary for securing the work.
 - b. Secure work plumb, level and true to line.
 - c. Provide for expansion and building movement.

1.5 CLEANING

- A. Cleaning During Construction: Coordinate with Section 01500 - Temporary Facilities and Controls.
- B. Final Cleaning:
 1. Use cleaning materials and agents recommended by manufacturer or fabricator of surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property, or that might damage finished surfaces.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01705
PROJECT CLOSEOUT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Description of requirements.
2. Prerequisites for Substantial Completion.
3. Closeout procedures.
4. Final cleaning.
5. Starting and adjusting.
6. Operation and maintenance instructions.
7. Partial occupancy or use.
8. Prerequisites for final acceptance.
9. Default.

B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the work of this Section. Additional requirements and information necessary to complete the work of this Section may be found in other Documents.

1.2 DESCRIPTION OF REQUIREMENTS

A. Definitions: Closeout is hereby defined to include the general requirements near the end of the Contract Time in preparation for substantial completion, beneficial occupancy, final acceptance, and final payment.

1.3 PREREQUISITES TO SUBSTANTIAL COMPLETION - REFERENCE LEED REQUIREMENTS

A. General: Prior to requesting an Owner representative's inspection for certification of substantial completion (for either the entire work or portions thereof), complete the following:

1. Provide a list of incomplete items, reasons for being incomplete and a schedule for completion.
2. Obtain and submit releases enabling the Owner's full and unrestricted use of the work and access to services and utilities, including recorded Occupancy Permit(s), operating certificates, and similar releases.
3. Make final change-over of locks and transmit keys to the Owner. Advise the Owner's personnel of the change-over in security provisions.

4. Complete start-up and testing of equipment and systems including instruction of Owner's operations / maintenance personnel. Discontinue (or change-over) and remove from the Project Site all temporary facilities and services, along with construction tools and facilities, mock-ups, and similar elements.
 5. Place in good working order all equipment and systems, including but not limited to, all fire, mechanical, electrical and life safety systems.
 6. Submit manuals and other supporting documentation, as indicated in the Contract Documents.
 7. Complete final cleaning.
- B. Inspection Procedures: Upon receipt of the Contractor's request, the Owner's representative will either proceed with the inspection or advise the Contractor of prerequisites not fulfilled. Following the initial inspection, the Owner's representative will either prepare a Certificate of Substantial Completion, or advise the Contractor of work which must be performed prior to the issuance of a certificate. Repeat the inspection when requested and assured that the work has been substantially completed. Results of completed inspection will form the initial "punch-list" for final acceptance.

1.4 CLOSEOUT PROCEDURES

- A. At completion of the work of each subcontract or designated division of the work, conduct an initial inspection to verify completion of the work; prepare a list of work to be completed or corrected, and conduct a follow-up inspection to verify that the corrections have been made.
- B. Beneficial Occupancy:
1. When the Contractor considers the work, or a portion of the work which the Owner agrees to accept separately, is substantially complete, submit written certification to the Owner's representative stating that the Contract Documents have been reviewed, work has been inspected, the work is complete in accordance with the Contract Documents, and the work is ready for inspection.
 - a. Submit a list of items to be completed or corrected.
 - b. Complete and correct items on the list.
 - c. Failure to include an item on the list does not change the Contractor's responsibility to complete the work in accordance with the Contract Documents.
 - d. Submit Closeout Submittals to the Owner's representative.
 2. The Owner's representative will review the list and make an inspection to determine if the work, or designated portion of the work, is substantially complete.
 - a. The Contractor will be notified of items identified during inspection as not in accordance with the Contract Documents, whether they were included on the Contractor's list or not.
 - b. Contractor to complete and correct items on the list.

- c. Notify the Owner's representative that the items have been corrected and request re-inspection.
 - 3. The Owner's representative will re-inspect to determine if the work, or designated portion of the work, is substantially complete.
 - 4. When the work, or designated portion of the work, is substantially complete, the Owner's representative will notify the Contractor and document the Date of Beneficial Occupancy.
- C. Final Acceptance:
 - 1. The Contractor to submit written certification that the Contract Documents have been reviewed, work has been inspected, work is complete in accordance with the Contract Documents, and is ready for final inspection.
 - 2. The Owner's representative will make an inspection to determine if the work of the Contract is complete.
 - a. The Contractor will be notified by the Owner's representative of items identified during inspection as not in accordance with the Contract Documents, and not ready for final acceptance.
 - b. Contractor to complete and correct items on the list.
 - c. Contractor to notify Owner's representative that items on the list have been corrected and request an inspection.
 - 3. When the work is complete, as determined by the Owner's representative, the Owner's representative will notify the Contractor and document the Date of Final Acceptance.

1.5 FINAL CLEANING

- A. Complete cleaning operations before requesting inspection for Substantial Completion for Final Acceptance or a portion of the Project.
- B. Provide final cleaning of the work consisting of cleaning each surface or unit of work to a normal "clean" condition expected from a first class building cleaning and maintenance program. Comply with the manufacturer's instructions for cleaning operations.
The following are examples, but not by way of limitation, of cleaning levels required:
 - 1. Remove tools, construction equipment, machinery and surplus materials from the Project Site.
 - 2. Remove temporary protection devices and facilities installed during construction.
 - 3. Clean the Project Site, yard and grounds, in areas disturbed by the construction activities, including landscape development areas. Remove rubbish, waste materials, litter and foreign substances. Sweep paved areas broom clean. Remove petrochemical spills, stains and other foreign deposits. Rake grounds that are neither planted nor paved, to a smooth even textured surface.
 - 4. Remove debris and surface dust from limited access spaces, including roofs,

plenums, shafts, trenches, equipment vaults, manholes, attics and similar spaces.

5. Broom clean concrete floors in unoccupied spaces.
 6. Clean exposed exterior and interior hard-surface finishes to a dirt-free condition, free of stains, films and similar foreign substances. Avoid disturbing the natural weathering of exterior surfaces.
 7. Remove labels that are not permanent.
 8. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision obscuring materials. Replace chipped and broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch the surfaces.
 9. Vacuum clean carpet and similar soft surfaces, remove debris and excess nap; shampoo if required.
 10. Touch-up and otherwise repair and restore marred exposed finishes and surfaces. Replace finishes and surfaces that can not be satisfactorily repaired or restored, or that show evidence of repair or restoration. Do not paint over "UL" and similar labels, including mechanical and electrical name plates.
 11. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure. Clean food service equipment to a condition of sanitation ready and acceptable for its intended service use.
 12. Clean light fixtures, lamps, globes and reflectors to function with full efficiency. Replace burned out lamps, and defective and noisy starters in fluorescent and mercury vapor fixtures.
 13. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills. Clean ducts, blowers, and coils if units were operated without filters during construction.
 14. Wipe surfaces of mechanical and electrical equipment clean, including elevator and similar equipment. Remove excess lubricants, paint, mortar droppings and other foreign substances.
 15. Leave the entire Project Site clean and ready for occupancy.
- B. Cleaning Materials: Only Green Seal GS-37 Standard compliant cleaning materials shall be used in the final cleanup.
- C. Recycle, salvage, and return construction and demolition waste from Project in accordance with requirements with the Waste Management Plan in Section 01741.
- D. Engage an experienced licensed exterminator to make a final inspection, and rid the Project Site of rodents, insects, and other pests. Comply with regulations of the local authorities having jurisdiction.
- E. Comply with governing regulations and safety standards for cleaning operations. Remove waste materials from the Project Site and dispose at a designated site, and in

accordance with requirements of the local authorities having jurisdiction.

1.6 REFERENCES

- A. Green Seal website www.greenseal.org/certproducts.htm for a list of approved products:
- B. Pest Control: Engage an experienced exterminator to make a final inspection of project, and rid project of rodents, insects, and other pests.
- C. Remove of Protection: Except as otherwise indicated or requested by Architect/Engineer, remove temporary protection devices and facilities which were installed during course of the work.

1.7 STARTING AND ADJUSTING

- A. Inspect mechanical and electrical equipment start-up operations, observe testing and balancing, and record the start-up results, including the time and date of start-up.
- B. Starting Systems:
 - 1. Coordinate the schedule for start-up of the various items of equipment and systems.
 - 2. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for any conditions which may cause damage upon start-up.
 - 3. Verify that tests, meter readings, and the specified electrical characteristics agree with those required by the equipment or system manufacturer.
 - 4. Verify that wiring and support components for equipment are complete and have been tested.
 - 5. Execute start-up under the supervision of appropriate Contractor's personnel, and in accordance with the manufacturers' instructions.

1.8 OPERATION AND MAINTENANCE INSTRUCTIONS

- A. Arrange for each installer of work requiring continuing maintenance or operation to meet with the Owner's personnel at the Project Site to provide basic instructions for proper operation and maintenance of the entire work. Utilize the Operations and Maintenance Manuals as the basis for instructions. Review contents of the manuals, in detail, to explain all aspects of operation and maintenance. Include instructions by manufacturer's representatives where the installers are not expert in the required procedures.
- B. Review maintenance manuals, record documentation, tools, spare parts and materials, lubricants, fuels, identification system, control sequences, shutdown, hazards, troubleshooting, cleaning, servicing, maintenance and similar procedures.
- C. For operational equipment, demonstrate start-up, shut-down, operation, control,

emergency operations, noise and vibration adjustments, safety, economy / efficiency adjustments, energy effectiveness, and similar operations.

- D. Review operations and maintenance in relation to applicable warranties, agreements to maintain, bonds, and similar continuing commitments.
- E. Prepare and insert additional data in the Operations and Maintenance Manuals when need, for data that becomes apparent during the instructions.

1.9 PARTIAL OCCUPANCY OR USE

- A. The Owner shall have the right to occupy or permit its employees, agents, representatives, or subcontractors to occupy any part or parts of the Project (to the extent that such work is not covered hereunder) and to install special Items, fixtures, furniture, appliances and equipment, notwithstanding that all work hereunder shall not have been completed at the time of such occupancy, provided, however, that:
 - 1. The work completed in the part or parts to be occupied shall have been conditionally accepted by the Owner, in writing, specifying any claimed deficiencies in the work completed;
 - 2. The Owner assumes liability for utilities and the risk of loss with respect to the portion of the Project subject to such early occupancy; and
 - 3. Any such early occupancy shall not reasonably interfere with the Contractor's sequence for completing its work in the areas occupied or in other areas. The Contractor agrees to fully cooperate and coordinate its effort with such early "occupancy" of the Project under this paragraph, and shall give to the Owner prompt notice of any inconvenience, damage, or delay likely to arise from such early occupancy. Such early occupancy shall have no bearing on the commencement of warranty periods.

1.10 PREREQUISITES FOR FINAL ACCEPTANCE

- A. Prior to requesting final inspection for certification of final acceptance and final payment, as required by the General Conditions, complete the following and list known exceptions in the request:
 - 1. Submit final payment request with final releases and supporting documentation not previously submitted and accepted.
 - 2. Submit a dated final statement accounting for changes to the Contract Sum.
 - 3. Submit a certified copy of the final Punch List of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by the Owner's representative.
 - 4. Submit final meter readings for temporary utilities per Specifications Section 01500 - Temporary Facilities, a measured record of stored fuel, and similar data as of the time of Substantial Completion or when the Owner took possession of and responsibility for corresponding elements of the work.
 - 5. Submit a consent of Surety to the release of final payment.
 - 6. Deliver tools, spare parts, extra stocks of materials, and similar physical items to the Owner.

7. Submit Record Drawings, Record Product Data and Miscellaneous Record Submittals.
 8. Submit Warranties, workmanship / maintenance bonds, maintenance agreements, final certifications and similar documents.
 9. Submit compliance with mechanics liens laws.
- B. Re-inspection Procedure: Upon receipt of the Contractor's notice that the work has been completed, including Punch List items resulting from earlier inspections, and excepting incomplete items delayed because of acceptable circumstances, the Owner's representative will re-inspect the work. Upon completion of the re-inspection, the Owner's representative will either process final closeout documents or advise the Contractor of work not completed or obligations not fulfilled, as required for final acceptance.
- C. Final Payment, Liens and Punch List of Work: If at the time of Final Payment, any application or applications for mechanic's or materialmen's liens have been filed against the Project, the Owner may withhold an amount equal to two hundred percent (200%) of the amount of the claimed lien or liens until the liens are removed or the Contractor posts a bond or cash deposit discharging such liens. The Owner may also withhold from the final payment such amount as the Owner reasonably deems necessary to cover: 1) minor corrective work (Punch List items) until such corrective work has been completed by the Contractor, and 2) any remaining work the Contractor is required to perform under the Contract Documents. The amount withheld shall be two hundred percent (200%) of the value of the incomplete work as reasonably estimated by the Owner.

1.11 DEFAULT

- A. The Owner may declare the Contractor in default in accordance with and in the manner described in the General Conditions of the Contract for Construction for any of the following reasons:
1. Failure to complete the work within the Contract period or any extension thereof.
 2. Failure or refusal to comply with an order of the Owner or Architect within a reasonable time.
 3. Failure or refusal to remove rejected materials.
 4. Failure or refusal to perform anew any defective or unacceptable work.
 5. Bankruptcy or insolvency, or the making of an assignment for the benefit of creditors.
 6. Failure to pay subcontractors and suppliers promptly.
 7. Repeated failure to provide a qualified superintendent, competent workmen or subcontractors to carry out the work in an acceptable manner, or failure to prosecute the work according to the agreed schedule for completion.

1.12 FINAL PAYMENT

- A. Substantial Completion and Final Completion Prerequisites along with Closeout Submittals listed in Section 01780 Submittal Procedures shall be provided prior to final payment.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01780
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Maintenance contracts.
 - 2. Operation and maintenance data.
 - 3. Product warranties.
 - 4. Project record documents.
 - 5. Extra materials.
- B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the work of this Section. Additional requirements and information necessary to complete the work of this Section may be found in other Documents.

1.2 MAINTENANCE CONTRACTS

- A. Provide Plant Maintenance as part of the work during the Plant Establishment Period as specified in Section 02930 - Exterior Plants.

1.3 OPERATION AND MAINTENANCE DATA

- A. Prepare instructions and data by personnel experienced in operation and maintenance of the described products and equipment.
- B. Format:
 - 1. Prepare data in the form of an instructional manual.
 - 2. Binders: Commercial quality, 8-1/2" x 11", three D, side ring binders with durable plastic covers; 2" maximum ring size. When multiple binders are used, correlate the data into related, consistent groupings.
 - 3. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify the title of the Project; identify the subject matter of the contents.
 - 4. Provide tabbed dividers for each separate product and system, with a typed description of the product and major component parts of equipment.
 - 5. Text: Manufacturer's published data, or typewritten data on 20 pound paper.
 - 6. Drawings: Provide with reinforced punched binder tabs. Bind in with text; fold large drawings to the size of the text pages.

7. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, in three parts as follows:
 - a. Part 1: Directory, listing the name, address, and telephone number of the Architect, Engineers, Contractor, subcontractor, and major equipment suppliers.
 - b. Part 2: Operations and maintenance instructions, arranged by system and subdivided by Specifications Section. For each category, identify the name, address, and telephone number of the subcontractor and suppliers. Identify the following:
 - 1) Significant design criteria.
 - 2) List of equipment.
 - 3) Parts list for each component.
 - 4) Operating instructions.
 - 5) Maintenance instructions for equipment and systems.
 - 6) Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
 - c. Part 3: Project documents and certificates, including the following:
 - 1) Shop Drawings and product data.
 - 2) Air and water balance reports.
 - 3) Certificates.
 - 4) Copies of Warranties.

C. Contents, Each Volume:

1. Table of Contents: Provide the title of the Project; name, address, and telephone number of the Architect, Engineer, subconsultant, and the Contractor with the name of the responsible party; schedule of products and systems, indexed to the content of the volume.
2. For Each Product or System: List the name, address and telephone number of subcontractor and suppliers, including the local source of supplies and replacement parts.
3. Product Data: Mark each sheet to clearly identify the specific products and component parts, and data applicable to the installation. Delete or do not include inapplicable information.
4. Drawings: Supplement product data to illustrate the relationship of component parts of equipment and systems, to show control and flow diagrams. Do not use the Project Record Documents as maintenance drawings.

5. Typed Text: As required to supplement product data. Provide a logical sequence of instructions for each procedure, incorporating the manufacturer's instructions.
 6. Warranties: Bind in a copy of each.
 7. Lien Release: Include a copy from each subcontractor and major supplier.
- D. Manual for Materials and Finishes:
1. Building Products, Applied Materials, and Finishes: Include product data, with catalog numbers, sizes, composition, and color and texture designations. Provide information for re-ordering custom manufactured products.
 2. Instructions for Care and Maintenance: Include the manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
 3. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
 4. Additional Requirements: As specified in the individual product Specifications Sections.
 5. Provide a listing in the Table of Contents for design data, with a tabbed fly sheet and space for insertion of data.
- E. Manual for Equipment and Systems:
1. Each Item of Equipment and Each System: Include description of the unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.
 2. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.
 3. Include color coded wiring diagrams, as installed.
 4. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include any special operating instructions.
 5. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
 6. Provide a servicing and lubrication schedule, and a list of lubricants required.
 7. Include the manufacturer's published operation and maintenance instructions.
 8. Include sequence of operation by the controls manufacturer.

9. Provide the original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
10. Provide control diagrams by the controls manufacturer, as installed.
11. Provide the Contractor's coordination drawings, with color coded piping diagrams, as installed.
12. Provide charts of valve tag numbers, with the location and function of each valve, keyed to flow and control diagrams.
13. Provide a list of the original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
14. Include test and balancing reports, as specified.
15. Additional Requirements: As specified in the individual product Specifications Sections.
16. Provide a listing in the Table of Contents of design data, with tabbed dividers and space for insertion of additional data.

1.4 PRODUCT WARRANTIES

- A. Submit Warranties required for specific products or work, as specified in the individual Specifications Sections.
- B. Form of Submittals:
 1. Bind in commercial quality 8-1/2" x 11" three D, side ring binders with durable plastic covers.
 2. Cover: Identify each binder with the typed or printed title WARRANTIES with the title of the Project; name, address and telephone number of the Contractor and equipment supplier; and the name of the responsible company principal.
 3. Table of Contents: Neatly typed, in the sequence of the Project Manual, Table of Contents, with each item identified with a number and title of the Specifications Section in which specified, and the name of the product or work item.
 4. Separate each Warranty with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets, as necessary. List the subcontractor, supplier, and manufacturer, with the name, address, and telephone number of the responsible principal.
- C. Preparation of Submittals:
 1. Obtain Warranties executed in duplicate by the responsible subcontractor, supplier, and manufacturer, within ten (10) days after completion of the applicable item of work. Except for items put into use with the Owner representative's approval, leave the date of the beginning of the warranty time until the Date of Final Acceptance has been determined.
 2. Verify that the documents are in the proper form, contain complete information, and are notarized.

3. Co-execute submittals when required.
 4. Retain Warranties until the time specified for submittal.
- D. Time of Submittals:
1. For equipment or component parts of equipment put into service during construction with the Owner representative's approval, submit documents within ten (10) days after acceptance.
 2. Make other submittals within ten (10) days after the Date of Substantial Completion, and prior to the final Application for Payment.
 3. For items of work for which acceptance is delayed beyond the Date of Substantial Completion, submit within ten (10) days after acceptance.

1.5 PROJECT RECORD DOCUMENTS

- A. Project Record Documents required include:
1. As-Built copies of the Contract Drawings.
 2. Marked-up copies of the Shop Drawings.
 3. Marked-up copies of the Specifications, addenda and Contract Modifications.
 4. Marked-up product data submittals.
 5. Field records for variable and concealed conditions.
 6. Record information on work that is recorded only schematically.
- B. Specific record copy requirements that expand the requirements of this Section are included in the individual Specifications Sections of Division 2 through Division 16.
- C. Maintenance of Documents: Store the Record Documents in a field office apart from the Contract Documents used for construction. Do not permit the Project Record Documents to be used for construction purposes. Maintain and protect the Record Documents from damage in a clean, dry, legible condition. Make Documents available at all times for inspection by the Owner's representative.
- D. Record (As-Built) Drawings:
1. During construction, maintain a set of blackline, white prints of the Contract Drawings and Shop Drawings for Project Record Document purposes.
 - a. Mark these Drawings to indicate actual installations where the installations vary from the installation originally shown. Give particular attention to information on concealed elements which would be difficult to identify or measure and record later. Items required to be marked include but are not limited to:
 - 1) Dimensional changes to the Drawings.
 - 2) Revisions to Details shown on the Drawings.

- 3) Depth of foundations below the first floor.
 - 4) Locations and depths of underground utilities.
 - 5) Revisions to the routing of piping and conduits.
 - 6) Revisions to electrical circuitry.
 - 7) Actual equipment locations.
 - 8) Duct sizes and routing.
 - 9) Locations of concealed internal utilities.
 - 10) Changes made by Contract Modifications.
 - 11) Details not on the original Contract Drawings.
- b. Mark completely and accurately record on prints of the Contract Drawings or Shop Drawings, whichever is most capable of showing the actual physical conditions. Where Shop Drawings are marked, show a cross-reference on the Contract Drawings.
 - c. Mark important additional information which was either shown schematically or omitted from the original Drawings.
 - d. Note construction change directive numbers, alternate numbers, Change Order numbers, clarification numbers and similar identification.
 - e. Responsibility for Markup and Supervision: Contractor Quality Control Representative, as specified in Section 01450 - Quality Control. Where feasible, the name of the individual or entity who obtained the record data, whether individual or entity is installer, subcontractor, or similar entity, is required to prepare mark-ups on the Record Drawings.
 - 1) Accurately record information in an understandable Drawing technique.
 - 2) Record data as soon as possible after it has been obtained. In case of concealed installations, record and check mark-ups prior to concealment.
 - 3) Contractor Quality Control Representative: Affix signature and certify accuracy of the Record Drawings.
2. Preparation of As-Built Drawings: Immediately prior to the inspection for Final Acceptance, review the completed marked-up record Drawings with the Owner's representative. Prepare a full set of corrected Drawings of as-built conditions.
 - a. Incorporate changes and additional information previously marked on the print sets. Erase, redraw, and add details and notations where applicable. Identify and date each Drawing; include the printed designation "PROJECT AS-BUILT DRAWINGS" in a prominent location on each Drawing.

- b. Refer instances of uncertainty to the Owner's representative for resolution.
 - c. The Owner's representative will make the original Contract Drawings available to the Contractor in electronic format .
 - d. The Contractor is responsible for printing the original Contract Drawings and other Drawings.
 - e. Review of Drawings: Before copying and distributing, submit corrected Drawings and the original marked-up prints to the Owner's representative for review.
3. Copies and Distribution: After completing the preparation of As-Built Drawings, submit two (2) complete sets of the Drawings on reproducible vellum sheets (24" x 36"), and two (2) complete zip disks (100 mb AutoCAD). Place each set of Drawings in durable tube-type containers with end caps. Mark the end cap of each container with suitable identification. Mark the zip disks similarly.
- a. Organize and bind the original marked-up set of prints that were maintained during construction in the same manner.

E. Record Specifications:

- 1. During the construction period, maintain one copy of the Project Specifications, including addenda and any modifications issued, for Project Record Document purposes.
 - a. Mark the Specifications to indicate actual installations where the installation varies from that indicated in the Specifications and modifications issued. Note related Project Record Drawing information, where applicable. Give particular attention to substitutions, selection of product options, and information on concealed installations that would be difficult to identify or measure and record later.
 - 1) In each Specifications Section where products, materials or units of equipment are specified or scheduled, mark the copy with the proprietary name and model number of the product furnished.
 - 2) Record the name of the manufacturer, supplier and installer, and other information necessary to provide a record of the selections made and to document coordination with the Record Product Data submittals and Maintenance Manuals.
 - 3) Note the related Record Product Data, where applicable. For each principal product specified, indicate whether the Record Product Data has been submitted in a Maintenance Manual instead of submitted as Record Product Data.
- 2. Upon completion of the mark-up, submit Record Specifications to the Owner's representative.

F. Record Product Data:

- 1. During construction, maintain one (1) copy of each Product Data submittal for Project Record Document purposes.

- a. Mark the Product Data to indicate the actual product installation where the installation varies from that indicated in the Product Data submitted. Include significant changes in the product delivered to the Project Site, and changes in the manufacturer's instructions and recommendations for installation.
- b. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
- c. Note related Contract Modifications and mark-up of Record Drawings, where applicable.
- d. Upon completion of the mark-up, submit a complete set of the Record Product Data to the Owner's representative with an index of all product data cross-referenced with submittal numbers.
- e. Where the Record Product Data is required as part of the Maintenance Manuals, submit the marked-up Product Data as an insert in the Manual instead of submittal as Record Product Data.

G. Additional Record Submittals:

1. Refer to other Specifications Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Immediately prior to Final Acceptance, complete additional records and place in order, properly identified and bound or filed, ready for use and reference. Submit to the Owner's representative.
 - a. Categories of requirements resulting in miscellaneous records include, but are not limited to the following:
 - 1) Field records of excavations and foundations.
 - 2) Field records of underground construction and similar work.
 - 3) Survey showing locations and elevations of underground lines.
 - 4) Invert elevations of drainage piping.
 - 5) Surveys establishing building lines and levels.
 - 6) Authorized measurements utilizing unit prices or allowances.
 - 7) Records of plant treatment.
 - 8) Ambient and substrate condition tests.
 - 9) Certifications received in lieu of labels on bulk products.
 - 10) Batch mixing and bulk delivery records.
 - 11) Testing and qualification of tradesmen.
 - 12) Documented qualifications of installation firms.
 - 13) Load and performance testing.

- 14) Inspections and certifications by governing authorities.
- 15) Leakage and water-penetration tests.
- 16) Fire resistance and flame spread test results.
- 17) Final inspection and correction procedures.

1.6 EXTRA MATERIALS

- A. Provide products, spare parts, maintenance, and extra materials in the quantities specified in the individual Specifications Sections.
- B. Deliver to the Project Site and place in a location directed by the Owner's representative; obtain a receipt prior to final payment.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01805

MATERIALS FURNISHED BY OWNER FOR INSTALLATION BY CONTRACTOR (OFCI)

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. OFCI list.
2. Owner's responsibility.
3. Contractor's responsibility.
4. Delivery and storage.
5. Protection and care.
6. Damage.
7. Installation.

- B. The Contract Documents, as defined within Section 01010 - Summary of Work, apply to the work of this Section. Additional requirements and information necessary to complete the work of this Section may be found in other Documents.

PART 2 PRODUCTS

2.1 GENERAL

- A. The following materials, fixtures and equipment are to be provided by the Owner. The Contractor shall verify the type, manufacturer, rough-in requirements and other data relevant to proper installation. The Contractor shall construct his work in strict accordance with the dimensions shown on Shop Drawings provided to the Owner. Any deviation from the dimensions shall be immediately transmitted to the Owner's representative, in writing. Any deviations made which affect the installation of Owner-Furnished materials without the Architect's approval shall be corrected by the Contractor at his expense and in the manner stipulated by the Owner's representative.

2.2 OFCI LIST:

1. Map Printed Graphics
2. Advertisement Printed Graphics

2.3 OWNER'S RESPONSIBILITY

- A. Arrange for and deliver Shop Drawings, product data, and samples to the Contractor.

- B. Arrange for replacement of damaged, defective, and missing items.
- C. Arrange for manufacturer's warranties, inspections and service.
- D. Maintain insurance coverage during shipment to the port.

2.4 CONTRACTOR'S RESPONSIBILITY

- A. Review Shop Drawings, product data and samples to ensure that the construction will accommodate the installation.
- B. Receive materials and transport to and unload at the Project Site; inspect for completeness and for damage jointly with the Owner.
- C. Install and finish the materials.
- D. Repair or replace items damaged by the work of this Contract.

PART 3 EXECUTION

3.1 DELIVERY AND STORAGE

- A. The Contractor shall receive Owner-Furnished Materials from the Owner at the designated location. The Contractor shall inventory, determine rough-in requirements, completeness, conditions, need for repair / replacement and shall store such materials appropriately until incorporated into the work.

3.2 PROTECTION AND CARE

- A. Contractor shall care for and protect Owner-Furnished Materials in storage, during installation, and until final acceptance of the work. Contractor shall provide the insurance coverage.

3.3 DAMAGE

- A. Any damage to Owner-Furnished Materials occurring after receipt of the materials by the Contractor shall be repaired or replaced by the Contractor at no cost to the Owner.

3.4 INSTALLATION

- A. Contractor shall install the Owner-Furnished Materials in accordance with the manufacturer's instructions. Provide all transition trim, connectors, anchors, trim and other work require to properly install and secure the Owner-Furnished Materials and equipment.

END OF SECTION

SECTION 02050

DEMOLITION AND REMOVAL

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of existing sidewalks, site amenities, site utilities, and other items as indicated on the Drawings, and as required to accomplish the work.
2. Disconnection, capping and identification of utilities.
3. Removal and disposal of miscellaneous items that will be a hindrance or hazardous to the work to be done, as directed by the Owner's representative.
4. Disconnection, capping and identification of utilities.
12. Protection of materials removed and stored for re-use.
13. Construction and maintenance of temporary partitions to allow continual occupancy of adjacent building areas.
14. Disposal of materials at approved off-site location(s).
15. Procedures for safe conduct of the work.
16. Protection of property to remain.
17. Coordination with other work.

B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the work of this Section. Additional requirements and information necessary to complete the work of this Section may be found in other Documents.

1.2 DESCRIPTION OF WORK

A. The extent of the demolition and removal work is indicated on the Drawings and as specified herein, and includes the demolition of designated existing construction, equipment, fixtures and cabinetry; protection of materials for re-use; construction of temporary partitions; disconnection, capping and identification of utility services; removal and disposal of debris; and protection of property to remain.

1.3 SUBMITTALS

A. Section 01330 - Submittal Procedures: Procedures for submittals.

1. Submit a demolition and removal plan for approval before work begins. Include procedures for careful removal and disposition of the materials specified to be salvaged, disconnection schedule for utility services, coordination with other work, and a detailed description of methods and equipment to be used for each, and the sequence of operation.

1.4 REQUIREMENTS

- A. Conform to Section 01560 - Environmental Protection and applicable codes and regulations of authorities having jurisdiction for demolition, removal and disposal.
- B. Obtain written clearances from all public and private utility companies and agencies serving the Project Site prior to the start of any demolition work.
- C. Obtain all required government Permits.
- D. Conform to applicable regulatory procedures if hazardous, toxic or contaminated materials are encountered. Immediately notify the Owner's representative, in writing.
- E. Conduct demolition to minimize impact on existing and adjacent structures. Protect existing structures, utilities, and other items of properties to remain from damage during demolition and removal operations.
- F. Minimize interference with adjacent building occupancies.
- G. Immediately cease operations if adjacent structures appear to be in danger, and take appropriate corrective measures to ensure safety of the structures and occupancies.

1.5 PROJECT CONDITIONS

- A. Provide, erect, and maintain temporary shoring, dust barriers, and security and protection barriers.
- B. Conduct demolition to minimize interference with adjacent building areas.
- C. Maintain protected access and egress at all times.
- D. The use of explosives will not be permitted.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01700 - Execution Requirements: Verification of existing conditions before starting the work.
- B. Verification of Conditions: Verify that measurements, surfaces, materials, substrates and conditions are as indicated.
- C. Report, in writing, prevailing conditions that will adversely affect satisfactory execution of the work of this Section, Do not proceed with the work until the unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Construct and maintain weatherproof closures for unprotected existing openings.
- B. Construct and maintain temporary partitions or barriers to prevent the spread of dust, fumes, noise and smoke to adjacent occupied facilities.
- C. Protect existing work not indicated to be altered or removed.
- D. Provide bracing and shoring as required for work to remain.
- E. Disconnect, remove and cap designated utility services within the demolition area. Mark the location of disconnected utilities. Identify and indicate the capped locations on the Project Record Documents.

3.3 REMOVAL

- A. Do not begin demolition until authorization has been received from the Owner's representative.
- B. Notify the Owner's representative, in writing, ten (10) working days prior to commencement of the work.
- C. Construct demolition in an orderly and careful manner. Protect existing construction to remain.
- D. Where indicated, remove foundation walls and footings to the dept below finished grade, as shown.
- E. Remove concrete curbs, walks and asphalt paving on grade. Backfill, rough grade and compact areas affected by the demolition.
- F. Dust and Noise Control:
 - 1. Dust resulting from the demolition shall be controlled to prevent the spread to occupied portions of the area, and to avoid creation of a nuisance in surrounding areas. The use of water will not be permitted when it will result in, or create hazardous, objectionable conditions, flooding or pollution.
 - 2. Noise associated with the demolition shall be minimized by the selection and use of the proper equipment, procedures implemented, time of day, or day of the week the work is to be accomplished, to minimize the adverse effects of noise from operations and activities of the Contractor.
- H. Existing Work: Protect existing work which is to remain in place, be reused, or remain the property of the Owner. Repair items, which are to remain but are damaged during performance of the work, to their original or better condition or replace with new. Provide new supports and reinforcements to existing construction weakened by the demolition and removal work. Repairs, reinforcements and structural replacements must be approved by the Owner's representative.
- I. Relocations: Perform removal and reinstallation of relocated items, as indicated, with workmen skilled in the trades involved. Coordinate with the agency that has jurisdiction over a utility to be relocated. Repair items to be relocated, which are damaged or replace damaged items with new undamaged items, as approved by the Owner's representative.
- J. Ownership of Materials: Except where specified in other Sections, all material and

equipment removed, and not reused, shall become the property of the Contractor and shall be removed from the Project Site. The ownership of materials resulting from demolition, and materials and equipment removed, is vested in the Contractor upon approval of the Contractor's demolition and removal plan and procedures, and authorization by the Owner's representative. The Owner will not be responsible for the condition or loss of, or damage to, such property after the Contract award. Prospective purchasers shall not be allowed on the Project Site to view materials and equipment to be sold by the Contractor.

K. Salvage: The Contractor shall remove existing facilities, as necessary or as indicated; salvage usable materials as directed; store, transport, stockpile and / or protect materials at the location designated. All salvaged materials shall remain the property of the Owner.

L. Disposal:

1. Refuse resulting from demolition operations shall be hauled to an approved disposal site(s) or landfill and shall be disposed of in a manner to meet all applicable federal and local requirements, regulations and laws regarding environmental protection, health, safety and public welfare.
2. Remove rubbish and debris from the Project Site daily. Do not allow accumulation inside or outside the building. Store materials that cannot be removed daily in areas designated by the Owner's representative.
3. Materials shall not be left on the Project Site, moved to adjoining properties or areas, or be buried on-site.
4. Refuse may not be burned on the Project Site.
5. Remove and promptly dispose of contaminated, vermin infested, and dangerous materials encountered.

M. Restore damaged surfaces, equipment and fixtures to their condition prior to beginning the work, with the same type materials, size and finish as the existing. Damage to existing facilities, structures, utilities or other work to remain shall be repaired by the Contractor using materials equal to or better than those existing, and at the Contractor's expense.

3.4 CLEANUP

1. Upon completion of demolition and removal operations, the entire area shall be cleaned of all debris and rubbish in a manner satisfactory to the Owner's representative.
2. Leave the areas of work in a broom clean condition.

END OF SECTION

SECTION 02920
LAWNS AND GRASSES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Seed.
2. Sod.
3. Sprigs.
4. Mulches.
5. Water.
6. Erosion Control Material.
7. Topsoil.
8. pH Adjusters.
9. Fertilizer.
10. Pre-Emergent Weed Control (Herbicide).

B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the work of this Section. Additional requirements and information necessary to complete the work of this Section may be found in other Documents.

C. Related Sections:

1. Section 02120 - Earthwork: Topsoil and grading; restoration.
2. Section 02930 - Exterior Plants: Planting materials.

1.2 DESCRIPTION OF WORK

A. The extent of lawns and grass work is indicated on the Drawings and as specified herein, and includes providing and placing top soil, soil preparation, fine grading, weed control, grass planting operations, maintenance, and warranty.

1.3 REFERENCES

A. The publications listed below form a part of this Specification to the extent referenced. Publications are referred to in the text by basic designation only.

B. American Sod Producers Association (ASPA):

1. ASPA STSMT - Specification for Turfgrass Sod Materials and Transplanting / Installing.

1.4 SUBMITTALS

A. Section 01330 - Submittal Procedures: Procedures for submittals.

1. Topsoil. Submit an analysis of the topsoil composition.

2. Assurance / Control Submittals:

a. Certificates:

1) Submit a certificate from the seed supplier for each grass seed mixture stating the botanical and common name and the percentage by weight of each species and variety, and the percentage of purity, germination, and weed seed; year of production and date of packaging.

B. Section 01780 - Closeout Submittals: Procedures for closeout submittals.

1. Maintenance Data: Include maintenance instructions; cutting method and maximum grass height; types of application, frequency and recommended coverage of fertilizer for one full growing cycle.

1.5 DELIVERY, STORAGE AND HANDLING

A. Section 01600 - Product Requirements: Transport, handle, store and protect the products.

B. Deliver products to the Project Site in the suppliers original packaging.

PART 2 PRODUCTS

2.1 SEED

A. Classification:

1. Certification that the seeds are from the latest seasons crop, delivered in original, sealed packages, bearing the producer's guaranteed analysis for percentages of mixtures, purity, germination, weed seed content, and inert material.

2. Label in conformance with applicable local seed laws, if any.

3. Wet, moldy and damaged seed shall not be used.

2.2 SOD

A. Classification:

1. Field as classified in ASPA STSMT.

2. Machine cut sod at a uniform thickness of 1" with a tolerance of 1/4", excluding top growth and thatch. Each individual sod piece must be capable of supporting its own weight when lifted by its ends.

3. Broken pads, irregularly shaped pieces, torn and uneven ends will not be accepted.

2.3 SPRIGS

- A. Healthy living stems, stolons, or rhizomes with attached roots of locally adapted grass, without adhering soil, including two to three nodes from 4" - 6" long, obtained from heavy and dense sod.
 - 1. Provide sprigs which have been grown under climatic conditions similar to those in the locality of the Project.
 - 2. Coordinate harvesting and planting operations to prevent the exposure of sprigs to the sun for more than 30 minutes before covering and moistening.
 - 3. Sprigs containing weeds or other detrimental material or that are heat damaged shall be rejected.

2.4 MULCHES

- A. Provide mulch free of noxious weeds, mold and other deleterious materials.
- B. Straw: Stalks from oats, wheat, rye, barley or rice. Air-dry condition of proper consistency for placing with commercial mulch blowing equipment.
- C. Hay: Use only marsh hay for lawn areas. Air-dry condition of proper consistency for placing with commercial mulch blowing equipment.
- D. Wood Cellulose Fiber:
 - 1. Processed to contain no growth or germination inhibiting factors, dyed an appropriate color to facilitate visual metering of the materials application.
 - 2. Composition on air-dry weight basis: 9 to 15% moisture, pH range from 3.5 to 5.0.
 - 3. Use with hydraulic application of grass seed and fertilizer.

2.5 WATER

- A. Quality suitable for irrigation.

2.6 EROSION CONTROL MATERIAL

- A. Net: Heavy, twisted jute mesh, plastic mesh, biodegradable paper fabric with knitted yarns or standard weave burlap.
- B. Blanket: Fiber or excelsior.

2.7 TOPSOIL

- A. On-Site topsoil may be used if in compliance with the composition requirements below.
- B. Topsoil:
 - 1. Containing from 5 to 20% organic matter as determined by a soil testing service. Maximum particle size, 3/4", with a maximum of 3 percent retained on a 1/4" screen.

2. Component Percentages:

- a. Silt: 25 to 50
- b. Clay: 10 to 30
- c. Sand: 20 to 30
- d. pH: 5.5 to 7.0
- e. Soluble Salts: 600 ppm maximum.

2.8 pH ADJUSTERS

A. Lime:

- 1. Material: ASTM C 602, Class T, commercial agricultural grade ground limestone containing not less than 50 percent total oxides.
- 2. Gradation: Minimum 75% passing 100 mesh sieve and 100% passing 20 mesh sieve.

B. Ferrous Sulfate: Commercial Grade.

2.9 FERTILIZER

- A. Bonemeal: Commercial, raw, finely ground; minimum 4% nitrogen and 20% phosphoric acid.
- B. Superphosphate: Commercial grade complete fertilizer of neutral character consisting of fast-and-slow-release nitrogen, 50% derived from natural organic sources of urea-form, phosphorous and potassium.
- C. Slow-Release Fertilizer: Granular fertilizer consisting of 50% water-insoluble nitrogen, phosphorous, and potassium.

2.10 PRE-EMERGENCE WEED CONTROL (HERBICIDE)

- A. Chipco Ronstar G.
- B. Eptam 8-E.
- C. Vegitex.
- D. Approved equal.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01700 - Execution Requirements: Verification of existing conditions before starting the work.
- B. Verification of Conditions: Verify that field measurements, surfaces, and conditions are as required, and ready to receive the work.

- C. Report, in writing, prevailing conditions that will adversely affect satisfactory execution of the work of this Section. Do not proceed with the work until unsatisfactory conditions have been corrected.
- D. Refer to the Drawings for the types and locations of plants. Use the method indicated.

3.2 TOPSOIL

- A. Prepare subsoil to eliminate uneven areas and low spots. Maintain lines, levels, profiles and contours. Make changes in the grade gradual. Blend slopes into level areas. Remove foreign materials, weeds, and undesirable plants and their roots. Remove contaminated subsoil. Scarify the subsoil in areas where the subsoil has been compacted by construction activities.
- B. Topsoil Thickness. 3" minimum.
- C. Place topsoil on finish graded areas, uniform and smooth, free of rocks, debris and irregular surface changes with a maximum tolerance of 0.10 feet above or below established finish subgrade elevations. Provide graded surfaces sloping uniformly between indicated elevations.
- D. Provide drainage ditches graded with uniform slopes to allow drainage without ponding; minimizing potential for erosion. Institute procedures to protect slopes and control erosion.
- E. Weed eradication. Apply pre-emergent weed control in accordance with the manufacturer's directions.

3.3 FERTILIZING

- A. Apply fertilizer in accordance with the manufacturer's published instructions.
- B. Apply after smooth raking of the topsoil and prior to roller compaction.
- C. Do not apply fertilizer at same time or with the same machine used to apply seeds.
- D. Mix thoroughly into the upper 2" of topsoil.
- E. Lightly water to aid the dissipation of fertilizer.

3.4 SEEDING AND HYDROSEEDING

- A. Sow one-half of the seeds in one direction and the remainder at right angles to the first sowing.
- B. Cover seeds to an average depth of 1/2" by means of spike-tooth harrow, cultipacker or other recommended device.
- C. Hydroseeding:
 - 1. Mix the seed, fertilizer and wood cellulose fiber in the required amount of water to product a homogeneous slurry. Add wood cellulose fiber after the seeds, water and fertilizer have been thoroughly mixed, and apply at the rate of 200 pounds per acre, dry weight.
 - 2. Hydraulically spray the material on the ground to form a blotter-like cover impregnated uniformly with grass seeds.

3. Immediately following application of the slurry mix, make a separate application of wood cellulose mulch at the rate of 800 pounds per acre, dry weight.
 4. Apply the cover so that rainfall or applied water will percolate to the underlying soil.
- D. Mulch:
1. Spread evenly.
 2. Anchor by crimping mulch with a serrated disc or by spraying asphalt emulsion on the mulched surface.
 3. Take precautionary measures to prevent asphalt materials from marking or defacing structures, paving, utilities and plantings.
- E. Rolling:
1. Immediately after seeding, firm up the entire area, except for slopes in excess of 3:1, with a roller not exceeding 90 pounds per foot of roller width.
 2. If seeding is performed with a cultipacker-type seeder or hydroseeding, rolling may be eliminated.
- F. Erosion Control Material: Install in accordance with the manufacturer's instructions.

3.5 SODDING

- A. Placing:
1. Place within a maximum of 20 hours after initial harvesting, in accordance with ASPA GSS, as modified herein.
 2. Thoroughly moisten the areas immediately prior to placing sod.
- B. Spot Sodding:
1. Cut sod into plugs 2" square or 2" in diameter. Place the individual pieces on 6" centers and press firmly into the soil by foot pressure or by tamping.
 2. Overseed for erosion control on 3:1 or greater slopes and drainage ways in spot sodded areas.
- C. Full Sodding:
1. Scarify subsurfaces to receive sod.
 2. Place sod blankets with tight edges and a level surface, lightly proof roll.
- D. Slopes and Ditches:
1. For slopes 2:1 and greater, lay with long edge parallel to the slope.
 2. In "V" and flat bottomed ditches, lay with the long edge perpendicular to the flow of water.

3. On sloped areas, start sodding at the bottom of the slope.
- E. Finishing: After completing sodding, blend the edges of sodded area smoothly into the surrounding area.
- F. Watering: Start immediately after the sodding work each day. Apply at a rate sufficient to ensure thorough wetting of the soil to a minimum depth of 4".

3.6 SPRIGGING

- A. Rate:
1. Perform within a maximum of 36 hours after initial harvesting. Inspect sprigs for heat damage during planting.
 2. Plant groups of sprigs at 12" intervals, maximum. Limit the interval between dropping sprigs and covering with soil to 10 minutes.
- B. Planting:
1. Plant to a depth of approximately 4" and cover sprigs so that the surface is flush with the designated grade and a live portion of each sprig is exposed.
- C. Rolling: Immediately after the completion of sprigging and additional seeding, if required, roll the planted area with a cultipacker or roller not exceeding 90 pounds per foot of roller width.
- D. Watering: Apply at the time of sprigging at a rate sufficient to ensure thorough wetting of the soil to a depth of 4".

3.7 CLEANING AND PROTECTION

- A. Section 01700 - Execution Requirements: Cleaning the installed work.
- B. Remove soil and debris created by the lawn work from paved areas. Clean the wheels of vehicles before leaving the Site to avoid tracking soil onto the surface of streets, roads, walks and other paved areas.
- C. Immediately after seeding, sodding or sprigging, protect the area from traffic and other use.
- D. Restore existing lawn and grass areas damaged during execution of the work of this Section to its original condition.
- E. Keep one paved pedestrian access route and one paved vehicular access route to each building clean at all times. Clean other paving after the work in adjacent areas has been completed.

3.8 ESTABLISHMENT PERIOD

- A. Definitions:
1. Lawns and grasses establishment period will be in effect for 90 days from the date of substantial completion of the landscaping or until lawns and grasses have been mowed 3 times, which ever occurs the latest.
 2. Stand of lawn and grass shall be 95 percent ground cover of the established species.

B. Maintenance During the Establishment Period:

1. Mow lawns and grassed areas to an average height of 1-1/2" whenever the average height of the grass becomes 3".
2. Promotion of growth: Mow, remove excess clippings, eradicate weeds, water, fertilize, overseed, and perform other operations necessary to promote growth.
3. Post-fertilize areas with a commercial grade fertilizer approximately 30 days after planting and at intervals of 6 weeks thereafter until accepted.

3.9 FINAL INSPECTION AND ACCEPTANCE

A. Final Inspection and Acceptance:

1. Final inspection will be made upon a written request from the Contractor and at least 10 days prior to the last day of the lawn and grasses establishment period.
2. Final acceptance will be based upon a satisfactory stand of lawns and grasses as defined in the paragraph above entitled, "Establishment Period."

B. Re-planting: Re-plant areas which do not have a satisfactory stand of lawn and grass.

END OF SECTION

SECTION 02930
EXTERIOR PLANTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Plants, trees and shrubs.
2. Antidesiccants.
3. Pesticides.
4. Fertilizer.
5. Planting soil mixtures.
6. Membrane ground cover.
7. Bedding.
8. Mulches.
9. Edging material.
10. Trunk wrapping material.
11. Staking and guying material.
12. Water.

B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the work of this Section. Additional requirements and information necessary to complete the work of this Section may be found in other Documents.

C. Related Sections:

1. Section 02120 - Earthwork: Topsoil and grading.
2. Section 02920 - Lawns and Grasses: Grass, sod and sprigs.

1.2 DESCRIPTION OF WORK

A. The extent of the exterior plants work is as indicated on the Drawings and as specified herein, and includes providing and installing plants, trees, shrubs, ground cover, pesticides and fertilizer, planting operations and plant maintenance.

1.3 REFERENCES

A. The publications listed below form a part of this Specification to the extent referenced.

Publications are referred to in the text by basic designation only.

- B. American National Standards Institute (ANSI):
 - 1. ANSI Z60.1 - American Standard for Nursery stock.
- C. National Arborist Association (NAA):
 - 1. NAA PSST - Pruning Standards for Shade Trees.
- D. University of Guam:
 - 1. "Pruning Trees and Shrubs in Micronesia" by M. V. Mickelbart.

1.4 SUBMITTALS

- A. Section 01330 - Submittal Procedures: Procedures for submittals.
 - 1. Product Data: Submit product data including installation and storage instructions for the following:
 - a. Edging.
 - b. Antidesiccants.
 - c. Pesticides.
 - d. Metal anchors.
 - 2. Assurance / Control Submittals:
 - a. Delivery Schedule: Submit schedule of delivery of trees, plants and ground covers a minimum of 10 days prior to the first scheduled delivery.
 - b. Pesticide Control Plan:
 - 1) Submit a plan for the proposed sequence of pesticide application including common name, chemical composition, formulation, concentration rate and method of application for each type of pesticide.
 - 2) Submit the names of Certified Applicators in the appropriate categories.
 - c. Certificates: Submit a certificate from the nursery or tree, plant and groundcover supplier for the items supplied indicating the name of the plants, trees, shrubs and groundcovers in accordance with "Tropica" by A.B. Graf; include type, quantity and size.
- B. Section 01780 - Closeout Submittals: Procedures for closeout submittals.
 - 1. Maintenance Data: Include maintenance instructions recommending procedures to be established for the maintenance of trees, plants, and ground covers. Include the cutting and trimming method and types, application frequency, and recommended coverage of fertilizer. Submit before the expiration of maintenance during the plant establishment period.

1.5 QUALITY ASSURANCE

A. Horticultural Standards:

1. Names conform to "Standardized Plant Names" by the American Joint Committee on Horticultural Nomenclature.
2. Material selection, sizing, transportation, protection and planting in accordance with "American Standard for Nursery Stock" by American Association of Nurserymen and American National Standard Institute (ANSI), Publication Z60.1.

B. Plant, tree and shrub materials must be inspected at the growing site, tagged for size and quality, and approved for delivery to the Project Site.

1.6 DELIVERY, STORAGE AND HANDLING

A. Section 01600 - Product Requirements: Transport, handle, store and protect the products.

B. Delivery:

1. Branched Plants: Branches tied and exposed branches covered with a material that allows air circulation. Prevent damage to root balls and desiccation of leaves.
2. Fertilizer and Lime: In original, unopened containers, bearing manufacturer's chemical analysis, name, trade name or trademark, and indication of conformance with federal and local laws and regulations. May be furnished in bulk with a certificate indicating the above information.
3. Labels: Durable waterproof labels in weather-resistant ink, legible for a minimum of 60 days after delivery to the Project Site, stating correct name and size as specified in the list of required plants. Attach to the plants, bundles and containers of plants. Groups of plants may be labeled by tagging one plant.
4. Pesticides: In original, unopened containers with legible label indicating the manufacturer's registered uses and the U.S. Environmental Protection Agency (EPA) federal registration number.

C. Storage:

1. Plants, Trees and Shrubs: Store and protect plants not planted on the day of arrival at the Project Site as follows:
 - a. Shade and protect the plants in outdoor storage areas; protect from wind and direct sunlight until planted.
 - b. Heel-in bare root plants.
 - c. Protect balled and burlapped plants from drying out by covering balls or roots with moist burlap, sawdust, wood chips, shredded bark, peat moss or other approved material. Provide a covering which allows for air circulation.
 - d. Keep all plants in a moist condition by watering with a fine mist spray until planted.
2. Lime, Fertilizers, Mulch: Store in a dry location away from contaminants.

3. Pesticides, Antidesicants: Do not store with other landscape materials.
- D. Handling: Do not drop or dump materials from vehicles. Handle plants by root balls or containers. Do not lift or carry by stems or crowns.

1.7 PROJECT CONDITIONS

- A. Environmental Requirements:
1. Protection of Personnel and Property: Apply pesticides to prevent damage to personnel and property from either direct spray or drifting of chemicals both on and off-site.
 2. Disposal of Excess Chemicals and Containers: In accordance with laws and regulations of federal and local authorities having jurisdiction.

1.8 WARRANTY

- A. Section 01780 - Closeout Submittals: Procedures for closeout submittals.
- B. Submit a written Warranty signed by the material supplier and the installer agreeing that they will:
1. Warrant plants, trees and shrubs unconditionally for 1 year from the date of Substantial Completion of the landscaping.
 2. Replace any material diseased or 25 percent dead or more at no additional cost to the Owner.
 3. Provide replacement materials as required.

PART 2 PRODUCTS

2.1 SUBSTITUTIONS

- A. Pre-Bid: If any plant specified is not obtainable, submit a written request for substitution during the bid period.
- B. Substitution of planting materials will not be permitted unless approved.

2.2 PLANTS, TREES AND SHRUBS

- A. Varieties: Furnish nursery stock in accordance with ANSI Z60.1, except as otherwise specified or indicated. Furnish plants grown under climatic conditions similar to those in the locality of the Project Site. Spray plants budding into leaf or having soft growth with an antidesicant before digging. Provide plants of the same specified species in uniform size and character of growth.
- B. Shape: Well branched, well formed, sound, vigorous, healthy planting stock free of disease, sunscald, windburn, abrasion and harmful insects and insect eggs and having a healthy, normal and unbroken root system.
- C. Deciduous Trees and Shrubs: Symmetrical tops with a typical spread of branches for each particular species or variety.
- D. Ground Covers and Vines: Number and length of runners and clump sizes indicated, and of the

proper age for the grade of plants indicated. Furnish in removable containers, integral containers or formed homogeneous soil section.

- E. Size: Minimum sizes measured before pruning and with branches in normal position, conform to the measurements indicated based on the average width or height of the plant for the species specified in ANSI Z60.1. Plants of larger size than specified may be used with approval. When larger plants are used, increase the ball of earth size or the spread of roots in accordance with ANSI Z60.1.
- F. Balled and Burlapped (B&B) and Balled and Potted (B&P) Plants: Ball size and ratios, conform to ANSI Z60.1. Ball the plants with firm, natural soil. Wrap B&B plants firmly with burlap or strong cloth and tie securely.
- G. Balled and Platformed (BP) Plants: Wrap and ball in the same manner as B&B plants and fasten securely to strong platforms.
- H. Bare-Root Plants: Dig with root system substantially intact but with the earth carefully removed. Cover roots with a thick coating of mud by puddling after plants are dug or wrap with a moist material immediately after digging.
- I. Container Grown Plants: Sufficient root growth to hold earth intact when removed from the container. Root bound plants will not be accepted.

2.3 TOPSOIL

- A. Refer to Section 02920 for topsoil to be used as backfill.

2.4 ANTIDESICANTS

- A. Antidesicants: Subject to compliance with the requirements, manufacturers offering the specified items which may be incorporated into the work include the following:

1. "Vapor Guard" - Miller Chemicals & Fertilizer Corp., Hanover, PA.

2.5 PESTICIDES

- A. Soil fumigant, herbicide, insecticide and fungicide: EPA registered and locally approved. Furnish for re-emergence and post-emergence applications.

2.6 FERTILIZERS

- A. Commercial Grade Fertilizer: Granular, free flowing and uniform in composition, nitrogen-phosphorus-potash ratio.
- B. Controlled Release Fertilizer: Magnesium ammonia phosphate and magnesium potassium phosphate, nitrogen-phosphorus-potassium ratio granulated to pass 1/8" screen.

2.7 MEMBRANE GROUND COVERS

- A. Sheet Polyethylene: Black, conforming to ASTM D 2103, minimum thickness 4 mils.
- B. Asphalt Glass Felt: ASTM D 2178; Types I, III or IV.
- C. Roll Type Fiberglass Mats: 100 percent lime borosilicate glass fibers with an average fiber diameter of 8" - 12" and 2" - 4" strands of fiber bonded with phenol formaldehyde resin, water

permeable, having a minimum of 1/4" and a maximum of 1/2" thickness with a density of not less than 3/4 pound per cubic foot.

2.8 MULCHES

- A. Free of noxious weeds, mold and other deleterious materials.
- B. Inert Mulch Materials: Crushed bricks or volcanic rock ranging in size from 1/2" - 1".
- C. Organic Mulch Materials: Ground or shredded bark, shredded hardwood Cypress ranging in size from 1" - 2".

2.9 EDGING

- A. Plastic Edging: Minimum 6" high with galvanized metal anchoring stakes at 4 ft. o.c.

2.10 TRUNK WRAPPING

- A. Two thicknesses of burlap, minimum 4" width.
- B. Tying Material: 3-ply, lightly tarred, medium or coarse sisal yarn twine.

2.11 STAKING AND GUYING

- A. Tree Support Stakes: Rough sawn hardwood, free of knots, rot, cross grain, bark, long slivers and other defects that impair strength. Minimum 2" square or 2-1/2" diameter by 8 feet long, pointed at one end. Paint or stain wood stakes a dark brown color.
- B. Guying Wire: 12 gauge galvanized steel.
- C. Hose Chafing Guards: New or used 2-ply, 3/4" diameter, reinforced rubber or plastic hose, black or dark green color; use only one color.
- D. Flags: White surveyor's plastic tape, 6" long, fastened to guying wires or cables.
- E. Driven Anchors: May be used instead of guy stakes for trees with 3" - 6" caliper, malleable iron, arrow shaped, galvanized.

2.12 WATER

- A. Quality suitable for irrigation.

PART 3 EXECUTION

3.1 PREPARATION

- A. Layout: Stake out all approved plant material locations and bed outlines on the Project Site before digging plant pits or beds. The Owner's representative reserves the right to adjust the plant material locations to meet field conditions at no additional cost to the Owner.
- B. Verify the location of underground utilities prior to excavation. Protect existing adjacent turf before excavations are made. Where planting beds occur in existing turf areas, remove the turf to a depth that will ensure removal of the entire root system. Measure the depth of pits from finished grade. Depth of excavation shall provide proper relation between the top of the ball and

the finished grade as specified in the paragraph "Handling", below.

3.2 PLANTING

- A. Handling: Move balled, burlapped and container-grown plants only by supporting the ball or container. Set plants on a hand compacted layer of planting soil 6" thick and hold in position until soil has been firmly placed around the roots or ball. Set plants with 1/8 to 1/4 of the ball depth above the surrounding grade. Replace balled plants whose balls are cracked or broken either before or during the planting process.
 - 1. Ball diameter 12" or less. Balled or potted items: Excavate pits at least 16" larger in diameter and 6" deeper than the ball or container.
 - 2. Ball diameter greater than 12". Balled or potted items: Excavate pits at least 24" larger in diameter and 6" deeper than the ball or container.
 - 3. Mulch: Provide 3" deep mulching material over the entire earth saucer and berm surface around trees and shrubs. Keep mulch out of the crowns of shrubs.
- B. Balled and Burlapped Stock: Backfill with topsoil to approximately half the depth of the ball, tamp and water. Carefully remove or fold back excess burlap and tying materials. Tamp and complete the backfill, place mulch and water.
- C. Bare-Root Stock: Plant so roots are arranged in a natural position. Apply tree wound dressing to cuts larger than 1/2" in diameter. Carefully work topsoil between the roots. Tamp the remainder of the backfill, place mulch and water.
- D. Container Grown Stock: Remove from container to prevent damage to the plant and root system. Cut the root ball vertically in 3 to 5 places with a sharp knife before planting.
- E. Ground Covers and Vines: Plant after placing mulch. Do not remove from flats or containers until immediately before planting. Space at intervals indicated, sufficiently deep to cover all roots. Immediately sprinkle with water until the entire area is soaked. Smooth the areas after planting to provide an even, smooth finish. Mulch as indicated.
- F. Fertilization: After establishment of the finished grade around plants, top dress all pit and bed areas with fertilizer. If fertilizer adheres to plants, carefully remove by flushing.
- G. Application of Pesticides:
 - 1. Hydraulic Application:
 - a. Hydraulic equipment for liquid application of chemicals shall have leakproof tanks and a positive agitation method, with gauges and valves capable of maintaining a constant application pressure.
 - b. Calibrate and meter equipment so the application of chemicals in specified amounts can be determined.
 - 2. Restrictions:
 - a. Apply herbicides and other chemicals in accordance with EPA label restrictions and recommendations, and federal and local laws and regulations.
 - b. Prepare daily reports stating the areas treated with each chemical, quantity

applied and spray mixture of formulation used. Provide a copy upon request.

c. Apply at each location under the supervision of a Certified Applicator.

3. Safety and Protective Measures:

- a. Apply in well ventilated areas. Avoid inhalation, injection and spilling on clothing and skin.
- b. Wear protective clothing in accordance with the manufacturer's material safety data sheet recommendations.
- c. Personnel shall not be exposed to pesticides exceeding the exposure levels recommended in the most stringent of the following: (OSHA), 29 Code of Federal Regulations (CFR) 1910.1000, SUBPART Z, or manufacturer's material safety data sheet.
- d. If excessive exposures are unavoidable, use respirators approved by the National Institute for Occupational Safety and Health (OSHA) for protection from pesticides, fumigants, herbicides and fungicides.
- e. Conform to the selection and usage guidelines in ANSI Z88.2.

3.3 FINISHING

- A. Root Saucer: Properly shape a topsoil saucer around trees and plants to retain water and avoid erosion.
- B. Edging: Uniformly edge beds of individual plants with a 3" - 4" deep "Vee" cut to provide a clear division line between planted areas and adjacent lawn. Form bed shapes as indicated. Install edging materials as specified. Mulch to the bottom edge of the cut.
- C. Mulching: Provide mulching materials at other indicated locations. Keep mulch off of buildings, sidewalks, light standards and other structures.
 - 1. Placing Inert Materials: Lay the membrane with edges lapped 6" - 12" to receive inert mulch material. Punch a grid of 1/4" holes at 12" o.c., both ways, over the entire area for drainage. Spread the mulch.
 - 2. Placing Mulching Materials: Spread to a uniform thickness of 3".
- D. Wrapping: Tie trunk wrapping material to the trunks of deciduous trees with the specified material within one day after planting. The trunks of deciduous trees will be inspected for physical damage, insect infestation and disease, and a determination of required treatment or rejection made prior to the wrapping operation. Begin wrapping at the base and extend up to the first branches. Overlap wrapping half the width of the underlying wrap and securely tie at the top, bottom, and at 18" intervals, maximum, with twine.
- E. Staking and Guying:
 - 1. Deadmen: Stake, guy and place deadmen for plantings as indicated.
 - 2. Chafing Guards: Hold the plants firmly between stakes with a double-strand of 12 gauge guying wire. Use hose chafing guards where wire will contact the plants. Provide turnbuckles as indicated.

3. Stakes: Drive vertically into the ground 3 feet deep outside of the plant balls. Do not injure balls or roots.
 4. Ground Stakes: Drive into firm ground outside of the plant pit with the top of the stakes flush with the ground.
 5. Deadmen: Place a minimum of 18" below the ground surface.
 6. Iron Anchors: Drive a minimum of 30" below the ground surface.
 7. Steel Anchors: Insert steel screw anchors as recommended in the manufacturer's data.
 8. Flags: Securely fasten flags on each guy wire at approximately 2/3 of the distance from the ground.
- F. Pruning: NAA DSST; prune in accordance with the safety requirements of ANSI Z133.1.
1. Trees and Shrubs: Remove dead and broken branches. Prune deciduous trees and shrubs to reduce the total amount of branching structure by a maximum of one-third. Retain the typical grown habit of individual plants with as much height and spread as practical. Make cuts with sharp instruments, flush with the trunk or adjacent branch, above node.
 2. Wound Dressing: Apply tree wound dressing to cuts 1/2" in diameter and larger, immediately after pruning.

3.4 MAINTENANCE

- A. Commencement: Begin maintenance immediately after each item has been planted.
- B. Inspection: Inspect plants at least once a week during the installation period and perform needed maintenance promptly.

3.5 PLANT ESTABLISHMENT AND MAINTENANCE PERIOD

- A. Commencement: On the date that inspection shows that all new plants have been satisfactorily installed.
- B. Plant Establishment Period: 90 days from the date of Substantial Completion of the landscaping.
- C. Maintenance During the Plant Establishment Period:
 1. Promote Plant Growth: Water, prune, mulch, re-guy, re-wrap and perform other operations necessary to promote plant growth.
 2. Fertilizing Plants: At least once during the plant establishment period. Fertilize by top dressing the plant pit or bed area or by tablet or packet form with controlled release fertilizer.
 3. Remove Dead Plants: Remove and replace dead plants and replace stakes, guys, wraps and eroded plant saucers. No additional plant establishment period will be required for replacement plants.
 4. Tracking Unhealthy Plants: Plants not in a healthy growing condition will be noted,

removed immediately and replaced with plants of the same species and sizes originally specified. Make replacements in the manner specified for the original plantings.

3.6 FIELD QUALITY CONTROL

- A. Section 01450 - Quality Control: Field inspection.
- B. Inspect plant conditions, placement and soil conditions.

3.7 FINAL INSPECTION AND ACCEPTANCE

- A. Final Inspection: Upon written request from the Contractor and at least 10 days prior to the last day of the plant establishment period. Prior to final inspection, fertilize all plants by top dressing the plant pit or bed area or by tablet or packet form with controlled release fertilizer.
- B. Final Acceptance: Base on compliance with the following:
 - 1. Total Plants on Site: Plants have been accepted and the required number of replacements are planted.
 - 2. Mulching and Weeding: Plant beds and saucers are properly mulched and free of weeds.
 - 3. Supports: Stakes and guys are in good condition.
 - 4. Remedial Work: Remedial measures directed by the Owner's representative have been carried out to ensure plant survival.
 - 5. Fertilizing: Plant materials have been fertilized as required.

END OF SECTION