



Oregon

Tina Kotek, Governor

Department of Transportation

Region 1 Headquarters

123 NW Flanders Street

Portland, OR 97209

Phone: (503) 731-8200

DATE: April 2, 2025

TO: Wesley Thomas, PE
Project Manager/Environmental Engineer

FROM: Jonathan Horowitz, PE
Resident Engineer – Consultant Projects

RE: **TECHNICAL MEMORANDUM – SUPPLEMENTAL PROPOSED
MODIFICATION OF APPROVED SOURCE CONTROL MEASURES
ODOT FACILITY IN PORTLAND HARBOR PROJECT AREA**

PURPOSE

The purpose of this supplemental technical memorandum is to provide the Oregon Department of Environmental Quality (DEQ) with supporting information to facilitate approval of additional proposed modifications to the previously approved Source Control Measures (SCMs) included in the Oregon Department of Transportation's (ODOT's) Final Portland Harbor Source Control Feasibility Study (Final FS) and Portland Harbor Source Control Supplemental US30 Feasibility Study (Supplemental FS). A previous technical memorandum was submitted to DEQ on May 14, 2024 seeking approval to adjust the type of treatment system from rain gardens/biofiltration swales to manufactured treatment devices (e.g. Biopods). Approval of these proposed changes was provided to ODOT on May 28, 2024. However, as the design work on the project has advanced, additional constraints require further modifications to the previously approved SCMs.

INTRODUCTION

The project team is currently working on the design of 26 SCM systems: a combination of 13 manufactured treatment devices (BioPods), 11 Proprietary Hydrodynamic Separators (PHS) and 2 Modular Wetland Systems (MWS) to be installed across 16 drainage areas. Table 1 below provides a summary of the drainage area, the treatment system proposed, and the drainage area treated (often split between ODOT and comingled stormwater).

Table 1

Basin	Outfall Improvement (SCM)	ODOT Drainage Area (Feasibility Study) (acres)	Total Design Treated Basin Area (acres) ODOT/non-ODOT acres	Proposed Outfall Improvement modification	Total Revised Design Basin Area Treated
WR-510 (St. Johns West)	PHS and BioPod	1.4	1.61 (1.61 ODOT / 0 non-ODOT)		
OF-52 (St. Johns East)	PHS and BioPod	1.9	2.77 (2.77 ODOT / 0 non-ODOT)		
Fremont Bridge West	PHS and BioPod	1.1	2.08 (2.08 ODOT / 0 non-ODOT)		
Fremont Bridge East	PHS and BioPod	1.1	2.08 (2.08 ODOT / 0 non-ODOT)		
WR-307 I405/Fremont Interchange	BioPod	40.06	61.8 (61.8 ODOT / 0 non-ODOT)		
OF 16	2 x BioPod		1.02 (1.02 ODOT / 0 non-ODOT)		
	BioPod	3.9	0.42 (0.42 ODOT / 0 non-ODOT)		
	PHS		47.94 (5.28 ODOT / 42.67 non-ODOT)	Remove	0
OF 17	PHS	4.5	19.6 (2.4 ODOT / 17.2 non-ODOT)		
OF 18	BioPod	5.7	0.55 (0.55 ODOT / 0 non-ODOT)		
	PHS		29.59 (6.51 ODOT / 22.37 non-ODOT)	Relocate PHS	7.65 (2.14 ODOT / 5.51 non-ODOT)
OF 19	PHS	10.0	21.9 (3.4 ODOT / 18.5 non-ODOT)		
OF 22C	PHS	12.1	39.6 (1.7 ODOT / 37.9 non-ODOT)		
WR 206	PHS and MWS	1.4	29.2 (0.9 ODOT / 28.3 non-ODOT)		
WR 208/211	BioPod	3.4	8.44 (7.77 ODOT / 0.67 non-ODOT)		
OF 22D	PHS and MWS	3.4	3.8 (1.6 ODOT / 2.2 non-ODOT)		
WR 126	BioPod	1.4	2.82 (1.76 ODOT / 1.06 non-ODOT)		

Basin	Outfall Improvement (SCM)	ODOT Drainage Area (Feasibility Study) (acres)	Total Design Treated Basin Area (acres) ODOT/non-ODOT acres	Proposed Outfall Improvement modification	Total Revised Design Basin Area Treated
WR 204	BioPod	2.3	14.57 (2.3 ODOT / 12.26 non-ODOT)		
	BioPod		4.31 (0.81 ODOT / 3.50 non-ODOT)		
WR 79	PHS	3.7	33.6 (1.8 ODOT / 31.8 non-ODOT)		
Totals		97.36 ODOT area	329.3 (108.56 ODOT / 218.43 non-ODOT)		257.81 (98.91 ODOT / 159.9 non-ODOT)

Table 1 illustrates, with approval of the proposed modifications, as detailed below, the project is still anticipated to treat more ODOT stormwater than the Final or Supplemental FSs indicated, in addition to treating 159.9 acres of non-ODOT and/or comingled stormwater.

PROPOSED MODIFICATIONS TO APPROVED SOURCE CONTROL MEASURES

Outfall OF16

The Final FS recommended multiple SCMs for Outfall OF16: rain gardens and a hydrodynamic separator (PHS). The May 2024 technical memo proposed modifying the rain gardens to manufactured treatment devices (Biopods). The design of the Biopods is advancing without significant issues. However, the initial proposed location for the PHS has identified several substantial design complications including substandard subsurface conditions (requiring the PHS to have a robust and expensive foundation) and utility conflicts. To find an alternate location for the PHS, a supplemental geotechnical investigation was completed. After completing the analysis of the field investigation, the alternate location was evaluated against the same five balancing factors utilized during the FS. The assessment indicates that an alternate location is not feasible due to significant utility conflicts, timeline for Right-of-Way acquisition within the current design schedule, budgetary constraints, and overall design complexity. At this time, ODOT is proposing to remove the PHS from the suite of SCMs to be installed as part of the project. Additional details are included in Attachment A.

Outfall OF18

Similar to OF16, the Final FS recommended multiple SCMs for Outfall OF18: rain gardens and a PH. The May 2024 technical memorandum proposed modifying the rain gardens to manufactured treatment devices (Biopods). However, as the design has progressed, significant design complications at the initial selected location for the proposed PHS have

been identified, including an active rail spur line (originally understood to be inactive) which would require a cascade of additional design considerations: shoring, permitting, flagging, etc. These factors make this location infeasible. In an effort to keep the improvement in the project, a supplemental geotechnical investigation was completed, searching for an alternate location. The results of the analysis identified two likely candidates, with one, locating the PHS east of the initial location as the preferred option. The alternate location was evaluated against the balancing factors and while the new location will treat less water than the initial location, it is feasible to complete the design and construction within the larger project budget and schedule constraints. At this time ODOT is proposing to relocate the PHS in the OF18 Outfall to near the Prologis NW parking area (east of the initial proposed location). Additional details are included in Attachment A.

CONCLUSIONS AND DESIGN PROGRESS UPDATE

Progress of the development of the plan set for the project is advancing and the 90% Final plans set is anticipated to be delivered in late May 2025. After further consideration within the design team and direction ODOT Region 1 leadership the project is now set to be delivered in one construction package, with work to begin in early 2026.

ATTACHMENTS – WSP Technical memorandum

ATTACHMENTS



MEMO

TO: Jonathan Horowitz, PE, ODOT Project Manager
FROM: Kelsey Harpham, WSP Project Manager
SUBJECT: K22552: OF 16-1 and OF 18-2 SCMs
DATE: 19 March 2025

This memorandum provides a summary of the preliminary analysis for alternative locations and design for facilities within the OF 16 and OF 18 basins. The recommendations provided in this memo are based on the best available information at this time. Note that survey has been completed but is not yet available for design team review, anticipated utility conflicts are based on conversations directly with utilities.

OF16-1

The proposed Proprietary Hydrodynamic Separator (PHS) water quality structure at OF 16-1 is one of four structures in the OF 16 basin. A PHS is a presettling device designed to trap debris and sediment in a sumped concrete structure where they can more easily be removed via a vacuum truck. The proposed facilities at OF16-2 and OF16-3 are Biopods which together treat 1.44 acres of ODOT area. The proposed location from the Supplemental Feasibility Study (FS) for the 16-1 unit was off US30 on 26th Ave. During Draft and Final Acceptance Plan Design, the facility was sited in the cul-de-sac at the termination of US 26th Ave to avoid known utility conflicts and business access points. At this proposed location, the PHS was anticipated to treat 5.3 acres of ODOT area.

However, geotechnical borings completed as part of design revealed extensive woodchips to approximately 30ft below ground surface elevation. Due to the extent of subsurface woodchips present at this location and structural interventions needed to support PHS structure in the weak woodchip contaminated subgrade, the estimated revised construction cost at this site is \$3,457,200.

Several alternatives to this site were evaluated and presented to ODOT. These included:

1. Construction of a micropile foundation needed to support PHS structure
2. Relocation of the PHS structure to the east shoulder of US30
3. Replacement of the singular centralized PHS system with a series of distributed BioPods on US30, and
4. Relocation of the PHS unit to the median of the road east of the intersection of US30 and 26th Ave

The fourth option, placement of the PHS structure in the median, was eliminated because of the hydraulically complex connection of the PHS structure to the storm main with an bypass system needed traffic impacts associated with lane closures in both directions of US30 for the duration of

construction as the PHS unit, and traffic control and safety issues for maintaining a system in the roadway. The Supplemental Feasibility Study also notes that “PHS units that are sited in locations that are difficult to access (including within major travel lanes) will have low effectiveness, low long-term reliability, and low implementability.”

The second option, relocation of the PHS structure to the east shoulder of US30, was considered to be the most feasible alternate solution and was evaluated further. Option one was eliminated due to complexity and cost of the micropile foundation, and option 3 was eliminated due to the cost relative to the acres of ODOT treated area.

Key site considerations for the locating the 16-1 facility on the east shoulder of US30 (Option 2):

Table 1: Key site considerations for 16-1, alternative 2

DISCIPLINE	NOTES
Structure information	PHS structure approximately 13' x 20' Depth of bottom of structure at 23' below ground surface (BGS), approximately 7' below pipe. Shoring and dewatering needed.
Geotechnical	An additional geotechnical boring was completed at the location east of the shoulder of US 30. No woodchips were present. Poorly graded sand and gravel is present at to 20' BGS, with wet silty sand below that.
Utilities	20" diameter steel water main PWB, at approximately 3' BGS would be perpendicular to new connection pipes installed. This is assumed to be protected in place. 8" High pressure gas main would need relocated. NW Natural has stated they are unlikely to be able to do this before 2027. Abandoned 18" BES sewer line in roadway perpendicular to connecting pipes.
Right-of-Way	A new easement would be needed for TPAR (temporary pedestrian access route) around the construction work zone. The TPAR must be accessible, so it may involve building platforms/walkways or adding paved surfacing. ODOT recommended that this would need to be a temporary easement for work area, an access easement would not cover steel plates.
Traffic	Construction at this site be performed primarily as night work to maintain two travel lanes in each direction during daytime hours. Trenching would need to be resurfaced during day, highway speed in this area does not allow for use of steel plates. Short duration lane closures would likely be required to allow deep trenching (~20ft) with protection of water main in place and placement of connecting pipes under water main.

The summary of costs associated with the relocation of the OF16-1 structure to the east should of US30 are:

Table 2: 16- Cost Summary for option 2, shoulder of US30

<i>Construction Costs</i>	\$ 1,496,400.00	<- Includes 18% construction engineering and 20% contingency
<i>Additional Investigation Cost</i>	\$ -	Geotechnical exploration and testing completed
<i>Engineering Costs</i>	\$ 123,600.00	
<i>Total Construction and Engineering Cost</i>	\$ 1,620,000.00	Cost is total cost for design and construction, survey not included

The resulting evaluation considered the same factors as the Supplemental Feasibility Study: Effectiveness, Long-term reliability, Implementability (sic), Implementation Risk, and Cost Reasonableness. Scores of Low (L)/Medium (M) /High (H) are assigned in accordance with the information provided in the appendix of the Supplemental Feasibility Study.

Table 3: 16-1 Site Evaluation based on Feasibility Study Criteria, for option 2

Criteria	Scoring	Notes
Effectiveness		
SCM Effectiveness	M	*same as FS, effectiveness of facility
Area Treated		4.4 ODOT acres
Long-term Reliability	H	*same as FS
Implementability	M	Challenges include ROW acquisition, utility relocation, and traffic impacts
Implementation Risk	M	High risk in implementation, close to major traffic lanes
Cost Reasonableness		
Capital Cost	\$1.6M	High capital cost but moderate in terms of cost per ODOT acre treated

In summary, the proposed relocation of the PHS structure to the shoulder of US30 would treat 4.4 acres of ODOT area, at a cost of \$1.6M (approximately \$365,000 per acre). However, the utility conflicts, need for ROW, and design complexity at this site resulted in an overall medium ranking of the structure based on the Facility Study criteria.

OF18-2

The proposed water quality structure at location 18-2 is one of two water quality structures in the OF 18 basin. The structure at 18-1 is a BioPod which treats 0.55 acres of ODOT area. In the Supplemental FS, the PHS structure at 18-2 was proposed to be located on the south side of US30 on NW Yeon Frontage Road. The project team originally designed the facility near this location. During Draft DAP review, coordination with rail indicated that the rail lines near the proposed location were inactive. However, during Final DAP, further coordination and design review revealed that the nearest rail line to the proposed location was active on a nightly basis. Construction requirements, including permitting, shoring, and flagging, made this location for the facility infeasible. Multiple alternative options were assessed, including:

1. Relocation outside of Univar Solutions, approximately 350ft west of original location

2. Relocation outside Prologis NW, east of the original location outside of rail conflicts in a parking area
3. Relocation near 35th Ave/US 30 intersection in unpaved area
4. Relocation outside of Convoy Supply Co, approximately 1200ft east of original location
5. Inclusion of additional BioPods to increase ODOT treated area

Preliminary analysis at two locations – near 35th Ave and outside Prologis NW were selected as preferred options to move forward with detailed alternatives analysis. These options were the most cost effective and determined to be the most feasible in early analysis and discussion with ODOT.

Key factors considered in the analysis:

Table 4: Key site considerations for the preferred 18-2 alternatives

DISCIPLINE	NEAR 35 TH AVE	PROLOGIS NW PARKING
Structure information	PHS structure approximately 8' x 15'.	
Geotechnical	Geological exploration in Feb 2025 revealed poorly graded sand with gravel and silt up to 17' bgs (anticipated base elevation of structure). Water table at time of boring was 17' bgs.	Geological exploration in Feb 2025 revealed gravelly sand and poorly graded sand with gravel and silt up to 15' bgs (anticipated base elevation of structure). 5' bgs soil is noted to become wet at time of drilling.
Rail	The design would avoid active rail spurs. BNSF has confirmed they can close adjacent tracks during construction. Depending on Rail requirements for disturbance of inactive rail, specialized pile wall design and ongoing coordination with the Rail may be required	The design would avoid rail spurs.
Utilities	Significant signal utilities are known to be in the area, owned by BNSF and City of Portland. Overhead utility line impacts are likely based on street view and site visit. NW Natural confirmed location of 6" gas line running along south side of site. Impacts to other junction boxes and structures within the unpaved area are possible.	Overhead utility lines are not anticipated to be impacted. Gas lines identified by NW Natural are on the opposite side of the frontage road and are not anticipated to be impacted. Lumen has indicated that they have a vault in the area and are potholing to provide further information. ODOT has completed survey, waiting on upload of revised document.

Right-of-Way	A new ROW file is needed for TPAR, as the design will impact sidewalk. There is no sidewalk on the opposite side of the street to reroute pedestrians.	None needed. The design is intended to avoid sidewalk impacts by installing the stormwater structure in the parking area, thereby eliminating the need for TPAR and an easement for that use.
Traffic	The location is on a side road and would not impact US30 travel lanes.	The location is on a side road and would not impact US30 travel lanes.

The summary of costs associated with the relocation of the preferred OF18-2 alternatives are:

Table 5: 18-2 cost summary

	Near 35 th Ave	Prologis NW Parking	
<i>Construction Costs</i>	\$1,416,000	\$1,038,000	Includes 18% construction engineering and 20% contingency
<i>Additional Investigation Cost</i>	\$ 0	\$ 0	Geotechnical exploration and testing completed
<i>Engineering Costs</i>	\$115,200	\$115,200	
<i>Total Construction and Engineering Cost</i>	\$1,531,200	\$1,153,200	Cost is total cost for design and construction, survey not included

The resulting evaluation considered the same factors as the Supplemental Feasibility Study, Effectiveness, Long-term reliability, Implementability, Implementation Risk, and Cost Reasonableness. Scores of L/M/H are assigned in accordance with the information provided in the appendix of the Supplemental Feasibility Study.

Table 6: 18-2 Site Evaluation based on FS Criteria

Criteria	Scoring	Notes
Near 35th Ave		
Effectiveness		
SCM Effectiveness	M	*same as FS, effectiveness of facility
Area Treated		4.3 ODOT acres (5.6 in FS)
Long-term Reliability	H	*same as FS
Implementability	M	Challenges include ROW acquisition and utility conflicts
Implementation Risk	M	Moderate risk in implementation due to site access constraints and utility conflicts
Cost Reasonableness		
Capital Cost	\$1.5M	High capital cost but moderate in terms of cost per ODOT acre treated
Prologis NW Parking		
Effectiveness		
SCM Effectiveness	M	*same as FS, effectiveness of facility
Area Treated		2.1 ODOT acres (5.6 in FS)
Long-term Reliability	H	*same as FS
Implementability	H	Challenges include unknown utility impacts
Implementation Risk	H	Low risk in implementation (high score)
Cost Reasonableness		
Capital Cost	\$1.1M	Moderate capital cost but high in terms of cost per ODOT acre treated

Based on this analysis, the proposed location in the angled parking area near Prologis NW was evaluated with slightly higher scores than the alternative near the intersection of NW Yeon Ave and NW 35th Ave. The challenges at the site near NW 35th Ave, including utility conflicts and the need for acquisition of ROW, resulted in the slightly lower implementation risk score at this site. There is a slightly higher capital cost for the location near NW 35th Ave, but the treated area is also higher than the location near NW Prologis.

Summary

Considered within the larger context of the project, the alternative location and designs selected for sites OF16-1 and OF18-2 have implications for the overall construction cost of the project. The following table presents the costs considering various combinations of including the alternatives for OF16-1 and OF18-2 evaluated in this document. The total programmed amount for construction is \$29,900,000. The alternatives included in this table evaluate cost for the inclusion of facilities at both 16-1 and at each of the 18-2 sites, as well as the total with either 16-1 or 18-2 excluded from the project. Note that these costs *do not* account for other anticipated construction cost savings.

Table 7: Total project construction cost estimate implications

Construction cost estimate as submitted with Advanced Plans, 10/2024	\$ 30,821,031
Total Programmed Amount for Construction	\$ 29,900,000
Revised w/ 16-1 and 18-2 near 35 th *	\$ 30,449,622
Revised w/ 16-1 and 18-2 near Prologis NW*	\$ 30,071,622
Revised w/ 18-2 near 35 th , removing 16-1*	\$ 28,829,622
Revised w/ 18-2 near Prologis NW, removing 16-1*	\$ 28,451,622
Revised w/ 16-1 included, removing 18-2*	\$ 28,918,422

RECOMMENDATION

Based on the information provided above, the design team recommends the *removal of the PHS unit at 16-1, and moving forward with design and construction of 18-2 at the location near Prologis NW in the parking area*. The reduction in treated area is low compared to the cost savings and schedule implications of including the sites at either the 16-1 US30 location or at the intersection of NW35th and NW Yeon Ave. This recommendation is based on cost and schedule impacts as well as site constraints.

- Cost:
 - The construction of facilities in both locations exceeds the current construction budget. The option to remove the facility at 16-1 and include the 18-2 facility presents the most cost-effective alternative.
- Schedule:
 - ROW impacts at the proposed 16-1 and 18-2 location near 35th have significant potential to delay the entire project if ROW cannot be acquired.



- Design of these facilities will take significant time and effort. We are waiting on survey data and additional information from utilities on existing conflicts. As we are already progressing Final Design for all other sites, the addition of new locations at this time has the potential to delay the project schedule. We are mitigating this risk by recommending the inclusion of only the site at 18-2 in the parking area near Prologis NW which is anticipated to have the least complicated design, but a revised design schedule will be needed either progressing the design at 18-2 separately or delaying the submittal of the Final Design package in order to include 18-2 within the Final Design set.
- Site constraints:
 - Utility conflicts and traffic management at 16-1 significantly increase the complexity of construction and facility maintenance.
 - Utility conflicts at the 18-2 location near 35th Ave, particularly signals that include City of Portland owned facilities, which may impact construction costs and schedule. *Extent and specific location of these conflicts is still being confirmed.*

Kelsey Harpham
Project Manager, WSP



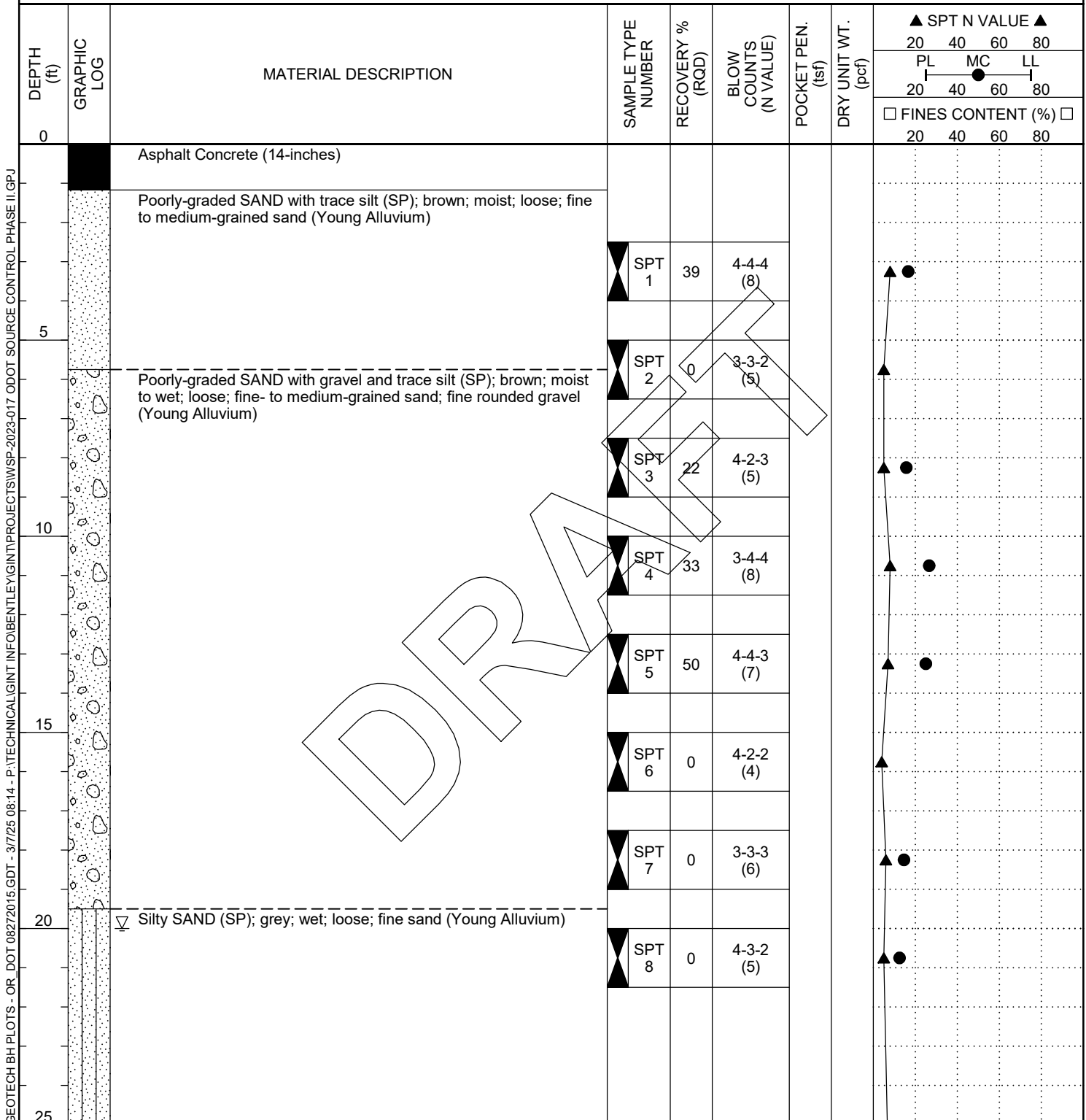
APPENDIX A

OF16-1 Supporting Documentation



CLIENT WSP / Oregon Department of Transportation
PROJECT NUMBER WSP-2023-017, ODOT Key Number 22552
DATE STARTED 2/25/25 **COMPLETED** 2/25/25
DRILLING CONTRACTOR PLI Systems
DRILLING METHOD Mud Rotary with Auto Hammer
LOGGED BY LJG **CHECKED BY** PH
NOTES

PROJECT NAME Willamette River: Stormwater Source Control Improvements
PROJECT LOCATION Portland, Oregon
NORTH **EAST**
GROUND ELEVATION 38 ft **HOLE SIZE** 5 inches
GROUND WATER LEVELS:
 ∇ **AT TIME OF DRILLING** 20.00 ft / Elev 18.00 ft
AFTER DRILLING ---



(Continued Next Page)



CLIENT WSP / Oregon Department of Transportation **PROJECT NAME** Willamette River: Stormwater Source Control Improvements
PROJECT NUMBER WSP-2023-017, ODOT Key Number 22552 **PROJECT LOCATION** Portland, Oregon

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲			
								20	40	60	80
								PL	MC	LL	
25								20	40	60	80
								□ FINES CONTENT (%) □			
								20	40	60	80
		Silty SAND (SP); grey; wet; loose; fine sand (Young Alluvium) (continued)	SPT 9	78	2-2-5 (7)						
30		4-inch decomposed wood layer at 30 feet bgs 2-inch SILT layer at 30.3 feet bgs	SPT 10	72	1-2-3 (5)						

Bottom of borehole at 31.5 feet.

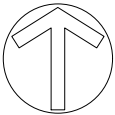
DRAFT

C:\PROJECTS\WSP\WSP-2023-017 K22552 WILLAMETTE\DWG\WSP-2023-017 ODOT SOURCE - PH2.dwg Devin Blackshere Jan 29, 2025 - 3:12pm



LEGEND

- TB 22552-#
PROPOSED TEST BORING NUMBER AND APPROXIMATE LOCATION
- ⊗ TB 22552-#
COMPLETED TEST BORING NUMBER AND APPROXIMATE LOCATION



2614 SE 129th Court,
Vancouver, WA 98683
360-258-1738

WILLAMETTE RIVER SOURCE CONTROL IMPROVEMENT PROJECT
KEY NUMBER 22552 (PORTLAND HARBOR - HIGHWAY 30)
PORTLAND, MULTNOMAH COUNTY, OREGON

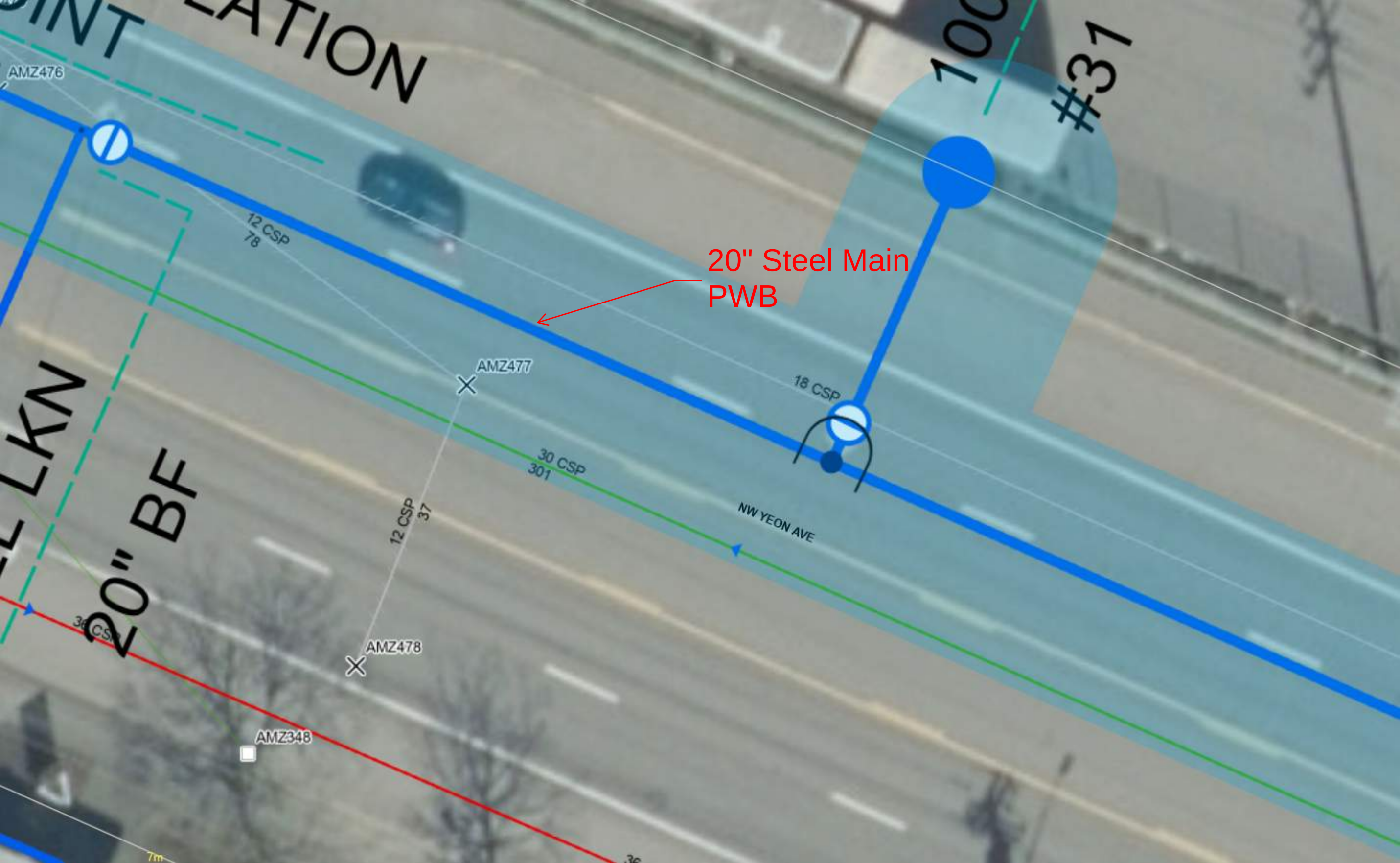
PROJECT
WSP-2023-017

DATE
JAN 2025

FIGURE 2A - SITE EXPLORATION PLAN

INT LATION

LKN
20" BF



20" Steel Main
PWB

18 CSP

NW YEON AVE

12 CSP
78

30 CSP
301

12 CSP
37

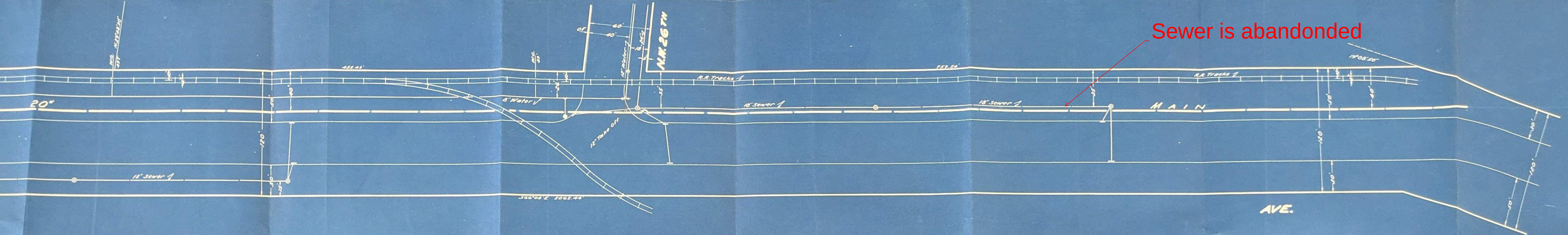
AMZ348

AMZ477

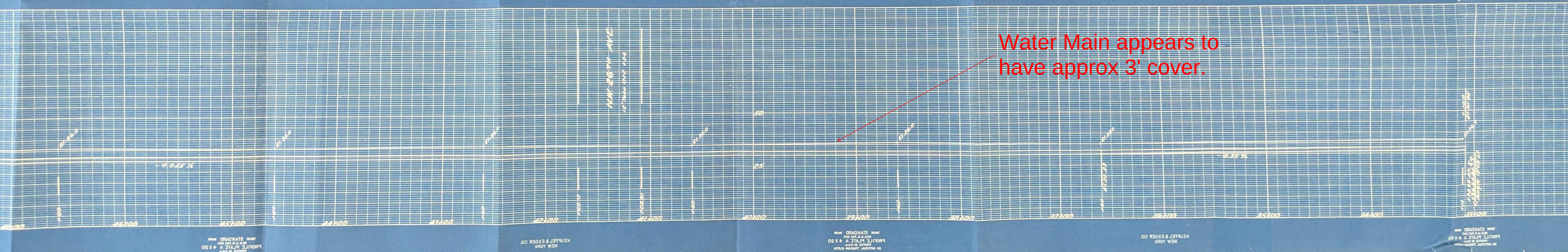
AMZ478

AMZ476

100
#31



Sewer is abandoned



Water Main appears to have approx 3' cover.



POTHOLE REPORT SHEET

Date: 12/16/2024
WO# 10225935
Job Address: US 30 & 26th Ave, Portland
Customer: NWN
Operator: Jessie Siemers
Vac# 47021

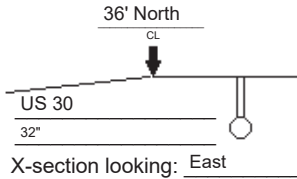
PH# 2
Utility Owner/Operator: NWN
Utility Type: 8" HP STL
Pothole Location: US 30

NOTES:

Prepared by:
Chris Breazile | Lead Foreman
Ancillary Division | Loy Clark Construction
An MDU Construction Services Group, Inc. company
19020A SW Cipole Rd. | Tualatin, OR 97062
Office 503-644-2137 | Mobile 503-758-9361
chris.breazile@loyclark.com | loyclark.com

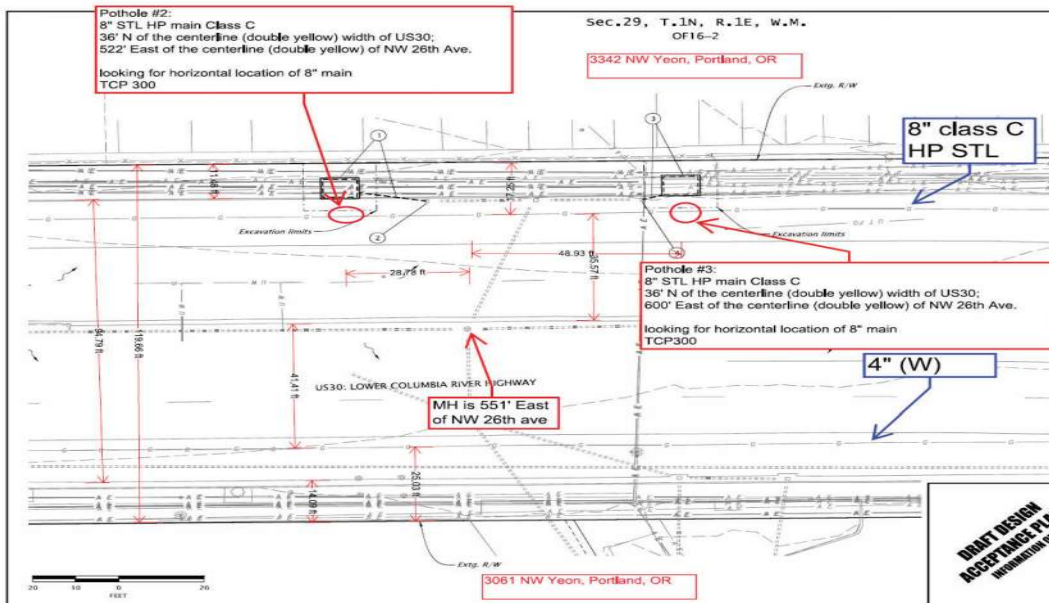
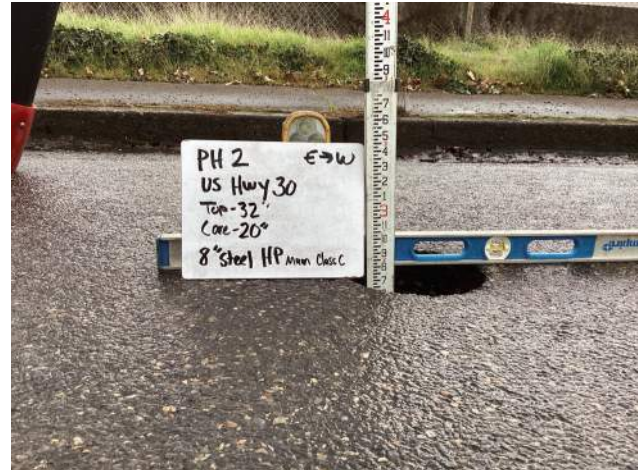
Set Utility tell-tale? no

Sketch apparent X-section of structure:



Lat: 45.544676 Long: -122.704065

Utility Material: HP STL
Hard Surface Core Depth: 20"
Cover Depth over Utility: 32"



CONSTRUCTION NOTES

- N 140217.91, E 339465.51
Inst. 6" HP Bi-Pol Building System
(Model BPS-600) see also, NW 26th Ave
Construct 2" 0" aggregate base under proposed
Bi-Pol Building System - 63 SF
Inst. 12" storm sewer pipe - 10'
5' depth, at 5.00
- N 180204.53, E 339477.28
Connect to extg. structure
- N 180284.77, E 339423.43
Inst. 6" HP Bi-Pol Building System
(Model BPS-600) see also, NW 26th Ave
Construct 2" 0" aggregate base under proposed
Bi-Pol Building System - 63 SF
Inst. 12" storm sewer pipe - 10'
5' depth, at 5.00
- N 180284.72, E 339423.33
Connect to extg. structure

Latitude: 45°32'40.46"N
Longitude: 122°42'14.47"W

DRAFT DESIGN
ACCEPTANCE PLANS
FOR INFORMATION ONLY

HERBERA		Herbert Environmental Consultants, Inc. 1011 NW 10th Street, Suite 140 Portland, OR 97224 (503) 228-1000 www.herbertinc.com	
WILLAMETTE RIVER: STORMWATER SOURCE CONTROL IMPROVEMENT PROJECT VARIABLES: VARIANTS MAY 2024 (REVISED)			
Designed: Jeremy Galloway	Reviewed: Jeremy Galloway	Drawn: Christopher Wells	Checked: N/A
Author: Thomas Vella	Reviewed: Christopher Wells	Drawn: Christopher Wells	Checked: N/A
STORMWATER PLAN		HNSD2	



APPENDIX B

OF16-1 Supporting Documentation

C:\PROJECTS\WSP-2023-017 K22552 WILLAMETTE\DWG\WSP-2023-017 ODOT SOURCE - PH2.dwg Devin Blackshere Jan 29, 2025 - 3:12pm



LEGEND

- TB 22552-#
PROPOSED TEST BORING NUMBER AND APPROXIMATE LOCATION
- ⊗ TB 22552-#
COMPLETED TEST BORING NUMBER AND APPROXIMATE LOCATION



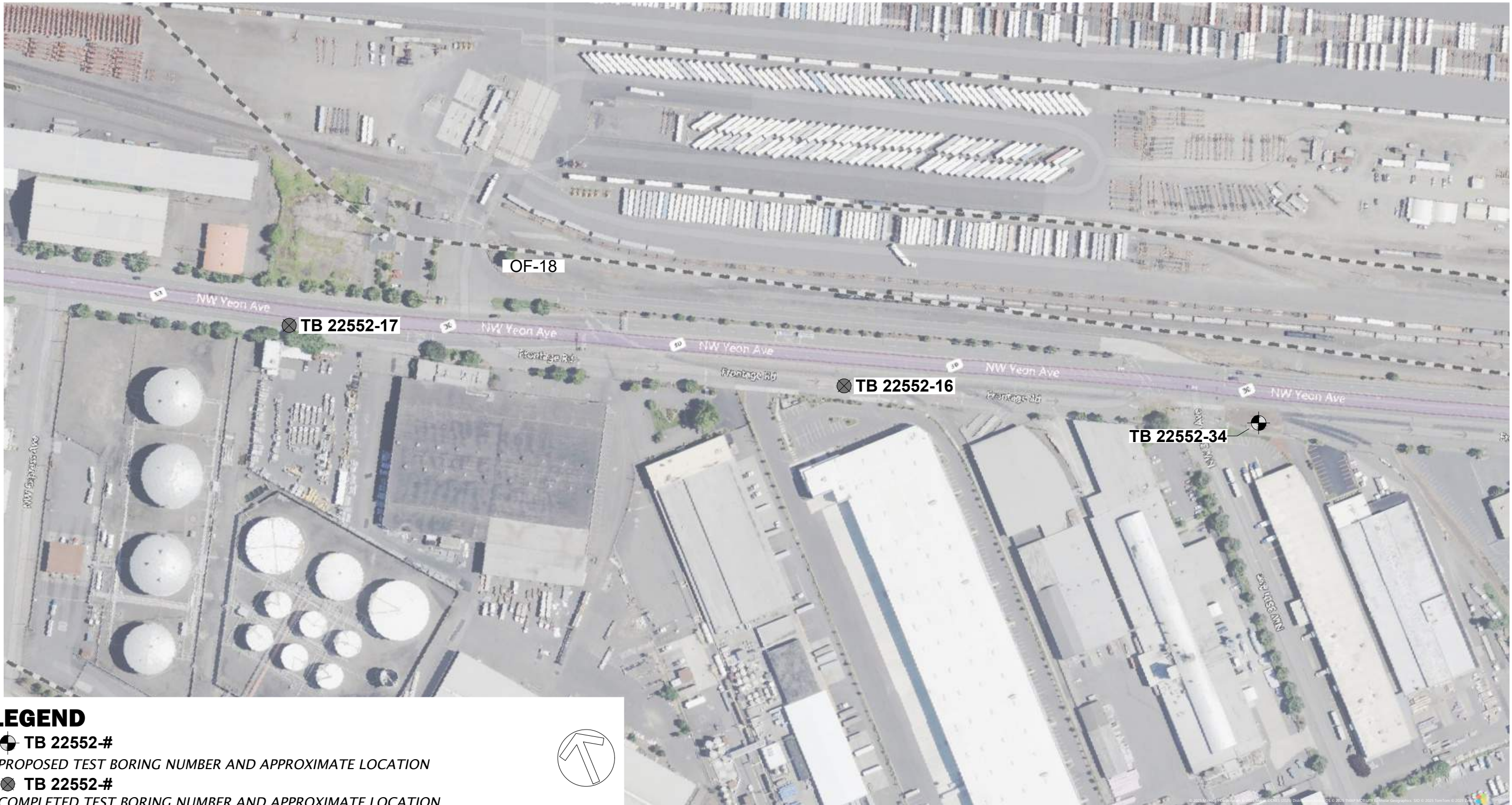
2614 SE 129th Court,
Vancouver, WA 98683
360-258-1738

WILLAMETTE RIVER SOURCE CONTROL IMPROVEMENT PROJECT
KEY NUMBER 22552 (PORTLAND HARBOR - HIGHWAY 30)
PORTLAND, MULTNOMAH COUNTY, OREGON

PROJECT
WSP-2023-017

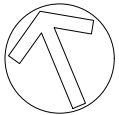
DATE
JAN 2025

FIGURE 2B - SITE EXPLORATION PLAN



LEGEND

- ⊕ TB 22552-#
PROPOSED TEST BORING NUMBER AND APPROXIMATE LOCATION
- ⊗ TB 22552-#
COMPLETED TEST BORING NUMBER AND APPROXIMATE LOCATION



2614 SE 129th Court,
Vancouver, WA 98683
360-258-1738

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KEY NUMBER 22552 (PORTLAND HARBOR - HIGHWAY 30)
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FIGURE 2C - SITE EXPLORATION PLAN

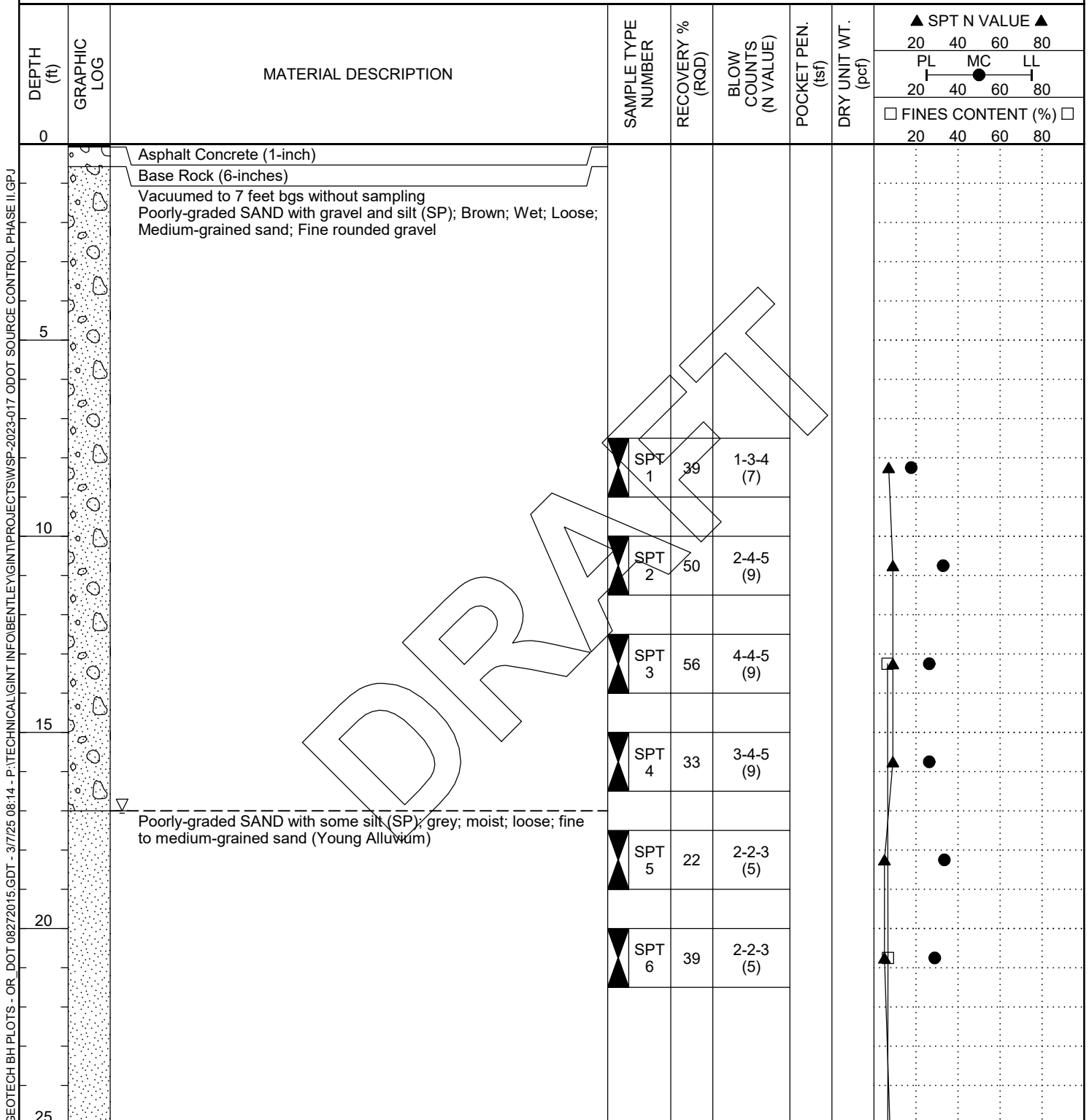
PROJECT
WSP-2023-017

DATE
JAN 2025



CLIENT WSP / Oregon Department of Transportation
PROJECT NUMBER WSP-2023-017, ODOT Key Number 22552
DATE STARTED 2/26/25 **COMPLETED** 2/26/25
DRILLING CONTRACTOR PLI Systems
DRILLING METHOD Mud Rotary with Auto Hammer
LOGGED BY LJJ **CHECKED BY** PH
NOTES

PROJECT NAME Willamette River: Stormwater Source Control Improvements
PROJECT LOCATION Portland, Oregon
NORTH **EAST**
GROUND ELEVATION 37 ft **HOLE SIZE** 5 inches
GROUND WATER LEVELS:
 ▽ **AT TIME OF DRILLING** 17.00 ft / Elev 20.00 ft
AFTER DRILLING ---



(Continued Next Page)



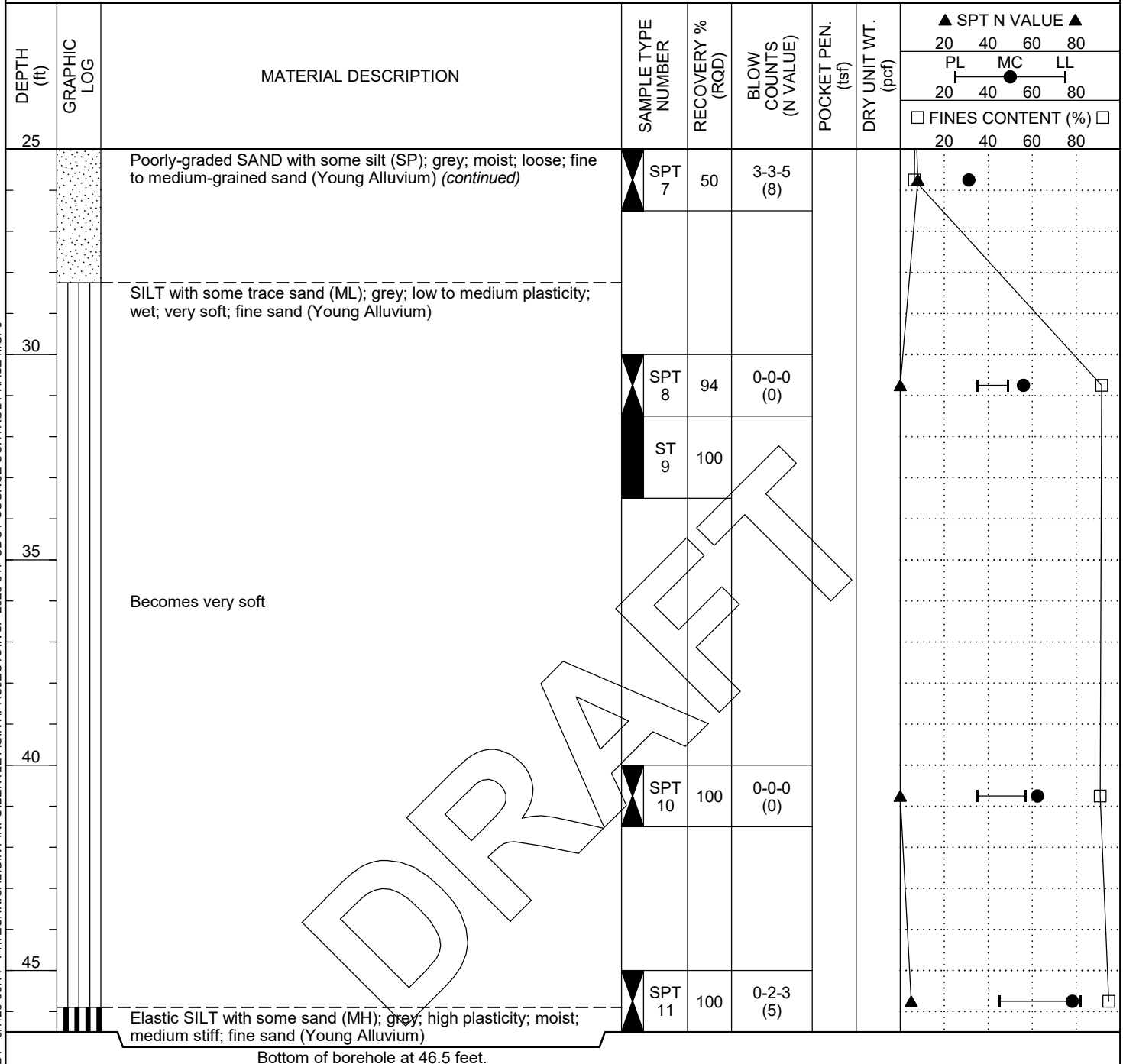
CLIENT WSP / Oregon Department of Transportation

PROJECT NAME Willamette River: Stormwater Source Control Improvements

PROJECT NUMBER WSP-2023-017, ODOT Key Number 22552

PROJECT LOCATION Portland, Oregon

GEOTECH BH PLOTS - OR_DOT 08272015.GDT - 3/7/25 08:14 - P:\TECHNICAL\GINT\PROJECTS\WSP-2023-017 ODOT SOURCE CONTROL PHASE I.GPJ

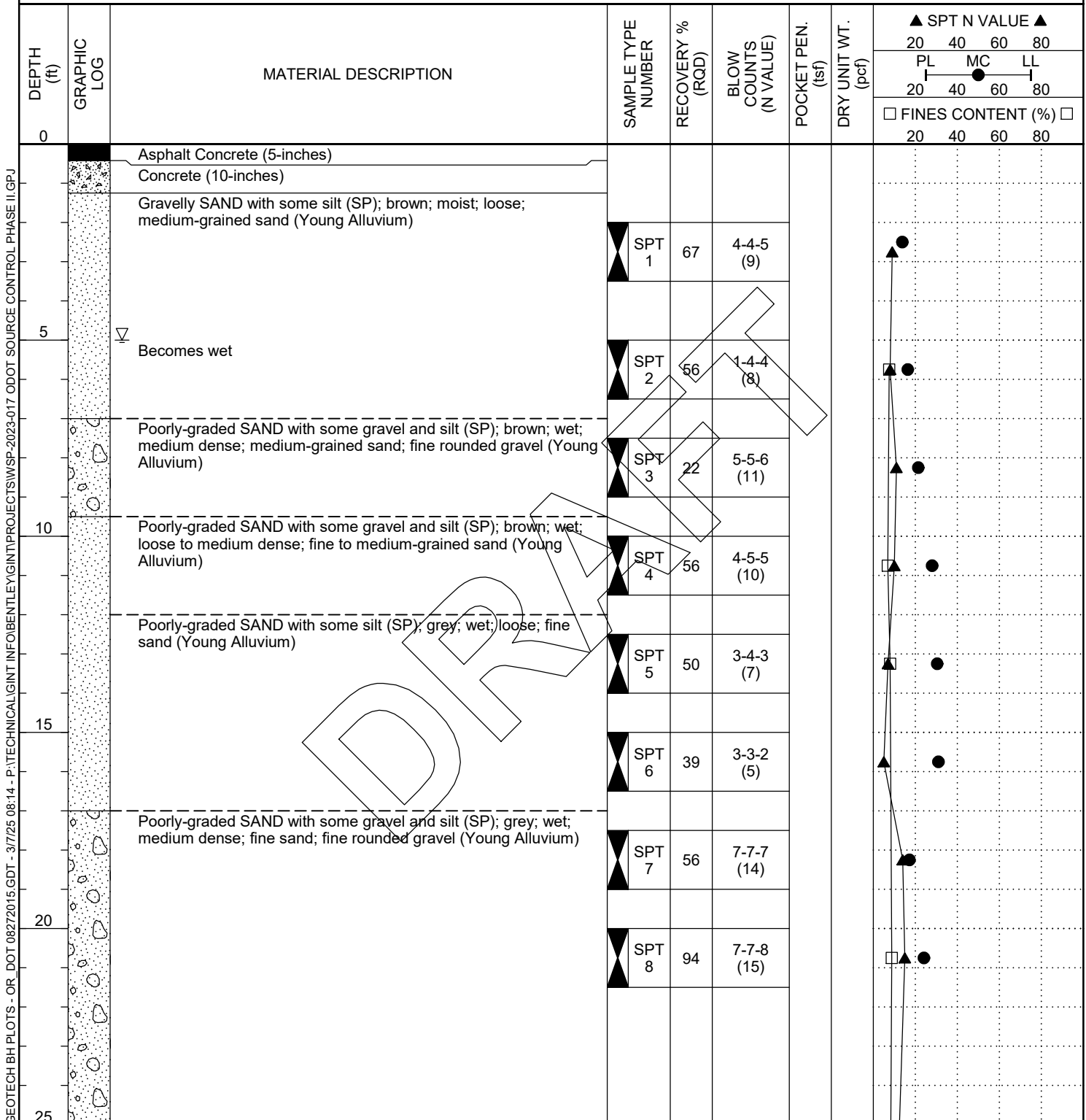


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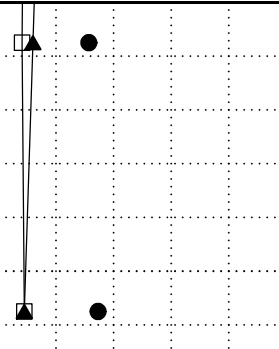
CLIENT WSP / Oregon Department of Transportation
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DRILLING CONTRACTOR PLI Systems
DRILLING METHOD Mud Rotary with Auto Hammer
LOGGED BY LJG **CHECKED BY** PH
NOTES

PROJECT NAME Willamette River: Stormwater Source Control Improvements
PROJECT LOCATION Portland, Oregon
NORTH **EAST**
GROUND ELEVATION 36 ft **HOLE SIZE** 5 inches
GROUND WATER LEVELS:
 ▽ **AT TIME OF DRILLING** 5.00 ft / Elev 31.00 ft
AFTER DRILLING ---



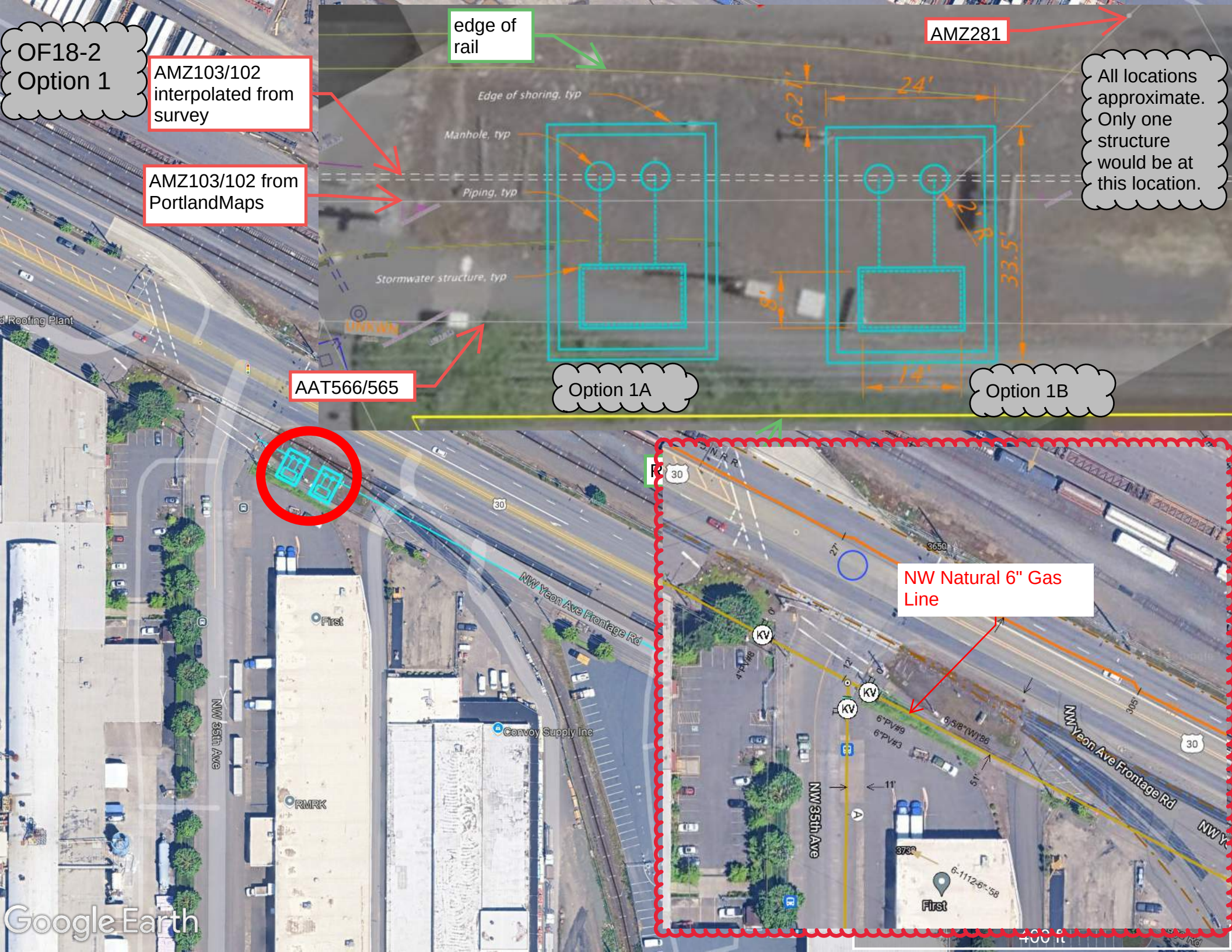
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CLIENT WSP / Oregon Department of Transportation PROJECT NAME Willamette River: Stormwater Source Control Improvements
 PROJECT NUMBER WSP-2023-017, ODOT Key Number 22552 PROJECT LOCATION Portland, Oregon

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲
								20 40 60 80 PL MC LL 20 40 60 80 □ FINES CONTENT (%) □ 20 40 60 80
25								
		Poorly-graded SAND with some gravel and silt (SP); grey; wet; medium dense; fine sand; fine rounded gravel (Young Alluvium) <i>(continued)</i>	SPT 9	78	5-5-7 (12)			
30		Poorly-graded SAND with some silt (SP); grey; wet; loose; fine sand (Young Alluvium)	SPT 10	44	5-5-4 (9)			

Bottom of borehole at 31.5 feet.

DRAFT



OF18-2
Option 1

AMZ103/102
interpolated from
survey

AMZ103/102 from
PortlandMaps

edge of
rail

AMZ281

All locations
approximate.
Only one
structure
would be at
this location.

Edge of shoring, typ

Manhole, typ

Piping, typ

Stormwater structure, typ

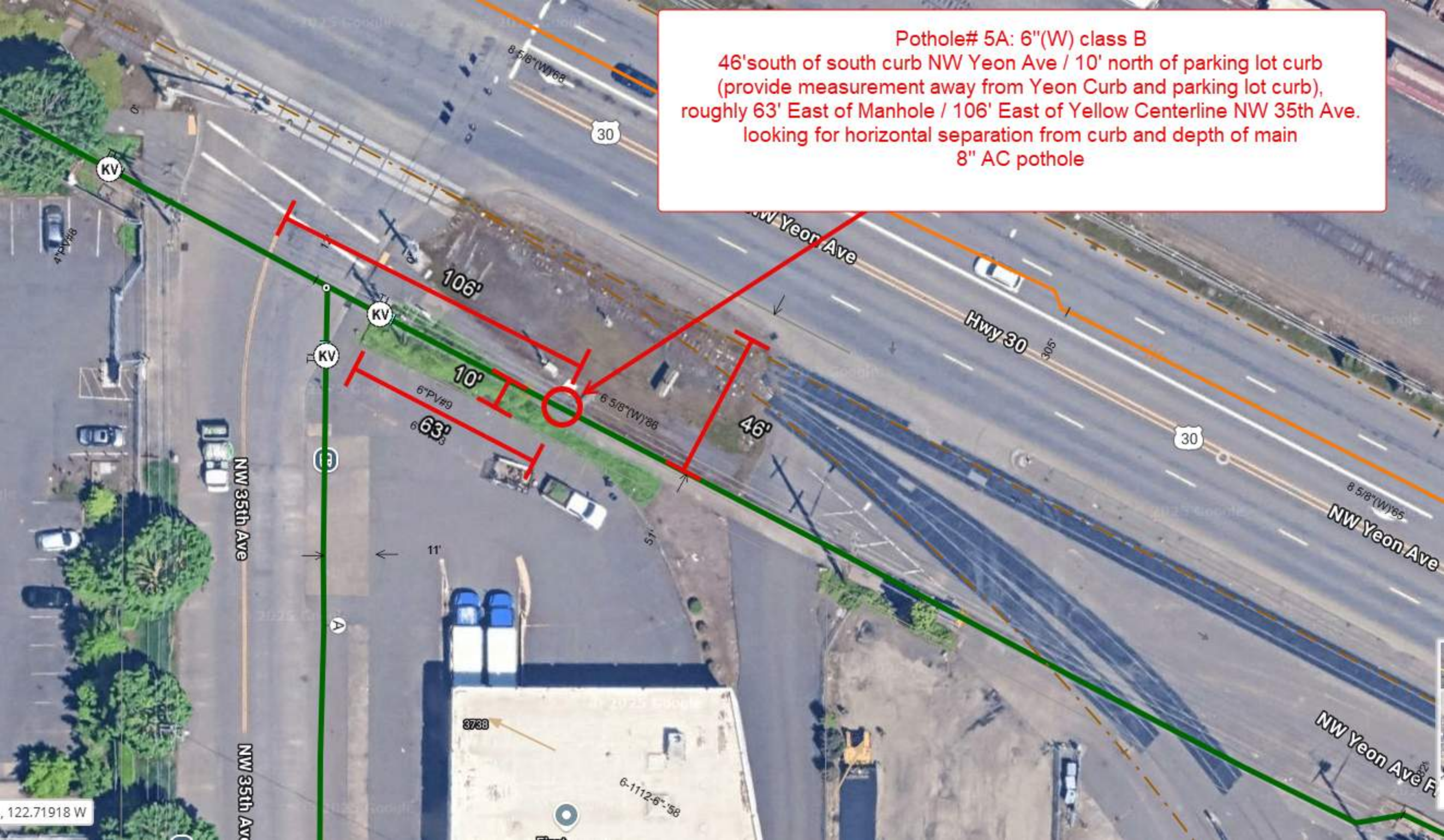
AAT566/565

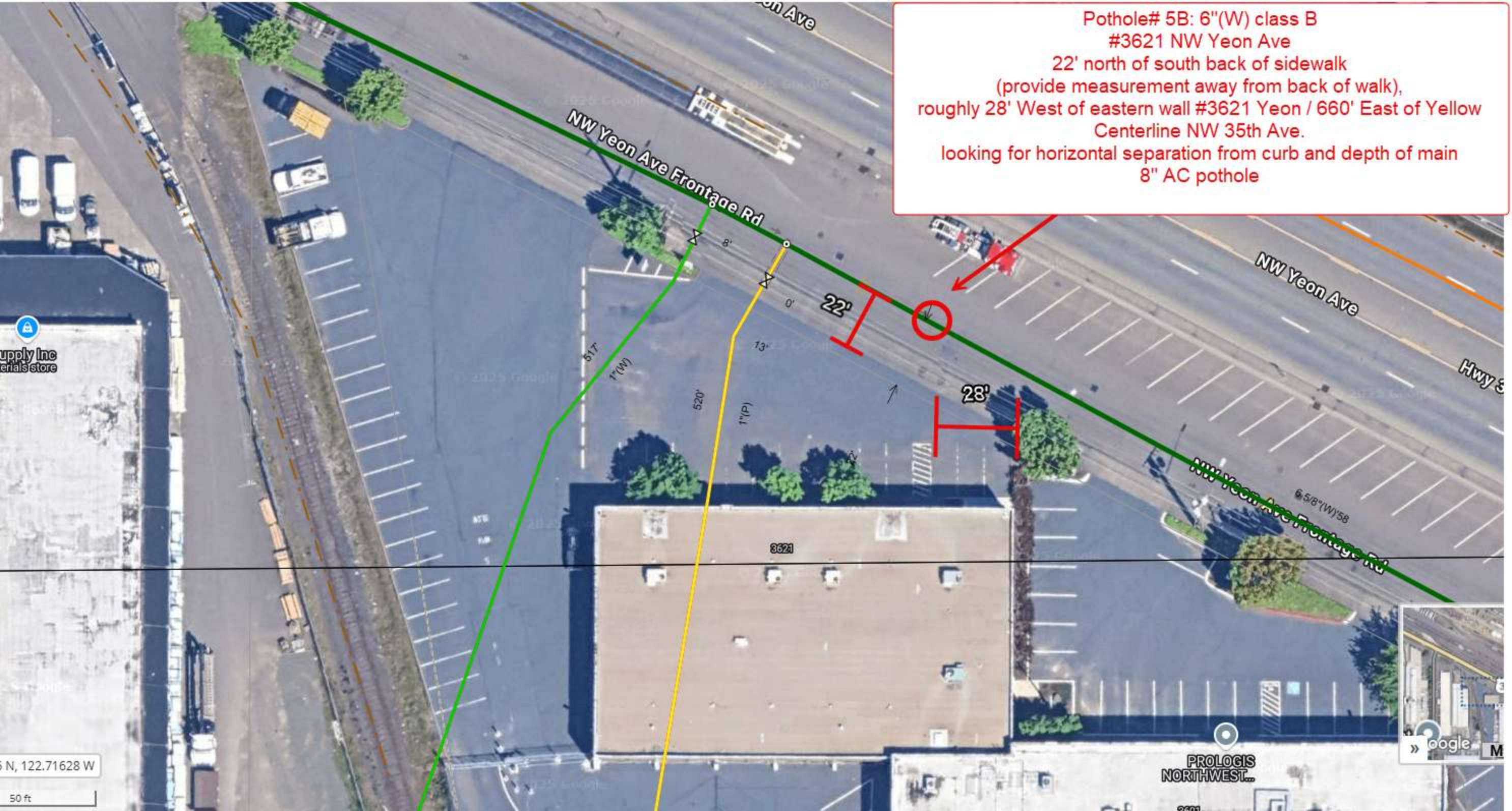
Option 1A

Option 1B

NW Natural 6" Gas
Line

Pothole# 5A: 6"(W) class B
46'south of south curb NW Yeon Ave / 10' north of parking lot curb
(provide measurement away from Yeon Curb and parking lot curb),
roughly 63' East of Manhole / 106' East of Yellow Centerline NW 35th Ave.
looking for horizontal separation from curb and depth of main
8" AC pothole





Pothole# 5B: 6"(W) class B
#3621 NW Yeon Ave
22' north of south back of sidewalk
(provide measurement away from back of walk),
roughly 28' West of eastern wall #3621 Yeon / 660' East of Yellow
Centerline NW 35th Ave.
looking for horizontal separation from curb and depth of main
8" AC pothole

Supply Inc
Materials store

6 N, 122.71628 W

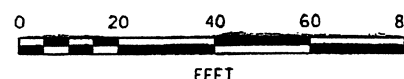
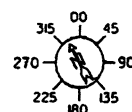
50 ft

PROLOGIS
NORTHWEST...



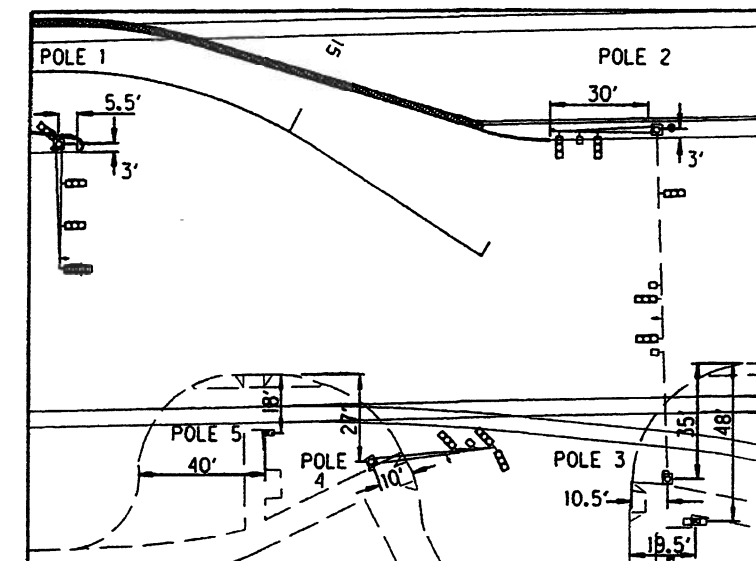
POLE ORIENTATION AND ATTACHMENT CHART

POLE NO.	EYE BOLT	TERMINAL CABINET	SERVICE	PEDESTRIAN SIGNAL	PUSH BUTTON	MAST ARM	HAND HOLD	POLE TYPE	VEHICLE SIGNAL	CASE	WEATHER HEAD
1	-	270	-	134	180	180	270	1	300	1	-
2	180	90	-	-	-	270	90	2	-	-	-
3	180	315	90	180	270	80	180	2	-	-	180
4	-	45	-	180	90	-	270	2	-	-	-
5	-	-	-	45	00	-	270	PP	-	-	-



NOT CONSTRUCTED
Wayne A. Statler
PROJECT MANAGER
03 APR 2008
DATE

SIGNAL PLAN



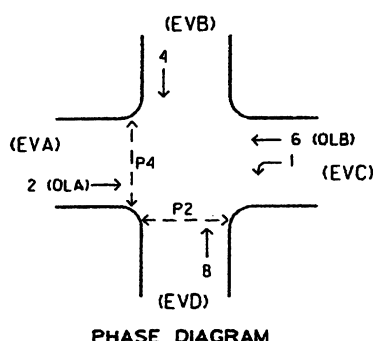
SIGNAL POLE LOCATIONS
NTS

Construction Notes

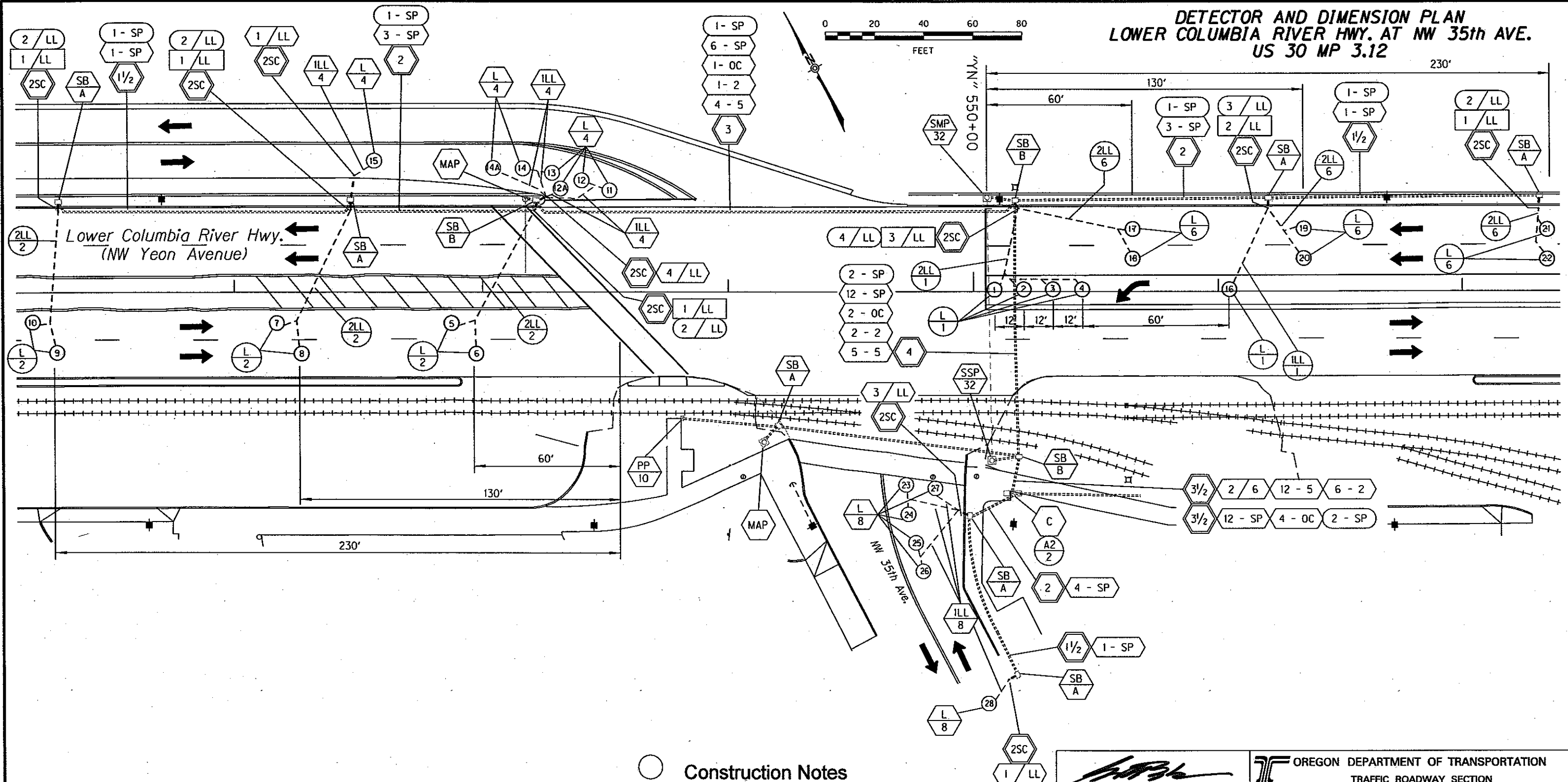
- (*) = See Detector Plan 14566
- See Signing Plans For Pole Mounted Signs
- Bore Conduit Across Existing Paved Roadways And Railroad Tracks
- See Sheet 14562 For Signal Legend
- Locate New Controller Cabinet 5 Feet East Of The Existing Cabinet
- Locate Pole Nos. 2 & 3 Approx. 7 Feet East Of Existing Poles
- (**) Install Louvers In Traffic Signal Visors And Signs. (Submit Drawings For Approval - See Specs.)

AS BUILT

Abraham Chai 6/11/08
name date

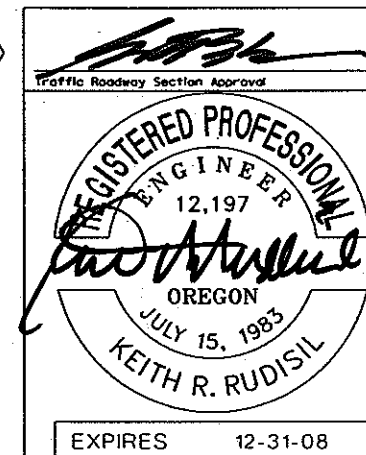


DETECTOR AND DIMENSION PLAN
LOWER COLUMBIA RIVER HWY. AT NW 35th AVE.
US 30 MP 3.12



○ Construction Notes

1. Resplice New Loop Lead Wires To Existing Shielded, Twisted Pair Cables.
2. See Sheet 14989 For Detector Legend
3. See Sheet 14993 For Loop Diagram
4. Protect Existing Loops And Loop Wires That Aren't Being Replaced During Grinding Operations.
5. Plans For The Existing Installation Are Available From The Engineer.



OREGON DEPARTMENT OF TRANSPORTATION
TRAFFIC ROADWAY SECTION

 **DAVID EVANS AND ASSOCIATES INC.**
2100 S.W. River Parkway, Portland Oregon 97201 Ph: 503.223.6663

US 30: YEON STREET PRESERVATION SEC.

LOWER COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

DESIGNED BY: K. RUDSIL
REVIEWED BY: *MPN*
DRAWN BY: W. HINER
FC: 92 MP: 3.12

DETECTOR PLAN
ID #3052

Str. ID. No. _____ T.R.S. DWG. NO. 14992