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BID BOOKLET
FOR HIGHWAY CONSTRUCTION

OREGON DEPARTMENT OF TRANSPORTATION
SALEM, OREGON

GRADING, PAVING, DRAINAGE, STRUCTURES, SIGNALS,

ILLUMINATION, SIGNING, AND ROADSIDE DEVELOPMENT

US26(POWELL BLVD): SE 99TH AVE - EAST CITY LIMITS SEC.

MT. HOOD HIGHWAY

MULTNOMAH COUNTY

JANUARY 12 2023

CLASS OF PROJECT FEDERAL AID NUMBER

CLASS OF WORK EARTHWORK AND DRAINAGE

BID OF _____

DESCRIPTION OF WORK

GRADING, PAVING, DRAINAGE, STRUCTURES, SIGNALS, ILLUMINATION, SIGNING, AND ROADSIDE DEVELOPMENT
POWELL BLVD): SE 99TH AVE - EAST CITY LIMITS SEC.
MT. HOOD HIGHWAY MULTNOMAH COUNTY

TIME AND PLACES OF RECEIVING BIDS (BID CLOSING)

Bid Closing for the work described above will be at 9:00:00 a.m. on the 12th day of January, 2023. Bids will be received by Marie Wright, Construction Contracts Manager at the following time and places:

Before 9:00:00 a.m. on the day of Bid Closing.

For Bids submitted by mail or parcel delivery service, send to:

ODOT Procurement Office - Construction Contracts Unit, MS# 2-2
3930 Fairview Industrial Drive SE
Salem, Oregon 97302-1166.

For Bids submitted by hand delivery, date stamp the Bid with the provided date stamping device and place into the ODOT Procurement Office Bid Box located at the following address:

Oregon Department of Transportation
3930 Fairview Industrial Drive SE
Salem, Oregon 97302.

Bids, Bid modifications, and Bid withdrawals will not be accepted at or after 9:00:00 a.m. on the day of Bid Closing.

PLACE, TIME, AND DATE OF READING BIDS (BID OPENING)

Bid Opening for the work described above will be at the following address: Oregon Department of Transportation, 3930 Fairview Industrial Drive SE, Salem, Oregon, beginning at 9:00:00 a.m. on the day of Bid Closing.

COMPLETION TIME LIMIT

See Special Provisions Subsection 00180.50(h).

CLASS OF PROJECT

This is a Federal-Aid Project.

CLASS OF WORK

The Class of Work for this Project is the combination of 1) Earthwork & 2) Drainage.

APPLICABLE SPECIAL PROVISIONS

The Special Provisions booklet applicable to the above-described work, for which Bids will be opened at the place, time, and date stated above, is that which contains the exact information as shown above on this page.

Bidders are cautioned against basing their Bids on a booklet bearing any different description, date(s), Class of Project, or Class of Work.

SPECIAL PROVISIONS
FOR HIGHWAY CONSTRUCTION

OREGON DEPARTMENT OF TRANSPORTATION
SALEM, OREGON

GRADING, PAVING, DRAINAGE, STRUCTURES, SIGNALS,

ILLUMINATION, SIGNING, AND ROADSIDE DEVELOPMENT

US26(POWELL BLVD): SE 99TH AVE - EAST CITY LIMITS SEC.

MT. HOOD HIGHWAY

MULTNOMAH COUNTY

JANUARY 12 2023

A mandatory prebid meeting has been scheduled for this Project, see 00120.15 for the meeting time and location.

DESCRIPTION OF WORK

GRADING, PAVING, DRAINAGE, STRUCTURES, SIGNALS, ILLUMINATION, SIGNING, AND ROADSIDE DEVELOPMENT POWELL BLVD): SE 99TH AVE - EAST CITY LIMITS SEC.
MT. HOOD HIGHWAY
MULTNOMAH COUNTY

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Bid Opening for the work described above will be at the following address: Oregon Department of Transportation, 3930 Fairview Industrial Drive SE, Salem, Oregon, beginning at 9:00:00 a.m. on the day of Bid Closing.

COMPLETION TIME LIMIT

See Subsection 00180.50(h).

CLASS OF PROJECT

This is a Federal-Aid Project.

CLASS OF WORK

The Class of Work for this Project is the combination of 1) EARTHWORK & 2) DRAINAGE.

PROJECT INFORMATION

Information pertaining to this Project may be obtained from the following:

Chris Aguon, Project Manager, 3700 SE 92nd Ave., Portland, OR 97266-1951; Email christopher.aguon@odot.state.or.us. All requests for information must be in writing with reference to the Project name.

TABLE OF CONTENTS FOR SPECIAL PROVISIONS

ASSIGNED DBE CONTRACT GOAL

The minimum Assigned **DBE** Contract Goal for this Project is **??%**.

(Overall DBE program goal for ODOT is set at 15.37%for FHWA funded Contracts for federal fiscal years 2020, 2021 and 2022.)

A Certification Directory of DBEs is available from the Certification Office of Business Inclusion and Diversity (COBID) website at:
https://oregon4biz.diversitysoftware.com/FrontEnd/VendorSearchPublic.asp
or by telephone at 503-986-0075.

INDIAN EMPLOYMENT GOALS AND COMPLIANCE FEE

Indian Employment Preference Goal

The assigned Indian Employment Preference goal for this Project is _____ %

Compliance Fee

As established in separate Memorandum of Understanding (MOU) with the Confederated Tribes of the Grand Ronde Community of Oregon (CTGR) a project in which any work takes place within reservation boundary or within the TERO boundary may be subject to a TERO compliance fee. The TERO boundary is described in Exhibit A to the MOU.

The Contractor is required to determine the compliance fee for this Project. Use the following calculations to determine the fee. The Compliance Fee for this Project is the summation of the following four calculations:

$1 to $500,000 of Contract Amount × 1.00% ..... = _____

$500,001 to $999,999 of Contract Amount × 0.75% ..... = _____

$1,000,000 to $1,999,999 of Contract Amount × 0.50% .. = _____

$2,000,000 up to the full Contract Amount × 0.25% ..... = _____

Total COMPLIANCE FEE for this Project is: ..... = _____

INDIAN EMPLOYMENT GOALS AND COMPLIANCE FEE

Indian Employment Preference Goal

The assigned Indian Employment Preference goal for this Project is _____ %

Compliance Fee

As established in separate Memorandum of Understanding (MOU) with the Confederated Tribes of the Warm Springs Indian Reservation (CTWS) a project in which any work takes place within reservation boundary or within the TERO boundary may be subject to a TERO compliance fee. The TERO boundary is described in Exhibit A to the MOU.

The Contractor is required to determine the compliance fee for this Project. Use the following calculations to determine the fee. The Compliance Fee for this Project is the summation of the following four calculations:

$1 to $500,000 of Contract Amount × 1.00% ..... = _____
$500,001 to $999,999 of Contract Amount × 0.75% ..... = _____
$1,000,000 to $1,999,999 of Contract Amount × 0.50% . = _____
$2,000,000 up to the full Contract Amount × 0.25% ..... = _____

Total COMPLIANCE FEE for this Project is: ..... = _____

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

GRADING, PAVING, DRAINAGE, STRUCTURES, SIGNALS, ILLUMINATION, SIGNING, AND ROADSIDE DEVELOPMENT
US26(POWELL BLVD): SE 99TH AVE - EAST CITY LIMITS SEC.
MT. HOOD HIGHWAY
MULTNOMAH COUNTY

PROFESSIONAL OF RECORD CERTIFICATION:

Seal w/signature Christopher Stepovich	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for "Temporary Traffic Control". Modified Special Provisions were prepared by me or under my supervision. Sections 00220, 00221, 00222, 00223, 00224, 00225, 00226, 00227, and 00228

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

GRADING, PAVING, DRAINAGE, STRUCTURES, SIGNALS, ILLUMINATION, SIGNING, AND ROADSIDE DEVELOPMENT
US26(POWELL BLVD): SE 99TH AVE - EAST CITY LIMITS SEC.
MT. HOOD HIGHWAY
MULTNOMAH COUNTY

PROFESSIONAL OF RECORD CERTIFICATION:

Seal w/signature Brendan LeBlanc	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for "General Conditions", "Grading", "Paving", "Temporary Erosion and Sediment Control", "Retaining Walls", "Sound Walls", and "Handrail". Modified Special Provisions were prepared by me or under my supervision. Sections 00236, 00240, 00270, 00280, 00294, 00298, 00305, 00310, 00320, 00330, 00331, 00350, 00440, 00442, 00480, 00530, 00540, 00596A, 00597, 00620, 00641, 00730, 00745, 00748, 00749, 00755, 00759, 00811, 00815, 01050, 01069, 01070, 02001, 02030, 02050, 02510, 02560, 02695, 02830, & 02831

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

GRADING, PAVING, DRAINAGE, STRUCTURES, SIGNALS, ILLUMINATION, SIGNING, AND ROADSIDE DEVELOPMENT
US26(POWELL BLVD): SE 99TH AVE - EAST CITY LIMITS SEC.
MT. HOOD HIGHWAY
MULTNOMAH COUNTY

PROFESSIONAL OF RECORD CERTIFICATION:

Seal w/signature Christine Higgins	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for "Drainage and Sewers". Modified Special Provisions were prepared by me or under my supervision. Sections 00299, 00405, 00415, 00445, 00446, 00470, 00490, 00495, 00842, 02415, and 2450

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

GRADING, PAVING, DRAINAGE, STRUCTURES, SIGNALS, ILLUMINATION, SIGNING, AND ROADSIDE DEVELOPMENT
US26(POWELL BLVD): SE 99TH AVE - EAST CITY LIMITS SEC.
MT. HOOD HIGHWAY
MULTNOMAH COUNTY

PROFESSIONAL OF RECORD CERTIFICATION:

Seal w/signature Colette Snuffin	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for "Pavement Marking", "Signing", "Illumination", and "Traffic Signals". Modified Special Provisions were prepared by me or under my supervision. Sections 00840, 00850, 00855, 00860, 00865, 00867, 00868, 00869, 00902, 00905, 00910, 00920, 00930, 00940, 00950, 00960, 00962, 00963, 00970, 00987, 00990, and 02926

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

GRADING, PAVING, DRAINAGE, STRUCTURES, SIGNALS, ILLUMINATION, SIGNING, AND ROADSIDE DEVELOPMENT
US26(POWELL BLVD): SE 99TH AVE - EAST CITY LIMITS SEC.
MT. HOOD HIGHWAY
MULTNOMAH COUNTY

PROFESSIONAL OF RECORD CERTIFICATION:

Seal w/signature Paul Woerrlein	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for "Water Supply Systems". Modified Special Provisions were prepared by me or under my supervision. Sections 01140, 01150, 01160, 01170, 02470, 02475, 02480, 02485, 2490, and 2630

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

GRADING, PAVING, DRAINAGE, STRUCTURES, SIGNALS, ILLUMINATION, SIGNING, AND ROADSIDE DEVELOPMENT
US26(POWELL BLVD): SE 99TH AVE - EAST CITY LIMITS SEC.
MT. HOOD HIGHWAY
MULTNOMAH COUNTY

PROFESSIONAL OF RECORD CERTIFICATION:

Seal w/signature Ben Ngan	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for "Seeding and Planting". Modified Special Provisions were prepared by me or under my supervision. Sections 01030, 01040, and 01041

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

SPECIAL PROVISIONS

WORK TO BE DONE

The Work to be done under this Contract consists of the following:

1. Widen and rehabilitate Powell Boulevard.
2. Construct storm sewer facilities.
3. Construct potable water line and service connections.
4. Construct new curb and sidewalk.
5. Construct potable sound walls.
6. Construct raised islands.
7. Construct bus shelter pads.
8. Construct new mailboxes.
9. Install flashing beacons.
10. Modify traffic signals.
11. Install interconnect system.
12. Install illumination.
13. Install seeding.
14. Install pavement marking.
15. Install signing.
16. Perform additional and Incidental Work as called for by the Specifications and Plans.

AUTHORITY OF CONSULTANT

The consultant will be directly in charge of the Project. However, the consultant's authority on this Project is as designated in the official "Consultant Agreement" for this Project, and as designated by the Engineer. This does not include authority to approve Contract changes or semifinal and Final Inspection of the Project.

APPLICABLE SPECIFICATIONS

The Specifications that are applicable to the Work on this Project is the 2021 edition of the "Oregon Standard Specifications for Construction", as modified by these Special Provisions. All Sections in Part 00100 apply, whether or not modified or referenced in the Special Provisions.

All number references in these Special Provisions shall be understood to refer to the Sections and subsections of the Standard Specifications bearing like numbers and to Sections and subsections contained in these Special Provisions in their entirety.

CLASS OF PROJECT

This is a Federal-Aid Project.

SECTION 00110 - ORGANIZATION, CONVENTIONS, ABBREVIATIONS AND DEFINITIONS

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

00110.05(e) Reference to Websites - Add the following bullet list to the end of this subsection:

- American Traffic Safety Services Association (ATSSA)
  www.atssa.com
- BidExpress
  www.bidx.com
- EquipmentWatch
  www.equipmentwatch.com
- ODOT Construction Section
  www.oregon.gov/odot/construction/pages/index.aspx
- ODOT Construction Section - Qualified Products List (QPL)
  www.oregon.gov/ODOT/Construction/Pages/Qualified-Products.aspx
- ODOT Construction Surveying Manual for Contractors
  www.oregon.gov/ODOT/ETA/Documents_Geometronics/Construction-Survey-Manual-Contractors.pdf
- ODOT Electronic Bidding Information Distribution System (eBids)
  (Also referred to as ODOT eBids website)
  https://ecmnet.odot.state.or.us/ebidse
- ODOT Estimating
  www.oregon.gov/ODOT/Business/Pages/Steel.aspx
- Oregon Legislative Counsel
  www.oregonlegislature.gov/lc
- ODOT Procurement Office - Conflict of Interest Guidelines and Disclosure Forms
  www.oregon.gov/ODOT/Business/Procurement/Pages/PSK.aspx
- ODOT Procurement Office - Construction Contracts Unit Notice of Intent
  www.oregon.gov/ODOT/Business/Procurement/Pages/NOI.aspx
- ODOT Procurement Office - Construction Contracts Unit prequalification forms

www.oregon.gov/odot/business/procurement/pages/bid_award.aspx

- Oregon Secretary of State: State Archives
  sos.oregon.gov/archives/Pages/default.aspx
- ODOT Traffic Control Plans Unit
  www.oregon.gov/ODOT/Engineering/Pages/Work-Zone.aspx
- ODOT Traffic Standards
  www.oregon.gov/ODOT/Engineering/Pages/Signals.aspx

SECTION 00120 - BIDDING REQUIREMENTS AND PROCEDURES

Comply with Section 00120 of the Standard Specifications modified as follows:

00120.05 Request for Plans, Special Provisions, and Bid Booklets - Add the following to the end of this subsection:

The Plans, which are applicable to the Work to be performed under the Contract, bear title and date as follows:

"GRADING, PAVING, DRAINAGE, STRUCTURES, SIGNALS, ILLUMINATION, SIGNING, AND ROADSIDE DEVELOPMENT
US26(POWELL BLVD): SE 99TH AVE - EAST CITY LIMITS SEC.
MT. HOOD HIGHWAY
MULTNOMAH COUNTY
JANUARY 2023"

00120.15 Examination of Work Site and Solicitation Documents; Consideration of Conditions to be Encountered - Add the following to the end of this subsection:

The Agency will hold a prebid meeting for all holders of Solicitation Documents at the _____(office or building)_____, located at _____(address)_____ in _____(city)_____, Oregon at _____(time)_____ on _____(date)_____, 20__.

All prospective Bidders must attend this meeting. Those not attending will have their Bids declared non-responsive.

Prospective Bidders will be given the opportunity to ask questions relating to any details involved in the performance of the Work under the Contract.

Information distributed, statements made or responses given to questions, by the Agency's representatives at the prebid meeting will not in any way alter or affect any of the provisions contained in the Solicitation Documents or Contract requirements and will not be binding upon the Agency unless confirmed by Addenda.

00120.40(f) Disclosure of First-Tier Subcontractors -

Replace the bullet under the paper Bid option that begins "Printing it from the Bid Booklet on the ODOT eBIDS website …" with the following bullet:

- Printing it from the Bid Booklet on the ODOT eBIDS website, filling it out and submitting it separately to the ODOT Procurement Office by email transmission to the email address given in the paper Bid Booklet; or

Replace the bullet under the electronic Bid option that begins "Printing it from the Bid Booklet on the ODOT eBIDS website …" with the following bullet:

- Printing it from the Bid Booklet on the ODOT eBIDS website, filling it out and submitting it separately to the ODOT Procurement Office by email transmission to the email address given in the paper Bid Booklet; or

00120.70 Rejection of Nonresponsive Bids - Add the following bullet to the end of the bullet list:

- The Agency determines that any Pay Item is significantly unbalanced to the potential detriment of the Agency.

SECTION 00130 - AWARD AND EXECUTION OF CONTRACT

Comply with Section 00130 of the Standard Specifications.

SECTION 00140 - SCOPE OF WORK

Comply with Section 00140 of the Standard Specifications.

SECTION 00150 - CONTROL OF WORK

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

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, except for the subsection number and title, with the following:

The Contractor shall perform the Contractor responsibilities described in the *Construction Surveying Manual for Contractors*, Chapter 1.6 (see Section 00305).

The Contractor shall perform slope staking including intersections and set stakes defining limits for clearing which approximate Right-of-Way and easements.

00150.50(c) Contractor Responsibilities – Replace the bullet that begins "Protect from damage or disturbance any Utility that remains…" with the following bullet:

- Protect from damage or disturbance any Utility that remains within the area in which Work is being performed. Maintain and re-establish location marks according to OAR 952-001-0090(3)(a). Coordinate re-establishment of the location marks with the associated Utility;

Replace the bullet that begins "Determine the exact location before excavating within …" with the following bullet:

- Determine the exact location before excavating within the tolerance zone according to OAR 952-001-0090(3)(c);

Replace the bullet that begins " In addition to the notification required in OAR 952-001-0090(5), notify the Engineer…" with the following bullet:

- In addition to the notification required in OAR 952-001-0090(6), notify the Engineer and the Utility as soon as the Contractor discovers any previously unknown Utility conflicts or issues. Contrary to the OAR, stop excavating until directed by the Engineer and allow the Utility a minimum of two weeks to relocate or resolve the previously unknown Utility issues; and

Add the following bullet to the end of the bulleted list:

- Hold a Utility scheduling meeting and monthly Utility coordination meetings (see also 00180.42)

Add the following subsection:

00150.50(f) Utility Information (No Anticipated Relocations) - Within the Project limits, there are no anticipated relocations with the Utilities listed in Table 00150-1. The Contractor shall contact those Utilities having buried facilities and request that they locate and mark them for their protection prior to construction.

Table 00150-1

Utility	**Contact Person's Name, Address, Email, and Phone Number**
Zayo Group	Brian Davidson, 18110 SE 34th St., Building 1, Ste 100, Vancouver, WA 98683, brian.davidson@zayo.com, 360-907-5528

The Contractor shall notify, in writing, the Utilities listed above, with a copy to the Engineer, at least 14 Calendar Days before beginning Work on the Project.

Add the following subsection:

00150.50(g) Utility Information (Anticipated Relocations):

The organizations listed in Table 00150-2 may be adjusting Utilities within the limits of the Project during the period of the Contract with relocation work estimated to be completed by the following dates and times:

Table 00150-2

Subsection	Utility	Contact Person's Name, Address, Email, and Phone Number	Estimated Completion Date
00150.50(g)(1)	Northwest Natural Gas	Jeremy Lorence, 220 NW 2nd Avenue, Portland, Oregon, 97209, Jeremy.Lorence@nwnatural.com, 503-781-4467	TBD
00150.50(g)(2)	Portland General Electric	Jesse Lambert, 121 SW Salmon Street, 3WTCBR09, Portland, OR 97204, Jesse.Lambert@pgn.com, 360-953-4050	TBD
00150.50(g)(3)	ODOT Signals	Jeffrey Hayes, 123 NW Flanders, Portland, OR 97204, Jeffrey.D.HAYES@odot.state.or.us, 503-731-8227	TBD
00150.50(g)(4)	Portland Bureau of Transportation	Charles Radosta, 1120 SW 5th Avenue, Suite 800, Portland, OR 97204, Charles.Radosta@portlandoregon.gov, 503-823-5573	TBD
00150.50(g)(5)	Portland Bureau of Environmental Services	Dave Nunamaker, 1120 SW Fifth Avenue, Suite 1000, Portland, OR 97204, dave.nunamaker@portlandoregon.gov, 503-823-7266	TBD
00150.50(g)(6)	Comcast Cable	Caleb Giles, 7900 NE Killingsworth St, Portland, Oregon, 97218, caleb_giles@comcast.com, 503-813-0458	TBD
00150.50(g)(7)	Lumen Technologies	David Dodd, 8021 SW Capitol Hill Road, Portland, Oregon, 97219, David.dodd@lumen.com, 503-616-6291	TBD

00150.50(g)(8)	Ziply Fiber	John Bielec, 4155 SW Cedar Hills Boulevard, Beaverton, OR 97005, John.Bielec@ziply.com, 503-626-2386	TBD
00150.50(g)(9)	Portland Bureau of Technology Services	Rob Durkin, 3732 SE 99th Avenue, Portland, OR 97266, rob.durkin@portlandoregon.gov, 503-823-6243	TBD
00150.50(g)(10)	Portland Water Bureau	Cherri Warnke, 1120 SW 5th Avenue, Room 600, Portland, OR 97204, cherri.warnke@portlandoregon.gov, 503-823-6036	In Construction

The Contractor shall contact the Engineer to view the approved utility relocation Plans.

The Contractor shall notify, in writing, the Utilities listed above, with a copy to the Engineer, at least 14 Calendar Days before beginning Work on the Project.

(1) NW Natural - "Gas Utility":

The Contractor shall notify the Gas Utility in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the gas pipeline.

The Contractor shall notify the Gas Utility in writing, with a copy to the Engineer, 14 Calendar Days before the Contractor is scheduled to begin performing pavement overlay placement. After the Gas Utility receives the notification, the Contractor shall then allow the Gas Utility 2 Calendar Days to schedule and complete the relocation and adjustment work before the Contractor begins performing pavement overlay placement.

The Gas Utility operates a gas pipeline within the Project limits and may require an on-site safety watcher, at no cost to the Contractor.

In the event of an emergency, and in addition to the calls required by the Utilities notification system, the Contractor shall call:

- Northwest Natural Gas 1-800-882-3377

(2) Portland General Electric - "Power Supplier":

The Contractor shall notify the Power Supplier(s) in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the power line(s).

Energized power lines overhang portions of the Work with a minimum vertical clearance of 18 feet. The Contractor shall maintain at least 10 feet of safety clearance. Exceptions require written approval from the Power Supplier(s) and may require an on-site safety watcher, at no cost to the Contractor. The Contractor shall provide the Engineer a copy of the written approval of exception before beginning work.

The Power Supplier cannot de-energize the distribution or transmission line power facilities at any time.

(3) ODOT Electrical:

The Contractor shall notify, in writing, ODOT Electrical with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the ODOT line(s).

(4) Portland Bureau of Transportation (PBOT) Electrical:

The Contractor shall notify PBOT, in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the line(s).

(5) Portland Bureau of Environmental Services - "Sewer Facility":

The Contractor shall notify the Sewer Facility in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the Sewer facilities.

The Contractor shall notify the Sewer Facility in writing, with a copy to the Engineer, 14 Calendar Days before the Contractor is scheduled to begin performing pavement overlay placement. After the Sewer Facility receives the notification, the Contractor shall then allow the Sewer Facility __ Calendar Days to schedule and complete the relocation and adjustment work before the Contractor begins performing pavement overlay placement.

(6) (Comcast Cable) - "Telecommunication Utility":

The Contractor shall notify the Telecommunication Utility in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the Telecommunication Utility facilities.

(7) Lumen Technologies - "Telecommunication Utility":

The Contractor shall notify the Telecommunication Utility in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the Telecommunication Utility facilities.

The Contractor shall notify the Telecommunication Utility in writing, with a copy to the Engineer, 21 Calendar Days before the Contractor is scheduled to begin performing pavement overlay placement. After the Telecommunication Utility receives the notification, the Contractor shall then allow the Telecommunication Utility 7 Calendar Days to schedule and complete the relocation and adjustment work before the Contractor begins performing pavement overlay placement.

The Contractor shall coordinate Fiber Optic relocation work with the Telecommunication Utility due to potential restricted work dates.

The Contractor shall obtain written approval from the Telecommunication Utility for excavating within 10 feet of a buried fiber optic communications cable. The Telecommunication Utility may require an on-site safety representative at no cost to the

Contractor for monitoring purposes. The Contractor shall provide the Engineer a copy of the written approval before beginning work.

(8) Ziply Fiber - "Telecommunication Utility":

The Contractor shall notify the Telecommunication Utility in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the Telecommunication Utility facilities.

The Contractor shall notify the Telecommunication Utility in writing, with a copy to the Engineer, 21 Calendar Days before the Contractor is scheduled to begin performing pavement overlay placement. After the Telecommunication Utility receives the notification, the Contractor shall then allow the Telecommunication Utility 7 Calendar Days to schedule and complete the relocation and adjustment work before the Contractor begins performing pavement overlay placement.

The Contractor shall coordinate Fiber Optic relocation work with the Telecommunication Utility due to potential restricted work dates.

The Contractor shall obtain written approval from the Telecommunication Utility for excavating within 10 feet of a buried fiber optic communications cable. The Telecommunication Utility may require an on-site safety representative at no cost to the Contractor for monitoring purposes. The Contractor shall provide the Engineer a copy of the written approval before beginning work.

(9) Portland Bureau of Technology Service - "Telecommunication Utility":

The Contractor shall notify the Telecommunication Utility in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the Telecommunication Utility facilities.

The Contractor shall coordinate Fiber Optic relocation work with the Telecommunication Utility due to potential restricted work dates.

The Contractor shall obtain written approval from the Telecommunication Utility for excavating within 10 feet of a buried fiber optic communications cable. The Telecommunication Utility may require an on-site safety representative at no cost to the Contractor for monitoring purposes. The Contractor shall provide the Engineer a copy of the written approval before beginning work.

(10) (Portland Water Bureau) - "Water Utility":

The Contractor shall notify the Water Utility in writing, with a copy to the Engineer, at least 28 Calendar Days before beginning Work within 10 feet of the Water Utility facilities.

Additional Water Utility coordination requirements appear in Section 01140 and Section 01170.

00150.55 Cooperation with Other Contractors - Add the following to the end of this subsection:

The following contract work will be ongoing within the Project site during the following times:

Contract Name (Contractor's Name)	Estimated Times (From - To)

US26 (Powell Boulevard) SE 148th Avenue to East City Limit Tree Removal

SECTION 00160 - SOURCE OF MATERIALS

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

00160.21 Cargo Preference Act Requirements - Add the following to the end of this subsection:

Additional information may be available at the following websites:

https://www.fhwa.dot.gov/construction/cqit/cargo.cfm
https://www.fhwa.dot.gov/construction/cqit/cargo/qa.cfm.

00160.30 Agency-Furnished Material - Add the following to the end of this subsection:

The Agency will furnish the listed items at the following locations:

9200 SE Lawnfield Rd, Clackamas, OR 97015.

664 N Tillamook St, Portland, OR 97227.

SECTION 00165 - QUALITY OF MATERIALS

Comply with Section 00165 of the Standard Specifications.

SECTION 00170 - LEGAL RELATIONS AND RESPONSIBILITIES

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

00170.00 General - Replace the paragraph that begins " The Contractor shall comply with all laws, ordinances, …" with the following paragraph:

The Contractor shall comply with all laws, ordinances, codes, regulations, executive orders and administrative rules (collectively referred to as "Laws" in this Section) that relate to the Work or to those engaged in the Work. Where the provisions of the Contract are inconsistent or in conflict, the Contractor shall comply with the more stringent standard.

Add the following subsection:

00170.06 Federal-Aid Participation - This Project is to be conducted according to the regulations applying to Federal-Aid Highway Projects.

00170.65(b)(4) Owner/Operator Data - Replace this subsection, except for the subsection number and title, with the following:

The Contractor shall furnish data to the Engineer for each owner/operator providing trucking services. Furnish the data before the time the services are performed and include without limitation for each owner/operator:

- Driver's name;
- Present driver license upon request;
- Vehicle identification number;
- Present vehicle registration upon request;
- Motor vehicle license plate number;
- Motor Carrier account number;
- Present ODOT Motor Carrier 1A Permit upon request; and
- Name of owner/operator from the side of the truck.

00170.70(a) Insurance Coverages - Add the following to the end of this subsection:

The following insurance coverages and dollar amounts are required pursuant to this subsection:

Insurance Coverages	Combined Single Limit per Occurrence	Annual Aggregate Limit
Commercial General Liability	$5,000,000	$10,000,000
Commercial Automobile Liability	$2,000,000	(aggregate limit not required)
Pollution Liability	$1,000,000	$1,000,000
Commercial Automobile Liability with Pollution Coverage	$2,000,000	(aggregate limit not required)

Pollution Liability Insurance - With a minimum limit of $1,000,000, if pollution coverage is provided outside of a P&I Club entry or outside of Protection and Indemnity Insurance coverage evidenced on the SP-23 form or equivalent.

00170.70(d) Additional Insured - Replace the paragraph that begins " The liability insurance coverages of 00170.70(a) shall …" with the following paragraph:

The liability insurance coverages of 00170.70(a) shall include an Additional Insured Endorsement endorsing the “State of Oregon, the Oregon Transportation Commission and the Department of Transportation, and their respective officers, members, agents, and

employees" as Additional Insureds, but only with respect to the Contractor's activities to be performed under the Contract. Coverage shall be primary and non-contributory with any other insurance and self-insurance. The liability coverages of 00170.70(a) that are permitted by the Agency to be obtained by an appropriate Subcontractor shall include all of the foregoing as Additional Insureds and shall also include the Contractor and its officers and employees as Additional Insureds.

Add the following paragraph and bullets to the end of this subsection:

Add the following as Additional Insureds under the Contract:

- The City of Portland and its officers, agents, and employees
- Portland City Council
- HDR Inc.
- _____(Sub-consultant)_____

00170.70(g) Certificate(s) of Insurance – Replace the bullet that begins "List the "State of Oregon, the Oregon Transportation…" with the following bullet:

- List the "State of Oregon, the Oregon Transportation Commission and the Department of Transportation, and their respective officers, members, agents and employees" as a Certificate holder and endorse as an Additional Insured;

00170.70(h) Agency Acceptance - Replace the paragraph that begins "All insurance and insurance providers are …" with the following paragraph:

All insurance and insurance providers are subject to Agency acceptance. In addition, all of the following are subject to Agency acceptance and, if requested by Agency, the Contractor shall provide complete copies of the following to Agency's representatives responsible for verification of the insurance coverages required by the Contract: insurance policies, endorsements, self-insurance documents and related insurance documents.

00170.70(k) Builder's Risk Installation Floater - Delete this subsection.

SECTION 00180 - PROSECUTION AND PROGRESS

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

00180.30 Materials, Equipment, and Work Force - Add the following paragraph to the end of the subsection:

ORS 279C.537 (Oregon House Bill 2007 (2019), Sections 17, 18 and 18a) applies to the Contract. The ORS 279C.537 requirements include but are not limited to the requirement that at least 80 percent of the total fleet of motor vehicles powered by diesel engines and equipment powered by nonroad diesel engines used on the site and in the course of performing the Contract must be (a) motor vehicles powered by model year 2010 or newer diesel engines and (b) equipment powered by nonroad diesel engines, whether or not capable of being powered by alternative fuel, that meet or exceed United States

Environmental Protection Agency Tier 4 exhaust emission standards for nonroad compression ignition engines (ORS 279C.537(2)). ORS 279C.537(4) contemplates the Oregon Department of Environmental Quality (DEQ) will establish minimum standards and that ODOT, the Oregon Department of Administrative Services and the Oregon Department of Justice will adopt administrative rules (considering the DEQ minimum standards). When those administrative rules are promulgated and effective, the Contractor shall fully comply with the requirements of the administrative rules ODOT deems applicable, which as provided in ORS 279C.537(4)(c) may be required as an alternative to the requirements of ORS 279C.537(2).

00180.40(b) On-Site Work - Add the following bullet to the end of the bullet list:

- An approved Utility Protection Plan

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:

Limitations	**Subsection**
Cooperation with Utilities	00150.50
Cooperation with Other Contractors	00150.55
Contract Time	00180.50(h)
Right-of-Way and Access Delays	00180.65
Closed Lanes	00220.40(e)(1)
Special Events	00220.40(e)(2)(b)
Limited Duration Road Closure	00220.40(f)
Noise Control	00290.32
Maintenance Under Traffic	00620.43
Opening Sections to Traffic	00745.51

No On-site Work, except erosion control maintenance, inspection, and monitoring is allow from Thanksgiving Day on the fourth Thursday in November to January 10, unless approved by the Engineer.

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 C schedule as detailed in the Standard Specifications is required on this Contract.

00180.41(c)(2) Detailed Project Work Schedule - Add the following bullet to the end of the detailed work schedule activities bullet list:

- Water Utility performed work activities for pressure testing, bacterial testing, locates, main tie ins, service connection meter installation, and disconnection of existing pipes.

00180.42 Preconstruction Conference - Add the following to the end of this subsection:

Before beginning On-Site Work and before the preconstruction conference, the Contractor shall conduct a Utility scheduling meeting with representatives from the Utilities involved with this Project and with the Engineer. The Contractor shall incorporate the time needs of the Utilities into the Contractor's schedule submitted at the preconstruction conference.

The Contractor shall submit a written Utility Coordination Report to the Engineer not later than seven Calendar Days after the Utility scheduling meeting. The Utility Coordination Report shall:

- Identify each specific Utility;
- Identify Utility contact names and numbers;
- Identify dates for Utility scheduling for the entire Project;
- Contain documents showing that the Contractor has accomplished Utility locates; and
- Contain documents showing that Utility locates, along with applicable construction activities, have been reviewed and discussed on-site with Utility representatives.

The Contractor shall hold monthly Utility coordination meetings with Utilities and the Engineer to coordinate Project activities with Utilities and on-going Utility relocation work. The Contractor shall hold monthly Utility coordination meetings in the office or in the field, as appropriate. The Utility coordination meetings shall include, but not be limited to:

- Detailed discussions of existing and abandoned Utilities,
- Detailed discussions of de-energizing and re-energizing service lines,
- Detailed discussions of critical locations for potholing of Utilities,
- Detailed discussions of Project activities, and
- Detailed discussions of on-going Utility relocations in upcoming Project activity areas.

During the monthly Utility coordination meetings, the Utilities will provide Utility drawings and discuss the scope, extent, locations, and significance of all Utility facilities before the Contractor begins work in a new activity area. The Contractor shall incorporate this information into the Project schedules and furnish the Utilities copies of the updated Project schedules.

The Contractor shall plan and schedule all Utility adjustment operations well in advance of On-Site Work. When the Contractor becomes aware of Utility conflicts not previously identified, the Contractor shall notify the applicable Utilities in writing the same Calendar Day. The Contractor shall allow Utilities at least ***(***___ week***(***s***))(*** ___ Calendar Day***(***s***))*** to relocate (adjust) the Utility conflicts not previously identified.

(Use the following paragraph and bullet list when sensitive cultural sites require protection during construction.)

At the preconstruction conference, or at a mutually agreed upon time at least 10 Calendar Days prior to beginning ground disturbing activities, the Contractor shall meet with the Engineer to discuss sensitive cultural sites on the Project. In attendance at this conference shall be:

- The Contractor's supervisory personnel.
- Any Subcontractors (including contract archaeological monitors) and supervisory personnel who will be involved in ground disturbing activities.
- Agency archaeology representative or region environmental coordinator.
- When applicable, tribal representative(s) or monitor(s).

Add the following subsection:

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

(1) The Contractor shall complete all Work to be done under the Contract required to remove the buildings and secure the property on File #114 and File #227 before the elapse of 40 Calendar Days after the ending date of the anticipated delay under subsection 00180.65.

(2) The Contractor shall complete all Work to be done under the Contract required to abandon the water lines designated in the plans east of SE 148th Avenue and put all the new potable water facilities and appurtenances in service for all customers east of SE 148th Avenue not later than May 13, 2024.

(3) The Contractor shall complete all Stage 3 Work to be done under the Contract including but not limited to; earthwork, drainage, concrete paving, base lift and temporary paving, curb, sound wall, retaining wall, walks, driveways, temporary and permanent pedestrian ramps, temporary and permanent electrical conduit, and temporary striping Work to be done under the Contract between Station "PB3" 1177+75 and Station "PB3" 1251+93 to the south of the "PB3" Line not later than November 22, 2024.

(4) The Contractor shall complete all Work to be done under the Contract required to abandon the water lines designated in the plans and put all the new potable water facilities and appurtenances in service for all customers not later than June 16, 2025.

(5) The Contractor shall complete all Stage 3 Work to be done under the Contract including but not limited to; earthwork, drainage, concrete paving, base lift and temporary paving, curb, retaining wall, walks, driveways, cable barrier, temporary and permanent pedestrian ramps, temporary and permanent electrical conduit, and temporary striping Work to be done under the Contract between Station "PB3" 1039+15 and Station "PB3" 1106+00 to the south of the "PB3" Line, and Station "PB3" 1143+75 and Station "PB3" 1177+75 to the south of the "PB3" Line not later than July 27, 2026.

(6) The Contractor shall complete all Work to be done under the Contract east of SE 148th Avenue, except for seeding establishment, not later than October 5, 2026.

(7) The Contractor shall complete all Work to be done under the Contract, except for seeding establishment, not later than May 17, 2027.

00180.65 Right-of-Way and Access Delays - Add the following paragraph and bullet to the end of this subsection:

It is anticipated that the ending date of an anticipated delay for the following properties will be as shown:

- File 114 not later than XX XX XX.
- File 227 not later than XX XX XX.
- File 001, File 003, File 004, File 005, File 006, File 007, File 008, File 009, File 010, File 011, File 012, File 013, File 014, File 015, File 016, File 017, File 018, File 019, File 021, File 022, File 023, File 024, File 139, File 141, File 142, File 143, File 144, File 145, File 148, File 149, File 150, File 151, File 152, File 153, File 154, File 155, File 156, File 157, File 158, File 168, File 169, File 170, File 171, and File 258 not later than April 28 2023.
- File 002, File 020, File 025, File 026, File 027, File 028, File 037, File 040, File 041, File 045, File 046, File 055, File 056, File 057, File 062, File 069, File 077, File 138, File 140, File 159, File 160, File 161, File 162, File 163, File 164, File 165, File 166, File 167, File 172, File 173, File 184, File 185, File 186, File 187, File 188, File 189, File 190, File 191, File 192, File 205, File 206, File 208, and File 257 not later than June 15 2023.

Temporary easements shall only be occupied by the Contractor and utilities for up to 2 years of total time within the period that the temporary easement is in effect. Access will only be available to the temporary easements on the following properties during the period as shown:

- File 001 from ___(Date)___ to ___(Date)___.
- File 002 from ___(Date)___ to ___(Date)___.
- File 003 from ___(Date)___ to ___(Date)___.
- File 004 from ___(Date)___ to ___(Date)___.
- File 005 from ___(Date)___ to ___(Date)___.
- File 006 from ___(Date)___ to ___(Date)___.
- File 007 from ___(Date)___ to ___(Date)___.
- File 008 from ___(Date)___ to ___(Date)___.
- File 009 from ___(Date)___ to ___(Date)___.
- File 010 from ___(Date)___ to ___(Date)___.
- File 011 from ___(Date)___ to ___(Date)___.
- File 012 from ___(Date)___ to ___(Date)___.
- File 013 from ___(Date)___ to ___(Date)___.
- File 014 from ___(Date)___ to ___(Date)___.
- File 015 from ___(Date)___ to ___(Date)___.
- File 016 from ___(Date)___ to ___(Date)___.
- File 017 from ___(Date)___ to ___(Date)___.
- File 018 from ___(Date)___ to ___(Date)___.
- File 019 from ___(Date)___ to ___(Date)___.
- File 020 from ___(Date)___ to ___(Date)___.
- File 021 from ___(Date)___ to ___(Date)___.

- File 022 from ___(Date)___ to ___(Date)___.
- File 023 from ___(Date)___ to ___(Date)___.
- File 024 from ___(Date)___ to ___(Date)___.
- File 025 from ___(Date)___ to ___(Date)___.
- File 026 from ___(Date)___ to ___(Date)___.
- File 027 from ___(Date)___ to ___(Date)___.
- File 028 from ___(Date)___ to ___(Date)___.
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- File 030 from ___(Date)___ to ___(Date)___.
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- File 061 from ___(Date)___ to ___(Date)___.
- File 062 from ___(Date)___ to ___(Date)___.
- File 063 from ___(Date)___ to ___(Date)___.
- File 064 from ___(Date)___ to ___(Date)___.
- File 065 from ___(Date)___ to ___(Date)___.
- File 066 from ___(Date)___ to ___(Date)___.
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- File 244 from ___(Date)___ to ___(Date)___.
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- File 246 from ___(Date)___ to ___(Date)___.
- File 247 from ___(Date)___ to ___(Date)___.
- File 248 from ___(Date)___ to ___(Date)___.
- File 249 from ___(Date)___ to ___(Date)___.
- File 250 from ___(Date)___ to ___(Date)___.
- File 251 from ___(Date)___ to ___(Date)___.
- File 252 from ___(Date)___ to ___(Date)___.
- File 253 from ___(Date)___ to ___(Date)___.
- File 254 from ___(Date)___ to ___(Date)___.
- File 255 from ___(Date)___ to ___(Date)___.

- File 256 from ___(Date)___ to ___(Date)___.

00180.85(b)(2) Multiple Contract Times - Add the following paragraph and bullet list to the end of this subsection:

The Agency determined percentages of the value of Work required to be complete by the Contract Times listed under 00180.50(h) are as follows:

- For Contract Time 00180.50(h)(1) the Agency determined percentage of Work is _____ percent.
- For Contract Time 00180.50(h)(2) the Agency determined percentage of Work is _____ percent.
- For Contract Time 00180.50(h)(3) the Agency determined percentage of Work is _____ percent.
- For Contract Time 00180.50(h)(4) the Agency determined percentage of Work is _____ percent.
- For Contract Time 00180.50(h)(5) the Agency determined percentage of Work is _____ percent.
- For Contract Time 00180.50(h)(6) the Agency determined percentage of Work is 100 percent.
- For Contract Time 00180.50(h)(7) the Agency determined percentage of Work is 100 percent.

Add the following subsection:

00180.85(c) Lane Closures - Lane closures beyond the limits specified will inconvenience the traveling public and will be a cost to the Agency.

It is impractical to determine the actual damages the Agency will sustain in the event Traffic Lanes are closed beyond the limits listed in 00220.40(e) or 00220.40(f). Therefore, the Contractor shall pay to the Agency, not as a penalty, but as liquidated damages, $500 per 15 minutes, or for a portion of 15 minutes, per lane, for any lane closure beyond the limits listed in 00220.40(e) or 00220.40(f). In addition to the liquidated damages, all added cost for traffic control measures, including flagging, required to maintain the lane closures beyond the allowed time limits, will be at no additional cost to the Agency. The required traffic control measures will be as determined by the Engineer.

The Engineer will determine when it is safe to reopen lanes to traffic. Assessment of liquidated damages will stop when all lanes have been safely reopened. Any liquidated damages assessed under these provisions will be in addition to those listed in 00180.85(b).

SECTION 00190 - MEASUREMENT OF PAY QUANTITIES

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

00190.20(a) General - Replace the paragraph that begins "Unless otherwise provided in the Contract, Pay …" with the following paragraph:

Unless otherwise provided in the Contract, Pay Items to be measured by weight shall include all Contractor costs for providing, maintaining, inspecting, and testing scales; for furnishing appropriate weigh tickets; for self-printing scales; for electronic weigh memo system(s); and for transporting Materials to the scales or to check weighing.

00190.20(f)(1) Scale with Automatic Printer - Replace the paragraph that begins "If the scales have an automatic weigh memo printer …" with the following paragraph:

If the scales have an automatic weigh memo printer or an approved electronic weigh memo system that does not require manual entry of gross weight information, the Agency may periodically have a representative at the scales to observe the weighing procedures. In addition, the Engineer may periodically check the weight for a load of Materials by directing the haul vehicle to reweigh on a different scale that has been inspected and certified according to 00190.20(b) and 00190.20(d).

00190.20(f)(2) Scale Without Automatic Printer - Replace the sentence that begins "The Contractor shall inform the Engineer of …" with the following sentence:

The Contractor shall inform the Engineer of its intent to use a scale without an automatic printer at least 3 working Days before weighing begins or before the Contractor changes to a scale that does not have an 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 bullet that begins " Furnish a legible, serially numbered weigh memo …" with the following bullets:

- Furnish a legible, serially numbered weigh memo for each load of Materials to the Agency's Materials receiver at the point of delivery, or as directed by the Engineer. The memo shall identify the Project, the Materials, the date, net weight (gross and tare as appropriate), and identification of the vehicle and weigh technician. If approved by the Engineer an electronic weigh memo system may be used. Requests to use an electronic weigh memo system shall be submitted to the Engineer according to 00150.37, providing sufficient detail for the Engineer to perform an evaluation. If approved, the Contractor shall provide training, technical support, reports, and weigh memo information to the Engineer at no additional cost to the Agency. The electronic weigh memo system shall be:
  - Capable of recording and securely retaining the same required “weigh memo” information identified above. For retention see 00170.07(c).
  - Fully integrated with the provided weigh scale system.
  - Designed in such a way that the data electronically read from scales cannot be altered by the Contractor, Subcontractor, Supplier, Engineer, or other system users.
  - Designed to allow the Engineer remote access to all the weigh memo data in real-time and allow the Engineer to add comments to the individual weigh memo regarding waste, temperature, stations, yield or other information. The system shall

identify the system user or individual that adds comments to the electronic weigh memo or otherwise access the system. The Contractor shall provide the Engineer a means to access the data if the Engineer cannot use an Agency provided hand held device for access.

- Capable of providing all the weigh memo information, including any added comments, in an electronic data file the Engineer can easily access without proprietary software.

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.

00190.30 Plant Scales - Add the following paragraph after the paragraph that begins "The Contractor, with the Engineer's written…":

If approved by the Engineer an electronic weigh memo system may be used in place of a printer system. See 00190.20(f)(3).

SECTION 00195 - PAYMENT

Comply with Section 00195 of the Standard Specifications modified as follows:

00195.10 Payment For Changes in Materials Costs - Replace this subsection with the following subsection:

00195.10 Asphalt Cement Material Price Escalation/De-escalation - An asphalt cement escalation/de-escalation clause will be in effect during the life of the Contract.

The Agency reserves all of its rights under the Contract, including, but not limited to, its rights for suspension of the Work under 00180.70 and its rights for termination of the Contract under 00180.90, and this escalation/de-escalation provision shall not limit those rights.

(a) Monthly Asphalt Cement Material Price (MACMP) - The Monthly Asphalt Cement Material Price (MACMP) will be established by the Agency each month and will be based on the published prices of PG 64-22 asphalt cement furnished by Poten & Partners, Inc. If any portion of the Project Site is located within the boundaries of ODOT Maintenance District 13 or 14, the MACMP will be based on the average prices for the Boise, Idaho area. If no portion of the Project Site is within the boundaries of ODOT Maintenance District 13 or 14, the Contractor may elect to have the MACMP based on the average prices of either the Portland, Oregon area or the Boise, Idaho area. If electing to use Boise, Idaho average prices for determination of the MACMP, the Contractor shall notify the Engineer in writing of the Contractor's election before or within 7 Calendar Days after the date of the preconstruction conference. This election, once acknowledged by the Engineer, will be binding for the entire duration of the Contract. If no such written notification is made, the Portland, Oregon area prices will be used as the basis of the MACMP. The area selected as the basis of the MACMP, once chosen, will become the sole area to be used as the basis for all asphalt cement used on the Project. Each MACMP

for a given month will be the average of the published prices for that MACMP for each Friday in that month.

For information regarding the calculation of the MACMP, and for the actual MACMP, go to the Agency website at:

https://www.oregon.gov/ODOT/Business/Pages/Asphalt-Fuel-Price.aspx

If the Agency-selected index ceases to be available for any reason, the Agency in its discretion will select and begin using a substitute price source or index to establish the MACMP each month. The MACMP will apply to all asphalt cement including but not limited to paving grade, polymer modified, and emulsified asphalts, and recycling agents. The Agency does not guarantee that asphalt cement will be available at the MACMP.

(b) Base Asphalt Cement Material Price (Base) - The base asphalt cement material price for this Project is the MACMP published on the Agency website for the month immediately preceding the Bid Opening date.

(c) Monthly Asphalt Cement Adjustment Factor - The monthly asphalt cement adjustment factor will be determined each month as follows:

- If the MACMP is within ± 5% of the Base, there will be no adjustment.
- If the MACMP is more than 105% of the Base, then:

  Adjustment Factor = (MACMP) - (1.05 x Base)

- If the MACMP is less than 95% of the Base, then:

  Adjustment Factor = (MACMP) - (0.95 x Base)

(d) Asphalt Cement Price Adjustment - A price adjustment will be made for the items containing asphalt cement listed below. The price adjustment as calculated in (c) above will use the MACMP for the month the asphalt is incorporated into the Project. The price adjustment will be determined by multiplying the asphalt incorporated during the month for subject Pay Items by the Adjustment Factor.

The Pay Items for which price adjustments will be made are:

Pay Item(s)

PG 64-22 Asphalt in 1/2 Inch ACP
PG 70-22ER Asphalt in 1/2 Inch ACP
PG 64-22 Asphalt in 1/2 Inch Leveling ACP
PG 64-22 Asphalt in 1/2 Inch Temporary ACP
PG 70-22ER Asphalt in 1/2 Inch Temporary ACP
Emulsified Asphalt for Tack Coat

Add the following subsection:

00195.11 Fuel Cost Price Escalation/De-escalation - A fuel escalation/de-escalation clause will be in effect during the life of the Contract.

The Agency reserves all of its rights under the Contract, including, but not limited to, its rights for suspension of the Work under 00180.70 and its rights for termination of the Contract under 00180.90, and this escalation/de-escalation provision shall not limit those rights.

(a) Monthly Fuel Price (MFP) - A Monthly Fuel Price (MFP) will be established by the Agency each month. For the actual MFP, go to the Agency website at:

https://www.oregon.gov/ODOT/Business/Pages/Asphalt-Fuel-Price.aspx

The MFP for a given month will be the average weekly price obtained from the OPIS weekly listing dated the first Monday of that month for No. 2 diesel fuel for Portland, Oregon. Prices are based solely on rack and resellers' prices exclusive of freight, taxes, and special discounts. If the average weekly price is not posted by OPIS or is otherwise not available to the Agency for the first Monday of any month for any reason, the Agency may use the average weekly price posted by OPIS immediately before or after the first Monday of that month. If the average weekly prices cease to be available from OPIS for any reason, the Agency in its discretion will select and begin using a substitute price source or index to establish the MFP each month. The Agency does not guarantee that fuel will be available at the MFP.

(b) Base Fuel Price (Base) - The base fuel price for this Project is the MFP published on the Agency website for the month immediately preceding the Bid Opening date.

(c) Monthly Fuel Adjustment Factor - A monthly fuel adjustment factor will be determined each month as follows:

- If the MFP is within ± 25% of the Base, there will be no adjustment.
- If the MFP is more than 125% of the Base, then:

  Adjustment Factor = (MFP) - (1.25 x Base)

- If the MFP is less than 75% of the Base, then:

  Adjustment Factor = (MFP) - (0.75 x Base)

(d) Fuel Price Adjustment - A fuel price adjustment for fluctuations in the cost of fuel will apply only to the major fuel usage Pay Items shown in the following list and at the respective fuel factors listed:

Item	Fuel Factor
¾ Inch Aggregate Base	0.69 Gal/Ton
½ Inch ACP	2.93 Gal/Ton
½ Inch ACP in Leveling	2.95 Gal/Ton
½ Inch ACP in Temporary	2.93 Gal/Ton
Reinforced Concrete Pavement	1.00 Gal/Ton
Concrete Islands	0.11 Gal/Ton

Concrete Driveways	0.11 Gal/Ton
Concrete Walks	0.11 Gal/Ton

All Pay Items associated with the following Bridges and Structures:

Structure No. [Sound Wall 3a]	(10)(19) Gal/$1000
Structure No. [Sound Wall 3b]	(10)(19) Gal/$1000
Structure No. [Sound Wall 4]	(10)(19) Gal/$1000
Structure No. [Sound Wall 5]	(10)(19) Gal/$1000
Structure No. [Sound Wall 6]	(10)(19) Gal/$1000

The Contractor is cautioned to consider that its operations may require more or less fuel.

A price adjustment (±) to the Contractor for fuel cost changes will be made monthly if the Monthly Fuel Price differs 25% or more from the Base Fuel Price. This adjustment will be the product of the Monthly Fuel Adjustment Factor and the estimated Monthly Fuel Used. The Monthly Fuel Used will be determined by multiplying the quantities of Work accomplished during the month for subject Pay Items, by the appropriate Fuel Factors.

Fuel cost adjustments will continue to be made as specified and will not be revised for any reason, including the Contractor's election to use an alternative fuel (natural gas, wood pellets, propane, or other).

00195.12(d) Steel Materials Pay Item Selection - Add the following paragraphs to the end of this subsection:

If the Contractor elects not to participate in the steel escalation/de-escalation program for this Project, no response from the Contractor is required.

The Contractor may elect to participate in the steel escalation/de-escalation program for this Project under 00195.12 through 00195.12(d) by marking each check box for each Pay Item in the list below the Contractor is selecting for participation in the program. The completed list must be submitted in writing, signed and dated by the Contractor, to the Project Manager before or within 7 Calendar Days after the date of the preconstruction conference.

PARTICIPATE	PAY ITEM DESCRIPTION	COST BASIS (CB)
☐	4 Inch Ductile Iron Pipe, 5 Ft Depth	6%
☐	6 Inch Ductile Iron Pipe, 5 Ft Depth	6%
☐	8 Inch Ductile Iron Pipe, 5 Ft Depth	6%
☐	12 Inch Ductile Iron Pipe, 5 Ft Depth	6%
☐	Reinforced Concrete Pavement, 10 In Thick	7%
☐	Cable Guardrail	24%
☐	Lighting Pole Arms	35%
☐	Lighting Poles, Slip Base	35%
☐	Lighting Poles, Fixed Base	35%

Regardless of the number of Pay Items listed by the Agency or selected by the Contractor, or if no Pay Items qualify for the steel escalation/de-escalation program for this Project or the Contractor elects not to participate in the steel escalation/de-escalation program for this Project, the steel price escalation/de-escalation clause (and program) contained in 00195.12 through 00195.12(d) are included in this Contract and are the only steel price escalation/de-escalation clause (and program) that apply to this Contract.

_____ _____

Contractor's Signature Date

00195.50(a) Progress Payments - Replace the paragraph that begins "The estimates upon which progress payments are …" with the following paragraph:

The estimates upon which progress payments are based are not represented to be accurate estimates. All estimated quantities are subject to correction in the final estimate. If the Contractor uses these estimates as a basis for making payments to Subcontractors and Suppliers, the Contractor assumes all risk and bears any losses that result.

SECTION 00196 - PAYMENT FOR EXTRA WORK

Comply with Section 00196 of the Standard Specifications.

SECTION 00197 - PAYMENT FOR FORCE ACCOUNT WORK

Comply with Section 00197 of the Standard Specifications.

SECTION 00199 - DISAGREEMENTS, PROTESTS, AND CLAIMS

Comply with Section 00199 of the Standard Specifications modified as follows:

00199.40(c) Step 2: Agency Level Review - Replace the paragraph that begins "If the Contractor does not accept the Step 2 …" with the following paragraph:

If the Contractor does not accept the Step 2 decision, the Contractor may, within 10 Calendar Days of receipt of the written decision, request in writing through the Engineer that the claim be advanced to Step 3 or 4 (see (d) and (e) below), as applicable. For purposes of determining which process to use for claims under Step 3 or 4 concerning a combination of additional compensation and Contract Time or for Contract Time only, the value of the claim or portion of the claim for Contract Time will be assumed to be the appropriate Liquidated Damages as provided in 00180.85 multiplied by the number of Calendar Days in question. If applicable, advancement of the claim is subject to the provisions of 00199.60 regarding waiver and dismissal of the claim or portions of the claim.

SECTION 00210 - MOBILIZATION

Comply with Section 00210 of the Standard Specifications.

SECTION 00220 - ACCOMMODATIONS FOR PUBLIC TRAFFIC

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

Add the following subsection:

00220.01(d) Terminology - According to 00110.05(a), for the purposes of this Contract, the terms "sidewalk ramp" and "sidewalk ramps" shall respectively refer to and shall be read to mean "curb ramp" and "curb ramps".

00220.02(a) General Requirements - Add the following bullets to the end of the bullet list:

- Excavations 4 feet or deeper will be backfilled, covered with steel plating, or secured with fencing during non-working hours to prevent public access.
- Stockpiled materials, equipment, and vehicles will be allowed when 10 feet or more from the Traveled Way without barrier protection.
- Delineate all business accesses with blue tubular markers on 10-foot maximum spacing. Mark the access with 36-by-24-inch "BUSINESS ACCESS" (CG20-11) signs. Locate and install these signs as directed.
- During stage construction, provide continuous 24-hour flagger operation, with a minimum of two (2) flaggers. Occupy the advance flagger stations, as directed.
- Before activating a modified traffic signal, revising lane usage, implementing new roadway geometry, or removing a "STOP" sign, protect traffic by installing "NEW TRAFFIC PATTERN AHEAD" (W23-2) signing according to 00222.40. Keep the signs in place for 30 Calendar Days after completing the modifications.

  When an abrupt edge is created by excavation, protect traffic according to the "Excavation Abrupt Edge" and the "Typical Abrupt Edge Delineation" configurations shown on the Standard Drawings.

  When paving operations create an abrupt edge, protect traffic by installing a "DO NOT PASS" (R4-1) sign before the Work Area at sign spacing "A" from the TCD Spacing Table" shown on the Standard Drawings. Alternate "ABRUPT EDGE" (CW21-7) signs with appropriate (CW21-8) rider and "DO NOT PASS" (R4-1) signs at 1/2 mile spacings. Install a "BUMP" (W8-1) sign 100 feet prior to the transverse paving edge.

  Protect pedestrians in pole base excavation areas by placing approved covers over all pole base excavations. Place a minimum of two B(II)LR barricades adjacent to and on either side of the excavated area, facing pedestrian traffic, or place covers and barricades as directed.
- For SE Powell Boulevard, by Thanksgiving Day of each year, perform the following:
    - Restore the original number of travel lanes and shoulders to their original widths

- Install the needed traffic control devices including temporary striping, pavement markers, etc.
- Move the temporary concrete barrier and other construction materials and equipment out of the project site
- Repair any damaged pavement to an approved condition

Maintain the above conditions through January 10th of the following year.

00220.03(a) Over-Dimensional Vehicle Restrictions - Add the following to the end of this subsection:

MCTD requirements for freight restriction notification on state highways are as follows:

- **No advance notification required:** Minimum available horizontal clear distance is 19 feet for a single lane of traffic on SE Powell Boulevard.
- **Daylight Width Restrictions – Single Lane:** Width restrictions resulting in a single lane of traffic during daylight hours require 35-day notification for a horizontal clear distance of less than 17 feet for SE Powell Boulevard. Width restrictions between 17 and 19 feet for U.S. 26 require 14-day notification.
- **Nighttime Width Restrictions – Single Lane:** Width restrictions resulting in a single lane of traffic during nighttime hours require 35-day notification for a horizontal clear distance of less than 13 feet for SE Powell Boulevard. Width restrictions between 13 and 19 feet require 14-day notification.

00220.03(b) Closures - Add the following bullets to the end of the bullet list:

- **On Street Parking** - A minimum of 14 calendar days before closing on-street parking. After receiving written approval, provide 48 hours' public notification before limiting the on-street parking.
- **Parking** - A minimum of 14 calendar days before closing parking in temporary easements acquired for the project. After receiving written approval, provide 48 hours' public notification before limiting the parking.
- **Parking Lots** - A minimum of 14 calendar days before closure or starting work that limits access to the parking lot. Provide business owner and ODOT with written copy of proposed closure schedule as well. Install no parking signs in scheduled work areas.
- **Bus Stops** - Notify TriMet a minimum of 21 calendar days in advance of closure or relocation as required in the Plans. Contractor shall not impact consecutive bus stops at the same time.

00220.03 Work Zone Notifications – Add the following to the end of this subsection:

00220.03(c) Local Agency – A minimum of 28 days before implementing a detour route and 14 days before installing TCD, within the city of Portland streets. Notify Portland Bureau of Transportation at: movepdx@portlandoregon.gov.

00220.03(d) Private Property – Provide written notification to the property owner a minimum of 30 Calendar days before occupying the temporary easements for the following:

- File 003 at 9915 SE Powell Boulevard
- File 004 at 9949 SE Powell Boulevard (Eastside Steel)
- File 005 at 10001 SE Powell Boulevard (Superior Fence and Construction)

00220.40(b) Detours and Stage Construction– Add the following to the end of this subsection:

Sections of sidewalk may be closed and pedestrians diverted to a temporary pedestrian accessible route in the roadway shoulder, as shown, or directed within the following areas:

- US-26
- SE 102nd Avenue only during road or lane closure
- SE 104th Avenue only during lane closure
- SE 111nd Avenue
- SE 116th Avenue
- SE 118th Avenue from US-26 south
- West side of SE 119th Avenue from US-26 south
- West side of SE 138th Avenue
- East side of SE 147th Avenue
- West side of SE 148th Avenue
- SE 151st Avenue
- SE 153rd Avenue
- SE 156th Avenue
- SE 162nd Avenue from US-26 north
- West side of SE Naegeli Drive
- East side of SE 168th Avenue
- SE 171st Avenue (Meadowland Shopping Center)
- West side of SE 174th Avenue from US-26 south
- East side of SE 174th Avenue

Pedestrian facilities on one side of the roadway may be closed and pedestrians diverted to a temporary pedestrian accessible route on the other side of the roadway, as shown, or directed within the following areas:

- US-26 – Nightly closure of the bicycle portion of the shoulders between 8:00 p.m. and 6:00 a.m.. Closure will be limited to a maximum length of 1500 feet of roadway.
- SE 102nd Avenue – detour using existing marked trail crossing just south of US-26
- SE 104th Avenue – detour using existing marked trail crossing just south of US-26

00220.40(c) Driveways - Add the following bullets to the end of the bullet list:

- The Blue Rose Massage driveway at Station “PB3” 1041+12 LT may be closed when allowed, shown or as directed nightly between 11:30 p.m. and 8:30 a.m.
- The Eastside Steel driveway at Station “PB3” 1046+15 LT may be closed when allowed, shown or as directed Sunday at all times and nightly Monday through Saturday between 7:00 p.m. and 5:00 a.m.
- The Superior Fence & Construction driveway at Station “PB3” 1046+96 LT and driveway at Station “PB3” 1047+67 LT may be closed when allowed, shown or as

directed Saturday and Sunday at all times and nightly Monday through Friday between 7:00 p.m. and 5:00 a.m.

- The Curtis Trailers driveways at Station “PB3” 1050+94 LT, driveway at Station “PB3” 1052+98 LT, and driveway at Station “PB3” 1054+61 LT may be closed when allowed, shown or as directed nightly between 7:00 p.m. and 6:00 a.m.
- The Catholic Church of the Korean Martyrs driveways at Station “PB3” 1070+54 RT and driveway at Station “PB3” 1072+44 RT may be closed when allowed, shown or as directed Monday at all times and Wednesday and Friday between 12:00 p.m. and 12:00 a.m.. Also Tuesday and Thursday between 12:00 a.m. and 12:00 p.m.
- The Jenni’s Sacred Grounds driveway at Station “PB3” 1071+42 LT may be closed when allowed, shown or as directed daily between 4:30 p.m. and 4:00 a.m.
- The Mckenzie RVs driveway at Station “PB3” 1073+91 LT may be closed when allowed, shown or as directed daily between 7:00 p.m. and 8:00 a.m.
- The Powell Center driveway at Station “PB3” 1076+14 RT may be closed when allowed, shown or as directed daily between 6:00 p.m. and 7:00 a.m.
- The Happy Sing Bar driveway at Station “PB3” 1078+05 RT may be closed when allowed, shown or as directed daily between 11:00 p.m. and 8:00 a.m.
- The Battery Specialists driveway at Station “PB3” 1081+18 LT may be closed when allowed, shown or as directed Sunday at all times and Monday through Saturday between 7:00 p.m. and 7:00 a.m.
- The Space Age Fuel driveway at Station “PB3” 1081+25 RT may be closed when allowed, shown or as directed nightly between 10:00 p.m. and 5:00 a.m.
- The Daily Planet driveways at Station “PB3” 1082+53 RT and Station “PB3” 1083+77 RT may be closed when allowed, shown or as directed nightly between 3:30 a.m. and 7:00 a.m.
- The Leathers Fuels and Bizy Mart driveways at Station “PB3” 1085+19 LT and Station “PB3” 1085+89 LT may be closed when allowed, shown or as directed nightly between 9:00 p.m. and 4:30 a.m.
- The Nebula Cannabis Dispensary driveway at Station “PB3” 1092+37 LT may be closed when allowed, shown or as directed daily between 11:00 p.m. and 6:00 a.m.
- The Fabrics for Less driveway at Station “PB3” 1104+50 LT may be closed when allowed, shown or as directed daily between 8:00 p.m. and 8:00 a.m.
- The Guilty Pleasures Gentleman’s Club driveway at Station “PB3” 1144+17 LT may be closed when allowed, shown or as directed Tuesday through Saturday between 12:30 a.m. and 4:00 p.m.
- The Small Mall driveway at Station “PB3” 1179+96 RT may be closed when allowed, shown or as directed nightly between 11:00 p.m. and 8:00 a.m.
- The La Vang Convenience Mart driveway at Station “PB3” 1182+31 LT may be closed when allowed, shown or as directed nightly between 10:00 p.m. and 7:00 a.m.
- The VM Hair Salon driveway at Station “PB3” 1217+21 LT may be closed when allowed, shown or as directed Monday through Friday between 8:00 p.m. and 8:00 a.m.
- The Shell and Meadowland Market driveway at Station “PB3” 1218+12 LT may be closed when allowed, shown or as directed daily between 9:00 p.m. and 4:00 a.m.
- The Mini Mart Express driveway at Station “PB3” 1220+97 LT may be closed when allowed, shown or as directed daily between 11:30 p.m. and 6:00 a.m.
- The Eco Car Wash driveway at Station “PB3” 1238+86 RT may be closed when allowed, shown or as directed daily between 9:00 p.m. and 6:00 a.m.

- The Chevron driveway at Station “PB3” 1248+38 LT may be closed when allowed, shown or as directed daily between 11:00 p.m. and 5:00 a.m.

00220.40(e)(1) Closed Lanes - Replace this subsection, except for the subsection number and title, with the following:

Traffic Lanes may be closed on the Mt Hood Highway (US-26) when allowed, shown, or directed during the following periods of time except as specified in 00220.40(e)(2):

Single Lane Closures – One Traffic Lane on US-26 may be closed during the following times:

- Friday night through Saturday morning between 8:00 p.m. and 9:00 a.m.
- Saturday night through Sunday morning between 7:00 p.m. and 10:00 a.m.
- Sunday night through Monday morning between 7:00 p.m. and 6:00 a.m.
- Nightly, Monday night through Friday morning, between 8:00 p.m. and 6:00 a.m.

Single Lane Closures – One Traffic Lane on SE 104th Avenue south of US-26 may be closed during the following times:

- Friday night through Saturday morning between 8:00 p.m. and 9:00 a.m.
- Saturday night through Sunday morning between 7:00 p.m. and 10:00 a.m.
- Sunday night through Monday morning between 7:00 p.m. and 6:00 a.m.
- Nightly, Monday night through Friday morning, between 8:00 p.m. and 6:00 a.m.

Single Lane Closures – One Traffic Lane on SE 112th Avenue may be closed during the following times:

- Friday night through Saturday morning between 8:00 p.m. and 9:00 a.m.
- Saturday night through Sunday morning between 7:00 p.m. and 10:00 a.m.
- Sunday night through Monday morning between 7:00 p.m. and 6:00 a.m.
- Nightly, Monday night through Friday morning, between 8:00 p.m. and 6:00 a.m.

Single Lane Closures – One Traffic Lane on SE 148th Avenue north of US-26 may be closed during the following times:

- Friday night through Saturday morning between 8:00 p.m. and 9:00 a.m.
- Saturday night through Sunday morning between 7:00 p.m. and 10:00 a.m.
- Sunday night through Monday morning between 7:00 p.m. and 6:00 a.m.
- Nightly, Monday night through Friday morning, between 8:00 p.m. and 6:00 a.m.

Single Lane Closures – One Traffic Lane on SE 162nd Avenue may be closed during the following times:

- Friday night through Saturday morning between 8:00 p.m. and 9:00 a.m.

- Saturday night through Sunday morning between 7:00 p.m. and 10:00 a.m.
- Sunday night through Monday morning between 7:00 p.m. and 6:00 a.m.
- Nightly, Monday night through Friday morning, between 8:00 p.m. and 6:00 a.m.

Single Lane Closures – One Traffic Lane on SE 174th Avenue may be closed during the following times:

- Friday night through Saturday morning between 8:00 p.m. and 9:00 a.m.
- Saturday night through Sunday morning between 7:00 p.m. and 10:00 a.m.
- Sunday night through Monday morning between 7:00 p.m. and 6:00 a.m.
- Nightly, Monday night through Friday morning, between 8:00 p.m. and 6:00 a.m.

One Traffic Lane may be closed at all times on SE 102nd Avenue, SE 108th Avenue, SE 111th Avenue, SE 115th Avenue, SE 116th Avenue, SE 118th Avenue, SE 119th Avenue, SE 120th Avenue, SE 138th Avenue, SE 140th Avenue, SE 141st Avenue, SE 143rd Avenue, SE 144th Avenue, SE 145th Avenue, SE 147th Avenue, SE 150th Avenue, SE 151st Avenue, SE 153rd Avenue, SE 154th Avenue, SE 156th Avenue, SE 157th Avenue, SE 160th Avenue, SE 166th Avenue, SE Naegeli Drive, SE 168th Avenue, and SE 170th Avenue. Do not close any Traffic Lanes on these roadways while that roadway is under detour traffic as part of the route for a limited duration road closure.

One Traffic Lane may be closed on all other adjacent Roadways within the Project Site not listed above, when allowed, shown, or directed during the following periods of time except as specified in 00220.40(e)(2):

- Daily, Monday through Thursday, between 9:00 a.m. and 4:00 p.m.
- Friday, between 9:00 a.m. and 3:00 p.m.
- Nightly, Sunday night through Friday morning, between 6:00 p.m. and 7:00 a.m.

The right turn lanes on US-26 may be closed at all times when allowed, shown or directed except as indicated in 00220.40(e)(2).

The right turn lane on SE 148th Avenue may be closed at all times when allowed, shown or directed except as indicated in 00220.40(e)(2).

The right turn lane on SE 162nd Avenue may be closed at all times when allowed, shown or directed except as indicated in 00220.40(e)(2).

The center two-way left turn lane on US-26 may be closed at all times when allowed, shown or directed except as indicated in 00220.40(e)(2).

The left turn lanes may be closed for flagger control of the signalized intersections at SE 104th Avenue & US-26, SE 112th Avenue & US-26, SE 148th Avenue & US-26, SE 162nd Avenue & US-26, SE 171st Avenue (Meadowland Shopping Center) & US-26, and SE 174th & US-26 when allowed, shown, or directed during the following periods of time except as indicated in 00220.40(e)(2):

- Nightly, Sunday night through Friday morning between 9 p.m. and 5:30 a.m.

- Friday night through Saturday morning between 9 p.m. and 8 a.m.
- Saturday night through Sunday morning between 9 p.m. and 9 a.m.

00220.40(e)(2)(b) Special Events - Add the following to the end of this subsection:

The following special events will occur during this Project:

- Hood to Coast – One of the last two Fridays of August

Add the following subsection:

00220.40(e)(3) Closed Bicycle Facilities– Sections of bicycle lane may be closed on US-26 and intersecting side streets, as shown, or directed during the following periods of time except as indicated in 00220.40(e)(2):

- Closures of the bicycle portion of the shoulder a maximum of __ (__) nights, Monday night through Friday morning between 8:00 p.m. and 7:00 a.m. A night-time closure of the bicycle portion of the shoulders during weekdays will be limited to a maximum length of 1500 feet of roadway.
- Closures of shoulders not utilized for pedestrian or bicycle facilities at any time, Monday through Sunday.

Add the following subsection:

00220.40(e)(4) Parking Lots – One or more parking spaces at the following parking areas may be closed during the following periods of time when allowed, shown, or directed:

- Parking stalls within temporary easement (Blue Rose Massage), driveway at Station “PB3” 1041+12 LT, daily between 11:00 p.m. and 9:30 a.m.
- Parking stalls within temporary easement (Womack Auto Body), driveway at Station “PB3” 1041+66 LT and driveway at Station “PB3” 1042+97, daily between 6:30 p.m. and 5:30 a.m.
- Parking stalls within temporary easement (Eastside Steel), driveway at Station “PB3” 1046+15 LT, Sunday at all times and Monday through Saturday between 6:30 p.m. and 5:30 a.m. and during all hours for seven (7) consecutive Calendar Days.
- Parking stalls within temporary easement (Superior Fence & Construction), driveway at Station “PB3” 1046+96 LT and driveway at Station “PB3” 1047+67 LT, Saturday and Sunday at all times and Monday through Friday between 6:30 p.m. and 5:30 a.m.
- If a minimum of two parking stalls maintained within temporary easement (Positive Mind & Life Nutrition), driveway at Station “PB3” 1070+08 RT, daily all times.
- Parking stalls within temporary easement (Jenni’s Sacred Grounds), driveway at Station “PB3” 1071+42 LT, daily between 4:00 p.m. and 4:30 a.m. Also, if a minimum of two parking stalls maintained within temporary easement, daily between 4:30 a.m. and 4:00 p.m.
- Parking stalls within temporary easement (Powell Center), driveway at Station “PB3” 1076+14 RT, daily between 5:30 p.m. and 7:30 a.m. Also, if a minimum of two parking stalls maintained within temporary easement, daily between 7:30 a.m. and 5:30 p.m.

- Parking stalls within temporary easement (Kehehilat Ha-Mashiach and Powellhurst Baptist Church), driveway on SE 111th Avenue approximately 100 feet north of US-26, 12:00 a.m. Monday through 12:00 a.m. Saturday.
- Parking stalls within temporary easement (Happy Sing Bar), driveway at Station "PB3" 1078+05 RT, daily between 10:30 p.m. and 8:30 a.m.
- Parking stalls within temporary easement (11401 thru 11415 SE Powell Blvd), driveway at Station "PB3" 1084+51 LT, daily between 8:30 a.m. and 4:30 p.m.
- Parking stalls within temporary easement (11340 SE Powell Blvd), driveway at Station "PB3" 1084+64 RT, Monday through Friday between 8:30 a.m. and 4:30 p.m.
- If a minimum of two parking stalls maintained within temporary easement (11526 SE Powell Blvd), driveway at Station "PB3" 1088+24 RT, Monday through Friday between 8:30 a.m. and 4:30 p.m.
- If a minimum of two parking stalls maintained within temporary easement (11540 SE Powell Blvd), driveway at Station "PB3" 1088+52 RT, daily all times.
- If a minimum of one parking stall maintained within temporary easement (11554 SE Powell Blvd), driveway at Station "PB3" 1089+64 RT, daily all times.
- If a minimum of one parking stall maintained within temporary easement (Nature Acupuncture), driveway at Station "PB3" 1090+22 RT, daily between 8:30 a.m. and 4:30 p.m.
- If a minimum of one parking stall maintained within temporary easement (Loving Care Bird Boarding), driveway at Station "PB3" 1090+86 RT, daily between 8:30 a.m. and 4:30 p.m.
- If a minimum of one parking stall maintained within temporary easement (11590 SE Powell Blvd), driveway at Station "PB3" 1091+54 RT, daily all times.
- If a minimum of one parking stall maintained within temporary easement (11610 SE Powell Blvd), driveway at Station "PB3" 1092+22 RT, daily between 8:30 a.m. and 4:30 p.m.
- Parking stalls within temporary easement (Nebula Cannabis Dispensary), driveway at Station "PB3" 1092+37 LT, daily between 10:30 p.m. and 6:30 a.m.
- When providing a minimum of four (4) reserved parking stalls on SE 119th Avenue for tenants, parking stalls within temporary easement (3515 SE 119th Ave), driveway at Station "PB3" 1097+79 RT, daily between 8:30 a.m. and 4:30 p.m.
- Parking stalls within temporary easement (Fabrics for Less), driveway at Station "PB3" 1104+50 LT, daily between 7:30 p.m. and 8:30 a.m. Also, if a minimum of two parking stalls maintained within temporary easement, daily between 8:30 a.m. and 7:30 p.m.
- Parking stalls within temporary easement (Guilty Pleasures Gentleman's Club), driveway at Station "PB3" 1144+17 LT, Tuesday through Saturday between 12:00 a.m. and 4:30 p.m.
- Parking stalls within temporary easement (Mirna's Daycare), driveway at Station "PB3" 1149+75 LT, Sunday at all times and daily Monday through Friday between 5:30 p.m. and 5:30 a.m.
- Parking stalls within temporary easement (George's Autobody), driveway at Station "PB3" 1150+63 RT, Monday through Friday between 5:30 p.m. and 6:30 a.m.
- Parking stalls within temporary easement (Evergreen Court), driveways at Station "PB3" 1151+83 RT and "PB3" 1152+65 RT, Monday through Friday between 8:30 a.m. and 4:30 p.m.
- Parking stalls within temporary easement (13905 SE Powell Blvd), driveway at Station "PB3" 1152+00 LT, daily between 8:30 a.m. and 4:30 p.m.

- Parking stalls within temporary easement (13925 SE Powell Blvd), driveway at Station “PB3” 1152+31 LT, daily between 8:30 a.m. and 4:30 p.m.
- Parking stalls within temporary easement (13938 SE Powell Blvd), driveway at Station “PB3” 1153+42 RT, daily between 9:30 a.m. and 4:30 p.m.
- If a minimum of two parking stalls maintained within temporary easement (14205 SE Powell Blvd), driveway at Station “PB3” 1159+82 LT, daily all times.
- Parking stalls within temporary easement (Cameron Care Center), driveway on SE 143rd Avenue approximately 75 feet north of US-26, daily between 7:30 p.m. and 7:30 a.m.
- Parking stalls within temporary easement (14330 SE Powell Blvd), driveway at Station “PB3” 1162+91 RT, daily between 9:30 a.m. and 4:30 p.m.
- Parking stalls within temporary easement (14345 SE Powell Blvd), driveway at Station “PB3” 1164+02 LT, Monday through Friday between 9:30 a.m. and 4:30 p.m.
- Parking stalls within temporary easement (14334 SE Powell Blvd), driveway at Station “PB3” 1164+40 RT, daily between 9:30 a.m. and 4:30 p.m.
- Parking stalls within temporary easement (14373 SE Powell Blvd), driveway at Station “PB3” 1165+39 LT, daily between 9:30 a.m. and 4:30 p.m.
- Parking stalls within temporary easement (14531 SE Powell Blvd), driveway at Station “PB3” 1170+00 LT, daily between 9:30 a.m. and 4:30 p.m.
- Parking stalls within temporary easement (14626 SE Powell Blvd), driveway at Station “PB3” 1172+20 RT, daily between 9:30 a.m. and 4:30 p.m.
- Parking stalls within temporary easement (3334 SE 148th Avenue), driveway on SE 148th Avenue approximately 100 feet north of US-26, daily between 9:30 a.m. and 4:30 p.m.
- Parking stalls within temporary easement (16061 SE Powell Blvd), driveway at Station “PB3” 1211+75 LT, Monday through Friday between 9:30 a.m. and 4:30 p.m.
- Parking stalls within temporary easement (VM Hair Salon), driveway at Station “PB3” 1217+21 LT, Monday through Friday between 7:30 p.m. and 8:30 a.m.
- Circulatory lane for fuel pumps within temporary easement (Shell and Meadowland Market), driveway at Station “PB3” 1218+12 LT, daily between 8:30 p.m. and 4:30 a.m. and during all hours for fourteen (14) Calendar Days (can be non-consecutive).
- Parking stalls within temporary easement (16641 SE Powell Blvd), driveway at Station “PB3” 1228+34 LT, daily between 9:30 a.m. and 4:30 p.m.
- Vacuum parking stall within temporary easement (Eco Car Wash), driveway at Station “PB3” 1238+86 RT, daily between 8:30 p.m. and 6:30 a.m.
- Parking stalls within temporary easement (Meadow Park East Apartments), driveway at Station “PB3” 1241+24 LT, Monday through Friday between 9:30 a.m. and 4:30 p.m.
- Parking stalls within temporary easement (17235 SE Powell Blvd), driveway at Station “PB3” 1243+70 LT, Monday through Friday between 9:30 a.m. and 4:30 p.m.
- Parking stalls within temporary easement (17420 SE Powell Blvd), driveway at Station “PB3” 1249+42 RT and “PB3” 1251+29 RT, Monday through Friday between 9:30 a.m. and 4:30 p.m.

All these parking stalls must be reopened at the end of each shift in a safe condition according to 00220.70.

All other parking within easements may be closed at all times when allowed, shown, or as directed except as indicated in 00220.40(e)(2).

Add the following subsection:

00220.40(f) Limited Duration Road Closure - The Contractor will be permitted to close all Traffic Lanes for periods not to exceed a total of fourteen (14) Calendar Days on each street for SE 102nd Avenue, SE 108th Avenue, SE 111th Avenue, SE 115th Avenue, SE 116th Avenue, SE 140th Avenue, SE 141st Avenue, SE 143rd Avenue, SE 144th Avenue, SE 145th Avenue, SE 150th Avenue, SE 151st Avenue, SE 153rd Avenue, SE 154th Avenue, SE 156th Avenue, SE 157th Avenue, SE 166th Avenue, SE 168th Avenue, and SE 170th Avenue. Do not close any Traffic Lanes on a roadway while that roadway is under detour traffic as part of the route for the limited duration road closure of another roadway.

Add the following subsection:

00220.40(g) Bus Stop Closure for Permanent Relocation - The Contractor shall coordinate with TriMet for the removal of bus shelters, benches, garbage receptacles, and signs. The Contractor shall notify, in writing, TriMet, with a copy to the Engineer, at least 14 Calendar Days before beginning Removal Work at a bus stop. The Contractor shall provide TriMet access to the bus stop locations and allow TriMet two (2) Days to complete each bus shelter removal.

Add the following subsection:

00220.46 Garbage/Recycle Receptacles – Maintain access to the garbage/recycle receptacles for the haulers, unless otherwise directed by the Engineer.

Add the following subsection:

00220.71 Opening Permanent Bus Stops To Traffic – The Contractor shall coordinate with TriMet for the reinstallation of bus shelters, benches, garbage receptacles, and signs. The Contractor shall notify, in writing, TriMet, with a copy to the Engineer, at least 14 Calendar Days before opening sidewalk to pedestrians at a bus stop location. The Contractor shall provide TriMet access to the new bus shelter locations and allow TriMet three (3) Days to complete each bus shelter reinstallation.

SECTION 00221 - COMMON PROVISIONS FOR WORK ZONE TRAFFIC CONTROL

Comply with Section 00221 of the Standard Specifications modified as follows:

00221.03 Traffic Safety and Operations - Replace the bullet that begins “When paving operations create…” with the following bullet:

- When paving operations create an abrupt or sloped edge drop off greater than 1 inch, protect traffic by installing signing according to the "2 Lane, 2 Way Roadway Overlay Area" detail shown on the Standard Drawings. Protect longitudinal and transverse Pavement joints by placing and maintaining an asphalt concrete wedge according to 00221.07(c)(1).

00221.07(c)(1) Paving - Replace this subsection, except subsection number and title, with the following:

When the longitudinal joint is greater than 1 inch in height, install additional TCD according to 00221.03. Complete the placing of ACP and construction of paving joints according to 00735.48, 00735.49, 00743.45, 00744.44, 00744.45, 00745.47, and 00745.48, as applicable.

Add the following subsection:

00221.15 Temporary Steel Plating - Use temporary steel plates meeting the following requirements or as directed by the Engineer:

- Conform to the requirements of ASTM A36 or ASTM A572, Grade 36
- Designed for HS20-44 loading
- 1-inch minimum thickness
- Large enough to extend a minimum of 18-inches beyond the edges of excavation
- Non-slip surface treatment exceeding a 0.60 static coefficient of friction (wet) as determined by ASTM C1028-89
- Non-slip surface in new or in like new condition
- Secured to prevent any movement or displacement
- Vertical uphill or downhill grade of 5% or less
- Do not place longitudinal edges of plates in the wheel path
- Do not overlap or stack plates
- A smooth transition using asphalt concrete ramps with a maximum slope of 8.5%
- Cover a maximum of fifty (50) lineal feet of open trench
- Remain in place a maximum of 7 consecutive working days

00221.90(b) Temporary Protection and Direction of Traffic - Delete the bullet that begins “Moving temporary barrier to and from Contractor’s stockpile areas”.

Replace the bullet that begins "When the Schedule of Items does not include …" with the following bullet:

- Preparing and signing the daily “Traffic Control Inspection Report”, when a TCS is not included in the Schedule of Items or when a TCS is not onsite for a work shift.

Add the following bullets to the end of the bullet list:

- Mobilization of the mobile barrier to and from the project.
- Moving the mobile barrier from one location of actual use to another or to and from the Contractor’s storage site.

SECTION 00222 – TEMPORARY TRAFFIC CONTROL SIGNS

Comply with Section 00222 of the Standard Specifications modified as follows:

00222.40(e) Temporary Sign Placement - Add the following to the end of the bullet list:

- Place a “WAIT FOR FLAGGER” (CR4-23) sign approximately 50 feet in advance of each flagger station, facing incoming pedestrian traffic. Install the sign on a conical marker or other temporary sign support, as shown or as directed. Do not allow the sign installation height or location to block the visibility of the flagger for incoming public traffic.

- At least ten Calendar Days before closing *(*a pedestrian pathway*)* *(*the sidewalk*(*s*)* at _____*)*, place a “SIDEWALK CLOSED, Full Time” (CW11-4) sign in advance of each future closure point. Locate the sign so it is legible from the nearest alternate pedestrian pathway facing incoming pedestrian traffic. The sign may be mounted between the panels of a Type II barricade or on a single-post TSS. Do not place the sign or sign support such that it narrows the pedestrian pathway to a width of less than 4 feet.

- Before opening the TPAR, place TPAR signing and other TCM as shown, or as directed. Maintain the “SIDEWALK CLOSED, Full Time” (CW11-4) signs while the TPAR is open to pedestrian traffic.

- At least ten Calendar Days before closing *(*a pedestrian pathway*)* *(*the sidewalk*(*s*)* at _____*)*, place a “SIDEWALK CLOSED, Daily” (CW11-5) sign in advance of each future closure point. Locate the sign so it is legible from the nearest alternate pedestrian pathway facing incoming pedestrian traffic. The sign may be mounted between the panels of a Type II barricade, or on a single-post TSS. Do not place the sign or sign support such that it narrows the pedestrian pathway to a width of less than 4 feet.

- Before opening the TPAR, place TPAR signing and other TCM as shown, or as directed. Maintain the “SIDEWALK CLOSED, Daily” (CW11-5) signs while the TPAR is open to pedestrian traffic.

- At least ten Calendar Days prior to the start of work, place a “SIDEWALK OPEN” (CW11-3) sign in advance of each end of the Work Area. Locate the sign so it is legible from the nearest alternate pedestrian pathway facing incoming pedestrian traffic. The sign may be mounted between the panels of a Type II barricade, or on a single-post TSS. Do not place the sign or support such that it narrows the pedestrian pathway to a width less than 4 feet.

- Before starting work, place pedestrian-specific TCM as shown in the TCP, or as directed. Maintain “SIDEWALK OPEN” (CW11-3) signs while work is affecting the pedestrian pathway.

- Place a “PEDESTRIANS ON ROADWAY” (CW11-2) sign at the beginning of each end of the Work Area, facing incoming traffic as shown, or as directed.

- Install a 54-inch "TRUCKS LEAVING HIGHWAY XXXX FT" sign in advance of each entrance point to the Work Area at sign spacing “A” from the “TCD Spacing Table” shown on the Standard Drawings. Install a 54-inch "TRUCKS ENTERING HIGHWAY

XXXX FT" sign in advance of each exit point from the Work Area at sign spacing “A” from the “TCD Spacing Table” shown on the Standard Drawings.

- Install a "PROJECT IDENTIFICATION" (CG20-8) sign with an "ODOT" logo rider on the Mt Hood Highway. Place the sign according to sign spacing "A" from the "TCD Spacing Table" shown on the Standard Drawings or as modified by the Supplemental Drawings, in advance of the "ROAD WORK AHEAD" sign at each end of the Project, facing incoming traffic. The Engineer will determine the sign legend.

- Install "ROAD WORK AHEAD" (W20-1-48) signs with a 36 by 24-inch "FINES DOUBLE" (R2-6aP) rider on the Mt Hood Highway, according to the "TCD Spacing Table" shown on the Standard Drawings or as modified by the Plans except do not install the "FINES DOUBLE" rider on concrete barrier mounted signs.

- Install beyond each end of the Project, facing outgoing traffic, an "END ROAD WORK" (CG20-2A-24) sign a distance of (A ÷ 2) according to the "TCD Spacing Table" shown on the Standard Drawings or as modified by the Plans.

- Install an “EROSION CONCERNS” sign on the Mt Hood Highway, at each end of the project. Place the sign according to sign spacing "A" from the "TCD Spacing Table" shown on the Standard Drawings, or as shown in the Plans. Install the sign so that the sign face is rotated 90 degrees to approaching traffic and faces the roadway centerline. Replace “(XXX) XXX-XXXX” shown on the sign design detail with “(503) 731-3197”.

- Install the following warning signs for each new "STOP" sign installed in the intersection. Install a "Stop Ahead" (W3-1) symbol sign approximately 350 feet in advance of the "STOP" sign. Install a "NEW TRAFFIC PATTERN AHEAD" (W23-2) sign approximately 350 feet in advance of the "Stop Ahead" sign. Keep the "NEW TRAFFIC PATTERN AHEAD" signs in place 30 Calendar Days after installing the "STOP" sign.

- For each leg of the intersection affected by changes to the traffic signal, install the following warning signs:

    - A "Signal Ahead" (W3-3) symbol sign approximately 350 feet in advance of the intersection, shown on the Standard Drawings or as modified by the Plans.

    - A "NEW TRAFFIC PATTERN AHEAD" (W23-2) sign approximately 350 feet in advance of the "Signal Ahead" sign. Keep the "NEW TRAFFIC PATTERN AHEAD" signs in place 30 Calendar Days after installing the "Signal Ahead" sign.

- Install a "NEW TRAFFIC PATTERN AHEAD" (W23-2) sign approximately 350 feet in advance of SE 99th Avenue, facing eastbound incoming traffic.

- Install a "NEW TRAFFIC PATTERN AHEAD" (W23-2) sign approximately 350 feet in advance of SE 174th Avenue, facing westbound incoming traffic.

- Keep the "NEW TRAFFIC PATTERN AHEAD" signs in place 30 Calendar Days after installing the center turn lane.

- Install an 18 by 24-inch "NO PARKING" (R8-3a) sign in every block where on-street parking is prohibited, facing incoming traffic.

- Install a 60 by 36-inch "INTERMITTENT ROAD WORK NEXT 4 MILES" (CG20-13) sign on the Mt Hood Highway, in advance of the "ROAD WORK AHEAD" (W20-1) sign on each end of the Project according to sign spacing "A" from the "TCD Spacing Table" shown on the Standard Drawings.

- When construction requires bicycles to use the Traffic Lanes, install a "Bicycle ON ROADWAY" (CW11-1) symbol sign on 1/2 mile spacing through the affected area. Keep the signs in place until completion of the Shoulder or bikeway final surface.

Add the following:

00222.46 Mobile Barrier - During mobile barrier operations, provide one 2-line PCMS on the rear of the mobile barrier trailer according to the mobile barrier manufacturer's recommendations. Display the following messages on the PCMS:

Panel 1	**Panel 2**
SLOW FOR	WORKERS
WORKERS	IN ROAD

00222.90 Payment -

Add the following to the end of this subsection:

Payment will be made for not more than _____ set(s) of Work Area signs. All additional sets of Work Area signs will be at no additional cost to the Agency.

Add the following paragraph after the paragraph that begins "Items (b) and (c) includes…":

Item (c) includes portable changeable messages signs attached to mobile barrier trailer(s).

SECTION 00223 - WORK ZONE TRAFFIC CONTROL LABOR AND VEHICLES

Comply with Section 00223 of the Standard Specifications modified as follows:

00223.31(a) Traffic Control Supervisor - Add the following paragraph to the end of this subsection:

The TCS shall have completed at least 4 hours of training on use and operation of the mobile barrier within the past 2 years. Obtain training from the mobile barrier manufacturer or mobile barrier vendor listed in 00226.16.

00223.31(b) Traffic Control Inspection Without TCS - Replace the paragraph that begins "When the Schedule of Items does not include an item…" with the following paragraph:

When the Schedule of Items does not include an item for a TCS, or when TCS is not onsite for a work shift, designate a trained person who shall be on the Project Site during work hours and on call at all other times, and who:

Replace the bullet that begins "Prepares and signs a daily "Traffic Control Inspection Report"…" with the following bullet:

- Prepares and signs a "Traffic Control Inspection Report" (Form No. 734-2474) upon the initial installation of TCM and each working day when any modification, removal, or reinstallation of TCM are made, or as directed by the Engineer. Submit completed reports to the Engineer no later than the end of the next working day.

SECTION 00224 - TEMPORARY TRAFFIC CHANNELIZING DEVICES

Comply with Section 00224 of the Standard Specifications modified as follows:

00224.46 Pavement Edge Delineation - Replace the paragraph that begins "Place tubular or conical markers…" with the following paragraph:

Place tubular or conical markers to delineate the edge of Pavement immediately after construction Work or paving operations create an abrupt or sloped edge drop-off greater than 1 inch in height along the right hand or left hand Shoulder.

SECTION 00225 - TEMPORARY PAVEMENT MARKINGS

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

00225.42(b) Wearing Course - Replace the bullet that begins "For left hand solid lines…" with the following bullet:

- For left hand solid lines and skip lines striping, use temporary removable tape or pavement markers.

SECTION 00226 - TEMPORARY ROADSIDE BARRIERS AND IMPACT ATTENUATORS

Comply with Section 00226 of the Standard Specifications modified as follows:

Add the following subsection:

00226.16 Mobile Barrier - Use a mobile barrier from the QPL or conditional use list.

Add the following subsection:

00226.24 Mobile Barrier - Use a semi-tractor truck according to the mobile barrier manufacturer's recommendations to haul and operate the mobile barrier and conforming to the following:

- Equipped to perform with all mobile barrier functions and operations.
- Equipped with portable, self-contained two-way radios with a range suitable for communications throughout each work zone, unless otherwise directed.

Equip mobile barrier with a temporary impact attenuator, truck mounted.

Add the following subsection:

00226.30 Mobile Barrier - Provide semi-tractor truck operator to haul and operate the mobile barrier and a mobile barrier technician qualified to set up and operate the features of the mobile barrier. Each person has to have completed at least 4 hours of training on use and operation of the mobile barrier within the past 2 years. Obtain training from the mobile barrier manufacturer or mobile barrier vendor listed in 00226.16. Provide a mobile barrier technician on-site while the mobile barrier is in use.

Add the following subsection:

00226.46 Mobile Barrier - Configure, place, and move the mobile barrier according to the manufacturer's recommendations, according to the TCP, or as directed.

Add the following subsection:

00226.66 Mobile Barrier - Maintain the mobile barrier according to the manufacturer's recommendations. Perform routine maintenance of the mobile barrier at no additional cost to the Agency. Be responsible for all necessary service and maintenance of the mobile barrier while in use.

Add the following subsection:

00226.80(c) Time Basis - The quantity of mobile barrier will be measured on the time basis, of the number of Days the mobile barrier is in actual use on the Project according to the approved traffic control plan. One mobile barrier will be allowed per Day unless otherwise approved.

00226.90 Payment - Add the following to the end of the subsection:

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

Add the following Pay Item to the end of the Pay Item list:

(s) Mobile Barrier ..... Day

Add the following paragraphs after the paragraph that begins "Item (m) includes…":

Item (s) will be payment in full for all labor, training, Equipment, and Materials required for mobile barrier, regardless of length and number of moves. Item (s) will also be payment in full for operation of the semi-tractor truck in conjunction with the mobile barrier, training, service, maintenance, and all Incidentals necessary to complete the Work as specified.

Items (h) and (j) include truck mounted temporary impact attenuators attached to mobile barrier(s).

SECTION 00227 - TEMPORARY TRAFFIC SIGNALS AND ILLUMINATION

Comply with Section 00227 of the Standard Specifications modified as follows:

00227.42(a) Removal - Replace this subsection, except for the subsection number and title, with the following:

Remove the temporary traffic signal when directed. Remove all wood poles and guy anchors in their entirety. Abandon vehicle detector loops in place. Contractor furnished Equipment remains the property of the Contractor. Return all Agency-furnished Materials according to 00160.30. Contact the Traffic Systems Service Unit at 503-378-2645 to confirm delivery of Agency furnished Materials 48 hours prior to delivery.

00227.90 Payment – Add the following paragraphs to the end of this subsection:

Partial payments for Item (b) will be made as follows:

- Temporary Traffic Signal Work 90%
- When all Agency furnished Materials for the Temporary Traffic Signal are returned 10%

SECTION 00228 - TEMPORARY PEDESTRIAN AND BICYCLIST ROUTING

Comply with Section 00228 of the Standard Specifications modified as follows:

00228.00 Scope - Replace this subsection, except subsection number and title, with the following:

In addition to the requirements of Section 00221, this Work consists of furnishing, installing, operating, maintaining, inspecting, and removing temporary devices for accommodating pedestrians and bicyclists through a work zone.

00228.13 Temporary Curb Ramps - Add the following sentence to the end of this subsection:

Furnish truncated dome detectable warning surface for temporary curb ramps from the QPL according to 00759.12.

00228.43 Temporary Curb Ramps - Add the following paragraph to the end of this subsection:

Install a minimum 2 foot wide truncated dome detectable warning surface on temporary curb ramps at pedestrian street crossings. Omit truncated dome detectable warning surfaces on temporary curb ramps that are not at a pedestrian street crossing.

00228.80(a) Length Basis - Replace this subsection, except subsection number and title, with the following:

Pedestrian channelizing devices and bicycle channelizing devices will be measured on the length basis upon delivery to the Project. The quantities will be limited to those in the approved TCP.

00228.90 Payment - Add the following paragraph after the paragraph that begins “In item (c), the type…”:

Item (c) includes furnishing and installing truncated dome detectable warning surfaces.

SECTION 00236 - AGENCY PROVIDED DISPOSAL SITES

Section 00236, which is not a Standard Specification, is included in this Project by Special Provision.

Description

00236.00 Scope - This Work consists of utilizing Agency provided prospective or mandatory disposal sites as the Contractor elects or as required for the construction of the Contract.

00236.02 Mandatory Disposal Site Specific Requirements - The following mandatory disposal site for Extra for Contaminated Soil Removal (Reuse), as long as the material does not contain hazardous substances, is to be used on this Project:

(a) Mandatory Disposal Site, US-26 Milepoint 15.55:

- **Location** - Approximately 6 miles east on US 26 (SE Powell Boulevard) in the NE 1/4 of Section 23, T. 01S, R. 03E W.M.
- **Access** - Adjacent west of MP 15.55 of US 26, off eastbound direction of divided segment of highway
- **Disposal Quantity Limit** - 27,369 Cubic Yards
- **Available Area for Material Disposal of Waste Material:**
  - **Existing** - 2 acres
  - **Development** - 2 acres

If material contains hazardous substances do not dispose of the material in the mandatory disposal site. Dispose of materials that contain hazardous substances according to Section 00294.

00236.03 Laws - Conduct operations within the disposal site according to all applicable State, county, and federal laws including mining and fire laws. Provide, operate, and maintain wildland firefighting equipment appropriate for the current fire levels on-site at all times during all disposal site operations.

00236.04 Permits - Copies of the Plans, permits, agreements and the disposal site narrative are available for inspection at the Project Manager's office. Operations within the disposal site shall conform to the stipulations and conditions of these documents and to all of the requirements of the Contract.

Subsection	Site Name	Documents
00236.02(a)	US26 Milepoint 15.55	***(from list above)***

00236.05 Pre-Work Meeting - Before occupying a disposal site, attend a pre-work meeting at the disposal site with the Engineer and the following owners or representatives:

Subsection	Site Name	Contact Names for pre-work meeting
00236.02(a)	US26 Milepoint 15.55	***ODOT Geologist*** ***ODOT Region Environmental Coordinator*** ***County representative(s)_____*** ***Other _____***

00236.06 Site Occupancy - Coordinate disposal site occupancy with the Engineer. The disposal site items listed in Table 00236-1 below shall be as shown. Do not operate beyond the disposal site Project boundary or in no Work area(s) as shown unless otherwise directed, in writing.

Table 00236-1

Subsection	Site Name	Site items shown
00236.02(a)	US26 Milepoint 15.55	project boundary disposal area sediment berms sediment fences access roads

00236.07 Site Development - If proposing changes to a disposal site development plan, submit a site development plan as an unstamped Working Drawing according to 00150.35. Do not begin Work in a disposal site until the site development plan has been approved, in writing, by the Engineer.

Develop a site-specific Erosion and Sediment Control Plan for each disposal site according to 00280.04 and submit it to the Engineer at or before the pre-work meeting. Construct stormwater control berm(s) as shown and as needed to control runoff. Do not allow any materials, including sediments, or Aggregate to enter into waterways or Wetlands.

Develop a site-specific Pollution Control Plan for each disposal site according to 00290.30(b), and submit it to the Engineer at or before the pre-work meeting. Include the following requirements in the Pollution Control Plan:

- Do not discharge waste or by-product if it contains any substance in concentrations that could contaminate Soils or result in harm to fish, wildlife, or water sources.
- Store all potentially hazardous materials and solid waste in a manner that prevents seepage into the ground or groundwater sources. Lined sumps or pits are allowable options for storage. If pits or sumps are used, construct adequate berms or provide other measures to prevent breaching of the pits or sumps.
- For Materials capable of causing water pollution if discharged, locate storage facilities in an area that prevents spillage into waterways or Wetlands.

Construction

00236.40 General - All vehicles and Equipment, prior to entering the site for the first time, and each subsequent time if the vehicle has left the Roadway outside the construction Project limits, shall be steam cleaned of all debris (soil, dirt, plant parts, and vegetative matter) before being brought back to the site. Notify the Engineer before moving each vehicle onto the site. Certify, in writing, that the Equipment has been steam cleaned.

00236.41 Restrictions and Protection of Resources - Comply with the following for all operations within the disposal site:

- Protect cultural resources according to 00290.50.
- Protect migratory birds according to 00290.36(a).

- Clear trees and shrubs and strip and stockpile soil overburden between September 1 and March 1.

- Do not utilize, contaminate, or disperse material from existing stockpiles. If existing stockpiles interfere with the Contractor's operations, move the stockpiles to other locations within the disposal site area as directed, at no additional cost to the Agency.

(Use the following bullet when specific restrictions are addressed in land use or other permits. If times are different for different sites list the sites and times or put them in a table.)

- Limit Equipment operation activities and disposal activities to the hours of ___:00 a.m. to ___:00 p.m., Monday through Saturday unless modifications to these hours are requested in writing and approved by the Engineer. Do not conduct any operation on Sundays or legal holidays, as defined in ORS 279C.540.

00236.42 Site Setup - Before proceeding with Work in the disposal site, the following apply:

- For disposal site US26 Milepoint 15.55 construct approximately ____feet of type _____ fencing around the old well casing the no Work area as shown and as staked. Do not disturb the no Work area.

(a) Access:

- For disposal site US26 Milepoint 15.55 develop and maintain an access road from the highway to the site as applicable. Construct this road with a width of 12 feet and reasonably uniform grade, no steeper than a 16 percent grade (1V:6H), for access to the disposal area. An approximate location for development of this road is shown on the Plans. Determine the exact location in the field. Obtain the Engineer's approval before constructing the access road.

- For disposal site US26 Milepoint 15.55 place and arrange straw bales and or sediment fences as shown and according to Section 00280. Maintain a 10-foot buffer between the toe of the disposed of material slopes and the straw bales.

(b) Clearing and Grubbing - Before stripping of overburden clear and grub all trees within the disposal area and the area to be developed into access roads. Place all logs in the log decks and other woody debris in the slash disposal area as shown (and as staked).

(c) Overburden - Before disposal activity, strip and stockpile all soil overburden within the disposal area to be developed as access road(s). Incorporate grass and small shrubs into the stockpiles. Do not remove grass or small shrubs from the overburden. Place stockpiles in the overburden storage area(s). Maintain a minimum 10-foot buffer strip between the toe of the overburden storage area(s) and the disposal area. Smooth and contour overburden storage berms to form side slopes no steeper than 1V:2H.

00236.44 Site Operations - The following apply during disposal site operations:

- Construct slopes, benches, top, and floor of the disposal area as shown.
- Track-walk all slopes with a grade at or flatter than 1V:1.5H so that track impressions run parallel to slope contours. Maintain at least 1 3/8-inch tall track grousers.
- For disposal site US26 Milepoint 15.55 place material in Lifts of no more than ___ feet, and as shown.
- To control dust, apply water to disposal site access, haul road(s), and disposal operations.

- Place only material that is identified as acceptable for this site in the disposal area as shown. Maintain a minimum 10-foot wide buffer strip between the toe of the disposal area and the property boundary. Smooth and contour the disposal area to form side slopes no steeper than 1V:2H.

00236.45 Site Clean-up - The following apply at the completion of operations:

- Leave no loose material on the site exceeding 1 foot diameter, except as noted below.

- For disposal site US26 Milepoint 15.55 a maximum of 0 cubic yards of oversize material with a maximum dimension of 2.5 feet may be stockpiled in the disposal site. Consolidate oversize material as shown.

- Redistribute the stockpiled overburden over the disposed material to a uniform depth as shown.
- Pile and burn all construction slash and combustible debris resulting from use and development of the site, including the preexisting refuse identified at the pre-work meeting, even if it is from outside the disposal site project boundary except for grass and small shrubs that are incorporated into the overburden. Comply with all open burning regulations in effect at the time of site occupancy. If burning is not allowed, all construction slash and combustible debris become the property of the Contractor, to be treated as noncombustible and removed from disposal site.

00236.46 Seeding:

- For disposal site US26 Milepoint 15.55 in addition to other areas with soil cover within the site disturbed by the Contractor's operations, stabilize the disposal area by seeding, mulching, and tackifying, as directed.
- For disposal site US26 Milepoint 15.55 provide the following seed mixture:

(Insert seed mix and application rates here. Note: The seed mixture is almost always site specific.)

(In the following bullet, include the third sentence when clover or alfalfa is required, otherwise delete it.)

- Use only certified weed free seed. Provide copies of the certification to the Engineer. Inoculate the clover and alfalfa prior to incorporation into the seed mixture.
- Provide straw mulch according to 01030.15(b).
- Apply a commercial straw mulch tackifier according to the manufacturer’s directions and at the recommended rate.
- Apply seed and mulch according to Section 01030.
- If conditions allow and the Contractor chooses, the area may be stabilized by applying seed using a range drill with a roller attachment. All areas seeded with the range drill and roller do not need to be subsequently covered with mulch and tackifier.
- All variations to these requirements require written approval by the Engineer.

00236.47 Site Vacating - Before vacating the disposal site the following apply:

- Remove all structures, noncombustible debris, and Equipment from the disposal site, even if it was pre-existing, except for grass and small shrubs incorporated into the overburden.
- Remove solid waste and hazardous material from the site and dispose of properly. Provide documentary evidence of proper disposal and verify the amount of material removed.

- If a spill or dumping has occurred, or is suspected to have occurred, the Contractor shall clean up contaminated materials according to Section 00290. After clean up, the Engineer may, sample and test materials at the spill or dumping locations to verify the cleanup has been completed. If the Engineer's verification testing demonstrates remaining contamination, the Contractor shall perform additional clean up until the requirements of Section 00290 including 00290.20(g) are met.
- Attend a post-work meeting at the disposal site to evaluate disposal site rehabilitation work with the Engineer and attendees listed under 00236.05.

Measurement

00236.80 Measurement - No measurement of quantities will be made for Work performed under this Section except for seeding, and temporary fence in mandatory disposal area.

Seeding will be measured according to 01030.80.

Temporary fence will be measured according to 00270.80.

Payment

00236.90 Payment - No separate or additional payment will be made for Work performed under this Section. Payment will be included in payment made for the appropriate items under which this Work is required except for seeding, and temporary fence in mandatory disposal area.

Seeding will be paid for according to 01030.90.

Temporary fence will be paid for according to 00270.90.

SECTION 00240 - TEMPORARY DRAINAGE FACILITIES

Comply with Section 00240 of the Standard Specifications.

SECTION 00270 - TEMPORARY FENCES

Comply with Section 00270 of the Standard Specifications.

SECTION 00280 - EROSION AND SEDIMENT CONTROL

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

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

The Agency's NPDES 1200-CA Permit is applicable to the Project.

00280.48 Emergency Materials - Add the following paragraphs after the paragraph that begins "Provide, stockpile, and protect...":

Provide and stockpile the following emergency materials on the Project site:

Item	Quantity
.....	
.....	
.....	

SECTION 00290 - ENVIRONMENTAL PROTECTION

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

00290.20(c)(2) Clean Fill - Add the following paragraph to the end of this subsection:

Manage all excavated soil that does not meet the definition of clean fill according to Section 00294.

00290.32 Noise Control - Add the following paragraphs to the end of this subsection:

Review City of Portland Title 18 which describes noise control regulations. Comply with the applicable noise control requirements of the permit for Project Work.

Copies of the noise variance permit for this Project are available from the Engineer.

00290.36(a) Migratory Birds - Add the following to the end of this subsection:

(1) Bird Management - Bird management activities to comply with the Migratory Bird Treaty Act (16 U.S.C. 703 712) will be performed by the Agency. Ensure that the Agency and its permitted agents have access to the project area, as needed to prevent migratory bird nesting. Nesting prevention may include daily bird harassment and the installation and maintenance of devices that exclude birds.

Do not disturb migratory bird nesting habitats (shrubs, trees, and structures), or clear vegetation from March 1 to September 1 of each calendar year without prior written approval from the Engineer. Notify the Engineer, in writing, a minimum of 10 Calendar Days prior to starting activities that could harm nesting birds.

(Use the following subsection .51 when there are known sensitive cultural sites on the project.)

00290.51 Protection of Sensitive Cultural Sites - Add the following to the end of this subsection:

(Fill in the blank with the number of sensitive cultural sites. Select either "sites were" or "site was" depending on the number of sites. Delete the language in orange parentheses that does not apply and delete all orange parentheses.)

There are sensitive cultural sites or areas of high probability for cultural resources on this Project. At the time of preparation of the Plans, _____ *(*sites were*) (*site was*)* identified.

The Region Environmental Coordinator for this Project is _____.

The Agency Archaeology Representative for this Project is _____.

All contact with the Agency Archaeology Representative and the Region Environmental Coordinator shall be through the Engineer.

(Use the following paragraph if an Inadvertent Discovery Plan is required for the project.)

An Inadvertent Discovery Plan (IDP) has been developed for this project. The IDP is available from the Engineer.

(Use the following paragraphs and bullet list when sensitive cultural sites require protection during construction.)

Meet with the Engineer at least 10 Calendar Days prior to beginning ground disturbing activities to discuss sensitive cultural sites on the Project. Required attendees include:

- The Contractor's supervisory personnel.
- Subcontractors, including contract archaeological monitors, and supervisory personnel who will be involved in ground disturbing activities.
- Agency archaeology representative or region environmental coordinator.
- When applicable, tribal representative(s) or monitor(s).

Prior to beginning On-Site Work, install work zone fencing from section 00221.13 of the QPL, or lath and flagging, around no work zones, as shown or as directed.

(Use the following paragraph when Archaeological and/or Tribal Monitors are required during ground-disturbing activities. Delete the language in orange parentheses that does not apply and delete all parentheses.)

*(*Archaeological*)(* and *)(*Tribal*)* Monitors are required to be on-site during all ground-disturbing activities for this Project, unless otherwise notified. Notify the Engineer 10 Calendar Days before beginning ground-disturbing activities, or 14 Calendar Days if ground-disturbing activities are anticipated to occur simultaneously in more than two locations.

(Use the following six paragraphs when a monitoring report is required for the project)

Provide archaeological monitoring during construction by a professional archaeologist who meets the Secretary of the Interior's professional standards for archaeology (36 CFR 61,

Appendix A) and who has completed the ODOT Cultural Resources Consultant Qualification Training Program.

Submit the following reports according to 00150.37. Within 21 Calendar Days after receipt of the reports, the Engineer will review the submittal and accept or return for correction.

Use monitoring reports to document activities and discoveries from the Project according to the State of Oregon Guidelines for Reporting on Archaeological Investigations for monitoring from the Oregon State Historic Preservation Office website at:

https://www.oregon.gov/oprd/OH/Documents/Reporting_Guidelines.pdf

- **Draft Monitoring Report** - Submit the draft monitoring report completed by a professional archaeologist, not later than 21 Calendar Days following completion of the archaeological monitoring.
- **Final Monitoring Report** - Submit the final monitoring report completed by a professional archaeologist, not later than 60 Calendar Days following completion of the archaeological monitoring.

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

No separate or additional payment will be made for work zone fencing.

SECTION 00294 - CONTAMINATED MEDIA

Section 00294, which is not a Standard Specification, is included in this Project by Special Provision.

Description

00294.00 Scope - In addition to the requirements of Section 00290 and the Specifications, this Work consists of the following:

- Excavate, segregate, stockpile, transport, and dispose of Contaminated Soils, as defined by 00294.01, from the following locations:

Contaminated Soil Location Table 00294-1

From Location/Station to Location/Station	Depth below grade (feet)	Approximate Quantity (cy)	Known Contaminants
Unpaved portions of the ODOT Right-of-Way	0 to 1.5 foot, including grubbing		PAHs and total metals
Approximate Total Quantity		cy	

Quantity to be reused on Project	cy
Quantity to be disposed at landfill	tons

- In areas where excavation is not required, leave contaminated Material and clearing and grubbing Material in place.

- Prepare a Health and Safety Plan (HASP) for work within the contaminated areas of the Project.

The _____ ODOT report, titled Shoulder Material Investigation Report US26 (Powell Blvd): SE 99th Ave – East City Limits, completed by APEX, and the _____ ODOT report, titled Level 2 Preliminary Site Investigation Report US26 (Powell Blvd): SE 99th Ave – East City Limits, completed by APEX documenting the contaminated media identified within the Project, is available from the Engineer.

- Prepare a written lead compliance plan for work within contaminated areas of the Project.

00294.01 Definitions:

Contaminated Soil - Soil that does not meet the DEQ definition of "Clean Fill", as defined by OAR 340-093-0030(18). This Contaminated Soil is a regulated waste, subject to OAR 340-093-0005 through OAR 340-093-0290. If the grubbing Material has been determined to be contaminated, it will be considered and treated as Contaminated Soil for the purposes of this Section.

Shoulder Soil - Soil outside of the existing Highway Pavement and within Highway Right-of-Way generated during Highway maintenance or construction activities. This definition applies to excess Soil generated to a maximum depth of 1.5 feet below ground surface. This definition does not apply to Soil that is covered by existing impervious surfaces, including but not limited to curbs, sidewalks and parking lots constructed of asphalt or concrete.

ODOT Beneficial Use Determination (ODOT BUD) - The statewide ODOT Beneficial Use Determination (ODOT BUD), approved by DEQ (No. BUD-20181204), outlines a series of pre-approved non-residential reuse options for excess Soil Materials that do not meet DEQ's Clean Fill Standards in some circumstances. These options may vary based on project scope and location, and documentation may vary, as directed by the Engineer.

00294.02 Testing of Contaminated Soil and Groundwater - When additional testing of Contaminated Soil or groundwater is required to characterize the Material for reuse, recycle, or disposal, conduct the tests according to 00290.20(c).

Use analytical methods meeting DEQ's Clean Fill Guidance Screening Levels for each analyte. Contaminated Soil and groundwater sampling must be conducted by an Oregon Registered Geologist or Professional Engineer who has experience characterizing contaminated media.

00294.03 Submittals - Submit the following documents:

- A Project-specific written lead compliance plan, meeting the project applicable requirements of 29 CFR 1926.62(e)(2), at least 10 Calendar Days before the pre-construction conference. When applicable, include compliance procedures for cadmium and chromium VI, according to 29 CFR 1926.1127 and 29 CFR 1926.1126.
- Modifications to the written lead compliance plan that are requested by the Engineer within 7 Calendar Days of the request.

- A site specific HASP at least 10 Calendar Days before the pre-construction conference.

Submit all modifications to the HASP that are requested by the Engineer or the qualified health and safety professional within 7 Calendar Days of the request.

- Current employee training certificates and medical surveillance information before beginning Work within the contaminated areas.

Submit the following documents within 48 hours of removal of contaminated media:

- Permits, permit applications, and documentation of compliance.
- All reuse, recycled, and disposal receipts.
- Final quantities of Soil reused, recycled, and disposed and their final location.
- All analytical test results.

- Documentation of final disposition of any reused Soil Material that is reused under ODOT's Beneficial Use Determination.

Labor

00294.30 Personnel Qualifications - Provide employees meeting the following requirements:

- For removal of Contaminated Soil, provide employees trained in:
  - Lead awareness according to 29 CFR 1926.62(l).
  - Chromium according to 29 CFR 1926.1126(j)(2).
  - Cadmium according to 29 CFR 1926.1127(m)(4).

Construction

00294.40 Contaminated Soil Excavation - Excavate and handle Contaminated Soil from Project excavations according to the following:

- Notify the Engineer 3 Calendar Days before beginning excavation activities within contaminated areas.
- Allow the Agency to collect Soil samples during excavation activities.

- Field screen Soil using a portable photo-ionization detector, portable flame ionization detector, field test kits, or other instrumentation capable of detecting the contaminants identified for this Soil.
- Segregate non-Contaminated Soil from Contaminated Soil during excavation activities, based on the field screening and the provided Contaminated Soil location information.
- Load Contaminated Soil directly into trucks and transport directly to the recycling or disposal facility, or on-site reuse areas or, when approved by the Engineer, temporarily store Contaminated Soil on-site. If stockpiled, contaminated soil should be covered to prevent migration via stormwater or wind.
- Remove contaminated media from the exterior of all vehicles before they leave the Project Site
- Cover trucks transporting contaminated Materials to prevent spillage during transit to the disposal facility according to OAR 340-093-0220.
- Where over excavation is required, backfill the excavation according to 00330.42.

00294.41 Contaminated Soil Management - Reuse, recycle, or dispose of Contaminated Soil according to any of the following:

(a) Landfill Disposal:

- Obtain the Engineer's approval of the disposal facility before disposing of the Contaminated Soil.
- Transport the Contaminated Soil to a DEQ permitted municipal solid waste landfill or a permitted construction and demolition landfill for disposal. Dispose of temporarily stored Contaminated Soils within 30 Days of beginning excavation work or before Second Notification, whichever occurs first.
- Complete and sign all manifests and bill-of-lading forms for handling, loading, transporting, and disposing of the Contaminated Soil.
- Pay all filing and permit fees.

(b) Reuse On-Site:

- Temporarily stockpile the Contaminated Soil from Unpaved portions of the ODOT Right-of-Way.
- Reuse the Contaminated Soil on the Project between Station ____ and Station _____ as shown. Place the Contaminated Soil _*(site specific restrictions)*__.
- Within 30 Calendar Days of completing on-site reuse or before Second Notification, whichever occurs first, transport all Contaminated Soil that is not reused on the Project to a DEQ permitted municipal solid waste landfill or a permitted construction and demolition landfill (or a permitted recycling facility).

(c) Reuse Under ODOT BUD No. BUD-20181204:

- Reuse of all Contaminated Soil shall follow the requirements of the DEQ Tier 3 Solid Waste Beneficial Use Determination Permit (BUD-20181204).

- Stockpile Contaminated Soil at US26 Milepoint 15.55 site.
- Complete all off-site reuse of Soil covered by ODOT BUD No. BUD-20181204, before Project completion.
- Transport and dispose all excess Contaminated Soil that is not reused in the Project within 30 Calendar Days of completing the Soil reuse Work, or before Second Notification, whichever occurs first, to a DEQ permitted municipal solid waste landfill or a permitted construction and demolition landfill.
- Reuse the Contaminated Soil at the following location US26 Milepoint 15.55 site.

Measurement

00294.80 Measurement - Work performed under this Section will be measured according to the following:

No measurement of quantities will be made for the following:

- HASP.

The quantities of contaminated soil removed and reused at the site designated under 00290.10 will be measured in their final embankment position at the site. The quantity measured for payment will not include the volume for additional quantity due to subsidence, settlement of the ground or base, settlement within embankments, or required due to compaction efforts that are required in 00330.43. The quantity of contaminated soil reused within the Roadbed will not be measured for payment.

The quantities of contaminated soil removed and reused on-site or reused at the site designated under 00290.10 will be measured according to one or more of the following:

- Volume Basis, based on the Agency's digital terrain model (DTM) calculated by Triangular Volume, Average End Area Volume, or by other methods of equivalent accuracy.
- Volume Basis, computed by the average end area method form Cross Section measurements, or by other methods of equivalent accuracy. When specified, corrections for curvature will be made.

Clearing and grubbing will be measured according to 00320.80.
Compost blanket will be measured according to 00280.80.

Payment

00294.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(a) Health and Safety Plan	Lump Sum
(b) Extra for Contaminated Soil Removal (Reuse)	Cubic Yard

Item (b) includes all extra or additional costs involved in segregating, stockpiling, handling loading, and hauling contaminated soil.
No separate or additional payment will be made for the excavation or reuse of Contaminated Soil or contaminated Shoulder Soil. Payment will be included in payment made for the appropriate items under which the excavation or reuse of Contaminated Soils or contaminated Shoulder Soil is required.

Clearing and grubbing will be paid for according to 00320.90.

Payment will be payment in full for removing and disposing of all Materials, and for furnishing all Equipment, labor, Plans, test results, and Incidentals necessary to complete the Work as specified.

SECTION 00298 - WELL PRESERVATION AND ABANDONMENT

Section 00298, which is not a Standard Specification, is included in this Project by Special Provision.

Description

00298.00 Scope - In addition to the requirements of Section 00290, protect, preserve, and abandon monitoring wells and water wells according to the following:

Abandon existing monitoring wells and water wells indicated in Table 00298-2 below:

Table 00298-2

Location/Station	Type	Depth below grade (feet)	Diameter (inches)	Other Well Design Information	Known Contaminants
US26 Milepoint 15.55 disposal site	Domestic water well	162	6”	Static level at 90 feet.	None

00298.03 Submittals - Provide the Engineer with all Permit applications, permit fees, start cards, well reports, bonds, and letters of credit required by the Oregon Water Resources Department within 48 hours of completing the work.

Labor

00298.30 Personnel Requirements - Provide contractors and workers meeting the following qualifications:

- A contractor with a current Oregon Water Well Constructor's license

Construction

00298.42 Abandon Water Wells - Abandon water wells before beginning ground disturbing construction work in the well locations according to OAR 690-220. Notify the Engineer at least 72 hours before beginning abandonment work.

Measurement

00298.80 Measurement - No measurement of quantities will be made for Work performed under this Section.

Payment

00298.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract lump sum amount for the following item:

Pay Item	Unit of Measurement
(a) Abandon Water Wells	Lump Sum

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 00299 - DECOMMISSION UNDERGROUND INJECTION CONTROL SYSTEMS

Section 00299, which is not a Standard Specification, is included in this Project by Special Provision.

Description

00299.00 Scope - In addition to the requirements of Section 00290, decommission underground injection control (UIC) systems according to the following Specifications.

Decommission the UIC systems indicated in Table 00299-1 below:

Table 00299-1

Location/Station	Depth (feet)	Width (feet)	Description	Former Use

00299.03 Submittals - Provide the Engineer with the following information and documents for contaminated soil generated on this project, within 48 hours of completing or receiving them:

- DEQ notifications, correspondence, permits and reports.

- Reuse, recycling, and disposal receipts or other related documentation for the UIC systems.
- Sample data and analytical results.

Labor

00299.30 Personnel Qualifications - Provide contractors and workers meeting the following requirements:

- An Oregon Registered Geologist (RG) or Professional Engineer (PE) who has experience decommissioning UIC systems and handling contaminated media.

Construction

00299.40 Underground Injection Control System Decommissioning - Decommission UIC systems according to OAR 340-044-0040 and the following:

- Sample UIC contents and bottom materials and characterize for disposal and DEQ UIC closure requirements, based on past use, according to 00290.20(c).
- At least 30 Days before decommissioning, complete, sign and submit to DEQ and the Engineer, DEQ's UIC Registration Pre-Closure Notification Form, along with the UIC content analytical results and, if required by DEQ, a pre-closure plan stamped by a PE or RG.
- Pay all UIC decommissioning fees to DEQ.
- Obtain written approval from DEQ and proceed with decommissioning the UIC within the time frame specified in DEQ's approval.
- Obtain approval from DEQ and fill the UIC in place, using DEQ approved fill materials.
- Backfill the excavation according to 00330.42.
- Complete a closure report, signed and stamped by a PE or RG, and submit it to DEQ and the Engineer within 30 Days of finishing decommissioning work or before Second Notification whichever occurs first.

Information for decommissioning underground injection control systems is available on DEQ's Fact Sheet titled *Closure of an Injection System*.

00299.43 Contaminated Media - Excavate, transport, and dispose of contaminated media according to Section 00294.

Measurement

00299.80 Measurement - The quantities of decommissioned UIC systems will be measured on the unit basis.

Excavating, transporting, and disposing of contaminated media will be measured according to 00294.80.

Payment

00299.90 Payment - The accepted quantities of decommissioned UIC systems will be paid for at the Contract unit price, per each, for the item "Decommission Underground Injection Control Systems".

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.

Excavating, transporting, and disposing of contaminated media will be paid for according to 00294.90.

SECTION 00305 - CONSTRUCTION SURVEY WORK

Comply with Section 00305 of the Standard Specifications modified as follows:

Add the following subsection:

00305.40 Water Line Construction Surveying – Perform water line surveys to the following tolerances and staking requirements:

- Stake water mains and fittings to within 0.10 feet horizontal and 0.03’ vertical tolerances relative to the approved design drawings.
- Grade references are to the invert elevation of the pipe as shown on the Plans, except as approved by the Engineer.
- Stake water mains and fittings horizontally at the centerline with a minimum of one additional set of line and grade reference stakes set at an 8.00’ offset. The offset distance may be adjusted to fit site conditions if approved by the Engineer.
- Stake water mains at 50.00’ intervals on the centerline stationing. Stake water main bends, tees, valves, tapping sleeves and valves, and project limits (beginning and end of water main).
- Set line and grade stakes for all fire hydrants. Set a 5.00’ offset reference stake on a line projected from the water main tee through the hydrant. Finish grade references for the hydrant are to the finish grade of the sidewalk or ground surface at the hydrant location.
- Stake water meter box locations in the same manner as a fire hydrant, except that reference stakes to the meter box may be staked at 90 degrees to the service line to avoid placing stakes on private property.
- Stake water vaults for line and grade at the corners with a minimum of one 5.00’ offset reference stake (per corner) set on a line projected along the side of the water vault. Finish grade references for the vault are to the finish grade of the sidewalk or ground surface at the vault location.
- List staked features on a cutsheet with references to the date, field personnel, equipment used, street location, line staked, stationing, feature staked, design grade, staked grade, cut or fill amount, offset location and stake material used.
- Save staked locations, horizontally and vertically, to a data collector with the point number, X and Y coordinates, elevation, and description such that a text report can be generated and submitted to the Engineer. List the horizontal and vertical datums in the text report.

SECTION 00310 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS

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

00310.41(a) General - Add the following to the end of this subsection:

Do not operate concrete and pavement saws after 10:00 p.m., unless otherwise approved by the Engineer.

00310.90 Payment - Add the following to the end of this subsection:

No separate or additional payment will be made for removal or disposal Work included in Section 00330 according to 00310.02.

SECTION 00320 - CLEARING AND GRUBBING

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

00320.40(a) Clearing Operations - Add the following to the end of this subsection:

Clear trees and brush when allowed, shown, or directed, except when prohibited under Section 00290.36(a). After initial clearing, maintain all cut vegetation between 2 and 6 inches in height until grubbing can occur.

00320.40(b)(3) Trees To Be Saved – Replace this subsection, except for the subsection number and title, with the following:

The Contractor shall fence root protection zones of trees as shown and coordinate with Portland Parks & Recreation Urban Forestry in accordance with Section 01041. The Portland Parks & Recreation Urban Forestry contact is:

> Rick Faber, 1900 SW 4th Avenue, Suite 5000, Portland, OR 97201; Email rick.faber@portlandoregon.gov

Do not begin construction activities or move Equipment into existing tree areas until the fencing is in place.

The Contractor shall be responsible for all damage to or for removal of trees to be protected, except for root pruning performed in accordance with Section 01041. Tree damage will be determined in accordance with Section 01041.

00320.41 Grubbing Operations – Replace the second sentence with the following sentence:

Within embankment limits, remove tree stumps, roots, and other vegetation to a depth of at least 3 feet below the top of surfacing for the grades in the 3D Construction Model.

Add the following to the end of this subsection:

Tree stumps shall not be removed by pulling or ripping out. Underground water service lines and main lines will be maintained in place during grubbing operations.

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 excavation basis.

00330.14 Selected Granular Backfill - Delete the sentence that begins "Reclaimed glass meeting the requirements of Section 02695…"

00330.15 Selected Stone Backfill - Delete the sentence that begins "Reclaimed glass meeting the requirements of Section 02695…"

00330.40(c) Avoidance and Correction of Detrimental Operations – Add the following paragraphs to the end of this subsection:

Request locates and record information for Conduit No. 3 facilities including buried manholes and cathodic protection system, in writing, from the Water Utility, with a copy to the Engineer, before beginning excavation in the Portland Water Bureau Conduit Buffer Zone as shown. The available Water Utility record information on Conduit No. 3 includes pipe depth information from previous potholing, CADD files from a previous locate, and buried manhole depth information.

Submit an unstamped Utility Protection Plan (UPP) that includes a site plan with the same scale and details as the Plans and, at minimum, following:

- Location of all utilities impacted by the construction by type, size, and status of use (whether in-use, abandoned, or other designation)
- Methods employed by the Contractor to locate existing utilities
- List of utility owners in the construction site area and the 24-hour emergency contact numbers for those utilities
- Schematic drawing(s) and written description of methods planned by the Contractor to protect and maintain in-service utilities during construction, including initial excavation through final backfill
- A plan for compacting backfill under any exposed water facilities

Submit a stamped Engineered Utility Protection Plan (EUPP) that includes a site plan with the same scale and details as the Plans, schematic drawing(s) and calculations for supporting and maintaining in service the water main impacted by the construction.

Comply with Portland Water Bureau **Guidelines for Utility Protection** available at http://www.portlandoregon.gov/water/article/415225 as follows:

Assessment Level	Instructions
Level I - 6-inch or smaller diameter water system or water service line 1-inch diameter or smaller within the Zone of Concern (1.5H to 1V from the bottom of the excavation) while the facility remains in service.	Work may require pipe support. A UPP may be required as determined by the Engineer.
Level II – 8-inch through 12-inch diameter water system or water service line larger than 1-inch diameter within the Zone of Concern (1.5H to 1V from the bottom of the excavation) while the facility remains in service.	A UPP is required. If unsafe conditions are encountered this requirement could escalate to a site-specific, EUPP as determined by the Engineer.
Level III – PWB Conduit No. 3, the 36-inch line in SE 145th Avenue, the 24-inch line in SE 148th Avenue, the 36-inch line in SE 162nd Avenue, the 90-inch lines in SE 162nd Avenue, and the 24-inch line in SE 174th Avenue within the Zone of Concern (1.5H to 1V from the bottom of the excavation).	Provide a site-specific EUPP for supporting and maintaining in service any existing transmission and distribution water mains 16" and larger if: 1) the trench is wider than 6 feet, 2) the drywell or sewer is greater than 6 feet below the water main, 3) shoring is 3 feet or less from the water main, and/or 4) as directed by the Engineer.

Do not begin work requiring a Utility Protection Plan, Engineered Utility Protection Plan, or Compaction Plan without prior acceptance or approval of these Working Drawings by the Engineer.

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

Dispose of waste materials according to Section 00236.

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

00330.43(a) General – Add the following paragraphs to the end of this subsection:

Submit a Compaction Plan for any work within the Portland Water Bureau Conduit Buffer Zone shown in the Plans. Compaction within the Portland Water Bureau Conduit Buffer Zone will require non-vibratory methods.

Submit a Compaction Plan for backfill material placed between the water main and the proposed sewer main or lateral where the pipe crosses underneath the water main with less than 1.5' of clearance.

Submit a Compaction Plan for material placed within 5-feet of any cast iron water pipe that is in service or is only temporarily out of service. Compaction within 5-feet of any cast iron water pipe that is in service or is only temporarily out of service will require non-vibratory methods

if there is minimum of 24-inches of cover over the pipe. Where there is less than 24-inches of cover over the cast iron water pipe do not use compaction equipment.

For material at the disposal site, consolidate the material in 18-inch lifts using tracked equipment a minimum of 3 coverages or other approved methods. Compact a firm surface, which is free draining to the lines and grades provided by the Engineer.

00330.90 Payment - Add the following sentence to the end of this subsection:

No separate or additional payment will be made for Compaction Plans, Utility Protection Plans or Engineered Utility Protection Plans.

00330.91(d) General Excavation - Delete the bullet that begins "Includes Unsuitable Material…".

00330.92 Kinds of Incidental Earthwork - Add the following bullets to the end of the bullet list:

- Excess material used to widen embankments or flatten slopes according to 00330.41(a)(4).

- Earthwork required for driveways and road approaches. Earthwork for driveways and road approaches will be that which is outside the Neat Line limits shown on the typical sections.

SECTION 00331 - SUBGRADE STABILIZATION

Comply with Section 00331 of the Standard Specifications.

SECTION 00350 - GEOSYNTHETIC INSTALLATION

Comply with Section 00350 of the Standard Specifications.

SECTION 00405 - TRENCH EXCAVATION, BEDDING, AND BACKFILL

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

00405.03 Lines, Grades, and Cross Sections - Replace this subsection, except for the subsection number and title, with the following:

Excavate trenches to the lines, depths, grades and Cross Sections as shown on the Plans or as established. Variations will be allowed only when necessary to ensure firm foundations or required potable water main line clearances and when such variations will not be detrimental to the Work.

Provide minimum 5' horizontal clearance between the outside surface of water mains and the outside of storm sewer inlets or manholes and 5’ to laterals or main lines where they are parallel, or as otherwise approved by the Engineer.

Provide minimum 2' clearance between the outside surface of water mains and the outside of storm sewer laterals or main lines over the top of water mains and minimum of 1.5’ clearance under the bottom of water mains where they are crossed by storm sewer pipes, or as otherwise approved by the Engineer.

00405.12 Bedding - Replace the bullet that begins "3/8" - 0 PCC Fine Aggregate…" with the following bullets:

- 3/8" - 0 PCC fine Aggregate conforming to 02690.30(g).
- For water line bedding, recycled material will not be allowed.
- For water pipe zone material, recycled material will not be allowed.

00405.14 Add the following:

(f) For Water Pipe trenches, recycled material will not be allowed.

00405.41(f) Trench Protection – Add the following sentence to the end of the subsection:

Prepare Utility Protection Plans or Engineered Utility Protection Plans according to 00330.40(c).

Add the following subsection:

00405.41 (h) Avoidance of Detrimental Operations – A minimum of 14 days in advance of beginning trench excavation in areas shown or as directed, vacuum excavate a test hole or use another method approved by the Engineer to determine the exact location of the utility line vertically and horizontally. Provide documentation of the exact location of the utility line to the Engineer a minimum of 10 days in advance of beginning trench excavation work across the utility. Visibly mark and maintain the location and depth On-Site of the underground facility until all trench excavation work is completed in the area.

For all potholing of Portland Water Bureau (PWB) water facilities, contact the **Public Works Inspection Supervisor at 503-823-8311** two days in advance to coordinate PWB Observation.

00405.46(c)(2) Class A, B, C, or D Backfill - Add the following to the end of this subsection:

Perform density testing for water line trenches at least once per 200 linear feet.

00405.80 Measurement - Add the following paragraph to the end of this subsection:

Test holes to determine the exact location of utility lines will be measured according to 00470.80.

00405.90 Payment - Add the following paragraphs to the end of this subsection:

When the Contract Schedule of Items does not indicate payment for Work performed 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.

Test holes to determine the exact location of the utility lines will be paid for according to 00470.90.

Add the following bullets to the end of the bullet list:

- Utility Protection Plans or Engineered Utility Protection Plans.
- Methods used to determine the exact utility line location other than an excavated test hole.

SECTION 00415 - VIDEO PIPE INSPECTION

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

00415.42(a) Remote Video Inspection with Laser Profiler - Replace the paragraph that begins "Use video inspection equipment meeting…" with the following paragraph:

Use video inspection equipment meeting the requirements of 00415.22. Calibrate the laser profiler according to the manufacturer's specifications and ASTM F3080 Section 9.

SECTION 00440 - COMMERCIAL GRADE CONCRETE

Comply with Section 00440 of the Standard Specifications modified as follows

00440.10 Materials – In the list of materials, add the following line to the table:

Concrete Coloring Agents..... 02001.31(h)

00440.12 Properties of Commercial Grade Concrete - Replace the bullet that begins "**Slump** - 5 inches…" with the following bullets:

- **Slump** - 5 inches or less
  - For concrete sidewalks, ramps, driveways, or other hand finished surface applications, and when using a high range water reducing admixture, provide a slump of 8 inches or less as approved by the Engineer.

00440.13 Field-Mixed Concrete - Replace the subsection, except for subsection number and title, with the following:

CGC Work items listed in 00440.14(a) may be field-mixed conventionally, or by volumetric/mobile mixers conforming to ASTM C685. When approved, concrete sidewalks, concrete curb ramps, concrete driveways, and other flat concrete surfaces may be field-mixed using volumetric/mobile mixers conforming to ASTM C685, request approval prior to placement. For all other CGC applications, submit written request to the Engineer for

approval to use volumetric/mobile mixers conforming to ASTM C685 at least 21 Days prior to placement.

Pre-packaged dry blended concrete from the QPL may be used for Work items listed in 00440.14(a).

00440.40 General – Modify this subsection as follows:

(a) Mixing – Add the following:

For colored concrete, ensure uniformity of color in all batches. Upon approval of the color sample submitted according to 00440.14(a), produce all colored concrete using the same water-cement ratio and the same brand of cement used in the approved sample.

(e) Curing – Replace the heading of this subsection with the following:

(e) Curing Non-colored Concrete

Add the following subsection:

(f) Curing Colored Concrete:

(1) General – Do not cover, fog or wet-cure colored concrete surfaces. Begin curing after finishing concrete, but not before free water has disappeared from concrete surface.

(2) Curing - Cure colored concrete with a curing compound color-tinted to match the approved concrete color, according to the manufacturer's instructions.

Apply curing compound immediately after final finishing. Apply uniformly in continuous operation by power spray or roller according to the manufacturer's instructions. Recoat areas that have been subjected to heavy rainfall within three hours after application. Maintain continuity of coating and repair damage during curing period.

00440.40(b) Placing - Add the following bullet to the end of the bullet list:

- When haul time or placement conditions warrant exceeding the time of discharge, submit a detailed breakdown of the estimated time needed from batching to discharge of a load along with the measures that will be taken to ensure slump, temperature and uniformity will be maintained. Submit in advance to establish a new time limit at the Engineer’s discretion.

SECTION 00442 - CONTROLLED LOW STRENGTH MATERIALS

Comply with Section 00442 of the Standard Specifications.

SECTION 00445 - SANITARY, STORM, CULVERT, SIPHON, AND IRRIGATION PIPE

Comply with Section 00445 of the Standard Specifications.

SECTION 00446 - TRENCH DRAINS

Comply with Section 00446 of the Standard Specifications.

SECTION 00470 - MANHOLES, CATCH BASINS, AND INLETS

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

00470.00 Scope – Replace first sentence with the following:

This Work consists of constructing manholes, catch basins, inlets, siphon boxes, slope protectors, drywells, and other similar Structures.

In the paragraph that begins with “References to manholes...” replace the first sentence with the following:

References to manholes, inlets, siphon boxes, slope protectors, and drywells refer to standard Structures of specific design and use, and are identified on the Plans.

00470.10 Materials – Add the following:

Steel Casing 00512.13
AggregateBase.....00640.10
Grout 02080

Add the following subsections:

00470.18 Drain Rock Backfill – Drain Rock placed between the drywell and the edge of the excavation is to be clean round gravel that is free of organics and is free draining and that will pass a 3/8 inch sieve and be retained on a No. 4 sieve. Furnish drain rock free from organics, frozen earth, or other deleterious material. The Engineer may inspect all potential stockpile sites prior to delivery of material.

00470.19 Aggregate Cover – Where drywell drain rock would otherwise be in contact with the connecting pipe, provide a cover of at least 6 inches of 1”-0 or ¾”-0 clean, aggregate continuously around the pipe. Use a geotextile fabric, as specified, conforming to Section 02320 as the medium between the aggregate cover and drain rock.

00470.20 Drilling Slurry – Drilling slurry will not be allowed.

00470.21 Quality Control – Maintain and be responsible for quality control of the drilled excavation work throughout the construction operation. The Engineer will inspect all drilled

excavation operations and verify the suitability of all drilled excavation procedures. Provide lights, mirrors, weighted tape, weighted probe, personnel, and all assistance required for the Engineer to perform inspection throughout drywell construction.

00470.40 (c) Avoidance of Detrimental Operations – A minimum of 14 days in advance of beginning inlet, manhole or drywell excavation work in areas shown or as directed, vacuum excavate a test hole or use another method approved by the Engineer to determine the exact location of the utility line vertically and horizontally. Provide documentation of the exact location of the utility line to the Engineer a minimum of 10 days in advance of beginning manhole or drywell excavation work across the utility. Visibly mark and maintain the location and depth On-Site of the underground facility until all manhole or drywell excavation work is completed in the area.

For all potholing of Portland Water Bureau (PWB) water facilities, contact the **Public Works Inspection Supervisor at 503-823-8311** two days in advance to coordinate PWB Observation.

00470.41(c) Grates, Frames, Covers and Fittings - Replace this subsection, except for the subsection number and title, with the following:

Set metal frames for manholes on full non-shrink grout beds to prevent infiltration of surface water or groundwater between the frame and the concrete of the manhole section. If concrete is to be poured around the frames, coat the portion of the frame that will contact the concrete with hot asphalt before placing the concrete. Set frames, covers and grates true to the locations and grades established. Clean bearing surfaces and provide uniform contact. The use of a bolt adjustment system for frames from the QPL is allowed. Secure all fastenings. Construct all mortared, sanitary sewer manhole necks and all riser ring joints made with non-shrink grout using an approved commercial concrete bonding agent applied to all cured concrete surfaces being grouted.

Install non-slip covers at the locations shown. Construct the non-slip cover surface flush with the surrounding surfacing and sidewalk.

00470.42 Precast Concrete Catch Basins and Inlets - Add the following sentence to the end of this subsection:

Grade adjustments using a bolt system from the QPL is allowed.

Add the following subsections:

00470.49 Precast Drywells:

(a) General – Construct precast drywells to the depths shown. Construct precast drywells before constructing sedimentation manholes. Make all drywell pipe connections as specified or directed.

(b) Protection of Existing Structures – Control sump excavation according to Section 00512.43(b).

(c) Connections – make all drywell pipe connections to the drywell wall as shown. Grout all pipes into a drywell wall to provide a watertight seal around pipes. Install a flexible joint in each connecting pipe within 18 inches of the drywell wall.

(d) Depth – Construct a drywell to its full depth unless unstable or caving soil strata is encountered during construction. The Engineer will determine the need for drywells of lesser depth than shown. Do not construct a drywell less than 20 feet deep.

Notify the Engineer of completion of each drywell to permit inspection before proceeding with construction. Measure final shaft depths with a suitable weighted tape or other approved method after final cleaning to determine that the shaft bottom meets the requirements in the Contract. Do not proceed with drywell construction until the bottom cleanliness requirements have been met and the bottom elevation is approved.

(e) Temporary Casing – Furnish and install temporary casing a minimum of 6 feet longer than the full depth of the drywell as shown on the plans.

(f) Unexpected Drywell Excavation Obstructions – Remove unexpected obstructions according to Section 00512.43(d).

(g) Lost Tools – Promptly remove tools lost in the excavation according to Section 00512.43(e).

(h) Clean Out – Use appropriate means, such as a cleanout bucket, pump, or air lift to clean the bottom of the excavation. No more than 2 inches of loose or disturbed material will be allowed at the bottom of the excavation.

(i) Drywell Backfill – Use a tremie or other approved method to backfill the drain rock around the drywell to prevent material from striking the netting during the backfill operation. Avoid damage to or displacement of the structure.

(j) Construction Tolerances – Excavate drywells as accurately as possible, true to the locations and grades shown on the plans. Determine the sump dimensions and alignment with approved methods.

Frequently check the plumbness, alignment, and dimensions of the drywell excavation during construction. Correct all out-of-tolerance excavations to the satisfaction of the Engineer. Materials and work necessary to complete corrections for out-of-tolerance drywells will be at the Contractor's expense, and no extension of the Project completion date will be granted. Materials and work necessary to complete corrections for out-of-tolerance drywells resulting from unexpected drywell excavation obstructions will be paid for as Extra Work.

00470.50 Casing Removal – Remove all temporary casing during or after completion of manhole placement. Do not start temporary casing removal until the level of drain rock backfill has reached a depth of at least 10 feet above the bottom of the casing. As the temporary casing is withdrawn, maintain a minimum of 5 feet of drain rock above the bottom of the casing. Extract the casing so that drain rock backfill is placed directly against the surrounding in-situ material. Check the elevation of the top of the manhole before and after temporary casing extraction for conformance with the location and elevations shown

on the plans. Casing that cannot be extracted during, or immediately after, the manhole installation and backfill may be cause for rejection of the drywell.

00470.51 Sump Acceptance - Acceptance of sumps will be based on the Engineer's review of the results of Sump Testing according to Section 00470.72.

For temporary casing not extracted from the sump excavation, submit a repair plan or a hydraulic evaluation to the Engineer for approval. If caving occurs submit a repair plan to the Engineer for approval.

00470.52 Drywell and Manhole Locations:

(a) General – The Engineer will establish and adjust drywell and sedimentation manhole locations to minimize conflicts.

(b) Spacing – When constructing 2 or more drywells in an area, construct the drywells approximately 25 feet apart, or as otherwise directed. The spacing may be greater than 25 feet in order to avoid overhead wires, underground utilities, or other obstacles to construction. Before beginning construction, the Engineer will determine the proper spacing at a site.

(c) Abandoned Drywell Manhole Installation – When a drywell manhole cannot be constructed to its specified minimum depth stop work and abandon the site as directed. Place and compact native or imported granular material and restore the site to its preconstruction condition.

00470.53 Sedimentation Manholes:

(a) General – Construct precast sedimentation manhole as shown.

(b) Typical Location – Unless otherwise specified or shown, construct the sedimentation manhole 25 feet upstream from the first drywell. Obtain approval before changing the location of a sedimentation manhole to avoid overhead wires, underground utilities, or other obstacles.

(c) Connections – Connect all sedimentation manhole piping to the manhole wall as shown. Grout pipe into manhole wall to provide watertight seal.

(d) Inspection – To allow for inspection by the Engineer, pump all accumulated water from a sedimentation manhole.

00470.55 Excavation near water mains and services – Protect and maintain in service the existing Portland Water Bureau water mains and service lines during excavation for and construction of inlets. Comply with the current version of Portland Water Bureau's **Guidelines for Utility Protection** available from their website (www.portlandoregon.gov/water/article/415225).

00470.72 Drywell Testing – To ensure the optimum drywell and storm sewer pipe performance, determine the in-place capacity of the drywell downstream from the

sedimentation manhole for each drywell system. Test after a drywell has been constructed, in conformance with the following requirements:

(a) Filling Drywell – Fill drywell with water at an initial rate of 300 gpm and record the water elevation below the sump rim after 5 minutes. Maintain initial flow rate and continue taking recordings of the water elevation at 5-minute intervals. When the water elevation stabilizes, increase the flow rate by 300 gpm, record the water elevation at the new flow rate as described in the initial process. Continue the drywell test by increasing the flow rate at increments of 300 gpm until the drywell has reached its maximum capacity.

Provide the Engineer with all recorded test data. The test may be completed using flow from one fire hydrant. However, a second fire hydrant may be necessary to complete the drywell test.

In cases where the permit limits the use of only one hydrant at a time and the testing flowrates cannot be achieved, the Contractor is to provide the Engineer with the permit information that shows 1) the maximum hydrant flows allowed by the City for each hydrant on the project and 2) a copy of the permit that limits the use of one hydrant at a time. The Contractor shall 1) test the drywell with the maximum allowable flow and record water levels every 5 minutes for at least 15 minutes and 2) test the drywell with a flow rate of 300 gpm and monitor for one hour.

Upon completion of each drywell test, compare tested drywell capacity flow rate to the minimum flow rate noted in the Plans. Contact the Engineer immediately if tested flow rate is less than the minimum flow rate determined by the Engineer.

Provide water flow from fire hydrants to the drywell being tested using 8-inch (nominal) diameter pipe.

Deliver clean water to the drywell or sedimentation manhole for testing. Do not allow the introduction of silts, sediments, or gravel to drywells and sedimentation manholes.

(b) Engineer Notification – Notify the Engineer of the estimated time of commencement of drywell tests at least 48 hours prior to such commencement. The Engineer will be present during all drywell capacity tests.

Based upon the results of the drywell capacity test, the number or depth, of subsequently installed sumps may be modified.

The City of Portland Bureau of Environmental Services has one sump capacity tester available on a “first come – first served” basis. The tester and pipe trailers may be rented per day for a maximum of 2 days per written application to the City of Portland Bureau of Environmental Services contact shown in Subsection 00150.50(f).

The Contractor is not required to use the City of Portland Bureau of Environmental Services sump capacity tester. However, if the tester provided by the Contractor is other than the City of Portland Bureau of Environmental Services sump capacity tester, it must be approved prior to conducting drywell capacity tests. Submit written details of the proposed drywell capacity tester including flow measuring instrument, 8-inch piping and 8-inch gate valve specifications. The Engineer will approve or reject this submittal within 2 weeks after receipt of said submittal.

Perform drywell capacity tests to determine the capacity of the drywell to ascertain that the designed drywell is adequate. The Engineer will determine the final number of drywells to be tested.

Based upon the results of the sump capacity test, the number or depth, of subsequently installed sumps may be modified.

00470.80 Measurement – Add the following:

The quantities of drywell and drywell capacity testing will be measured on the unit basis.

Test holes to determine the exact location of utility lines will be measured according to 00470.80.

00470.90 Payment – Add the following:

(l)	Drywell	Each
(m)	Drywell Capacity Test	Each
(n)	Test Hole	Each

Partial payments for item (l) will be made as follows:

- When the equipment is on the job, assembled and ready to excavate the drywell shaft.....60%
- When drywell construction has been completed, tested, and accepted.....40%

Under item (l), an adjustment, plus or minus, will be made if the drywell manhole is not built to the specified depth. The adjustment will be calculated by dividing the drywell manhole bid price by the specified depth to determine the adjustment cost per foot to the nearest 0.1-foot increment.

Abandoning a drywell that cannot be modified to pass the capacity test will be paid for according to 00195.20.

Add the following bullets to the end of the bullet list:

- Utility Protection Plans or Engineered Utility Protection Plans.
- Methods used to determine the exact utility line location other than an excavated test hole.

SECTION 00480 - DRAINAGE CURBS

Comply with Section 00480 of the Standard Specifications.

SECTION 00490 - WORK ON EXISTING SEWERS AND STRUCTURES

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

00490.00 Scope – Add the following to the end of this subsection:

This work includes cleaning existing pipes, manholes, inlets and similar Structures.

00490.01 Descriptive Terms – Add the following to the end of this subsection:

Drainage System Condition Report – A document that includes observed locations where standing water is present during rainfall events, manholes with observable accumulated material, inlets with observable accumulated material, and Structures with observable accumulated material. Incorporate images taken showing the extent of accumulated material inside the existing manholes, inlets, and Structures.

Pipe Cleaning – Pipe cleaning is the activity of removing all debris, sediments, vegetation and other accumulated material which impedes the flow of water through drainage system pipes.

Structure Cleaning – Structure cleaning is the activity of removing all debris, sediments, vegetation and other accumulated material which impedes the flow of water to maintain proper drainage paths and re-establish the functional capacity of the Manhole, Inlet, or Structure.

Add the following subsection:

Maintenance

00490.61 Structure and Pipe Cleaning – Prepare Drainage System Condition Report documenting all existing Manholes, Inlets and Structures within the Project Site and submit to the Engineer within 30 Calendar Days after the preconstruction conference. Do not use chemicals without the written approval of the Engineer. Remove and dispose of all debris according to 00290.20.

00490.80 Measurement – Add the following to the end of this subsection:

The quantities of pipe cleaning and structure cleaning will be measured on the unit basis.

00490.90 Payment – Add the following pay items to the pay item list:

(j) Pipe Cleaning ..... Foot
(k) Structure Cleaning ..... Each

SECTION 00495 - TRENCH RESURFACING

Comply with Section 00495 of the Standard Specifications.

SECTION 00530 - STEEL REINFORCEMENT FOR CONCRETE

Comply with Section 00530 of the Standard Specifications.

SECTION 00540 - STRUCTURAL CONCRETE

Comply with Section 00540 of the Standard Specifications modified as follows:

00540.41 Design of Falsework for Vertical Pressures - Replace the title of this subsection with "**Design of Falsework"**

00540.41(e) Additional Requirements at Railroad Traffic Openings - Replace the bullet that begins "Design bracing so that the bent…" with the following bullet:

- Design bracing so that the bent will resist the required horizontal load or 5000 pounds, whichever is greater.

Add the following subsection:

00540.41(f) Concrete Forms on Steel Structures - Provide sufficient temporary bracing or temporary struts and ties to minimize lateral deflection and rotation of the exterior steel girder. Calculate exterior girder rotation according to the Oregon Bridge Design Manual section 1.38.4. Limit deck deflection at the edge of deck due to girder rotation to no more than 1/4 inch.

Support compression member or bottom connection of cantilever formwork support brackets either within 6 inches maximum vertically of the bottom flange or within 6 inches maximum horizontally of a vertical web stiffener.

If partial depth cantilever formwork support brackets are permitted, submit Working Drawings showing the additional formwork struts and ties used to brace the steel girder against web distortion.

00540.45 Construction of Forms - Add the following sentences to the end of the paragraph that begins "Permanent stay-in-place bridge":

Use removable concrete forms on all steel Structures. Do not weld any part of the form to any steel girder.

SECTION 00596A - MECHANICALLY STABILIZED EARTH RETAINING WALLS

Comply with Section 00596A of the Standard Specifications modified as follows:

00596A.01 Proprietary MSE Walls - Add the following to the end of this subsection:

Select one of the following preapproved proprietary MSE retaining wall systems for the walls, structure nos. ____, as shown:

- Allan Block AB6® MSE Retaining Wall System, provided by Oregon Block and Paver MFG, telephone: (541)477-6869 .
- MESA® MSE Retaining Wall System, provided by Tensar International Corp., telephone: (360)779-5555.
- Landmark® MSE Retaining Wall System, provided by Anchor Wall Systems, Inc., telephone: (949)363-6663.

00596A.04(b) Design Calculations - Add the following to the end of this subsection:

The following retaining wall design parameters have been established for this Project:

Structure No. _____ : Sta. _____ to Sta. _____ (Lt.)(Rt.)

- Foundation soil unit density 115 lbs./cu. ft.
- Foundation soil angle of internal friction 30 degrees
- Foundation soil nominal (unfactored)
- bearing resistance 4100 lbs./sq. ft.
- Retained soil unit density 115 lbs./cu. ft.
- Retained soil angle of internal friction 30 degrees
- Reinforced soil unit density 130 lbs./cu. ft.
- Reinforced soil angle of internal friction 34 degrees
- Peak ground acceleration coefficient (*PGA*) 0.2710 g
- Short period spectral acceleration coefficient (S_S). 0.5934 g
- Long period spectral acceleration coefficient (S_1) 0.2086 g
- Site class D
- Peak seismic ground acceleration coefficient
- modified by zero period site factor (A_s) 0.36 g
- Horizontal seismic acceleration coefficient (k_h) 0.18 g
- Between Station _____ and Station _____ (Lt.)(Rt.):
  - Minimum length of soil reinforcement for overall stability 8 ft.
  - Minimum length of soil reinforcement for external stability 8 ft.

The following retaining wall design parameters have been established for this Project:

Structure No. _____ : Sta. _____ to Sta. _____ (Lt.)(Rt.)

- Foundation soil unit density 115 lbs./cu. ft.
- Foundation soil angle of internal friction 30 degrees
- Foundation soil nominal (unfactored)

- bearing resistance 4100 lbs./sq. ft.
- Retained soil unit density 115 lbs./cu. ft.
- Retained soil angle of internal friction 30 degrees
- Reinforced soil unit density 130 lbs./cu. ft.
- Reinforced soil angle of internal friction 34 degrees
- Peak ground acceleration coefficient (*PGA*) 0.2710 g
- Short period spectral acceleration coefficient (S_S). 0.5934 g
- Long period spectral acceleration coefficient (S_1) 0.2086 g
- Site class D
- Peak seismic ground acceleration coefficient
- modified by zero period site factor (A_s) 0.36 g
- Horizontal seismic acceleration coefficient (k_h) 0.18 g
- Between Station _____ and Station _____ (Lt.)(Rt.):
  - Minimum length of soil reinforcement for overall stability 8 ft.
  - Minimum length of soil reinforcement for external stability 8 ft.

The following retaining wall design parameters have been established for this Project:

Structure No. _____ : Sta. _____ to Sta. _____ (Lt.)(Rt.)

- Foundation soil unit density 115 lbs./cu. ft.
- Foundation soil angle of internal friction 30 degrees
- Foundation soil nominal (unfactored)
- bearing resistance 4100 lbs./sq. ft.
- Retained soil unit density 115 lbs./cu. ft.
- Retained soil angle of internal friction 30 degrees
- Reinforced soil unit density 130 lbs./cu. ft.
- Reinforced soil angle of internal friction 34 degrees
- Peak ground acceleration coefficient (*PGA*) 0.2710 g
- Short period spectral acceleration coefficient (S_S). 0.5934 g
- Long period spectral acceleration coefficient (S_1) 0.2086 g
- Site class D
- Peak seismic ground acceleration coefficient
- modified by zero period site factor (A_s) 0.36 g
- Horizontal seismic acceleration coefficient (k_h) 0.18 g
- Between Station _____ and Station _____ (Lt.)(Rt.):
  - Minimum length of soil reinforcement for overall stability 8 ft.
  - Minimum length of soil reinforcement for external stability 8 ft.

The following retaining wall design parameters have been established for this Project:

Structure No. _____ : Sta. _____ to Sta. _____ (Lt.)(Rt.)

- Foundation soil unit density 115 lbs./cu. ft.
- Foundation soil angle of internal friction 30 degrees
- Foundation soil nominal (unfactored)
- bearing resistance 4100 lbs./sq. ft.
- Retained soil unit density 115 lbs./cu. ft.
- Retained soil angle of internal friction 30 degrees
- Reinforced soil unit density 130 lbs./cu. ft.
- Reinforced soil angle of internal friction 34 degrees
- Peak ground acceleration coefficient (*PGA*) 0.2710 g
- Short period spectral acceleration coefficient (S_S). 0.5934 g
- Long period spectral acceleration coefficient (S_1) 0.2086 g
- Site class D
- Peak seismic ground acceleration coefficient
- modified by zero period site factor (A_s) 0.36 g
- Horizontal seismic acceleration coefficient (k_h) 0.18 g
- Between Station _____ and Station _____ (Lt.)(Rt.):
  - Minimum length of soil reinforcement for overall stability 8 ft.
  - Minimum length of soil reinforcement for external stability 8 ft.

The following retaining wall design parameters have been established for this Project:

Structure No. _____ : Sta. _____ to Sta. _____ (Lt.)(Rt.)

- Foundation soil unit density 115 lbs./cu. ft.
- Foundation soil angle of internal friction 30 degrees
- Foundation soil nominal (unfactored)
- bearing resistance 4100 lbs./sq. ft.
- Retained soil unit density 115 lbs./cu. ft.
- Retained soil angle of internal friction 30 degrees
- Reinforced soil unit density 130 lbs./cu. ft.
- Reinforced soil angle of internal friction 34 degrees
- Peak ground acceleration coefficient (*PGA*) 0.2710 g
- Short period spectral acceleration coefficient (S_S). 0.5934 g
- Long period spectral acceleration coefficient (S_1) 0.2086 g
- Site class D

- Peak seismic ground acceleration coefficient
- modified by zero period site factor (A_s) 0.36 g
- Horizontal seismic acceleration coefficient (k_h) 0.18 g
- Between Station _____ and Station _____ (Lt.)(Rt.):
  - Minimum length of soil reinforcement for overall stability 8 ft.
  - Minimum length of soil reinforcement for external stability 8 ft.

The following retaining wall design parameters have been established for this Project:

Structure No. _____ : Sta. _____ to Sta. _____ (Lt.)(Rt.)

- Foundation soil unit density 115 lbs./cu. ft.
- Foundation soil angle of internal friction 30 degrees
- Foundation soil nominal (unfactored)
- bearing resistance 4100 lbs./sq. ft.
- Retained soil unit density 115 lbs./cu. ft.
- Retained soil angle of internal friction 30 degrees
- Reinforced soil unit density 130 lbs./cu. ft.
- Reinforced soil angle of internal friction 34 degrees
- Peak ground acceleration coefficient (*PGA*) 0.2710 g
- Short period spectral acceleration coefficient (S_S). 0.5934 g
- Long period spectral acceleration coefficient (S_1) 0.2086 g
- Site class D
- Peak seismic ground acceleration coefficient
- modified by zero period site factor (A_s) 0.36 g
- Horizontal seismic acceleration coefficient (k_h) 0.18 g
- Between Station _____ and Station _____ (Lt.)(Rt.):
  - Minimum length of soil reinforcement for overall stability 8 ft.
  - Minimum length of soil reinforcement for external stability 8 ft.

00596A.11(c) Modular Block Core and Drainage Backfill - Replace this subsection, except for the subsection number and title, with the following:

Furnish 3/4" - No. 4 PCC Aggregate Material meeting the requirements of 02690.20(a) through (e).

Furnish Class 4000 structural concrete meeting the requirements of Section 02001.

00596A.15 Elastomeric Bearing Pads for Precast Concrete Facing Panels - Replace this subsection, except for the subsection number and title, with the following:

In horizontal and diagonal joints between precast concrete panels, furnish the grade, size, number and type of bearing pads shown in the stamped Working Drawings and design calculations prepared by the manufacturer. Determine the stiffness, size, and number of bearing pads so that the final joint opening is 3/4 inch ± 1/8 inch or as shown.

00596A.16 Concrete Modular Block Facing Connection Devices - Add the following to the end of this subsection:

For LANDMARK™ wall systems, furnish lock bars that are made of a rigid, polyvinyl chloride polymer conforming to the following requirements:

Property	Limits	Specification
Specific Gravity	1.4 (min.)	ASTM D792
Tensile Strength (at yield)	2,700 psi (min.)	ASTM D638

For MESA™ wall systems, furnish block connectors for block courses with geogrid reinforcement that are glass fiber reinforced, high density polypropylene conforming to the following minimum material requirements:

Property	Limits	Specification
Polypropylene: Group 1, Class 1, Grade 2	73% ± 2%	ASTM D4101
Fiberglass Content	25% ± 3%	ASTM D2584
Carbon Black	2% (min.)	ASTM D4218
Specific Gravity	1.08 ± 0.04	ASTM D792
Tensile Strength (at yield)	8,700 psi ± 1,450 psi	ASTM D638
Melt Flow Rate	(0.37oz. ± 0.16 oz.)/10 minutes	ASTM D1238

For MESA™ wall systems, furnish block connectors for block courses without geogrid reinforcement that are glass fiber reinforced, high density polyethylene (HDPE) conforming to the following minimum material requirements:

Property	Limits	Specification
HDPE: Type III, Class A, Grade 5	68% ± 3%	ASTM D1248
Fiberglass Content	30% ± 3%	ASTM D2584
Carbon Black	2% (min.)	ASTM D4218
Specific Gravity	1.16 ± 0.06	ASTM D792
Tensile Strength (at yield)	8,700 psi ± 725psi	ASTM D638
Melt Flow Rate	(0.11 oz. ± 0.07 oz.)/10 minutes	ASTM D1238

00596A.80 Measurement - Add the following to the end of this subsection:

The estimated quantities of retaining walls are:

Structure Number ____________ :

Station Limits **Area**

Sta. ______ to Sta. ______ (Lt.)(Rt.) ____(Wall area here)____ sq. ft.

Structure Number ____________ :

Station Limits **Area**

Sta. ______ to Sta. ______ (Lt.)(Rt.) ____(Wall area here)____ sq. ft.

Structure Number ____________ :

Station Limits **Area**

Sta. ______ to Sta. ______ (Lt.)(Rt.) ____(Wall area here)____ sq. ft.

Structure Number ____________ :

Station Limits **Area**

Sta. ______ to Sta. ______ (Lt.)(Rt.) ____(Wall area here)____ sq. ft.

Structure Number ____________ :

Station Limits **Area**

Sta. ______ to Sta. ______ (Lt.)(Rt.) ____(Wall area here)____ sq. ft.

Structure Number ____________ :

Station Limits **Area**

Sta. ______ to Sta. ______ (Lt.)(Rt.) ____(Wall area here)____ sq. ft.

SECTION 00597 - SOUND WALLS

Comply with Section 00597 of the Standard Specifications.

SECTION 00620 - COLD PLANE PAVEMENT REMOVAL

Comply with Section 00620 of the Standard Specifications modified as follows:

00620.40(e) Warning Signs - Replace this subsection, except for the subsection number and title, with the following:

Provide warning signs as required where abrupt or sloped drop-offs occur at the edge of the existing or new surface according to Sections 00221 and 00222.

00620.43 Maintenance Under Traffic - Replace this subsection, except for the subsection number and title, with the following:

Traffic is not allowed on the cold planed surface. Before opening the area to traffic, pave the surface according to 00745.51.

SECTION 00641 - AGGREGATE SUBBASE, BASE, AND SHOULDERS

Comply with Section 00641 of the Standard Specifications.

SECTION 00730 - EMULSIFIED ASPHALT TACK COAT

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

00730.11 Emulsified Asphalt - In the paragraph that begins "Obtain samples according to AASHTO T 40…" replace the words “AASHTO T 40” with the words “AASHTO R 66”.

SECTION 00745 - ASPHALT CONCRETE PAVEMENT - STATISTICAL ACCEPTANCE

Comply with Section 00745 of the Standard Specifications modified as follows:
00745.47(b) Drop-Offs - Replace the bullet that begins “Provide warning signs and markings…” with the following bullet:

- Provide warning signs and markings according to Sections 00221, 00222, 00224 and 00225 where abrupt or sloped edge drop-offs greater than 1 inch in height occur.

00745.49(c) Thin Pavement - Replace the paragraph that begins "Perform breakdown and intermediate rolling…" with the following paragraph:

Use ODOT TM 301 “Establishing Roller Patterns for Thin Lifts of ACP" to establish the rolling pattern for compaction. Use the roller pattern from ODOT TM 301 or four Coverages, whichever is greater. Complete additional Coverages as directed.

Add the following subsection:

00745.51 Opening Sections to Traffic - Schedule Work so that, during the same shift, the surfaces being paved are paved full width and length through the top Base Course before opening to traffic. Traffic will be allowed on the top Base Course up to 14 Calendar Days.

Before beginning wearing Course paving operations, make repairs to the existing surface as directed. Payment for the repairs will be made according to 00195.20.

00745.80 Measurement - Add the following paragraph to the beginning of this subsection:

The quantities of ACP shown in the Contract Schedule of Items were computed on the basis of Aggregates having a specific gravity of 2.75.

SECTION 00748 - ASPHALT CONCRETE PAVEMENT REPAIR

Comply with Section 00748 of the Standard Specifications.

SECTION 00749 - MISCELLANEOUS ASPHALT CONCRETE STRUCTURES

Comply with Section 00749 of the Standard Specifications.

SECTION 00755 - CONTINUOUSLY REINFORCED CONCRETE PAVEMENT

Comply with Section 00755 of the Standard Specifications modified as follows:

00755.15(a) Concrete Mixture - Replace this subsection, except for the subsection number and title, with the following:

- Sample and test according to the MFTP.
- For all continuously reinforced concrete pavement, provide personnel according to 00755.30 to sample and test the mix for temperature, air content, slump, water-cementitious ratio, density and yield, from the first load of each placement, whenever there is a visible change in the slump of the concrete, and when a set of cylinders is obtained.
- If the results of any test are outside of the Specification limits, stop the placement of the load. Correct the load or reject it and do not incorporate it into the Work. Test subsequent loads before any further concrete placement. Correct the subsequent loads if any of the tests are still outside the Specification limits. If the load cannot be corrected, reject it and do not incorporate it into the Work. Testing of subsequent loads may return to the specified frequency when the test results from two consecutive loads are shown to meet the Specification limits.

00755.80 Measurement - Replace the paragraph that begins " The quantities of terminal anchors…" with the following paragraph:

The quantities of terminal anchors and terminal expansion joints will be measured on the length basis, along the centerline of each anchor and joint as constructed.

00755.90 Payment - Add the following pay item to the pay item list:

(g) Terminal Expansion Joint……Foot

Add the following paragraphs to the end of this subsection:

Item (e) includes the excavation for the terminal anchor trenches.

Item (f) includes the transition panel, excavation, and dowelled expansion joint.

Item (g) includes the sleeper slab, excavation for the sleeper slab, and dowelled expansion joint.

ACP will be paid for according to 00744.90, and 00745.90, as applicable.

00755.95(a) General - Replace the bullet that begins “The average of the IRI for both…” with the following bullet:

- The IRI in each wheel path is 65.0 inches per mile or less.

SECTION 00759 - MISCELLANEOUS PORTLAND CEMENT CONCRETE STRUCTURES

Comply with Section 00759 of the Standard Specifications modified as follows:

00759.03(b) Curb Ramp Plan - Replace the bullet that begins “Compliance with Working Drawings and details…” with the following bullet:

- Comply with Working Drawings and details submitted under 00759.03(a)

Add the following subsection:

00759.03(d) Corrective Action Plan - Unless otherwise approved, notify the Engineer before performing corrective action. Include TPAR necessary to complete corrective action work.

At least 21 Calendar Days before concrete Structures Work is scheduled to begin, submit a corrective action plan. The corrective action plan shall address procedures to correct deficient Structures through minor corrective action or replacement according to 00759.55(a), and include:

- List of minor corrective actions that will be used to correct deficiencies, according to 00759.50 and 00759.55.
- Procedures for performing corrective action.
- Proposed concrete grinding Equipment and method of grinding.

- Proposed concrete repair Material used for resurfacing ground concrete surfaces according to Section 02015.
- Construction activities, Equipment and staging necessary to complete corrective action Work.

The Engineer will review the corrective action plan(s) and provide a response to the Contractor within 5 Days after receiving the plan. Do not begin concrete Structure Work until the corrective action plan is approved by the Engineer.

00759.10 Materials - Add the following paragraphs to the end of this subsection:

Furnish colored concrete for patterned concrete surfacing, use integral coloring agents conforming to 02001.31(h) of these Special Provisions. Color shall be Brick Red, closely matching Federal Standard 595B Color #30166, and shall meet requirements of ASTM C979.

The Contractor will be required to furnish two 4' x 4' colored concrete samples at the project location for approval by Engineer. Once accepted by the Engineer, the furnished approved samples shall remain through the completion of the work and will be a quality standard for judging the work. The Contractor shall not commence work on the color concrete until the sample has been completed and approved by the Engineer. The Contractor may be required to construct additional colored concrete samples, if the initial test is not acceptable. All colored concrete placed in the final work shall be accepted based on the Contractor's ability to produce the same quality as that shown in the concrete sample and in accordance with the standard specifications and these special provisions. Areas not having uniform color or other specified requirements shall be removed and replaced at no additional cost to the Agency.

Add the following subsection:

00759.23 Concrete Resurfacing Equipment - Furnish power-operated scarifying Equipment capable of uniformly removing and preparing the existing surface to depths required. For concrete grinding operations, furnish 12 segment grinders, fine-toothed scarifying Equipment, or other approved grinding Equipment.

00759.46 Concrete - Replace this subsection, except for the subsection number and title, with the following:

Construct the Structures between suitable forms or by the extrusion method. Place concrete according to the Plans, Section 00440, and this Section.

00759.50(a) General - Add the following paragraphs to the end of this subsection:

Install truncated domes as shown. Place according to the manufacturer's recommendation. Install abutting truncated dome panels with no more than 1/4 inch spacing. Install anchors along cut edges of truncated dome panels according to manufacturer's recommendations.

In addition, finish concrete surfaces of Structures to be within the established Slopes and dimensions allowed by the Standard Drawings and Plans. Repair or remove and replace Structures not meeting the Standard Drawings and Plans at no additional cost to the Agency.

Submit a corrective action plan for each non-compliant Structure after receiving notice of non-compliance from the Engineer. Perform correction of defects according to 00759.55.

00759.50(c) Driveways, Walks, and Surfacings - Replace this subsection, except for the subsection number and title, with the following:

Prevent segregation of the concrete during placement. Strike-off the concrete to the grade shown, and float the surface smooth. After the water sheen disappears, edge the joints and remove edging tool marks prior to final finishing. Lightly cross-broom the surface to a uniform texture. Do not trowel joints or edges after brooming surface.

The 24 inch smart level will be used to measure driveway and sidewalk cross slopes on the Pedestrian Access Route.

00759.50(d) Curb Ramps - Replace this subsection, except for the subsection number and title, with the following:

Prevent segregation of the concrete during placement. Strike-off the concrete to the grade shown and float the surface smooth. After the water sheen disappears, edge the joints and remove edging tool marks prior to final finishing. Lightly cross-broom the surface to a uniform texture. Do not trowel joints or edges after brooming surface.

The 6 inch smart level will be used to measure curb running slope. The 6 inch smart level will be used to measure slopes on portions of the curb ramp, gutter pan, or adjacent surfaces that cannot accommodate a 24 inch smart level. All other curb ramp locations will use a 24 inch smart level to measure slopes.

Add the following subsection:

00759.55 Correction of Deficient Structures - Unless otherwise approved, notify the Engineer before performing corrective action. Correct deficiencies at no additional cost to the Agency. Perform corrective actions as directed, according to the approved corrective action plan, and according to the following:

(a) Minor Corrective Action - Submit Equipment and procedure for minor corrective action to the Engineer for approval. Minor corrective action can be performed to correct a deficiency up to 1 square foot per panel. Limit minor corrective action to one area per panel. Perform minor corrective action according to the following:

(1) Concrete Grinding - Grinding to correct high area deficiencies is limited to 3/16 inch. Use equipment meeting the requirements of 00759.23. Resurface all ground concrete surfaces according to 00759.55(a)(2).

(2) Concrete Resurfacing - Resurfacing to correct low area deficiencies is limited to 3/16 inch depth. Existing concrete is to be at least 7 Days old prior to resurfacing. Resurface repair areas according to the following:

a. **Keyway** - Sawcut a keyway at the boundaries of repair areas that are not already defined by panel control joints. Sawcut is to be 1/8 inch wide by 1/4 inch deep. Bevel inside edge of keyway at a 45 degree angle.

b. **Surface Preparation** - Prepare limits of repair area by grinding using Equipment from 00759.23. After grinding, sandblast the surface of the repair area. Clean the surface using a low pressure washer, less than 5,000 psi.

c. **Presoak** - Presoak the repair area for a minimum of 30 minutes to saturated surface dry. Prior to resurfacing, ensure there is no ponding water on the surface.

d. **Resurface** - Provide concrete resurfacer from the QPL according to 02015.60; refer to QPL remarks to select an appropriate material based on allowable installation depths. Furnish resurfacer in a color that closely matches the color of surrounding concrete surfaces. Mask boundaries of the repair area. Use hand tools to work resurfacer into keyways and match existing grade at boundaries. Apply a light broom-finish to achieve non-slip surface.

e. **Curing and Return to Traffic** - Wet cure for a minimum of 1 hour or per the manufacturer's recommendation, whichever is more restrictive. Follow manufacturer's recommendation for return to traffic time.

(3) ACP Grinding - Taper grind to match existing Pavement with a minimum grinding width of 1 foot for each 1/4 inch of ACP removed.

(b) Acceptance of Structures - Once the corrective work or replacement has been completed, acceptance will be based on the Engineer's inspection and approval of the Structure.

00759.80 Measurement – Add the following:

The quantities of extra for bike ramp will be measured on the unit basis.

00759.90 Payment – Add the following pay item to the pay item list:

(o) Extra for Bike Ramp.....Each

Replace the paragraph that begins " Item (k) includes the additional Work required …" with the following paragraph:

Item (k) includes the additional Work required to construct a curb ramp or replace an existing curb ramp. Payment for the area of the curb ramp will be made under the concrete walks Pay Item.

Add the following paragraph:

Item (o) includes the additional Work required to construct a bike curb ramp. Payment for the area of the bike ramp will be made under the concrete walks Pay Item.

Replace the paragraph that begins "No separate or additional payment will be…" with the following paragraph and bullet list:

No separate or additional payment will be made for:

- curb ramp Working Drawings
- curb ramp plan,
- preplacement conference
- concrete form verification
- any necessary repair or removal and replacement of curb ramps
- providing supervisory personnel who have an active ODOT ADA Certification for Contractors to directly supervise the curb ramp Work
- developing corrective action plans

SECTION 00811 - CABLE BARRIER

Comply with Section 00811 of the Standard Specifications.

SECTION 00815 - BOLLARDS

Comply with Section 00815 of the Standard Specifications.

SECTION 00840 - DELINEATORS AND MILEPOST MARKER POSTS

Comply with Section 00840 of the Standard Specifications.

SECTION 00842 - FACILITY IDENTIFICATION MARKERS

Comply with Section 00842 of the Standard Specifications.

SECTION 00850 - COMMON PROVISIONS FOR PAVEMENT MARKINGS

Comply with Section 00850 of the Standard Specifications modified as follows:

00850.10 Materials – Add the following to the end of this subsection:

Furnish the following tactile walking surface indicator, or approved equal:

- 12 inch Detectable Guidance Strip Type D Profiled Methyl Methacrylate (MMA) – modified to have four profile ridges, ALTA Traffic Solutions Inc., 11095 SW Industrial Way, Suite A, Tualatin, Oregon 97062, Ph. (503)885-0420

00850.47(c) Retroreflectivity - Replace the sentence that begins "Except for paint applications…" with the following sentence:

Except for paint and colored lane marking applications, evaluate longitudinal and transverse marking retroreflectivity according to ODOT TM 777.

SECTION 00855 - PAVEMENT MARKERS

Comply with Section 00855 of the Standard Specifications.

SECTION 00860 - LONGITUDINAL PAVEMENT MARKINGS - PAINT

Comply with Section 00860 of the Standard Specifications.

SECTION 00865 - LONGITUDINAL PAVEMENT MARKINGS - DURABLE

Comply with Section 0865 of the Standard Specifications modified as follows:

00865.45 Installation – Add the following to the end of the subsection:

Apply tactile walking surface indicator as Method A.

00865.80 Measurement – Add the following to the end of the subsection:

The quantity of tactile walking surface indicator will be measured on the length basis. Tactile walking surface indicator markings will be based on a nominal line width of 12 inches. If the width of the line is other than 12 inches, measurement will be adjusted by converting to an equivalent length of nominal 12 inch line on a proportionate area basis. Measurement will be the actual stripe. Gaps between stripes will not be measured.

00865.90 Payment – Add the following pay item to the pay item list:

Method A (Extruded)

(k) Tactile Walking Surface Indicator..... Foot

SECTION 00867 - TRANSVERSE PAVEMENT MARKINGS - LEGENDS AND BARS

Comply with Section 00867 of the Standard Specifications.

SECTION 00868 - COLORED LANE MARKINGS

Section 00868, which is not a Standard Specification, is included in this Project by Special Provision.

Description

00868.00 Scope - In addition to the requirements of Section 00850, install colored lane markings according to the following Specifications.

Labor

00868.30 Manufacturer's Representative - Provide a manufacturer's representative according to 00850.30.

00868.31 Manufacturer-Certified Installers - Provide certified installers according to 00850.31.

Construction

00868.45 Installation - Place markings only when the manufacturer's representative determines that the pavement is ready for the pavement marking material.

Apply the material to the pavement according to the manufacturer's installation instructions to the full width shown in the Plans. Joints will be allowed with no overlap or gap allowed at the joint.

Do not install reflective elements.

Install the pavement marking material surface according to the manufacturer's installation instructions to achieve a uniform initial skid resistance greater than or equal to 50 British Pendulum Number (BPN) when tested according to ASTM E303.

Apply one or more of the following marking material types:

- **Preformed, Fused Thermoplastic Film High Skid** - Install preformed, fused thermoplastic film high skid that has factory installed crushed glass or Aggregate on the surface.

- **Methyl Methacrylate** - Apply methyl methacrylate to the pavement to the full width shown in a single application. Colored lane markings shall be 90 mils to 120 mils in thickness, exclusive of projecting surface-applied friction elements, with a continuous and uniform cross sectional configuration.

00868.75 Manufacturer's Warranty - Furnish a manufacturer warranty that unconditionally warrants to the Agency the product(s) and installation under this Section against failure , according to this subsection and 00170.85(c)(1). Use Agency-supplied warranty forms, available from the Engineer.

"Unconditionally warrant" means that the warranty covers all failures, regardless of the source or cause of the failure, including, without limitation, whether the source or cause is or may be related to workmanship, inspection, or choice of materials.

The Agency inspection of any portion of the Work during the Contract and during the product installation, the Agency acceptance of the Work, corrections under the warranty, or expiration of the warranty shall not relieve the obligations under this warranty.

(a) Warranty Period - The warranty period shall be for 18 months.

(b) Failure - For purposes of this warranty, failure is defined as one or more of the following:

- **Insufficient Color Stability:**
  - Green markings fail to meet the requirements of the Federal Highway Administration Interim Approval for Optional Use of Green Colored Pavement for Bike Lanes (IA-14) tested according to ASTM D6628.
- **Loss of Adhesion** - Markings show 5 percent or greater loss of marking material due to non-adhesion.
- **Skid Resistance** - Markings fail to maintain an average skid resistance greater than or equal to 50 British Pendulum Number (BPN) when tested in an equal number of test locations in both wheel path and non-wheel path locations according to ASTM E303.

(c) Remedy - Upon notification by the Engineer of a failure, provide the following remedy at no additional cost to the Agency:

- Repair or replace, at the discretion of the Engineer, all failed pavement markings within 6 months of the Agency's request to do so.
- Use materials and procedures meeting the Specifications.
- Match repairs to adjoining Work.
- Coordinate timing of repair Work with the Engineer.

(d) Agency's Right to Make Repairs - If, in the opinion of the Engineer, a failure causes or may cause a hazard, the failure may be temporarily corrected by Agency or other forces at no additional cost to the Agency. Replace temporary repairs with permanent repairs at no additional cost to the Agency and according to the Specifications and within the time specified in 00868.75(c).

Measurement

00868.80 Measurement - The quantities of colored lane markings will be measured on the area basis.

Payment

00868.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement

(a) Green Bicycle Lane, Preformed Thermoplastic Film .... Square Foot
(b) Green Bicycle Lane, Methyl Methacrylate..... Square Foot

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.

Payment for Work under this Section will be limited to 75 percent of the amount due until the Agency has received the signed warranty.

SECTION 00869 - CURB AND NON-TRAVERSABLE MEDIAN MARKINGS

Section 00869, which is not a Standard Specification, is included in this Project by Special Provision.

Description

00869.00 Scope - In addition to the requirements of Section 00850, 00860, and 00865, install curb markings and non-traversable median markings according to the following Specifications.

Labor

00869.31 Manufacturer-Certified Installers - Provide certified installers according to 00850.31 for thermoplastic applications.

Construction

00869.45 Installation - Apply curb markings and non-traversable median markings only when the following conditions are met:

- The ambient temperature is at least 50 °F and rising
- The pavement has been dry for at least 48 hours
- 30 Calendar Days of cure time for new concrete curb or median.

Apply the Material to the pavement according to the manufacturer's installation instructions to the full height and width of curb or median as shown in the Plans.

Apply one or more of the following marking material types:

- **Paint** - Apply according to 00860.45 along full height of curb face and along full width of top of curb or non-traversable median.

- **Thermoplastic, Sprayed** - Apply according to 00865.45, using Method B Spray Markings to the full height of curb face and along full width of top of curb or non-traversable median.
  - Apply each application of painted thermoplastic marking at a thickness of 60 mils.

Measurement

00869.80 Measurement - The quantities of non-traversable median markings will be measured on the area basis. The quantities of curb markings will be measured on the length basis.

Payment

00869.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(d) Non-Traversable Median Markings Paint	Square Foot

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 00902 - CROSSWALK CLOSURE SUPPORTS

Section 00902, which is not a Standard Specification, is included in this Project by Special Provision.

Description

00902.00 Scope - This Work consists of constructing crosswalk closure supports and associated signs as shown.

Materials

00902.10 Materials - Furnish Materials meeting the following requirements:

Commercial Grade Concrete	00440
Steel	01070.10 and 01070.12
Signs	00940

Construction

00902.40 General - Install crosswalk closure supports and associated signs as shown or directed.

Measurement

00902.80 Measurement - The quantities of crosswalk closure supports will be measured on the unit basis. No separate measurement will be made for signs attached to crosswalk closure supports.

Payment

00902.90 Payment - The accepted quantities of Work done under this Section will be paid for at the Contract unit price, per each, for the item "Crosswalk Closure Supports".

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

SECTION 00905 - REMOVAL AND REINSTALLATION OF EXISTING SIGNS

Comply with Section 00905 of the Standard Specifications.

SECTION 00910 - WOOD SIGN POSTS

Comply with Section 00910 of the Standard Specifications.

SECTION 00920 - SIGN SUPPORT FOOTINGS

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

00920.80 Measurement - Add the following to the end of this subsection:

The estimated quantities of concrete for minor sign supports are:

Support Type	Quantity
Multi-Post Breakaway Sign Supports	cu. yd.
Triangular Base Breakaway Sign Supports	cu. yd.
Pipe Breakaway Sign Supports	cu. yd.
Perforated Steel Square Tube Slip Base Sign Supports	cu. yd.
90 Degree Rotational Sign Supports	cu. yd.
Pipe Sign Supports	cu. yd.
Perforated Steel Square Tube Anchor Sign Supports	cu. yd.

SECTION 00930 - METAL SIGN SUPPORTS

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

00930.80 Measurement - Add the following to the end of this subsection:

The estimated quantities of structural steel are as follows:

Item	Estimated Quantity (Pound)

Minor Sign Supports

Multi-Post Breakaway Sign Supports	___
Triangular Base Breakaway Sign Supports	___
Pipe Breakaway Sign Supports	___
Perforated Steel Square Tube Slip Base Sign Supports	___
90 Degree Rotational Sign Supports	___
Pipe Sign Supports	___
Perforated Steel Square Tube Anchor Sign Supports	___

SECTION 00940 - SIGNS

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

Add the following subsection:

00940.12 Sign Coatings -

Furnish all signs on the Project with a shop-applied anti-graffiti coating on both the background and legend sheeting according to 02910.70, regardless of substrate material.

00940.40 General - Add the following sentence to the end of the paragraph that begins "Fabricate all components…":

For signs that require anti-graffiti coating, fabricate all components of each individual sign with sheeting and anti-graffiti coating from the same supplier to ensure that all components are compatible and are warrantable by the manufacturer.

00940.90 Payment -

Add the following paragraph to the end of this subsection:

No separate or additional payment will be made for anti-graffiti coating of signs.

SECTION 00950 - REMOVAL OF ELECTRICAL SYSTEMS

Comply with Section 00950 of the Standard Specifications modified as follows:

00950.02 Definitions - Delete this subsection.

00950.42 Salvaging and Stockpiling Materials - Add the following to the end of this subsection:

The following Materials will remain the property of the Agency. Salvage the Materials and stockpile them at the locations indicated. Contact Region 1 Electrical Crew at 971-673-6240

and PBOT Electrical Foreperson at 503-823-1725 to confirm delivery 48 hours prior to delivery.

Materials	Stockpile Locations
Existing traffic signal equipment including signal cabinets and controllers, vehicle heads, pedestrian signal poles, and pedestrian signal heads., and temporary traffic signal equipment including ATC signal controllers	
LED luminaires	

SECTION 00960 - COMMON PROVISIONS FOR ELECTRICAL SYSTEMS

Comply with Section 00960 of the Standard Specifications modified as follows:

00960.30 Licensed Electricians - Replace the paragraph that begins "According to the Oregon Administrative Rule …" with the following paragraph:

According to the Oregon Administrative Rule 918-282-0120(1), no person or entity shall allow any individual to perform electrical work for which the individual is not properly registered or licensed. Every person who installs electrical systems on the Project shall submit a copy of their electrical license or apprentice registration to the Engineer prior to performing any Work. They must be licensed as an S or a J under Oregon Administrative Rule 918-282.

Add the following subsection:

00960.31 Journeyman Lineman – The Contractor shall have a certified journeyman lineman who is capable of performing as a Qualified Worker as described in 29 CFR 1910.269. Every person who works within 10 feet of existing overhead electrical lines on the Project shall submit a copy of his or her journeyman lineman license to the Engineer prior to performing any work.

(Use the following subsection .42(c) when rigid metallic conduit is required.)

Add the following subsection:

00960.42(c) Metallic Conduit – Paint the following with rust-preventative coating:

- Threads on all metal conduit.
- Areas where the coating has been damaged so underlying metal is exposed.
- Exposed, ungalvanized threads resulting from field cuts.

If corrosive Soil conditions exist, coat metallic conduit with a nonmetallic coating or wrap with corrosion protection tape at least 10 mils thick.

Add the following subsection:

00960.42(g) Conduit on Wood Poles - Mount conduit on wood poles with two-hole, galvanized, steel conduit straps spaced no more than 3 feet apart. Mount conduit on Utility-owned wood poles according to local Utility regulations. Use stand-off brackets if required.

Add the following subsection:

00960.44 Wood Poles - Submit stamped Working Drawings, details, and calculations for the wood pole designs to the Engineer for review according to 00150.35. Satisfy the requirements of 02120.10 and include designs for the wood poles, guy anchors, guy wires, span wires, pole setting depths, and pole bearing.

Add the following subsection:

00960.45(g) Wood Poles - Bond all metallic conduit, messenger cable, terminal cabinet, and other metallic parts within 10 feet of the ground line.

Add the following subsection:

00960.45(h) Metallic Junction Boxes and Lids - Bond metal junction boxes and lids to form a continuous effectively grounded and bonded system with metallic conduit, grounding wire, metal standards and controller cabinets. Leave enough slack in the bond wire connected to the lid to allow complete removal of the lid. Junction boxes only containing circuits that operate at less than 25 V do not need to be bonded.

00960.46 Service Cabinet and Electrical Energy - Replace this subsection, except for the subsection number and title, with the following:

Install service cabinet and associated equipment, then arrange for the Utility providing power to have the service cabinet inspected and make the electrical hook-up prior to field testing. Field test according to 00990.70(g) for traffic signals, or according to 00970.70 for illumination.

Field testing for Intelligent Transportation Systems (ITS) does not require prior electrical hook-up.

Table 00960-1 contains Utility contact information to arrange for the Utility to make electrical hookups:

Table 00960-1

Location	Utility	Utility Contact Person's Name, Email and Phone Number	Utility Job Number
SE 104th and SE Powell	Portland General Electric		
SE 108th and SE Powell	Portland General Electric		
SE 112th and SE Powell	Portland General Electric		

SE 116th and SE Powell	Portland General Electric		
SE 119th and SE Powell	Portland General Electric		
SE 140th and SE Powell	Portland General Electric		
SE 145th and SE Powell	Portland General Electric		
SE 148th and SE Powell	Portland General Electric		
SE 151st and SE Powell	Portland General Electric		
SE 156th and SE Powell	Portland General Electric		
SE 158th and SE Powell	Portland General Electric		
SE 162nd and SE Powell	Portland General Electric		
SE 166th and SE Powell	Portland General Electric		
SE 168th and SE Powell	Portland General Electric		
SE 171st (Meadowland Shopping Center) and SE Powell	Portland General Electric		
SE 174th and SE Powell	Portland General Electric		

As part of each traffic signal installation, furnish and install a meter base approved by the serving Utility (with cover by the Utility), where shown.

Electrical energy is flat-rated for illumination and flashing beacon services. Meter base is not required.

Electrical energy costs will be billed to the Agency for permanent installations.

SECTION 00962 - METAL ILLUMINATION AND TRAFFIC SIGNAL SUPPORTS

Comply with Section 00962 of the Standard Specifications modified as follows:

(Use the following subsection .05(a) when standard signal mast arm supports are required.)

00962.05(a) Traffic Signal Mast Arm Supports - Add the following to the end of this subsection:

The following standard signal mast arm pole drawings are prequalified for use on the Project:

Valmont Industries Inc. Drg. DB00719 page 1, Rev. P, 6/8/18

	Drg. DB00719 page 2, Rev. P, 6/8/18
	Drg. DB00719 page 3, Rev. P, 6/8/18
	Drg. DB00719 page 4, Rev. P, 6/8/18
	Drg. DB00719 page 5, Rev. P, 6/8/18
	Drg. DB01290 page 1, Rev. D, 9/22/20
	Drg. DB01290 page 2, Rev. D, 9/22/20
	Drg. DB01290 page 3, Rev. D, 9/22/20
	Drg. DB01290 page 4, Rev. D, 9/22/20
Ameron Pole Products Division	Drg. OR13TR10, Rev. E, 8/27/18
	Drg. OR13TR11, Rev. F, 8/27/18
	Drg. OR13TR12, Rev. G, 8/27/18
	Drg. OR13TR13, Rev. C, 8/27/18

00962.05(c) Illumination Supports - Replace this subsection, except for the subsection number and title, with the following:

Furnish one of the following double guy rod arms, or approved equal:

- Wood Pole Mounting Mast Arm Luminaire Support S-2-12DG or S-125-10DG, MacLean Power Systems, 11411 Addison Avenue, Franklin Park, IL 60131, Ph. (847)455-0014
- Double Guy Rod Bracket D200S160 or D200S080, Utility Metals, P.O. Box 9054, Louisville, KY 40209, Ph. (800)627-8276
- Wood Poles Double Guy Rod Arm SMAWGD T20US16 or SMAWGD T20US8, Lithonia Lighting, One Lithonia Way, Conyers, GA 30012, Ph. (770)922-9000

Design non-standard luminaire slip base, fixed base, and high mast poles and foundations according to the *AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals (2015)*. Design factors include:

Design Wind Velocity.....145 mph
Design Service Wind Velocity.....91 mph

00962.46(d) Illumination Supports - Replace the paragraph that begins with the words "Arms shall be self-supporting …" with the following paragraph:

Arms, except for double guy rod arms shown in the Plans, shall be self-supporting without tie rods, or braces. Measure upsweep rise from the point of attachment to the pole to the end tangent portion of the self-supporting arm. Measure upsweep rise from the lowest attachment point on the wood pole to the end of the double guy rod arm. Provide tapered self-supporting arms that are either round, 8 sided, 12 sided, or 16 sided.

00962.46(d) Illumination Supports - Replace the paragraph that begins with the words "All arms shall allow …" with the following paragraph:

Arms, except for double guy rod arms shown in the Plans, shall allow for wiring entrances directly into the pole from inside the arm.

00962.46(j)(2)(a) Anchor Rods for Signal Supports and Fixed Base Luminaire Supports - Replace the paragraph that begins “Mark the position of each turned element…” with the following paragraph:

Mark position of each anchor rod and an outside ridge of each first nut above the base plate with a felt tip pen or similar marker to verify subsequent nut rotation. Rotate all first nuts above the base plate past snug tight an additional amount shown in 00962.46(j)(2)(d) in two passes. "Cheater" bars or slugging wrenches are allowed if required for large diameter anchor rods. After final tightening of the first nut above the base plate, tighten the second nut to a snug tight condition for assemblies with two nuts above the base plate.

SECTION 00963 - SIGNAL SUPPORT DRILLED SHAFTS

Comply with Section 00963 of the Standard Specifications modified as follows:

00963.43(b) Protection of Existing Structures - Add the following paragraph to the end of this subsection:

A minimum of 14 days in advance of beginning drilled shaft excavation in areas indicated in the Plans or as directed, vacuum excavate a test hole or use another method approved by the Engineer to determine the exact location of the utility line vertically and horizontally. Provide documentation of the exact location of the utility line to the Engineer a minimum of 10 days in advance of beginning drilled shaft excavation work across the utility. Visibly mark and maintain the location and depth On-Site of the underground facility until all drilled shaft excavation work is completed in the area.

For all potholing of Portland Water Bureau (PWB) water facilities, contact the **Public Works Inspection Supervisor at 503-823-8311** two days in advance to coordinate PWB Observation.

00963.80 Measurement - Add the following paragraph to the end of this subsection:

Test holes to determine the exact location of utility lines will be measured according to 00470.80.

00963.90 Payment - Add the following paragraph to the end of this subsection:

Test holes to determine the exact location of the utility lines will be paid for according to 00470.90.

Add the following bullet to the end of the bullet list:

- Utility Protection Plans or Engineered Utility Protection Plans.
- Methods used to determine the exact utility line location other than an excavated test hole.

SECTION 00970 - HIGHWAY ILLUMINATION

Comply with Section 00970 of the Standard Specifications modified as follows:

Add the following subsection:

00970.15 LED Luminaires on Traffic Signal Supports - Furnish one of the following approved models or an approved equal:

- CREE LED - Traveyo Series Large,
  TRVLG-A-HT-3ME-16L-40K7-UL-GY-N

- Signify - LUMEC LED - RoadFocus RFL,
  RFL-135W80LED4K-G2-R3M-UNV-DMG-PH9-GY3

- Current LED - Evolve, ERLH-0-14-C3-40-D-GR

When higher light output is desired, higher wattage luminaires up to 170 watt within the same brand/model listed above, may be furnished.

When furnishing an LED luminaire model that is not specified as approved, the luminaire shall meet the requirements of 02926.54.

SECTION 00987 - TELECOMMUNICATIONS

Section 00987, which is not a Standard Specification, is included in this Project by Special Provision.

Description

(In the following subsection .00, delete the language in orange parentheses that does not apply and delete the orange parentheses.)

00987.00 Scope - This Work consists of furnishing and installing fiber optic cabling for the telecommunications (of signalized intersection devices) (of Intelligent Transportation Systems (ITS) devices).

(In the following subsection .01, delete the standards that are not required.)

00987.01 Regulations, Standards, and Codes - Comply with the following standards where applicable:

- Telecommunications Industry Association (TIA/EIA)
  - EIA-455-3A (FOTP-3) Procedure to Measure Temperature Cycling Effects on Optical Fibers, Optical Cable, and Other Passive Fiber Optic Components
  - TIA-455-8 (FOTP-8) Measurement of Splice or Connector Loss and Reflectance Using an OTDR

  - TIA-526-7 (OFSTP-7) Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant
  - EIA-455-25 (FOTP-25) Impact Testing of Optical Fiber Cables
  - EIA-455-33 (FOTP-33) Fiber Optic Cable Tensile Loading and Bending Test
  - EIA-455-41 (FOTP-41) Compressive Loading Resistance of Fiber Optic Cables
  - EIA-455-81 (FOTP-81) Compound Flow (Drip) Test for Filled Fiber Optic Cable
  - EIA-455-82 (FOTP-82) Fluid Penetration Test for Fluid Blocked Fiber Optic Cable
  - EIA-455-104 (FOTP-104) Fiber Optic Cable Cyclic Flexing Test
  - EIA-455-171 (FOTP-171) Attenuation by Substitution Measurement for Short-Length Multimode Graded-Index and Single Mode Optical Fiber Cable Assemblies
  - EIA/TIA-568-B.3 Optical Fiber Cabling Components
  - EIA/TIA-758 Customer Owned Outside Plant Telecommunications Cabling
  - EIA-598-B Optical Fiber Cable Color Coding
- American National Standards Institute/Insulated Cable Engineers Association (ANSI/ICEA)
  - ANSI/ICEA S-87-640 Standard for Optical Fiber Outside Plant Communications Cable
- International Telecommunication Union - Telecommunication Standardization Sector (ITU-T)
  - G.652 (11/09) Characteristics of a single-mode optical fiber and cable Telecommunications Industry Association (TIA)
  - G.652 (11/16) Characteristics of a single-mode optical fiber and cable

(In the following subsection .02, delete the submittals that are not required.)

00987.02 Submittals - Within 30 Calendar Days after the execution of the Contract, submit the following:

- Disruption Request according to 00987.04
- Outside plant fiber optic cable according to 00987.10

(Use the following 3 bullets when splicing is required. Do not use these 3 bullets for Traffic Signal Interconnect.)

- Fiber optic jumper/patch cables according to 00987.11.
- Splice closures and installation instructions according to 00987.12
- Splice trays according to 00987.13.
- Fiber Optics Installer or Fiber Optics Technician Certification according to 00987.30.
- OSP cable installation procedure according to 00987.40(a)
- Fiber optic cable test plan according to 00987.41(a)
- Factory testing according to 00987.41(b)
- Arrival on-site testing according to 00987.41(c)
- Fiber optic cable testing according to 00987.41(d) and (f)

Include the manufacturer's name, model numbers, catalog sheets and other descriptive literature of proposed materials. Provide the catalog sheets and literature including technical data, physical properties and operational description in sufficient detail to demonstrate the Equipment meets these specifications.

(Use the following subsection .04, when Existing System Disruption and Restoration is required.)

00987.04 Existing System Disruption and Restoration - Work of this Contract requires disruptions to the specified existing systems, circuits, and equipment.

Notify the Engineer 14 Calendar Days before existing Ethernet switches are impacted.

Obtain Engineer's approval before disrupting the system. Disruptions will only be considered for non-holiday weekdays between 8 a.m. and 4 p.m. For each written disruption request include the following:

- System(s) to be affected
- Disruption start date and time
- Estimated duration required

(Insert the locations of the existing systems that require disruption)

Existing systems that require disruption include the following:

-
-

Do not disrupt any other communication systems not listed or approved.

Materials

00987.10 Outside Plant Fiber Optic Cable - Furnish and install outside plant (OSP) single mode fiber optic (SMFO) cable containing single mode dual window (1310 nm and 1550 nm) fibers.

(a) Optical Fiber - Meet optical, mechanical and environmental requirements for all usable fibers in buffer tubes.

(b) Fiber Characteristics and Tests - Meet the requirements in Table 00987-1 for single mode fibers:

Table 00987-1

Fiber Characteristic Table	
Parameters:	Single Mode
Type:	Step Index
Core diameter:	8.3 µm (nominal)
Cladding diameter	125 µm ± 1.0 µm
Core to cladding offset:	≤1.0 µm

Coating:	dual layer, UV-cured acrylate strippable mechanically or chemically without damaging fibers
Optical fibers:	doped silica core with concentric silica cladding
Coating diameter:	250 µm ± 15 µm
Cladding non-circularity defined as:	≤2.0% [1-(min. cladding dia÷max. cladding dia.)]x100 FOP cable: all dielectric, gel-filled or water blocking tape, duct-type
Proof/Tensile Test:	345 MPa, min
Attenuation at 1310 nm:	≤0.4 dB/km
Attenuation at 1550 nm:	≤0.4 dB/km
Design Standard:	ANSI/ICEA S-87-640
Test cable according to:	EIA-455-25 (FOTP-25) EIA-455-33 (FOTP-33 Condition II) EIA-455-41 (FOTP-41) EIA-455-81 (FOTP-81) EIA-455-82 (FOTP-82) EIA-455-104 (FOTP-104 Conditions I and II)
Test optical fiber according to:	EIA-455-3A (FOTP-3)
Attenuation at the Water Peak:	≤2.1 dB/km @ 1383 ± 3 nm
Chromatic Dispersion	
Zero Dispersion Wavelength:	1301.5 to 1321.5 nm
Zero Dispersion Slope:	≤0.092 ps/(nm^2 *km)
Maximum Dispersion:	≤3.3 ps/(nm^2 *km) for 1285 – 1330 nm ≤0.092 ps/(nm^2 *km) for 1550 nm
Cut-Off Wavelength:	<1250 nm
Mode Field Diameter	9.3 ± 0.5 µm at 1310 nm
Petermann II	10.5 ± 1.0 µm at 1550 nm

(c) Color Coding - Distinguish each fiber from others in the same tube or cable by means of color coding according to the following:

1. Blue (BL)
2. Orange (OR)
3. Green (GR)
4. Brown (BR)
5. Slate (SL)
6. White (WT)
7. Red (RD)
8. Black (BK)
9. Yellow (YL)
10. Violet (VL)
11. Rose (RS)
12. Aqua (AQ)

Target colors according to the Munsell color shades and comply with EIA/TIA-598.

The color formulation needs to be compatible with the fiber coating and the buffer tube filling compound, be heat stable, not fade, smear, be susceptible to migration, and it must not affect the transmission characteristics of the optical fibers and not cause the fibers to stick together.

(d) Cable Construction - Furnish fiber optic cables with the following components:

(1) Buffer Tubes - Furnish clearance in the loose buffer tubes with fibers and the inside of the tube to allow for expansion without constraining the fiber. The fibers are to be loose or suspended within the tubes. Do not adhere the fibers to the inside of the buffer tube. Do not exceed a maximum of 12 fibers in each buffer tube. Furnish the number of fibers per cable as shown.

Extrude loose buffer tubes from a material having a coefficient of friction sufficiently low to allow free movement of the fibers. Furnish material that is tough and abrasion resistant to furnish mechanical and environmental protection of the fibers, yet designed to permit safe intentional “scoring” and breakout, without damaging or degrading the internal fibers.

Furnish buffer tube filling compound that is a water blocking tape or gel based filling compound with anti-oxidant additives to prevent water intrusion and migration homogenous hydrocarbon. Furnish filling compound that is non-toxic, dermatologically safe to exposed skin, as well as chemically and mechanically compatible with all cable components, non-nutritive to fungus, non-hygroscopic and electrically non-conductive. Furnish filling compound free from dirt and foreign matter and be readily removable with conventional nontoxic solvents.

Strand buffer tubes around a central member by a method, such as reverse oscillation stranding process that will prevent stress on the fibers when the cable jacket is placed under strain.

(2) Central Member - Furnish a central member that functions as an anti-buckling element that is a glass reinforced plastic rod with similar expansion and contraction characteristic as the optical fibers and buffer tubes. To ensure the proper spacing between buffer tubes during stranding, a symmetrical linear overcoat of polyethylene may be applied to the central member to achieve the optimum diameter.

(3) Filler Rods - Fillers may be included in the cable to maintain the symmetry of the cable cross section. Furnish filler rods that are solid medium or high-density polyethylene. Filler rods are to be the same diameter as the outer diameter of the buffer tubes.

(4) Stranding - Strand completed buffer tubes around the over-coated central member using stranding methods, lay lengths and positioning such that the cable meets mechanical, environmental and performance specifications. A polyester binding is to be applied over the stranded buffer tubes to hold them in place. Apply binders with sufficient tension to secure the buffer tubes to the central member without crushing the buffer tubes. Furnish a binder that is non-hygroscopic, non-wicking, and dielectric with low shrinkage.

(5) Core and Cable Flooding - Furnish a cable core that contains a water blocking tape material to prevent water ingress and migration. Furnish water blocking tape material that is either a polyolefin-based compound, which fills the cable core interstices, or an absorbent polymer, which fills voids and swells to block the ingress of water. The flooding compound or material needs to be homogeneous, non-

hygroscopic, non-conductive, and non-nutritive to fungus. Furnish compound or material that is nontoxic, dermatologically safe and compatible with other cable components.

(6) Tensile Strength Member - Furnish tensile strength by high tensile strength aramid yarns or fiberglass, which are helically stranded evenly around the cable, core and not adhere to other cable components.

(7) Ripcord - Furnish cable that contains at least one ripcord under the jacket for easy sheath removal.

(8) Outerjacket - Furnish jacket that is free of holes, splits, and blisters and be medium or high density polyethylene, or medium density cross linked polyethylene with minimum nominal jacket thickness of 1 mm ± 0.076 mm. Apply jacketing material directly over the tensile strength members and water blocking materials and not adhere to the aramid strength material. The polyethylene needs to contain carbon black to provide ultraviolet light protection and not promote the growth of fungus.

Mark the jacket or sheath with the manufacturer's name, the words "Optical Cable", the number of fibers, "SM", year of manufacture, and sequential measurement markings every meter. The marking is to be of contrasting color to the cable jacket.

(e) Packaging and Shipping Requirements - Pack completed cable on reels for shipment. Wrap cable in weather and temperature resistant covering. Seal both ends of cable to prevent ingress of moisture. Secure each cable end to the reel to prevent the cable from coming loose during transit. Have at least 6 feet of cable length accessible for testing purposes.

Label each cable reel with a durable, weatherproof label showing manufacturer's name, cable type, actual length of cable on the reel, Contractor's name, contract number, and reel number. Include a shipping record in a weatherproof envelope showing the above information and include the date of manufacturer, cable characteristics (size, attenuation, bandwidth), factory test results, cable identification number and any other pertinent information.

Minimum hub diameter of reel needs to be at least thirty times the cable diameter. Fiber optic cable is to be continuous length on each reel. Mark reel indicating direction reel should be rolled to prevent loosening of cable.

Furnish installation procedures and technical support information at delivery.

(Use the following subsection .11 when splicing is required. Do not use this subsection for Traffic Signal Interconnect.)

00987.11 Fiber Optic Jumpers/Patch Cable - Furnish a minimum of 2 duplex or 4 simplex jumper cables in each cabinet that has new or modified fiber optic cable installation. Use jumpers of simplex or duplex design. Use duplex jumpers of duplex round cable construction. Use jumpers that are at least 6 feet in length, sufficient to avoid stress and allow orderly routing. Use an outer jacket of duplex jumpers that is yellow in color. Use the two inner simplex jackets that are contrasting colors to provide easy visual identification of polarity. Store jumpers within the cabinets. The Agency will connect at the time of commissioning.

Use connectors that are ceramic ferrule for single mode fiber with ultra-physical contact (UPC) polishing, type as shown. Furnish connector body housing that is glass-reinforced polymer. The associated coupler is to be of the same material as the connector housing. Each connector is not to exceed 0.75 dB loss as specified by EIA/TIA-568-B.3.

(Use the following subsection .12 when splicing is required. Do not use this subsection for Traffic Signal Interconnect. Delete the language in orange parentheses that does not apply and delete all orange parentheses. Fill in the blanks with the appropriate quantity of cables, splice trays and the diameter of cables.)

00987.12 In Handhole Splice Closures - Enclose the fiber optic field splices in splice closures, complete with splice organizer trays, brackets, clips, cable ties, seals and sealant, as needed. Furnish splice closures suitable for (aerial) (or) (direct burial) application. Supply the Manufacturer's installation instructions to the Engineer prior to the installation of any splice closures. Furnish splice closures that meet the following requirements:

- Non-filled thermoplastic case
- Rodent proof, waterproof, re-enterable and moisture proof
- Expandable from ___ cables per end to __ cables per end by using adapter plates if necessary
- Cable entry ports that accommodate ___ inch to ___ inch diameter cables
- Multiple grounding straps
- Accommodate up to ___ splice trays
- Suitable for butt or through cable entry configurations
- Place no stress on finished splices within the splice trays

Attach the splice closure to the inside wall of the handhole.

(Use the following subsection .13 when splicing is required. Do not use this subsection for Traffic Signal Interconnect.)

00987.13 Splice Trays - Furnish splice trays that accommodate a minimum of 12 fusion splices and allow for a minimum bend radius of 1-3/4 inches. Loop individual fibers one full turn within the splice tray to allow for future splicing. Do not apply stress on the fiber when it is located in its final position. Secure buffer tubes near the entrance of the splice tray. Secure buffer tubes with channel straps.

Furnish splice trays of the same manufacturer as the splice closure or fiber distribution panel depending on use.

00987.14 Warning Tags - Furnish warning tags with a long life material, orange in color, and marked in a permanent and consistent manner with black lettering.

Include the text “CAUTION FIBER OPTIC CABLE” on all warning tags and show the cable fiber count.

Attach warning tags to fiber optic cables using UV-resistant zip ties according to the manufacturer's recommendations. Do not affix in a manner that causes damage to the fiber.

Attach warning tags to the cables in at least two locations in junction boxes and handholes, and at least one location in cabinets.

00987.15 Labels - Use labels to identify cables and jumpers and patch cords at all termination points, junction boxes, handholes, and cabinets. Use labels to identify all communications equipment and devices in junction boxes, handholes, and cabinets. Use yellow or white colored labels with permanent black lettering. Mechanically imprint labels, do not use handwritten labels.

Use tubular plastic labels on cables and jumpers and patch cords. Label duplex jumpers to provide a visual distinction between the two fibers. Provide labels with the following information:

- Owner
- Number of fibers
- Fiber number
- Cable origin
- Cable destination

Labor

00987.30 Fiber Optic Work - Individuals performing fiber optic installation are to possess either a Fiber Optics Installer or Fiber Optics Technician Certification recognized by the Electronics Technicians Association (ETA) or a Fiber Optics for ITS certificate from the International Municipal Signal Association (IMSA). Submit a copy of certification to the Engineer prior to performing any work.

Construction

00987.40 Fiber Optic Cable Installation and Setup:

(a) OSP Cable Installation - Submit a fiber optic cable installation plan including the manufacturer's recommended procedures for pulling fiber optic cable for review 30 Calendar Days of execution of the Contract. Use mechanical aids to install cable. Place tension measuring device or breakaway swivel between ends of cable grip and pull rope to ensure tension does not exceed 80 percent of recommended tension or 500 pounds, whichever is less. Use cable grips with a ball bearing swivel for installing fiber optic cable to prevent cable from twisting during installation.

During installation, maintain a minimum bend radius of 20 times the outside diameter of the cable per EIA/TIA-568-B.3. Do not stress the cable beyond the minimum bend radius. Install fiber optic cable using cable pulling lubricant as recommended by the manufacturer. Use a non-abrasive pull tape. Station personnel at each splice vault and hand hole to lubricate the cable and prevent kinking or other damage. Install fiber optic cable without splices, except as specifically allowed for on the plans, as described herein, or as directed. Divide slack equally on each side of splice closures. Following installation of cable in

conduit, seal all entrances in cabinets, junction boxes and vaults with duct sealing compound to keep out moisture, foreign materials, and rodents.

(Use the following subsection .40(b) when splicing is required. Do not use this subsection for Traffic Signal Interconnect.)

(b) Splicing - Use fusion type splices for all optical fibers that do not exceed a maximum optical attenuation of 0.3 dB per splice as required by EIA/TIA-568-B.3. Place completed splices in a splice tray. Place splice tray in a splice closure unless using a splice enclosure. Protect all splices with a thermal shrink sleeve.

(Use the following subsection .40(c) when splicing is required. Do not use this subsection for Traffic Signal Interconnect.)

(c) Cable Terminations - At the splice closure, the cable jacket of the SMFO cable is to be removed exposing the aramid yarn, filler rods, and buffer tubes. The exposed length of the buffer tubes needs to be at least the length recommended by the splice closure manufacturer which allows the tubes to be secured to the splice trays. Secure each buffer tube to the splice tray in which it is to be spliced. Remove the remainder of the tube to expose sufficient length of the fibers in order to properly install in the splice tray.

Splice and secure fiber optic cable with tie warps and route to its appropriate fiber distribution unit location.

When applicable, the moisture blocking gel is to be removed from the exposed buffer tubes and fibers. The transition from the buffer tube to the bundle of jacketed fibers is to be treated by an accepted procedure for sleeve tubing, shrink tube and silicone blocking of the transition to prevent future gel leak. Follow manufacturer's installation instructions to ensure that throughout the specified temperature range gel will not flow from the end of the buffer tube if using gel filled fiber optic cable. Strip and prepare the cable for splicing.

All fibers of the fiber distribution panel are to be labeled within the cabinet.

Make a transition with flexible tubing, to isolate each fiber to protect the individual coated fibers. The final transition from bundle to individual fiber tube is to be secured with an adhesive heat shrink sleeve.

00987.41 Fiber Optic Testing:

(Use the following subsection .41(a) when splicing is required. Do not use this subsection for Traffic Signal Interconnect.)

(a) Test Plan - Prior to beginning testing, submit for approval copies of installation and test plan detailing methods of installation and testing for all materials, equipment, and systems. At the same time, submit the associated schedule of activities. Notification of approval or rejection will be made within 28 Calendar Days. If the test plan is rejected, submit a revised test plan within 28 Days. Do not begin testing until receiving approval of the test plan by the Engineer. Submit all test results, including results of failed tests or re-tests to the Engineer. Supply all test equipment.

Provide 48 hours notice of intent to proceed prior to commencing each functional or subsystem test. In the notice, provide location(s) of test(s). Conduct environmental tests of field equipment as part of the functional tests. Subsystem testing and inspections are to include visual inspection from damaged or incorrect installation, adjustments, alignments, and measurement of parameters and operating conditions.

(b) Factory Testing - Documentation of compliance with the fiber specifications as listed herein is to be supplied by the original equipment manufacturer. Before shipment, but while on the shipping reel, test 100 percent of all fibers for attenuation. Maintain copies of the results on file by the manufacturer with a file identification number, attached to the cable reel in a waterproof envelope, and submitted to the Contractor and Engineer.

(c) Arrival On-Site Testing - Physically inspect each cable upon delivery. Attenuation test 100 percent of the fibers to confirm that the cable meets the requirements at wavelengths of both 1310 nm and 1550 nm with the Optical Time Domain Reflectometer (OTDR) test equipment. The failure of any single fiber in the cable is cause for rejection of the entire reel. Record test results and compare and file with the copy accompanying the shipping reel in a waterproof envelope. Do not install the cable until completion of this test sequence and the Engineer provides written approval. Submit copies of traces and test results to the Engineer. If the tests are unsatisfactory, the reel of cable is considered unacceptable and all records corresponding to that reel are to be marked accordingly. Replace the unsatisfactory reels of cable with new reels of cable. Test the new reels of cable to demonstrate acceptability. Submit copies of the test results to the Engineer.

(d) Fiber Optic Cable Testing - Testing is to include the tests on elements of the passive fiber optic components: (1) at the factory; (2) after delivery to the project site, but prior to installation; (3) after installation, but prior to connection to any other portion of the system. Provide all personnel, Equipment, instrumentation, and Materials necessary to perform all on-site testing.

Provide documentation of all test results to the Engineer at most 3 Days after the test is completed. At least 21 Calendar Days prior to the arrival of cable on site, provide detailed field testing procedures. In the procedures include the test involved and method by which tests are to be conducted. Include in the notification the model, manufacturer, configuration, calibration, and alignment procedures for all proposed test equipment

(Use the following subsection .41(e) when splicing is required. Do not use this subsection for Traffic Signal Interconnect.)

(e) Outdoor Splices - Verify insertion loss quality of each splice prior to sealing splice closure.

(f) Cable Verification:

(1) OTDR Testing - Once the cabling system has been installed and is ready for splicing, test all fiber links with the OTDR test equipment for attenuation at wavelengths of both 1310 nm and 1550 nm. Index matching gel is not allowed in connectors during testing. Record, date and compare test results and file with previous copies. Submit hard copy printout of traces and test results to the Engineer. Use OTDR test equipment capable of recording and displaying anomalies of at least 0.02 dB. Calibrate the OTDR

with traceability to a national metrology unit such as the National Institute of Standards and Technology (NIST).

(Use the following subsection .41(f)(2) splicing is required. Do not use this subsection for Traffic Signal Interconnect.)

(2) Power Meter and Light Source Testing - At the conclusion of the OTDR testing, 100 percent of the fiber links are to be tested end to end with a power meter and light source, according to FOTP-171 and in the same wavelength specified for the OTDR tests. Conduct tests in one direction. Calculate the insertion. Record test results, compared, and filed with the other recordings of the same links. Submit test results to the Engineer. Use a power meter that was calibrated with traceability to the National Institute of Standards and Technology (NIST).

(3) Test Failures -

(Use the following paragraph when splicing is required. Do not use this subsection for Traffic Signal Interconnect.)

If the link loss measured from the power meter and light source exceeds the calculated link loss, or the actual location of the fiber ends does not agree with the expected location of the fiber ends (as would occur with a broken fiber), the FO link will be rejected. Replace the unsatisfactory segments of cable, or splices with a new segment of cable or splice. Complete the OTDR testing, power meter and light source testing for the repair to determine acceptability. Submit copies of the test results to the Engineer. The removal and replacement of a segment of cable will be interpreted as the removal and replacement of a single continuous length of cable connecting two splices, two connectors. The removal of only the small section containing the failure and therefore introducing new unplanned splices is not allowed.

(Use the following paragraph when splicing is NOT required. Use this paragraph for Traffic Signal Interconnect.)

If the attenuation measured after installation does not match the attenuation measured on-site before installation then the fiber optic link will be rejected. Replace the unsatisfactory segments of cable with a new segment of cable. Complete the OTDR testing for the repair to determine acceptability. Submit copies of the test results to the Engineer. The removal and replacement of a segment of cable will be interpreted as the removal and replacement of a single continuous length of cable. The removal of only the small section containing the failure and therefore introducing new unplanned splices is not allowed.

(4) Allowed Loss - Evaluate fiber optic cable tests based on the following maximum allowable loss per EIA/TIA-568-B.3:

- Fiber on-reel: 0.40 dB/km at 1310nm and 0.30 dB/km at 1550nm
- Installed fiber: 0.40 dB/km at 1310nm and 0.30 dB/km at 1550nm
- Per connector: 0.75 dB bi-directional average

(Use the following bullet when splicing is required. Do not use this bullet for Traffic Signal Interconnect.)

- Per splice: 0.30 dB bi-directional average

Losses exceeding the above limits are only allowed with written approval from the Engineer.

Measurement

00987.80 Measurement - No measurement of quantities will be made for Work performed under this Section.

Payment

00987.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

(Delete pay item(s) from the list that are not included in the Schedule of Items, but do not change the alpha characters next to the pay items. Also delete the paragraph that begins with "Item (x) includes…" for the corresponding pay item(s) that are being deleted. Select the appropriate unit of measurement, delete the one that does not apply, and delete all orange parentheses. Delete pay item (c) when splicing is NOT required.)

Pay Item	Unit of Measurement
(a) Telecommunications, Material	Lump Sum
(b) Telecommunications, Installation	Lump Sum
(c) Telecommunications, Splicing and Testing	Lump Sum

Item (a) includes furnishing outside plant fiber optic cable, fiber optic jumpers, fiber optic patch cable, splice closures, splice trays, and all other Incidental items necessary to complete the Work.

(Use the following paragraph when the splicing is NOT required. Use this paragraph for Traffic Signal Interconnect.)

Item (b) includes installation and testing of all materials as shown or specified.

(Use the following paragraph when splicing is required. Do not use this subsection for Traffic Signal Interconnect.)

Item (b) includes installation of all materials as shown or specified.

(Delete the following paragraph when splicing is required.)

Item (c) includes fiber optic cable splicing and fiber optic testing as shown or specified.

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.

No separate or additional payment will be made for required submittals and documentation.

No separate or additional payment will be made for replacement of disturbed earthwork, base, and surfacing.

SECTION 00990 - TRAFFIC SIGNALS

Comply with Section 00990 of the Standard Specifications modified as follows:

Add the following subsection:

00990.10 Materials - Furnish Materials meeting the following requirements:

Crosswalk Closure Support..... 00902.10
Backer Rod 02440.14

Furnish the following Materials from the QPL:

- Hot-Melt Loop Sealant

Add the following subsection:

00990.41 Inductive Loop Detectors:

(a) General - Do not begin saw cutting until the loop layout has been inspected by the Engineer.

Do not place wire in saw cuts until the cuts have been inspected by the Engineer.

(b) Saw Cut and Wire Installation - Saw cut in a manner that is the most practicable, direct line between loops and junction boxes.

Immediately after saw cutting and before the cuttings dry, thoroughly flush each cut with a high-pressure water stream. Before the cuts dry, blow cuts free of water, debris, rock, and grit with compressed air. Slots may also be cleaned by means of a high-pressure water injection/vacuum extraction system. Remove rocks or other material that may be wedged in the cut. Remove and dispose of all cuttings according to 00290.20.

Dry cuts before placing wire.

After the saw cut is cleaned of debris, place the loop wire by pushing it into the slot with a blunt nonmetallic object. Use care to avoid damaging the insulation.

(c) Sealant - Install the sealant in slots according to the manufacturer's instructions. Furnish a copy of the manufacturer's specifications including application procedures. The Engineer may order a test run of any application method or material before filling saw cuts.

In order to prevent heat damage to the insulation, do not allow the temperature of the sealant to exceed 410 °F during application. Install hot-melt sealants in layers to prevent damage to wire insulation. Allow each layer to cool before the next layer is installed. Do not use water to accelerate cooling.

Sealants that crack or pull away from the saw cuts after curing will be rejected.

(d) Resistance and Continuity Testing - The resistance to ground of the loop and loop feeder combinations, shall be 500 MΩ or greater when checked at the following conditions:

- Before splicing and sealing - continuity test
- Before splicing after sealing - resistance test
- After splicing and sealing - resistance test

Furnish a report of the resistance and continuity results for each loop at each testing condition.

Add the following subsection:

00990.42(b) Loop Feeder Cables – When terminating loop feeder cable inside the controller cabinet, do not remove the outside jacket and shield more than 6 inches from the end of the cable. Crimp lugs used for loop wire field terminals may be insulated or non-insulated. Terminate loop feeder shield drain wire to the cabinet input panel grounding bus nearest the feeder wire termination point.

(Use the following lead-in paragraph and subsection .70(i) when Copper Twisted Pair interconnect is required.)

Add the following subsection:

00990.70(i) Interconnect System Testing for Copper Twisted Pair:

Test each new interconnect cable circuit installed in the system. Test the complete system only when all terminations for each cable circuit are completed from the interconnect or controller cabinet at the beginning of the new cable run to the controller or interconnect cabinet at the end of the new cable run. If any test is failed, repair the circuit and repeat the entire test series for that cable circuit.

Perform all tests in the presence of the Engineer. Document the test results. When the tests are completed, furnish the test results and the test data to the Engineer. Conduct tests, as described below, for all cable conductors, including spares, the cable shield, and all field terminations.

In addition to testing the complete system, perform the following tests for each cable circuit:

(1) Continuity - Perform a continuity measurement for each conductor and the cable shield in the system. Conductor resistance shall not be more than 10 Ω per 1,000 feet for each cable pair and shield of the communications cable. Measure the resistance with an ohmmeter having a minimum input impedance of 10 MΩ /V. Record the resistance of each pair and furnish to the Engineer as described above.

(2) Isolation - Perform an isolation measurement for each conductor and cable shield in the system. Measure the insulation resistance with all connections to the conductor or shield under test removed and all other conductors in the cable grounded. Make the measurement with a DC potential of not less than 360 V nor more than 550 V, continuously applied for 1 minute. Insulation resistance of each cable conductor and the shield shall exceed 1,000 MΩ per mile. Use an insulation resistance (Megger) tester with a meter scale for measurements, marked with a range from 100 KΩ to 100 GΩ, and with zero and infinity also marked.

00990.90 Payment - Delete Pay Item (c) from the pay item list.

Delete the paragraph that begins “Item (c) includes furnishing and installing…”

Replace the paragraph that begins “In Items (a), (b), (c), (d), (f) …” with the following paragraph:

In Items (a), (b), (d), (f) and (g), the intersection location will be inserted in the blank.

Replace the paragraph that begins “Item (b) includes furnishing and replacing…” with the following paragraph:

Item (b) includes furnishing and replacing or installing items for an existing traffic signal installation and the detection system.

Replace the paragraph that begins "Mast arm pole and strain pole foundations …" with the following paragraph:

Drilled shaft foundations for traffic signal 15 foot through 55 foot mast arm supports will be paid for according to 00963.90. Drilled shaft foundations for traffic signal 60 foot through 75 foot mast arm supports will be paid for according to 00921.90.

Crosswalk closure supports will be paid for according to 00902.90.

SECTION 01030 - SEEDING

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

01030.13(c) Pure Live Seed - Replace this subsection, except subsection number and title, with the following subsection:

Use the PLS specified rate listed in 01030.13(f) for determining PLS application rates. Ensure the PLS application rate meets the PLS specified rate. Apply pre blended seed mixes, with multiple species, at a PLS application rate ensuring all species meet or exceed the PLS specified rate for each species in the seed mix.

PLS application rate for an individual seed species is determined as follows:

- PLS specified rate is listed in 01030.13(f)

- PLS factor is obtained by multiplying the seed label germination percentage times the seed label purity percentage. Use the purity and germination percentages from the label on actual bags of seed to be used on the Project.
- PLS application rate is obtained by dividing the PLS specified rate by the PLS factor.

For a seed mix, make this calculation for each seed species in the mix and then adjust as follows:

- Using the seed tag, determine the weight of each seed species in the bag and use this information to find the percentage, by weight, of each seed species is in 1 pound for the pre-blended mix.
- Divide the percentage by weight of each seed species, per pound, for the pre-blended mix, by the PLS application rate for that specific seed species.

Determine the highest application rate in the seed mix and apply the seed mix at that application rate.

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

Provide the following seed mix formulas:

- **Temporary and Lawn Seeding:**

Botanical Name (Common Name)	**PLS Specified Rate (lb/acre)**
Lolimum perenne var Blazer 4 (Blazer 4 Perennial Rye)	90
Lolimum perenne var Express II (Express II Perennial Rye)	90
Festuca rubra spp.fallax var Windward (Windward Chewings Fescue)	60
Festuca rubra var. Garnet (Garnet Creeping Red Fescue)	60

* Oregon Certified Seed

01030.13(g) Availability - Add the following sentence to the end of this subsection:

Submit the seed and seed mixes to be used on the project according to 00150.37.

Add the following subsection:

01030.14(b)(4) Organic Fertilizer - Furnish organic fertilizer that analyzes 7 % nitrogen, 2 % phosphoric acid, and 1 % soluble potash. Furnish fertilizer that has no toxicity to sites where it will be applied.

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

Furnish straw mulch for all temporary 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.

01030.40 General - Add the following sentence after the sentence beginning “Notify the Agency…”:

Notify the Agency of the acreage to be seeded at least 7 Days before seeding begins.

01030.42 Weed Control - Add the following paragraph and bullets after the paragraph that begins "If a pesticide has been approved for…" and before subsection (a):

The Specified Weeds and plant species to be removed include the following:

- All Oregon Department of Agriculture Class A and B listed noxious weeds.

Add the following subsection:

01030.43(c) Seed Application Rates - Determine the seeding application rate according to 01030.13(c). Apply seed mixes at the highest application rate calculated to provide not less than the specified application rate for each individual seed species in the mix.

Add the following subsection:

01030.44(c) Organic Fertilizer - Apply organic fertilizer at a rate of 350 pounds per acre at the following locations:

- Lawn areas repaired from construction activity

SECTION 01040 - PLANTING

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

01040.02 Definitions - Add the following definition:

Weed Free - See 01030.02 for Weed Free definition

01040.48 Planting Area Preparation - Replace the sentence that begins ”Identify, kill, and remove…” with the following sentence:

Identify, kill, and remove Weeds according to 01030.62(b)(3).

SECTION 01041 - TREE PROTECTION AND ROOT PRUNING

Section 01041, which is not a Standard Specification, is included in this Project by Special Provision.

Description

01041.00 Scope - This work consists of providing arboricultural expertise, labor and materials to protect existing trees to remain in temporary and permanent easements that are impacted by construction activities and root pruning. The work includes one or more of the following:

- An approved Certified Arborist to complete work as directed by the Consulting Arborist provided by the Agency or as directed.
- Root Pruning Work Plan (RPWP)
- Preconstruction conference
- Inspection of the tree including the trunk, flare, root collar, detectable roots and soil volume.
- Determine final roots to be pruned considering future root heaving potential.
- Roots determined by the Certified Arborist to be non-critical to the health or stability of the tree to be pruned to prevent future heaving of pavement.
- Directing or redirecting roots.
- Pruning roots.
- Protecting pruned roots.
- Other forms of arboricultural care by the Certified Arborist necessary to maintain the health of existing trees to remain.

01041.02 Definitions - For the purposes of this Section:

Adventitious Root – Root arising from parts of the root or stem.

Certified Arborist – An individual engaged in the profession of arboriculture who, through experience, education and related training, possesses the competence to provide for, or supervise management of, trees and other woody ornamentals including the work specified and shown. Arborist must be an ISA Certified Arborist. The Certified Arborist must be provided by the Contractor and approved by the Agency. The Certified Arborist shall be present to observe work at or near any tree to remain. The Certified Arborist shall develop a Root Pruning Work Plan for remedial work to the root zones and canopies of trees affected by construction activity, submit the plan to the Agency and Consulting Arborist for approval prior to starting work.

Consulting Arborist – An individual provided by the Agency to observe construction activity around existing trees to remain, review the Certified Arborists plans for remedial work to trees affected by construction, and to direct the Contractor's Certified Arborist on additional arboricultural activities to perform to preserve the trees.

Crown – Upper part of tree, measured from the lowest branch, including all the branches and foliage.

Flare – The area at the base of the plant's stem or trunk where the stem or trunk broadens to form roots.

Native Soil – Existing soil excavated during construction and stockpile for reuse.

Pneumatic Soil Excavation – The removal of soil using pressurized air.
Root Collar – The transition zone between the flare and the root system.
Root Cutting – Severing roots non-selectively.
Root Pruning– Severing roots selectively.
Root Buttress – A major lateral root radiating from the base of the trunk.
Root Circling – A root that encircles all or a portion of a trunk but does not contact it.
Root Girdling – A root that encircles all or a portion of a trunk and contacts the trunk or a buttress root.
Root Protection Zone (RPZ) - Defined as a minimum of 1-foot radius per 1-inch of tree diameter at breast height or as shown on the Tree Plan.
Root Pruning Work Plan – (RPWP) A plan developed by the Certified Arborist for remedial work to the root zones and canopies of trees affected by construction activity. The RPWP must be submitted to the Agency and Consulting Arborist for approval prior to completing the work.
Tree Plans – Sheets FA01 – FA11 of the construction drawings showing locations for RPZ's and tree protection fencing.
Soil Volume – The volume of soil available to trees and other woody plants for root development.
Wound – Damage to plant tissue caused by pests, pruning, mechanical damage or other natural forces.

01041.04 Coordination – Coordinate the following elements with the Agency prior to construction:

(a) Certified Arborist Approval - Contractor shall submit the qualifications and ISA certification of the Certified Arborist for approval 14 Days before the Preconstruction Conference.

(b) Preconstruction Conference and Root Pruning Work Plan (RPWP) - Two weeks prior to starting work, the Certified Arborist shall conduct a preconstruction conference on-site with the Engineer to review the work shown on the Tree Plan and other plans. The Certified Arborist shall then prepare and submit a RPWP for approval prior to construction. The RPWP shall include the proposed methods for the following:

- Root Pruning Schedule: Written schedule from Arborist detailing scope and extent of potential pruning of tree roots for the trees to remain that interfere with or are impacting the Work.
- Certification: From Arborist, certifying that trees indicated to remain will be protected during construction according to recognized standards.
- Maintenance Recommendations: From Arborist, for care and protection of trees impacted by construction during and after completion of the Work as agreed upon by the Consulting and Certified Arborists. These procedures may be amended during the project as agreed upon by both Arborists.
- List of tools to be used for root pruning.
- Log of work documenting any damage that occurred during construction and subsequent repairs.

- Description of how the root pruning work will comply with ANSI A300 (Part 8), "Trees, Shrubs, and other Woody Plant Management—Standard Practices (Root Management)" or as directed by the Consulting Arborist.

Proceed according to the approved RPWP once written approval is received from the Agency. If any part of the RPWP becomes unworkable at any time during construction, notify the Agency, then submit a revised plan. Do not proceed with root pruning work until revised RPWP is approved by the Agency.

(c) Notice for Inspections - Notify the Agency a minimum of 48 hours prior to each requested inspection by the Consulting Arborist.

(d) Site Conditions - Ensure that the area is properly prepared and excavated prior to the start of the root pruning operation..

(e) Utility Use - Provide required water and electricity for root pruning work at no additional cost to the Agency unless an approved Agency source is available.

Materials

01041.10 Tree Protection Fencing – Chain link fence fabric 6-foot high, 8-foot long by 2-inch diameter steel posts set 18 to 24 inches into soil, provide posts at 8-foot maximum spacing, provide top and bottom wire between posts. Where protection fencing is place on existing paving, provide movable concrete pier blocks to hold the fence up.

01041.11 Tools and Equipment – Tools and equipment should be maintained according to manufacturer's recommendations. Equipment and tools that damage living tree/root tissue bark or soil beyond the scope of work shall be avoided.

01041.13 Wound Treatments – Wound treatments shall not be used to cover wounds. All pruning shall be a clean cut according to ANSI A300 standards.

01041.15 Burlap – Made of renewable natural fiber, biodegradable, without preservatives or treatments.

01041.17 Native Soil – Existing topsoil excavated for this work and stockpiled for reuse. Stockpile must be segregated from other materials.

01041.19 Mulch – Medium compost mulch complying with 01040.20 (f).

Construction

01041.40 Trees To Be Saved - Contractor and Certified Arborist shall coordinate and verify trees to be protected and preserved with the Engineer.

Verify trees to receive root pruning by the Arborist with the Engineer prior to root pruning. Protect trees trunk, root buttress, and dripline to receive root pruning, as directed using tree protection fencing.

Follow the approved RPWP. Notify the Engineer if any part of the RPWP becomes unworkable at any time during construction. Revise and resubmit the RPWP for approval before continuing work not in accordance with the approved RPWP.

01041.41 Tree Protection Fencing – Install tree protection fencing as shown on Tree Plans to protect the root protection zone (RPZ) in accordance with manufactures installation directions and as directed by the Certified Arborist or Engineer. Tree protection fencing shall also be inspected and modified as directed by the Engineer. Confirm locations with Certified Arborist and adjust as directed. During the work, tree protection fencing shall not be relocated or removed, even temporarily, without approval of the Certified Arborist or Engineer. During the course of work, the fencing shall be maintained in good repair to prevent unapproved construction activity, including but not limited to unauthorized equipment access, staging, stockpiling, dumping, grading, trenching and other activities. Post approved signs on tree protection fencing as directed by the Agency designating the RPZ and penalties for encroachment. Approved tree protection sign can be found on the City of Portland website https://www.portland.gov/bds/documents/tree-root-protection-zone-sign. Upon final acceptance of the new work, the Contractor shall remove all fencing and restore finish grade at post locations.

01041.42 Preparation of Tree Root Zone For New Construction – Contractor is responsible for location of all utilities prior to starting work. Root pruning is the last resort when viable alternatives to root pruning are not feasible. For trees to receive root pruning, protect trunk, root buttress, and dripline inside the fenced area of the RPZ. Generally, tree roots are to be removed by the Certified Arborist to a depth as necessary outside the fenced area to allow for new construction. Where excavation must extend into the protected tree root zone behind fencing, use the following techniques to expose roots for evaluation and to minimize damage and preserve the primary root structure of the trees, defined as preserving roots of 1-inch diameter and larger for root pruning evaluation.

(a) Hand Excavation - The purpose of hand excavation is to preserve the primary root structure of the trees, defined as preserving roots of 1-inch diameter and larger for root pruning evaluation.

1. Hand clear and excavate to minimize damage to roots. Use narrow-tine spading forks and comb soil to expose roots for evaluation once existing surfacing has been removed. Expose roots within the work zone as shown, directed, or according to the RPWP..
2. Do not allow heavy equipment in tree protection or exposed root zone. Preserve and protect roots in accordance with the RPWP. All excavation work is to be performed by hand unless approved by the Certified Arborist.
3. When possible and in concurrence with Certified Arborist, bend and relocate roots 1-inch diameter or greater to a lower soil profile under the proposed finish grade where possible. If encountered immediately adjacent to location of full depth replacement and relocation is not practical; cleanly cut roots approximately 3 inches back from new construction using a mechanical root pruning saw or other approved tool submitted in the RPWP.
4. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary cover with soil or wrap with burlap and mulch. Water and maintain area in a moist condition.
5. Stockpile soil excavated to expose roots for evaluation and remediation. Place excavated soil over and around roots prior to constructing new work over or adjacent to the area. See detail for aggregate base depth as some roots may be enveloped in aggregated base depending on root depth.

(b) Pneumatic Soil Excavation - Air Spading - The purpose of pneumatic excavation is to preserve the primary root structure of the trees, defined as preserving roots of 1-inch diameter and larger for root pruning evaluation.

1. Prior to beginning pneumatic excavation, the work area for full depth AC replacement shall be free of AC and pneumatic excavation shall be used to remove aggregate subgrade and soil necessary to evaluate roots; thoroughly wet aggregate subgrade and soil as directed by Certified Arborist, 24 hours prior to proceeding with air spading or as recommended by the Arborist.
2. Do not allow exposed roots exposed by pneumatic excavation to dry out before placing permanent backfill. Provide temporary cover with soil or wrap with burlap and mulch. Water and maintain area in a moist condition.

01041.44 Root Pruning – Root pruning is the last resort when viable alternatives to root pruning are not feasible. Generally, tree roots are to be removed by the Certified Arborist to a depth as necessary outside the fenced area to allow for new construction. Perform Root pruning where shown or directed in coordination with Arborist. Do not perform root pruning closer than 3 times the tree trunk diameter unless approved by Arborist; for example a 24-inch trunk at Diameter Breast Height (DBH) should not have its roots pruned closer than 72-inches (24 x 3=72") to the trunk. The Arborist must approve all root pruning for any roots larger than 1-inche in diameter.

1. Root pruning shall take place in accordance with the RPWP when necessary to construct new work.
2. All 1-inch or larger roots must be evaluated and approved for pruning by Certified Arborist. Root pruning shall only be as deep as necessary to accommodate new work.
3. Prune roots using an approved mechanical root pruning saw or other approved tool submitted in the RPWP. Cleanly cut roots leaving smooth ends without ragged edges.
4. Unless exposed roots are covered to be preserved, they shall be pruned within 24 hours of exposure. For mature trees, no more than 30% of exposed roots may be pruned unless otherwise approved. Apply 20 gallons of water to each root zone for all trees designated for root pruning 24 hours prior to pruning.
5. Unnecessary damage to landscape areas on private property shall be repaired or replaced as directed by the Agency at no additional cost to the Agency.
6. Roots from root pruning become the property of the Contractor. Dispose of the roots according to 00290.20.

01041.46 Protection - Provide temporary cover with soil, wrap with burlap, and water if necessary to maintain roots in a moist condition until permanent backfill can be placed.

01041.48 Backfill – The excavated area around the existing tree roots shall be backfilled and reconstructed immediately or immediately after construction activities are completed.

1. Backfill shall be existing native soil amended with medium compost to the following ratio, one part compost to 2 parts native soil to fill voids left by root removal.
2. Backfilled areas shall be reseeded or have a 3-inch depth of mulch placed over exposed backfill material. See Planting Plans for finish condition over backfill.

Measurement

01041.80 Measurement - No measurement will be made for work performed under this Section.

Payment

01041.90 Payment - The accepted quantities for root pruning and associated work performed under this Section will be paid for at the Contract lump sum amount for the item "Root Pruning".

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

No separate or additional payment will be made for water. Payment for tree protection fencing will be paid according to 00270.90.

SECTION 01050 - FENCES

Comply with Section 01050 of the Standard Specifications.

SECTION 01069 - METAL HANDRAIL AND PEDESTRIAN FENCE

Section 01069, which is not a Standard Specification, is included in this Project by Special Provision.

Description

01069.00 Scope - This Work consists of furnishing and installing metal handrails and pedestrian rail units as shown or directed.

Materials

01069.10 Materials - Furnish Materials meeting the following requirements:

Commercial Grade Concrete..... 00440
Metal Handrail..... 02830
Pedestrian Fence..... 02831

Construction

01069.40 Metal Handrail and Pedestrian Fence:

(a) Handrail - Fabricate and install imbedded and bolted down metal handrail as shown.

(b) Pedestrian Fence - Fabricate and install pedestrian fence units as shown.

01069.41 Welding - Welding, welder qualifications, prequalification of weld details and inspection of welds shall conform to AWS D1.1 or AWS D1.2. Submit all welding procedure specifications 7 Days prior to fabrication to the Engineer for approval.

01069.42 Concrete Footings - Dimensions of footings shall not be less than shown and shall fill the excavated areas. Place the concrete with contact against firm Soil at the sides and bottom and tamp around the posts and brace ends after the posts and braces have been brought to and firmly held in proper position. Strike off, slope or crown and smooth the surface of the concrete at the ground level to shed water. Allow to cure for at least 5 Calendar Days before subjecting the posts to strain.

Excavate for concrete footings to reasonably Neat Lines, but not less than the specified dimensions in Soil, or not less than 18 inches deep in Rock. Prevent disturbance of original ground at the sides and bottom of the excavation.

Dispose of Materials removed under these provisions, including excess excavation, in a satisfactory manner.

01069.43 Bolt Holes:

(a) Punched Holes - Use a die with a diameter not exceeding the diameter of the punch by more than 1/16 inch. Ream holes that are required to be enlarged to admit the anchor bolts. Make clean cut holes without torn or ragged edges.

(b) Accuracy of Punched Holes - After punching the holes in the plate, stack the plates with the edges even and insert a cylindrical pin, 1/8 inch smaller in diameter than the nominal size of the punched hole, through the punched holes perpendicular to the face of the plate. No drifting of the rod while passing through each of the punched holes in the stack is allowed. Ensure that the edges of the stack stay in alignment. Non-conforming pieces will be rejected.

Measurement

01069.80 Measurement - The quantities of Work performed under this Section will be measured according to the following:

- **Length Basis** - Metal handrail will be measured on the length basis, by measuring along the top rail member, from center of end post to center of end post.

- **Unit Basis** - Pedestrian fence will be measured on the unit basis. Pedestrian fence will be counted for each 62 inch long unit.

Payment

01069.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(a) Metal Handrail, _____ Rails	Foot
(b) Pedestrian Fence	Each

In item (a), the number of rails will be inserted in the blank.

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 01070 - MAILBOX SUPPORTS

Comply with Section 01070 of the Standard Specifications modified as follows:

01070.00 Scope - Add the following paragraph to the end of this subsection:

This Work includes removing, maintaining, and reinstalling existing mailboxes and existing supports.

Add the following subsection:

01070.15 Mailbox Cluster Box Unit – Furnish standard mailbox cluster box units (CBUs) meeting the requirements of the United States Postal Service for “F” series CBUs.

01070.40 Construction – Add the following paragraph after the paragraph that begins "If property owners…":

Install Contractor-furnished CBUs, anchor bolts with vandal proof fasteners and concrete pads as shown or directed. Coordinate with United States Postal Service for installation of CBU arrow locks and permanent location of CBUs.

01070.80 Measurement - Replace this subsection, except for the subsection number and title, with the following:

The quantities of mailbox supports, CBUs and concrete collars will be measured on the unit basis of each kind of mailbox support, CBU and the number of concrete collars, regardless of size, installed in permanent locations.

The quantities of mailboxes and supports removed, maintained, and reinstalled will be measured on the unit basis, regardless of type, installed in permanent locations.

The quantities of mailbox cluster box units removed, maintained, and reinstalled will be measured on the unit basis, regardless of type, installed in permanent locations.

01070.90 Payment - Add the following Pay Item to the Pay Item list:

(d) Remove and Reinstall Mailbox Supports ..... Each
(e) Mailbox Cluster Box Unit Type __..... Each
(f) Remove and Reinstall Mailbox Cluster Box Unit..... Each

Item (d) includes removing mailboxes and supports, maintaining them at temporary locations, and reinstalling them at their permanent locations.

In Item (e) the type of cluster box unit will be inserted in the blank.

Item (f) includes removing mailbox cluster box units, maintaining them at temporary locations, and reinstalling them at their permanent locations.

Add the following item after the last item in the bullet list:

- installing concrete pads

SECTION 01140 - POTABLE WATER PIPE AND FITTINGS

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

01140.00 Scope - Replace this subsection, except for the number and heading, with the following:

This work consists of constructing potable water pipe and fittings. Install pipe in the materials, sizes and lengths and at the locations shown or as directed to the lines and grades established. Furnish and construct joints, fittings, accessories and appurtenances as necessary, for complete installation of the potable water system.

Add the following subsection:

01140.01 Potable Water System Materials - A materials list of commercially available products that Portland Water Bureau (PWB) has evaluated and found suitable for specified use in construction is located on the PWB website (https://www.portlandoregon.gov/water/article/116164). For additional details concerning the PWB Materials Manual, contact the Engineer. The current version of the materials list at the time of Bid Opening is the version in effect for the Project. A conditionally qualified product, special application only product or a product qualified for inclusion in a later edition of the materials list may be used only if the Engineer finds the product acceptable for use on the Project. Use of listed products is restricted to the category of use for which they are listed. Unless otherwise specified, install products as recommended by the manufacturer.

Add the following subsection:

01140.02 Scheduling – Schedule work so that the new ductile iron water mains including all hydrants and services have been tested, accepted, and activated before removing hydrants and CIVs.

Add the following subsection:

01140.03 Installation Plan – Submit a water system installation plan at least 10 Calendar Days before the Utility scheduling meeting. Include in water system installation plans the following:

- The specific limits of each installation reach for testing and type of temporary fittings that will be provided for testing.
- The sequence for the installation reaches.
- The specific locations for each main connection point and other temporary modifications to the water system that is in service.

- The shutoff points that will be used for each installation reach during connection work or other temporary modifications to the water system.
- The number of service laterals to be constructed within each installation reach.
- The number of existing service laterals within the shutdown limits during connection work.
- Planned disruptions in service to customers and the scope of the work that must be accomplished within each disruption.
- A template for the notification of disruption of service form letter that will be sent to customers.

The Engineer will approve or reject the water system installation plan within 21 Calendar Days after receipt of all submissions. Provide any additional information and submit a revised plan, if requested, for review and approval. All procedural approvals given by the Engineer will be subject to trial in the field and not relieve the Contractor of the responsibility to satisfactorily complete the Work. Submit requests for modification of adopted procedures to the Engineer. Allow 21 Calendar Days for approval of modifications. Do not begin water system construction work until the plan has been approved.

01140.10 Materials - Replace the materials list with the following list:

Bolted, Sleeve-Type Couplings for Plain End Pipe.... 02475
Commercial Grade Concrete in Thrust Blocks 00440
Detectable Marking Tape and Wire..... 02470
Ductile Iron Pipe Fittings 02475
Ductile Iron Pipe..... 02470
Polyethylene Encasement..... 02470
Polyvinyl Chloride (PVC) Pipe fittings - 4" and larger 02475
Polyvinyl Chloride (PVC) Pipe fittings - under 4" 02475
Polyvinyl Chloride (PVC) Pipe - 4" and larger..... 02470
Polyvinyl Chloride (PVC) Pipe - under 4" 02470
Reinforcement..... 00530
Restrained Joints 02475
High Density Polyethylene Pipe 02470
High Density Polyethylene Pipe Fittings..... 02475

01140.12(a) General - Replace this subsection, except for the number and heading, with the following:

Use a cut pipe length of no less than 2 feet for adjustments, proper spacing of valves, tees or special fittings.

01140.12(b) Cutting Operation – Add the following to the end of the paragraph:

Inspect trimmed pieces to ensure cement lining was not damaged during the cutting process per manufacturer recommendations.

Add the following subsection:

01140.14 Materials Submittals – Comply with 00165 and submit the following:

Item	References	Submittal Description
Gaskets	02475.20(c)	Manufacturer, Model, Sizes
Cement Mortar Lining for DI Fittings	02475.20(b)	Certifications and Compliance Documents

01140.40(c) Grade and Alignment Changes – Replace this subsection, except for the number and heading, with the following:

Make changes of alignment and grade, as directed, during the course of work in order to avoid interference with utilities and unforeseen obstructions.

Locate existing utilities to be crossed by potholing in advance of the pipe installation enough distance to facilitate minor changes in grade and to resolve conflicts with other utilities or obstructions. Perform require additional potholing as directed where additional information is needed, potential conflicts are anticipated or hazardous conditions are expected to exist.

Add the following subsection:

01140.40(d) Work in Contaminated Soils - Perform Contract Work in contaminated soils or suspected contaminated soils, including cleanup and treatment of the contaminated soils according to DEQ regulations, required special training and certification from DEQ. If unexpected contaminated soils are encountered, comply with 00290.20 (f).

01140.41(a) General – Add the following sentences to the subsection:

Notify the Engineer of any conflicts between the proposed storm sewer as shown in the plans and the proposed water pipe before beginning installation of the applicable test section of pipe.

Put pipe in service no more than 30 Calendar Days after the test section of pipe was disinfected.

01140.41(b) Ductile Iron Pipe – Add the following:

Do not deflect joints more than 80% of the manufacturer's recommended allowable deflections.

Add the following subsection:

01140.41(b)(3) Depth of Cover – Measure depth of cover from the finish grade to the top of the pipe. Where no pipe grade elevations are shown, install pipe with at least 36 inches of cover for pipe 8 inches in diameter and smaller; install pipe with at least 42 inches of cover for pipe 12 inches in diameter; install pipe with a minimum of 48 inches of cover for pipe 16 inches in diameter and larger. Do not backfill pipe unless approved by the Engineer.

Add the following subsection:

01140.41(b)(4) Layout – Pipe may be strung along the street a maximum distance of 300 lineal feet or enough pipe for one day of installation, whichever is less. Do not block driveways or otherwise interfere with the use of private property. Distribute the pipe so that no hazard

will be presented to occupants of the adjoining property, or pedestrian and vehicular traffic. Ensure all pipe, fittings and construction materials are secured from movement while staged.

Add the following subsection:

01140.41(b)(5) Fittings – Do not use cast plain-end fittings. Fabricated ductile iron spools are allowed.

01140.41(e) Water and Sanitary Sewer Separation – Replace this subsection with the following:

01140.41(e) Compliance with OAR 333 – Install new water lines and appurtenances in compliance with OAR 333 regulations governing the horizontal and vertical separations between water and sewer facilities.

(1) Variance - Submit proposed variances in writing to the Engineer. Include the reason for the variance, type of material and condition of the sewer line, location of the water and sewer facilities, horizontal and vertical skin-to-skin clearances and the corrective measures proposed. Each variance will be considered on a case-by-case basis.

(2) Review Time - Allow a minimum of 5 days review and response to each proposal.

Add the following subsection:

01140.41(g) Utility Crossings – Encase waterlines with 40 mil reinforced geomembrane or use schedule 80 PVC pipe for 10 feet of length on either side of (20 feet of length total) a crossing of cathodically protected utility lines, as shown or directed.

Add the following subsection:

01140.41(h) Pipe Cleanup – As pipe-laying progresses, keep the pipe interior clean and free of all debris. Completely clean the interior of the pipe, including fittings and appurtenances, and remove any sand, dirt, mortar splatter, and any other debris before testing and disinfecting the system.

01140.42(a) General – Replace this subsection, except for the number and heading, with the following:

Clean all parts of the pipe ends, couplings, fittings, and appurtenances to remove oil, grit, or other foreign matter from the joint. Keep the joint from contacting the ground. When assembling gasketed joints, apply an ANSI/NSF Standard 61, *Drinking Water System Components – Health Effects*, or equivalent (NSF 61) approved lubricant as specified by the pipe manufacturer. Maintain cover on pipe ends until installation. Mark pipe not furnished with a depth mark before joint assembly. Plug, cap, or otherwise close the last section of pipe installed with a watertight plug.

01140.47 Connections to Existing Mains – Replace this subsection, except for the number and heading, with the following:

The work is to be performed on an existing municipal water supply/distribution system that must continue in operation during construction. Submit requests for shutdowns to the

Engineer. Do not shut down any facility without permission from the Engineer. Cooperate fully at all times with the Engineer to ensure that any interruption to water system operations is minimized and no contamination occurs. Plan and coordinate with the Engineer all shutdowns, abandonment and tie-in work necessary to facilitate construction.

Provide PWB unobstructed access to all water system valves, fire hydrants and water meters at all times.

(a) Service Connections and Main Tie-ins – All connections to the existing water mains and installation of meters will be made by the PWB, after the pipe has been tested, disinfected, and the installation accepted by the Engineer. Align the pipe both vertically and horizontally at the points of connection.

(b) Valve Operation - Do not operate any valves on the existing water system.

01140.48(a) Service Transfer – Add the following sentence to the end of the subsection:

Submit a list of all potential disruptions in writing to the Engineer. The Engineer will review potential disruptions of service on a case by case basis.

Add the following subsection:

01140.48(b) Connections by Utility – Replace this subsection, except for the number and heading, with the following:

PWB will make connections of the new pipe at such locations as the PWB may elect to supply customers with water, after the affected section of pipe has passed hydrostatic and bacteriological tests. The installation of any such connections by the PWB does not constitute acceptance of any part of the work required under the Contract.

Actual times to complete PWB Work may vary depending on site conditions and how the Contractor stages the Work. Changes in the sequencing or scope of work may affect the number of days PWB will need to complete their Work. Adjust the Project Work schedule when directed to accommodate PWB Work. Confirm requested dates at a minimum 5 Business Days in advance.

Work Location (Approx.)	Service Address	Work Description
WXX XX+XX.X	n/a	PWB X” Main Connection
WXX XX+XX.X	n/a	PWB X” Main Connection
WXX XX+XX.X	n/a	PWB X” Main Connection
WXX XX+XX.X	n/a	PWB X” Main Connection
WXX XX+XX.X	n/a	PWB X” Main Connection
WXX XX+XX.X	n/a	PWB X” Main Connection

WXX XX+XX.X	n/a	PWB X" Main Connection
WXX XX+XX.X	n/a	PWB X" Main Connection
WXX XX+XX.X	n/a	PWB X" Main Connection
WXX XX+XX.X	n/a	PWB X" Main Connection
WXX XX+XX.X	n/a	PWB X" Main Connection
WXX XX+XX.X	n/a	PWB X" Main Connection
WXX XX+XX.X	n/a	PWB X" Main Connection
WXX XX+XX.X	n/a.	PWB X" Main Connection

01140.50 Filling and Flushing – Replace the subsection with the following:

01140.50 General:

(a) Pipe Filling - Fill pipes slowly from the lowest elevation with potable water at a maximum velocity of one foot per second in the main while venting all air. Take all required precautions to prevent entrapping air in the pipes. Water for filling water lines may be obtained from fire hydrants. Obtain a hydrant permit from PWB before connecting to or operating a fire hydrant.

(b) Pipe Flush - Flush sections of pipe to be tested and disinfected to remove any solids or contaminated material that may have become lodged in the pipe during manufacture, delivery or construction. Do not exceed the allowances listed in the discharge permit from the applicable regulatory authority.

(c) Disposal of Treated Water - Dispose of treated water flushed from mains in compliance with the discharge permits. Neutralize the waste water for protection of aquatic life in the receiving water before disposal into any natural drainage channel. Dispose of disinfecting solution as specified, shown, or directed. Where allowed, disposal may be made to any available sanitary sewer provided the rate of disposal does not overload the sewer. Refer to the applicable discharge permit for maximum flow rates.

(d) Hydrostatic Testing Plan – Submit a plan for hydrostatic testing at least 30 days before scheduled testing. The plan for shall include:

(1) A narration of the process for completing the hydrostatic testing

(2) The equipment to be used to pressurize the main

(3) Disposal location for excess water used to fill the main

(e) Disinfection Plan – Submit a plan for following the disinfection procedure at least 30 days before the scheduled disinfection. The disinfection plans shall include:

(1) A narrative of the proposed process for completing the disinfection procedure

(2) Calculations for the amount of sodium hypochlorite required to achieve require chlorine residuals

(3) A list of all pumps and meters

(4) The proposed method of mixing and injecting the solution into the main

(5) The method to be used while monitoring the chlorine residual

(6) Disposal location and method for dechlorination

01140.51 Hydrostatic Testing – Replace this subsection with the following:

01140.51 Hydrostatic Testing:

(a) General - Test all water mains and appurtenances under a hydrostatic pressure equal to 1 1/2 times the working pressure, but at least 150 psi, measured at the highest point of the test section. High pressure systems will require higher test pressures. Furnish all labor, materials and equipment necessary for performing the test. PWB will furnish a calibrated pressure gauge for hydrostatic testing.

(1) Backfill - Do not begin hydrostatic test until backfill has been placed, compacted and passed required testing and the thrust blocks have reached 75% of the design strength. Where permanent blocking is not required, furnish and install temporary blocking and remove it after testing.

(2) Pre-Test Preparation - Furnish all labor, materials, and equipment such as but not limited to air tanks, fittings, pumps, hoses, valves, and meters, necessary to fill and test the line except for the calibrated pressure gauges to be furnished by the PWB. Fill the mains with water and allow to stand under 75% test pressure for at least 12 hours to allow the escape of air and to allow the lining of the pipe to absorb water. The PWB will furnish the water to fill the pipeline at the PWB's expense for flushing and testing the water pipeline. Provide transportation of the water from the source to the site. An approved backflow prevention device is required for water main testing and a hydrant permit is required when water is obtained from a hydrant.

(3) Test Time - Test by pumping the main up to the required pressure for at least 2 hours. Continuously maintain pressure within 5 psi of that required. During the test, observe the section being tested to detect any visible leakage. Use a clean container to hold water for pumping up pressure on the main being tested. Sterilize this makeup water by adding chlorine to a concentration of 25 mg/L.

(4) Measure Quantity - The Agency will determine the quantity of water required to maintain and restore the required pressure at the end of the test period.

(5) Loss Formula - The maximum allowable hourly leakage rate calculation is as follows:

$$L = \frac{SD\,(P)^{1/2} \times 128}{148{,}000}$$

In the above formula:

L = Allowable leakage in ounces per hour
S = Length of pipe tested, in feet
D = Nominal diameter of pipe, in inches
P = Test pressure during the leakage test in psi

The test lasts for 2 hours and each hour's loss stands on its own and will not be averaged. This formula is not applicable to HDPE or PVC pipe.

(6) Pressure Loss - No pressure loss, abrupt or otherwise, is allowed during the test period.

(7) Leakage - Correct any visible leakage regardless of the allowable leakage specified above. After correcting the leak, restart the test for 2 hours.

(8) Use of Hydrant Valves - Make all tests with the hydrant auxiliary gate valves open and pressure against the hydrant valve. After the pipe test has been completed, test each gate valve in turn by closing it and relieving the pressure beyond. This test of the gate valve will be acceptable if there is no immediate loss of pressure on the gauge when the pressure beyond the valve is relieved. Verify that the pressure differential across the valve does not exceed the rated working pressure of the valve.

(9) Test Section Length - Limit section to be tested to 1,200 feet, unless otherwise shown or approved. The Agency may require that the first installed section of pipe, not less than 1,200 feet in length, be tested. Do not continue pipe laying more than an additional 1,200 feet until the first section has been tested successfully.

(10) Test Equipment Readiness - Before calling out the Agency to witness the pressure test, set up all equipment completely ready for operation and successfully perform the test to ensure that the pipe is in a satisfactory condition.

(11) Defective Materials - Replace defective materials discovered during hydrostatic testing. Whenever it is necessary to replace defective material, repeat the hydrostatic test until a satisfactory test is obtained. Repairs shall be at no additional cost to the Agency.

01140.52 Disinfecting – Replace this subsection with the following:

01140.52 Disinfecting - Disinfect all new mains according to the following:

(a) General - After passing the hydrostatic testing, disinfect the new water mains according the approved disinfection plans and the procedure outlined in 01140.52(d). Allow a minimum of 5 days for testing and disinfection.

(b) Temporary Sample Points - For temporary service and air release sample points, temporary 2 inch construction, test and flushing/sample risers, sample stations are required

at 1200 foot maximum intervals and on all side branches, or as directed. Hydrants may not be used as temporary sample points.

(c) Dechlorination – Dechlorinate and dispose of all water having chlorine residual in a manner that complies with the regulatory agency for discharge permits and according to 01140.50(c). Do not discharge chlorinated water into a storm drainage system or stream before approved dechlorination treatment.

(d) Chlorination Procedure -Chlorinate all new mains according to the following:

(1) Isolate Main - Ensure that the main is completely isolated (physical separation or closed valve) from the system before proceeding with the disinfection process. Approved backflow protection is required if the source water for flushing or disinfection is the active distribution system. Do not test against a closed isolation valve on a live system.

(2) Valve Position – Place all non-isolation valves on the new main, fire hydrants and branches in the fully open position.

(3) Pipe Flush - Flush new main, branches and services thoroughly with potable water to remove any sediment and debris. The minimum flushing velocity for this step is 2.5 feet per second (per AWWA Standard C651) unless conditions of the batch discharge permit make this flushing velocity unattainable or as directed by the Engineer.

(4) Chlorine Amount - Calculate the amount of liquid sodium hypochlorite necessary to achieve the minimum residual required by DHS regulations, 25 ppm. In order to ensure that this is achieved; use a target residual of 50 ppm unless otherwise directed. Maximum residual is 75 ppm unless otherwise directed. Any sodium hypochlorite used for the disinfection process must be NSF 60 certified and conform to AWWA B300.

(5) Chlorine Application – Fill the main from the lowest elevation and maintain a steady concentration of chlorine residual while injecting the main with chlorinated water. Flow (bleed) a blow-off, standpipe, or hydrant at the high point(s) to allow air to escape and ensure that all interior pipe surfaces are wetted.

(6) Chlorine Residual - Measure chlorine residual with the high-range chlorine test kit at a point near to the injection point and at least once every 300 feet while filling the main. Adjust the dose rate as necessary to maintain the target dose rate. Use a chlorine test kit with a digital readout and capable of detecting free chlorine residual between 5 and 200 ppm with an accuracy of 3%.

(7) Residual Measurements - Once the main is completely filled with super-chlorinated water, measure the chlorine residual a minimum of once every 1200 feet of main and once for each main branch, or 2 inch service or as directed. The measured chlorine residual shall be at least 25 ppm and not greater than 75 ppm. If any chlorine residual measurement is less than 25 ppm or greater than 75 ppm, repeat steps (3) through (6).

(8) Exercise Valves – After step 7 is complete exercise all valves in the section of main to be disinfected. Operate valves from fully closed to fully open at least two times.

(9) Retention Time - Wait 24 hours. The PWB will measure another set of chlorine residuals with the high-range chlorine test kit and report the results to the Engineer. The

measured chlorine residuals shall be at least 10 ppm. If the chlorine residual is less than 10 ppm, repeat steps (3) through (8). If chlorine residual is 10 ppm or higher, proceed to the next step.

(10) Refill and Flush -Thoroughly flush the main, branches, and services with potable water until the chlorine residual in the main is approximately the same as the source water. There is no minimum flushing velocity for this step.

(e) Bacterial Testing - After completing the chlorination procedure test the main according to the following:

(1) Bacterial Sampling - DHS rules and the AWWA standards referenced therein require that a main pass 2 successive sets of bacteriological tests (collect the successive sets of samples less than 24 hours apart). Two consecutive negative (passing) test results are required. Allow 24 hours for the test results for each sample.

(2) Sampling Locations - The PWB will take one bacteriological sample from the end of the main and on each branch. For long runs of main, at least 1 sample will be taken for every 1200 feet of new main and as directed.

(3) Sample Testing - The PWB will test the sample set for coliform bacteria and report the test results to the Engineer within 24 hours.

(4) Evaluating the Test Results - If all test results of the sample set are negative (passing) repeat steps (2) through (4). When 2 consecutive sample sets test negative for coliform bacteria, the bacterial testing is complete. If 1 or more of the sample set tests positive for coliforms (fails), repeat steps (2) through (4) after correcting the cause of the failure and as directed by the Engineer

(5) Completion of Bacterial Testing - Upon completion of bacterial testing notify the Engineer in writing that the testing is complete and the main is ready for tie-in.

(6) Multiple Positive (Failing) Test Results - If sample sets continue to test positive for coliforms, the Engineer will determine how to proceed, up to and including repeating the chlorination procedure or rejecting the pipe.

01140.80 Measurement – Add the following sentence to the end of the subsection:

Valve box adjustment for interim stage grades will be measured according to 00490.80.

01140.90 Payment – Add the following sentence to the end of the subsection:

Valve box adjustment for interim stage grades will be paid for according to 00490.90.

01140.90 Payment - In the paragraph that begins “No separate or additional payment will be…”, add the following bullet to the bullet list:

- Pipe reconnections
- As-Built drawings
- Cathodic protection

- Geomembrane encasement
- Installation plan

SECTION 01150 - POTABLE WATER VALVES

Comply with Section 01150 of the Standard Specifications modified as follows:

Add the following subsection:

01150.01 Potable Water System Materials - A materials list of commercially available products that Portland Water Bureau (PWB) has evaluated and found suitable for specified use in construction is located on the PWB website (https://www.portlandoregon.gov/water/article/116164). For additional details concerning the PWB Materials Manual, contact the Engineer. The current version of the materials list at the time of Bid Opening is the version in effect for the Project. A conditionally qualified product, special application only product or a product qualified for inclusion in a later edition of the materials list may be used only if the Engineer finds the product acceptable for use on the Project. Use of listed products is restricted to the category of use for which they are listed. Unless otherwise specified, install products as recommended by the manufacturer.

01150.10 Materials - Delete "Ball Valves" from the list of materials and add the following to the list of materials:

Backflow Prevention Device Enclosure 02490.75

Add the following subsection:

01150.13 Materials Return - Return all unused and surplus Agency furnished materials to 664 N Tillamook St, Portland, OR 97227 no later than 3 days prior to final inspection. Make arrangements with Engineer for material return time and date. Replace damaged materials at no cost to the Agency.

01150.40 General - Replace this subsection, except for the number and heading, with the following:

Install valves as shown and according to the manufacturer's recommendations. Install valves in a manner that prevents injury or damage to parts of the valve. Join to the pipe as set forth in Section 01140 and AWWA Standards for the type of connecting ends furnished. Thoroughly clean and prepare joints prior to installation. Where full face gaskets of a flanged type are used, no trimming of material will be allowed.

01150.40(a) Valve and Valve Box Installation - Replace this subsection, except for the number and heading, with the following:

Set valves and valve boxes perpendicular to the pipe. Center the valve boxes over the operating nut of the valve. Place valve boxes over the valve or valve operator so that the valve box does not transmit shock or stress to the valve. Set valve boxes installed in gravel or native landscaping in a circular concrete pad 18 inches in diameter, 6 inches minimum in depth. Do not bury or block access to valve.

01150.40(b) Valve Operator Extensions – Add the following to the end of the paragraph:

Construct extension operator nuts 2 feet from finish grade.

01150.40(c) Backfilling - Add the following to the end of the paragraph:

Before substantial completion, clean all valve box covers and PVC risers until free of all debris.

Add the following subsection:

01150.40(d) Backflow Prevention Device Installation - Maintain a minimum of 4 inches of clearance on all sides and at both ends of 2 inch and smaller double check valve backflow prevention device assemblies. Install 2 inch and smaller double check valve backflow prevention device assemblies horizontally below grade at no more than 24 inches below ground in a backflow prevention assembly enclosure according to 02490.75. Install double detector check valve backflow prevention device assemblies in a vault according to 02490.75 and maintain a minimum of 4 inches of clearance between the wall and the bypass, 24 inch clearance in front, 12 inch clearance underneath, 3 inch clearance at both ends, and 36 inch clearance vertically above the assembly body. Provide hinged double opening frame and covers for the entire length of the assembly or accommodate 6 feet of vertical headroom when the assembly is installed in a vault. Rigidly support all backflow prevention device assemblies for service lines over 2 inches diameter and all double detector check valve backflow prevention device assemblies.

01150.50 Valve Operation Testing - Replace this subsection, except for the number and heading, with the following:

After installation and hydrostatic testing, operate valves from full open to full closed to make sure valves do not bind during operation. Correct malfunctions in the operation of the valves. Verify and record the number of turns to 1/4 turn and direction from full open to full closed and submit documentation for the PWB's records prior to completing final project as-constructed drawings. Leave all valves open after testing is complete.

01150.90 Payment - Replace the paragraph that begins "No separate or additional…" with the following paragraph:

No separate or additional payment will be made for:

- earthwork not covered under other Pay Items
- jointing
- blocking of valves
- protective coatings
- valve boxes
- valve box extensions
- valve operator extensions
- valve reconnections

- backflow prevention device enclosures
- hydrostatic testing
- record documentation of valve operation testing
- backflow prevention device inspection fee

SECTION 01160 - HYDRANTS AND APPURTENANCES

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

Add the following subsection:

01160.01 Potable Water System Materials - A materials list of commercially available products that Portland Water Bureau (PWB) has evaluated and found suitable for specified use in construction is located on the PWB website (https://www.portlandoregon.gov/water/article/116164). For additional details concerning the PWB Materials Manual, contact the Engineer. The current version of the materials list at the time of Bid Opening is the version in effect for the Project. A conditionally qualified product, special application only product or a product qualified for inclusion in a later edition of the materials list may be used only if the Engineer finds the product acceptable for use on the Project. Use of listed products is restricted to the category of use for which they are listed. Unless otherwise specified, install products as recommended by the manufacturer.

01160.11(a) Loading and Unloading – Replace this subsection, except for the number and heading, with the following:

Handle hydrants so as to prevent damage to the hydrant, lining or coating. Load and unload hydrants using hoists and slings to avoid shock or damage, and under no circumstances allow them to be dropped, skidded or rolled against other hydrants. Damaged hydrants will be rejected. If damage is confined to the coating or lining, it may be repaired if allowed or directed. Immediately place damaged hydrants apart from the undamaged and remove the damaged hydrants from the site as soon as possible. Mark damaged hydrants with a tag or a steel crayon until removed.

Add the following subsection:

01160.12 Allowable Hydrants – Furnish one of the following hydrants, or approved equal:

- Medallion A-423
- Gudian K-81A 1546340615132POR
- Centurian A-423

01160.40 Setting Hydrants: – Replace this subsection, except for the number and heading, with the following:

(a) Hydrant Installation - Install hydrant assemblies according to section 01140, or as otherwise shown or directed. Set hydrants plumb and according to the following:

(1) **Nozzle Direction** – Place pumper nozzle facing and parallel to curb. Place other nozzles at right angles to the curb.
(2) **Traffic Flange** – Set the traffic flange (breakaway flange) at least 2 inches, but not more than 6 inches above the finish grade.
(3) **Clearance to Obstructions** – Provide the following radial clearance from the hydrant to any permanent object:
    - A minimum 5-foot unobstructed working area

(c) Drainage Rock - Place drain rock around the pier block and bottom of hydrant to 6 inches above the hydrant drain opening.

(d) Drain Rock Cover - Place subgrade geotextile to cover drain rock prior to placement of backfill. Setting the hydrant barrel to allow drain to flow into drainage gravel at base of hydrant.

(e) Touchup Painting - After installation and testing is complete, paint the exposed portion of the hydrant with a minimum of one coat of the type and color coating as directed. Paint hydrants according to Section 02485.

(f) Out-of-Service Hydrants - To indicate that a fire hydrant is not operational, secure with reflective tape a yellow or orange plastic bag over the entire hydrant assembly or an approved out-of-service cover. The Contractor may also use an out-of-service ring in addition to the bag or cover in case of removal of the cover. Maintain the plastic bag or cover until the waterline is accepted or the water line has been connected to the live water system.

01160.42 Hydrant Restraints: – Replace this subsection, except for the number and heading, with the following:

Fully restrain all hydrant laterals with mechanical restraint from the main to the hydrant assembly as shown.

01160.43 Auxiliary Gate Valves and Valve Boxes: – Replace this subsection, except for the number and heading, with the following:

Install auxiliary gate valves and valve boxes according to Section 01150.

Add the following subsection:

01160.45 Hydrant Support Block – Install foundation per block for bearing surface as shown or directed.

01160.48 Hydrant Extensions: – Replace this subsection, except for the number and heading, with the following:

Install hydrant extensions where required. Set the traffic flanges a minimum of 2 inches above finish grade and a maximum of 6 inches above finish grade from back of flange at lowest bolt elevation.

Add the following subsection:

01160.49 Hydrant Pads - Install a 3' x 3' x 6", 4,000 psi concrete pad after the hydrant has been set to grade as shown. Center hydrant pad on hydrant. Set hydrant pad flush with surrounding surfaces or as directed. Hydrant pads may be adjusted to reach the back of curb if the hydrant pad is no less than one foot in any one direction.

SECTION 01170 - POTABLE WATER SERVICE CONNECTIONS, 2 INCH AND SMALLER

Comply with Section 01170 of the Standard Specifications modified as follows:

Add the following subsection:

01170.01 Potable Water System Materials - A materials list of commercially available products that Portland Water Bureau (PWB) has evaluated and found suitable for specified use in construction is located on the PWB website (https://www.portlandoregon.gov/water/article/116164). For additional details concerning the PWB Materials Manual, contact the Engineer. The current version of the materials list at the time of Bid Opening is the version in effect for the Project. A conditionally qualified product, special application only product or a product qualified for inclusion in a later edition of the materials list may be used only if the Engineer finds the product acceptable for use on the Project. Use of listed products is restricted to the category of use for which they are listed. Unless otherwise specified, install products as recommended by the manufacturer.

01170.10 Service Lines: Replace this subsection, except for the number and heading, with the following:

Brass and bronze pipe nipples .....02490.40(d)
Brass and bronze service fittings .....02490.40(c)
Copper pipe .....02490.40(a)
Corporation stops.....02490.30
Meter boxes.....02490.70
Meter setters.....02490.50
Saddles.....02490.20

Add the following subsection:

01170.11 PVC Casings or Sleeves – Furnish schedule 80 PVC pipe casings or sleeves meeting the requirements of AWWA C900.

Add the following subsection:

01170.12 Materials Submittals – Submit the following:

Item	References	Submittal Description
Valve Ball	02490.13	Manufacturer, Model, Sizes and Compliance Documents
Gaskets	02490.14	Manufacturer, Model, Sizes and Compliance Documents

Saddles	02490.20	Manufacturer, Model, Sizes and Certifications and Compliance Documents
Plumbing Permit	01170.44(2)	Plumbing Permit
Final Plumbing Inspection Report	01170.44(3)	Plumbing Permit

Add the following subsection:

01170.20 Backside Plumbing – Perform the backside plumbing, which includes Work required to connect the new service line to the existing customer service line beginning at the customer side of the location for the water meter. This Work also includes work outside of the Right-of-Way that is within temporary easements. Perform backside plumbing work using a licensed plumbing contractor in the State of Oregon according to applicable State and local requirements.

All installation of meters will be made by the PWB, after the pipe has been tested, disinfected, and the installation accepted by the Agency.

01170.40 General - Replace this subsection, except for the number and heading, with the following:

(a) Service Lines – Install copper service lines continuously, without joints or splices, complete from the new water main (corporation stop) to the new meter location, install all facilities to the new meter location. Install service pipelines perpendicular to the main, unless shown otherwise. Install service runs parallel to existing services with a perpendicular distance of 2 feet minimum to 5 feet maximum from existing services and a minimum perpendicular distance of 18 inches from property line.

Notify the Engineer in writing of conflicts between the proposed storm sewer as shown in the plans and the proposed potable water service connection or meter before beginning installation of the applicable potable water service connection.

(b) Excavation Depth - Construct the depth of trench for service connection piping to provide a minimum of 30 inches of cover over the top of the pipe from finish grade or street profile. Do not damage the main in during the installation of the service. Excavate and backfill for service connections according to Section 00405. Where no meter is to be installed, place angled meter stop at 18 inches from face of curb with 12 inches to the springline in an approved box.

(c) Fittings and Appurtenances - Install necessary service saddles, valves, valve boxes, tubing, pipes, bends, fittings, and couplings necessary to complete service line installations.

(d) Corrosion Protection - Install cathodic protection items when required including dielectric insulating corporation stops, dielectric insulating joints, tape wrap, and grounding rod.

(e) Pipe Tools - Cut service pipes using tools specifically designed to leave a smooth, even and square end on the pipe. Ream cut ends to the full inside diameter of the pipe.

(f) Testing and Disinfection Preparation - Install temporary risers and appurtenances as required to facilitate testing and disinfection per Section 01140. Place a temporary valve box and cover (CIV) over the test riser after testing and disinfection.

(g) Backside Service Line Connections – Install premises-isolation backflow assemblies and enclosures if required on the customer service line and notify the Engineer upon completion.

After the Engineer has notified the Contractor that the water system is tested and accepted by PWB, connect customer service line to the new meter setter or service line with spacer as shown. PWB will install new meters after connections are made to existing service piping. Notify the Engineer 5 days in advance of service disruptions.

(h) Sleeves - Install services through casings or sleeves as shown.

(i) Meter Boxes - Adjust the meter box to the finished grade after the surface has been acceptably restored.

(j) Excavation Width – Construct the width of trench for service connection piping to provide a minimum of 24 inches. Excavate and backfill for service connections in compliance with Section 00405.

(k) Trench Surface Restoration – Restore trench surfaces according to Section 00495.

01170.41 Reconnecting Existing Services - This entire subsection is deleted.

Add the following subsection:

01170.43 Service Taps:

(a) Installation Equipment - Install direct service taps with a drilling and tapping machine intended for use on ductile iron pipe. The drilling and tapping machines without alignment tool guides and a placement strap are not allowed. Engage a minimum of 4 full threads for direct threaded taps. Handheld equipment is not allowed. Remove all debris from pipe.

(b) Thread Tape - Use of 2 layers of 3 mil tetrafluoroethylene (TFE) tape on the threads of the corporation stop for direct service taps. Liquid TFE will not be allowed. Direct taps for 1 inch services are allowed only on mains that are 6 inches in diameter or larger.

(c) Service Saddles - Service saddles are required on water mains 4 inches in diameter and for services taps larger than 1 inch. Double strap service saddles are required on service taps larger than 1 inch.

(d) Swing Joint - Install combination of swing joint and elbow or a wide bend to allow limited movements by the main or the service piping. Install swing joint on 2 inch service taps.

Add the following subsection:

01170.44 Backside Domestic Service Connection:

(1) **Potable Water Pipe and Fittings** – Furnish and install potable water pipe and fittings for the backside domestic service connection in accordance with the Oregon Specialty Plumbing Code.

(2) **Plumbing Permit and Inspection Coordination** – Submit to the Engineer with a copy to the PWB a copy of the City of Portland Bureau of Development Services plumbing permit. Coordinate private plumbing inspection required under the plumbing permit.

(3) **Final Plumbing Inspection Report** – When the backside domestic service has been installed and inspected, submit to the Engineer with a copy to the PWB a copy of the final plumbing inspection report from the Portland Bureau of Development Services plumbing inspector. No connections to the public water system will be made until the final inspection report has been approved by the Engineer.

Add the following subsection:

01170.45 Meter Work by the City – PWB will install meters after the water meter box, water service connection and backside domestic service connection have been completed. The installation of any such connections by the PWB does not constitute acceptance of any part of the work required under the contract.

Actual times to complete PWB Work may vary depending on site conditions and how the Contractor stages the Work. Changes in the sequencing or scope of work may affect the number of days PWB will need to complete their Work. Adjust the Project Work schedule when directed to accommodate PWB Work. Confirm requested dates at a minimum 5 Business Days in advance.

Work Location (Approx.)	Service Address	Work Description
WXX XX+XX.X	XXXXX SE Powell Blvd.	PWB Water Service Meter
WXX XX+XX.X	XXXXX SE Powell Blvd.	PWB Water Service Meter
WXX XX+XX.X	XXXXX SE Powell Blvd.	PWB Water Service Meter
WXX XX+XX.X	XXXXX SE Powell Blvd.	PWB Water Service Meter
WXX XX+XX.X	XXXXX SE Powell Blvd.	PWB Water Service Meter
WXX XX+XX.X	XXXXX SE Powell Blvd.	PWB Water Service Meter
WXX XX+XX.X	XXXXX SE Powell Blvd.	PWB Water Service Meter
WXX XX+XX.X	XXXXX SE Powell Blvd.	PWB Water Service Meter
WXX XX+XX.X	XXXXX SE Powell Blvd.	PWB Water Service Meter

WXX XX+XX.X	XXXXX SE Powell Blvd.	PWB Water Service Meter
WXX XX+XX.X	XXXXX SE Powell Blvd.	PWB Water Service Meter
WXX XX+XX.X	XXXXX SE Powell Blvd.	PWB Water Service Meter
WXX XX+XX.X	XXXXX SE Powell Blvd.	PWB Water Service Meter
WXX XX+XX.X	XXXXX SE Powell Blvd.	PWB Water Service Meter

01170.80 Measurement - Replace this subsection, except for the number and heading, with the following:

The accepted quantities of water service connection piping and water service line will be measured on the length basis.

Trench resurfacing will be measured according to 00495.80.

Adjustment of water meter assemblies and water meter boxes will not be measured.

01170.90 Payment – Make the following changes:

Replace the fourth paragraph that begins “Items(s) (a) and (d)” with the following:

Items (a) and (d) include excavating, tapping the main, laying and jointing the pipe and fittings, corporation stop, saddle, appurtenances, sleeving, tape wrapping, backfilling, testing, and flushing and disinfection of the water service. Trench resurfacing will be paid for according to 00495.90.

Replace the sentence beginning “Item (e)” with the following:

Item (e) includes plumbing permits, final plumbing inspection report, excavating, installation of backside service connection, installation of meter box when specified, angle meter valve, meter setter, adjustment of water meter assembly and water meter box, customer service valve and appurtenances, backfilling, surface restoration, testing, and flushing and disinfection.

The paragraph that begins with the words "Item (f) includes…" is replaced with the following:

Item (f) includes plumbing permits, final plumbing inspection report, excavating, installation of backside service connection, installation of meter box when specified, angle meter valve, meter setter, adjustment of water meter assembly and water meter box, customer service valve and appurtenances, backfilling, surface restoration, testing, and flushing and disinfection.

SECTION 02001 - CONCRETE

Comply with Section 02001 of the Standard Specifications modified as follows:

02001.02 Abbreviations and Definitions: Replace the sentence that begins "**Pozzolans** - Fly ash, silica fume…" with the following sentence:

Pozzolans - Fly ash, natural Pozzolans, silica fume, and high-reactivity Pozzolans.

Replace the sentence that begins "**Supplementary Cementitious Materials** - Fly ash, silica fume…" with the following sentence:

Supplementary Cementitious Materials - Pozzolans and ground granulated blast furnace slag.

02001.15(a) Current Mix Designs - Replace this subsection, except for the subsection number and title, with the following:

Mix designs that meet the requirements for the specified class of concrete and are currently being used or have been used within the past 24 months on any project, public or private, may be submitted for review. Provide individual test results that comprise the average if more than one data point exists. For paving designs the flexural strength testing must be from within the last two years. For HPC designs the length change and permeability tests must be from within the last two years.

02001.20(a) Strength - Replace Table 2001-1 with the following Table 2001-1:

Table 02001-1

Concrete Strength and Water/Cementitious Material (w/cm) Ratio		
Type of Concrete	**Strength f'_c (psi)**	**Maximum w/cm Ratio**
Structural	3300	0.50
	3300 (Seal)	0.45
	4000	0.48
	4000 (Drilled Shaft)	
	HPC4500	0.40
	HPC(IC)4500	
	5000 +	
Paving	4000	0.44
PPCM's (with cast-in-place decks and no entrained air)	5000	0.48
	5500	0.44
	6000 +	0.42

02001.30(e)(1) HPC Coarse Aggregate Content - Delete the paragraph that begins "Two or more Aggregate products or sources…"

02001.30 Concrete Constituents – Add the following subsection:

(g) Concrete Coloring Agent – Integrally colored concrete shall be produced using liquid, granular or powdered pigment from one of the following manufacturers, or approved equal:

- SCOFIELD Integral Color SG
- Uni-Mix Integral Concrete Colorant
- Davis Colors

Pigments shall be non-fading conforming to ASTM C979 and contain pure, concentrated mineral pigments specifically formulated for mixing into concrete. All colored concrete shall be produced using the same coloring agent, unless otherwise approved. Do not allow packaging to enter the concrete mix.

SECTION 02030 – SUPPLEMENTARY CEMENTITIOUS MATERIALS

Comply with Section 02030, of the Standard Specifications modified as follows:

02030.00 Scope - Replace this subsection, except for the subsection number and title, with the following:

This Section includes the requirements for fly ash, natural pozzolans, silica fume, ground granulated blast furnace slag and high reactivity pozzolans used in portland cement concrete.

02030.10 Fly Ash - Replace this subsection, except for the subsection number and title, with the following:

Furnish Class C and Class F fly ash from the QPL and conforming to AASHTO M 295 (ASTM C618).

Add the following subsection:

02030.15 Natural Pozzolans - Furnish Class N natural pozzolans from the QPL and conforming to AASHTO M 295 (ASTM C618).

02030.50 Metakaolin - Replace this subsection with the following:

02030.50 High Reactivity Pozzolans - Furnish high-reactivity pozzolans from the QPL and conforming to AASHTO M 321.

SECTION 02050 - CURING MATERIALS

Comply with Section 02050 of the Standard Specifications modified as follows:

02050.10 Liquid Compounds - Replace the paragraph that begins "Furnish liquid membrane-forming curing…" with the following paragraph:

Furnish liquid membrane-forming curing compounds from the QPL and meeting the requirements of ASTM C309. Before use, submit a one quart sample from each lot for testing. Samples will be tested according to ODOT TM 721. Samples are not required for curing compounds used on Commercial Grade Concrete.

SECTION 02415 - PLASTIC PIPE

Comply with Section 02415 of the Standard Specifications modified as follows:

02415.40 Polypropylene Pipe - Replace the sentence that begins "Dual wall polypropylene pipe …" with the following sentence:

Dual wall polypropylene pipe and fittings ..... ASTM F2764

SECTION 02450 – MANHOLE AND INLET MATERIALS

Comply with Section 02450 of the Standard Specifications modified as follows:

02450.30 Metal Frames, Covers, Grates, and Ladders – Add the following to the end of the subsection:

Furnish non-slip covers from the Portland Bureau of Transportation Approved Non-slip Access Cover/Lid Surfaces list. Galvanizing will not be required for surfaces to be treated with the coatings in the Portland Bureau of Transportation Approved Non-slip Access Cover/Lid Surfaces list. Non-slip covers shall not have markings or logos.

SECTION 02470 – POTABLE WATER PIPE MATERIALS

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

02470.20 Ductile Iron Pipe - Replace this subsection, except for the number and heading, with the following:

(a) Conformance Requirements - Use centrifugally cast ductile iron pipe according to AWWA C151. Ductile iron pipe is to be fully gauged, standard thickness Class 52 or the thickness class specified or indicated. Furnish restrained joints according to 02475.50.

(b) Lining and Coating - Shop apply double thickness cement-mortar lining and a seal coat of asphaltic material on ductile iron pipe according to AWWA C104 and NSF 61.

(c) Flanged Pipe – Furnish flanged ductile iron pipe with threaded ductile iron flanges according to AWWA C115. Drill flanges according to ASME/ANSI B16.1, Class 125

complete with styrene butadiene rubber (SBR) full face gaskets. Bolts are to protrude through the assembled nut at least two threads but not more than 1/2-inch. Do not bury flanged connections, unless shown buried. Wrap flanges with two layers of 10 mil tape along edge of flanges.

(d) Gaskets – Furnish acrylonitrile butadiene rubber (NBR) gaskets.

SECTION 02475 – POTABLE WATER FITTING MATERIALS

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

02475.10 General - Replace this subsection, except for the number and heading, with the following:

(a) Securing Fittings – Furnish bolts, nuts and washers used for securing fittings of similar materials.

(b) Nuts and Bolts – Furnish steel bolts according to ASTM A 307 for carbon steel, or ASTM F 593 for stainless steel. Furnish nuts according to ASTM A 563 for carbon steel and ASTM F 594 for stainless steel. Furnish iron bolts and nuts according to ASTM A 536, grade 65-45-12.

(c) Galvanize - Galvanize carbon steel bolts, nuts and washers according to Section 02560.

(d) Conformance Requirements - Furnish materials in contact with potable water according to ANSI/NSF Standard 61, Drinking Water System Components - Health Effects, or equivalent.

(e) Pressure Ratings - Furnish fittings and appurtenances meeting or exceeding the design pressure rating for the pipe.

02475.20 Ductile Iron Pipe Fittings - Replace this subsection, except for the number and heading, with the following:

(a) Conformance Requirements – Furnish fittings for ductile iron pipe according to AWWA C110 or AWWA C153, and meeting or exceeding a working pressure rating of 250 psi. Meet the requirements of AWWA C111 for joints.

(b) Linings and Coatings - Furnish cement mortar lined and seal coated fittings, meeting the requirements of AWWA C104. Double thickness cement mortar lining is preferred, but single thickness cement mortar lining will be allowed.

(c) Gaskets - Furnish acrylonitrile butadiene rubber (NBR) gaskets. Furnish 1/8 inch thick rubber having a Durometer reading of 60, plus or minus 5 gaskets for flat faced or raised faced flanges.

(d) Bolts and Nuts – Provide the type, material and identification mark for bolts and nuts.

02475.50 Restrained Joints - Replace this subsection, except for the number and heading, with the following:

Restrain ductile iron pipe, fittings and valves by using a manufacturer and Engineer approved system. Provide the restraint system to operate at a working pressure equal to the hydrostatic test pressure required in 01140.51(a) or as shown. No device utilizing round point set screws will be permitted. Furnish NBR gaskets and core 10 type or better T-bolts from same manufacturer of the restrained systems or manufacturer's supplier. Accompany loose bound (bulk) gaskets and bolts with documentation from the manufacturer.

02475.60 Bolted, Sleeve-Type Couplings for Plain-End Pipe - Replace this subsection, except for the number and heading, with the following:

(a) Conformance Requirements – Furnish bolted, sleeve-type couplings, reducing or transition couplings, and flanged coupling adapters used to join plain-end pipe according to AWWA C219. Furnish buried couplings to connect ductile iron, gray cast iron or PVC pipe that are ductile iron. Furnish buried couplings for connecting steel pipe to steel pipe that are steel, coated and lined to match the steel pipe provided.

(b) Shop Coat Enamel – Provide ductile iron sleeves and end rings with a shop coat enamel finish.

(c) Epoxy Finish – Furnish steel sleeves and end rings with fusion bonded epoxy finish suitable for potable water systems meeting NSF 61 regulations.

(d) Bolts – Furnish high strength, low-alloy steel bolts manufactured to ASTM A325 with heavy hexagon nuts manufactured to ASTM A563.

(e) Gaskets – Furnish full gaskets that are rubber of all new materials compounded to resist oil, acids, alkalis, and water.

SECTION 02480 – POTABLE WATER VALVE MATERIALS

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

02480.20 Gate Valves - Replace this subsection, except for the number and heading, with the following:

Furnish gate valves according to AWWA C509.

(a) Conformance Requirements – Furnish valves 2 inches to 12 inches in diameter with a minimum design working pressure of 200 psi. Furnish non-rising stems for buried valves. Do not furnish sizes not specified in AWWA C509 without approval prior to purchase.

(b) Directional Indicator - Furnish valves that open left (counterclockwise) and include an arrow showing the direction of opening. Position indicators will not be required.

(c) Component Properties – Furnish valve gates that are cast gray or ductile iron, with guide bars or channels for controlled movement, and may have an integral 2 inch bronze stem nut.

Fully encapsulate with a resilient rubber material bonded to metal, the gate and gate guide bars or channels. If not also encapsulated, epoxy coat the gate stem hole. Use a method to provide the rubber-to-metal bond according to ASTM D429. A peel strength less than 75 pounds per inch will not be allowed.

02480.25 Valve Boxes - Replace this subsection, except for the number and heading, with the following:

Portland Water Bureau will furnish valve boxes and covers (CIV). Furnish the 8 inch PVC pipe according to ASTM D3034.

02480.26 Valve Operator Extensions - Replace this subsection, except for the number and heading, with the following:

Install valve operator extensions on valves with an operating nut more than 4 feet below the finished grade. Manufacture valve operator extensions per plan. Hot dip galvanize operator extensions after fabrication.

02480.70(b) Double Detector Check Valve Backflow Prevention Assembly - Replace this subsection, except for the number and heading, with the following:

Double detection check valve backflow prevention assemblies shall consist of two spring loaded, independently operating check valves, located between two tightly closing resilient seated shutoff valves with four resilient sealed test cocks, supports, bypass meter and compatible touchpad, all meeting the requirements of AWWA C510, University of Southern California Foundation for Cross-Connection Control and Hydraulic Research (USC), the Portland Water Bureau, and the Oregon Health Authority.

Add the following subsection:

02480.70(c) Double Check Valve Backflow Prevention Assembly – Double check valve backflow prevention assemblies shall consist of two spring loaded, independently operating check valves, located between two tightly closing resilient seated shutoff valves with four resilient sealed test cocks, and supports, all meeting the requirements of AWWA C510, University of Southern California Foundation for Cross-Connection Control and Hydraulic Research (USC), the Portland Water Bureau, and the Oregon Health Authority.

SECTION 02485 – HYDRANTS AND APPURTENANCE MATERIALS

Comply with Section 02485 of the Standard Specifications modified as follows:

02485.10 Fire Hydrants - Replace this subsection, except for the number and heading, with the following:

(a) General – Furnish fire hydrants that are dry-barrel, conforming to AWWA C502, of standard manufacture and of a pattern approved by the Portland Water Bureau. Design hydrants for a minimum working pressure of 150 psi.

(b) Conformance Requirements - Furnish materials in contact with potable water according to ANSI/NSF Standard 61, Drinking Water System Components - Health Effects, or equivalent.

(c) Seals and O-rings – Furnish hydrants that have O-ring stem and valve seals. Furnish main valve seat ring and seat ring bushing that are bronze. Remove the main valve assembly including seat ring using a tool that engages the stem either at the breakaway stem coupling or the upper stem section.

(d) Lubricant Fixtures – Furnish one piece bronze operating nut thrust collar and threaded stem drive. Furnish oil filler plug or grease fitting in bonnet to lubricate thrust collar and stem drive. Furnish lubricant reservoir that is a permanently sealed reservoir. Furnish Teflon, or equal, anti-friction thrust washer fitted on top of thrust collar. Furnish a positive stop to prevent over travel of the stem.

(e) Drain Valves - Furnish two or more bronze bushed drain valves. Furnish drain valves that close within six turns, at start of opening hydrant.

02485.30 Hydrant Dimensions and Nozzles - Replace this subsection, except for the number and heading, with the following:

(a) Configuration – Furnish hydrant connection pipes that are 6 inches inside diameter with 6 inch auxiliary gate valve. Provide hydrant length, measured from the bottom of the hydrant to the sidewalk ring with sufficient cover at each installed location. Furnish valve openings that are 5 inches minimum diameter. Furnish hydrants with two 2 1/2-inch hose nozzles and one 4 1/2-inch pumper nozzle.

(b) Nozzles – Furnish nozzle threads according to National Fire Protection Association (NFPA) No. 1963 - Standard Specification for National Fire Hose Coupling Screw Threads. Furnish hydrant nozzle caps with inside neoprene gaskets. Do not furnish nozzle cap chains or cable. Furnish brass hydrant nozzles that are lug or screw type.

(c) Nozzle Caps - Fit nozzles with cast iron threaded caps with operating nuts of the same design and proportions as the hydrant stem nuts. Furnish operating and nozzle cap nuts that are pentagon shape, 1 1/4 inches from point to opposite flat at base of nut and 1 3/16 inches from point to opposite flat at top of nut with a tolerance of 1/64 inches for each dimension from flat to opposite point. Thread caps to fit the corresponding nozzles and fit with suitable gaskets to ensure positive water tightness under test pressure. Provide nozzle caps with a clockwise direction of opening that is clearly marked on the operating nut or hydrant top.

02485.50 Traffic Flange – Add the following to the end of the paragraph:

Aluminum couplings are not acceptable.

Add the following subsection:

02485.52 Out of Service Cover – Provide yellow or orange plastic bag or cover with reflective tape and, if necessary, approved plastic hydrant out-of-service rings.

Add the following subsection:

02485.75 Painting – Paint hydrants according to AWWA C502. Furnish exterior paint according to Federal Specification TT-E-489 G. Furnish the hydrant with standard exterior colors as follows:

Component	Color
Hydrant Barrel	OSHA Safety Orange
Nozzle Caps	Black
Pumper Caps	OSHA Safety Red
Dome or Top	OSHA Safety Orange

SECTION 02490 – POTABLE WATER SERVICE CONNECTION MATERIALS, 2 INCH AND SMALLER

Comply with Section 02490 of the Standard Specifications modified as follows:

02490.10 General - Replace this subsection, except for the number and heading, with the following:

Furnish service line materials according to the latest version of AWWA C800. Unless otherwise specified, furnish service line materials with the minimum working pressure rating of 150 psi. In addition, furnish service line materials rated for the test pressures indicated in Section 01140.51. Furnish materials in contact with potable water according to ANSI/NSF Standard 61, Drinking Water System Components - Health Effects, or equivalent.

Furnish premises-isolation backflow assemblies according to the University of Southern California, Foundation for Cross-Connection Control and Hydraulic Research or other equivalent testing laboratories approved by the Engineer.

Add the following subsection:

02490.11 Stops and Valves – Furnish corporation stops, curb stops and meter valves having a ball-valve design with full port opening and have a flow passage area equivalent to the fitting outlet flow area.

Add the following subsection:

02490.12 Padlock Wings – Provide padlock wings for curb tops and meter valves.

Add the following subsection:

02490.13 Valve Ball – Fabricate that balls for the corporation and curb valves from the same material as the body. Support the ball with a Teflon or Nitrile seat or another material proven not to deteriorate when exposed to chemicals such as chloramines.

Add the following subsection:

02490.14 Gaskets – Fit each compression nut with a gasket. Furnish with a groove in its inner surface to locate a stainless steel gripper band. Furnish gaskets with a built-in metal conductor spring at one-end to provide electrical continuity between the copper tubing and the coupling.

02490.20 Saddles - Replace this subsection, except for the number and heading, with the following:

Furnish bronze saddles. Saddles used for 1 inch services may be single strap saddles and have AWWA tapered thread outlet. Furnish double strap saddles with AWWA tapered thread outlet for 2 inch services.

02490.30 Corporation Stops - Replace this subsection, except for the number and heading, with the following:

(a) General - Make corporation stops of bronze alloy. Furnish corporation stops for direct tapping with AWWA tapered thread inlet and outlet connections compatible with copper tubing.

(b) Threads – Furnish AWWA tapered thread inlets and outlet connections compatible with copper tubing for corporation stops used with 1 inch and 2 inch outlet saddles. Furnish thread patterns for the saddle outlet and corporation stop inlet that are the same.

02490.40 Service Pipe and Fittings - Replace this subsection, except for the number and heading, with the following:

(a) Copper Pipe & Tubing – Furnish copper tubing according to ASTM B 88. Furnish tubing that is type K, seamless, and annealed. Sizes 1 inch and below are to be soft drawn design, 0.065 inch wall thickness. Sizes larger than 1 inch are to be hard drawn, 0.083 inch wall thickness.

(b) Brass Pipe – Furnish brass Pipe according to ASTM B43. Furnish pipe in the annealed condition to Standard No. "O 61" in accordance with ASTM B601.

(c) Brass and Bronze Service Fittings – Furnish brass and bronze service fittings according to AWWA C800

(d) Brass and Bronze Pipe Nipples – Furnish brass pipe nipples according to AWWA C800.

02490.50 Meter Setters - Replace this subsection, except for the number and heading, with the following:

Meter setters will be supplied and installed by the Portland Water Bureau.

02490.70 Meter Boxes - Replace this subsection, except for the number and heading, with the following:

Meter boxes will be Portland Water Bureau-furnished and installed by the Contractor.

Add the following subsection:

02490.75 Backflow Prevention Assembly Enclosures:

(a) Nontraffic Areas – Provide enclosures and covers located in the nontraffic areas of either reinforced concrete or high density polyethylene meeting the requirements of the Portland Water Bureau. High density polyethylene enclosures and covers shall have a tensile strength conforming to ASTM D638. Provide Carson Industries No. 1730-18 or equivalent for 1 ½ inch and 2 inch assemblies that are allowed in box enclosures and Carson Industries No. 1419-18 or equivalent for 1 inch and smaller assemblies that are allowed in box enclosures. Provide Oldcastle Infrastructure with hinged frame and covers or equivalent for vaults. Manhole covers are not allowed.

(b) Traffic Areas – Provide enclosures of either reinforces concrete, cast iron, or ductile iron. Construct traffic covers of aluminum, steel, cast iron or ductile iron meeting the requirements of the Portland Water Bureau. Enclosures and covers shall be designed for continuous H-20 traffic loading. Provide EJ USA Inc. #8217, #8217-Double, #8197, #8197-Double with frame and covers or equivalent. Manhole covers are not allowed.

02490.90 Acceptance - Replace this subsection, except for the number and heading, with the following:

Materials for potable water service connections will be accepted according to 00165.35 (except 165.35(d)), 01170.01, and this section.

SECTION 02510 - REINFORCEMENT

Comply with Section 02510 of the Standard Specifications modified as follows:

02510.11(c) Coated Reinforcement Ties and Supports - Replace this subsection, except for the subsection number and title, with the following:

Ties and supports for coated reinforcement, including ties for coated to uncoated reinforcement connections, shall be nonmetallic coated.

SECTION 02560 - FASTENERS

Comply with Section 02560 of the Standard Specifications modified as follows:

02560.30(b) High Strength Tie Rods, Anchor Bolts and Anchor Rods - Add the following paragraph to the end of this subsection:

End stamp all ASTM F1554, Grade 105 according to ASTM F1554 Supplementary Requirements S2 and S3. If the end of the bolt is to be embedded in concrete, the projecting end from the concrete shall be the marked end.

SECTION 02630 – BASE AGGREGATE

Comply with Section 02630 of the Standard Specifications modified as follows:

Add the following subsection:

02630.10(e) Sand Equivalent for Water Pipe Zone, Bedding and Backfill - Dense-graded aggregate shall be tested according to AASHTO T 176, and shall have a sand equivalent of not less than 50.

SECTION 02690 - PCC AGGREGATES

Comply with Section 02690 of the Standard Specifications modified as follows:

02690.20(e) Grading and Separation by Sizes for Prestressed Concrete - Replace this subsection with the following subsection:

02690.20(e) Grading and Separation by Sizes - Sampling shall be according to AASHTO R 90. Sieve analysis shall be according to AASHTO T 27 and AASHTO T 11. Provide aggregates meeting the gradation requirements of Table 02690-1 for structural concrete. Provide a CAgT to perform sampling and testing when required.

Table 02690-1
Gradation of Coarse Aggregates
Percent passing (by Weight)

		Sieve Size											
Size Number	Nominal Size Square Openings	(2½ in.)	(2 in.)	(1½ in.)	(1 in.)	(¾ in.)	(½ in.)	(⅜ in.)	(No. 4)	(No. 8)	(No. 16)	(No. 50)	(No. 200)
3	(2 to 1 in.)	100	90 to 100	35 to 70	0 to 15	—	0 to 5	—	—	—	—	—	**
357*	(2 in. to No. 4)	100	95 to 100	—	35 to 70	—	10 to 30	—	0 to 5	—	—	—	**
4	(1½ to ¾ in.)	—	100	90 to 100	20 to 55	0 to 15	—	0 to 5	—	—	—	—	**
467*	(1½ to No. 4)	—	100	95 to 100	—	35 to 70	—	10 to 30	0 to 5	—	—	—	**
5	(1 to ½ in.)	—	—	100	90 to 100	20 to 55	0 to 10	0 to 5	—	—	—	—	**
56	(1 to ⅜ in.)	—	—	100	90 to 100	40 to 85	10 to 40	0 to 15	0 to 5	—	—	—	**
57	(1 to No. 4)	—	—	100	95 to 100	—	25 to 60	—	0 to 10	0 to 5	—	—	**
6	(¾ to ⅜ in.)	—	—	—	100	90 to 100	20 to 55	0 to 15	0 to 5	—	—	—	**
67	(¾ to No. 4)	—	—	—	100	90 to 100	—	20 to 55	0 to 10	0 to 5	—	—	**
68	(¾ to No. 8)	—	—	—	100	90 to 100	—	30 to 65	5 to 25	0 to 10	0 to 5	—	**
7	(½ to No. 4)	—	—	—	—	100	90 to 100	40 to 70	0 to 15	0 to 5	—	—	**
78	(½ to No. 8)	—	—	—	—	100	90 to 100	40 to 75	5 to 25	0 to 10	0 to 5	—	**
8	(⅜ to No. 8)	—	—	—	—	—	100	85 to 100	10 to 30	0 to 10	0 to 5	—	**
89	(⅜ to No. 16)	—	—	—	—	—	100	90 to 100	20 to 55	5 to 30	0 to 10	0 to 5	**

* Use two or more seperated sizes which when combined meet these gradation limits.

** See 02690.20(a). Do Not evaluate material passing the No. 200 sieve according to 00165.40.

02690.20(f) Grading and Separation by Sizes for Other Concrete - Delete this subsection.

02690.30(g) Grading - In the paragraph that begins “Sampling shall be according to…”, replace the words “AASHTO T 2” with the words “AASHTO R 90”.

SECTION 02830 - METAL HANDRAIL

Section 02830, which is not a Standard Specification, is included in this Project by Special Provision.

Description

02830.00 Scope - This Section includes the requirements for the steel in handrail for stairways and pedestrian facilities.

Materials

02830.10 Shapes, Plates, and Bars - Shapes, plates, and bars shall conform to ASTM A36.

Punch anchor plate bolt holes at the locations shown before fabrication.

02830.20 Steel Pipe - Steel pipe shall conform to ASTM A500, seamless, Grade B.

02830.21 Steel Tube - Steel tube shall conform to ASTM A500, seamless, Grade B.

02830.22 Fasteners - Fasteners shall meet the requirements of Section 02560. Machine screws shall be SAE 18 8 stainless steel.

02830.30 Galvanizing - Hot-dip galvanize all handrail components according to AASHTO M 111 (ASTM A123) after shop fabrication.

02830.31 Repair of Hot-Dip Galvanizing - Repair damaged hot-dip galvanizing according to ASTM A780 and ASTM A123. Minimum zinc content for Method A2 is 94 percent on the dry film.

02830.40 Incidentals - Plates, caps, and miscellaneous pieces necessary to complete the rail shall be as shown.

02830.50 Acceptance - Acceptance of handrail Materials will be according to 00165.35 and this Section.

SECTION 02831 - PEDESTRIAN FENCE

Section 02831, which is not a Standard Specification, is included in this Project by Special Provision.

Description

02831.00 Scope - This Section includes the requirements for the metals in pedestrian fence.

Materials

02831.10 Aluminum Parts - Posts, post caps, post bases, rails, and spindles shall conform to 6061-T6 aluminum. Punch post base bolt holes at the locations shown before fabrication.

02831.20 Fasteners - Fasteners shall meet the following requirements:

Threaded rods –	ASTM A193 Grade B7 Galvanized
1/2 inch dia. steel nuts –	ASTM A194 Grade 8M Galvanized
1/2 inch dia. SAE steel flat washers –	ASTM F436 Type 1 Galvanized

02831.40 Acceptance - Acceptance of pedestrian rail Materials will be according to 00165.35 and this Section.

SECTION 02926 - HIGHWAY ILLUMINATION MATERIALS

Comply with Section 02926 of the Standard Specifications modified as follows:

Add following subsection:

02926.41(f) Electrical Splice Materials - Furnish electrical splice materials meeting the following requirements:

- **Split bolt** - Made of silicon bronze to securely join the wires both mechanically and electrically.
- **Heat-shrink tubing** - Split-resistant and adhesive-lined tube made of polyolefin complying with UL 224 or UL 486D, temperature range -67 °F to 230 °F, with 600 V rated inner melting wall or liner to provide void-free encapsulated insulation.
- **Insulating rubber tape** - Electrical grade, nondrying, rubber based, elastic type complying with ASTM D4388.
- **Insulating vinyl plastic tape** - Low temperature (0 °F) resistant, vinyl chloride plastic, electrical insulating tape with pressure-sensitive adhesive. Comply with ASTM D3005.