

INDIANA DEPARTMENT OF ADMINISTRATION (IDOA)  
INDIANA DEPARTMENT OF NATURAL RESOURCES (IDNR)

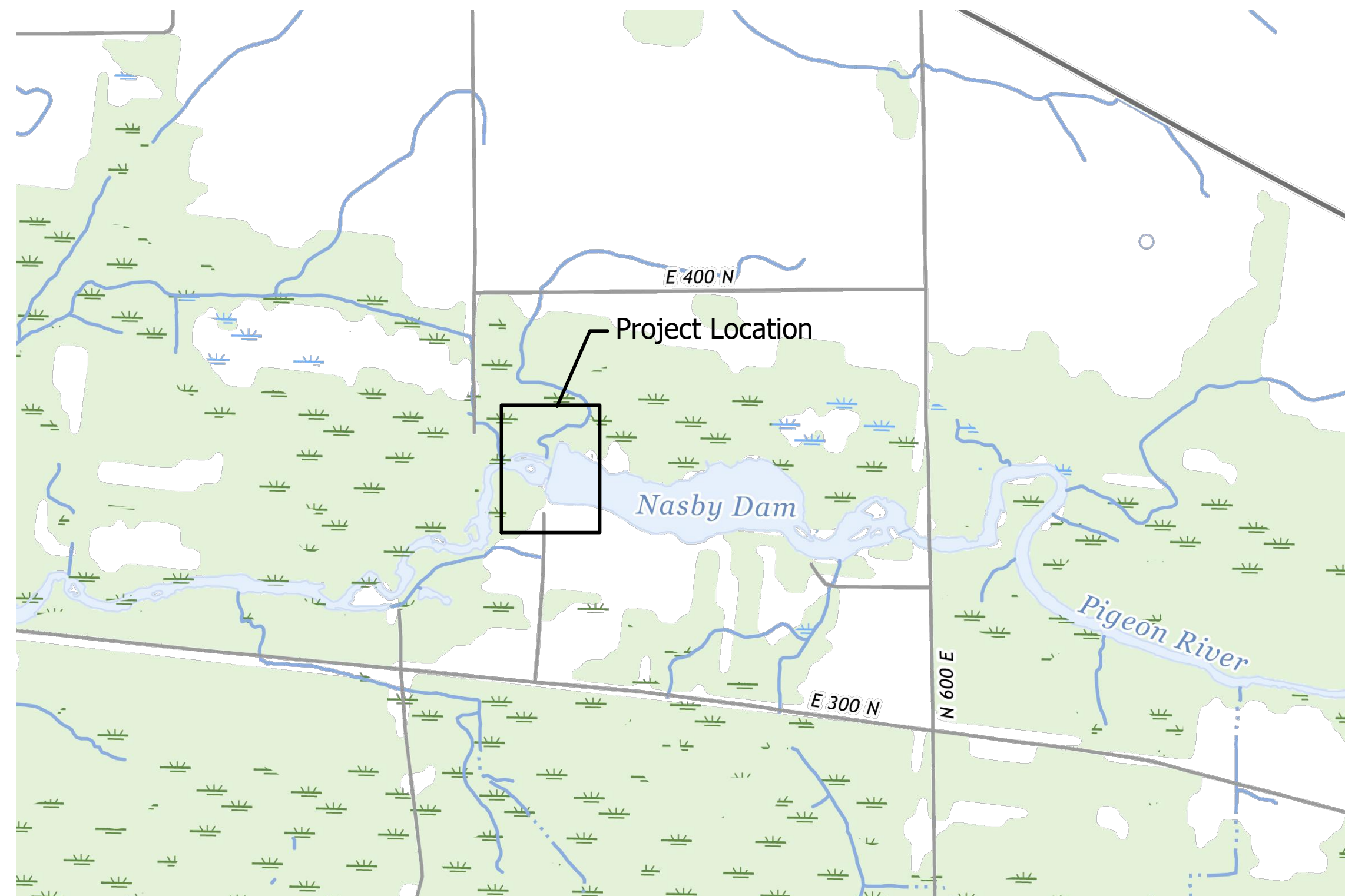
PROJECT No. ENG2403889284  
NASBY DAM REHABILITATION  
BLOOMFIELD TOWNSHIP, LAGRANGE COUNTY, INDIANA

SECTION 1, T-37-N, R-10-E

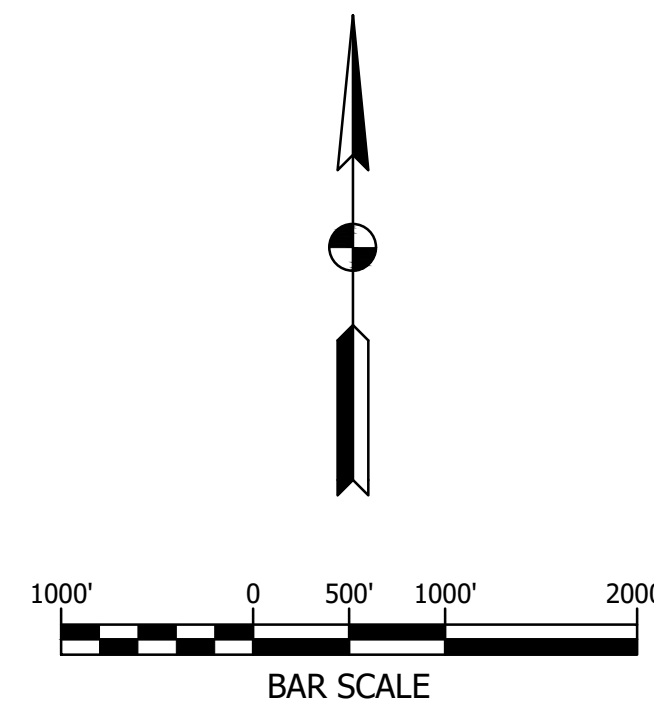
December 2023



DRAWING INDEX	
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LOCATION MAP  
LaGrange County



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LAWSON-FISHER ASSOCIATES P.C.  
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PH. (574) 234-3167

REGISTERED PROFESSIONAL ENGINEER  
No. 11100677  
STATE OF INDIANA

*Kirby Siedlecki* 12/08/23  
SIGNATURE DATE

*Mark H. Foster* 12/08/23  
SIGNATURE DATE

REGISTERED PROFESSIONAL ENGINEER  
No. 10200285  
STATE OF INDIANA

INDIANA DEPARTMENT OF  
NATURAL RESOURCES  
NASBY DAM REHABILITATION

TITLE SHEET






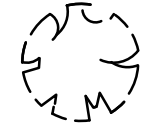





REVISIONS	HORIZONTAL SCALE BAR SCALE	PROJECT NUMBER 202106.40
	VERTICAL SCALE	
DRAWN: PJV	SURVEY BOOK	SHEETS
CHECKED: KJS	DATE DECEMBER 2023	1 OF 22

U:\2021\202106.dwg - LEGEND2

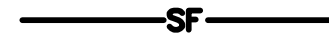

**PROPOSED CONSTRUCTION SEQUENCING**

1. Clearing and construction of temporary access roads and staging areas as required.
2. Begin dewatering. Contractor is allowed to lower the impoundment no more than two feet below the crest elevation of the labyrinth weir spillway to perform construction activities. The impoundment shall not be lowered below elevation 887.5 feet (NAVD 88).
3. Tree removal shall occur prior to April 1 or after September 30 due to restrictions with the Indiana Bat. Tree stumps and root balls shall not be removed until the embankment restoration occurs, and after the installation of sheet piles.
4. Install sheet piling along the southern and northern embankments, and at downstream side of the spillway outlet as shown on plans.
5. Repair weir structure as per plans and as approved by the Engineer/Owner.
6. Construct proposed retaining walls as per plans.
7. Grade the embankments and install the flexamat embankment reinforcement as per plans and cross sections. Subgrade shall be prepared in accordance with the specifications, including seeding. Note the area of poor soils removal (undercutting) along the toe of the northern embankment to be replaced with clean sand fill. Dewatering of a portion of the toe for the placement of fill in the undercut area will not be allowed unless otherwise approved in writing by the Engineer/Owner. Refer to Work Item 4 of the Detailed Specifications.
8. Complete concrete restoration and construction as noted on the plans. These activities may be completed concurrently with the embankment restoration at the discretion of the Contractor.
9. Place topsoil and seed along all disturbed areas, including the Flexamat embankment.
10. Complete any other work described on the plans and specifications.
11. Any deviation from this sequence shall be approved by the Owner or their designated representative.

**EXISTING FEATURES LEGEND:**

-  Benchmark
-  Soil Boring
-  Control Point
-  Sign - Single Post
-  Sign - Double Post
-  Deciduous Tree
-  Stump
-  Post
-  Pipe Invert
-  Ordinary High Water Mark
-  Water Surface Elevation

**EROSION CONTROL LINETYPES**

-  Silt Fence
-  Turbidity Curtain

**MISCELLANEOUS LINES**

-  Tree/Vegetation Line
-  Centerline of Ditch
-  Ex. Wetlands

**GENERAL NOTES:**

1. These construction documents do not guarantee that all existing utilities are depicted.
2. The Contractor shall locate all underground utilities and shall coordinate with the Engineer and Owner for any utility relocation if required prior to starting work.
3. Any damage to access roads, bridges, private or public property, and to existing structure (not specified to be altered) by the Contractor during construction shall be repaired at the expense of the Contractor.
4. The Contractor shall conduct check surveys on each aspect of the work as provided in the specifications before construction. The results of the check surveys may affect the quantities.
5. If any errors become apparent, they shall be brought to the attention of the engineer prior to construction so that clarification or redesign may occur.
6. Contractor shall power wash all equipment upon arriving on site in order to decrease the spread of any invasive species.
7. Contractor shall clear tree branches to a height of 12-feet above ground level along the proposed path.
8. Contractor shall not remove trees between April 1 and September 30 due to date restrictions with the endangered Indiana bat species unless otherwise permitted by the permitting agency.
9. Contractor shall seed and mulch all disturbed areas within the construction limits unless noted otherwise.
10. The Contractor shall submit a dewatering/diversion/water management plan to the Owner prior to starting construction.

**SURVEY NOTES:**

1. Unless noted otherwise, all coordinates shown hereon are based upon the Indiana State Plane Coordinate System's East Zone (InSPC-1301) per North American Datum 1983 NAD 83 (97) AKA NAD 83 High Accuracy Reference Network (HARN) as established by the Indiana Department of Natural Resources (IDNR) on the National Geodetic Survey (NGS) control monuments Brighton and Wall; and IDNR control point 3 (IDNR3). IDNR3 was set by IDNR for the Nasby Millpond project dated 27 April 2000. All coordinates are reported in U.S. Survey Feet and decimal parts thereof.
2. Unless noted otherwise, all elevations shown hereon are based upon the North American Vertical Datum of 1988 (NAVD 88) as established by IDNR on control point IDNR3.
3. This project is located in Section 1, Township 37N, Range 10E, Bloomfield Township of Lagrange Co., Indiana
4. The horizontal datum was verified by Global Navigation Satellite Systems (GNSS) Real Time Kinematic (RTK) observations on NGS control monuments Brighton and Wall; and IDNR control point IDNR3. A Trimble R10 (3mm // 8mm+1ppm RMS) GNSS receiver was used. The Trimble Virtual Reference Station (VRS) Network was utilized as the correction source.
5. Horizontal control points 1 & 2 were established with a Trimble R10 (3mm // 8mm+1ppm RMS) GNSS receiver. The GNSS observation class was RTK and utilized the Trimble VRS network as the correction source. A minimum of three separate GNSS (RTK/VRS) observations, an average of 266 epochs each, were simple mean averaged to establish the horizontal coordinate values. Horizontal control point 3 was shot trigonometrically using a Trimble S6 total station (3" ±0.01ft+2ppm) occupying CP2 and backsighting CP1.
6. GNSS (RTK) observations using the VRS network via a Trimble R10 (3mm // 8mm+1ppm RMS) GNSS receiver was used to verify the vertical datum on IDNR control point IDNR3; elevation 894.44.
7. A closed differential level circuit was completed with a Trimble DiNi (0.7mm/km) digital level to establish the temporary bench mark and control point elevations. The IDNR established elevation of IDNR3; elevation 894.44, was used as the father bench mark for this project. All control points and temporary bench marks were leveled.
8. The marking of underground utilities was requested through Indiana 811 under ticket number 2104052987. All utilities were marked as clear from the project area.
9. The topographic survey was completed on 14 April 2021.

HORIZONTAL CONTROL (NAD 83 (97) - INSPC - EAST ZONE // U.S. FEET)						
ID	Northing	Easting	Latitude	Longitude	Elevation (NAVD 88)	Marker
CP1	2347816.7383	421932.9776	N41°41'36.04083"	W85°19'22.92877"	896.44	5/8" Rebar - Slightly Bent
CP2	2348255.6757	421913.7657	N41°41'40.37810"	W85°19'23.15893"	894.44	Rebar w/ Aluminum Cap - Slightly Bent
CP3	2348959.5624	422029.5144	N41°41'47.32764"	W85°19'21.59614"	894.76	1/2"x18" Rebar w/ Blue Cap Stamped 'LAWSON-FISHER'

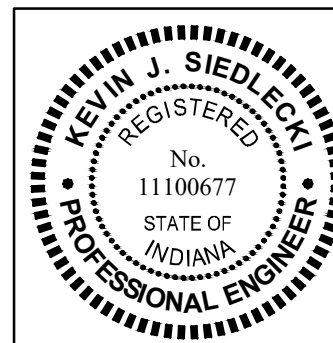
Control point elevations are provided for reference. It should be understood that the markers used are subject to vertical movement due to frost heave, vehicle movements and other environmental factors. All horizontal control point elevations are superseded by bench mark elevations. Condition of marker is provided for context that control values from CP1 and CP2 were established on markers as found.

VERTICAL CONTROL (NAVD 88)						
ID	Elevation (NAVD 88)	Remarks	Northing	Easting	Latitude	Longitude
TBM A	893.82	Mag Spike; Set Vertically in N. Root 24" Mulberry; 207' S and 7' E of the S.E. Cor. of the S Wingwall of Nasby Dam Spillway	2348398.6	421977.2	N41°41'41.79"	W85°19'22.31"
TBM B	892.65	Cut Circle; Center of the S 2.5' Wide Wingwall of Nasby Dam Spillway	2348604.4	421950.2	N41°41'43.82"	W85°19'22.66"
TBM C	892.97	Cut Circle; Center of the N 2.5' Wingwall Wall of Nasby Dam Spillway	2348702.8	421968.9	N41°41'44.79"	W85°19'22.41"
TBM D	897.56	Mag Spike; Set Vertically in E Root 24" Oak; 285' N and 86' E of the N.W. Cor. of the N Wingwall of Nasby Dam Spillway	2348980.2	422054.4	N41°41'47.53"	W85°19'21.27"

Bench mark horizontal coordinates are provided for reference. It should be understood that the method and means used to establish the horizontal coordinates of the bench marks is not the same class and standard as those used to establish the horizontal control points. The coordinates only serve as an aid in locating the marks and are superseded by horizontal control point coordinates.



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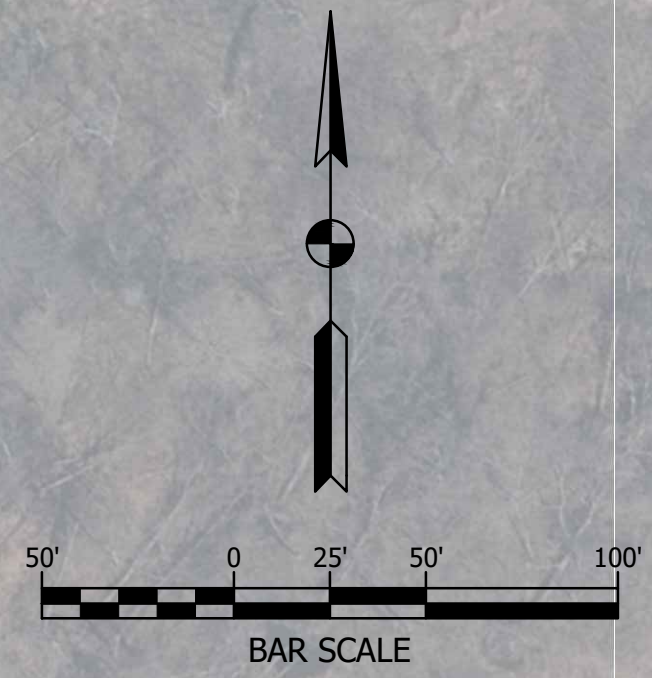
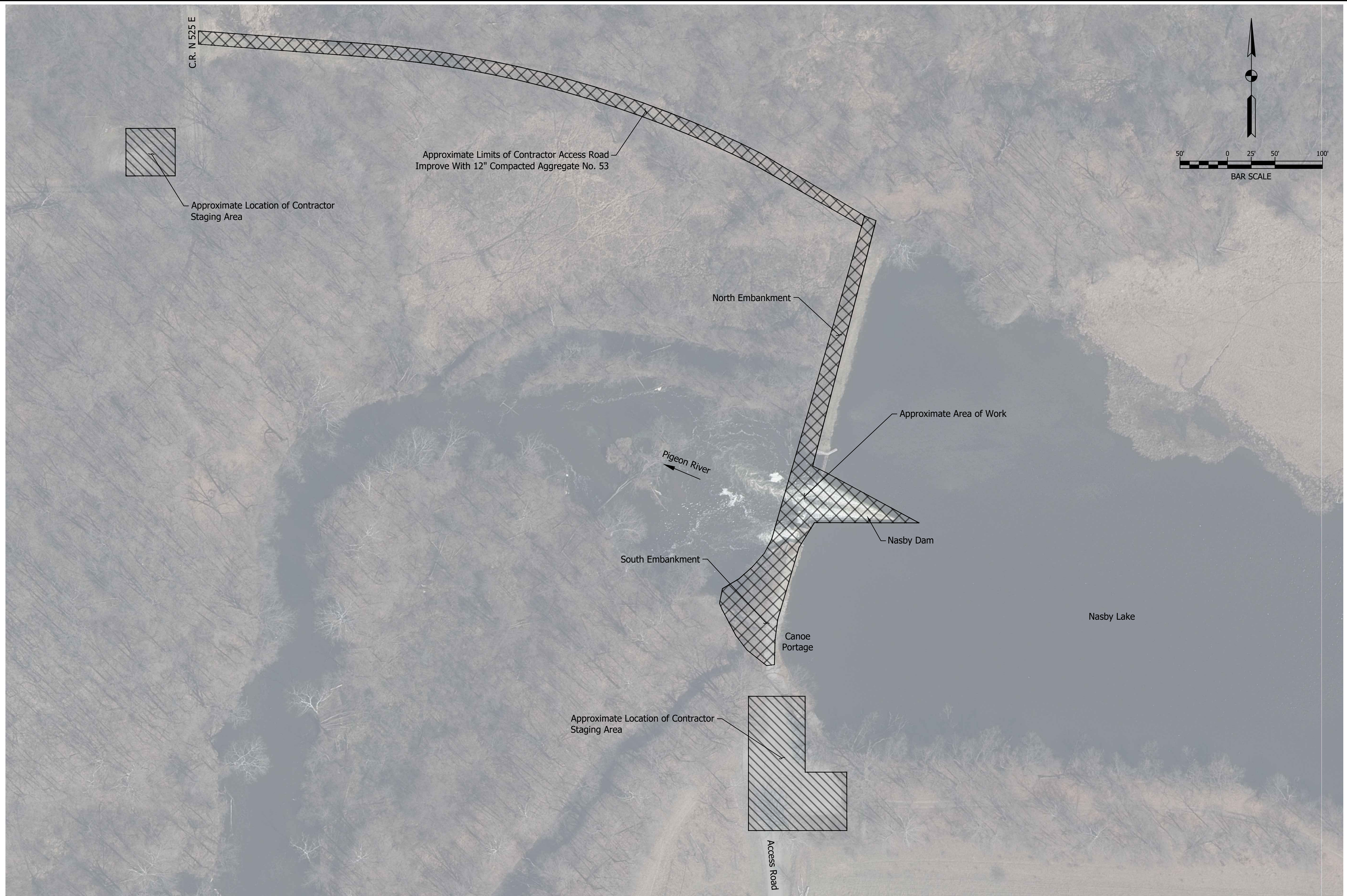
*Kevin J. Siedlecki*  
12/08/23  
SIGNATURE DATE

INDIANA DEPARTMENT OF  
NATURAL RESOURCES  
NASBY DAM REHABILITATION

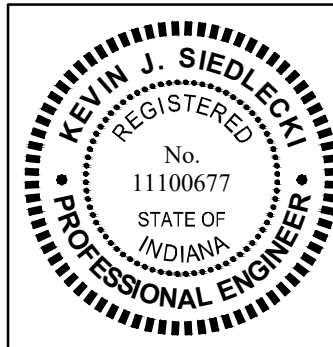
GENERAL NOTES AND LEGEND

REVISIONS	HORIZONTAL SCALE	PROJECT NUMBER
	VERTICAL SCALE	202106.40
DRAWN: JAJ	SURVEY BOOK	SHEETS
CHECKED: KJS	DATE	2 OF 22
	DECEMBER 2023	

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 12/08/23  
 DATE

INDIANA DEPARTMENT OF  
 NATURAL RESOURCES  
 NASBY DAM REHABILITATION  
 STAGING AND SITE ACCESS

REVISIONS	HORIZONTAL SCALE BAR SCALE	PROJECT NUMBER 202106.40
	VERTICAL SCALE	
DRAWN: JAJ	SURVEY BOOK	SHEETS
CHECKED: KJS	DATE DECEMBER 2023	3 OF 22

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+38.9, 47.7' 24" Maple  
 +46.5, 49.9' 36" Cottonwood  
 -51.1, 56.4' 12" Tree  
 +57.0, 49.0' 24" Cottonwood  
 +60.3, 12.2' Sign (Site Info)  
 +62.0, 48.0' 24" Cottonwood  
 +66.6, 37.2' 18" Tree  
 +68.9, 34.3' 15" Tree  
 +69.3, 28.9' 24" Tree

+14.9, 28.7' 12" CMP Inv.

-21.6, 65.3' 24" Tree  
 -25.8, 74.9' 15" Tree  
 -28.4, 19.8' 30" Sycamore  
 +29.3, 55.6' 2" Metal Post  
 +34.1, 29.0' 60" Rock  
 +40.1, 49.9' 30" Stump  
 +41.9, 29.1' 18" Tree  
 +43.0, 37.0' 24" Tree  
 +49.5, 42.9' 32" Stump  
 +49.7, 25.8' 12" Cherry

+79.5, 35.3' 18" Stump  
 +84.8, 22.7' 18" Sycamore  
 +86.0, 25.2' 24" Stump  
 +87.3, 23.3' 15" Mulberry

+14.3, 11.2' 6" Wooden Post

-26.6, 10.4' 15" Tree

-41.5, 22.3' 18" Tree

-51.2, 36.2' 14" Tree

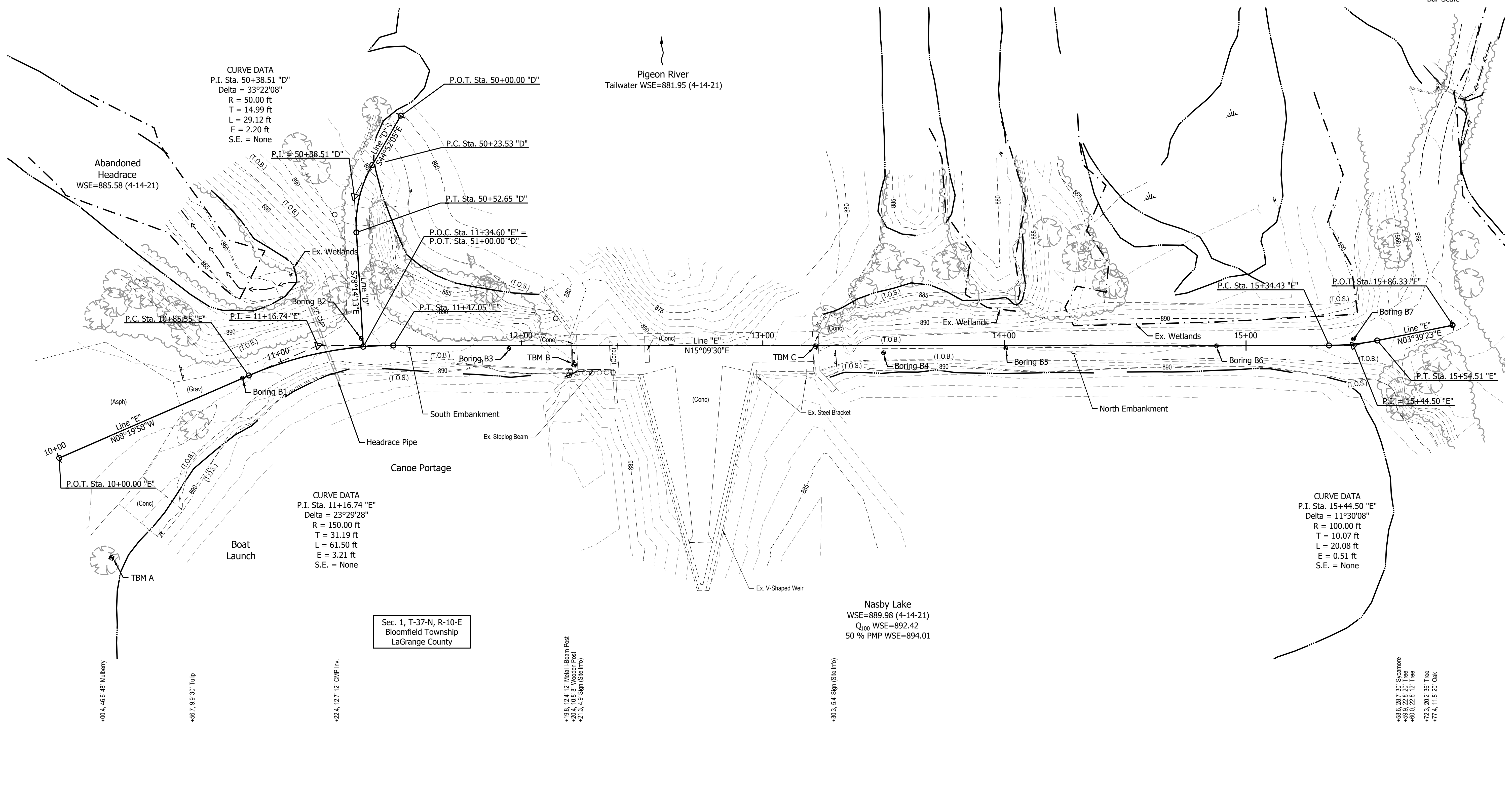
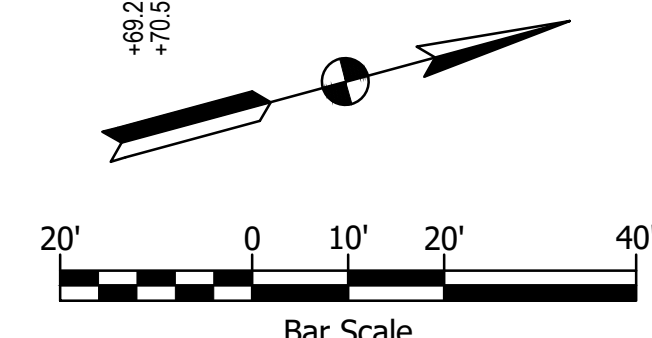
+61.0, 30.0' 24" Willow

+76.1, 33.1' 30" Cottonwood  
 +80.4, 36.4' 24" Maple

+17.8, 46.6' 14" Tree

+30.0, 36.4' 30" Cottonwood  
 +32.0, 44.0' 12" Oak  
 +36.7, 37.4' 12" Tree  
 +43.6, 25.6' 20" Oak  
 +45.3, 25.1' 18" Oak

+69.2, 42.3' 14" Oak  
 +70.5, 35.9' 18" Oak



**CURVE DATA**  
 P.I. Sta. 50+38.51 "D"  
 Delta = 33°22'08"  
 R = 50.00 ft  
 T = 14.99 ft  
 L = 29.12 ft  
 E = 2.20 ft  
 S.E. = None

P.O.T. Sta. 50+00.00 "D"  
 P.C. Sta. 50+23.53 "D"  
 P.T. Sta. 50+52.65 "D"

P.O.C. Sta. 11+34.60 "E" =  
 P.O.T. Sta. 51+00.00 "D"

P.T. Sta. 11+47.05 "E"

**CURVE DATA**  
 P.I. Sta. 15+44.50 "E"  
 Delta = 11°30'08"  
 R = 100.00 ft  
 T = 10.07 ft  
 L = 20.08 ft  
 E = 0.51 ft  
 S.E. = None

**CURVE DATA**  
 P.I. Sta. 11+16.74 "E"  
 Delta = 23°29'28"  
 R = 150.00 ft  
 T = 31.19 ft  
 L = 61.50 ft  
 E = 3.21 ft  
 S.E. = None

Sec. 1, T-37-N, R-10-E  
 Bloomfield Township  
 LaGrange County

Nasby Lake  
 WSE=889.98 (4-14-21)  
 Q<sub>100</sub> WSE=892.42  
 50 % PMP WSE=894.01

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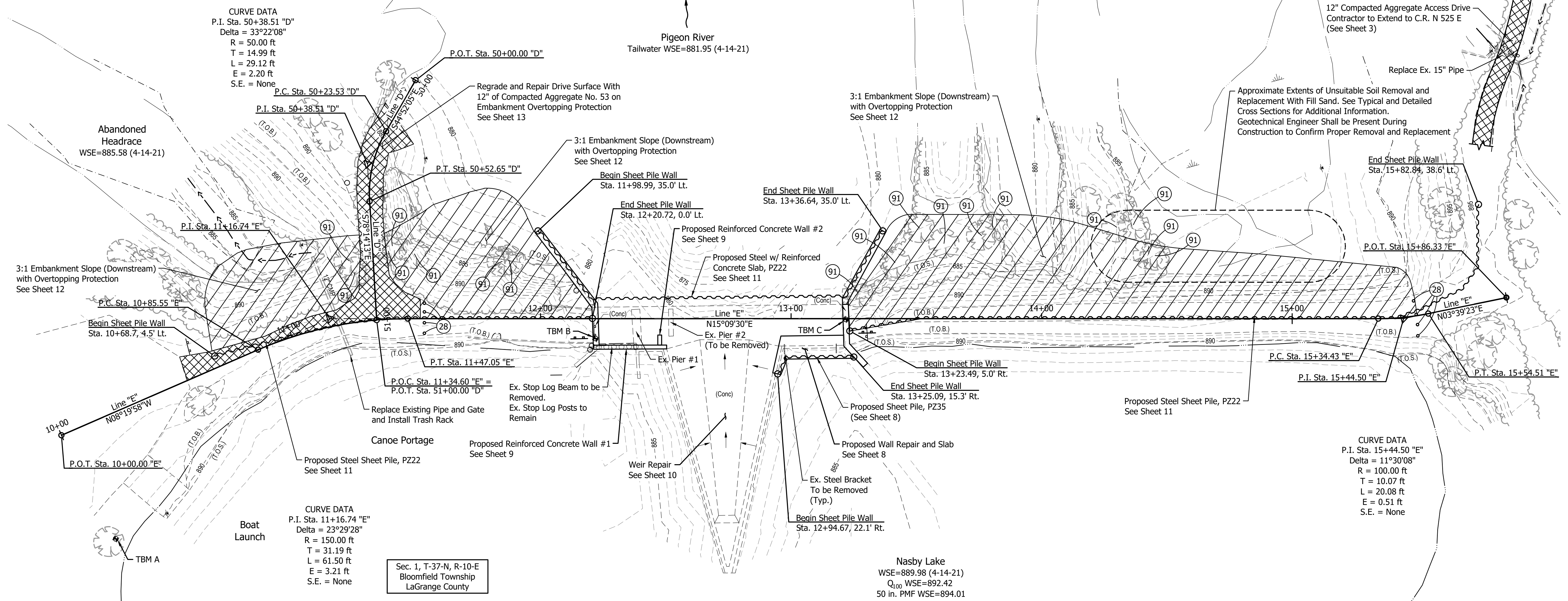
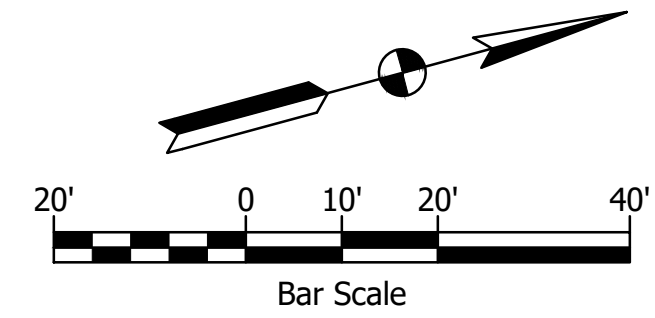
**KENNETH J. SIEDLECKI**  
 REGISTERED PROFESSIONAL ENGINEER  
 No. 11100677  
 STATE OF INDIANA

*Kenneth J. Siedlecki*  
 SIGNATURE  
 12/08/23  
 DATE

INDIANA DEPARTMENT OF  
 NATURAL RESOURCES  
 NASBY DAM REHABILITATION  
 EXISTING SITE PLAN

REVISIONS	HORIZONTAL SCALE BAR SCALE	PROJECT NUMBER 202106.40
	VERTICAL SCALE	
DRAWN: JAJ	SURVEY BOOK	SHEETS
CHECKED: KJS	DATE DECEMBER 2023	4 OF 22

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**NOTE:**  
1. Trees shall not be removed between April 1 and September 30.

**LEGEND:**

- Regrade and Repair Gravel Drive
- 12" Compacted Aggregate No. 53 on Embankment Overtopping Protection
- Embankment Overtopping Protection
- Dam Safety Signage - Coordinate With Owner
- Removable Pipe Bollard (See Sheet 13)
- Tree Removal

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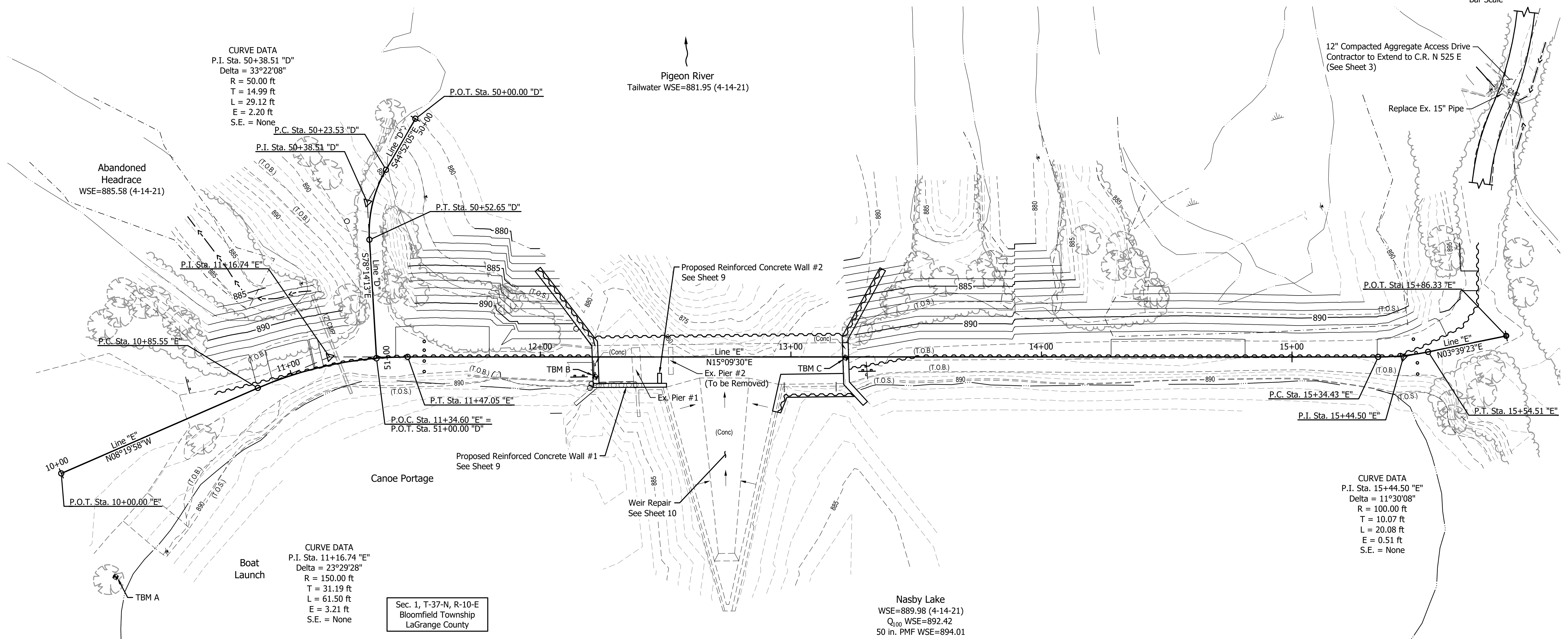
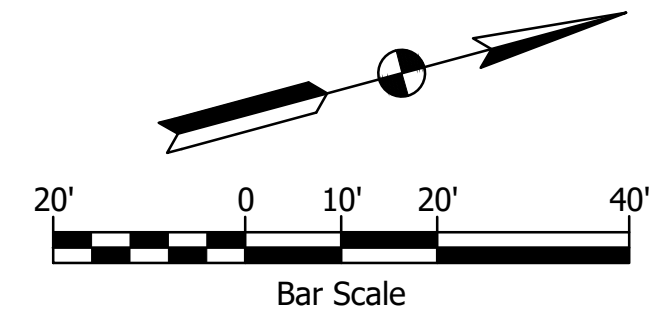
REGISTERED PROFESSIONAL ENGINEER  
No. 11100677  
STATE OF INDIANA  
KEVIN J. SIEDLECKI

*Kevin Siedlecki*  
SIGNATURE  
12/08/23  
DATE

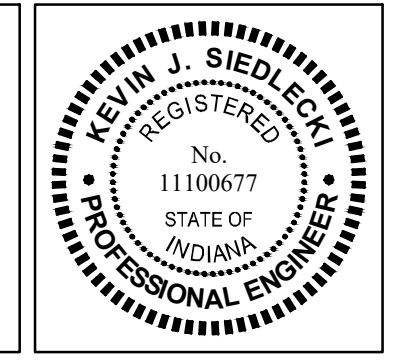
INDIANA DEPARTMENT OF NATURAL RESOURCES  
NASBY DAM REHABILITATION  
PROPOSED SITE PLAN

REVISIONS	HORIZONTAL SCALE BAR SCALE	PROJECT NUMBER 202106.40
	VERTICAL SCALE	
DRAWN: JAJ	SURVEY BOOK	SHEETS
CHECKED: KJS	DATE DECEMBER 2023	5 OF 22

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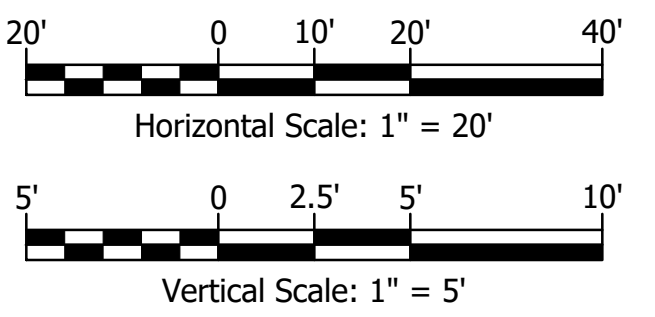
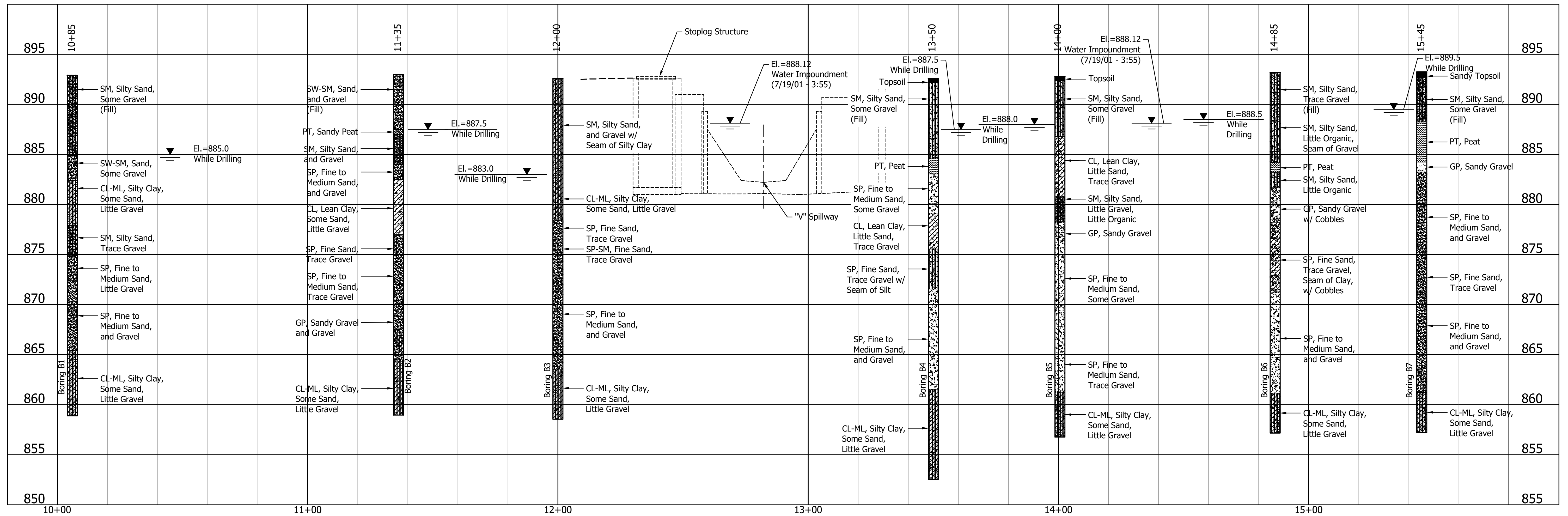


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DATE

INDIANA DEPARTMENT OF  
NATURAL RESOURCES  
NASBY DAM REHABILITATION  
GRADING PLAN

REVISIONS	HORIZONTAL SCALE BAR SCALE	PROJECT NUMBER 202106.40
	VERTICAL SCALE	
DRAWN: JAJ	SURVEY BOOK	SHEETS
CHECKED: KJS	DATE DECEMBER 2023	6 OF 22

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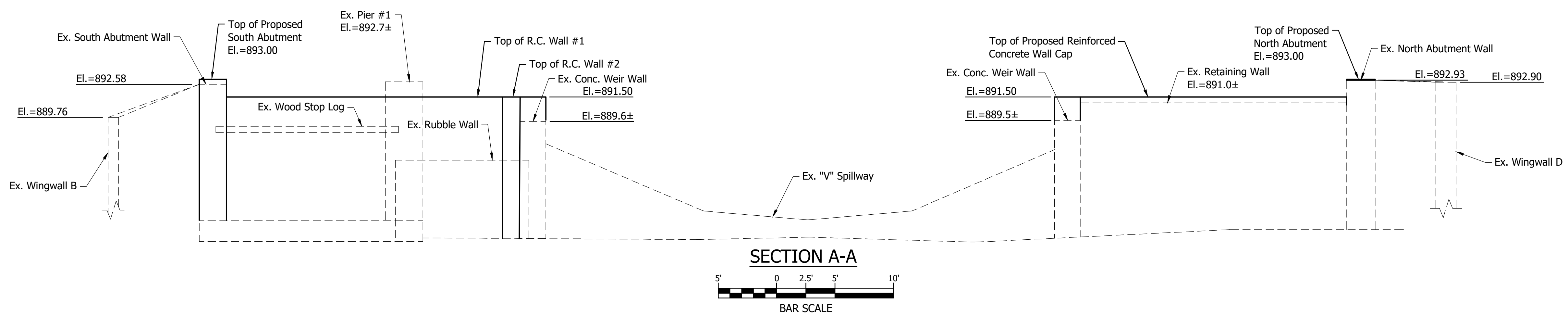
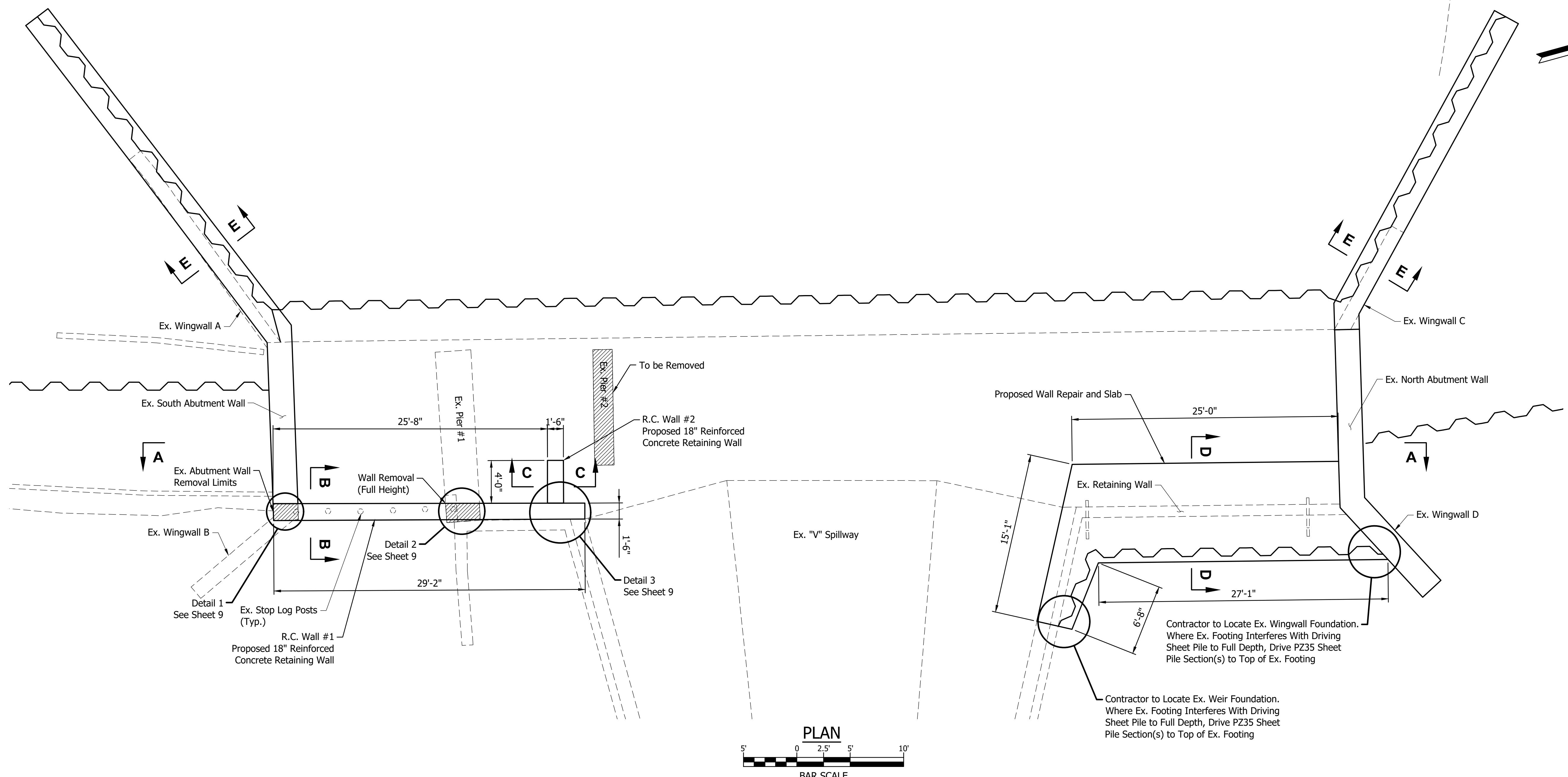
REGISTERED PROFESSIONAL ENGINEER  
No. 11100677  
STATE OF INDIANA

*Kevin J. Siedlecki*  
SIGNATURE  
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INDIANA DEPARTMENT OF NATURAL RESOURCES  
NASBY DAM REHABILITATION  
BORING DATA

REVISIONS	HORIZONTAL SCALE BAR SCALE	PROJECT NUMBER 202106.40
	VERTICAL SCALE BAR SCALE	
DRAWN: JAJ	SURVEY BOOK	SHEETS
CHECKED: KJS	DATE DECEMBER 2023	7 OF 22

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 MARK H. FOSTER  
 No. 10200285  
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 SIGNATURE  
 12/08/23  
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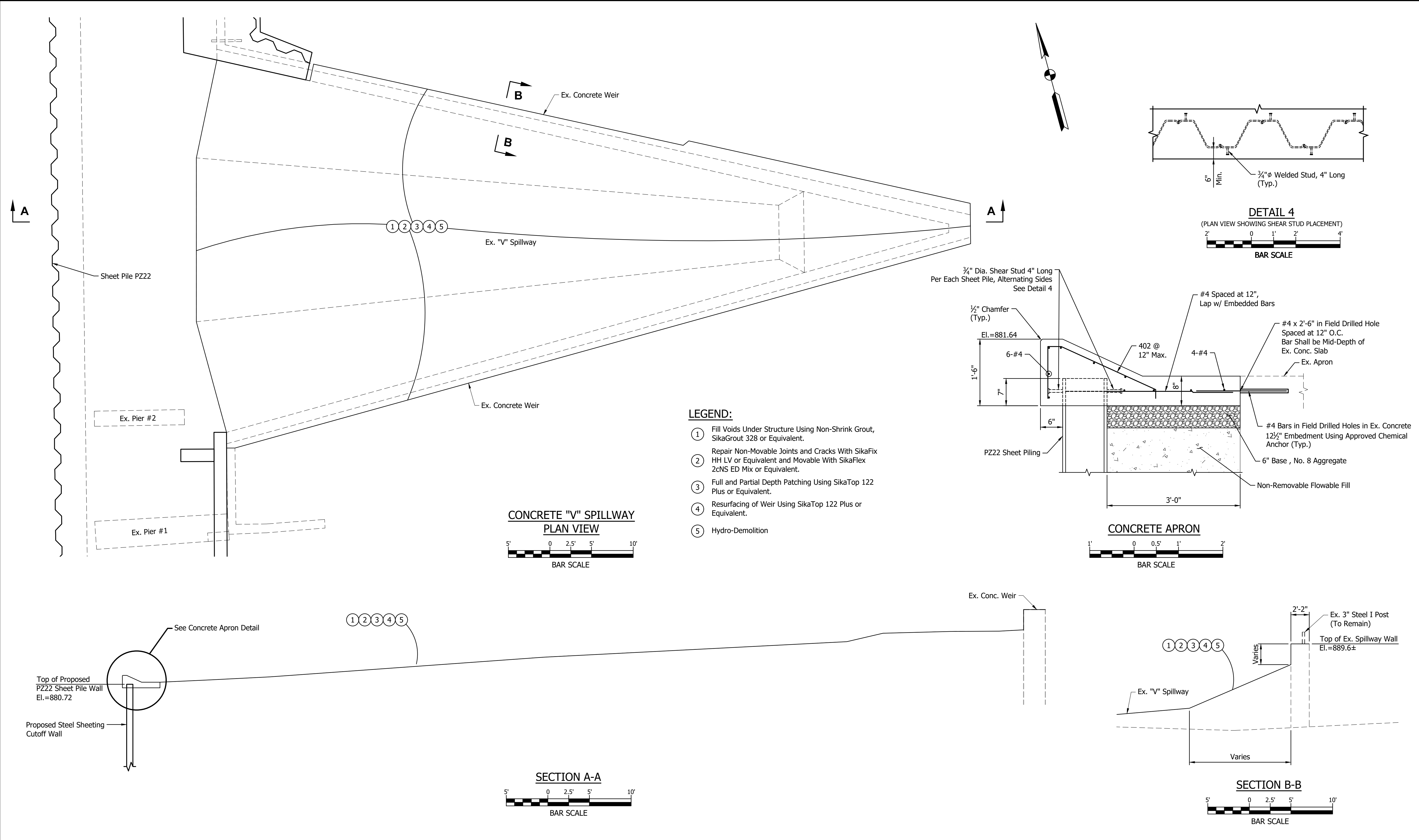
INDIANA DEPARTMENT OF  
 NATURAL RESOURCES  
 NASBY DAM REHABILITATION  
 RETAINING WALL DETAILS

REVISIONS	HORIZONTAL SCALE BAR SCALE	PROJECT NUMBER 202106.40
	VERTICAL SCALE	
DRAWN: JAJ	SURVEY BOOK	SHEETS
CHECKED: MHF/EK	DATE DECEMBER 2023	8 OF 22





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**LEGEND:**

- ① Fill Voids Under Structure Using Non-Shrink Grout, SikaGrout 328 or Equivalent.
- ② Repair Non-Movable Joints and Cracks With SikaFix HH LV or Equivalent and Movable With SikaFlex 2cNS ED Mix or Equivalent.
- ③ Full and Partial Depth Patching Using SikaTop 122 Plus or Equivalent.
- ④ Resurfacing of Weir Using SikaTop 122 Plus or Equivalent.
- ⑤ Hydro-Demolition

**CONCRETE "V" SPILLWAY  
PLAN VIEW**  
BAR SCALE

**CONCRETE APRON**  
BAR SCALE

**SECTION A-A**  
BAR SCALE

**SECTION B-B**  
BAR SCALE

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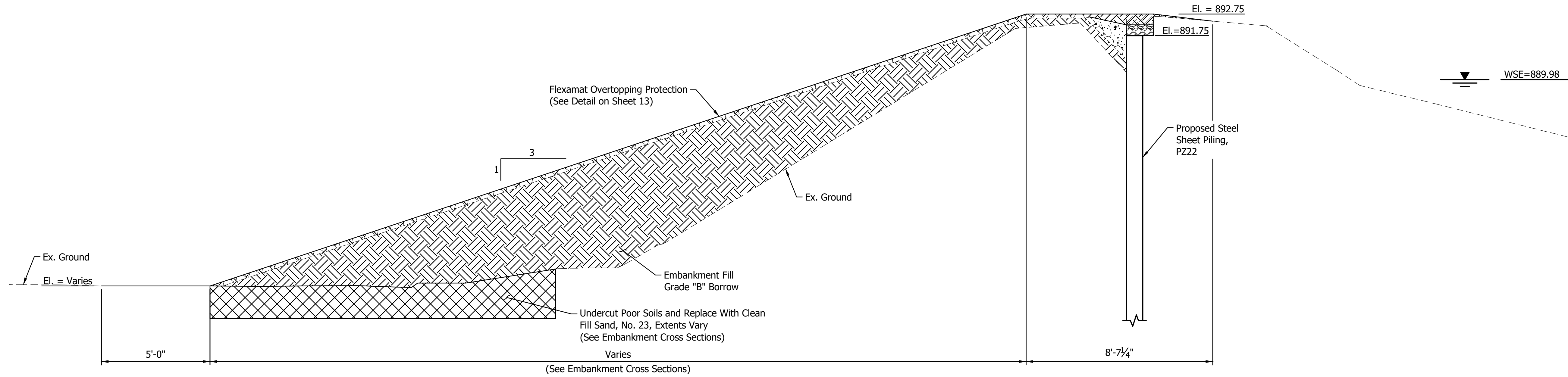
*Mark H. Foster*  
SIGNATURE  
12/08/23  
DATE

INDIANA DEPARTMENT OF  
NATURAL RESOURCES  
NASBY DAM REHABILITATION  
SPILLWAY REPAIR DETAILS

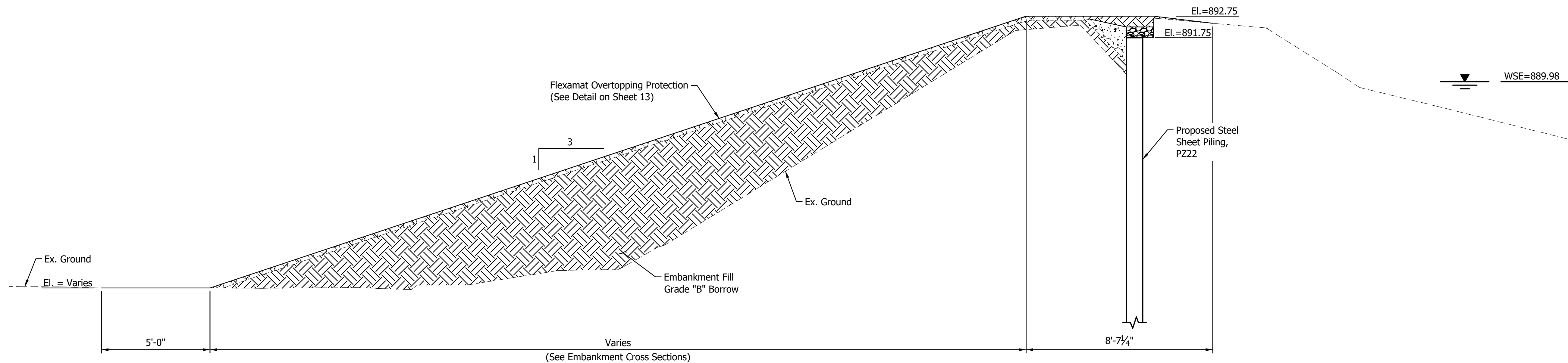
REVISIONS	HORIZONTAL SCALE BAR SCALE	PROJECT NUMBER 202106.40
	VERTICAL SCALE	
DRAWN: JAJ	SURVEY BOOK	SHEETS
CHECKED: MHF/EK	DATE DECEMBER 2023	10 OF 22



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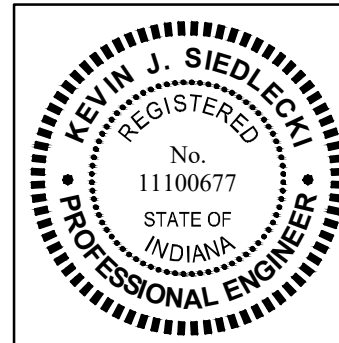
**TYPICAL SECTION  
NORTH EMBANKMENT**



**TYPICAL SECTION  
SOUTH EMBANKMENT**



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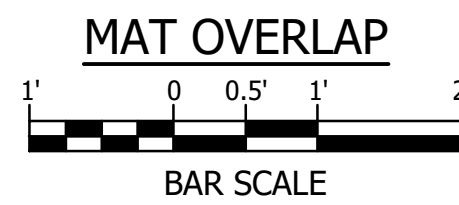
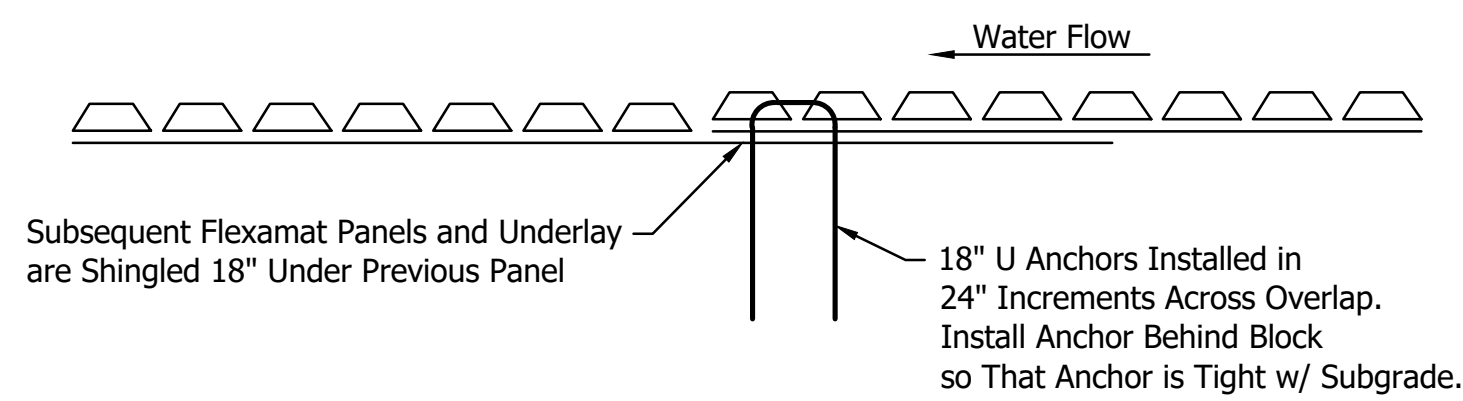
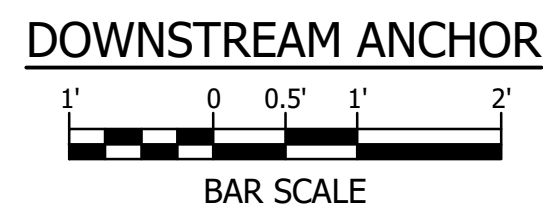
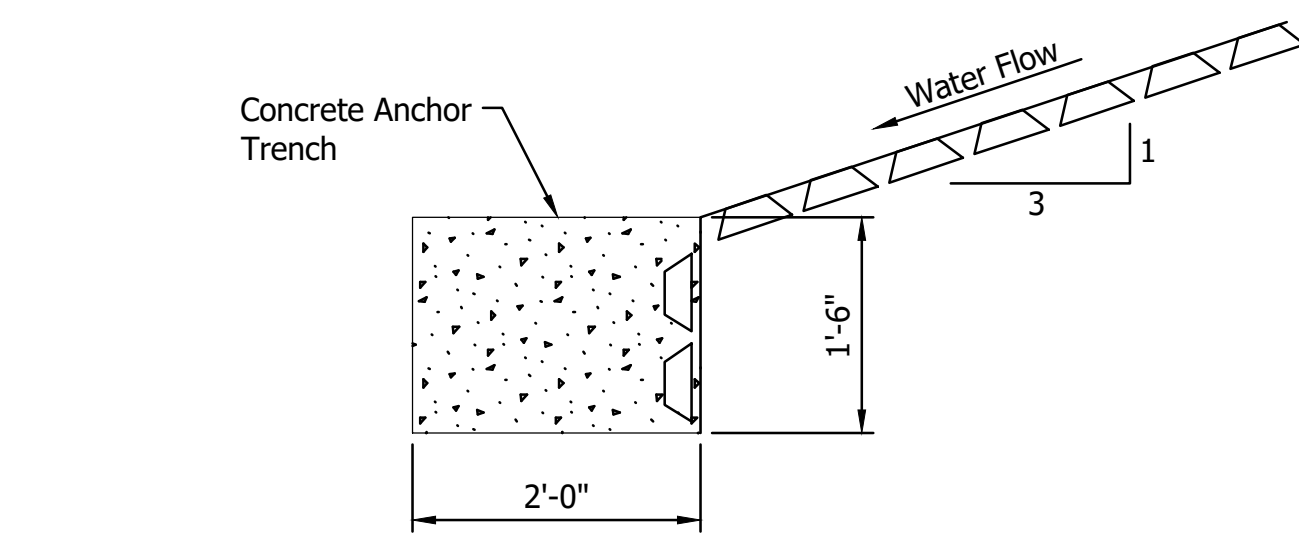
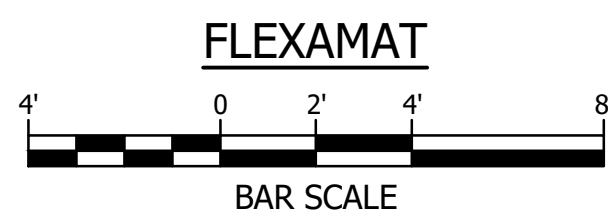
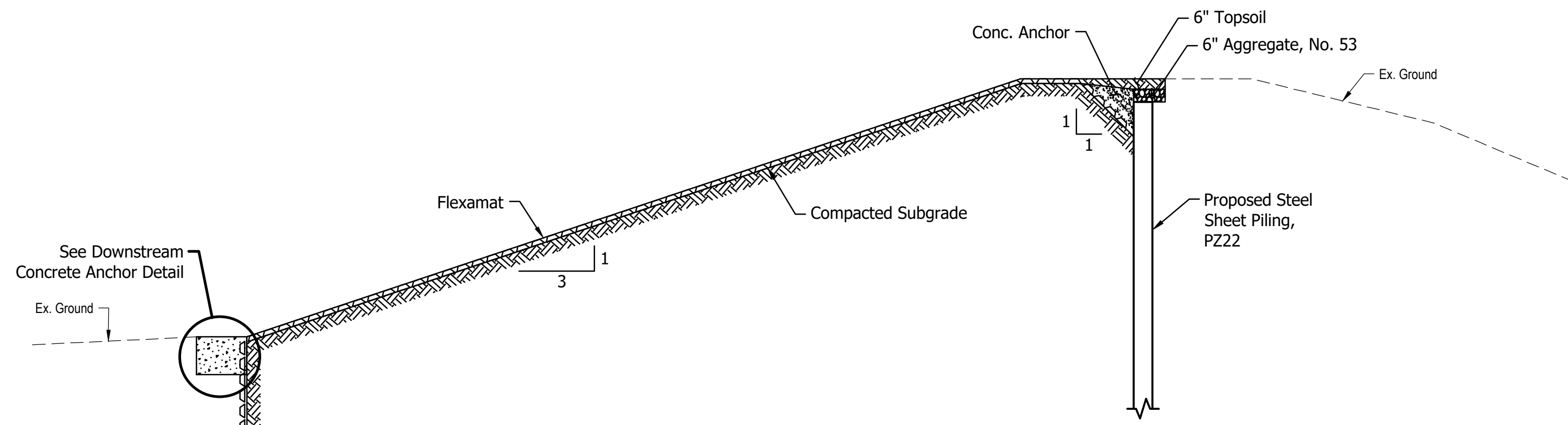
*Kevin Siedlecki*  
SIGNATURE  
12/08/23  
DATE

INDIANA DEPARTMENT OF  
NATURAL RESOURCES  
NASBY DAM REHABILITATION

TYPICAL SECTIONS

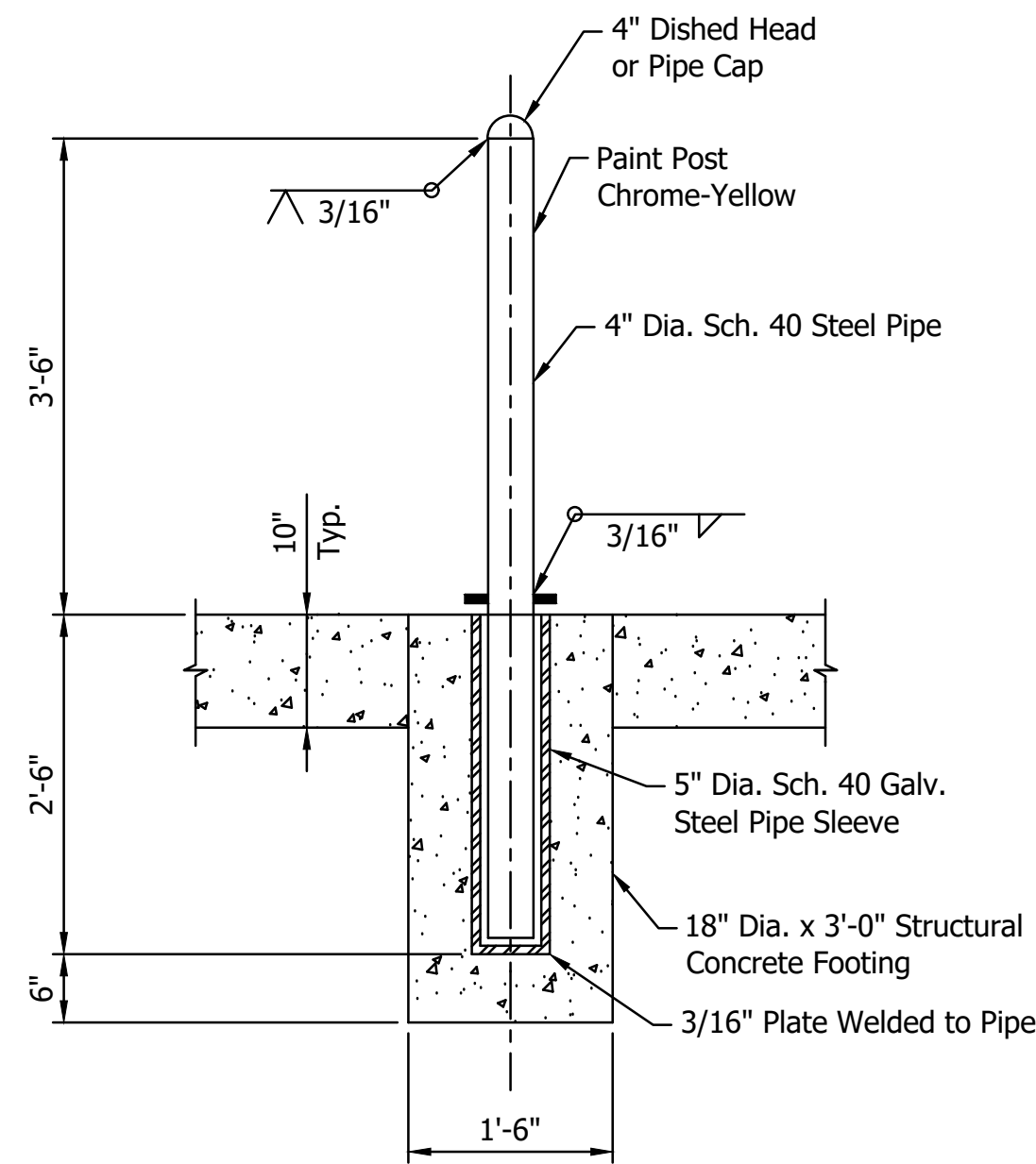
REVISIONS	HORIZONTAL SCALE BAR SCALE	PROJECT NUMBER 202106.40
	VERTICAL SCALE	
DRAWN: JAJ	SURVEY BOOK	SHEETS
CHECKED: KJS	DATE DECEMBER 2023	12 OF 22

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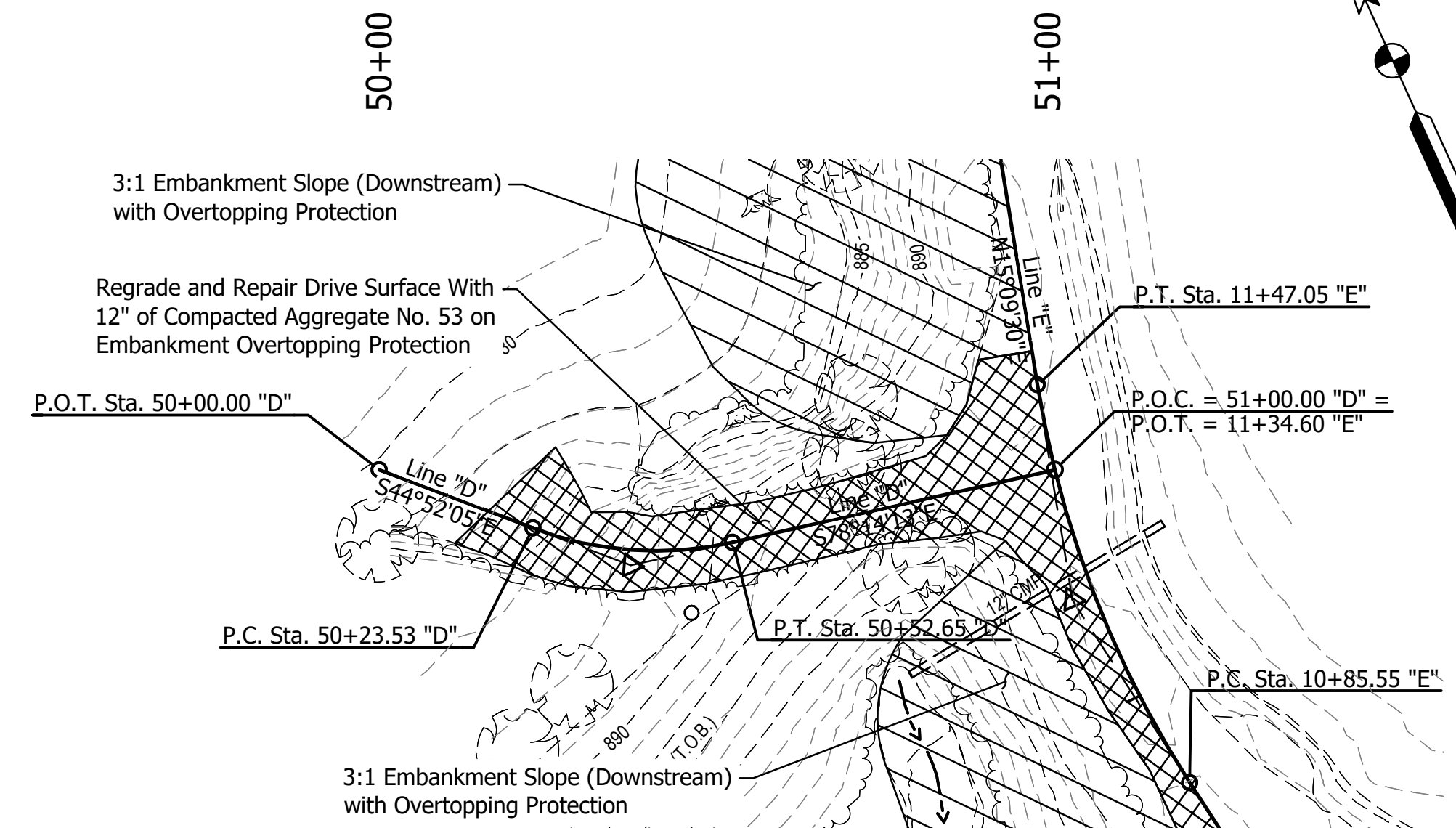


**FLEXAMAT CONSTRUCTION NOTES:**

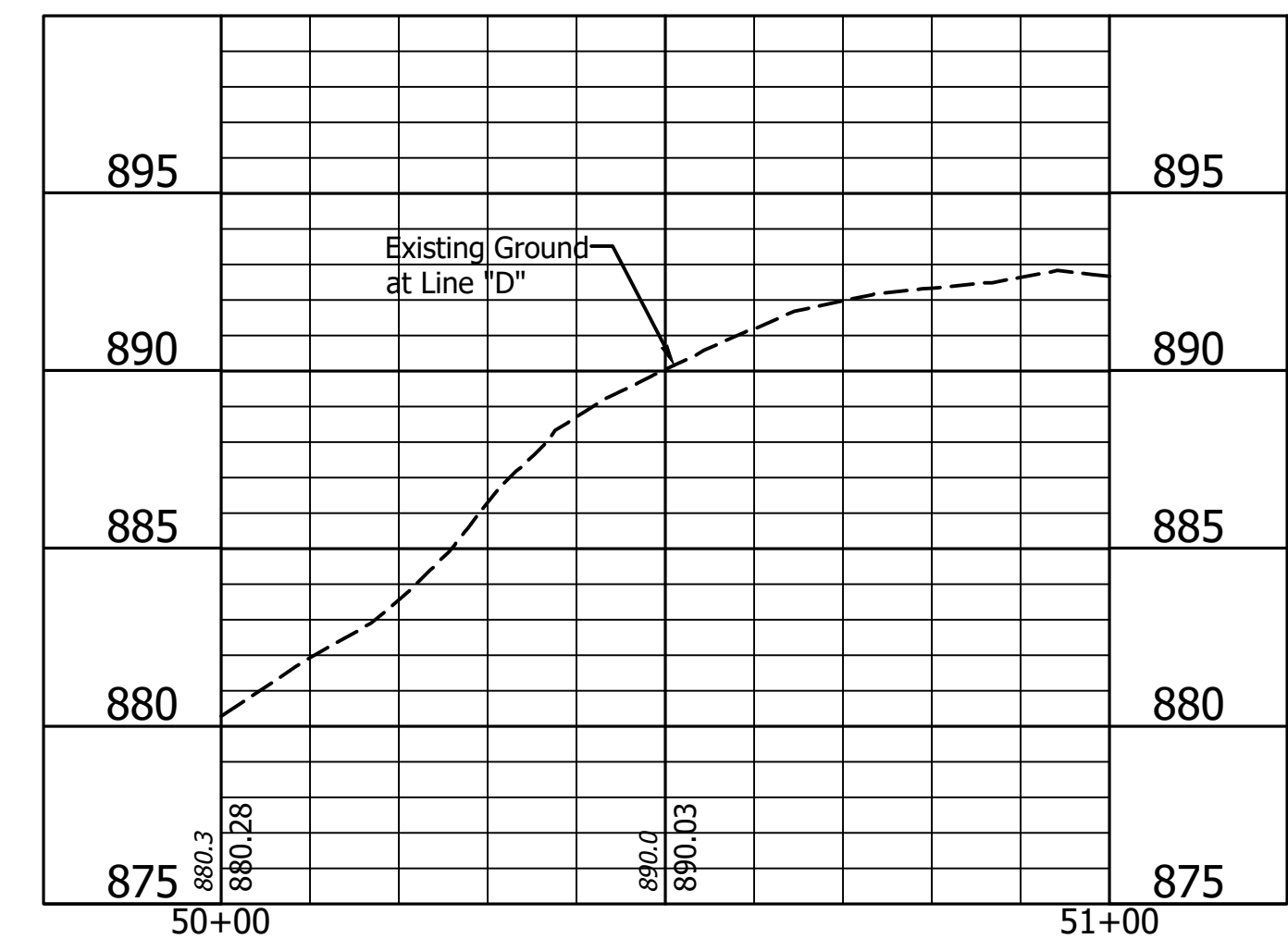
1. An Engineer or manufacturers representative shall be onsite for the start of the installation.
2. All subgrade surfaces prepared for placement of mats shall be smooth and free of all rocks, sticks, roots, other protrusions, or debris of any kind. The prepared surface shall provide a firm, unyielding subgrade for the mats.
3. Prior to the Flexamat plus installation, seed and fertilize subgrade with site specific seed mix in accordance with the project plans and specifications.
4. Install Flexamat plus rolls. Manufacturer recommends installing the widest mat possible for spillway applications.
5. Installation starts at the down channel end and moves up the channel, towards the start of channel.
  - 5.1. For widths wider than 16', install 15.5' wide mats with geogrid and TRM underlayment extensions. Install adjacent mat over the 12" geogrid and 6" TRM underlayment extensions of the adjacent mats. Ensure the geogrid and TRM underlayment extensions are laying flat on the subgrade before installing adjacent mat over the extensions.
  - 5.2. Install 18" u-anchors in 2' increments or stainless steel zip ties in 1' increments across mat abutment seams. Install u-anchors and zip ties perpendicular to flow directly behind first block of the up-channel mat. U-anchors shall encompass two cords of geogrid on each mat. Zip ties shall encompass 3 cords of geogrid from each mat.
6. At the end of the armored spillway, embed the mat 18" in a termination trench. Fill and compact termination trench with suitable fill. (As specified by EOR.)
7. For edge of Flexamat, recess the outside two blocks into the slope at 45° angle.



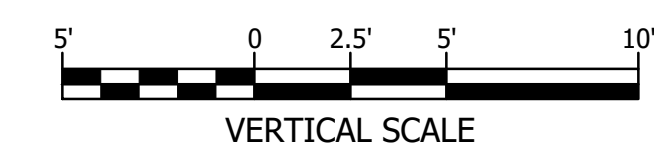
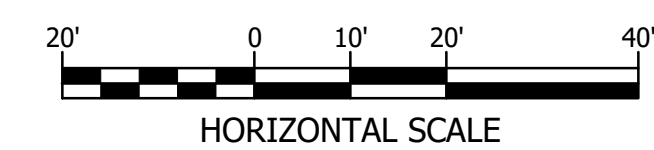
**REMOVABLE BOLLARD DETAIL**



**EXISTING DRIVE PLAN**



**EXISTING DRIVE PROFILE**



**LEGEND:**

- Regrade and Repair Gravel Drive
- 12" Compacted Aggregate No. 53 on Embankment Overtopping Protection
- Embankment Overtopping Protection

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PH. (574) 234-3167

REGISTERED PROFESSIONAL ENGINEER  
No. 11100677  
STATE OF INDIANA  
KLEVIN J. SIEDLECKI

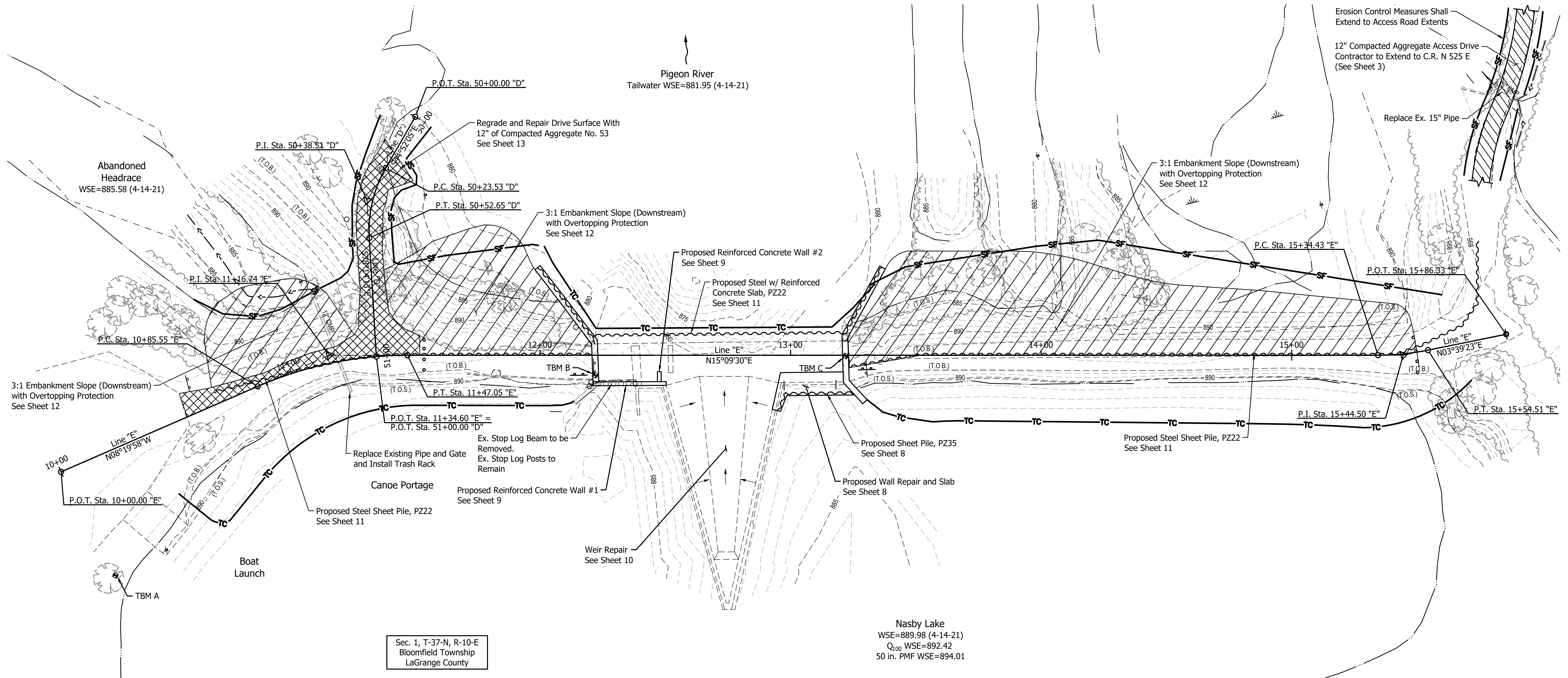
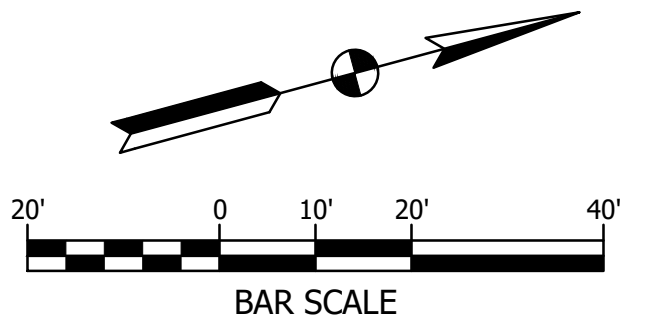
*Klewin J. Siedlecki*  
SIGNATURE  
12/08/23  
DATE

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NATURAL RESOURCES  
NASBY DAM REHABILITATION

MISCELLANEOUS  
EMBANKMENT DETAILS

REVISIONS	HORIZONTAL SCALE BAR SCALE	PROJECT NUMBER 202106.40
	VERTICAL SCALE BAR SCALE	
DRAWN: JAJ	SURVEY BOOK	SHEETS
CHECKED: KJS	DATE DECEMBER 2023	13 OF 22

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Erosion Control Measures Shall Extend to Access Road Extents  
 12" Compacted Aggregate Access Drive Contractor to Extend to C.R. N 525 E (See Sheet 3)  
 Replace Ex. 15" Pipe

**NOTE:**  
 Contractor shall use turbidity curtain as necessary in specific work areas as work progresses in accordance with the Indiana Stormwater Quality Manual

**LEGEND:**  
 —TC— Turbidity Curtain  
 —SF— Silt Fence or Filter Sock

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*Kevin J. Siedlecki*  
 SIGNATURE DATE 12/08/23

INDIANA DEPARTMENT OF  
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 NASBY DAM REHABILITATION  
 EROSION AND SEDIMENT  
 CONTROL PLAN

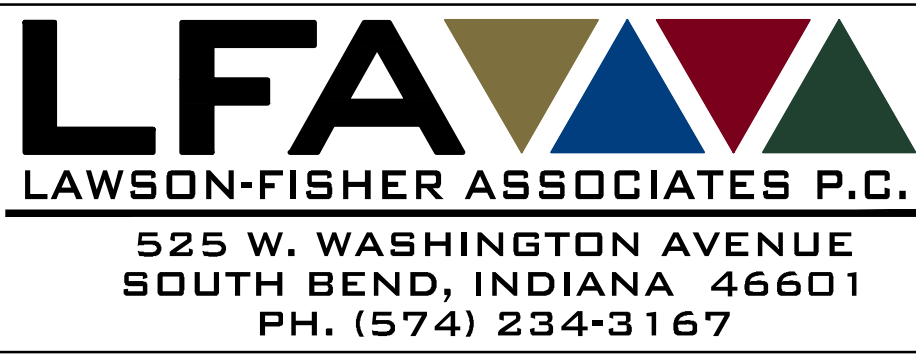
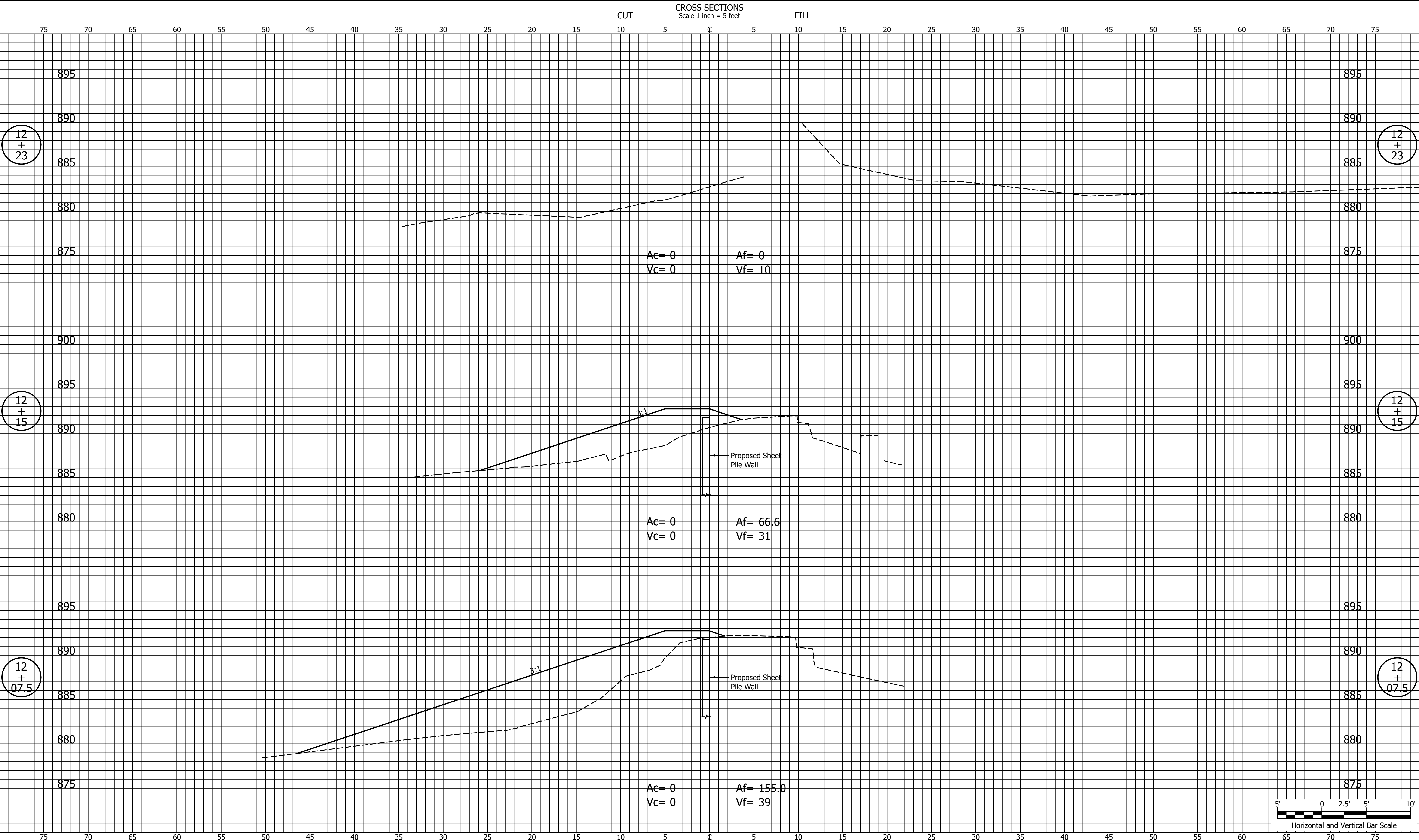
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DRAWN: JAJ	SURVEY BOOK	SHEETS
CHECKED: KJS	DATE DECEMBER 2023	<b>14</b> OF <b>22</b>







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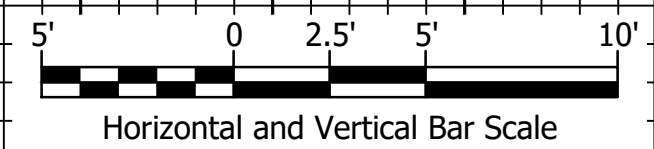
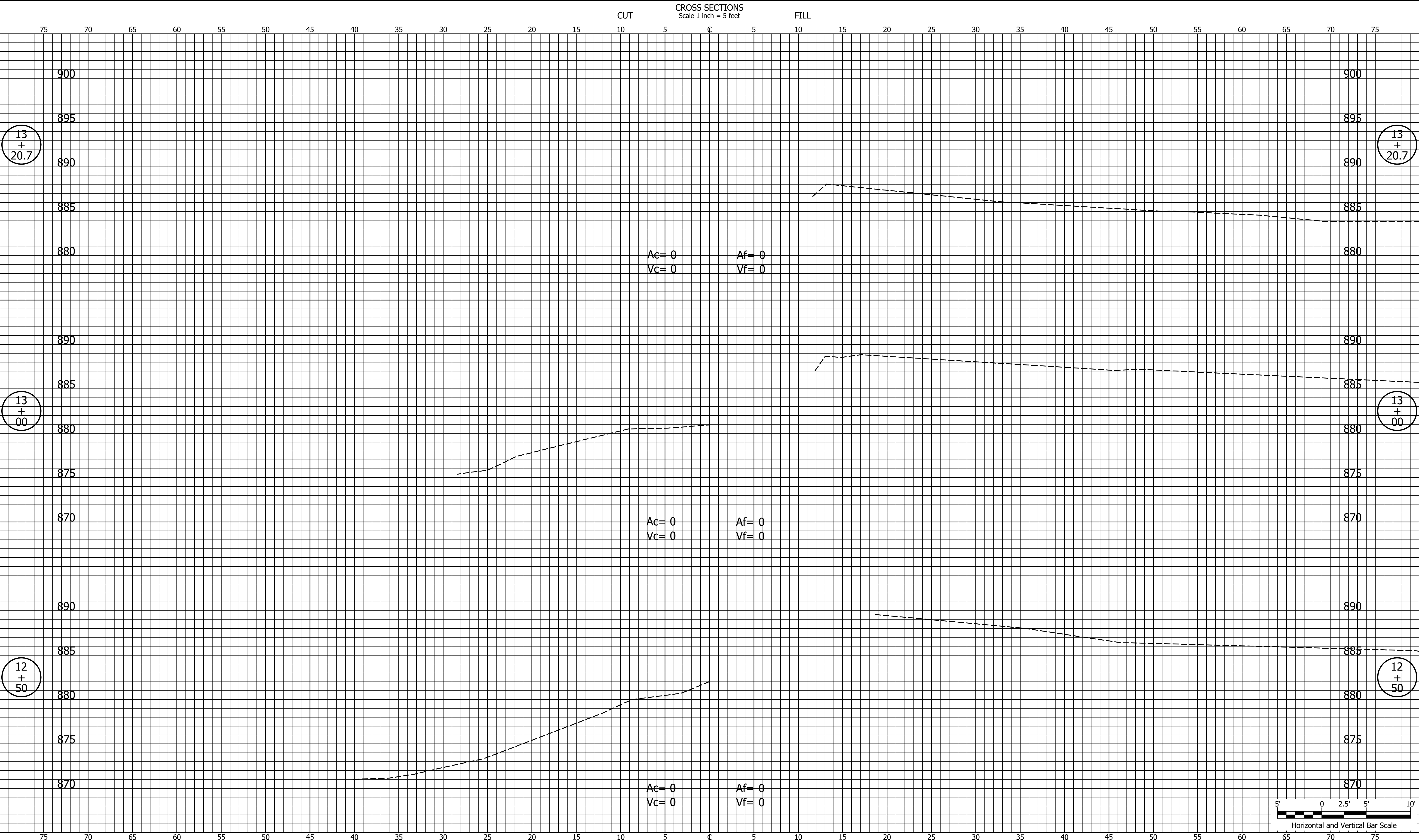


INDIANA DEPARTMENT OF  
NATURAL RESOURCES  
NASBY DAM REHABILITATION

CROSS SECTIONS  
EMBANKMENT

REVISIONS	HORIZONTAL SCALE BAR SCALE	PROJECT NUMBER 202106.40
	VERTICAL SCALE BAR SCALE	
DRAWN: JAJ	SURVEY BOOK	SHEETS
CHECKED: KJS	DATE DECEMBER 2023	17 OF 22

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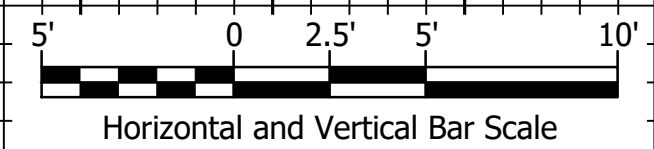
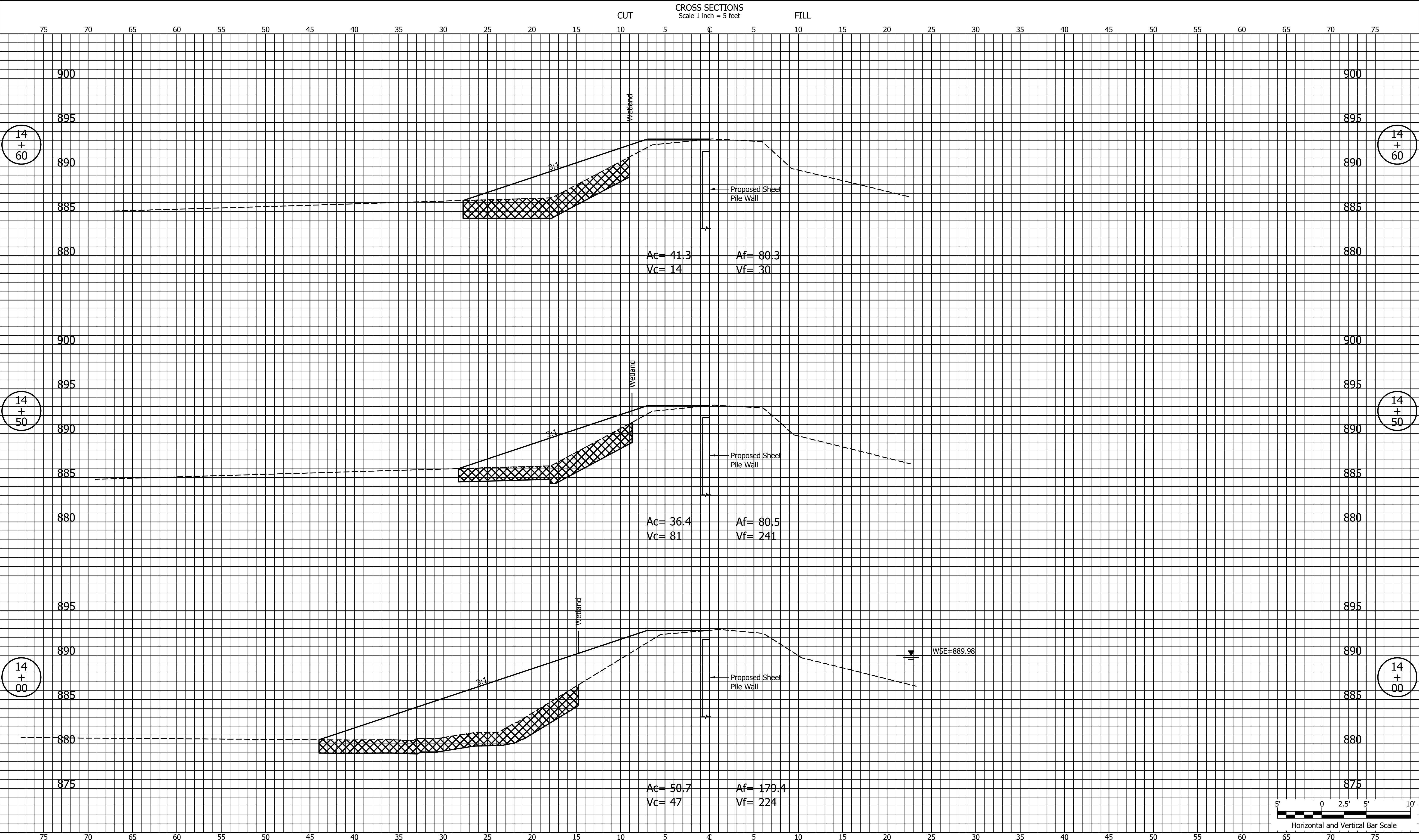
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CROSS SECTIONS  
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REVISIONS	HORIZONTAL SCALE BAR SCALE	PROJECT NUMBER 202106.40
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**LEGEND**  
 Poor Soil Excavation

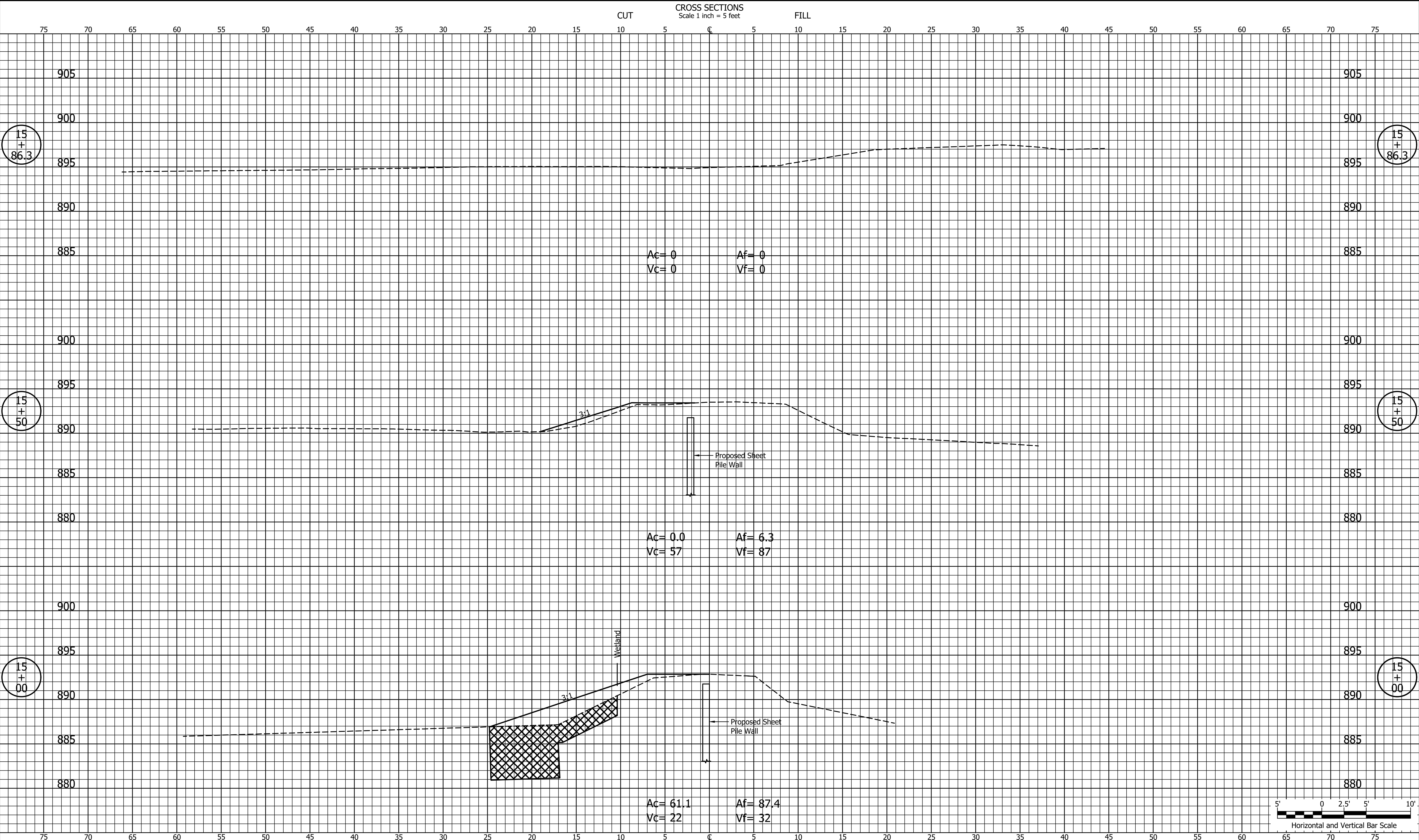
INDIANA DEPARTMENT OF  
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CROSS SECTIONS  
EMBANKMENT

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**LEGEND**  
 Poor Soil Excavation

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CROSS SECTIONS  
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DRAWN: JAJ	SURVEY BOOK	SHEETS
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