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PROJECT: 51214.01AK

CONTRACT: DE00373

See Sheet 1-A For Index of Sheets
See Sheet 1-B for Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

VANCE COUNTY

STATE	PROJECT REFERENCE	SHEET NO.	TOTAL SHEETS
N.C.	51214.01AK	1	

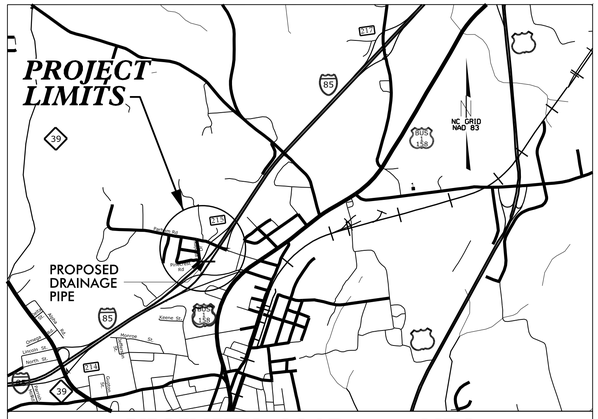
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
51214.01AK		PE
51214.01AK		CONST.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

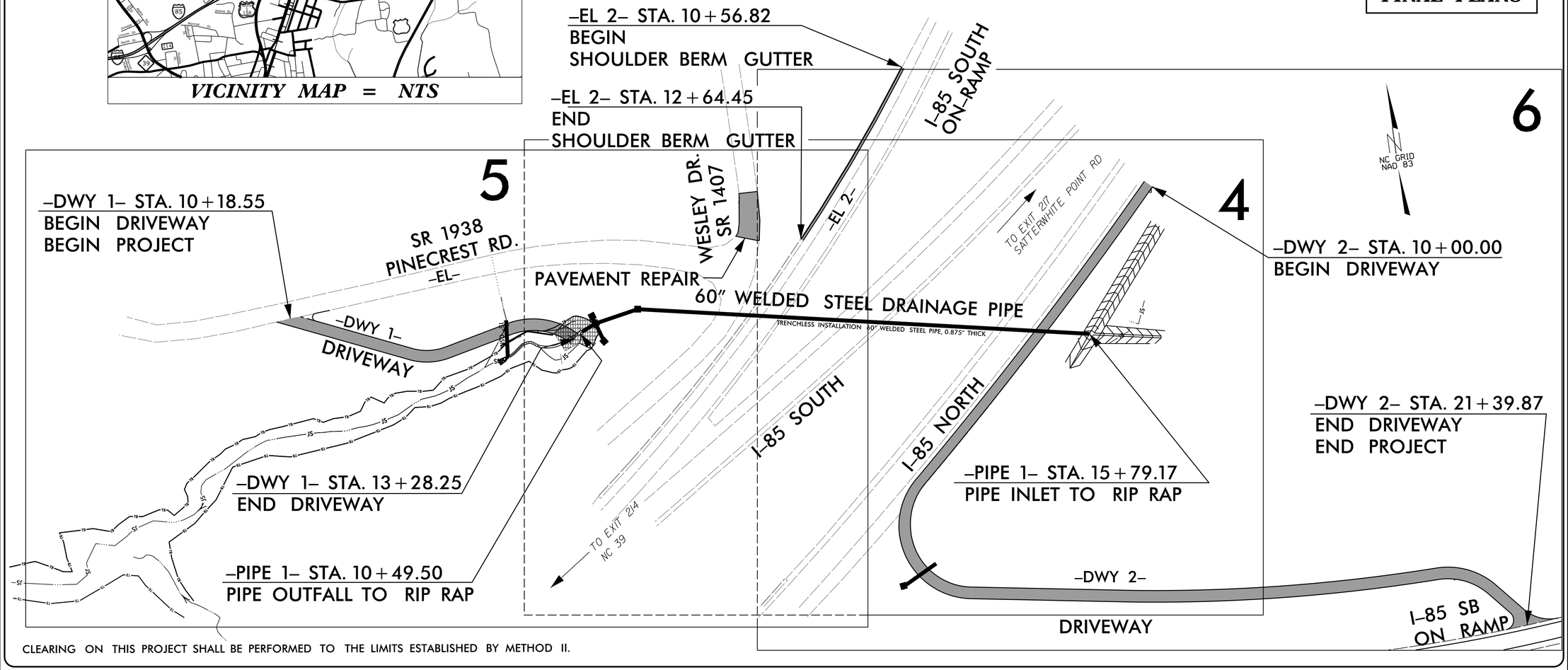
FINAL PLANS

LOCATION: I-85 0.10 MILE SOUTH OF PARHAM ROAD (SR 1312) UNDER I-85 AND WESLEY DRIVE (SR 1407)

TYPE OF WORK: TRENCHLESS INSTALLATION OF 60-INCH WELDED STEEL PIPE



VICINITY MAP = NTS



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

GRAPHIC SCALES

30 15 0 30 60
PLANS

30 15 0 30 60
PROFILE (HORIZONTAL)

6 3 0 6 12
PROFILE (VERTICAL)

DESIGN DATA

PROJECT LENGTH

TOTAL LENGTH PROJECT 51214.01AK = 0.099 MILES

Prepared in the Office of:
WETHERILL ENGINEERING
1223 Jones Franklin Rd. Raleigh, N.C. 27606
License No. F-0377
Bus: 919.851.8077 Fax: 919.851.8107

Prepared for:
DIVISION OF HIGHWAYS DIVISION 5
2612 N. Duke Street
Durham, NC 27704

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: N/A

LETTING DATE: OCTOBER 25, 2023

NCDOT CONTACT: JON ARNOLD, PE
ASSISTANT DIVISION MAINTENANCE ENGINEER

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

R.K. MURPHY, JR., PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15833 ENGINEER JERRY L. LINDSEY
9/25/2023
SIGNATURE: DocuSigned by: Jerry L. Lindsey P.E. 4A5F710692944A...

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 018981 ENGINEER R.K. MURPHY JR.
9/25/2023
SIGNATURE: DocuSigned by: R.K. Murphy P.E. 987DF3E849AF42C...

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

9/25/2023
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USER:kennedy

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PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	1A

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ROADWAY DESIGN ENGINEER
8/16/2023
NORTH CAROLINA PROFESSIONAL SEAL 018981 ENGINEER R. K. MURPHY, JR.
DocuSigned by:
R K Murphy, Jr.
667DF3E849AF42C...

GENERAL NOTES

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.05 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.02

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

BRIGHTSPEED - PHONE, FIBER OPTIC

RIGHT-OF-WAY MARKERS:

RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS AND BY CONTRACT IN ACCORDANCE WITH DESIGNATED SYMBOLS.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-16-2018
REV.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
816.04	Markers for Drainage Structure and Concrete Pad
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.20	Frames and Wide Slot Flat Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	SYMBOLOGY SHEET
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
3B-1	SUMMARY OF EARTHWORK QUANTITIES
3D-1 THRU 3D-3	SUMMARY OF DRAINAGE QUANTITIES
4 THRU 7	PLAN AND PROFILE SHEETS
TMP-01 THRU TMP-06	TRAFFIC MANAGEMENT PLANS
EC-1 THRU EC-9	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
X-1 THRU X-13	DRIVEWAY AND RAMP CROSS SECTIONS

8/17/99

8/16/2023
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USER:Brakenridge

9/10/2021

PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Computed Property Corner
- Existing Concrete Monument (ECM)
- Parcel/Sequence Number
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary
- Proposed Wetland Boundary
- Existing Endangered Animal Boundary
- Existing Endangered Plant Boundary
- Existing Historic Property Boundary
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream
- Buffer Zone 1
- Buffer Zone 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch
- False Sump

RAILROADS:

- Standard Gauge
- RR Signal Milepost
- Switch
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Secondary Horiz and Vert Control Point
- Vertical Benchmark
- Existing Right of Way Monument
- Proposed Right of Way Monument (Rebar and Cap)
- Proposed Right of Way Monument (Concrete)
- Existing Permanent Easement Monument
- Proposed Permanent Easement Monument (Rebar and Cap)
- Existing C/A Monument
- Proposed C/A Monument (Rebar and Cap)
- Proposed C/A Monument (Concrete)
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Control of Access Line
- Proposed Control of Access Line
- Proposed ROW and CA Line
- Existing Easement Line
- Proposed Temporary Construction Easement
- Proposed Temporary Drainage Easement
- Proposed Permanent Drainage Easement
- Proposed Permanent Drainage/Utility Easement
- Proposed Permanent Utility Easement
- Proposed Temporary Utility Easement
- Proposed Aerial Utility Easement

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut
- Proposed Slope Stakes Fill
- Proposed Curb Ramp
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert
- Bridge Wing Wall, Head Wall and End Wall

MINOR:

- Head and End Wall
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB
- Paved Ditch Gutter
- Storm Sewer Manhole
- Storm Sewer

UTILITIES:

** SUE – Subsurface Utility Engineering*
LOS – Level of Service – A,B,C or D (Accuracy)

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H–Frame Pole
- U/G Power Line Test Hole (SUE – LOS A)*
- U/G Power Line (SUE – LOS B)*
- U/G Power Line (SUE – LOS C)*
- U/G Power Line (SUE – LOS D)*

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole
- Telephone Pedestal
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole
- U/G Telephone Test Hole (SUE – LOS A)*
- U/G Telephone Cable (SUE – LOS B)*
- U/G Telephone Cable (SUE – LOS C)*
- U/G Telephone Cable (SUE – LOS D)*
- U/G Telephone Conduit (SUE – LOS B)*
- U/G Telephone Conduit (SUE – LOS C)*
- U/G Telephone Conduit (SUE – LOS D)*
- U/G Fiber Optics Cable (SUE – LOS B)*
- U/G Fiber Optics Cable (SUE – LOS C)*
- U/G Fiber Optics Cable (SUE – LOS D)*

WATER:

- Water Manhole
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line Test Hole (SUE – LOS A)*
- U/G Water Line (SUE – LOS B)*
- U/G Water Line (SUE – LOS C)*
- U/G Water Line (SUE – LOS D)*
- Above Ground Water Line

TV:

- TV Pedestal
- TV Tower
- U/G TV Cable Hand Hole
- U/G TV Test Hole (SUE – LOS A)*
- U/G TV Cable (SUE – LOS B)*
- U/G TV Cable (SUE – LOS C)*
- U/G TV Cable (SUE – LOS D)*
- U/G Fiber Optic Cable (SUE – LOS B)*
- U/G Fiber Optic Cable (SUE – LOS C)*
- U/G Fiber Optic Cable (SUE – LOS D)*

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line Test Hole (SUE – LOS A)*
- U/G Gas Line (SUE – LOS B)*
- U/G Gas Line (SUE – LOS C)*
- U/G Gas Line (SUE – LOS D)*
- Above Ground Gas Line

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line
- Above Ground Sanitary Sewer
- SS Force Main Line Test Hole (SUE – LOS A)*
- SS Force Main Line (SUE – LOS B)*
- SS Force Main Line (SUE – LOS C)*
- SS Force Main Line (SUE – LOS D)*

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box
- Utility Unknown U/G Line (SUE – LOS B)*
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc.
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	2A-1

5/11/2023

NORTH CAROLINA PROFESSIONAL SEAL 018981 ENGINEER K. A. MURPHY, JR.

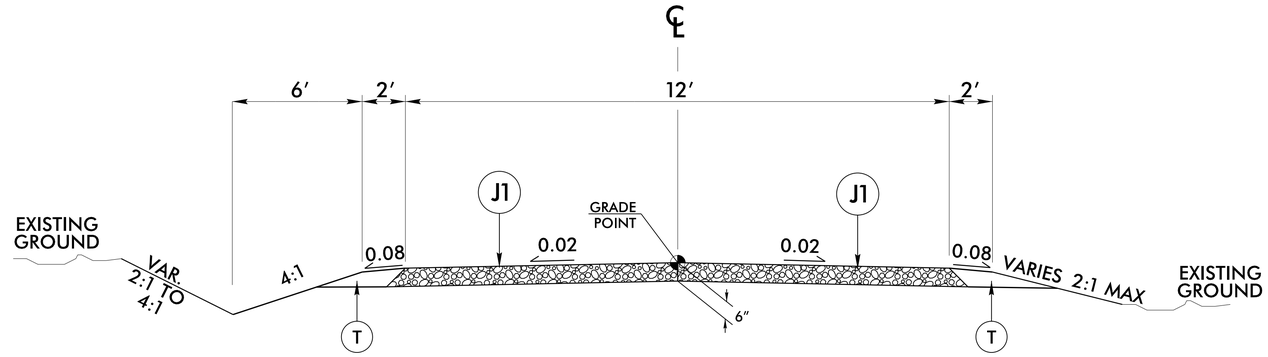
DocuSigned by: K. A. Murphy Jr. 8E7DCE1E8E6A43C...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE

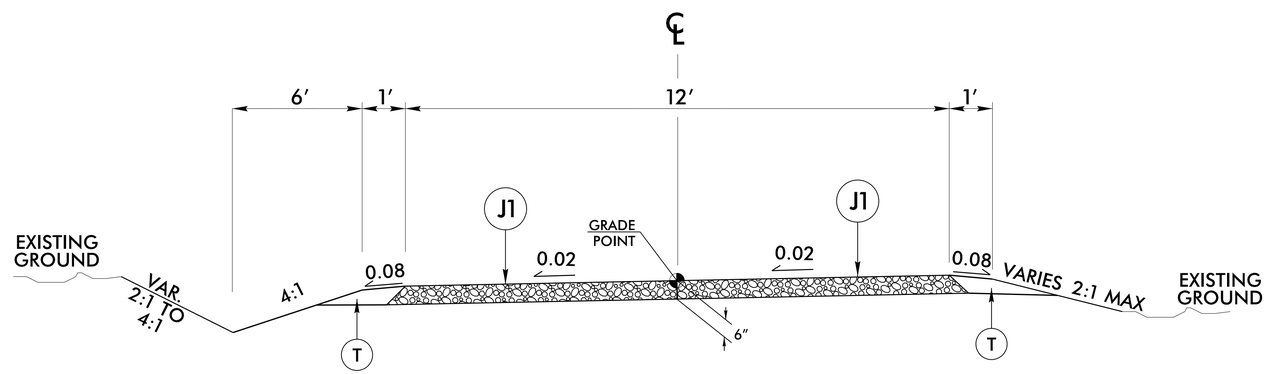
(FINAL PAVEMENT DESIGN)

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E2	PROP. APPROX. 6" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
J1	PROPOSED 6" AGGREGATE BASE COURSE
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL



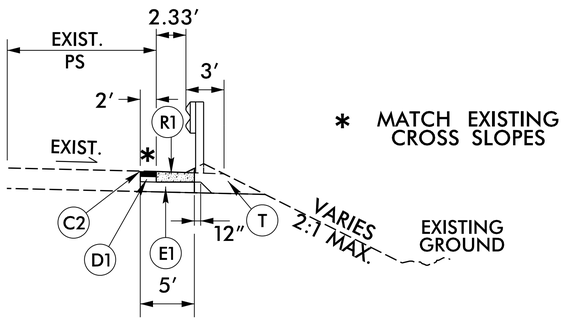
TYPICAL SECTION NO. 1

–DWY1– STA. 10+18.55 TO STA. 13+28.25



TYPICAL SECTION NO. 2

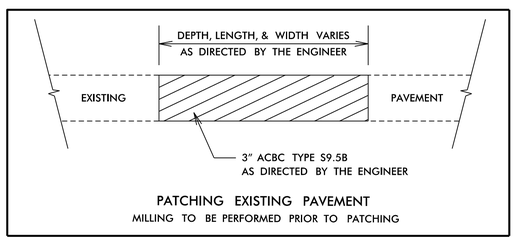
–DWY2– STA. 14+14.60 TO STA. 21+39.87

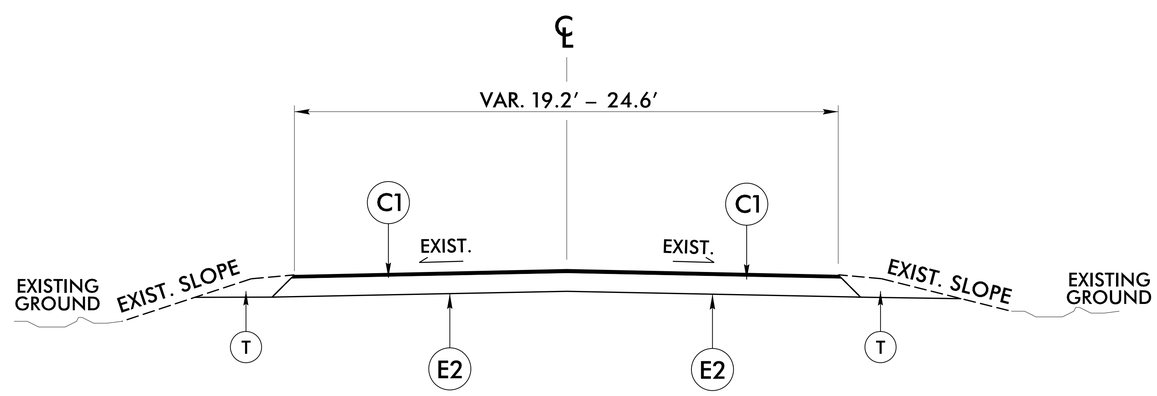


TYPICAL SECTION DETAIL SHOULDER BERM GUTTER

I–85 SOUTH ON–RAMP

–EL2– STA. 10+56.82 TO STA. 12+64.45





TYPICAL SECTION NO. 3

WESLEY DRIVE (SR 1407)

5/3/2023
R-5821 I-85 Rdy r-dy_Typ.dgn
USER:SKENNEDY

COMPUTED BY: SLK	DATE: 8/16/2023
CHECKED BY: RKM	DATE: 8/16/2023

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	3B-1

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +20%	BORROW	WASTE
-EL2- I-85 SB ON-RAMP	11+00.00 TO 12+50.00	18	7		11
SUBTOTALS:		18	7		11
-DWY 1-	10+18.55 TO 13+28.00	1,143	335		808
SUBTOTALS:		1,143	335		808
-DWY 2-	14+50.00 TO 21+42.52	114	319	205	
SUBTOTALS:		114	319	205	
-DWY 2- CHANNEL &					
BASE DITCH LT.	10+29.55 TO 12+00.00	178	3,659	3,481	
SUBTOTALS:		178	3,659	3,481	
WASTE IN LIEU OF BORROW				-819	
PROJECT TOTALS:		1,453	4,320	2,867	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				143	
GRAND TOTALS:		1,453	4,320	3,010	
SAY:		1,460		3,020	

R4L-WS099

COMPUTED BY:	Katie Estep	DATE:	5/3/2023
CHECKED BY:	Kevin Alford	DATE:	5/3/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
51214.01AK	3D-1

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

| LINE & STATION / SIZE / THICKNESS OR GAUGE | OFFSET | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | % MINIMUM REQUIRED SLOPE | Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 | 66 | 72 | 78 | 84 | | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | DO NOT USE PVC | QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) A: 0' THRU 5' EACH | A: 5' THRU 10' LIN. FT. | B: 10' AND ABOVE LIN. FT. | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E | F | G | | CONCRETE TRANSITIONAL SECTION D.I. STD. 852.06 | C.B. STD. 852.05 | OPEN THROAT C.B. STD. 840.04 OR STD. 840.05 | CONCRETE BRIDGE APPROACH D.I. STD. 840.13 | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26 | G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27 | G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28 | G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20 | G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20 | G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24 | G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24 | G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | DRIVEWAY D.I. STD. 840.30 | FRAME W/ GRATE FOR DRIVEWAY STD. 840.30 | J.B. STD. 840.31 OR STD. 840.32 | ANGLED VANE GRATES AND FRAMES STD. 840.33 | T.B.J.B. STD. 840.34 | T.B.D.I. STD. 840.35 | T.B.D.I. FOR STEEL GRATES STD. 840.36 | STEEL FRAME WITH TWO GRATES STD. 840.37 | TEMP STEEL PLATE COVER MASONRY DRAINAGE | ##" SPRING BOX PIPE | SPRING BOX STD. 840.41 | M.H. STD. 840.51, STD. 840.52, OR STD. 840.53 | M.H. FRAME AND COVER STD. 840.54 | ##" x ##" x ##" PERF. C.S.P. TEE RISER ##" THICK | | BERM DITCH OUTLET STD. 850.10 (PER EACH) | BERM DITCH OUTLET STD. 850.11 (PER EACH) | ##" SLUICE GATE (##" SIZE SLUICE GATE) | MODIFIED CONC. FLUME | PREFORMED SCOUR HOLE (PER EACH) | ENERGY DISSIPATION BASIN | FLOWABLE FILL CY | CONCRETE COLLARS CL. "B" STD. 840.72 CY | CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---

R-4L-WS099

COMPUTED BY:	Katie Estep	DATE:	5/3/2023
CHECKED BY:	Kevin Alford	DATE:	5/3/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
51214.01AK	3D-2

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54 INCHES & OVER)

| LINE & STATION / SIZE / THICKNESS OR GAUGE | OFFSET | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | MINIMUM REQUIRED SLOPE % | Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 | 66 | 72 | 78 | 84 | | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | DO NOT USE PVC | ##" R.C. PIPE CULVERTS, CONTRACTOR DESIGN | ##" R.C. PIPE CULVERTS, CONTRACTOR DESIGN | ##" R.C. PIPE CULVERTS, CONTRACTOR DESIGN | | ##" x ##" C.S. PIPE ARCH CULVERTS, ##" THICK | ##" x ##" C.S. STRUCTURAL PLATE PIPE ARCH, ## GAUGE | 60" WELDED STEEL PIPE 0.875" THICK, GRADE 8.45% | ##" WELDED STEEL PIPE ## THICK, GRADE ## NOT IN SOIL | ##" WELDED STEEL PIPE ## THICK, GRADE B (UNDER RR) | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY | REINFORCED ENDWALLS CY | DRAINAGE STRUCTURE MASONRY CY | QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B) 0' THRU 5' EACH | A 5' THRU 10' LIN. FT. | B 10' AND ABOVE LIN. FT. | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E | F | G | | CONCRETE TRANSITIONAL SECTION D.I. STD. 852.06 | D.I. STD. 852.04 OR STD. 852.06 | C.B. STD. 852.05 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | DRIVEWAY D.I. STD. 840.30 | FRAME W/ GRATE FOR DRIVEWAY STD. 840.30 | J.B. STD. 840.31 OR STD. 840.32 | ANGLED VANE GRATES AND FRAMES STD. 840.33 | T.B.J.B. STD. 840.34 | T.B.D.I. STD. 840.35 | T.B.D.I. FOR STEEL GRATES STD. 840.36 | STEEL FRAME WITH TWO GRATES STD. 840.37 | TEMP STEEL PLATE COVER MASONRY DRAINAGE | ##" SPRING BOX PIPE | SPRING BOX STD. 840.41 | | M.H. STD. 840.51, STD. 840.52, OR STD. 840.53 | M.H. FRAME AND COVER STD. 840.54 | | ##" x ##" x ##" PERF. C.S.P. TEE RISER ##" THICK | ##" x ##" x ##" PERF. C.S.P. TEE RISER ##" THICK | | FLOWABLE FILL CY | CONCRETE COLLARS CL. "B" STD. 840.72 CY | CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---

R4L-WS099

COMPUTED BY:	Katie Estep	DATE:	5/3/2023
CHECKED BY:	Kevin Alford	DATE:	5/3/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
51214.01AK	3D-3

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

| LINE & STATION / SIZE / THICKNESS OR GAUGE | OFFSET | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | % MINIMUM REQUIRED SLOPE | Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 | 66 | 72 | 78 | 84 | | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | DO NOT USE PVC | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY | REINFORCED ENDWALLS CY | DRAINAGE STRUCTURE MASONRY CY | QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH | A: 5' THRU 10' LIN. FT. | B: 10' AND ABOVE LIN. FT. | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E | F | G | | CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 | C.B. STD. 852.05 | OPEN THROAT C.B. STD. 840.04 OR STD. 840.05 | CONCRETE BRIDGE APPROACH D.I. STD. 840.13 | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26 | G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27 | G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28 | G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20 | G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20 | G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24 | G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24 | G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | DRIVEWAY D.I. STD. 840.30 | FRAME W/ GRATE FOR DRIVEWAY STD. 840.30 | J.B. STD. 840.31 OR STD. 840.32 | ANGLED VANE GRATES AND FRAMES STD. 840.33 | T.B.J.B. STD. 840.34 | T.B.D.I. STD. 840.35 | T.B.D.I. FOR STEEL GRATES STD. 840.36 | STEEL FRAME WITH TWO GRATES STD. 840.37 | TEMP STEEL PLATE COVER MASONRY DRAINAGE | ##" SPRING BOX PIPE | SPRING BOX STD. 840.41 | | FLOWABLE FILL CY | CONCRETE COLLARS CL. "B" STD. 840.72 CY | CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---

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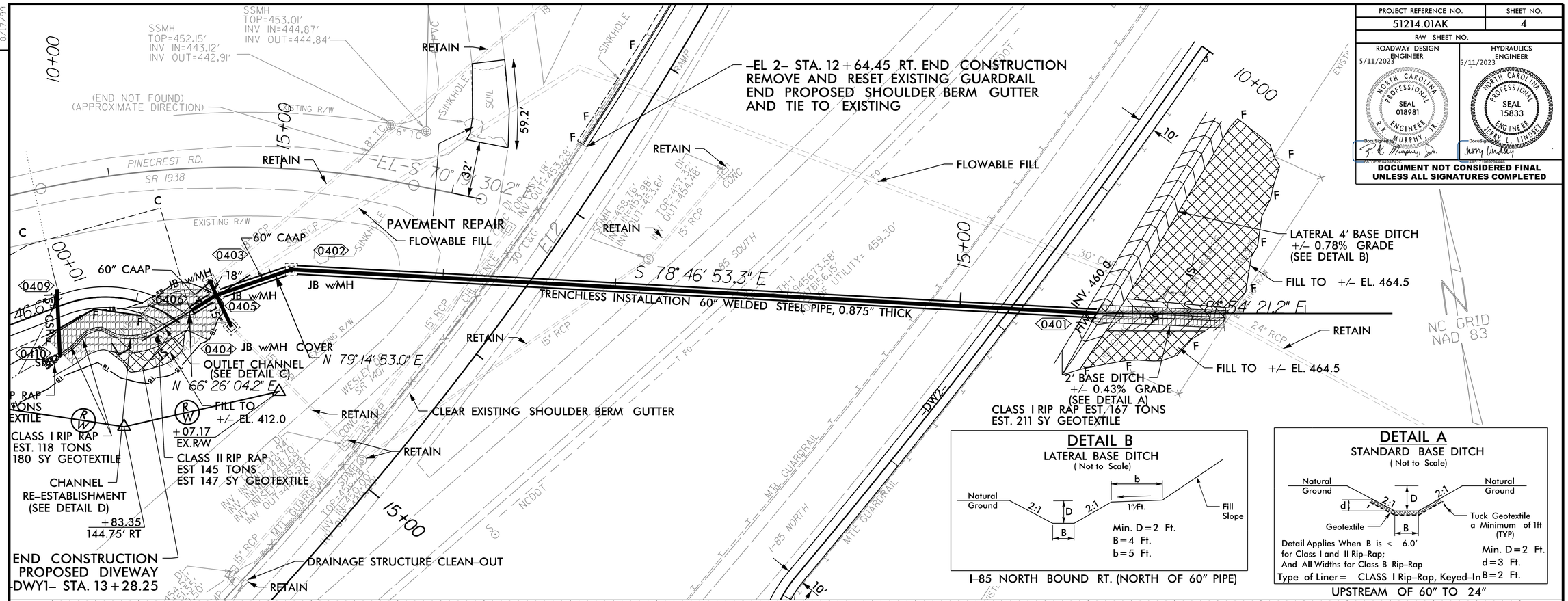
PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER 5/11/2023 — NORTH CAROLINA PROFESSIONAL SEAL 018981 ENGINEER R. K. MURPHY, JR.

HYDRAULICS ENGINEER 5/11/2023 — NORTH CAROLINA PROFESSIONAL SEAL 15833 ENGINEER JERRY L. LINDSEY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



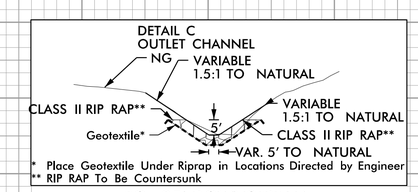
DETAIL B
LATERAL BASE DITCH
(Not to Scale)

I–85 NORTH BOUND RT. (NORTH OF 60" PIPE)

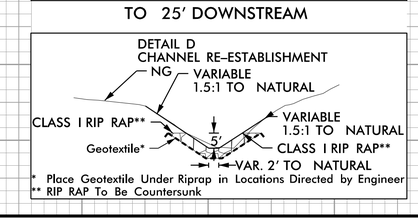
DETAIL A
STANDARD BASE DITCH
(Not to Scale)

Detail Applies When B is < 6.0' for Class I and II Rip–Rap; And All Widths for Class B Rip–Rap
Type of Liner= CLASS I Rip–Rap, Keyed–In

UPSTREAM OF 60" TO 24"



TO 25' DOWNSTREAM



REVISIONS

8/17/99

4/24/2023
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USER:KKENNEDY

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PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER 5/11/2023 — NORTH CAROLINA PROFESSIONAL SEAL 018981 ENGINEER MURPHY, JR.

HYDRAULICS ENGINEER 5/11/2023 — NORTH CAROLINA PROFESSIONAL SEAL 15833 ENGINEER JERRY I. LINDLEY

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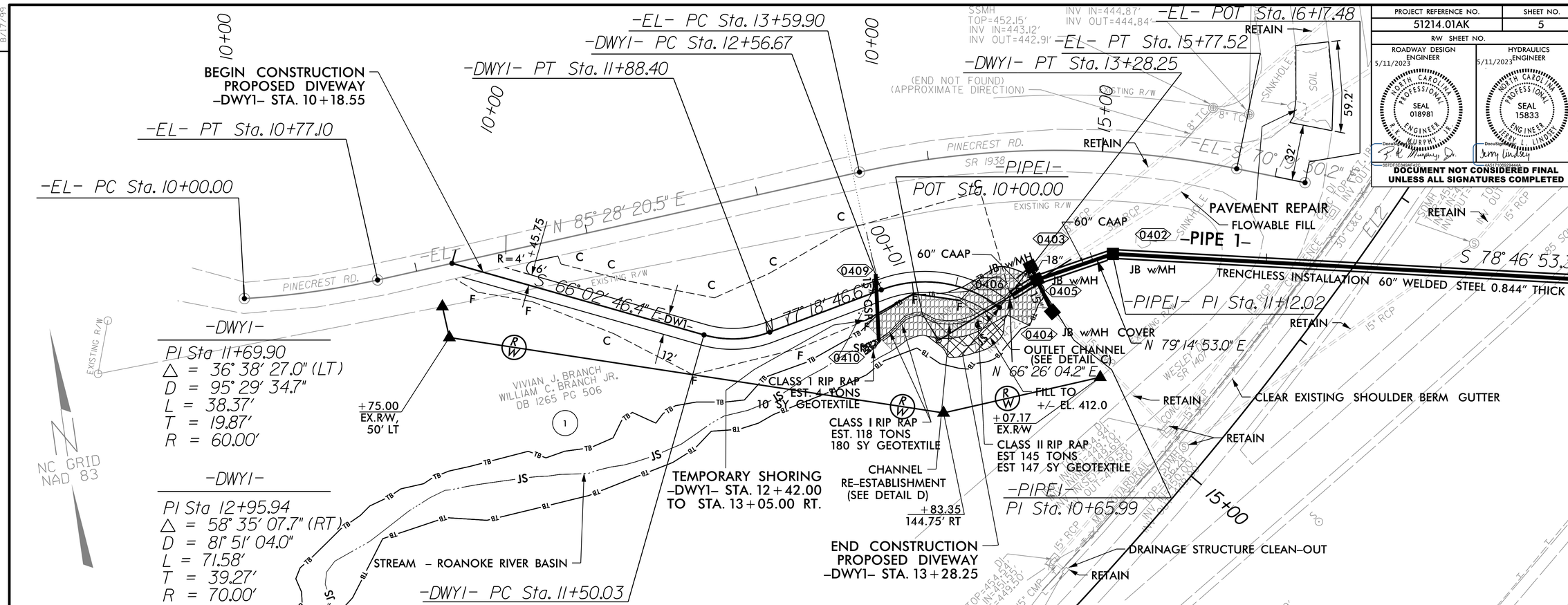

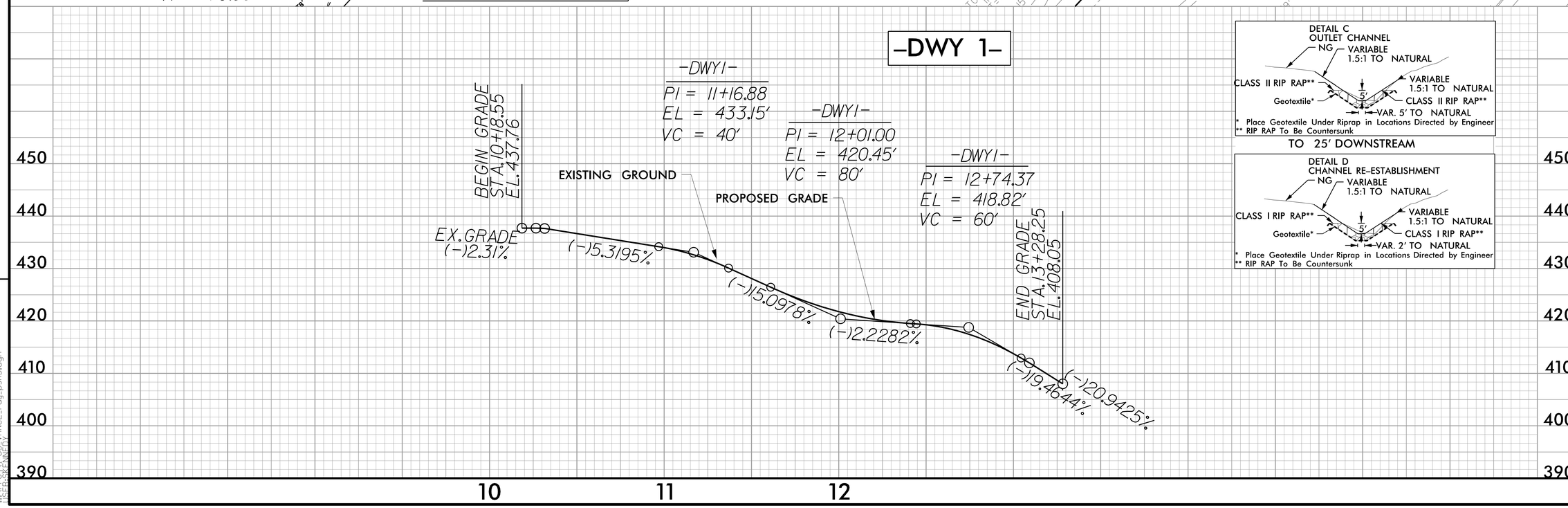

DETAIL C
OUTLET CHANNEL

* Place Geotextile Under Riprap in Locations Directed by Engineer
** RIP RAP To Be Countersunk

TO 25' DOWNSTREAM

DETAIL D
CHANNEL RE-ESTABLISHMENT

* Place Geotextile Under Riprap in Locations Directed by Engineer
** RIP RAP To Be Countersunk

REVISIONS

8/17/99

5/11/2023 ...85_VANCE_rdy_psh5.dgn
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PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
5/11/2023
NORTH CAROLINA PROFESSIONAL SEAL 018981 ENGINEER R. K. MURPHY, JR.
DocuSigned by: R. K. Murphy, Jr.
6876F1B5D8C4...

HYDRAULICS ENGINEER
5/11/2023
NORTH CAROLINA PROFESSIONAL SEAL 15833 ENGINEER JERRY L. LINDSEY
DocuSigned by: Jerry Lindsey
6876F1B5D8C4...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-EL2- PC Sta. 10+00.00

-EL 2- STA. 10+56.82 RT.
BEGIN CONSTRUCTION
REMOVE AND RESET EXISTING GUARDRAIL
INCLUDING END UNIT
BEGIN PROPOSED SHOULDER BERM GUTTER – 208 LF

-EL 2-
PI Sta 13+10.37
△ = 17° 47′ 59.8″ (RT)
D = 2° 53′ 27.0″
L = 615.74′
T = 310.37′
R = 1,981.99′

-DWY2-
PI Sta 15+33.28
△ = 128° 48′ 29.9″ (LT)
D = 81° 51′ 04.0″
L = 157.37′
T = 146.13′
R = 70.00′

-DWY2-
PI Sta 11+93.70
△ = 5° 04′ 29.4″ (RT)
D = 1° 18′ 38.9″
L = 387.15′
T = 193.70′
R = 4,371.00′

-DWY2- PC Sta. 10+00.00

-PIPE1- PI Sta. 15+79.10

-EL 2- STA. 12+64.45 RT. END CONSTRUCTION
REMOVE AND RESET EXISTING GUARDRAIL
END PROPOSED SHOULDER BERM GUTTER
AND TIE TO EXISTING

BEGIN CONSTRUCTION
PROPOSED DRIVEWAY
-DWY2- STA. 10+00.00
BEGIN
REMOVE AND RESET EXISTING GUARDRAIL

TEMP. AT-1

-DWY2-
PI Sta 18+69.79
△ = 9° 52′ 22.0″ (LT)
D = 3° 07′ 57.8″
L = 315.15′
T = 157.97′
R = 1,828.95′

-DWY2-
PI Sta 20+59.77
△ = 50° 12′ 04.3″ (RT)
D = 81° 51′ 04.0″
L = 61.33′
T = 32.79′
R = 70.00′

RETAIN

FLOWABLE FILL

LATERAL 4′ BASE DITCH
+/– 0.78% GRADE
(SEE DETAIL B)

FILL TO +/– EL. 464.5

S 78° 46′ 53.3″ E

-PIPE 1-

TRENCHLESS INSTALLATION 60″ WELDED STEEL PIPE, 0.875″ THICK

S 81° 54′ 21.2″ E

RETAIN

FILL TO +/– EL. 464.5

2′ BASE DITCH
+/– 0.43% GRADE
(SEE DETAIL A)
CLASS I RIP RAP EST. 167 TONS
EST. 211 SY GEOTEXTILE

-PIPE1- POT Sta. 17+50.46

-DWY2- PRC Sta. 13+87.15

-DWY2- PRC Sta. 20+26.97

-DWY2- POT Sta. 21+50.23

END CONSTRUCTION
PROPOSED DIVEWAY
-DWY2- STA. 21+39.87

-DWY2- PT Sta. 20+88.31

-DWY2- STA. 14+34.37
END
REMOVE AND RESET
EXISTING GUARDRAIL

50′ TRANSITION

DO NOT DISTURB
RIGHT OF WAY MONUMENT
OR FENCE

S 80° 43′ 33.5″ E

S 40° 51′ 25.1″ E

R=40′

R=10′

-DWY2- PT Sta. 15+44.52

-DWY2- PC Sta. 17+11.82

NC GRID NAD 83

REVISIONS

5/9/2023
I-85 VANCE rdy psh6.dgn

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PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	7

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
5/11/2023	5/11/2023
NORTH CAROLINA PROFESSIONAL SEAL 018981 ENGINEER R. K. MURPHY, JR.	NORTH CAROLINA PROFESSIONAL SEAL 15833 ENGINEER JERRY L. LINDSEY
DocuSigned by: R. K. Murphy, Jr.	DocuSigned by: Jerry Lindsey

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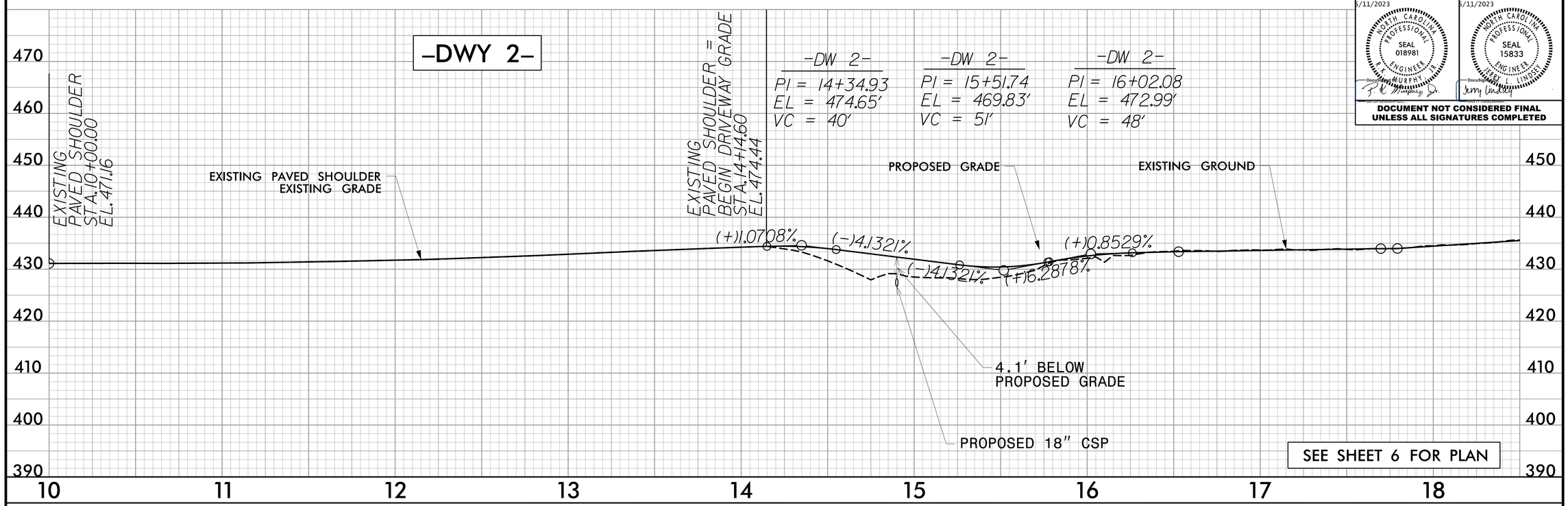

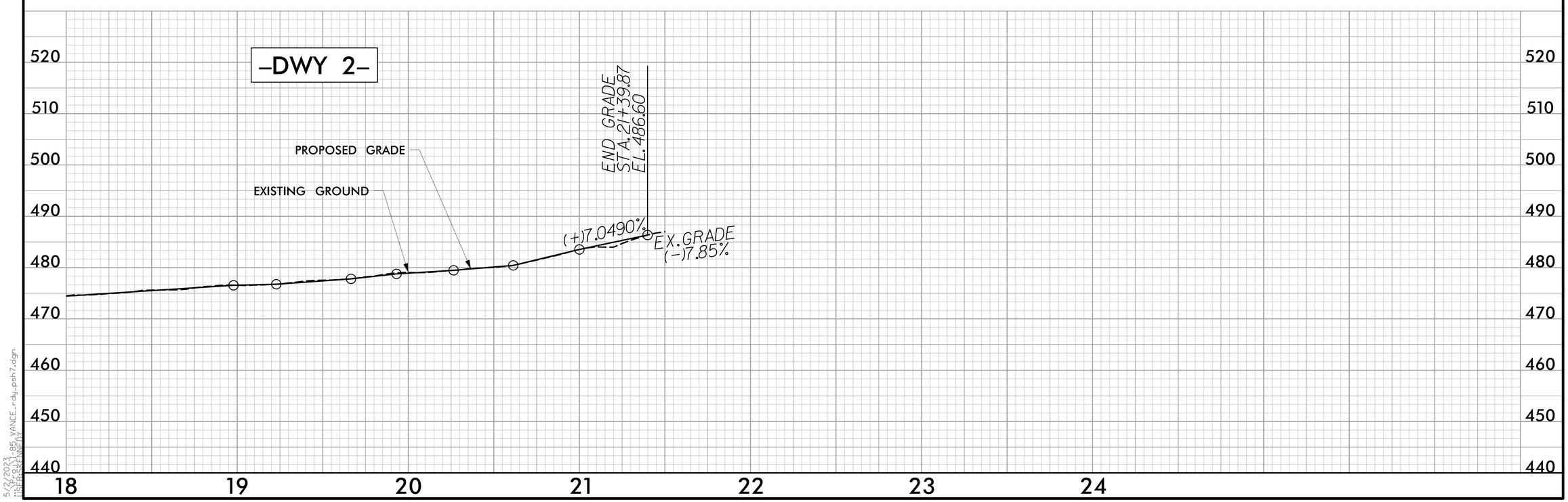

5/28/99

5/2/2023
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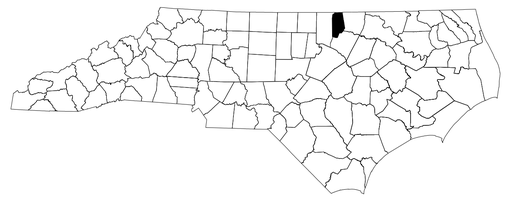
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

VANCE COUNTY



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-01	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-01A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-01B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES AND GENERAL NOTES)
TMP-02	SPECIAL SIGN DESIGNS
TMP-03	TEMPORARY TRAFFIC CONTROL PHASING
TMP-04 THRU 06	DETAIL SHEETS

SHEET NO.
TMP-01

51214.01

TIP PROJECT:

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

PLANS PREPARED BY:

R. K. MURPHY, JR., P.E.

D. ALLEN HAYES, JR., E.I.

NCDOT CONTACTS:

PROJECT ENGINEER

PROJECT DESIGN ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: DocuSigned by: R.K. Murphy Jr. 687DF3E849AF42C...

DATE: 5/11/2023

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 018981 R. K. MURPHY, JR.

5/3/2023
P:\2021\21129.09 I-85 Pipe Rplcmt Vance Co\Traffic\Traffic Design\Design\Pre-Let\Plan\WZTC\Sheets\51214.01AK TMP_01 Title.dgn
User:AHayes

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PROJ. REFERENCE NO.	SHEET NO.
51214.01AK	TMP-01A

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1165.01	TRUCK MOUNTED ATTENUATOR
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY - DRUMS

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA

TRAFFIC CONTROL DEVICES

- DRUM
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- LAW ENFORCEMENT

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: DocuSigned by: R.K. Murphy, Jr. 687DF3E849AF42C...
DATE: 5/11/2023

NORTH CAROLINA PROFESSIONAL SEAL 018981 ENGINEER R.K. MURPHY, JR.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND

5/3/2023
P:\2021\21129.09 I-85 Pipe Rplcmt Vance Co\Traffic\Traffic Design\Design\Pre-Let\Plan\WZTC\Sheets\51214.01AK TMP_01A Legend.dgn
User:AHayes

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GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
1. I-85 INCLUDING ALL RAMPS AND LOOPS	6:00 A.M. - 9:00 P.M. SUNDAY THRU SATURDAY
2. ALL OTHER ROADS	7:00 A.M. - 9:00 A.M. 4:00 P.M. - 7:00 P.M.

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME

1. I-85

HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.

2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31st TO 9:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 9:00 P.M. THE FOLLOWING TUESDAY.

3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 9:00 P.M. MONDAY.

4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 9:00 P.M. TUESDAY.

5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 9:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 9:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 9:00 P.M. TUESDAY.

7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 9:00 P.M. MONDAY.

8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 9:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

C) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

D) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

   WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

H) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

I) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON SR 1938.

TRAFFIC PATTERN ALTERATIONS

J) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

K) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

L) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC BARRIER

M) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

   DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

   ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

   INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

   INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

N) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

   PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

TRAFFIC CONTROL DEVICES

O) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

P) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

MISCELLANEOUS

Q) LAW ENFORCEMENT SHALL BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

R) ALL STATIONS ARE CONSIDERED +/- UNLESS OTHERWISE SHOWN ON THE PLANS.

MANAGEMENT STRATEGIES

THE FOLLOWING LISTED WORK ZONE STRATEGIES ARE RECOMMENDED FOR INCLUSION WITHIN THIS TRANSPORTATION MANAGEMENT PLAN (TMP).

RECOMMENDED STRATEGIES:

TRAFFIC MANAGEMENT STRATEGIES:
- SHOULDER CLOSURES
- ONE-LANE, TWO WAY OPERATION (FLAGGING)
- NIGHT WORK
- WEEKEND WORK

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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: DocuSigned by: F. R. Murphey, Jr. 687DF3E849AF42C...
DATE: 5/11/2023

NORTH CAROLINA PROFESSIONAL SEAL 018981 ENGINEER F. R. MURPHY, JR.

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TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES AND GENERAL NOTES)

5/3/2023
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PROJ. REFERENCE NO.	SHEET NO.
51214.01AK	TMP-02

SIGN NUMBER: WZTC
TYPE: STATIONARY
QUANTITY: SEE PLANS

SIGN WIDTH: 5'-6"
HEIGHT: 5'-6"
TOTAL AREA: 30.3 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0"
WIDTH: 0"
RADII: 0"

NO. Z BARS: 2
LENGTH: 58.0

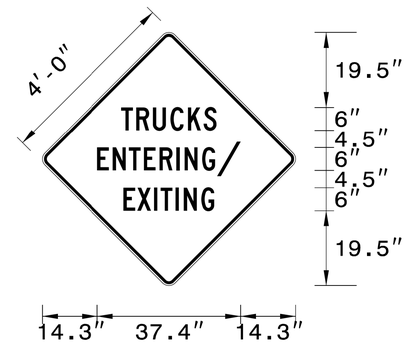
BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L: 0.080" (2.0 mm) ALUMINUM

USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B fluorescent orange retroreflective sheeting.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																										Series/Size Text Length
	T	R	U	C	K	S																				C 2000
20.6	3.9	4.4	4.6	4.6	4.1	3.4	20.6																			24.8
	E	N	T	E	R	I	N	G	/																	C 2000
14.3	4.1	4.2	3.9	4.1	4.4	2.2	4.6	3.9	6.1	14.3																37.4
	E	X	I	T	I	N	G																			C 2000
21.2	3.6	4.4	1.7	3.9	2.2	4.6	3.4	21.2																		23.6

NORTH CAROLINA D.O.T. SIGN DETAIL

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APPROVED: DocuSigned by: F. K. Murphy, Jr. 687DF3E849AF42C...
DATE: 5/11/2023

NORTH CAROLINA PROFESSIONAL SEAL 018981 ENGINEER F. K. MURPHY, JR.

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SPECIAL SIGN DESIGNS

5/3/2023
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PROJ. REFERENCE NO.	SHEET NO.
51214.01AK	TMP-03

PHASING

STEP 1) USING RSD (ROADWAY STANDARD DRAWING) 1101.01, INSTALL ADVANCE WARNING SIGNING ON -EL- (SR 1938), I-85 NB, AND THE I-85 SB ON-RAMPS. IF CONSTRUCTION OF -DWY1- AND -DW2- DOES NOT BEGIN WITHIN THREE DAYS OF SIGN INSTALLATION COVER THE SIGNS WITH AN APPROVED MATERIAL PER THE DISCRETION OF THE ENGINEER.

STEP 2) USING RSD 1101.02, INSTALL LANE CLOSURE ON -EL- AND CONSTRUCT -DWY1- UP TO AND INCLUDING THE FINAL ELEVATION. RETURN TRAFFIC TO THE EXISTING PATTERN AT THE END OF EACH WORK PERIOD.

USING RSD 1101.04 AND SHEET TMP-05, INSTALL SHOULDER CLOSURE ON THE I-85 SB ON-RAMP AND CONSTRUCT -DW2- UP TO AND INCLUDING THE FINAL ELEVATION.

USING RSD 1101.02, ON -EL2-, REMOVE EXISTING MEDIAN EDGE LINE AND INSTALL TEMPORARY PAVEMENT MARKING AS SHOWN ON SHEET TMP-06. THEN INSTALL WATER-FILLED BARRIER AND SHIFT RAMP TRAFFIC AS SHOWN. BEGIN CONSTRUCTION ON -EL2-.

USING RSD 1101.02 AND SHEET TMP-04, INSTALL SHOULDER CLOSURE (PCB) ON I-85 NB, REMOVE EXISTING GUARDRAIL AS SHOWN, AND CONSTRUCT -DW2- UP TO AND INCLUDING THE FINAL ELEVATION.

STEP 3) REMOVE SHOULDER CLOSURE ON THE I-85 SB ON-RAMP (AND SIGN W14-12). USING RSD 1101.02 ON SR 1407 (WESLEY DR) AND AWAY FROM TRAFFIC USING SHEET TMP-04, CONSTRUCT -PIPE 1- AND ALL DRAINAGE.

BEHIND BARRIER, COMPLETE CONSTRUCTION OF -EL2-. THEN USING RSD 1101.02, REMOVE WATER-FILLED BARRIER, TEMPORARY PAVEMENT MARKINGS, REPLACE EXISTING PAVEMENT MARKINGS IN-PLACE, AND RETURN TRAFFIC TO THE EXISTING PATTERN.

STEP 4) UPON COMPLETION OF ALL CONSTRUCTION, REMOVE -DW1- AND -DW2-, RE-INSTALL GUARDRAIL REMOVED IN STEP 3, REMOVE PORTABLE CONCRETE BARRIER, ALL TRANSPORTATION MANAGEMENT DEVICES, AND TEMPORARY SIGNING ON THE ENTIRE PROJECT, AND RETURN I-85 NB TRAFFIC TO THE EXISTING PATTERN.

5/3/2023
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DATE: 5/11/2023

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PHASING

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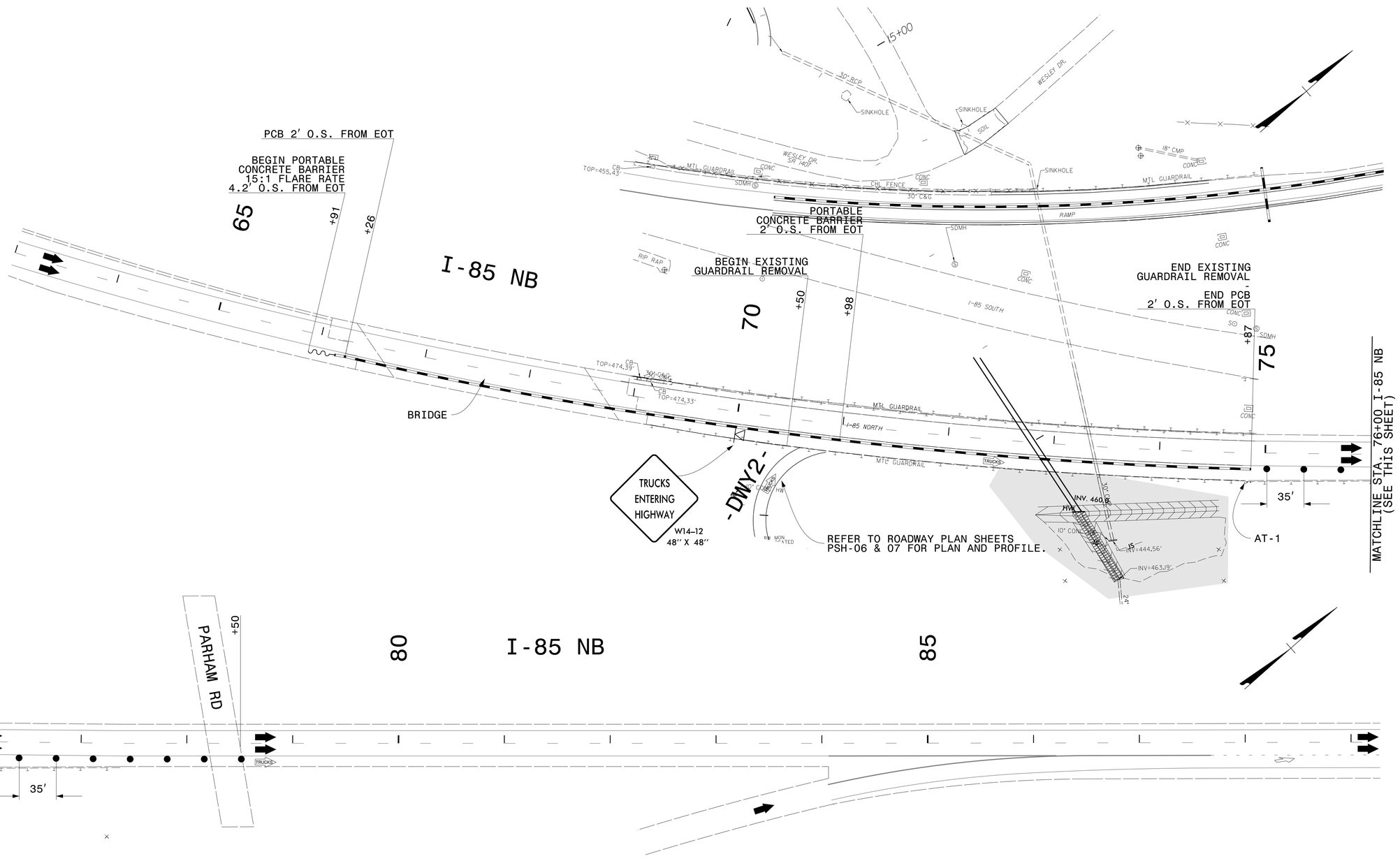
PROJ. REFERENCE NO.	SHEET NO.
51214.01AK	TMP-04



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DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

LANE CLOSURE DETAIL

5/3/2023
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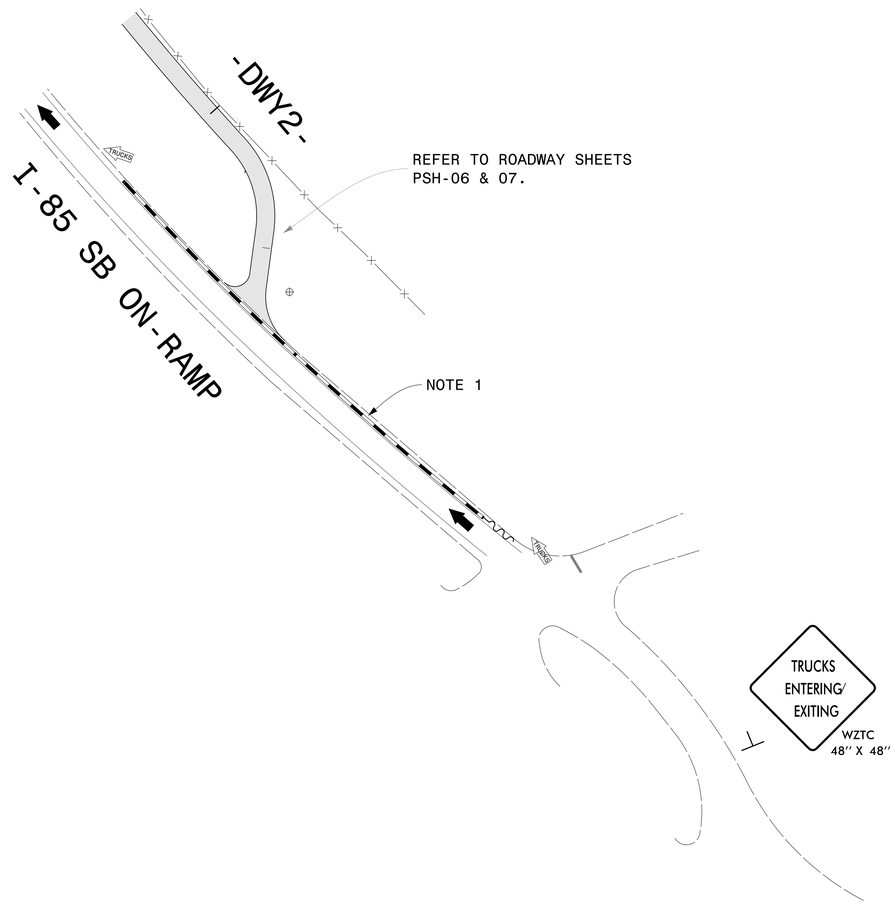
PROJ. REFERENCE NO.	SHEET NO.
51214.01AK	TMP-05



NOTES:
1) THE CONTRACTOR SHALL DETERMINE THE LIMITS OF THE PCB PER THE DISCRETION OF THE ENGINEER. THE PCB SHALL BE OFFSET 1' FROM THE EDGE OF TRAVEL.
2) SEE SHEET TMP-02 FOR SPECIAL SIGN DESIGNS.

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LANE CLOSURE DETAIL

5/3/2023
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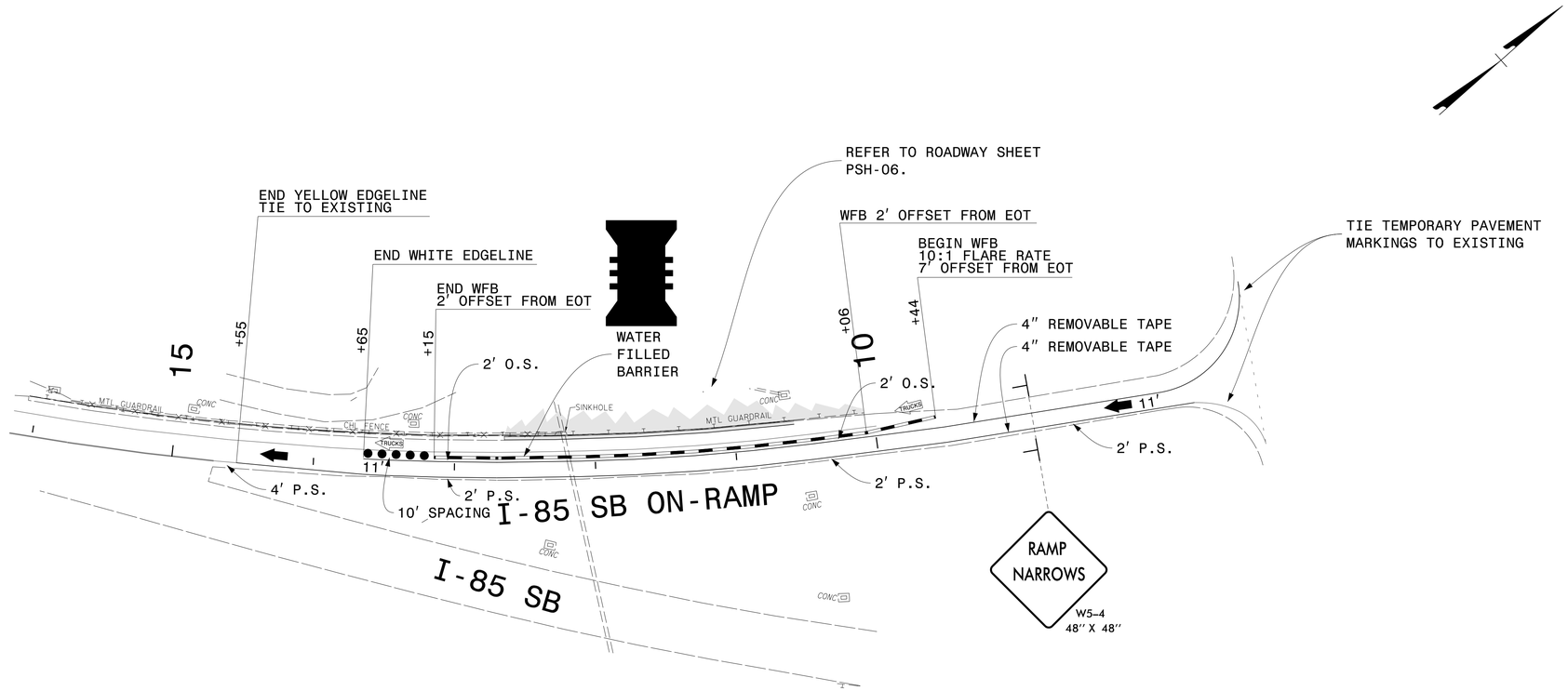
PROJ. REFERENCE NO.	SHEET NO.
51214.01AK	TMP-06



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DATE: 5/11/2023

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LANE CLOSURE DETAIL

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User:Ahayes

TIP PROJECT: 51214.01AK

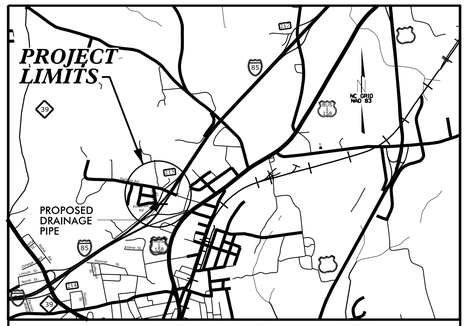
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	51214.01AK	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

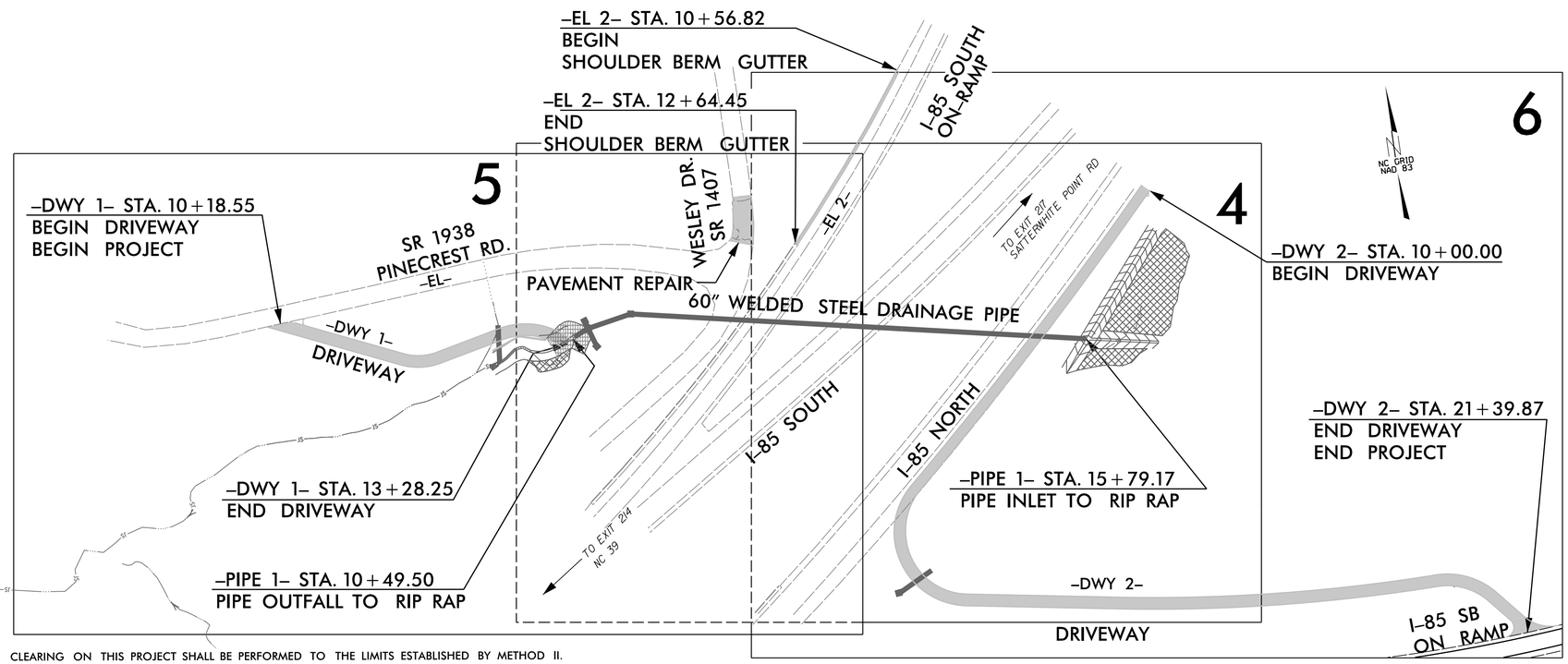
VANCE COUNTY



VICINITY MAP = NTS

LOCATION: *I–85 0.10 MILE SOUTH OF PARHAM ROAD (SR 1407) UNDER I–85 AND WESLEY DRIVE*

TYPE OF WORK: *TRENCHLESS INSTALLATION OF 60–INCH WELDED STEEL PIPE*



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type–A	
	Temporary Rock Silt Check Type–A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type–B	
	Wattle / Coir Fiber Wattle	EW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type–A	
1634.02	Temporary Rock Sediment Dam Type–B	
1635.01	Rock Pipe Inlet Sediment Trap Type–A	
1635.02	Rock Pipe Inlet Sediment Trap Type–B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

GRAPHIC SCALE

50 25 0 50 100

PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG–010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

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Prepared in the Office of:

WETHERILL ENGINEERING

1223 JONES FRANKLIN ROAD
RALEIGH, NC 27606

2018 STANDARD SPECIFICATIONS

Designed by:

KATIE ESTEP	*4485*
NAME	*LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

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PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	EC-2A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	EC-2B
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

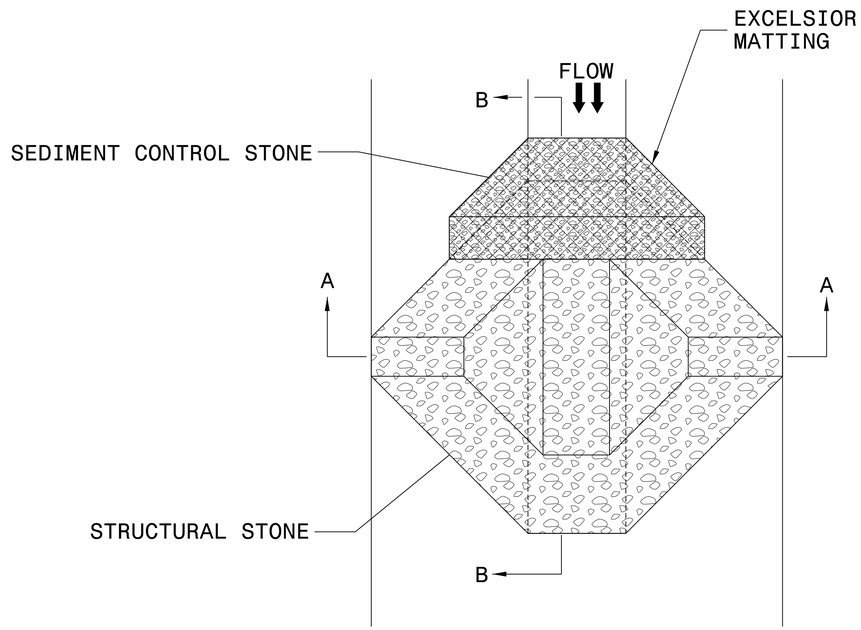
CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-DWY2-	10+29	12+00	LT	270
5	-DWY1-	11+50	12+00	RT	675
			SUBTOTAL		945
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					5690
				TOTAL	6635
				SAY	6635

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
5	-DWY1-	10+19	13+28	LT	950
			SUBTOTAL		950
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					0
				TOTAL	950
				SAY	950

PROJECT REFERENCE NO.	SHEET NO.
5I214.01AK	EC-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN

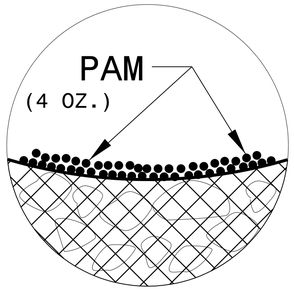
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

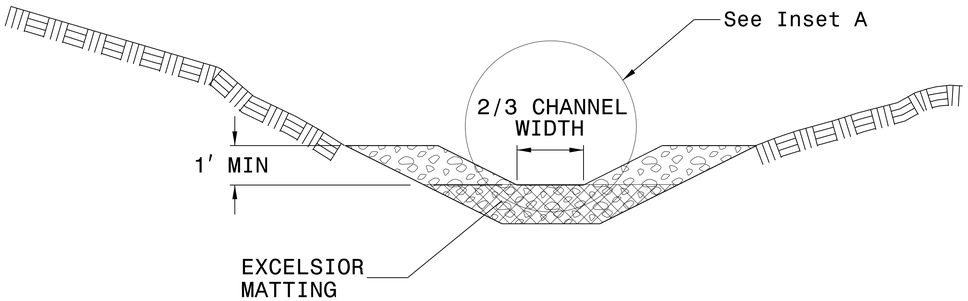
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

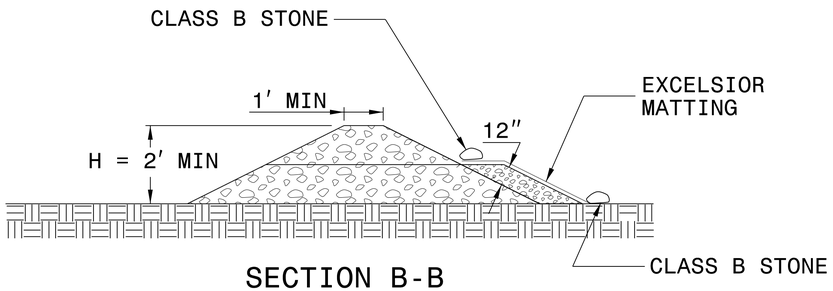
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

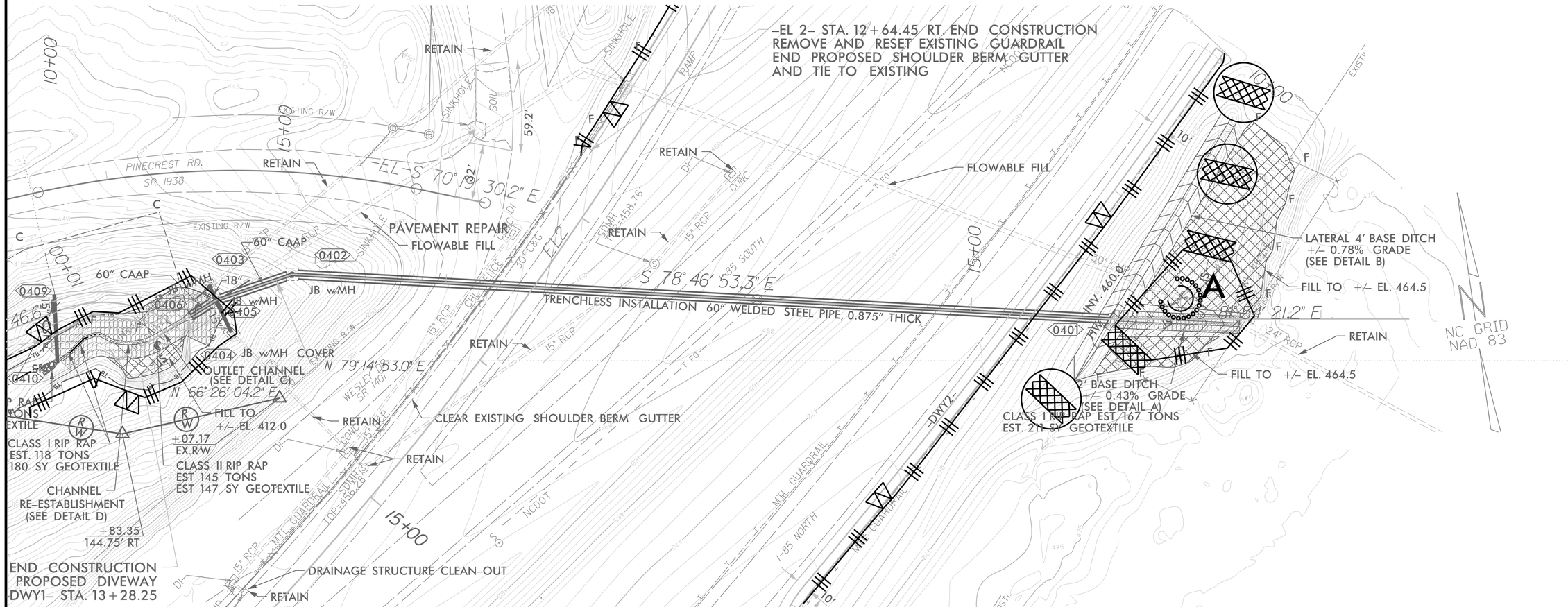
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	EC-4/CONSTR. 4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

8/17/99



CLEARING AND GRUBBING EROSION CONTROL FOR PLAN SHEET 4

5/2/2023
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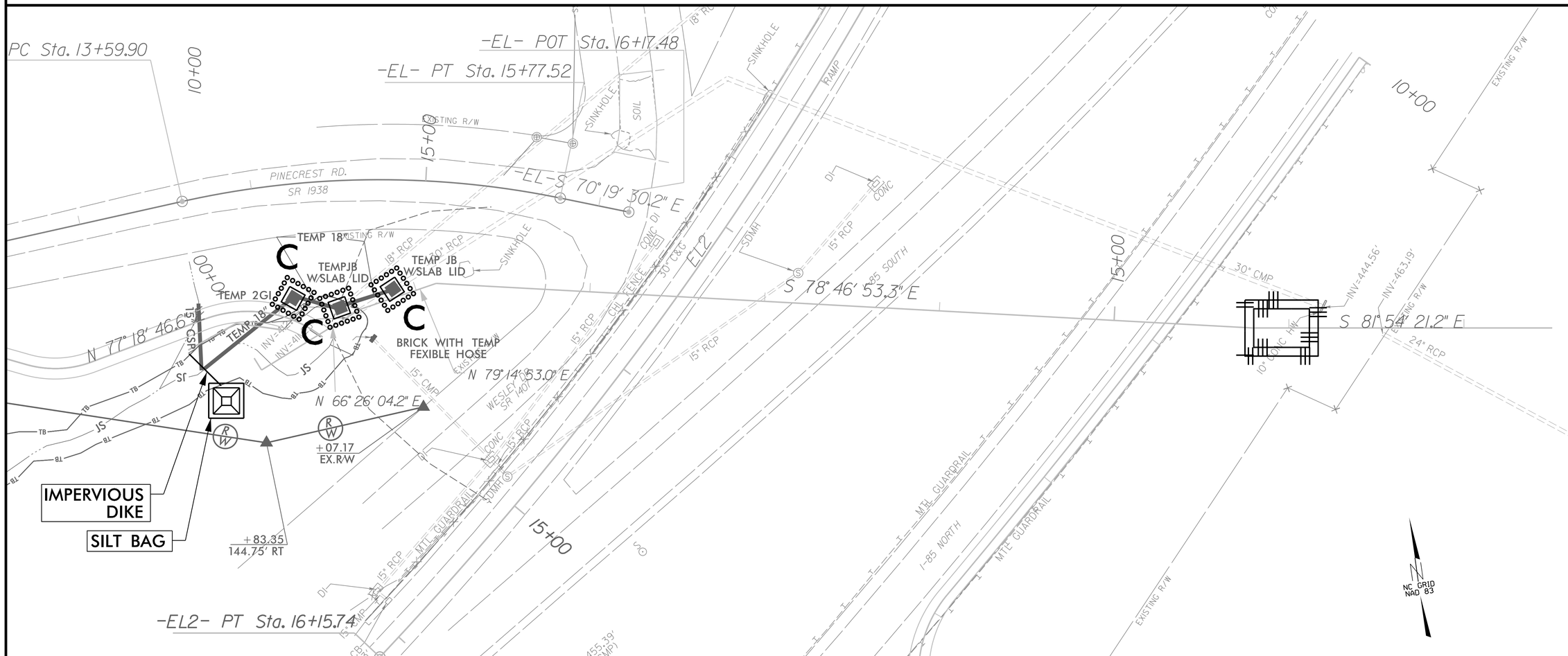
PIPE REPLACEMENT CONSTRUCTION SEQUENCE

PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	EC-4A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PHASE 1



INSTALL EROSION CONTROL MEASURES FOR THIS SITE PRIOR TO COMMENCING CULVERT WORK. REMOVE EXISTING PIPES AS NEEDED.

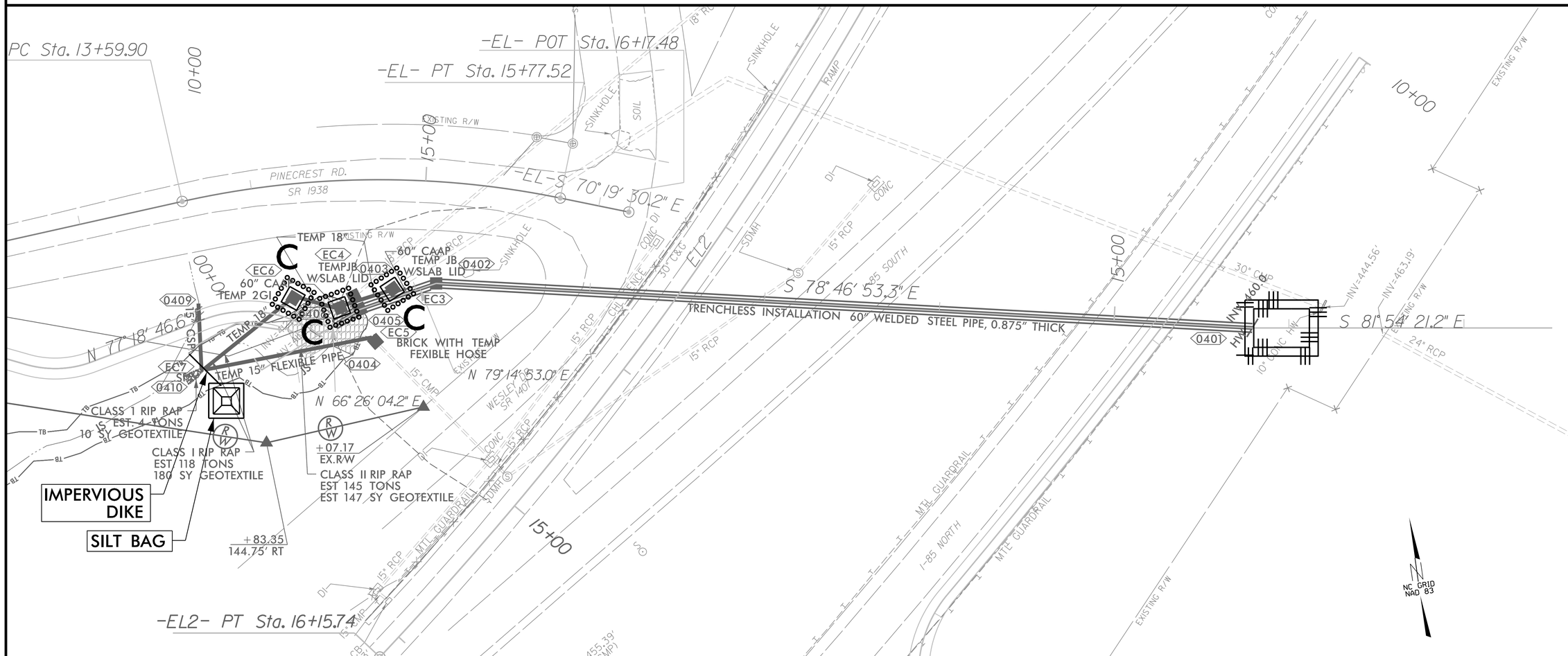
1. INSTALL SPECIAL STILLING BASINS/SILT BAG AS NEEDED FOR DEWATERING OF THE PROJECT SITE THROUGHOUT CONSTRUCTION SEQUENCING.
2. INSTALL IMPERVIOUS DIKE DOWNSTREAM AND INSTALL/UTILIZE TEMPORARY PIPES TO MAINTAIN THE FLOW OF WATER.
3. INSTALL BORE PIT UPSTREAM.
4. INSTALL 15" CSP OFF –DWY1– TO BE LEFT AS PERMANENT DRAINAGE.

PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	EC-4B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PIPE REPLACEMENT CONSTRUCTION SEQUENCE

PHASE 2



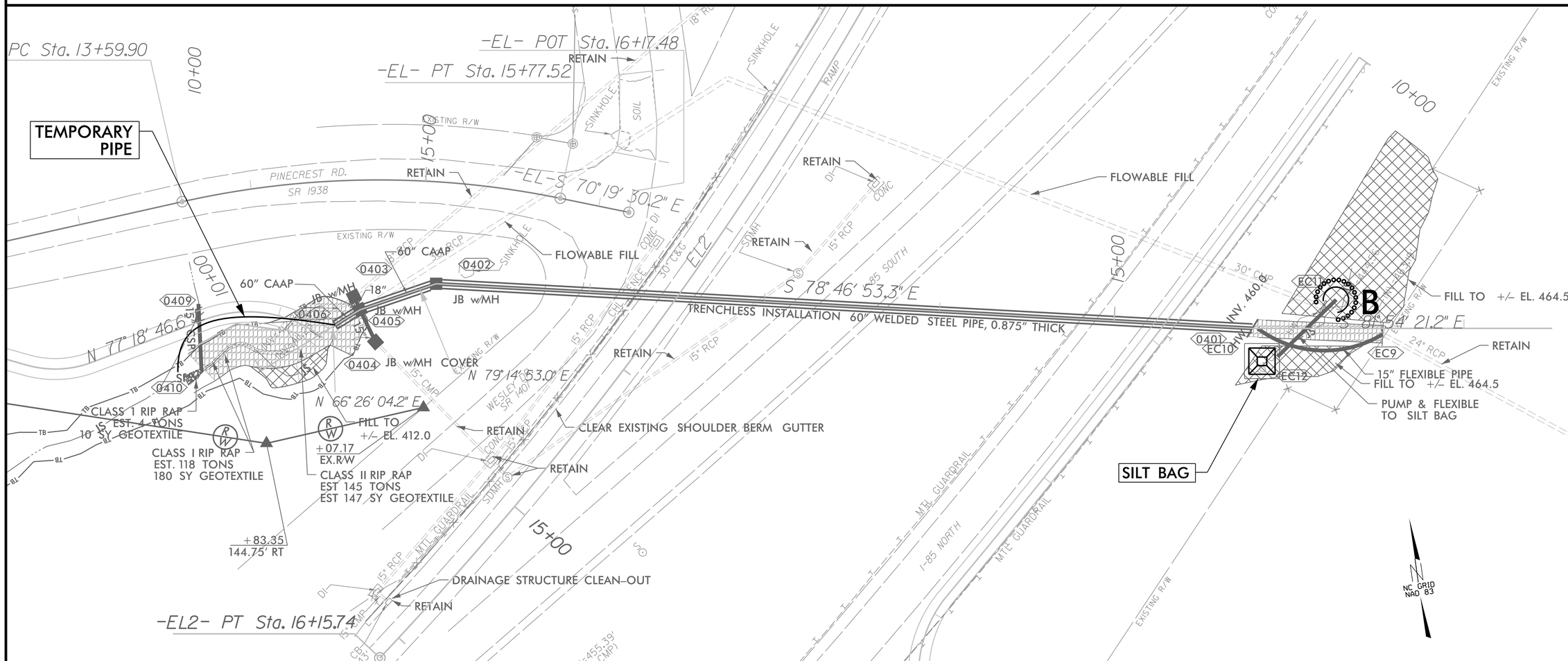
1. DEWATER DOWNSTREAM WORK SITE USING SPECIAL STILLING BASIN\SILT BAG.
2. INSTALL 60" PIPE VIA TRENCHLESS INSTALL. INSTALL PERMANENT DRAINAGE DOWNSTREAM.
3. INSTALL RIPRAP AT OUTLET OF 60". COMPLETE AS MUCH CHANNEL REESTABLISHMENT AS POSSIBLE.

PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	EC-4C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PIPE REPLACEMENT CONSTRUCTION SEQUENCE

PHASE 3



1. CONSTRUCT A SHORT SECTION OF INLET DITCH AT 60". INSTALL SILT BAG AND TEMPORARY PUMP AROUND AT INLET OF 60", AND PROVIDE TEMPORARY PUMP AROUND AT OUTLET OF 60".

2. REMOVE TEMPORARY 18" PIPE.

3. INSTALL FLEXIBLE HOSE FROM 24" RCP TO INLET OF 60".

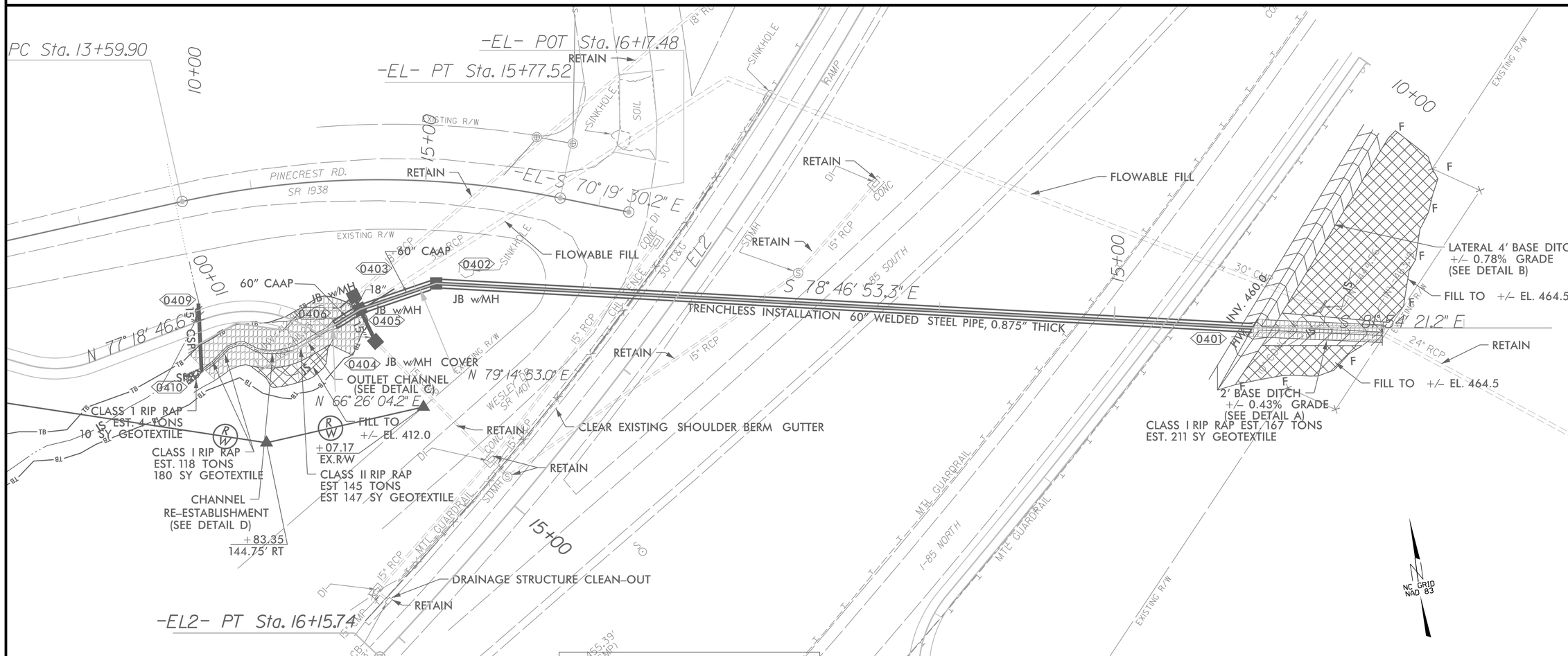
4. COMPLETE CHANNEL RE-ESTABLISHMENT. REMOVE IMPERVIOUS DIKE DOWNSTREAM, REMOVE PUMP AROUND AND RE-ESTABLISH NORMAL STREAM FLOW FROM 60" PIPE OUTLET.

PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	EC-4D
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PIPE REPLACEMENT CONSTRUCTION SEQUENCE

PHASE 4



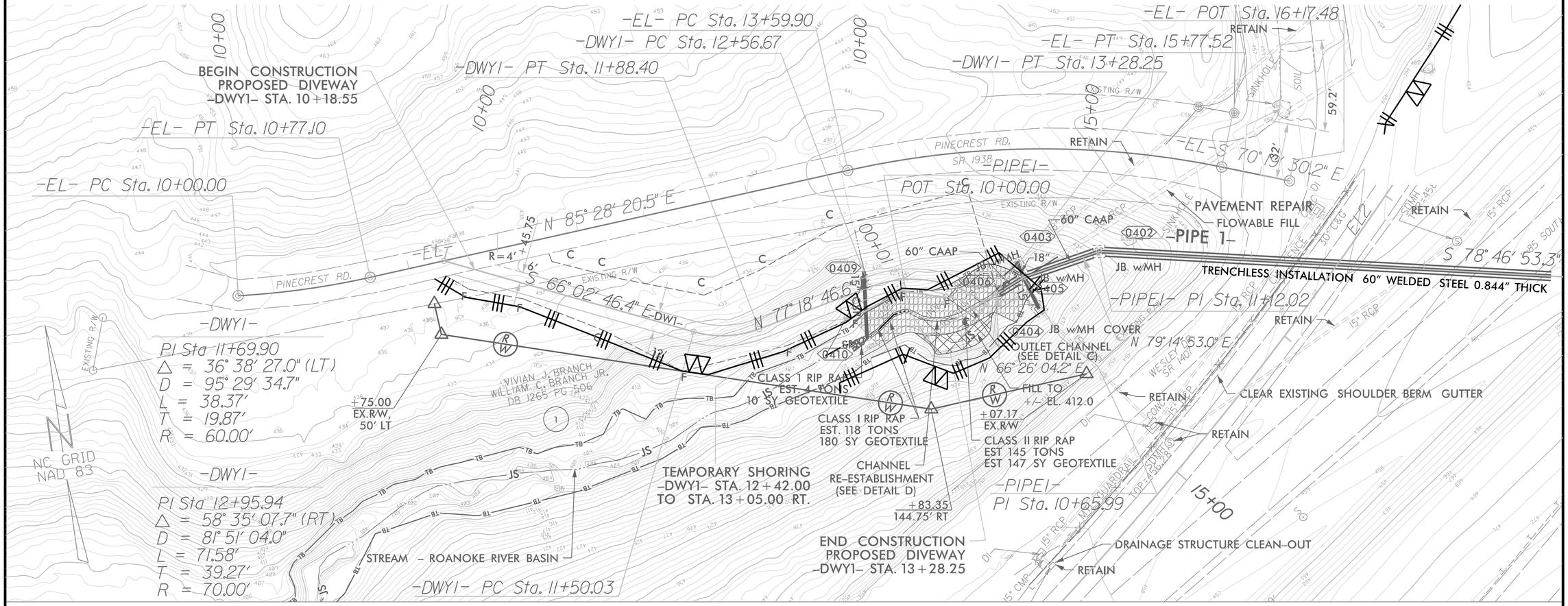
1. INSTALL PROPOSED UPSTREAM BASE DITCH.
2. REMOVE PUMP AND HOSES, SILT BAG, ANY OTHER TEMPORARY DRAINAGE AND EROSION CONTROL MEASURES.
3. REMOVE IMPERVIOUS DIKES.

PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	EC-5/CONSTR. 5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

8/17/99



CLEARING AND GRUBBING EROSION CONTROL FOR PLAN SHEET 5

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PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	EC-6/CONSTR. 6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CLEARING AND GRUBBING EROSION CONTROL FOR PLAN SHEET 6

-EL2- PC Sta. 10+00.00

-EL 2- STA. 10+56.82 RT.
BEGIN CONSTRUCTION
REMOVE AND RESET EXISTING GUARDRAIL
INCLUDING END UNIT
BEGIN PROPOSED SHOULDER BERM GUTTER – 208 LF

-EL 2-
PI Sta 13+10.37
△ = 17° 47′ 59.8″ (RT)
D = 2° 53′ 27.0″
L = 615.74′
T = 310.37′
R = 1,981.99′

-DWY2-
PI Sta 15+33.28
△ = 128° 48′ 29.9″ (LT)
D = 81° 51′ 04.0″
L = 157.37′
T = 146.13′
R = 70.00′

-DWY2-
PI Sta 11+93.70
△ = 5° 04′ 29.4″ (RT)
D = 1° 18′ 38.9″
L = 387.15′
T = 193.70′
R = 4,371.00′

NC GRID NAD 83

-DWY2- PC Sta. 10+00.00

-PIPE1- PI Sta. 15+79.10

-EL 2- STA. 12+64.45 RT. END CONSTRUCTION
REMOVE AND RESET EXISTING GUARDRAIL
END PROPOSED SHOULDER BERM GUTTER
AND TIE TO EXISTING

BEGIN CONSTRUCTION
PROPOSED DRIVEWAY
-DWY2- STA. 10+00.00
BEGIN
REMOVE AND RESET EXISTING GUARDRAIL

-DWY2-
PI Sta 18+69.79
△ = 9° 52′ 22.0″ (LT)
D = 3° 07′ 57.8″
L = 315.15′
T = 157.97′
R = 1,828.95′

-DWY2-
PI Sta 20+59.77
△ = 50° 12′ 04.3″ (RT)
D = 81° 51′ 04.0″
L = 61.33′
T = 32.79′
R = 70.00′

TEMP. AT-1

FLOWABLE FILL

RETAIN

LATERAL 4′ BASE DITCH
+/- 0.78% GRADE
(SEE DETAIL B)

FILL TO +/- EL. 464.5

S 78° 46′ 53.3″ E

-PIPE 1-

TRENCHLESS INSTALLATION 60″ WELDED STEEL PIPE, 0.875″ THICK

21.2″ E

RETAIN

FILL TO +/- EL. 464.5

2′ BASE DITCH
+/- 0.43% GRADE
(SEE DETAIL A)
CLASS I RIP RAP EST. 167 TONS
EST. 211 SY GEOTEXTILE

-PIPE1- POT Sta. 17+50.46

-DWY2- PRC Sta. 13+87.15

-DWY2- PRC Sta. 20+26.97

-DWY2- POT Sta. 21+50.23

END CONSTRUCTION
PROPOSED DIVEWAY
-DWY2- STA. 21+39.87

-DWY2- PT Sta. 20+88.31

-DWY2- STA. 14+34.37
END
REMOVE AND RESET
EXISTING GUARDRAIL

50′
TRANSITION

DO NOT DISTURB
RIGHT OF WAY MONUMENT
OR FENCE

S 80° 43′ 53.0″ E

DETAIL C
OUTLET CHANNEL

-DWY2- PT Sta. 15+44.52

-DWY2- PC Sta. 17+11.82

S 40° 51′ 25.1″ E

R = 40′

R = 10′

I-85 SB ON RAMP

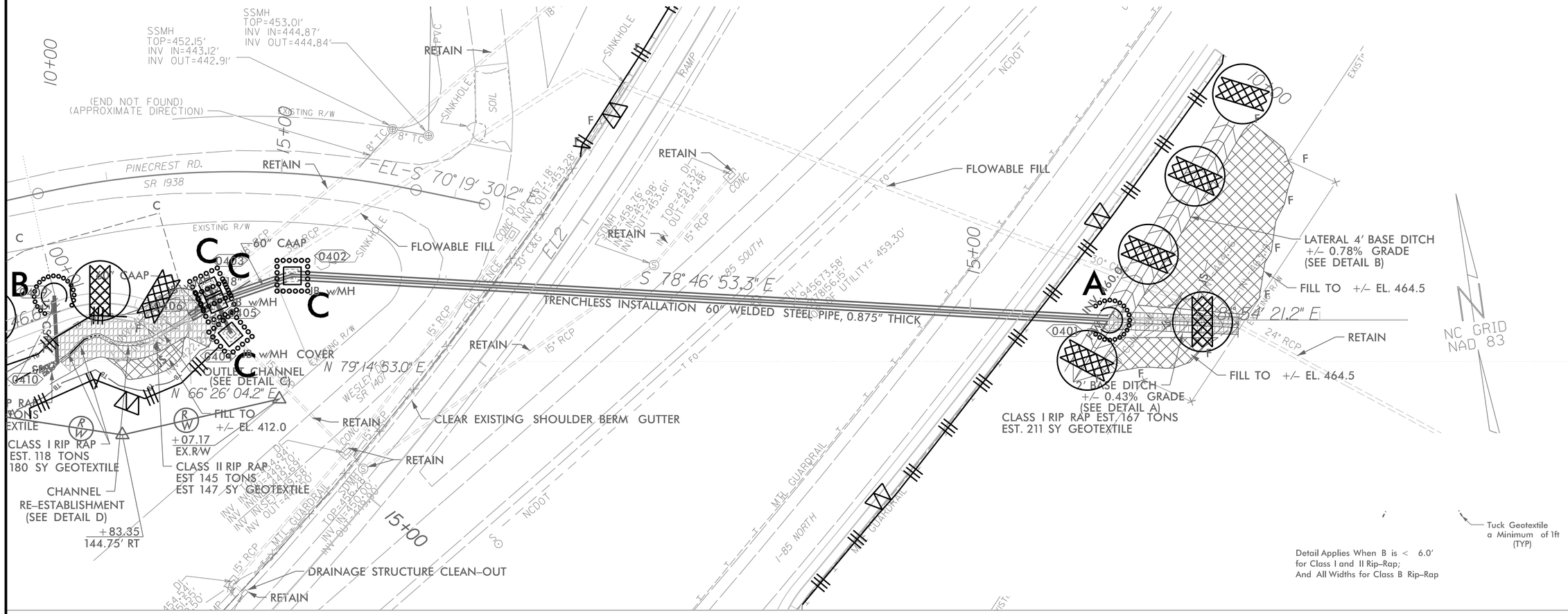
REVISIONS

8/17/99

5/2/2023
I:\PROJECTS\I-85_VANCE_ec_cg_psh6.dgn
USER: FRICKS

PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	EC-7/CONSTR. 4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



For Slopes Excavated Greater Than 10 feet
Install Matting for Erosion Control on
Entire Slope as Work Allows.

REVISIONS

8/17/99

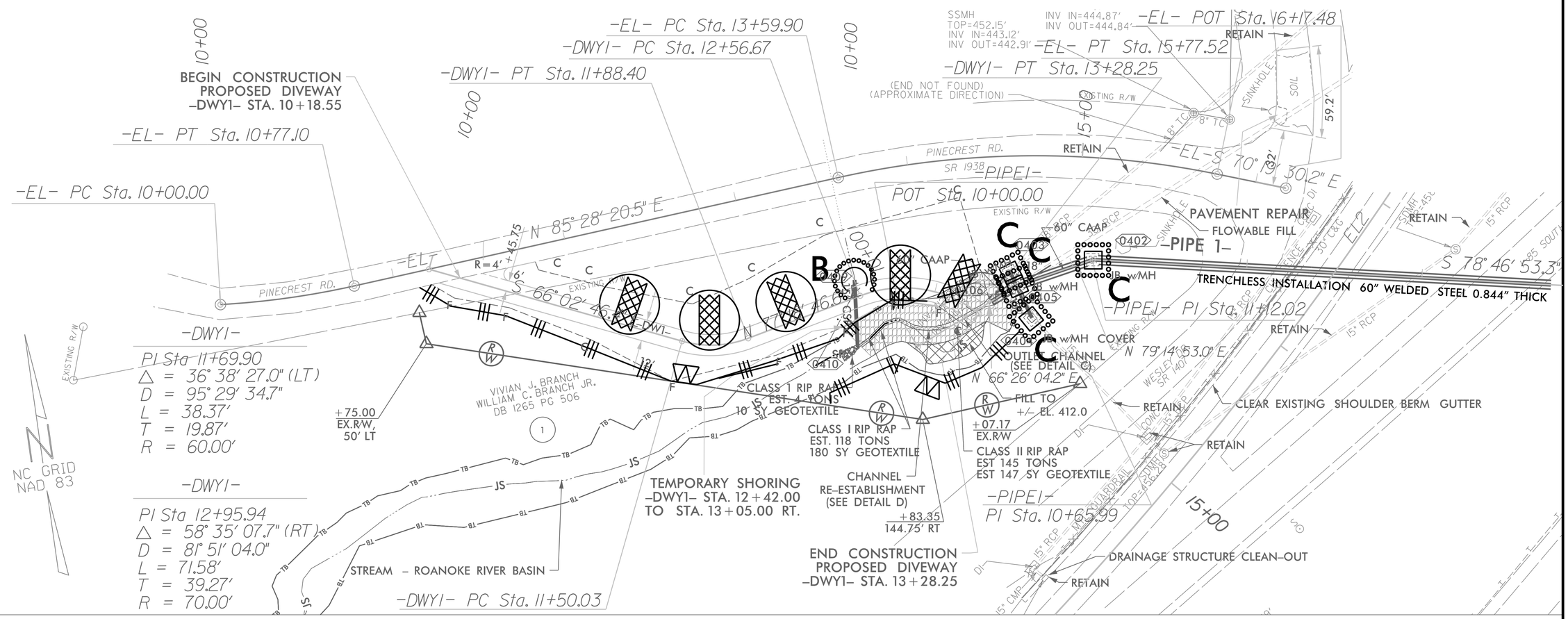
5/2/2023
DESIGN VARIANCE_ec_final_psh7.dgn
USER:KEstep

PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	EC-8/CONSTR. 5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

8/17/99



For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

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11:28:23 AM
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PROJECT REFERENCE NO.	SHEET NO.
51214.01AK	EC-9/CONSTR. 6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

-EL2- PC Sta. 10+00.00

-EL 2-
PI Sta 13+10.37
△ = 17° 47' 59.8"
D = 2° 53' 27.0"
L = 615.74'
T = 310.37'
R = 1,981.99'

-DWY2-
PI Sta 15+33.28
△ = 128° 48' 29.9" (LT)
D = 81° 51' 04.0"
L = 157.37'
T = 146.13'
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-DWY2-
PI Sta 11+93.70
△ = 5° 04' 29.4" (RT)
D = 1° 18' 38.9"
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-DWY2-
PI Sta 18+69.79
△ = 9° 52' 22.0" (LT)
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-DWY2-
PI Sta 20+59.77
△ = 50° 12' 04.3" (RT)
D = 81° 51' 04.0"
L = 61.33'
T = 32.79'
R = 70.00'

NC GRID NAD 83

-DWY2- PC Sta. 10+00.00

-PIPE1- PI Sta. 15+79.10

-PIPE1-

TRENCHLESS INSTALLATION 60" WELDED STEEL PIPE, 0.875" THICK

S 78° 46' 53.3" E

S 54° 21.2" E

S 80° 43' 33.3" E

S 40° 51' 25.1" E

FLOWABLE FILL

RETAIN

LATERAL 4' BASE DITCH
+/- 0.78% GRADE
(SEE DETAIL B)

FILL TO +/- EL. 464.5

2' BASE DITCH
+/- 0.43% GRADE
(SEE DETAIL A)

CLASS I RIP RAP EST. 167 TONS
EST. 211 SY GEOTEXTILE

-PIPE1- POT Sta. 17+50.46

-DWY2- PRC Sta. 13+87.15

-DWY2- PRC Sta. 20+26.97

-DWY2- POT Sta. 21+50.23

-DWY2- PT Sta. 20+88.31

-DWY2- PT Sta. 15+44.52

-DWY2- PC Sta. 17+11.82

Tuck Geotextile a Minimum of 1ft (TYP)

Detail Applies When B is < 6.0' for Class I and II Rip-Rap; And All Widths for Class B Rip-Rap

DETAIL C
OUTLET CHANNEL

EXISTING R/W BASED ON FOUND MONUMENTS AND CURRENT DEED

I-85 NORTH

I-85 SB ON RAMP

I-85 YARIABLE WIDTH BST

ANJALI KOUL
VIJAY KOUL
DB 255 - PG 124
PB O - PG 487
PB U - PG 757
PB U - PG 758

REVISIONS

8/17/99

5/2/2023
DIVISION 9 GUIDANCE_ec_final_psh9.dgn
USERKK1step

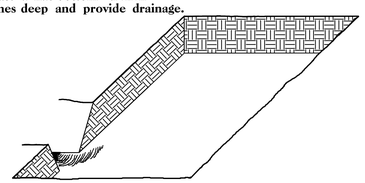
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	51214.01AK	RF-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

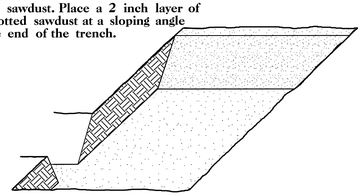
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

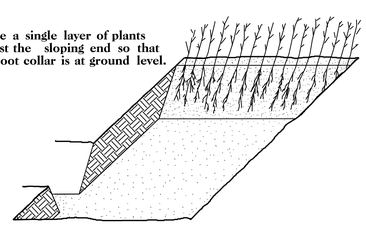
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



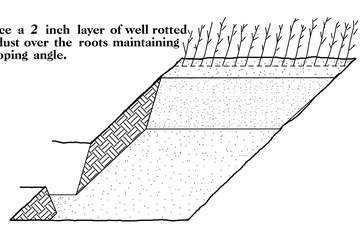
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

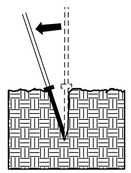


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

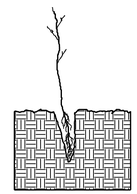


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

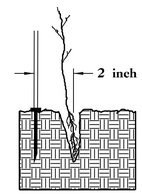
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



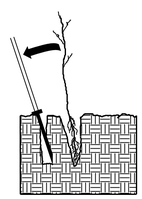
1. Insert planting bar as shown and pull handle toward planter.



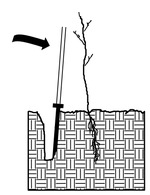
2. Remove planting bar and place seedling at correct depth.



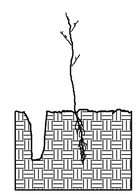
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

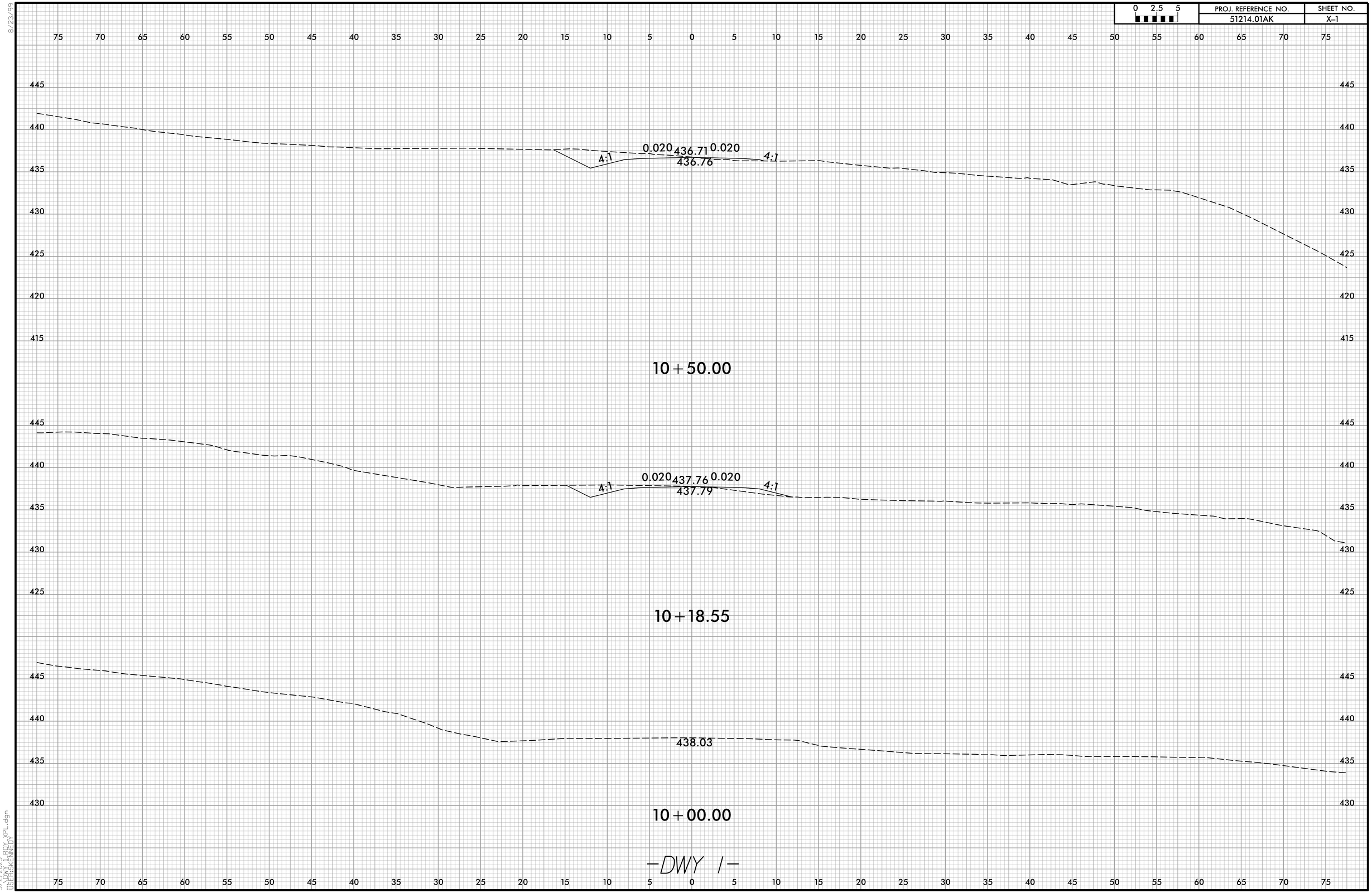
MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

34%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
33%	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in – 18 in BR
33%	BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	51214.01AK	X-1



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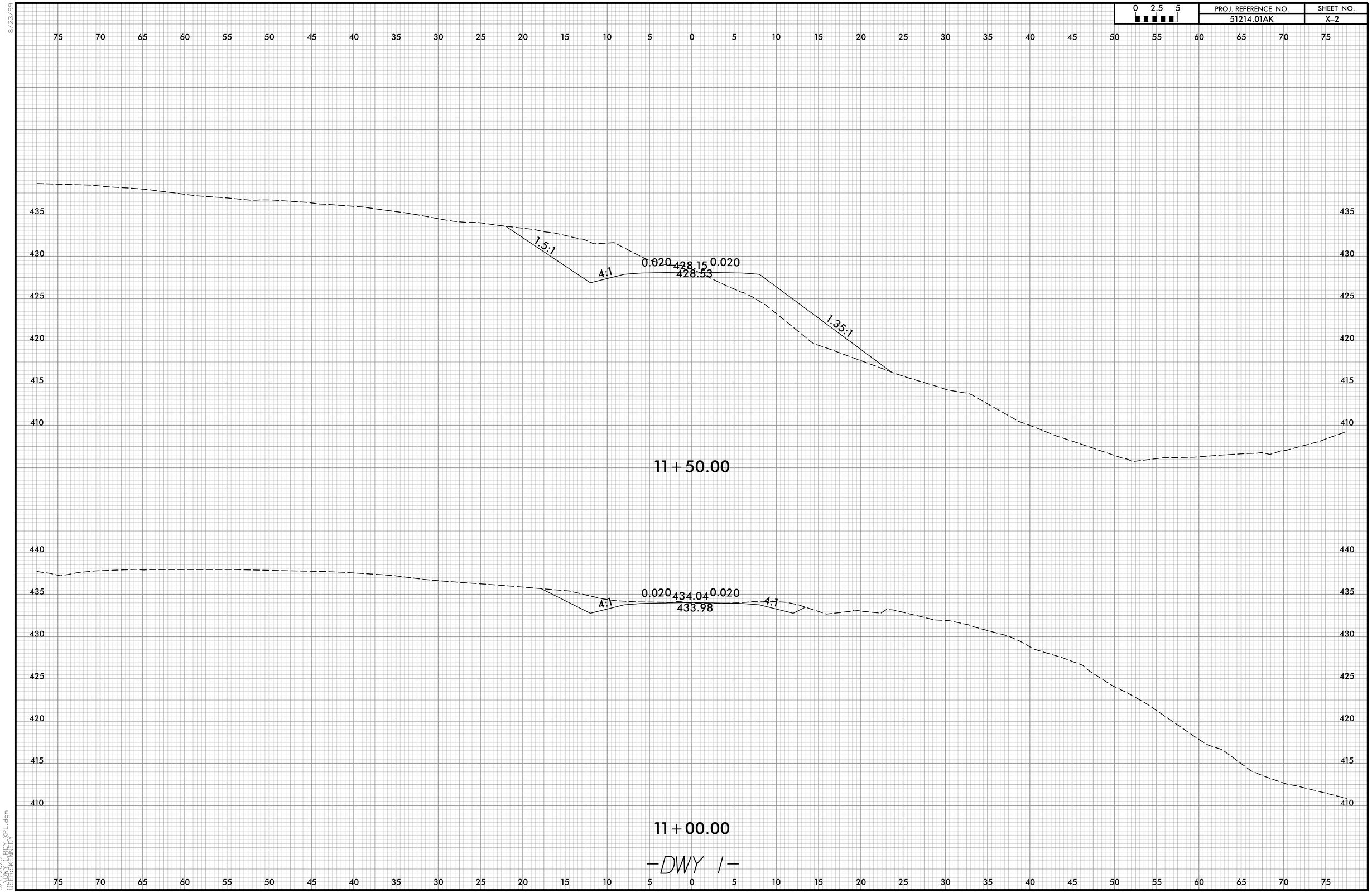
5/2/2023
USERSKENNEDY

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	51214.01AK	X-2



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5/2/2023
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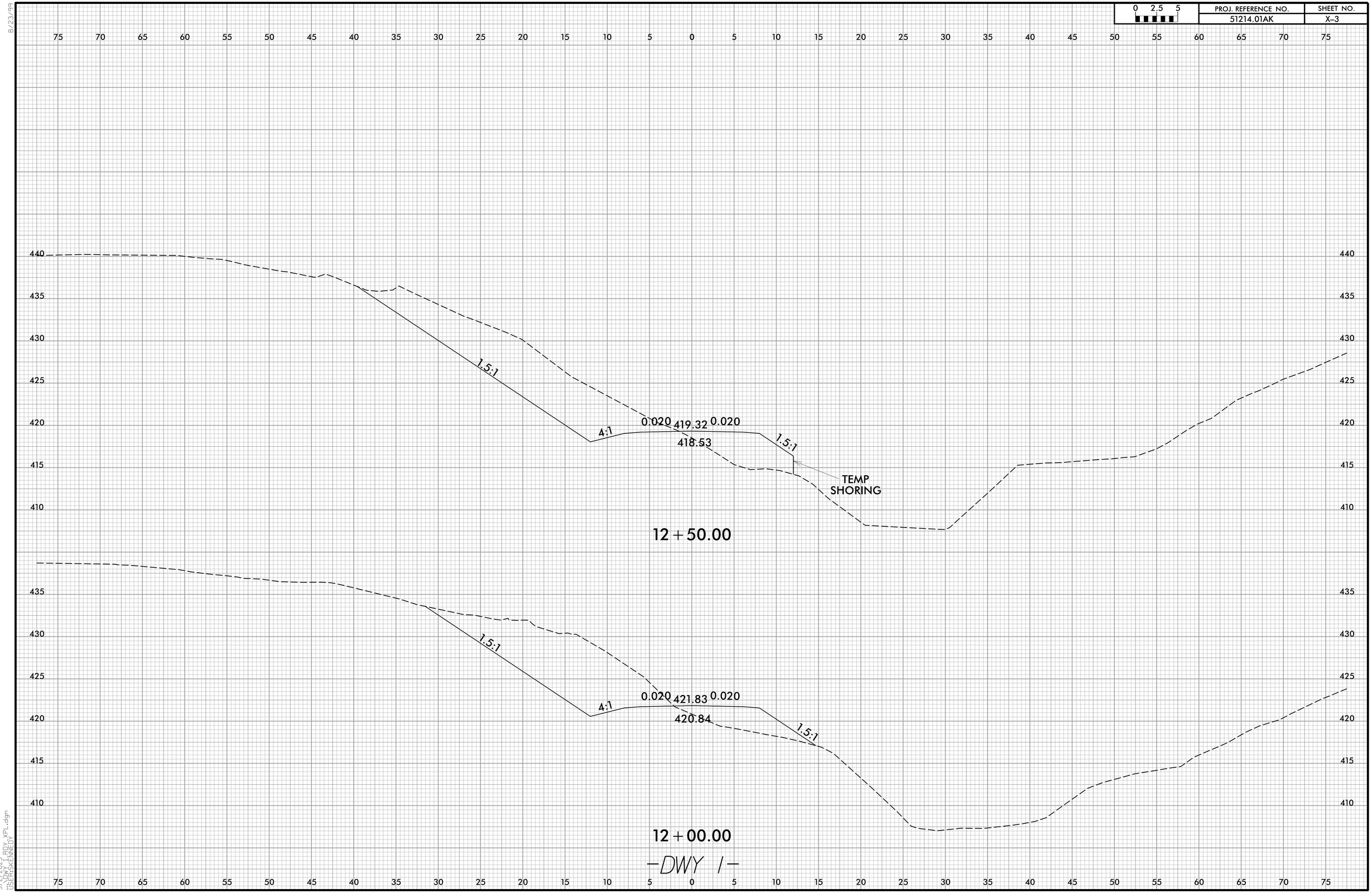
USERSKENNEDY

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	51214.01AK	X-3

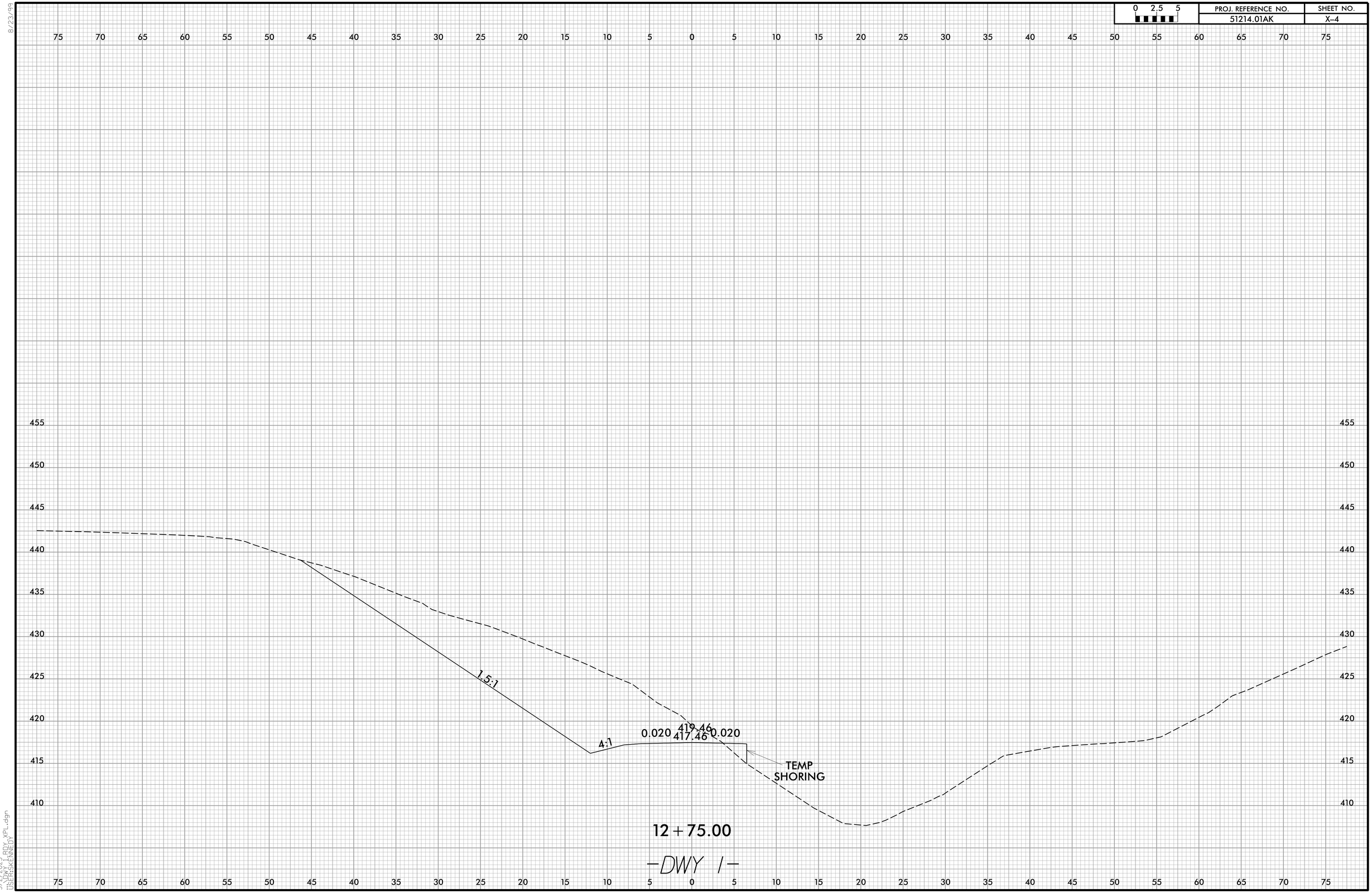


8/23/99

5/2/2023
DWY1_RDY_XPL.dgn
USERSKENNEDY

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	51214.01AK	X-4



5/2/2023
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USERSKENNEDY

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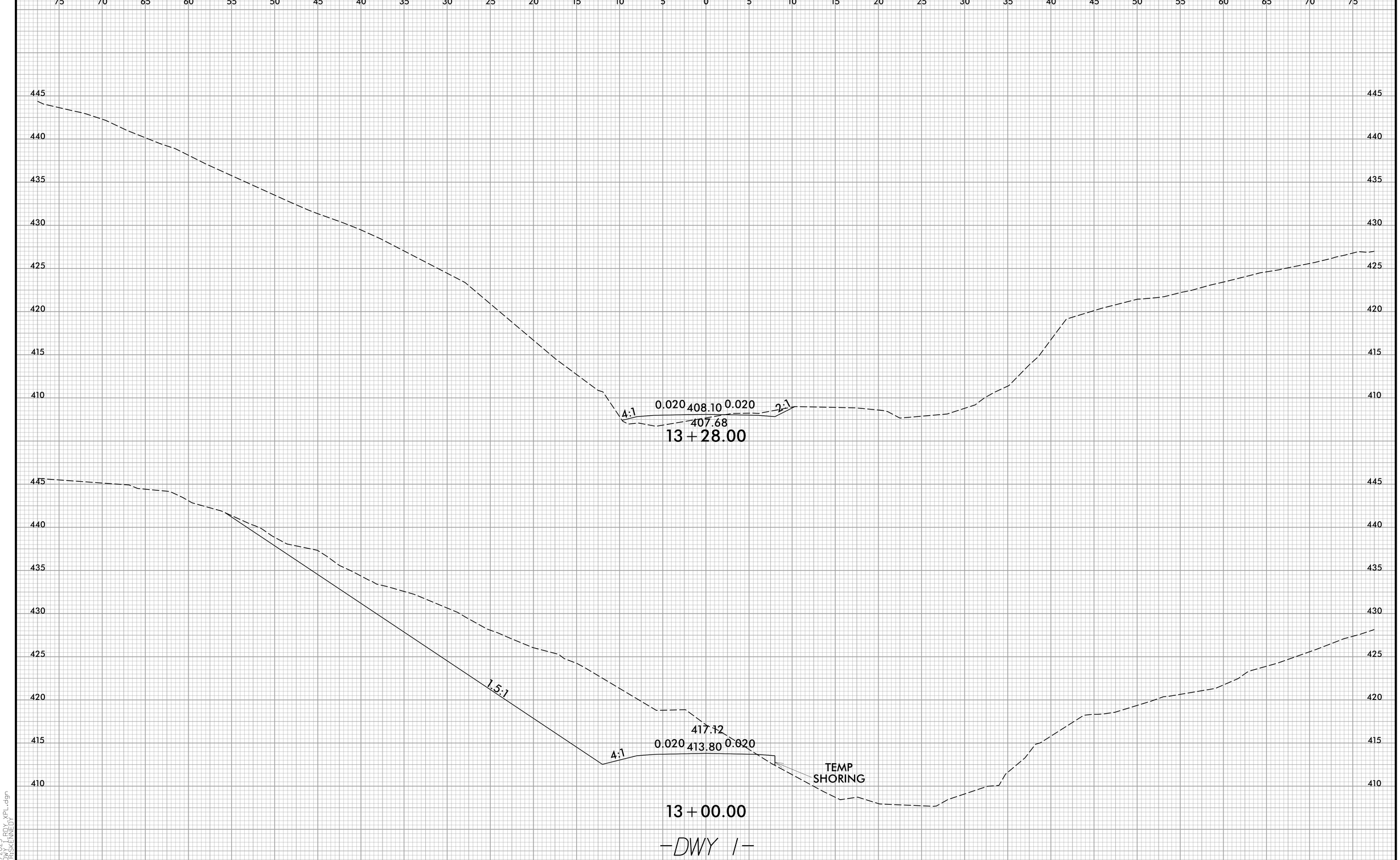

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5/2/2023
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USERSKENNEDY

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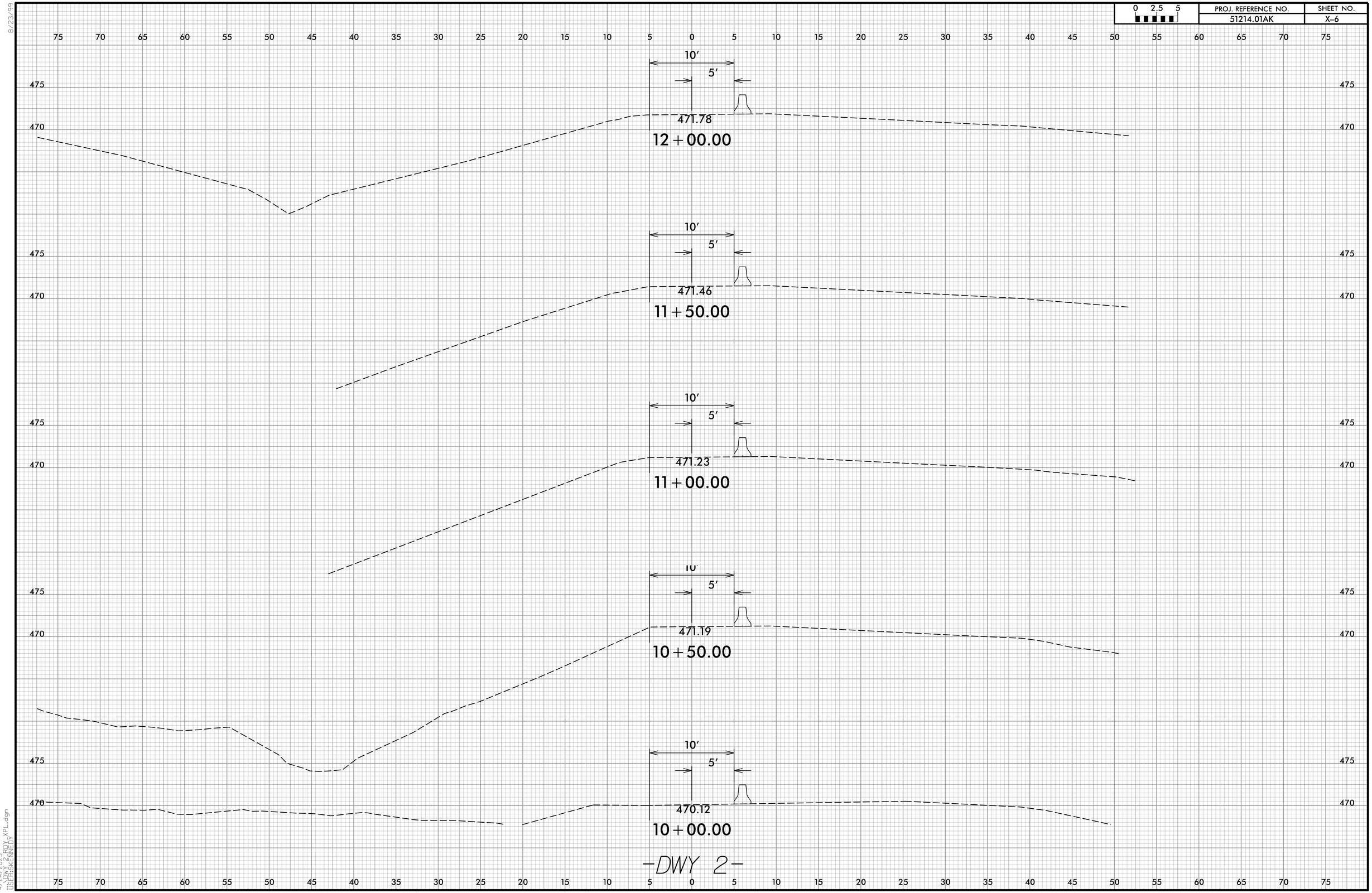

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4/24/2023
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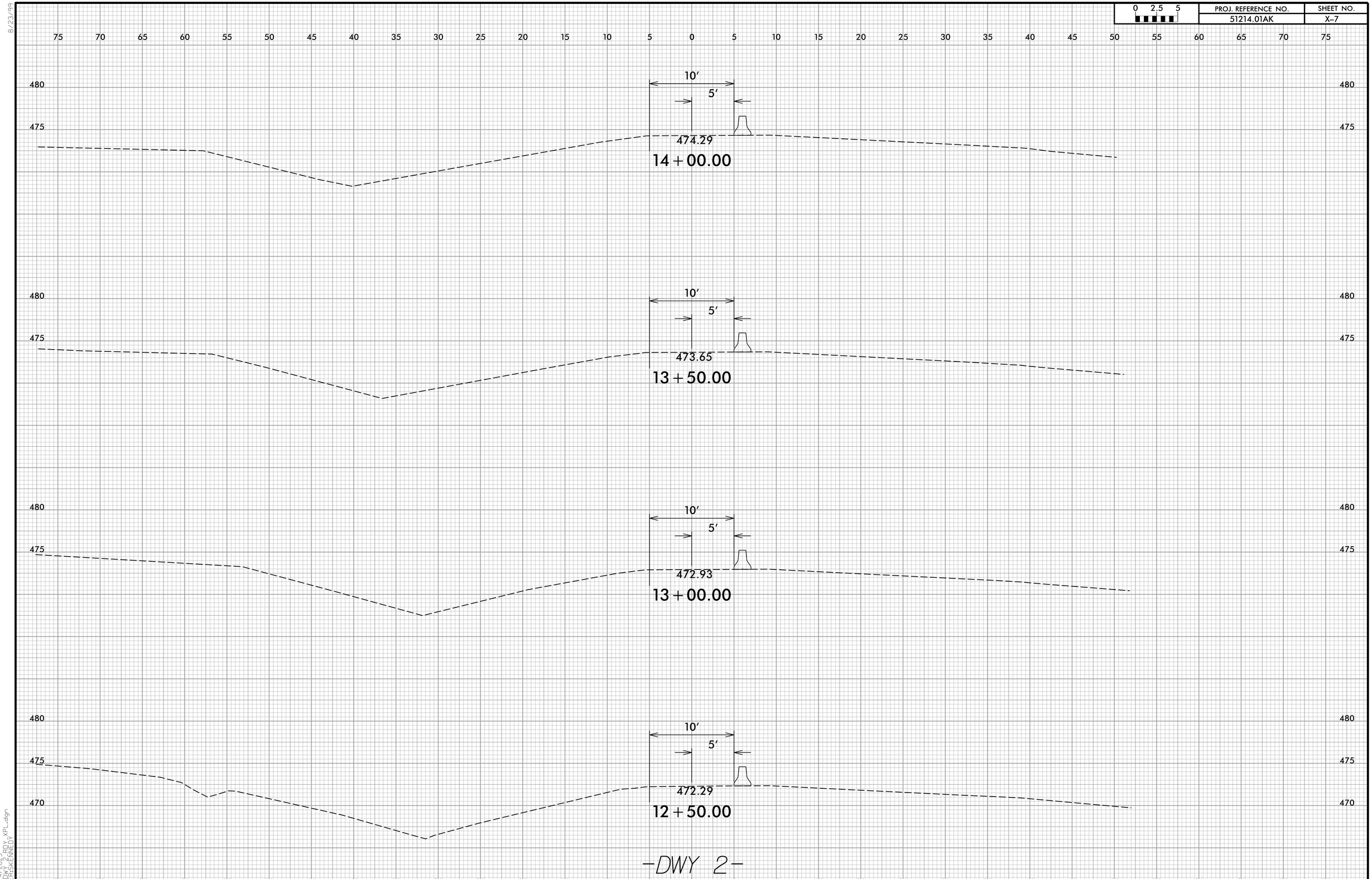

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4/24/2023
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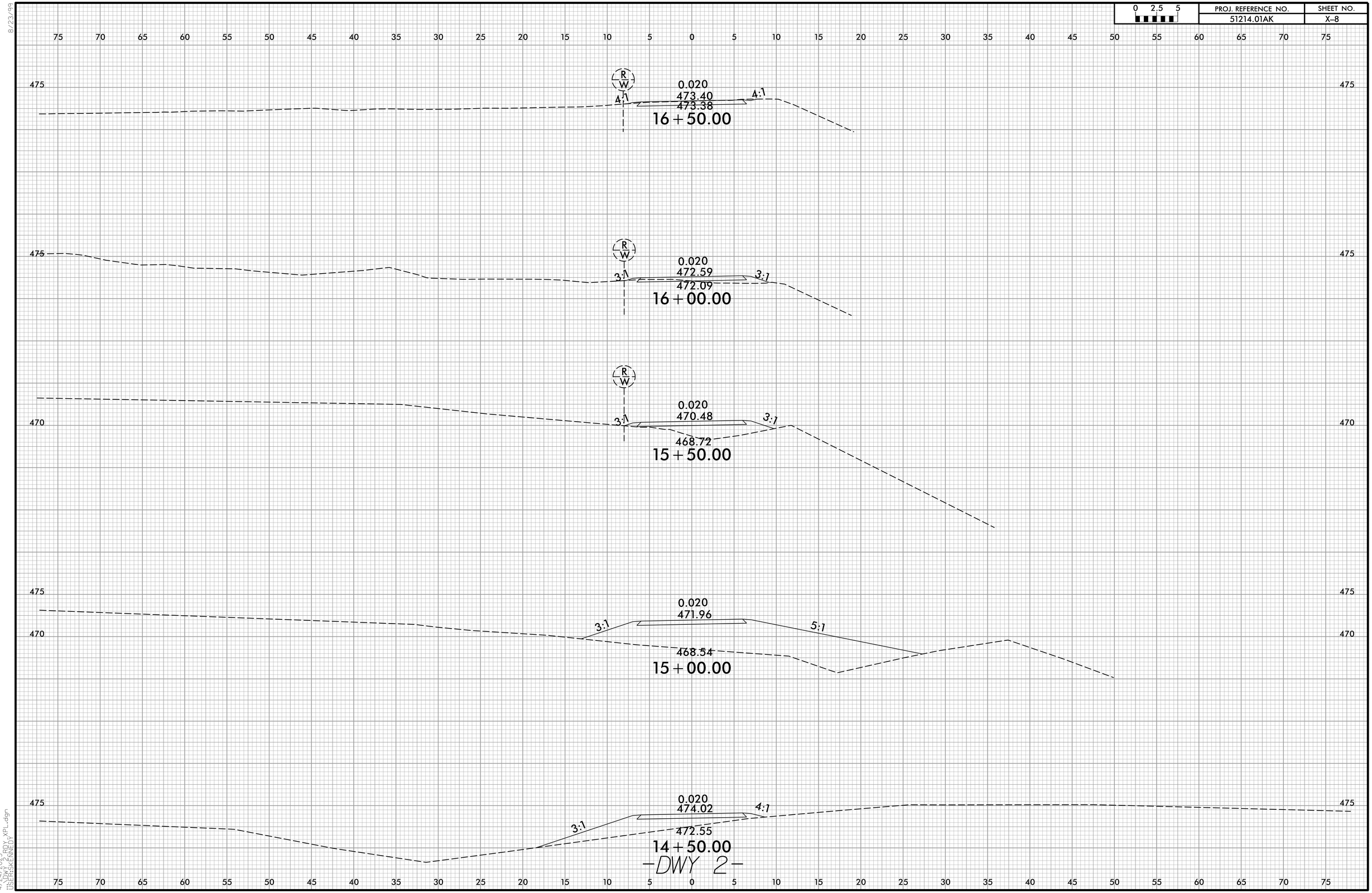

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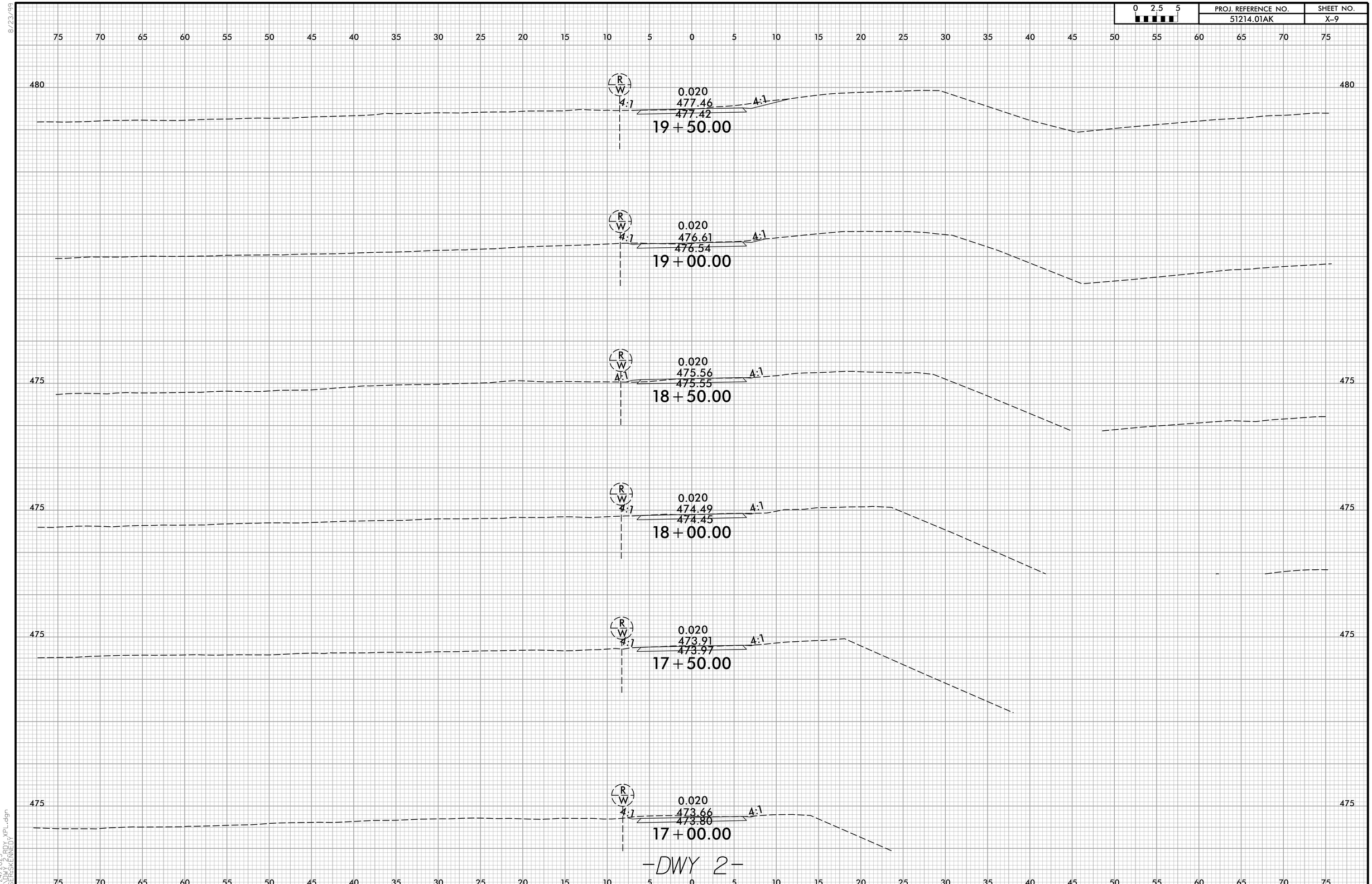

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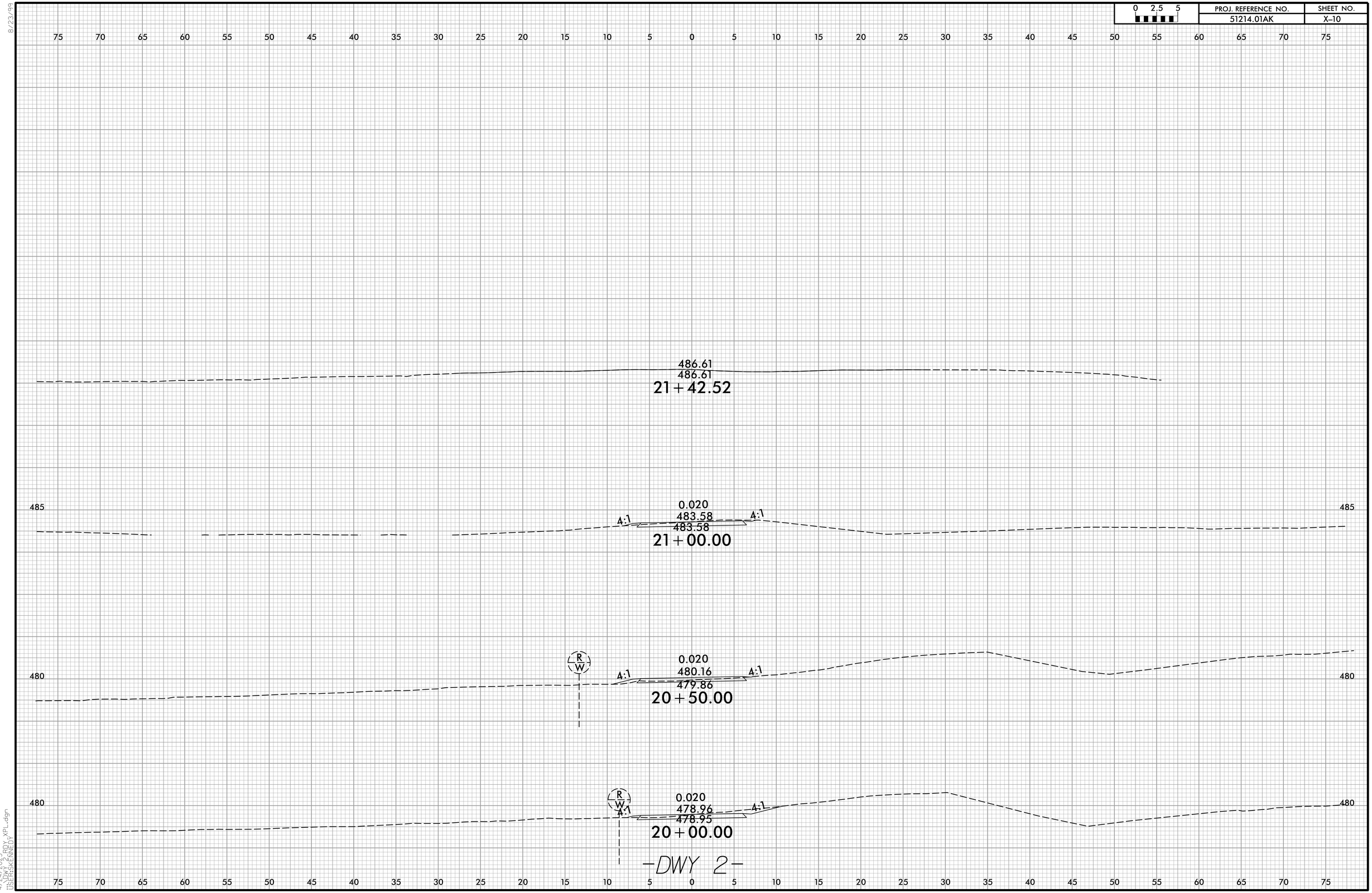

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4/24/2023
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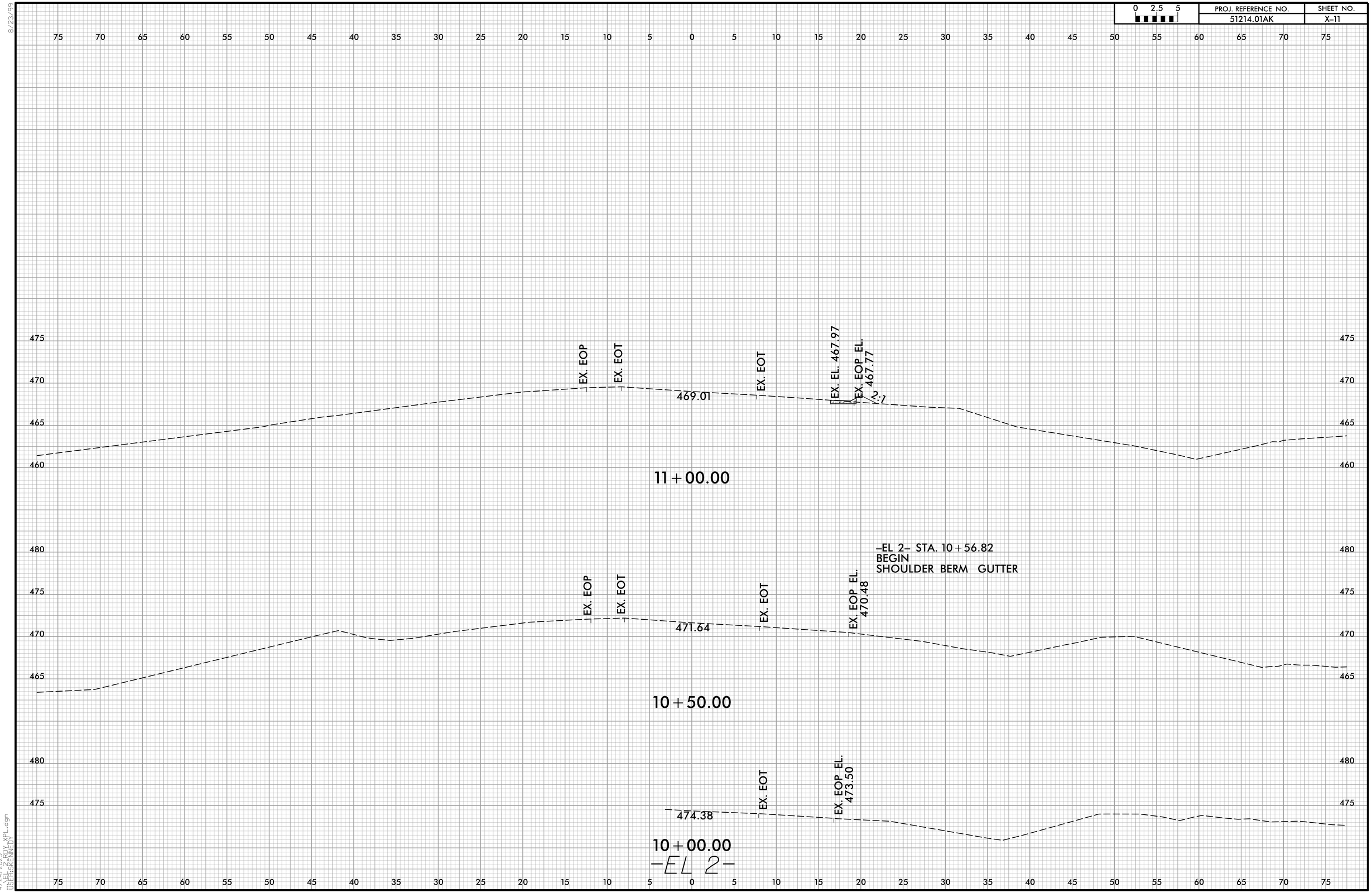

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4/24/2023
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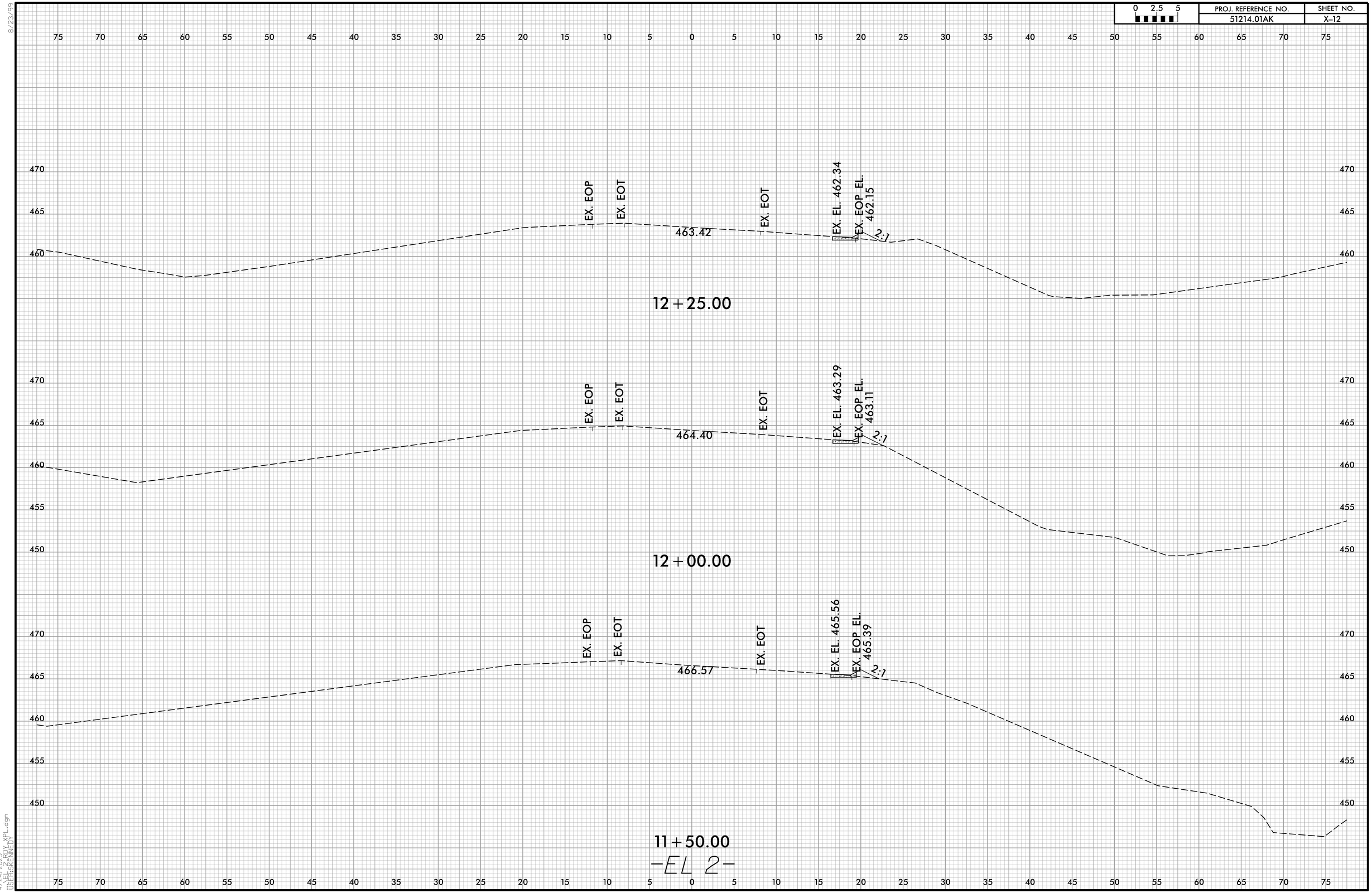

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4/24/2023
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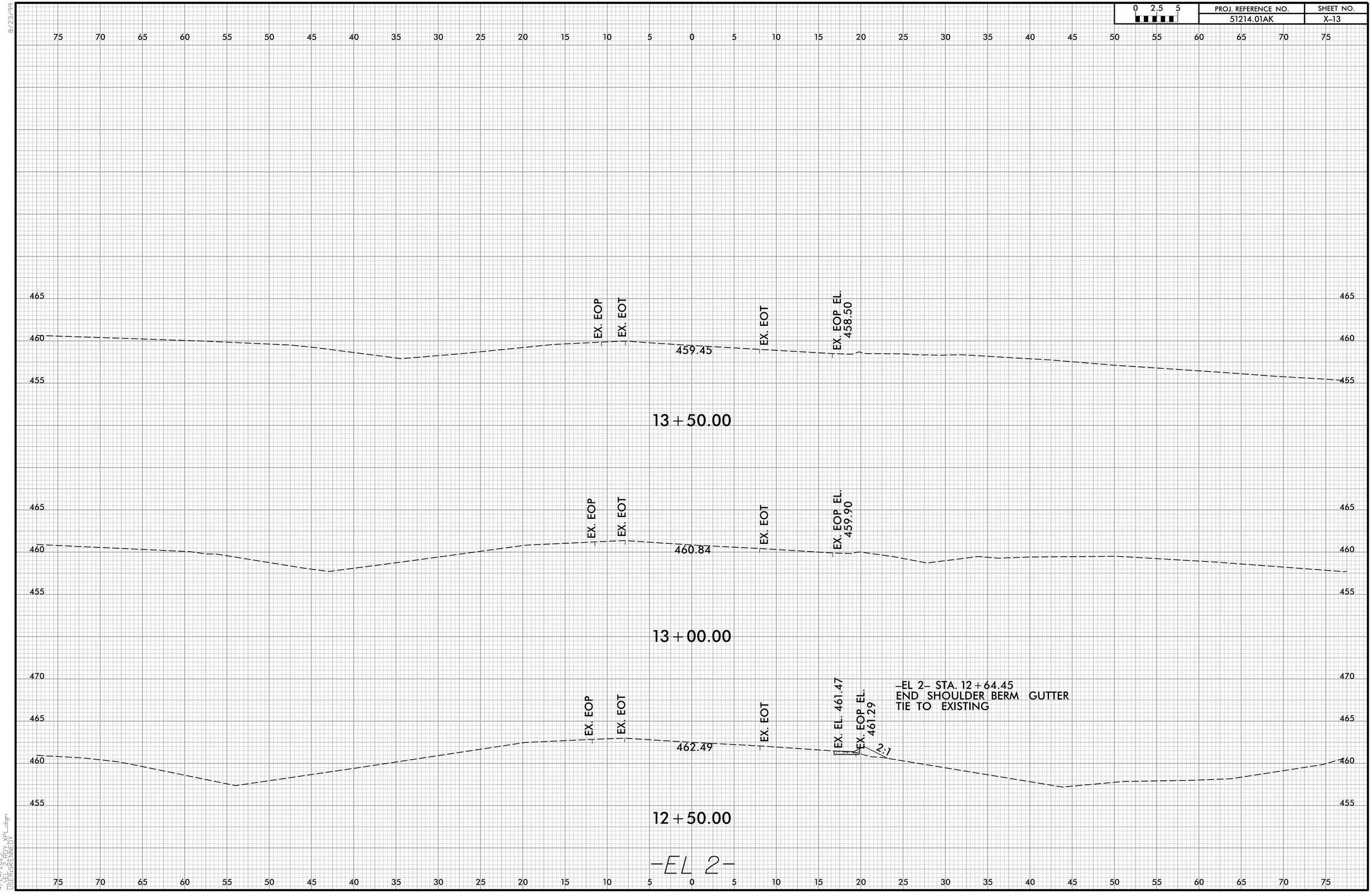

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4/24/2023
USERSKENNEDY
ROY_XPL.dgn