

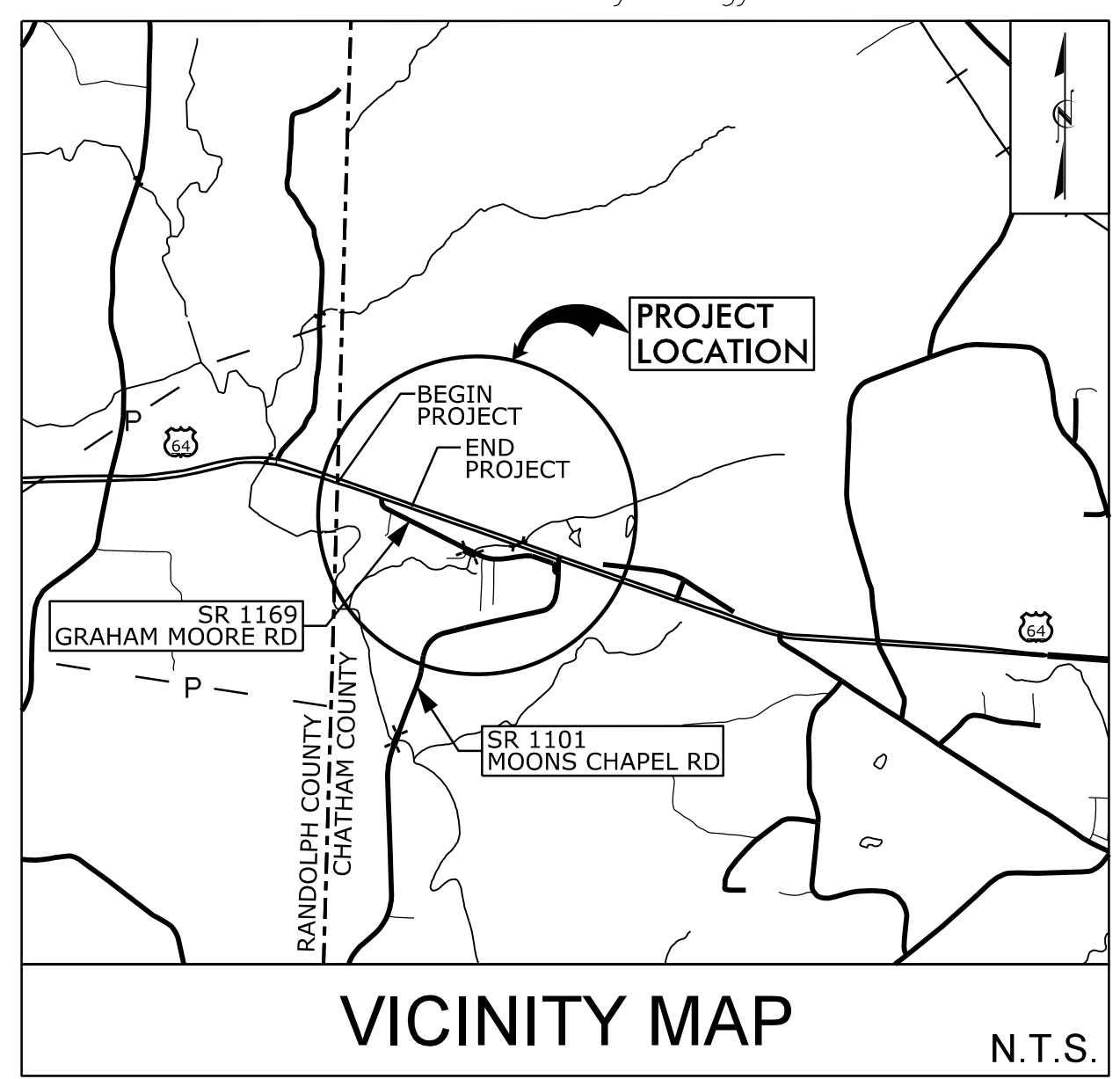
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TIP PROJECT: HE-0011

CONTRACT: C204895

See Sheet 1A For Index of Sheets
See Sheet 1B For Symbology Sheet



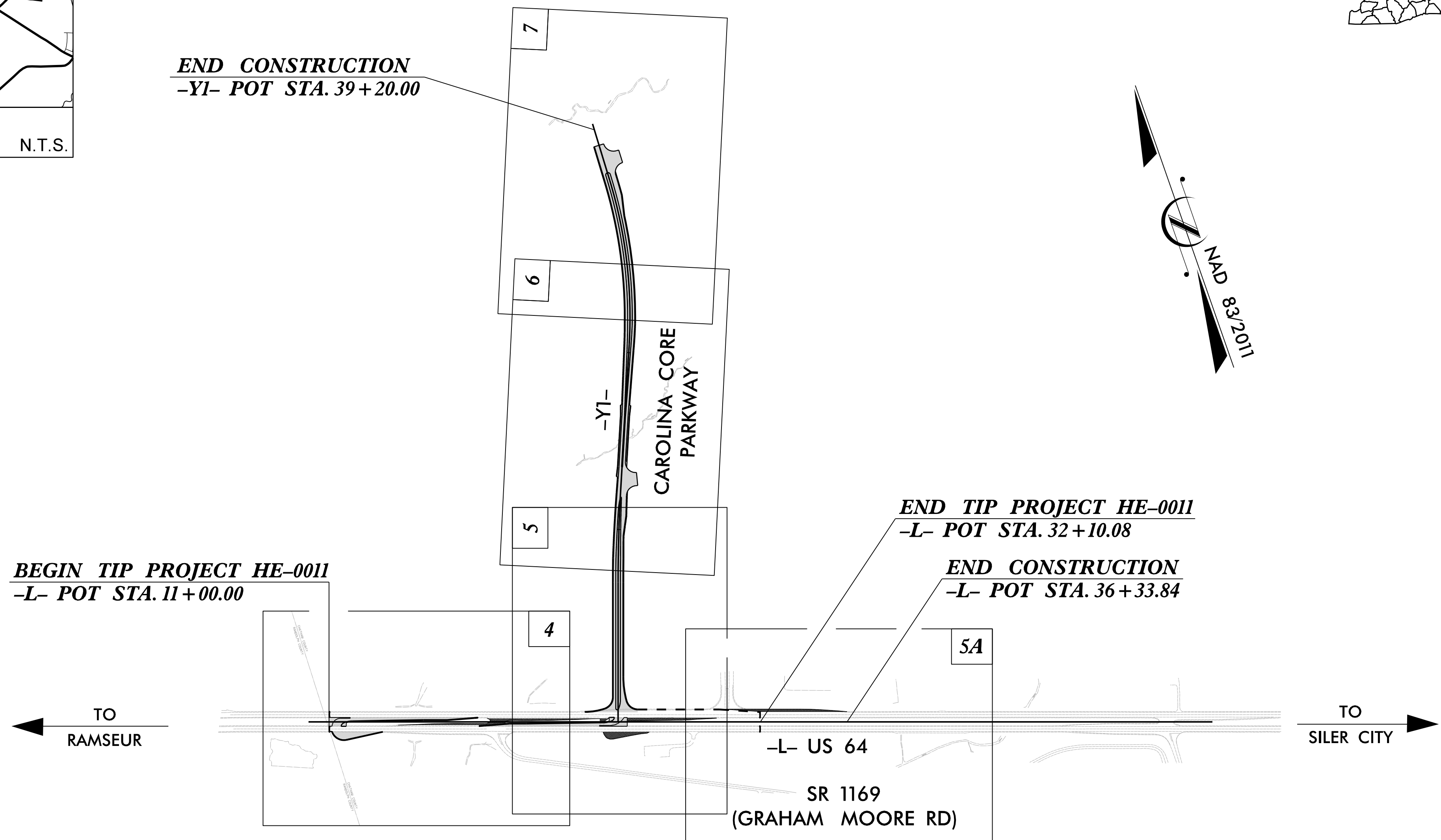
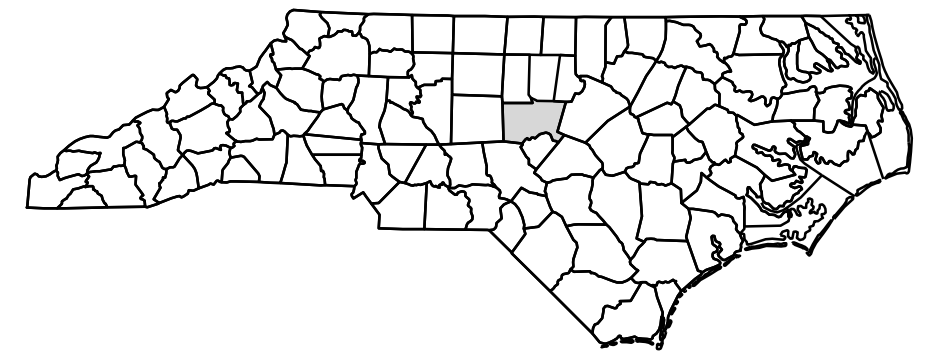
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
CHATHAM COUNTY

**LOCATION: CAM SITE ROADWAY IMPROVEMENTS
ALONG US 64 JUST WEST OF SILER CITY**

TYPE OF WORK: GRADING, PAVING & DRAINAGE

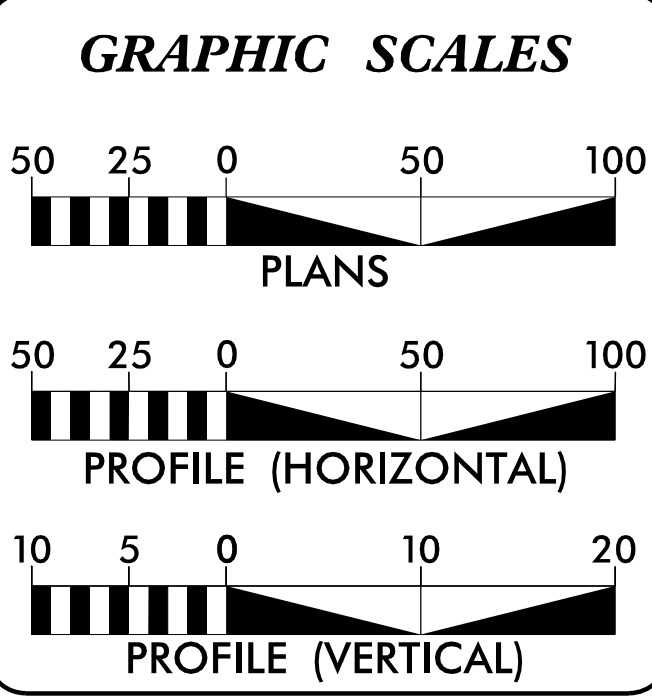
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HE-0011	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
50623.1.1		PE	
50623.2.1		RW	
50623.2.2		UTIL.	
50623.3.1		CONST.	

DIVISION 8



FULL CONTROL OF ACCESS IS LOCATED AT THE BULB-OUT ALONG US 64 (-L-). CAROLINA CORE PARKWAY (-Y1-) IS A LIMITED CONTROL OF ACCESS FACILITY WITH ACCESS BEING LIMITED TO AT-GRADE INTERSECTIONS.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2023 =	13,800
ADT 2043 =	14,100
K =	9 %
D =	60 %
T =	10 % *
V =	60 MPH
* TTST =	5% DUAL 5%
FUNC CLASS =	PRINCIPAL ARTERIAL
STATEWIDE TIER	

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT HE-0011	=	0.400 MI
TOTAL LENGTH OF TIP PROJECT HE-0011	=	0.400 MI

Prepared in the Office of:

GANNETT FLEMING
One Glenwood Avenue
Suite 900
Raleigh, NC 27603
919-420-7660
NC Lic. No. F-0270

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JULY 11, 2023

LETTING DATE:
OCTOBER 17, 2023

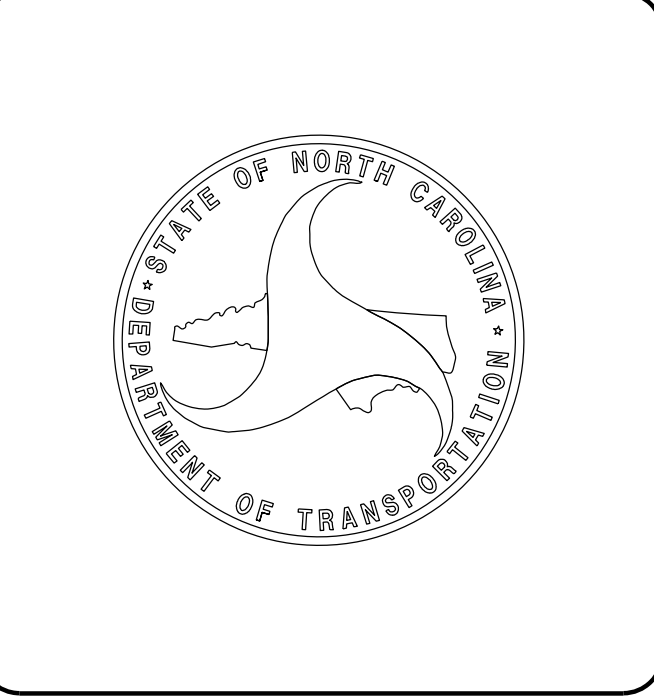
RICKY A. TIPTON, PE PROJECT ENGINEER
BENJAMIN A. WHITE, PE PROJECT DESIGN ENGINEER
GREG S. DAVIS, PE PROJECT ENGINEER NCDOT HIGHWAY DIVISION 8

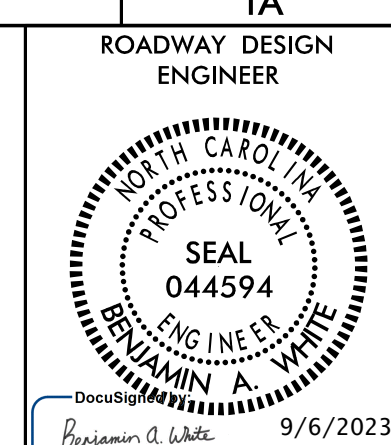
HYDRAULICS ENGINEER

DocuSigned by:
William E. Jernigan, Jr. 9/6/2023 P.E.
SIGNATURE

ROADWAY DESIGN ENGINEER

DocuSigned by:
Benjamin A. White 9/6/2023 P.E.
SIGNATURE





**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1	ROADWAY DETAILS
2C-1 THRU 2C-6	SPECIAL DETAILS
3B-1	ROADWAY SUMMARIES
3D-1 THRU 3D-3	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEET
4 THRU 10	PLAN AND PROFILE SHEETS
RW02C-1 THRU RW02C-4	SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENT, PROPERTY TIES AND CENTERLINE COORDINATE LIST
TMP-1 THRU TMP-3	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-6	PAVEMENT MARKING PLANS
EC-1 THRU EC-11	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-7	SIGNING PLANS
X-1	CROSS SECTION INDEX
X-1A	CROSS SECTION SUMMARY
X-2 THRU X-23	CROSS SECTIONS

GENERAL NOTES

GENERAL NOTES: 2018 SPECIFICATIONS EFFECTIVE: 01-16-2018
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED 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 III.

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. 560.01

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.

SUBSURFACE DRAINS:
SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

TEMPORARY SHORING:
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

RIGHT-OF-WAY MARKERS:
ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT.

ROCK
ROCK IS ANTICIPATED BETWEEN -Y1- STA. 12+50 TO 14+00 (RT), -Y1- STA. 16+50 TO 21+50 (RT), -Y1- STA. 19+50 TO 21+00 (LT & RT), -Y1- STA. 26+50 TO 28+50 (LT & RT), -Y1- STA. 27+50 TO 29+75 (RT), -Y1- STA. 29+75 TO 32+25 (RT), -Y1- STA. 31+00 TO 36+00 (LT & RT), AND -Y1- STA. 32+25 TO 32+75 (RT). BLASTING MAY BE REQUIRED FOR EXCAVATION ON THE PROJECT. SEE SECTION 220 OF THE STANDARD SPECIFICATIONS.

STANDARD DRAWINGS

2018 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-16-2018
REV.

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	
200.03	Method of Clearing - Method III
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.02	Guide for Grading Subgrade - Secondary and Local
225.05	Method of Obtaining Superlevation - Divided Highways
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.03	Concrete Control of Access Marker
815.02	Subsurface Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.33	Reinforced Concrete Endwall - for Single 66" Pipe 90 Skew
838.45	Notes for Reinforced Concrete Endwall - Std. Dwg 838.21 thru 838.40
838.63	Reinforced Brick Endwall - for Single 66" Pipe 90 Skew
838.75	Notes for Reinforced Brick Endwall - Std. Dwg 838.51 thru 838.70
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.20	Frames and Wide Slot Flat Grates
840.22	Frames and Wide Slot Sag Grates
840.24	Frames and Narrow Slot Sag Grates
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.36	Traffic Bearing Grated Drop Inlet - for Steel (840.37) Double Frame and Grates
840.37	Steel Grate and Frame
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.02	Drop Inlet Installation in Expressway Gutter
852.01	Concrete Islands
866.02	Woven Wire Fence - with Wood Post
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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	(123)
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	◻
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	----- WLB -----
Proposed Wetland Boundary	----- WLB -----
Existing Endangered Animal Boundary	----- EAB -----
Existing Endangered Plant Boundary	----- EPB -----
Existing Historic Property Boundary	----- HPB -----
Known Contamination Area: Soil	----- S -----
Potential Contamination Area: Soil	----- S -----
Known Contamination Area: Water	----- W -----
Potential Contamination Area: Water	----- W -----
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	----- JS -----
Buffer Zone 1	----- BZ 1 -----
Buffer Zone 2	----- BZ 2 -----
Flow Arrow	←
Disappearing Stream	-----
Spring	○
Wetland	-----
Proposed Lateral, Tail, Head Ditch	----- FLOW -----
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	----- E -----
Proposed Temporary Construction Easement	----- E -----
Proposed Temporary Drainage Easement	----- TDE -----
Proposed Permanent Drainage Easement	----- PDE -----
Proposed Permanent Drainage/Utility Easement	----- DUE -----
Proposed Permanent Utility Easement	----- PUE -----
Proposed Temporary Utility Easement	----- TUE -----
Proposed Aerial Utility Easement	----- AUE -----

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	----- C -----
Proposed Slope Stakes Fill	----- F -----
Proposed Curb Ramp	----- CR -----
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	----- CONC -----
Bridge Wing Wall, Head Wall and End Wall	----- CONC WW -----
MINOR:	
Head and End Wall	----- CONC HW -----
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	----- CB -----
Paved Ditch Gutter	-----
Storm Sewer Manhole	⊙
Storm Sewer	----- S -----

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)*	----- P -----
U/G Power Line (SUE - LOS C)*	----- P -----
U/G Power Line (SUE - LOS D)*	----- P -----
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)*	----- T -----
U/G Telephone Cable (SUE - LOS C)*	----- T -----
U/G Telephone Cable (SUE - LOS D)*	----- T -----
U/G Telephone Conduit (SUE - LOS B)*	----- TC -----
U/G Telephone Conduit (SUE - LOS C)*	----- TC -----
U/G Telephone Conduit (SUE - LOS D)*	----- TC -----
U/G Fiber Optics Cable (SUE - LOS B)*	----- T FO -----
U/G Fiber Optics Cable (SUE - LOS C)*	----- T FO -----
U/G Fiber Optics Cable (SUE - LOS D)*	----- T FO -----

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)*	----- W -----
U/G Water Line (SUE - LOS C)*	----- W -----
U/G Water Line (SUE - LOS D)*	----- W -----
Above Ground Water Line	----- A/G Water -----

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)*	----- TV -----
U/G TV Cable (SUE - LOS C)*	----- TV -----
U/G TV Cable (SUE - LOS D)*	----- TV -----
U/G Fiber Optic Cable (SUE - LOS B)*	----- TV FO -----
U/G Fiber Optic Cable (SUE - LOS C)*	----- TV FO -----
U/G Fiber Optic Cable (SUE - LOS D)*	----- TV FO -----

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	⊕
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line (SUE - LOS B)*	----- TUL -----
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.

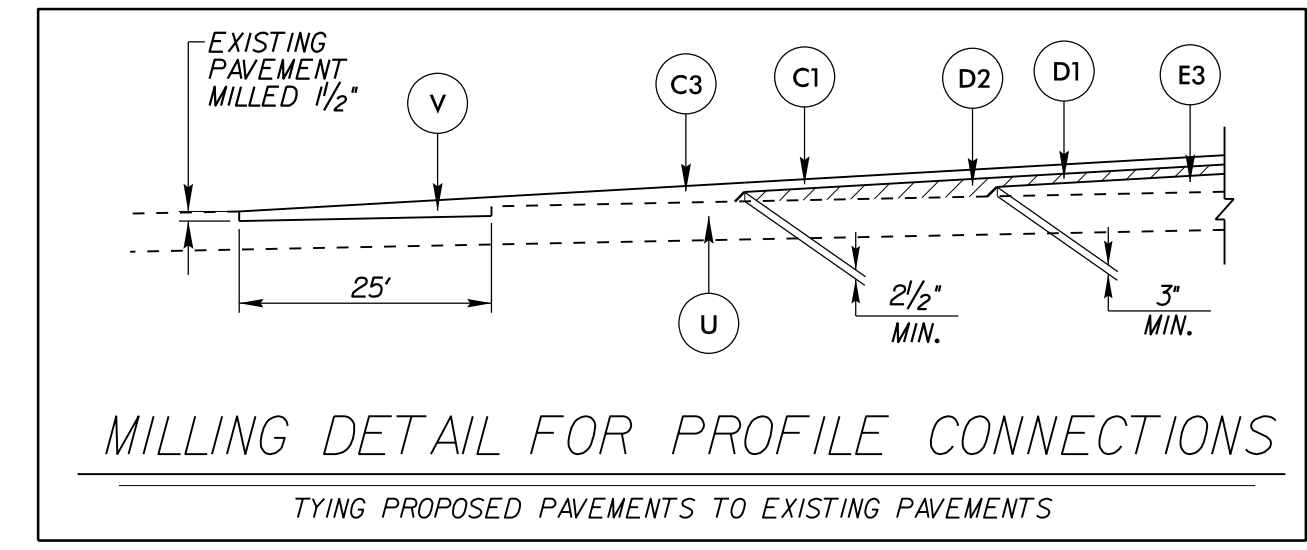
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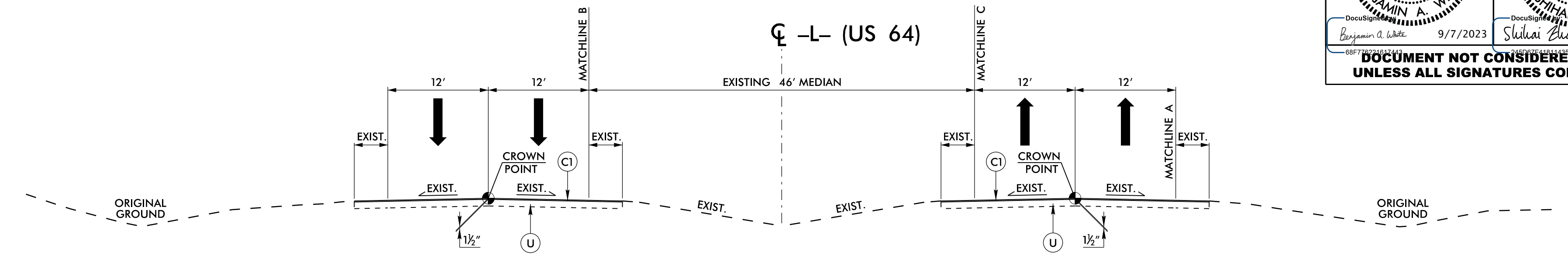
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT GREATER THAN 4" IN DEPTH OR LESS THAN 2½" IN DEPTH.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E2	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT GREATER THAN 5½" IN DEPTH OR LESS THAN 3" IN DEPTH.
K	PROP. 8" CLASS IV SUBGRADE STABILIZATION
N	GEOTEXTILE FOR SUBGRADE STABILIZATION
R1	1'-6" CONCRETE CURB AND GUTTER
R2	CONCRETE EXPRESSWAY GUTTER
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING

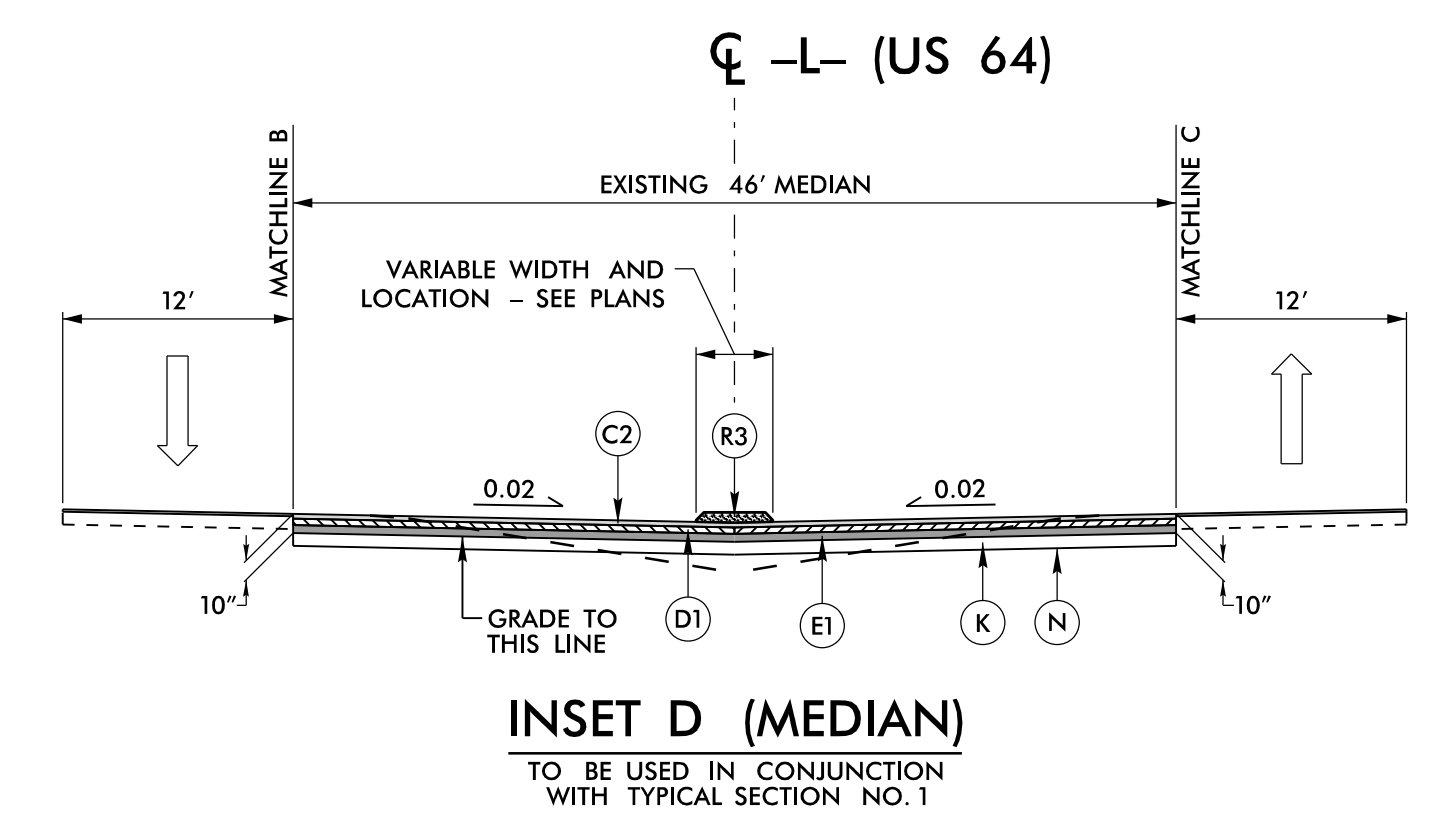
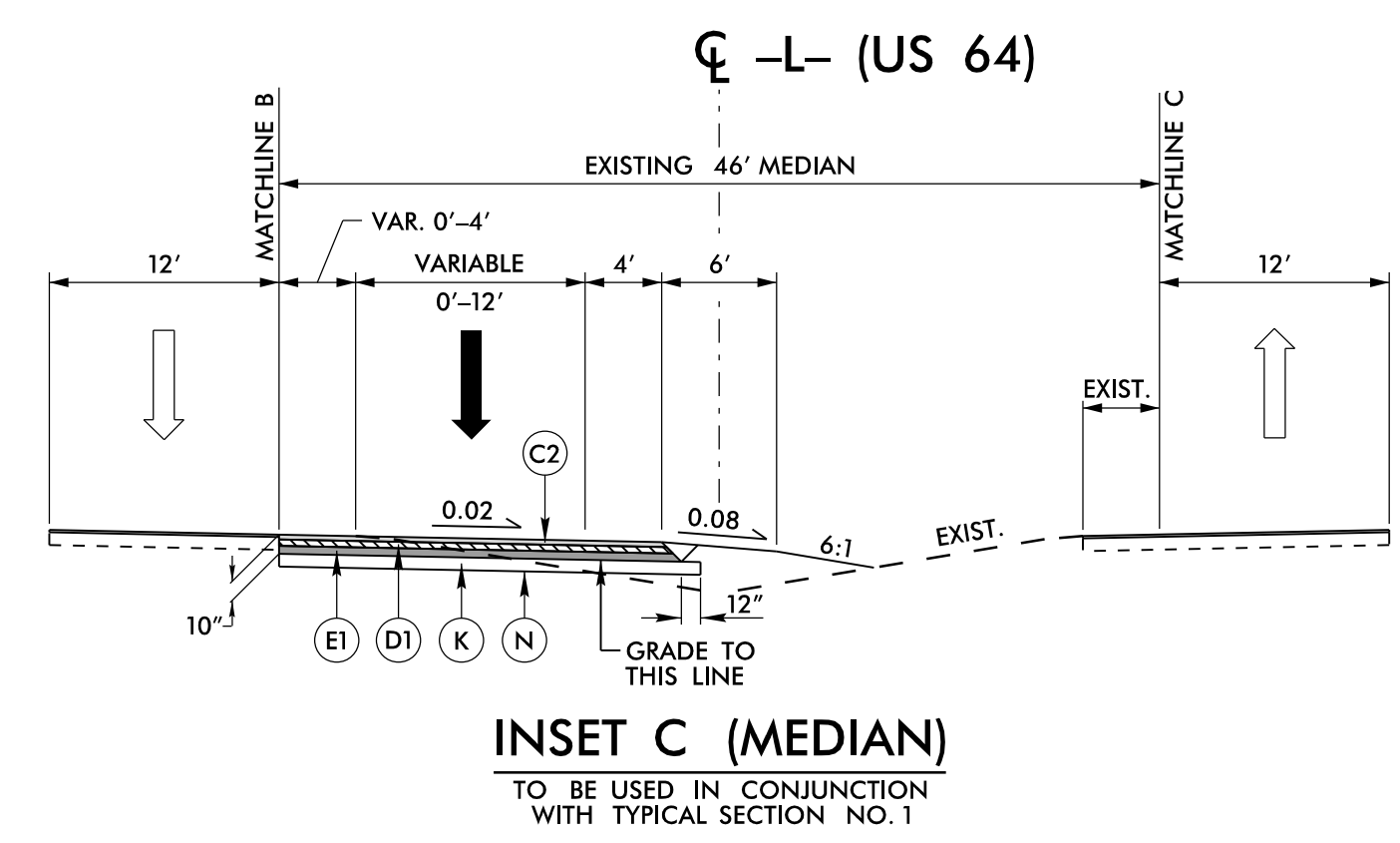
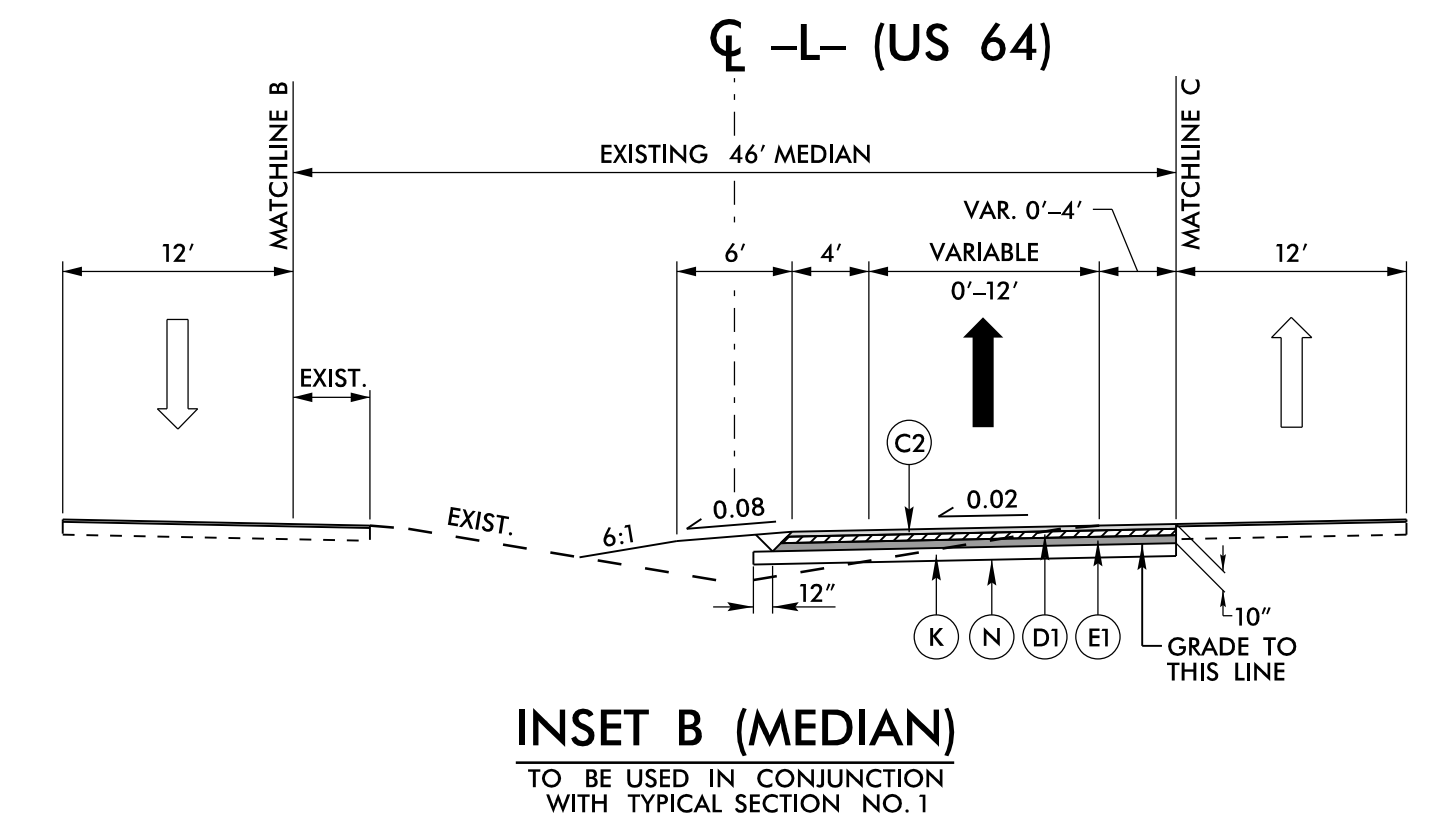
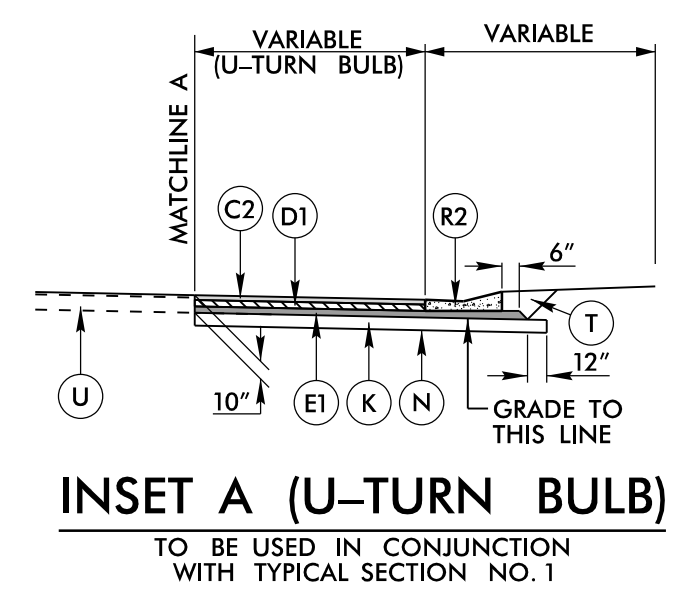
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



PROJECT REFERENCE NO. HE-0011	SHEET NO. 2A-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



TYPICAL SECTION NO. 1
-L- STA. 11+00.00 TO STA. 32+10.08



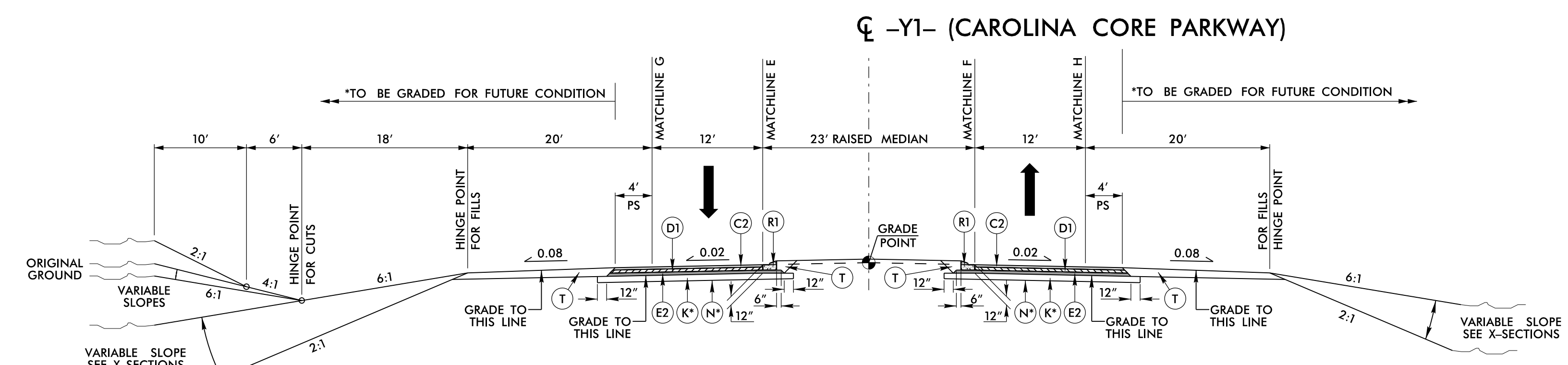
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8/17/99

PAVEMENT SCHEDULE	
C1	1½" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
D1	4" I19.0C
D2	VAR. I19.0C
E1	3" B25.0C
E2	5" B25.0C
E3	VAR. B25.0C
K	8" CLASS IV SUBGRADE STABILIZ.
N	GEOTEXTILE FOR SUBGRADE STABILIZ.
R1	1'-6" C&G
R2	CONC. EXP. GUTTER
R3	5" MONO. ISLAND
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	INCIDENTAL MILLING



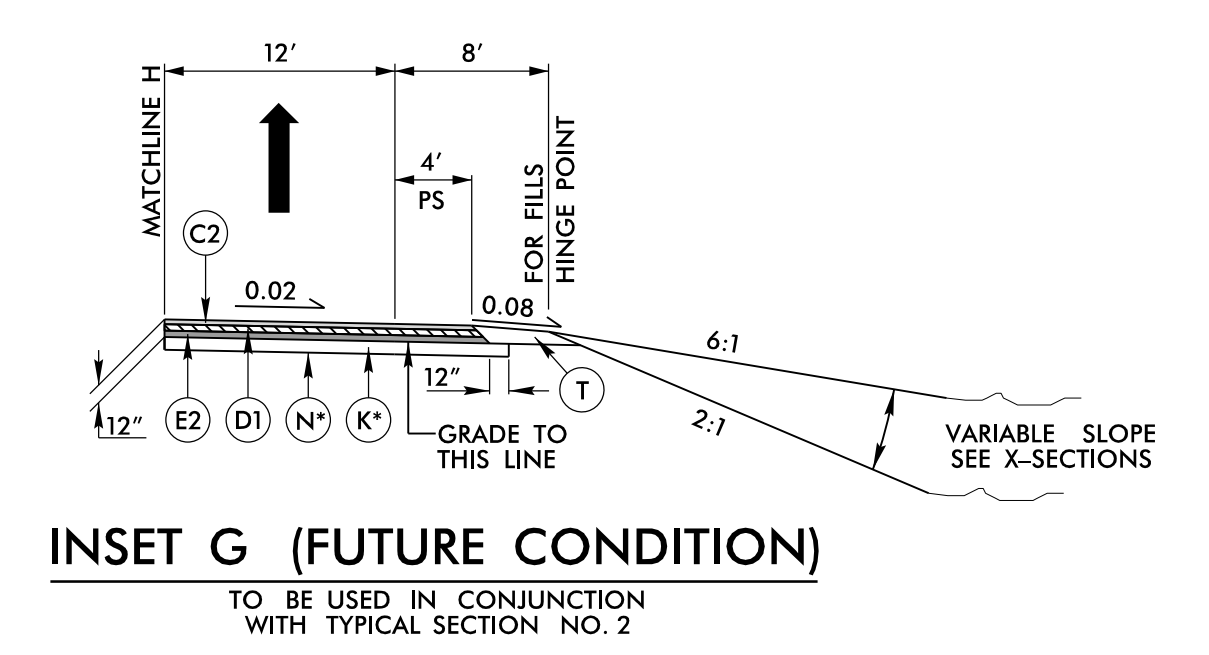
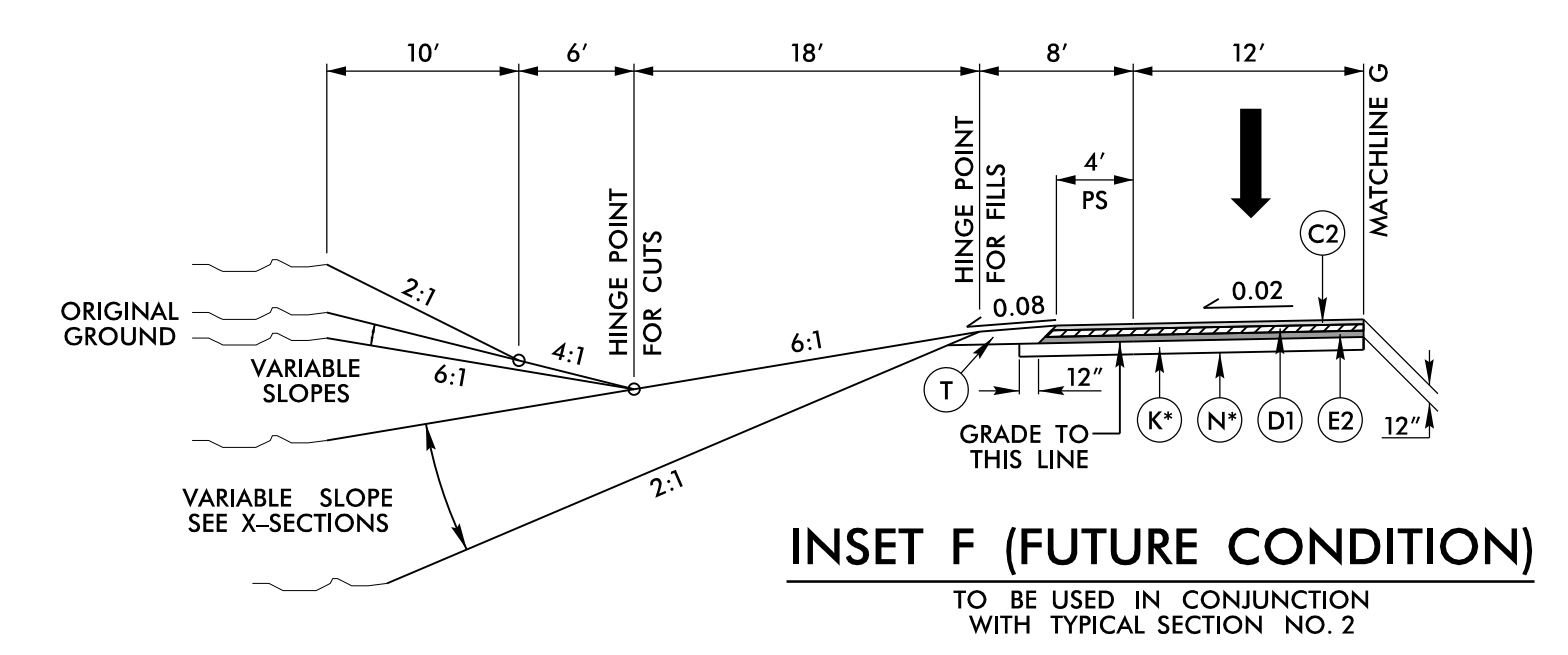
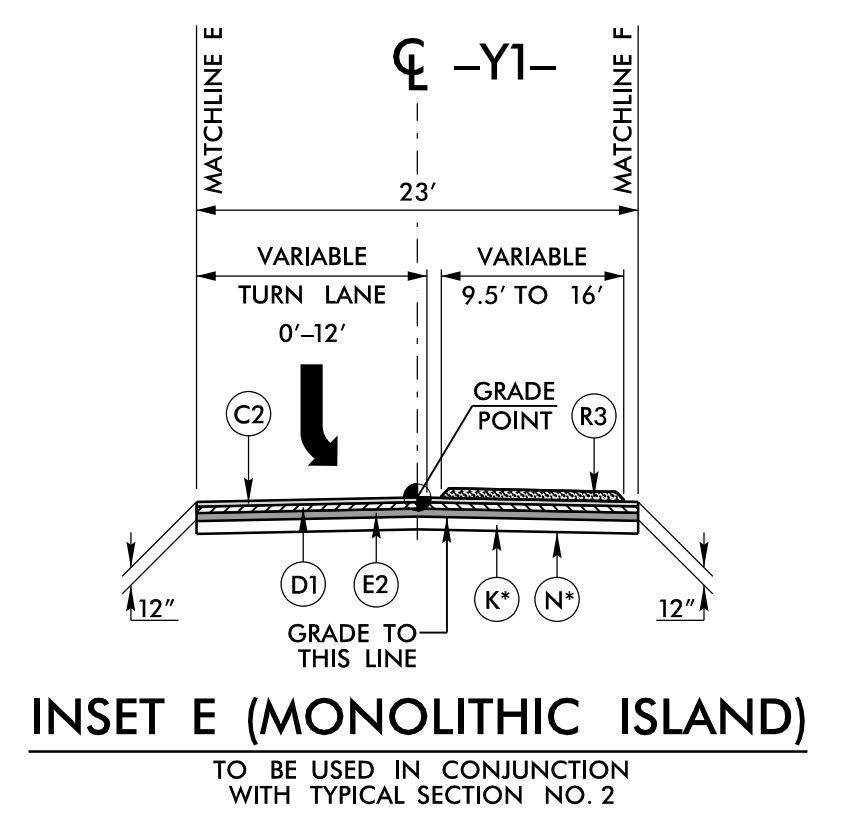
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RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



TYPICAL SECTION NO. 2
-Y1- STA. 10+46.78 TO STA. 38+40.79

* TO BE USED FROM -Y1- STA. 22+75.00 TO STA. 25+75.00.
SEE GEOTECHNICAL REPORT FOR MORE INFORMATION.

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



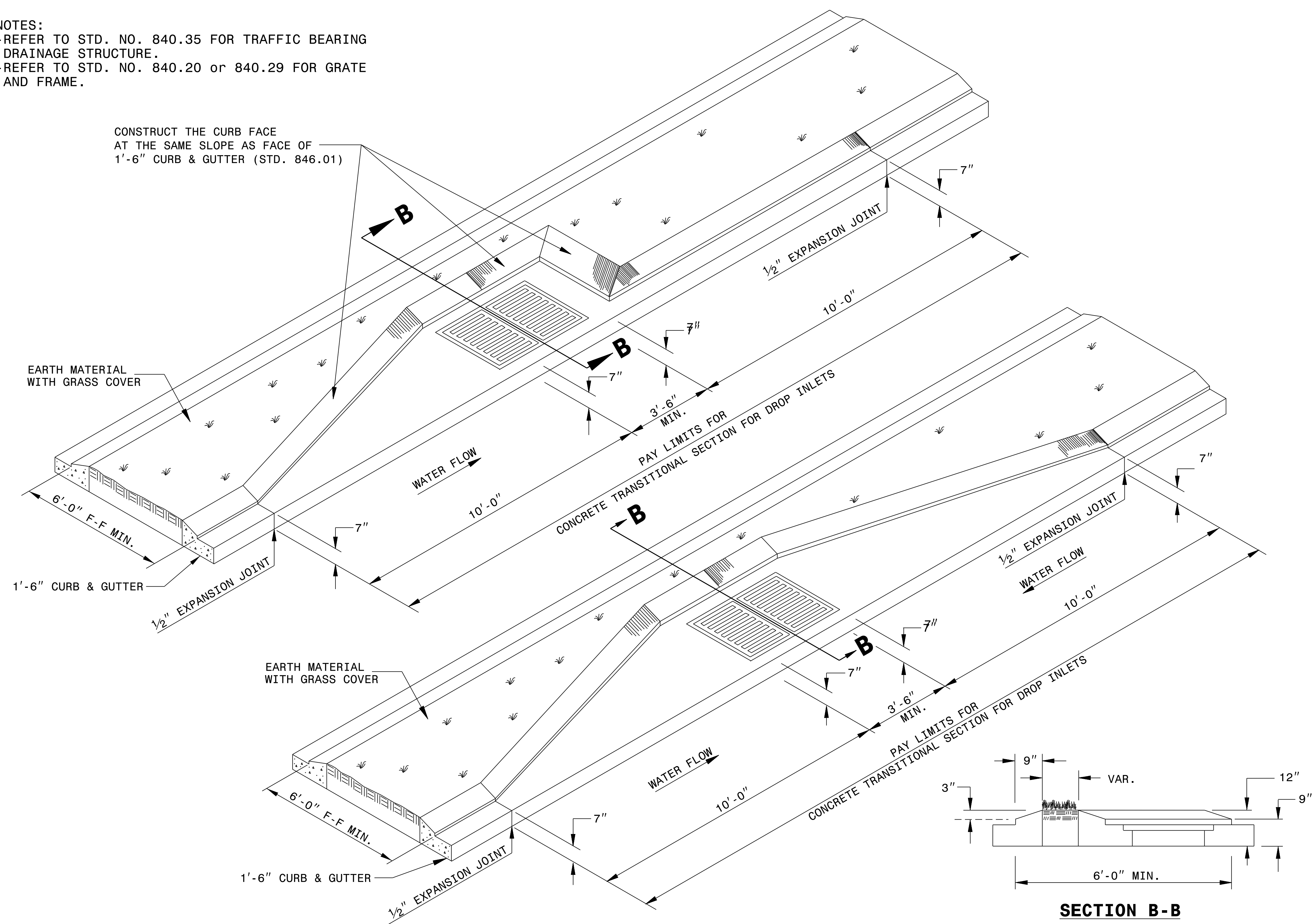
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
METHOD FOR PLACEMENT OF TRAFFIC BEARING 2GI IN GRASSED MEDIAN
(USING 1'-6" CURB & GUTTER)

SHEET 1 OF 1
852D04

NOTES:
-REFER TO STD. NO. 840.35 FOR TRAFFIC BEARING DRAINAGE STRUCTURE.
-REFER TO STD. NO. 840.20 or 840.29 FOR GRATE AND FRAME.

CONSTRUCT THE CURB FACE AT THE SAME SLOPE AS FACE OF 1'-6" CURB & GUTTER (STD. 846.01)

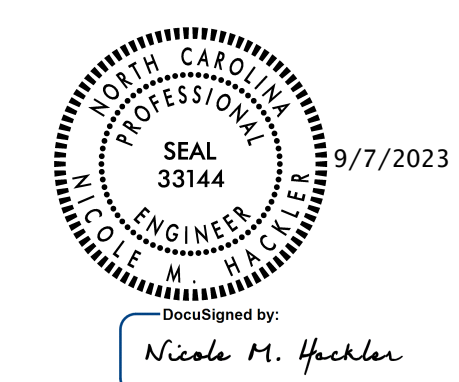


STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
METHOD FOR PLACEMENT OF TRAFFIC BEARING 2GI IN GRASSED MEDIAN
(USING 1'-6" CURB & GUTTER)

SHEET 1 OF 1
852D04

24-APR-2018 14:52 S:\Contracts\Special Details\Jhowerton\852d04 Traffic Bearing DI in Island.dgn Jhowerton AT_CSD-292595



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE PLATE

ORIGINAL BY: KKEMPF DATE: 8/2/10
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: jhowerton\852d04 Traffic Bearing DI in Island.dgn

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

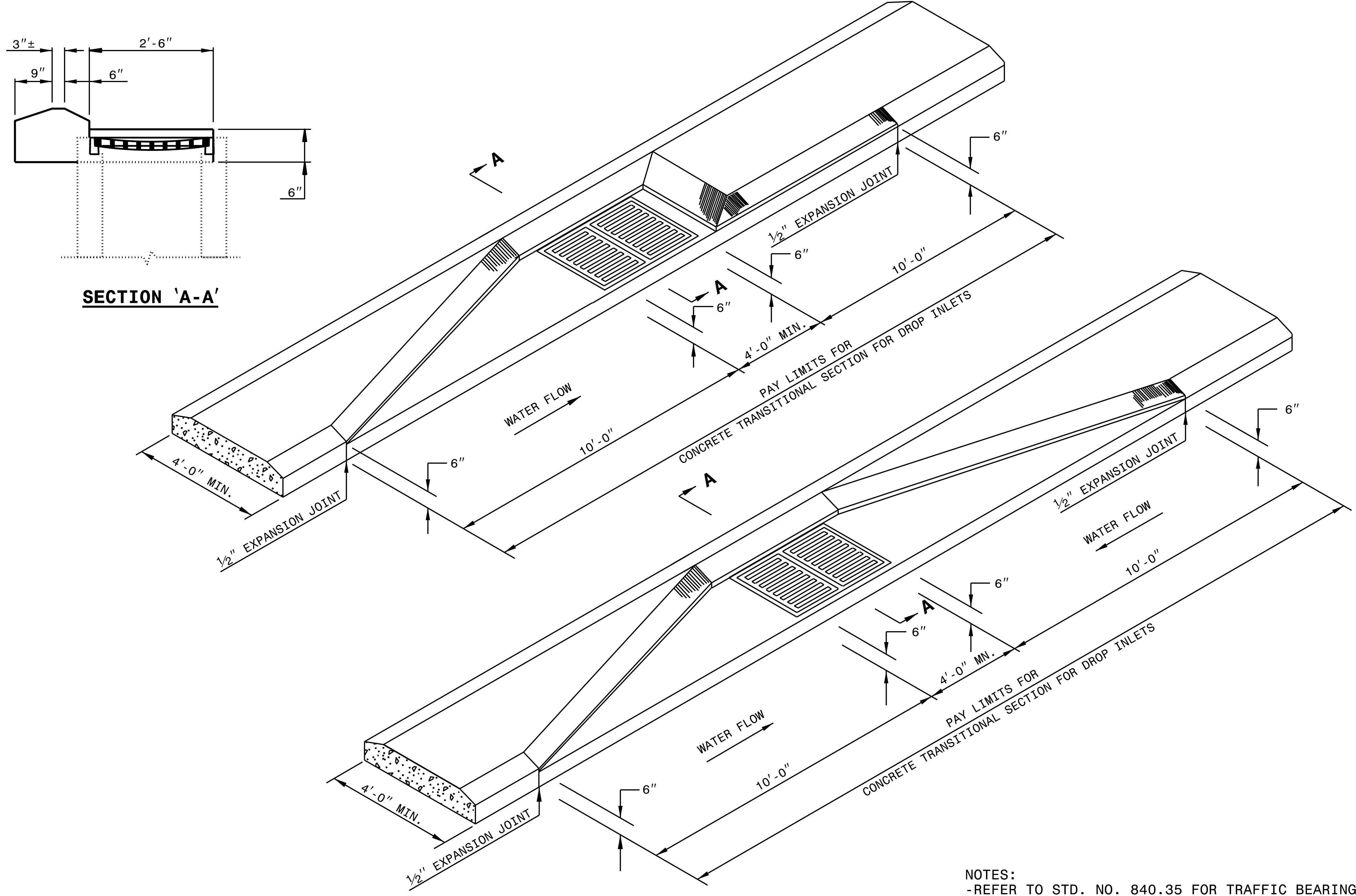
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**METHOD FOR PLACEMENT OF
DROP INLETS IN CONCRETE ISLANDS**

ENGLISH DETAIL DRAWING FOR
**METHOD FOR PLACEMENT OF
DROP INLETS IN CONCRETE ISLANDS**

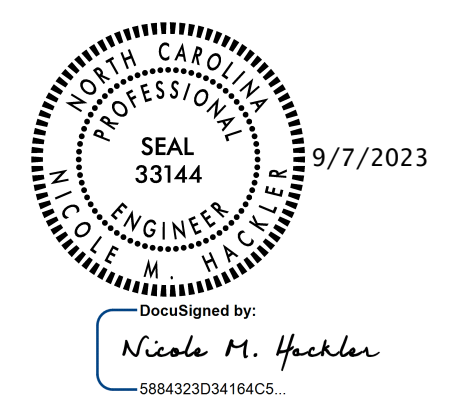
SHEET 1 OF 1
852D06

SHEET 1 OF 1
852D06



NOTES:
 -REFER TO STD. NO. 840.35 FOR TRAFFIC BEARING DRAINAGE STRUCTURE.
 -REFER TO STD. NO. 840.20 or 840.29 FOR GRATE AND FRAME.

\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$DIGNS\$\$\$\$\$
\$\$\$\$\$PUSERNAME\$\$\$\$\$



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

SEE TITLE PLATE

ORIGINAL BY: KKEMPF DATE: 8/2/10
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
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STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

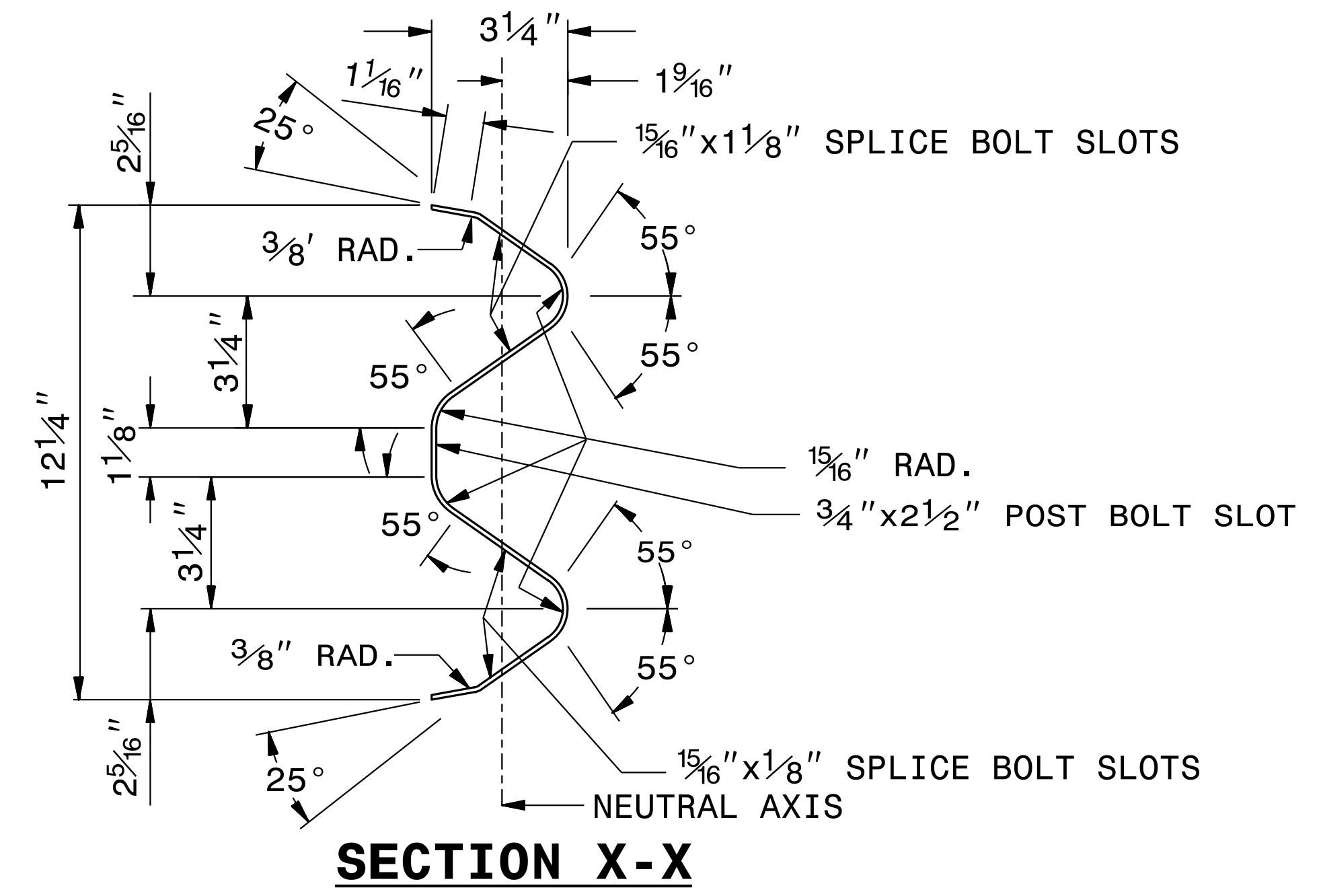
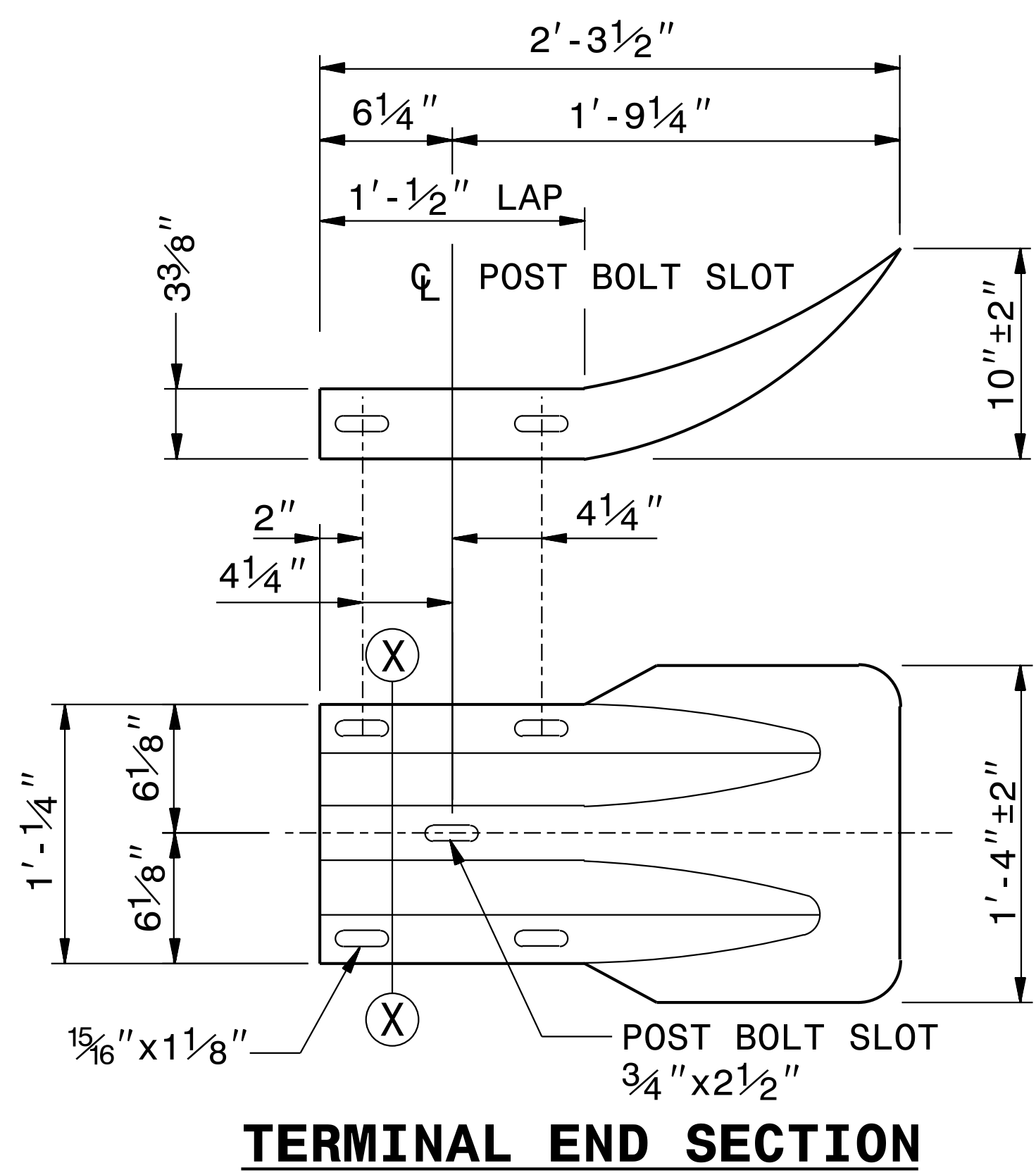
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF
862D02

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF
862D02



SYSTEM PARTS - GENERAL USE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACTS STANDARDS AND
DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

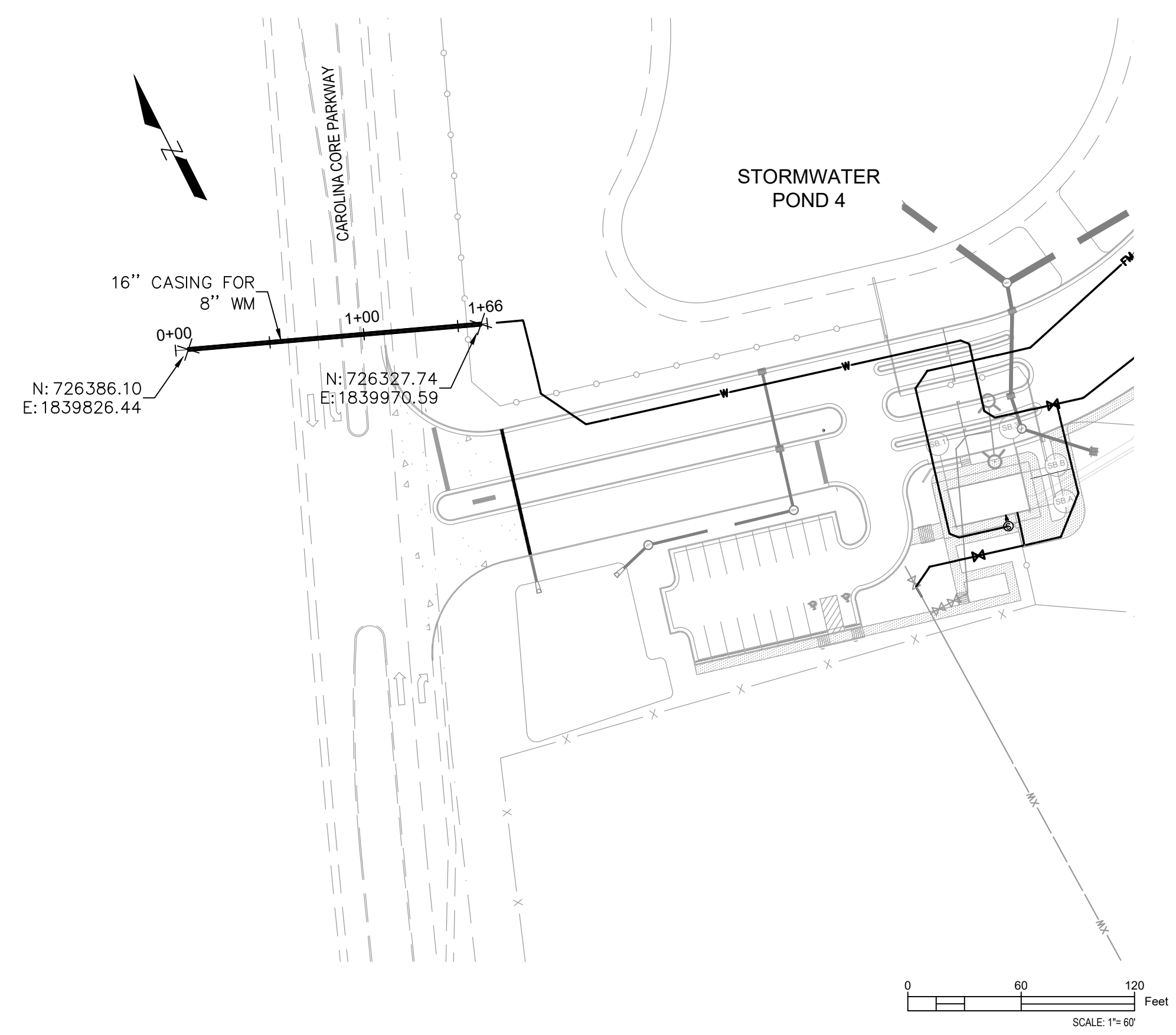
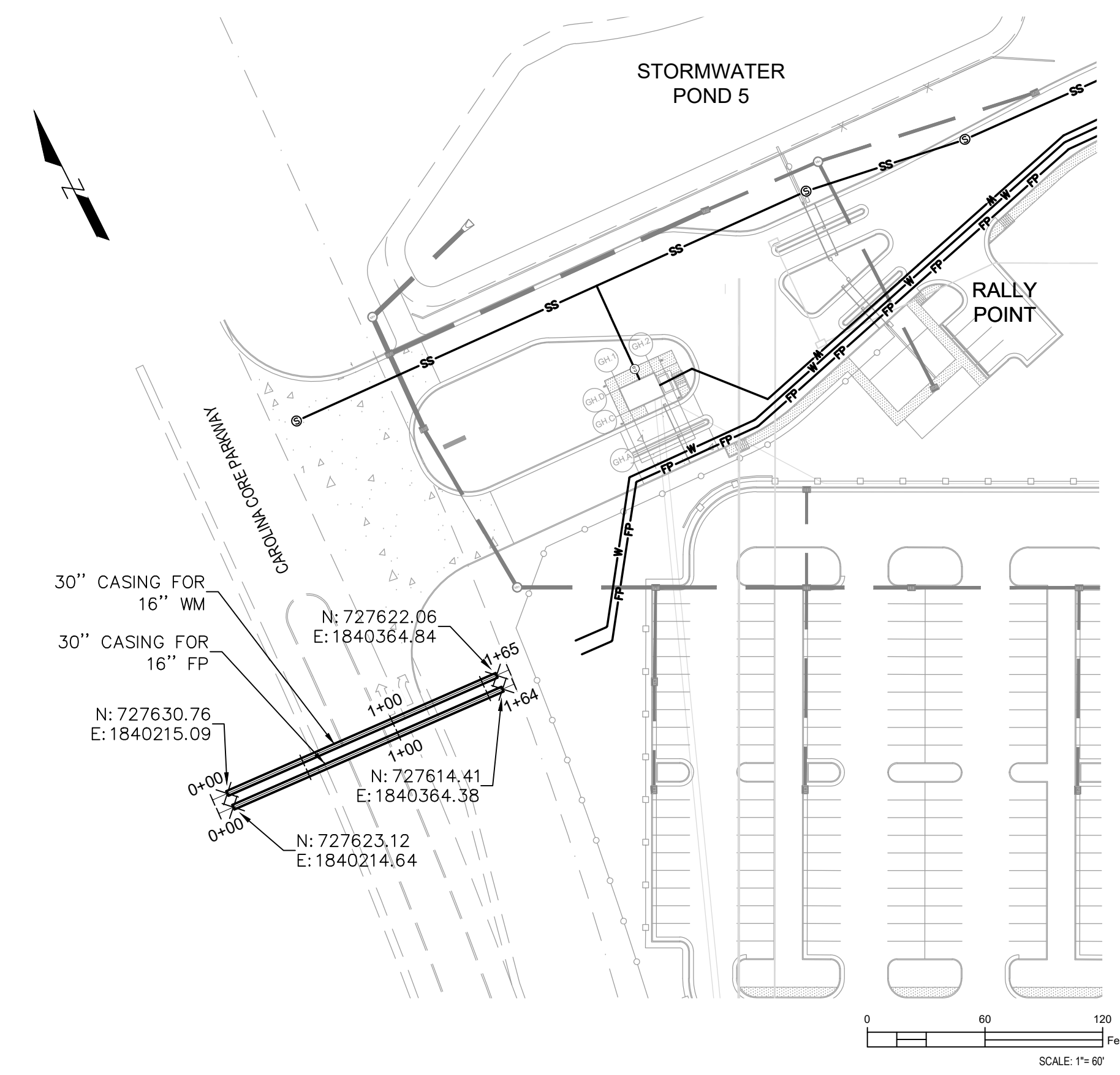
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 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC.: kkempf/english/Terminal End Section.dgn



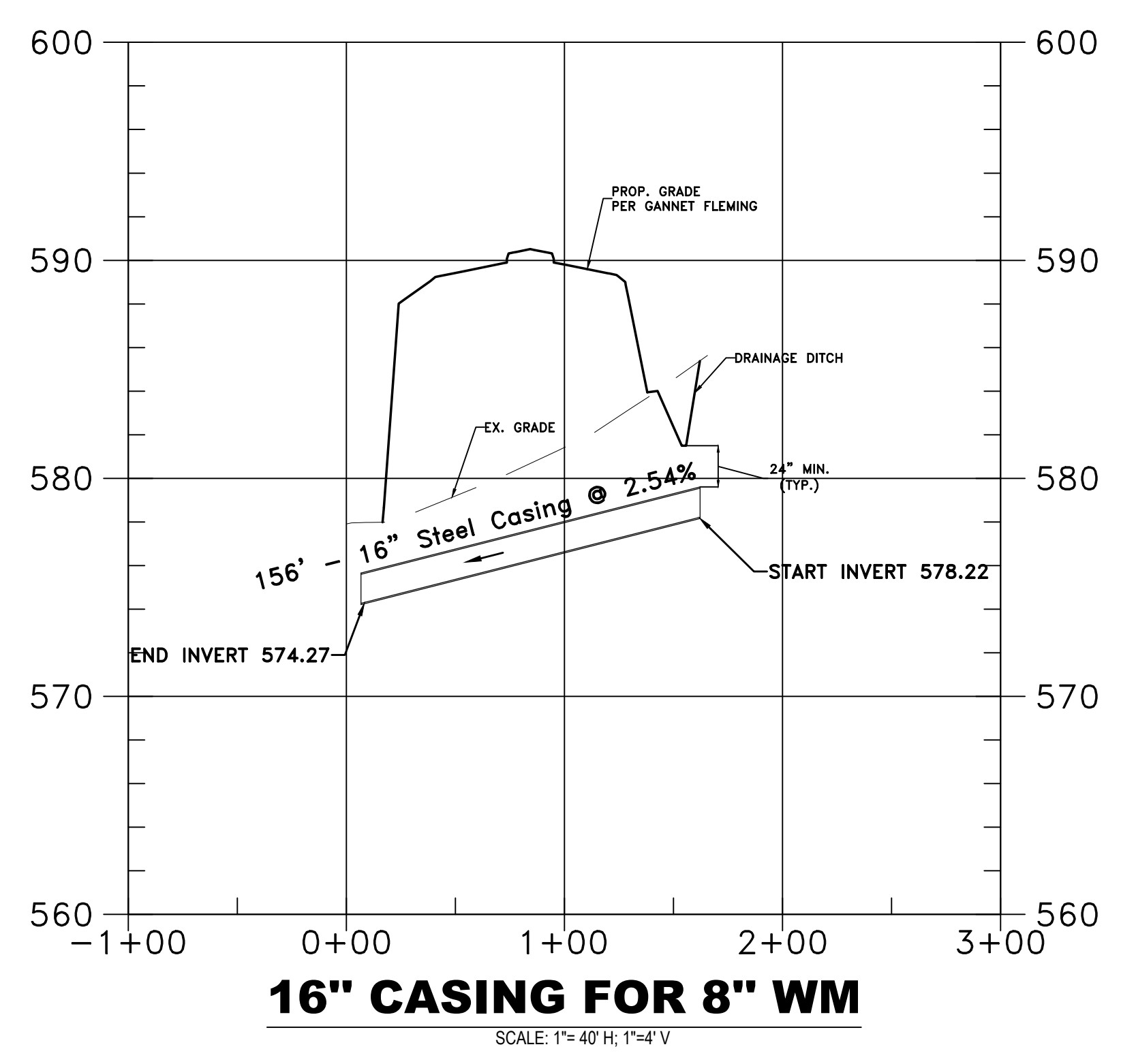
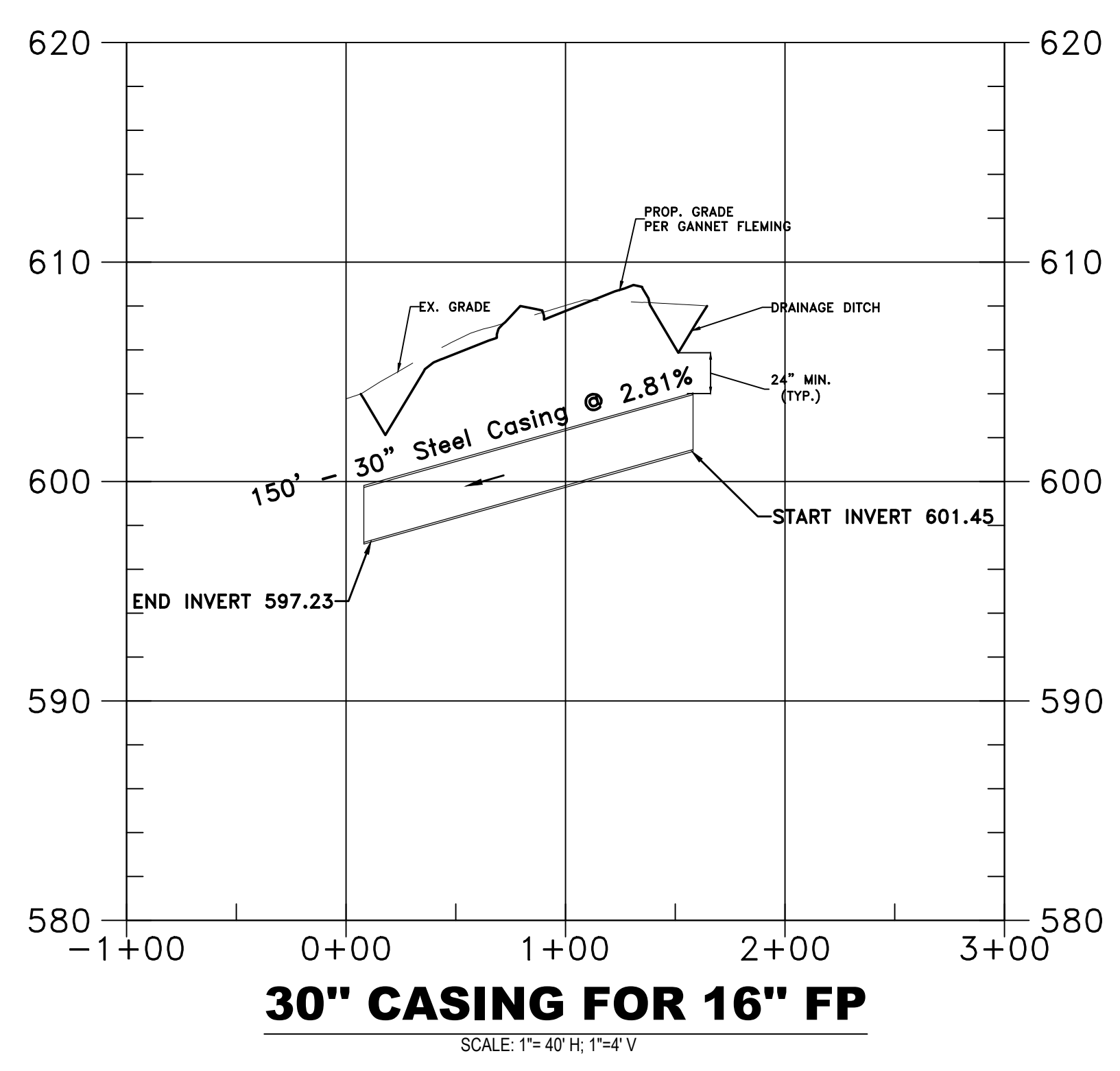
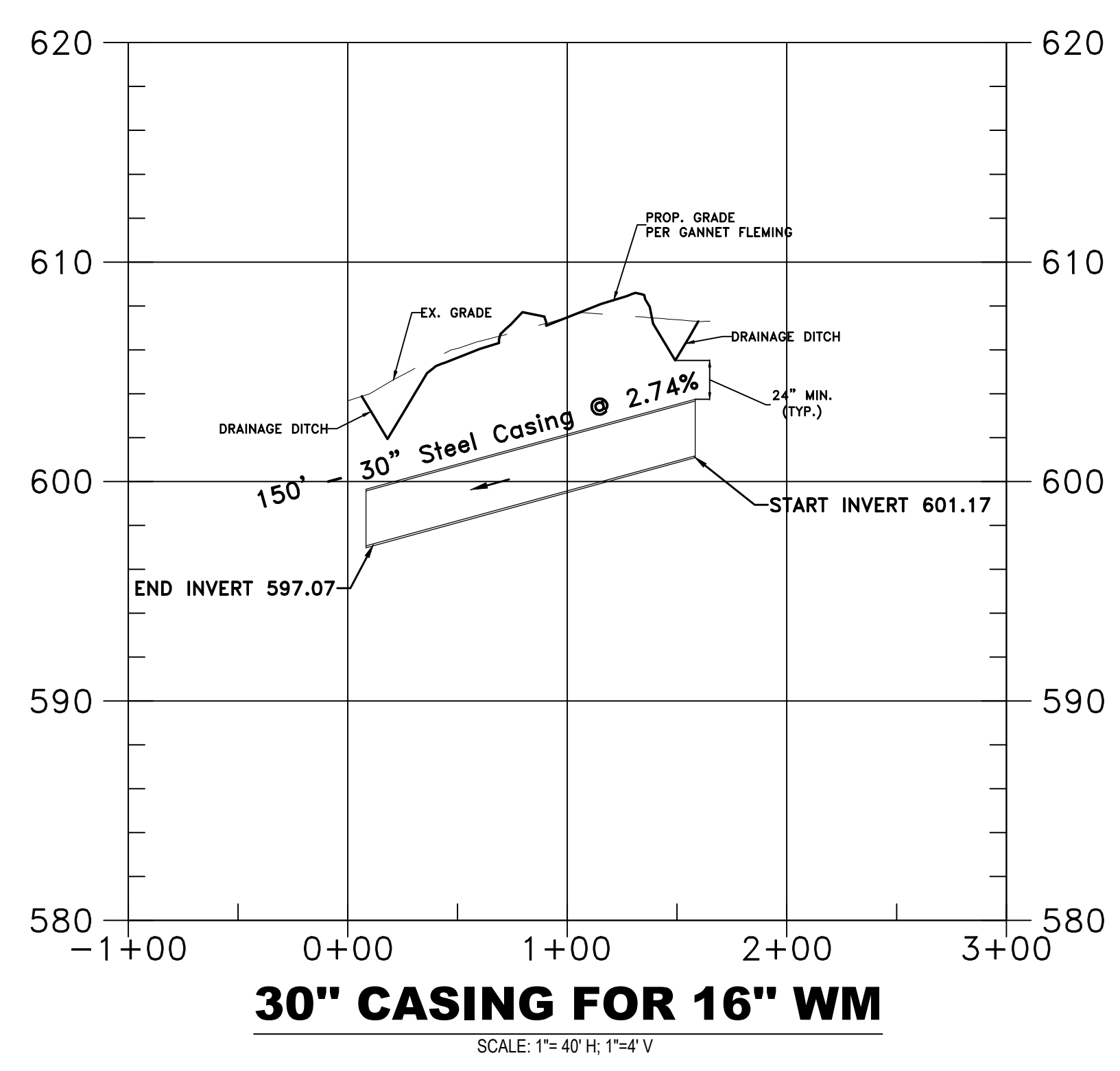
DocuSigned by:
Nicole M. Hacker
5884323034164C5...
9/7/2023



PROJECT REFERENCE NO. HE-0011	SHEET NO. 2C-4
R/W SHEET NO.	
DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEERS SEAL 024979 CARLOS H. BROWN 9/6/2023	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



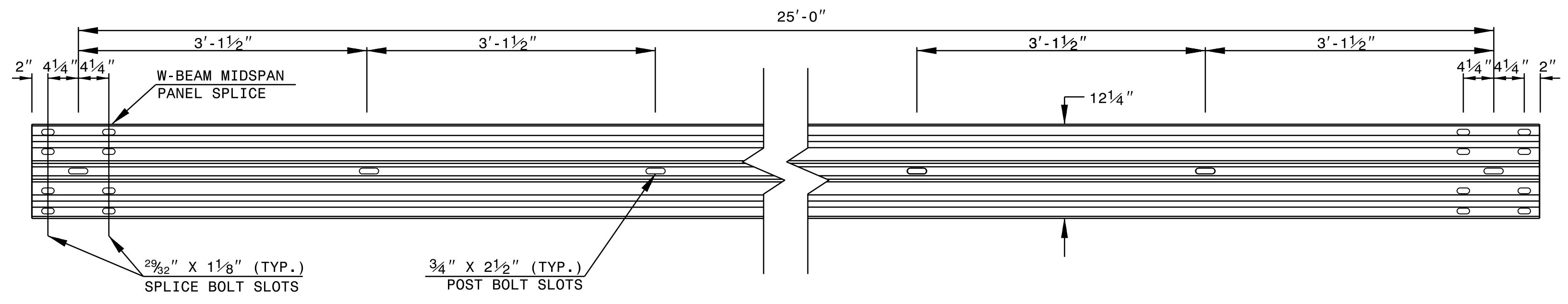
- NOTES:
- ENCASEMENT SHALL EXTEND FROM RIGHT-OF-WAY LINE TO RIGHT-OF-WAY LINE
 - CATHODIC PROTECTION FACILITIES SHALL BE LOCATED OUTSIDE OF THE RIGHT OF WAY, WITH THE EXCEPTION OF HEADER WIRES, ZINC RIBBON, AND OTHER APPURTENANCES, WHICH MAY BE ALLOWED IF STRUCTURALLY SOUND AND OUTSIDE CLEAR ZONE. HEADER WIRES CONNECTING CATHODIC PROTECTION FACILITIES TO THE PIPE BEING PROTECTED WILL BE PERMITTED WITHIN THE RIGHT OF WAY. CATHODIC PROTECTION FACILITIES INCLUDE SACRIFICIAL ANODES, CATHODIC PROTECTION TEST STATIONS (ABOVE GRADE AND BELOW GRADE) AND WIRES, AND RECTIFIER AND METER LOOP POLES.



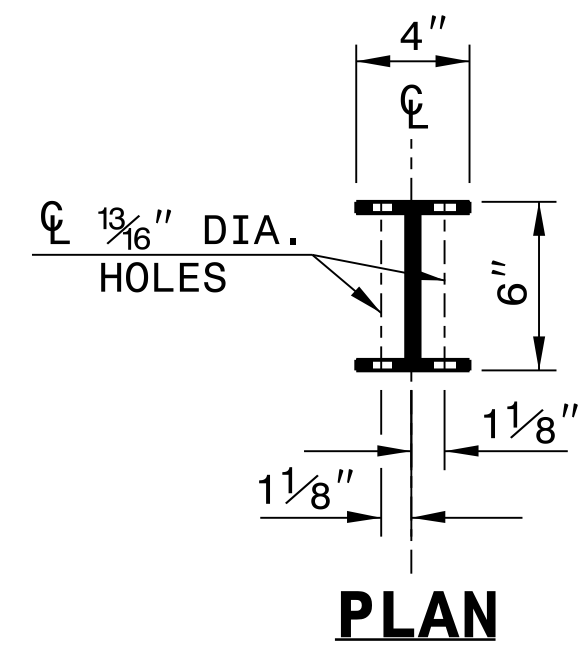
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

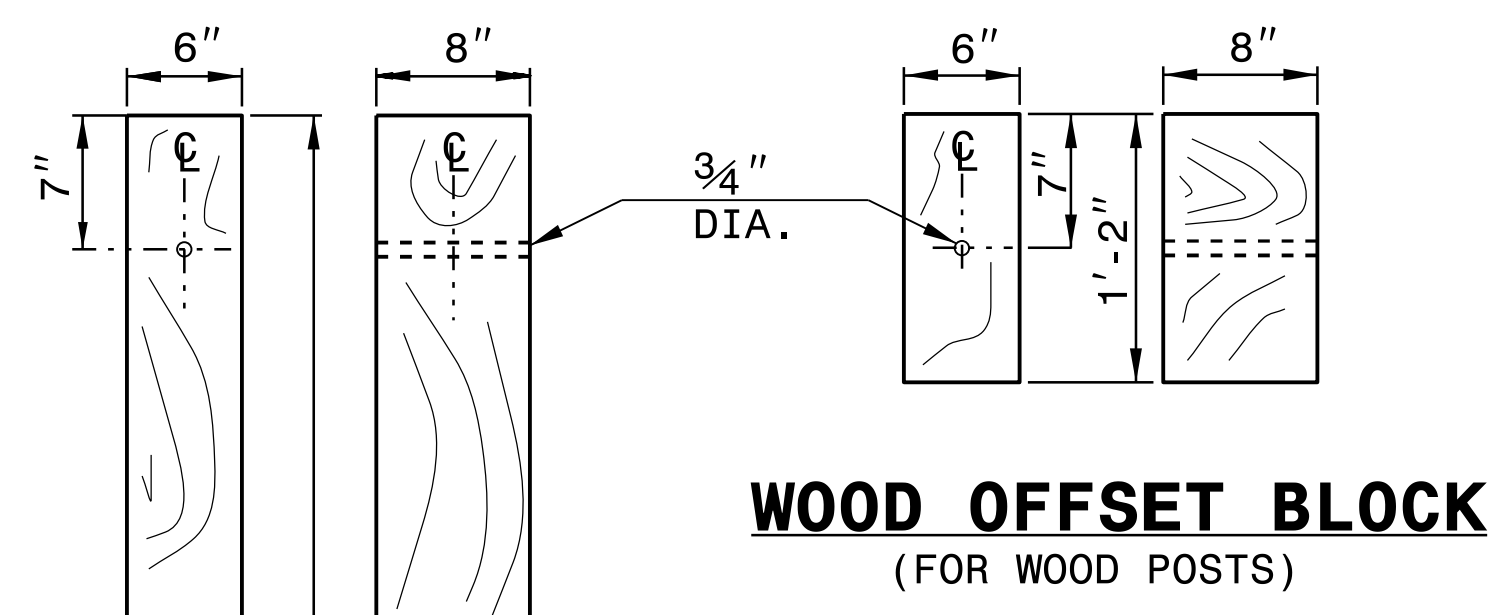
SHEET 6 OF 8
862D02



STANDARD W-BEAM GUARDRAIL



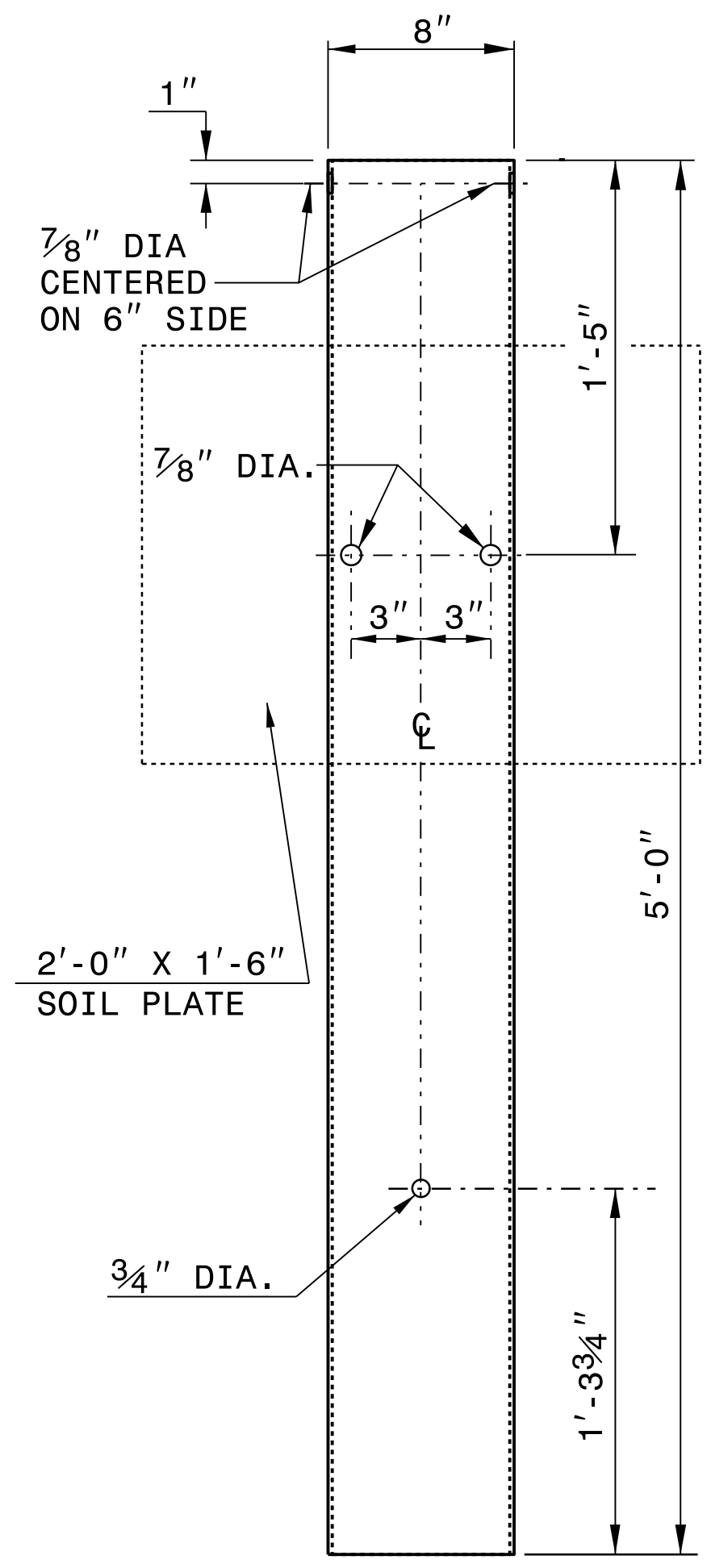
PLAN



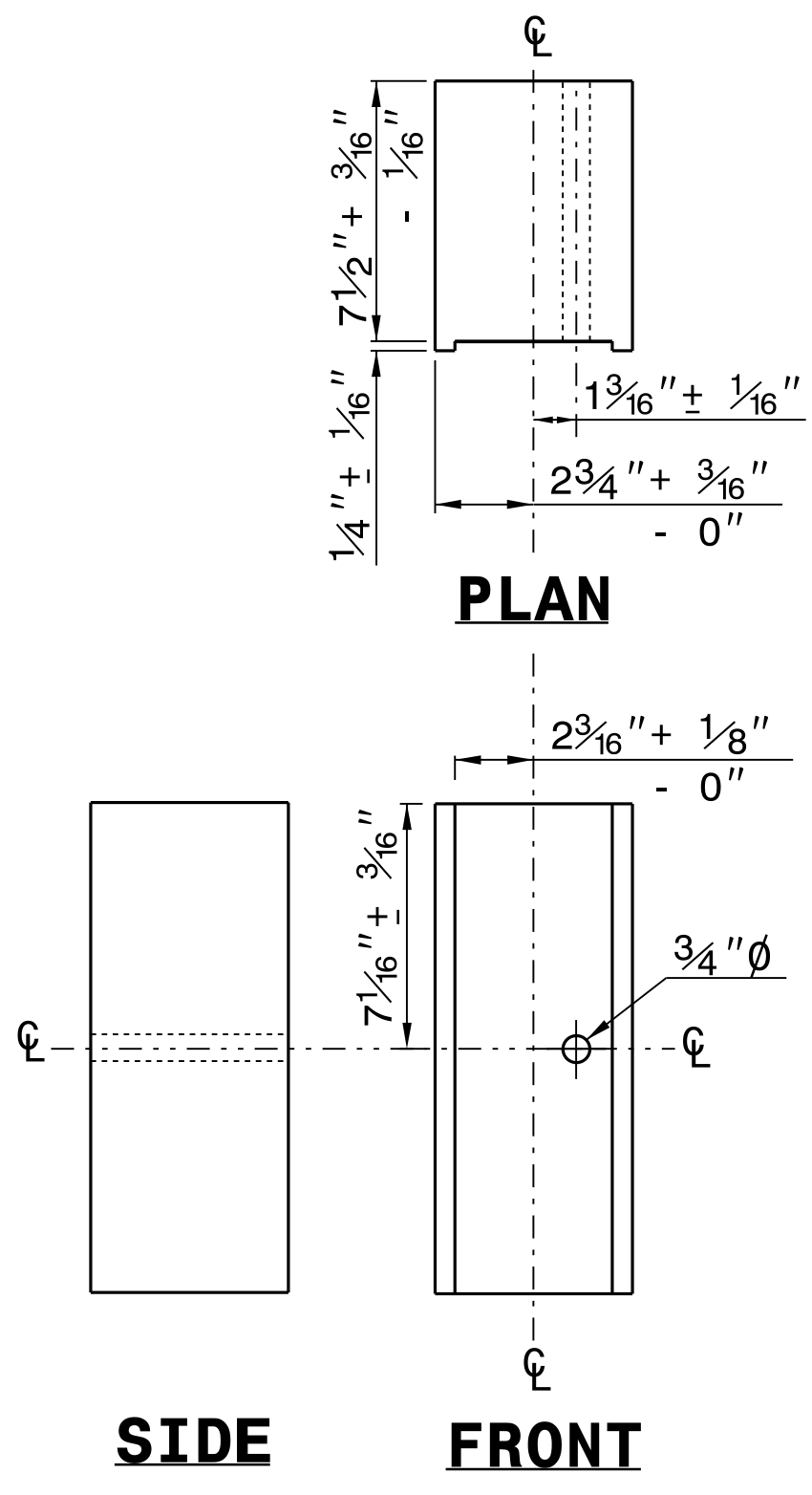
**WOOD OFFSET BLOCK
(FOR WOOD POSTS)**

**STANDARD
LINE POST**

**SHORT WOOD
BREAKAWAY POST**



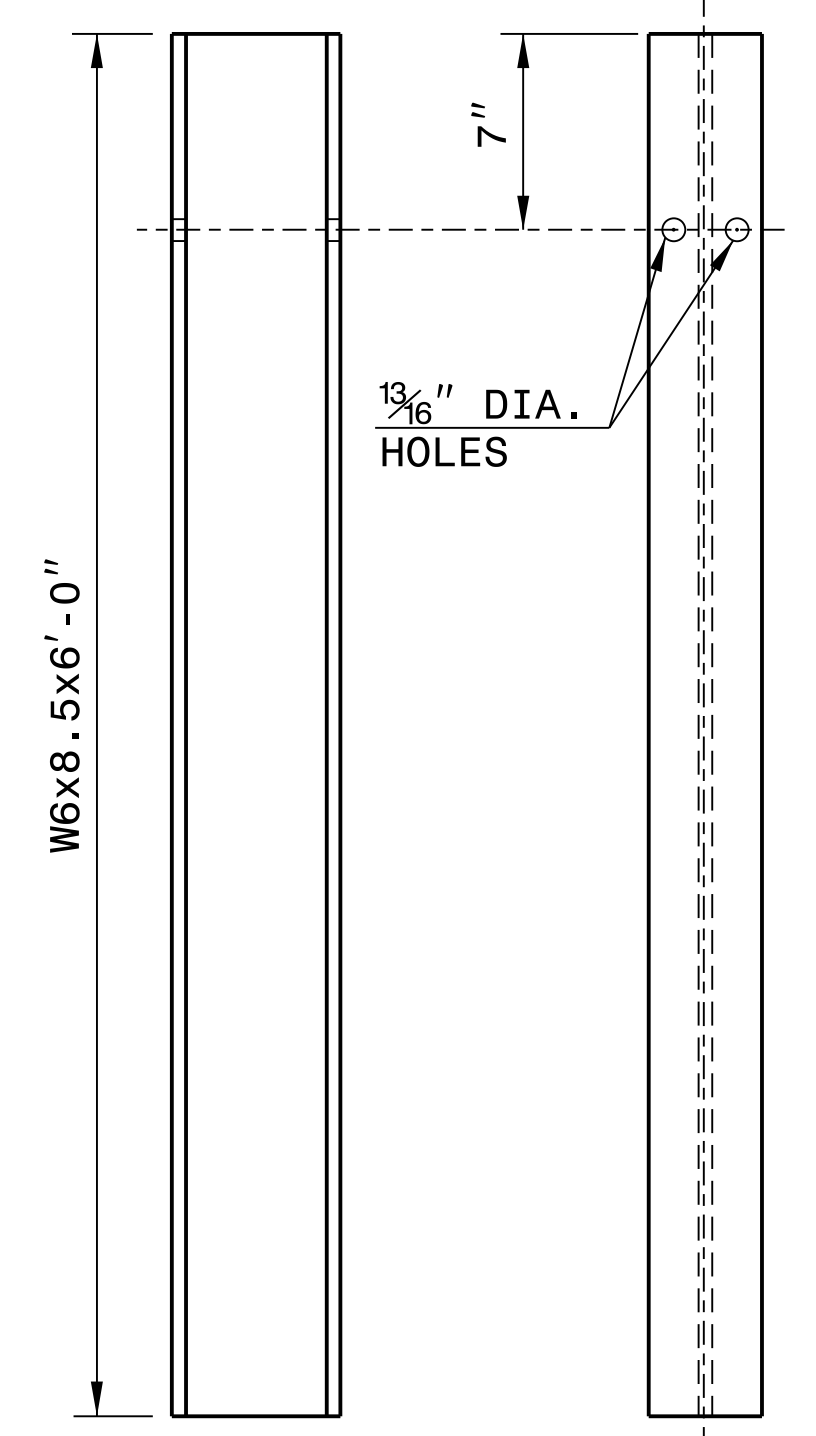
**STEEL TUBE
TS 6"x8"x0.1875"**



SIDE

FRONT

**ROUTED
OFFSET BLOCK**



SIDE

FRONT

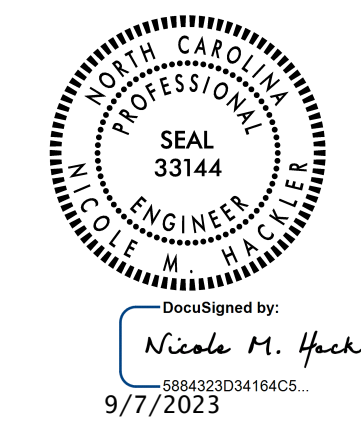
"W6" STEEL POST

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

SYSTEM PARTS



**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: J. HOWERTON	DATE: 3-7-2018
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

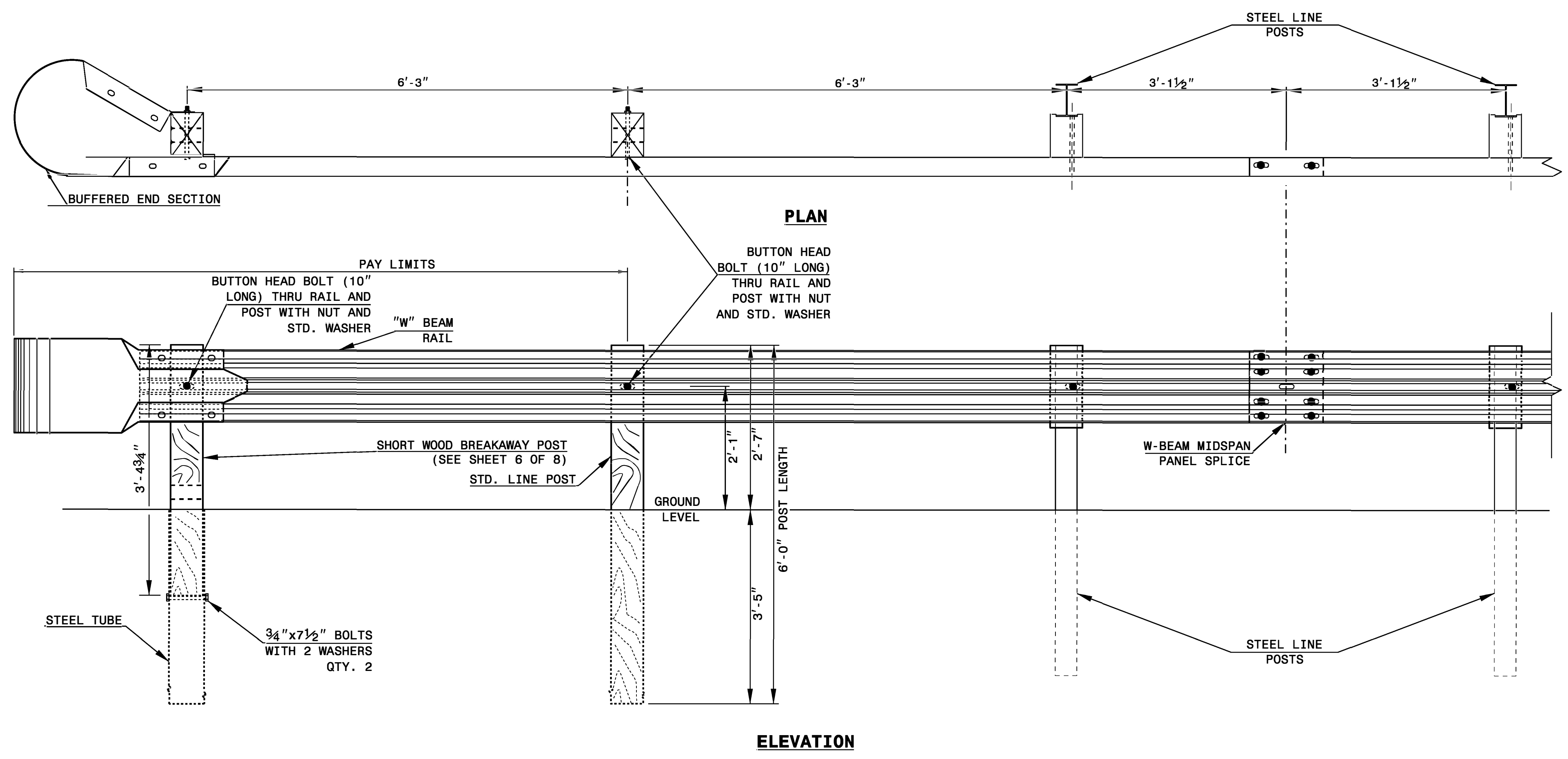
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF

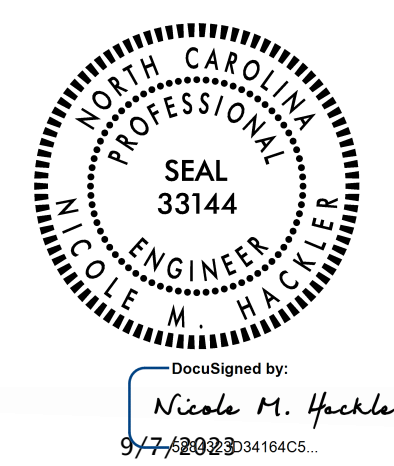
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF



TRAILING END UNIT ASSEMBLY
A.T. - 1 SYSTEM



DocuSigned by:
Nicole M. Hebler
3/7/2023 3:41:44 PM

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

A.T. - 1 SYSTEM

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

COMPUTED BY: AF DATE: 8.24.23
CHECKED BY: AF DATE: 8.24.23

PROJECT NO. HE-0011 SHEET NO. 3D-3

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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)

Main data table with columns for Line & Station, Offset, Structure Number, R.C. Pipe Class IV/V, Structural Plate Pipe, Contractor Design, Endwalls, Reinforced Endwalls, Drainage Structure, Quantities for Drainage Structures, Frame, Grates, and Hood, and Remarks.

SHEET TOTALS
PROJECT TOTALS

ABBREVIATIONS
C.A.A. CORRUGATED ALUMINIUM ALLOY
C.B. CATCH BASIN
C.S. CORRUGATED STEEL
D.I. DROP INLET
G.D.I. GRATED DROP INLET
H.D.P.E. HIGH DENSITY POLYETHYLENE
J.B. JUNCTION BOX
M.H. MANHOLE
N.S. NARROW SLOT
P.V.C. POLYVINYL CHLORIDE
R.C. REINFORCED CONCRETE
T.B.D.I. TRAFFIC BEARING DROP INLET
T.B.J.B. TRAFFIC BEARING JUNCTION BOX
W.S. WIDE SLOT

COMPUTED BY: MRS DATE: 8/23
 CHECKED BY: JMG DATE: 8/23

(2-3-23)

PROJECT NO.
HE-0011

SHEET NO.
3G-1

**STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS**

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
-Y1-	11+00	12+00	LT/RT	SD	220
-Y1-	18+00	20+00	LT/RT	SD	420
-Y1-	21+50	23+00	RT	SD	160
CONTINGENCY					200
TOTAL LF:					1000

*UD = Underdrain
 *BD = Blind Drain
 *SD = Subsurface Drain

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS	
Y1	22+75	25+75	ASU(2)	8		675	1600			
L	11+00	25+50	ASU(2)	8	950	1805	3900			
CONTINGENCY			ASU(1)	12	400	750	1000			
CONTINGENCY			AST	3				1250		
TOTAL CY/TONS/SY:						1350	3230**	6500**	1250	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)

*AST = Aggregate Stabilization

**Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Subgrade Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS



PROJECT REFERENCE NO.	SHEET NO.
HE-0011	3P-1

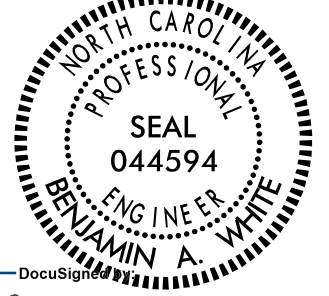
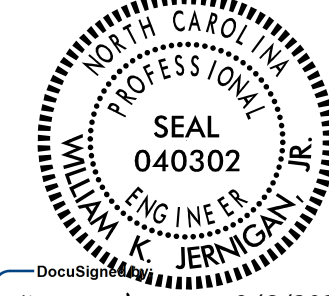
PARCEL INDEX SHEET - HE-0011

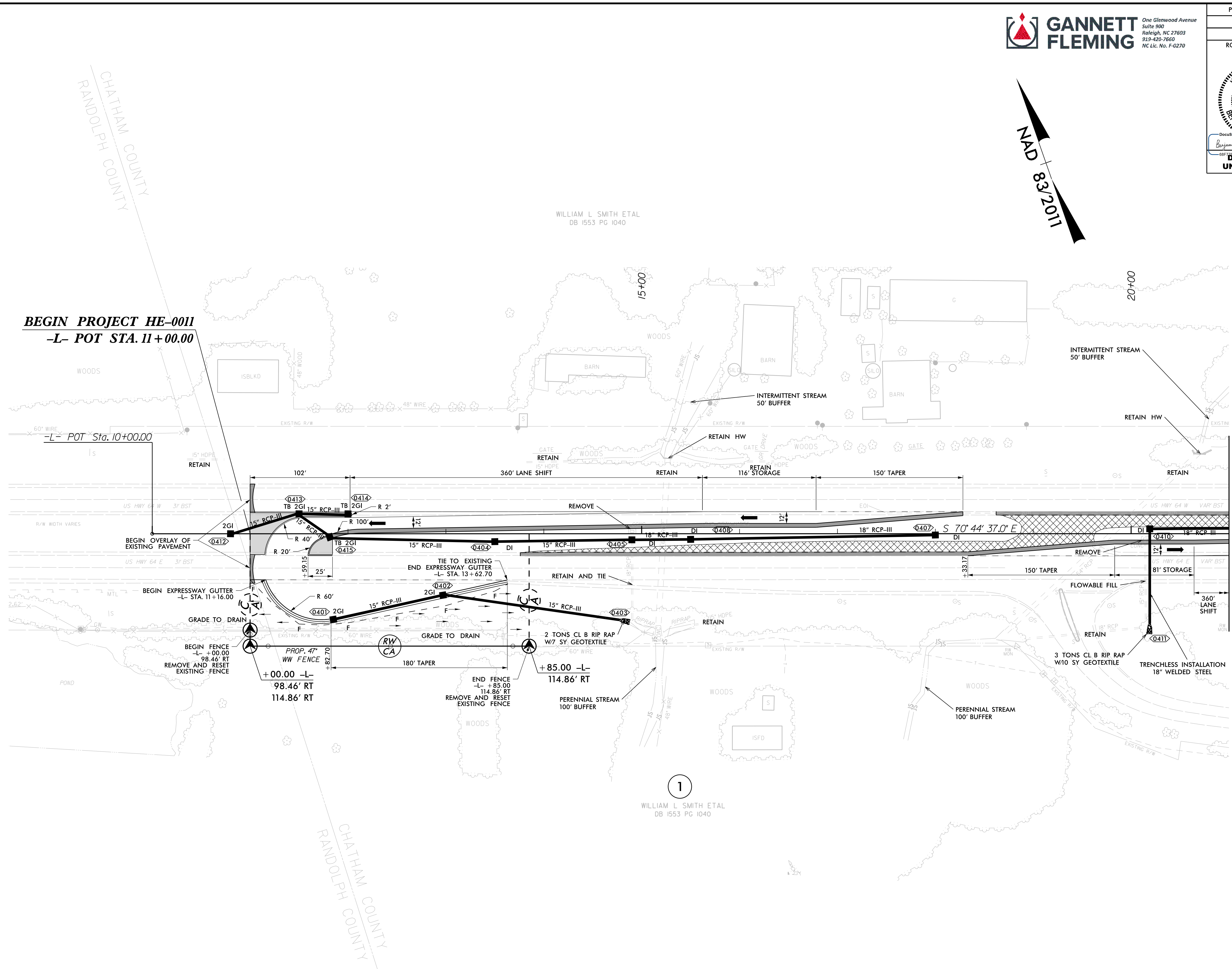
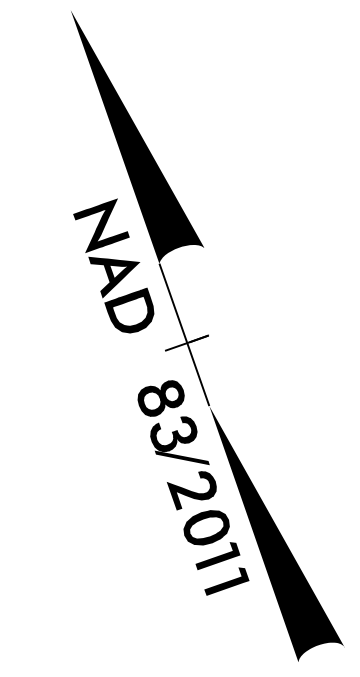
PARCEL NO.	SHEET NO.	PROPERTY OWNER NAME
1	4	WILLIAM L. SMITH ETAL
2	5,6,7	TIM'S FARM & FORESTRY, LLC
3	5,6,7	WOLFSPEED, INC.

8/17/99
bwhite
7/27/023
c:\pwworking\gffpw01\white\dl551332\HE-0011_rdy_Parcel_Index.dgn

8/17/99

GANNETT FLEMING
 One Glenwood Avenue
 Suite 900
 Raleigh, NC 27603
 919-420-7660
 NC Lic. No. F-0270

PROJECT REFERENCE NO. HE-0011	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 BENJAMIN A. WHITE SEAL 044594 9/6/2023	 WILLIAM K. JERNIGAN SEAL 040302 9/6/2023
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



MATCHLINE SHEET 5
-L- STA 21+00.00

bwhite
 7/27/2023
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 PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHEET 8

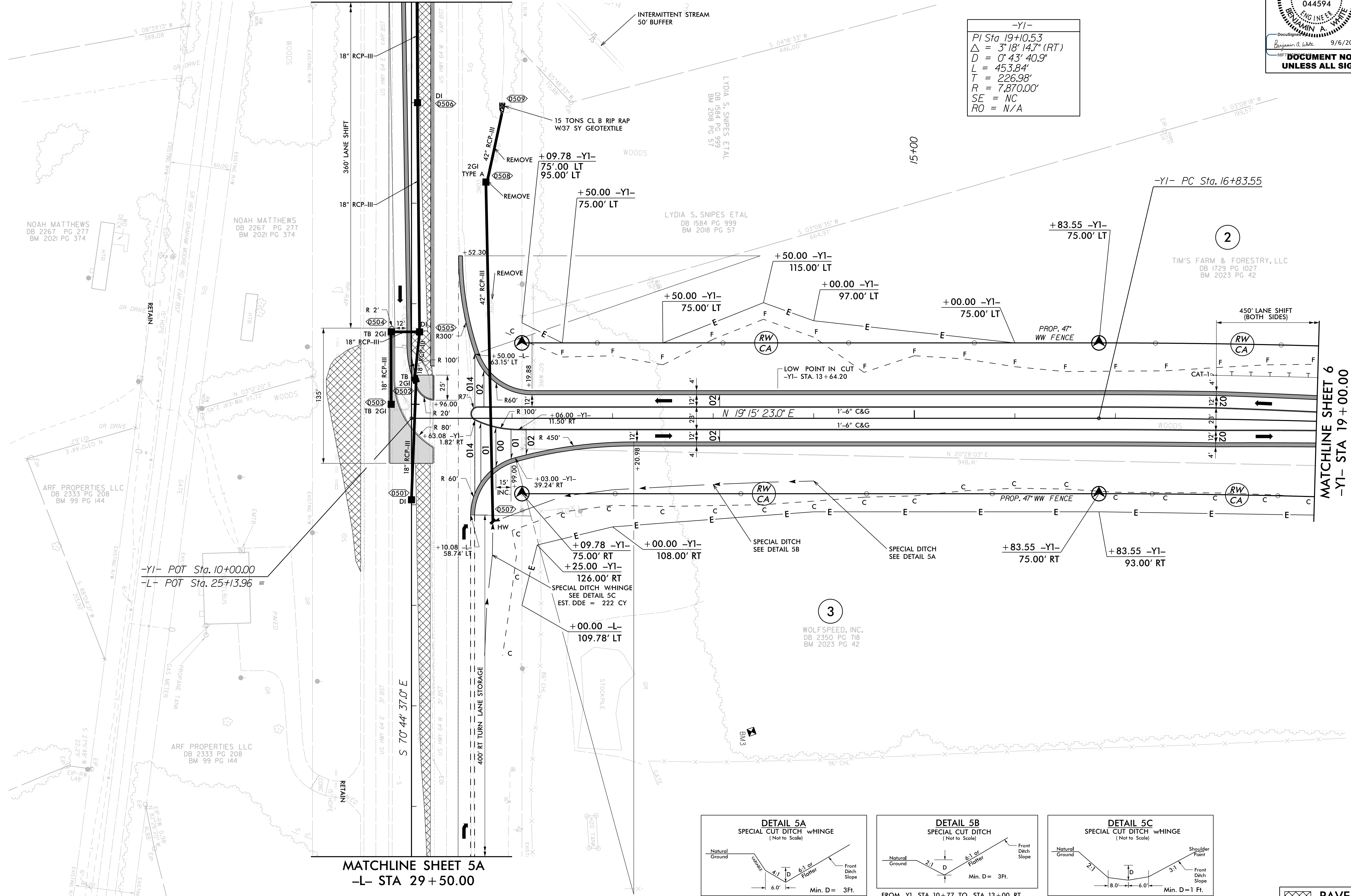
8/17/23

bwhite
8/25/2023
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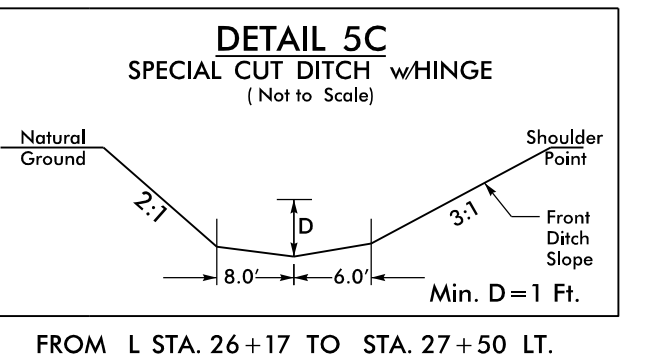
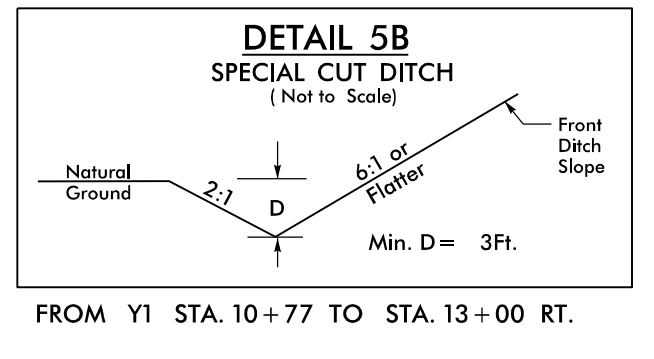
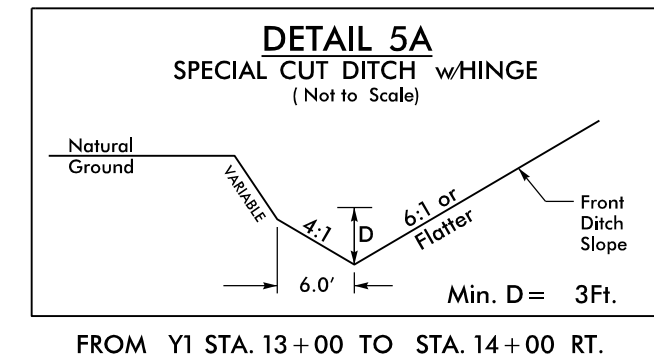
PROJECT REFERENCE NO. HE-0011	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

NAD 83/2011

MATCHLINE SHEET 4
-L- STA 21+00.00



-Y1-
 PI Sta 19+10.53
 $\Delta = 3'18''14.7'' (RT)$
 $D = 0'43''40.9''$
 $L = 453.84'$
 $T = 226.98'$
 $R = 7,870.00'$
 $SE = NC$
 $RO = N/A$



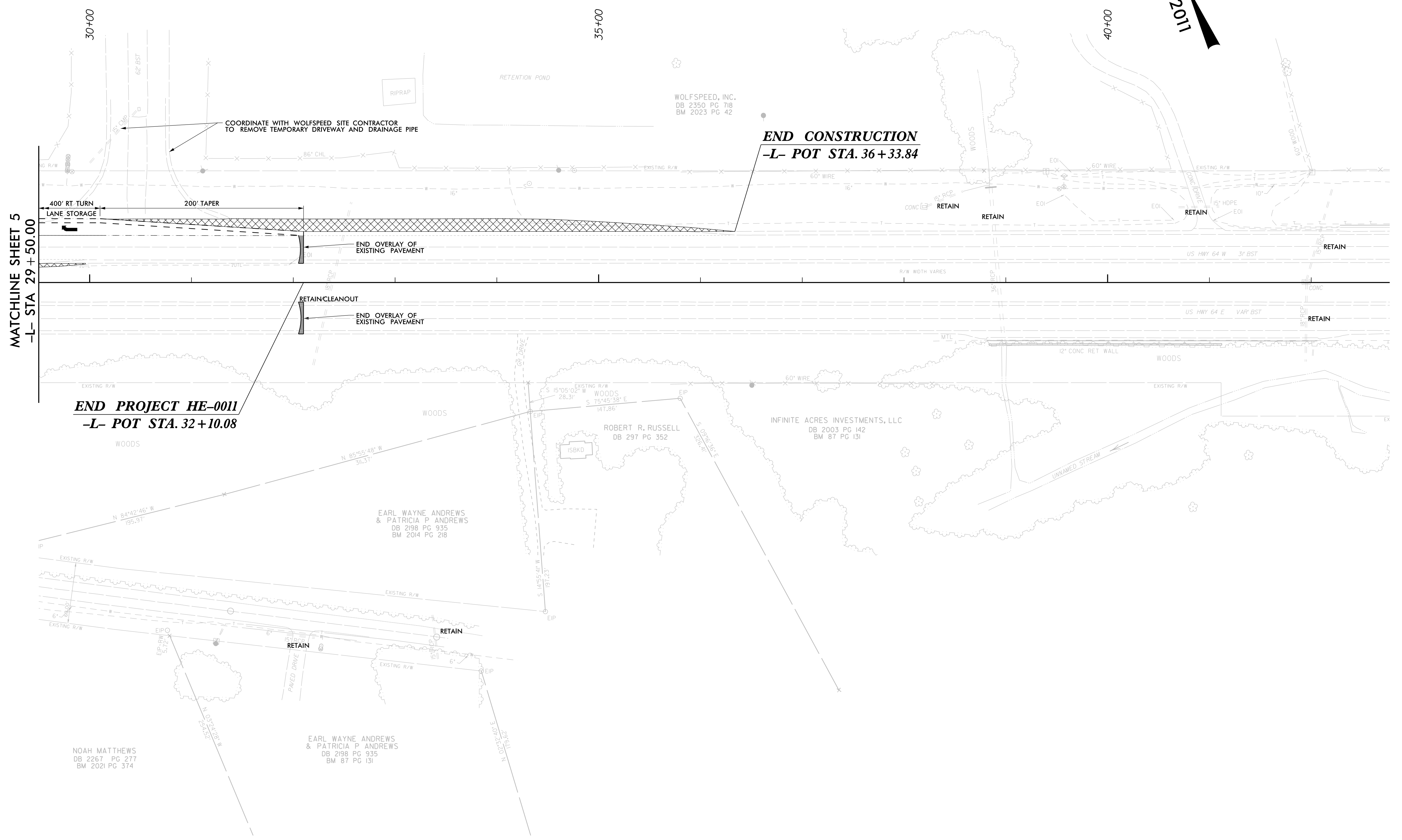
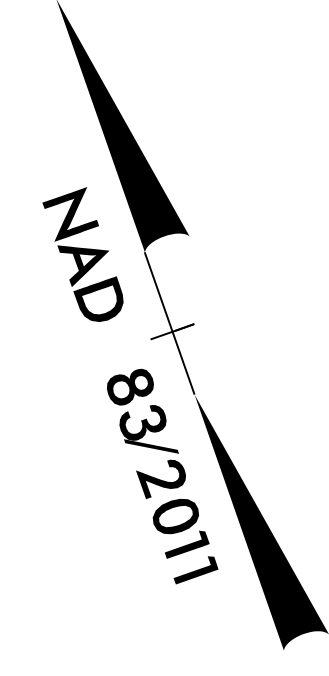
PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHEET 8
FOR -Y1- PROFILE SEE SHEET 9

8/17/99



PROJECT REFERENCE NO. HE-0011		SHEET NO. 5A	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Benjamin A. White 9/6/2023		William K. Jernigan 9/6/2023	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



MATCHLINE SHEET 5
-L- STA 29 + 50.00

PAVEMENT REMOVAL

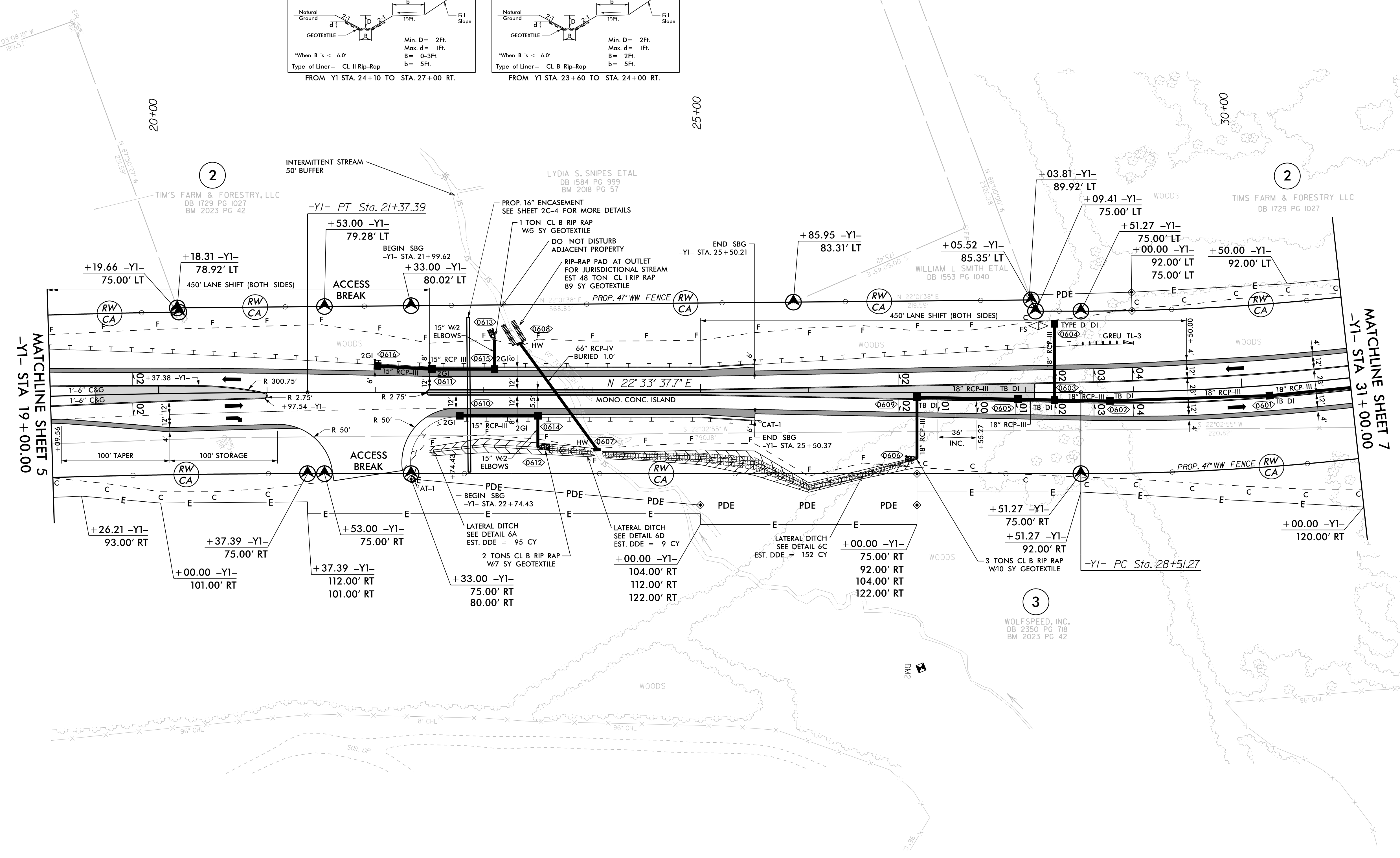
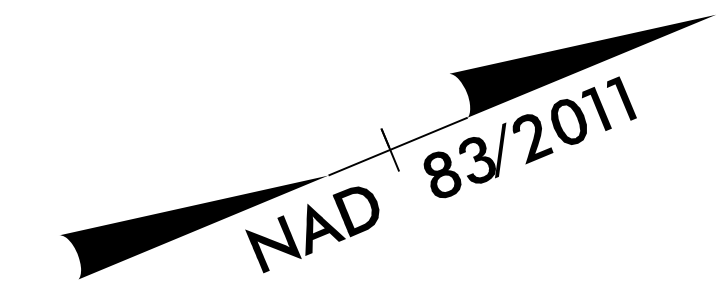
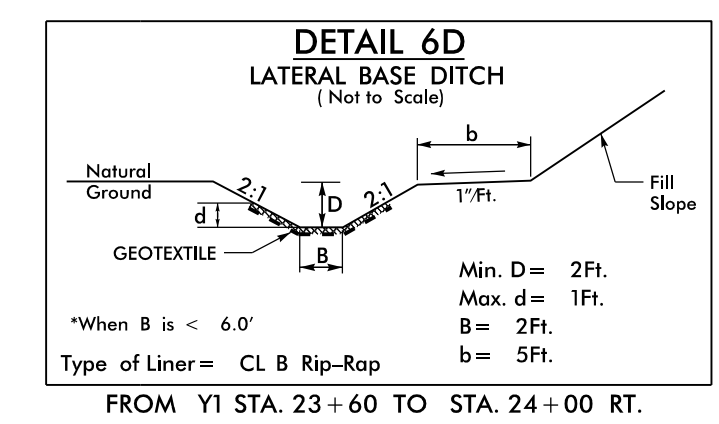
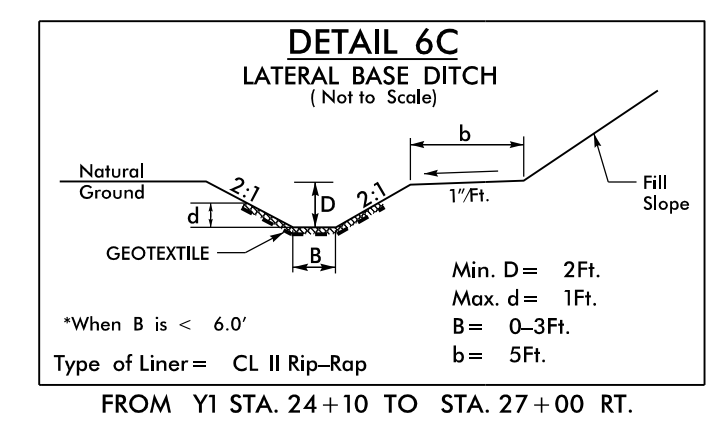
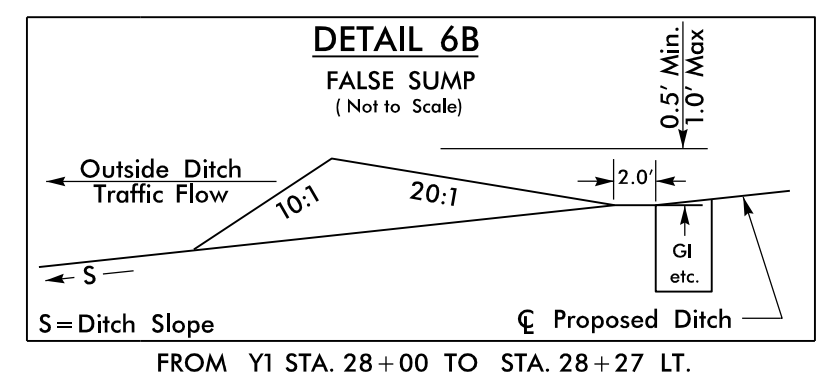
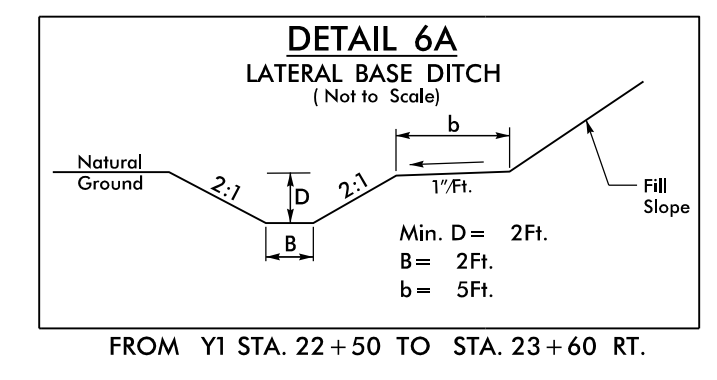
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8/25/2023
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8/17/23



PROJECT REFERENCE NO. HE-0011		SHEET NO. 6	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

-Y1-	
PI Sta 19+10.53 Δ = 3° 18' 14.7" (RT) D = 0° 43' 40.9" L = 453.84' T = 226.98' R = 7,870.00' SE = NC RO = N/A	PI Sta 32+60.23 Δ = 20° 09' 51.7" (LT) D = 2° 29' 28.0" L = 809.45' T = 408.95' R = 2,300.00' SE = 04 RO = 144



MATCHLINE SHEET 5
-Y1- STA 19+00.00

MATCHLINE SHEET 7
-Y1- STA 31+00.00

bwhite
8/25/2023
c:\pwworking\gfpw01\white\dt151332\HE-0011_rdy_psh06_2 LANES NARROW.dgn

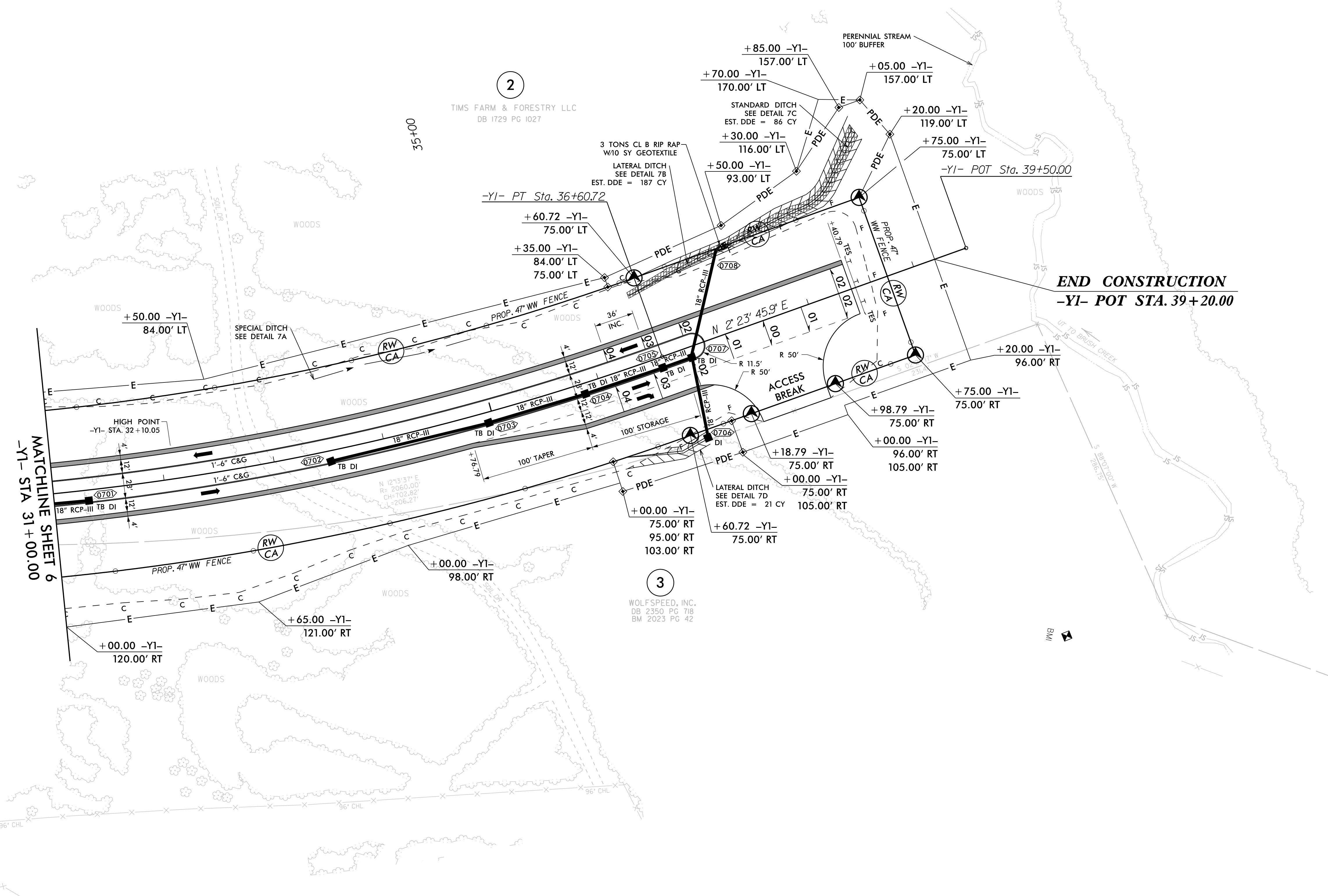
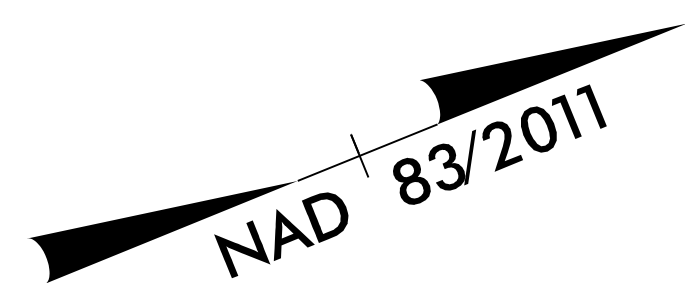
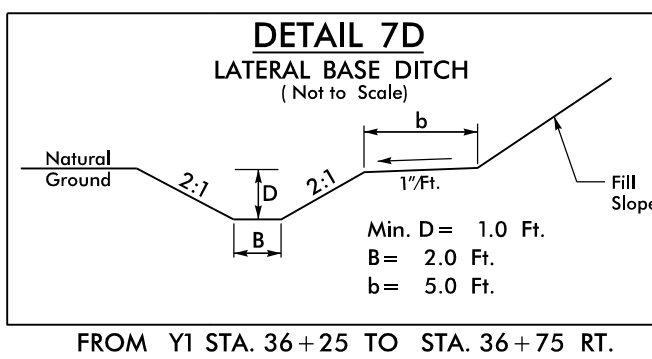
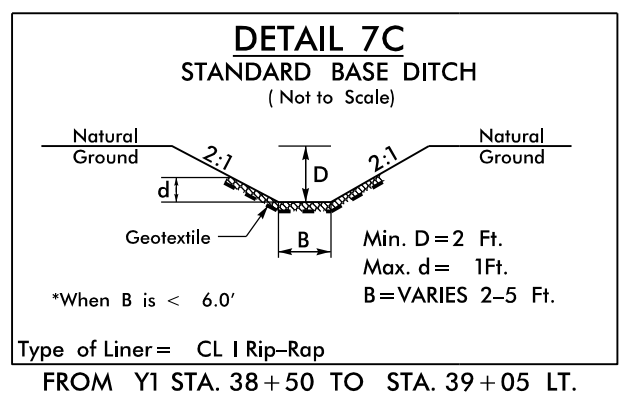
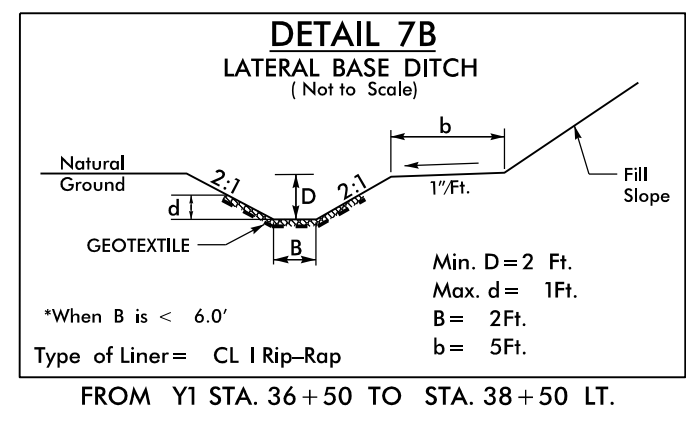
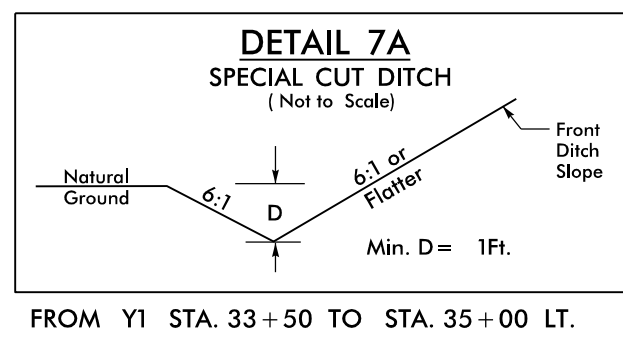
FOR -Y1- PROFILE SEE SHEET 9

8/17/19



PROJECT REFERENCE NO. HE-0011	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

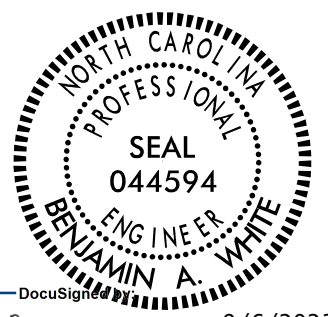
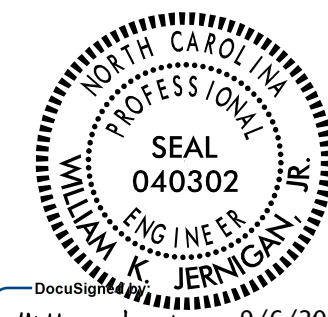
-Y1-
 PI Sta 32+60.23
 $\Delta = 20^{\circ} 09' 51.7" (LT)$
 $D = 2^{\circ} 29' 28.0"$
 $L = 809.45'$
 $T = 408.95'$
 $R = 2,300.00'$
 $SE = 04$
 $RO = 144$

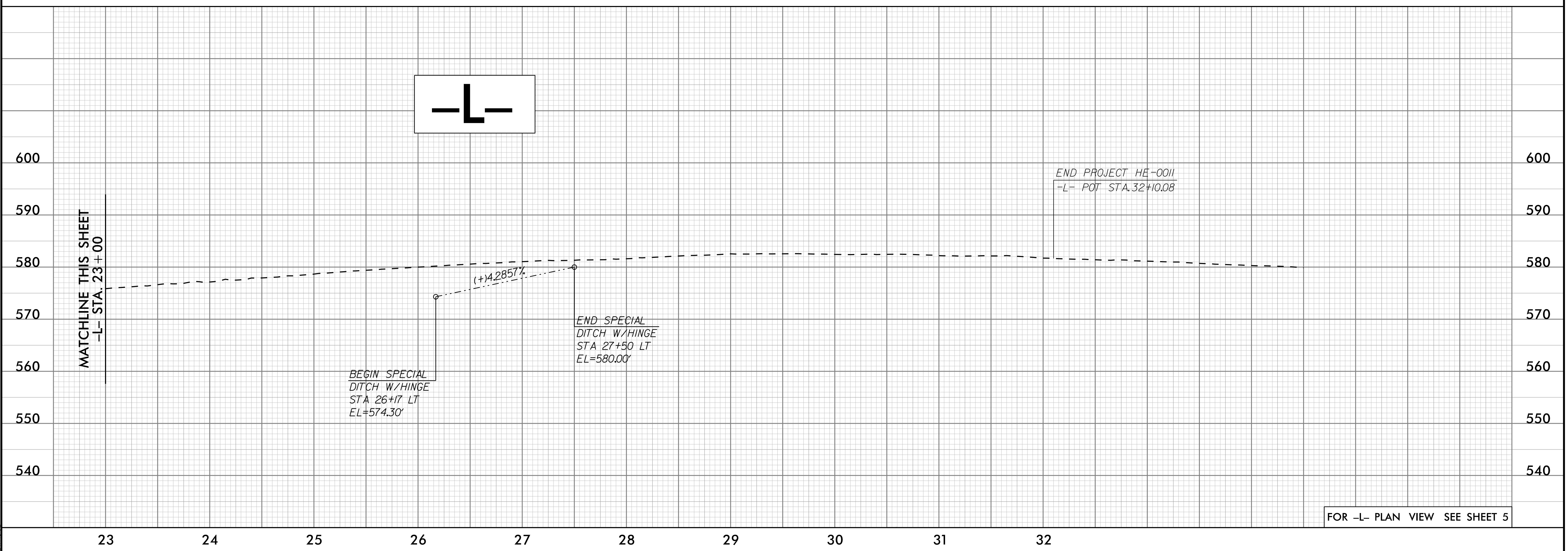
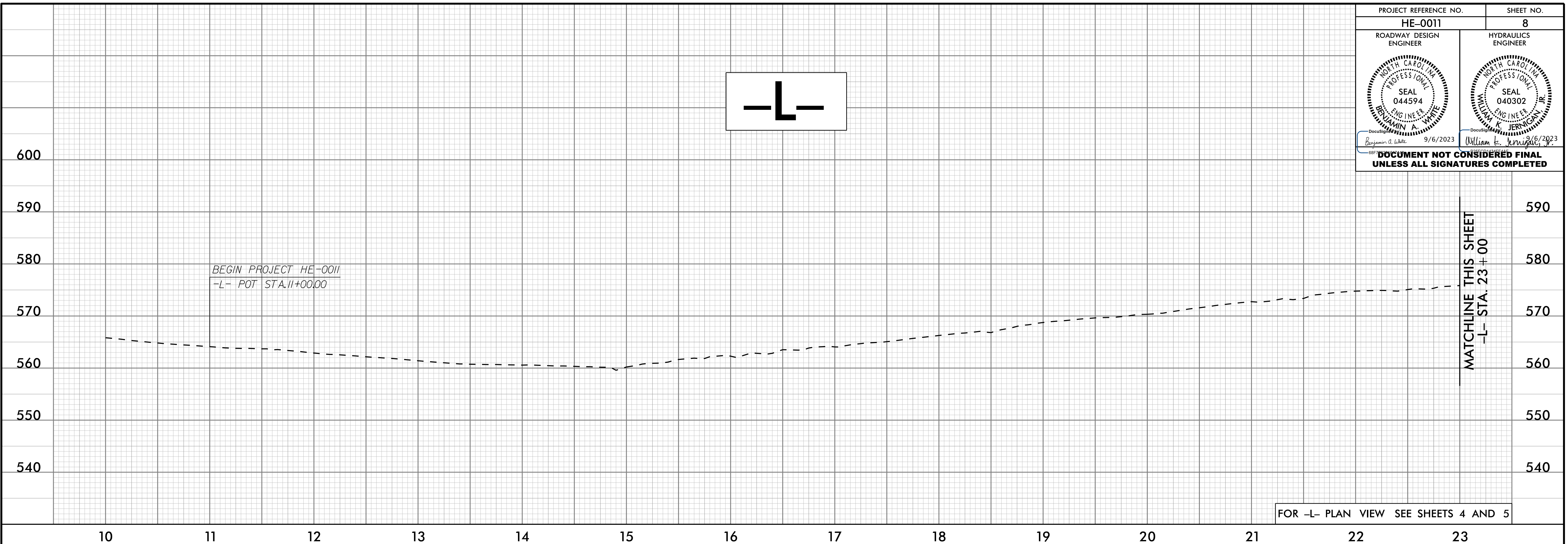


END CONSTRUCTION
 -Y1- POT STA. 39+20.00

bwhite
 7/27/2023
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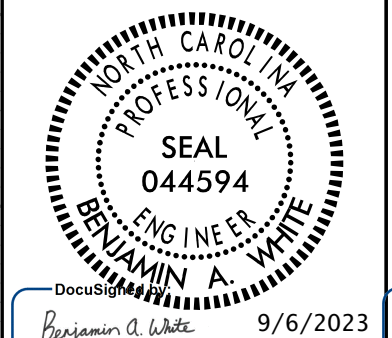
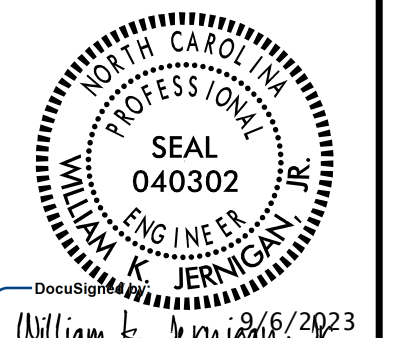
5/28/99

PROJECT REFERENCE NO. HE-0011	SHEET NO. 8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
Designed by <i>Benjamin A. White</i> 9/6/2023	Checked by <i>William K. Jernigan</i> 9/6/2023
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



7/13/2023
c:\pwworking\gfpw01\bwhtea\1551332\HE-0011-rdy.prf108.dgn

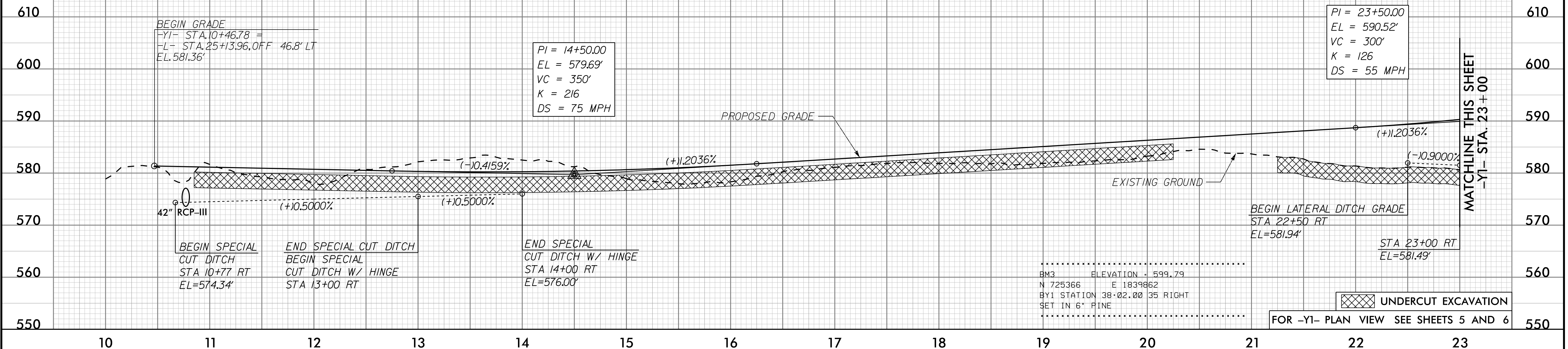
5/28/99

PROJECT REFERENCE NO. HE-0011	SHEET NO. 9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
Benjamin A. White 9/6/2023	William K. Jernigan 9/6/2023
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

PIPE HYDRAULIC DATA
-Y1- STA.10+77 42" RCP

DESIGN DISCHARGE	= 56	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 576.4	FT
BASE DISCHARGE	= 60	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 576.5	FT
OVERTOPPING DISCHARGE	= 110	CFS
OVERTOPPING FREQUENCY	> 500	YRS
OVERTOPPING ELEVATION	= 580.63	FT

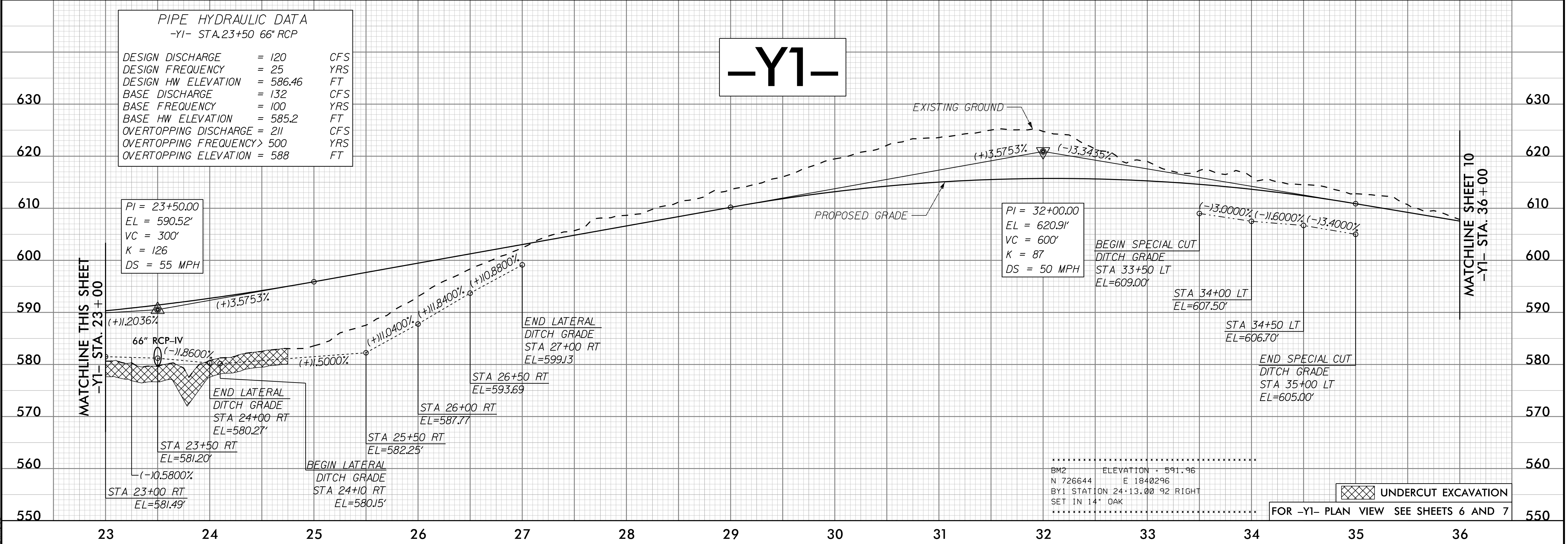
-Y1-



PIPE HYDRAULIC DATA
-Y1- STA.23+50 66" RCP

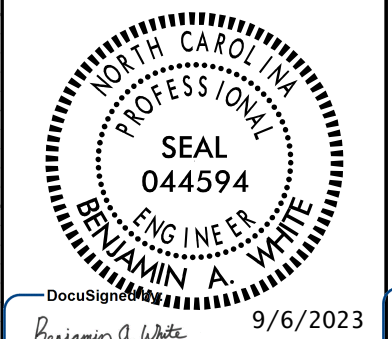
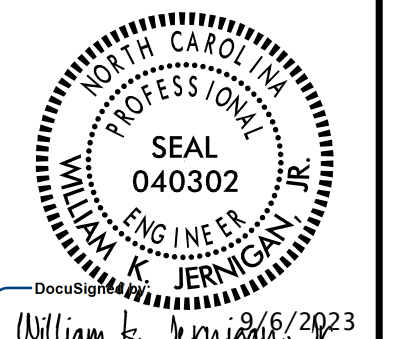
DESIGN DISCHARGE	= 120	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 586.46	FT
BASE DISCHARGE	= 132	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 585.2	FT
OVERTOPPING DISCHARGE	= 211	CFS
OVERTOPPING FREQUENCY	> 500	YRS
OVERTOPPING ELEVATION	= 588	FT

-Y1-



8/25/2023
c:\pwworking\gfpw01\bwhtea\1551332\HE-0011-r.dwg,plotted

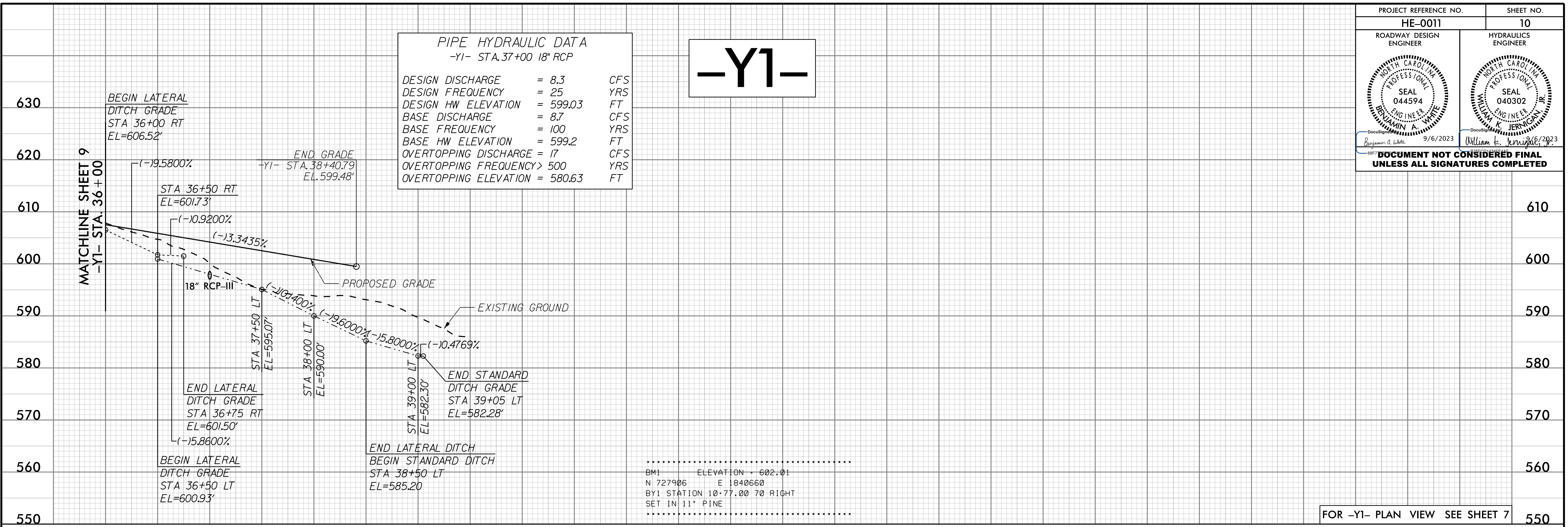
5/28/23

PROJECT REFERENCE NO. HE-0011	SHEET NO. 10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
Benjamin A. White 9/6/2023	William K. Jernigan 9/6/2023
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

PIPE HYDRAULIC DATA
-Y1- STA. 37+00 18" RCP

DESIGN DISCHARGE	= 8.3	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 599.03	FT
BASE DISCHARGE	= 8.7	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 599.2	FT
OVERTOPPING DISCHARGE	= 17	CFS
OVERTOPPING FREQUENCY	> 500	YRS
OVERTOPPING ELEVATION	= 580.63	FT

-Y1-



FOR -Y1- PLAN VIEW SEE SHEET 7