NOTICE OF NSA
OPPORTUNITY TO COMMENT

www.multco.us/landuse ▪ Email: land.use.planning@multco.us ▪ Phone: (503) 988-3043

Application for Geologic Hazard Permit

CASE FILE: T2-2024-0101 **APPLICANT**: Terra Lingley

LOCATION: Right-of-Way south of 1N3E25 -00100 **Property ID #** R320667

Map, Tax lot: 1N3E25 -00100 **Alt. Acct. #** R943252300

BASE ZONE: Gorge Special Public Recreation (GS-PR)

OVERLAYS: Flood Hazard (FH), Wetlands

KEY VIEWING AREAS: Columbia River, Crown Point, Historic Columbia River Highway, Interstate – 84, Larch Mountain Road, Portland Women's Forum, Rooster Rock, State Route – 14, and the Sandy River.

LANDSCAPE SETTING: River Bottomlands

PROPOSAL: Request for a Geologic Hazard review for a multi-use path between the I-84 pedestrian tunnel (mile point 17.81) and the Sandy River Delta.

- **COMMENT PERIOD**: Neighbors are invited to submit written comments for the proposal described above. Comments should be directed toward the approval criteria listed below. Any neighbor that submits comments will receive the County's complete decision. Written comments will be accepted at LUP-comments@multco.us if received by **4:00 pm on Tuesday, July 15, 2025**. **If you do not wish to submit comments, no response is necessary**.

  Further information regarding this application is available by contacting LUP-comments@multco.us. Paper copies of these materials may be purchased for $0.46/per page.

- **APPLICABLE APPROVAL CRITERIA** [Multnomah County Code (MCC)]:

  General Provisions: MCC 38.0560 Code Compliance and Applications, MCC 38.0015 Definitions – Parcel, MCC 38.0110 Tribal Treaty Rights and Consultation

  Geologic Hazards (GH): MCC 38.5503 Definitions, MCC 38.5505 Permit Required, MCC 38.5510 Exemptions, MCC 38.5515 Geologic Hazards Permit Application Information Required, MCC 38.5520 Geologic Hazards Permit Standards

  Copies of the referenced Multnomah County Code sections can be obtained by visiting our website at https://multco.us/landuse/zoning-codes/ under the link **Chapter 38 – Columbia River Gorge National Scenic Area** or by contacting our office at (503) 988-3043.

Vicinity Map **N↑**

- **DECISION MAKING PROCESS**: The Planning Director will render a decision on this application after the comment period expires. Notice of the Director's decision will be mailed to the applicant, those who submitted written comment during the comment period, those who requested the decision in writing, and the Gorge Commission. The Planning Director's decision can be appealed. An explanation of the requirements for filing an appeal will be included in the notice of decision.

- **IMPORTANT NOTE**: Failure to raise an issue before the close of the public record in sufficient detail to afford the County and all parties an opportunity to respond may preclude appeal on that issue to the Columbia River Gorge Commission.

- **ENCLOSURES**:

  Site Plan
  Geologic Hazard Permit Form

Notice to Mortgagee, Lien Holder, Vendor, or Seller:
ORS chapter 215 requires that if you receive this notice, it must promptly be forwarded to the purchaser.

??V-???

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
A01	*Title Sheet*
A02	*Index Of Sheets Cont. & Std. Dwg. Nos.*

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

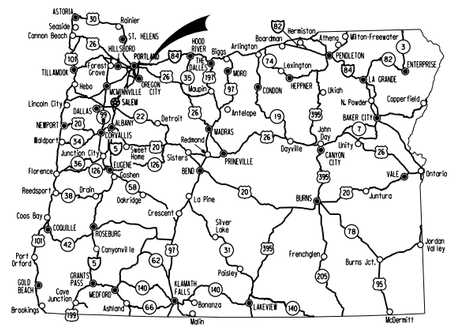
SCOPE OF WORK

SCOPE OF WORK

I-84: (MULTI-USE PATH)
JORDAN RD TUNNEL - SANDY RIVER DELTA PROJECT

COLUMBIA RIVER HIGHWAY

MULTNOMAH COUNTY
DATE

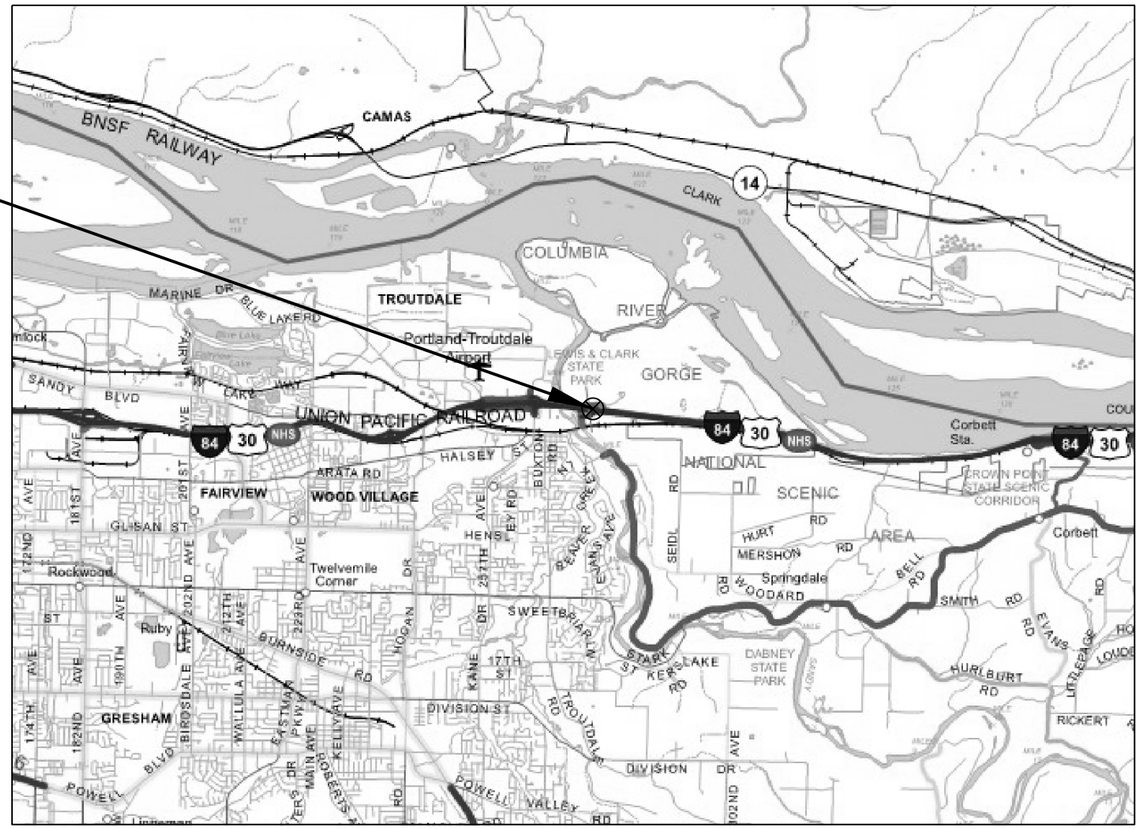


Overall Length Of Project - 0.2 Miles

ATTENTION:
Oregon Law Requires You To Follow Rules Adopted By The Oregon Utility Notification Center. Those Rules Are Set Forth In OAR 952-001-0001 Through OAR 952-001-0100. You May Obtain Copies Of The Rules By Calling The Center (Note: The Telephone Number For The Oregon Utility Notification Center Is (503) 232-1987).

LOCATION OF PROJECT

STA. xx (MP 18.33 to 18.51)



N

T. # #., R. # #., W.M.

OREGON TRANSPORTATION COMMISSION

Julie Brown	CHAIR
Lee Beyer	VICE CHAIR
Sharon Smith	COMMISSIONER
Alicia Chapman	COMMISSIONER
Jeff Baker	COMMISSIONER
Kristopher W. Strickler	DIRECTOR OF TRANSPORTATION

These plans were developed using ODOT design standards. Exceptions to these standards, if any, have been submitted and approved by the ODOT Chief Engineer or their delegated authority.

Approving Authority: _____
Signature & date

_____
Print name and title

_____
Concurrence by ODOT Chief Engineer

I-84: (MULTI-USE PATH)
JORDAN RD TUNNEL - SANDY RIVER DELTA PROJECT

COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	S002(251)	A01

CHARGE NUMBER: PE003512000

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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

INDEX OF SHEETS, CONT.	
SHEET NO.	DESCRIPTION
	ROADWAY DETAILS
BA01	*Typical Sections*
BB01	*Details*
	ROADWAY CONSTRUCTION (Main Line)
C01	*Alignment*
C01A	*General Construction*
C01B	*Profile*
C02	*Alignment*
C02A	*General Construction*
C02B	*Profile*
C03	*Alignment*
C03A	*General Construction*
C03B	*Profile*
C04	*Alignment*
C04A	*General Construction*
C04B	*Profile*

Standard Dwg. Nos.

RD130 - Bollards
RD150 - Slope Rounding
RD770 - Metal Handrail
RD771 - Metal Handrail Details

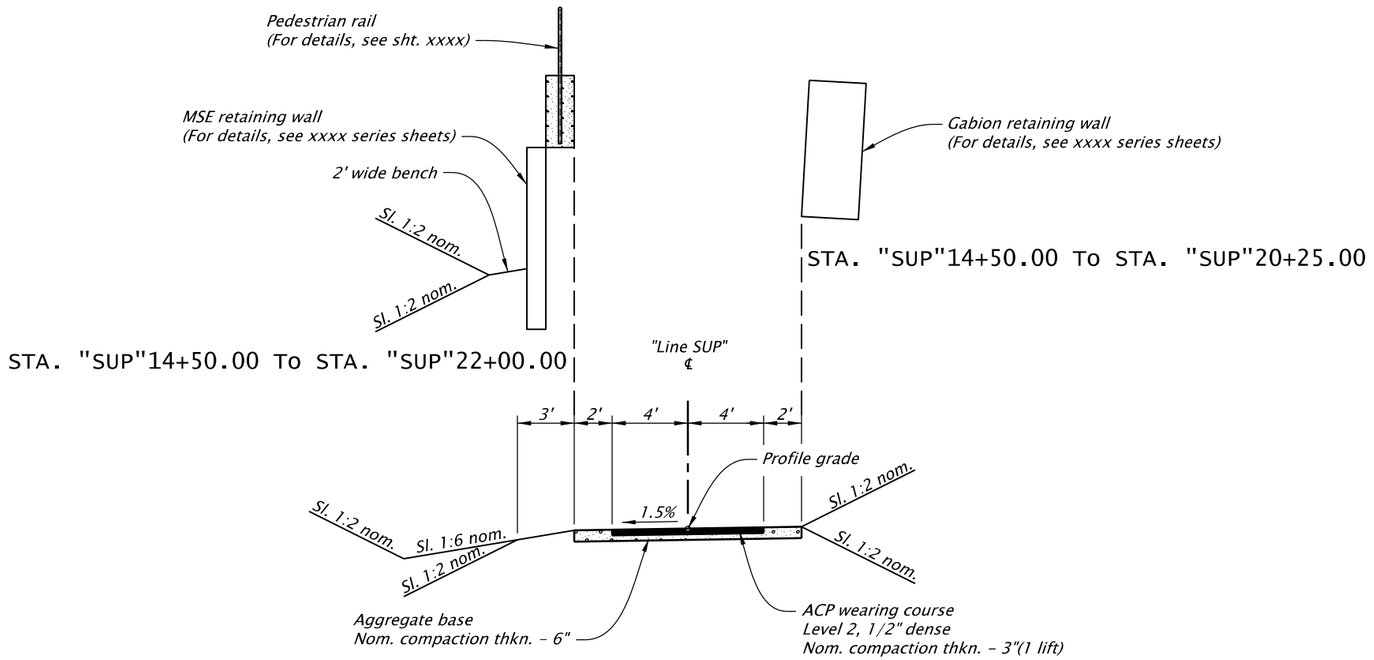
Standard Drawings located on the web at:
http://www.oregon.gov/ODOT/Engineering/Pages/Standards.aspx

I-84: (MULTI-USE PATH)
JORDAN RD TUNNEL - SANDY RIVER DELTA PROJECT

COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	SEE SHEET A01	A02

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST



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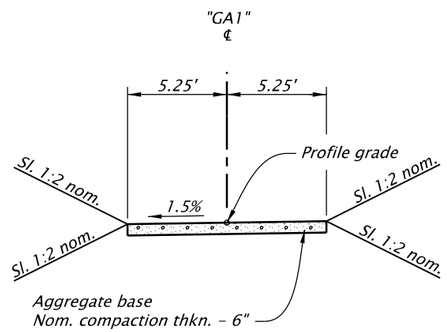
STA. "SUP"14+50.00 To STA. "SUP"20+25.00

STA. "SUP"10+67.36 To STA. "SUP"22+87.41



STA. "GA1"20+20.36 To STA. "GA1"220+45.02

OREGON DEPARTMENT OF TRANSPORTATION

I-84: (MULTI-USE PATH)
JORDAN RD TUNNEL - SANDY RIVER DELTA PROJECT

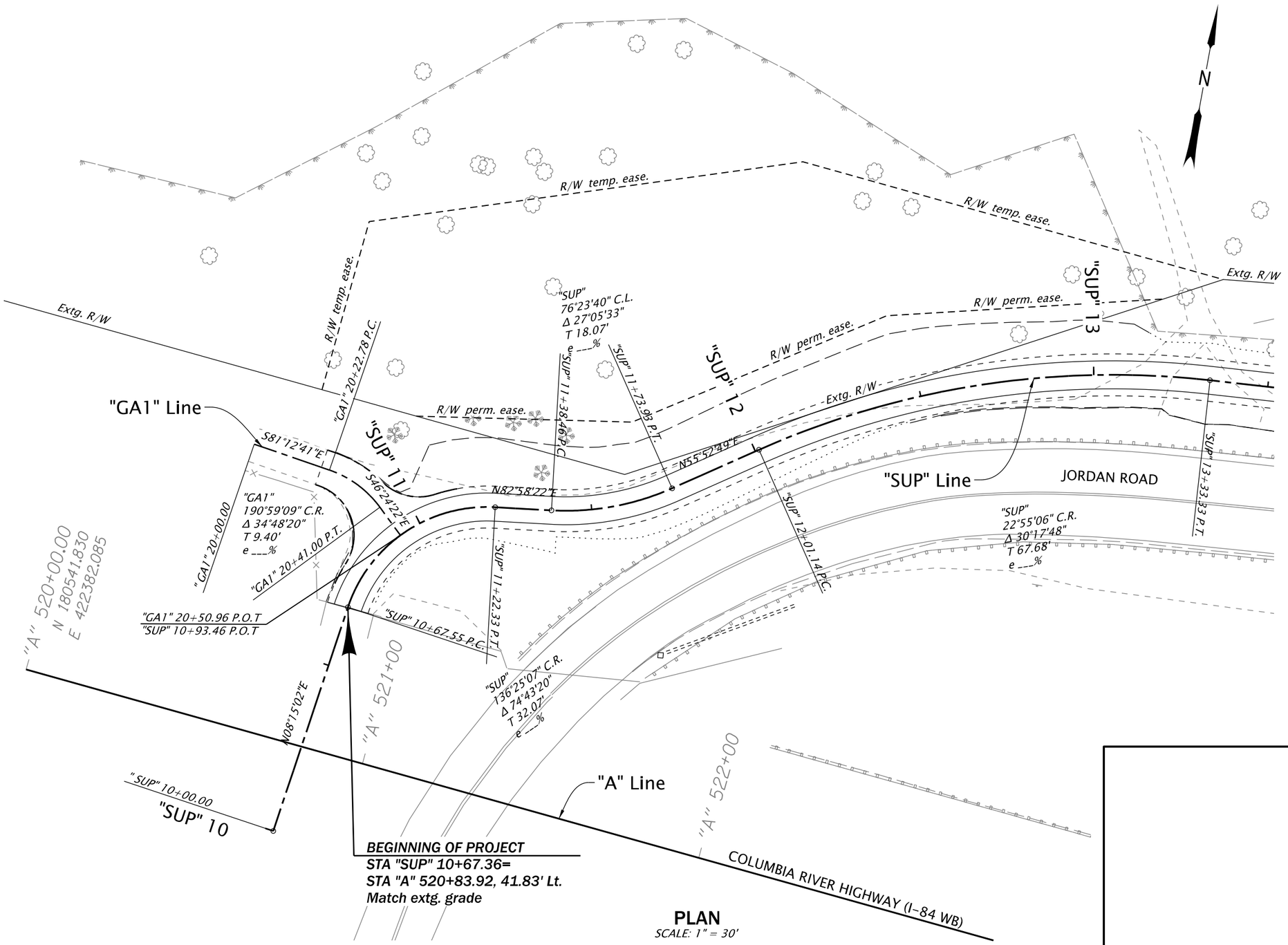
COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

Designer: Sean Triana | Reviewer: Chivanna Pot
Drafter: Sue Cross | Checker: Bryan Dahlman

TYPICAL SECTIONS

SHEET NO. BA01

Sec. 25, T.1 N., R. 3 E., W.M.



PLAN
SCALE: 1" = 30'

OREGON DEPARTMENT OF TRANSPORTATION

I-84: (MULTI-USE PATH)
JORDAN RD TUNNEL - SANDY RIVER DELTA PROJECT

COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

Designer: Sean Triana | Reviewer: Chivanna Pot
Drafter: Sue Cross | Checker: Bryan Dahlman

ALIGNMENT

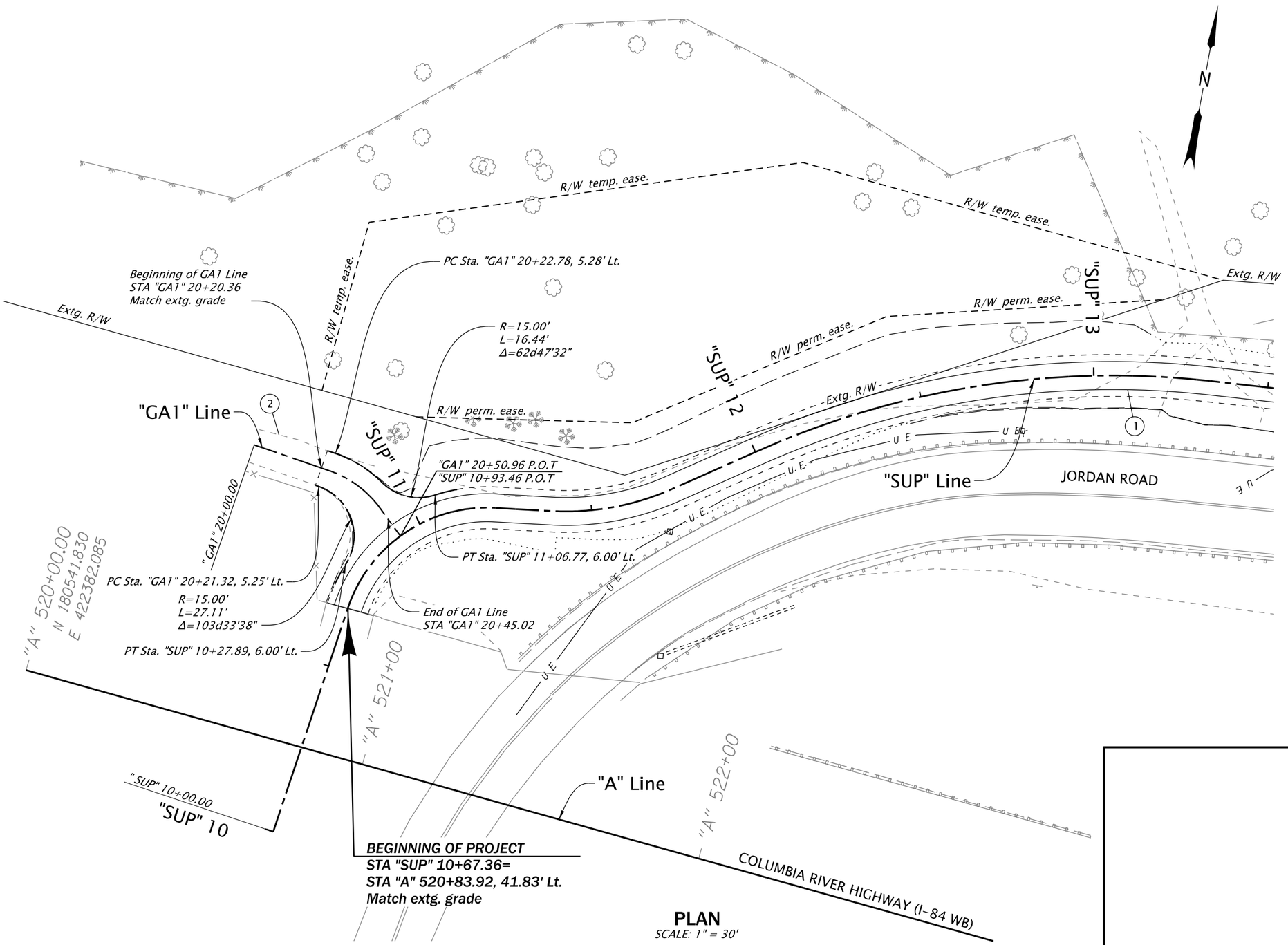
SHEET NO. C01

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

Sec. 25, T.1 N., R. 3 E., W.M.

Construction notes

1. *Const. 8' wide ACP path (For details, seet sht. XXXX)*
2. *Const. 10.5' wide gravel path (For details, seet sht. XXXX)*



PLAN
SCALE: 1" = 30'

OREGON DEPARTMENT OF TRANSPORTATION

I-84: (MULTI-USE PATH)
JORDAN RD TUNNEL - SANDY RIVER DELTA PROJECT

COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

Designer: Sean Triana	Reviewer: Chivanna Pot
Drafter: Sue Cross	Checker: Bryan Dahlman

GENERAL CONSTRUCTION — SHEET NO. C01A

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

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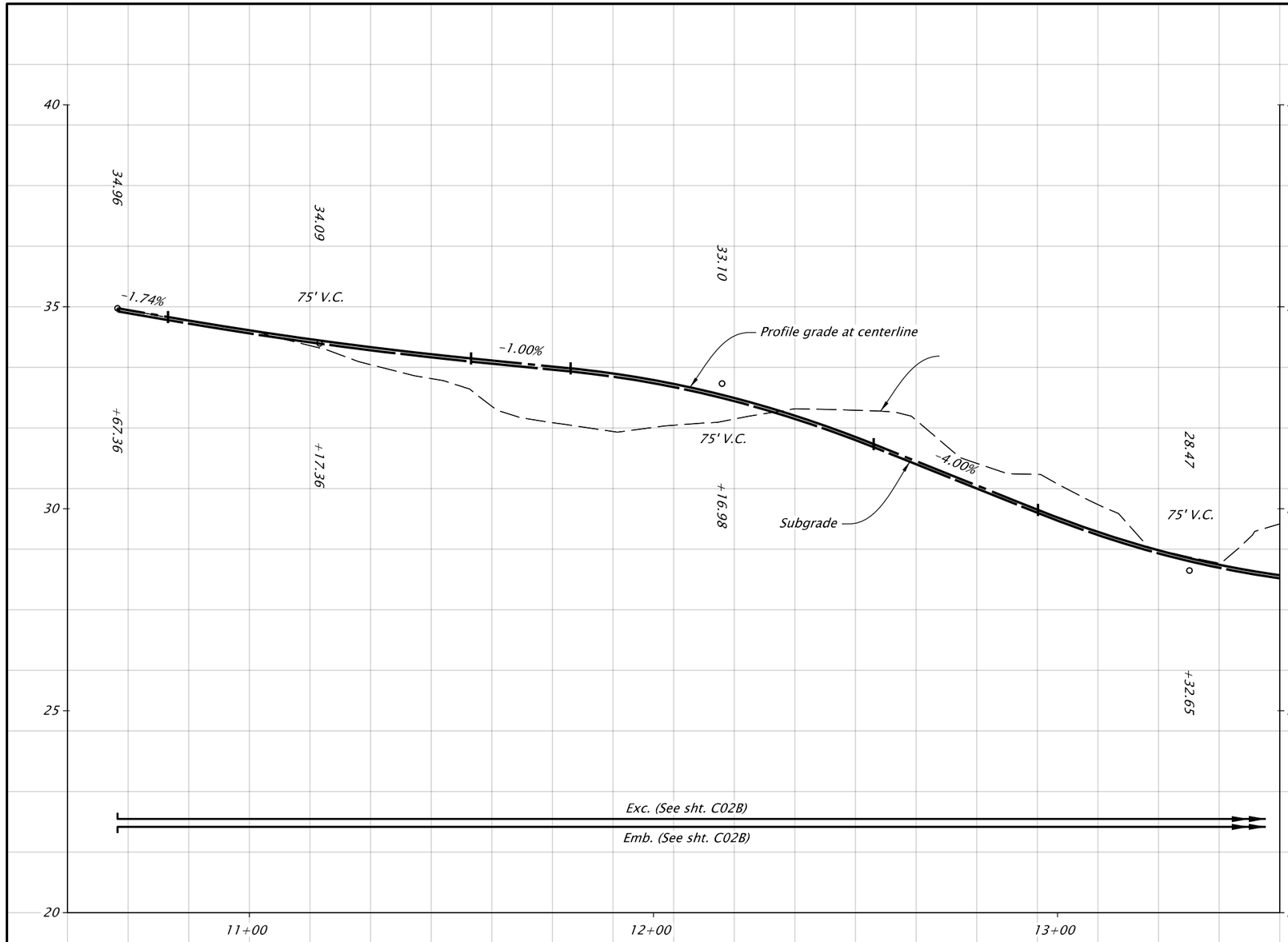
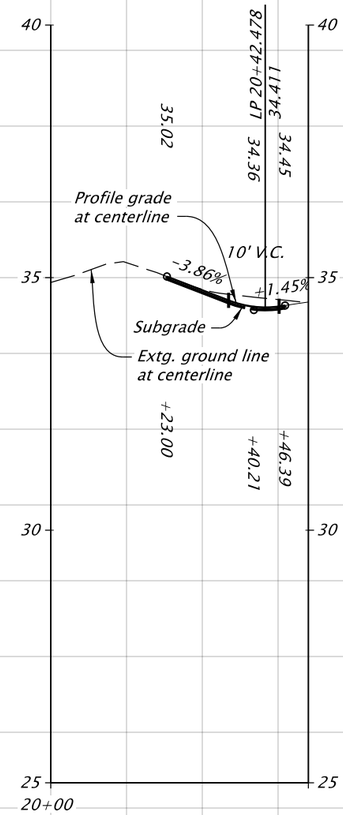


"SUP" LINE

HORIZ. SCALE: 1" = 30'
VERT. SCALE: 1" = 3'



"GA1" LINE

HORIZ. SCALE: 1" = 30'
VERT. SCALE: 1" = 3'

OREGON DEPARTMENT OF TRANSPORTATION

I-84: (MULTI-USE PATH)
JORDAN RD TUNNEL - SANDY RIVER DELTA PROJECT

COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

Designer: Sean Triana	Reviewer: Chivanna Pot
Drafter: Sue Cross	Checker: Bryan Dahlman

PROFILE

SHEET NO. C01B

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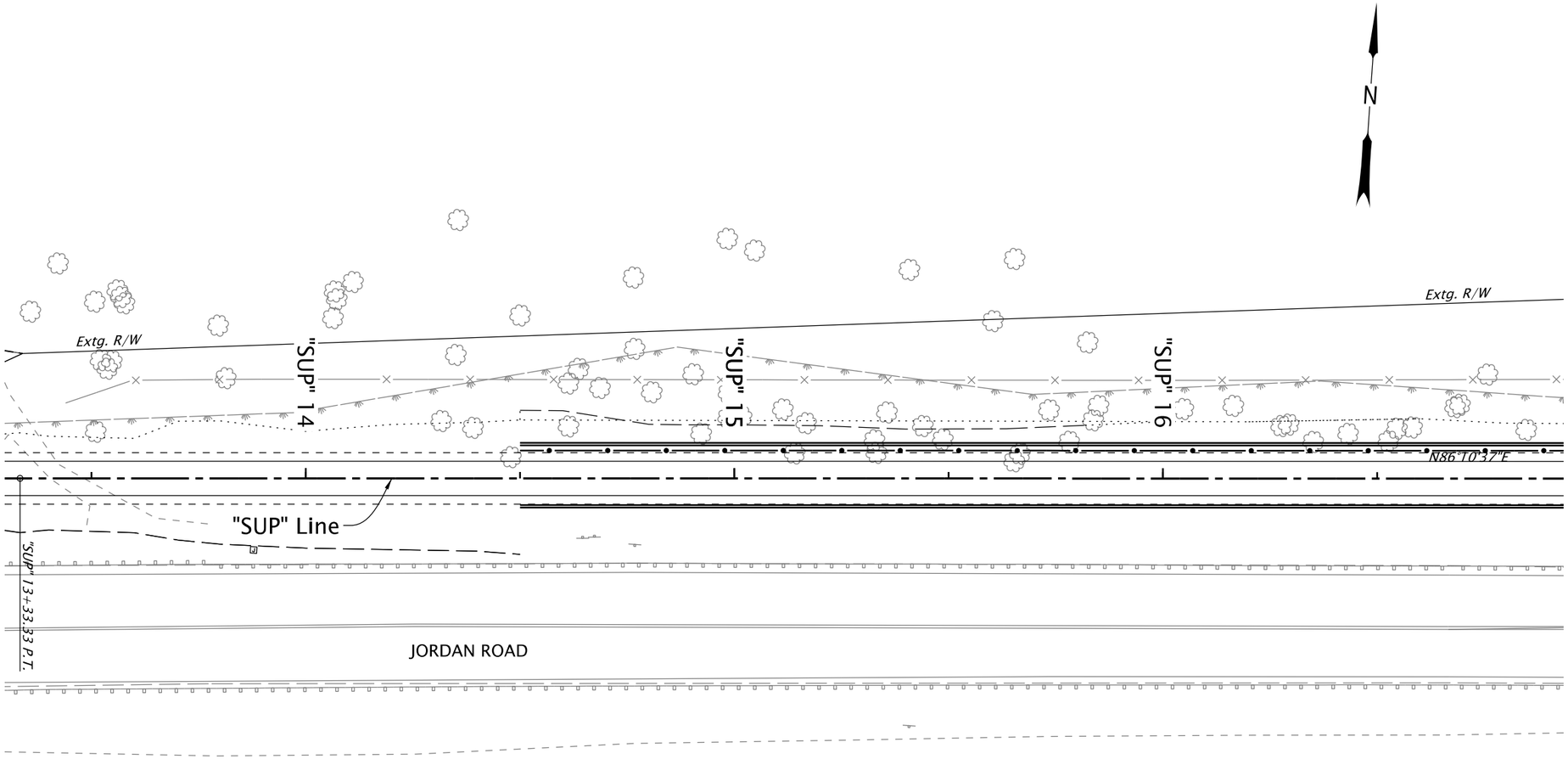
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Sec. 25, T.1 N., R. 3 E., W.M.



PLAN
SCALE: 1" = 30'

OREGON DEPARTMENT OF TRANSPORTATION

I-84: (MULTI-USE PATH)
JORDAN RD TUNNEL - SANDY RIVER DELTA PROJECT

COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

Designer: Sean Triana	Reviewer: Chivanna Pot
Drafter: Sue Cross	Checker: Bryan Dahlman

ALIGNMENT

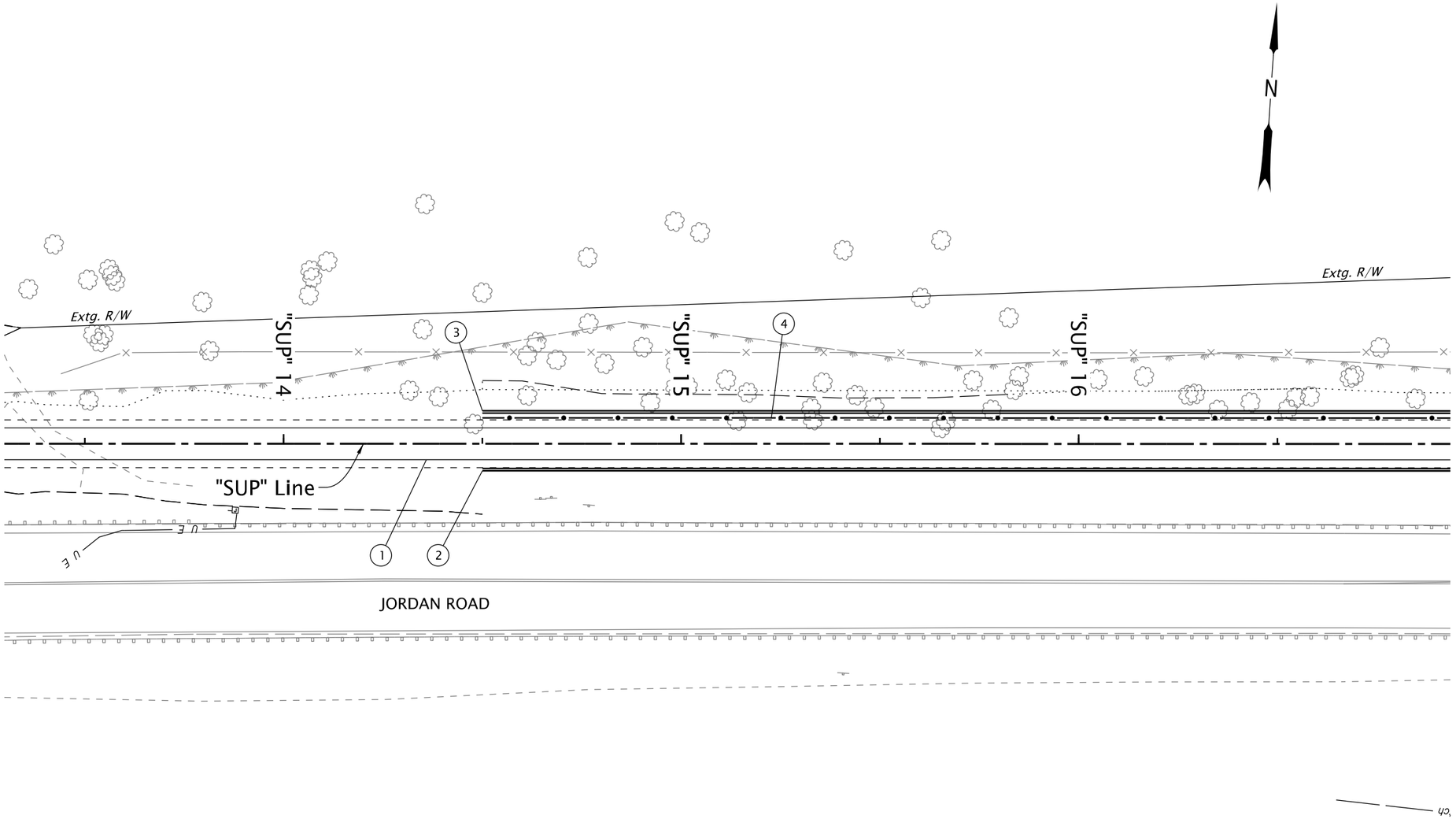
SHEET NO. C02

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

Sec. 25, T.1 N., R. 3 E., W.M.

Construction notes

1. *Const. 8' wide ACP path*
   (For details, seet sht. XXXX)
2. *Structure no. XXXX*
   Sta. "SUP" 14+50.00 to Sta. "SUP" 20+25.00, Rt.
   Const. gabion retaining wall
   (For sht. nos., see sht. A02, Geotechnical)
3. *Structure no. XXXX*
   Sta. "SUP" 14+50.00 to Sta. "SUP" 22+00.00, Lt.
   Const. MSE retaining wall
   (For sht. nos., see sht. A02, Geotechnical)
4. *Install pedestrian rail, modified*
   Sta. "SUP" 14+50.00 to Sta. "SUP" 22+00.00, Lt.
   (For details, seet sht. XXXX)



PLAN
SCALE: 1" = 30'

OREGON DEPARTMENT OF TRANSPORTATION

I-84: (MULTI-USE PATH)
JORDAN RD TUNNEL - SANDY RIVER DELTA PROJECT

COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

Designer: Sean Triana	Reviewer: Chivanna Pot
Drafter: Sue Cross	Checker: Bryan Dahlman

GENERAL CONSTRUCTION

SHEET NO. C02A

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

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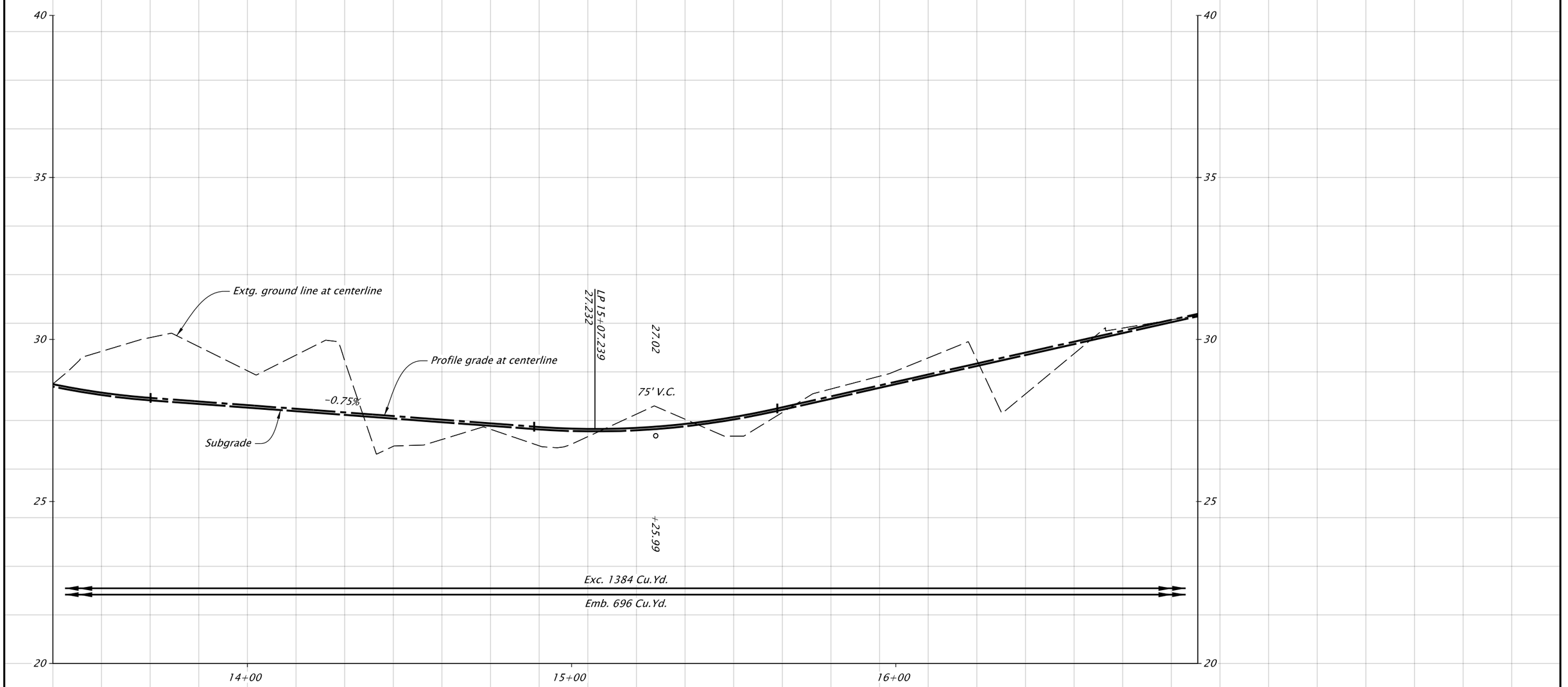

"SUP" LINE

HORIZ. SCALE: 1" = 30'
VERT. SCALE: 1" = 3'

OREGON DEPARTMENT OF TRANSPORTATION

I-84: (MULTI-USE PATH)
JORDAN RD TUNNEL - SANDY RIVER DELTA PROJECT

COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

Designer: Sean Triana	Reviewer: Chivanna Pot
Drafter: Sue Cross	Checker: Bryan Dahlman

PROFILE

SHEET NO. C02B

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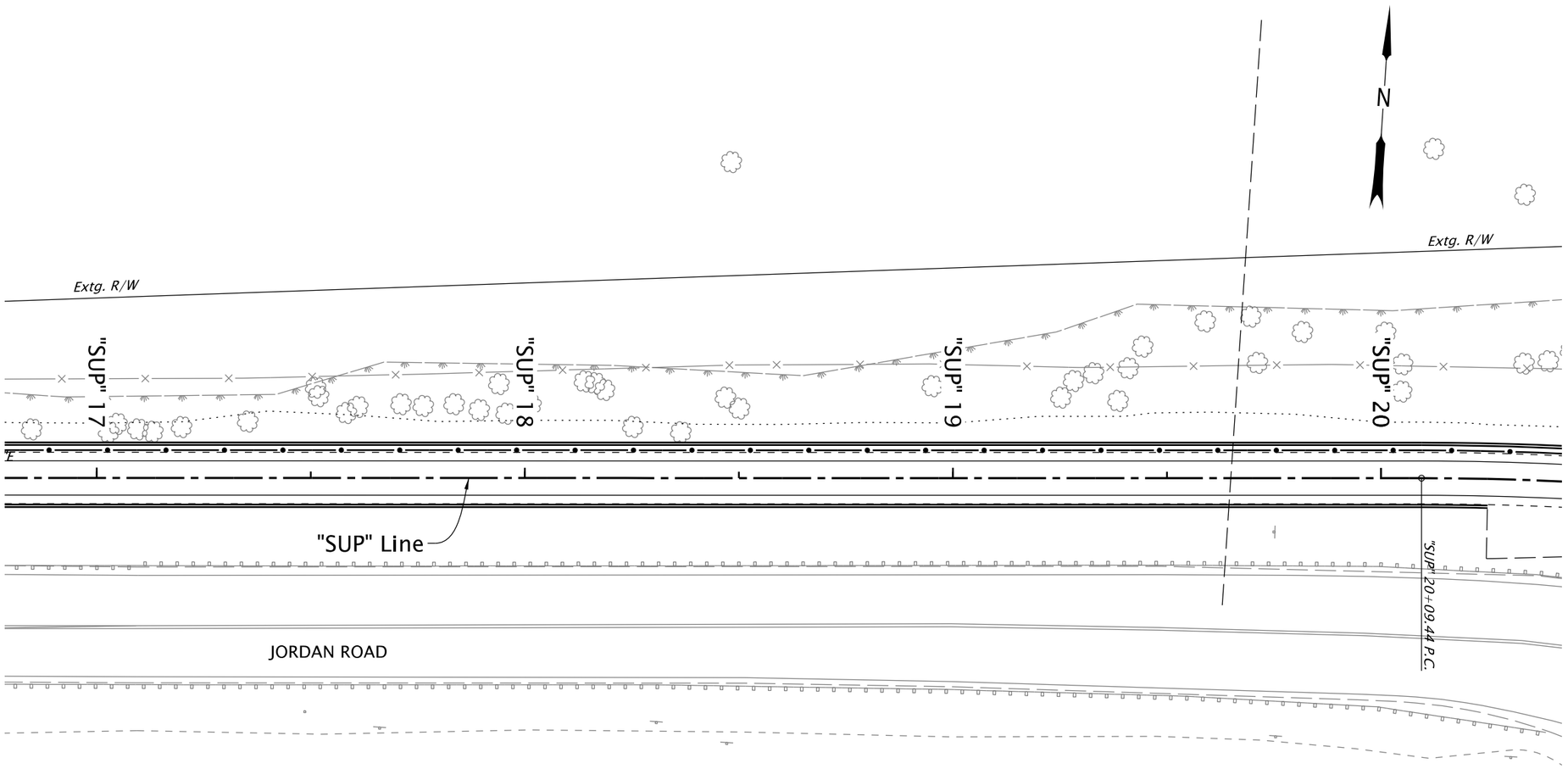
FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

Sec. 25, T.1 N., R. 3 E., W.M.



PLAN
SCALE: 1" = 30'

OREGON DEPARTMENT OF TRANSPORTATION

I-84: (MULTI-USE PATH)
JORDAN RD TUNNEL - SANDY RIVER DELTA PROJECT

COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

Designer: Sean Triana
Reviewer: Chivanna Pot
Drafter: Sue Cross
Checker: Bryan Dahlman

ALIGNMENT

SHEET NO.
C03

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

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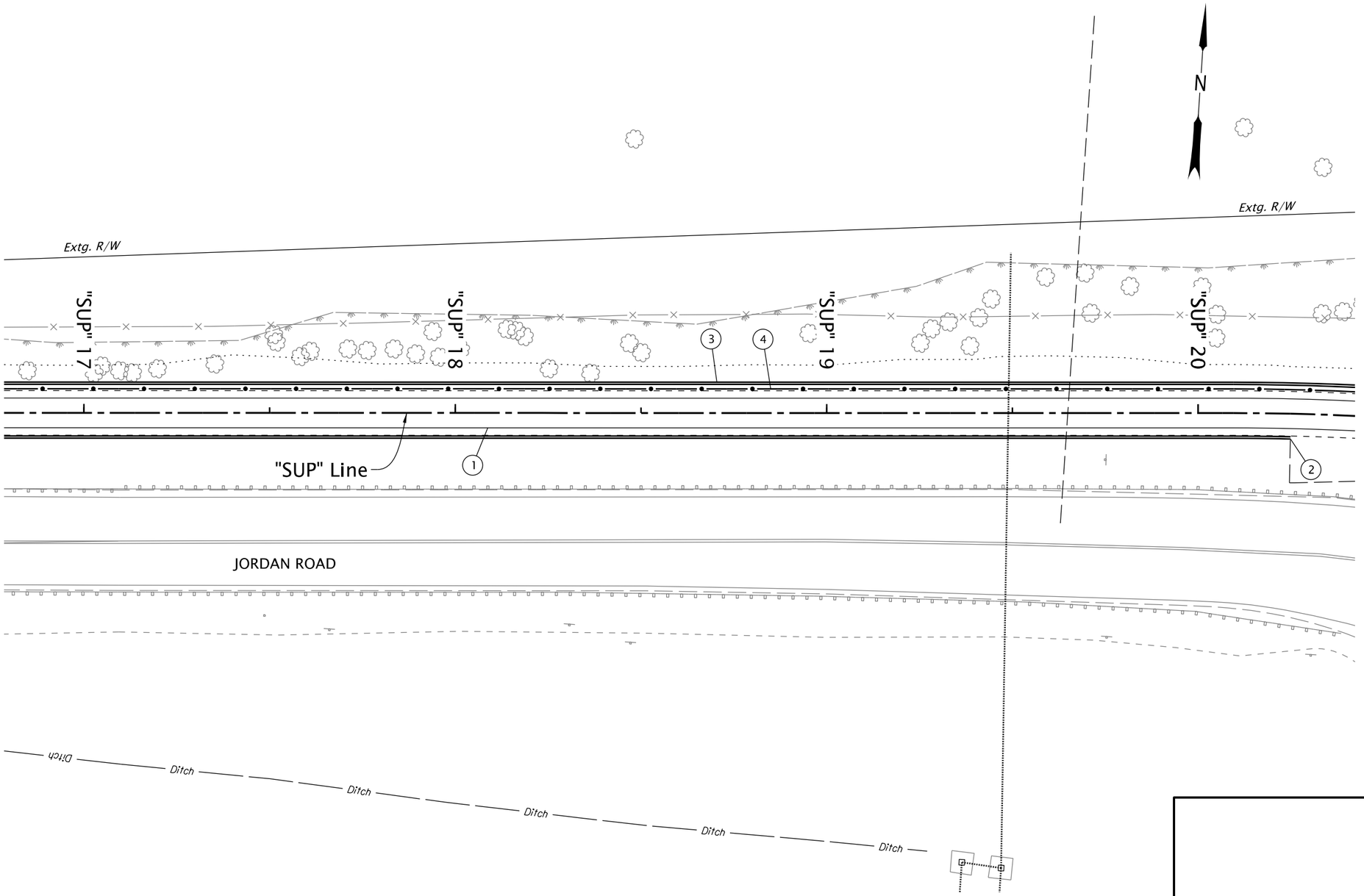
Sec. 25, T.1 N., R. 3 E., W.M.

Construction notes

1. *Const. 8' wide ACP path*
   (For details, seet sht. XXXX)
2. *Structure no. XXXX*
   Sta. "SUP" 14+50.00 to Sta. "SUP" 20+25.00, Rt.
   Const. gabion retaining wall
   (For sht. nos., see sht. A02, Geotechnical)
3. *Structure no. XXXX*
   Sta. "SUP" 14+50.00 to Sta. "SUP" 22+00.00, Lt.
   Const. MSE retaining wall
   (For sht. nos., see sht. A02, Geotechnical)
4. *Install pedestrian rail, modified*
   Sta. "SUP" 14+50.00 to Sta. "SUP" 22+00.00, Lt.
   (For details, seet sht. XXXX)



PLAN
SCALE: 1" = 30'

OREGON DEPARTMENT OF TRANSPORTATION

I-84: (MULTI-USE PATH)
JORDAN RD TUNNEL - SANDY RIVER DELTA PROJECT

COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

Designer: Sean Triana	Reviewer: Chivanna Pot
Drafter: Sue Cross	Checker: Bryan Dahlman

GENERAL CONSTRUCTION | SHEET NO. C03A

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

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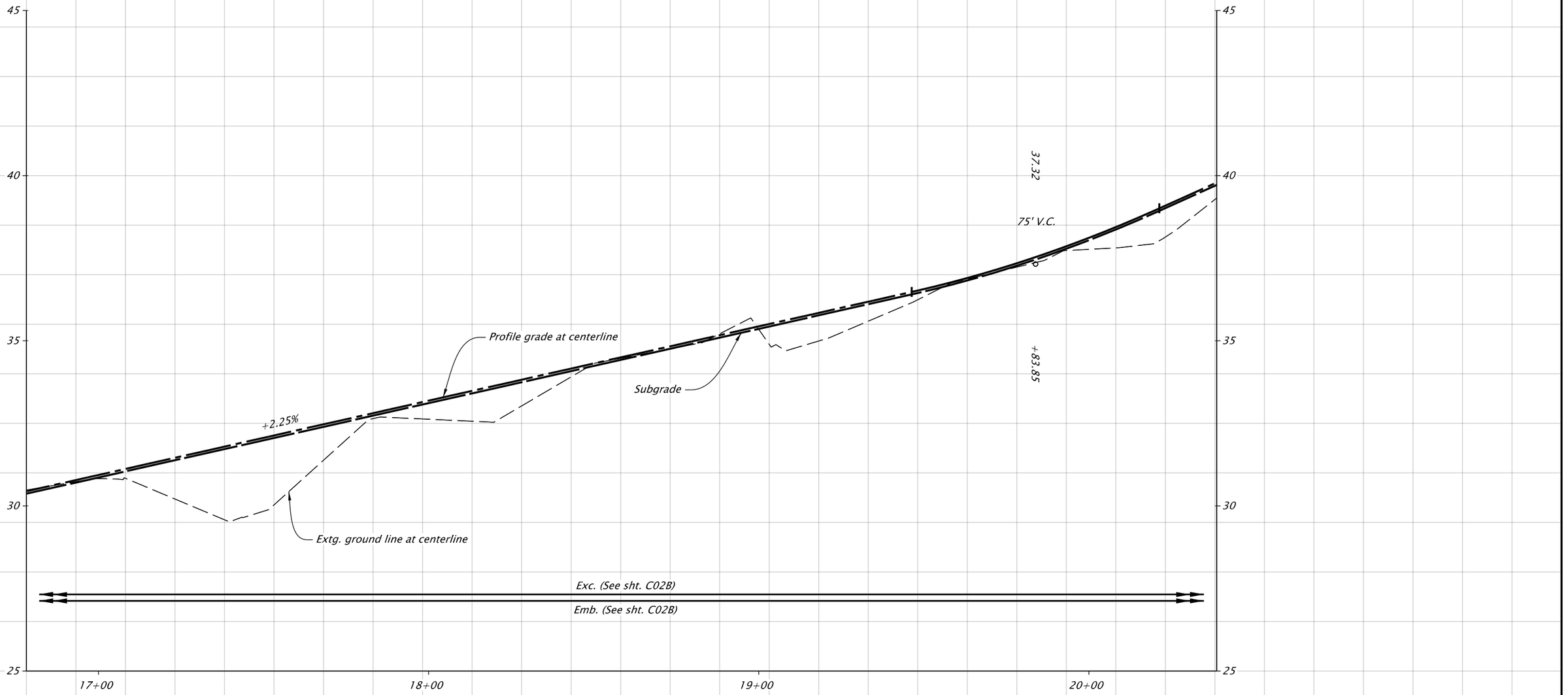

"SUP" LINE

HORIZ. SCALE: 1" = 30'
VERT. SCALE: 1" = 3'

OREGON DEPARTMENT OF TRANSPORTATION

I-84: (MULTI-USE PATH)
JORDAN RD TUNNEL - SANDY RIVER DELTA PROJECT

COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

Designer: Sean Triana | Reviewer: Chivanna Pot
Drafter: Sue Cross | Checker: Bryan Dahlman

PROFILE

SHEET NO. C03B

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

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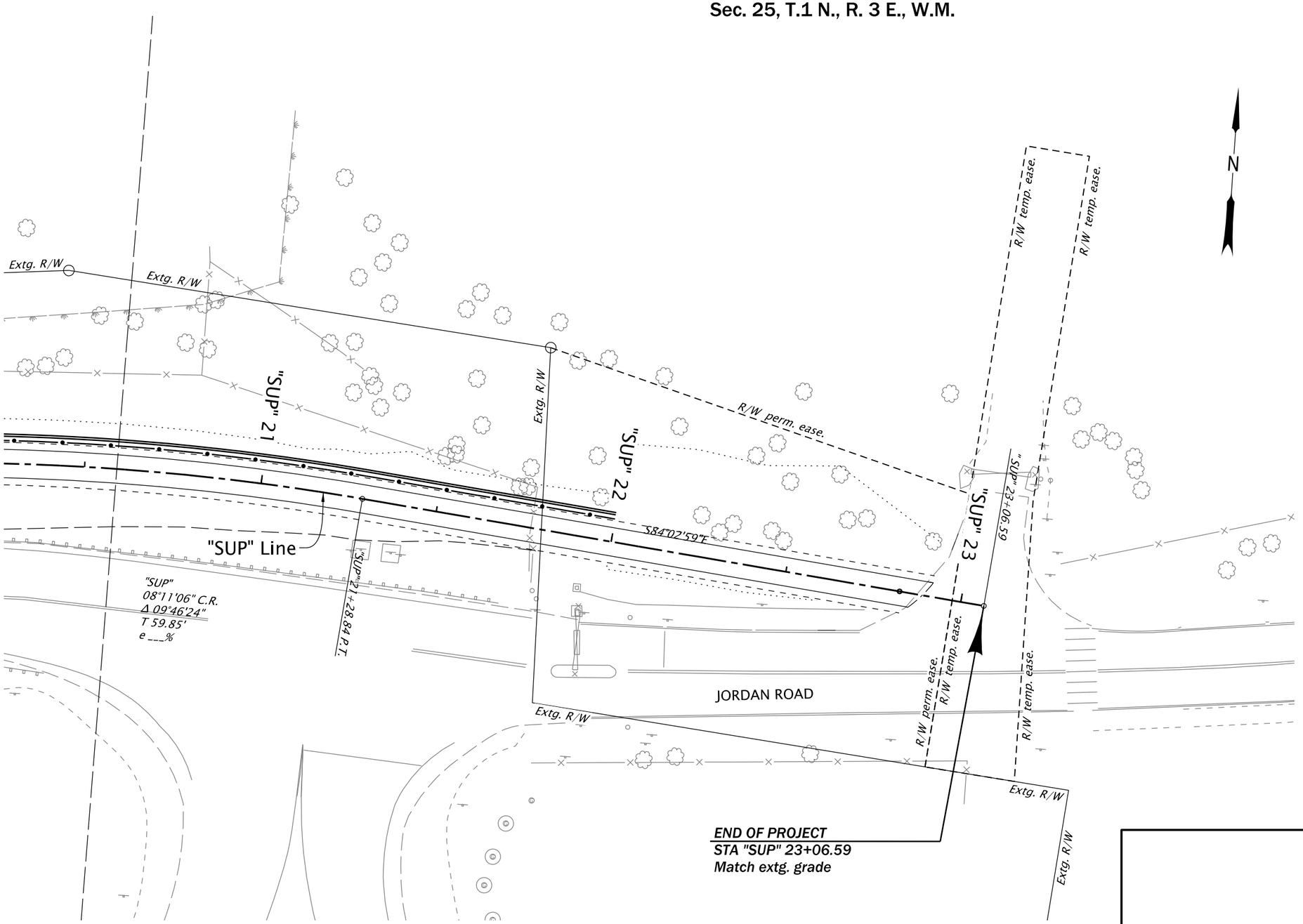
Sec. 25, T.1 N., R. 3 E., W.M.



PLAN
SCALE: 1" = 30'

OREGON DEPARTMENT OF TRANSPORTATION

I-84: (MULTI-USE PATH)
JORDAN RD TUNNEL - SANDY RIVER DELTA PROJECT

COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

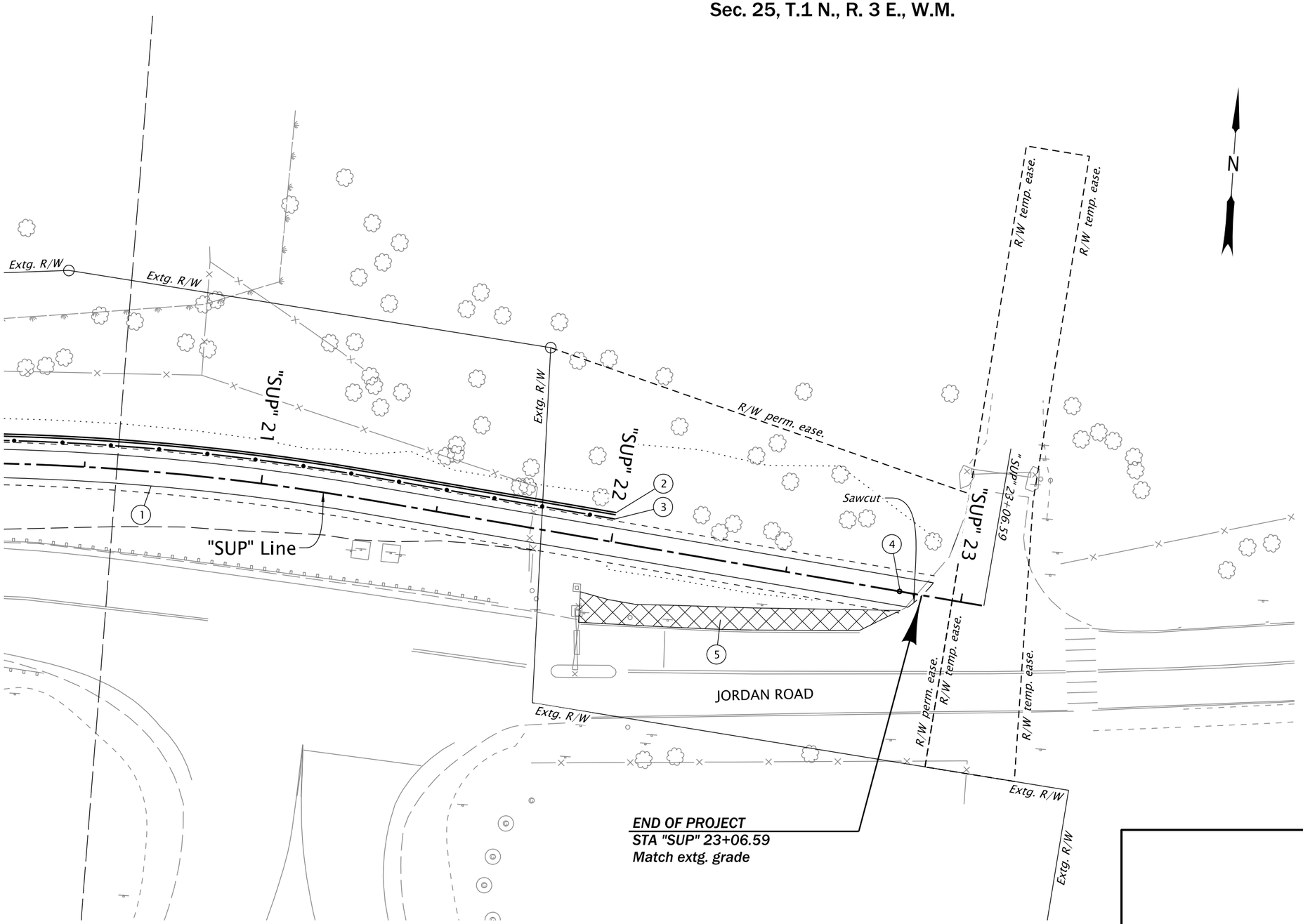
Designer: Sean Triana | Reviewer: Chivanna Pot
Drafter: Sue Cross | Checker: Bryan Dahlman

ALIGNMENT

SHEET NO. C04

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

Sec. 25, T.1 N., R. 3 E., W.M.



PLAN
SCALE: 1" = 30'

Construction notes

1. *Const. 8' wide ACP path*
   (For details, seet sht. XXXX)
2. *Structure no. XXXX*
   Sta. "SUP" 14+50.00 to Sta. "SUP" 22+00.00, Lt.
   Const. MSE retaining wall
   (For sht. nos., see sht. A02, Geotechnical)
3. *Install pedestrian rail, modified*
   Sta. "SUP" 14+50.00 to Sta. "SUP" 22+00.00, Lt.
   (For details, seet sht. XXXX)
4. *Inst. bollard (removable) - 1 each*
   Sta. "SUP" 22+82.49, 0' Rt.
   (See dwg. no. RD130)
5. *Remove sidewalk, shown thus:*

OREGON DEPARTMENT OF TRANSPORTATION

I-84: (MULTI-USE PATH)
JORDAN RD TUNNEL - SANDY RIVER DELTA PROJECT

COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

Designer: Sean Triana | Reviewer: Chivanna Pot
Drafter: Sue Cross | Checker: Bryan Dahlman

GENERAL CONSTRUCTION

SHEET NO. C04A

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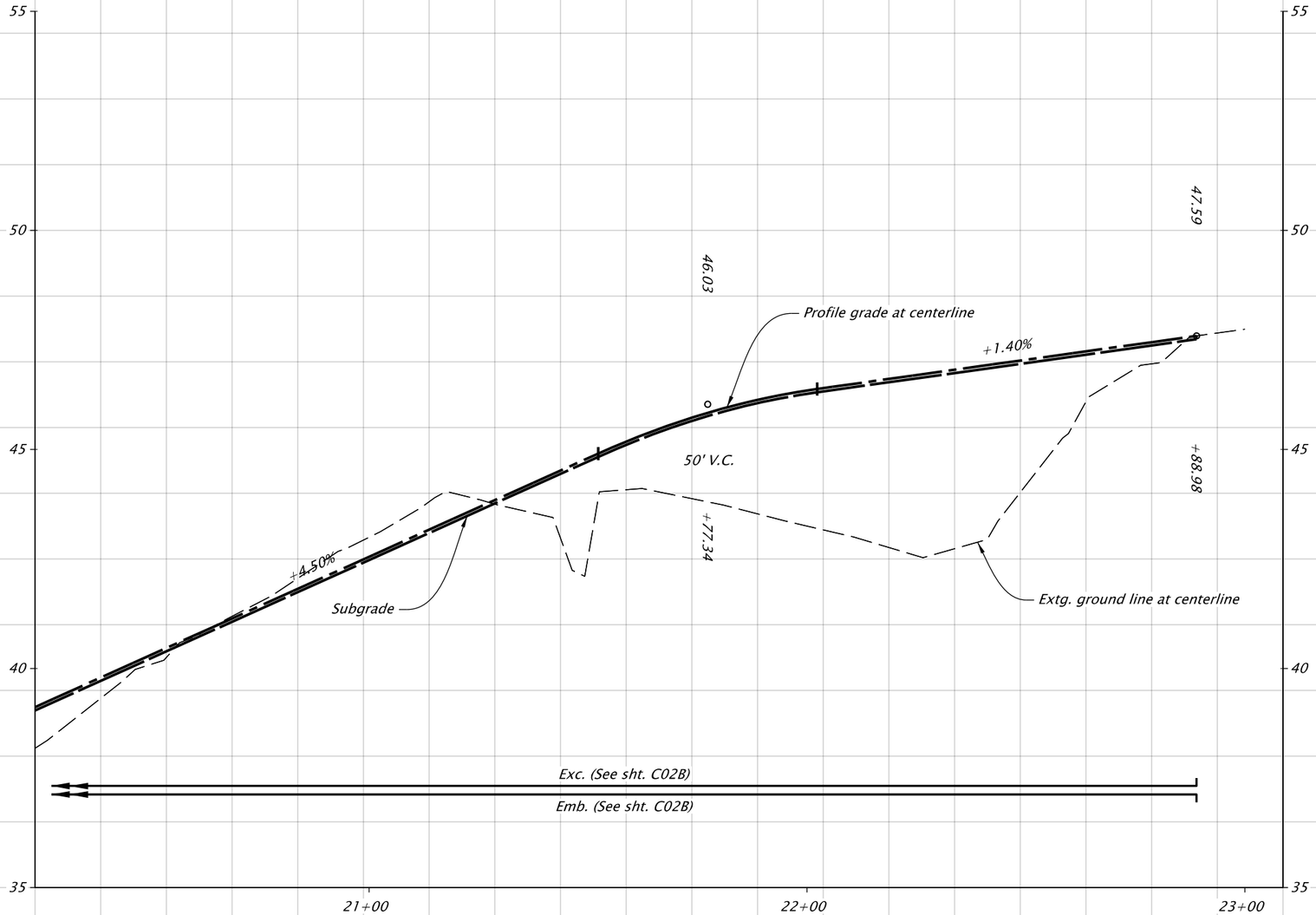

"SUP" LINE

HORIZ. SCALE: 1" = 30'
VERT. SCALE: 1" = 3'

OREGON DEPARTMENT OF TRANSPORTATION

I-84: (MULTI-USE PATH)
JORDAN RD TUNNEL - SANDY RIVER DELTA PROJECT

COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

Designer: Sean Triana	Reviewer: Chivanna Pot
Drafter: Sue Cross	Checker: Bryan Dahlman

PROFILE

SHEET NO. C04B

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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

GEOLOGIC HAZARDS PERMIT (GHP) FORM 1

Land Use Planning Division

www.multco.us/landuse ▪ Email: land.use.planning@multco.us ▪ Phone: (503) 988-3043

GEOTECHNICAL RECONNAISSANCE AND STABILITY PRELIMINARY STUDY

Note: Response to each question below must be completed or verified by a Certified Engineering Geologist or Geotechnical Engineer, including a State of Oregon Registration Stamp and Number in the space provided on page four. This form addresses Multnomah County Code Section 39.5085(C)(3)(c); 38.5515(C)(3)(c), Geologic Hazards Permits.

Site Address: No address, I-84 EB at Mile Point 18.0 (Jordan Road)

Legal Description: Multnomah Co., No Tax Lot, T01N, R03E, Sec. 25, NE 1/4

Property Owner's Name: Oregon Department of Transportation

Firm Preparing Report: Oregon Department of Transportation

Address: 123 NW Flanders St.

City: Portland **State:** OR **Zip:** 97209

Preparer's Name: Michael Bunn, PE

Phone Number: 503-312-1647

GENERAL PROPERTY INFORMATION

1. a. Maximum Slope on Property: 1.5H:1V Area in which it is located: North of Jordan Rd.
   Average Slope of Property: 4H:1V

   b. Are there any wetlands or streambeds on the property? (Please Circle) (Yes) No
   If yes, please show on topographical survey or sketch.

   c. Volume of soil or earth material disturbed, stored, disposed of or used as fill: 1,800 cubic yards

   d. Total area of proposed ground disturbance:
   45,000 (square feet) 1.0 (acres)

Were building plans considered when completing this form? (Please Circle) Yes (No)
If yes, please note the author and date the plans were prepared.

_____

2. What is the general topography of the property? Please attach a topographic survey or sketch with pertinent notes.

The topography consists of a roughly 1,000-foot-long, linearly-shaped manmade embankment slope with gradients between 4H:1V to 1H:1V. Site topography is shown on the site plan and additional description is provided in the attached Geotechnical Memorandum.

3. Are there any visible signs of instability or other potentially adverse site features (Landslides, slumps, mud flow, creep, ravines, fills, cuts, seeps, springs, ponds, etc.) within the surrounding area for a minimum distance of 100 feet beyond the subject property boundaries? Describe and indicate on attached topographic survey or sketch.

Moderate to dense vegetation (blackberries, grasses, etc.) covers much of the embankment slope. We observed several unvegetated paths that cross the slope and an abrupt drop or oversteepened area in one location along the embankment. The unvegetated paths appear to have been formed by humans or animals traversing the slope rather than by erosion. The abrupt drop may be associated with a slump, but is more likely caused by a vegetation roots.

4. Is any earthwork proposed in connection with site development?

(Please Circle) (Yes) No

If yes, please indicate depth and extent of cuts/fills; describe fill types.

Cuts and fills will be performed along much of the embankment's length, as shown on the site plan. Permanent cuts will be up to 5 feet and supported by either a gabion or mechanically stabilized earth (MSE) wall (see attached Geotechnical Memorandum). Temporary cuts may be as high as 10 feet involving slopes as steep as 1H:1V. Fills will consist of earthen embankments and an MSE wall. Both types of fill will consist of granular fill materials, either imported to the site, or repurposed from the excavation. The MSE wall will be reinforced using polymeric geogrid and will be constructed with a vertical face. The embankment will be unreinforced and constructed with a slope of 2H:1V.

5. In your opinion, will the proposed earthwork cause potential stability problems for the subject and/or adjacent properties?

(Please Circle) Yes (No) See attached Geotechnical Memorandum

IF YES, EXPRESS PROBABILITY:

(Please Circle) Very Probable Possibly Possible, but remote

If Very Probable or Possibly, please explain.

6. In your opinion, will the proposed development (structures, foundations, parking area, streets, etc.) create potential stability problems for the subject and/or adjacent properties?

(Please Circle) Yes **No** See attached Geotechnical Memorandum

IF YES, EXPRESS PROBABILITY:

(Please Circle) Very Probable Possibly Possible, but remote

If Very Probable or Possibly, please explain.

7. In your opinion would the subsurface disposal of sewage effluent on the site (i.e., drain fields) have an adverse affect on stability of the site or adjacent area?

(Please Circle) Yes **No** No sewage effluent will be disposed of on the site

IF YES, EXPRESS PROBABILITY:

(Please Circle) Very Probable Possibly Possible, but remote

If Very Probable or Possibly, please explain.

8. If answer is Very Probable or Possibly to questions 4 or 5, is it your opinion, on the basis of a visual evaluation, that adequate stability might be achieved by preferred siting of the development, alternative foundation support, earthwork, drainage, etc.?

(Please Circle) Yes No

If yes, please explain.

9. Do you recommend additional geotechnical studies (i.e., mapping, testing pits or borings, stability analysis, etc.) prior to site development?

(Please Circle) Yes **No**

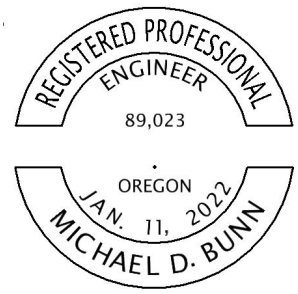
If yes, please explain.

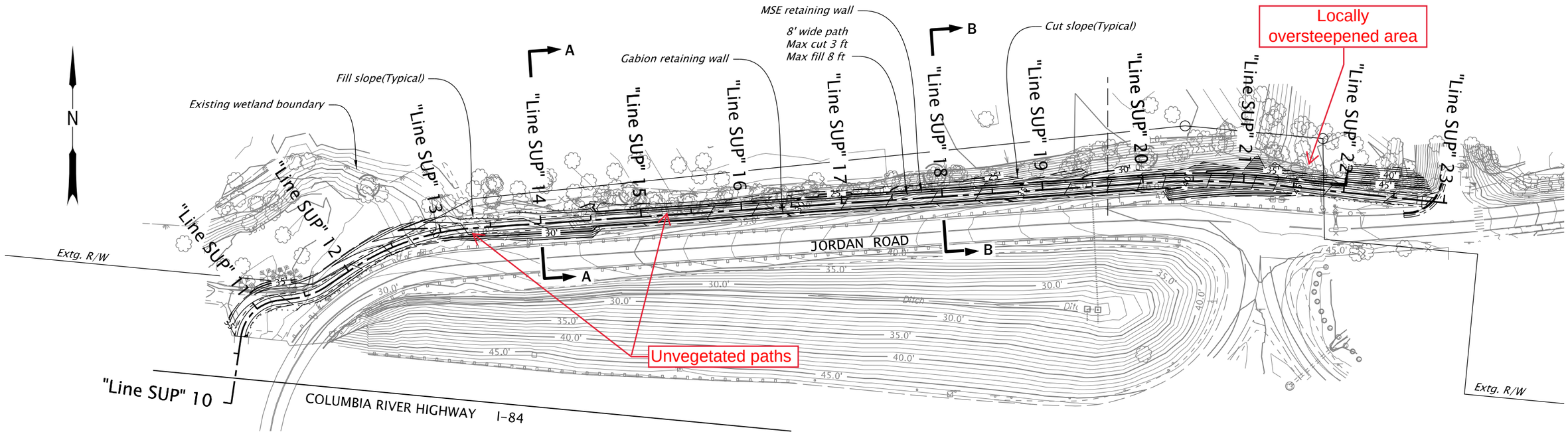
By signing and affixing the required stamp below, the Certifying Engineering Geologist or Geotechnical Engineer certifies that the site is suitable for the proposed development.

Signature Michael D. Bunn

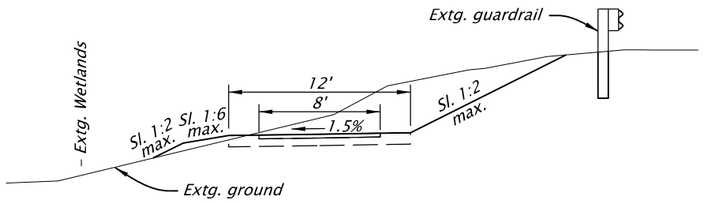
Date 7/22/2024

Affix Seal Here

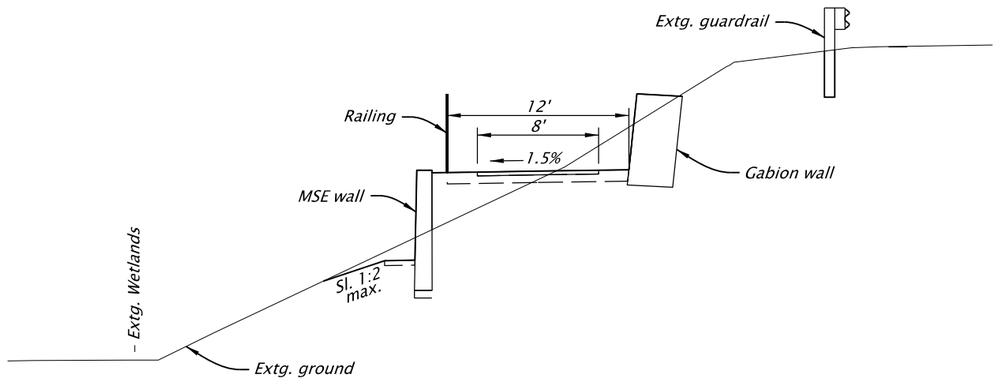




PLAN
SCALE: 1" = 100'



SECTION A-A
SCALE: NTS



SECTION B-B
SCALE: NTS

GENERAL NOTES:

1. *100-year flood elevation 35.2' per FEMA FIRM Panel and FIS Flood Profile 68P Sandy River.*
2. *Sidewalk grading will undergo some refinements to better balance the cut-fill quantities and review comments as the design progress.*

Path Grading	
Total Project Earthwork Quantities	
Cut	*642 CY*
Fill	*1142 CY*
Net (fill)	*500 CY*
Earthwork Quantities in Floodplain	
Cut	*457 CY*
Fill	*418 CY*
Net (cut)	*38 CY*

OREGON DEPARTMENT OF TRANSPORTATION

I-84: (MULTI-USE PATH)
JORDAN RD TUNNEL - SANDY RIVER DELTA PROJECT

COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

Site Plan

Oregon Department of Transportation

Geotechnical Memorandum

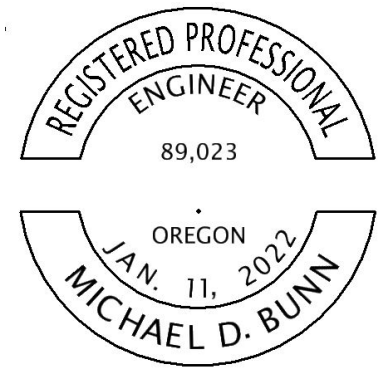
I-84 Multi-Use Path: Jordan Rd. Tunnel to Sandy River Delta
I-84 Columbia River Highway (No. 002) MP 18.0
Multnomah County
Key 23428

Date: June 21, 2024

To: Terra Lingley
Columbia River Gorge National Scenic Area Coordinator

From: Michael Bunn, PE
Geotechnical Engineer
Region 1 Geo/Hydro/HazMat Unit

Subject: Geotechnical Reconnaissance and Preliminary Stability Study I-84 Multi-Use Path along Jordan Road



Reviewed By: **Thomas E. Braibish, PE**
June 20, 2024

Purpose

The purpose of this memorandum is to support the Multnomah County Geologic Hazards Permit application for the I-84 Multi-Use Path: Jordan Road Tunnel to Sandy River Delta project. This project will design and construct a multi-use path parallel to Jordan Road from the I-84 pedestrian tunnel to the Sandy River Delta. The new trail will replace an existing informal gravel trail (Figure 1).

For most of the trail's roughly 1,000-foot length, Jordan Road sits on a roughly 15- to 25-foot-tall manmade embankment constructed above Sandy River floodplain deposits. Where the trail will be constructed, the embankment slope has gradients varying from as shallow as 4H:1V at the west to as steep as 1.5H:1V at the east. Areas beyond the toe of the embankment are classified as wetland and the entire trail will be constructed completely outside of the wetland boundary. Much of the embankment is below the regulated 100-year flood elevation; therefore, the trail must be designed so that there is no net addition of fill within the floodplain, to meet floodplain management requirements. The design meets these requirements by excavating in some areas of the project to offset fill in other areas of the project.

Over a length of approximately 600 feet at the east end of the trail, steep embankment slopes require the construction of near-vertical walls to accomplish trail grading. Following review of numerous design concepts, the project team has decided on constructing a mechanically

stabilized earth (MSE) wall on the trail's north side to support trail and a gabion basket wall on the trail's south side to support the slope above the trail (Figure 2). Temporary excavation will need to be performed in constructing both walls.

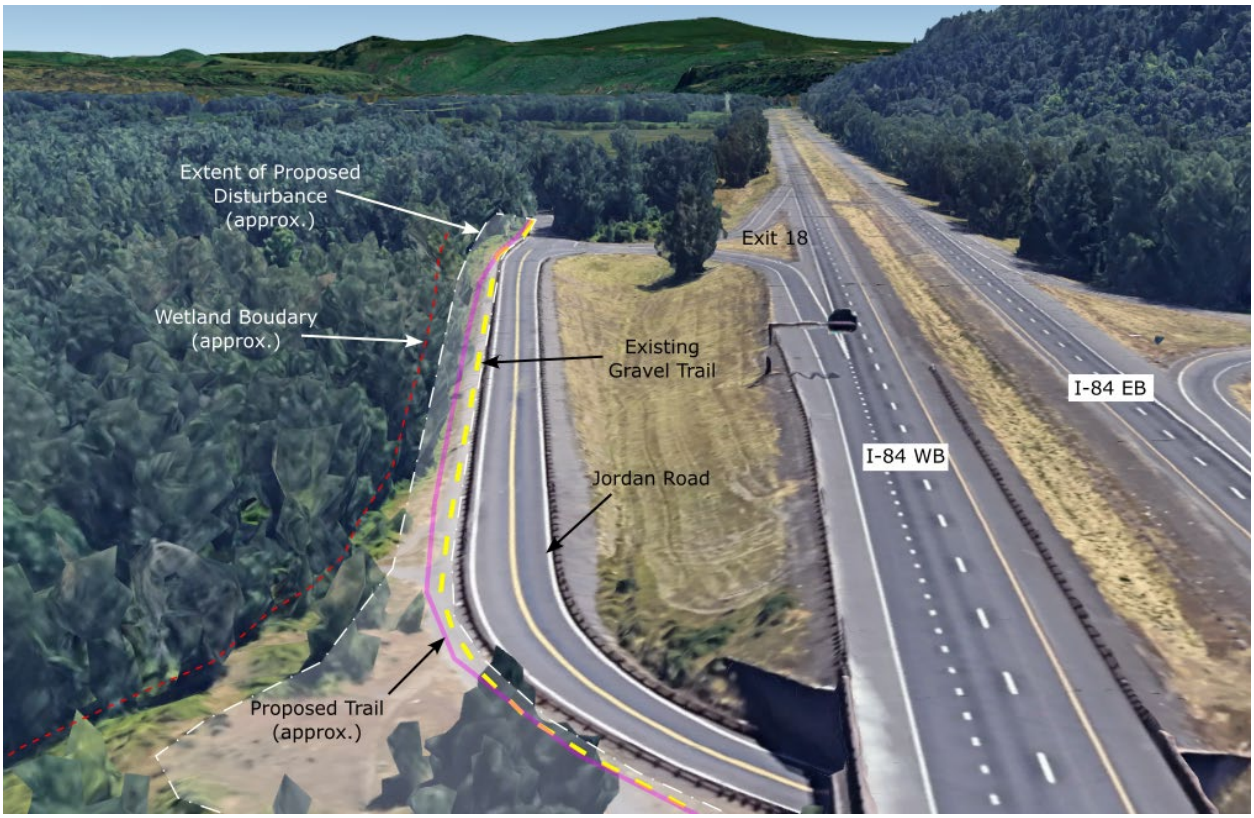


Figure 1: Oblique airborne view east toward the project area.

The new trail segment was the subject of geotechnical investigations during a previous study. The investigations consisted of five geotechnical borings that were performed in the northern lane of Jordan Road. Each boring was advanced to a depth of approximately 20 feet, corresponding roughly with the base elevation of embankment fill. Materials encountered in these borings ranged from loose to very dense sand with silt. While not captured in the previous study, geomorphologic interpretation suggests that conditions below the embankment are presumed to be Sandy River alluvial deposits. Borings performed for the I-84 Sandy River Bridge, located near the west end of the proposed trail, indicate that these alluvial deposits consist of interbedded clayey silt and sandy gravel deposits.

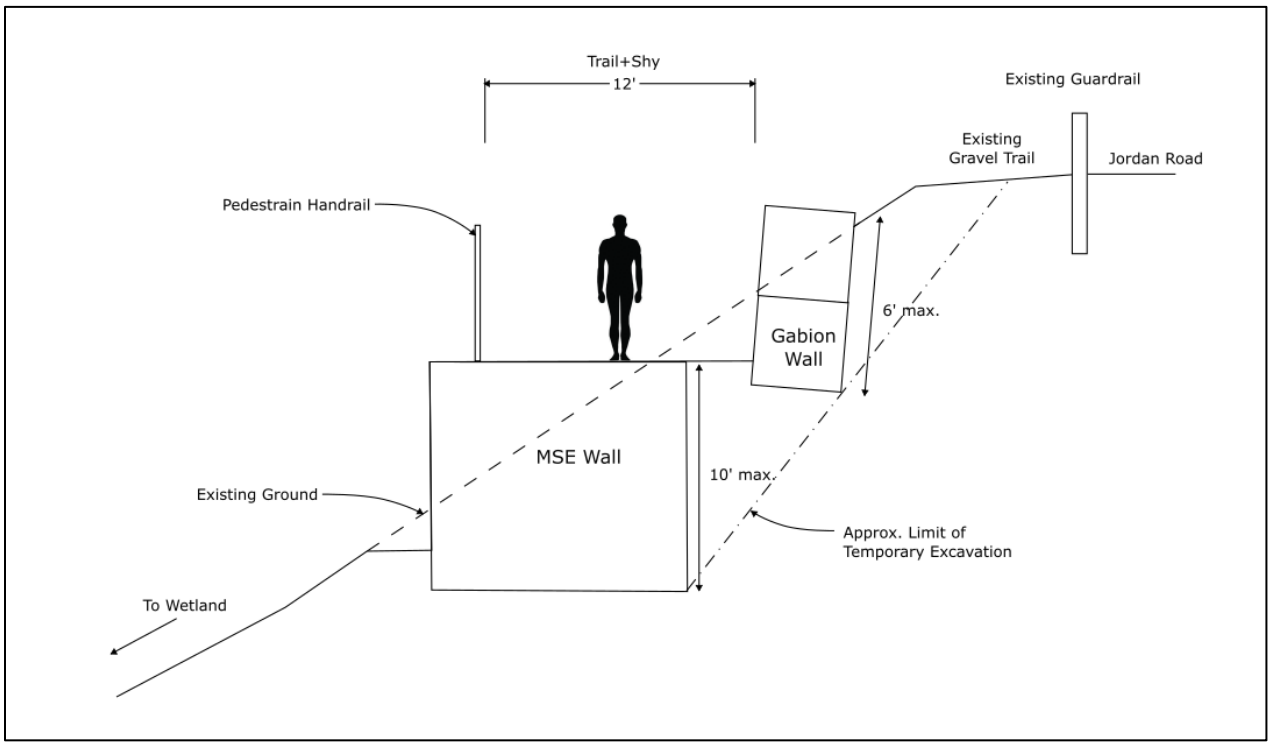


Figure 2: Typical cross section of the trail showing both proposed walls.

Construction will be performed completely within manmade fill that does not have a history of slope instability and is not located in the vicinity of known landslides. To evaluate if the proposed construction and permanent features would impact stability of the embankment, we performed slope stability analyses on several trail cross sections chosen to represent the steepest location along each distinct section of the trail. Our analyses showed that the proposed features would be stable under design loads and 100-year flood conditions. Based on the results of these stability analyses, it is our opinion that the proposed earthwork and site development will not create stability problems for the surrounding facilities.