

**PORT OF HOOD RIVER**

**SPECIAL PROVISIONS**

**FOR**

**KEN JERNSTEDT AIRFIELD  
AVIATION TECHNOLOGY & EMERGENCY RESPONSE CENTER**

**PROFESSIONAL OF RECORD CERTIFICATION**

Seal w/signature	<p>I certify the Special Provision Sections listed below are applicable to the design for the subject project for <b>Excavation, Earthwork, Storm Work, Curb, Sidewalks, and Paving.</b></p> <p>Modified Special Provisions were prepared by me or under my supervision.</p> <p>Sections: <b>00100's, 00200's 00300's, 00400's, 00600's, 00700's, 00800's, 00900's, 01000's, Materials</b></p>
Date Signed: _____	

## TABLE OF CONTENTS

<b>SECTION 00110 – ORGANIZATION, CONVENTIONS, ABBREVIATIONS, AND DEFINITIONS .....</b>	<b>4</b>
<b>SECTION 00120 – BIDDING REQUIREMENTS AND PROCEDURES .....</b>	<b>4</b>
<b>SECTION 00130 – AWARD AND EXECUTION OF CONTRACT .....</b>	<b>6</b>
<b>SECTION 00140 – SCOPE OF WORK.....</b>	<b>7</b>
<b>SECTION 00150 – CONTROL OF WORK.....</b>	<b>8</b>
<b>SECTION 00160 – SOURCE OF MATERIALS.....</b>	<b>8</b>
<b>SECTION 00165 – QUALITY OF MATERIALS .....</b>	<b>9</b>
<b>SECTION 00170 – LEGAL RELATIONS AND RESPONSIBILITIES .....</b>	<b>10</b>
<b>SECTION 00180 – PROSECUTION AND PROGRESS.....</b>	<b>11</b>
<b>SECTION 00190 – MEASUREMENT OF PAY QUANTITIES .....</b>	<b>14</b>
<b>SECTION 00195 – PAYMENT .....</b>	<b>15</b>
<b>SECTION 00196 – PAYMENT FOR EXTRA WORK .....</b>	<b>15</b>
<b>SECTION 00197 – PAYMENT FOR FORCE ACCOUNT WORK .....</b>	<b>15</b>
<b>SECTION 00199 – DISAGREEMENTS, PROTESTS, AND CLAIMS .....</b>	<b>15</b>
<b>SECTION 00210 – MOBILIZATION.....</b>	<b>15</b>
<b>SECTION 00220 – ACCOMMODATIONS FOR PUBLIC TRAFFIC.....</b>	<b>16</b>
<b>SECTION 00225 – WORK ZONE TRAFFIC CONTROL.....</b>	<b>16</b>
<b>SECTION 00230 – AIRPORT SAFETY .....</b>	<b>17</b>
<b>SECTION 00235 – FOD PREVENTION CONTROLS .....</b>	<b>22</b>
<b>SECTION 00240 – TEMPORARY DRAINAGE FACILITIES.....</b>	<b>23</b>
<b>SECTION 00280 – EROSION AND SEDIMENT CONTROL.....</b>	<b>23</b>
<b>SECTION 00290 – ENVIRONMENTAL PROTECTION .....</b>	<b>25</b>
<b>SECTION 00305 – CONSTRUCTION SURVEY WORK.....</b>	<b>31</b>
<b>SECTION 00310 – REMOVAL OF STRUCTURES AND OBSTRUCTIONS.....</b>	<b>32</b>
<b>SECTION 00320 – CLEARING AND GRUBBING.....</b>	<b>32</b>
<b>SECTION 00330 – EARTHWORK.....</b>	<b>33</b>
<b>SECTION 00331 – SUBGRADE STABILIZATION .....</b>	<b>37</b>
<b>SECTION 00340 – WATERING.....</b>	<b>37</b>
<b>SECTION 00350 – GEOSYNTHETIC INSTALLATION .....</b>	<b>37</b>
<b>SECTION 00390 – RIPRAP PROTECTION.....</b>	<b>38</b>
<b>SECTION 00405 – TRENCH EXCAVATION, BEDDING, AND BACKFILL.....</b>	<b>38</b>
<b>SECTION 00415 – VIDEO PIPE INSPECTION.....</b>	<b>39</b>
<b>SECTION 00445 – SANITARY, STORM, CULVERT, SIPHON, AND IRRIGATION PIPE .....</b>	<b>39</b>
<b>SECTION 00470 – MANHOLES, CATCH BASINS, AND INLETS .....</b>	<b>40</b>
<b>SECTION 00490 – WORK ON EXISTING SEWERS AND STRUCTURES .....</b>	<b>44</b>
<b>SECTION 00495 – TRENCH RESURFACING.....</b>	<b>44</b>
<b>SECTION 00640 – AGGREGATE BASE AND SHOULDERS.....</b>	<b>45</b>
<b>SECTION 00730 - EMULSIFIED ASPHALT TACK COAT .....</b>	<b>47</b>
<b>SECTION 00745 – ASPHALT CONCRETE PAVEMENT – STATISTICAL ACCEPTANCE .....</b>	<b>47</b>
<b>SECTION 00756 – PLAIN CONCRETE PAVEMENT .....</b>	<b>47</b>
<b>SECTION 00759 – MISCELLANEOUS PORTLAND CEMENT CONCRETE STRUCTURES .....</b>	<b>47</b>
<b>SECTION 00815 – BOLLARDS .....</b>	<b>47</b>
<b>SECTION 00842 – FACILITY MARKERS .....</b>	<b>47</b>

SECTION 00850 – COMMON PROVISIONS FOR PAVEMENT MARKINGS.....	48
SECTION 00860 – LONGITUDINAL PAVEMENT MARKINGS - PAINT .....	48
SECTION 00867 – TRANSVERSE PAVEMENT MARKINGS – LEGENDS AND BARS.....	48
SECTION 00920 – SIGN SUPPORT FOOTINGS .....	48
SECTION 00930 – METAL SIGN SUPPORTS .....	48
SECTION 00940 – SIGNS .....	49
SECTION 00941 – SIGN COVERS.....	49
SECTION 00950 – AIRCRAFT FUELING SYSTEM PROVISIONS (FUEL FARM).....	49
SECTION 00960 – COMMON PROVISIONS FOR ELECTRICAL SYSTEMS .....	63
SECTION 00962 – METAL ILLUMINATION AND TRAFFIC SIGNAL SUPPORTS .....	63
SECTION 01030 – SEEDING .....	63
SECTION 01040 – PLANTING .....	65
SECTION 01050 – FENCES.....	65
SECTION 01140 – POTABLE WATER PIPE FITTINGS .....	65
SECTION 01150 – POTABLE WATER VALVES .....	67
SECTION 01160 – HYDRANTS AND APPURTENANCES .....	67
SECTION 02001 – CONCRETE .....	67
SECTION 02010 – PORTLAND CEMENT.....	67
SECTION 02020 – WATER .....	67
SECTION 02050 – CURING MATERIALS.....	67
SECTION 02060 – CONCRETE AND CRACK SEALERS .....	67
SECTION 02070 – BONDING AGENTS.....	68
SECTION 02080 – GROUT .....	68
SECTION 02320 – GEOSYNTHETICS.....	68
SECTION 02410 – CONCRETE PIPE .....	68
SECTION 02415 – PLASTIC PIPE.....	68
SECTION 02420 – METAL PIPE.....	68
SECTION 02440 – JOINT MATERIALS .....	68
SECTION 02450 – MANHOLES AND INLET MATERIALS.....	68
SECTION 02470 – POTABLE WATER PIPE MATERIALS.....	68
SECTION 02475 – POTABLE WATER FITTING MATERIALS .....	69
SECTION 02480 – POTABLE WATER VALVE MATERIALS .....	69
SECTION 02485 – HYDRANT AND APPURTENANCE MATERIALS .....	69
SECTION 02510 – REINFORCEMENT .....	70
SECTION 02560 – FASTENERS.....	70
SECTION 02610 – AGGREGATE .....	70
SECTION 02630 – BASE AGGREGATE.....	70
SECTION 02640 – SHOULDER AGGREGATE.....	70
SECTION 02690 – PCC AGGREGATE .....	70
SECTION 02910 – SIGN MATERIALS.....	70
SECTION 02920 – COMMON ELECTRICAL MATERIALS.....	70
SECTION 02926 – HIGHWAY ILLUMINATION MATERIALS .....	71
SECTION 03020 – EROSION MATERIALS .....	71

## **SECTION 00110 – ORGANIZATION, CONVENTIONS, ABBREVIATIONS, AND DEFINITIONS**

Comply with Section 00110 of the Standard Specifications, modified as follows:

**00110.20 Definitions** - Add the following after the first paragraph:

This is a Port of Hood River project. Substitute terms pertaining to:

- Engineer with Executive Director or his authorized representatives
- Agency with the Port of Hood River
- Owner with the Port of Hood River
- Department with the Port of Hood River
- Construction Contracts Unit with the Port of Hood River
- Other like terms with Port of Hood River substitutes

## **SECTION 00120 – BIDDING REQUIREMENTS AND PROCEDURES**

Replace Section 00120 of the Standard Specifications, except for the Section number and title, with the following:

Comply with the applicable sections within “Information to Bidders” located within this booklet and supplemented and/or modified as follows:

The Agency will regularly evaluate the performance of Contractors on its projects for purposes of responding to reference checks, future prequalification and determinations of responsibility.

The plans, which are applicable to the work to be performed under the contract, bear title and date as follows:

### **KEN JERNSTEDT AIRFIELD AVIATION TECHNOLOGY & EMERGENCY RESPONSE CENTER**

Other documents referenced in the Bid Documents, including the Plans and Specifications, are part of the bid documents by reference. These include, but are not limited to:

- The Port of Hood River General Conditions for Public Works Contracts
- The "Oregon Standard Specifications for Construction", 2018 Edition, as published by the Oregon Department of Transportation (ODOT).
- The current edition Oregon Standard Drawings as of the date of the bid
- Manual of Field Test Procedures
- The "Construction Manual", current edition, published by ODOT.

Examination of Work Site and Bidding Documents - Before submitting a bid, bidders shall carefully examine the site of the proposed work, the bid booklet, plans, and specifications. Submission of a bid will be considered proof that the bidder has examined the site and bidding documents and understands the conditions to be encountered in performing the work and all requirements of the contract.

The Port or its employees or agents will not be responsible for loss or unanticipated costs suffered by the bidder because the bidder failed to become fully informed about all conditions of the work. Any explanation or interpretation of plans and specifications needed by the bidder shall be requested in writing and directed to the following:

All questions regarding the project should be directed via email (not phone) to **Anne Medenbach** at [amedenbach@portofhoodriver.com](mailto:amedenbach@portofhoodriver.com). Questions and answers will be posted on the Port of Hood River RFP Bid Center web page. Contractor names will not be included.

The request shall be made in sufficient time for the reply to reach all bidders before submission of the bidder's bid. No requests will be answered that are submitted less than 10 days prior to the bid submission deadline. Refer to "Information to Bidders". Oral explanations or interpretations given before receiving bids for a project will not be binding. To be binding, interpretation of the plans and specifications by the Port must be made by written addendum or written clarification furnished to all plan holders.

Changes to Plans, Specification, or Quantities before Opening of Bids - The Port reserves the right to issue addenda making changes or corrections to the plans, specification, or quantities. Only holders of bidding documents obtained from the Port of Hood River website will be notified of these changes or corrections by email, sent to the bidder's email address as it appears on the plan holder's list files.

The Port will not be responsible for failure of bidders to receive addenda sent as described in the preceding paragraph. Bids will be rejected if opened and found not to be based on changes or corrections sent before bids were opened.

Disqualification of Bidders - Any of the following reasons may be sufficient to disqualify a bidder and cause its proposal(s) to be rejected:

- More than one proposal for the same work from an individual, partnership, corporation, or joint venture under the same or different name
- Evidence of collusion among bidders. Participants in collusion will be found not responsible, and may be subject to criminal prosecution
- The reasons cited in ORS 279.037

A bidder will be disqualified if the bidder has:

- Not been prequalified as required by the Information for Bidders
- Been declared ineligible by the Commissioner of the Bureau of Labor and Industries under ORS 279.361
- Not registered with the Oregon Construction Contractors Board or been licensed by State Landscape Contractors Board before submitting a bid (ORS 279.025(2)(k) and

671.530). The bidder's registration number and expiration date shall be shown in the proposal form, if requested. Failure to furnish the registration number, if requested, will render the bid non-responsive and subject to rejection. (Not required on Federal-Aid projects.)

## **SECTION 00130 – AWARD AND EXECUTION OF CONTRACT**

Comply with Section 00130 of the Standard Specifications, modified as follows:

Insert the following paragraph at the beginning of this section:

Comply with the applicable sections within "Information to Bidders" located within this booklet. In the event of a discrepancy between the Information to Bidders and the information below, the Information to Bidders shall prevail.

**00130.10 Award of Contract** - Replace the paragraph that begins with "The Agency will provide Notice..." with the following:

The Agency will provide Notice of Intent to Award on the Port of Hood River web site at <https://portofhoodriver.com/projects/rfp-bid-center/>.

**00130.15 Right to Protest Award** - Replace this subsection, except for the subsection number and title, with the following:

Within 7 calendar days following the date of Notice of Intent to Award, any adversely affected or aggrieved Bidder may submit a written protest to the Purchasing Supervisor in accordance with Part 1.10 of Book 1 of these documents. The protest shall specify the grounds upon which the protest is based.

The Agency is not obligated to consider late protests.

**00130.30 Contract Booklet** - Replace this subsection with the following:

**00130.30 Contract Document** - The Contract Document may include but is not limited to:

- The "Oregon Standard Specifications for Construction", 2018 Edition, as published by the Oregon Department of Transportation.
- Special Provisions
- Addenda
- Schedule of Items
- Contract Agreement
- Performance Bond
- Payment Bond
- Certification of workers' compensation coverage
- Manual of Field Test Procedures
- Project Plans

- Other documents included by reference.

**00130.40(c) Workers' Compensation** - Replace this subsection, except for the subsection number and title, with the following:

To certify compliance with the workers' compensation insurance coverage required by 00170.61(a) and 00170.70(d), the successful Bidder shall provide evidence of such insurance coverage acceptable to the Agency.

**00130.50(a) By the Bidder** - Replace the first paragraph with the following:

The successful Bidder shall deliver the required number of copies of Book 1 of the Bid Documents with a properly executed Contract Agreement, Performance Bond, Payment Bond, evidence of Workers' Compensation Coverage, and the required Certificate of Insurance to the Agency within 10 calendar days after the date that the Contract Documents were postmarked and sent to the Bidder in accordance with 00130.10. The Bidder shall return the originals of all documents received from the Agency and named in this subsection, with original signatures. Certificates of insurance shall also be originals. Certificates of insurance for coverages that are permitted by the Agency under 00170.70(a) to be obtained by appropriate Subcontractors shall be delivered by the Contractor to the Agency together with the Contractor's request under 00180.21 for approval of the subcontract with that Subcontractor. Copies of these documents will not be accepted by the Agency.

**00130.50(b) By the Agency** - Replace "7 Calendar Days" with "14 Calendar Days".

**00130.80 Project Site Restriction** - Replace this subsection, except the subsection number and title, with the following:

The Contractor shall not have authority to go onto the project property or to move Materials, Equipment, or workers onto that property on which the Work is to be done until the Contractor has filed the public works bonds required in 00170.20 and not before the date stated in the "First Notification".

## **SECTION 00140 – SCOPE OF WORK**

Comply with Section 00140 of the Standard Specifications, modified as follows:

Insert the following paragraph at the beginning of this section:

Comply with the Port of Hood River General Conditions for Public Works Contracts located within this booklet. In the event of a discrepancy between the Port of Hood River General Conditions and the information below, the Port of Hood River General Conditions shall prevail.

**00140.40 Differing Site Conditions** – Add the following paragraph after the sentence that ends with "is required":

Changes of alignment and grade made during the course of work in order to avoid interference with utilities shown on the contract drawings does not constitute differing Project Site conditions. The Contractor shall locate existing utilities shown on the contract drawings to be crossed by

potholing ahead of any pipe installation at a sufficient distance (minimum of 300 feet) to avoid conflicts with manhole installation, main line pipe, or laterals. The Port has made a good faith effort to identify the underground facilities. Additional utilities may not be shown on the drawings and should be anticipated as a normal event with underground construction. All cost for changes of alignment and grade shall be borne by the Contractor.

## **SECTION 00150 – CONTROL OF WORK**

Comply with Section 00150 of the Standard Specifications, modified as follows:

**00150.10(a) Order of Precedence** – Replace this subsection, except for the subsection number and title, with the following:

**00150.15(b) Agency Responsibilities** - Replace this subsection, except for the subsection number and title, with the following:

The Engineer will perform the Agency responsibilities described in the Construction Surveying manual for Contractors, Chapter 1.5 (see Section 00305).

**00150.15(c) Contractor Responsibilities** - Replace this subsection with the following:

The Contractor will perform the Agency responsibilities described in the Construction Surveying manual for Contractors, Chapter 1.6 (see Section 00305).

Perform earthwork slope staking for stormwater management facilities, site/roadway embankment and any other miscellaneous features shown on the plans that require information to properly locate and construct.

**00150.50(e) Notification** – Add the following paragraph to the end of this subsection:

The Project is located within the Oregon Utility Notification Center area which is a Utilities notification system for notifying owners of Utilities about Work being performed in the vicinity of their facilities. The Utilities notification system telephone number is 811 (or use the old number which is 1-800-332-2344).

**00150.60 Construction Equipment Restrictions** – Add the following subsection:

**00150.60(d) Access and Work Zone** - Construction equipment access shall be limited to Port and/or public right-of-way and the access locations shown on the construction plans. Any work within the limits of the Taxiway Safety Area or other regulated air space shall follow the FAA Northwest Mountain Region NM 5200.3 “Safety Requirements on Airports During Construction and Maintenance Activities” and FAA Advisory Circular 150/5370-2F “Operational Safety on Airports During Construction”.

## **SECTION 00160 – SOURCE OF MATERIALS**

Comply with Section 00160 of the Standard Specifications, modified as follows:



**00160.01(a) All Materials** - Delete the paragraph that begins "The Contractor shall identify if the material source...".

Delete the paragraph that begins "For this purpose...".

**00160.05 Qualified Products List (QPL)** - Replace this subsection, except for the subsection number and title, with the following:

The QPL is a listing of manufactured products available on the market (shelf items) that ODOT has evaluated and found suitable for a specified use in highway construction. The QPL is available from ODOT's Construction Section website at:

<http://www.oregon.gov/ODOT/Construction/Pages/Qualified-Products.aspx>

The most current published PDF version of the QPL on ODOT's Construction Section website at the time of Advertisement is the version in effect for the Project. The Engineer may approve for use a conditionally qualified product, or a product qualified for inclusion in a later edition of the QPL, if the Engineer finds the product acceptable for use on the Project.

Use of listed products shall be restricted to the category of use for which they are listed. The Contractor shall install all products as recommended by the manufacturer. The Contractor shall replace qualified products not conforming to Specifications or not properly handled or installed at no additional cost to the Agency.

**00160.20(a) Buy America** - Delete this subsection.

**00160.30 Agency-Furnished Material** - Add the following:

The listed items will be provided by others and placed and installed by contractor. The items are currently stored on site. The Agency will furnish the listed items at the Project Site:

- 20" IPS DR17 HDPE Pipe
- 4" IPS DR17 HDPE Pipe
- 2" IPS DR17 HDPE Pipe
- 6" and 24" CMP for Pipe Sleeve
- Miscellaneous Valves, Bends, Tees, Reducers, Transitions and other miscellaneous fittings necessary to construct the HDPE irrigation improvements.

Materials furnished shall be in sufficient quantity to construct the HDPE irrigation improvements as shown on the plans. Contractor shall verify quantity of materials prior to construction and notify the Port immediately if any material shortages are found. Any material shortages caused by the contractor's negligence during the project construction period shall be replaced by the Contractor at no expense to the Port.

## **SECTION 00165 – QUALITY OF MATERIALS**

Comply with Section 00160 of the Standard Specifications, modified as follows:

Insert the following paragraph at the beginning of this section:

Comply with the Port of Hood River General Conditions for Public Works Contracts located within this booklet. In the event of a discrepancy between the Port of Hood River General Conditions and the information below, the Port of Hood River General Conditions shall prevail.

**00165.03 Testing by Agency** - Replace this subsection with the following:

No testing will be performed by the Port. All testing shall be the responsibility of the Contractor.

**00165.04 Cost of Testing** - Replace this subsection with the following:

All testing required to be performed by the Contractor will be considered incidental and will be at the Contractor's expense.

**00165.50(c)(5) Non-Specification Materials - Rejection without Testing** - If Material is rejected and removed from a designated subplot sample site before sampling, a new random sample site will be established for the remainder of the subplot.

**a. Rejection by Contractor** - The Contractor may remove any Material that appears defective and replace it with new Material at no additional cost to the Agency.

**b. Rejection by Engineer** - The Engineer may reject any Material that appears defective. Material rejected before placement shall not be incorporated into the work. Material in place that is rejected shall be removed. No separate or additional payment will be made for Materials rejected by the Engineer or for the removal of the Materials unless the requirements of 00165.50(c)(6) have been met.

**00165.50(c)(6) Rejection with Testing** - If the Contractor requests to have the rejected Material tested, it will be sampled, tested, and statistically evaluated as a separate lot.

If the CPF for the rejected material is less than 1.0000, 00165.50(c)(4) will be used, and the sampling and testing will be at no additional cost to the Agency.

If the CPF is greater than 1.0000, the cost of removal, sampling and testing will be paid for by the Agency and the Material will be paid for according to the CPF.

## **SECTION 00170 – LEGAL RELATIONS AND RESPONSIBILITIES**

Comply with Section 00170 of the Standard Specifications, modified as follows:

Insert the following paragraph at the beginning of this section:

Comply with the Port of Hood River General Conditions for Public Works Contracts located within this booklet. In the event of a discrepancy between the Port of Hood River General Conditions and the information below, the Port of Hood River General Conditions shall prevail.

**00170.02 Permits, Licenses, and Taxes** - Add the following bulleted items:

- Contractor shall be licensed to do business in the City of Hood River.

**00170.60 Safety, Health, and Sanitation Provisions** - Add the following paragraph to the end of this subsection:

The Contractor shall provide and maintain proper portable sanitary facilities for their employees and their subcontractors' employees during day and night shifts that will comply with the regulations of the local and State departments of health and as directed by the Engineer.

### **SECTION 00180 – PROSECUTION AND PROGRESS**

Comply with Section 00180 of the Standard Specifications modified as follows:

Insert the following paragraph at the beginning of this section:

Comply with the Port of Hood River General Conditions for Public Works Contracts located within this booklet. In the event of a discrepancy between the Port of Hood River General Conditions and the information below, the Port of Hood River General Conditions shall prevail.

**00180.21(g) Mentor-Protégé Agreement** - Delete this subsection.

Add the following subsection:

**00180.40(c) Specific Limitations** - Limitations of operations specified in these Special Provisions include, but are not limited to, the following:

<b>Limitations</b>	<b>Subsection</b>
Cooperation with Other Contractors .....	00150.55
On-Site Work .....	00180.40(b)
Interim Completion Time .....	00180.50
Final Completion Time .....	00180.50
Contract Time .....	00180.50(h)
Right-of-Way and Access Delays .....	00180.65
Traffic Restrictions .....	00220.40
Closed Lanes .....	00220.40(e)(1)
Special Events .....	00220.40(e)(2)(b)
Limited Duration Road Closure .....	00220.40(f)
Road Closure Using Rolling Slowdown Method .....	00220.40(g)
Regulated Work Areas .....	00290.34(a)
Noise Control .....	00290.32
Maintenance Under Traffic .....	00620.43
Opening Sections to Traffic.....	00744.51
Opening Sections to Traffic .....	00745.51

When submitting the supplemental "look ahead" Project Work schedule, the Contractor shall show all Work that impacts the Farmers Irrigation District pipe system, canals and channels.

During the irrigation season of April 15 through October 31 and during the frost protection season of February 15 through April 14, the Contractor shall not restrict the flow of water, without written approval from the District, or contaminate the water of the Farmers Irrigation District.

Contractor shall complete all Farmers Irrigation System work no later than April 14, 2020.

The Contractor shall be aware of and subject to schedule limitations in the Standard Specifications that are not listed in this subsection.

**00180.41 Project Work Schedules** - After the paragraph that begins "One of the following Type..." add the following paragraph:

In addition to the "look ahead" Project Work schedule, a Type A schedule as detailed in the Standard Specifications is required on this Contract.

**00180.41(b-2) Detailed Schedule** - Replace the paragraph that begins "In addition to the above requirements..." with the following:

In addition to the above requirements, and within 30 Calendar Days after the Notice to Proceed, the Contractor shall provide the Engineer one digital copy and four paper copies of a detailed time-scaled bar chart Project Work schedule indicating the critical course of the Work. The digital copy shall be compatible with MS Project 2003.

**00180.42 Preconstruction Conference** - Replace this subsection, except for the subsection number and title, with the following:

Before any Work is performed under the Contract and within 15 Calendar Days of the Notice to Proceed, unless otherwise approved in writing, meet with the Agency for a preconstruction conference at a time mutually agreed upon. Submit the following during the preconstruction conference unless otherwise directed:

- Project work schedule (see 00180.41)
- Traffic control plans (see 00225.05)
- Erosion control plan (see 00280.00)
- Complete list of subcontractors
- List of utilities affected by the work (see 00150.50(c))
- Submit off-site disposal locations (see 00290.20(c)(3)(f))

Before meeting with the Engineer for the preconstruction conference, hold a group utility scheduling meeting with representatives from the utility companies involved with this project. Incorporate each utility's time needs into the Contractor's schedule submitted at the preconstruction conference.

**00180.43 Commencement and Performance of Work** - Add the following at the end of this subsection:

Conduct the Work at all times in a manner and sequence that will ensure minimal interference with traffic, including airfield traffic. The Contractor shall not begin Work that will interfere with Work already started. If it is in the Agency's best interest to do so, the Agency may require the Contractor to finish a portion or unit of the project on which work is in progress or to finish a construction operation before Work is started on an additional portion or unit of the Project.

**00180.50(c) Beginning of Contract Time** - Replace this subsection, except for the subsection number and title, with the following:

When the Contract Time is stated in Calendar Days, counting of Contract Calendar Days will begin on the day the Contractor begins On-Site Work as defined in 00110.20.

Add the following subsection:

**00180.50(h) Contract Time** - There are multiple Contract Times on this Project as follows:

(1) The Contractor shall complete all Work to be done under the Contract related to the Farmers Irrigation District not later than April 14, 2020.

(2) The Contractor shall complete final connections of the new Farmers Irrigation District improvements, after cleaning and acceptance by the District, to the existing irrigation system within a single 12-hour system shutdown. Shutdown to occur between 7 am to 7 pm. Contractor to provide the District with three (3) business day notice minimum prior to shutdown. A longer shutdown window may be possible in the event of mild weather or if providing bypass pumping to provide 3,900 gallons per minute of irrigation flow, but will require approval from the District.

(3) The Contractor shall complete all Work within Work Areas 1B, 1C and 1D not later than June 19, 2020.

(4) The Contractor shall complete all Work within Work Areas 2A and 2B not later than July 17, 2020.

(5) The Contractor shall complete all Work to be done under the Contract not later than September 9, 2020.

(6) The Contractor shall complete all Work within the work areas indicated for specific work area durations, as provided on the 'Site Phase Safety Plan' and 'Site Phase Safety Notes and Details' plan sheets, within the durations specified, unless otherwise agreed upon in writing by the Contractor and the Owner.

A chart indicating task responsibility, phasing and required completion dates is as follows:

Task	Responsible Contractor	Phase	Early Start	Required Completion Date
Farmers Irrigation System	TERRC	1	NTP	4/14/2020
Utility Extensions (WA's 1A,1B,1C)	TERRC	1	NTP	6/19/2020

Wetland Mitigation: Pond Excavation	TERRC	2	*6/1/2020*	7/17/2020
Paving, Site Stabilization	TERRC	3	-	9/9/2020
Wetland Mitigation: Improvements/Finish Grading	To be Completed by North Apron Contractor	3	7/20/2020	10/15/2020

\* Phase 2 & 3 construction shall not begin until completion of Farmers Irrigation, Utility Extension construction completion, unless approved by Owner. Wetland Mitigation Pond Excavation Early Start is weather dependent; Pond Excavation prior to 6/1/2020 shall be at the discretion of the Owner.

**00180.85(b)(1) Single Contract Time** - Delete this subsection.

**00180.85(b)(2) Multiple Contract Times** - Replace this subsection, except for the subsection number and title with the following:

There are three daily amounts of liquidated damages on this Project as follows:

- Liquidated damages for failure to complete the Work on time required by 00180.50(h)(1, 3, 4, 5) will be \$ 2,000 per Calendar Day \*.
- Liquidated damages for failure to complete the Work on time required by 00180.50(h)(2) will be \$ 50,000, assessed on a one-time basis.
- Liquidated damages for failure to complete the Work on time required by 00180.50(h)(6) will be \$ 500 per Calendar Day \*.

\* Calendar Day amounts are applicable when the Contract time is expressed on the Calendar Day or fixed date basis.

## **SECTION 00190 – MEASUREMENT OF PAY QUANTITIES**

Comply with Section 00190 of the Standard Specifications modified as follows:

Insert the following paragraph at the beginning of this section:

Comply with the Port of Hood River General Conditions for Public Works Contracts located within this booklet. In the event of a discrepancy between the Port of Hood River General Conditions and the information below, the Port of Hood River General Conditions shall prevail.

**00190.20(f)(2) Scale Without Automatic Printer** - Add the following paragraph after the paragraph that begins " If the scales require manual entry...":

Pay costs for the weigh witness at \$35.00 per hour.

**00190.20(f)(3) Duties of Weigh Technician** - Replace the fourth bulleted item with the following:

- Furnish a daily listing of the net weights and total weight for each type of material hauled during that Day by noon of the following business Day; and

**00190.20(g) Agency-Provided Weigh Technician** - Add the following paragraph to the end of this subsection:

Pay costs for the weigh technician at \$35.00 per hour.

### **SECTION 00195 – PAYMENT**

Replace Section 00195 of the Standard Specifications except for the Section number and title, with the following:

Comply with the Port of Hood River General Conditions for Public Works Contracts located within this booklet.

### **SECTION 00196 – PAYMENT FOR EXTRA WORK**

Replace Section 00196 of the Standard Specifications except for the Section number and title, with the following:

Comply with the Port of Hood River General Conditions for Public Works Contracts located within this booklet.

### **SECTION 00197 – PAYMENT FOR FORCE ACCOUNT WORK**

Replace Section 00197 of the Standard Specifications except for the Section number and title, with the following:

Comply with the Port of Hood River General Conditions for Public Works Contracts located within this booklet.

### **SECTION 00199 – DISAGREEMENTS, PROTESTS, AND CLAIMS**

Replace Section 00199 of the Standard Specifications except for the Section number and title, with the following:

Comply with the Port of Hood River General Conditions for Public Works Contracts located within this booklet.

### **SECTION 00210 – MOBILIZATION**

Comply with Section 00210 of the Standard Specifications modified as follows.

**00210.90 Payment** – Add the following paragraph to the end of this subsection:

The Engineer will not consider requests for additional mobilization costs based on any the bulleted items listed in the second paragraph of 00180.80(d). This includes any demobilization and remobilization related to snow cover at the project site.

## **SECTION 00220 – ACCOMMODATIONS FOR PUBLIC TRAFFIC**

Comply with Section 00220 of the Standard Specifications modified as follows:

**00220.02 Public Safety and Mobility** – Add the following bullets to the end of the bullet list:

- Provide necessary signage and protective measures to ensure that no pedestrian or bicycle traffic is endangered within the project limits at any time.
- Contractor shall restrict haul routes/hauling activities to Air Museum Road and Tucker Road.

**00220.03(a) Over-Dimensional Vehicle Restrictions** - Replace this subsection with the following:

**00220.03(a) Road Closures** - In addition to the requirements of 00220.03(b), if public streets are to be closed for any duration, obtain the required permits from the City's Public Works Department and comply with all requirements including any notification requirements for the affected residences and required public notifications. Generally, provide a 72 hour initial public notification published in the local paper and broadcast on a local radio station. Maintain access for residences and businesses.

## **SECTION 00225 – WORK ZONE TRAFFIC CONTROL**

Comply with Section 00225 of the Standard Specifications modified as follows:

**00225.01(b) Definitions** - Replace the sixth paragraph with the following:

Traffic Control Plan (TCP) – A written and drawn plan defining the TCD and TCM to be used in support of each construction activity to be performed in the Project. The TCP is specific to the work and accounts for the Contractor's methods. The TCP shall provide for safe and efficient movement of public traffic through or around a work zone while protecting workers, incident responders and equipment.

**00225.27(b) Flagger Station Lighting** – Add the following paragraph to the end of this subsection:

In addition to the products listed on the QPL, tripod mounted or cart mounted flagger station lights that were purchased on or before January 1, 2014 and that were on the QPL before January 1, 2014 may also be used. Provide proof of the original purchase date to the Engineer.

**00225.41(e) Inconsistent Temporary Signs** - Replace the paragraph that begins "Ensure that all temporary..." with the following paragraph:



Ensure that all temporary signs are properly used and consistent with the work zone. Cover all inconsistent temporary signing until the sign messages are applicable to the Work that is beginning. When signage is no longer required for staging or shift Work, remove all temporary signs, sign flag boards, supports, sign covers, and ballast associated with the staging or shift Work within 24 hours.

**00225.42(f) Pedestrian Channelization Devices** – Replace this subsection with the following paragraph:

The PCD is used to separate, guide, and protect pedestrians through or around work areas that have disrupted existing pedestrian facilities. In cooperation with Section 00220.02, PCD from the ODOT Qualified Product List are ADA-compatible and, when used properly, provide safe channelization for all pedestrians – particularly visually impaired pedestrians and those requiring wheelchairs for mobility.

**00225.43(e) Pavement Markers** - Replace the paragraph that begins "Temporary pavement markers shall remain in place..." with the following:

Temporary pavement markers shall remain in place until the permanent markings are complete. Replace missing markers at no additional cost to the Agency whenever markers are removed within 48 hours of being notified by the Port. On the final pavement wearing course, place permanent markings a maximum of 14 calendar days after placing temporary pavement markers, or as directed.

## **SECTION 00230 – AIRPORT SAFETY**

Section 00230, which is not a Standard Specification, is included for this Project by Special Provision.

### **00230.10 SCOPE**

This specification outlines safety procedures and regulations to be followed by the Contractor during the course of this work. The work item "Temporary Flagging, Marking and Signing" shall consist of furnishing, installing, and removing temporary marking, signing, lighting, and barricades required during the course of this work. All work shall be in conformance with FAA Northwest Mountain Region NM 5200.3 "Safety Requirements on Airports During Construction and Maintenance Activities", FAA Advisory Circular 150/5370-2F "Operational Safety on Airports During Construction", and the "Manual of Uniform Traffic Control".

The Contractor shall provide, erect, and maintain all necessary protection of the work and the safety of the public for both land and air traffic. Suitable warning signs and barricades, illuminated at night, shall be provided.

In order to protect against air traffic against traffic turning off of active runways or taxiways into construction areas, barricades shall be placed at the locations as shown on the plans, or as described in the Construction Operations Plan, or as directed by the Engineer.

## 00230.20 GENERAL REQUIREMENTS

The Contractor shall keep personnel and equipment off of the runway, runway sides, runway ends, taxiways, taxiway sides and aprons as described below. The Contractor shall continue to follow all safety requirements during runway closures.

## 00230.30 CONSTRUCTION SEQUENCE

- A. Construction activity shall not commence prior to issuance of a Notice to Airmen (NOTAM). The Contractor shall advise the Engineer three (3) days in advance of the planned commencement of construction activity so a NOTAM can be issued and shall not commence such activity until advised by the Engineer. Upon completion of work to the satisfaction of the Engineer, a NOTAM indicating completion will be issued. No further work in affected areas will be permitted.

## 00230.40 GENERAL SAFETY REQUIREMENTS

- A. Prior to commencement of work on any of the airport's runways, taxiways, or aprons, the Contractor and the Engineer will select haul routes to be used by personnel and vehicles during the course of work in the various stages. The Contractor shall furnish, install and maintain appropriate traffic signs that clearly identify a haul route throughout its length within the flight operation area.
- B. FAA approved orange and white-checked flags shall be provided by the Contractor on all vehicles and equipment.
- C. The Contractor's operations shall be limited to the staging area, the work boundaries shown on the plans and approved haul roads.
- D. **Runway Sides.** If appropriate construction NOTAM have been issued, construction (using equipment under 10 feet tall) is permissible as close as the following distances from the centerline of the runway indicated when the runway is active:

<u>Runway Designation</u>	<u>Feet from Centerline</u>
7-25	125'
All Taxiways	39.5'

During Construction, the airport will be restricted to B-I Small operations, which will allow the contractor to perform construction activities no closer than 125' from the runway centerline.

- E. **Runway Ends.** If appropriate construction NOTAM has been issued, construction activity is permissible off the threshold of the runways indicated

below provided at least the indicated minimum safety area and indicated unobstructed approach slope are maintained:

<u>Runway end Number</u>	<u>Minimum Safety Area Behind Threshold</u>	<u>Minimum Unobstructed Approach Slope</u>
7	300 feet	20:1 to 200' behind threshold
25	300 feet	20:1 to 200' behind threshold

Work inside these safety areas and penetrating the approach slope will be allowed during runway closure only.

- F. Normally, work will be permitted during daylight hours only. If an emergency situation requires work at night, the Contractor shall notify the Engineer as far in advance as possible and obtain clearance from him before proceeding to work.

During night operations, each vehicle shall be equipped with an omnidirectional amber flashing light mounted on the roof of the cab. Headlights, taillights and flashers shall be used for all activities during these hours.

When the contractor is required to work at night, he shall provide adequate portable lights at the areas of work. Sufficient lights shall be provided to complete the work to the specified tolerances. Portable light plants shall have at least for working metal halon 1000 watt bulbs or 245,000 lumen output, each mounted on a mast at least 25' high, or as approved by the Engineer.

- G. At the end of each working day, all equipment and other obstructions shall be moved away from the runways and taxiways to Contractor staging areas.
- H. Construction equipment that extends 10 feet or more above ground level shall be cleared through the Engineer. It shall be lighted at night in an approved manner and/or lowered to height of adjacent structural surroundings at the discretion of the Engineer.
- I. Welding equipment shall not be used within 100 feet of fuel trucks or aircraft.
- J. All accidents shall be reported to the Engineer.
- K. In the event of an emergency, men and equipment shall be moved immediately at the direction of the Engineer.
- L. The Contractor shall be responsible for, at all times, insuring that active runways and taxiways are kept free of construction debris, equipment, and/or materials that might endanger or be ingested by an aircraft.

- M. All trenching within active runway or taxiway safety areas will be backfilled to grade at the end of each workday.
- N. The Contractor will be responsible for all his and his subcontractors' equipment being within the staging area at the end of each working day.
- O. The contractor shall place and maintain runway closing crosses during runway closures.

### **00230.50 CONSTRUCTION OPERATIONS PLAN**

A construction operations plan (a.k.a. Construction Safety/Phasing Plan) has been developed by the Owner to mitigate the adverse impacts of construction on aeronautical operations on the airport. Strict adherence to the provisions of the construction operations plan by all personnel assigned to or visiting the construction site is mandatory for all construction projects. In the event contractor activities are not in conformance with the provisions of the construction operations plan, the contractor shall immediately cease those operations involved in the violation of the provisions of the construction operations plan and conduct a safety meeting. The owner may direct the contractor, in writing, to immediately cease those operations involved in the violation of the provisions of the construction operations plan. The contractor shall not resume construction operations until an appropriate action is taken as determined by the Owner. Costs associated with work stoppages or additional meetings required due to the violations of the safety plans shall be paid by the Contractor. Contract time and liquidated damages will apply to periods or work stoppage related to safety plan violations.

### **00230.60 MATERIALS**

**General.** All barricades with flashing lights shall be inspected and tested each day, prior to project shut down to verify operation during nighttime usage. All barricade types shall be checked daily by the Contractor to ensure they are functioning as intended, including periods of time when work is not occurring or temporarily suspended.

The Contractor shall designate a person or persons who will be available 24 hours per day should any of the barricades, closure markers, or other safety measures noted in the plans, specifications, or Construction Operations Plan fail. This person/persons shall be capable of immediately dispatching to the site for making repairs or adjustments as needed.

**Barricades and Tubular Markers.** Tubular Markers shall be a minimum of 28” high and a maximum of 42” high, with a weighted bottom to prevent overturning due to wind or propwash. They shall be florescent orange with at least two white reflective bands providing full 360 degree visibility and shall have a flashing red light attached to the top.

Barricades shall be Type I, “A” frame style barricades and shall have a flashing red light attached. Barricades shall be weighted to prevent overturning due to wind and propwash. Maximum barricade/tubular marker spacing shall be 5 feet. The Contractor shall furnish,

arrange and otherwise maintain a sufficient number of barricades or tubular markers to complete the work.

**Low Level Barricades.** Low level barricades shall have nominal dimensions of 10”H x 96”L x 10”W, shall be specifically designed for airport use and shall be equipped with pins or connectors so that a “string” of barricades can be formed. They shall be weighted with water or sand as ballast. The low level barricades shall be in conformance with FAA AC 150/5370-2 (latest version). Low level barricades shall have diagonal striped, alternating, orange/white high reflective sheeting on both sides of the barricade, two battery powered flashing red lights, and be equipped with two 20”x20” flags. When set up in place the flags shall alternate orange, white, orange, white, etc.

Low level barricades shall be used to delineate “on pavement” work area limits, safety areas, or other boundaries as directed by the engineer. When in place, low level barricades shall form a continuous “string” across the designated boundary. The Contractor shall furnish, arrange and otherwise maintain a sufficient number of low level barricades to complete the work. Low level barricades shall be turned over to the Owner in good condition upon completion of the project.

**Airport Radios.** Airport radios shall be VHF Air Band Transceivers, as manufactured by ICOM, Model IC-A14, or equal. Radios shall be supplied with a compatible wall charge unit, and a vehicle “cigarette lighter” style plug in charger. The contractor shall provide two (2) radios for use on the project.

The contractor shall designate one person to monitor the airport UNICOM frequency at all times during construction operations. The person shall be familiar with construction vehicular movements, operations and airport layout. The radio operator shall provide escort to vehicles required to cross active areas of the airport. The contractor shall allow time for proper training of airport radio communications with the Owner prior to the start of construction.

Contractor movement on active runways, taxiways, aprons, or any active runway or taxiway safety area or crossing of these areas shall not be permitted without advising the Engineer, the Owner. Hauling across active runways, taxiways, or aprons shall not be permitted.

**Temporary Marking and Signing.** The Contractor shall furnish, install and maintain temporary closing crosses, temporary displaced thresholds, lights, lenses, traffic control devices and other temporary markings, low level barricades and signs required during the course of this contract. The temporary markings shall conform to applicable Federal Aviation Administration markings and shall be constructed of materials approved by the Engineer.

Two (2) temporary closed runway marking (crosses) as described shall be furnished, installed, placed and maintained by the contractor as directed by the Engineer during the contract time.

The closure crosses shall each be made of yellow truck tarp nylon weighing 18 ounces per square yard. The edge shall be hemmed, corners reinforced and grommets provided every 3

feet along the edge. For each runway cross, the material shall be sized as follows: 1 piece (10' x 60') and 2 pieces (10' x 25'). The crosses shall be secured with sandbags or other approved methods to hold the crosses down during weather or prop was conditions.

**00230.80 MEASUREMENT** – Work covered under this section will be measured by the following method:

- Method "B" - Lump Sum Basis - Under this method, no measurement of quantities will be made.

**00230.90 PAYMENT** - When the Contract Schedule of Items does not indicate payment for Airport Safety, all airport safety work will be paid for at the contract lump sum price for item "Temporary Work Zone Traffic Control, Complete" under Section 00225.

The price for "Temporary Work Zone Traffic Control, Complete" shall be full compensation for furnishing and maintenance of the items listed herein and for maintenance of the items during the work, any necessary relocation and for all labor, equipment, tools, and incidentals necessary to complete the item.

## **SECTION 00235 – FOD PREVENTION CONTROLS**

Section 00235, which is not a Standard Specification, is included for this Project by Special Provision.

**00235.10 DESCRIPTION** - This item shall consist of providing manpower and equipment necessary to avoid the possibility for FOD (foreign object damage) damage to aircraft. FOD present on an active runway, taxiway, shoulder, ramp, road, or any other paved surfaces may result in aircraft damage from engine ingestion, engine blast or any high-speed ground operation. To prevent such damage from occurring, FOD prevention controls must be maintained throughout the duration of the contract period. FOD is considered to be objects/debris of any visible size. Active aircraft surfaces shall be kept clean as work progresses and shall be free of FOD as described above, before these surfaces are opened to aircraft operations.

### **MATERIALS**

**00235.20 EQUIPMENT** - Equipment shall include power brooms and hand tools as necessary to eliminate FOD.

### **CONSTRUCTION METHODS**

**00235.30** Procedures to be followed for purposes of preventing FOD shall be observed with the maximum degree of effort. It shall be understood that unlike general "best effort" cleanup requirements associated with typical construction projects, the FOD prevention controls are to be considered a primary project objective. The Contractor shall review the safety and phasing

requirements carefully as presented in the project plans and specifications and submit with the contractor's proposed schedule a FOD Control Plan.

The basic philosophy of the FOD Control Plan shall be to minimize the work necessary to remove debris from aircraft movement areas by minimizing the source debris along immediate haul and access routes.

### **FOD PREVENTION CONTROLS REQUIREMENTS**

Access/haul routes shall be confined strictly to the areas designated on the Project Site Plan, Safety, Phasing, or Work Area Plan. These routes shall be confined to the smallest possible area in order to limit the amount of sweeping and clean-up required. These routes shall be marked clearly by the Contractor with signs and cones so vehicles will not stray from the designated routes.

The Contractor shall return all aircraft movement areas to a clean, FOD-free state before re-opening those surfaces to aircraft traffic. FOD cleanup equipment and methods used by the Contractor are subject to approval by the Engineer and/or Airport Staff. Equipment judged to be unsuitable by the Engineer shall be replaced by the Contractor.

The Contractor shall provide signs, barricades, and cones to delineate clearly and confine access routes to prevent vehicle and aircraft conflicts and to prevent FOD.

Whenever directed by the Engineer, the Contractor shall begin cleanup operations or shut down cleanup operations already in progress. In the event the Airport or Engineer determines any active aircraft movement area to be unusable due to construction generated debris, and if the Contractor is not on site, cleanup equipment will be called to the airport and billed directly to the Contractor.

### **METHOD OF MEASUREMENT AND PAYMENT**

**00235.90** FOD Prevention Controls shall be considered incidental to applicable bid items and no separate measurement or payment will be made.

### **SECTION 00240 – TEMPORARY DRAINAGE FACILITIES**

Comply with Section 00240 of the Standard Specifications modified as follows:

**00240.90 Payment** – Replace this subsection with the following:

No separate or additional payment will be made for temporary drainage facilities.

### **SECTION 00280 – EROSION AND SEDIMENT CONTROL**

Comply with Section 00280 of the Standard Specifications modified as follows:

**00280.00 Scope** - Add the following:

The ESCP shown on the plans was developed for anticipated staging and site conditions. Prepare and submit a revised ESCP when staging or site conditions differ from that shown in the plans. Submit a revised ESCP for each proposed modification to the most current Engineer-approved ESCP, and obtain Engineer approval prior to beginning Work. Engineer may require additional erosion and sediment control measures at no additional cost to the Agency in order to approve submitted methods of operations and scheduling.

Identify and describe appropriate erosion control measures as part of the Pollution Control Plan requirements of 00290.30(b). Temporarily block inlets and catch basins to prevent materials from entering them or waterways.

**00280.00 Scope** - Add the following paragraph to the end of this subsection:

The Agency's NPDES 1200-CA Permit is not applicable to the Project. Before beginning Work on the Project, obtain an NPDES 1200-CA Permit from the applicable local jurisdiction or an NPDES 1200-C Permit that is applicable to the Project.

**00280.16(c) Sediment Fence** - Replace the "Posts" bulleted item with the following:

- **Posts** - Steel or untreated wood posts (stain is acceptable). Wood posts shall be from fir or pine.

**00280.16(e) - Sediment Barriers** - Add the following:

- **Stakes** - Untreated wooden stakes with the minimum dimensions shown, or approved equal.

Add the following subsection:

**00280.16(l) Outlet Protection** - Furnish biofilter bags and stakes that meet the requirements of 00280.15(a).

**00280.41(b) Perimeter Controls** - Add the following after the last sentence:

Sediment fencing shall be installed 5 feet beyond the limits of any cut or fill slopes and as shown on the approved ESCP.

**00280.41(d) Disturbance Restrictions** - Add the following before the first sentence:

Limit each ground disturbing construction stage to the amount of disturbed area that can be effectively controlled for soil erosion and sediment resulting from construction activities.

**00280.42(a) Soil Exposure Limitations** - Replace this subsection, except for the subsection number and title, with the following:

- **Within Hood River County (October 1 through May 31)** - On sites where vegetation and ground cover are removed, plant and establish vegetative ground cover by October 1 such that it will function through May 31 the following year. If ground cover is not established by October 1, protect exposed areas through May 31 of the following year



with straw mulch, erosion blankets, or other approved methods. Stabilize all areas immediately, but no later than the end of the each working shift of exposure.

- **Within Hood River County (June 1 through September 30)** - Stabilize all areas as soon as practicable. Stabilize construction areas in stages based on site conditions, weather, and as directed.

**00280.42(b) Temporary Stabilization** - Replace the bulleted list with the following:

- At the end of each shift during the wet season
- At the completion of each ground disturbing stage of construction when permanent erosion control BMP are not practicable to construct.
- A minimum of one Day before expected rain events.
- As an emergency measure when rain is falling on unprotected areas.
- When wind or vehicle traffic is visibly causing more than minor dust.
- At finish grade when working outside the permanent seeding dates.

## **SECTION 00290 – ENVIRONMENTAL PROTECTION**

Comply with Section 00290 of the Standard Specifications modified as follows:

Comply with Section 00290 of the Standard Specifications modified as follows:

**00290.30(a) Pollution Control Measures** - Add the following subsections and bullets:

### **(7) Water Quality:**

- Do not discharge contaminated or sediment-laden water, including drilling fluids and waste, or water contained within a work area isolation, directly into any waters of the State or U.S. until it has been satisfactorily treated (for example: bioswale, filter, settlement pond, pumping to vegetated upland location, bio-bags, dirt-bags). Treatment shall meet the turbidity requirements below.
- During construction, monitor in-stream turbidity and inspect all erosion controls daily during the rainy season and weekly during the dry season, or more often as necessary, to ensure the erosion controls are working adequately meeting treatment requirements.
- If construction discharge water is released using an outfall or diffuser port, do not exceed velocities more than 4 feet per second, and do not exceed an aperture size of 1 inch.
- Underwater blasting is not allowed.
- Implement containment measures adequate to prevent pollutants or construction and demolition materials, such as waste spoils, fuel or petroleum products, concrete cured less than 24 hours, concrete cure water, silt, welding slag and grindings, concrete saw cutting by-products and sandblasting abrasives, from entering waters of the state or U.S.
- End-dumping of riprap within the waters of the state or U.S. is not allowed. Place riprap from above the bank line.

- Cease project operations under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.
- The Project Manager retains the authority to temporarily halt or modify the Project in case of excessive turbidity or damage to natural resources.

**(8) Meter Turbidity Monitoring** - Perform meter turbidity monitoring each day when working in Regulated Work Areas according to the following:

- Use a turbidity meter that has been calibrated to meet manufacturer requirements.
- Before beginning Work, take in stream turbidity readings approximately 100 feet upstream and, based on the wetted stream width, at the compliance distance listed in Table 00290-1 downstream of the in-water work area.
- Take in stream turbidity readings upstream and downstream at four hour intervals or more frequently and perform in-water work based on turbidity measurements according to the following:
  - If the downstream reading at the compliance distance is 0 to 4 nephelometric turbidity units (NTU) above upstream levels, continue to work and take readings every four hours.
  - If the downstream reading at the compliance distance is 5 to 29 NTU above upstream levels, modify work procedures and best management practices (BMP) and take a subsequent downstream reading four hours later. If at the subsequent four hour reading, the downstream reading is still 5 to 29 NTU above upstream levels, stop all in-water work and implement additional BMP. Resume in-water work activities the next morning.
  - If the downstream reading at the compliance distance is 30 to 49 NTU above upstream levels, modify work procedures and BMP and take a subsequent downstream reading two hours later. If, at the subsequent two hour reading, the downstream reading is still 30 to 49 NTU above upstream levels, stop all in-water work and implement additional BMP. Resume in-water work activities the next morning.
  - If the downstream reading at the compliance distance is 50 NTU or more above upstream levels, stop all in-water work and implement BMP. Resume in-water work activities the next morning.

**Table 00290-1**

<b>Wetted Stream Width</b>	<b>Compliance Distance</b>
≤ 30 feet	50 feet
> 30 feet to 100 feet	100 feet
> 100 feet to 200 feet	200 feet
> 200 feet	300 feet
Lakes, Ponds, and Reservoirs	Lesser of 100 feet or max. surface dimension

Document all turbidity monitoring results including date, time, and location on the Agency provided form or another form approved by the Agency. Submit reports to the Engineer

weekly when working in Regulated Work Areas and keep copies of the reports at the project site.

If work activities violate permit conditions or cause water quality violations which may endanger the health of aquatic life or environment, stop all in-water work activities and notify the Engineer. Submit a written report of violations to the Engineer within 5 Calendar Days of violation.

**00290.32 Noise Control** - Replace the first bulleted item with the following:

- Do not perform construction activity or servicing of Equipment within 1,000 feet of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 7:00 p.m. and 7:00 a.m. on other days, without the approval of the Engineer.
- Comply with Washington County Noise Ordinance, Chapter 8.24.

**00290.34 Protection of Fish and Fish Habitat** - Add the following paragraph:

Meet with the Agency Biologist, Resource Representative, Project Manager, and inspector on site, before moving Equipment on-site or beginning any Work, to ensure that all parties understand the locations of sensitive biological sites and the measures that are required to be taken to protect them.

**00290.34(b) Prohibited Operations** - Replace this subsection, except for the subsection number and title, with the following:

Except where allowed by the Contract or by permit, do not:

- Blast underwater.
- Use water jetting.
- Release petroleum products or chemicals in the water.
- Disturb spawning beds.
- Obstruct stream channels.
- Cause silting or sedimentation of waters of the State or waters of the U.S.
- Use treated timbers within the Regulated Work Area.
- Impede adult and juvenile fish passage, including intermittent streams.
- Allow Equipment to enter or work in or on the water.

Add the following subsection:

**00290.34(c) Aquatic Species Protection Measures Required by Environmental Permits:**

**(1) General Requirements:**

- Do not install fish ladders (for example: pool and weirs, vertical slots, fishways) or fish trapping systems.
- Do not apply surface fertilizer within 50 feet of any stream channel.

Use heavy equipment as follows:

- Choice of Equipment must have the least adverse effects on the environment (for example: minimally sized, low ground pressure).
- Secure absorbent material around all stationary power equipment ( for example: generators, cranes, drilling equipment) operated within 150 feet of wetlands, waters of the State, waters of the U. S., drainage ditches, or water quality facilities to prevent leaks, unless suitable containment is provided to prevent spills from entering waters of the state or waters of the U.S.
- Do not cross directly through a stream for construction access, unless shown or approved. If shown or approved, cross perpendicular to the stream and do not block stream flow. When a crossing is no longer needed, completely remove the crossing and restore the soils and vegetation to the original condition.
- Store fuel and maintain all Equipment in staging areas that are at least 150 feet away from any waters of the State, waters of the U.S., or storm inlet or on an impervious surface that is isolated from any waters of the State, waters of the U.S., or storm inlet.
- If temporary access roads are needed within 150 feet of any body of water, use existing routes unless new routes are shown or approved.
- Before beginning Work on temporary access routes that are not shown, submit a proposal to the Engineer for approval.
- Use biodegradable hydraulic fluid in Equipment operating within 150 feet of wetlands, waters of the State and U.S., drainage ditches, or water quality facilities.

**(2) Site Restoration** - Restore damaged streambanks to a natural slope, pattern, and profile suitable for establishment of permanent woody vegetation unless precluded by pre-project conditions (for example: natural rock substrate):

- Replant all damaged streambanks before the first April 15 following construction.
- If use of large wood, native topsoil, or native channel material is required for the site restoration according to the roadside development plans, stockpile all large wood, native vegetation, weed-free topsoil, and native channel material displaced by construction. Cut trees or large wood and trees into pieces of no less than 20 feet in length, or as shown on the roadside development plans or as directed. Stockpiled native wood and vegetation remain the property of the Agency.
- Stabilize all disturbed soils, including obliteration of temporary access roads, following any break in work unless construction will resume in 4 Calendar Days.

**(3) Surface Water Diversions** - Surface water may be diverted to meet construction needs other than work area isolation, consistent with Oregon law, only if water from sources that are already developed, such as municipal supplies, small ponds, reservoirs, or tank trucks, is unavailable or inadequate, and meeting the following conditions:

- When alternative surface sources are available, divert from the stream with the greatest flow.

- Install, operate, and maintain a temporary fish screen.
- Do not exceed a pumping rate and volume of 10% of the available flow. For streams with less than 5 cubic feet per second, do not exceed drafting of 18,000 gallons per day. Do not use more than one pump for each site.

**(4) Drilling, Boring, or Jacking** - If drilling, boring, or jacking is used, the following conditions apply:

- Design, build, and maintain facilities to collect and treat all construction and drilling discharge water using the best available technology applicable to site conditions. Provide treatment to remove debris, nutrients, sediment, petroleum hydrocarbons, metals, and other pollutants likely to be present. An alternate to treatment is collection and proper disposal offsite.
- Isolate drilling operations from wetted stream to prevent drilling fluids from contacting waters of the state or waters of the U.S.
- Use casing to prevent loss of drilling fluid to the subsurface formation. Do not drill open hole.
- If it is necessary to drill through an over-water bridge deck, use containment measures to prevent drilling debris from entering the stream channel.
- If drilling fluid or waste is released to surface water, wetland or other sensitive environment, cease all drilling pending written approval from appropriate regulatory agencies through the Project Manager to resume drilling.
- Recover all waste and spoils if precipitation is falling or imminent. Recover, recycle, or dispose of all drilling fluids and waste to prevent entry into flowing water.
  - Recycle drilling fluids using a tank instead of drill recovery/recycling pits, whenever feasible.
  - When drilling is completed, make attempts to remove the remaining drilling fluid from the sleeve (for example: by pumping) to reduce turbidity when the sleeve is removed.

**(5) Treated Wood** - Treated wood includes any wood treated with any pesticide or wood preservatives. Do not use lumber, pilings, or other wood products that are treated or preserved with pesticidal compounds below the ordinary high water (OHW) or as part of an in-water or over-water structure, except as described below:

- Store treated wood shipped to the Project out of contact with standing water and wet soil, and protected from precipitation.
- Visually inspect each load and piece of treated wood. Reject for use in or above aquatic environments if visible residues, bleeding of preservative, preservative-saturated sawdust, contaminated soil, or other matter is present.
- Use pre-fabrication to the extent feasible. When field fabrication is necessary, all cutting and drilling of treated wood, and field preservative treatment of wood exposed by cutting and drilling, shall occur above the OHW. Use tarps, plastic tubs, or similar devices to contain the bulk of any fabrication debris, and wipe off any excess field preservative.

- All treated wood structures, including pilings, shall have design features to avoid or minimize impacts and abrasion by livestock, pedestrians, vehicles, vessels, and floats.
- Treated wood may be used to construct a bridge, over-water structure or an in-water structure, with the exception of the work containment system, provided that all surfaces exposed to leaching by precipitation, overtopping waves, or submersion are coated with a water-proof seal or barrier are maintained. Apply and contain coatings and paint-on field treatment to prevent contamination. Surfaces that are not exposed to precipitation or wave attack, such as parts of a timber bridge completely covered by the bridge deck, are exempt from this requirement.
- During demolition of treated wood, ensure that no treated wood debris falls into the water. If treated wood debris does fall into the water, remove it immediately.
- Store removed treated wood debris in appropriate dry storage areas, at least 150 feet away from the Regulated Work Area.

**(6) Temporary Power, Communication and Water Lines** - Before installing temporary power, communication, or water lines across streams or bodies of water, submit a proposed plan to the Engineer for approval. Do not begin installation before receiving approval from the Engineer. Proposed plans for installation of temporary power, communication, and water lines and stream crossings shall utilize the following design methods in the listed order of priority:

1. Aerial lines, including lines hung from existing bridges.
2. Directional drilling, boring and jacking that spans the channel migration zone and any associated wetland.
3. Trenching, which is restricted to intermittent streams and may only be used when the stream is naturally dry. For all sections of trenches below the ordinary high water line, backfill with native material and cap with clean gravel suitable for fish use in the project area.

Align each crossing as perpendicular to the watercourse as possible. For drilled, bored, or jacked crossings, ensure that the line is below the total scour prism. Return any large wood displaced by trenching or plowing as nearly as possible to its original position, or otherwise arranged to restore habitat functions.

**00290.41(b) Disturbing Wetlands** - Add the following to the end of this subsection:

Permits have been obtained for this project from the US Army Corps of Engineers (Corps) and the Department of State Lands (DSL). Keep a copy of Corps and DSL permits at the project site during construction. These permits authorize the placement of 5,298 cubic yards of fill within Wetland 3, Wetland 4, Drainage 1 and Drainage 3. A total of 0.796 acres of wetlands will be permanently filled. Changes to the project that may increase the amount of fill placed in wetlands or the acreage of wetlands impacted are not authorized.

Add the following subsection:

**00290.42 Work Containment Plan** - A Work Containment Plan (WCP) is required on this Project for activity(ies) located within Work Areas 2-4.

Develop and submit a WCP for approval at least 28 Calendar Days prior to mobilization for the activity(ies) within the work areas specific above. Maintain a copy of the WCP on the Project Site at all times during construction, readily available to employees and inspectors. Ensure that all employees comply with the provisions of the WCP. Design the WCP to avoid or minimize disturbance to protected features (sensitive cultural or natural resources, Regulated Work Areas, aquatic life or habitat in Regulated Work Areas) related to Contractor operations.

Before developing the WCP, meet with Agency to review the Contractor's activities that require the WCP to ensure that all parties understand the locations of protected features to be avoided and the measures needed to avoid and protect them.

Notify the Project Manager at least 10 Calendar Days before beginning work access or containment construction activities.

The Agency reserves the right to stop Work and require the Contractor to change the WCP methods and Equipment before any additional Contract Work, at no additional cost to the Agency, if and when, in the opinion of the Agency, such methods jeopardize sensitive cultural or natural resources, Regulated Work Areas, or aquatic life or habitat in Regulated Work Areas.

The WCP shall identify how the Contractor's construction operations will protect regulated features during mobilization, construction, maintenance, and demolition. Include a narrative describing compliance with Section 00290 as related to construction, operation, and demolition activities specified in Section 00253.

Design, construct, maintain, and remove temporary work access and containment systems according to Section 00253.

**00290.90 Payment** - Add the following paragraph(s) to the end of this subsection:

No separate or additional payment will be made for the Work Containment Plan, turbidity monitoring and/or for orange plastic mesh fencing.

## **SECTION 00305 – CONSTRUCTION SURVEY WORK**

Section 00305, which is not a Standard Specification, is included for this Project by Special Provision.

### **Description**

**00305.00 Scope** - Provide construction survey work according to the current edition on the date of Advertisement, of the ODOT "Construction Surveying Manual for Contractors".

The manual is available on the web at:

<http://www.oregon.gov/ODOT/HWY/GEOMETRONICS/Pages/documents.aspx>

### **Measurement**

**00305.80 Measurement** - No measurement of quantities will be made for construction survey work.

### **Payment**

**00305.90 Payment** - The accepted quantities of construction survey work will be paid for at the Contract lump sum amount for the item "Construction Survey Work".

Payment will be payment in full for furnishing all material, equipment, labor, and incidentals necessary to complete the work as specified.

No separate or additional payment will be made for any temporary protection and direction of traffic measures including flaggers and signing necessary for the performance of the construction survey work.

No separate or additional payment will be made for preparing surveying documents including but not limited to office time, preparing and checking survey notes, and all other related preparation work.

Costs incurred caused by survey errors will be at no additional cost to the Agency. Repair any damage to the Work caused by Contractor's survey errors at no additional cost to the Agency. The Engineer may make an equitable adjustment, which may decrease the Contract Amount, if the required survey work is not performed.

## **SECTION 00310 – REMOVAL OF STRUCTURES AND OBSTRUCTIONS**

Comply with Section 00310 of the Standard Specifications modified as follows:

**00310.41(c) Drainage Structures** - Add the following at the end of the subsection:

Permanent and/or temporary Stormwater runoff collection must be maintained at all times during construction at no additional cost to the Owner.

**00310.44 Earthwork in Connection with Removal** - Replace the second paragraph with the following:

Backfill holes according to 00330.45. No separate or additional payment will be made for this Work.

**00310.92 Separate Item Basis** - Add the following:

When the Contract Schedule of Items does not indicate payment for Work on a separate item basis, no separate or additional payment will be made. Payment will be included in payment made according to 00310.90 or 00310.91, as applicable.

## **SECTION 00320 – CLEARING AND GRUBBING**



Comply with Section 00320 of the Standard Specifications modified as follows:

**00320.01 Areas of Work** - Replace the first paragraph with the following:

The areas to be cleared and grubbed are shown on the Plans, or if not shown on the Plans, the clearing lines are 5 feet outside the following:

### **SECTION 00330 – EARTHWORK**

Comply with Section 00330 of the Standard Specifications modified as follows:

**00330.03 Basis of Performance** - Add the following paragraph to the end of this subsection:

Perform all earthwork under this Section on the embankment basis.

**00330.13 Select General Backfill** - Add the following paragraph:

On site materials, including Silty Sand, Sand (with some silt and clay), Well Graded Sand with Clay, and Clay with Sity Clay, are acceptable as Select General Backfill when properly prepared and placed within fill/embankment areas shown on the plans. All Select General Backfill must be observed and determined acceptable by the Owner prior to use on the project. Contractor shall be prepared to process the onsite soils using means to bring the material within optimum moisture content described in 00330.42(c), including but not limited to, spreading, tilling and other means.

**00330.20 Tamping Foot Rollers** - Add the following:

Tamping foot rollers are required on this project.

**00330.41(a-3) Unsuitable Materials** - Add the following paragraph:

The top 3” of existing ground surface shall be classified as unsuitable material and disposed of according to 00330.41(a-5). Following removal and disposal of the top 3” of material, the next 3” shall be considered topsoil. Stockpile and place the material removed according to 01040.43.

**00330.41(a)(5) Waste Materials** - Replace this subsection, except for the subsection number and title, with the following:

Unless otherwise specifically allowed and subject to the requirements of 00280.03, dispose of Materials, classed as waste materials in 00330.41(a)(3), outside and beyond the limits of the Project and Agency controlled property according to 00290.20. Do not dispose of Materials on Wetlands, either public or private, or within 300 feet of rivers or streams.

**00330.41(a)(7) Abandoned Pipes and Miscellaneous Matter** - Replace this subsection, except for the subsection number and title, with the following:

Remove and dispose of all abandoned pipe, Structures, and miscellaneous matter:

- Encountered in the work
- Located within 1 foot below subgrade
- Located within 1 foot of finished slope

Remove remaining abandoned pipes and structures, or completely fill abandoned pipes and structures with CLSM that meets the requirements of 00442.

Perform removal Work as part of the earthwork. Dispose of waste materials according to 00290.20.

**00330.41(a)(9) Excavation Below Grade** - Delete subsection 00330.41(a)(9)(c).

**00330.42(a)(5) Existing Surfacing** - Add the following paragraph:

Subgrade consisting of expansive clay soils as determined by the Engineer must be kept moist and in a fully swelled condition until covered with the next lift. If the top of a subsequent lift dries out when left unattended over time, the surface must be scarified and moisture conditioned to 2% above optimum and recompacted prior to placing a new lift.

**00330.42(a)(6) Roughen Ground Surface** – Replace the first sentence of this subsection with the following:

Breakup, roughen or scarify the ground surface a minimum of 6” deep to positively bond embankment materials with the existing ground if the slope is 1V:5H, or less.

**00330.42(c)(1) General** - Add the following paragraph:

All on-site silty soils are moisture sensitive. Contractor shall determine maximum dry density and optimum moisture values through testing of onsite soils according to AASHTO T 99 Standard Proctor Method A.

Placement and compaction of such material, and any contractor-supplied import material that is moisture sensitive, shall only be executed during sustained dry and warm weather when it is practical to adjust the moisture content of the soil to near optimum. Any working of the soils and/or watering of the soils to achieve optimum moisture content shall be the responsibility of the contractor and no additional payment for this effort shall be made.

Fill material shall be excavated from the adjacent Wetland Mitigation project site. The material used immediately as onsite embankment, if determined to be within acceptable moisture ranges for both the soil material to be placed and the prepared subgrade, or stockpiled in the location indicated on the plans. All Wetland Mitigation Pond Excavation must be completed no later than July 17, 2020. The contractor shall assume that material excavated from the Wetland Mitigation project site will need to be aerated prior to attempting to fill and place the material. Aeration would likely include spreading the fill in relatively thin lifts and tilling to facilitate drying prior to final placement and compaction. This effort shall be at no cost to the Owner. With the exception of material to be stockpiled as topsoil per 00330.41(a-3) and material determined by the Engineer to be unsuitable material, all excavated material from the Wetland Mitigation Site shall be utilized as onsite embankment material.

Once placed and compacted, the moisture content in the subgrade shall be maintained and the subgrade shall be backfilled with base rock to limit moisture fluctuations.

**00330.42(c)(3) Embankment Slope Protection** - Add the following paragraphs:

The fill sections must have a compacted face upon completion of work. Loosened surface conditions will not be acceptable.

Cap the outer 6 inches of embankments with suitable topsoil materials to establish slope stabilization through permanent seeding. If suitable material is not available, provide suitable materials from a Contractor-provided source which conforms to the requirements of 00330.11 or 00330.13 and provides favorable conditions for germination of seed and growth of grass.

**00330.43(a) General** – Add the following paragraph:

Contractor shall provide full-time certified testing staff to verify compliance with 00330.43 for all embankment construction using on-site materials. Compliance with imported aggregate may not require full-time testing as determined by the Engineer if the fill material is consistently meeting the required compaction. Any reduction in testing would not relieve the Contractor from responsibility to meet the specified compaction efforts at all times.

**00330.45 Filling of Holes** - Replace the last two sentences of this subsection with the following:

No separate or additional payment will be made for this Work.

**00330.80 Measurement** - Add the following after the bulleted list:

No field measurement of earthwork items will be performed. The quantity will be the theoretical neat line volume constructed and accepted for each item. If changes are ordered, only the quantity included in the ordered changes will be measured.

**00330.81 Excavation Basis Measurement** - Replace this subsection, except for the subsection number and title, with the following:

When measurement of earthwork is on the excavation basis, the materials will be measured in their original positions before excavation. Measurement will be limited to the lines, grades, and Slopes as established.

The quantities of excavation measured for payment will include the volumes of:

- Overbreak determined to be unavoidable according to 00330.41(a)(10).

The following earthwork items will be measured on the excavation basis:

- Wetland Mitigation Pond excavation

The estimated quantities are as follows:

<b>Excavation Project Location</b>	<b>Embankment (Cubic Yard)</b>	<b>Excavation (Cubic Yard)</b>
Wetland Mitigation Site – Stripping & Topsoil	0	1,500
Wetland Mitigation Pond Site – All Other Excavation	0	9,000

The Embankment Basis Measurement will be limited to the Wetland Mitigation Pond excavation activities. All other excavation shall be paid under 00330.82.

Embankments required or necessary to perform earthwork on the excavation basis will not be measured separately.

**00330.82 Embankment Basis Measurement** - Replace this subsection, except for the subsection number and title, with the following:

No measurement of excavation items will be made. The estimated quantities are as follows:

<b>Embankment Project Location</b>	<b>Embankment (Cubic Yard)</b>	<b>Excavation (Cubic Yard)</b>
Work Area 3A Pond Grading	0	1,700
Work Area 3B Strippings	0	2,100
Work Area 3B Mass Grading	22,900	3,000
Offsite Import Embankment Material	7,500	0
Utility Trench Excavation	0	2,500

**00330.91(b) Foundation Excavation** - Add the following bulleted item:

- When foundation excavation is not included in the Schedule of Items, foundation excavation will be paid according to 00331.90.

**00330.91(d) General Excavation** - Replace the last sentence of the fourth bulleted item with the following:

When such excavation is not part of a continuous operation, the roadway excavation is complete, and the Contractor is required to move Equipment in to perform the excavation, the excavation will be paid according to 00331.90.

**00330.93 Excavation Basis Payment** - Add the following pay item to the end of the pay item list:

(f) Wetland Mitigation Pond Excavation..... Cubic Yard

Item (f) includes selecting, excavating, handling, hauling, sorting, stockpiling and preserving of the specified selected Materials as described in 00330.41(a)(1) and 00330.41(a)(2). Placement and compacting of this material shall be paid per 00330.94(a). Disposal of unsuitable material shall be incidental to this item.

**00330.94 Embankment Basis Payment** - Add the following pay item to the end of the pay item list:

(d) Import Embankment Material..... Cubic Yard

Item (d) includes selecting, excavating, hauling, sorting, stockpiling, handling and preserving of the specified selected Materials as described in 00330.41(a)(1) and 00330.41(a)(2). Placement and compacting of this material shall be paid per Item (a).

Replace the last paragraph with the following:

When there is not an excavation pay item and excavation of unstable material is part of a continuous operation, payment will be made as Embankment in Place. When such excavation is not part of a continuous operation, the site excavation is complete, and the Contractor is required to move Equipment in to perform the excavation, the excavation will be paid according to 00331.90.

### **SECTION 00331 – SUBGRADE STABILIZATION**

Comply with Section 00331 of the Standard Specifications modified as follows:

**00331.41(b) Subgrade Reinforcement Geogrid** - Add the following:

Use geogrid only when directed or when approved.

**00331.41(b)(1) Placement** – Replace the first bullet with the following:

- Orient the rolls as directed by the Engineer.

### **SECTION 00340 – WATERING**

Comply with Section 00340 of the Standard Specifications modified as follows:

**00340.00 Scope** – Add the following bullet to this subsection:

- All watering for this project is considered incidental to other pay items.

### **SECTION 00350 – GEOSYNTHETIC INSTALLATION**

Comply with Section 00350 of the Standard Specifications modified as follows:

**00350.00 Scope** - In the sentence, replace the word "geotextile" with the word "geosynthetics".

**00350.41(f)(2) Weather Limitations** - Replace "00745.40" with "00744.40 or 00745.40, as applicable".

Add the following subsection:

**00350.42 Subgrade Reinforcement Geogrid Installation Requirements:**

**(a) Placement** - Prepare the surface receiving geogrid to a smooth condition to the depth shown and as follows:

- Orient the geogrid rolls as directed by the engineer.
- Unroll the geogrid in the same direction the cover material will be placed. If the geogrid shifts or becomes misaligned, realign it and anchor it according to the manufacturer's recommendations.

**(b) Overlaps** - Overlap the geogrid a minimum of 2 feet. Overlap the geogrid in the same direction the cover material is placed with the preceding layer lapped on top of the following layer.

**(c) Protection of Geogrid** - Drive rubber tired equipment on the geogrid at no more than 5 mph. Drive tracked equipment on the geogrid only after placing a minimum of 6 inches of cover material on top of the geogrid. Do not turn or make sudden stops or starts on the geogrid or cover material.

During installation cover the geogrid with cover material as soon as possible. Do not leave uncovered for more than 5 Calendar Days.

**(d) Repair** - Repair or replace damaged or torn geogrid according to manufacturer's recommendations at no cost to the Agency.

**00350.90 Payment** - Add the following pay item to the end of the pay item list:

- (f) Subgrade Reinforcement Geogrid ..... Square Yard

**SECTION 00390 – RIPRAP PROTECTION**

Comply with Section 00390 of the Standard Specifications modified as follows:

**00390.44(e) Riprap Basins** - Replace this subsection with the following:

**00390.44(e) Riprap Basins** - Construct riprap basins at locations shown or as directed.

**SECTION 00405 – TRENCH EXCAVATION, BEDDING, AND BACKFILL**

Comply with Section 00405 of the Standard Specifications supplemented and/or modified as follows:

Comply with Section 00405 of the Standard Specifications modified as follows:

**00405.12 Bedding** - Use commercially available 3/4" - 0 crushed Aggregate.

**00405.13 Pipe Zone Material** - Replace this subsection, except for the subsection number and title, with the following:

**00405.13 Pipe Zone Material** - Use commercially available 3/4" - 0 crushed Aggregate.

**00405.14 Trench Backfill** - Add the following:

All trenches shall use Class B 3/4" - 0 crushed Aggregate backfill or Class E Backfill unless specifically identified otherwise.

**00405.40 General** - Add the following:

At no expense to the Agency, the Contractor shall restore all known facilities that are damaged by his operations to at least preexisting condition.

**00405.90 Payment** - Add the following bullet to the bullet list:

- tracer wire

Add the following paragraph to the end of this subsection:

When the Contract Schedule of Items does not indicate payment for trench excavation, no separate or additional payment will be made. Payment will be included in payment made for the appropriate items under which this Work is required.

## **SECTION 00415 – VIDEO PIPE INSPECTION**

Comply with Section 00415 of the Standard Specifications modified as follows:

**00415.90 Payment** - Replace this subsection with the following:

No separate or additional payment will be made for video pipe inspection.

## **SECTION 00445 – SANITARY, STORM, CULVERT, SIPHON, AND IRRIGATION PIPE**

Comply with Section 00445 of the Standard Specifications modified as follows:

**00445.43(d) Polyethylene Pipe** – Add the following to the end of the third paragraph:

Corrugated High Density Polyethylene Pipe shall have a smooth interior wall and watertight joints meeting the requirements of ASTM D3212.

**00445.91 Payment** – Replace this subsection with the following:

The accepted quantities of pipe and related Work items performed under this

Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

<b>Pay Item</b>	<b>Unit of Measurement</b>
(a) ____ Inch ____ Pipe,.....	Foot

In item (a), the nominal pipe diameter will be inserted in the first blank. The type of pipe will be inserted in the second blank.

Payment for item (a) includes pipe, fittings, and all materials and labor necessary to install piping. No separate or additional payment will be made for earthwork, excavation, trench bedding, backfill, or removal of existing pipes. Video pipe inspection is considered incidental and no separate measurement will be made.

Payment will be payment in full for furnishing and placing all Materials, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Trench resurfacing will be paid for according to 00495.90.

No separate or additional payment will be made for:

- trench excavation, bedding, pipe zone Material, and trench backfill for pipes 72 inches and less in diameter
- pipe plugs, stoppers, and other required fittings
- metal pipe anchors
- tracer wire
- hydrostatic, air, joint, and deflection testing

When the Contract Schedule of Items does not indicate payment for pipes or other Work under this

Section, no separate or additional payment will be made. Payment will be included in payment made for the appropriate items under which this Work is required.

### **SECTION 00470 – MANHOLES, CATCH BASINS, AND INLETS**

Comply with Section 00470 of the Standard Specifications modified as follows:

**00470.90 Payment** – Add the following pay items:

<b>Pay Item</b>	<b>Unit of Measurement</b>
(l) Concrete Manholes, Shallow With Pressure Sanitary Sewer Drop Connection.....	Each
(m) Cleanout.....	Each
(n) Pond Outlet Structure.....	Each



Add the following to the end of this subsection:

Payment for item (I) includes all materials and labor necessary to install the manhole and pressure sanitary sewer drop connection. No separate or additional payment will be made for earthwork, excavation, bedding, or backfill.

## **SECTION 00485 – SEPTIC TANK EFFLUENT PUMPING (STEP) SYSTEM**

Section 00485, which is not a Standard Specification, is included for this Project by Special Provision.

### **Description**

**00485.00 Scope** - Work covered by this section includes equipment to form a complete Septic Tank Effluent Pumping (STEP) system, complete with 3,000 gallon septic tank, risers and lids, pump vault, discharge hose and valve assembly, float switch assembly, duplex effluent pumps, electrical splice box, controls and alarm, wiring, and appurtenances.

### **Construction**

**00485.10 General** - Furnish STEP System from Orenco Systems, or approved equal. All components of STEP system shall be in accordance with manufacturer's recommendations and all local, state and federal regulations. Obtain all applicable permits, including but not limited to, building, plumbing and electrical. The STEP system shall include the following:

- 3,000 gallon precast concrete tank, sealed with heavy cement-based waterproof coating, Thoroseal or approved equal, on both the inside and outside of the tank. Tank shall be approved by Oregon DEQ and capable of 6' bury depth. Tank shall be installed on 6" minimum thickness aggregate backfill
- Two traffic-rated precast concrete outlet risers (minimum) with minimum nominal diameter of twenty-four inches, complete with watertight seal and a poured-in-place 6"x6" non-shrink concrete ring at the riser to tank connection.
- Traffic rated lids - 24" cast iron frame and cover with gas tight gasket capable of supporting 2,500 lb wheel load.
- Submersible Effluent Pump(s) shall be Orenco Systems® Inc. Model PF300511, ½ hp, 115 VAC, single phase, 60 Hz, two-wire motor, with 20 foot long extra heavy duty (SOW) electrical cord with ground or approved equal. Pumps shall both be of the same manufacturer, designed and rated to pump sewage effluent in pressure wastewater collection systems and be constructed per an authorized testing authority, such as Underwriter's Laboratories, Inc (UL). Pumps shall be constructed of non-corrosive materials such as stainless steel and thermoplastic.
- Single-phase motors shall be thermally protected with an automatic reset feature.
- Discharge hose and valve assembly shall be Orenco Systems HV125BCX or approved equal, complete with cold weather adaptor kit and anti-siphon assembly.
- Check valves shall be non-corrosive material, rated at 1.5 times the working pressure of the line.

- Ball valves shall be non-corrosive, full port, quarter turn shut-off valves at the same size as the discharge line. Ball valves shall be located downstream of disconnect for pump removal and be easily accessible from the ground surface.
- Pump vault and screen assemblies systems shall be Orenco Systems model PVU68-1819, with height to be verified through submittal prior to ordering. Controls
- Float switch assembly shall be Orenco Systems® Inc. Model MF4P-63FS with four switch floats mounted on a PVC stem attached to the filter cartridge. Adjustable and removable without removing the pump vault. Float leads shall be secured with a nylon strain relief bushing at the splice box. The floats shall be UL or CSA listed and shall be rated for a minimum of 5.0A @ 120 VAC.
- Electrical splice box & cable shall be Orenco Systems ® Inc. Model SB6, UL approved for wet locations and equipped with five electrical cord grips and a 1-inch outlet fitting. Provide UL listed waterproof butt splice connectors. Provide UL-approved conduit seal kit required to prevent the passage of gases, vapors, or flames through the conduit.
- Controls and alarms shall be Orenco Systems® Inc. Model MVP-DAX1DM controls and alarm or approved equal. Listed per UL 508. Repairable in the field without the use of soldering irons or substantial disassembly.
  - Motor-Start Contactor: 115 VAC: 14 FLA, ¾ hp, 60 Hz, 2.5 million cycles at FLA, 10 million at 50% FLA.
  - Toggle Switch: single-pole, double throw HOA switch, 20 amps, 1 hp.
  - Controls Circuit Breaker: 20 amps, OFF/ON switch, single-pole 115 VAC, DIN rail mounting with thermal magnetic tripping characteristics.
  - Pump Circuit Breaker: 20 amps, OFF/ON switch, single-pole 115 VAC, double-pole 230 VAC, DIN rail mounting with thermal magnetic tripping characteristics.
  - Audio Alarm: 80 dB at 24-inch, warble-tone sound.
  - Visual Alarm: 7/8-inch diameter red lens, push to silence, NEMA 4, 1-watt bulb, 115 VAC.
  - Panel Enclosure: 11-inch high x 9.3-inch wide x 5.4-inch deep, NEMA 4X rated, constructed of UV-resistant fiberglass; hinges and latch stainless steel, provided with conduit couplings.
  - S1RO Panel Ratings: 115 VAC, ¾ hp, 14 amps, single phase, 60 Hz.
  - Event Counted: 115 VAC, 6 digit, non-resettable.
  - Elapsed Time Meter: 115 VAC, 7-digit, non-resettable, 99,999 hour limit accurate to 0.1 hours.
  - Pump Run Light: 7/8-inch green lens, NEMA 4, 1-watt bulb, 115 VAC.
  - Heater: anti-condensation heater; self-adjusting (additional power as temperature drops.)
  - Current Sensor: 115 VAC, GO/NO-GO operation, pump fail indicator light on panel with manual reset switch.
  - Mount Pump control panel on two 8' pressure treated posts and cross bracing or exterior wall nearest the tank.
  - Locate control panel within 50 feet and in view of the pump motor or provide panel with lockable disconnect switch.
  - Mount panel for reading height of 5 feet above the ground.

## Measurement

### 00485.60 Septic Tank Hydrostatic Testing

- The concrete septic tanks shall be tested with water for leakage. All tests shall be performed in the presence of the Owner or Owner’s representative.
  - Plug all inlets and outlets.
  - Fill tank with water to full height, including two-inch (2”) depth in lid.
  - Allow water to stand for twenty-four (24) hours.
  - Any loss of water, or leakage in a twenty-four (24) hour period constitutes failure.
  - Repair and retest all tanks that do not pass hydrostatic test and retest.

**00485.70 Operation and Maintenance Manuals & Training**

- Provide three (3) laminated and plastic bound Operation and Maintenance Manuals and include the following:
  - Index and table of contents.
  - Wiring diagram.
  - Procedures while performing routine maintenance.
  - List of renewal parts as recommended by the manufacturer.
  - Pump repair procedures.
  - Filter cartridge cleaning procedures.
  - Manual will contain:
    - Illustrations of each element.
    - Explanation of the operation of the complete control system.
    - Troubleshooting and method for repairs.
    - Checklist of preventative maintenance that should be performed from each manufacturer.
    - Control system illustration of physical layout of the elements.
    - List of renewal parts.
    - Pump maintenance manual and pump warranty.
    - Pump vault and filter maintenance and repair.
  - Provide an official startup for the pumping system.
    - Provided by a trained representatives in the operation and maintenance of the pumping system.
    - Instruct the Owner’s staff in the proper operation and maintenance.
    - Provide at least 48 hours’ notice to the Project.

**Measurement**

**00485.80 Measurement** - Measurement of quantities for work performed under this Section shall be on a Lump Sum Basis. Miscellaneous items not measured, but included are excavation, backfill, connections to sewer laterals and protection from traffic prior to final backfill and paving.

**Payment**

**00485.90 Payment** – All work associated with supplying, and constructing the STEP system shall be paid for under the bid item:

Sanitary Sewer STEP System .....Lump Sum

## SECTION 00490 – WORK ON EXISTING SEWERS AND STRUCTURES

Comply with Section 00490 of the Standard Specifications modified as follows:

**00490.90 Payment** – Add the following bullet to this subsection under the section ‘No separate or additional...’:

- Video pipe inspection
- Service line connection to existing sanitary sewers
- Pay items not shown in the bid form schedule of values

## SECTION 00495 – TRENCH RESURFACING

Comply with Section 00495 of the Standard Specifications modified as follows:

**00495.90 Payment** - Replace this subsection with the following:

No separate or additional payment will be made for trench resurfacing.

## SECTION 00498 – UTILITY FIELD EXPLORATIONS

Section 00498, which is not a Standard Specification, is included in this Project by Special Conditions.

### Description

**00498.00 Scope** – This work consists of exposing existing utilities that cross or otherwise impact the project elements. Station, offset, and elevation shall be recorded. Any conflicts shall be reported to the engineer immediately. Additionally, there are specific locations identified on the plans for which specific and timely pothole reporting is required. Contractor shall report top of pipe elevation, pipe size, and pipe material prior to submitting shop drawings and prior to ordering precast concrete manholes, catch Basins and inlets.

### Construction

**00498.15 Utility Field Exploration** – The subsurface conditions for existing utilities including, but not limited to, water, gas, sewer, CATV, fiber optic, power, telephone, pipe fittings, steel casing pipe, valves, duct banks, and appurtenances shown on the drawings are estimates based on surface locates and survey information. In areas of new pipeline construction, verify the existing conditions where crossings, connections to, or modifications of the existing utility are shown on the drawings. Excavate at these locations to verify existing conditions and obtain information necessary to perform required pipeline construction and connections to existing utilities.

Submit a plan to the Agency of the anticipated exploratory activities including the proposed schedule, local traffic control plan necessary for the exploratory work, areas of excavation, proposed extent of excavation and pavement repair.

Receive approval for the plan from the Agency before scheduling or starting the work. Coordinate all exploratory activities with the Agency to allow Agency observation of activities if they desire.

For each exploration, submit to the Engineer all documentation including photographs and a schematic of the actual conditions, including depths, locations of joints, thrust blocks, valves, fittings, and other appurtenances, and measurements between all features.

Contractor shall be responsible to locate the top or invert of each pipe or conduit that cross or otherwise impact the project elements. Top of pipe or invert elevations and horizontal location will immediately be provided to the Engineer/Agency to allow grade comparisons of the design. Contractor shall locate the utility and provide the information to the Engineer/Agency prior to construction activity coming within a minimum of 500-feet of locate to allow field adjustment of pipe grades and horizontal locations as necessary.

If the actual conditions require changes to the work shown on the drawings, develop a proposed plan for modifications and submit the plan to the Engineer. An approved submittal is required before starting the work.

Complete field exploration activities at each location and submit documentation a minimum of 1 week prior to storm sewer construction in that area.

#### **Measurement**

**00498.80 Measurement** – No measurement of quantities will be made for utility field explorations.

#### **Payment**

**00498.90 Payment** – No separate or additional payment will be made for field explorations (potholing).

### **SECTION 00640 – AGGREGATE BASE AND SHOULDERS**

Comply with Section 00640 of the Standard Specifications modified as follows:

**00640.10 Materials** - Replace this subsection, except for the subsection number and title, with the following:

Furnish 3/4" - 0 or 1" – 0 for leveling course and shoulder aggregate as the contractor elects.

Furnish 4" – 0" 'recycled' base course aggregate. Use clean, hard, durable aggregates and/or recycled cementitious products, reasonably well-graded from maximum size to dust. This material shall not be used for leveling course or shoulder aggregate.

Furnish ¾" – 1 ½" washed drain rock meeting the requirements of 00430.11 for use within the detention pond(s).

Furnish commercially available clean, uncrushed 'pea gravel' for use within the detention ponds.

**00640.42 Thickness and Number of Layers** - Replace this subsection with the following:

(a) Base - If the required compacted depth of the recycled Base Course exceeds 8 inches, construct it in two or more layers of nearly equal thickness. The maximum compacted thickness of any one base layer shall not exceed 8 inches. The thickness of recycled aggregate base, including all base course lifts, shall not be less than 6 inches.

Place each layer in spreads as wide as practicable and to the full width of the Course before a succeeding layer is placed.

(b) Leveling Course - If the required compacted depth of the Leveling Course exceeds 6 inches, construct it in two or more layers of nearly equal thickness. The compacted thickness of the leveling course aggregate layer, including all leveling course lifts, shall be 6 inches minimum.

Place each layer in spreads as wide as practicable and to the full width of the Course before a succeeding layer is placed.

(c) Shoulders - Place shoulder Aggregates in a single layer, or two or more layers of nearly equal thickness. The maximum compacted thickness of any one layer shall not exceed 9 inches.

**00640.80 Measurement** - Replace this subsection with the following:

The quantities of aggregate will be measured on the volume basis. Quantities will be the theoretical neat line quantity constructed and accepted.

Field measurement of the quantity will not be performed. A quantity is included in the Contract Schedule of Items for ordered changes, including subgrade stabilization. If changes are ordered, only the quantity included in the ordered changes will be measured.

**00640.90 Payment** - Replace the Pay Items and Unit of Measurement list with the following:

<b>Pay Item</b>	<b>Unit of Measurement</b>
(a) Aggregate Base.....	Cubic Yard
(b) Aggregate Base - Recycled .....	Cubic Yard
(c) Aggregate Drain Rock .....	Cubic Yard

Add the following to the end of this subsection:

No separate or additional payment will be made for aggregate base shown but not included in the theoretical neat line quantities listed in 00640.80.

Item (a) shall include shoulder aggregate.

Item (c) shall include both the ¾" – 1 ½" drain rock and pea gravel.

**SECTION 00730 - EMULSIFIED ASPHALT TACK COAT**

Comply with Section 00730 of the Standard Specifications modified as follows:

**00730.90 Payment** - Replace this subsection, except for the subsection number and title, with the following:

No separate or additional payment will be made for Emulsified Asphalt tack coat.

**SECTION 00745 – ASPHALT CONCRETE PAVEMENT – STATISTICAL ACCEPTANCE**

Comply with Section 00745 of the Standard Specifications:

**SECTION 00756 – PLAIN CONCRETE PAVEMENT**

Comply with Section 00756 of the Standard Specifications modified as follows:

**00756.90 Payment** – Add the Pay Item and Unit of Measurement:

<b>Pay Item</b>	<b>Unit of Measurement</b>
(c) Fueling Pad .....	Lump Sum

Item (c) includes all reinforcement, sealant, and other materials and labor necessary to construct Fueling Pad.

**SECTION 00759 – MISCELLANEOUS PORTLAND CEMENT CONCRETE STRUCTURES**

Comply with Section 00759 of the Standard Specifications.

**SECTION 00815 – BOLLARDS**

Comply with Section 00815 of the Standard Specifications.

**SECTION 00842 – FACILITY MARKERS**

Comply with Section 00842 of the Standard Specifications modified as follows:

**00842.10 Materials** – Add the following:

(d) Storm Sewer, Sanitary Sewer, and Water Lateral Markers

Furnish 2 x 4 lumber markers at termination of laterals, 12” minimum above finish grade surfaces, length as required, and painted as follows:

- Storm Sewer Lateral: Purple
- Sanitary Sewer Lateral: Red
- Water Lateral: Blue

**00842.90 Payment** – Add the Pay Item and Unit of Measurement:

**Pay Item**

**Unit of Measurement**

(d) Storm Sewer, Sanitary Sewer, and Water Lateral Marker..... Each

**SECTION 00850 – COMMON PROVISIONS FOR PAVEMENT MARKINGS**

Comply with Section 00850 of the Standard Specifications.

**SECTION 00860 – LONGITUDINAL PAVEMENT MARKINGS - PAINT**

Comply with Section 00860 of the Standard Specifications.

**SECTION 00867 – TRANSVERSE PAVEMENT MARKINGS – LEGENDS AND BARS**

Comply with Section 00867 of the Standard Specifications.

**SECTION 00920 – SIGN SUPPORT FOOTINGS**

Comply with Section 00920 of the Standard Specifications modified as follows:

**00920.90 Payment** – Replace this subsection with the following:

No separate or additional payment will be made for sign support footings.

**SECTION 00930 – METAL SIGN SUPPORTS**

Comply with Section 00930 of the Standard Specifications modified as follows:

**00930.90 Payment** – Replace this subsection with the following:

No separate or additional payment will be made for metal sign supports.



**SECTION 00940 – SIGNS**

Comply with Section 00940 of the Standard Specifications modified as follows:

**00940.80 Measurement** – Replace this section with the following:

No measurement of quantities will be made for signs.

**00940.90 Payment** – Replace this section with the following:

<b>Pay Item</b>	<b>Unit of Measurement</b>
-----------------	----------------------------

(a) Signs, Standard Sheeting, Sheet Aluminum .....	Lump Sum
----------------------------------------------------	----------

Item (a) includes metal sign support and footing.

Payment will be payment in full for furnishing and placing all Materials, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

**SECTION 00941 – SIGN COVERS**

Comply with Section 00941 of the Standard Specifications.

**SECTION 00950 – AIRCRAFT FUELING SYSTEM PROVISIONS (FUEL FARM)**

Section 00950, which is not a Standard Specification, is included for this Project by Special Provision.

**00950.00 GENERAL.**

This item is intended to provide for the construction of a new aircraft fueling system (Fuel Farm). The Fuel Farm will consist of the construction of the a fueling system which includes the procurement and installation of one new 15,000 gallon Jet-A fuel aboveground storage tank (AST), foundation, fuel dispensing equipment, appurtenances, and lighting; and the relocation of the existing 12,000 gallon aviation fuel (Avgas) AST fueling system, which will consist of a new foundation, existing fuel dispensing equipment, existing and new appurtenances as required. The fueling system shall include a fuel distribution system, fuel pumps, fuel dispensers, electrical systems and control panels, mechanical systems and supports, an oil/water separator (OWS), and all other appurtenances required to render the system fully functional for retail fuel supply. The relocation of the existing Avgas AST fueling system includes removal of the Avgas AST and all appurtenances from the site on the south side of the airport. The existing point of service system is to be removed from the existing system and disposed in accordance with applicable federal, state, and local regulations.

- a) It is the intent and meaning of the Drawings and Specifications that the Contractor shall provide a fueling system installation that is complete and includes all items and

appurtenances necessary to provide a “turn- key” (i.e., fully operable upon completion of the Contract) card-lock retail fueling system installation satisfying the specifications provided herein.

- b) The Contractor is required to coordinate with the Engineer for the approval of submittals, plans, schedules, demolitions, installations and construction performed under these provisions and shall request the approval of the Engineer prior to beginning work.
- c) All fueling system material submittals will be considered for use provided they meet the performance requirements described herein and industry standards for ease of maintenance and general durability. Contractor submittals for fueling system components must indicate that the submitted product complies with the appropriate and relevant regulations.
- d) This item includes the relocation of an existing Avgas AST fueling system, located on the south apron, and combine it with a new Jet-A AST with new equipment to be constructed on the new north apron.
  - 1) The New Aircraft Fueling System (Phase I work) shall consist of: the relocation and installation of the existing aircraft fueling system which include one (1) existing bulk loading, aboveground, double-walled, fire protected, steel construction, skid mounted, 12,000-gallon Aviation Gas (Avgas) fuel tank, with all required new and existing appurtenances, as required; one (1) new bulk loading, above ground, double-walled, fire protected, steel construction, skid mount, 15,000-gallon Jet-A fuel tank (Engineer approval required), all necessary dispensing equipment, with all required appurtenances, that is UL2085 rated and set-up for retail sales with all necessary incidentals as described in the sections below. The storm drainage system shall be included with this work, as described below.

## QUALITY ASSURANCE

### 00950.21 APPLICABLE STANDARDS.

- a) **Standards and Material Requirements.** All new equipment and new material used or employed within or as part of this project shall be the latest design, new, and the highest quality standard product of manufacturers regularly engaged in production of such equipment and material. Products with similar equipment function shall be sourced from a singular manufacturer. All materials, components, coatings, and equipment shall be compatible for use with the aviation fuels to be stored and dispensed. Galvanized metals, zinc, copper, copper alloys, or cadmium components are not permitted for components coming into direct contact with aviation fuels.

The specifications and standards of the following organizations are incorporated by reference into these specifications and all aircraft fuel system work shall be performed in accordance with their requirements unless otherwise indicated in the Drawings and Specifications.

- Air Transportation Association (ATA)
- American Concrete Institute (ACI)
- American National Standards Institute (ANSI)
- American Petroleum Institute (API)
- American Society of Mechanical Engineers (ASME)
- American Society for Testing and Materials (ASTM)
- Code of Federal Regulations (CFR)
- Environmental Protection Agency (EPA)
- Federal Aviation Administration (FAA) – Advisory Circulars (AC)
- Institute of Electrical and Electronics Engineers (IEEE)
- International Fire Code (IFC)
- National Electrical Manufacturer's Association (NEMA)
- National Electrical Safety Code (NESC)
- National Fire Protection Association (NFPA)
- National Precast Concrete Association (NPCA)
- Steel Tank Institute (STI)
- Steel Structures Painting Council (SSPC)
- Underwriter's Laboratories, Inc. (UL)
- Uniform Fire Code (UFC)

- b) **Regulations, Codes and Statutes.** All new aircraft fueling system materials and workmanship shall conform to the requirements and recommendations of the advisory circulars, current edition, particularly (AC) 150/5230-4B for Aircraft Fuel Storage, Handling and Dispensing on Airports. This advisory circular formally adopts the standards contained in NFPA 407, Standard for Aircraft Fuel Servicing, for the storage and delivery of aviation fuel in an airport environment. In addition to the requirements contained in NFPA, the materials and workmanship shall be in accordance with all applicable State Statutes and the local municipal Building and Fire Codes. Components certifiable by UL must be listed or approved and bear the corresponding UL placard or label. Where conflicts between the Drawings, Specifications, standards and codes exist, the more stringent requirement shall govern.

#### **00950.22 SUBMITTALS.**

- a) **Project Schedule.** The Contractor shall submit a project schedule that identifies all milestones associated with the sourcing, design, fabrication, transport, delivery, construction, and installation of systems and components for the fueling system to the Engineer for review and acceptance.
- b) **Manufacturer Specifications.** Contractor shall submit to Engineer cut sheets that provide manufacturer specifications and product information, for the new equipment, as to the dimensions, materials, and other information required to define compliance with the specifications for, at a minimum, the following components:

Bulk storage tank(s);

- All tank accessories (e.g., fusible link fire safety valve, floating suction assembly, tank gauging, etc.);
  - Pumps, including certified pump curves, efficiency, and performance data;
  - Filters and filter separators;
  - Meters and dispensers
  - Pumping skid system, including piping, plans, and sections, flow diagram, and control diagram Controls / dead man control system;
  - Emergency fuel shut off;
  - Air elimination (for meters, and other items);
  - Pressure relief valves and fittings;
  - Vapor recovery systems;
  - Alarm systems
  - Oil/water separator, including the nominal size Card lock
- c) **Shop Drawings.** Contractor shall furnish to Engineer two (2) paper copy and two (2) electronic copy of shop drawings or plans that illustrate the items listed below. The electronic copy shall be submitted in AutoCad® format or portable document format (PDF). Drawings shall be stamped and sealed by a Professional Engineer registered in the State of Oregon, as required. Drawings shall be provided for, **at a minimum, the following:**
- Proposed tank layout with the new Jet-A and the existing Avgas fuel modules and appurtenant components piping schematic, and flow diagrams, that illustrate flow directions, control sequences, etc. Oil/water separator layout with appurtenant high oil monitoring system and alarm Electrical layout to provide power service, area lighting, and data connections as necessary.
- d) **As-built Drawings.** Contractor shall maintain a set of as-built drawings on the job site as required by the Contract. Contractor shall mark on the as-built drawings any alterations. Additions shall be marked in green and deletions in red. As-built drawings shall be kept available for review at all time. Copies of as-built drawings shall be provided to Owner and Engineer upon project completion
- e) **Testing Records.** The Contractor shall furnish to the Engineer all testing records as necessary to demonstrate that products and systems furnished are in compliance with the specifications and satisfy applicable codes and regulations.
- f) **Operations and Maintenance. Prior to project completion** Contractor shall furnish to Owner one (1) draft paper copy of a comprehensive Operation and Maintenance manual for the new fueling system (fuel farm) and all appurtenances. Copies of individual Operation and Maintenance manuals shall be provided to Engineer along with manufacturer specifications. The manual should detail the appropriate steps to conduct bulk fuel transfer and retail sales of aviation fuels at the airport in accordance with NFPA 407.

## EQUIPMENT AND MATERIALS

### 00950.31 SYSTEM FUNCTIONS.

The new fueling system shall accommodate retail, over wing, fueling operations for Jet-A (UN 1863), and Avgas 100LL (UN 1203). Retail sales are intended to be provided through a card lock system capable of supporting Visa, MasterCard, and American Express with the ability to perform fuel monitoring from within the FBO building. Fueling system facilities for both fuel types shall be configured to receive fuel from typical medium to large size fuel transport trucks at a minimum bulk loading flow rate of 200 gpm at the loading nozzle. Additional requirements of the primary system components are described below.

### **00950.32 BULK FUEL STORAGE.**

The AST(s) furnished for bulk fuel storage shall conform to the applicable requirements of NFPA 30, NFPA 407, and NFPA 415. Fire protection shall conform to the requirements of NFPA 418. In addition the AST(s) shall meet the requirements of:

- UL Standard 2085, Aboveground Storage Tanks for Flammable and Combustible Liquids, Protected Type, Non-Metallic Secondary Containment with Vehicle Impact and Projectile Resistance
- UL Standard 142, Steel Aboveground Tanks for Flammable and

Combustible Liquids Tanks shall meet the following criteria:

- a) **Secondary Containment and Corrosion Protection.** The Contractor shall furnish a double walled tank system to comply with federal, state, and local secondary containment requirements and regulations. The inner tank shall be a UL listed steel tank and the outer wall shall be constructed in accordance with nationally accepted industry standards (i.e. API, STI, and/or ACI).

In addition to secondary containment, the double walled tank configuration shall provide for:

- Interstitial monitoring of the tank and piping system
  - Automatic tank gauging
  - Automatic line leak detection
- b) **Tank Welds and Coatings.** All welds on the bulk fuel storage tank shall be full penetration butt welds. All welds located on the centerline of the interior tank floor shall be ground smooth prior to application of the internal epoxy coat to accommodate internal drainage. Exterior steel shall be anti-oxidant powder coated to inhibit rust in accordance with ASTM B117. All internal, steel tank surfaces in contact with fuel, (e.g., internal ladders, etc.) shall be smooth epoxy coated, or otherwise coated to limit deterioration in accordance with the specific aviation fuel stored.
  - c) **Fire Resistance.** The tank system shall be designed for, tested, and rated to provide 2 hour fire protection under the 2-hour furnace fire test and 2 hour simulated pool fire test per UL 2085.
  - d) **Leak Monitoring and Detection System.** Interstitial space between the primary tank and the secondary containment must provide a monitoring port or fail-safe electronic leak detection system which provides the means to detect product leakage from the primary tank. The monitoring port or electronic monitoring system shall be readable from ground level. This system shall be listed under UL 2085.

- e) **Fill/Overfill Containment.** The new tank system shall include a UL listed spill/overfill container manufactured as an integral part of the primary tank, surrounding the fill pipe, and protected by 2 hour fire rating of the enclosure, or a containment dike with equivalent capacity must be provided. The spill/overfill container shall include a stick port and normally closed drain valve to release spilled product into the main tank.
- f) **Overfill Protection.** Overfill prevention measures must include an overfill alarm and an automatic flow- restrictor or flow shut-off. The AST(s) shall have a direct reading level gauge visible from the fill pipe access and include one of the following overfill prevention methods:
  - 1) Automatic shut off valve to prevent flow into the tank when the tank is more than 95 percent full; or
  - 2) Alert the transfer operator when the tank is more than 90 percent full by restricting the flow into the tank or triggering a high-level alarm.
- g) **Venting.** Tank outlets secured to the tank and all venting shall be in accordance with 49 CFR, DO MC406.
- h) **External Access.** One external ladder and stand (in compliance with OSHA) shall be fitted at the high end of each bulk tank. The stand floor shall not to exceed 6-feet above grade.
- i) **Internal Access.** Two 24-inch manways (in compliance with OSHA) shall be provided per bulk storage unit; one for internal access to the tank and access to piping and one for floating suction assembly. Manway access points must be above the safe fill level. Normal and emergency vents must be provided in the manway cover in accordance with NFPA 30 and UL guidelines. The 24-inch manway with ladder shall be located as close to the high end of the tank as practicable, near the external ladder. An internal ladder, epoxy coated and without crevices that might detain liquid or contaminants, shall extend from the top of the manway to the tank floor.
- j) **Other Provisions.** A minimum 20-year warranty covering defects in material or workmanship shall be provided by the tank system manufacturer.

### **00950.3.3 REINFORCED CONCRETE FOUNDATION.**

Concrete foundation dimensions shall be based on Engineer's Drawings. Upon Engineer's approval of Contractor's submittal for the bulk fuel storage tank(s), and appurtenant fuel system modules, Contractor shall furnish shop drawings for a reinforced concrete foundation designed to support and anchor the storage tank(s) and appurtenances in place. All storage tank(s) and appurtenances shall include epoxy adhesive anchoring system. Install all anchors per manufacturer instruction, concrete is to have a minimum of 21-day cure time at the time of installation and provide minimum embedment and spacing unless noted otherwise in drawings. All drawings for reinforced concrete structures shall be certified by a Professional Engineer licensed in the State of Oregon who is qualified to design concrete structures. The

drawings shall be submitted to the Engineer for review and written concurrence prior to construction. The type of concrete used, steel reinforcement and quality assurance testing shall be in accordance with the shop drawings prepared by the structural designer. The cost for engineered shop drawings is incidental to the New Aircraft Fueling System Bid Item.

#### **00950.34 FUEL SYSTEM COMPONENTS.**

- a) **System Functions.** The new system shall: offload bulk fuel, with filtration, at minimum 200 gallons per minute (gpm), recirculate Avgas and Jet-A at a minimum of 200 gpm. Provide card-lock, retail, overwing refueling for aircraft at minimum 35 gpm for Avgas and minimum 50 gpm for Jet-A fuel.
- b) **System Piping, Valves, Fittings.** Where possible, all bolts, piping and fittings are to be welded and flanged stainless steel. All system piping, valves, fittings shall be of a metal, suitable for aviation fuel service, and designed for the system working pressure in accordance with ANSI/ASME B31.3 and normal radiograph testing is required for 5% of welds performed by each welding operator at minimum. 100% examination is required for longitudinal welds. Gaskets provided in flanged connections shall match fire resistance rating of the flange and bolts. Welded joints shall be crafted in accordance with AWS and ANSI/ASME B31.3. All isolation valves shall be lockable. All piping connections shall enter tanks above the highest liquid level. Any raceways shall be designed to provide adequate structural support for the piping being supported. Fill piping inside the tank shall be installed with the outlet no higher than four inches from the tank floor and fitted with a flow diffuser. All piping shall be labeled and marked using a combination of pressure sensitive labels, bands, and flow arrows and conform to API 1542. All decals must be fuel and chemical resistant.
- c) **Fuel Flow Control.** Fuel flow control valves shall be incorporated as an integral part of the fueling system and shall be of the self-closing, dry-break type. The control valve shall be positioned such that it remains operational in the event of a fuel pad accident, spill or other malfunction.
- d) **Filtration.** The filtering system shall be bonded to ensure electrical continuity with adjoining piping and equipment. The filter/separator and appurtenant piping shall be protected from freezing and bursting.
- e) **Floating Suction.** Provide a floating suction assembly for Jet-A tank designed for the specific gravity of Jet-A, with a minimum flow capacity of 200 gpm. The assembly must include an anti-siphon valve in the tank suction line.
- f) **Delivery Tanker Offloading Strainer and Connection.** Provide a flanged strainer with top cleanout, 100- mesh screen, and minimum 3-inch diameter male camlock fitting with lockable cap on a lanyard or chain.
- g) **Pumps.** The fuel tank arrangement shall allow for complete drainage of the tank's contents without the tank's removal from its mountings. Pump(s) must meet the following requirements, as applicable:
  - 1) The actual flow rate at the fueling nozzle is specified in Section 00950.3.6 for Jet-A Fuel, respectively.
  - 2) Pump assemblies shall meet all pertinent regulatory standards, and be

furnished as complete units along with all incidental components necessary to function. Pumps shall be explosion proof and capable of operating at design conditions with a combined pump and motor efficiency of not less than 60-percent. Pumps shall be rated for single phase power service. Pumps shall be equipped with isolation valves on the suction and discharge side of each pump and a check valve shall be positioned to prevent reverse fuel flow in the event of a malfunction.

- h) **Reel/Hose/Nozzle.** Furnish electric rewind reels, hose reel rewind motors (explosion proof) & switch with 4-way hose rollers on the new Jet-A system. Hose reels shall be appropriately sized to house hoses. Hoses shall be minimum 1-1/4"x100' for Jet-A API 1529 Aircraft Fueling Hose that complies with API bulletin 1529, particularly for Type C semi-conductive hoses. Each hose shall have one ball stop placed prior to nozzle on dispense end. A test certificate for each coupled hose length shall be provided to Owner. Must include overwing nozzle w/swivel, 100-mesh strainer, and ground cable & spout w/dust cap. Refueling valves shall have a deadman control valve suitable for overwing fueling. Notches or latches in the nozzle handle that could allow the valve to be locked open are prohibited. Each overwing servicing nozzle must include a clip for bonding to aircraft. Loading hoses shall be provided for dispensing truck loading operations, hose length not to exceed 18'. Each loading hose shall meet API 1529. Jet-A fuel loading coupler shall be a 3" single point bottom load nozzle with 100 mesh screen, swivel, and matching dust cap.
- i) **Static Reel.** Furnish Heavy Duty Spring Rewind Static Reel with minimum of 75 feet of plastic-coated cable & ground clip.
- j) **Skid System.** All tanks shall be mounted on skids with appropriate slopes for the furnished tank and incidentals. Slope shall be a minimum of one inch of rise for every fifty horizontal inches. Perimeter Box Frame Skids must be fabricated of steel and have structural steel cross-members to support key equipment items. Tanks shall be installed such that there is a minimum distance of 3 feet between tanks.
- k) **Electrical Equipment.** All electrical equipment and wiring shall comply with the requirements of NFPA 70, Article 515, utilizing class 1 liquids requirements.
- l) **Meters and Registers.** Meters reading in whole gallons with totalizer must be readable at night and shall be provided on the refueling loading skid with a minimum capacity of 200 gpm. Refueler truck meter shall include 100:1 pulser for communication with card lock system, Veeder Root or approved equal.
- m) **Pressure Reducing Valve.** New tanks must include a means to reduce pressure in the system prior to fuel being discharged into aircraft.
- n) **Enclosure.** Cabinet Enclosure to include removable panels, stainless steel hardware, provisions for locking and shall have a welded steel containment pan.
- o) **Area Lighting.** Provide a lighting system for fuel farm area such that facility may be safely operated in low- light conditions, further described below. Contractor shall furnish area lighting system design that will accommodate added fixtures for alarms and switches incidental to the fuel system.
- p) **Emergency Fuel Shutoff System.** An emergency fuel shutoff system shall be



included as an integral part of the fuel farm and shall function such that all fuel flow may be cut off, even in the event of fuel system power failure. The system shall be configured such that only authorized personnel may initiate a restart. The operating controls for the shutoff shall be located in a highly visible location adjacent to the fueling system, southeast of the fueling access road, more than 20 feet but less than 100 feet from the fuel dispensers. The shutoff location shall be placarded EMERGENCY FUEL SHUTOFF in letters 2-inch-high, at a minimum, no less than 7 feet above ground level, and the shutoff switch method of operation shall be clearly labeled. Refer to NFPA 407 for additional requirements relating to the emergency shutoff control and markings. A clearly identified means to notify the fire department shall be provided and shall be located in the immediate vicinity of the fuel shutoff control.

- q) **Options.** Pump control panel to include full voltage non-reversing combination motor starter with circuit breaker, disconnect & controls. Install portable fire extinguisher(s) in the fuel farm bulk storage area and at the Emergency Fuel Shutoff Control, as necessary, in accordance with NFPA 10. All Fuel Farm fire protection measures shall comply with NFPA 418.
- r) **Fuel Testing kit.** Fuel testing/servicing equipment to be stored in Job-box or equivalent. Fuel testing equipment shall include white/stainless buckets, hydrometers, etc.
- s) **Reclaim Tank.** Stainless steel sump recovery unit to be installed on each tank, with built in pump and valves. Unit shall be self-contained and designed to separate water and dirt from fuel, and pump fuel through filtration back to storage tank. Unit to be equipped with sump heater. Discharge of sump separator to be equipped with stainless steel ball valve. Discharge line to extend from skid back to fill line on tank. Reclaim tank shall be clearly labeled with fuel type.
- t) **Marking.** Emergency Instructions shall be posted in the dispensing area and at the emergency shutoff control. Fueler Loading Procedure instructions shall be clearly posted at the dispensing area. Transport Offloading instructions shall be clearly posted at the offloading area. No Smoking shall be clearly posted at each dispenser. Additional placards may be required per compliance with state and federal regulations and as required by the Owner.

#### **00950.35 AVGAS MODULE SPECIFIC COMPONENTS.**

Existing components are to be relocated with the existing Avgas AST and integrated into the new fueling facility. New components are to be included as needed to meet existing codes

#### **00950.36 JET-A MODULE SPECIFIC COMPONENTS.**

- a) **Pump.** The actual flow rate at the fueling nozzle shall be 50 gpm throughout fueling. Overall efficiency at design conditions of pump and driver, connected, shall be a minimum of sixty percent. Certified pump curves that validate pump performance shall be incorporated into the system operation and maintenance manual prior to system completion.
- b) **Filter/Separator.** Must include filter/separator with coalesce/separator elements per API 1581 5<sup>th</sup> Edition, Cat. C, air eliminator, check valve, pressure relief valve, piston-

type differential pressure gauge with pushbutton, dual stainless steel fuel sample probes, manual drain, water probe with self-test valve manifold & sump heater with pilot light, and extra filter media set for each vessel after flushing and turnover. Filter coalescer and separator must be capable of operation at flow rates of at least 200 gpm. Coalescer cartridges shall be screw base style. All wet-able components are to be epoxy coated unless made of aluminum or stainless steel.

- c) **Controls.** Must include start/stop station, water-in-fuel alarm pilot light, and water defense controller with intrinsically-safe relay. Must pre-wire to water probe in filter sump.
- d) **Relaxation Vessel.** Jet-A fuel modules that include a tank truck bulk offload port must include a relaxation vessel capable of providing a 30-second relaxation period between the filter separator, monitors, or other filtration devices, prior to discharge into tanks.

### **00950.37 AUTOMATED TANK GAUGING SYSTEM.**

The Contractor shall furnish and install a storage monitoring system consisting of an electronic control unit and level transmitter assemblies, Veeder-Root TLS-350 or approved equal (compatible with the fuel management system). The control unit shall be capable of monitoring up to eight tanks, have four digital inputs, have two relay outputs, and have an Ethernet communication output. Enclosure shall be NEMA Type 1, suitable for wall mounting, with an operating temperature of 32°F to 118°F. The front face shall contain a 5 digit, 0.8-inch high LED display for gallons in each tank, high/low/critical level warning lights for each tank, external horn and reset button, 8 switch input status lights, and touch keys to select tanks and operating modes. The unit shall be microprocessor controlled and programmed to the specific tank configurations with a resolution of 0.1 inch of liquid level in each tank. A built-in keypad shall be provided for testing and adjusting calibrations and setting any high/low warning alarms. A special offset adjustment shall be included as standard for easy field correction of level sensor installation height error. The unit shall operate from 120VAC. The control unit shall provide interface modules to allow RS-485 communication. The tank levels, tank alarms, and digital inputs shall be communicated over this network. Two relay alarm contacts shall be SPDT – 5 Amp rated. Calibrate system to activate Overfill Alarm upon tank overfill incident. Communication to field level transmitters via twisted pairs. Unit shall supply low, intrinsically safe voltage to operate all level transmitter units.

### **00950.38 AUTOMATED FUEL MANAGEMENT SYSTEM.**

The Contractor shall furnish and install a tank level monitoring system for fixed-base operator use only. The Contractor shall furnish an automated fuel management system that is compatible with the specific self-serve dispensing equipment furnished for both fuel system modules. The terminal shall be UL and cUL approved and must be located in close proximity to the fuel farm dispensers. The system must support parallel refueling such that Avgas and Jet-A refueling may overlap without issue. The system shall be expandable for future increase in the number of fuel sites, vehicles, drivers, dispensers, etc. The system shall be capable of unattended operation for 7 days a week, 24-hours a day. The card-lock system and card reader terminal must be specifically designed to accommodate retail aviation fueling, and be described as such on the manufacturer's product data. The card-lock dispensation system must allow retail customers to pay for and pump fuel on a self-serve basis. The card-lock system must be compatible with Visa, MasterCard, and

American Express. Card-lock systems that are also compatible with US Government fleet or fuel cards are preferred. The automated fueling terminal shall include an internal modem, receipt printer, internal memory, keypad, surge protection, modifiable prompts, card reader, and a color sunlight readable display that is protected from solar degradation. The automated fuel management system shall authorize cards via the internet through a direct wired internet connection via Ethernet. The fuel management software must be web based and accessible by any device with an internet connection. The system must be PCI compliant with current requirements and be able to upgrade to future requirements of chip card reader by October 2020. The system must be QTPod M4000 or Engineer approved equal. The automated fueling terminal shall include a minimum of 2 years "Premium Access Plan" along with full warranty coverage to include; including Siteminder Fuel Management, technical support, automatic software updates, and replacement parts. Start-up and training shall be included as part of the project component.

#### **00950.39 ELECTRICAL WIRING.**

Provide all wiring necessary for specified equipment including internal wiring for all component systems and all future connections as required. Instrument signal wiring shall be routed in separate conduit from AC power service and control wiring. Provide color and number coded wiring as necessary. All electrical service work shall be performed in accordance with applicable codes and standards, particularly NFPA 70, Article 515, utilizing class 1 liquids requirements.

#### **00950.310 AREA LIGHTING.**

The Contractor shall furnish and install a lighting system sufficient to safely operate the facility at night and in bad weather. Lights shall be installed at a sufficient height and adequately spaced around the fueling system area to provide a reasonable amount of illumination for users of the fueling area. Motion LED flood sensor lights shall be installed around the fueling dispensers (three minimum). One 1,200 Lumens Photocell LED flood light shall be installed at the emergency fuel shutoff control. Lights shall be wired into an external power source. Battery powered lights will not be permitted. Full details of the system proposed and associated lighting levels to be detailed in the submittal(s). Lighting shall be supplied by the Contractor and installed by the Contractor's electrician.

#### **00950.311 PROTECTION.**

- a) **Bollards.** The Contractor shall furnish and install 6" Schedule 40 concrete filled steel bollards. Bollards shall be installed at 4-foot on center on 3 sides of the fueling system. Bollards shall be set a minimum of 2-feet deep in a concrete footing with the post a minimum of 4-feet above ground and located a minimum of 3- feet from the protected object(s). Bollards shall be painted traffic yellow and include 2 inch red/white safety reflective strips.
- b) **Eco-blocks.** The Contractor shall furnish and install eco-blocks around the southwest side of the fuel system. Eco-blocks shall be placed a minimum of 3 feet from the protected object(s), stacked two high, and anchored together. The outside edge of eco-blocks shall be painted traffic yellow with 2-inch red/white safety reflective strips on top outside edge.

#### **00950.312 OIL WATER SEPARATOR (OWS)**

The Contractor shall furnish and install an approved OWS unit to capture runoff from the fueling area and separate spilled fuel from stormwater prior to discharge away from the fueling area, such that spilled fuel may be safely removed and disposed of in accordance with applicable regulations. Contractor is responsible for excavation, ensuring appropriate placement of underground OWS vault. The OWS effluent shall be to be piped under adjacent taxiway, with the 12" HDPE storm pipe connecting the to the drainage system that eventually discharges into the storage pond east of the apron area. The Contractor shall submit shop drawings of the proposed OWS unit for review and approval by the Engineer prior to installation. The OWS unit must be in compliance with the requirements listed below.

- a) **Type:** The OWS unit shall be of the gravity-flow, underground vault, enhanced coalescing media-type construction (CPS [SA] or equivalent). Water will gravity flow to the unit from a catch basin installed at the lowest drainage point. The OWS unit shall function (i.e., separate oils or other "floatables" from influent) utilizing a separation chamber containing enhanced coalescing media and gravity separation, the unit may also include a series of vertical baffles and/or weirs which partition the unit into two or more bays or chambers.
- b) **Materials and Fabrication:** The vault (including base assembly, risers, top assembly, baffles, and/or weirs) shall be pre-cast in a facility certified by the National Precast Concrete Association (NPCA), and constructed of commercial-grade Portland cement concrete with steel reinforcing (if required) and minimum 28-day compressive strength necessary to support the traffic loading requirements described below. The OWS unit shall be listed for conformance with appropriate product standards by an approved-organization as described by the Oregon State Plumbing Specialty Code. Cast-in-place construction is not permitted. The Engineer reserves the right to require the Contractor's shop drawings to be stamped by a Professional Engineer licensed in the State of Oregon. Any and all piping required in the interior of the OWS unit shall consist of ASTM 3034 polyvinyl chloride (PVC).
- c) **Size:** The OWS unit shall be nominally rated for, and appropriately designed to treat a flowrate of 140 gpm. The minimum volume of the "spill trap" (i.e., the area intended to store spilled fuel) shall be no less than 750 gallons.
- d) **Traffic Loading:** OWS components (including all manholes, grates, access hatches, catch basins, etc.) shall be rated to accommodate minimum wheel load of 150psi.
- e) **High-Oil Monitoring System and Alarm:** The OWS unit shall be outfitted with a monitoring system and audible alarm. The monitoring and alarm system configuration shall be designed such that fuel spills of appreciable volume trigger an audible alarm that will alert airport personnel.

## CONSTRUCTION METHODS

### 00950.41 EXECUTION.

- a) **New Aircraft Fueling System (Fuel Farm) Construction.** The entire fueling system (i.e., each separate component and the associated electronic and physical connections) shall be installed in strict accordance with manufacturer's recommendations, industry standards, and applicable fire safety and environmental codes. All state and local permits shall be obtained prior to installation. All items,

material, components, coatings and equipment shall be compatible for use with the described aviation fuels. Tanks shall be marked on all sides with warning signs and product identification as required by applicable codes. Tank system shall be grounded in accordance with NFPA 780 and all electrical work shall be in accordance with applicable codes. Refer to the construction drawings for general information relating to the intended orientation and configuration of the aircraft fueling system (fuel farm).

- b) **Fuel System Testing.** After installation of the fuel system and appurtenant components, the aircraft fuel systems shall be hydrostatically tested, for a minimum of 4 hours, in accordance with ASTM D 380, per NFPA 407. The Contractor shall provide turnover assistance, startup and training, and instruction to the Owner amounting to a minimum of one day onsite. Training shall include, but is not limited to, product development, cleanup, maintenance, and testing to meet specifications.
- c) **Oil Water Separator Construction.** The Contractor shall furnish and install the approved OWS unit in full compliance with all applicable specifications for installing underground structures (e.g., catch basins) listed in the most current Oregon Department of Transportation (ODOT) Standard Specifications, as well as the OWS unit manufacturer's recommendations. Specifically, the requirements for surveying, excavation, bedding placement and compaction, placement of the structure, pipe connections, and backfill placement and compaction shall all be explicitly followed by the Contractor. The Contractor shall utilize materials and workmanship as specified by the documents listed above and follow all quality control and quality assurance testing requirements (including aggregate gradations and nuclear density testing) of the documents listed above. In the case of any discrepancy, the more stringent standard (as determined by the Engineer) shall prevail. The Contractor must grade the final surfaces of the fueling system area to drain to the OWS unit. Under no circumstance will an area where a fuel spill might reasonably take place drain away from the OWS unit.

## METHOD OF MEASUREMENT

### 00950.51 NEW AIRCRAFT FUELING SYSTEM.

Procurement, construction, installation, and commissioning of one new AST (15,000 gallon), foundation pads, and relocation of one existing AST (12,000 gallon), and all appurtenances described herein and required for operation of the Fuel Farm, and construction and installation of an oil/water separator shall all be measured as one lump sum item completed and accepted by the Engineer.

### 00950.52 BOLLARDS

Procurement, construction, and installation of bollards shall be measured per each installed, in place.

## BASIS OF PAYMENT

### 00950.90 PAYMENT.

Any components of the work required under this section but not explicitly described under this or other pay items shall be included in the applicable lump sum prices provided by the Contractor. This includes, but is not limited to, the following: the Contractor's cost for

insurance, permits, and other similar expenses directly related to and required by these Contract Documents; project-dedicated supervisory staff and equipment; compliance with any and all regulatory requirements; pre-construction and construction period planning; scheduling; preparation and submittal of detail drawings and plans and submittals; reporting; administration; meetings; procurement of subcontractors; coordination with suppliers, utilities, municipalities, subcontractors and disposal facilities; contractor quality control; inspections and audits; environmental protection; site security; record documentation; project closeout; site restoration; project signs and any other requirements or related miscellaneous items specified but not explicitly covered under the pay items.

- a) **New Aircraft Fueling System – per Lump-Sum:** This item includes full compensation for all materials, labor, tools, and equipment costs for completing the work described in this section and all required appurtenances and incidental items. This item includes: furnishing and installing a new 15,000-gallon Jet-A AST, an existing 12,000 Avgas AST, foundation pad, and fueling system (including, but not limited to: pumps, dispensers, hoses, piping, controls, and all electric and mechanical appurtenances); oil water separator (OWS); and all associated connections to pipes or other drainage structures as required to satisfactorily complete the work and provide a functional “turn-key” fueling system.
- b) **Bollards:** This item includes full compensation for all materials, labor, tools, and equipment costs for completing the work described in this section and all required appurtenances and incidental items. This item includes: furnishing and installing bollards and eco-blocks as required to satisfactorily complete the work.
- c) **Payment Schedule:** New Aircraft Fueling System item shall be measured and paid per the following lump- sum breakdown:
  - 1) 40% of the lump-sum to be paid upon delivery of the approved AST to the site, following the Engineer’s approval of all required submittals.
  - 2) 10% of the lump-sum to be paid upon satisfactory installation of the approved OWS unit, as determined by the Engineer.
  - 3) 45% of the lump-sum to be paid upon satisfactory installation of the entire fueling system, after start-up and testing is completed and proof of proper function is determined by the Engineer and Owner.
  - 4) Remaining 5% of the lump-sum to be paid upon agency/permit closeout (if required), submittal of Operations and Maintenance Manuals, and proof of final payment to the suppliers.

**Payment Schedule:** Existing Aircraft Fueling System Removal item shall be measured and paid per the Contract Lump Sum unit price. The price shall be full compensation for satisfactory decommissioning, demolition, and disposal of the existing fueling system components and structures, as determined by the Engineer and Owner.

**Payment Schedule:** Bollards will be paid for at the contract unit price per each in place when completed.

**SECTION 00960 – COMMON PROVISIONS FOR ELECTRICAL SYSTEMS**

Comply with Specifications provided on sheet E3.0 of the Plans and Section 00960 of the Standard Specifications modified as follows:

**00960.80 Measurement** – Add this subsection with the following:

No separate or additional measurement will be made for electrical systems.

**00960.90 Payment** – Add this subsection with the following:

Payment for all electrical systems will be lump sum and includes all materials and labor necessary to furnish and complete electrical systems per plans and specifications.

**SECTION 00962 – METAL ILLUMINATION AND TRAFFIC SIGNAL SUPPORTS**

Comply with Section 00962 of the Standard Specifications.

**SECTION 01030 – SEEDING**

Comply with Section 01030 of the Standard Specifications modified as follows:

**01030.13(f) Types of Seed Mixes** - Add the following to the end of this subsection:

Provide the following seed mix formula:

**Seed Mix #1\*- Swale/Pond Grass Mix:**

<b>Botanical Name (Common Name)</b>	<b>PLS ÷ (lb/acre)</b>	<b>(% Purity (minimum)</b>	<b>x % Germination) (minimum)</b>	<b>= Amount (lb/acre)</b>
<i>Bromus carinatus</i> (California Brome)	21.30	_____	_____	_____
<i>Bromus vulgaris</i> (Columbia Brome)	47.50	_____	_____	_____
<i>Deschampsia caespitosa</i> (Tufted Hairgrass)	2.70	_____	_____	_____
<i>Elymus glucus</i> (Blue wildrye)	25.5	_____	_____	_____
<i>Festuca Rubra</i> (Native Red Fescue)	6.50	_____	_____	_____
<i>Glyceria striata</i>				

(Fowl Mannagrass) 6.5 \_\_\_\_\_

\* Oregon Certified Seed

**Permanent Seeding, Mix #2:**

Name	PLS (lb/acre)	÷ (% Purity (minimum)	x (% Germination) (minimum)	= Amount (lb/acre)
Fine Fescue**	26.7	_____	_____	_____
Perennial Ryegrass**	4.6	_____	_____	_____
Kentucky Bluegrass**	1.7	_____	_____	_____
Colonial Bentgrass**	3.15	_____	_____	_____

\*\* Acceptable varieties (All of these varieties are trademarked):

**Fine Fescues:**

Creeping Red Fescue: Fortress, Ensylva  
 Chewings Fescue: Banner, Highlight, Koket, and Jamestown. Pennlawn and Cascade are acceptable only in Eastern Oregon.

**Perennial Ryegrass:**

Citation, Derby, Diplomat, Manhattan, Omega, Pennfine, Regal, and Yorktown II. Only Manhattan and Pennfine are acceptable east of the Cascades.

**Kentucky Bluegrass:**

Adelphi, Baron, Ben-Sun, Birka, Bonnieblue, Fylking, Galaxy, Glade, Majestic, Merion, Monopoly, Primo, Sydsport, and Victa.

**Colonial Bentgrass:**

Highland, Astoria, Exeter, and Holfior.

**01030.15 Mulch** - Add the following paragraph and bullets to the end of this subsection:

Furnish straw mulch for all roadside erosion control seeding except hydromulch may be used under the following conditions:

- Spring planting west of the Cascades between March 1 and May 15.
- Slopes are steeper than 1V to 1.5H and longer than 16 feet.
- Residential or commercial sites with low erosion potential such as sidewalk, median, or parking lot planter strips.
- Projects that have variable slopes may include straw mulch and hydromulch when approved.

**01030.60 General** - Add the following sentences after the last bullet:



The minimum living plant coverage for native plant seeding is 90% of ground surface.

**01030.71 Waste Disposal** - Replace this subsection with the following subsection:

**01030.71 Disposal of Materials** - Dispose of all materials according to 00290.20.

**01030.90 Payment** – Add the following:

<b>Pay Item</b>	<b>Unit of Measurement</b>
(n) Swale/Pond Permanent Seeding .....	Acres

Item (n) includes placing and stabilizing 6” of salvaged top soil and amendment of existing onsite soils to provide 18” thickness of amended 3-way soil blend. Location per plans. Soils shall conform to Section 01040

**SECTION 01040 – PLANTING**

Comply with Section 01040 of the Standard Specifications modified as follows:

**01040.80 Measurement** – Replace this subsection with the following:

No separate or additional measurement will be made for planting.

**01040.90 Payment** – Replace this subsection with the following:

No separate or additional payment will be made for plantings

**SECTION 01050 – FENCES**

Comply with Section 01050 of the Standard Specifications.

**SECTION 01140 – POTABLE WATER PIPE FITTINGS**

Comply with Section 01140 of the Standard Specifications modified as follows:

**01140.00 Scope** – Replace this subsection with the following:

This work consists of constructing potable water pipe and fittings 16 inches and smaller in diameter, and regional irrigation lines 20 inches and smaller in diameter, within a public Right-of-Way or easement. The irrigation system is owned and operated by Farmers Irrigation District.

**01140.10 Materials** – Add the following paragraph:

All necessary pipes, valves, fittings, sleeves and other appurtenances for the Farmer’s Irrigation District Irrigation System relocation shall be provided by the Owner and stockpiled at the site. Contractor shall accept location of existing materials at the site and be responsible for the

relocation of materials, if necessary, at no additional cost to the owner. Contractor shall verify quantity and condition of Owner-supplied materials prior to the pre-construction meeting and notify the Engineer immediately if damaged and/or material shortages are found to exist.

Submit a list of proposed replacement and/or additional materials for approval as soon as practicable after Award and before arranging for procurement of any materials, especially those materials or products not shown or specified. If any initially proposed materials are not approved, submit substitutes for approval. Any materials installed without approval will be subject to removal and replacement with acceptable material at no additional cost to the Agency.

The materials specifications within 01120 shall not apply to the Farmers Irrigation System, but shall apply to the irrigation lateral extending to the wetland mitigation site.

**01140.43 Polyethylene Encasement** – Delete this subsection

**01140.50 Filling and Flushing** – Add the following paragraph to the end of this subsection:

The above requirements apply to domestic water lines. Farmers Irrigation District lines require only flushing with clean water to remove solids. If any of the water used to flush the irrigation system becomes fouled by chemicals or other toxins, dispose of fouled water per this section.

**01140.51 Hydrostatic Testing** – Add the following paragraph to the end of this subsection:

The above requirements apply to domestic water lines. Farmers Irrigation District requires pressure testing in accordance with HDPE manufacturer’s recommendations, but not less than 100 psi.

**01140.52 Disinfecting** – Add the following paragraph to the end of this subsection:

Farmers Irrigation District irrigation lines shall not require disinfection.

**01140.80 Measurement** – Replace this subsection with the following:

The quantities of pipe of the various kinds, types, and sizes will be measured on the length basis and will be horizontal measurement along the top of the finished trench, with no deduction for fittings, bends, blow off assemblies, and couplings.

No measurement of quantities shall be made for the Farmer’s Irrigation District Irrigation System construction.

Trench resurfacing will be measured according to 00495.80.

**01140.90 Payment** – Add the following:

<b>Pay Item</b>	<b>Unit of Measurement</b>
(o) ___ Inch Ductile Iron Water Pipe .....	Foot
(p) Farmers Irrigation District Irrigation System .....	Lump Sum

(q) 2 Inch Irrigation Line ..... Foot

Item (o) includes all fittings, couplings, bedding, restraint, and other materials necessary to construct water line per plans.

In item (p) payment will be payment in full for furnishing and placing all Materials, other than those materials specifically identified as Owner-furnished, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified. Fencing or other materials used to restrict access of equipment, until minimum cover requirements are met, shall be incidental to this bid item.

**SECTION 01150 – POTABLE WATER VALVES**

Comply with Section 01150 of the Standard Specifications.

**SECTION 01160 – HYDRANTS AND APPURTENANCES**

Comply with Section 01160 of the Standard Specifications modified as follows:

**01160.90 Payment** – Replace last paragraph with the following:

Item (a) includes all gate valves, fittings, bollards, and lateral pipe necessary to furnish and complete hydrant assembly.

**SECTION 02001 – CONCRETE**

Comply with Section 02001 of the Standard Specifications.

**SECTION 02010 – PORTLAND CEMENT**

Comply with Section 02010 of the Standard Specifications.

**SECTION 02020 – WATER**

Comply with Section 02020 of the Standard Specifications

**SECTION 02050 – CURING MATERIALS**

Comply with Section 02050 of the Standard Specifications

**SECTION 02060 – CONCRETE AND CRACK SEALERS**

Comply with Section 02060 of the Standard Specifications

## **SECTION 02070 – BONDING AGENTS**

Comply with Section 02070 of the Standard Specifications.

## **SECTION 02080 – GROUT**

Comply with Section 02080 of the Standard Specifications.

## **SECTION 02320 – GEOSYNTHETICS**

Comply with Section 02320 of the Standard Specifications modified as follows:

**02320.10(a-2) Geogrids** - Add the following bullet at the end of the Section:

- Combigrid® 30/30 Q1 151 GRK by NAUE or equal under the new aggregate section.

## **SECTION 02410 – CONCRETE PIPE**

Comply with Section 02410 of the Standard Specifications

## **SECTION 02415 – PLASTIC PIPE**

Comply with Section 02415 of the Standard Specifications

## **SECTION 02420 – METAL PIPE**

Comply with Section 02420 of the Standard Specifications

## **SECTION 02440 – JOINT MATERIALS**

Comply with Section 02440 of the Standard Specifications

## **SECTION 02450 – MANHOLES AND INLET MATERIALS**

Comply with Section 02450 of the Standard Specifications.

## **SECTION 02470 – POTABLE WATER PIPE MATERIALS**

Comply with Section 02470 of the Standard Specifications modified as follows:

**02470.20 Ductile Iron Pipe** – Remove and replace this subsection with the following:

- (a) **General** – Use centrifugally cast ductile iron pipe meeting the requirements of AWWA C151. Ductile iron pipe shall have a cement-mortar lining and seal coating meeting the requirements of AWWA C104. Pipe shall be special thickness Class 52.
- (b) **Nonrestrained Joints** – Nonrestrained joints shall be Tyton rubber gasket push-on type, or mechanical type, meeting the requirements of AWWA C111. Restrained joints shall conform to 02475.50.

**02470.60(a) Marking Tape** – Remove and replace this subsection with the following:

Furnish Copperhead High Strength 1430 or equal with blue colored insulation.

### **SECTION 02475 – POTABLE WATER FITTING MATERIALS**

Comply with Section 02475 of the Standard Specifications modified as follows:

**02475.50 Restrained Joints** – Remove and replace this subsection with the following:

Mechanical joint restraint shall consist of multiple gripping wedges incorporated into a follower gland meeting the applicable requirements of AWWA C110. The joint restraint ring and wedge components shall be constructed of grade 65-45-12 ductile iron conforming to ASTM A536. Wedges shall be heat treated to a minimum hardness of 370 BHN. The dimensions of the follower gland shall be compatible with joint bells conforming to AWWA C111 or AWWA C153. Mechanical joint restraints shall be listed by Underwriters Laboratories and shall be Factory Mutual approved.

### **SECTION 02480 – POTABLE WATER VALVE MATERIALS**

Comply with Section 02480 of the Standard Specifications modified as follows:

**02480.25 Valve Boxes** – Remove and replace this subsection with the following:

Install valve boxes on all buried valves. Boxes shall be 'Vancouver' style model 910/18-inches long with 6-inch PVC D3034 SDR35 as riser pipe. PVC risers shall be one continuous piece of pipe without bells or couplers. The cover shall have the word "WATER" cast in it.

**02480.26 Valve Stem Extensions** – Remove and replace this subsection with the following:

Valve stem extensions shall have a 2 inch square operating nut and self-centering rockplate support. Valves with an operating nut more than 3 feet below grade shall have a valve stem extension to raise the operating nut to within 18 inches of the ground surface.

### **SECTION 02485 – HYDRANT AND APPURTENANCE MATERIALS**

Comply with Section 02485 of the Standard Specifications.

**SECTION 02510 – REINFORCEMENT**

Comply with Section 02510 of the Standard Specifications.

**SECTION 02560 – FASTENERS**

Comply with Section 02560 of the Standard Specifications.

**SECTION 02610 – AGGREGATE**

Comply with Section 02610 of the Standard Specifications modified as follows:

**02610.20 Recycled Crushed Aggregate Material** – Add this subsection with the following:

Furnish a recycled crushed aggregate material that meets the following requirements:

(a) Grading - Sieve analysis shall be determined according to AASHTO T 27. The Material shall meet the following gradation requirements:

Sieve Size	Percent Passing (by Weight)
4"	100
3"	70-100
2 1/2"	60-100
1 1/4"	55-75
1/4"	30-45

**SECTION 02630 – BASE AGGREGATE**

Comply with Section 02630 of the Standard Specifications.

**SECTION 02640 – SHOULDER AGGREGATE**

Comply with Section 02640 of the Standard Specifications.

**SECTION 02690 – PCC AGGREGATE**

Comply with Section 02690 of the Standard Specifications.

**SECTION 02910 – SIGN MATERIALS**

Comply with Section 02910 of the Standard Specifications.

**SECTION 02920 – COMMON ELECTRICAL MATERIALS**

Comply with Section 02920 of the Standard Specifications.

**SECTION 02926 – HIGHWAY ILLUMINATION MATERIALS**

Comply with Section 02926 of the Standard Specifications.

**SECTION 03020 – EROSION MATERIALS**

Comply with Section 03020 of the Standard Specifications.