



March 19, 2026
Project No. M0232.17.106

Blake Hamalainen
Port of Portland
7200 NE Airport Way
Portland, Oregon 97218

Re: Taxiway A Construction Completion Letter
Portland International Airport
Portland, Oregon

Dear Blake Hamalainen:

On behalf of the Port of Portland (Port), Maul Foster & Alongi, Inc. (MFA) has prepared this letter to document the implementation of the Environmental Management Plan (EMP) for the Taxiway A West Rehabilitation Project site (the “Site”) at the Portland International Airport (PDX). The EMP was approved by the Oregon Department of Environmental Quality (DEQ) in an email dated March 17, 2025. The construction activities were completed from June through September 2025. The Site is presented on drawing PDX 2024-502 Sheet GI1.03 and other drawings in Attachment A.

The project activities included taxiway widening and resurfacing along with stormwater utility improvements. The project activities were conducted in accordance with the EMP which included a contaminated media management plan (CMMP) and a groundwater discharge, treatment, and monitoring management plan¹.

Project Team

The project team consisted of the following:

- Owner—Port of Portland
- Prime Construction Contractor—Tapani, Inc (Tapani).

Tapani subcontracted the dewater treatment to Clear Creek Systems, Inc. MFA provided on-call environmental technical assistance to the Port.

Construction Methods

Construction methods used during the utility installations are discussed in this section. Photo documentation is provided in Attachment B.

¹ MFA. 2025. *Taxiway A West Rehabilitation Project – Revised Final Environmental Management Plan*, June 26.

Erosion- and Sediment-Control Best Management Practices

Techniques used to minimize erosion and contain loose soil included installation and maintenance of the following:

- Silt fencing and straw wattles.
- Filters in stormwater catch basins.
- Bio-filter bags around stormwater manholes and cleanouts.

Stormwater Utility Installation

The contractor excavated trenches between approximately 3 and 10 feet below ground surface (bgs) for the purpose of installing new stormwater piping and manholes. The depth of the stormwater manhole installations was up to 11 feet bgs. Observations of soil were conducted in accordance with the CMMP. No unanticipated soil contamination was observed. Soil was handled per the following excerpts from the EMP (italicized bullets below).

- *Soil from the surface to 6 feet that do not exhibit signs of suspected contamination will be reused on the Site or another location at PDX designated by the Port.*
 - No signs of suspected contamination were observed in soil removed from the surface to 6 feet bgs. Soil from this zone was used as backfill or temporarily stockpiled at PDX for use in future development.
- *Soil excavated below 6 feet bgs that do not exhibit signs of suspected contamination will be used for backfill at the Site (below 6 feet bgs) or will be stockpiled and sampled for laboratory analysis.*
 - Soil was excavated below 6 feet bgs at the following locations:
 - Line B which crossed TW A6 per drawing PDX 2024-502 Sheet C6.03.
 - Line C which crossed TW A per drawing PDX 2024-502 Sheet C6.04.
 - Line D which crossed TW A5 per drawing PDX 2024-502 Sheet C6.04.
 - No signs of suspected contamination were observed in soil removed from below 6 feet bgs.
 - The soil removed below 6 feet bgs was reused as backfill below 6 feet bgs or stockpiled (e.g., when non-structural soil was encountered) for off-site disposal and in accordance with the EMP.
 - A total volume of 398.37 tons of soil was disposed of at the Wasco Landfill. The area beneath the stockpile was protected by plastic sheeting and scraped during final loading of soil for off-site disposal. Soil disposal tickets are included in Attachment C.

The mobile groundwater treatment system presented in the EMP was kept at the Tapani staging area throughout the project, ready to mobilize as needed. Groundwater was not encountered in the excavations so the treatment system was not used.

Backfill

Documentation regarding backfill and compaction are provided in Attachment D.

Hydroseeding

Anderson Erosion hydroseeded each work area after completion.

Deviations

No deviations from the DEQ-approved EMP were documented.

Sincerely,

Maul Foster & Alongi, Inc.

Michael Pickering, RG
Principal Geologist

Attachments

Limitations

A—Port Drawings

B—Photograph Log

C—Soil Disposal Tickets

D—Backfill and Compaction Documentation

Limitations

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

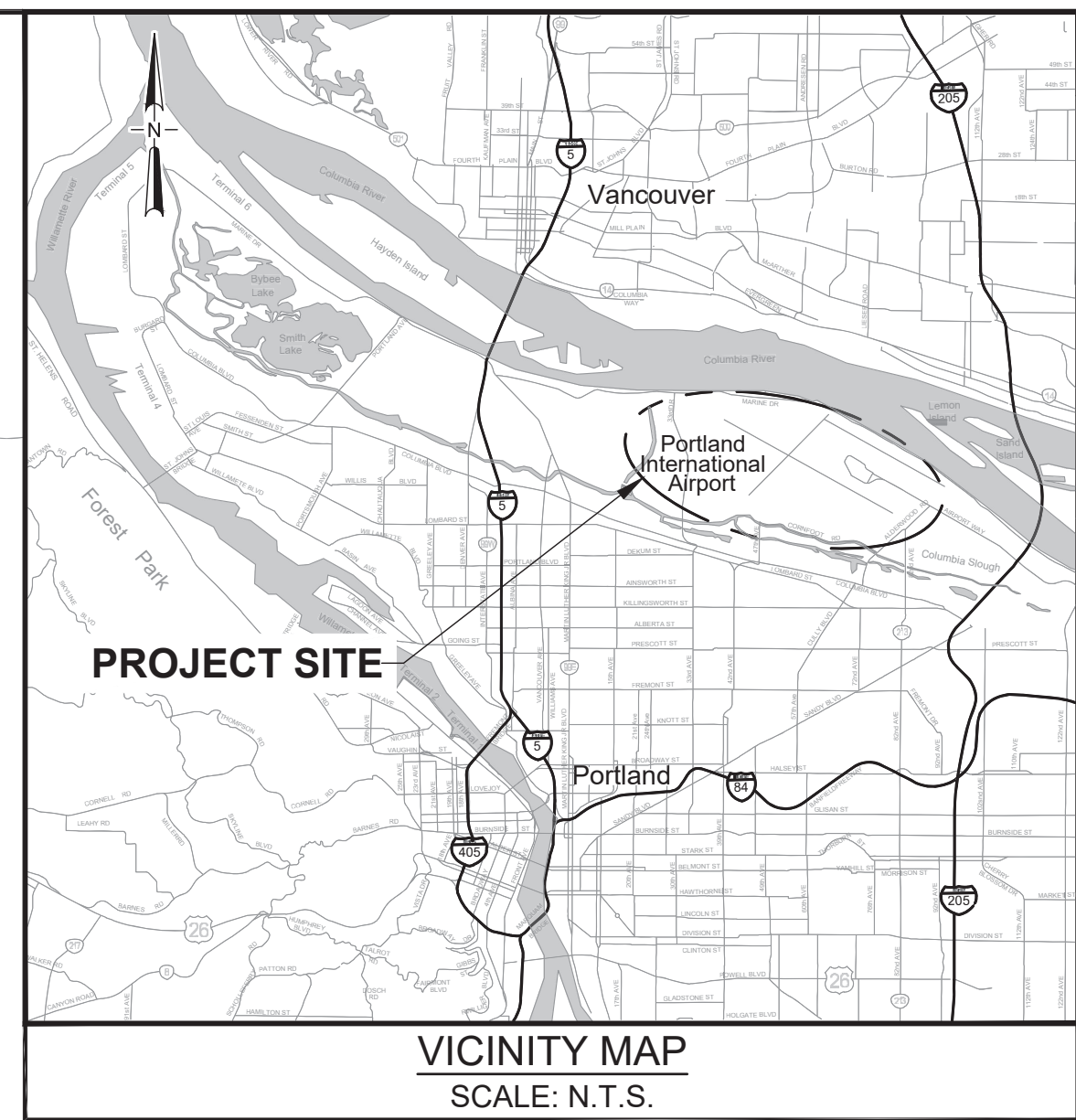
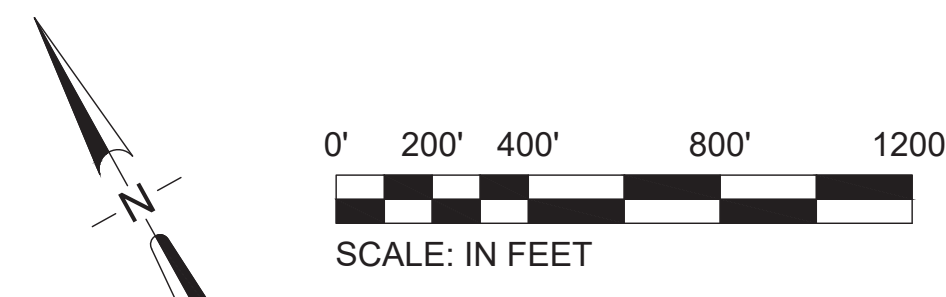
Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

Attachment A

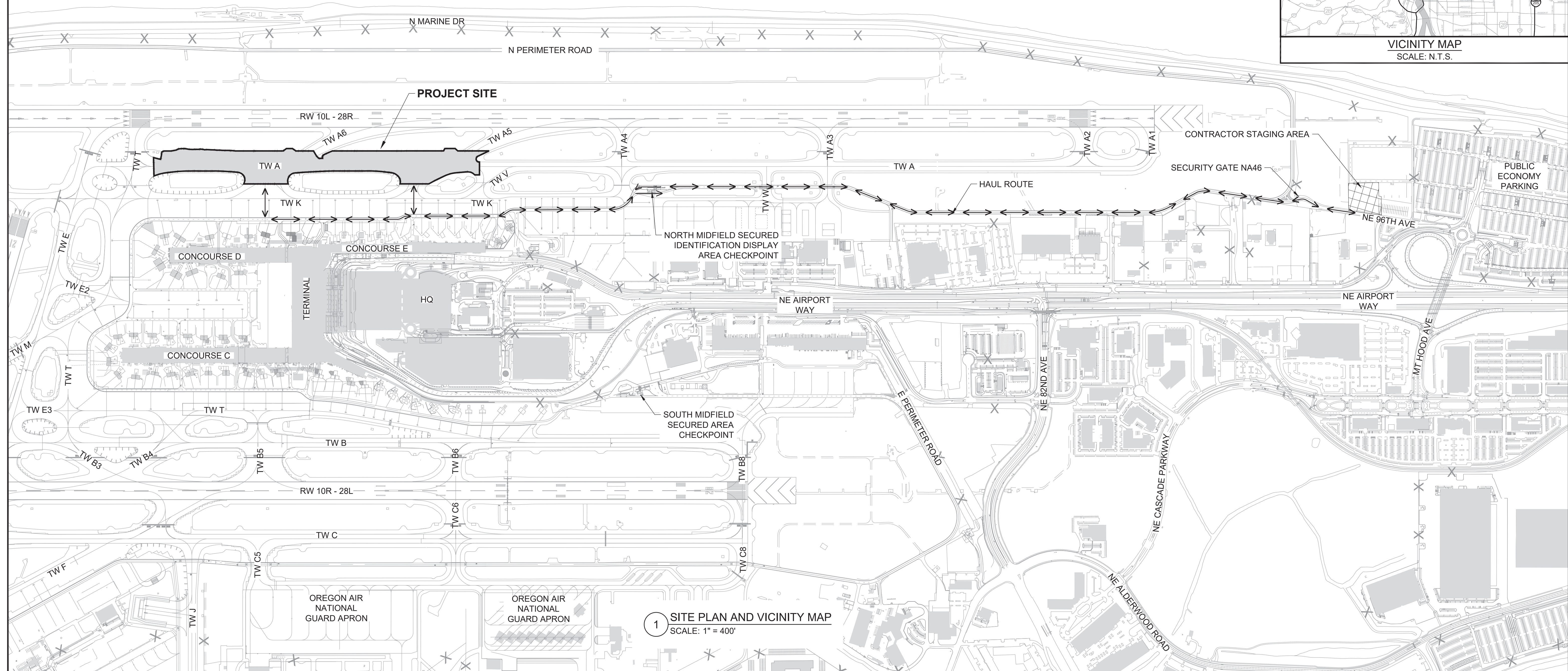
Port Drawings



MAUL
FOSTER
ALONGI



CAN YOU SEE THE AIRPLANES? THE ADJACENT SAMPLES SHOW THREE DIFFERENT LEVELS OF SHADING. SETTINGS FOR VIEWING AND PRINTING DRAWING CONTENT ARE OPTIMIZED WHEN ALL THREE PLANES ARE VISIBLE. THIS GUIDANCE IS PROVIDED FOR REFERENCE ONLY.



1 SITE PLAN AND VICINITY MAP
SCALE: 1" = 400'

DATE	BY	REVISION
01/14/25	SC	AS BID
01/08/25	SC	REVISED BY ADDENDUM #2

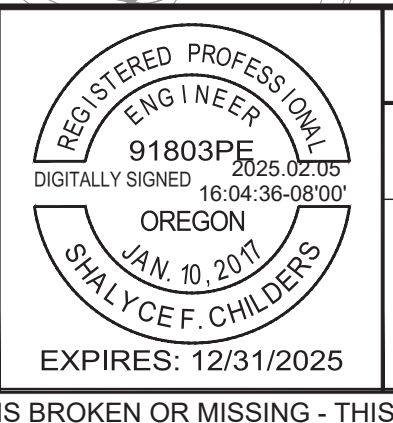
Port of Portland

Jacobs
2020 SW FOURTH AVE
PORTLAND, OR 97201
503-235-5000
WWW.JACOBS.COM

shrewsberry

2023D011
DESIGN NUMBER

102613
PROJECT NUMBER



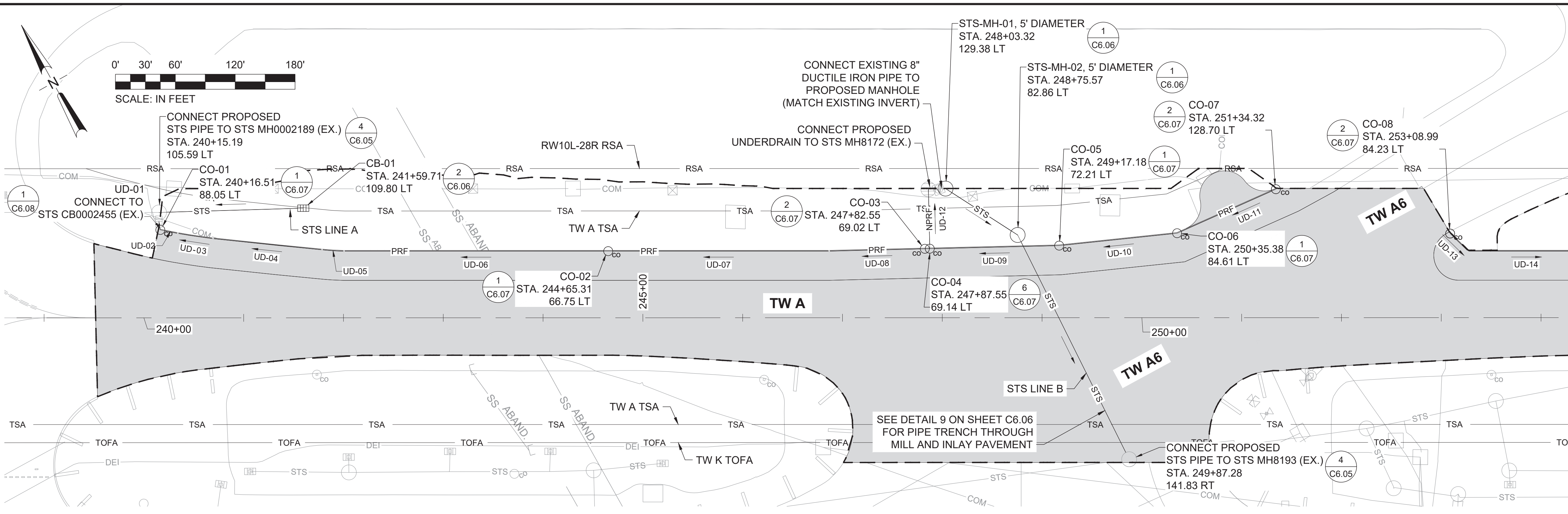
PORTLAND INTERNATIONAL AIRPORT

TAXIWAY A WEST REHABILITATION

SITE PLAN AND VICINITY MAP

SUBMITTED BY	JAY OSTLUND
DESIGN BY	C. MCLAIN
DRAWN BY	G. BOLING
CHECKED BY	S. CHILDERS
DATE	DECEMBER 2024
SHEET NO.	3
DRAWING NO.	PDX 2024-502
TYPE: CD	
DISC. SHT. NO.	GI1.03

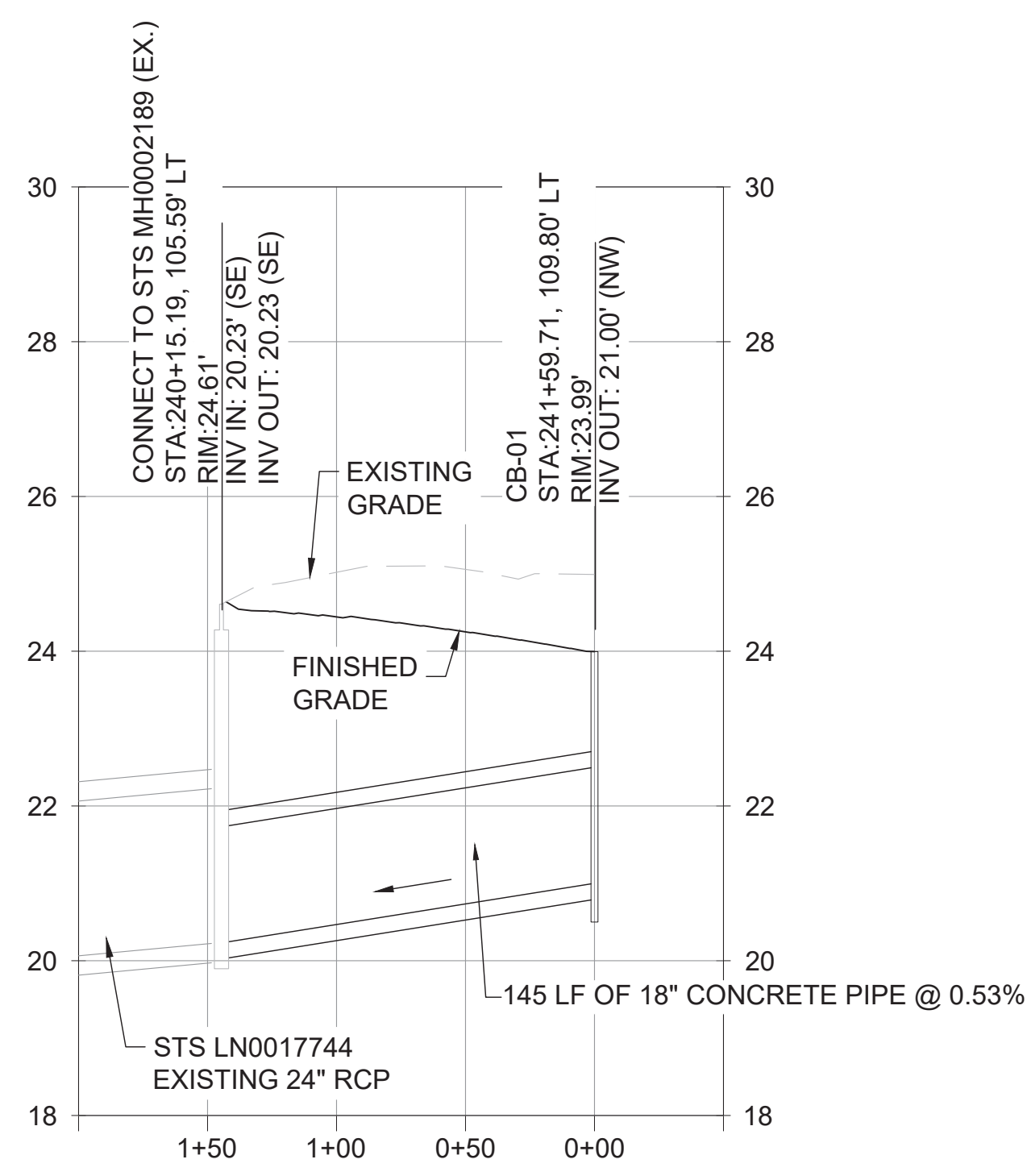
CAN YOU SEE THE AIRPLANES? THE ADJACENT SAMPLES SHOW THREE DIFFERENT LEVELS OF SHADING. SETTINGS FOR VIEWING AND PRINTING DRAWING CONTENT ARE OPTIMIZED WHEN ALL THREE PLANES ARE VISIBLE. THIS GUIDANCE IS PROVIDED FOR REFERENCE ONLY.



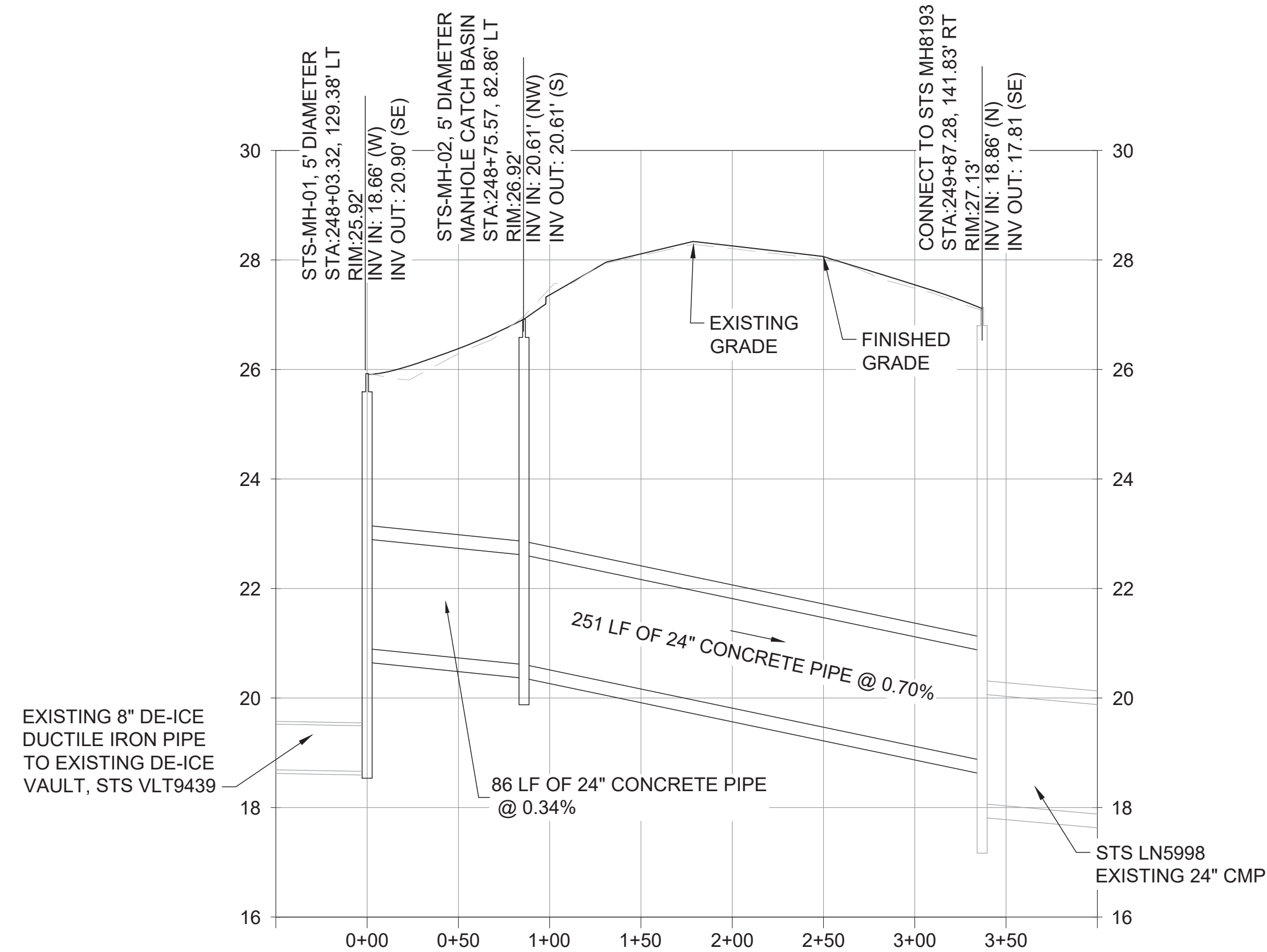
- LEGEND:**
- PROPOSED ASPHALT PAVEMENT
 - PROPOSED GRADING LIMITS
 - TSA TAXIWAY SAFETY AREA (TSA)
 - TOFA TAXIWAY OBJECT FREE AREA (TOFA)
 - RSA RUNWAY SAFETY AREA (RSA)
 - STS PROPOSED STORM LINE
 - PROPOSED MANHOLE (1) C6.06
 - PROPOSED MANHOLE CATCH BASIN (1) C6.06
 - PROPOSED STORM CATCH BASIN (2) C6.06
 - STS EXISTING STORM SEWER LINE
 - EXISTING STORM CATCH BASIN
 - EXISTING OPEN GRATE MANHOLE
 - EXISTING MANHOLE
 - PROPOSED UNDERDRAIN CLEANOUT
 - PRF PROPOSED PERFORATED UNDERDRAIN PIPE
 - NPRF PROPOSED NON-PERFORATED UNDERDRAIN PIPE

- NOTES:**
- STORMWATER PLAN BASED ON TAXIWAY A ALIGNMENT. STORMWATER PROFILES BASED ON STS LINE A, B, C, AND D CENTERLINE ALIGNMENTS.
 - VERTICAL DATUM BASED ON NAVD88.
 - LOCATIONS AND SIZES OF ALL SURFACE FEATURES, UNDERGROUND UTILITIES, AND STRUCTURES ARE APPROXIMATE AND WERE OBTAIN FROM BEST AVAILABLE INFORMATION. LOCATIONS CONFIGURATIONS, SIZES, AND MATERIAL TYPES SHOWN MAY NOT MATCH EXACT CONDITIONS. CONTRACTOR TO FIELD VERIFY ALL ITEMS WITHIN THE LIMITS OF DEMOLITION OR INSTALLATION WORK AND REPORT TO THE PORT REPRESENTATIVE WITH ANY DISCREPANCIES PRIOR TO BEGINNING OF WORK
 - ABANDONED UTILITY LINES NOT SHOWN ON THE DRAWINGS, BUT WHICH ARE ENCOUNTERED DURING CONSTRUCTION SHALL, UNLESS OTHERWISE DIRECTED BY THE PORT, BE REMOVED TO PROVIDE UNOBSTRUCTED ACCESS FOR NEW CONSTRUCTION. THE REMAINDER OF THE UTILITY LINE SHALL BE LEFT ABANDONED IN-PLACE AND PLUGGED. SEE DETAIL 1, SHEET C6.05.
 - COORDINATED SCHEDULE OF UTILITY DEMOLITION THROUGH PORT AND NOTIFY PORT REPRESENTATIVE AT LEAST 72 HOURS PRIOR TO COMMENCING ANY REMOVAL WORK.
 - CONTRACTOR SHALL NOTIFY PORT IF TRANSITE, ASBESTOS-CEMENT, OR SIMILAR PIPE MATERIAL IS ENCOUNTERED. THE PORT MAINTAINS A SPECIALITY CONTRACT FOR REMOVAL OF THESE MATERIALS.
 - FOR STORMWATER AND UNDERDRAIN DETAILS, SEE SHEETS C6.05 THROUGH C6.08.
 - SEE SHEET C6.08 FOR PROPOSED UNDERDRAIN STRUCTURE AND PIPE TABLES FOR RIM ELEVATION, INVERT AND SLOPE INFORMATION.

1 STS LINE A AND STS LINE B PLAN
SCALE: 1" = 60'



2 STS LINE A PROFILE
SCALE: 1" = 60' H
1" = 2' V



3 STS LINE B PROFILE
SCALE: 1" = 60' H
1" = 2' V

DATE	BY	REVISION
01/14/25	AT	AS BID
01/08/25	AT	REVISED BY ADDENDUM #2

Port of Portland

Jacobs

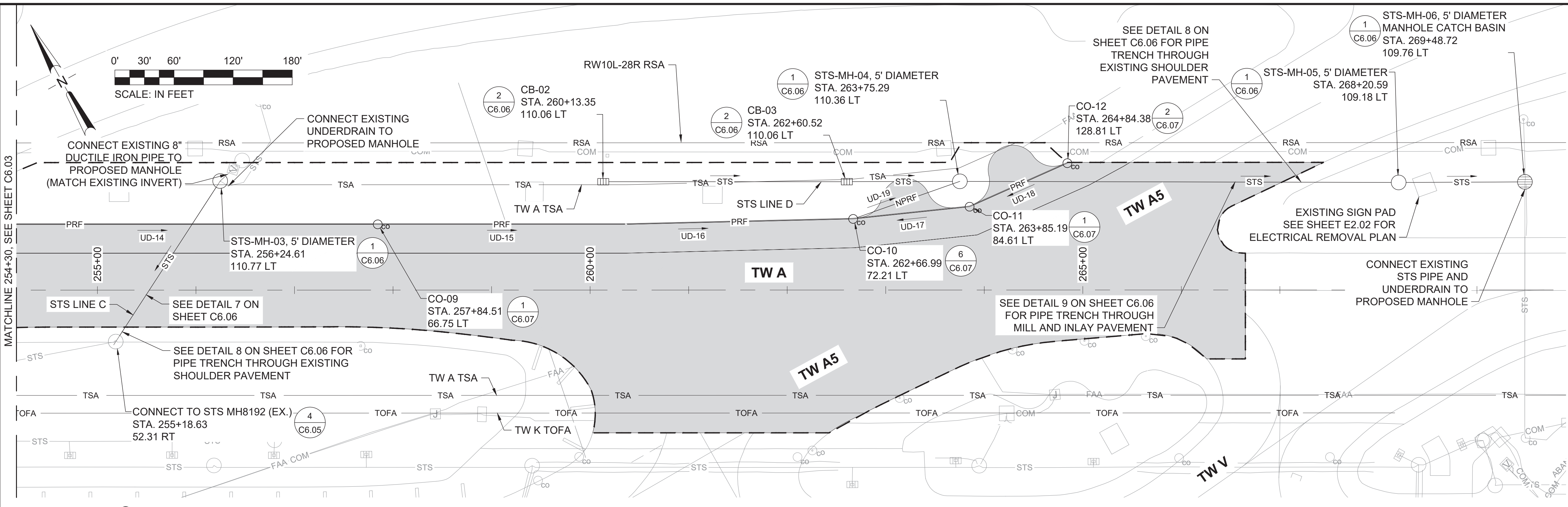
2023D011 DESIGN NUMBER 102613 PROJECT NUMBER

REGISTERED PROFESSIONAL ENGINEER
105920PE
DIGITALLY SIGNED
ALEXANDRA TWEEDLE
EXPIRES: June 30, 2026

PORTLAND INTERNATIONAL AIRPORT
TAXIWAY A WEST REHABILITATION
STORMWATER PLAN AND PROFILE
STA 238+60 TO STA 254+30

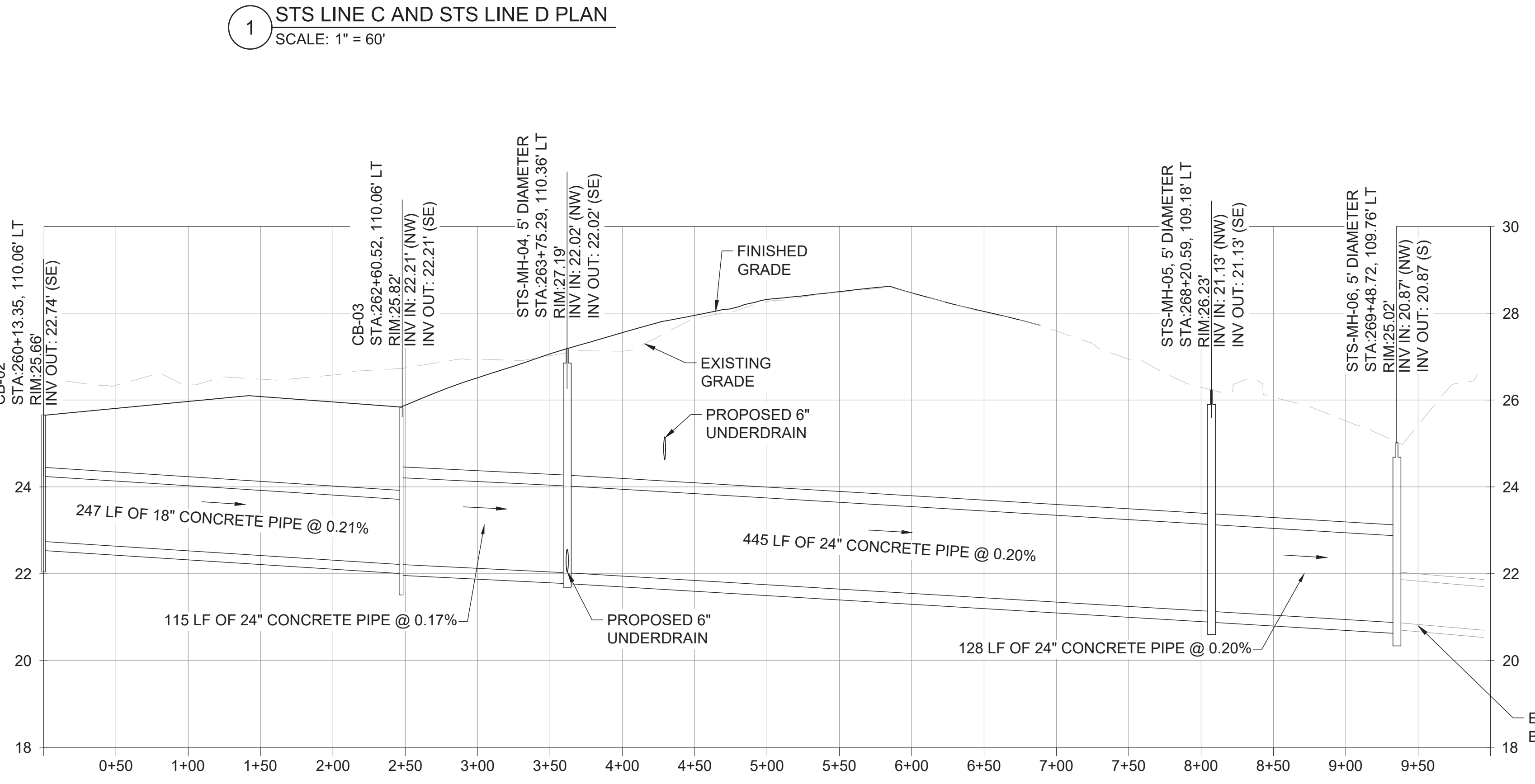
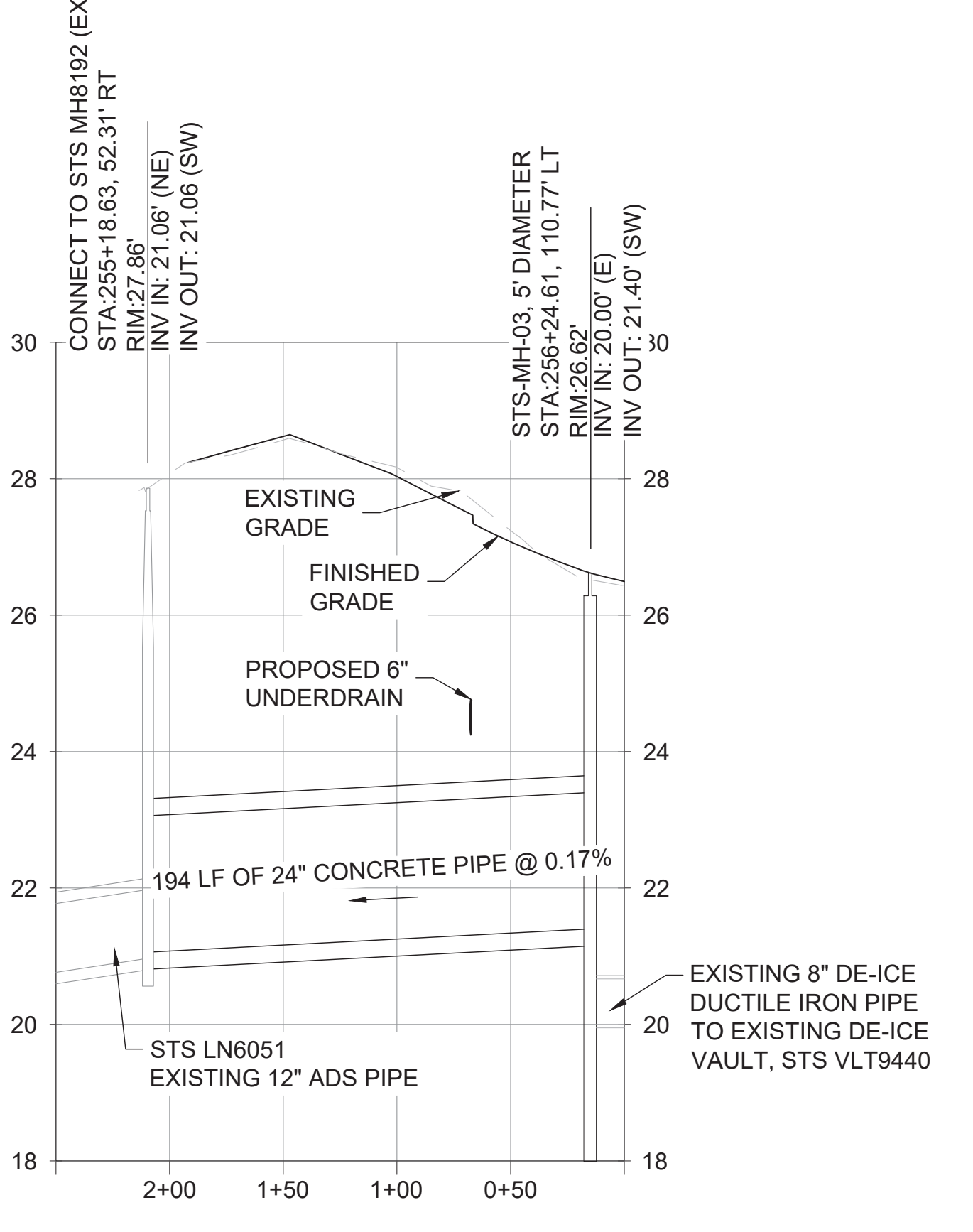
SUBMITTED BY	JAY OSTLUND
DESIGN BY	A. TWEEDLE
DRAWN BY	T. KANT
CHECKED BY	S. CHILDERS
DATE	DECEMBER 2024
SHEET NO.	27
DRAWING NO.	PDX 2024-502
TYPE: CD	
DISC. SHT. NO.	C6.03

CAN YOU SEE THE AIRPLANES? THE ADJACENT SAMPLES SHOW THREE DIFFERENT LEVELS OF SHADING. SETTINGS FOR VIEWING AND PRINTING DRAWING CONTENT ARE OPTIMIZED WHEN ALL THREE PLANES ARE VISIBLE. THIS GUIDANCE IS PROVIDED FOR REFERENCE ONLY.



- LEGEND:**
- PROPOSED ASPHALT PAVEMENT
 - PROPOSED GRADING LIMITS
 - TSA TAXIWAY SAFETY AREA (TSA)
 - TOFA TAXIWAY OBJECT FREE AREA (TOFA)
 - RSA RUNWAY SAFETY AREA (RSA)
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 - PROPOSED MANHOLE 1 C6.06
 - PROPOSED MANHOLE CATCH BASIN 1 C6.06
 - PROPOSED STORM CATCH BASIN 2 C6.06
 - STS EXISTING STORM SEWER LINE
 - EXISTING STORM CATCH BASIN
 - EXISTING OPEN GRATE MANHOLE
 - EXISTING MANHOLE
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 - PRF PROPOSED PERFORATED UNDERDRAIN PIPE
 - NPRF PROPOSED NON-PERFORATED UNDERDRAIN PIPE

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 6. CONTRACTOR SHALL NOTIFY PORT IF TRANSITE, ASBESTOS-CEMENT, OR SIMILAR PIPE MATERIAL IS ENCOUNTERED. THE PORT MAINTAINS A SPECIALITY CONTRACT FOR REMOVAL OF THESE MATERIALS.
 7. FOR STORMWATER AND UNDERDRAIN DETAILS, SEE SHEETS C6.05 THROUGH C6.08.
 8. SEE SHEET C6.08 FOR PROPOSED UNDERDRAIN STRUCTURE AND PIPE TABLES FOR RIM ELEVATION, INVERT AND SLOPE INFORMATION.
- EXISTING 12" CMP (STS LN5970) TO BE UPSIZED IN A FUTURE PROJECT



GRAPHIC SCALE: FOR REFERENCE ONLY

DATE	BY	REVISION
01/14/25	AT	AS BID

Port of Portland

Jacobs

2023D011 DESIGN NUMBER 102613 PROJECT NUMBER

REGISTERED PROFESSIONAL ENGINEER
105920PE
DIGITALLY SIGNED
ALEXANDRA TWEEDLE
EXPIRES: June 30, 2026

PORTLAND INTERNATIONAL AIRPORT
TAXIWAY A WEST REHABILITATION
STORMWATER PLAN AND PROFILE
STA 254+30 TO STA 270+00

SUBMITTED BY	JAY OSTLUND
DESIGN BY	A. TWEEDLE
DRAWN BY	T. KANT
CHECKED BY	S. CHILDERS
DATE	DECEMBER 2024
SHEET NO.	28
DRAWING NO.	PDX 2024-502
DISC. SHT. NO.	C6.04

Attachment B

Photograph Log



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Photographs

Project Name: Taxiway A Construction
Project Number: M0232.17.106
Location: Portland, Oregon

Photo No. 1.

Description

Groundwater treatment system staged at the Portland International Airport.



Photo No. 2.

Description

Representative stormwater best management practices in the work area.





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Photographs

Project Name: Taxiway A Construction
Project Number: M0232.17.106
Location: Portland, Oregon

Photo No. 3.

Description

Work in the taxiway area.



Photo No. 4.

Description

Installation of a representative manhole structure.





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ALONGI

Photographs

Project Name: Taxiway A Construction
Project Number: M0232.17.106
Location: Portland, Oregon

Photo No. 5.

Description

Representative utility installation.



Photo No. 6.

Description

Partial bedding with lean cement.





Photographs

Project Name: Taxiway A Construction
Project Number: M0232.17.106
Location: Portland, Oregon

Photo No. 7.

Description

Soil stockpile prior to off-site disposal.



Attachment C

Soil Disposal Tickets



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Remit To:
 WASCO COUNTY LANDFILL, INC.
 A Waste Connections Company
 2550 STEELE RD
 THE DALLES, OR 97058
 (541)296-4082

WASCO COUNTY LF INVOICE

DATE	CUST ID
9/15/25	955
INVOICE NUMBER	
28030	

AMOUNT DUE
\$5,361.54

BILL TO	PORT OF PORTLAND
	158931

PAYMENT IS DUE UPON RECEIPT OF INVOICE. LATE PAYMENT MAY RESULT IN AN INTERUPTION OF SERVICE. ANY PAYMENT NOT RECEIVED WITHIN 30 DAYS OF THE INVOICE DATE WILL BE CONSIDERED PAST DUE. PAST DUE INVOICES SHALL BE SUBJECT TO A LATE CHARGE FOR EACH MONTH OR PART THEREOF THAT THE INVOICE IS PAST DUE.

DETACH AND RETURN TOP PORTION WITH REMITTANCE

DATE	TICKET	TRUCK ID	PO#	TON/YARD	DESCRIPTION	CHARGE
09/15/25	27497	INVNUM: 27,787 CHECK #:490110			1PAYMENT - THAN	-6,368.13
					BALANCE FORWARD	50.00
09/04/25	580438	WC-25-179		31.34	PETR CONT SOIL - OUT	987.21
09/04/25	580487	WC-25-179	252007	30.32	PETR CONT SOIL - OUT	955.08
09/04/25	580606	WC-25-179	252007	29.74	PETR CONT SOIL - OUT	936.81
09/05/25	580719	WC-25-179	252007	26.89	PETR CONT SOIL - OUT	847.04
09/05/25	580764	WC-25-179	252007	23.61	PETR CONT SOIL - OUT	743.72
09/05/25	580832	WC-25-179	252007	26.72	PETR CONT SOIL - OUT	841.68
Total Tons				168.62	Invoice Total	5,311.54
Total Amount Due						5,361.54

0 - 29 Days	30 - 59 Days	60 - 89 Days	Over 90 Days	Balance
\$ 5,361.54	\$ 0.00	\$ 0.00	\$ 0.00	\$ 5,361.54



Remit To:
 WASCO COUNTY LANDFILL, INC.
 A Waste Connections Company
 2550 STEELE RD
 THE DALLES, OR 97058
 (541)296-4082

WASCO COUNTY LF INVOICE

DATE	CUST ID
8/15/25	955
INVOICE NUMBER	
27787	

AMOUNT DUE
\$6,368.13

B I L L T O	PORT OF PORTLAND
	156619
	156619

PAYMENT IS DUE UPON RECEIPT OF INVOICE. LATE PAYMENT MAY RESULT IN AN INTERRUPTION OF SERVICE. ANY PAYMENT NOT RECEIVED WITHIN 30 DAYS OF THE INVOICE DATE WILL BE CONSIDERED PAST DUE. PAST DUE INVOICES SHALL BE SUBJECT TO A LATE CHARGE FOR EACH MONTH OR PART THEREOF THAT THE INVOICE IS PAST DUE.

DETACH AND RETURN TOP PORTION WITH REMITTANCE

DATE	TICKET	TRUCK ID	PO#	TON/YARD	DESCRIPTION	CHARGE
------	--------	----------	-----	----------	-------------	--------

INVNUM: CHECK #:

					BALANCE FORWARD	0.00
08/12/25	27080	WC-25-243		1.00	SWA APPLICATION	50.00
08/11/25	576525	WC-25-179	252007	29.20	PETR CONT SOIL - OUT	803.00
08/11/25	576545	WC-25-179	252007	29.00	PETR CONT SOIL - OUT	797.50
08/11/25	576668	WC-25-179	252007	31.32	PETR CONT SOIL - OUT	861.30
08/12/25	576756	WC-25-179	252007	28.74	PETR CONT SOIL - OUT	790.35
08/12/25	576783	WC-25-179	252007	30.30	PETR CONT SOIL - OUT	833.25
08/12/25	576877	WC-25-179	252007	27.73	PETR CONT SOIL - OUT	762.58
08/12/25	576895	WC-25-179	252007	24.54	PETR CONT SOIL - OUT	674.85
08/13/25	577025	WC-25-179	252007	28.92	PETR CONT SOIL - OUT	795.30

Total Tons 230.75

Invoice Total 6,368.13

Total Amount Due 6,368.13

0 - 29 Days	30 - 59 Days	60 - 89 Days	Over 90 Days	Balance
\$ 6,368.13	\$ 0.00	\$ 0.00	\$ 0.00	\$ 6,368.13



Remit To:
 WASCO COUNTY LANDFILL, INC.
 A Waste Connections Company
 2550 STEELE RD
 THE DALLES, OR 97058
 (541)296-4082

WASCO COUNTY LF
 INVOICE

DATE	CUST ID
6/30/25	955
INVOICE NUMBER	
27470	

AMOUNT DUE
\$50.00

B I L L T O	PORT OF PORTLAND
	156619
	156619

PAYMENT IS DUE UPON RECEIPT OF INVOICE. LATE PAYMENT MAY RESULT IN AN INTERRUPTION OF SERVICE. ANY PAYMENT NOT RECEIVED WITHIN 30 DAYS OF THE INVOICE DATE WILL BE CONSIDERED PAST DUE. PAST DUE INVOICES SHALL BE SUBJECT TO A LATE CHARGE FOR EACH MONTH OR PART THEREOF THAT THE INVOICE IS PAST DUE.

DETACH AND RETURN TOP PORTION WITH REMITTANCE

DATE	TICKET	TRUCK ID	PO#	TON/YARD	DESCRIPTION	CHARGE
INVNUM: CHECK #:						
					BALANCE FORWARD	0.00
06/19/25	26443	WC-25-179		1.00	SWA APPLICATION	50.00
Total Tons				1.00	Invoice Total	50.00
Total Amount Due						50.00

0 - 29 Days	30 - 59 Days	60 - 89 Days	Over 90 Days	Balance
\$ 50.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 50.00

WASCO COUNTY LANDFILL
2550 Steele Road
The Dalles, OR 97058

955
PORT OF PORTLAND
158931

Ticket: 26443
Date In: 6/19/2025
Time In: 12:31:08
Date Out: 6/19/2025
Time Out: 12:31:08
Ref: SWA FEE

Description

Scale Gross Weight:	0	Vehicle:	WC-25-179
Scale Tare Weight:	0	Roll- Off:	
Net Weight:	0	Tons:	0.00

SWA APPLICATION
SWA APPLICATION
OPERATOR: JSHEARER
PO:
TRAILER:
DRIVER: SPECIAL WASTE
APPLICATION FEE

BY SIGNING THIS, I CERTIFY THAT THIS DISPOSAL MATERIAL
ORIGINATED IN THE COUNTY/STATE AS STATED ABOVE. I ALSO
CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THIS LOAD
CONTAINS NO HAZARDOUS WASTE. **OFFICE PH# (541)296-4082**

Signature: _____

WASCO COUNTY LANDFILL

2550 Steele Road
The Dalles, OR 97058

955
PORT OF PORTLAND
158931

Ticket: 576525
Date In: 8/11/2025
Time In: 09:22:53
Date Out: 8/11/2025
Time Out: 09:38:56
Ref: CUTTER 18

Description

Scale 3 Gross Weight:	99400	Vehicle:	WC-25-179
Scale 7 Tare Weight:	41000	Roll- Off:	
Net Weight:	58400	Tons:	29.20

PETR CONT SOIL - OUT
PETR CONT SOIL - OUT
OPERATOR: SLJOHNSON
PO: 252007

TRAILER:
DRIVER: CUTTER
CONSTRUCTION 18

BY SIGNING THIS, I CERTIFY THAT THIS DISPOSAL MATERIAL
ORIGINATED IN THE COUNTY/STATE AS STATED ABOVE. I ALSO
CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THIS LOAD
CONTAINS NO HAZARDOUS WASTE. **OFFICE PH# (541)296-4082**

Signature: _____

WASCO COUNTY LANDFILL

2550 Steele Road

The Dalles, OR 97058

955

PORT OF PORTLAND

158931

Ticket: 576545

Date In: 8/11/2025

Time In: 09:51:58

Date Out: 8/11/2025

Time Out: 10:08:25

Ref: CUTTER 21

Description

Scale 3 Gross Weight:

98860

Vehicle: WC-25-179

Scale 7 Tare Weight:

40860

Roll- Off:

Net Weight:

58000

Tons: 29.00

PETR CONT SOIL - OUT

PETR CONT SOIL - OUT

OPERATOR: SLJOHNSON

PO: 252007

TRAILER:

DRIVER: CUTTER
CONSTRUCTION 21

BY SIGNING THIS, I CERTIFY THAT THIS DISPOSAL MATERIAL
ORIGINATED IN THE COUNTY/STATE AS STATED ABOVE. I ALSO
CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THIS LOAD
CONTAINS NO HAZARDOUS WASTE. **OFFICE PH# (541)296-4082**

Signature: _____

WASCO COUNTY LANDFILL

**2550 Steele Road
The Dalles, OR 97058**

**955
PORT OF PORTLAND
158931**

Ticket: 576668
Date In: 8/11/2025
Time In: 14:51:15
Date Out: 8/11/2025
Time Out: 15:09:36
Ref: CUTTER 18

Description

Scale 3 Gross Weight:	103540	Vehicle:	WC-25-179
Scale 7 Tare Weight:	40900	Roll- Off:	
Net Weight:	62640	Tons:	31.32

PETR CONT SOIL - OUT
PETR CONT SOIL - OUT
OPERATOR: EPOPE
PO: 252007

TRAILER:
DRIVER: CUTTER
CONSTRUCTION 18

BY SIGNING THIS, I CERTIFY THAT THIS DISPOSAL MATERIAL
ORIGINATED IN THE COUNTY/STATE AS STATED ABOVE. I ALSO
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CONTAINS NO HAZARDOUS WASTE. **OFFICE PH# (541)296-4082**

Signature: _____

WASCO COUNTY LANDFILL

2550 Steele Road

The Dalles, OR 97058

955

PORT OF PORTLAND

158931

Ticket: 576895

Date In: 8/12/2025

Time In: 14:56:48

Date Out: 8/12/2025

Time Out: 15:06:38

Ref: CUTTER 18

Description

Scale 3 Gross Weight: 89900

Scale 7 Tare Weight: 40820

Net Weight: 49080

Vehicle: WC-25-179

Roll- Off:

Tons: 24.54

PETR CONT SOIL - OUT

PETR CONT SOIL - OUT

OPERATOR: EPOPE

PO: 252007

TRAILER:

DRIVER: CUTTER
CONSTRUCTION 18

BY SIGNING THIS, I CERTIFY THAT THIS DISPOSAL MATERIAL
ORIGINATED IN THE COUNTY/STATE AS STATED ABOVE. I ALSO
CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THIS LOAD
CONTAINS NO HAZARDOUS WASTE. **OFFICE PH# (541)296-4082**

Signature: _____

WASCO COUNTY LANDFILL
2550 Steele Road
The Dalles, OR 97058

955
PORT OF PORTLAND
158931

Ticket: 576756
Date In: 8/12/2025
Time In: 07:58:43
Date Out: 8/12/2025
Time Out: 08:17:03
Ref: CUTTER 21

Description

Scale 3 Gross Weight:	98420	Vehicle:	WC-25-179
Scale 7 Tare Weight:	40940	Roll- Off:	
Net Weight:	57480	Tons:	28.74

PETR CONT SOIL - OUT
PETR CONT SOIL - OUT
OPERATOR: SLJOHNSON
PO: 252007

TRAILER:
DRIVER: CUTTER
CONSTRUCTION 21

BY SIGNING THIS, I CERTIFY THAT THIS DISPOSAL MATERIAL
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Signature: _____

WASCO COUNTY LANDFILL

2550 Steele Road

The Dalles, OR 97058

955

PORT OF PORTLAND

158931

Ticket: 576783

Date In: 8/12/2025

Time In: 09:21:27

Date Out: 8/12/2025

Time Out: 09:37:13

Ref: CUTTER 18

Description

Scale 3 Gross Weight: 101480

Scale 7 Tare Weight: 40880

Net Weight: 60600

Vehicle: **WC-25-179**

Roll- Off:

Tons: 30.30

PETR CONT SOIL - OUT

PETR CONT SOIL - OUT

OPERATOR: SLJOHNSON

PO: 252007

TRAILER:

DRIVER: CUTTER
CONSTRUCTION 18

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Signature: _____

WASCO COUNTY LANDFILL
2550 Steele Road
The Dalles, OR 97058

955
PORT OF PORTLAND
158931

Ticket: 576877
Date In: 8/12/2025
Time In: 14:16:25
Date Out: 8/12/2025
Time Out: 14:30:43
Ref: CUTTER 21

Description

Scale 3 Gross Weight:	96020	Vehicle:	WC-25-179
Scale 7 Tare Weight:	40560	Roll- Off:	
Net Weight:	55460	Tons:	27.73

PETR CONT SOIL - OUT
PETR CONT SOIL - OUT
OPERATOR: EPOPE
PO: 252007

TRAILER:
DRIVER: CUTTER
CONSTRUCTION 21

BY SIGNING THIS, I CERTIFY THAT THIS DISPOSAL MATERIAL
ORIGINATED IN THE COUNTY/STATE AS STATED ABOVE. I ALSO
CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THIS LOAD
CONTAINS NO HAZARDOUS WASTE. **OFFICE PH# (541)296-4082**

Signature: _____

WASCO COUNTY LANDFILL
2550 Steele Road
The Dalles, OR 97058

955
PORT OF PORTLAND
158931

Ticket: 577025
Date In: 8/13/2025
Time In: 10:47:00
Date Out: 8/13/2025
Time Out: 11:07:09
Ref: CUTTER 21

Description

Scale 3 Gross Weight:	98700	Vehicle:	WC-25-179
Scale 7 Tare Weight:	40860	Roll- Off:	
Net Weight:	57840	Tons:	28.92

PETR CONT SOIL - OUT
PETR CONT SOIL - OUT
OPERATOR: SLJOHNSON
PO: 252007

TRAILER:
DRIVER: CUTTER
CONSTRUCTION 21

BY SIGNING THIS, I CERTIFY THAT THIS DISPOSAL MATERIAL
ORIGINATED IN THE COUNTY/STATE AS STATED ABOVE. I ALSO
CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THIS LOAD
CONTAINS NO HAZARDOUS WASTE. **OFFICE PH# (541)296-4082**

Signature: _____

WASCO COUNTY LANDFILL
2550 Steele Road
The Dalles, OR 97058

955
PORT OF PORTLAND
158931

Ticket: 580438
Date In: 9/4/2025
Time In: 05:58:25
Date Out: 9/4/2025
Time Out: 06:14:26
Ref: CUTTER 18

Description

Scale 3 Gross Weight:	103480	Vehicle:	WC-25-179
Scale 7 Tare Weight:	40800	Roll- Off:	
Net Weight:	62680	Tons:	31.34

PETR CONT SOIL - OUT
PETR CONT SOIL - OUT
OPERATOR: EPOPE
PO:
TRAILER:
DRIVER: CUTTER
CONSTRUCTION 18

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ORIGINATED IN THE COUNTY/STATE AS STATED ABOVE. I ALSO
CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THIS LOAD
CONTAINS NO HAZARDOUS WASTE. **OFFICE PH# (541)296-4082**

Signature: _____

WASCO COUNTY LANDFILL
2550 Steele Road
The Dalles, OR 97058

955
PORT OF PORTLAND
158931

Ticket: 580487
Date In: 9/4/2025
Time In: 07:38:17
Date Out: 9/4/2025
Time Out: 08:01:18
Ref: CUTTER 21

Description

Scale 3 Gross Weight:	101540	Vehicle:	WC-25-179
Scale 7 Tare Weight:	40900	Roll- Off:	
Net Weight:	60640	Tons:	30.32

PETR CONT SOIL - OUT
PETR CONT SOIL - OUT
OPERATOR: SLJOHNSON
PO: 252007

TRAILER:
DRIVER: CUTTER
CONSTRUCTION 21

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ORIGINATED IN THE COUNTY/STATE AS STATED ABOVE. I ALSO
CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THIS LOAD
CONTAINS NO HAZARDOUS WASTE. **OFFICE PH# (541)296-4082**

Signature: _____

WASCO COUNTY LANDFILL
2550 Steele Road
The Dalles, OR 97058

955
PORT OF PORTLAND
158931

Ticket: 580606
Date In: 9/4/2025
Time In: 13:04:07
Date Out: 9/4/2025
Time Out: 13:25:11
Ref: CUTTER 21

Description

Scale 3 Gross Weight:	100000	Vehicle:	WC-25-179
Scale 7 Tare Weight:	40520	Roll- Off:	
Net Weight:	59480	Tons:	29.74

PETR CONT SOIL - OUT
PETR CONT SOIL - OUT
OPERATOR: SLJOHNSON
PO: 252007

TRAILER:
DRIVER: CUTTER
CONSTRUCTION 21

BY SIGNING THIS, I CERTIFY THAT THIS DISPOSAL MATERIAL
ORIGINATED IN THE COUNTY/STATE AS STATED ABOVE. I ALSO
CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THIS LOAD
CONTAINS NO HAZARDOUS WASTE. **OFFICE PH# (541)296-4082**

Signature: _____

WASCO COUNTY LANDFILL
2550 Steele Road
The Dalles, OR 97058

955
PORT OF PORTLAND
158931

Ticket: 580719
Date In: 9/5/2025
Time In: 07:56:34
Date Out: 9/5/2025
Time Out: 08:24:04
Ref: CUTTER 21

Description

Scale 3 Gross Weight:	94660	Vehicle:	WC-25-179
Scale 7 Tare Weight:	40880	Roll- Off:	
Net Weight:	53780	Tons:	26.89

PETR CONT SOIL - OUT
PETR CONT SOIL - OUT
OPERATOR: SLJOHNSON
PO: 252007

TRAILER:
DRIVER: CUTTER
CONSTRUCTION 21

BY SIGNING THIS, I CERTIFY THAT THIS DISPOSAL MATERIAL
ORIGINATED IN THE COUNTY/STATE AS STATED ABOVE. I ALSO
CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THIS LOAD
CONTAINS NO HAZARDOUS WASTE. **OFFICE PH# (541)296-4082**

Signature: _____

WASCO COUNTY LANDFILL
2550 Steele Road
The Dalles, OR 97058

955
PORT OF PORTLAND
158931

Ticket: 580764
Date In: 9/5/2025
Time In: 10:23:07
Date Out: 9/5/2025
Time Out: 10:50:14
Ref: CUTTER 15

Description

Scale 3 Gross Weight:	84920	Vehicle:	WC-25-179
Scale 7 Tare Weight:	37700	Roll- Off:	
Net Weight:	47220	Tons:	23.61

PETR CONT SOIL - OUT
PETR CONT SOIL - OUT
OPERATOR: SLJOHNSON
PO: 252007

TRAILER:
DRIVER: CUTTER
CONSTRUCTION 15

BY SIGNING THIS, I CERTIFY THAT THIS DISPOSAL MATERIAL
ORIGINATED IN THE COUNTY/STATE AS STATED ABOVE. I ALSO
CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THIS LOAD
CONTAINS NO HAZARDOUS WASTE. **OFFICE PH# (541)296-4082**

Signature: _____

WASCO COUNTY LANDFILL
2550 Steele Road
The Dalles, OR 97058

955
PORT OF PORTLAND
158931

Ticket: 580832
Date In: 9/5/2025
Time In: 13:56:25
Date Out: 9/5/2025
Time Out: 14:17:39
Ref: CUTTER 21

Description

Scale 3 Gross Weight:	94020	Vehicle:	WC-25-179
Scale 7 Tare Weight:	40580	Roll- Off:	
Net Weight:	53440	Tons:	26.72

PETR CONT SOIL - OUT
PETR CONT SOIL - OUT
OPERATOR: SLJOHNSON
PO: 252007

TRAILER:
DRIVER: CUTTER
CONSTRUCTION 21

BY SIGNING THIS, I CERTIFY THAT THIS DISPOSAL MATERIAL
ORIGINATED IN THE COUNTY/STATE AS STATED ABOVE. I ALSO
CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THIS LOAD
CONTAINS NO HAZARDOUS WASTE. **OFFICE PH# (541)296-4082**

Signature: _____

Attachment D

Backfill and Compaction Documentation



MAUL
FOSTER
ALONGI

GENERAL SUBMITTAL TRANSMITTAL FORM

Please fill in all information as completely as possible. One "submittal type" per form. Highlighted areas are information necessary for documents sent to the Technical Reference Center.

Submittal Type: <input checked="" type="checkbox"/> One <input type="checkbox"/> Material Description <input type="checkbox"/> Shop Drawing <input type="checkbox"/> O&M Manual <input type="checkbox"/> Specification <input type="checkbox"/> Calculations <input type="checkbox"/> Warranty <input type="checkbox"/> Other:	Submittal No. <div style="text-align: center;">39.01</div>	Port Project Name <div style="text-align: center;">PDX, Taxiway A West Rehabilitation</div>	Port Business Unit: <div style="text-align: center;">102613</div>	Port EAN <div style="text-align: center;">2023D011</div>					
Submitted By (name of person) <div style="text-align: center;">Clayton Buruse</div>		General Contractor <div style="text-align: center;">Tapani Inc.</div>		Contractor Job No. <div style="text-align: center;">252007</div>					
Port Drawing Reference <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Drawing No.</td> <td style="width: 50%;">Sht. No.</td> </tr> <tr> <td style="height: 20px;"></td> <td style="height: 20px;"></td> </tr> </table>		Drawing No.	Sht. No.				Router 		Sub-Contractor
Drawing No.	Sht. No.								
		Primary Consultant <div style="text-align: center;">Jacobs Engineering</div>							

Transmittal Routing ("From" > "To")	Copies	Attention (destination name)	Date Sent	Date Rec'd	Date Due
Contractor > Port Const.	E	Cory Coleman	5/28/25	5/28/25	
Port Const. > Consultant	E	Jacobs Engineering - Childers/McLain	5/28/25	5/28/25	
Consultant > Sub-Consultant					
Sub-Consultant > Consultant					
Consultant > Port Engineering					
Port Const. > Port Engineering	E	Jay Ostlund	5/28/25	05/28/25	
Port Const. >					
Port Engineering > Port Const.	E	Cory Coleman	06/03/25	06/03/25	
Port Const. > email Contractor	E	Tapani Inc.	06/03/25		6/11/25
Port Const. > TRC	E	TRC Specialist	06/03/25		

Specification Reference			Action			
Section No.	Paragraph No.	Submittal Title or Description	A	B	C	D
312300	2.5-B1	Import Crushed Aggregate	X			
312300	2.7A	Utility Locate Wire	X			
312300	2.5-B2	Import Sand	X			

CONTRACTOR/CONSULTANT/PORT NOTES: WSDOT 3/4"-0 rock is being substituted as ODOT 3/4"-0 rock. Storedahl has mentioned that Kodiak was able to obtain approval for the rock on the Terminal Concourse E, & Tapani was able to have it approved on Taxiways T & K projects and hopes to do the same for Taxiway A.	TRC USE ONLY Date Rec'd At TRC: _____ Index No: _____ Document Quality: _____ OK <input type="checkbox"/> Resubmit <input type="checkbox"/>	For Port Use <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	SUBJECT TO ALL CONTRACT REQUIREMENTS A = NO EXCEPTIONS TAKEN B = CORRECT AS NOTED C = REVISE AND RESUBMIT D = FOR INFORMATION ONLY NO PORT REVIEW REQUIRED.
--	--	--	---

Submittal Review Form

DATE: 5/29/2025	
PROJECT: PDX Taxiway A West Rehabilitation	
DESIGN NUMBER: 2023D011	PROJECT NUMBER: 102613

<u>Submittal Item</u>	<u>Spec. Ref.</u>	<u>Description</u>
39.01	312300	Trenching, Backfill and Compacting

Comments:

1. No exceptions taken. Port to review for final approval.

NO EXCEPTIONS TAKEN	<input checked="" type="checkbox"/>
EXCEPTIONS NOTED	<input type="checkbox"/>
EXCEPTIONS NOTED/RESUBMIT	<input type="checkbox"/>
NOT APPROVED	<input type="checkbox"/>

SEE TRANSMITTAL FOR ADDITIONAL INFORMATION AS APPLICABLE.

ACTION SHOWN ABOVE IS ONLY FOR CONFORMANCE WITH THE DESIGN CONCEPT OF THE WORK AND WITH THE INFORMATION IN THE CONTRACT DOCUMENTS.

BY APPROVAL AND SUBMISSION, CONTRACTOR HAS DETERMINED AND VERIFIED MATERIALS, FIELD MEASUREMENTS AND CONSTRUCTION CRITERIA, PERFORMANCE AND DESIGN CRITERIA, AND SIMILAR DATA.

DEVIATIONS FROM CONTRACT DOCUMENTS ARE NOT REVIEWED UNLESS SPECIFICALLY REQUESTED IN WRITING BY CONTRACTOR. REVIEW ON RESUBMISSION WILL COVER ONLY DESIGNATED CHANGES ON THIS SUBMITTAL AND OTHER CHANGES CLEARLY IDENTIFIED BY CONTRACTOR WITH AN ENCIRCLEMENT.

REVIEWED BY Shalyce Childers DATE 5/29/2025

SUBMITTAL NO. 39.01 Trenching, Backfill and Compacting

Jacobs

PORT OF PORTLAND SUBMITTAL REVIEW		
SUBJECT TO ALL CONTRACT REQUIREMENTS		
A	NO EXCEPTIONS TAKEN	X
B	CORRECT AS NOTED	
C	REVISE AND RESUBMIT	
D	FOR INFORMATION ONLY NO PORT REVIEW REQUIRED.	
Jay Ostlund		6/3/2025
REVIEWED BY		DATE

Contractor's Stamp



Spec Section: 312300

Date: 5/28/25

Reviewed By: Clayton Buruse

Submittal: 39.01



SUBSTITUTION REQUEST

TO: Port of Portland

PROJECT: Portland International Airport Taxiway A Rehabilitation

SPECIFIED ITEM:

312300	312300-2	2.5B	Import Crushed Aggregate
Section	Page	Paragraph	Description

PROPOSED SUBSTITUTION: WSDOT 3/4"-0 Rock

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable data portions.

Attached data also includes description of changes to Contract Documents and proposed substitution required for its proper installation.

Undersigned certifies following items, unless modified by attachments, are correct:

1. Proposed substitution does not affect dimensions shown on drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing, and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts available locally or readily obtainable for proposed substitution.

Undersigned further certifies function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by:
Clayton Buruse

Name (Print) Clayton Buruse

Signature
Tapani Inc.

Firm Name
1904 SE 6th Place

Address
Battle Ground, WA, 98604

City, State, Zip
5/28/25

Date
208-816-8949

Telephone Fax
3/4" Rock Sieve Analysis

Attachments:

Tapani Inc.

General Contractor (if after award of Contract)

For use by A/E	
<input type="checkbox"/> Approved	<input type="checkbox"/> Approved as noted
<input type="checkbox"/> Not Approved	<input type="checkbox"/> Received too late
By	
Date	
Remarks	



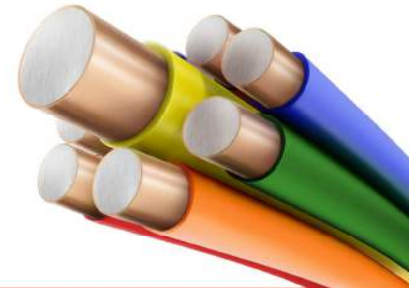
HIGH STRENGTH – 1030 CCS TRACER WIRE

APPLICATION

Copper-clad steel (CCS) tracer wire. Install with underground plastic utility pipes, wires, and cables to ensure future location. Best choice for open cut/trenching/plowing applications when ground above the utilities can be disturbed and there are no buildings, roadways, or other obstructions in the way.



1030*-HS-500 – 500' spool
1030*-HS-1000 – 1000' spool
1030*-HS-2500 – 2500' spool
(* denotes color, pg. 2)



FEATURES AND BENEFITS

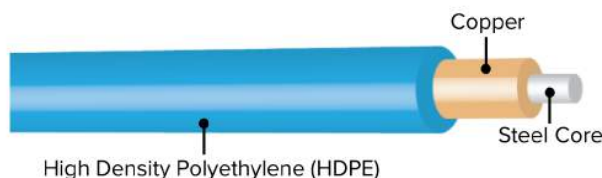
- 30 mil HDPE insulation
- 684 lb break load
- 2 times the breaking strength of solid copper
- 11% lighter than solid copper means reduced freight expenses
- Copper-clad steel (CCS) wire combines the strength of fully annealed high-carbon steel with the conductivity and corrosion resistance of solid copper
- Bonded metals mean no separating, no corrosion, and no theft appeal
- More stable pricing than solid copper
- Provided exclusively by Copperhead Industries
- Rated for direct bury
- Color-coded to meet American Public Works (APWA) standards for utility identification

Product Description

#10 AWG (0.1019" diameter) fully annealed, high carbon 1055 grade steel, high strength solid copper-clad steel conductor (HS-CCS) rated at 30 volts, insulated with a 30 mil, high-density, high molecular weight polyethylene (HDPE) insulation rated for direct burial use at 30 volts.

APWA UNIFORM COLOR CODE

	ELECTRIC
	GAS
	COMMUNICATION
	POTABLE WATER
	SEWER
	RECLAIMED WATER



SPECIFICATIONS

PART #: 1030*-HS-**

10 (AWG), 30 (insulation mil), * (indicates insulation color: Y=Yellow, B=Blue, G=Green, N=Orange, P=Purple, R=Red, BN=Brown, K=Black, W=White), HS (High Strength), ** (indicates spool size: 500, 1000 or 2500 foot lengths)

MADE IN USA

Copperhead® copper-clad steel tracer wire is 100% made in the USA.

PRODUCT DESCRIPTION

Tracer wire shall be a #10 AWG (0.1019" diameter) fully annealed, high carbon 1055 grade steel, high strength solid copper-clad steel conductor (HS-CCS) rated at 30 volts, insulated with 30 mil, high-density, high molecular weight polyethylene (HDPE) insulation rated for direct burial use at 30 volts. HS-CCS conductor must be at 21% conductivity for locate purposes. Break load of 684 lbs. HDPE insulation shall be RoHS compliant and utilize virgin grade material. Insulation color shall meet the APWA color code standard for identification of buried utilities. Manufacturers supplying copper-clad steel tracer wire must have available detailed performance data including 5 years of underground testing in terms of durability related to damage of protective insulation and effects of potential corrosion of the specific copper-clad steel used. Origin of copper-clad steel manufacturer is required and steel core must be manufactured in the United States. If manufacturer has not completed 5-year corrosion testing, a 5-year warranty must be provided. Tracer wire shall be Copperhead® High Strength HS-CCS HDPE 30 mil and made in the USA.

PRINT LINE

Physical, permanent markings: surface legend print on insulation to repeat at minimum interval of every two linear feet. Ink colors will include Black ink for Yellow, Blue, Red, Orange, Purple, Brown, White, and Green insulation, and White ink for Black insulation. **COPPERHEAD * 10 AWG-SOLID HS-CCS TRACER WIRE * 30 MIL HDPE 30 VOLT * DIRECT BURIAL ONLY**

SPOOL LABEL

Wound wire on a compact spool made of plastic or wood.

COPPERHEAD INDUSTRIES

1030*-HS-**

10 AWG-Solid CCS Tracer Wire

30 Mil HDPE 30 Volt

Direct Burial Only

copperheadwire.com

CONDUCTOR

This specification describes the properties of the conductor to be used in the fabrication of High Strength tracer wire.

Material Description: Copperhead® copper-clad steel wire as manufactured by Copperweld® is composed of a steel core with a uniform and continuous copper cladding thoroughly bonded to the steel throughout. Wire must conform to ASTM B1010 and ASTM B910 / B910M.

- **Cladding:** The steel and copper interface must have a metallurgical bond achieved through a high heat and pressure bonding process. Established process for porosity-free material.
- **Steel:** High strength with 0.54 carbon or greater. Verified to meet required mechanical properties.
- **Copper:** UNS-C10200; OF Copper according to ASTM B-170 (latest revision). High conductivity, oxygen free copper to achieve optimal signal performance.

Surface Condition: Wire surface shall be free of any defects, including flakes, grooves, pits, and voids. Wire surface shall be smooth, bright and shiny, and free of excessive copper dust and residual drawing lubricants.

Physical, Mechanical, and Electrical Properties: The wire shall conform to the properties listed in Table 1.



#12 CCS High Carbon 1055 Grade Steel 21% Conductivity	CCS Conductor
Conductor Size	10 AWG
Conductor Type	Copper-Clad Steel (CCS)
Temper	Dead Soft Annealed (DSA)
Average Break Load	684 lbs.
Minimum Tensile Strength	67,000 psi
Minimum Elongation	15%
Nominal Copper Thickness (% of Diameter)	3%
Nominal Copper Weight	13%
Nominal DC Resistance (ohms/1000 ft.)	4.756

Table 1: Physical, Mechanical, and Electrical Properties

*Diameter tolerances: ± 1%

INSULATION

This specification describes the properties of the material to be used in the insulating of High Strength tracer wire.

➔ **Material Description:** Insulation is comprised of a co-polymer high molecular weight natural high density polyethylene (HDPE) designed specifically for high-speed copper wire insulating. It contains the required levels and types of primary antioxidant and metal deactivator additives to satisfy most Wire and Cable industry requirements. HDPE material will be produced with an excellent balance of surface smoothness, processing ease, tensile and elongation properties, abrasion toughness, environmental stress crack, thermal stress crack resistance, and electrical consistency. Insulation must conform to ASTM D1248.

➔ **Physical, Mechanical, and Electrical Properties:** The wire shall conform to the properties listed in Table 2.

High Density Polyethylene Insulator	Value
Density (ASTM D 792)	0.943 g/cc
Bulk Density (ASTM D 1895)	0.58 g/cc
Melt Index (ASTM D 1238/E)	0.70 dg/min
Tensile-Yield (ASTM D 638)	4300 psi
Tensile-Ultimate (ASTM D 638)	2900 psi
Tensile-Elongation (ASTM D 638)	850%
Flexural Modulus (ASTM D 790/1)	120,000 psi
Hardness (ASTM D 2240)	63 Shore D
Environmental Stress-Crack (ASTM D 1693/B)	F20 > 48 h
Thermal Stress-Crack (ASTM D 2951)	F0 > 1000 h
Brittleness Temperature (ASTM D 746)	< -95° F
Melting Point (DSC) (ASTM D 3417)	262° F
Softening Point (Vicat) (ASTM D 1525)	250° F
Oxidative Induction Time (ASTM D 3895)	> 50 min. @ 200° C
Dielectric Constant (ASTM D 1531)	2.34 @ 1MHz
Dissipation Factor (ASTM D 1531)	0.00007 @ 1 MHz
Volume Resistivity (ASTM D 257)	5 x 10 ¹⁷ ohm-cm
Dielectric Strength (ASTM D 3755)	1000 volts @ 20 mils

Table 2: Physical, Mechanical, and Electrical Properties

QUALITY ASSURANCE

- Copperhead products are manufactured under a quality control system that ensures products are free of defects and meet performance requirements.
- Copperhead provides best-in-class customer service. We promise to put forth our best efforts for our customers and to treat everyone we encounter with courtesy and respect.





CALPORTLAND®
Quality Test Report

Plant 544A-Santosh
Product AOR8362BL-Fill Sand - Blue Lake
Specification



Sample Information

Sample No 414445546
Date Sampled 04/12/2025 15:28
Sampled By Parker Miller
Type In-House
Method Stockpile

Split Sample
Resample

Gradation Results

Date Completed 04/12/2025 15:28
Tested By Bodi Dawson

Unit	Moist Mass	Dry Mass	Wash Mass	Moisture %	Wash Loss %	Procedure		
g	655.00	589.20	584.00	11.2	0.9			
Sieve	Mass Retained	Cum Mass Retained	Ind % Retained	% Retained	% Passing	Target	Specification	Comment
1" (25mm)	0.00	0.00	0	0	100			
3/4" (19mm)	0.00	0.00	0	0	100			
5/8" (16mm)	0.00	0.00	0	0	100			
1/2" (12.5mm)	1.50	1.50	0	0	100			
3/8" (9.5mm)	0.00	1.50	0	0	100			
1/4" (6.3mm)	0.70	2.20	0	0	100			
#4 (4.75mm)	0.70	2.90	0	0	100			
#10 (2mm)	4.70	7.60	1	1	99			
#16 (1.18mm)	3.40	11.00	1	2	98			
#40 (.425mm)	256.40	267.40	44	45	55			
#50 (.3mm)	163.90	431.30	28	73	27			
#100 (.15mm)	147.40	578.70	25	98	2			
#200 (75µm)	4.70	583.40	0.8	99.0	1.0			
Pan	0.50	583.90	1.0	100.0	0.0			

Other Test Results

Test Name	Date	Result	Unit	Target	Specification	Comment
	Procedure	Lab			Tested By	
-#200 (75um)	04/12/2025 15:28	0.97	%			
FM	04/12/2025 15:28	2.06			Bodi Dawson	
Grad Loss	04/12/2025 15:28	0.017	%		Bodi Dawson	
Total Moisture	04/12/2025 15:28	11.17	%		Bodi Dawson	
Wash Loss (#200/75um)	04/12/2025 15:28	0.9	%		Bodi Dawson	
		Santosh			Bodi Dawson	