

PROJECT MANUAL

Portland State University PSU Art Building Demo Portland, Oregon

Prepared by
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2000 SW 5th Ave
Portland Oregon 97201
Project Number 239D

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SECTION 01 11 00 – SUMMARY OF WORK

PART 1 - GENERAL

1.1 WORK COVERED BY THE PROJECT MANUAL AND DRAWINGS

- A. Work covered by the Project Manual and Drawings consists of:
 - 1. (Scope of Work), as required for a completed Project as listed on drawings and specifications for the Work.
- B. The Contractor shall supply all labor, transportation, apparatus, scaffolding, tools and other items necessary for the completion of the work in conformance with PSU General Conditions, Section A.2.
- C. The Work shall be started within ten (10) calendar days following approval of the Contractor's Certificate of Insurance and the execution of an Agreement by PSU, attention proposals@pdx.edu. All work shall be final completed within the time frames established in the Notice of Public Improvement Agreement Opportunity.

1.2 CONTRACTOR'S USE OF PREMISES

- A. Contractor shall limit use of the Premises for Work and storage to allow for:
 - 1. Owner and tenant occupancy of adjacent spaces, day and night
 - 2. Public use, day and night
 - 3. Security
 - 4. Safe entry and exit for vehicles and pedestrians.
- B. Access through the interior of the building will be coordinated with the Owner's Authorized Representative.

1.3 PROTECTIONS

- A. Protect sidewalks, asphalt paving, concrete, trees, shrubs, and lawn areas at all times from spillage of materials used in carrying out the Work. Prevent materials from clogging sinks, catch basins and yard drains; maintain drains clean and in proper working conditions. Dumping of plaster, solvents, or other injurious materials in PSU plumbing systems is not permitted. Costs of cleaning or repair will be withheld from Contractor as required.
- B. Clean, repair, resurface, or restore existing surfaces to their original, or better, condition, or completely replace such surfaces to match existing, where damaged by construction operations.
- C. The Contractor shall be responsible for any and all damages as specified in PSU General Conditions Section G.1.
- D. The Owner will not be responsible for protection of materials or equipment from vandalism or theft. Security is the responsibility of the Contractor.
- E. The Contractor will verify that all drains in the construction area are in working order and notify the Owner's Representative, in writing, of any drains that are plugged, prior to the Start of Work. Start of Work will be considered as acknowledgement that all drains are clear and in good working order.
- F. Debris shall not be allowed to remain around the buildings during performance of Work, and shall be disposed of daily and/or as directed by Owner's Authorized Representative.
- G. The Contractor shall manage a safe job environment for both the safety of all people around the Premises as well as the safety of the Owner's and general public's property.
- H. Do not store materials where they will interfere with operations of Owner. Storage areas must be approved by the Owner's Authorized Representative prior to start of the Work.

1.4 OWNER OCCUPANCY

- A. The Owner and building tenants will occupy the Premises during the entire period of construction for the conduct of normal operations. Cooperate and coordinate with Owner's Authorized Representative in construction operations to minimize conflict and to facilitate the Owner's usage, especially in the following areas:
 - 1. Restricted access and parking
 - 2. Use of elevators and stairs
 - 3. Temporary storage space availability

4. Provide a written schedule of Work specifying where and when Work will be accomplished
 5. Notify Owner's Authorized Representative a minimum of 72 hours prior to performing any work that will release strong odors or fumes, causes noise, or requires windows to be closed during hot weather.
- B. Conduct operations in such a way to ensure the least inconvenience to PSU staff, students and the general public.
- C. To maintain continual operations by the Owner and building tenants, evening and/or weekend work by the Contractor will be required for short durations at various stages of the Project. Coordinate with the Owner's Authorized Representative at least seventy-two (72) hours in advance to performing evening or weekend work.

1.5 SALVAGE

- A. All material indicated to be removed shall become the property of the Contractor except those items noted on the drawings and in the specifications as being retained by the Owner.
- B. All locksets, cylinders and strikes removed shall be returned to Owner. Coordinate with Owners Authorized Representative.
- C. The City of Portland has mandated the recycling of demolition materials. See Specifications for Waste Management requirements, if applicable, which includes recycling documentation to be provided to the Architect and Owner by the Contractor.

1.6 REUSE OF EXISTING MATERIALS

- A. Except as specifically indicated or specified, materials and equipment removed from existing construction shall not be used in the completed Work.
- B. For material and equipment specifically indicated or specified to be reused in the Work or salvaged to Owner:
1. Use special care in removal, handling, storage, and reinstallation to assure proper function in the completed Work.
 2. Arrange for transportation, storage, and handling of products that require off-site storage, restoration or renovation. Pay all costs for such Work.
 3. Contractor shall be responsible for removing and reinstalling mechanical units, vents, guys, antennae, and electrical and grounding wires or conduits.

1.7 PREPARATION

- A. Inspect existing conditions, Work requirements, and the Agreement Documents. Verify that materials and equipment being furnished meet requirements specified. Report any discrepancies to the Owner's Authorized Representative prior to proceeding with work.

1.8 MATERIAL HANDLING

- A. If, in the opinion of the Contractor, cranes, hoists, towers, or other lifting devices are necessary for the proper and efficient movement of materials, comply with these requirements:
1. Use only experienced personnel
 2. Remove equipment as soon as possible after task is ended
 3. Coordinate the placement of such equipment with the Owner's Authorized Representative to ensure that utility tunnels, utilities, and surfaces are not damaged.
 4. Obtain required permits and meet the requirements of governing authorities regarding street and sidewalk closures, safety, noise, and other applicable regulations.
 5. Provide barricades and warning ribbons to close off areas temporarily for loading and unloading, to insure public safety.
- B. Contractor shall not allow any materials or debris to free-fall from the building.

1.9 WORKMANSHIP

- A. Unless otherwise specified, perform the Work using workers skilled in the particular type of Work involved.
- B. Should the Owner or the Architect, in writing, deem anyone on the Work incompetent or unfit for the assigned duties, dismiss the worker immediately or reassign that worker to a different task requiring a lesser degree of competence.
- C. Workmanship shall be first class in every respect as determined by the Owner's Authorized Representative and Architect, and all Work performed shall be performed in accordance with standard industry practice.
- D. The Contractor shall maintain effective supervision on the project at all times Work is being performed. The Superintendent shall be the same person throughout the course of the Work, and shall attend the pre-construction conference.

1.10 TESTING

- A. The Owner reserves the right to perform any testing as may be required to determine compliance with the Project Manual and Drawings. Costs for such testing will be the Owner's responsibility unless testing indicates noncompliance. Costs for testing which indicates noncompliance shall be borne by the Contractor. Non-complying Work shall be corrected and testing will be repeated until the Work complies with the Project Manual and Drawings. Contractor will pay costs for retesting non-complying Work.
- B. The Contractor shall cooperate in every respect with the activities of the testing agency.

PART 2 - PRODUCTS, N/A

PART 3 - EXECUTION, N/A

END OF SECTION 01 11 00

SECTION 01 23 00 – ALTERNATES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work of the Section includes administrative and procedural requirements to the Bid Alternates of the PSU Bid Form.
- B. The Owner's initial intent is to contract for all work of the Base Bid.
- C. Alternates quoted on the Bid Form will be reviewed and may be rejected, accepted individually or in combination, entirely at the Owner's option.
- D. As part of the notice of Contract award, the Owner will designate which Alternates have been accepted and included in the award.
- E. Contractor shall include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required to complete the alternative work and surrounding modifications whether or not mentioned as part of the work.
- F. Contractor shall coordinate all related Work and modify or adjust adjacent Work as necessary to ensure that the Work affected by each accepted Alternate is complete and fully integrated into the Project.

1.2 RELATED SECTIONS

- A. Additional information regarding bid alternates and changes in scope may be found in the follows:
 - 1. PSU Bid Form
 - 2. PSU General Conditions
 - 3. Other Sections of these specifications.

1.3 DEFINITIONS

- A. An alternate is an amount proposed by bidders and stated on the Bid Form for certain work defined in the Project Manual that may be added or deducted from the Base Bid amount if the Owner decides to accept a corresponding change in the amount of construction to be completed, or in the products, materials, equipment, systems, or installation method.
- B. The cost change for each alternate is the net addition to or deletion from the Base Bid to incorporate the alternate into the work. No other adjustments are made to the Base Bid, unless stipulated in the Instructions to Bidders or the PSU General Conditions.

PART 2 - PRODUCTS, N/A

PART 3 - EXECUTION, N/A

END OF SECTION 01 23 00

SECTION 01 31 00 – PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This Section includes administrative and supervisory requirements necessary for coordinating contract documentation, communications and construction operations. The requirements of this Section relate to all work by the Contractor and Sub-contractors performing work under these Contract documents including, but not limited to, the following:
1. Pre-construction Coordination
 2. Identification of Owner's Authorized Representatives
 3. Identification of Architect
 4. Listing of Sub-contractors
 5. Contractor Emergency Contact Information
 6. Safety & Emergency Procedures
 7. Unforeseen Hazardous Materials
 8. Permits and Fees
 9. Key Requests
 10. Progress Meetings
 11. Requests for Clarifications & Information
 12. Construction Directives
 13. Construction Change Orders

1.2 RELATED SECTIONS

- A. Additional requirements related to Project Coordination may be found in the following:
1. Instructions to Bidders
 2. PSU General Conditions
 3. Other Sections of these specifications.

1.3 DEFINITIONS

PART 2 - PRODUCTS, N/A

PART 3 - EXECUTION

3.1 PRE-CONSTRUCTION CONFERENCE

- A. A pre-construction conference shall predate the Work and shall include but not be limited to the following agenda:
1. Contract management and communication requirements
 2. Emergency phone numbers
 3. Record maintenance requirements

4. Work schedule
 5. Schedule of values
 6. Submittal schedule
 7. Early purchase, long lead items and owner procurements
 8. Multiple contract coordination
 9. Maintenance of access and use of the premises
 10. Traffic control, parking and contractor's use of the job site
 11. Hazardous materials
 12. Job site safety
 13. Job site inspection & observation requirements
 14. Review of contract documents
 15. Progress meetings
 16. Other subjects of interest desired by the Contractor, Architect, Owner's Authorized Representative(s), Manufacturer's Representatives, and other participants.
- B. Refer to Division 01, Submittals prior to the pre-construction conference.
- C. Coordinate all operations with the Owner's Authorized Representative during the construction period.
- D. Submit to the Owner's Authorized Representative for approval, a schedule of Values for the Work to be performed; schedule of values shall include project and building name, when the Work is to begin, and estimated duration of the Work. The Schedule of Values is to be provided to the Owner's Authorized Representative.
- E. Submit to the Owner's Authorized Representative for approval, a schedule for the Work to be performed; schedule shall include project and building name, when the Work is to begin, and estimated duration of the Work. The Schedule is to be provided to the Owner's Authorized Representative. The schedule shall be specific as to which portion of the Work is taking place on a particular day.
- F. Prior to start of any work, Contractor shall provide at the pre-construction meeting an emergency responsible person/contact list on a 24-hour, "7 day a week" basis for any emergency issue that may arise in connection with this project. Contractor must reissue the list any time the responsible person(s) changes. Issue to Owner's Authorized Representative. See Project Information Sheet provided herein.
- G. Parking will not be provided on the premises. See Division 01, Temporary Facilities and Controls.
- H. Schedule elevator usage with the Owner's Representative a minimum of 72 hours in advance so as not to inconvenience the public.

3.2 IDENTIFICATION OF OWNER'S AUTHORIZED REPRESENTATIVE

- A. The Owner's Project Manager and the Owner's Field Construction Manager (Jointly the Owner's Authorized Representative or his designee) will be appointed by the Owner and identified at the Pre-construction meeting.
- B. The Owner's Authorized Representative in conjunction with the Architect will provide coordination during construction and on-site observation. See Project Information Sheet provided herein.

3.3 IDENTIFICATION OF ARCHITECT

- A. The Owner has contracted with (Architect) to prepare construction documents and assist in Owner's Authorized Representative in the coordination of the construction project. See Project Information Sheet provided herein.

3.4 LISTING OF SUB-CONTRACTORS

- A. Provide to the Owner's Authorized Representative at the pre-construction conference three (3) copies of list of sub-contractors anticipated to perform work on the project. Provide on the list of subcontractors: subcontractor's name, contact person, mailing address and telephone number. Substitution shall be permitted only with the approval of the Owner's Authorized Representative

3.5 CONTRACTOR EMERGENCY CONTACT INFORMATION

- A. Provide to the Owner's Authorized Representative at the pre-construction conference Contractor Emergency Contact telephone numbers. See Project Information Sheet provided herein.

3.6 SAFETY AND EMERGENCY PROCEDURES

- A. The Contractor shall be responsible for maintaining a safe job site at all time, until the Owner takes possession. The Contractor shall comply with all safety regulations, and for enforcing compliance with all safety regulations and procedures by all workers, sub-contractors and visitors on the site.
- B. Refer to Division 01, Temporary Facilities and Controls for minimal temporary facilities required for job site safety. The Contractor shall provide procedures and additional temporary facilities as required.
- C. The Contractor shall complete and submit the Owner's Authorized Representative, at the pre-construction conference the "Construction Project Safety Form".

3.7 UNFORESEEN HAZARDOUS MATERIAL

- A. Asbestos: The Owner has exercised due diligence in the identification and removal of asbestos containing materials from the work area. Prior to each phase of construction, the Contractor shall confirm the non-existence of asbestos containing materials in the work area prior to proceeding. If the Contractor identifies materials suspected of containing asbestos, he shall immediately stop work in that area of the job site and proceed in accordance with Division 01, Cleaning and Waste Management.
- B. Lead Paint: The Owner has exercised due diligence in the identification and removal of lead paint from the work area. Prior to each phase of construction, the Contractor shall confirm the non-existence of materials coated with lead-based paint in the work area prior to proceeding, as required in accordance with OSHA Directive CPL 2-2.58. If lead based paint materials are suspected, the contractor shall immediately notify the Owner's Authorized Representative and proceed in accordance with OSHA Standards and Directives. If required an adjustment in the Contract Sum and Contract Time will be made through Execution of a Contract Change Order in Accordance with PSU General Conditions Section D.1.3.

3.8 PERMITS & FEES

- A. Portland State University is enrolled in the city of Portland's Facilities Permit Program. See PSU General Conditions and Supplemental General Conditions.
- B. The Owner shall provide Building, Electrical, Mechanical and Plumbing permits for buildings in accordance with PSU Supplemental Conditions. If the Contractor needs to block a portion of the right-of-way, the Contractor must secure the proper permits from the City of Portland and shall give all requisite notices to public authorities. The Contractor shall be responsible for all violations of the law for any cause in connection with the Work or caused by obstructing streets or sidewalks.
- C. The Contractor shall provide proper notice to all governing jurisdictions including but not limited to the Oregon Department of Environmental Quality prior to beginning work.
- D. Contractor shall pay for and document Oregon Bureau of Labor and Industries fees as required by Bureau of Labor & Industry.

3.9 KEY REQUESTS

- A. Keys will be provided to the Contractor as required for access to buildings and work areas. There is a deposit of
- B. \$100.00 required for each key given to the Contractor. Contractor shall fill out Contractor's key request form and deliver for approval to Project Manager a minimum of 48 hours in advance. This deposit will be refunded upon return of the key(s.) Keys will not be provided to sub-contractors, nor will Facilities open locked doors for Contractor's employees or sub-contractors. Contractor shall provide and coordinate all such requirements.

3.10 PROGRESS MEETINGS

- A. The contractor shall schedule for the contractor's Project Manager and Field Superintendent to attend weekly Progress Meetings with the Architect and the Owner's Authorized Representative. The contractor shall coordinate and assure the attendance of sub-contractors as required by the agenda and the Owner's Authorized Representative.
- B. Weekly Progress Meetings shall be held on days and times to be determined, following the pre-construction conference and continuing through substantial completion and until final completion. The Owner's Authorized
- C. Representative may require additional on-site 'tail-gate' meetings as necessary to resolve construction related issues and facilitate continued progress.
- D. Progress meetings shall be held at:
 - 1. PSU, Facilities and Property Management 202 University Services Building 617 SW Montgomery, Portland, Oregon 97201
- E. The progress meeting minutes serve as the official communication between all parties involved in the Project. The Contractor shall:
 - 1. Prepare agendas.
 - 2. Record minutes and include decisions.
 - 3. Record attendance
 - 4. Distribute minutes to attendees within three (3) calendar days after meetings.
- F. Minimum agenda shall include:
 - 1. Review and approve minutes of previous meetings.
 - 2. Review work progress and work schedule since previous meeting.
 - 3. Discuss field observations, problems, clarifications and information required.
 - 4. Review delivery schedules, identify problems that could impede planned progress.
 - 5. Review proposed changes in construction or procedures.
 - 6. Delivery and discussion of submittals.
 - 7. Submittal of progress payment requests for review.
 - a. Other items as may be required.

3.11 REQUESTS FOR CLARIFICATIONS AND INFORMATION

- A. Throughout the course of work, the Contractor may require clarifications or additional information from the Architect or Owner's Authorized Representative. This information may include but not be limited to the following:
 - 1. Clarifications whether specific work is within the scope of an item of work and no Contract adjustment is anticipated.
 - 2. Clarifications or interpretations of information or directions provided in the Contract Documents, for which no Contract adjustment is anticipated.
 - 3. Clarifications or directions as a result of unforeseen conditions, which may or may not result in adjustments to the Contract Sum or days allowed for contract completion.
 - 4. Additional details or information needed for construction, which were not originally included in the contract documents, which may or may not result in adjustments to the Contract Sum or days allowed for contract completion.
- B. The contractor's field superintendent shall be the principal generator of requests for clarification and information (RFI's) as a result of field operations and conditions.

- C. Three copies of requests for clarifications and information (RFI) shall be typed and submitted in accordance with the communication process described in Division 01, Submittal Procedures.
- D. All RFI's shall be sequentially numbered and include the following information:
 - 1. Project item information as specified in Division 01, Submittal Procedures.
 - 2. Reason for request, and clarification and information requested.
 - 3. Work impacted by request for clarification or information.
 - 4. Drawings or sketches as necessary.
 - 5. Contractor's recommendations as appropriate.
 - 6. Signature and date by contractor's authorized representative.
- E. If the contractor anticipates that a change in the scope of work may be necessary in conjunction with a request for clarification or information, he may submit with the request a proposal to perform additional work as a Contract Change Order as specified herein. No changes in work shall commence without an approved RFI response, Construction Directive or Executed Contract Change Order.
- F. All RFI Responses will be by the Architect through and with the approval of the Owner's Authorized Representative.
- G. Response time to process RFI's shall be seven (7) calendar days from the date received by the Architect, to allow reasonable time for researching the question and preparing a response. If, due to unavoidable circumstances, information is needed immediately, coordinate with the Owner's Authorized Representative who will attempt to expedite a response by FAX or e-mail. When responses are expedited, an RFI must still be submitted as a confirmation of the communication prior to submitting for progress payment for the related work.
- H. A log and copies of all RFI's shall be maintained in the jobsite office, for review or reference by the Contractor, Architect and Owner's Authorized Representative.

3.12 CONSTRUCTION DIRECTIVES

- A. Construction Directives may be initiated by the Owner's Authorized Representative, or the Architect on approval of the Owner's Authorized representative, and provides interpretations of the contract documents or orders minor changes in the work, which may require changes in the Contract Sum or Contract Time, which would be subsequently executed through a Construction Change Order. Interpretation of the Contract documents shall be in accordance with PSU General Conditions Section A.3, and as amended by the PSU Supplemental General Conditions. Construction Directives are not Construction Change Orders. If the Contractor believes the work described in a Construction Directive requires a change in Contract Sum or Contract Time, he shall submit a proposal to perform additional work as a Construction Change Order as specified herein. Do not proceed with Construction Order work until a proposal for Change Order
- B. work has been submitted and directed to proceed by the Owner's Authorized Representative. Proceeding without authorization waives the Contractor's claim for additional Contract Sum or Contract Time.
- C. Construction Directives shall be executed using the attached Construction Directive form.

3.13 CONSTRUCTION CHANGE ORDERS

- A. Contract Bid award is based on the Base Bid. Additional work may be authorized by amending the Contract based upon Unit Prices provided in the Bid Form, the Contractor's Schedule of Values, or other Contractor Proposals approved by the Owner's Authorized Representative, and in accordance with Section D of the PSU General Conditions.
- B. A Construction Change Order is a written order issued after the execution of a contract, which authorizes and directs a change in scope of work and an adjustment in the Contract Sum, Contract Time or both.
- C. A Contract Change Order request can be initiated by the Owner's Authorized Representative through a proposal request to the Contractor, or by the Contractor through submittal of a proposal request in conjunction with a RFI response or Construction Directive.

- D. The Contractor's proposal for Contract Change Order Work shall include the following:
 - 1. Project item information as specified in Division 01, Submittal Procedures.
 - 2. Reason for request
 - 3. Itemized statement of required materials and equipment, including adjustments to adjacent and dependent work.
 - 4. Itemized statement of required labor, including adjustments to adjacent and dependent work.
 - 5. Total Contract Sum adjustment required for the Change in Work.
 - 6. Total Contract Time adjustment required for the Change in Work.
 - 7. Additional Documentation as required to support the request.
 - 8. Signature and date by contractor's authorized representative.
- E. Construction Change Order work shall be reviewed by the Architect and the Owner's Authorized Representative and executed in accordance with PSU General Conditions Section D, and as amended herein.
- F. If a fair and reasonable Contract Change Order adjustment cannot be agreed upon, the Owner's Authorized
- G. Representative may in writing direct the Contractor to proceed with the Change in Work on a 'Time and Materials' basis in accordance with PSU General Conditions.

END OF SECTION 01 31 00

SECTION 01 32 10 – DOCUMENT MANAGEMENT AND CONTROL

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This Section describes the project document management extranet program or Project Control System that shall be utilized on the Project. This system is mandatory and PSU will not accept any request for substitution for this program.
- B. Requests for Information, Submittals, PCO's, Issues will be issued via and stored on AiM administered by AssetWorks

1.2 RELATED SECTIONS

- A. Additional Contract closeout requirements may be provided as follows:
 - 1. PSU General Conditions
 - 2. Supplemental General Conditions
 - 3. Division 01, Submittal Procedures
 - 4. Other Sections of these Specifications

1.3 DEFINITIONS

- A. Project Control System - project document management extranet program that Contractor shall use to supply electronic information

1.4 DATA ENTRY

- A. The Contractor shall provide, at the Contractor's Temporary Site Office, and home office if required, the computer hardware and software to provide access to the Project Control System.
- B. The Owner has established the project document management database for this project. The PSU will provide management, training, etc. of the database and interface with the system provider.
- C. Use of the Project Control System will not replace or change any contractual responsibilities of the Contractor. The system has been implemented to enhance and expedite team communication.

PART 2 - PRODUCTS

2.1 PROJECT CONTROL SYSTEM

- A. The Project Control System uses the AiM software created by AssetWorks.

2.2 TECHNICAL SUPPORT CONTACT DETAILS AND COSTS

- A. Information concerning the system can be obtained by contacting the PSU Project Manager and requesting contact information for the AiM Reporting Analyst.

PART 3 - EXECUTION

3.1 PROJECT CORRESPONDENCE

- A. All Contractor Project correspondence shall be either created electronically or digitized so that it can be stored and tracked by the Project Control System. This includes, but is not limited to:
 - 1. Requests for Information (RFI's) and attachments
 - 2. Submittals
 - 3. Potential Change Orders
 - 4. Issues Log
 - 5. Payment Applications

END OF SECTION 01 32 10

SECTION 01 33 00 – SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This Section specifies general administrative and procedural requirements for submittals required by the Contract Documents. The requirements specified in this Section relate to Submittal materials, Requests for Information and Requests for Clarification by all Contractors, Sub-contractors and Suppliers performing Work under these Contract Documents and includes:
1. Submittal Procedures
 2. Submittals Schedule
 3. Proposed Products List
 4. Shop Drawings
 5. Product Data
 6. Samples
 7. Manufacturer's Instructions
 8. Manufacturer's Operations & Maintenance Manuals
 9. Manufacturer's Certificates

1.2 RELATED SECTIONS

- A. Additional submittal requirements may be provided as follows:
1. Instruction to Bidders
 2. PSU General Conditions
 3. Supplemental General Conditions
 4. Other Sections of these specifications

1.3 SUBMITTAL PROCEDURES

- A. All Submittals, Shop Drawings, Product Data and Samples shall be in accordance with PSU General Conditions as amended by the Supplemental General Conditions.
- B. Provide the minimum number of each required submittal as noted in the Contract Documents and/or as follows:
1. Shop Drawings: one (1) PDF
 2. Product data: one (1) PDF
 3. Samples: five (5) samples
 4. Mock ups: As required by the Contract Documents
 5. Reference the Contract Documents for additional submittal requirements
- C. Submittal Preparation: Contractor shall place a label on each submittal for processing. Include the following information on the label:
1. Date

2. Owner's Project name
 3. Owner's Project number
 4. Name of Contractor
 5. Submittal name and number
 6. Name of the entity that prepared the submittal
 7. Specification reference number
 8. For Shop Drawing submittals: Contractor's certification that the submittal has been coordinated and reviewed for compliance with the requirements of the Contract Documents, and is approved for A/E's action
- D. Review of the submittals by the Architect and Owner's Authorized Representative shall not relieve the Contractor of its obligations as specified in PSU General Conditions Section B.18.
- E. The General Contractor shall review submittals for completeness, accuracy, and compliance with the Contract Documents. Reviews include verification of products required, field dimensions, adjacent construction work and coordination of information.
- F. Provide space for review approval by Architect and the Owner's Authorized Representative, as specified herein.
- G. Schedule submittals to expedite Project; deliver to Architect and Owner's Authorized Representative as directed herein and coordinate submission of related items.
- H. Portable Document Format (PDF) Requirements:
1. All documents are to be created as PDF files from the original source files, unless approved otherwise in writing by Owner.
 2. In addition to the submission of the original source files CAD drawings shall also be migrated to PDF/E or embedded in the PDF/A-3 format.
 3. Non-CAD documents shall conform to PDF/A standards
 4. All documents are to be created with a resolution of not less than 300 dpi.
 5. All fonts are to be embedded in the PDF.
 6. Each drawing shall represent a single printed sheet where the file name conspicuously identifies the sheet number (e.g. sheet A2.1 CAD file name might be A2-1.dwg).

1.4 SUBSEQUENT TO THE AWARD OF THE CONTRACT

- A. Seventy-two (72) hours prior to the pre-construction conference and in all cases prior to the commencement of work, the Contractor shall submit the following to the Owner's Authorized Representative:
1. Certificate of Insurance as required
 2. Signed Public Improvement Agreement
 3. One (1) original copy of Performance & Payment Bonds
 4. Schedule of Values
 5. Project Construction Schedule
 6. Submittal List and Schedule of Submittals, identifying long lead items
 7. Contractor Emergency Contact Information
- B. Prepare Submittals Schedule in chronological order by date of required submittal approval. Indicate the following:

1. Submittal number
2. Name of the entity that prepared the submittal
3. Generic Description of Work covered
4. Specification reference number
5. Activity or event number on the project construction schedule
6. Proposed submittal date for first submittal
7. Date material required for installation
8. Re-submittal dates and final release or approval by Architect and Owner's Authorized Representative

1.5 DURING CONSTRUCTION

- A. The general Submittal Review Procedure is illustrated in the following diagram.
 1. Subcontractor and/or Supplier submits to General Contractor for review and approval
 2. If approved, General Contractor submits to Architect for review and approval
 3. Architect submits to Design Team Consultants for review and approval
 4. If approved, Architect submits to PSU Project Manager for review and approval
 5. If approved, PSU Project Manager submits to PSU Field Representative for approval and delivery to General Contractor's Project Representative.
- B. Allow fourteen (14) calendar days for submittal review by Architect and Owner's Authorized Representative. Allow (3) additional calendar days for mechanical and electrical reviews. The General Contractor shall be responsible for timely the submittal of materials approvals in order to satisfy required delivery dates and maintain the construction schedule.
- C. Action by Architect and Owner's Representative:
 1. A/E's Action: Except for submittals provided for the Owner's information, the A/E will: review each submittal, mark each submittal with a uniform self-explanatory action stamp indicating action taken, and return promptly and with approval of the Owner's Authorized Representative. All unacceptable or rejected submittals shall be immediately corrected and resubmitted for review.
 - a. Compliance with specified characteristics is the Contractor's responsibility.
 2. Action Stamp: The Architect will stamp each submittal with a uniform action stamp. The Architect will mark the stamp appropriately to indicate the action taken, as follows:
 - a. Final Unrestricted Release: When the Architect marks a submittal "No Exceptions Taken," the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents.
 - b. Final-But-Restricted Release: When the Architect marks a submittal "Make Corrections Noted," the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents.
 - c. Returned for Resubmittal: When the Architect marks a submittal "Revise and Resubmit," do not proceed with Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal according to the notations; resubmit without delay. Repeat if necessary to obtain different action mark.
 - d. Unsolicited Submittals: The Architect will return unsolicited submittals to the sender without action.
- D. The Owner's Representative may request additional information during the course of the project to monitor material and equipment deliveries as well as coordinate work and materials by others. The General Contractor may be required to submit and

periodically update a Material Delivery Summary indicating material order dates, purchase order numbers, expected delivery dates and actual delivery dates.

E. Shop Drawings

1. Submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date. Do not reproduce Contract Documents as the basis of Shop Drawings.
2. Shop Drawings include, but are not limited to, fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawings. Include the following information:
 - a. Date of drawing including all revisions
 - b. Owner's Project name
 - c. Owner's Project number
 - d. Name of Contractor
 - e. Dimensions.
 - f. Identification of products and materials included by sheet and detail number.
 - g. Compliance with specified standards.
 - h. Notation of coordination requirements.
 - i. Notation of dimensions established by field measurement.
 - j. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches.
 - k. Do not use Shop Drawings without an appropriate final stamp indicating action taken.
3. Subsequent to Substantial Completion and prior to Final Pay Request, Submit five (5) copies of As Built documentation of all shop drawings to the Architect for inclusion in Project Record Documents. Provide all record as-built Shop Drawings required by the Contract Documents in CAD and PDF format (per Division 01, Submittal Procedures). See PSU General Conditions Section K and Division 01, Execution and Closeout Requirements.

F. Product Data:

1. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.
 - a. Mark each product data submittal to show applicable choices and options. Where printed Product Data includes information on several products that are not required, mark copies conspicuously to indicate the applicable information. Include the following information:
 - 1) Manufacturer's printed recommendations
 - 2) Compliance with specified product requirements
 - 3) Compliance with trade association standards and testing agency standards including testing agency labels and seals
 - 4) Notation of dimensions verified by field measurement
 - 5) Notation of coordination requirements
2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.

3. Submittals: Submit 6 copies of each required submittal; submit 2 additional copies where review is required by Architect's consultants. Up to four copies will be retained by Architect and Owner, plus copies by Architect's consultant, the remaining copies will be returned marked with action taken and corrections or modifications required.
 4. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities.
 - a. Do not proceed with installation until a copy of Product Data is in the Installer's possession.
 - b. Do not permit use of unmarked copies of Product Data in connection with construction.
- G. Samples:
1. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
 - a. Mount or display Samples in the manner to facilitate review of qualities indicated. Prepare Samples to match the Architect's sample. Include the following:
 - 1) Date
 - 2) Owner's Project name
 - 3) Owner's Project number
 - 4) Specification Section number and reference
 - 5) Product name or generic description of the sample
 - 6) Name of the manufacturer or source of the sample
 - 7) Compliance with recognized standards.
 - b. Submit Samples for review of size, kind, color, pattern, and texture. Submit Samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
 - 1) Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least 3 multiple units that show approximate limits of the variations.
 - 2) Samples not incorporated into the Work, or otherwise designated as the Owner's property, are the property of the Contractor and shall be removed from the site prior to Substantial Completion.
 - c. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation, and similar characteristics, submit three sets. The Architect will return two sets marked with the action taken.
 - d. Maintain sets of Samples, as returned, at the Project Site, for quality comparisons throughout the course of construction.
 - 1) Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
 - 2) Sample sets may be used to obtain final acceptance of the construction associated with each set.
 - 3) Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work.
- H. Quality Assurance Submittals:
1. Submit quality-control submittals, including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other Sections of the Specifications.

2. Certifications: Where other Sections of the Specifications require certification that a product, material, or installation complies with specified requirements, submit a notarized certification from the manufacturer certifying compliance with specified requirements.
 - a. Signature: Certification shall be signed by an officer of the manufacturer or other individual authorized to sign documents on behalf of the company.
 3. Inspection and Test Reports: Requirements for submittal of inspection and test reports from independent testing agencies are specified in Division 01, Quality Control.
- I. Manufacturer's Instructions:
1. When specified in individual Specification Sections, submit manufacturer's printed instructions for delivery, storage, assembly, start-up, testing, adjusting and finishing.
 2. Submit any conflicts between the manufacturer's instructions and the Contract Documents for clarification by the Architect and Owner's Authorized Representative.
- J. Manufacturer's Certificate:
1. When specified in individual Specification Sections, submit manufacturer's certificate for review, in quantities specified.
 2. Indicate material or product conforms to or exceeds specific requirements. Submit supporting reference date, affidavits, and certificates as appropriate.
 3. Certificates may be recent or previous test results on materials or products, but must be acceptable to the Architect and the Owner's Authorized Representative.

PART 2 - PRODUCTS, N/A

PART 3 - EXECUTION, N/A

END OF SECTION 01 33 00

SECTION 01 45 00 – QUALITY CONTROL

PART 1 - GENERAL

1.1 DESCRIPTION

- A. General Requirements: Comply with the quality control provisions specified in the Contract Documents and perform quality control testing and inspection, and the surveillance of the Work for quality, unless specifically designated to be performed by Owner.
- B. Owner's forms referenced in this Section include:
 - 1. Contractor Quality Control Daily Report
- C. Contractor Quality Control (CQC) shall consist of plans, procedures, and organization necessary to provide materials, equipment, workmanship, fabrication, construction, and operations that comply with the requirements of the Contract Documents. CQC shall cover construction operations keyed to the Progress Schedule including, but not limited to, fabrication on-site and off-site, and field and factory tested construction mock-ups.
- D. Owner's special inspection and Testing Agency services are specified in Division 01, Testing and Inspecting Services, which may be required to ensure the Work is in accordance with the Contract Documents, except where those tests are specifically indicated to be performed by the Contractor in the Contract Documents. These services do not relieve the Contractor of responsibility for compliance with Contract Documents requirements.

1.2 RELATED SECTIONS

- A. Additional requirements related to Quality Requirements may be provided as follows:
 - 1. PSU General Conditions
 - 2. Other Sections of the specifications.

1.3 DEFINITIONS

- A. CQC MEETINGS
 - 1. General Work Plan Meeting: Contractor shall meet with Owner's Representative and A/E to discuss CQC procedures for the Project. Items for discussion shall include, but not be limited to:
 - a. Identification of the Contractor's CQC Representative;
 - b. Interrelationship of Contractor, AE and Owner's Representative;
 - c. CQC administrative procedures and pre-installation work plans;
 - d. Submittals and persons responsible for Shop Drawing review;
 - e. Forms for recording the CQC program;
 - f. Testing, inspections and approvals records;
 - g. On-site and off-site fabrication and installation procedures; and
 - h. Field constructed mock-ups.
- B. Pre-installation CQC Work Plan Meetings: Develop a "CQC Work Plan" for each definable feature of the Work. Complete the work plan and submit to Owner with each notification requesting a pre-installation meeting. The work plan shall serve as the basis for discussion and review of the Contract Documents requirements. The work plan will assist to assure that materials and equipment delivered and assembled for construction conform to Contract requirements, and that control testing and CQC procedures are documented.
 - 1. When requested by the Owner, the Contractor shall revise a CQC Work Plan and provide the Owner a final CQC work plan with changes addressing comments or clarifications from the A/E and/or Owner's special inspection services or Commissioning Authority.

1.4 CONTRACTOR QUALITY CONTROL REQUIREMENTS

- A. Contractor's Quality Control Organization: Staff the CQC organization, as required, to perform the activities outlined in this Section and elsewhere in the Contract Documents.

1. Identify a "CQC Representative" (who is not the superintendent) who shall be on the Project site during progress of the Work as required. The CQC Representative shall have complete authority to take those actions necessary to ensure compliance with the Contract Documents.
2. Identify persons responsible for review and approval of Shop Drawings and other submittals required by the Contract Documents.
- B. Qualifications of CQC Representative: The Contractor shall propose and Owner shall approve, in writing, the Contractor's CQC Representative. The CQC Representative must have construction management experience including prior experience with projects of similar construction, size, and complexity.
 1. During progress of the Work, the Owner will monitor and evaluate the performance of the CQC Representative based on the conformance of the Work with the Contract Documents and an assessment of the accuracy, timeliness and completeness of the daily QC Report. If the CQC Representative fails to perform to the sole satisfaction of the Owner, the Contractor shall propose a replacement CQC Representative for the Owner's approval.
- C. Daily Quality Control Reports: CQC Representative shall maintain daily Quality Control (QC) Reports. The QC Reports shall be factual records containing numerical data of the Work and quality control activities and observations, including examination of work areas to verify the substrate upon which new work is to be placed. Submit QC Reports on Owner's form, or another Owner approved form, by the next workday following the day of the report.
 1. CQC Representative shall verify and sign all reports. Verification shall contain the statement that all supplies and materials incorporated in the Work are in compliance with the Contract Documents.
- D. Control of On-Site and Off-Site Construction: Contractor's Quality Control procedures shall include the following phases of control and management for each definable feature of the Work:
 1. Pre-installation Meeting: A pre-installation meeting shall be held prior to beginning work on each definable feature of the Work specified in the Contract Documents (see Division 01, Project Management and Coordination).
 2. In-Progress Inspection Phase: In-progress quality control testing and inspection, and surveillance of the Work for quality shall be performed continuously to verify that quality standards are maintained throughout the Work. Adjustment to quality control procedures and CQC work plans may be required, based upon the results of the inspections and testing.
 - a. The Contractor shall:
 - 1) Discuss quality control procedures at construction progress meetings;
 - 2) Report the results of the inspections and any changes to quality control procedures in the daily QC Report; and
 - 3) Revise CQC work plans for Owner's records, if changes are required.
 3. Above-Ceiling Final Inspections: The Contractor shall provide to the Owner a minimum two (2) week notice prior to ceiling installations for the A/E to conduct above-ceiling final inspections.
 - a. The Contractor shall perform corrective work and provide reasonable time for the A/E to validate the work complete prior to covering from sight.
 4. Contractor's Final Punch List Report: The CQC Representative shall thoroughly inspect all aspects of the construction (including the Subcontractor's Work) and produce a final punch list report of work requiring correction and/or incomplete work that shall be issued to the Subcontractors with instructions to complete prior to requesting the Owner's final inspections. The Contractor's written request for Owner's final inspection shall certify that all features of the Work are installed and have been reviewed by the Contractor to determine compliance with the Contract Documents.
 - a. The Contractor's final punch list report shall be prepared by the Contractor in a format acceptable to the Owner.
 - 1) The report shall include a comprehensive Project room number list and additional entry listings for site work, building enclosure, roofs, and other items not designated with a room number to document the entire Project.
 - 2) The Owner's final inspections items will be added to the Contractors final punch list report by the A/E.
 - 3) The Owner will manage the consolidated listing of all open inspection items until all items are signed-off by the Owner.

PART 2 - PRODUCTS, N/A

PART 3 - EXECUTION, N/A

END OF SECTION 01 45 00

SECTION 01 45 23 – TESTING AND INSPECTION SERVICES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. General Requirements: Comply with the testing and inspection, and correction of Non-Conforming Work provisions specified in this Section and elsewhere in the Contract Documents.
- B. Owner's Responsibilities:
 - 1. The Owner will select and employ an independent "Testing Agency" to conduct the tests and inspections in accordance with applicable standard methods of the American Society for Testing and Materials (ASTM) or other standards as a requirement of the building permit.
 - 2. The Owner may provide other special inspection services to inspect and verify that the Work installed is in accordance with the Contract Documents and construction industry standards.
- C. Contractor's Responsibilities:
 - 1. All other tests and inspections which are required to obtain regulatory approval by Authorities Having Jurisdiction (AHJ) shall be provided by and paid for by the Contractor.
- D. The Contractor shall provide other testing services where specified in the Contract Documents.

1.2 DEFINITIONS

- A. For the purpose of this Section, all references made to Testing Agency, or waterproofing and roofing inspections, or geotechnical consulting firm shall be referred to as those tests or inspections which will be conducted by an inspector provided by the Owner.
- B. Testing and Inspection: Materials to be tested and inspected are specified by the Contract Documents. In addition, testing and inspection of other materials may be required by the building permit or as directed by the Owner or AHJ. Quantities and extent of tests and inspections shall be as specified and/or required by the Owner's inspector or AHJ.

1.3 QUALITY ASSURANCE

- A. Qualifications: The inspector for all work of this Section, except for geotechnical and waterproofing and roofing special inspectors, shall be a registered inspector employed by an approved inspection and/or Testing Agency as listed by the City of Portland.
 - 1. The special Inspector for waterproofing and roofing must have the required technical knowledge and experience for the product being installed.
 - 2. The Owner may select a Testing Agency, other than the agency employed by the Contractor, to perform tests required by the building permit.
 - 3. Geotechnical inspection will be performed by a licensed geotechnical consulting firm.

1.4 DUTIES OF OWNER'S TESTING AGENCY

- A. General: The Testing Agency shall conduct testing and inspection services, interpret them, evaluate the results for compliance with the building permit and the Contract Documents, and report the findings to the Owner's Representative, A/E, Contractor, and AHJ. Testing and inspection services shall be in accordance with applicable standard methods of ASTM or other standards specified by AHJ, the Contract Documents, and construction industry standards. The Testing Agency shall reasonably support overtime, second shift, and out-of-area activity if requested by the Contractor and approved at the Owner's sole discretion.
- B. Non-Conforming Work: The Owner's inspectors will document and immediately notify the Contractor and the Owner's Representative of any Work found defective or not in accordance with the requirements of the Contract Documents.
- C. The Owner's inspectors are not authorized to:
 - 1. Release, revoke, alter, or enlarge on the requirements of Contract Documents;
 - 2. Approve or accept any portion of the Work, except as allowed by the special inspection duties delegated by AHJ for building permit inspections and testing;
 - 3. Perform any duties of the Contractor; or
 - 4. Stop the Work

1.5 COSTS

- A. The Owner's Testing Agency and special Inspector costs for initial testing and inspection as specified in the Contract Documents will be paid for by the Owner. Initial tests and inspections are defined as those required to complete the first tests and inspections specified.
- B. Additional tests and inspections not specified but requested by the Owner or A/E shall be paid for by the Owner.
 - 1. However, if the results of such tests and inspections are found to be not in accordance with the Contract Documents, the Contractor will be back-charged for all costs of this testing and inspection as well as re-testing, re- inspection and Owner's consultants' services.
- C. Costs for additional tests or inspections required because of a Contractor change in products or materials, or source, after a submittal has been reviewed and accepted, shall be borne by the Contractor.
- D. Costs of any testing which is required solely for the convenience of the Contractor in its scheduling and performance of the Work shall be borne by the Contractor.
- E. Costs for verification testing and inspection of Work done without timely notice, with improper supervision, or contrary to construction practice, shall be borne by the Contractor.
- F. Costs for testing of materials for which fabrication and mill reports are required, but not furnished, shall be borne by the Contractor.
- G. Costs of any testing which is the responsibility of the Contractor as specified in the Contract Documents shall be borne by the Contractor.

1.6 TESTS AND INSPECTION REPORTS

- A. Copies of Test and Inspection Reports: Electronic copies of Owner's Testing Agency (or other special inspection services) reports and Contractor's test and inspection reports shall be exchanged between Owner and Contractor at weekly intervals and shall be provided to AHJ as required. All reports will be signed by a registered engineer. Such reports shall include all tests made, regardless of whether such tests indicate that the material is satisfactory or unsatisfactory. Samples taken but not tested and records of special sampling operations that are required shall also be reported.
 - 1. Submit copies of inspection reports, certifications, notices, correspondence, and similar documents and records established in conjunction with building industry standards bearing upon the Work.

1.7 CONTRACTOR'S RESPONSIBILITIES

- A. General: Inspection of the Work by the Owner's special inspectors and/or Testing Agency shall not relieve the Contractor from responsibility for compliance with Contract Documents requirements. Owner's special inspectors and/or Testing Agency and Owner's Representative shall have authority to reject Work whenever the provisions of the Contract Documents are not being complied with, and the Contractor shall instruct his employees accordingly.
- B. Coordination: The Contractor's shall initiate, coordinate, and conform to the required tests and inspections of AHJ.
- C. Access for the Purpose of Inspection: The Contractor shall ensure the Owner's special inspectors and/or Testing Agency have free access to all parts of the Work and to the shops where the Work is in preparation; are provided proper facilities for safe access for such inspection; and are reasonably furnished equipment, tools, samples, certifications, test reports, design mixes, storage, and assistance as requested by the Owner's Inspector.
- D. Storage Facilities: The Contractor shall furnish adequate facilities for the sole use of the Owner's Testing Agency to provide safe storage and curing space for test specimens that must remain on-site prior to transport to the laboratory.
- E. Data: The Contractor shall furnish accepted submittals, certificates, and similar data as may be required by Owner's inspectors to perform their work to assure compliance with the Contract Documents.
- F. Notice: Furnish notice to Owner's Representative and coordinate with Owner's inspectors. Provide a minimum of five
- G. (5) working days' notice in advance of all required tests and a minimum of forty eight (48) hours in advance of all required inspections, unless otherwise specified.
- H. Cancellations: Contractor shall give sufficient advance notice to Owner's Representative and Inspectors to allow rescheduling of their work load in the event of cancellation or time extension of any scheduled test or inspection.
 - 1. Any charges from an Inspector due to insufficient advance notice of cancellations or time extensions shall be borne by the Contractor, at the Owner's sole discretion.

1.8 TEST FAILURES

- A. General: The Owner's Representative may require a re-test of a sampled material when a sample or procedure has failed to pass the required tests. In such cases, two samples shall be tested and the material shall be rejected if either sample fails.
 - 1. In the event any test or inspection indicates failure of a material or procedure to meet the requirements of the Contract Documents, all costs for re-testing or re-inspection shall be borne by the Contractor.

1.9 REPORTING TEST FAILURES

- A. General: Immediately upon determination of a test failure, the Owner's inspector shall telephone the test results to the Owner's Representative and Contractor. By the end of the following day, the Owner's inspector shall send written test results to those named on the distribution list.
- B. Contractor shall similarly report test failures to Owner's Representative resulting from work of testing agencies provided by the Contractor.

PART 2 - PRODUCTS, N/A

PART 3 - EXECUTION, N/A

END OF SECTION 01 45 23

SECTION 01 55 29 – STAGING AREAS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Building Entry/Routes

1. Contractor shall schedule all necessary material stocking, demolition and trash removal through building corridors and elevators during non-peak hours or as approved by the PSU (or "Owner") Project Manager. All materials will be brought into the building through the loading dock or approved entry and transported using the Owner's assigned elevator.
2. The loading dock or entry is only to be used for loading and unloading. The loading dock or entry will not be used for parking. Vehicles left unattended will be towed at the expense of the Contractor.

B. Parking

1. Unless stated in a Contract, all parking will be at the expense of the Contractor. All vehicles parked on Owner's property must have a parking permit. The Contractor must arrange and secure for all temporary parking permits. Due to limited space, only work vehicles will be allowed at the worksite, and these may be enclosed within the Contractor's assigned fenced work area. Contractor shall make every effort to carpool to the worksite when possible. It is the Contractor's responsibility to secure all parking permits or pay the appropriate meter.

C. Staging/Lay Down Area

1. During each phase of Construction, areas required for staging must be submitted to the Owner at least three (3) weeks in advance of the requirement. The date when the area will be reusable by Owner must be included.
2. During construction, the Contractor shall provide all security for its materials, offices, staging and construction parking areas, etc. Owner shall have no responsibility for any of these items. Contractor shall also be responsible for maintaining a safe construction area on Owner's property and offsite as well, including, without limitation, keeping all public and private roadways and parking areas clean, safe and functioning. The Contractor shall only be obligated cleanup of those portions of public or private roadways and parking which have been affected by Contractor's activities.
 - a. Use of lay down area is for the staging and storing of construction related equipment or material for Contractor construction activities only as related to PSU projects.
 - b. Contractor is responsible for making sure the lay down area complies with all local building and fire codes and regulations and all Owner's safety codes and requirements.
 - c. Contractor is responsible for keeping the grounds surrounding the lay down area safe and clean of construction materials, litter, trash, and scrap materials. Continuous housekeeping is required including daily removal of combustible waste and storage of combustible waste in approved metal containers and trash bins with metal lids. Outdoor tool and equipment power cords shall be removed nightly. Clean-up and sweeping to be done on a daily basis at the completion of a work shift.
 - d. Contractor is responsible for their own trash management, including removal of trash from campus. Contractor shall comply with recycling guidelines specified in the Contract Documents.
 - e. Work & safety rules specified in the Contract Documents apply to lay down areas. Construction Personal Protective Equipment is required in the lay down area.
 - f. Owner will not be held liable for any loss or damage to any contractor structures or equipment in the lay down area.
 - g. There is NO SMOKING in the lay down area or inside structures or shipping containers in the lay down area. No smoking signs shall be posted at these locations.
 - h. Contractor is responsible for keeping all fire and emergency access lanes surrounding the lay down area open at all times. Fire lane parking is subject to immediate tow at Contractor's expense. Fire hydrants must be accessible at all times.
 - i. Contractor's portable toilets must be located inside the designated lay down area and maintained to PSU's satisfaction at all times.
 - j. Contractors will not be permitted to store any type of construction material on top of their shipping containers or structures for safety reasons. No combustible materials will be permitted to be stored under a storage trailer.
 - k. Contractor shall return the lay down area in the same or better condition than when initially used. Payment and/or fees may be withheld until repairs by the Contractor have been completed to PSU's satisfaction.

- l. If outside staging of material is required in unpaved areas, Owner is not responsible for mud, dirt, snow, rain, ice and/or rust on materials.
- m. Materials stored in staging area(s) must be protected from the elements and from damage or degradation as required in contract documents.
- n. Typical temporary construction fencing shall be covered with opaque material to prevent seeing inside the fencing. Construction fencing shall be placed on the interior side of the opaque material.
- o. The lay down area shall be made as small as possible and configured to minimize impact to the daily operations of the campus. Contractor to use lay down area for minimal amount of material inventory as required to provide an efficient construction process.

PART 2 - PRODUCTS, N/A

PART 3 - EXECUTION, N/A

END OF SECTION 01 55 29

SECTION 01 56 39 – TEMPORARY TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the minimum requirements for protection and trimming of existing trees that interfere with, or are affected by, execution of the Work, whether temporary or permanent construction.
 - 1. Related Sections include the following:
 - a. Division 01 Section, Summary, for limits placed on Contractor's use of the site.
 - b. Division 01 Section, Temporary Facilities and Controls.
 - c. Division 31 Section, Earth Moving, for building and utility trench excavation, backfilling, compacting and grading requirements, and soil materials.

1.3 DEFINITIONS

- A. Certified Arborist: An approved arborist certified by the International Society of Arborists (ISA).
- B. Tree Protection Zone: Area surrounding individual trees or groups of trees to remain during construction and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.
- C. Critical Root Zone (CRZ): The area around a tree equal to one (1) foot radius for every inch of tree diameter measured at four (4) feet above grade.
- D. Dripline: The dripline is the outer limit of the extent of a tree's foliage canopy.

1.4 REFERENCES

- A. American National Standards Institute, (ANSI).
 - 1. ANSI A300 – Tree, Shrub, and Other Woody Plant Maintenance--Standard Practices.
- B. ASTM International, (ASTM).
 - 1. ASTM D448 – Standard Classification for Sizes of Aggregate for Road and Bridge Construction.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Tree Pruning Schedule: Written schedule from arborist detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction.
- C. Qualification Data: For tree service firm and arborist.
- D. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.
- E. Maintenance Recommendations: From arborist, for care and protection of trees affected by construction during and after completing the Work.
- F. Tree and Landscape Protection Plan: Prior to any site disturbance, the Contractor shall submit for Owner's approval a "Tree and Landscape Protection Plan" developed in consultation with a certified arborist for all trees, plants, and lawn indicated to remain.
 - 1. The Tree and Landscape Protection Plan shall include:
 - a. Proposed protection fence locations.
 - b. The location of all on-site trees requiring protection.
 - c. Identification of the CRZ for each tree requiring protection.
- G. Temporary irrigation and fertilization schedule

1.6 QUALITY ASSURANCE

- A. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed tree protection and trimming work similar to that required for this Project and that will assign an experienced, qualified arborist to Project site during execution of tree protection and trimming.
- B. Arborist Qualifications: An arborist certified by ISA or licensed in the jurisdiction where Project is located. Tree Pruning Standard: Comply with ANSI A300 (Part 1), Pruning.
- C. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section, Project Management and Coordination.
- D. Before tree protection and trimming operations begin, meet with representatives of authorities having jurisdiction, Owner, Architect, consultants, and other concerned entities to review tree protection and trimming procedures and responsibilities.

1.7 CONTRACTOR RESPONSIBILITY

- A. The Contractor shall assume all landscape shall be protected, unless indicated to be removed in the Contract Documents, and shall be responsible for all damage and/or disturbance within the CRZ of trees indicated to remain such as, cutting or skinning of roots, skinning or bruising of bark, compaction of root zones, and breaking of branches.
 - 1. Damage and/or disturbance which, at the Owner's sole discretion, can be remedied by corrective maintenance shall be immediately repaired by the Contractor upon written notice by Owner.
 - a. The Contractor shall employ a certified arborist to repair damage to trees.
 - 2. Trees or shrubs which are injured or irreparably damaged shall, at the Owner's sole discretion, be replaced by the Contractor with new trees or shrubs of the same size and type. However, the Owner is not bound to have the trees or shrubs replaced in the same location and may request the Contractor provide the tree or shrub for installation by Owner.
 - a. Trees which fail to fully foliate in the spring following Substantial Completion shall be presumed to have been injured or irreparably damaged due to construction.
 - 3. If, in the Owner's sole opinion, replacement of damaged trees is determined impracticable, the full replacement cost shall be borne by the Contractor at values based upon the square inches of cross sectional area of trunk measured at four (4) ft. above grade, in accordance with the following criteria:
 - a. \$80.00/square inch for trees less than six (6) inch-diameter.
 - b. \$75.00/square inch for trees six (6) inches or greater but less than nine (9) inch-diameter.
 - c. \$70.00/square inch for trees greater than nine (9) inch and less than twelve (12) inch-diameter.
 - d. \$65.00/square inch for trees greater than or equal to twelve (12) inch-diameter.
 - e. Measurements shall be taken from the outside edge of bark.
 - 4. If, in the Owner's sole opinion, replacement of damaged shrubs is determined impracticable, the full replacement cost shall be borne by the Contractor at a rate of \$75 per shrub plant.
- B. Trees or shrubs which require removal and/or replacement due to damage by construction shall be removed to a depth of two (2) feet below grade and include the refilling and repair of the ground surface, with such costs to be borne by the Contractor.
- C. Protection and maintenance shall include, but not be limited to, replacement of damaged protection fencing; aeration of compacted soils; control of temporary irrigation water runoff; pruning and treatment of damaged roots, limbs, and branches; and replacement of wood chips within tree protection areas.
- D. Site damage and/or disturbance caused by the Contractor outside the Project site shall be repaired or replaced, and all costs shall be borne by the Contractor.
 - 1. Repairs shall include, but are not limited to, pruning or removing damaged vegetation, replacement of damaged vegetation and/or lawn restoration, soil remediation to alleviate over-compaction, and temporary irrigation to establish new plantings.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Drainage Fill: Selected crushed stone, or crushed or uncrushed gravel, washed, ASTM D448, Size 24, with 90 to 100 percent passing a 2-1/2-inch sieve and not more than 10 percent passing a 3/4-inch sieve.
- B. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of weeds, roots, and toxic and other non-soil materials.

1. Obtain topsoil only from well-drained sites where topsoil is 4 inches deep or more; do not obtain from bogs or marshes.
- C. Filter Fabric: Manufacturer's standard, nonwoven, pervious, geotextile fabric of polypropylene, nylon, or polyester fibers.
- D. Protection fencing shall be six feet high, 11 gauge-galvanized, 2-inch mesh chain link panelized fencing with nominal 1-1/4-inch diameter galvanized steel posts or approved equal. Fencing system to be panelized, with extended legs for placement into pipe frame supports or precast concrete blocks which will allow for repositioning during the progress of the Work. Anchor clamps shall be placed within 8 inches of the top and bottom of all abutting panels to lock them in place.
 1. The Contractor shall post weather-resistant 8 1/2" x 11" fluorescent green or yellow signage on protection fencing at twenty (20) foot intervals warning construction personnel to keep out of protective zones.
- E. Organic Mulch: Shredded bark or wood chips, free of deleterious materials. Wood chips shall have been composted for a minimum of one year prior to use.
- F. Fertilizer:
 1. Osmocote® Plus 15-9-12 formulation. As manufactured by Everris, an ICL Fertilizers Company, Dublin, OH 43017, Tel.: 800-492-8255, www.everris.us.com.
 2. Or approved equal.

2.2 TREE TRUNK BOXING

- A. Existing trees that cannot, because of existing site conditions, be protected with fencing and are designated to remain shall be protected by boxing constructed with nominal 4 x 4-inch posts at corners with nominal 2 x 4 inch horizontal top, middle, and bottom rails on each side. Box shall be approximately 8 x 8 feet in size centered on the tree trunk to a height of approximately six (6) feet. Top and middle rails shall be painted orange.

PART 3 - EXECUTION

3.1 ON-SITE PRE-INSTALLATION MEETING

- A. Prior to on-site mobilization, the Contractor shall arrange a pre-installation meeting with the Owner's Representative to identify and stake out all areas of trees, plants, and lawn that are to be protected or removed. The Contractor shall be responsible for all damage to landscape features that results from the failure to schedule and attend the pre-installation meeting.

3.2 PROTECTION OF EXISTING TREES

- A. Trees indicated to remain within the Project site shall have protection fencing located at the CRZ drip line that shall be maintained by the Contractor in good condition until Substantial Completion. Tree trunk boxing may be permitted by written approval of Owner.
- B. When no ground cover, lawn or shrubs exist within the CRZ of a tree indicated for protection, the ground shall be protected with a minimum of twelve (12) inches depth blanket of wood chips extending from a three (3) foot radius clear zone around each truck to the protection fencing.
- C. All site work within the CRZ should be performed by hand. However, the use of heavy equipment to perform work within the CRZ may be requested by the Contractor but shall be granted only by approval from the Owner. The Contractor shall perform approved heavy equipment work from angles and directions that minimize compaction to tree roots in the protection area. Track mounted equipment is preferable to wheel-driven in order to reduce ground pressure.
- D. The Contractor shall utilize the services of an arborist selected by the Owner to tie back all flexible limbs and overhead branches which may be damaged by the passage or activity of construction equipment.
- E. Materials shall not be stored, and equipment shall not be operated under the branches of existing trees which are to remain, except as approved by the Owner.

3.3 INSTALLATION OF TREE PROTECTION FENCING

- A. Lay out panels and support bases to provide full circumferential protection prior to erecting. Clamp panels immediately upon erection to stabilize. Provide diagonal bracing as necessary to panels at corners of enclosures and whenever needed to ensure rigidity of the fencing. Panels may overlap to allow entrance into the protection area but overlap access must be controlled by a chain and lock.
- B. Provide one gate location into each fenced area.

3.4 USE OF AREA ADJACENT TO PROTECTION FENCING

- A. Do not store materials potentially harmful to tree roots within twenty feet of protection fencing. Potentially harmful materials include, but are not limited to, fuels and petroleum products, cement and concrete materials, cement additives, lime, paints and coatings, waterproofing products, concrete forms coatings, detergents, acids, and cleaning agents.

3.5 FERTILIZING AND IRRIGATING DURING CONSTRUCTION

- A. All trees and landscape requiring protection shall be watered on a regular basis by the Contractor until Substantial Completion. Application of fertilizer may also be required and shall be performed by the Contractor at the direction of the Owner and at no additional cost to the project.
 - 1. Water used for irrigation shall be potable water.

3.6 EXCAVATION AND ROOT PRUNING

- A. Install shoring or other protective support systems to minimize sloping or benching of excavations.
- B. Do not excavate within tree protection zones, unless otherwise indicated.
- C. Where excavation for new construction is required within tree protection zones, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks and comb soil to expose roots.
 - 1. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches back from new construction.
 - 2. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition.
 - 3. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.
- D. Where utility trenches are required within tree protection zones, tunnel under or around roots by drilling, auger boring, pipe jacking, or digging by hand.
- E. When construction is in close proximity to existing trees designated to remain and roots are encountered, the roots shall be pruned. Root pruning is the intentional cutting of tree roots to minimize root damage and promote healing. Any construction operation which pulls and/or tears roots is unacceptable.
 - 1. Root pruning shall be performed as early as possible before trenching or tunneling operations.
 - 2. Hand-dig trenches in areas with extensive roots.
 - 3. All root pruning shall be performed by a certified arborist.
 - 4. Do not cut main lateral roots or taproots. Cut only smaller roots that interfere with the installation of utilities.
 - 5. To the extent possible and practicable, leave roots larger than two (2) inches in diameter intact and undamaged.
 - 6. Keep roots moist with wet mulch and burlap or equivalent during exposure.
 - 7. For all roots smaller than one (1) inch diameter, use a sharpened spade or lopper-shear.
 - 8. For all roots greater than one inch (1) diameter, use a handsaw or Sawzall.
 - 9. A backhoe bucket, or any other excavating machine, shall not be used to root prune.

3.7 REGRADING

- A. Grade Lowering: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by arborist, unless otherwise indicated.
 - 1. Root Pruning: Prune tree roots exposed during grade lowering. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots with sharp pruning instruments; do not break or chop.
- B. Minor Fill: Where existing grade is 6 inches or less below elevation of finish grade, fill with topsoil. Place topsoil in a single uncompacted layer and hand grade to required finish elevations.
- C. Moderate Fill: Where existing grade is more than 6 inches but less than 12 inches below elevation of finish grade, place drainage fill, filter fabric, and topsoil on existing grade as follows:
 - 1. Carefully place drainage fill against tree trunk approximately 2 inches above elevation of finish grade and extend not less than 18 inches from tree trunk on all sides. For balance of area within drip-line perimeter, place drainage fill up to 6 inches below elevation of grade.
 - 2. Place filter fabric with edges overlapping 6 inches minimum.

3. Place fill layer of topsoil to finish grade. Do not compact drainage fill or topsoil. Hand grade to required finish elevations.

3.8 TREE PRUNING

- A. Prune trees to remain that are affected by temporary and permanent construction.
- B. Prune trees to remain to compensate for root loss caused by damaging or cutting root system. Provide subsequent maintenance during Contract period as recommended by arborist.
- C. Pruning Standards: Prune trees according to ANSI A300 (Part 1).
 1. Type of Pruning: Cleaning and Raising.
- D. Cut branches with sharp pruning instruments; do not break or chop.
- E. Chip removed tree branches and stockpile in areas approved by the Owner.

3.9 TREE REPAIR AND REPLACEMENT

- A. Promptly repair trees damaged by construction operations within 24 hours. Treat damaged trunks, limbs, and roots according to arborist's written instructions.
- B. Remove and replace trees indicated to remain that die or are damaged during construction operations that arborist determines are incapable of restoring to normal growth pattern.
- C. Provide new trees of same size and species as those being replaced; plant and maintain as specified in Division 32 Section "Plants."
- D. Provide new trees of 6-inch caliper size and of a species selected by Architect when damaged trees more than 6 inches in caliper size, measured 12 inches above grade, are required to be replaced. Plant and maintain new trees as specified in Division 32 Section "Plants."

3.10 DISPOSAL OF WASTE MATERIALS

- A. Burning is not permitted.
- B. Disposal: Remove excess excavated material, displaced trees and all associated branch, twig and leaf trimmings from Owner's property and dispose of in a lawful manner.

END OF SECTION 01 56 39

SECTION 01 60 00 – PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The requirements specified in this Section relate to general product requirements substitutions by the Contractor, Sub- contractors and Suppliers performing Work under these Contract Documents and includes:
1. Contractor's Responsibilities
 2. Product Options
 3. Substitution Requests during the Bidding Process
 4. Substitution Requests after the Award of Contract
 5. Substitutions not permitted
 6. Product Delivery, Storage & Handling
 7. Product Installation

1.2 RELATED SECTIONS

- A. Additional Product Option and Substitution Request Information may be provided as follows:
1. PSU General Conditions
 2. Other Sections of these specifications.

1.3 DEFINITIONS

- A. "Products" are materials, machinery, components, equipment, fixtures and other systems incorporated into the Project, regardless of whether they were purchased for the Project or taken from the Contractor's previously purchased inventory. It does not include machinery and equipment used in preparation, fabrication, conveying and erection of the Work.
- B. "Materials" are products that must be substantially cut, shaped, worked, mixed, finished, refined or otherwise fabricated, processed or installed to form units of Work.
- C. "Substitutions" includes proposed changes in products, materials, equipment, and methods of construction required by the Contract Documents.

1.4 REQUESTS FOR SUBSTITUTIONS

- A. Requests for substitution of products in place of those specified shall be in accordance with the Public Improvement Agreement, PSU General Conditions, with Supplemental Conditions, and as specified herein. The Contractor assumes responsibility for the requirements as set forth herein. Any cost or time impact shall be at the Contractors expense.

1.5 CONTRACTOR'S RESPONSIBILITIES

- A. In requesting substitution, the Contractor shall comply with PSU General Conditions, This includes but is not limited to the following:
1. Investigate proposed products and determine that they are equal or superior in all respects to products specified.
 2. Provide same guarantee for accepted substitutions as for products specified.
 3. Coordinate installation of accepted substitutions into the Work, making such changes as may be required for the Work to be complete in all respects and within original time constraints.

4. Waive all claims for additional costs related to substitutions, which consequently become apparent.

PART 2 - PRODUCTS

2.1 PRODUCT OPTIONS

- A. Contractor's Options in selecting products is limited by the requirements of the Contract Documents and governing regulations. They are not controlled by industry traditions or procedures experienced by the Contractor on previous construction projects. Where products or manufactures are specified by name or manufacturer, they shall be assumed accompanied by the term, "or approved equal". Comply with the Contract Document requirements for Substitutions and submittals to obtain review from Architect and Owner's Authorized Representative for use of substitute products.

PART 3 - EXECUTION

3.1 SUBSTITUTION REQUESTS DURING THE BIDDING PROCESS

- A. Substitution requests shall meet the following criteria for review by the Architect and Owner's Authorized Representative:
 1. Substitutions shall be requested using the Substitution Request Form provided herein after this Section.
 2. Complete Substitution Request Form and submit one (1) electronic copy of each request for substitution to proposals@pdx.edu.
 3. Itemize comparison of proposed substitution with product or method specified.
 4. Complete data on each material and system for this project only, substantiating compliance of proposed substitution with the Contract Documents.
 5. Complete evidence including test numbers and supporting reports indicating compliance with referenced standards.
 6. A statement from the Manufacturer(s) of the proposed substitution materials stating that any and all warranties required by the contract documents for the originally specified materials can and will be provided for the substitution materials, and that required warranties shall be issued upon successful completion of the Work.
- B. Substitutions shall be requested prior to the Deadline for Request for Change and Protests, and accepted by Addendum prior to the date and time bid materials are due at proposals@pdx.edu.

3.2 SUBSTITUTION REQUESTS AFTER AWARD OF CONTRACT

- A. Substitutions will normally not be considered after date of Contract, except when required due to unforeseen circumstances. Within a period of thirty (30) days after date of Contract, the Owner may, at its option, consider formal written requests for substitution of products in place of those specified, when submitted in accordance with the requirements stipulated herein. Substitution requests shall meet the following criteria for review by the Architect and Owner's Authorized Representative:
 1. Submit one (1) electronic copy of each request for substitution using the submittal process specified in Division 01, Submittal Procedures.
 2. Substitutions shall be requested using the Substitution Request Form provided herein.
- B. To receive consideration, one or more of the following conditions must be documented in any such request:
 1. The substitution is required for compliance with final interpretation of code requirements or insurance regulations.
 2. The substitution is required due to unavailability of a specified product, through no fault of the Contractor.
 3. The substitution is required because subsequent information disclosed the inability of the specified product to perform properly or to fit in the designated space.
 4. The substitution is required because it has become clearly evident, in the judgment of the Owner that a substitute would be substantially in the best interest of the Owner in terms of cost, time, or other considerations.

- C. For products specified only by referenced standards, provide products by any Manufacturer meeting standards specified.
- D. For products specified by naming one or more products, provide any product named. If certain conditional requirements are stipulated, each product must comply with these requirements. Requests for approval of substitutions are subject to meeting requirements stipulated above.
- E. For products specified by naming a product to match existing products or systems, provide product of the same name. There is no option and no substitution is allowed.
- F. For each substitution that is accepted, the Contractor shall coordinate the work of all other trades and modify surrounding conditions as required to complete the work to the satisfaction of the Owners Authorized Representative at no additional cost to the Owner.

3.3 SUBSTITUTIONS NOT PERMITTED

- A. Submitted without first requesting approval thereof in accordance with requirements of this Section.
- B. Acceptance will require substantial revision of the Contract Documents, except as allowed by Paragraph 3.02 above.

3.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.
 - 1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and- other losses.
 - 3. Deliver, handle and store products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss. Control delivery schedules to ensure timely delivery for incorporation into the Work, while minimizing long-term storage at the site and preventing overcrowding of the construction area.
 - 4. Deliver products to the site in an undamaged condition in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 5. Promptly inspect shipments to assure that products comply with requirements, quantities are correct and products are undamaged.
 - 6. Store products subject to damage by the elements above ground, under cover in a weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

3.5 PRODUCT INSTALLATION

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.
- B. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION 01 60 00

SECTION 01 74 00 – CLEANING AND WASTE MANAGEMENT

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The Owner requires that this project generate the least amount of waste and trash possible.

1.2 RELATED SECTIONS

- A. Additional waste management requirements may be found in the following:
 - 1. PSU General Conditions
 - 2. Other Sections of these specifications.

1.3 DEFINITIONS

- A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.
- B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.
- C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitability, corrosivity, toxicity or reactivity.
- D. Non-hazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitability, corrosivity, toxicity, or reactivity.
- E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.
- F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
- G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.
- H. Recycling: The process of sorting, cleansing, treating and reconstituting solid wasted and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- I. Return: To give back reusable items or unused products to vendors for credit.
- J. Reuse: To reuse a construction waste material in some manner on the project site.
- K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.
- L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.
- M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.
- N. Toxic: Poisonous to humans either immediately or after a long period of exposure.
- O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
- P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.4 WASTE MANAGEMENT REQUIREMENTS

- A. The contractor shall familiarize himself with the relevant requirements, provide the necessary documentation and instruct all sub-contractors and suppliers regarding energy efficiency, air quality, demolition, recycling, waste management and final cleaning.

- B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.
- C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.
- D. Methods of trash/waste disposal that are not acceptable are:
 - 1. Burning on the project site.
 - 2. Burying on the project site.
 - 3. Dumping or burying on other property, public or private.
 - 4. Other illegal dumping or burying.
- E. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, State and local requirements, pertaining to legal disposal of all construction and demolition waste materials.
 - 1. The city of Portland requires all building projects with a permit value of \$50,000 or more to separate and recycle certain materials from the job site. The contractor shall be responsible for assuring recycling at the job site and for completing the pre-construction recycling plan form.

PART 2 - PRODUCTS

2.1 REPORTS

- A. Contractor shall submit periodic Waste Disposal Reports; all landfill disposal, incineration, recycling, salvage, and reuse must be reported regardless of to whom the cost or savings accrue. See Division 01, Submittal Procedures.
- B. Submit Waste Disposal Reports with each application for progress payment, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report. Failure to submit Report will delay payment. Prepare Waste Disposal Reports as follows:
- C. Submit Report on a form acceptable to Owner.
- D. Landfill Disposal: Include the following information:
 - 1. Identification of material.
 - 2. Amount, in tons or cubic yards, or trash/waste material from the project disposed of in landfills.
 - 3. State the identity of landfills, total amount of tipping fees paid to landfill, and total disposal cost.
 - 4. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
- E. Incinerator Disposal: Include the following information:
 - 1. Identification of material.
 - 2. Amount, in tons or cubic yards, of trash/waste material from the project delivered to incinerators.
 - 3. State the identity of incinerators, total amount of fees paid to incinerator, and total disposal cost.
 - 4. Included manifest, weight tickets, receipts, and invoices as evidence of quantity and cost.
- F. Recycled and Salvaged Materials: Include the following information for each:
 - 1. Identification of material, including those retrieved by installer for use on other projects.
 - 2. Amount, in tons or cubic yards, date removed from the project site, and receiving party.
 - 3. Transportation cost, amount paid or received for the material, and the net total cost or savings of salvage or recycling each material.

4. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
 5. Certification by receiving party that materials will not be disposed of in landfills or by incineration.
- G. Material Reused on Project: Include the following information for each:

2.2 GENERAL

- A. Other Disposal Methods: Include information similar to that described above, as appropriate to disposal method

PART 3 - EXECUTION

3.1 WASTE MANAGEMENT PLAN IMPLEMENTATION

- A. Designate an on-site person or persons responsible for instructing workers and overseeing documenting results of the Waste Management Plan.
- B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor, Architect, and Owner's Authorized Representative.
- C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.
- D. Meetings: Discuss trash/waste management goals and issues at project meetings.
1. Pre-bid meeting
 2. Pre-construction meeting
 3. Regular job-site meetings.
- E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.
1. Provide containers as required.
 2. Provide adequate space for pick-up and delivery and convenience to contractors.
 3. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.
- F. Hazardous Materials: If, during the course of the Work, the Contractor observes or suspects the existence of Hazardous Materials in the structure or components within the defined scope of work area, the Contractor shall immediately stop Work in the immediate area and notify the Owner's Authorized Representative, who will, under separate contract, facilitate the removal of the hazardous material. The Contractor will be required to schedule ten (10) days of slack or "down" time for the removal of potential unforeseen materials. Any delay caused by asbestos abatement that lasts less than ten (10) days shall not constitute a delay as defined in Section D.2 of the PSU General Conditions and shall not result in any additional compensation to the contractor. If removal of the material takes more than ten (10) days, the Contractor shall be entitled to an extension of the completion date for the Work equal to the number of days required for removal, plus reimbursement for Contractor's cost of the Work for only those days in excess of ten (10).
1. Hazardous Material and Abatement Report will be provided by the Owner for review and use. Examine report to become aware of locations where hazardous materials are present. A copy of the report shall be maintained on the job site throughout the course of work.
- G. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.
- H. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.
- I. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

END OF SECTION 01 74 00

SECTION 01 77 00 – EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This Section specifies administrative and procedural requirements for Contract closeout including, but not limited to:
 - 1. Project Record Documents
 - 2. Operations & Maintenance Manuals
 - 3. Warranties & Bonds
 - 4. Final Cleaning
 - 5. Owner's Final Inspection
 - 6. Substantial Completion
 - 7. Final Completion
 - 8. Final Acceptance
 - 9. Final Review and Payment
- B. Project closeout is a term used to describe certain collective project requirements, indicating Work under this Contract that is fulfilled near the end of the Contract time in preparation for Final Completion, as well as Final Payment to the Contractor.
- C. Special requirements for individual units of work may be included in appropriate Specification Sections of this Project Manual.

1.2 RELATED SECTIONS

- A. Additional Contract closeout requirements may be provided as follows:
 - 1. PSU General Conditions
 - 2. Supplemental General Conditions
 - 3. Division 01, Submittal Procedures
 - 4. Other Sections of these Specifications

1.3 DEFINITIONS, N/A

1.4 PREREQUISITES TO FINAL COMPLETION AND PAYMENT

- A. The Contractor shall comply with all terms of PSU General Conditions Sections E.6 and I.1, unless otherwise amended herein, prior to filing Notice of Final Completion or requesting Final Payment.
- B. The Contractor shall return all keys requested for access to buildings and work areas and obtain a deposit refund, as specified in Division 01, Project Management and Coordination.
- C. The Contractor shall notify all Subcontractors in writing of incomplete and/or incorrect items and the anticipated filing of Final Completion. Notify far enough in advance of the completion date that the Work can be completed on schedule. Said Work shall be immediately corrected.
- D. Submit to the Owner's Authorized Representative Lien Releases in accordance with PSU General Conditions Section K.
- E. The Contractor shall provide the Owner with an unconditional Certificate of Occupancy from the local building officials, in accordance with PSU General Conditions Section K.
- F. Notify the Architect in writing that all items are complete and ready for Final Completion review and that the Work product is fully usable.
- G. Submit three (3) copies of all record documents for Final Completion review at this time.
- H. The Architect will review all documents. The Architect will review all Work that has been certified as complete to the best knowledge of the Contractor. The Architect will also list all remaining incomplete punchlist Work and assign a probable value and time to complete such uncompleted Work.

- I. The Architect will review the Work for conformance. Time is of an essence on this project. If the Work is found to be in nonconformance, the Architect will notify the Owner of the nonconforming items and probable value and time for completion. Nonconforming items will require retainage of monies to ensure that the Contractor will complete all Work within the time established by the Agreement and as amended by executed Change Orders.
- J. The Contractor shall make the required corrections to the Work expeditiously. Sufficient retainage monies will be held to pay for uncompleted Work, should the Contractor fail to perform. A letter will be addressed to the Contractor noting the project status and the monies available for a partial-final payment upon receipt of billing.
- K. When Contract closeout procedures are completed and all punchlist deficiencies have been corrected, final acceptance by the Owner will be documented. The Contractor will receive written notice of acceptance of the Work and notification that final payment may be billed and released. Note that final wage rate submittal and documentation of all BOLI fees are required prior to final payment.
- L. The Contractor shall be responsible for all parking citations received in relation with the project from the City of Portland and the Portland State University office of Transportation and Parking. All citations must be paid prior to submission of notice of Final Completion and Request for final Payment.
- M. All warranties shall commence and become effective in accordance with Section I of the PSU General Conditions and as modified by Supplemental General Conditions.

PART 2 - PRODUCTS

2.1 GENERAL DESCRIPTION

- A. Substantial Completion shall be defined per PSU General Conditions Section A.1, and Notification of Substantial Completion by the Contractor to the Owner shall be through the Architect as specified in the PSU General Conditions, Section K and the Supplemental General Conditions. See Division 01, Submittal Procedures for general Submittal Review Procedure.
- B. Submit Certificate of Substantial Completion with accompanying punchlist and date for punchlist completion to the Architect once the Contract Documents have been reviewed, Work has been inspected and all prerequisites to substantial competition have been addressed.
- C. Prior to signing the Certificate of Substantial Completion, the Architect will perform one Substantial Completion review of the Work. The Contractor shall pay the cost of additional Substantial Completion reviews of the Work.

2.2 FINAL CLEANING

- A. Perform final cleaning of all items of Work prior to Substantial Completion review of the Work. Employ professional cleaners for final cleaning as necessary. Complete the following prior to requesting Architect's review of the Work for Substantial Completion certification:
 - 1. Clean the Project Site and adjacent areas impacted by the Work, including landscaped and parking areas, or rubbish, litter and other foreign substances. Sweep paved areas to broom clean condition. Remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted to smooth, even-textured surface.
 - 2. Re-clean areas and equipment prior to inspection for Final Completion, if dirtied in completion of punchlist work.
- B. Unless otherwise directed by the Architect or Owner's Authorized Representative, remove temporary protective devices and facilities, which were installed during the course of the Work to protect previously completed work from the remainder of the construction to be completed, or to protect the public.
- C. Comply with all safety standards and governing regulations for cleaning and dispose of waste materials in accordance with Division 01, Cleaning and Waste management and the PSU General Conditions.

2.3 OPERATIONS & MAINTENANCE MANUALS

- A. The Contractor shall provide Operations and Maintenance Manuals for review and project record documentation in accordance with PSU General Conditions Section K and the Division 01, Submittal Procedures.
- B. The Operations and Maintenance Manuals shall contain all the information needed to operate, maintain and repair all systems, equipment, and product finishes provided in the Project. They shall be presented and arranged logically for efficient use by Owner's operation personnel. As a minimum, the information provided shall include, but not be limited to, the following:
 - 1. Table of contents divided specification name and number and sub-divided by product
 - 2. Contact information for all consultants, manufacturers, installer and suppliers including address, e-mail address, phone number, and reference order numbers.
 - 3. Warranties & Bonds as per Division 01, Execution and Closeout Requirements.

4. Product description including, but not limited to, manufacturer, product name or equipment make and model number (and other nameplate data), size and dimensions, color, Material Safety Data Sheets (and related product information), and other pertinent information
 5. Product finishes maintenance and cleaning instruction
 6. Performance and calibration data for specific product provided (extraneous catalog data must be eliminated)
 7. Descriptions and schematic diagrams of system assembly and configuration (including components and interrelations)
 8. Manufacturer's recommended equipment operating and maintenance instructions, including routine lubrication and servicing data, start-up and shutdown procedures, and any seasonal or emergency procedures
 9. Manufacturer's checklists and methods for troubleshooting
 10. Complete parts list with parts numbers indicating common replacement parts and anticipated useful life
 11. Training information as per Division 01, Execution and Closeout Requirements and PSU General Conditions Section K.
 12. Copies of: as-builts, any certificates from respective manufacturers, suppliers, and Subcontractors; permits and/or licenses, and; equipment maintenance and service contracts
- C. Separate manuals shall be provided by the Subcontractors (i.e. titled: MECHANICAL, ELECTRICAL, PLUMBING, etc.) and an additional manual provided by the General Contractor titled CLOSEOUT BOOK for all other information.
- D. As per PSU General Conditions Section K, Contractor shall deliver one complete and approved set of Operations and Maintenance Manuals in electronic form and three sets in paper form derived from and organized similarly to the electronic copy.
1. Electronic Operations and Maintenance Manuals shall comply with PDF/A (ISO 19005) or PDF/E (ISO 24517) standards and at a minimum must be full-text searchable, bookmarked similarly to the table of contents, and otherwise indexed or interlinked. File formats not natively supported by PDF shall be embedded into the PDF using the PDF/A-3 standard (ISO 19005-3) using open file formats wherever possible
 2. Hard copies shall bound in separate three-ring binders
 - a. Provide a cover slip sheet and a spine sheet typed with the Manual's name (e.g. Mechanical Operations and Maintenance Manual), PSU project name, PSU project number, PSU building locations, A/E name, Contractor name, and date. Label manuals consecutively (e.g. Mechanical 1 of 3).
 - b. Contents of the manual printed by contractor or subcontractors shall be printed on 8.5" x 11" permanent paper (as per latest revision of ANSI/NISO Z39.48-1992)
 - c. Architectural, Mechanical, Electrical, etc. manuals may be combined into one manual, with approval of Owner.

2.4 WARRANTIES & BONDS

- A. Provide all executed warranties and bonds, and any certificates from the respective manufacturers, suppliers, and Subcontractors or as specified in other Sections of this project manual.
- B. Include all required warranties and bonds in the Operations and Maintenance Manuals in accordance with Item 2.04 herein.
- C. List Subcontractor, supplier and manufacturer, with address and telephone number of responsible principles.
- D. Verify that documents are in proper form, are of an orderly sequence, contain all information, and are notarized as applicable.
- E. Co-execute documents as required.

2.5 PROJECT RECORD DOCUMENTS

- A. General: Project Record documents include the Contractor's as-built Drawings, as-built Specifications, and as-built Shop Drawings required by the Contract Documents. Project Record documents must be protected from deterioration and stored in a secure fire-resistant location.
- B. Submit three (3) copies of the Project Record Documents for review in accordance with Division 01, Submittal Procedures. The Project Record Documents shall be organized to include the following information:
 1. Title and date of Project, Owner's Project Number
 2. Team list
 3. Table of Contents
 4. Specifications
 5. As-Built Drawings (blueprints or photocopies)

6. Inspection Reports, as applicable
 7. Warranty(ies), as applicable
 8. Operations and Maintenance Instructions
 9. Approved and stamped Shop Drawings, Product Data and Samples as Division 01, Submittal Procedures
- C. Bind each copy of the Project Record Documents in a hard cover, three-ring binder with each Section clearly indexed with tabbed divider pages.
 - D. The project team list shall include the address and phone number of the Owner, Architect, Contractor, inspectors, subcontractors, and the materials manufacturers.
 - E. Legibly mark each Specification Section to indicate actual as-built conditions. The as-built Specifications shall clearly indicate changes in the Work made by Addendum and/or Change Order, actual materials used, and actual Manufacturer(s) used.
 - F. Legibly mark the drawings to indicate actual "as-built conditions." The drawings shall clearly indicate changes in the Work made by Addendum and/or Change Order. The Owner shall employ the Architect to modify CAD documents into a "recorded as-built" base for Owner's usage, based on information provided by Contractor.
 - G. Include inspection reports and Architect's field reports, if applicable.
 - H. Include a copy of required Warranty(ies) clearly marked to identify the Owner's responsibilities under the terms of the Warranty(ies).

2.6 CORRECTION AND RESUBMITTAL.

- A. As-built Drawings: Maintain black line prints of the bid set Contract Drawings and approved Shop Drawings. Mark the drawings to show new information that was not shown on the bid set Drawings, and on the approved Shop Drawings, including the actual installation where the installation varies substantively from the work as originally shown. Mark drawings to show conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
 1. Organize as-built Drawings in manageable sets, bind with durable paper cover sheets, and print suitable titles, dates, and other identification on the cover of each set.
 2. Mark with reproducible pencil and distinguish between variations in separate categories of the Work. Text size is to be 1/8" minimum. Good basic drafting practice must be applied.
 3. Show bid addenda items, Change Orders, and Request for Information (RFI) responses by their number, and date the revisions with a "cloud" around the revision.
 4. Keep accurate measurements of below-grade site work, including permanent shoring
 5. Show mechanical dampers, valves, reheat boxes, cleanouts, and other equipment and items that require maintenance.
 6. Show location of construction-concealed mechanical, electrical and plumbing (MEP) riser installations including, but not limited to, piping, ductwork, and conduits referenced to visible and accessible features.
 7. Show field changes of dimensions and details.
 8. X-out conditions not constructed and appropriately annotate "not constructed" to convey the actual as constructed condition.
- B. As-built Specifications: Maintain one (1) copy of the bid set Contract Specifications showing all addenda, substitutions, Change Orders, and RFIs. Give particular attention to the selection of options, changes in product data, and information on elements engineered by the Contractor and note related as-built Drawing information, as appropriate. Clear, legible documentation must be applied.
- C. As-built Shop Drawings: The Contractor shall comply with the following CAD (Computer-Aided Drafting) standards and requirements when preparing as-built record Shop Drawings required by the Contract Documents.
 1. Cover sheets shall contain a complete index of all sheets.
 2. Standard drafting practice shall be:
 - a. Title block
 - 1) All sheets shall have a title block.
 - 2) Title block information is to be on the right side of the sheet.
 - 3) Title blocks shall include the following information:

- a) Date
 - b) PSU Project Name
 - c) PSU Project Number
 - d) PSU Facility Name
 - e) Sheet title and description
 - f) Sheet number including discipline designator
 - g) Contractor or Subcontractor company name
 - h) A/E's Seal (whoever prepared the document)
 - i) A Key Plan
- b. Scale and Units:
- 1) All objects are to be drawn at full scale for the assigned unit of measure.
 - 2) All drawings are to have a unit of measure assigned and not set to "unitless."
- c. External references usage in CAD Documents: External references are not allowed for submittals. All external references are to be bound using the "bind" option, instead of the "insert" option.
- d. Area of Work: CAD drawings shall include a boundary that defines the area of work, showing only the area where work is performed.

PART 3 - EXECUTION, N/A

END OF SECTION 01 77 00

SECTION 02 41 16 - STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

- A. The Work of this Section Includes:
 - 1. Demolition and removal of buildings or structures.
 - 2. Demolition and removal of site improvements.
 - 3. Abandoning in-place below-grade construction.
 - 4. Removing below-grade construction.
 - 5. Disconnecting, capping or sealing, and abandoning in-place site utilities.
 - 6. Disconnecting, capping or sealing, and removing site utilities.
 - 7. Salvaging items for reuse by Owner.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for use of the premises and phasing requirements.
 - 2. Section 013200 "Construction Progress Documentation" for preconstruction photographs taken before building demolition.
 - 3. Section 024119 "Selective Demolition" for partial demolition of buildings, structures, and site improvements.
 - 4. Section 311000 "Site Clearing" for site clearing and removal of above- and below-grade site improvements that are not part of building demolition.

1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged.
- B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to Owner as indicated. Include fasteners or brackets needed for reattachment elsewhere.

1.3 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
 - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.4 COORDINATION

- A. Arrange demolition schedule so as not to interfere with operations of adjacent occupied buildings .

1.5 PREINSTALLATION MEETINGS

- A. Pre-demolition Conference: Conduct conference at Project site .
 - 1. Inspect and discuss condition of construction to be demolished.
 - 2. Review structural load limitations of existing structures.
 - 3. Review and finalize building demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review and finalize protection requirements.
 - 5. Review procedures for noise control and dust control .
 - 6. Review procedures for protection of adjacent buildings.
 - 7. Review storage, protection, and accounting for items to be salvaged and returned to Owner.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Statements: For refrigerant recovery technician .
- B. Engineering Survey: Submit engineering survey of condition of building.
- C. Survey of Existing Conditions: Submit survey.
- D. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property , for environmental protection , for dust control and , for noise control . Indicate proposed locations and

construction of barriers.

1. Adjacent Buildings: Detail special measures proposed to protect adjacent buildings to remain including means of egress from those buildings .

E. Schedule of Building Demolition Activities: Indicate the following:

1. Detailed sequence of demolition work, with starting and ending dates for each activity.
2. Temporary interruption of utility services. Indicate how long services will be interrupted.
3. Coordination for shutoff and capping of utility services.

F. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed in accordance with EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.7 CLOSEOUT SUBMITTALS

- A. Inventory: Submit a list of items that have been removed and salvaged.

1.8 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Universal certified by an EPA-approved certification program.

1.9 FIELD CONDITIONS

- A. Buildings to be demolished will be vacated and their use discontinued before start of the Work.
- B. Buildings immediately adjacent to demolition area will be occupied. Conduct building demolition so operations of occupied buildings will not be disrupted.
1. Provide not less than 72 hours' notice of activities that will affect operations of adjacent occupied buildings.
 2. Maintain access to existing walkways, exits, and other facilities used by occupants of adjacent buildings.
 - a. Do not close or obstruct walkways, exits, or other facilities used by occupants of adjacent buildings without written permission from authorities having jurisdiction.
- C. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
1. Before building demolition, Owner will remove the following items:
- D. Hazardous Materials:
1. Hazardous Materials and Abatement Report will be provided by the Owner for review and use. Examine report to become aware of locations where hazardous materials are present.
 - a. If additional materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. See Section 01 31 00, Project Management and Coordination and Section 01 74 00 Cleaning and Waste Management for additional information.
- E. On-site sale of removed items or materials is not permitted.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

2.2 SOIL MATERIALS

- A. Satisfactory Soils: Comply with requirements in Section 312000 "Earth Moving."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting demolition operations.
- B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

- C. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during building demolition operations.
- D. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

3.2 PREPARATION

- A. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations. Maintain exits from existing buildings.
- B. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished.
 - 1. Strengthen or add new supports when required during progress of demolition.
- C. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction and as indicated. Comply with requirements in Section 015000 "Temporary Facilities and Controls."
 - 1. Protect adjacent buildings and facilities from damage due to demolition activities.
 - 2. Protect existing site improvements, appurtenances, and landscaping to remain.
 - 3. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
 - 4. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 5. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.
 - 6. Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.
 - 7. Erect and maintain dustproof partitions and temporary enclosures to limit dust, noise, and dirt migration to occupied portions of adjacent buildings.
- D. Existing Utilities to Remain: Maintain utility services to remain and protect against damage during demolition operations.
 - 1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.
- E. Existing Utilities to Be Disconnected: Locate, identify, disconnect, and seal or cap off utilities serving buildings and structures to be demolished.
 - 1. Arrange to shut off utilities with utility companies.
 - 2. If disconnection of utility services will affect adjacent occupied buildings, then provide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity of service to other buildings and structures.
 - 3. Cut off pipe or conduit a minimum of 24 inches below grade at or outside the building or structure to be demolished and cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing in accordance with requirements of authorities having jurisdiction.
 - 4. Do not start demolition work until utility disconnecting and sealing have been completed and verified in writing by authorities having jurisdiction.
- F. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment in accordance with 40 CFR 82 and regulations of authorities having jurisdiction.

3.3 DEMOLITION, GENERAL

- A. General: Demolish indicated buildings completely. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
 - 2. Maintain fire watch during and for at least 2 hours after flame-cutting operations.
 - 3. Maintain adequate ventilation when using cutting torches.
 - 4. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
- B. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed trafficways if required by authorities having jurisdiction.
 - 2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or

objectionable conditions, such as ice, flooding, and pollution.

- C. Explosives: Use of explosives is not permitted.

3.4 DEMOLITION BY MECHANICAL MEANS

- A. Proceed with demolition of structural framing members systematically, from higher to lower level. Complete building demolition operations above each floor or tier before disturbing supporting members on the next lower level.
- B. Remove debris from elevated portions of the building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
 - 1. Remove structural framing members and lower to ground by method suitable to minimize ground impact and dust generation.
- C. Below-Grade Construction:
 - 1. Abandon foundation systems and other below-grade construction. Cut below-grade construction flush with grade.
- D. Existing Utilities:
 - 1. Abandon existing utilities and below-grade utility structures. Cut utilities flush with grade.
- E. Hydraulic Elevator Systems: Demolish and remove elevator system, including cylinder, plunger, well assembly, steel well casing and liner, oil supply lines, and tanks.

3.5 SITE RESTORATION

- A. Below-Grade Areas:
 - 1. Completely fill below-grade areas and voids resulting from building demolition operations with satisfactory soil materials in accordance with backfill requirements in Section 312000 "Earth Moving."

3.6 REPAIRS

- A. Promptly repair damage to adjacent buildings caused by demolition operations.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site and recycle or dispose of them in accordance with Section 017419 "Construction Waste Management and Disposal."
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Do not burn demolished materials.

3.8 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.
 - 1. Clean roadways of debris caused by debris transport.

END OF SECTION 02 41 16

SECTION 31 10 00 – SITE CLEARING

PART 1 - GENERAL

1.1 Summary

- A. This section applies to work on private property only. Work in the public right of way shall be constructed in accordance with applicable sections of the City of Portland Standard Construction Specifications, 2010.
- B. Section Includes:
 - 1. Removing existing vegetation.
 - 2. Clearing and grubbing.
 - 3. Removing above- and below-grade site improvements.
 - 4. Disconnecting, capping or sealing site utilities.
 - 5. Temporary erosion- and sedimentation-control measures.

1.2 MATERIAL OWNERSHIP

- A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.3 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
- C. Do not commence site clearing operations until temporary erosion- and sedimentation-control measures are in place.
- D. The following practices are prohibited within protection zones:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Parking vehicles or equipment.
 - 3. Foot traffic.
 - 4. Erection of sheds or structures.
 - 5. Impoundment of water.
 - 6. Excavation or other digging unless otherwise indicated.

PART 2 - EXECUTION

2.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

2.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.

- B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
- D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

2.3 TREE AND PLANT PROTECTION

- A. General: Protect trees and plants remaining on-site according to requirements in Division 01 Section "Temporary Tree and Plant Protection."
- B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.

2.4 EXISTING UTILITIES

- A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.
 - 1. Arrange with utility companies to shut off indicated utilities.
- B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Owner not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Owner's written permission.
- C. Removal of underground utilities is included in Division 33 Sections.

2.5 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
 - 1. Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches (450 mm) below exposed subgrade.
 - 2. Use only hand methods for grubbing within protection zones.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 - 1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches (200 mm), and compact each layer to a density equal to adjacent original ground.

2.6 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil to depth of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.
- C. Remove all sod and grass, and topsoil stripping from project site.

2.7 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

2.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
- B. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

PART 3 - EXECUTION, N/A

END OF SECTION 31 10 00

SECTION 31 20 00 – EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specifications Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Preparing subgrades for lawns, grasses and exterior plants.
 - 2. Excavating and backfilling for buildings and structures.
 - 3. Backfill at retaining structures.

1.3 DEFINITIONS

- A. Backfill: Soil material used to fill an excavation
- B. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- C. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
 - 1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
 - 2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.
- D. Fill: Soil materials used to raise existing grades.
- E. Structural Fill: Fill material used beneath foundations and other areas intended to support structures, or within the influence zones of structures.
- F. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- G. Subbase Course: Aggregate layer placed between the subgrade and a cement concrete pavement.
- H. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill, backfill immediately below subbase, or topsoil materials.
- I. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Owner and then only after arranging to provide temporary utility services according to requirements indicated.
- B. Existing Site Conditions: The existing site conditions shown are based on as-built drawings, and "surface" field survey. Any discrepancies shall be report to the Architect for resolution or re-design.
- C. Contaminated Soils: This site may have contaminated soils.

1.5 SUBMITTALS

- A. Product Data: For each type of the following manufactured products required:
 - 1. Controlled low-strength material, including design mixture.
- B. Remaining paragraphs are defined in Division 01 Section "Submittal Procedures" as "Informational Submittals."
- C. Coordinate first paragraph below with qualification requirements in Division 01 Section "Quality Requirements" and as supplemented in "Quality Assurance" Article.

- D. Qualification Data: For qualified testing agency.
- E. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:
 - 1. Classification according to ASTM D 2487.
 - 2. Laboratory compaction curve according to ASTM D 1557.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Structural fills should be placed over prepared subgrade. Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: On-site material is suitable for use as general structural fill but not for building foundations provided the material is reprocessed and evaluated by a geotechnical engineer prior to use.
- C. Structural Fill: Structural Fill Material should be granular material such as crushed aggregate with a maximum size of up to 2 inches. The imported granular material shall have less than 5 percent passing the U.S. Standard No. 200 Sieve. All material used as structural fill shall be free from organic matter or other unsuitable materials.
- D. Stabilization Material: Shall consist of pit or quarry run rock, crushed rock, or crushed gravel and sand and shall meet the requirements of ODOT SS 00330.14 and 00330.15. Material size shall consist of 4- to 6-inch minus material, and have less than 5 percent passing the U.S. Standard No. 4 sieve. The material shall be free of organic matter and other deleterious material.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface.
- C. Protect and maintain erosion and sedimentation controls during earthwork operations.

3.2 DEWATERING

- A. Prevent surface water and groundwater from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

3.3 EXCAVATION

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
 - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.4 EXCAVATION FOR STRUCTURES

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
 - 1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.5 SUBGRADE INSPECTION

- A. Notify Geotechnical Engineer when excavations have reached required subgrade.

- B. Geotechnical Engineer of Record or their representative to confirm suitable bearing conditions and evaluate subgrade. If Geotechnical Engineer determines that unsatisfactory soil is present, continue excavation and replace with compacted fill material or subgrade stabilization as directed.
- C. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Geotechnical Engineer, and replace with compacted backfill or fill or subgrade stabilization as directed.
- D. Authorized additional excavation and replacement material will be paid for according to Contract provisions.
- E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.6 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Architect.
 - 1. Fill unauthorized excavations under other construction or utility pipe as directed by Architect.

3.7 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.8 SOIL FILL

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations as follows:
 - 1. Under grass and planted areas, use satisfactory soil material.
 - 2. Under footings and foundations, use structural fill.

3.9 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
 - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
 - 2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.10 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. Place backfill and fill soil materials in layers not more than:
 - 1. On-site backfill or fill soil material: 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
 - 2. Pavement Base Course: 12 inches in loose depth.
 - 3. Imported Granular Material: 12 inches in loose depth.
- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil materials to not less than the following percentages of maximum dry density according to ASTM D 1557:
 - 1. Under structures, scarify and recompact top 12 inches of existing subgrade and each layer of:
 - a. On-site backfill or fill soil material at 92 percent.
 - b. Imported Granular material: at 95 percent.

2. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.
 3. Stabilization material: Compact to firm condition.
- D. Backfill at retaining structures: Fill located within 3 horizontal feet from the retaining wall shall be compacted to 90 percent of ASTM D 1557. Compact in 6-inch thick loose lifts with hand-operated tamping equipment (such as jumping jack or vibratory plate compactor).

3.11 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
- B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
1. Lawn or Unpaved Areas: Plus or minus 1 inch.
 2. Walks: Plus or minus 1 inch.
 3. Pavements: Plus or minus 1/2 inch.
- C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.12 BASE COURSES

- A. Place base course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place base course under pavements and walks as follows:
1. Shape base course to required crown elevations and cross-slope grades.
 2. Place in 12 inch maximum uncompacted thicknesses.
 3. Compact base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.13 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
- C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.
- D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable.
- E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.14 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.15 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 31 20 00

SECTION 31 25 00 – EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. Erosion/Sedimentation Control (ESC) is required on this project. Construction of all erosion control measures shall be in accordance with the City of Portland Erosion and Sediment Control guidelines.
- B. The implementation of the ESC and the construction, maintenance, replacement, and upgrading of these ESC facilities is the responsibility of the Contractor until all construction is completed and approved and the final vegetation/landscaping is established.
- C. This section describes temporary measures and monitoring to control water pollution, soil erosion, and siltation. Erosion, sediment, and pollutant control (ESC) devices or methods include the use of construction entrances, tree protection fences, diversion dikes, check dams, sediment basins and traps, compost filter sock sediment barriers, compost blanket mulch, gravel, mulches, sediment barriers, grasses, slope drains, and other techniques.
- D. The boundaries of the clearing limits and limits of grading shown on this plan shall be clearly flagged in the field prior to construction. During the construction period, no disturbance beyond the flagged clearing area shall be permitted. The flagging shall be maintained by the Contractor for the duration of the construction.
- E. The ESC facilities shown on this plan and/or details must be constructed in conjunction with all mass grading and site utility construction, in such a manner as to ensure that sediment and sediment laden water does not enter the drainage system, roadways, or violate applicable water standards.
- F. The ESC facilities shown on the plan and/or details are the minimum requirements for anticipated site conditions. During the construction period, these ESC facilities shall be upgraded as needed for unexpected storm events or site conditions to ensure that sediment and sediment-laden water do not leave the site.
- G. Related Sections
 - 1. 31 10 00 – Site Clearing
 - 2. 31 20 00 – Earth Moving

PART 2 - PRODUCTS

2.1 GENERAL

- A. All materials shall conform to the applicable requirements of City of Portland Erosion and Sediment Control Manual.
- B. All materials used in conjunction with this work shall be considered incidental to the work.

PART 3 - EXECUTION

3.1 GENERAL

- A. The implementation of the ESC measures and the construction, performance monitoring, maintenance, replacement, and upgrading of the ESC measures are the responsibility of the Contractor until all construction is completed and accepted and vegetation/landscaping and paving is established.
- B. The ESC measures shown on the drawings shall be constructed in conjunction with all clearing, grading, trenching, and earthwork activities and in a manner that ensures that sediment and sediment-laden water do not enter the drainage system, roadways, or violate applicable water quality standards.
- C. The ESC measures shown on the drawings are the minimum requirements for anticipated site conditions and Contractor methods and sequences. During the construction period, the ESC measures shall be upgraded as needed for unexpected conditions, storm events, or Contractor methods or sequences and to ensure that sediment and sediment-laden water do not leave the site.
- D. The Contractor shall be responsible for implementing temporary erosion control measures during construction to correct unforeseen conditions. The Contractor shall be responsible for additional erosion control due to the Contractor's negligence, carelessness, or failure to install planned controls as a part of the work.
- E. Implementation, construction, and maintenance of ESC measures shall be in accordance with the City of Portland Erosion and Sediment Control Manual.
- F. Do not begin soil disturbance activities until perimeter ESC measures are in place.
- G. The erosion control drawings together with the specifications constitute the ESC plan. A copy of the ESC plan shall be retained on site and made available to the City of Portland staff upon request.

- H. Inspections shall be made in accordance with City of Portland permit requirements. Inspection logs shall be kept in accordance with City of Portland Erosion and Sediment Control Manual requirements.

3.2 CONSTRUCTION DETAILS

- A. Stabilized construction entrances will be constructed at the beginning of construction. These entrances shall be maintained by the contractor of this project for the duration of the project. Additional measures may be required to ensure that all paved areas adjacent to the project are kept clean for the duration of the project.
- B. Preserve existing vegetation where practicable and revegetate open areas after grading or construction.
- C. Provide ongoing maintenance, repair, and restoration of ESC measures to keep them continually functional.
- D. When trucking saturated soils from the site, either watertight trucks shall be used, or loads shall be drained on-site until dripping has been reduced to minimize spillage on roads and streets.
- E. Clean all catch basins and inlets protected from sediment prior to paving and final acceptance. The cleaning operation shall not flush sediment laden water into the downstream system.
- F. Sediment fences, bio-bags, and straw bale barriers shall be removed when they have served their useful purpose and when approved by the engineer, but not before the upslope area has been permanently stabilized.

END OF SECTION