



## ENGINEERING CHANGE NOTICE

<b>Project:</b> Former Satralloy Site Slag Removal Interim Action			<b>ECN No.:</b> 002		
<b>Project No.:</b> US0033555.9828			<b>Date:</b> 5/2/2025		
<b>Engineering Change Notice Name:</b> North Lowlands Drainage Revision			<b>Contract No.:</b> 35862100006-001		
<b>Project Feature:</b> Constructed Wetland, CB-31 Storm Drain, Drainage Ditch from North Mill Building to Constructed Wetland					
<b>Affected Documents:</b> Design Drawing Sheets 011, 400-402, 600-603, 610, 630, 700, 701, 710, and 711					
<b>Description of Change:</b> The following changes are presented in Design Drawings Revision 1 – North Lowlands Drainage Revision for the reasons described in the following section:					
<div><div>1.</div><div><b>Wetland Extended Southwest</b> – The proposed constructed wetland was extended to the southwest to daylight the storm drain discharging from CB-31 in the side slope of the wetland. When reassessing the area, the wetland was also extended slightly to the east to better optimize the space. As a result, the wetland area increased from 1.2 acres to 1.8 acres. The cut storm drain will need to be extended to daylight into the riprap-lined discharge channel on the wetland side slope as shown in Section AR on Sheet 710. Detail 5 was added to Sheet 711 to show the addition of steel bars at the end of the storm drain for safety (i.e., to prevent children or animals from entering the storm drain).</div></div> <div><div>2.</div><div><b>Wetland Bottom Elevation Raised</b> – The proposed constructed wetland bottom was raised by 1 ft to a bottom elevation of 697.5 ft to allow placement of a clean soil layer as discussed below. As a result, the habitat mounds were also raised by 1 ft to maintain their height relative to the wetland bottom. Note, the elevations of the top of wetland peninsula and top of sill remain the same (i.e., elevation 699.5 ft and 698 ft, respectively). Also note that clean soil fill used to achieve final grades for the wetlands shall be from sources and locations as approved by the Construction Manager prior to use.</div></div> <div><div>3.</div><div><b>Wetland Outlet Sill Modification</b> – The geometry of the wetland outlet sill at the southwest corner of the constructed wetland was modified since it no longer needs to accommodate the storm drain that was removed. A 3-ft thick wedge of limestone rock was added to the wetland outlet sill side slope for erosion protection and pH buffering. Detail 4 was added on Sheet 711 to clarify this.</div></div> <div><div>4.</div><div><b>Wetland North Side Slope Grading Modification</b> – The grading of the north side slope of the wetland was updated using survey provided by RETTEW dated March 18, 2024, which was completed after tree clearing activities and provides better accuracy than the base topography used in the original design drawings. The proposed constructed wetland grading uses the elevations from the RETTEW survey along the railroad buffer line and grades down from 3H:1V to the wetland bottom.</div></div> <div><div>5.</div><div><b>Changes to Quantity Estimates</b> – In order to assess changes to estimated cut/fill quantities resulting from the wetland grading modifications (described in Changes No. 1 through 4 above), the North Lowlands slag removal surface was modified to reflect subgrade conditions observed to date and per slag removal excavation criteria along the railroad buffer and County Road 74. The table below summarizes the changes to quantity estimates resulting from the wetland grading modifications.</div></div>					
Bid Form Item Number	Bid Form Item Name	Units	Initial Estimate	Revised Estimate	Change
2.7.1	Excavate and Haul Slag - North Lowlands*	bcy	74,187	93,455	19,268
2.7.10	Spread and Compact Slag and Mill Floor Soil in Consolidated SP	ecy	1,716,682	1,737,876	21,194
4.1.1	Load Clean Soil Fill, Haul, and Spread	ecy	388,648	390,873	2,225
4.1.4	Fine Grading	sv	513,565	514,492	927



## ENGINEERING CHANGE NOTICE

4.1.5	Load Vegetative Soil, Haul, and Spread on Backfill Area	cy	85,594	85,749	155
4.2.1	Seeding - Milkweed, Native Wildflower and Native Grass Seed Mix	ac	106.1	106.3	0.2
4.2.2	Erosion and Sediment Control Mat	sy	82,908	82,924	16
4.2.3	Enhanced Woodland Habitat Area	ac	38.3	38.2	-0.1
4.2.4	Understory Vegetation	ac	38.3	38.2	-0.1
4.4.1	Grass-Lined Swale	lf	2,983	2,952	-31
5.2	Perimeter Fencing - Along County Road 74	lf	3,882	3892	10

\*The change in slag volume is based actual conditions. The North Lowlands drainage revision does not change the volume.

The overall cut and fill of native material (below slag subgrade) to achieve the modified final grade surface in the North Lowlands (after slag removal) also increased (an estimated 4,828 bcy of additional cut and 6,765 bcy of additional fill). Also, note that Bid Form Item 4.3 - Constructed Wetland is a lump sum value and the details of the Constructed Wetland have changed.

6. **Drainage Ditch from North Mill Building to Constructed Wetland Grading Modification** – The grading of the drainage ditch directing water from the former North Mill Building floor to the constructed wetland was re-graded to tie the ditch into the new wetland extents. The grading modification also makes use of additional space created by removal of the concrete pad that was formerly present southeast of the North Mill Building concrete pad.
7. **Wetland Discharge Channel Details Added** – The discharge channel for the storm drain discharging from CB-31 was sized to convey full flow from the 30-inch storm drain, the discharge channel for the twin culverts was sized to convey full flow from the two 18-inch culverts, and the discharge channel for the swale was sized to convey at least the 100-year, 24-hour peak flow from its drainage area. Details 1 through 3 were added on Sheet 711 for the three wetland discharge channels.
8. **North Lowlands Final Grading Tie in to Existing Ground Details Added** – Detail 6 on Sheet 711 was added to clarify how the wetland will tie in to existing ground along the northern edge and Detail 5 on Sheet 630 was added to clarify how the wetland berm and ditch grading will tie in along County Road 74.

RECON shall correspond directly with WSP Construction Management and CAMC Project Management with any cost or schedule impacts as a result of this ECN.



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**Justification for Change:** In October 2024, while removing slag to a greater depth than was expected, the storm drain that discharges from CB-31 was removed from the south side of the rail offload ramp to HW-5. Rather than diverting drainage from CB-31 east to the twin culverts that drain under the rail spur and into the proposed constructed wetland, the proposed constructed wetland was expanded to the southwest to daylight the storm drain in the side slope of the wetland.

Furthermore, slag extends deeper than expected in the North Lowlands adjacent to County Road 74. To avoid undermining the road, slag excavation began at a 4-ft offset from the edge of pavement and extended away from the road at a 1H:1V slope down to the slag subgrade in the constructed wetland area. Clean soil fill will be placed against the slag side slope at a 3H:1V side slope to construct the wetland. Since more slag will be left in-place than anticipated, it was decided to raise the wetland bottom with the placement of an additional 1-ft-thick layer of clean soil fill, both to reduce the head in the wetland (by reducing the water depth in the wetland from 1.5 ft to 0.5 ft) and to act as a low-permeability soil liner to reduce infiltration. The clean soil fill wedge placed along the 1H:1V slag side slope will also help to reduce infiltration through the slag that is left in-place below County Road 74.

As a final water quality protection measure, a 3-ft thick wedge of limestone rock was added to the wetland outlet sill side slope to neutralize potential acidic water discharging from the wetland. This stormwater discharge will also be monitored during the monthly stormwater sampling performed as part of the Construction SWPPP.

☒ Significant Design Change – Regulatory approval of this ECN is required prior to construction

☐ Insignificant Design Change – No regulatory approval is required

**Prepared by:** Vanessa Nancarrow, PE

### Approvals:

WSP Design Engineer: <i>Vanessa Nancarrow</i>	Date: May 2, 2025
WSP Project Director: <i>Jon Richardson</i>	Date: May 2, 2025
WSP Construction Manager: <i>Cameron Beul</i>	Date: May 2, 2025
CAMC Program Manager: <i>Barbara Nielsen</i>	Date: May 2, 2025
OEPA Site Coordinator: See attached email approval	Date: May 7, 2025

### Distribution:

<input checked="" type="checkbox"/> Barbara Nielsen	CAMC Program Manager	<input checked="" type="checkbox"/> Rick Meyers	RECON Branch Manager
<input checked="" type="checkbox"/> Jordan Sisson	CAMC Project Manager	<input checked="" type="checkbox"/> Chuck Williams	RECON Project Manager
<input checked="" type="checkbox"/> Jason Pingel	CAMC HSO	<input checked="" type="checkbox"/> Kent Geis	RECON Project Manager
<input checked="" type="checkbox"/> Steve Anderson	WSP Project Director	<input checked="" type="checkbox"/> Jon Richardson	RECON CM
<input checked="" type="checkbox"/> Brent Barbich	WSP Project Manager	<input checked="" type="checkbox"/> Rodney Cockerel	RECON SSO
<input checked="" type="checkbox"/> Cameron Beul	WSP Construction Manager	<input checked="" type="checkbox"/> Mark Sackman	RECON SSM
<input checked="" type="checkbox"/> Richard Pletz	WSP HSO	<input checked="" type="checkbox"/> Kevin O'Hara	OEPA Site Coordinator
<input checked="" type="checkbox"/> Laura Stodola	WSP Project Coordinator		



SLAG REMOVAL INTERIM ACTION  
FORMER SATRALLOY SITE, JEFFERSON COUNTY, OHIO

DRAWING LIST	
SHEET NUMBER	SHEET TITLE
010	COVER SHEET
011	DRAWING INDEX
020	SITE OVERVIEW
030	SURVEY MONUMENTATION AND CONTROL
040	SITE GROUNDWATER MONITORING WELLS AND OIL GAS WELLS
050	EXISTING CONDITIONS - NORTH LOWLANDS (1 OF 2)
051	EXISTING CONDITIONS - NORTH LOWLANDS (2 OF 2)
052	EXISTING CONDITIONS - PLANT AREA (1 OF 2)
053	EXISTING CONDITIONS - PLANT AREA (2 OF 2)
054	EXISTING CONDITIONS - SOUTH LOWLANDS (1 OF 3)
055	EXISTING CONDITIONS - SOUTH LOWLANDS (2 OF 3)
056	EXISTING CONDITIONS - SOUTH LOWLANDS (3 OF 3)
057	EXISTING CONDITIONS - UPLANDS (1 OF 3)
058	EXISTING CONDITIONS - UPLANDS (2 OF 3)
059	EXISTING CONDITIONS - UPLANDS (3 OF 3)
060	EXISTING CONDITIONS - FORMER MINE AREA (1 OF 4)
061	EXISTING CONDITIONS - FORMER MINE AREA (2 OF 4)
062	EXISTING CONDITIONS - FORMER MINE AREA (3 OF 4)
063	EXISTING CONDITIONS - FORMER MINE AREA (4 OF 4)
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101	TEMPORARY EROSION AND SEDIMENT CONTROL PLAN - PLANT AREA
102	TEMPORARY EROSION AND SEDIMENT CONTROL PLAN - SOUTH LOWLANDS
103	TEMPORARY EROSION AND SEDIMENT CONTROL PLAN - NORTH UPLANDS
104	TEMPORARY EROSION AND SEDIMENT CONTROL PLAN - SOUTH UPLANDS
105	TEMPORARY EROSION AND SEDIMENT CONTROL PLAN - FORMER MINE AREA
110	TEMPORARY EROSION AND SEDIMENT CONTROL DETAILS
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121	CLEARING PLAN - PLANT AREA
122	CLEARING PLAN - SOUTH LOWLANDS
123	CLEARING PLAN - NORTH UPLANDS
124	CLEARING PLAN - SOUTH UPLANDS
125	CLEARING PLAN - FORMER MINE AREA
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150	BORROW AREA A - SECTIONS AND VOLUME-ELEVATION CURVES
151	BORROW AREA B - SECTIONS AND VOLUME-ELEVATION CURVES
152	BORROW AREA C - SECTIONS AND VOLUME-ELEVATION CURVES
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211	SLAG REMOVAL PLAN - NORTH LOWLANDS (2 OF 2)


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216	SLAG REMOVAL PLAN - SOUTH LOWLANDS (3 OF 3)
217	SLAG REMOVAL PLAN - UPLANDS (1 OF 3)
218	SLAG REMOVAL PLAN - UPLANDS (2 OF 3)
219	SLAG REMOVAL PLAN - UPLANDS (3 OF 3)
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221	SLAG REMOVAL SECTIONS - SOUTH LOWLANDS
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223	SLAG REMOVAL SECTIONS - UPLANDS (1 OF 2)
224	SLAG REMOVAL SECTIONS - UPLANDS (2 OF 2)
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231	CRIB AND FOUNDATION WALL SLAG REMOVAL SECTIONS (2 OF 2)
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524	MINE AREA STOCKPILE - FINAL SITE PLAN (4 OF 4)
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551	MINE AREA STOCKPILE - DOWNCHUTE PROFILES (2 OF 2)

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603	RESTORATION AND SURFACE WATER MANAGEMENT PLAN - SOUTH LOWLANDS
604	RESTORATION AND SURFACE WATER MANAGEMENT PLAN - NORTH UPLANDS
605	RESTORATION AND SURFACE WATER MANAGEMENT PLAN - SOUTH UPLANDS
606	RESTORATION AND SURFACE WATER MANAGEMENT PLAN - FORMER MINE AREA
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611	FINAL GRADING AND RESTORATION SECTIONS - PLANT AREA (1 OF 2)
612	FINAL GRADING AND RESTORATION SECTIONS - PLANT AREA (2 OF 2)
613	FINAL GRADING AND RESTORATION SECTIONS - SOUTH LOWLANDS
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615	FINAL GRADING AND RESTORATION SECTIONS - UPLANDS (2 OF 2)
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711	CONSTRUCTED WETLAND DETAILS - NORTH LOWLANDS
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801	MAIN ACCESS ROAD PROFILE (2 OF 2)
802	MAIN ACCESS ROAD SECTIONS
810	ACCESS ROAD AND FENCING DETAILS

CONTECH DRAWINGS	
SHEET NO.	SHEET TITLE
CT1	DOWNCHUTE WEST LAYOUT PLAN
CT2	DOWNCHUTE NORTH LAYOUT PLAN
CT3	DOWNCHUTE EAST AND SOUTH LAYOUT PLANS
CT4	DOWNCHUTE SOUTH LAYOUT PLAN AND DOWNCHUTE TYPICAL SECTIONS
CT5	ARTICULATED CONCRETE BLOCK MAT TYPICAL DETAILS

1	2025-04-25	NORTH LOWLANDS DRAINAGE REVISION	VMN	REDMOND	FSS	RSA	
0	2024-03-08	ISSUED FOR CONSTRUCTION	VMN	REDMOND	FSS	RSA	
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED	


SEAL



CLIENT

CYPRUS AMAX MINERALS COMPANY

CONSULTANT



REDMOND

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PROJECT

FORMER SATRALLOY SITE  
SLAG REMOVAL INTERIM ACTION  
JEFFERSON COUNTY, OHIO

TITLE

DRAWING INDEX

PROJECT NO.

1239330907

PHASE

900

REV.

1

2 of 112

SHEET

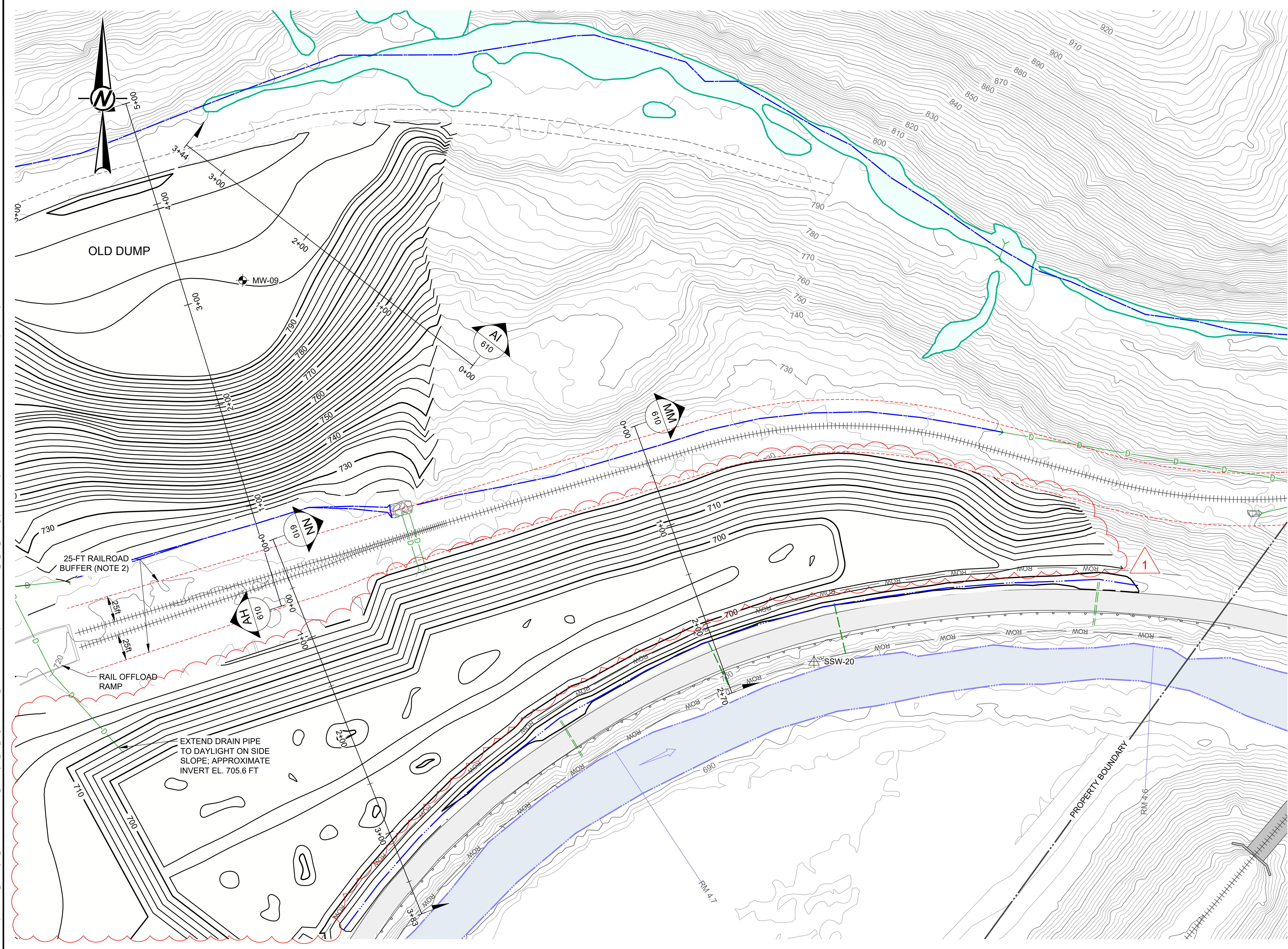
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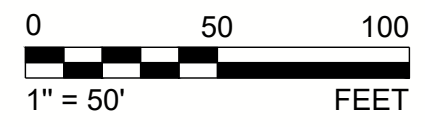


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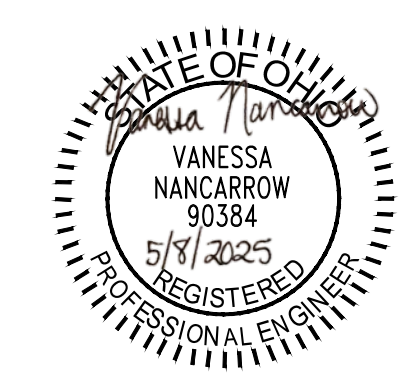
- LEGEND**
- 800 — EXISTING MAJOR CONTOURS (10-FT INTERVAL)
  - EXISTING MINOR CONTOURS (2-FT INTERVAL)
  - 750 — FINAL GRADING SURFACE MAJOR CONTOURS (10-FT INTERVAL)
  - FINAL GRADING SURFACE MINOR CONTOURS (2-FT INTERVAL)
  - PROPERTY BOUNDARY
  - PROPERTY DEED OVERLAP
  - CROSS CREEK
  - - - EXISTING ON-SITE ACCESS ROAD
  - EXISTING COUNTY ROAD (PAVED)
  - COUNTY ROAD RIGHT-OF-WAY (ROW)
  - EXISTING CONCRETE PAD
  - EXISTING BUILDING
  - EXISTING RIPRAP
  - EXISTING RAILROAD
  - EXISTING FENCE
  - EXISTING GUARDRAIL
  - EXISTING OVERHEAD ELECTRICAL LINE
  - EXISTING OVERHEAD TELEPHONE LINE
  - EXISTING DRAINAGE DITCH
  - EXISTING UNDERGROUND DRAINAGE PIPE
  - EXISTING CULVERT / DRAIN PIPE DISCHARGE
  - EXISTING UNDERGROUND DRAINAGE PIPE (DIA SHOWN)
  - EXISTING MANHOLE (UNVERIFIED)
  - EXISTING MANHOLE (VERIFIED)
  - EXISTING CATCH BASIN (UNVERIFIED)
  - EXISTING CATCH BASIN (VERIFIED)
  - EXISTING HEADWALL
  - EXISTING INLET
  - JURISDICTIONAL WETLANDS (USACE JURISDICTION)
  - JURISDICTIONAL TRIBUTARY (USACE JURISDICTION)
  - MW-01 GROUNDWATER MONITORING WELL
  - SSW-02 SEEP MONITORING LOCATION
  - 60235 OIL/GAS WELL

- NOTES**
- SEE NOTES 1-2, SHEET 210.
  - NO CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN THE EXTENTS OF RAILROAD BUFFER ZONE. ALL PERSONNEL ARE PROHIBITED FROM ENTERING THE RAILROAD BUFFER ZONE WITHOUT PRIOR APPROVAL.
  - REGRADING CONTOURS MAY BE MODIFIED BY THE DESIGN ENGINEER FROM THOSE SHOWN, DEPENDING ON THE ACTUAL EXTENT OF SLAG REMOVAL.
  - EXTEND CATCH BASINS TO 6 INCHES BELOW FINAL GROUND SURFACE AS REQUIRED.



REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
1	2025-04-25	NORTH LOWLANDS DRAINAGE REVISION	VMN	REDMOND	FSS	RSA
0	2024-03-08	ISSUED FOR CONSTRUCTION	VMN	REDMOND	FSS	RSA

SEAL



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CONSULTANT



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PROJECT FORMER SATRALLOY SITE SLAG REMOVAL INTERIM ACTION JEFFERSON COUNTY, OHIO			
TITLE <b>FINAL GRADING PLAN - NORTH LOWLANDS (1 OF 2)</b>			
PROJECT NO. 1239330907	PHASE 900	REV. 1	58 of 112 SHEET <b>400</b>

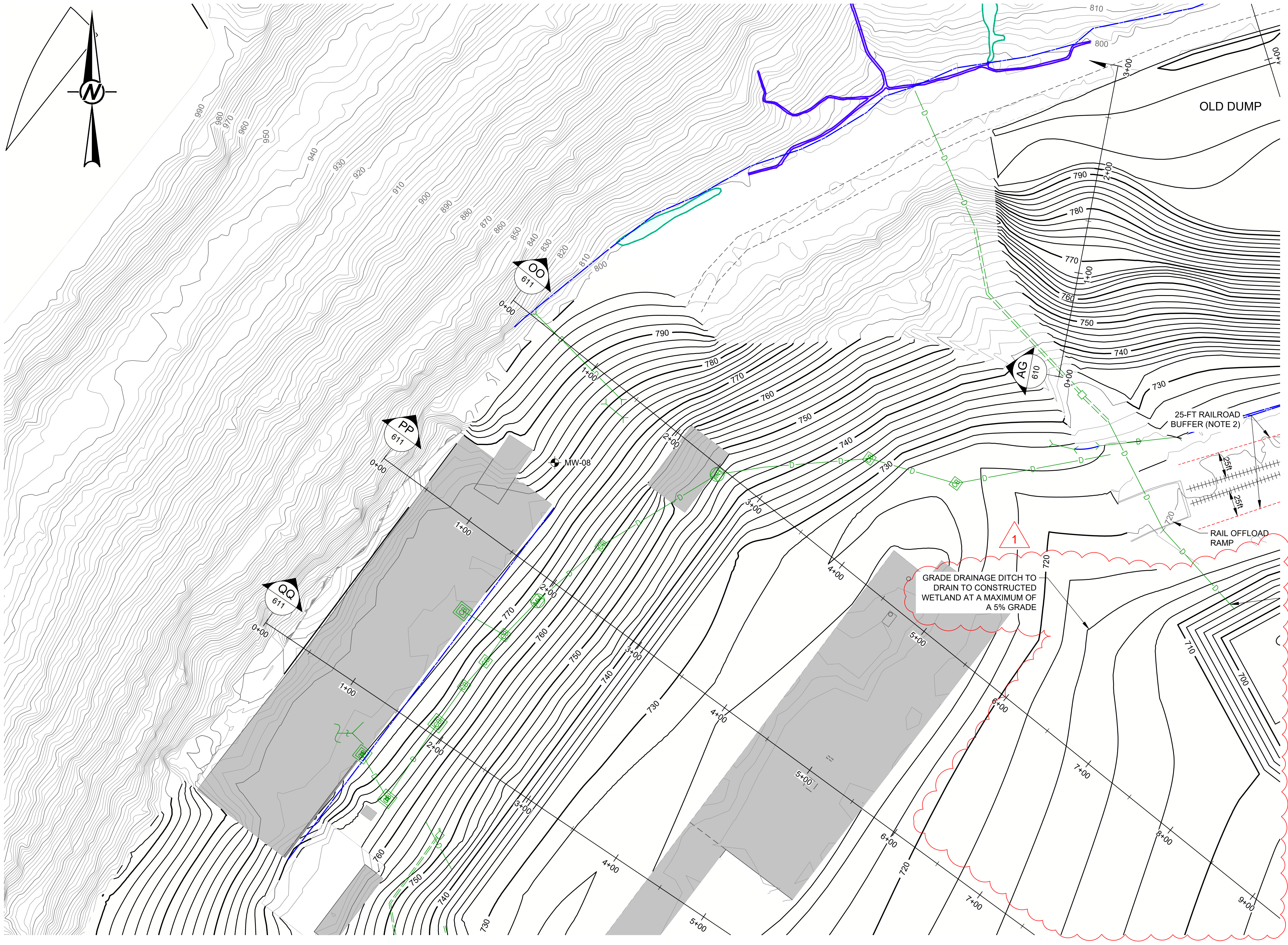
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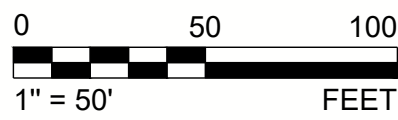


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- 800 — EXISTING MAJOR CONTOURS (10-FT INTERVAL)
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  - EXISTING COUNTY ROAD (PAVED)
  - ROW
  - ROW
  - EXISTING CONCRETE PAD
  - EXISTING BUILDING
  - EXISTING RIPRAP
  - +++++ EXISTING RAILROAD
  - EXISTING FENCE
  - EXISTING GUARDRAIL
  - OH
  - TEL
  - EXISTING OVERHEAD ELECTRICAL LINE
  - EXISTING OVERHEAD TELEPHONE LINE
  - EXISTING DRAINAGE DITCH
  - EXISTING UNDERGROUND DRAINAGE PIPE
  - EXISTING CULVERT / DRAIN PIPE DISCHARGE
  - EXISTING UNDERGROUND DRAINAGE PIPE (DIA SHOWN)
  - EXISTING MANHOLE (UNVERIFIED)
  - EXISTING MANHOLE (VERIFIED)
  - EXISTING CATCH BASIN (UNVERIFIED)
  - EXISTING CATCH BASIN (VERIFIED)
  - EXISTING HEADWALL
  - EXISTING INLET
  - JURISDICTIONAL WETLANDS (USACE JURISDICTION)
  - JURISDICTIONAL TRIBUTARY (USACE JURISDICTION)
  - MW-01 GROUNDWATER MONITORING WELL
  - SSW-02 SEEP MONITORING LOCATION
  - 60235 OIL/GAS WELL

- NOTES**
- SEE NOTES 1-2, SHEET 210.
  - NO CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN THE EXTENTS OF RAILROAD BUFFER ZONE. ALL PERSONNEL ARE PROHIBITED FROM ENTERING THE RAILROAD BUFFER ZONE WITHOUT PRIOR APPROVAL.
  - REGRADING CONTOURS MAY BE MODIFIED BY THE DESIGN ENGINEER FROM THOSE SHOWN, DEPENDING ON THE ACTUAL EXTENT OF SLAG REMOVAL.
  - EXTEND CATCH BASINS TO 6 INCHES BELOW FINAL GROUND SURFACE AS REQUIRED.



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0	2024-03-08	ISSUED FOR CONSTRUCTION	VMN	REDMOND	FSS	RSA

SEAL



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CONSULTANT



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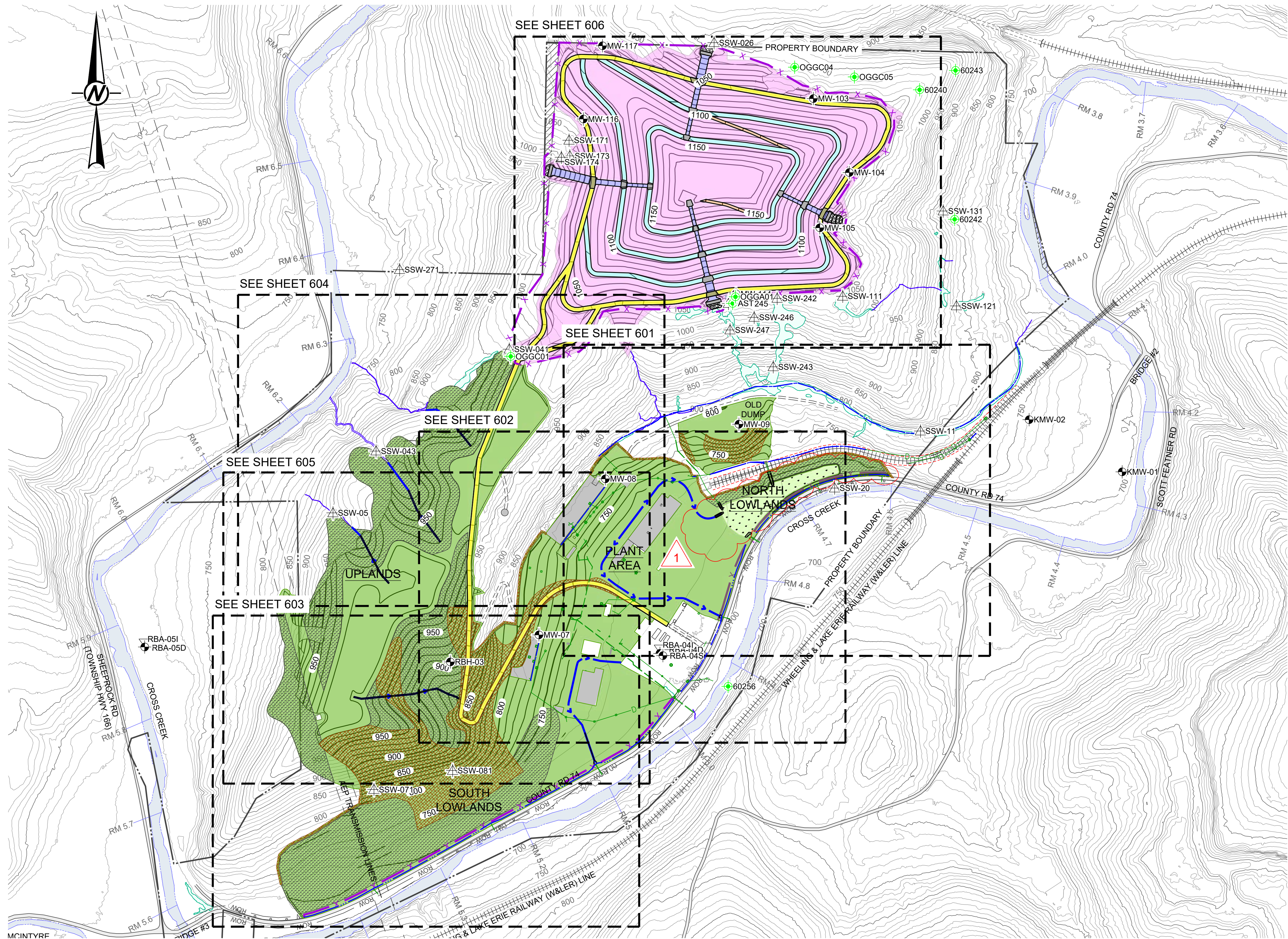
PROJECT  
FORMER SATRALLOY SITE  
SLAG REMOVAL INTERIM ACTION  
JEFFERSON COUNTY, OHIO

TITLE  
**FINAL GRADING PLAN - PLANT AREA (1 OF 2)**

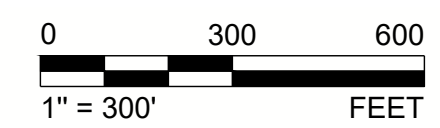
PROJECT NO.	PHASE	REV.	60 of 112	SHEET
1239330907	900	1		402



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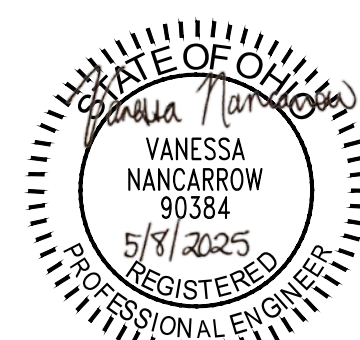


- LEGEND**
- 800 — EXISTING MAJOR CONTOURS (50-FT INTERVAL)
  - EXISTING MINOR CONTOURS (10-FT INTERVAL)
  - 750 — FINAL GRADING SURFACE MAJOR CONTOURS (50-FT INTERVAL)
  - FINAL GRADING SURFACE MINOR CONTOURS (10-FT INTERVAL)
  - PROPERTY BOUNDARY
  - PROPERTY DEED OVERLAP
  - CROSS CREEK
  - EXISTING ON-SITE ACCESS ROAD
  - EXISTING COUNTY ROAD (PAVED)
  - COUNTY ROAD RIGHT-OF-WAY (ROW)
  - EXISTING CONCRETE PAD
  - EXISTING BUILDING
  - EXISTING RIPRAP
  - EXISTING RAILROAD
  - EXISTING FENCE
  - EXISTING GUARDRAIL
  - EXISTING DRAINAGE DITCH
  - EXISTING UNDERGROUND DRAINAGE PIPE
  - EXISTING CULVERT / DRAIN PIPE DISCHARGE
  - EXISTING UNDERGROUND DRAINAGE PIPE (DIA SHOWN)
  - EXISTING DRAINAGE (GPR)
  - EXISTING MANHOLE (UNVERIFIED)
  - EXISTING MANHOLE (VERIFIED)
  - EXISTING CATCH BASIN (UNVERIFIED)
  - EXISTING CATCH BASIN (VERIFIED)
  - EXISTING HEADWALL
  - EXISTING INLET
  - JURISDICTIONAL WETLANDS (USACE JURISDICTION)
  - JURISDICTIONAL TRIBUTARY (USACE JURISDICTION)
  - MW-01 GROUNDWATER MONITORING WELL
  - SSW-02 SEEP MONITORING LOCATION
  - 60235 OIL/GAS WELL
  - PROPOSED MAIN ACCESS ROAD
  - PROPOSED MILKWEED, NATIVE WILDFLOWER, & GRASS MIX SEEDING AREA
  - PROPOSED NATIVE GRASS MIX SEEDING AREA
  - PROPOSED ENHANCED WOODLAND HABITAT AREA
  - PROPOSED EROSION AND SEDIMENT CONTROL MAT
  - PROPOSED CONSTRUCTED WETLANDS
  - PROPOSED DRAINAGE BENCH
  - PROPOSED ACCESS RAMP
  - PROPOSED ARTICULATED CONCRETE BLOCK DOWNCHUTE
  - PROPOSED CONCRETE
  - PROPOSED ARMOR ROCK
  - PROPOSED DRAINAGE
  - PROPOSED FENCE



1	2025-04-25	NORTH LOWLANDS DRAINAGE REVISION	VMN	REDMOND	FSS	RSA
0	2024-03-08	ISSUED FOR CONSTRUCTION	VMN	REDMOND	FSS	RSA
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

SEAL



CLIENT  
CYPRUS AMAX MINERALS COMPANY

CONSULTANT



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PROJECT  
FORMER SATRALLOY SITE  
SLAG REMOVAL INTERIM ACTION  
JEFFERSON COUNTY, OHIO

TITLE  
**RESTORATION AND SURFACE WATER MANAGEMENT PLAN -  
SITE OVERVIEW**

PROJECT NO. 1239330907	PHASE 900	REV. 1	90 of 112	SHEET 600
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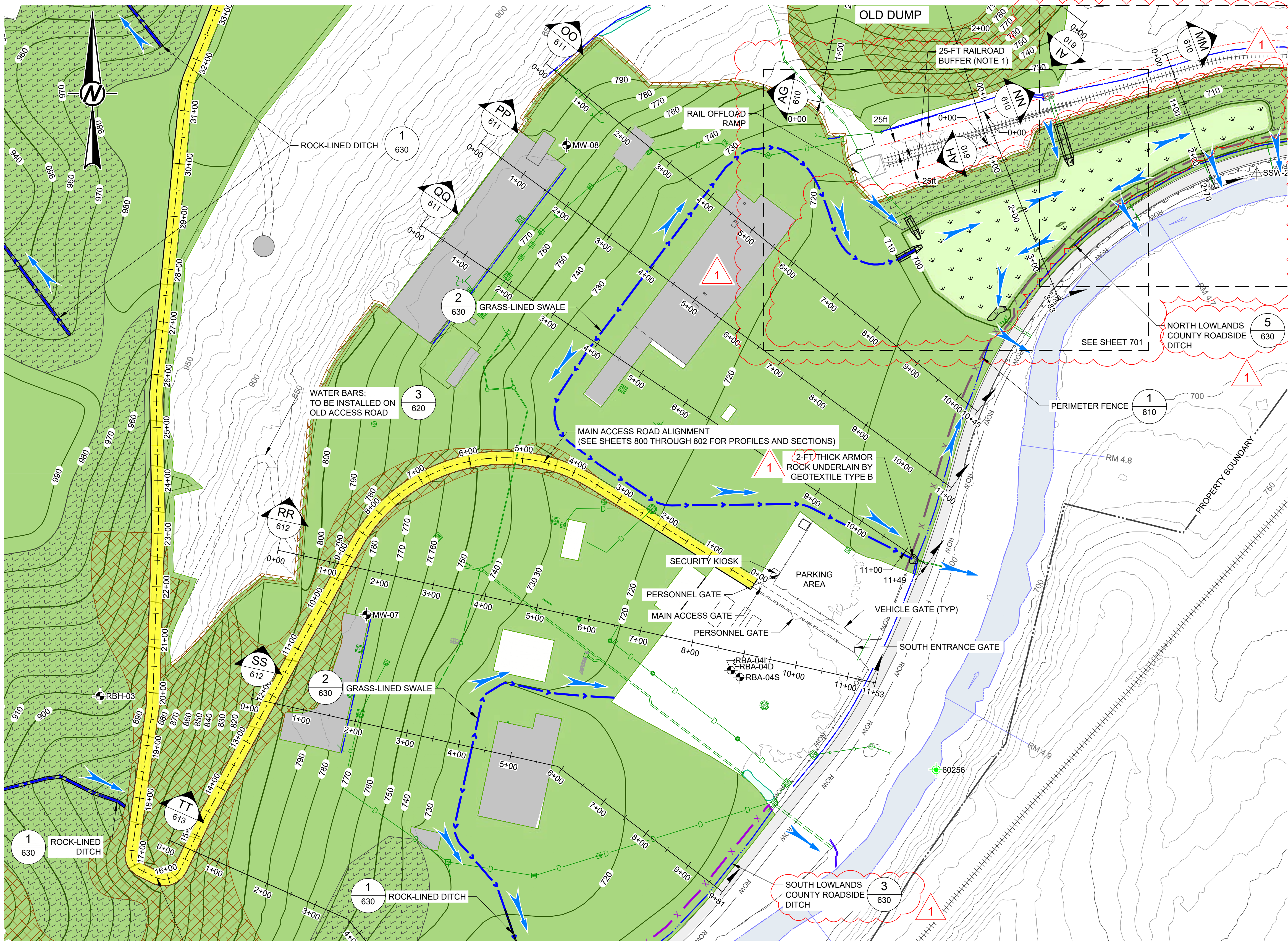
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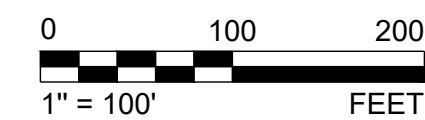
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- LEGEND**
- 800 — EXISTING MAJOR CONTOURS (50-FT INTERVAL)
  - EXISTING MINOR CONTOURS (10-FT INTERVAL)
  - 750 — FINAL GRADING SURFACE MAJOR CONTOURS (50-FT INTERVAL)
  - FINAL GRADING SURFACE MINOR CONTOURS (10-FT INTERVAL)
  - PROPERTY BOUNDARY
  - PROPERTY DEED OVERLAP
  - CROSS CREEK
  - EXISTING ON-SITE ACCESS ROAD
  - EXISTING COUNTY ROAD (PAVED)
  - COUNTY ROAD RIGHT-OF-WAY (ROW)
  - EXISTING CONCRETE PAD
  - EXISTING BUILDING
  - EXISTING RIPRAP
  - EXISTING RAILROAD
  - EXISTING FENCE
  - EXISTING GUARDRAIL
  - EXISTING DRAINAGE DITCH
  - EXISTING UNDERGROUND DRAINAGE PIPE
  - EXISTING CULVERT / DRAIN PIPE DISCHARGE
  - EXISTING UNDERGROUND DRAINAGE PIPE (DIA SHOWN)
  - EXISTING DRAINAGE (GPR)
  - EXISTING MANHOLE (UNVERIFIED)
  - EXISTING MANHOLE (VERIFIED)
  - EXISTING CATCH BASIN (UNVERIFIED)
  - EXISTING CATCH BASIN (VERIFIED)
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  - MW-01 GROUNDWATER MONITORING WELL
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  - 60235 OIL/GAS WELL
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  - PROPOSED MILKWEED, NATIVE WILDFLOWER, & GRASS MIX SEEDING AREA
  - PROPOSED NATIVE GRASS MIX SEEDING AREA
  - PROPOSED ENHANCED WOODLAND HABITAT AREA
  - PROPOSED EROSION AND SEDIMENT CONTROL MAT
  - PROPOSED CONSTRUCTED WETLANDS
  - PROPOSED ARMOR ROCK
  - PROPOSED DRAINAGE
  - PROPOSED FENCE
  - FLOW DIRECTION

**NOTE(S)**

1. SEE NOTES 1-9, SHEET 601.



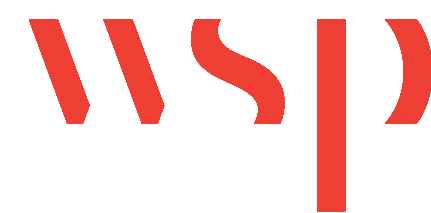
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0	2024-03-08	ISSUED FOR CONSTRUCTION	VMN	REDMOND	FSS	RSA
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

SEAL



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PROJECT  
FORMER SATRALLOY SITE  
SLAG REMOVAL INTERIM ACTION  
JEFFERSON COUNTY, OHIO

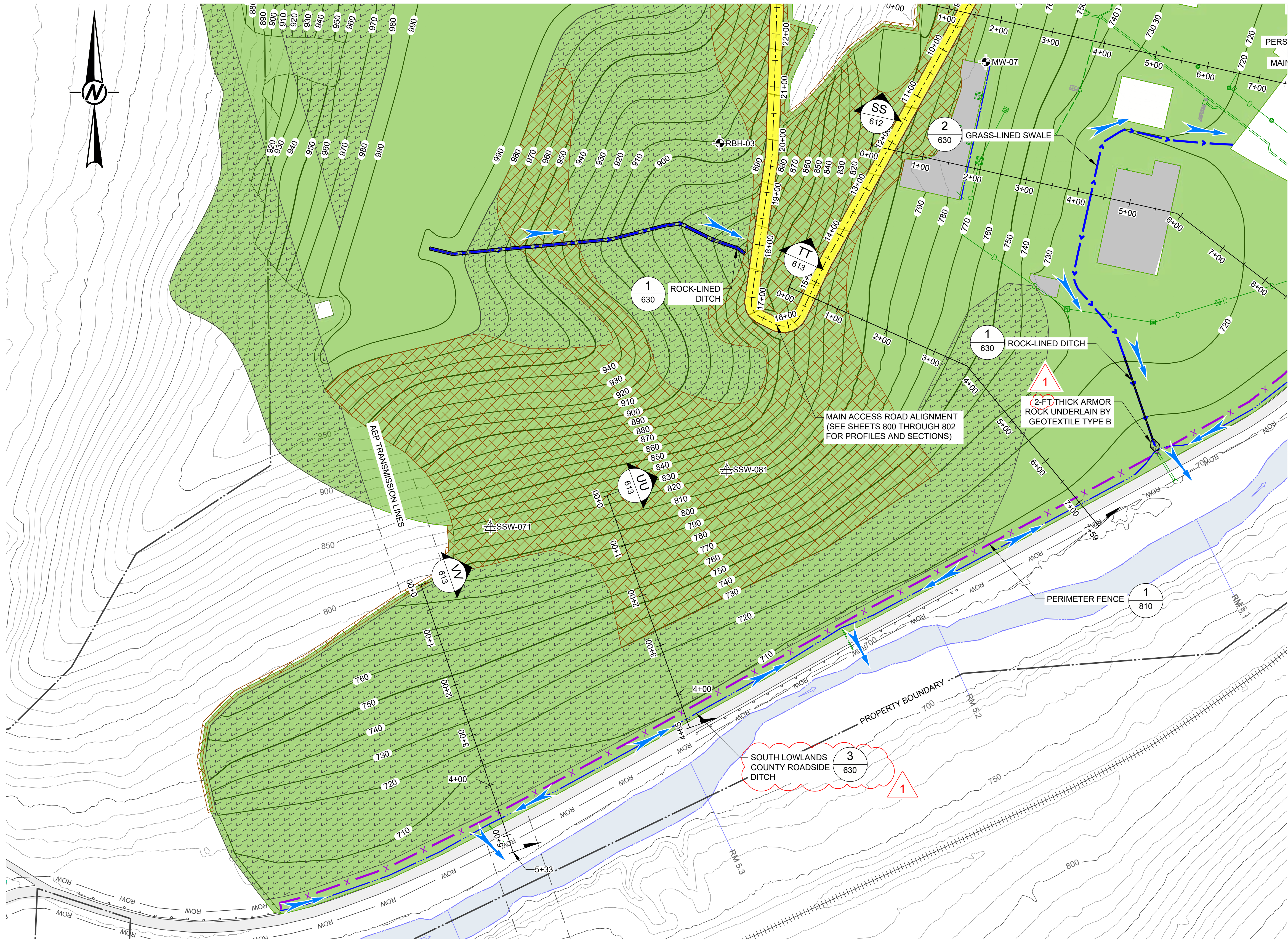
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**RESTORATION AND SURFACE WATER MANAGEMENT PLAN -  
PLANT AREA**

PROJECT NO. 1239330907	PHASE 900	REV. 1	92 of 112	SHEET 602
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1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D



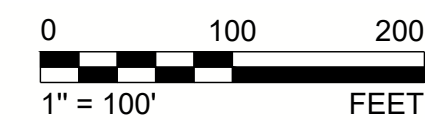
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- LEGEND**
- 800 EXISTING MAJOR CONTOURS (50-FT INTERVAL)
  - EXISTING MINOR CONTOURS (10-FT INTERVAL)
  - 750 FINAL GRADING SURFACE MAJOR CONTOURS (50-FT INTERVAL)
  - FINAL GRADING SURFACE MINOR CONTOURS (10-FT INTERVAL)
  - PROPERTY BOUNDARY
  - PROPERTY DEED OVERLAP
  - CROSS CREEK
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  - EXISTING COUNTY ROAD (PAVED)
  - COUNTY ROAD RIGHT-OF-WAY (ROW)
  - EXISTING CONCRETE PAD
  - EXISTING BUILDING
  - EXISTING RIPRAP
  - EXISTING RAILROAD
  - EXISTING FENCE
  - EXISTING GUARDRAIL
  - EXISTING DRAINAGE DITCH
  - EXISTING UNDERGROUND DRAINAGE PIPE
  - EXISTING CULVERT / DRAIN PIPE DISCHARGE
  - EXISTING UNDERGROUND DRAINAGE PIPE (DIA SHOWN)
  - EXISTING DRAINAGE (GPR)
  - EXISTING MANHOLE (UNVERIFIED)
  - EXISTING MANHOLE (VERIFIED)
  - EXISTING CATCH BASIN (UNVERIFIED)
  - EXISTING CATCH BASIN (VERIFIED)
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  - PROPOSED NATIVE GRASS MIX SEEDING AREA
  - PROPOSED ENHANCED WOODLAND HABITAT AREA
  - PROPOSED EROSION AND SEDIMENT CONTROL MAT
  - PROPOSED CONSTRUCTED WETLANDS
  - PROPOSED ARMOR ROCK
  - PROPOSED DRAINAGE
  - PROPOSED FENCE
  - FLOW DIRECTION

**NOTE(S)**

1. SEE NOTES 2-9, SHEET 601.



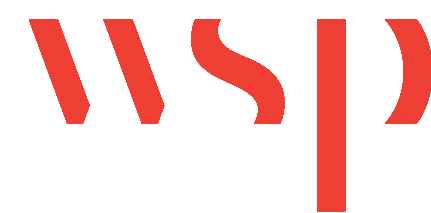
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0	2024-03-08	ISSUED FOR CONSTRUCTION	VMN	REDMOND	FSS	RSA
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

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PROJECT  
FORMER SATRALLOY SITE  
SLAG REMOVAL INTERIM ACTION  
JEFFERSON COUNTY, OHIO

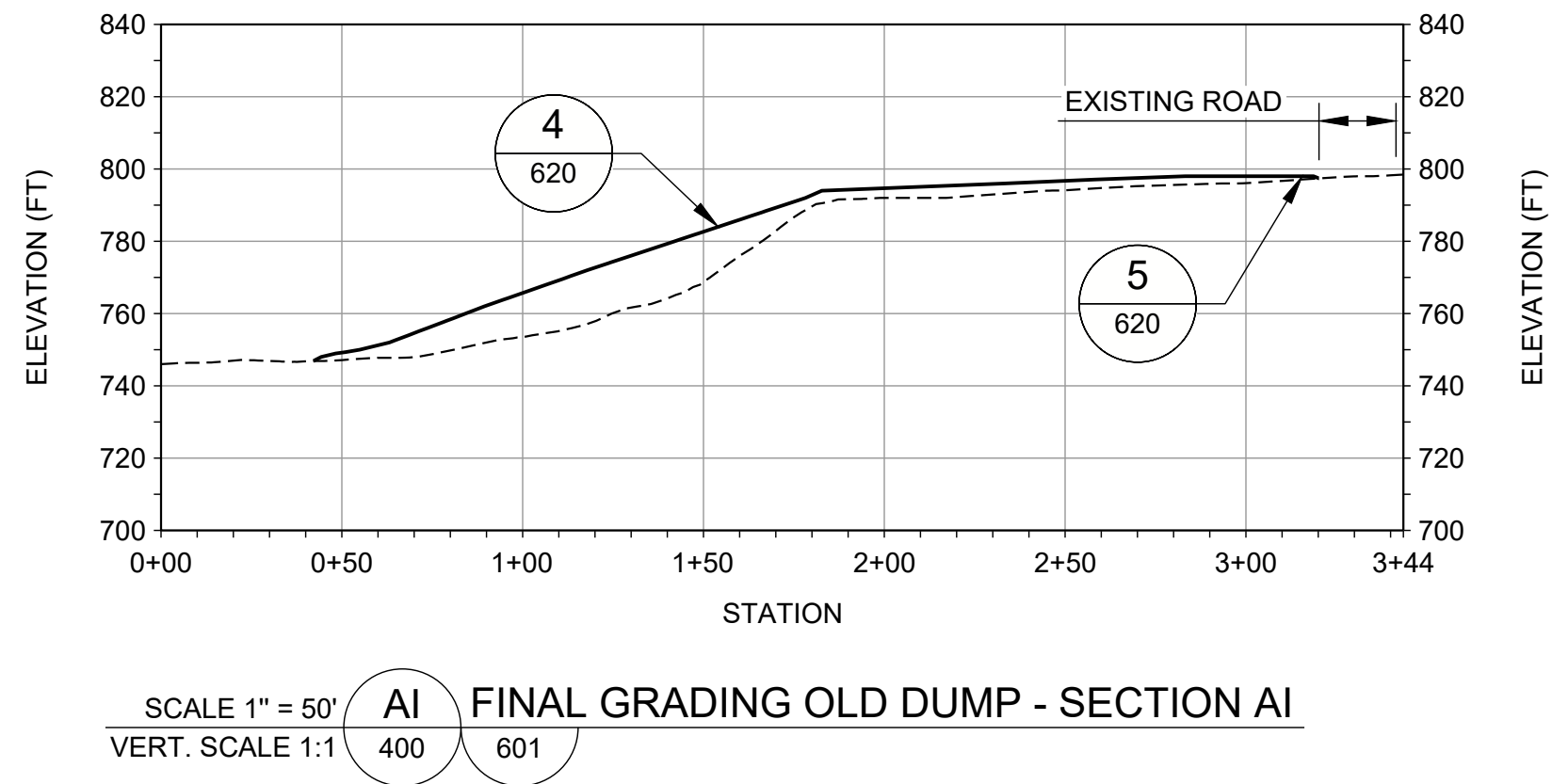
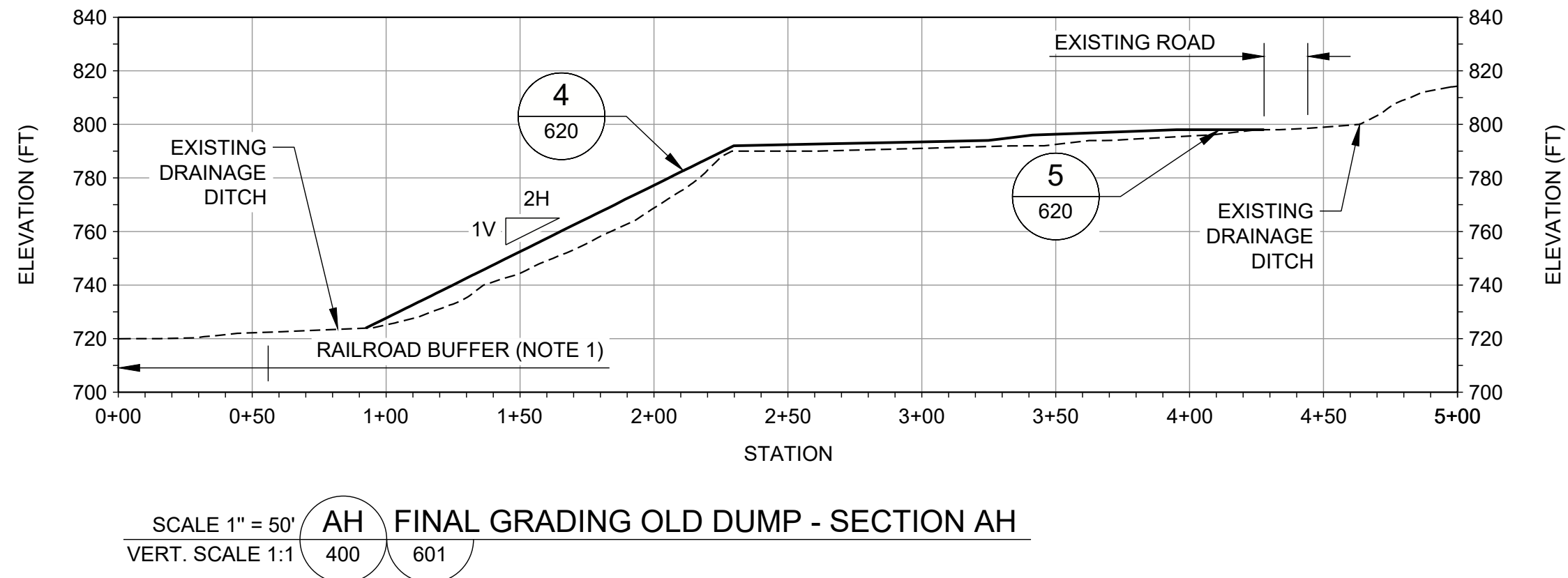
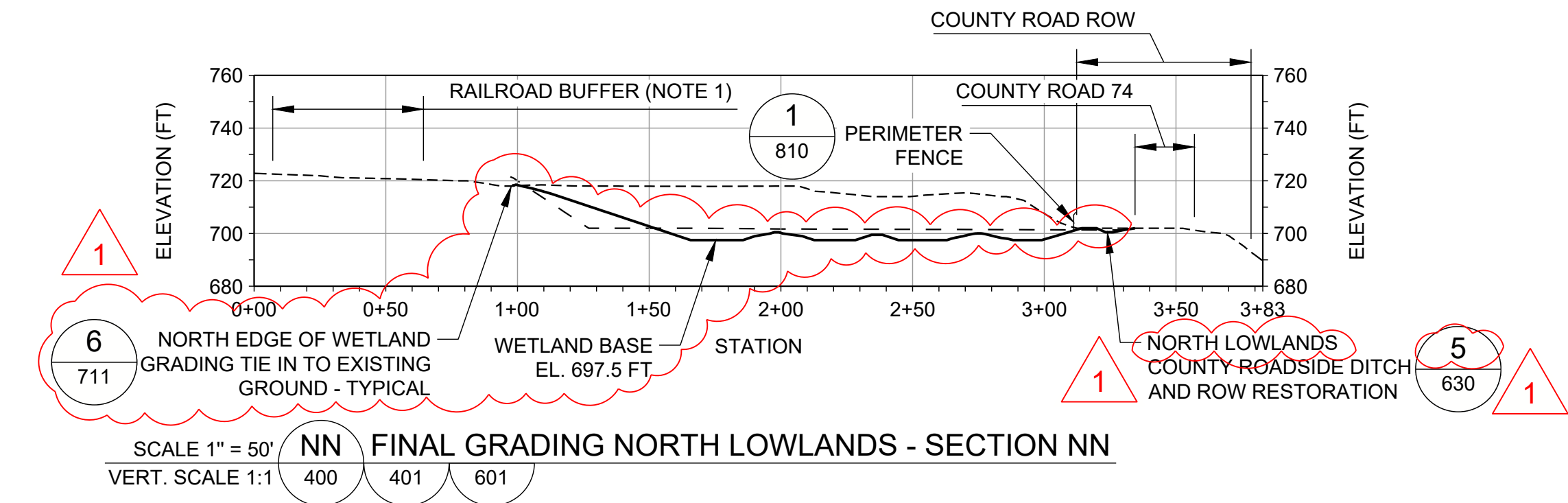
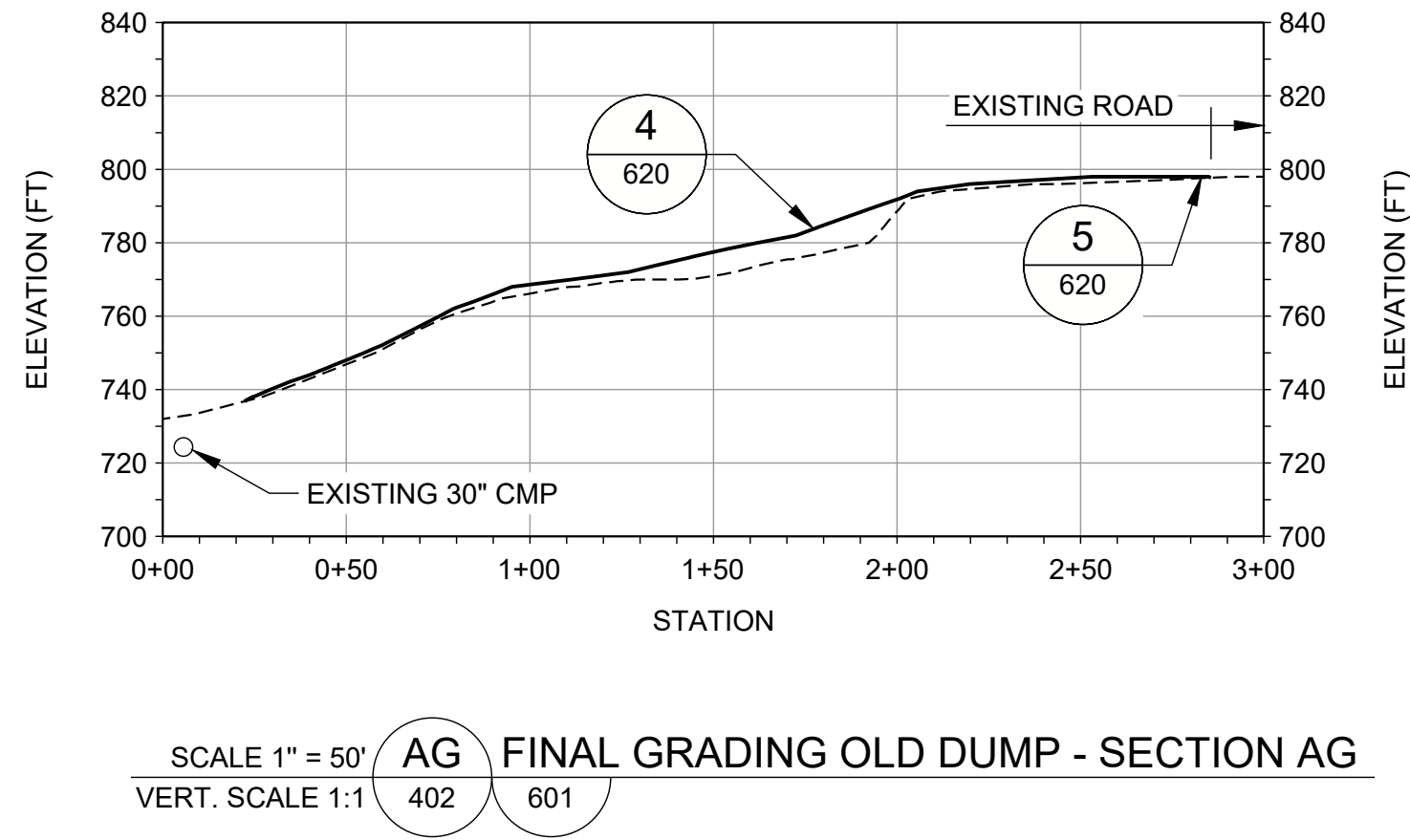
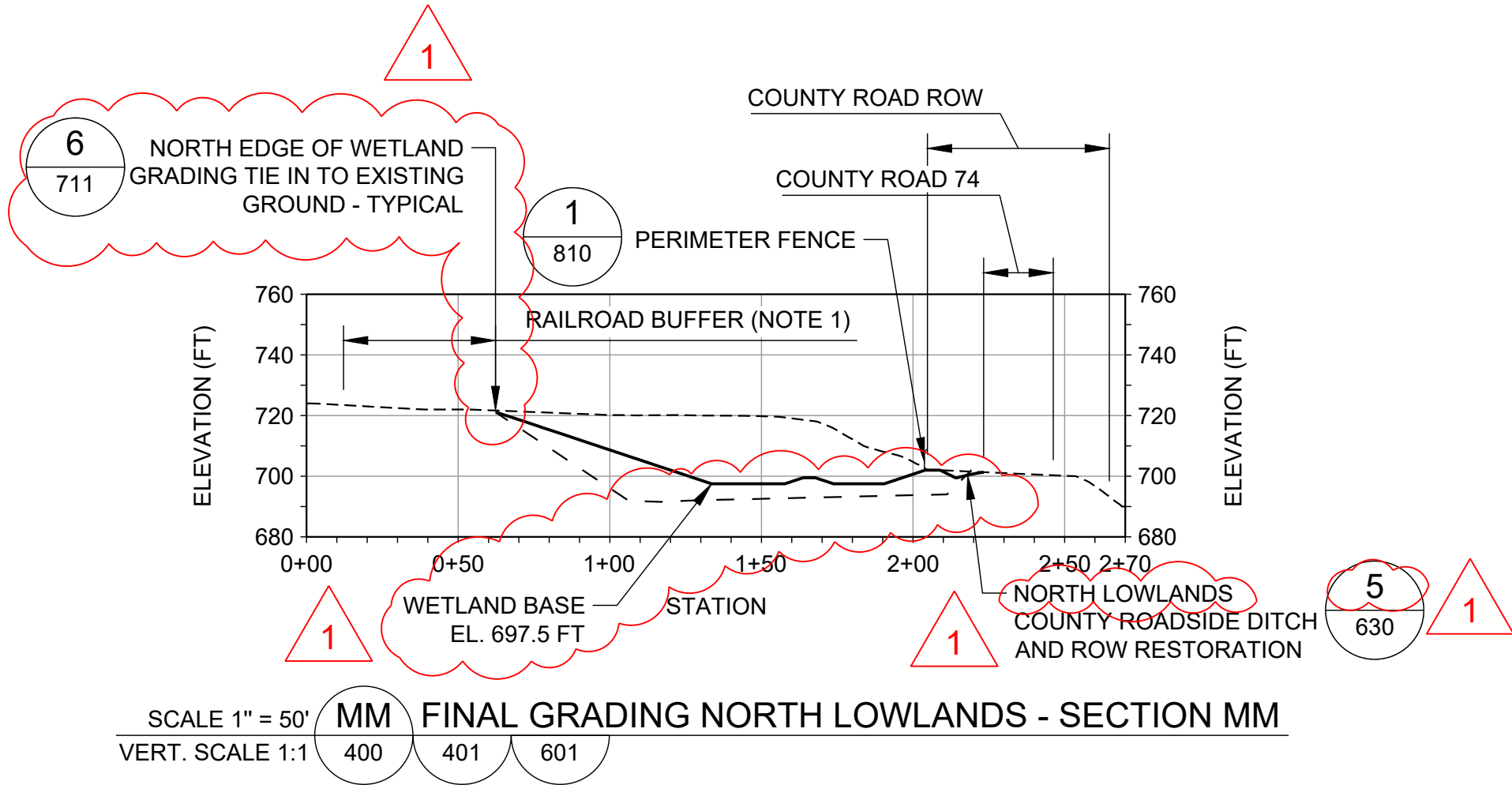
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**RESTORATION AND SURFACE WATER MANAGEMENT PLAN -  
SOUTH LOWLANDS**

PROJECT NO. 1239330907	PHASE 900	REV. 1	93 of 112	SHEET 603
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1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM .ANSI D



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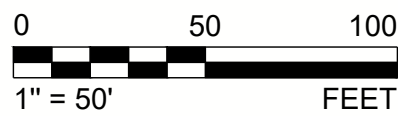
----- EXISTING GROUND PROFILE

- - - - - ESTIMATED SLAG REMOVAL SURFACE PROFILE

———— PROPOSED FINAL GRADING SURFACE PROFILE

NOTE(S)

1. NO CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN THE EXTENTS OF RAILROAD BUFFER ZONE. ALL PERSONNEL ARE PROHIBITED FROM ENTERING THE RAILROAD BUFFER ZONE WITHOUT PRIOR APPROVAL.



REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
1	2025-04-25	NORTH LOWLANDS DRAINAGE REVISION	VMN	REDMOND	FSS	RSA
0	2024-03-08	ISSUED FOR CONSTRUCTION	VMN	REDMOND	FSS	RSA

SEAL



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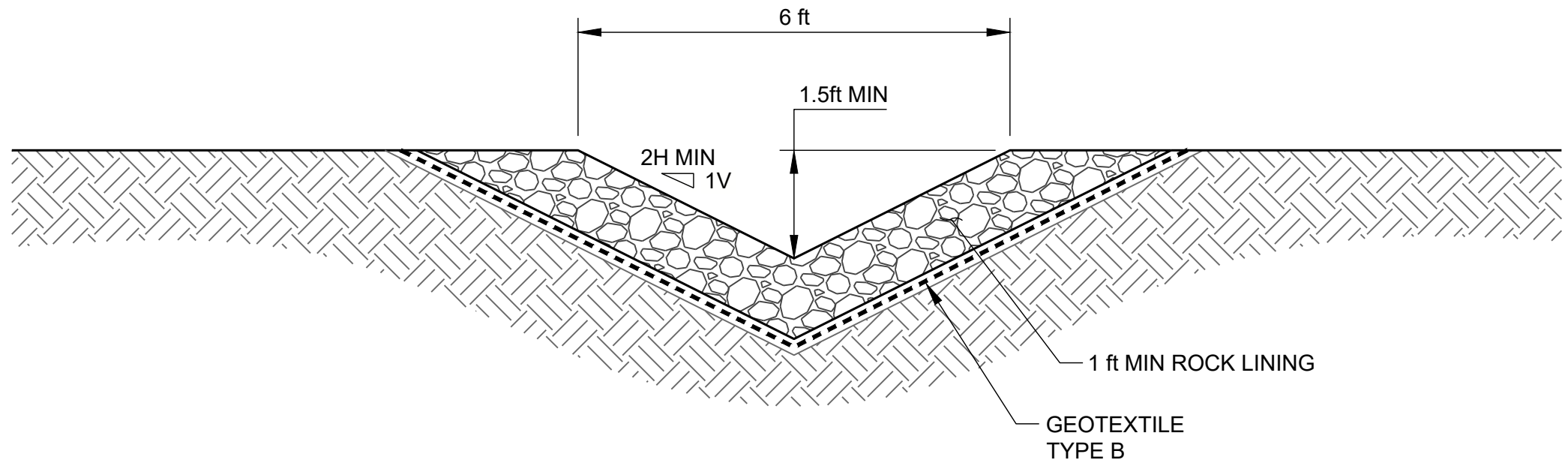
REDMOND  
18300 REDMOND WAY, SUITE 200  
REDMOND, WA  
USA  
[+1] (425) 883 0777  
www.golder.com

PROJECT  
FORMER SATRALLOY SITE  
SLAG REMOVAL INTERIM ACTION  
JEFFERSON COUNTY, OHIO

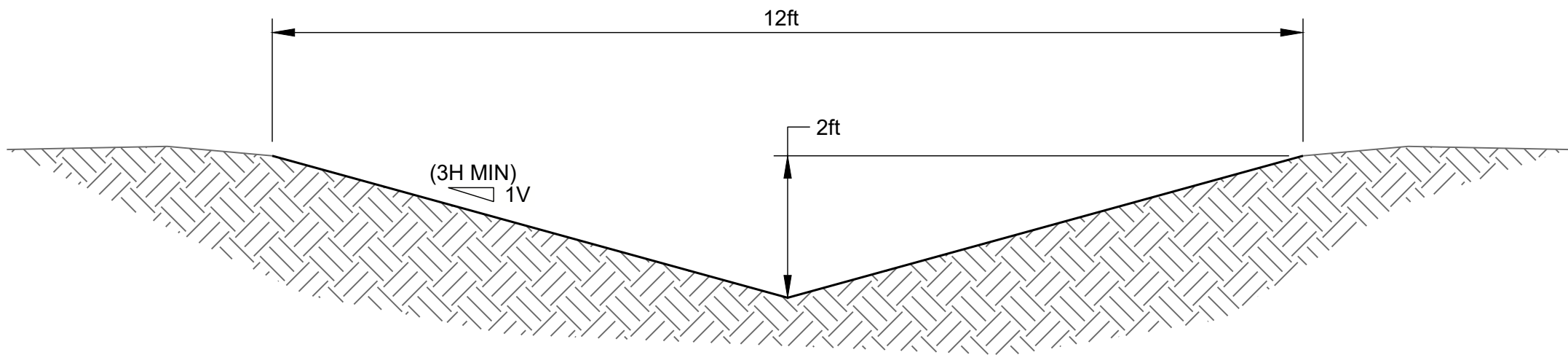
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**FINAL GRADING AND RESTORATION SECTIONS - NORTH LOWLANDS**

PROJECT NO. 1239330907 PHASE 900 REV. 1 97 of 112 SHEET 610

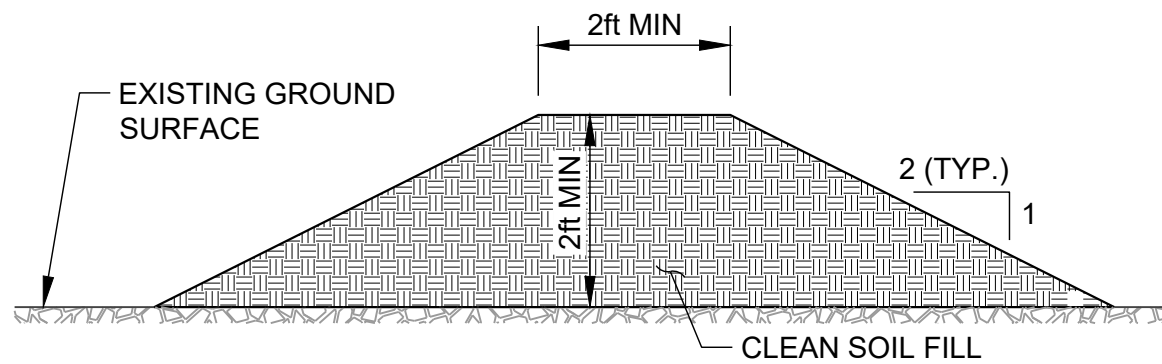
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SCALE 1" = 2' 1 ROCK-LINED DITCH

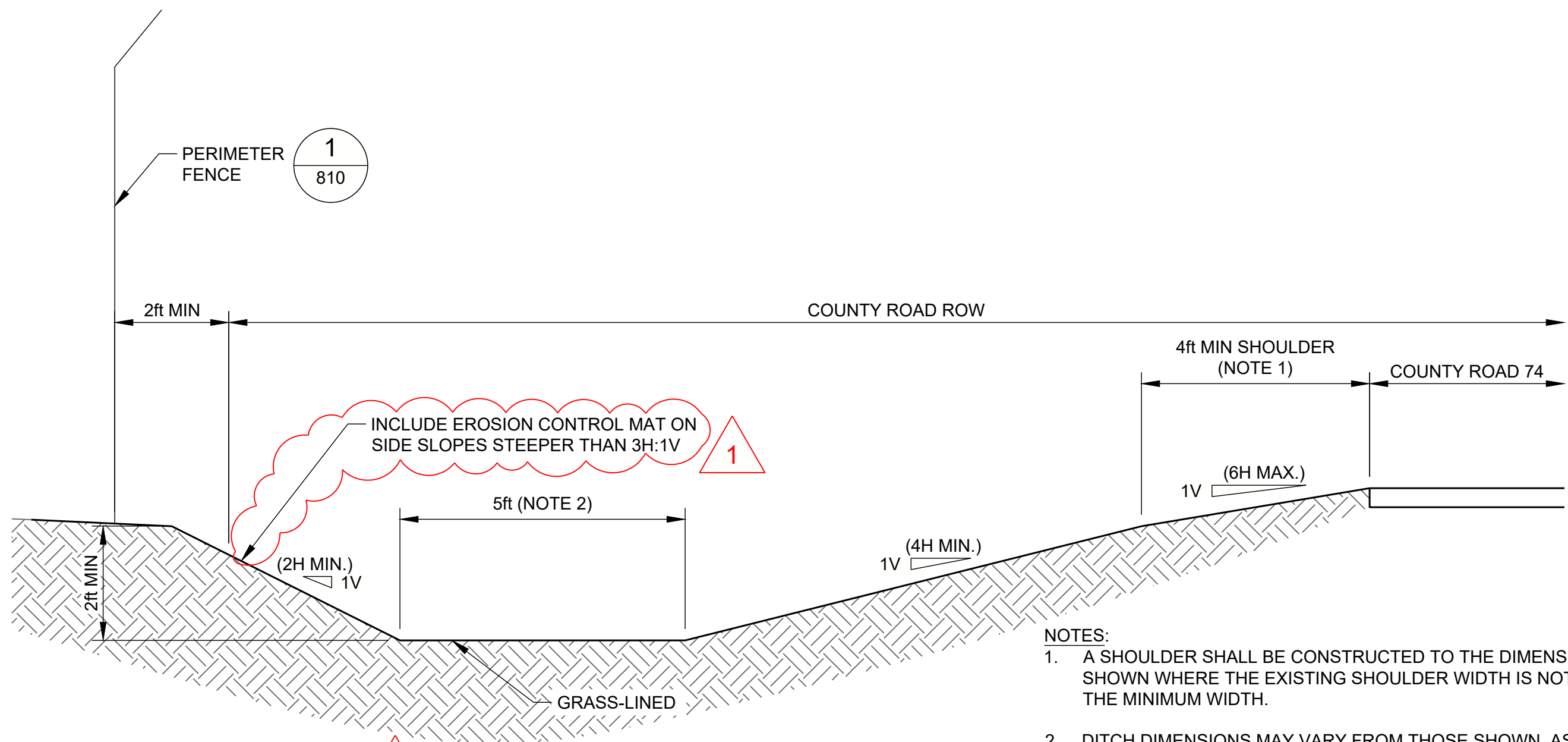


SCALE 1" = 2' 2 GRASS-LINED SWALE



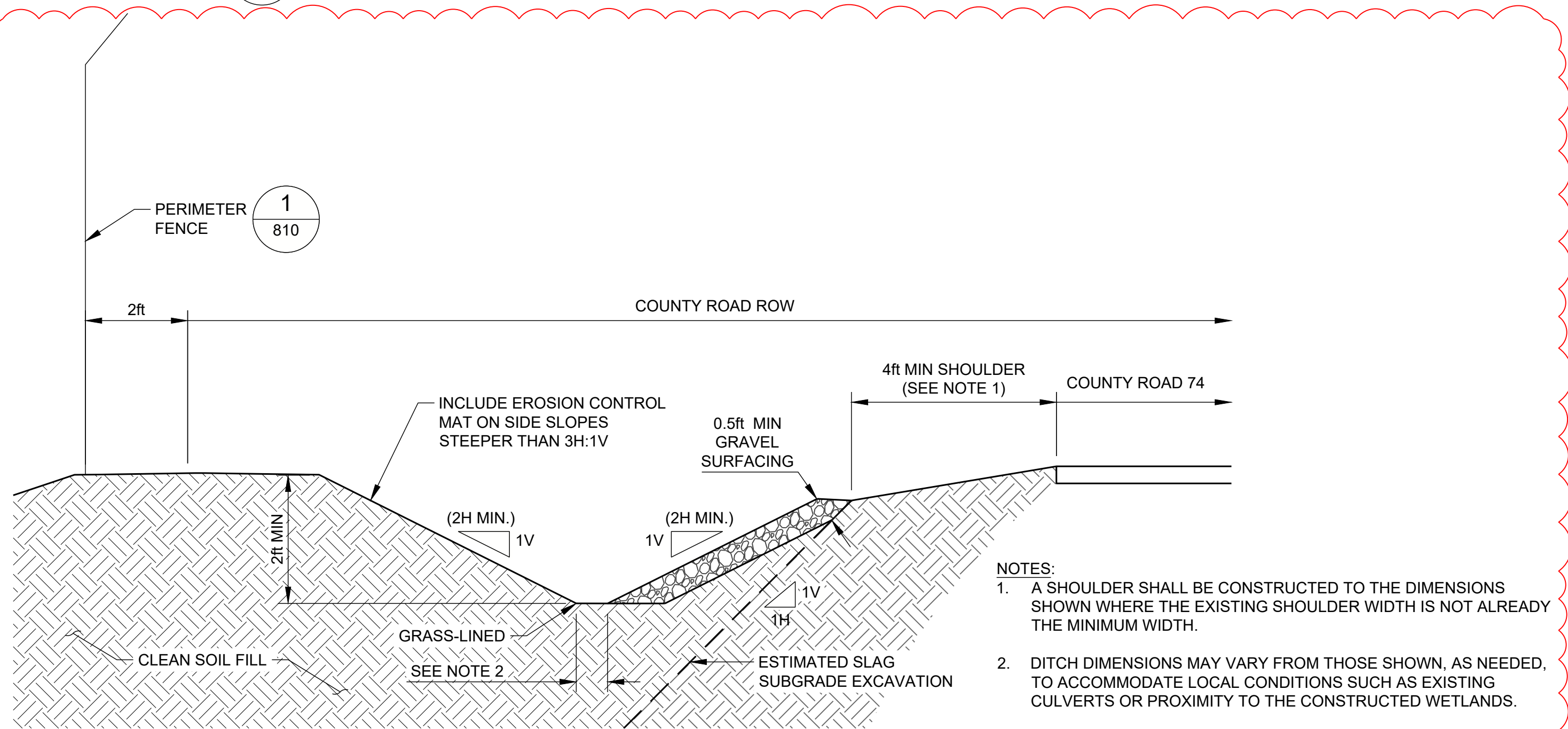
NOTES:  
1. CONSTRUCT NEW DIVERSION BERM PER MINIMUM DIMENSIONS SHOWN.

SCALE 1" = 2' 4 DIVERSION BERM - TYPICAL SECTION



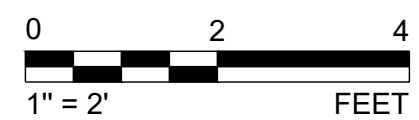
NOTES:  
1. A SHOULDER SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN WHERE THE EXISTING SHOULDER WIDTH IS NOT ALREADY THE MINIMUM WIDTH.  
2. DITCH DIMENSIONS MAY VARY FROM THOSE SHOWN, AS NEEDED, TO ACCOMMODATE LOCAL CONDITIONS SUCH AS EXISTING CULVERTS.

SCALE 1" = 2' 3 SOUTH LOWLANDS COUNTY ROADSIDE DITCH AND ROW RESTORATION - TYPICAL SECTION



NOTES:  
1. A SHOULDER SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN WHERE THE EXISTING SHOULDER WIDTH IS NOT ALREADY THE MINIMUM WIDTH.  
2. DITCH DIMENSIONS MAY VARY FROM THOSE SHOWN, AS NEEDED, TO ACCOMMODATE LOCAL CONDITIONS SUCH AS EXISTING CULVERTS OR PROXIMITY TO THE CONSTRUCTED WETLANDS.

SCALE 1" = 2' 5 NORTH LOWLANDS COUNTY ROADSIDE DITCH AND ROW RESTORATION - TYPICAL SECTION



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PROJECT  
FORMER SATRALLOY SITE  
SLAG REMOVAL INTERIM ACTION  
JEFFERSON COUNTY, OHIO

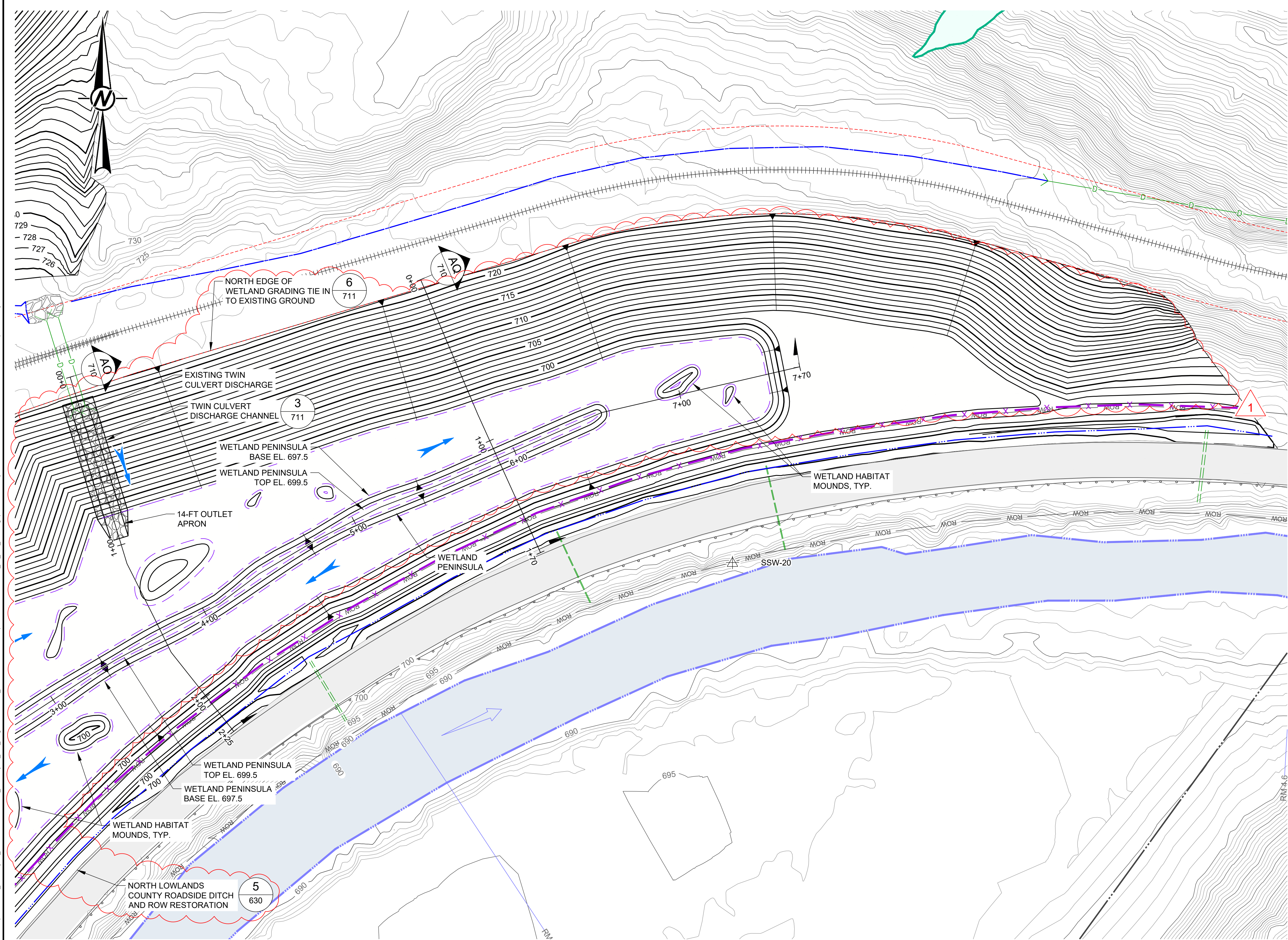
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SURFACE WATER MANAGEMENT DETAILS

PROJECT NO. 1239330907 PHASE 900 REV. 1 104 of 112 SHEET 630

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
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0	2024-03-08	ISSUED FOR CONSTRUCTION	VMN	REDMOND	FSS	RSA



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**LEGEND**

800

EXISTING MAJOR CONTOURS (5-FT INTERVAL)

EXISTING MINOR CONTOURS (1-FT INTERVAL)

750

FINAL GRADING SURFACE MAJOR CONTOURS (5-FT INTERVAL)

FINAL GRADING SURFACE MINOR CONTOURS (1-FT INTERVAL)

FINAL GRADING SURFACE INTERMEDIATE CONTOURS (0.5-FT INTERVAL)

PROPERTY BOUNDARY

PROPERTY DEED OVERLAP

CROSS CREEK

EXISTING ON-SITE ACCESS ROAD

EXISTING COUNTY ROAD (PAVED)

COUNTY ROAD RIGHT-OF-WAY (ROW)

EXISTING CONCRETE PAD

EXISTING BUILDING

EXISTING RIPRAP

PROPOSED ARMOR ROCK

PROPOSED LIMESTONE PLACEMENT

EXISTING RAILROAD

EXISTING FENCE

EXISTING GUARDRAIL

O/H

EXISTING OVERHEAD ELECTRICAL LINE

TEL

EXISTING OVERHEAD TELEPHONE LINE

EXISTING DRAINAGE DITCH

EXISTING UNDERGROUND DRAINAGE PIPE

EXISTING CULVERT / DRAIN PIPE DISCHARGE

EXISTING UNDERGROUND DRAINAGE PIPE (DIA SHOWN)

EXISTING MANHOLE (UNVERIFIED)

EXISTING MANHOLE (VERIFIED)

EXISTING CATCH BASIN (UNVERIFIED)

EXISTING CATCH BASIN (VERIFIED)

EXISTING HEADWALL

EXISTING INLET

JURISDICTIONAL WETLANDS (USACE JURISDICTION)

JURISDICTIONAL TRIBUTARY (USACE JURISDICTION)

MW-01

GROUNDWATER MONITORING WELL

SSW-02

SEEP MONITORING LOCATION

60235

OIL/GAS WELL

PROPOSED FENCE

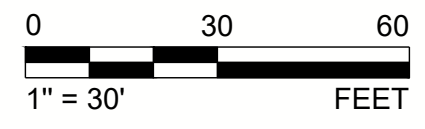
PROPOSED DRAINAGE

FLOW DIRECTION

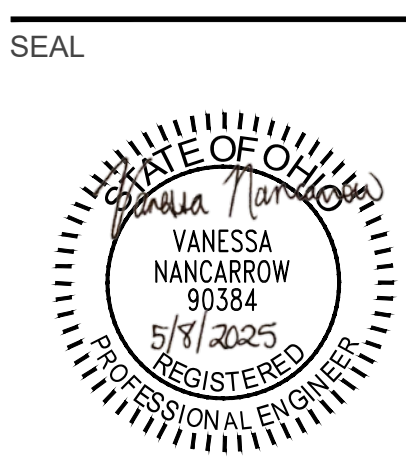
**NOTE(S)**

1.

NO CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN THE EXTENTS OF RAILROAD BUFFER ZONE. ALL PERSONNEL ARE PROHIBITED FROM ENTERING THE RAILROAD BUFFER ZONE WITHOUT PRIOR APPROVAL.




1	2025-04-25	NORTH LOWLANDS DRAINAGE REVISION	VMN	REDMOND	FSS	RSA
0	2024-03-08	ISSUED FOR CONSTRUCTION	VMN	REDMOND	FSS	RSA
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED



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PROJECT

FORMER SATRALLOY SITE  
SLAG REMOVAL INTERIM ACTION  
JEFFERSON COUNTY, OHIO

TITLE

CONSTRUCTED WETLAND PLAN - NORTH LOWLANDS (1 OF 2)

PROJECT NO.

1239330907

PHASE

900

REV.

1

105 of 112

SHEET

700

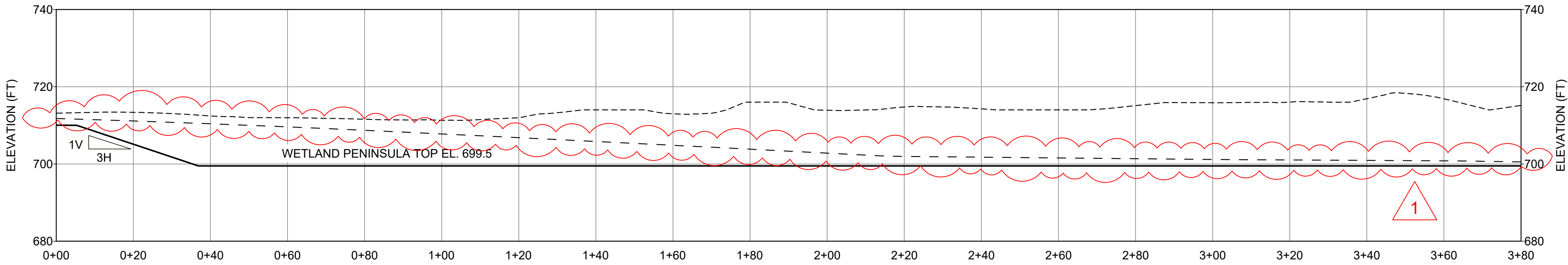
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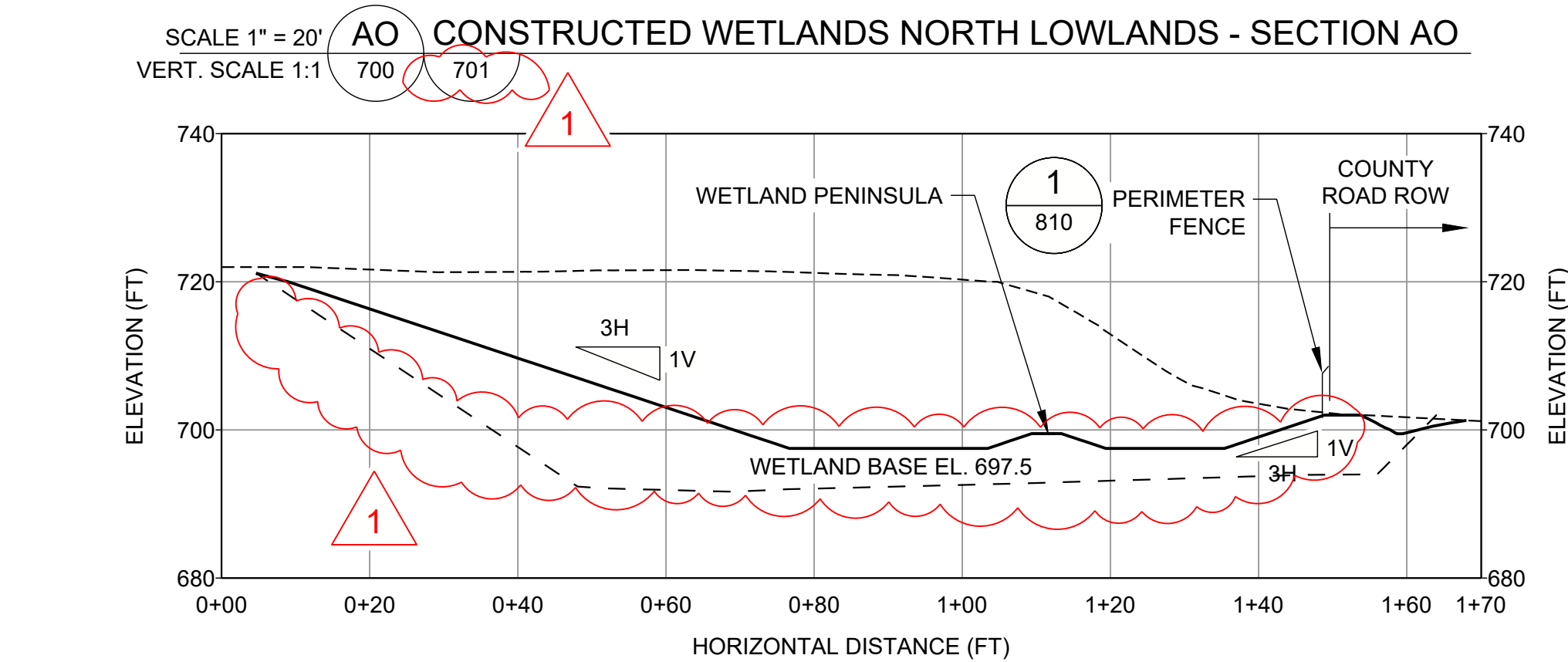
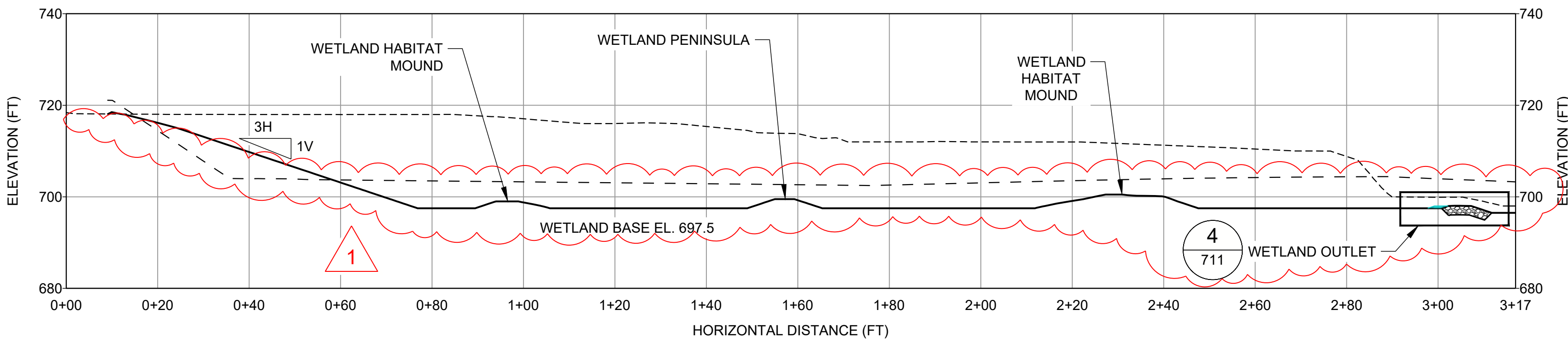
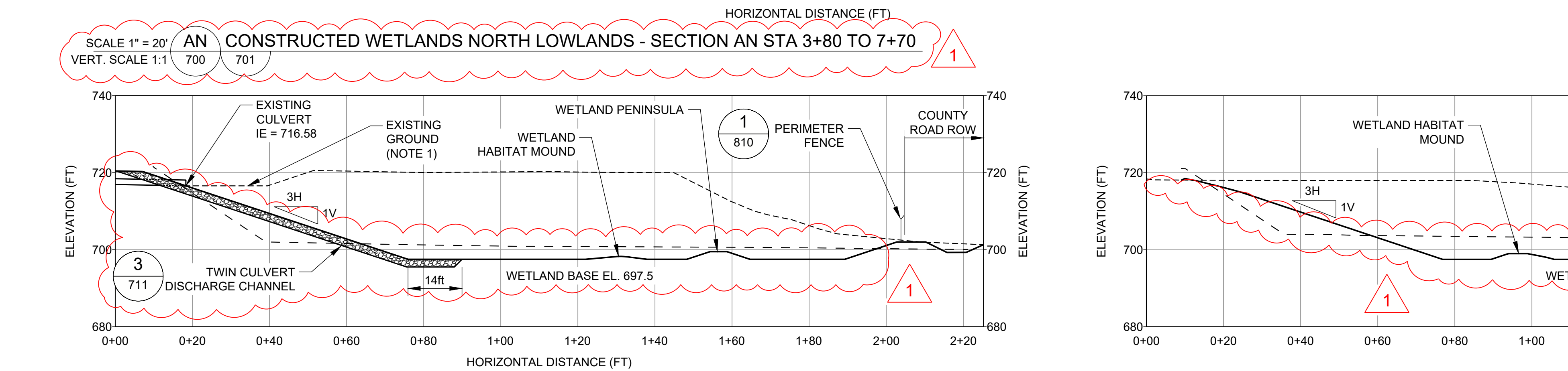
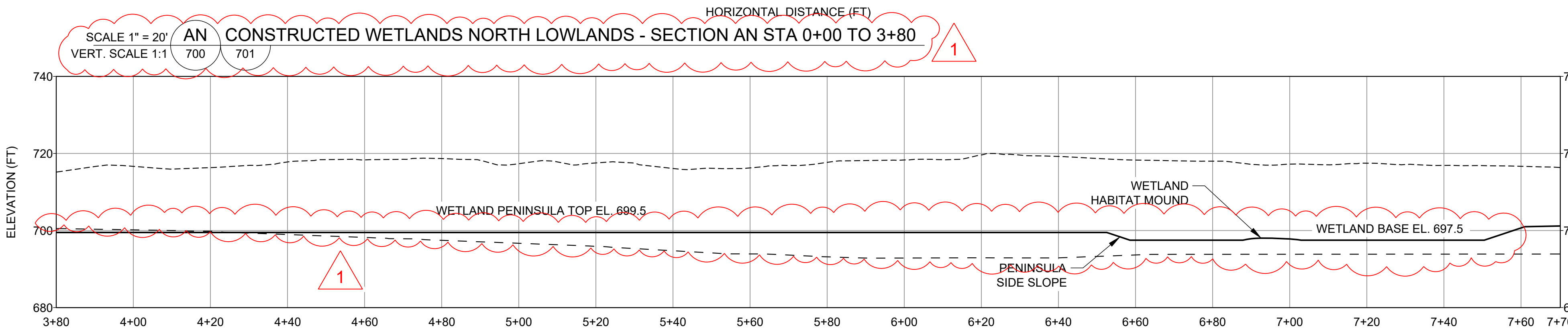


LEGEND

- EXISTING GROUND PROFILE  
- - - - - ESTIMATED SLAG REMOVAL SURFACE PROFILE  
———— PROPOSED FINAL GRADING SURFACE PROFILE

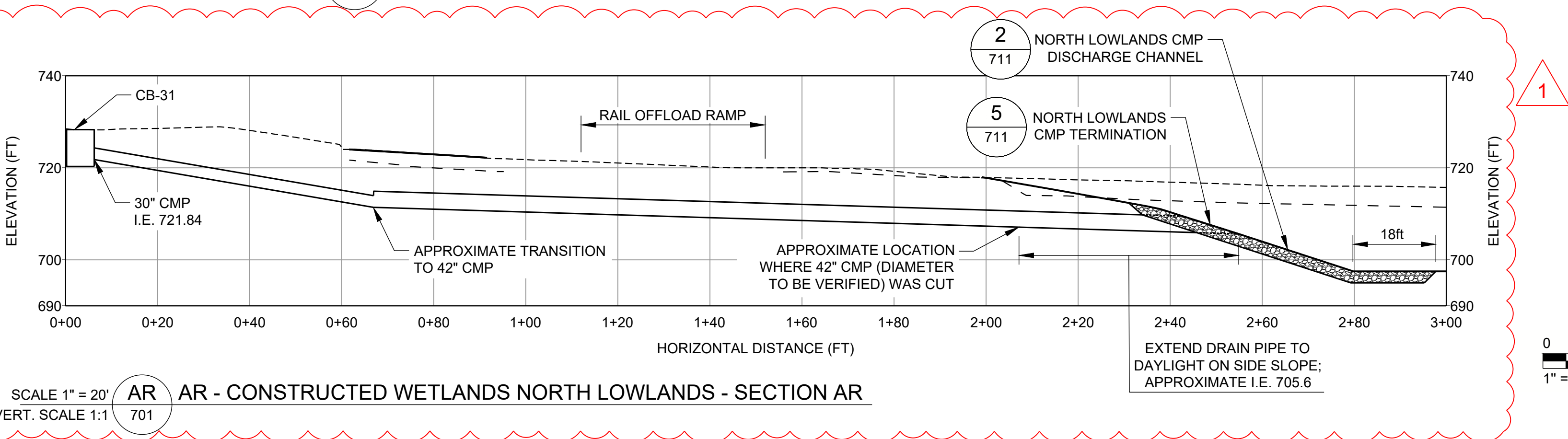
NOTE(S)

1. THE EXISTING GROUND PROFILE LINE WAS MODIFIED FROM THE EXISTING GROUND SURVEY IN THIS SECTION TO MORE ACCURATELY CAPTURE THE CURRENT EXISTING GROUND TOPOGRAPHY IN THIS LOCATION (SINCE THE SURVEY WAS PERFORMED). THE ACTUAL LOCATION IN THE FIELD MAY DIFFER FROM THAT SHOWN HERE.
2. CLEAN SOIL FILL USED TO ACHIEVE FINAL GRADES FOR THE WETLANDS SHALL BE FROM SOURCES AND LOCATIONS AS APPROVED BY THE CONSTRUCTION MANAGER PRIOR TO USE.



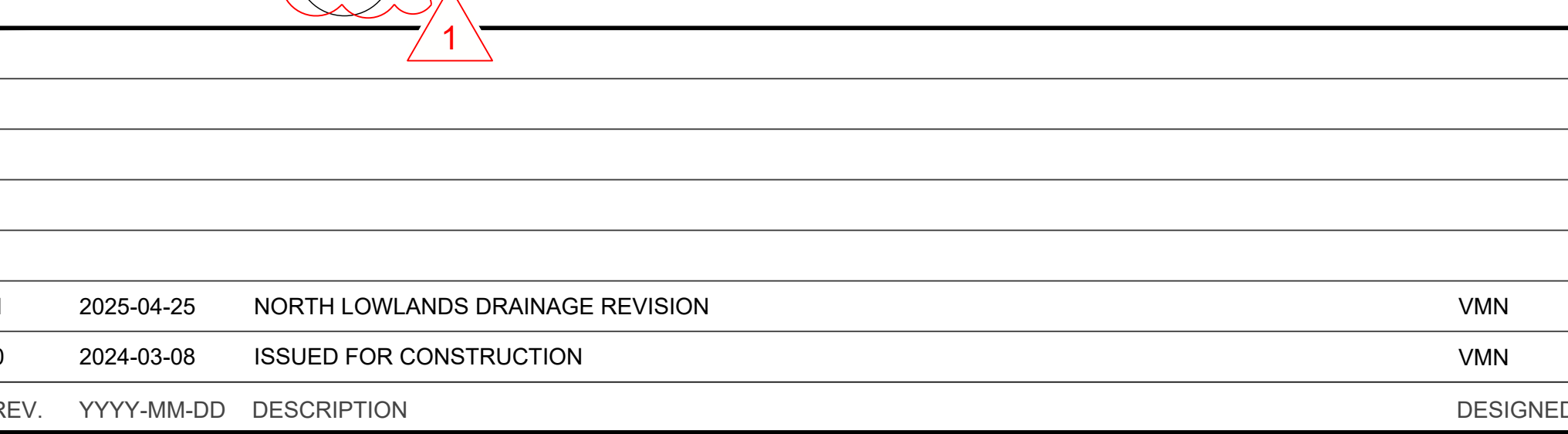
SCALE 1" = 20'  
VERT. SCALE 1:1  
700 701

AP CONSTRUCTED WETLANDS NORTH LOWLANDS - SECTION AP



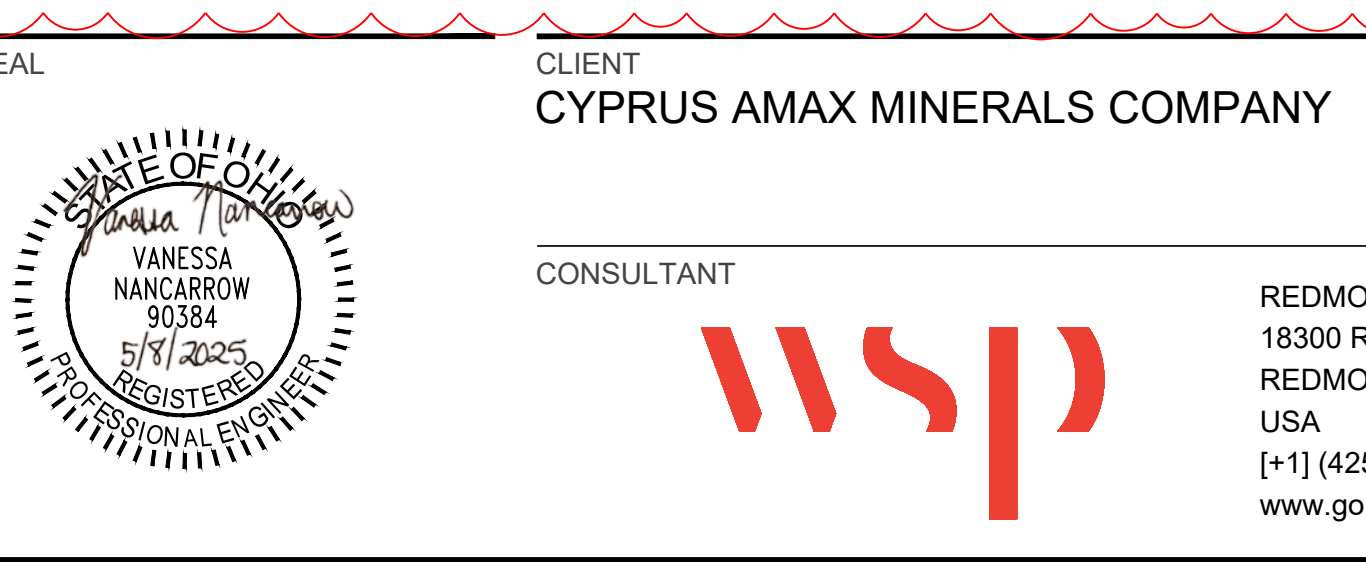
SCALE 1" = 20'  
VERT. SCALE 1:1  
700 701

AQ AQ - CONSTRUCTED WETLANDS NORTH LOWLANDS - SECTION AQ



SCALE 1" = 20'  
VERT. SCALE 1:1  
700 701

AR - CONSTRUCTED WETLANDS NORTH LOWLANDS - SECTION AR



CLIENT  
CYPRUS AMAX MINERALS COMPANY

CONSULTANT



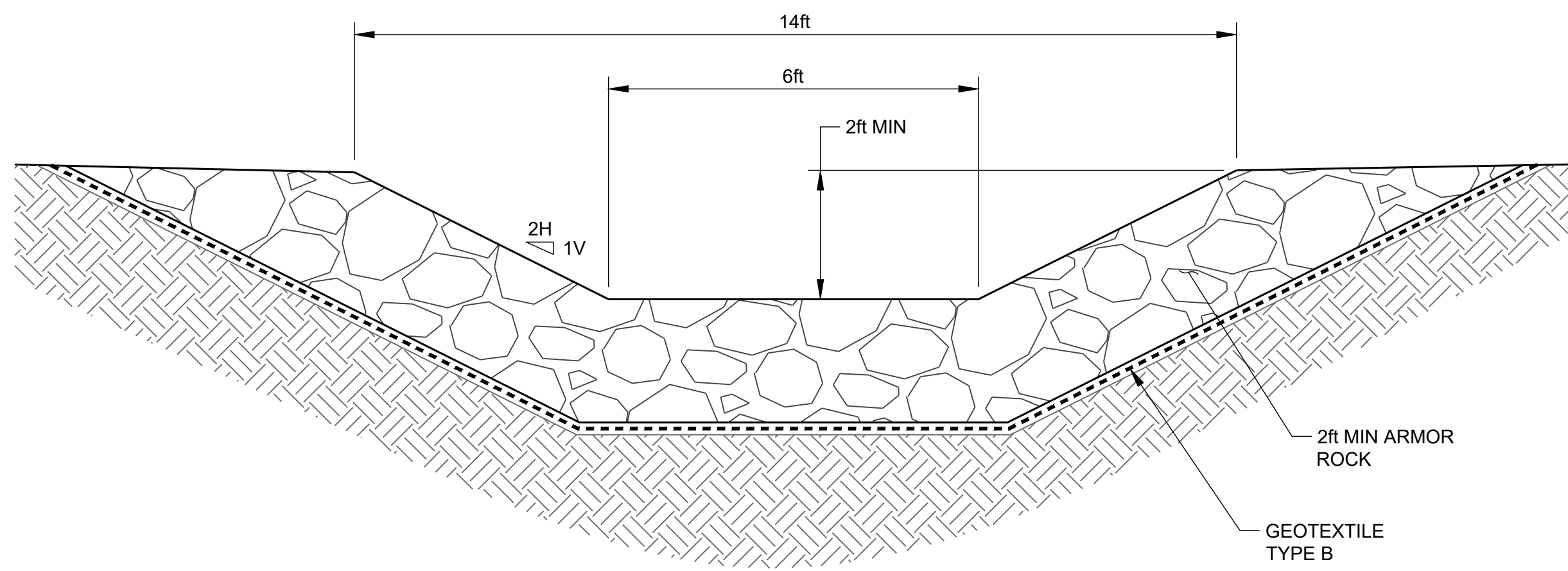
REDMOND  
18300 REDMOND WAY, SUITE 200  
REDMOND, WA  
USA  
[+1] (425) 883 0777  
www.golder.com

PROJECT  
FORMER SATRALLOY SITE  
SLAG REMOVAL INTERIM ACTION  
JEFFERSON COUNTY, OHIO

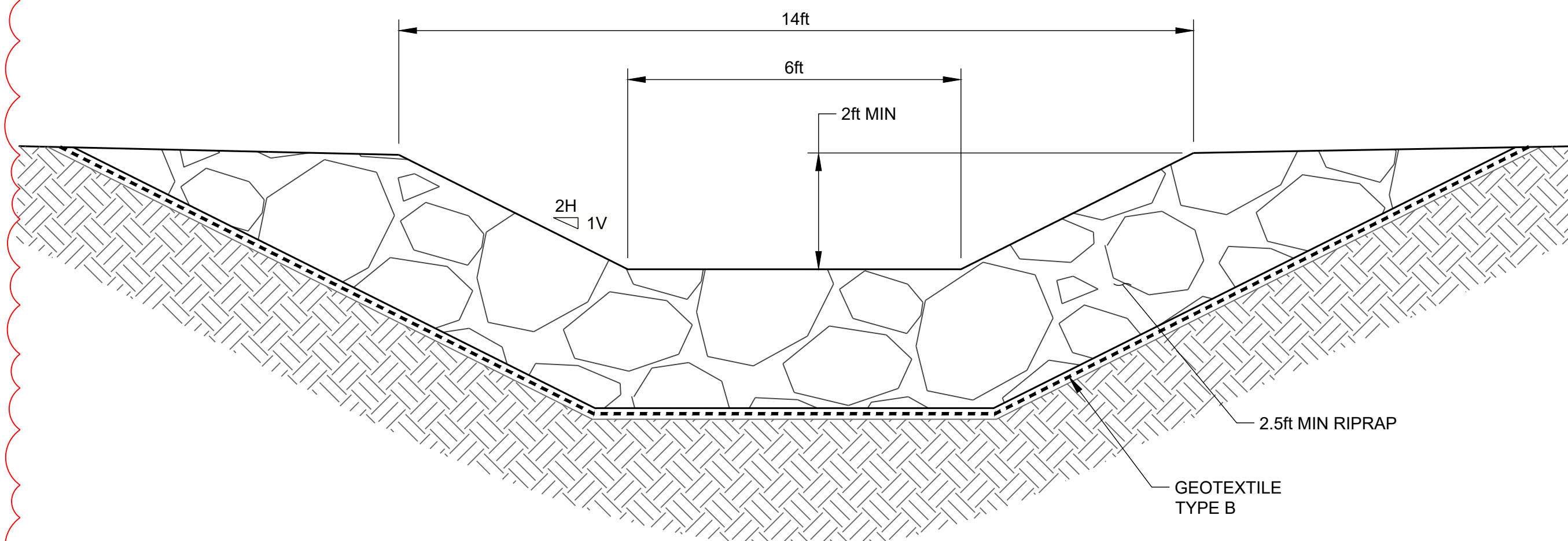
TITLE  
**CONSTRUCTED WETLAND SECTIONS - NORTH LOWLANDS**

PROJECT NO. 1239330907 PHASE 900 REV. 1 107 of 112 SHEET 710

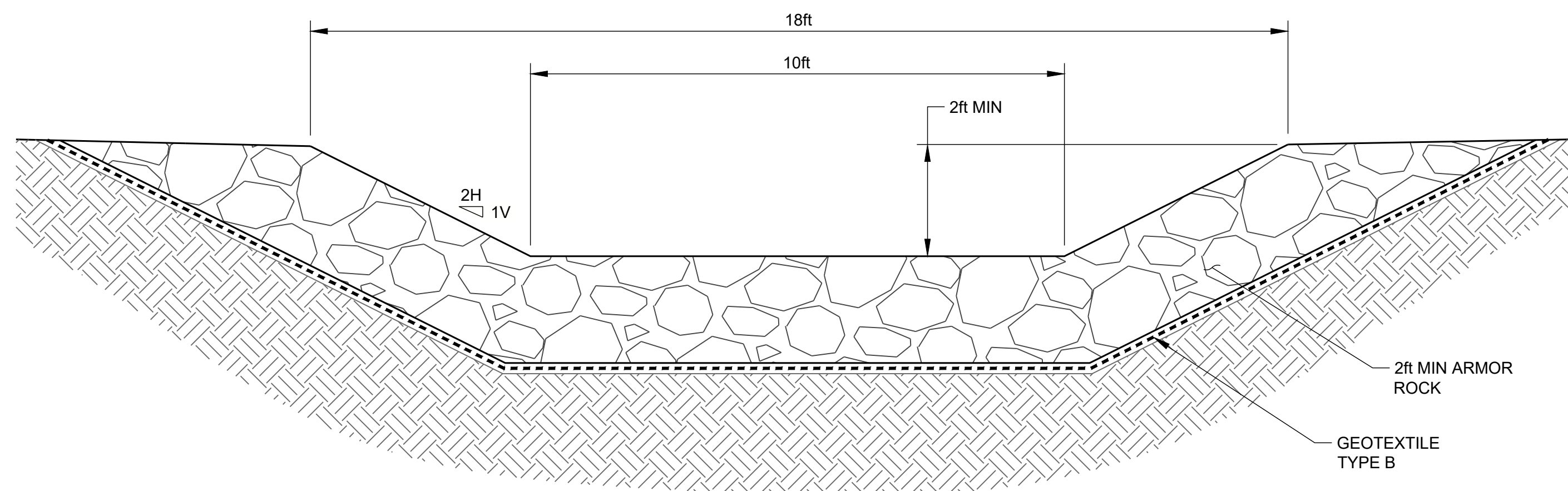




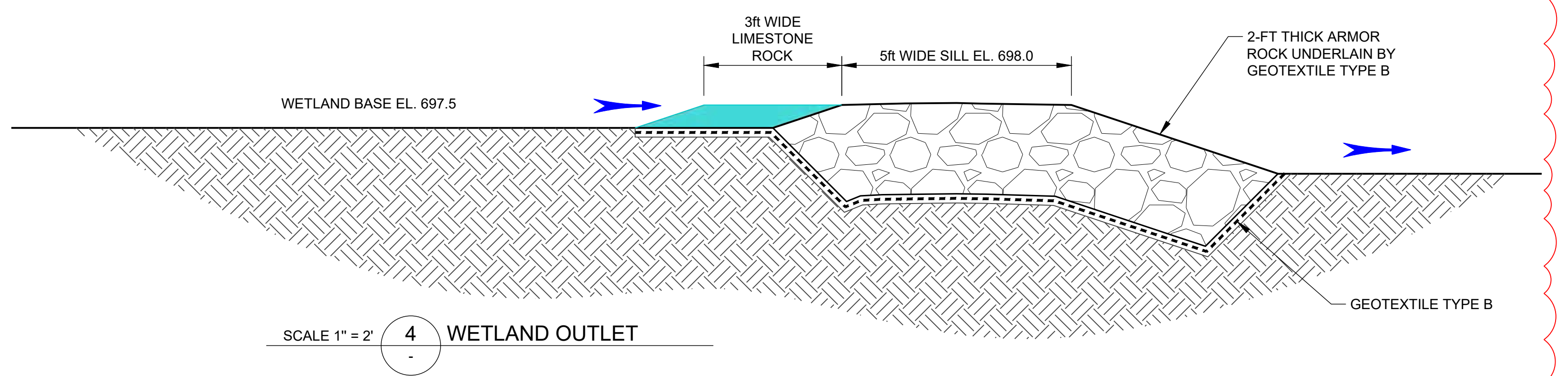
SCALE 1" = 2' 1 NORTH LOWLANDS SWALE DISCHARGE CHANNEL - TYPICAL SECTION



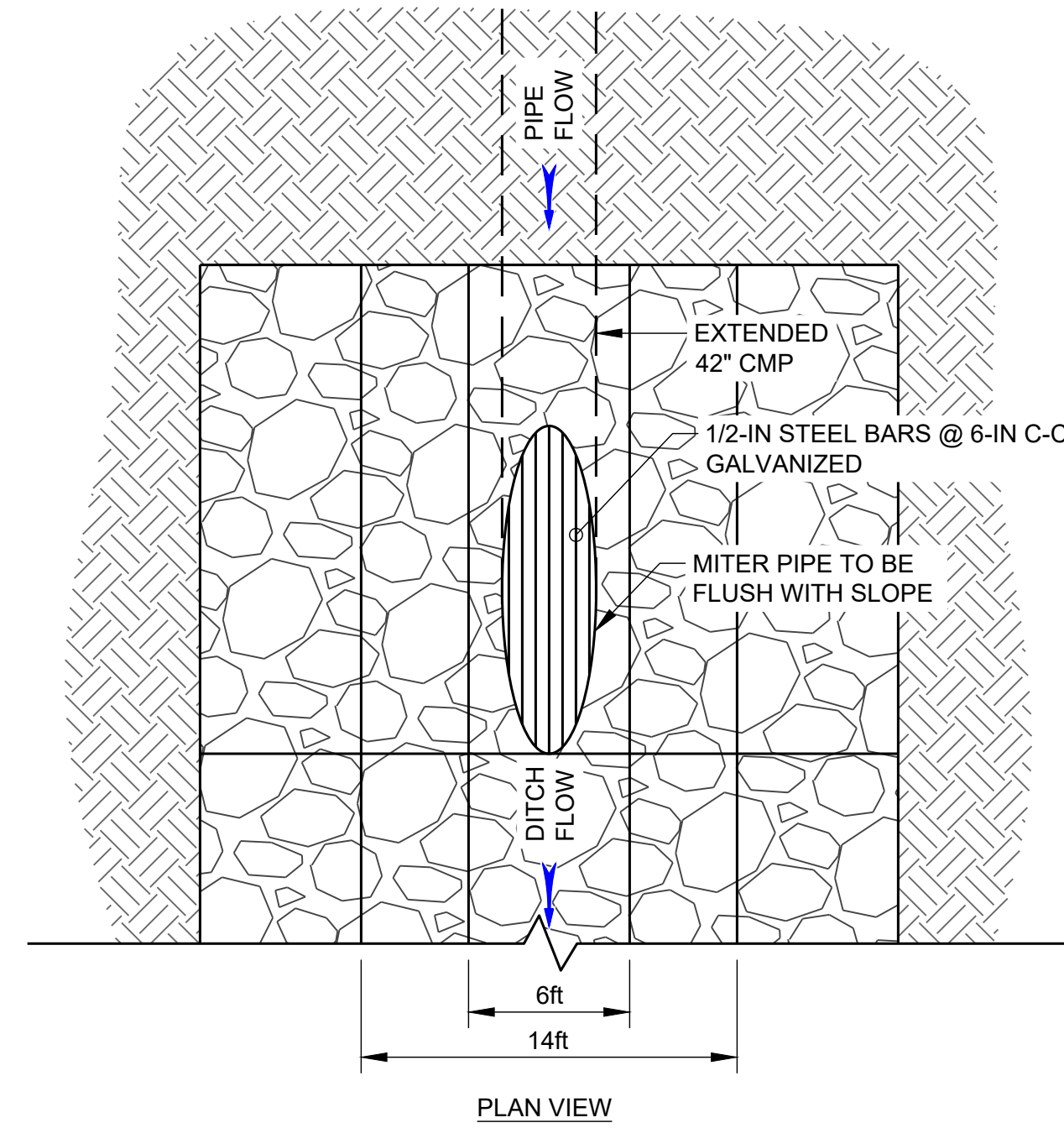
SCALE 1" = 2' 2 NORTH LOWLANDS CMP DISCHARGE CHANNEL - TYPICAL SECTION



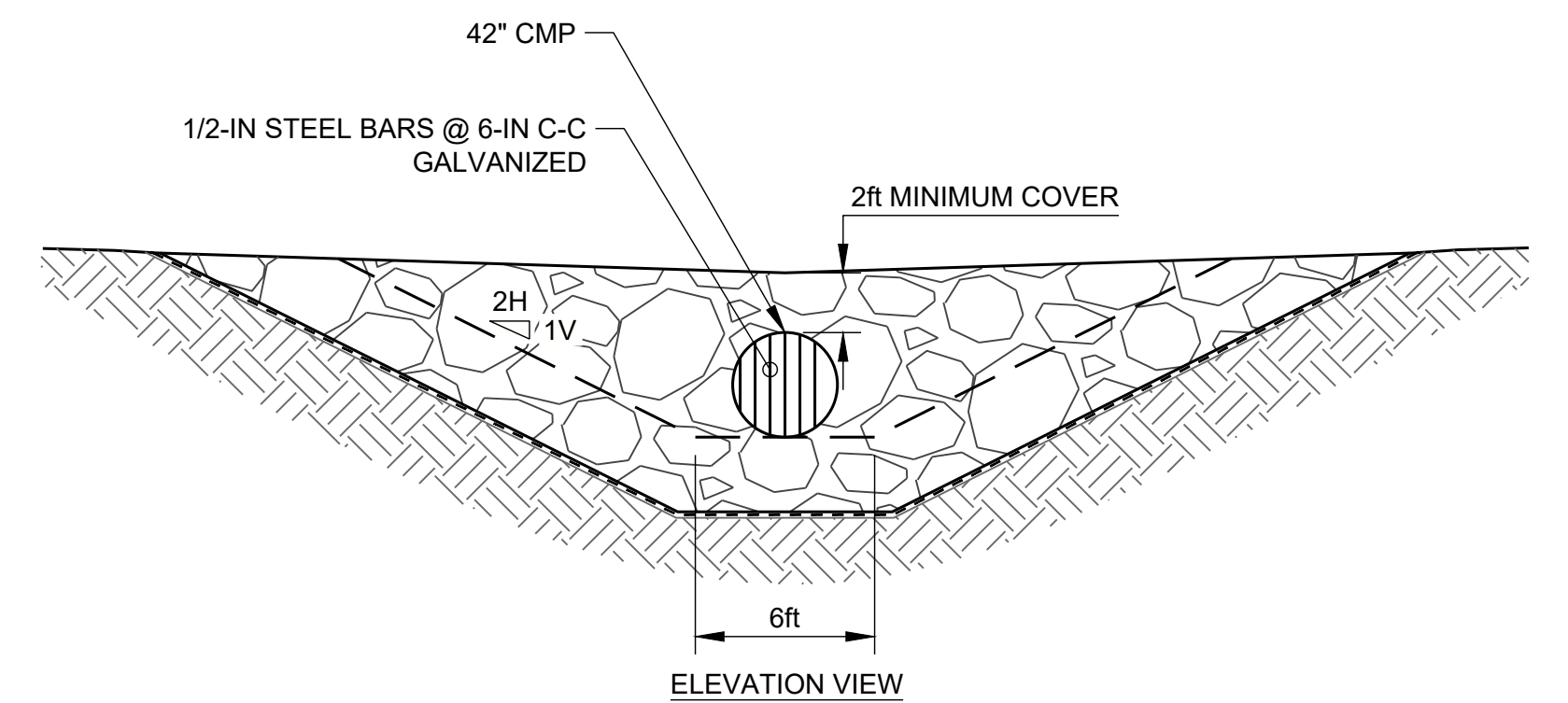
SCALE 1" = 2' 3 TWIN CULVERT DISCHARGE CHANNEL - TYPICAL SECTION



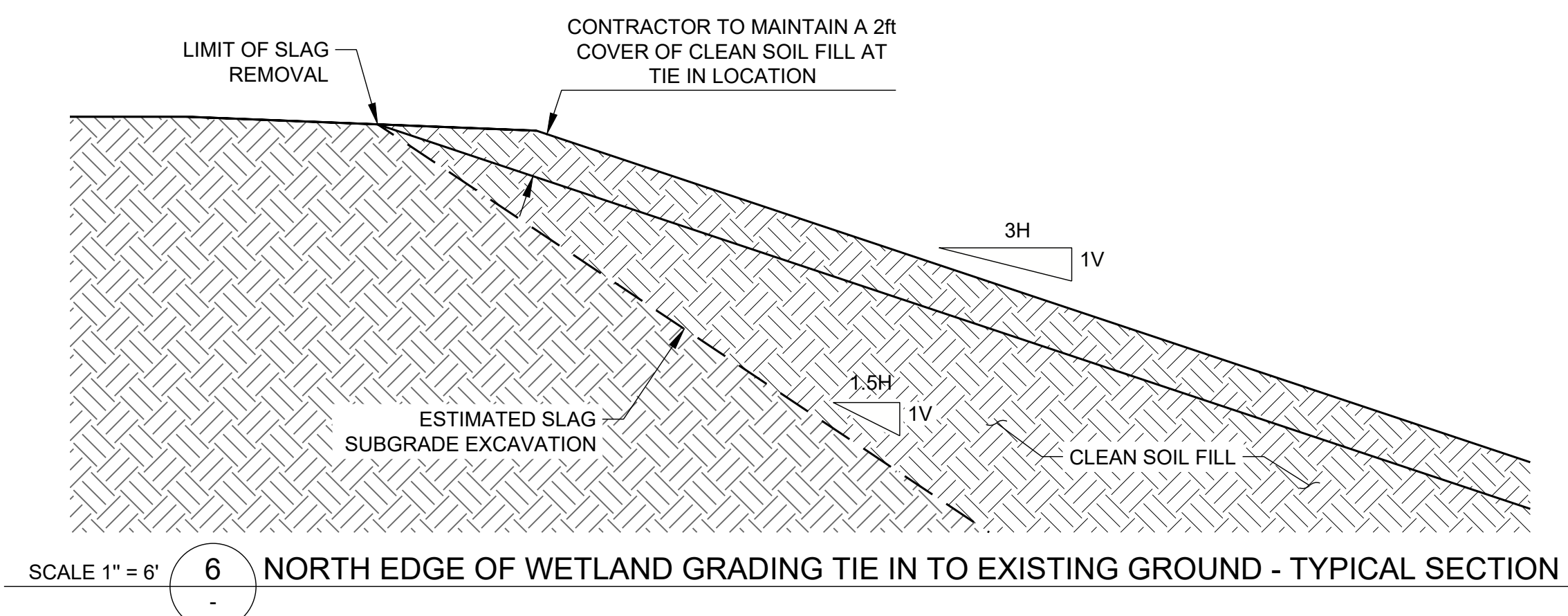
SCALE 1" = 2'      4      WETLAND OUTLET



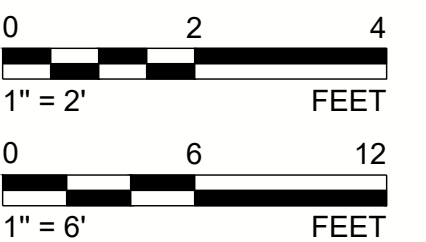
SCALE 1" = 6' 5 NORTH LOWLANDS CMP TERMINATION



ELEVATION VIEW



SCALE 1" = 6' **6** NORTH EDGE OF WETLAND GRADING TIE IN TO EXISTING GROUND - TYPICAL SECTION



1	2025-04-25	NORTH LOWLANDS DRAINAGE REVISION	VMN	REDMOND	FSS	RSA
0	2024-03-08	ISSUED FOR CONSTRUCTION	VMN	REDMOND	FSS	RSA
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

SEAL



CLIENT  
CYPRUS AMAX MINERALS COMPANY

CONSULTANT



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PROJECT  
FORMER SATRALLOY SITE  
SLAG REMOVAL INTERIM ACTION  
JEFFERSON COUNTY, OHIO

TITLE  
**CONSTRUCTED WETLANDS DETAILS - NORTH LOWLANDS**

PROJECT NO.	PHASE	REV.	108 of 112	SHEET
1239330907	900	1		711