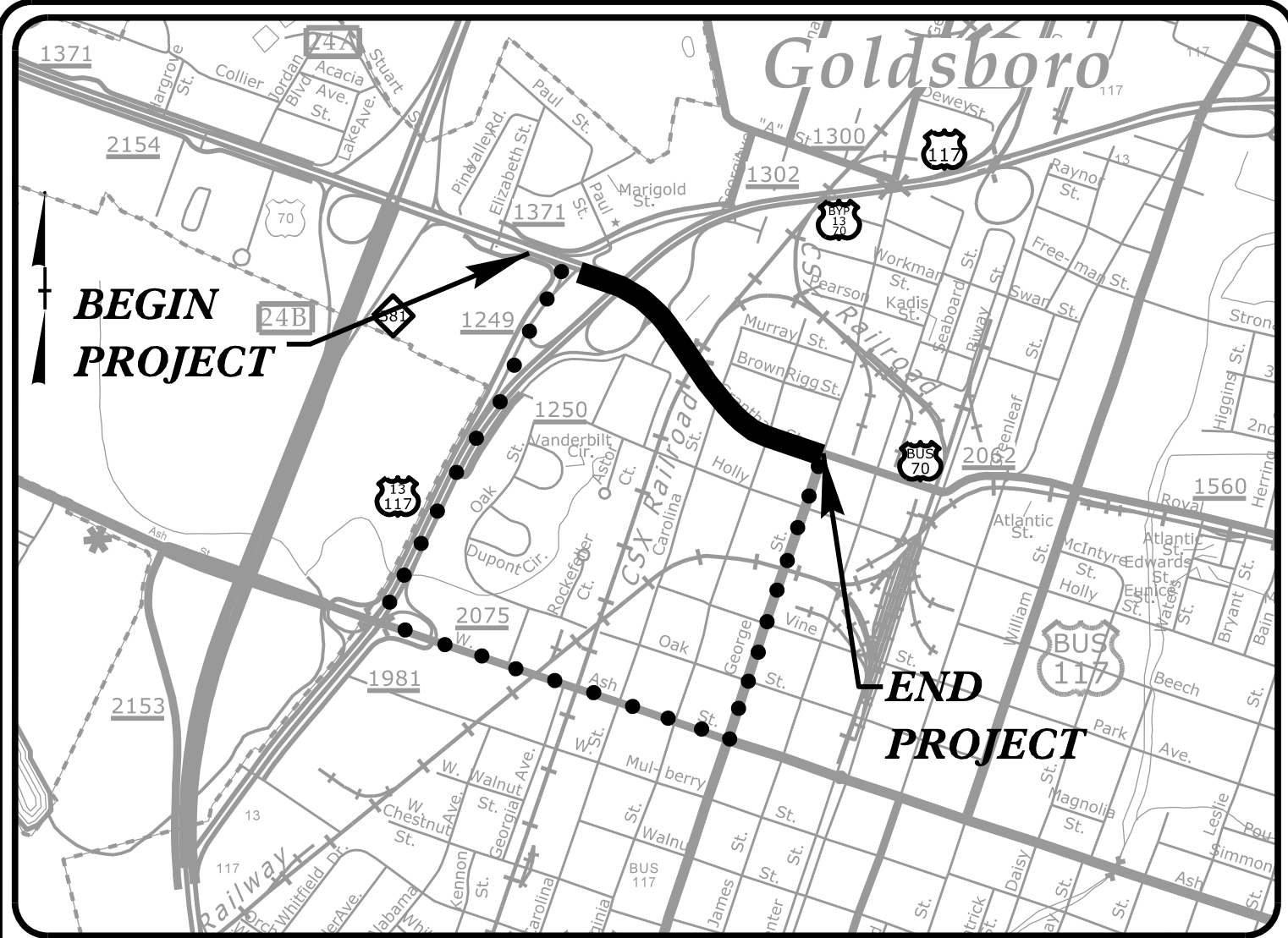


11/6/2025
p:\aecom-na-pw-bentley.com\AECOM_USA_North_Carolina\Documents\60598150-NCDDT_SMU_B-4838\900-CAD-GIS\910-CAD\70-NCDDT_TIP\Roadway\Proj\B4838_Rdy_tsh.dgn
Mohammed Fallaha

TIP PROJECT: B-4838

CONTRACT: C204814

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



VICINITY MAP
NOT TO SCALE ••••• DETOUR

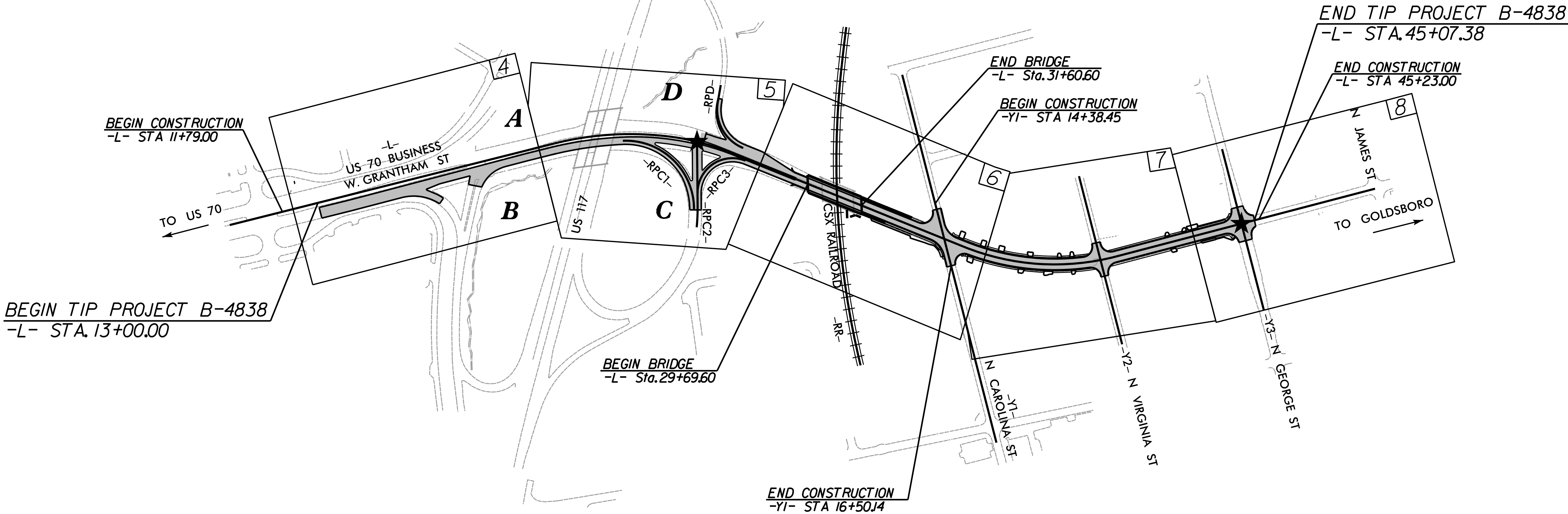
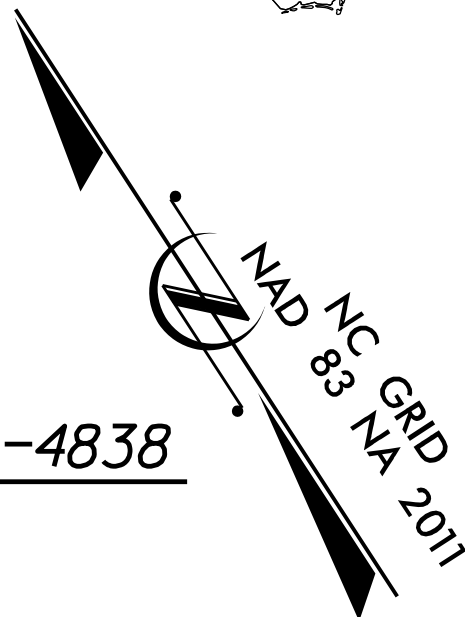
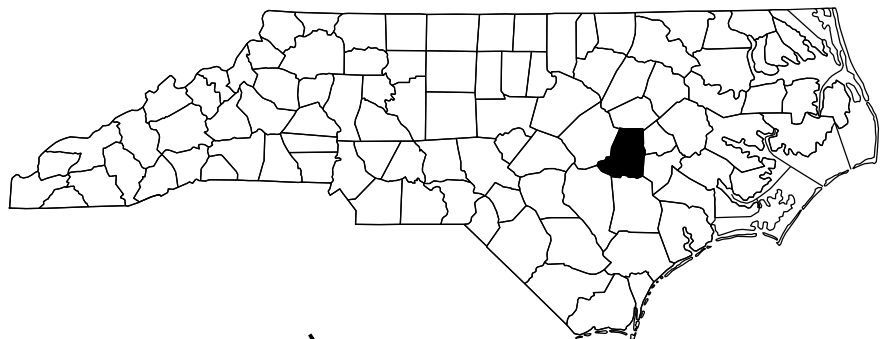
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAYNE COUNTY

**LOCATION: BRIDGE #950020 ON US 70 BUSINESS (GRANTHAM ST)
OVER CSX RAILROAD**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE,
RETAINING WALLS, AND SIGNALS**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4838	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
38608.1.1	BRSTP-070B(7)	PE	
38608.1.2		PE	
38608.2.1		ROW/UTILITIES	
38608.3.1		CONST	

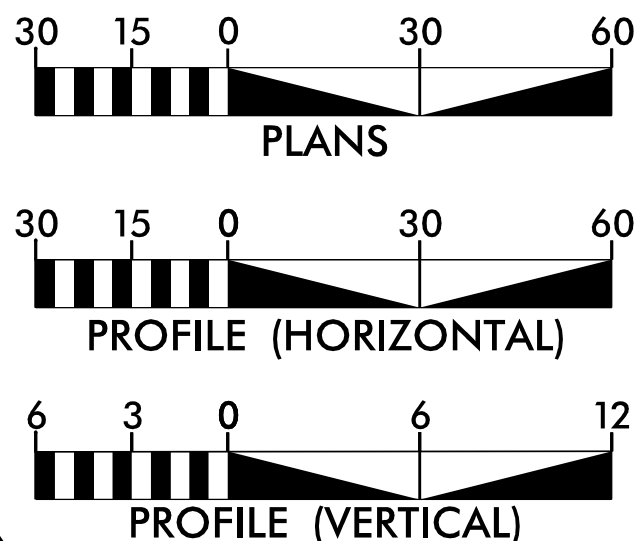


THIS MAINTAINS THE EXISTING ACCESS CONTROL THROUGH THE INTERCHANGE

★ PROPOSED SIGNAL

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2023 = 10,280
ADT 2043 = 11,363
K = 10 %
D = 55 %
T = 5 % *
V = 40 MPH
* TTST = 2% DUAL 3%
FUNC CLASS =
MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4838 = 0.571 MI
LENGTH STRUCTURE TIP PROJECT B-4838 = 0.036 MI
TOTAL LENGTH TIP PROJECT B-4838 = 0.607 MI

AECOM

Prepared in the Office of:
NC FIRM LICENSE No: F-0342
5438 Wade Park Boulevard, Suite 200
Raleigh, NC 27607
(919) 854-6200 (919) 854-6259(FAX)

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 24, 2022

LETTING DATE:
JANUARY 20, 2026

JOHN CASEY MORRISON, PE
PROJECT ENGINEER

MOHAMMED FALLAHA, PE
PROJECT DESIGN ENGINEER

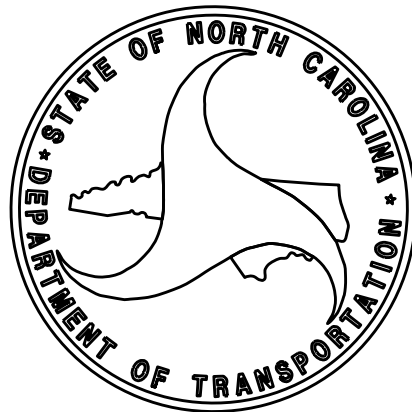
DAVID STUTTS, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

11/6/2025
DocuSigned by:
Matthew Kemp
FF4BC0875B443C...
P.E.

ROADWAY DESIGN ENGINEER

11/6/2025
DocuSigned by:
Mohammed Fallaha
4D2664746C7D4E2...
P.E.



8/17/2025
C:\Users\pawbentley\Documents\60598150-NCDDOT-SMU-B-4838\900-CAD-GIS\910-CAD-700-NCDDOT-TIP\Roadway\Proj\B4838-rdy-sheet_1A.dgn
11/6/2025
pawbentley

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-4	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1	VARIABLE HEIGHT CONCRETE BARRIER, TYPE T2 MODIFIED
2C-1 THRU 2C-8	SPECIAL DETAILS
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEET
4 THRU 8	ROADWAY PLAN SHEETS
9 THRU 12	ROADWAY PROFILE SHEETS
RW-1 THRU RW-8	SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENT, AND PROPERTY TIES
TMP-1 THRU TMP-18	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-6	PAVEMENT MARKING PLANS
EC-1 THRU EC-13	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-14	SIGNING PLANS
SIG-1.0 THRU SCP-8	SIGNAL PLANS
UC-1 THRU UC-9	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-6	UTILITY BY OTHERS PLANS
X-1	CROSS SECTION INDEX
X-1A	CROSS SECTION SUMMARY
X-2 THRU X-18	CROSS SECTIONS
1	STRUCTURE PLANS TITLE SHEET
S-1 THRU S-52	STRUCTURE PLANS
SN	STRUCTURE STANDARD NOTES
W-1 THRU W-7	WALL PLANS

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

INDEX OF SHEETS, GENERAL NOTES AND 2024 ROADWAY ENGLISH STANDARD DRAWINGS

2024 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-16-2024
REV.

The following Roadway Standards as appear in "Roadway Standard Drawings" Contracts Standards and Development Unit – N. C. Department of Transportation – Raleigh, N. C., Dated January 16, 2024 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
225.02	Guide for Grading Subgrade – Secondary and Local
225.04	Method of Obtaining Superelevation – Two Lane Pavement
DIVISION 3 – PIPE CULVERTS	
300.01	Method of Pipe Installation (Use Details in Lieu of Standards for Sheets 1 and 2 of 2)
310.10	Driveway Pipe Construction
DIVISION 4 – MAJOR STRUCTURES	
423.01	Bridge Approach Fills – Type 1 Approach Fill for Bridge Abutment
DIVISION 5 – SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction – High Side of Superelevated Curve – Method I
DIVISION 6 – ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 – INCIDENTALS	
815.02	Subsurface Drain
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
840.14	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
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames – Brick or Concrete or Precast
840.34	Traffic Bearing Junction Box – for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet – for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk (Use Detail in Lieu of Standard for Sheet 1 of 1)
848.02	Driveway Turnout – Radius Type
848.04	Street Turnout
848.06	Curb Ramp (Use Details in Lieu of Standards for Sheets 9 and 10 of 13)
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
854.02	Double Faced Concrete Barrier – Types T, T1 and T2
857.01	Precast Reinforced Concrete Barrier – 41" Single Faced
862.01	Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, 12, and 14 of 15)
862.02	Guardrail Installation (Use Detail in Lieu of Standard for Sheet 5 of 9)
862.03	Structure Anchor Units (Use Detail in Lieu of Standards for Sheet 6 and 8 of 9)
876.02	Guide for Rip Rap at Pipe Outlets

GENERAL NOTES:

2024 SPECIFICATIONS
EFFECTIVE: 01-16-2024
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. 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 III.
SUPERELEVATION:	ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 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.
DRIVEWAYS:	DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3' RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
STREET TURNOUT:	STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.
GUARDRAIL:	THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.
TEMPORARY SHORING:	SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".
END BENTS:	THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.
UTILITIES:	UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY, CHARTER, AT&T, CONTERRA, PNG, AND CITY OF GOLDSBORO. ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.
RIGHT-OF-WAY MARKERS:	ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.
CURB RAMPS	CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.06.

PROJECT REFERENCE NO.	SHEET NO.
B-4838	1A

ROADWAY DESIGN ENGINEER

11/6/2025

PROFESSIONAL SEAL

049634

ENGINEER

MOOREHEAD

402204740CT08

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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	(23)
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-S-
Potential Contamination Area: Soil	-S-S-
Known Contamination Area: Water	-W-W-
Potential Contamination Area: Water	-W-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	-----
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	---C---
Proposed Slope Stakes Fill	---F---
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	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)*	-----
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	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)*	-----
SS Force Main Line (SUE – LOS C)*	-----
SS Force Main Line (SUE – LOS D)*	-----

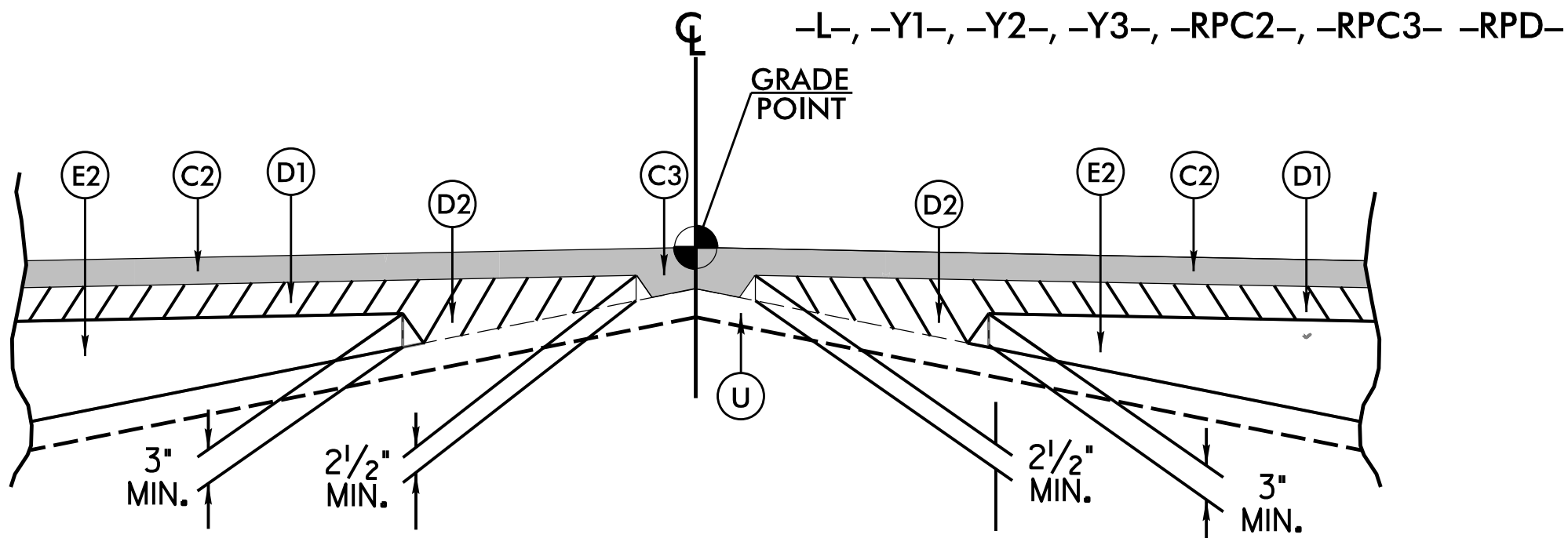
MISCELLANEOUS:

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.

6/2/2025 11:21 AM C:\Users\paw.bentley\Documents\60598150-NCDDT-SMU-B-4838-900-CAD-GIS\910-CAD-70-NCDDT-TIP\Roadway\Proj\B4838-Rdy_tup.dgn

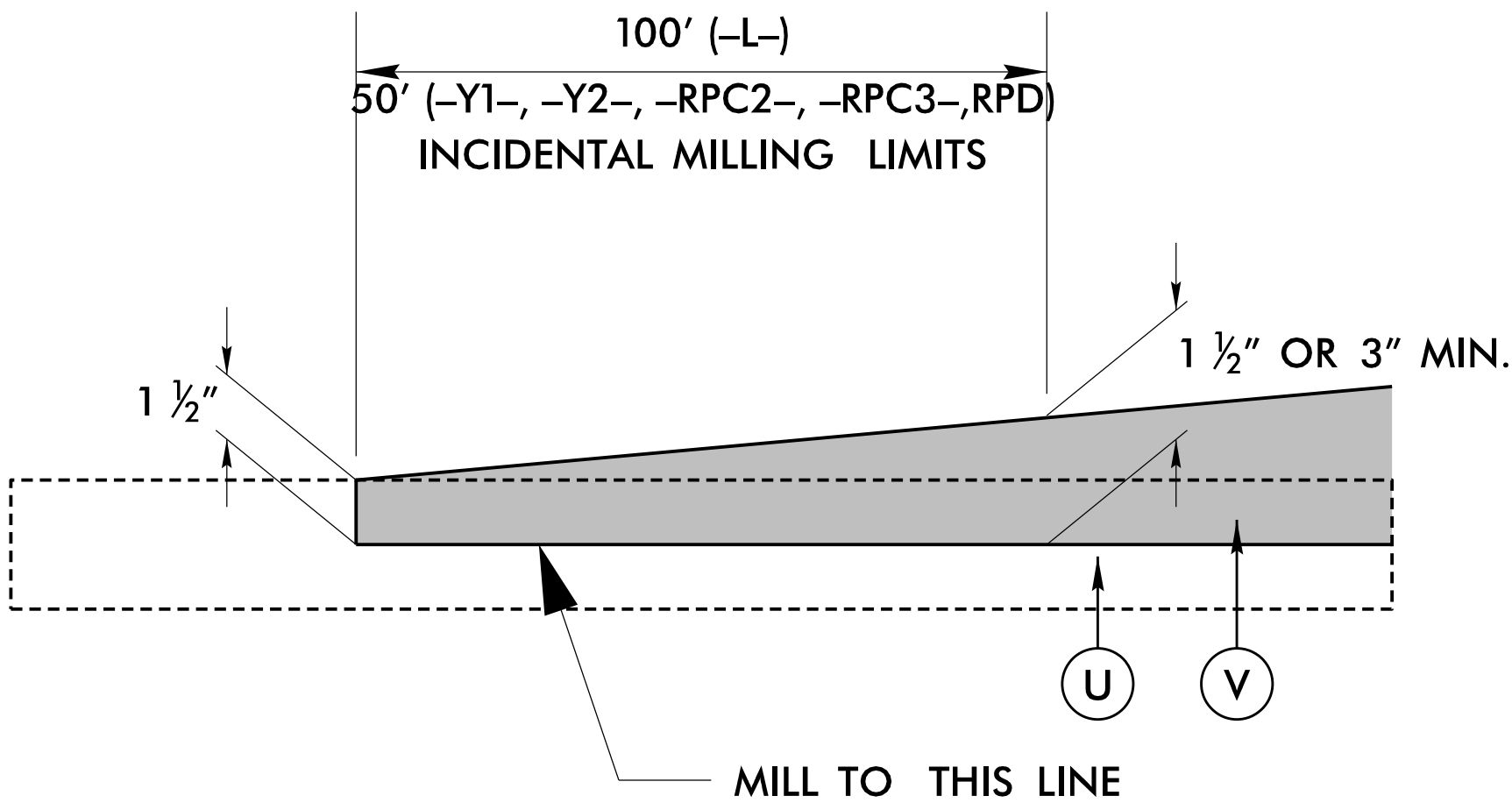
PAVEMENT SCHEDULE FINAL PAVEMENT DESIGN	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE,TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE,TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS.PER SQ. YARD PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" 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 CONCRETEE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.
E2	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 5.5"IN DEPTH OR LESS THAN 3" IN DEPTH.
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	5" MONOLITHIC CONCRETE ISLAND (KEYED IN).
R3	8"x12" CONCRETE CURB.
R4	SHOULDER BERM GUTTER
S	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING BITUMINOUS PAVEMENT 1.5"
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL SHOWING METHOD OF WEDGING NO. 1)

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

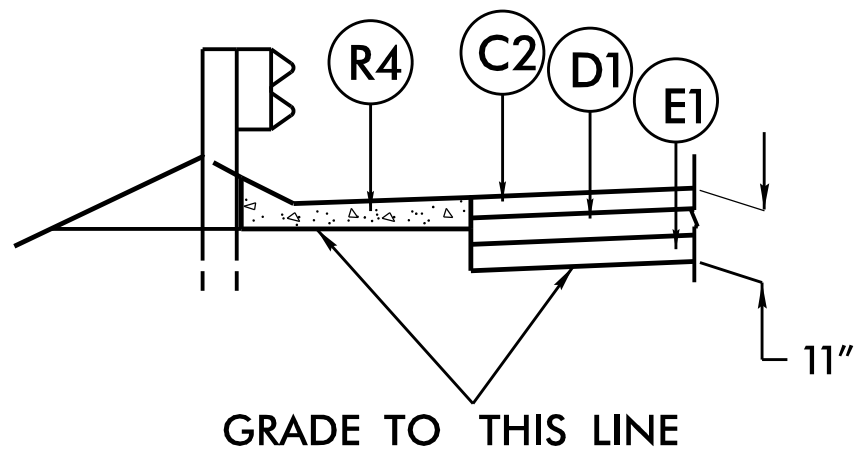


W1: Detail Showing Method of Wedging

USE THIS DETAIL IN CONJUNCTION
WITH TYPICAL SECTIONS #2, #6, #7, #9, #10

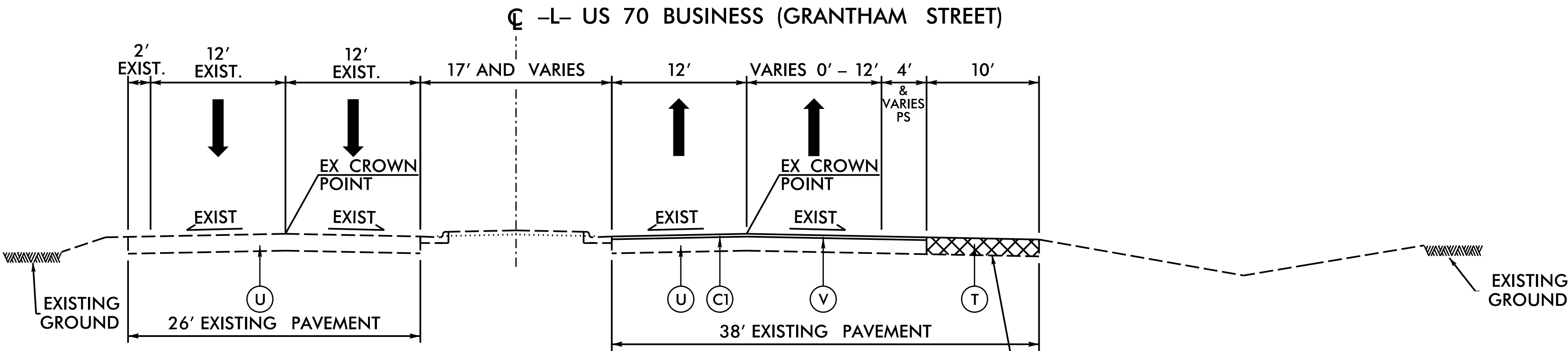


DETAIL SHOWING INCIDENTAL MILLING
PAVEMENT TIE-IN



DETAIL SHOWING SHOULDER BERM GUTTER (SBG)
ON TOP OF SUBGRADE

-L- STA. 33+60 TO -L- STA. 34+55 (RT)



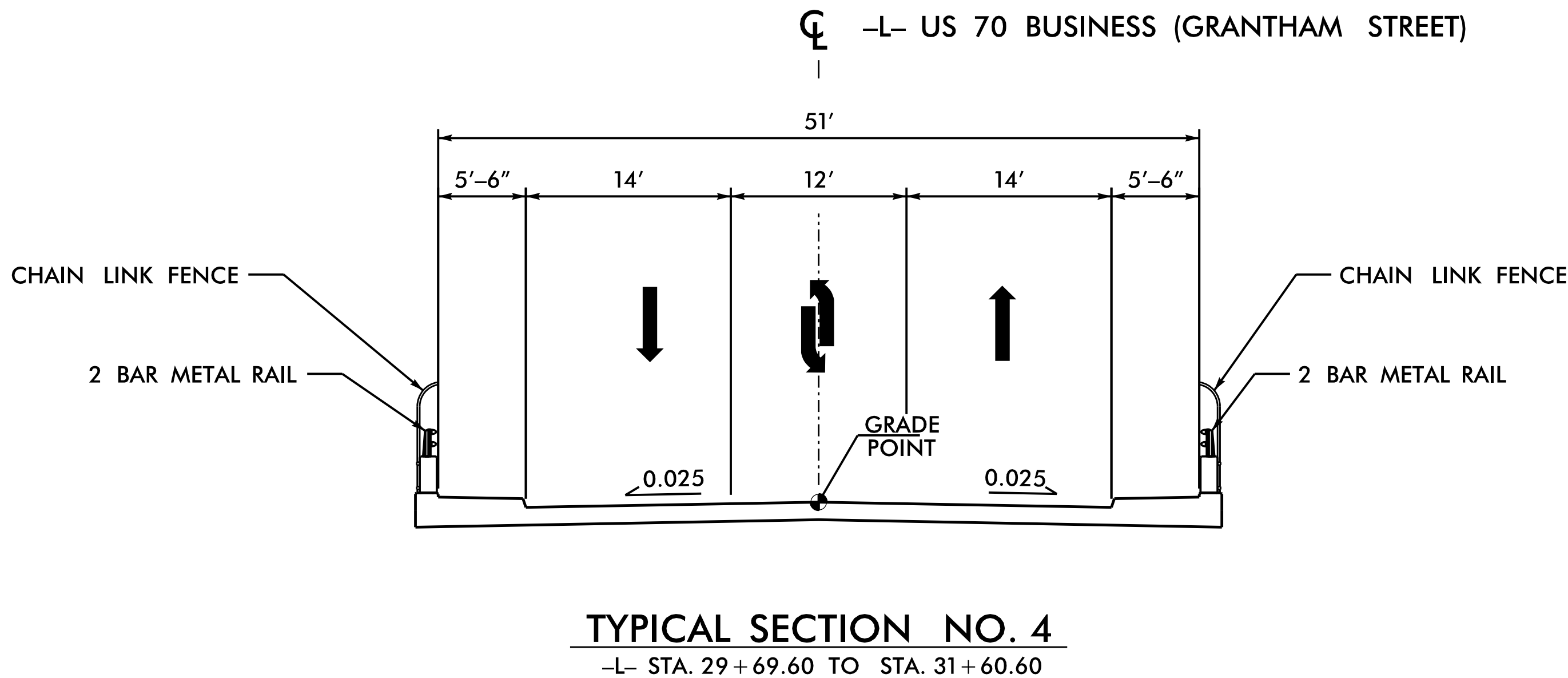
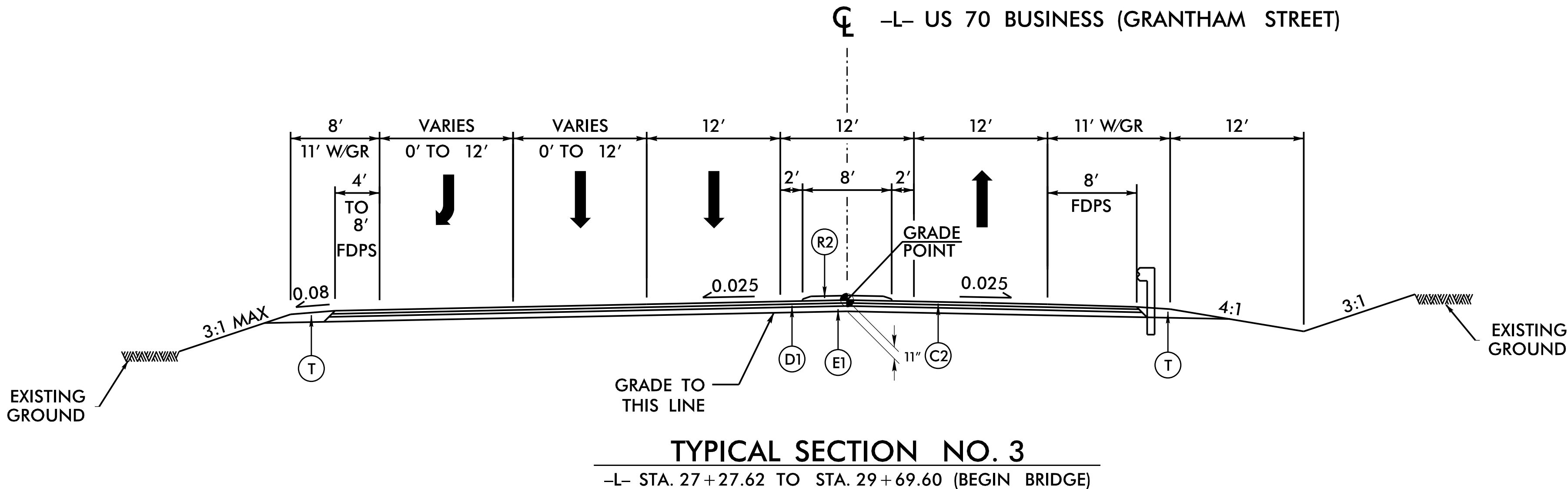
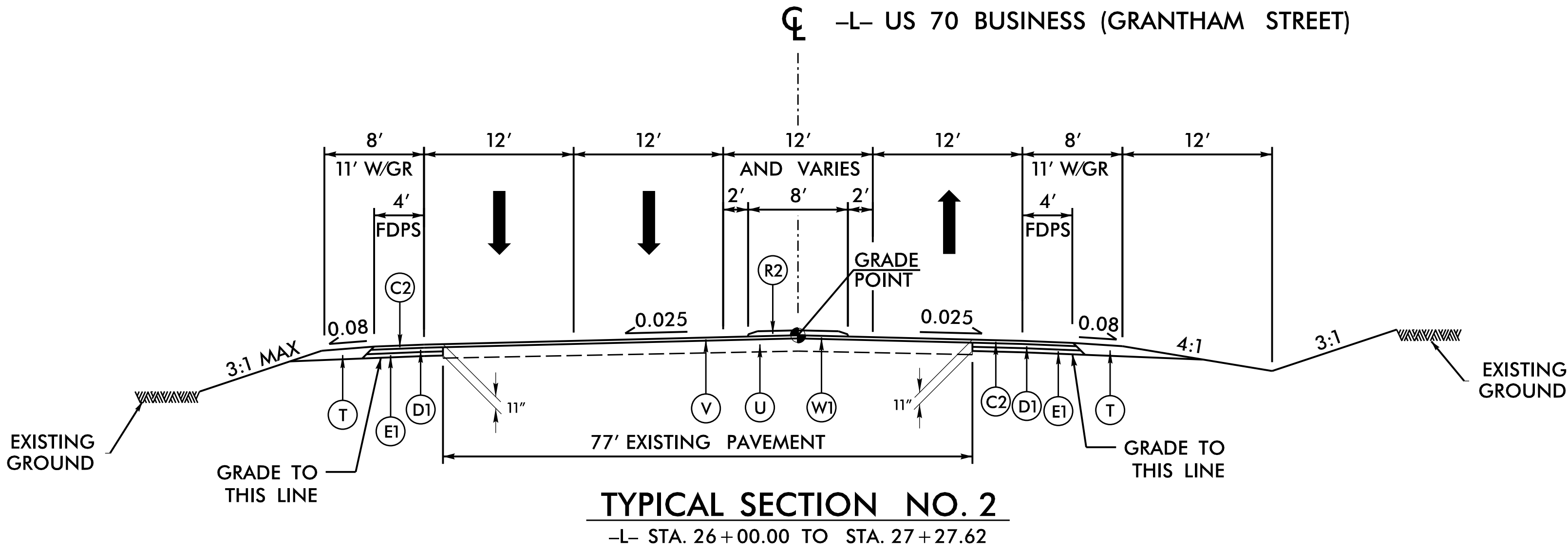
TYPICAL SECTION NO. 1

-L- STA. 13+00.00 TO STA. 26+00.00

REMOVE EXISTING OUTSIDE LANE
AND REGRADE SHOULDER PER
NCDOT STANDARDS
SEE PLANS FOR LOCATIONS

PROJECT REFERENCE NO. B-4838		SHEET NO. 2A-1
RW SHEET NO.		
ROADWAY DESIGN ENGINEER 11/3/2025 NORTH CAROLINA PROFESSIONAL SEAL 049634 MOHAMMED EL-LAB	PAVEMENT DESIGN ENGINEER 11/4/2025 NORTH CAROLINA PROFESSIONAL SEAL 038176 SHIYU ZHANG	
Prepared in the Office of: AECOM 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27607 (919) 461-4000		
NC FIRM LICENSE No F-0342 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27607 (919) 461-4000		
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6/2/2024 10:24:20 AM C:\Users\mohammed.fallah\Documents\60598150-NCDDT_SMU_B-4838\900-CAD_GIS\910_CAD\70_NCDOT_TIP\Roadway\Proj\B4838_Rdy_tup.dgn

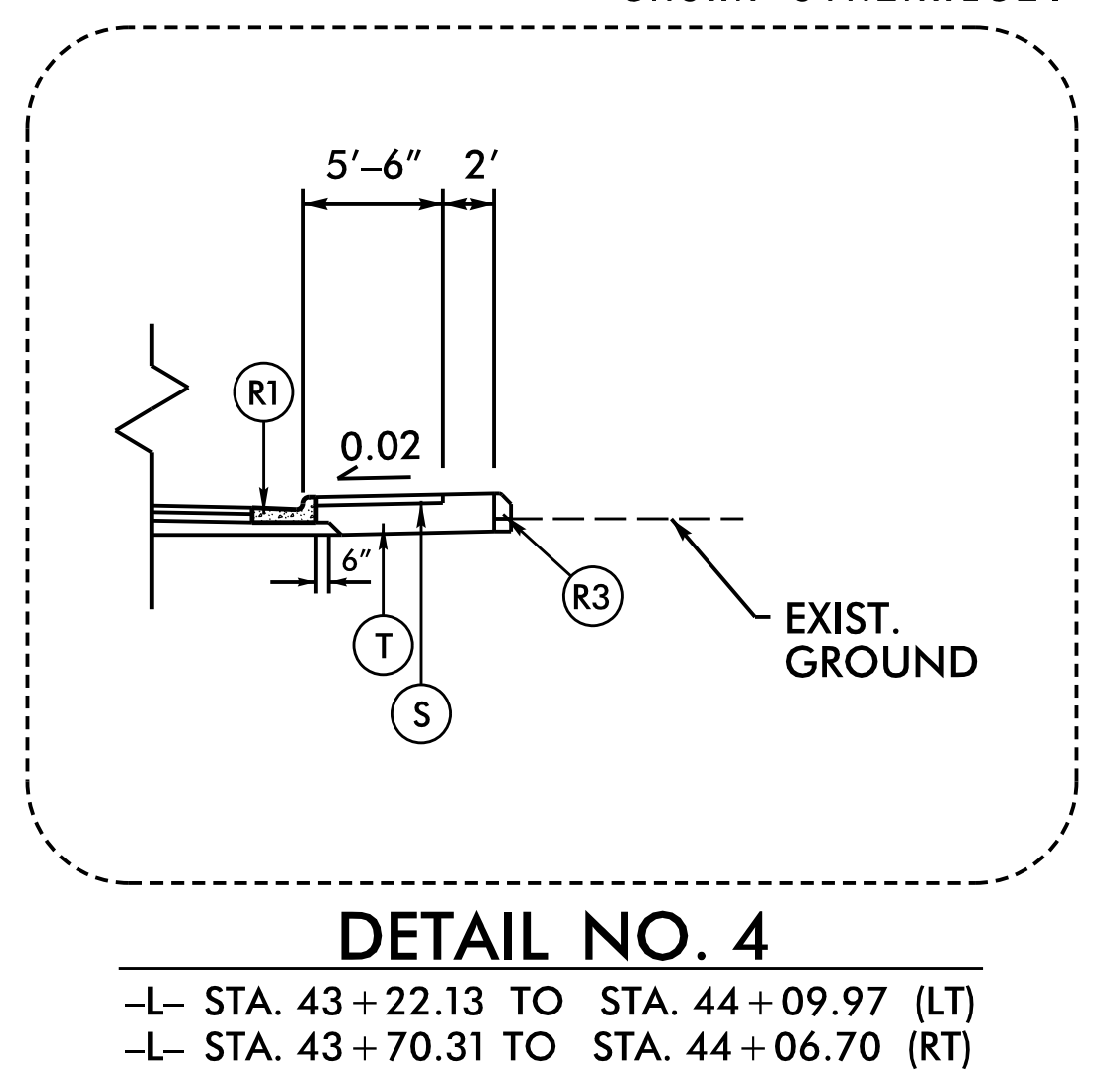
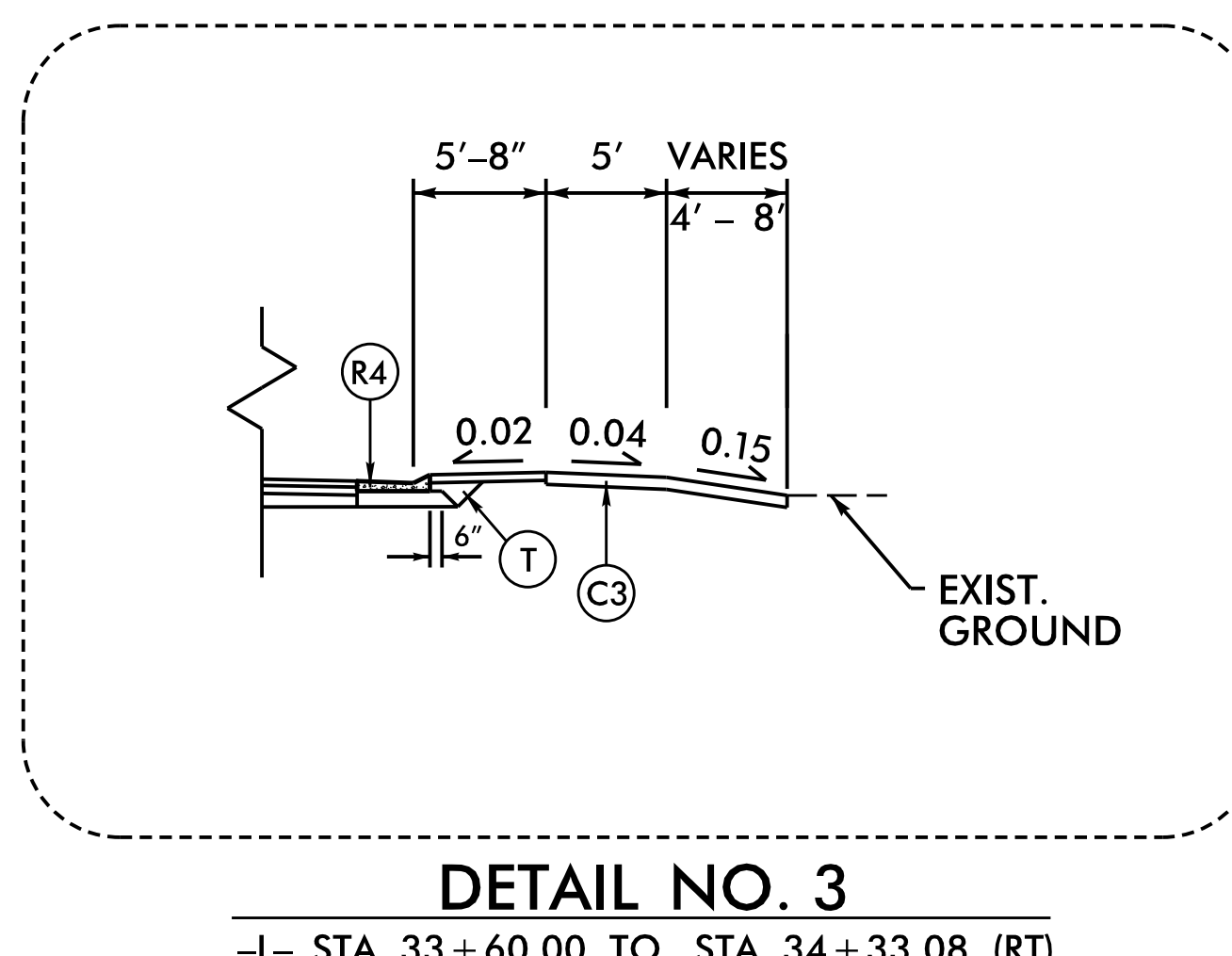
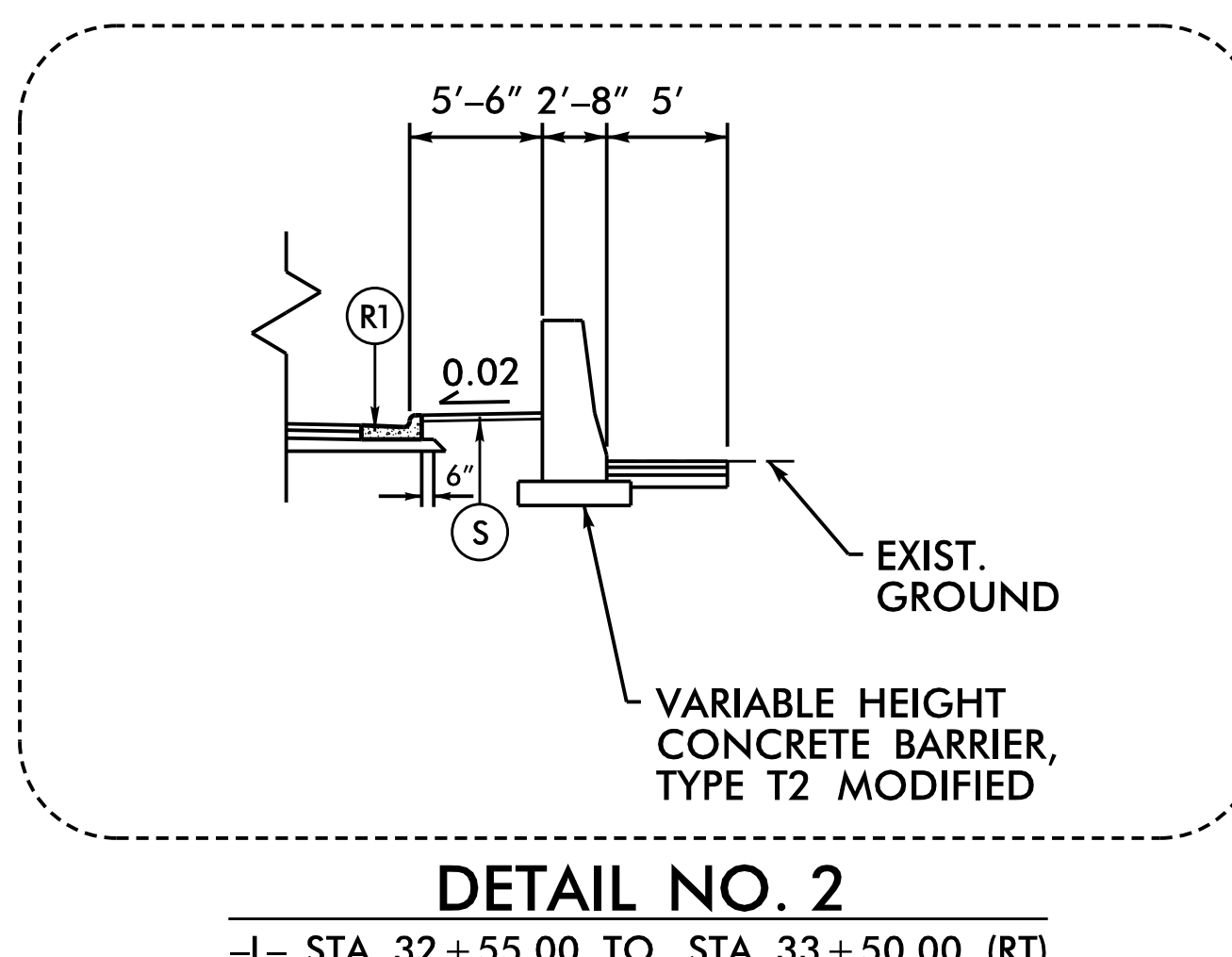
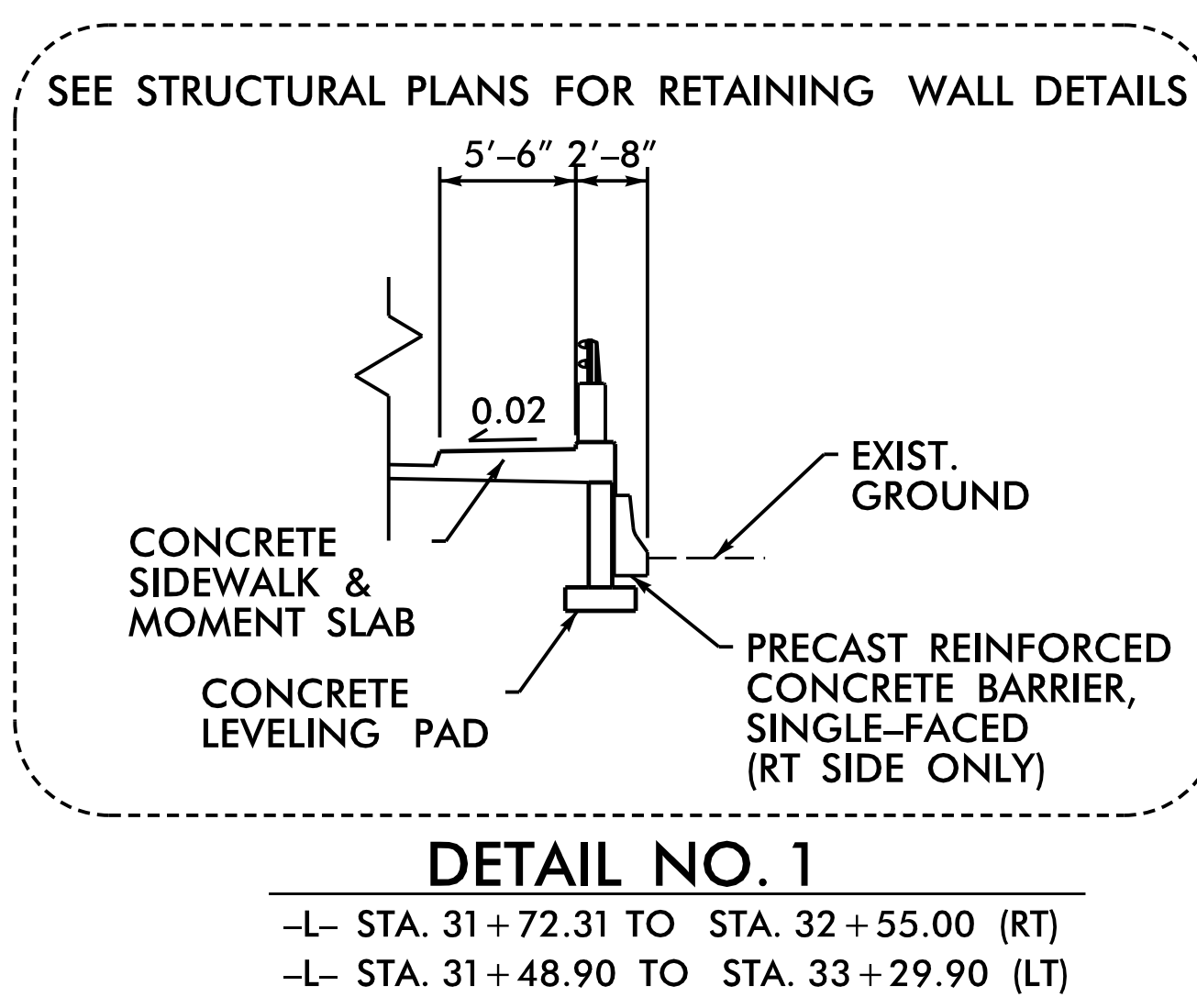
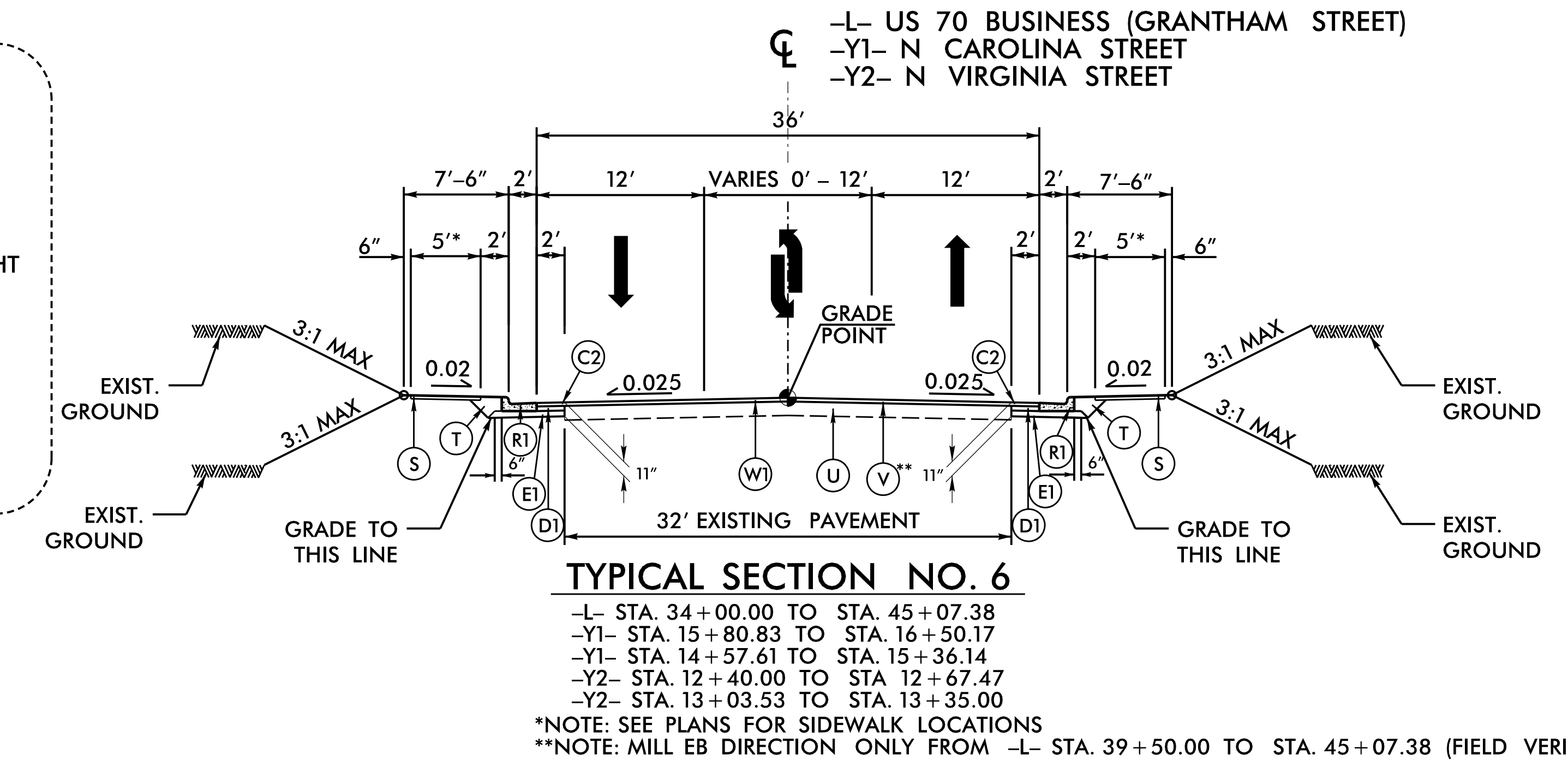
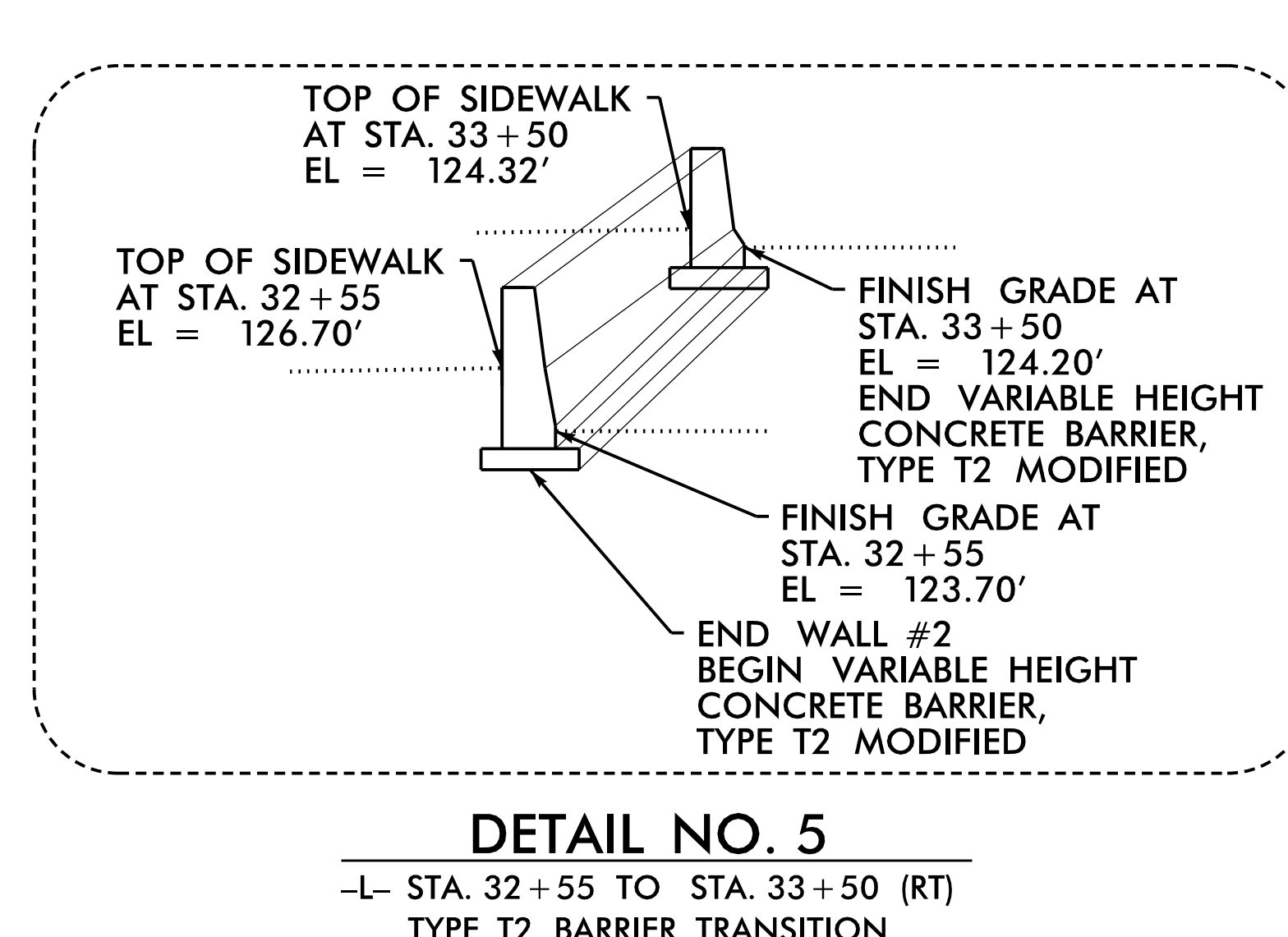
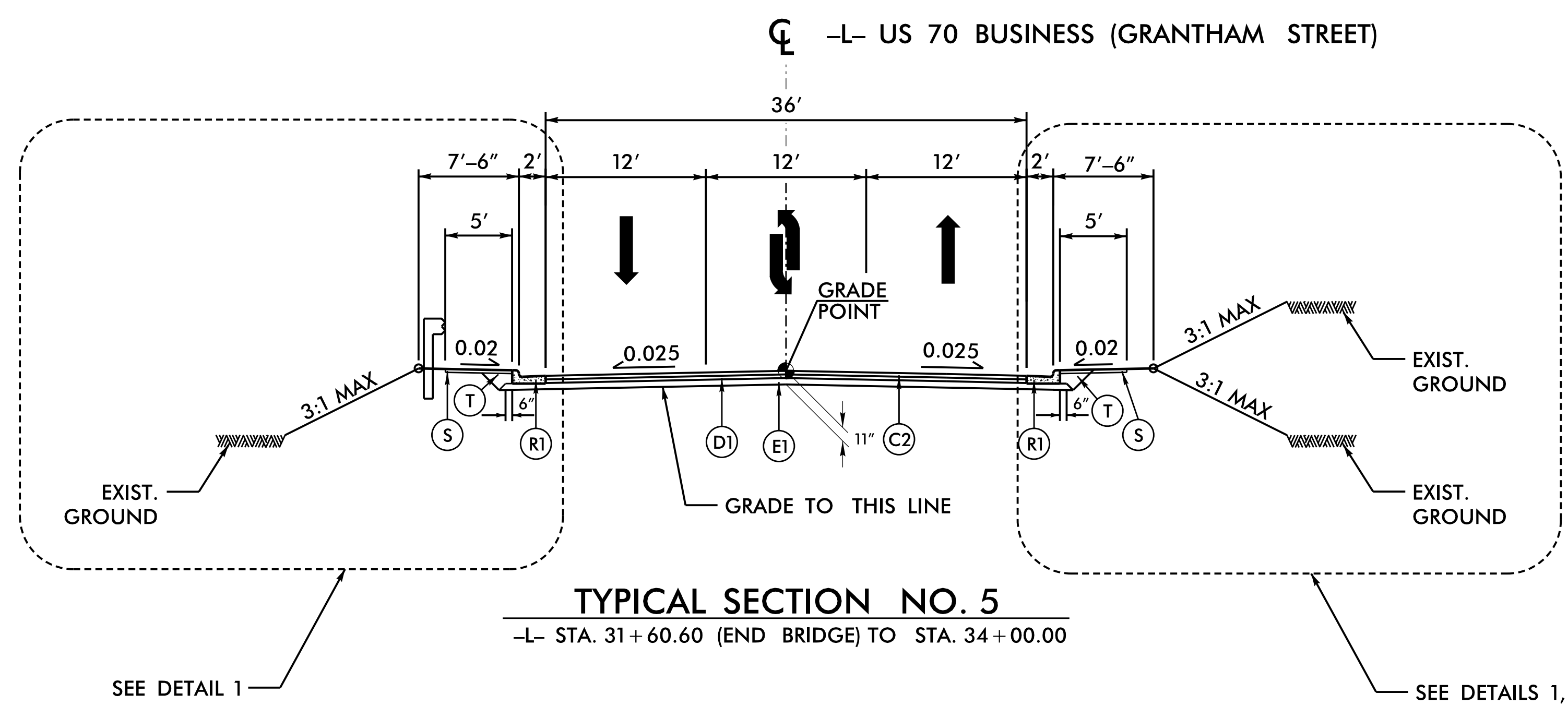


PROJECT REFERENCE NO.	SHEET NO.
B-4838	2A-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
Prepared in the Office of: AECOM NC FIRM LICENSE No F-0342 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27607 (919) 461-4000	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

PAVEMENT DESIGN	
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
D1	4" I19.0C
D2	VAR. I19.0C
E1	4" B25.0C
E2	VAR. B25.0C
R1	2'-6" CONC. C&G
R2	5" MONO CONC ISLAND
R3	8"X12" CONC. CURB
R4	SH. BERM GUTTER
S	4" CONC. SW
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	MILLING BIT PAVEMENT 1.5"
W1	WEDGE DET. NO. 1

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

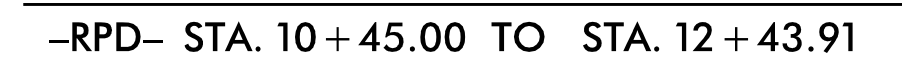
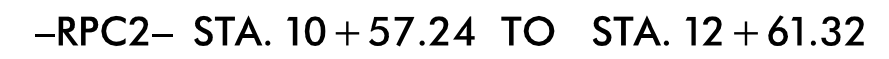
6/2/2025 11/2/2025
\\p01\c025\com-ng-pw-bentley\com\AECOM_USA_North_Carolina\Documents\60598150-NCDDT_SMU_B-4838\900-CAD_GIS\910-CAD\70-NCDDT_TIP\Roadway\Proj\B4838_Rdy_tup.dgn
6/2/2025 11/2/2025



PROJECT REFERENCE NO. B-4838	SHEET NO. 2A-3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 11/3/2025 NORTH CAROLINA PROFESSIONAL SEAL 049634 MOHAMMED EL-LAH	PAVEMENT DESIGN ENGINEER 11/4/2025 NORTH CAROLINA PROFESSIONAL SEAL 038176 SULEYMAN ZHANG
Prepared in the Office of: AECOM NC FIRM LICENSE No F-0342 5438 Wode Park Boulevard, Suite 200 Raleigh, NC 27607 (919) 461-1000	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

PAVEMENT DESIGN	
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
D1	4" I19.0C
D2	VAR. I19.0C
E1	4" B25.0C
E2	VAR. B25.0C
R1	2'-6" CONC. C&G
R2	5" MONO CONC ISLAND
R3	8"X12" CONC. CURB
R4	SH. BERM GUTTER
S	4" CONC. SW
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	MILLING BIT PAVEMENT 1.5"
W1	WEDGE DET. NO. 1

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



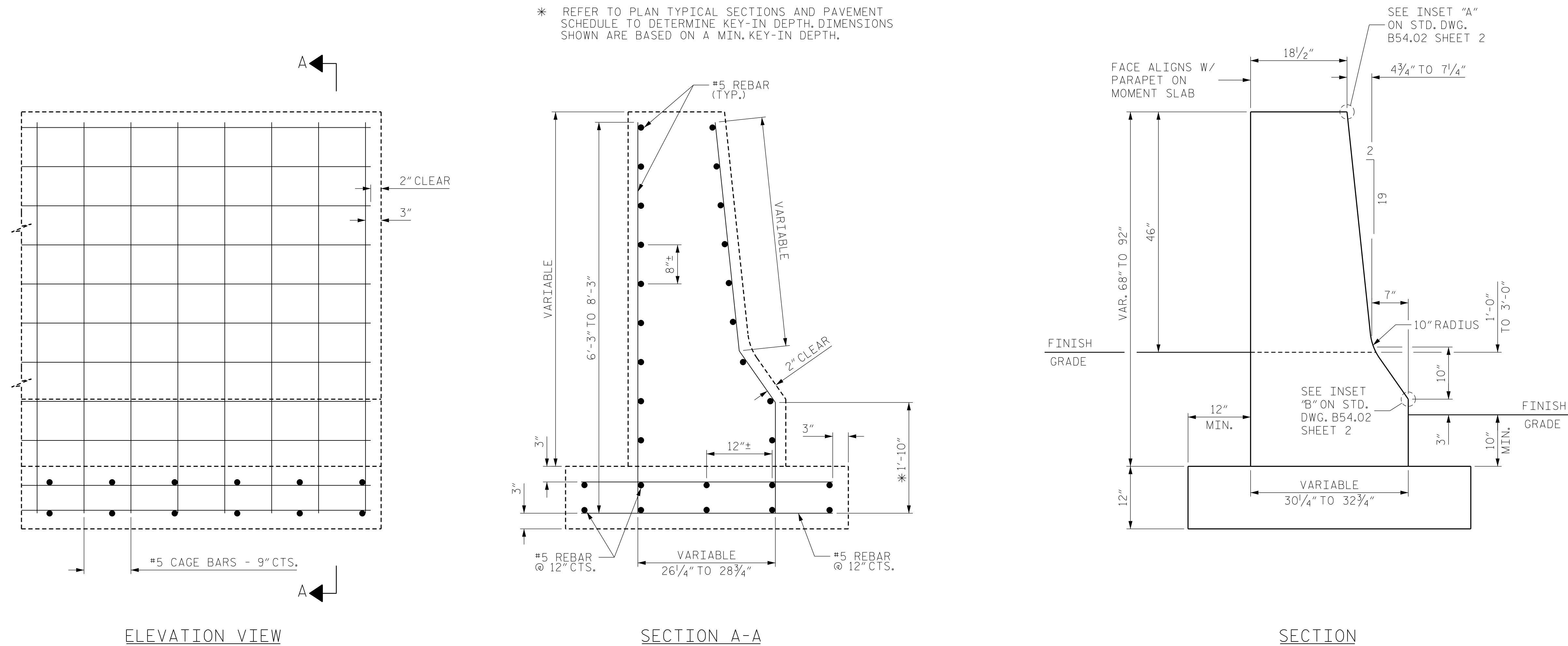
NOTE: PAVEMENT EDGE
SLOPES ARE 1:1 UNLESS
SHOWN OTHERWISE.

10/24/2024
pw:\\aecom
mohammed.f

NOTES:

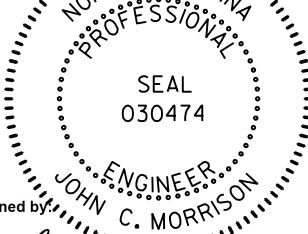
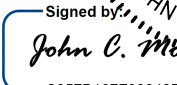
1. REFER TO PLAN SHEET 2A-3 FOR PROPER BARRIER ORIENTATION
2. CONSTRUCT CONCRETE BARRIER OF CLASS 'AA' CONCRETE. (SEE STANDARD SPECIFICATIONS SECTION 854).
3. CONSTRUCT EXPANSION AND CONTRACTION JOINTS AS SHOWN ON ROADWAY STD. DWG. 854.02, SHEET 2
4. SEAL ALL EXPANSION JOINTS WITH JOINT FILLER AND JOINT SEALER. (SEE STANDARD SPECIFICATIONS SECTION 1028).
5. SUBMIT ALTERNATIVE METHODS FOR STEEL FABRICATION TO THE ENGINEER.
6. EVENLY SPACE HORIZONTAL REBAR 8" ±1" UNLESS OTHERWISE NOTED.
7. USE #5 BAR FOR HORIZONTAL STEEL AND #5 BAR FOR THE VERTICAL CAGE.
8. SUBMIT CHANGES IN STEEL PLACEMENT OR SIZE TO THE ENGINEER.
9. USE SPLICE LENGTHS EQUAL TO 20 TIMES THE DIAMETER OF THE BAR.
10. FOR VARIABLE HEIGHT CONCRETE BARRIER, TYPE T2 MODIFIED, SEE SPECIAL PROVISIONS.
11. VARIABLE HEIGHT CONCRETE BARRIER, TYPE T2 MODIFIED SHALL BE MEASURED AND PAID FOR IN LINEAR FEET AT THE UNIT PRICE FOR "GENERIC PAVING ITEM".

GENERIC PAVING ITEM
PAY LENGTH <u>95</u> LIN. FT.



STEEL PLACEMENT FOR CAST-IN-PLACE OR SLIP-FORM CONCRETE BARRIER

VARIABLE HEIGHT CONCRETE BARRIER, TYPE T2 MODIFIED

PROJECT REFERENCE NO.	SHEET NO.
B-4838	2B-1
RW SHEET NO.	
STRUCTURES ENGINEER	
11/4/2025	
	
Signed by  03678167P832420	
Prepared in the Office of:	NC FIRM LICENSE NO. F-0342 5438 Wade Farm Boulevard, Suite 200 Raleigh, NC 27607 (919) 462-1100
AECOM	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

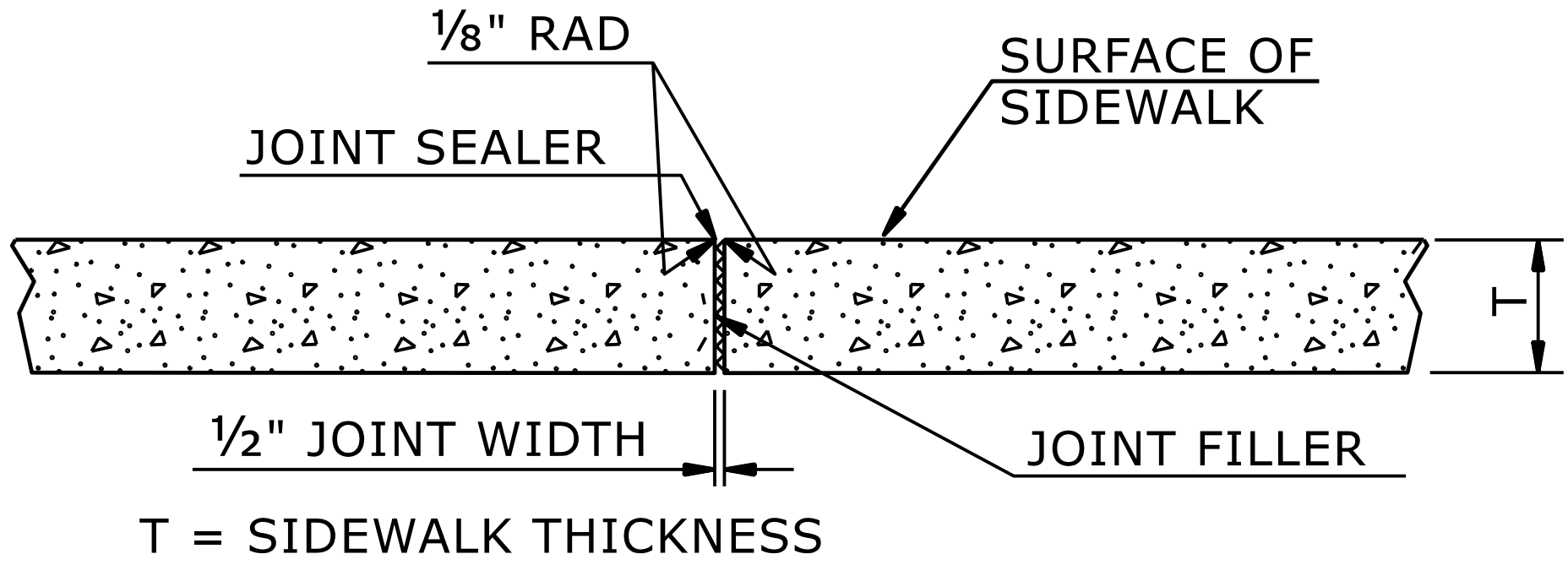
PROJECT REFERENCE NO.	SHEET NO.
B-4838	2C-1

NOTES:

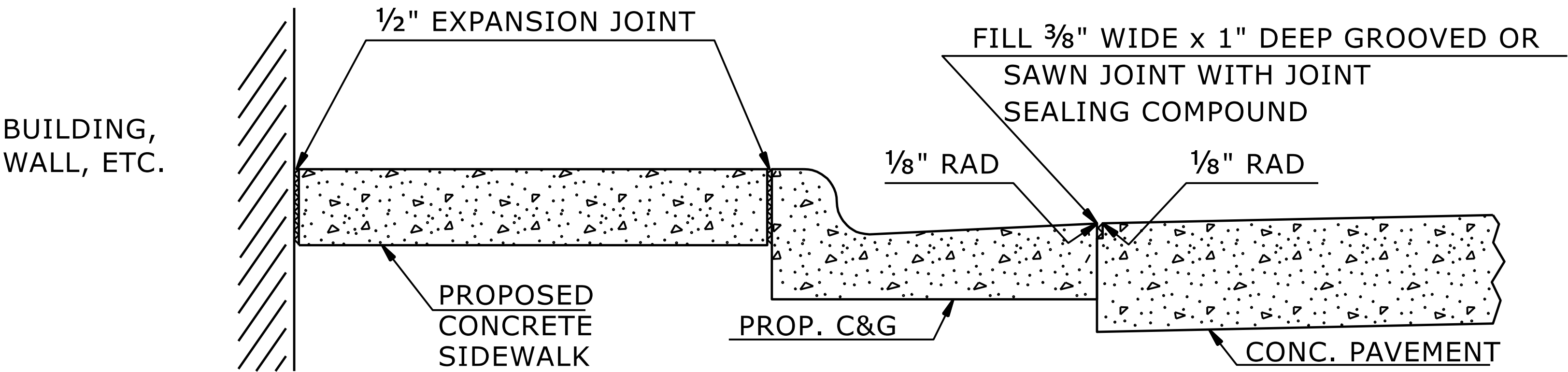
CONSTRUCT STANDARD SIDEWALK 5' WIDE AND 4" THICK UNLESS OTHERWISE DENOTED ON PLANS.

PLACE A GROOVE JOINT 1" DEEP WITH 1/8" RADII IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 50' INTERVALS. A 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.

SEE STD. DWG. 848.06 FOR CURB RAMP LOCATION REQUIREMENTS AND CONSTRUCTION GUIDELINES.



TRANSVERSE EXPANSION JOINT
IN SIDEWALK



DETAILS SHOWING JOINTS IN CONCRETE SIDEWALK

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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
CONCRETE SIDEWALK



SHEET 1 OF 1
848D01

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UNLESS ALL SIGNATURES COMPLETED

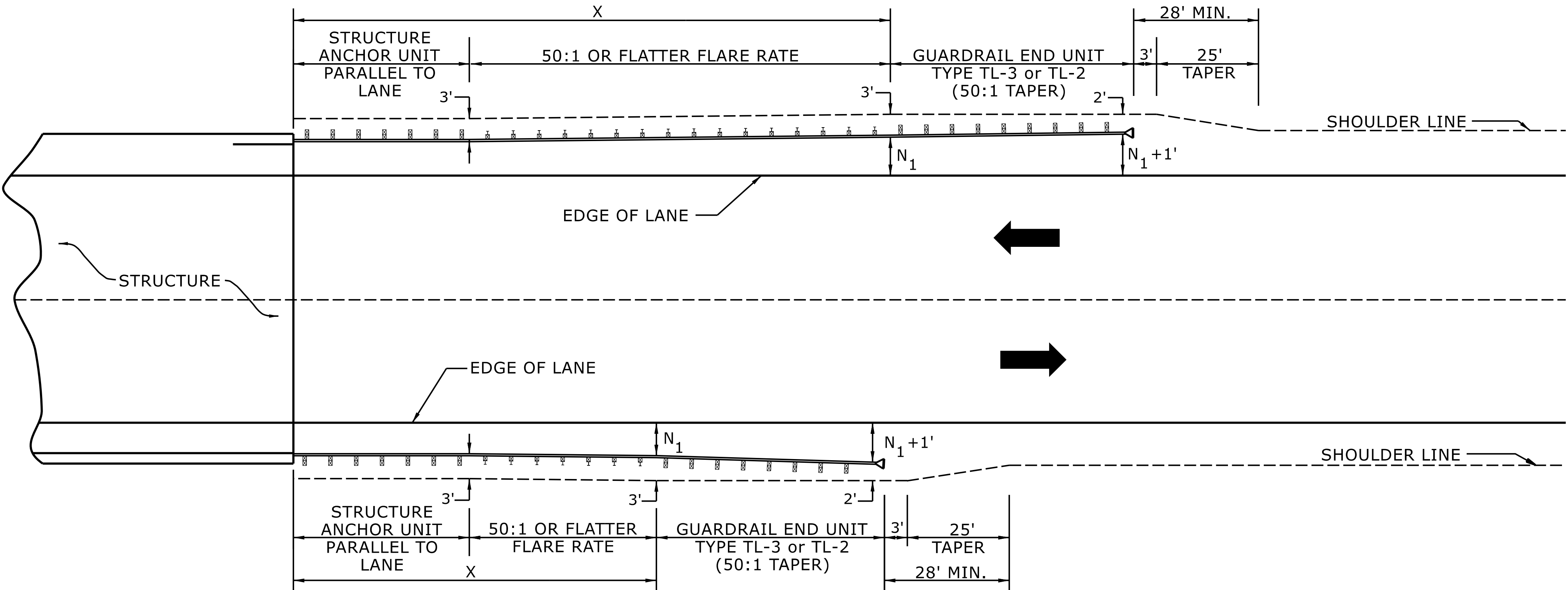
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**

Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: DATE:

PROJECT REFERENCE NO.	SHEET NO.
B-4838	2C-2



USE FLARE RATE AS THE CONTROL IF THE " N_1 " DISTANCE IS NOT OBTAINED.
(" N_1 " IS BASED ON SHOULDER WIDTHS IN THE ROADWAY DESIGN MANUAL)

SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

FOR POSTED SPEEDS $\geq$ 45MPH USE GREU TYPE TL-3
FOR POSTED SPEEDS $<$ 45MPH USE GREU TYPE TL-2

GUARDRAIL LENGTH OF NEED (X) IS CALCULATED BASED ON THE AASHTO ROADSIDE DESIGN GUIDE.

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RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT



LENGTHS AND OFFSETS FOR PROPOSED GUARDRAIL AT TWO LANE - TWO WAY LOCATIONS

SHEET 4 OF 15
862D01

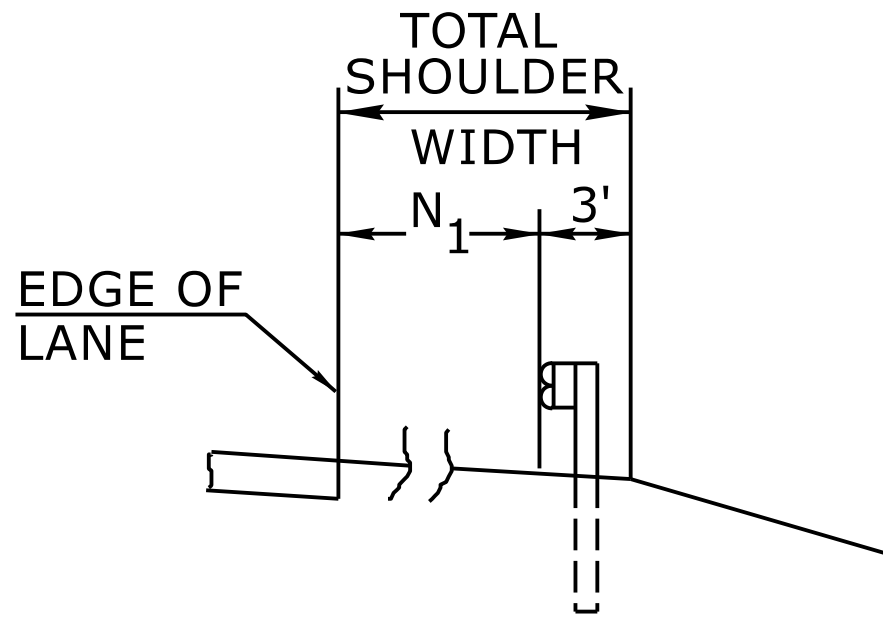
DOCUMENT NOT CONSIDERED FINAL
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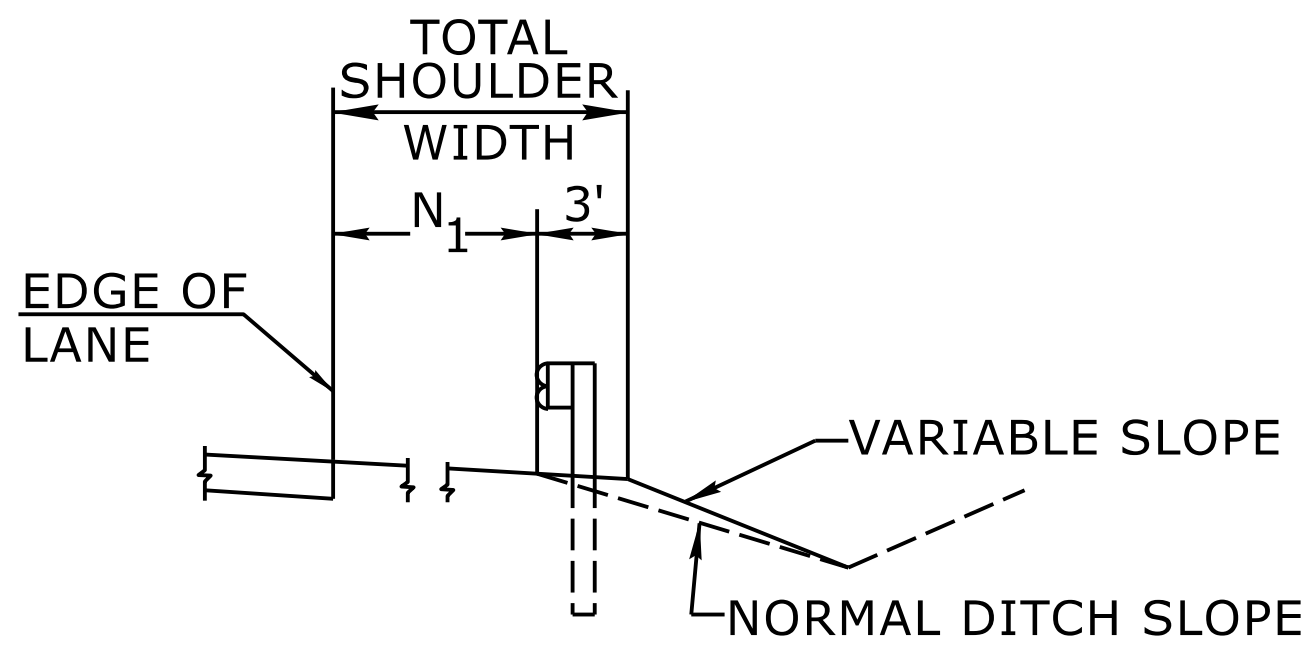
SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

PROJECT REFERENCE NO.	SHEET NO.
B-4838	2C-3

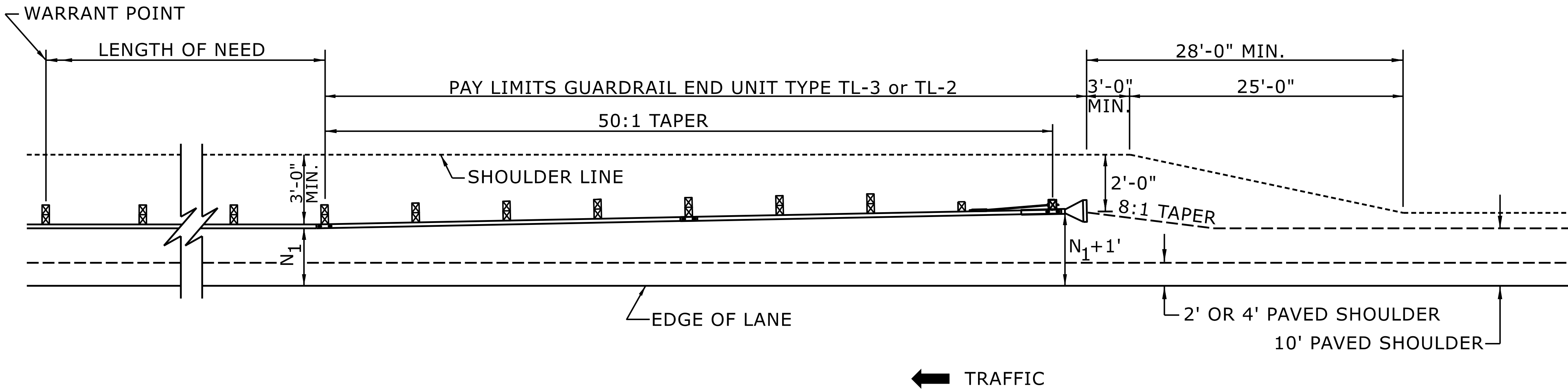


FILL SECTION



CUT SECTION

"N₁"= DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 15
862D01



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

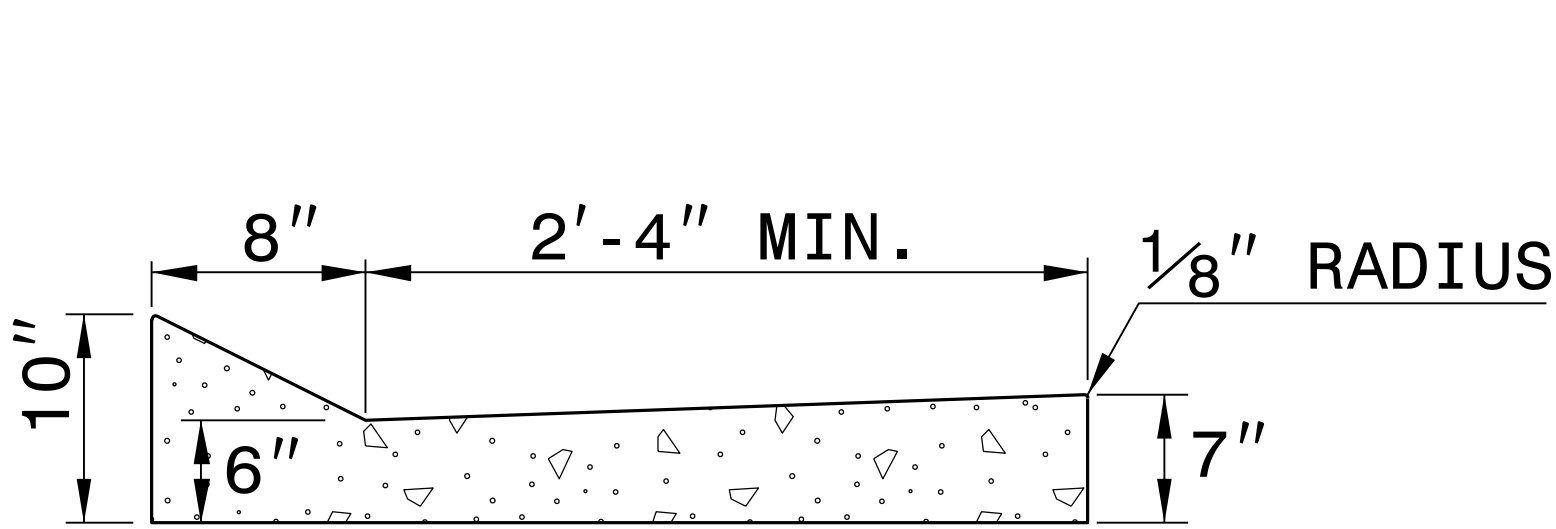
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**

Office 919-707-6950 FAX 919-250-4119

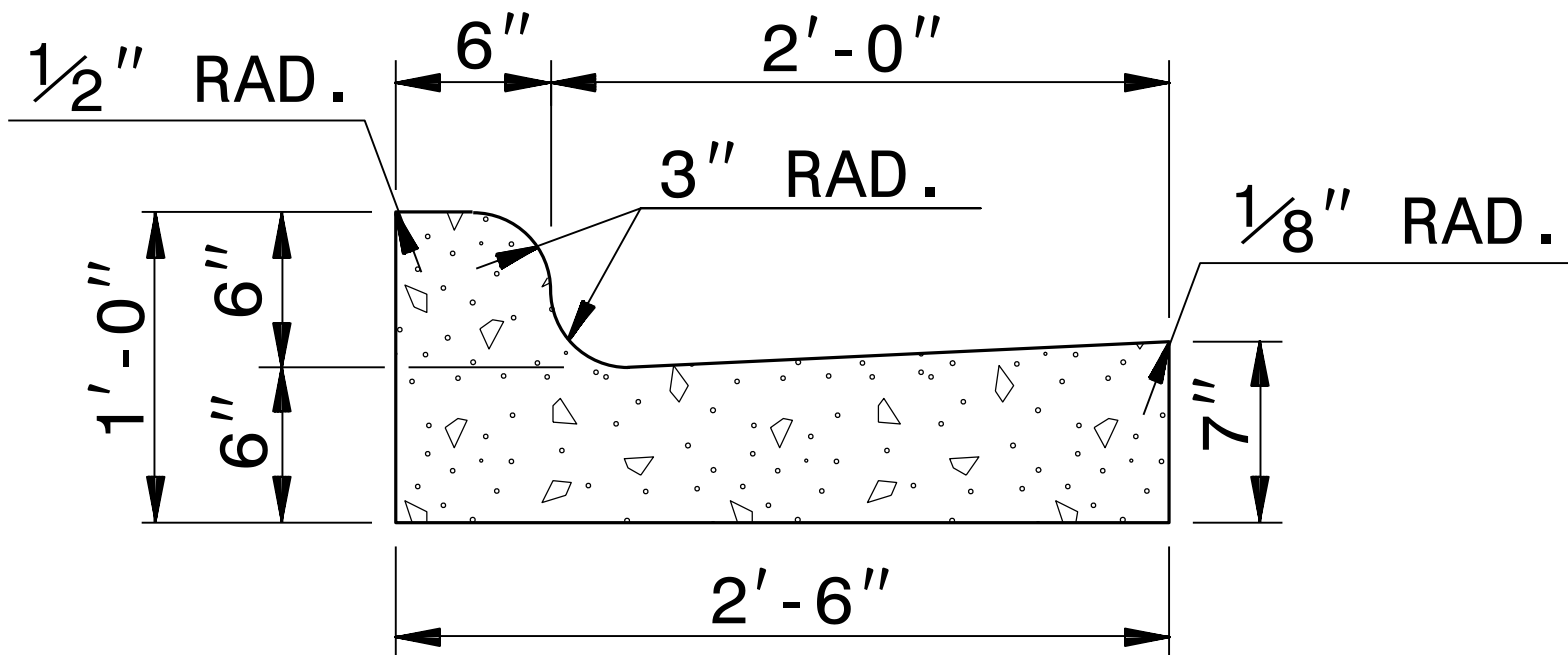
SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: DATE:

PROJECT REFERENCE NO.	SHEET NO.
B-4838	2C-4

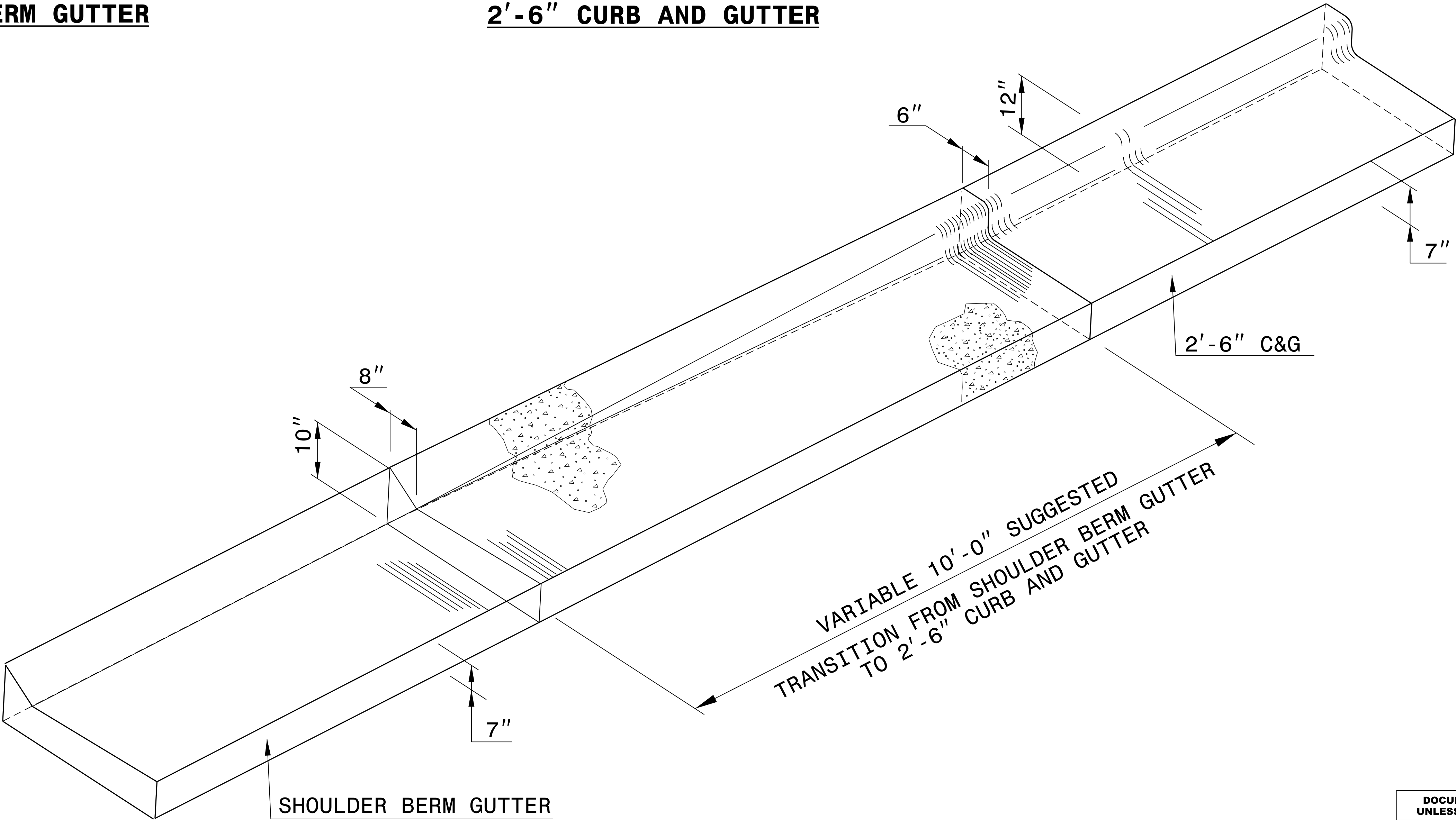


SHOULDER BERM GUTTER

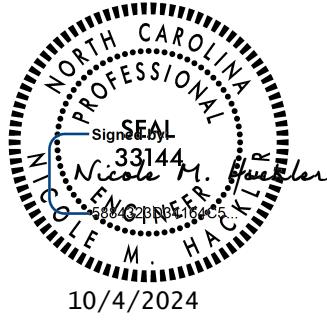


2'-6" CURB AND GUTTER

*NOTE: SEE STD. DWG. 846.01
FOR GENERAL NOTES



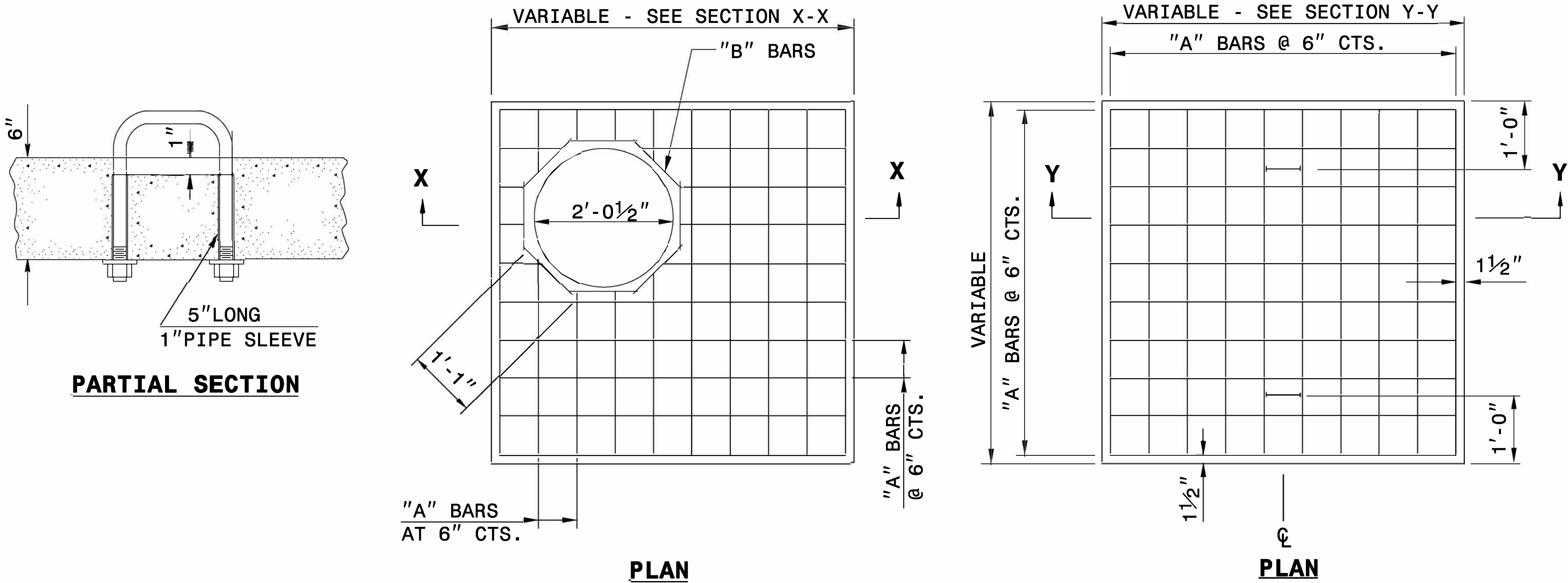
ISOMETRIC VIEW OF TRANSITION



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT Office 919-707-6950 FAX 919-250-4119	
DETAIL OF SHOULDER BERM GUTTER TO 2'-6" CURB & GUTTER TRANSITION SECTION	
ORIGINAL BY: E.E. WARD	DATE: 5-29-02
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: /usr/details/stand/cgtransit.dgn	

PROJECT REFERENCE NO.	SHEET NO.
B-4838	2C-5



GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

BILL OF MATERIALS

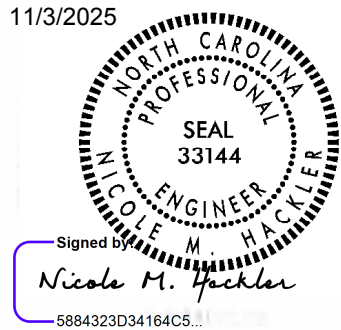
REINFORCING STEEL				
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *
MASONRY				CU YDS
TOP SLAB CONCRETE CLASS "B"				.4326 *
BRICK MASONRY PER FT HT (MIN)				.4111

* NOTE:
QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.

DETAIL OF HANDLE

SECTION X-X

SECTION Y-Y



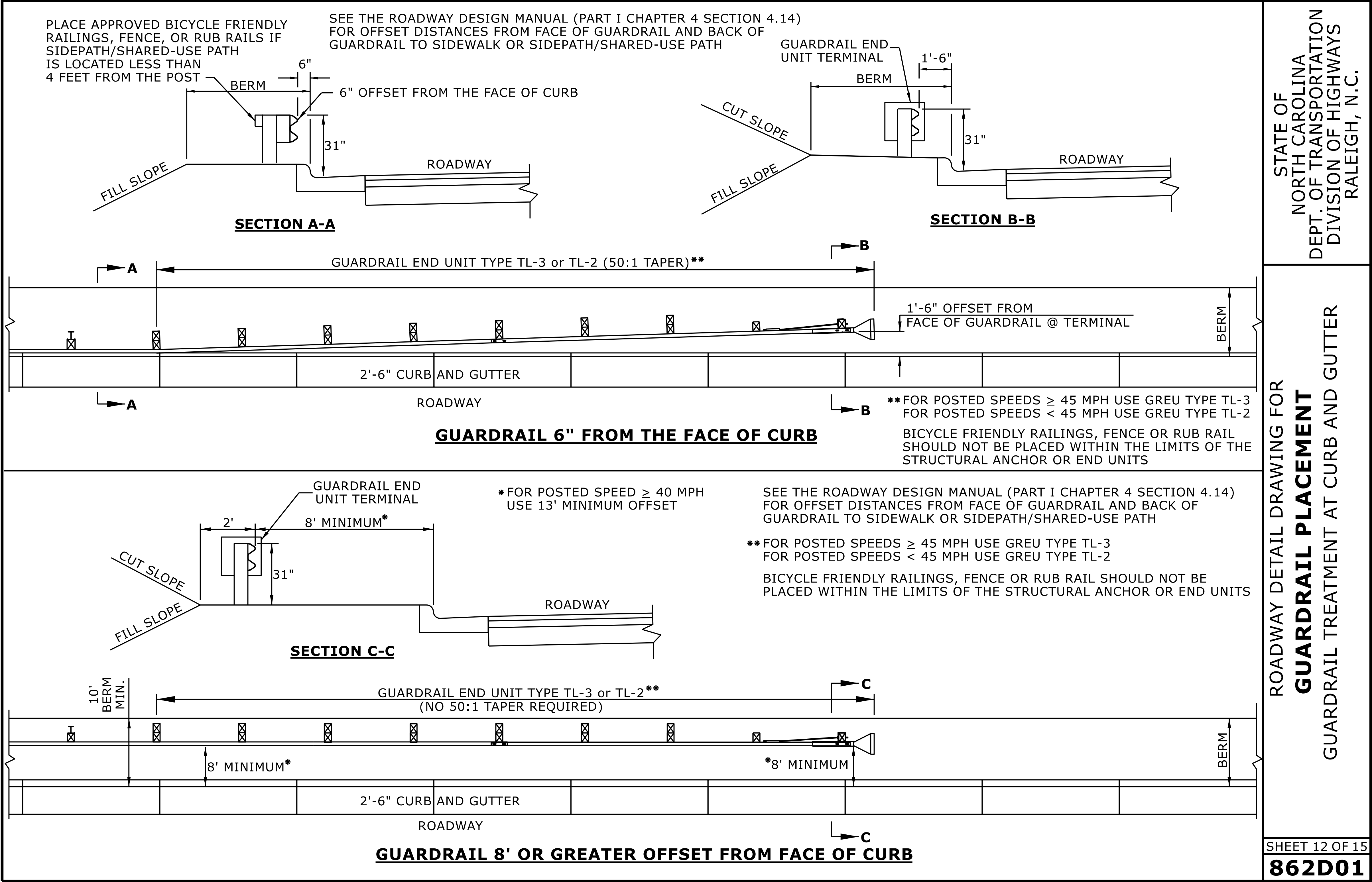
DOCUMENT NOT CONSIDERED FINAL
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AND DEVELOPMENT UNIT**
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**DETAIL TO CONVERT EXISTING
DI, CB, OTCB or GI
TO JUNCTION BOX
(MANHOLE OPTIONAL)**

ORIGINAL BY: T.S.S. DATE: NOV. 1997
MODIFIED BY: T.S.S. DATE: FEB. 2000
CHECKED BY: DATE:
FILE SPEC.: ds174:/usr/details/stand/boxtojb.dgn

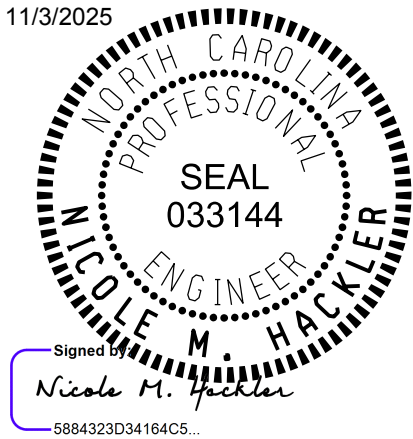
PROJECT REFERENCE NO.	SHEET NO.
B-4838	2C-6



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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT
GUARDRAIL TREATMENT AT CURB AND GUTTER

11/3/2025



SHEET 12 OF 15
862D01

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**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**

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SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: DATE:

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

ROADWAY DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FLEXIBLE PIPE

SHEET 1 OF 2
300.01

TOP OF FILL

TOP OF FILL

TOP OF FILL

TOP OF FILL

TOP OF FILL

TOP OF FILL

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

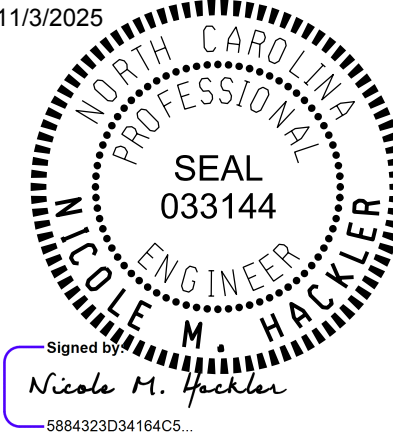
REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.



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**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**

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SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: DATE:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

IN CUBIC YARDS

[illegible]

CONTINGENCY ITEMS PER NCDOT GEOTECHNICAL REPORT - RECOMMENDATIONS, DATED FEBRUARY 22, 2024.

SELECT GRANULAR MATERIAL = 400 CY
GEOTEXTILE FOR SOIL STABILIZATION = 400 SY

SUMMARY OF GUARDRAIL

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
NG = NON-GATING IMPACT ATTENUATOR TYPE 350
G = GATING IMPACT ATTENUATOR TYPE 350

[illegible]

ADDITIONAL GUARDRAIL POSTS = 5 EACH

COMPUTED BY: Andrew Drda DATE: 2/22/24

CHECKED BY: Jinyoung Park DATE: 2/22/24

(2-3-23)

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

PROJECT NO.

B-4838

SHEET NO.

3G-1

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	200
				TOTAL LF:	200

*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
CONTINGENCY			ASU(1)	12	100	200	300	0	0
			TOTAL CY/TONS/SY:		100	200**	300**	0	0

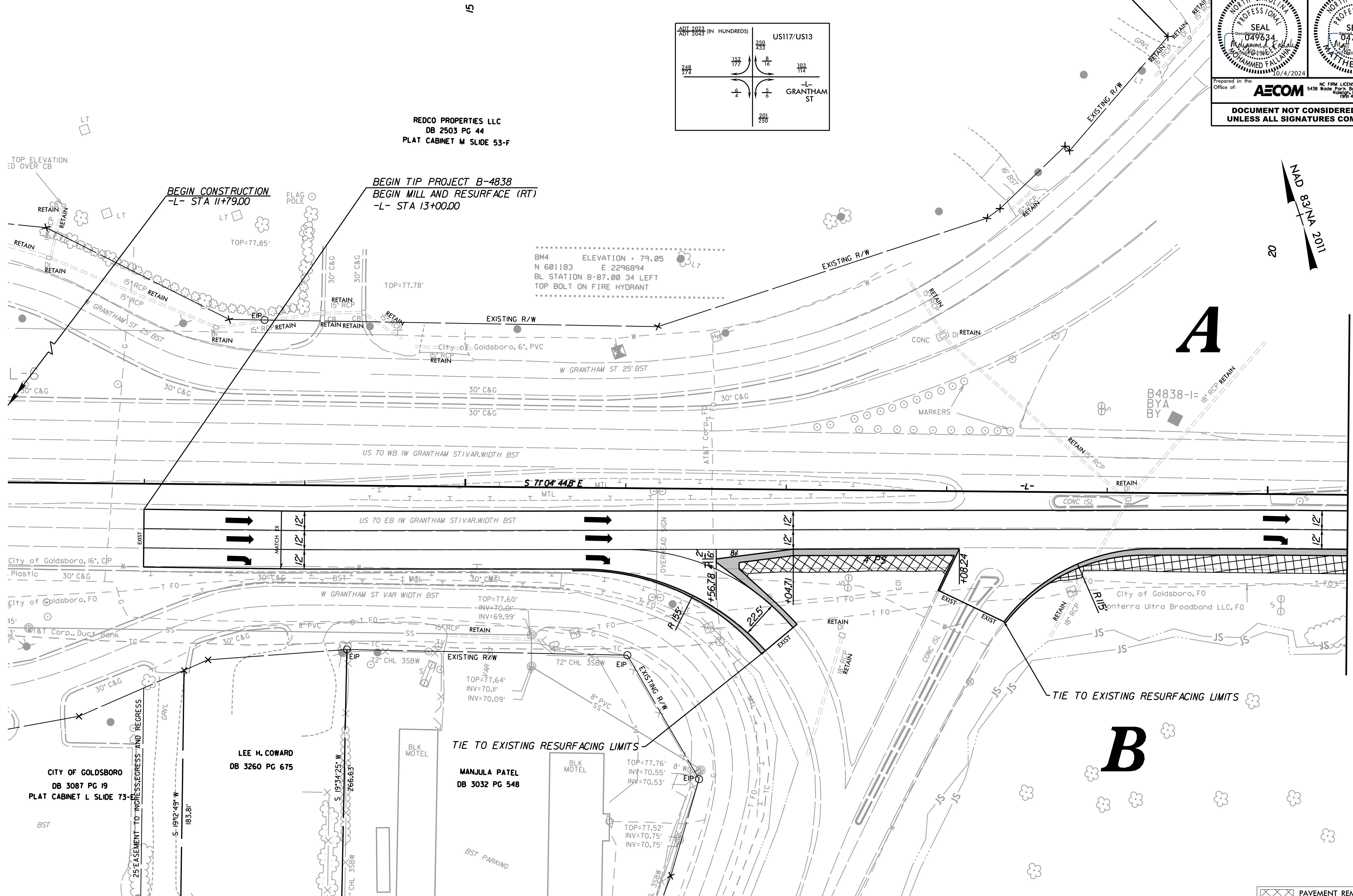
*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
*AST = Aggregate Stabilization

**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.

PROJ. REFERENCE NO.	SHEET NO.
B-4838	3P-1

[illegible][illegible]

FOR -L- PROFILE SEE SHEET 9



ADT 2023
ADT 2043 (IN HUNDREDS)

US117/US13

350
433

248
274

152
177

8
16

103
114

6
4

5
6

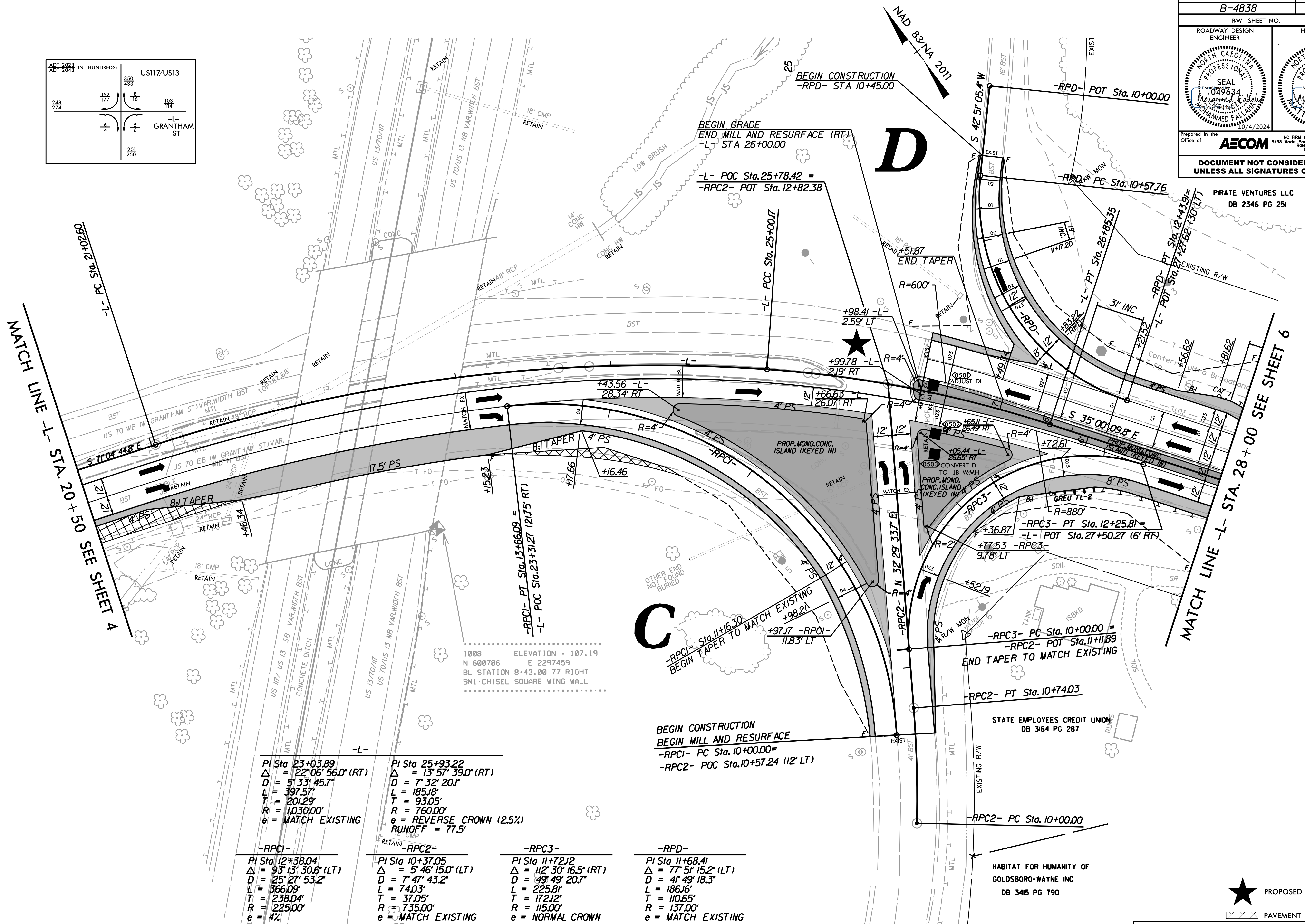
GRANTHAM ST

L-

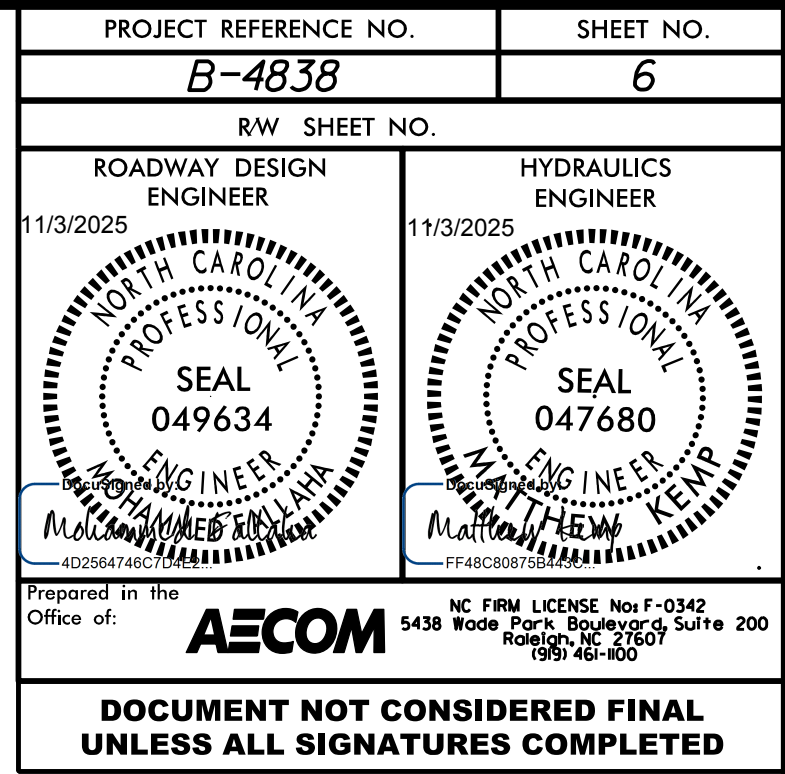
201
250

PROJECT REFERENCE NO.		SHEET NO.	
B-4838		5	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
10/4/2024		10/8/2024	
Prepared in the Office of:		NC. FIRE LICENSE No. F-0342 5438 Wade Road Raleigh, NC 27617 (919) 462-0020	
AECOM			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

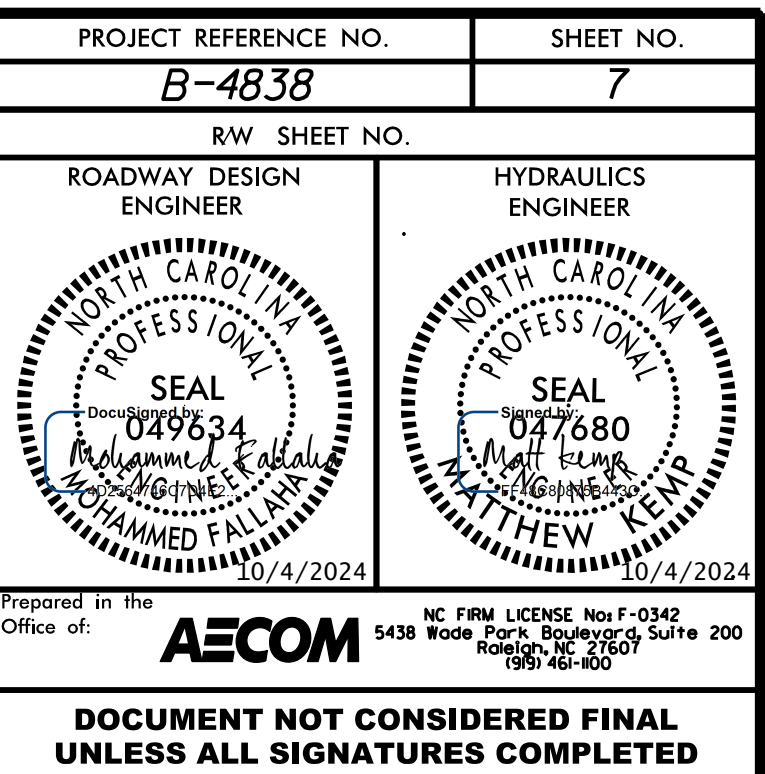
PIRATE VENTURES LLC
DB 2346 PG 25I



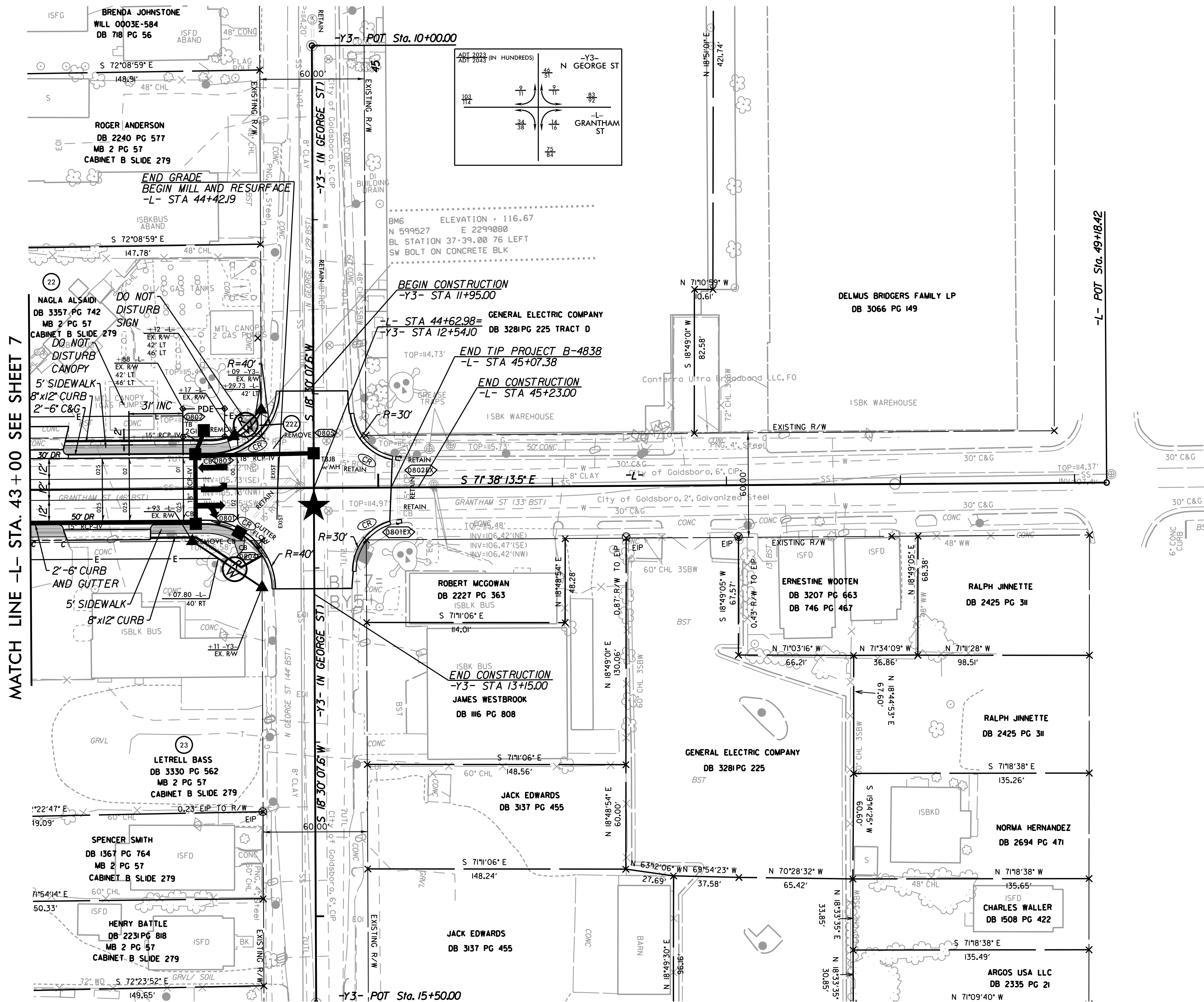
FOR -L- PROFILE SEE SHEET 9
FOR -RPC1- & -RPC2- PROFILES SEE SHEET 11
FOR -RPC3- & -RPD- PROFILES SEE SHEET 12

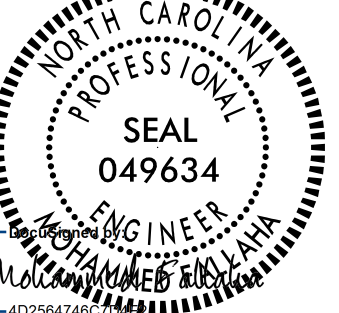


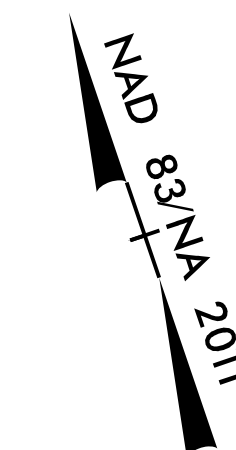
FOR WALL ENVELOPES SEE SHEETS W-1 THRU W-7
FOR STRUCTURE PLANS SEE SHEETS S-01 THRU S-52



FOR -L- PROFILE SEE SHEET 10
FOR -Y2- PROFILE SEE SHEET 11



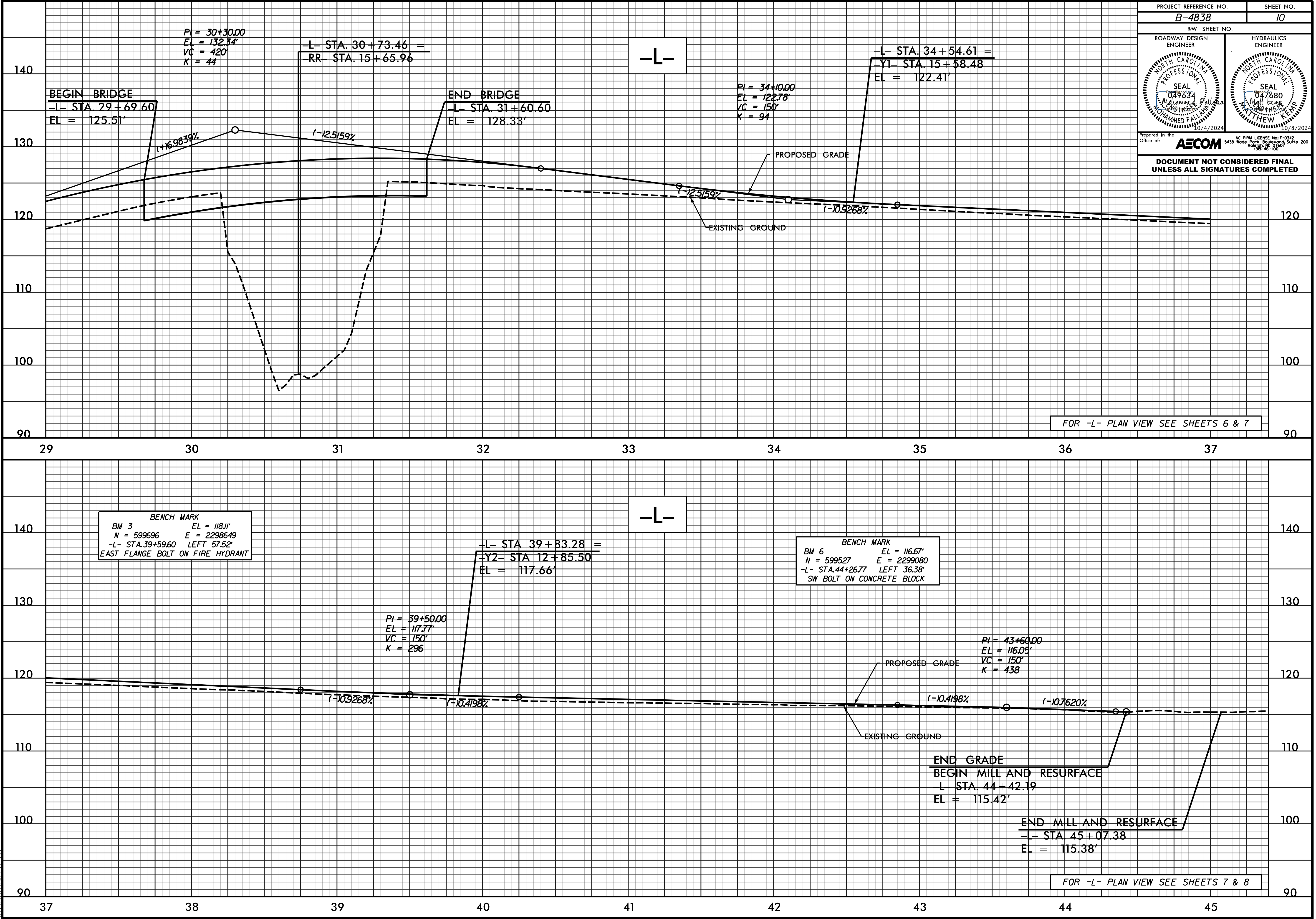
PROJECT REFERENCE NO.		SHEET NO.	
B-4838		8	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
11/3/2025		11/3/2025	
Prepared in the Office of:		NC FIRM LICENSE No.F-0342 5438 WOODBINE DRIVE, SUITE 200 ROSELAND, NC 28068 (704) 991-4000	
			
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ALL DRIVEWAYS ARE 16' UNLESS OTHERWISE NOTED

FOR -L- PROFILE SEE SHEET 10

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PROJECT REFERENCE NO. B-4838		SHEET NO. 10
R/W SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
Prepared in the Office of: AECOM NC FIRM LICENSE No. F-0342 5438 Wood Park Boulevard, Suite 200 Raleigh, NC 27607 (919) 461-4000		
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