

09_08/2019

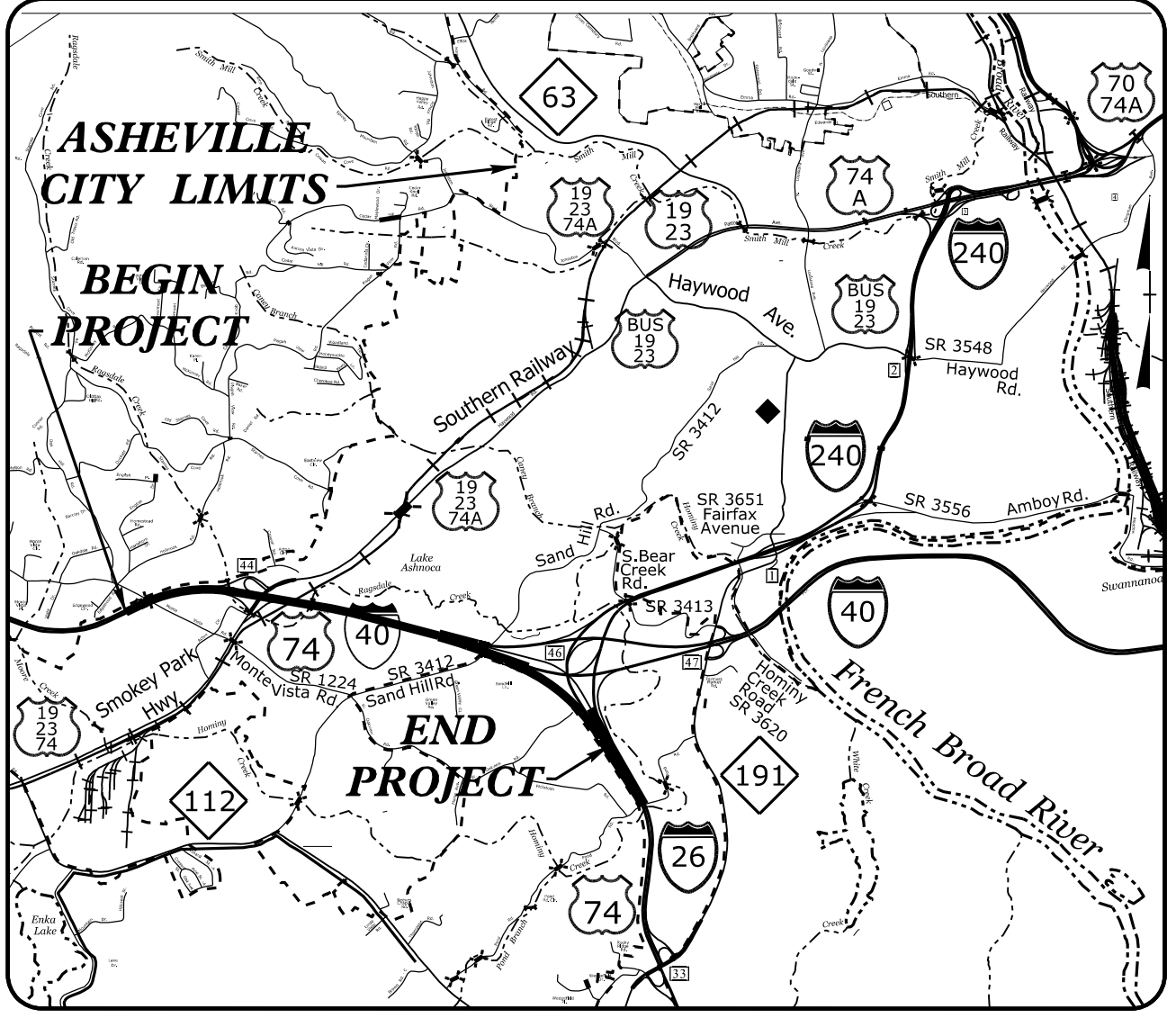
TIP PROJECT: I-2513AA/AB

CONTRACT: C204878

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

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS BUNCOMBE COUNTY

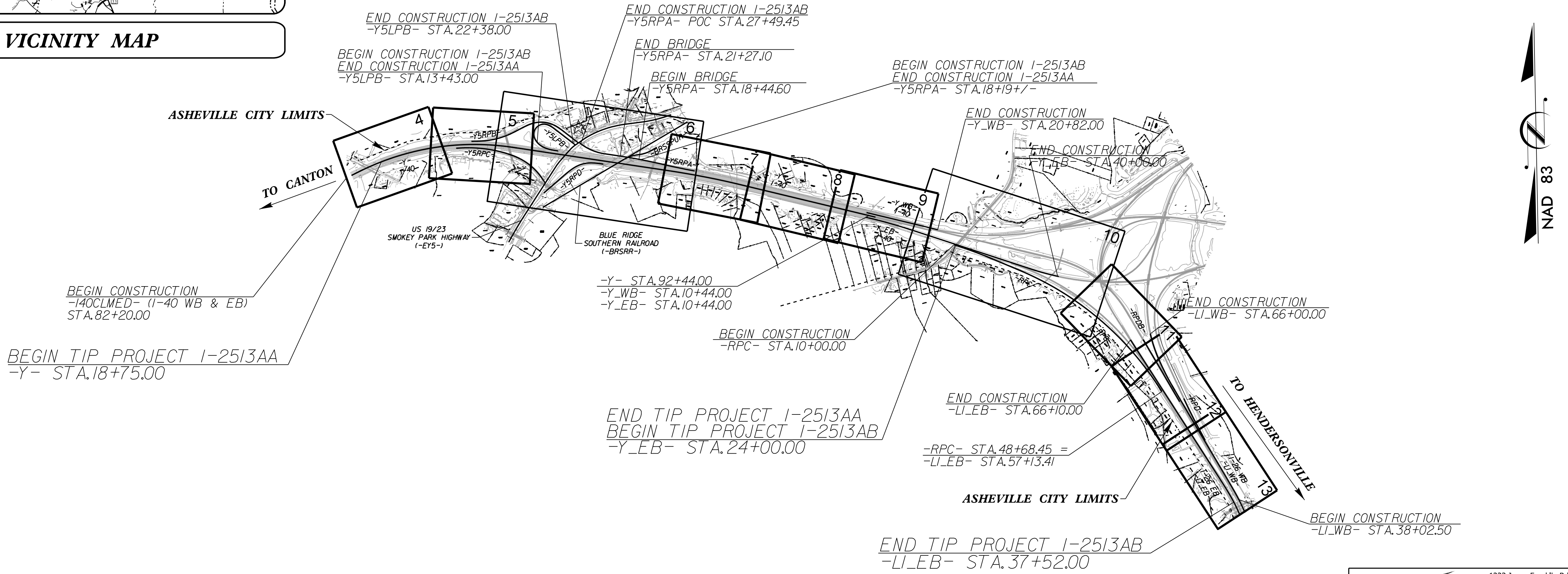
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2513AA/AB	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34165.1.1\34165.1.12	0026024 /0026025	P.E.	
34165.2.14\34165.2.16	0026024 /0026025	R/W	
34165.2.15\34165.2.17	0026024 /0026025	UTIL.	
34165.3.6\34165.3.7	0026024 /0026025	CONST.	



VICINITY MAP

LOCATION: I-40 FROM EAST OF SR 1224 (MONTE VISTA RD) TO WEST OF SR 3412 (SAND HILL RD) AND I-40 AT I-26 AND US 19/23 INTERCHANGES.

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, CULVERTS, WALLS, AND SIGNALS

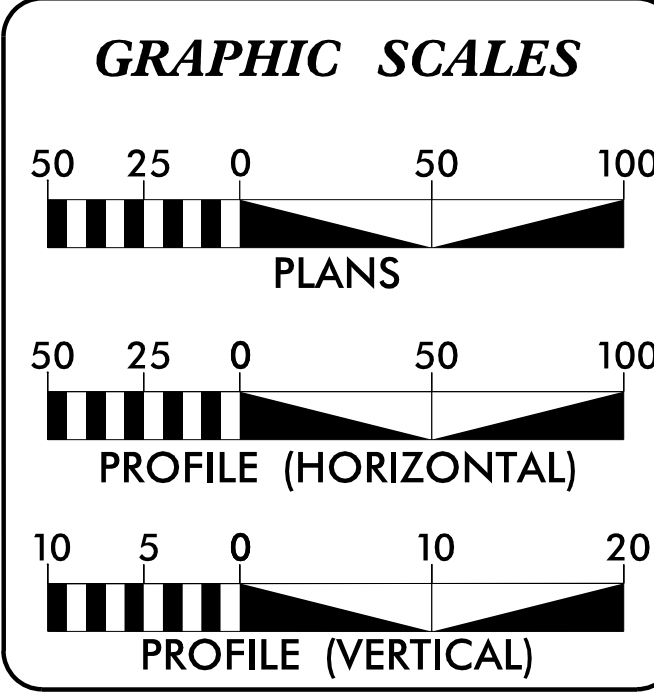


THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES

★ REVISED SIGNAL

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



DESIGN DATA

ADT 2024 =	95,100
ADT 2044 =	124,800
K =	9 %
D =	55 %
T =	11 % *
V =	60 MPH
* TTST =	8% DUAL 3%
FUNC CLASS =	INTERSTATE
STATEWIDE TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-2513AA =	1.652 MI
LENGTH ROADWAY TIP PROJECT I-2513AB =	1.098 MI
TOTAL LENGTH TIP PROJECT I-2513AA/AB =	2.750 MI

KCI ASSOCIATES OF N.C., P.A.
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609
Phone (919) 783-9214
NC Firm License No: C-0764

KCI
http://www.kci.com

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 18, 2022

LETTING DATE:
JULY 16, 2024

CHARLES L. FLOWE, P.E.
PROJECT ENGINEER

BARRY C. SMITH, P.E.
PROJECT DESIGN ENGINEER

KEVIN E. MOORE, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

DocuSigned by:
Matthew Harvey
08419C2087B94EE

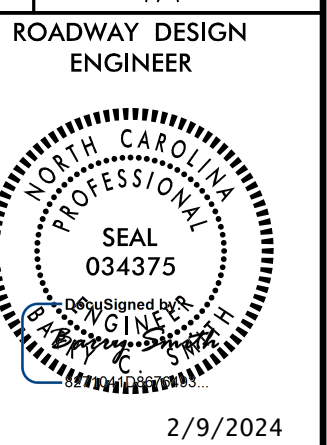
SIGNATURE: _____

ROADWAY DESIGN ENGINEER

DocuSigned by:
Barry Smith
6271041D8676493

SIGNATURE: _____

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-11	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1 THRU 2B-3	ROADWAY DETAILS
2C-1 THRU 2C-3	SPECIAL DETAILS
2D-1 THRU 2D-13	DRAINAGE DETAILS
2G-1 THRU 2G-6	GEOTECHNICAL DETAILS
2N-1 THRU 2N-3	NOISE WALL ENVELOPE DETAILS
3B-1 THRU 3B-3	ROADWAY SUMMARIES
3D-1 THRU 3D-10	DRAINAGE SUMMARIES
3G-1 THRU 3G-3	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEET
4 THRU 32	PLAN AND PROFILE SHEET
RW-1 THRU RW-14	SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENT AND PROPERTY TIES
TMP-1 THRU TMP-74	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-17	PAVEMENT MARKING PLANS
E-1 THRU E-8	ELECTRICAL PLANS
EC-1 THRU EC-23	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-24	SIGNING PLANS
SIG-1 THRU SIG-M8	SIGNAL PLANS
SCP-1 THRU SCP-4	SIGNAL COMMUNICATION PLANS AND SPLICE DETAILS
ITS-1 THRU ITS-49	ITS PLANS
UC-1 THRU UC-14	UTILITIES CONSTRUCTION PLANS
UO-1 THRU UO-13	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION INDEX
X-1A THRU X-1B	CROSS-SECTION SUMMARY SHEET
X-2 THRU X-259	CROSS-SECTIONS
S-1 THRU S-49	STRUCTURE PLANS (BRIDGE 100902)
S2-1 THRU S2-3	STRUCTURE PLANS (BRIDGE 100238)
C1-1 THRU C1-7	CULVERT PLANS (CULVERT 100320)
C2-1 THRU C2-6	CULVERT PLANS (CULVERT 104007)
NW-1 THRU NW-5	NOISE WALL DETAILS
W-1 THRU W-11	WALL PLANS

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. 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. 560.02

BERM DITCHES:
BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

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

SHOULDER DRAINS:
SHOULDER DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 816.02 AND DETAILS IN PLANS AT LOCATIONS DIRECTED BY THE ENGINEER.

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 WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

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 City of Asheville, Metropolitan Sewerage District, and Duke Energy

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 IN ACCORDANCE WITH STD 848.06.

2024 ROADWAY ENGLISH STANDARD DRAWINGS

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
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.03	Deceleration and Acceleration Lanes
225.05	Method of Obtaining Super-elevation - Divided Highways
225.06	Method of Grading Sight Distance at Intersections
235.01	Embankment Monitoring
240.01	Guide for Berm Ditch Construction
275.01	Rock Paving (Use Special Detail)
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
423.01	Bridge Approach Fills - Type 1 Approach Fill for Bridge Abutment
423.03	Bridge Approach Fills - Type 2 Approach Fill for Bridge Abutment with MSE Wall (IN LIEU OF STANDARD, SEE DETAIL SHEETS 2G-4 TO 2G-6 AND SPECIAL PROVISIONS)
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.02	Method of Shoulder Construction - High Side of Super-elevated Curve - Method II
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
665.01	Asphalt Shoulders - Milled Rumble Strips
665.02	Limits for Asphalt Shoulders - Milled Rumble Strips
DIVISION 7 - CONCRETE PAVEMENTS AND SHOULDERS	
700.01	Concrete Pavement Joints - Construction and Contraction Joints
700.02	Expansion Joint Layout - for Rigid Doweled Pavement at Bridges
700.03	Dowel Assembly
700.04	Concrete Pavement Header Board
700.05	Tying Proposed Pavement to Existing Pavement
710.01	Concrete Pavement - Station Marking
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
816.01	Concrete Pads - for Shoulder Drain Installation
816.02	Aggregate Shoulder Drain
816.04	Markers for Drainage Structure and Concrete Pad
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
838.27	Reinforced Concrete Endwall - for Single 60" 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
838.57	Reinforced Brick Endwall - for Single 54" Pipe 90 Skew
838.63	Reinforced Brick Endwall - for Single 60" Pipe 90 Skew
838.57	Notes for Reinforced Brick Endwall - Std. Dwg 838.51 thru 838.70
840.00	Concrete Base Pad for Drainage Structures
840.04	Concrete Open Throat Catch Basin - 12" thru 48" Pipe
840.05	Brick Open Throat Catch Basin - 12" thru 48" Pipe
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
840.25	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
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	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
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.02	Drop Inlet Installation in Expressway Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.01	Concrete Sidewalk
848.06	Curb Ramp
850.01	Concrete Paved Ditches
850.10	Guide for Berm Drainage Outlet - 15" and 18" Pipe
850.11	Guide for Berm Drainage Outlet - 24" and 30" Pipe
852.01	Concrete Islands
854.05	Concrete Median Transition Barrier - Location of Overhead Assembly
854.06	Median Hazard Protection
854.07	Single Slope Concrete Barrier
857.01	Precast Reinforced Concrete Barrier - 41" Single Faced
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
866.01	Chain Link Fence - 4', 5' and 6' High Fence
866.02	Woven Wire Fence - with Wood Post
866.06	Chain Link Fence on Retaining Wall
876.01	Rip Rap in Channels and Ditches
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

EFF. 01-16-2024
REV.

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-☠-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	WLB
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	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	T
Proposed Guardrail	T
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	PH
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	PH
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)*	P
U/G Water Line (SUE - LOS C)*	P
U/G Water Line (SUE - LOS D)*	P
Above Ground Water Line	A/G Water
TV:	
TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	PH
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

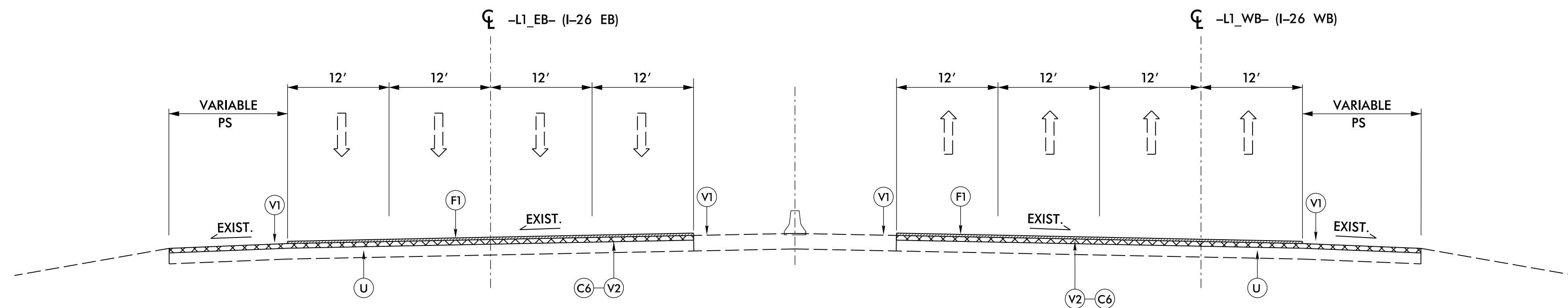
GAS:

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:

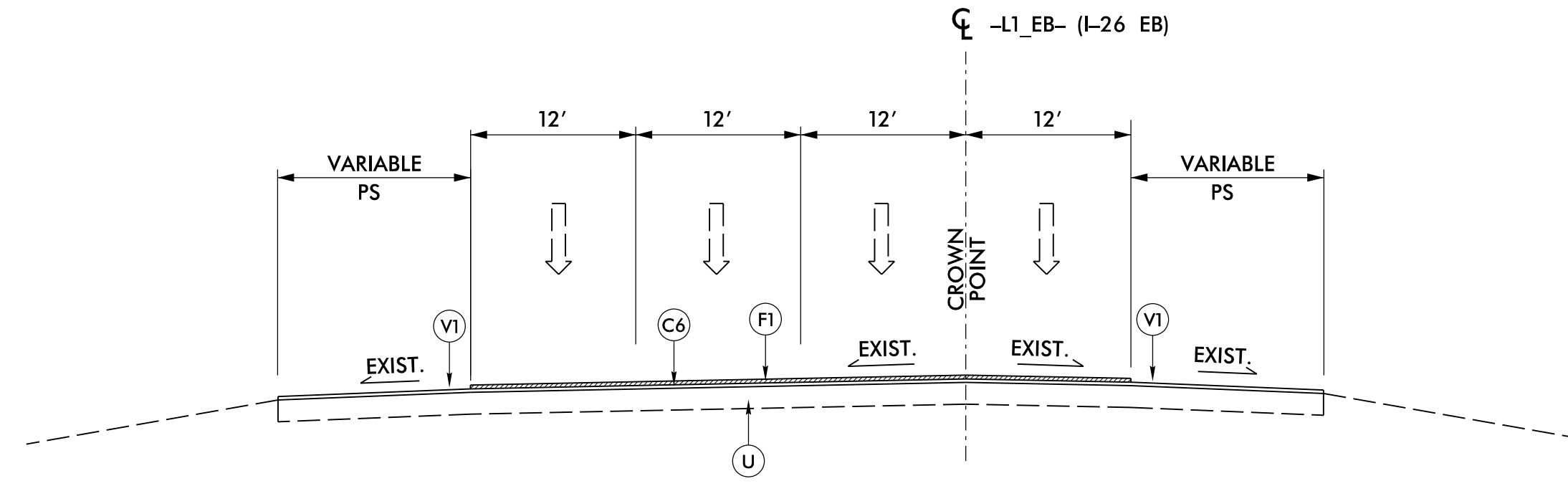
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line (SUE - LOS B)*	UTL
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	UST
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
Abandoned According to Utility Records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

PROJECT REFERENCE NO. 1-2513AA/AB	SHEET NO. 2A-2
ROADWAY DESIGN ENGINEER Barry Smith 2/8/2024	PAVEMENT DESIGN ENGINEER Joseph T. Holland 2/8/2024
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 KCI ASSOCIATES OF N.C., P.A. 4505 Falls of Neuse Road, Suite 400 Raleigh, NC 27609-4270 Phone (919) 783-9214 NC Firm License No. C-0764	



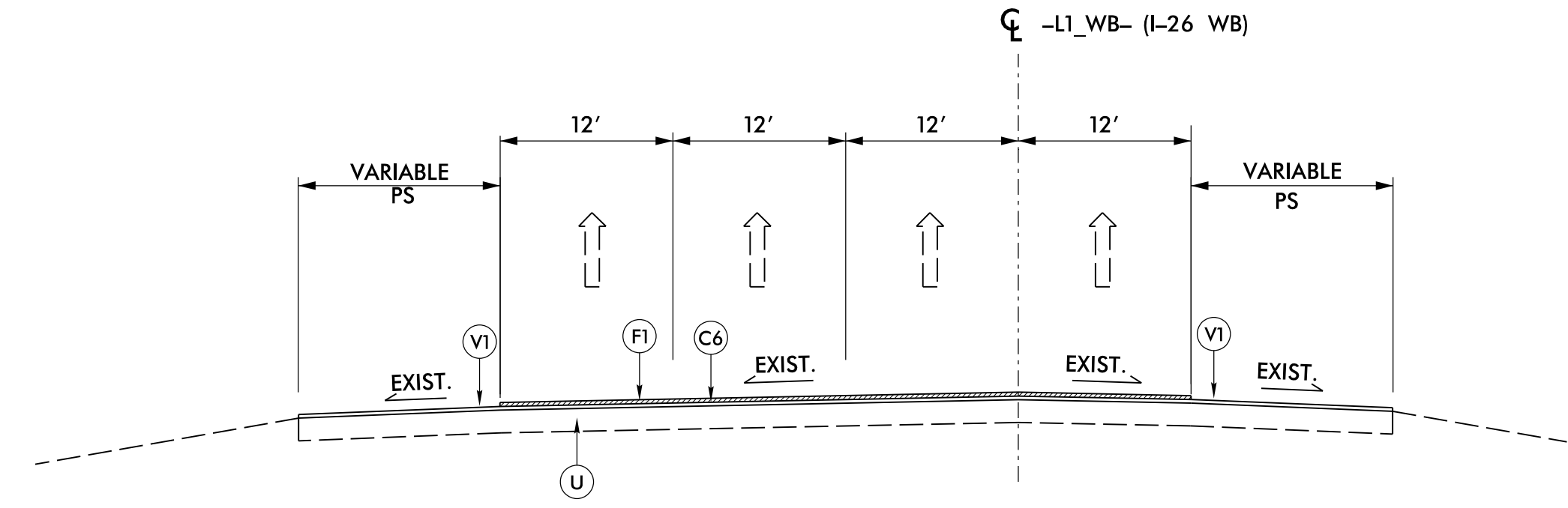
ROADWAY TYPICAL SECTION NO. 1

-L1_EB- STA. 37+52.00 (APPR. SLAB) TO 40+40.00
-L1_WB- STA. 38+02.50 (APPR. SLAB) TO 40+95.00



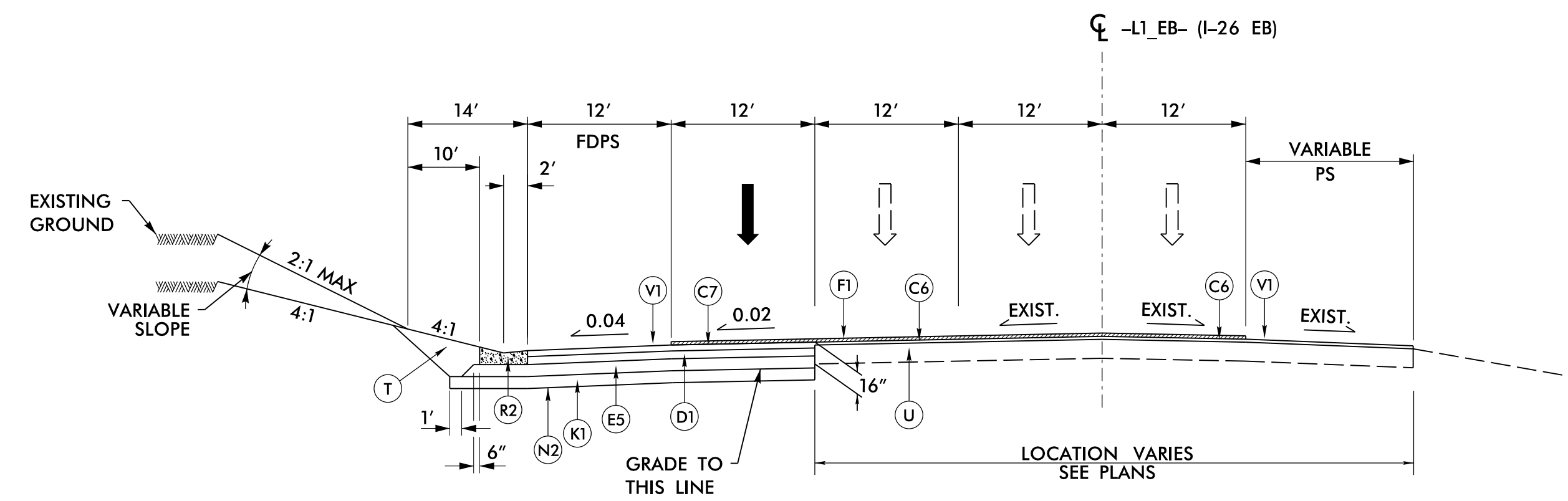
ROADWAY TYPICAL SECTION NO. 2

-L1_EB- STA. 40+40.00 TO 43+50.00



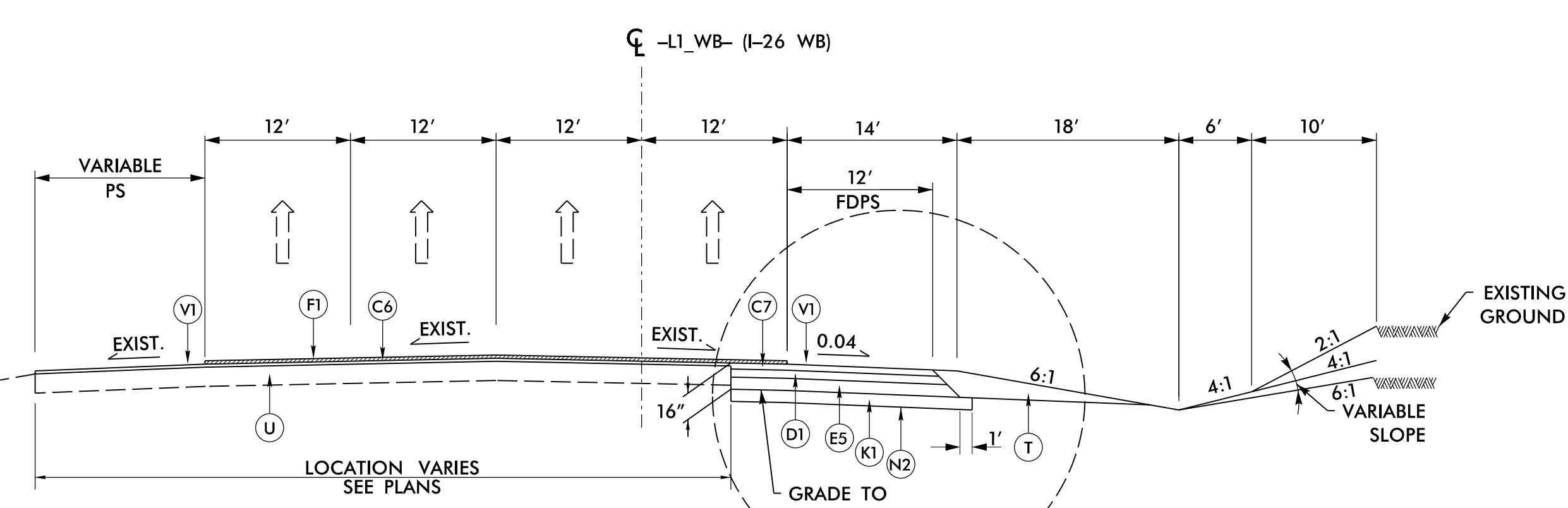
ROADWAY TYPICAL SECTION NO. 3

-L1_WB- STA. 40+95.00 TO 44+05.00



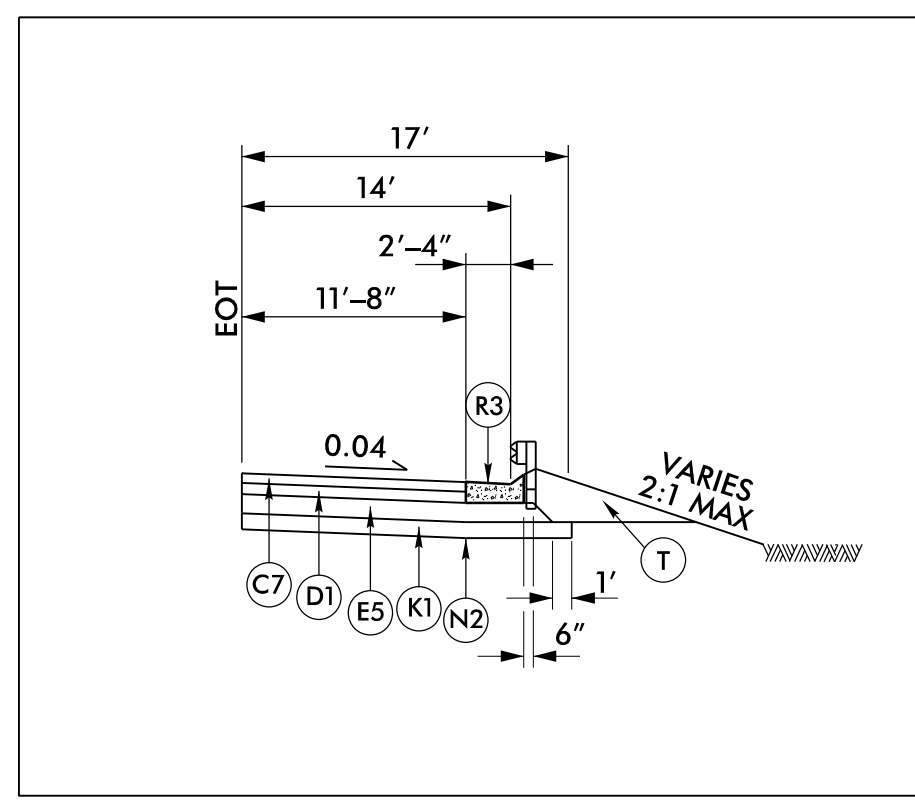
ROADWAY TYPICAL SECTION NO. 4

-L1_EB- STA. 43+50.00 TO 57+13.41



ROADWAY TYPICAL SECTION NO. 5

-L1_WB- STA. 44+05.00 TO 47+50.00

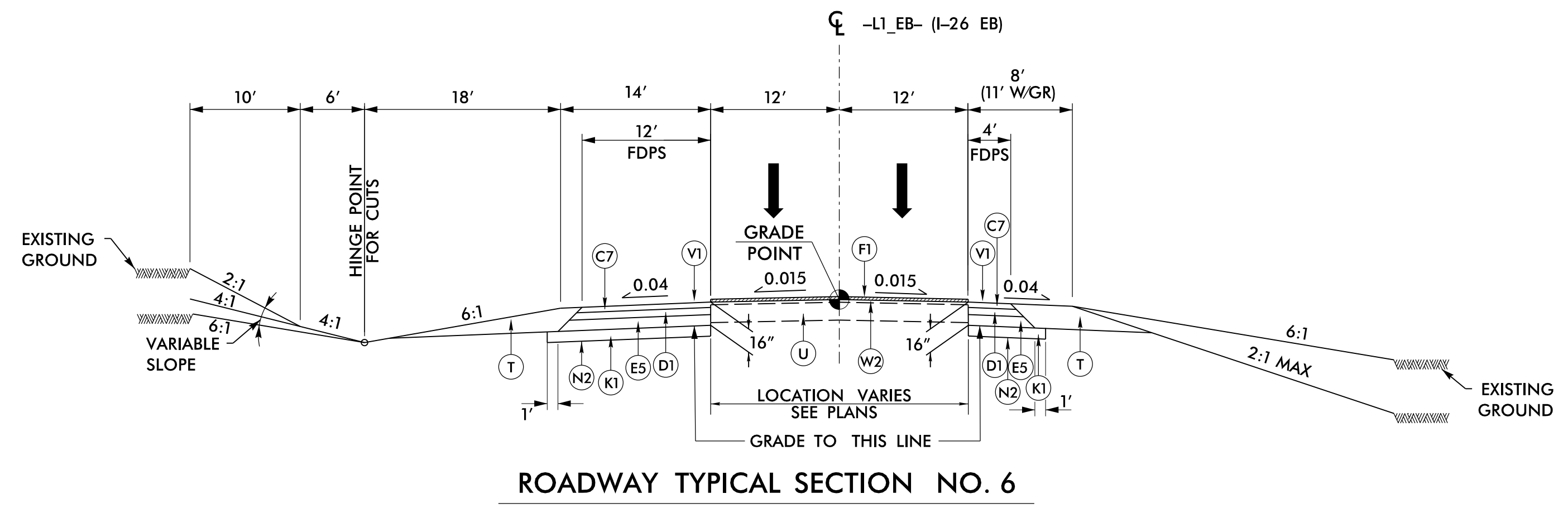


INSET NO. 1

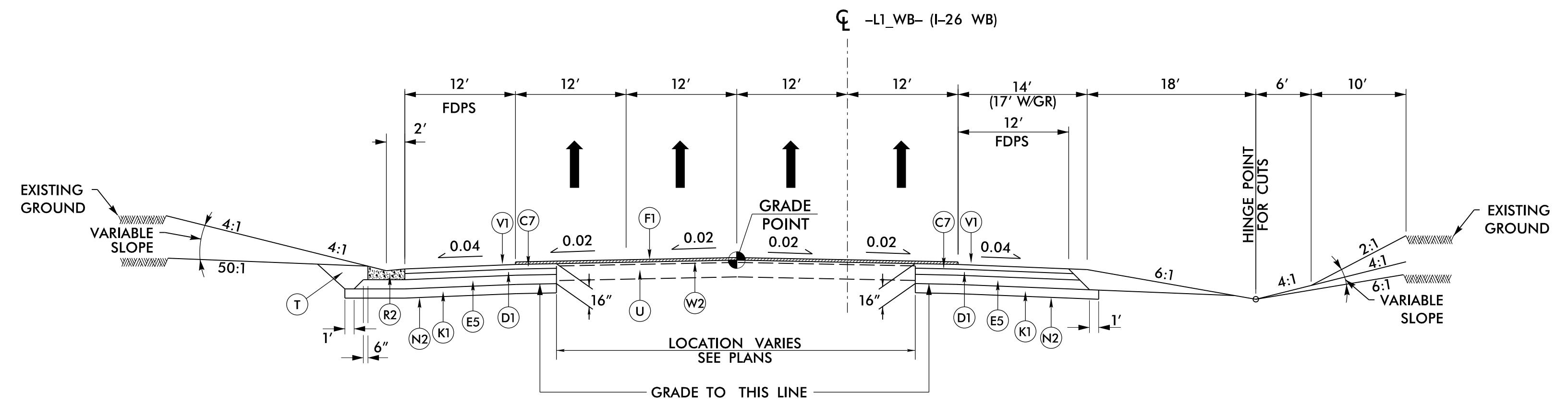
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 5
-L1_WB- STA. 45+05.00 TO 47+10.00

A1	12" PCC PAVE.
A2	14" CONC. PAVE.
C1	1 1/4" S9.5B
C2	1 1/2" S9.5B
C3	3" S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	1 1/2" S9.5D
C7	3" S9.5D
C8	VAR. S9.5D
D1	4" I19.0C
D2	VAR. I19.0C
D3	2 1/2" I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	6.5" B25.0C
E4	7" B25.0C
E5	9" B25.0C
E6	11.5" B25.0C
E7	VAR. B25.0C
F1	5/8" ULTRA-THIN
J1	8" ABC
J2	10" ABC
K1	8" CL IV SUB. STAB
N1	NONWOVEN GEO.
N2	GEO. SUB. STAB.
P1	PRIME COAT
R1	2'-6" C&G
R2	EXPRESS. GUTTER
R3	SH. BERM GUTTER
R4	PRECAST BARRIER
R5	4" CONC. COVER
T	EARTH MATERIAL
U	EXIST. PVMT.
U1	EXIST. C. PVMT.
U2	EXIST. A. PVMT.
V1	RUMBLE STRIPS
V2	1 1/2" MILLING
V3	VAR. MILLING
W1	WEDGING DET.#1
W2	WEDGING DET.#2

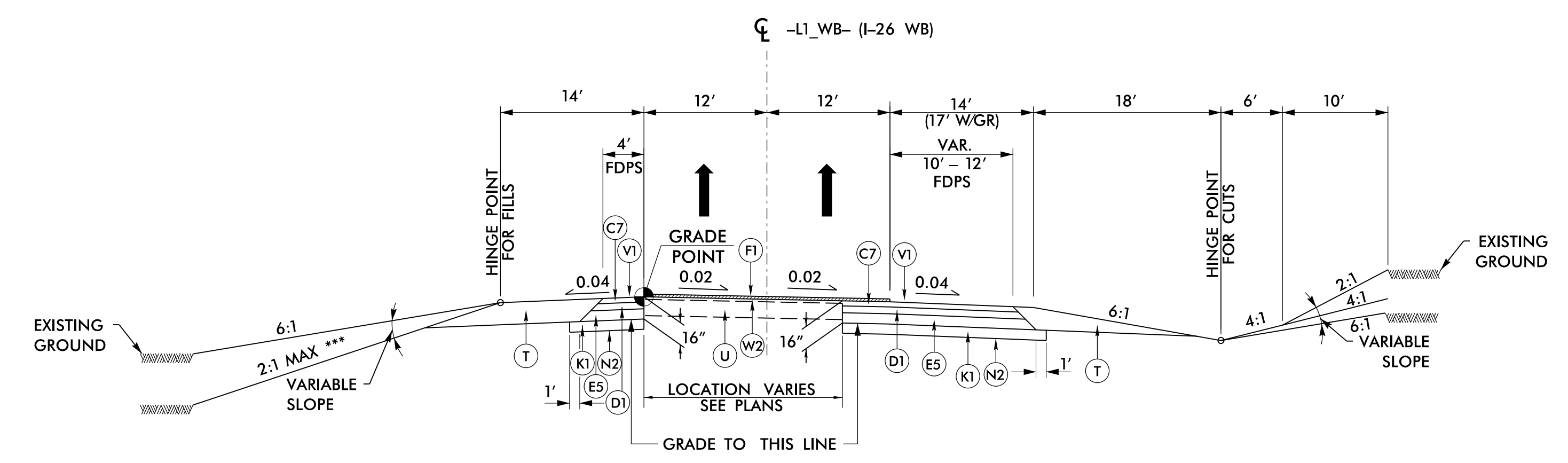
PROJECT REFERENCE NO. 1-2513AA/AB	SHEET NO. 2A-3
ROADWAY DESIGN ENGINEER Barry Smith 2/8/2024	PAVEMENT DESIGN ENGINEER Joseph T. Holland 2/8/2024
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
KCI ASSOCIATES OF N.C., P.A. 4505 Falls of Neuse Road, Suite 400 Raleigh, NC 27609-4270 Phone (919) 783-9214 NC Firm License No. C-0764	



ROADWAY TYPICAL SECTION NO. 6
-L1_EB- STA. 57+13.41 TO 66+10.00



ROADWAY TYPICAL SECTION NO. 7
-L1_WB- STA. 47+50.00 TO 56+73.69

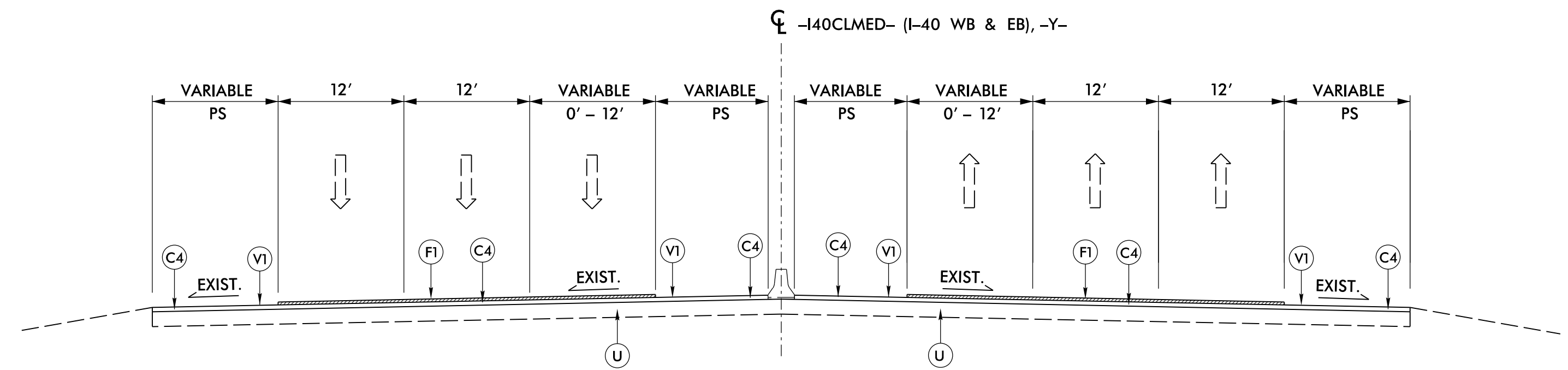


ROADWAY TYPICAL SECTION NO. 8
-L1_WB- STA. 56+73.69 TO 66+00.00

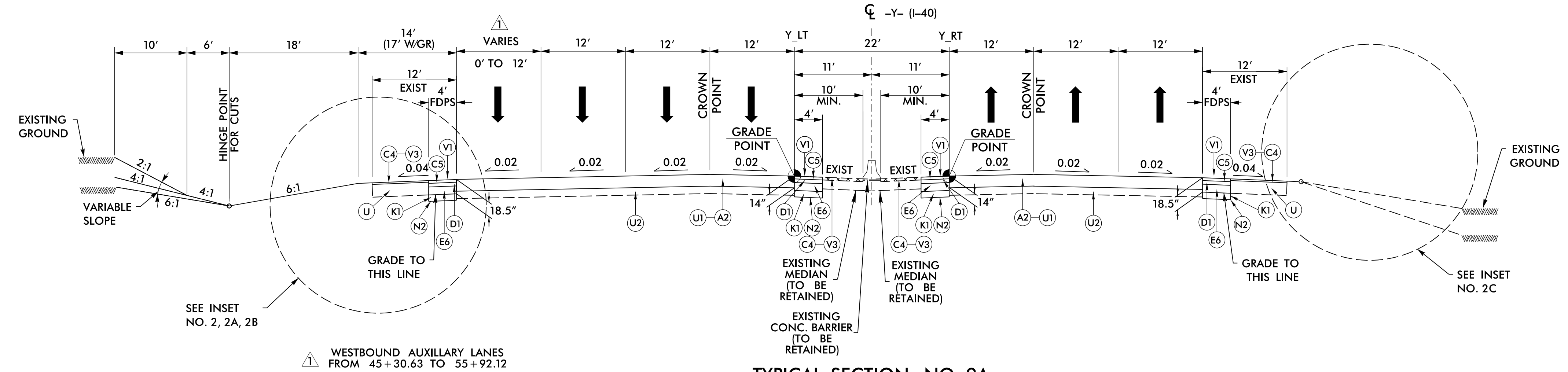
*** USE 4:1 MAX SLOPES INSIDE INTERCHANGE

A1	12" PCC PAVE.
A2	14" CONC. PAVE.
C1	1 1/4" S9.5B
C2	1 1/2" S9.5B
C3	3" S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	1 1/2" S9.5D
C7	3" S9.5D
C8	VAR. S9.5D
D1	4" I19.0C
D2	VAR. I19.0C
D3	2 1/2" I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	6.5" B25.0C
E4	7" B25.0C
E5	9" B25.0C
E6	11.5" B25.0C
E7	VAR. B25.0C
F1	5/8" ULTRA-THIN
J1	8" ABC
J2	10" ABC
K1	8" CL IV SUB. STAB
N1	NONWOVEN GEO.
N2	GEO. SUB. STAB.
P1	PRIME COAT
R1	2'-6" C&G
R2	EXPRESS. GUTTER
R3	SH. BERM GUTTER
R4	PRECAST BARRIER
R5	4" CONC. COVER
T	EARTH MATERIAL
U	EXIST. PVMT.
U1	EXIST. C. PVMT.
U2	EXIST. A. PVMT.
V1	RUMBLE STRIPS
V2	1 1/2" MILLING
V3	VAR. MILLING
W1	WEDGING DET.#1
W2	WEDGING DET.#2

PROJECT REFERENCE NO. 1-2513AA/AB	SHEET NO. 2A-4
ROADWAY DESIGN ENGINEER BARRY SMITH 2/8/2024	PAVEMENT DESIGN ENGINEER JOSEPH T. HOLLAND 8/3/2024
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	
<p>KCI ASSOCIATES OF N.C., P.A. 4505 Falls of Neuse Road, Suite 400 Raleigh, NC 27609-4270 Phone (919) 783-9214 NC Firm License No. C-0764</p>	

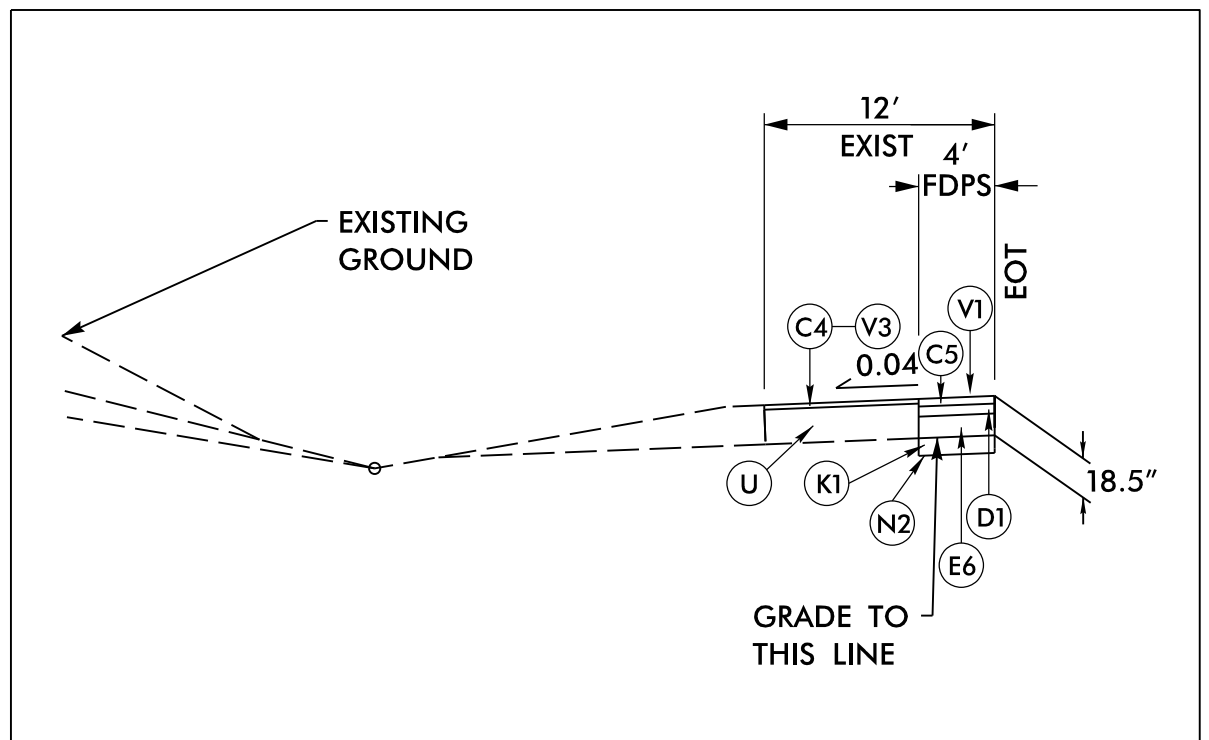


ROADWAY TYPICAL SECTION NO. 9
OVERLAY FOR PAVEMENT MARKING CORRECTIONS
-I40CLMED- (I-40 WB & EB) STA. 82+20.00 TO -Y- STA. 18+75.00

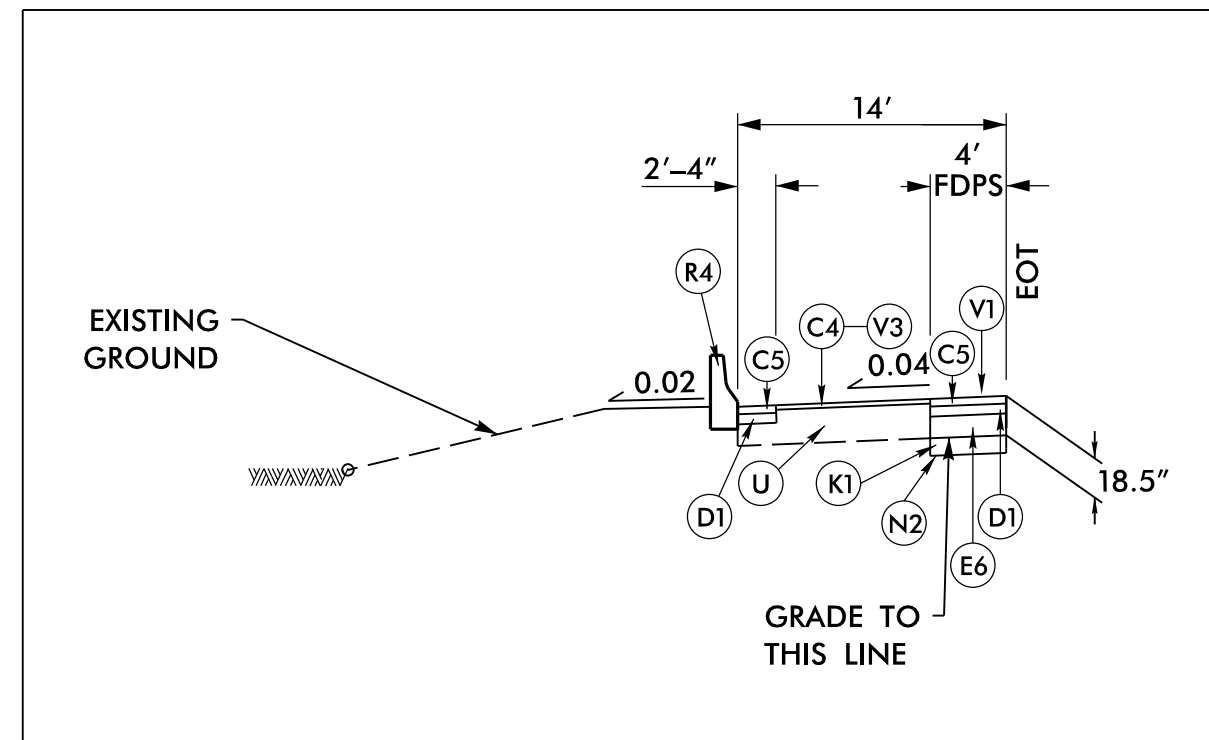


TYPICAL SECTION NO. 9A
-Y LT- STA. 18+75.00 TO 45+60.47 (APPR. SLAB)
-Y LT- STA. 47+86.07 (APPR. SLAB) TO 53+04.15 (APPR. SLAB)
-Y RT- STA. 18+75.00 TO 45+46.53 (APPR. SLAB)
-Y RT- STA. 47+70.38 (APPR. SLAB) TO 52+76.65 (APPR. SLAB)

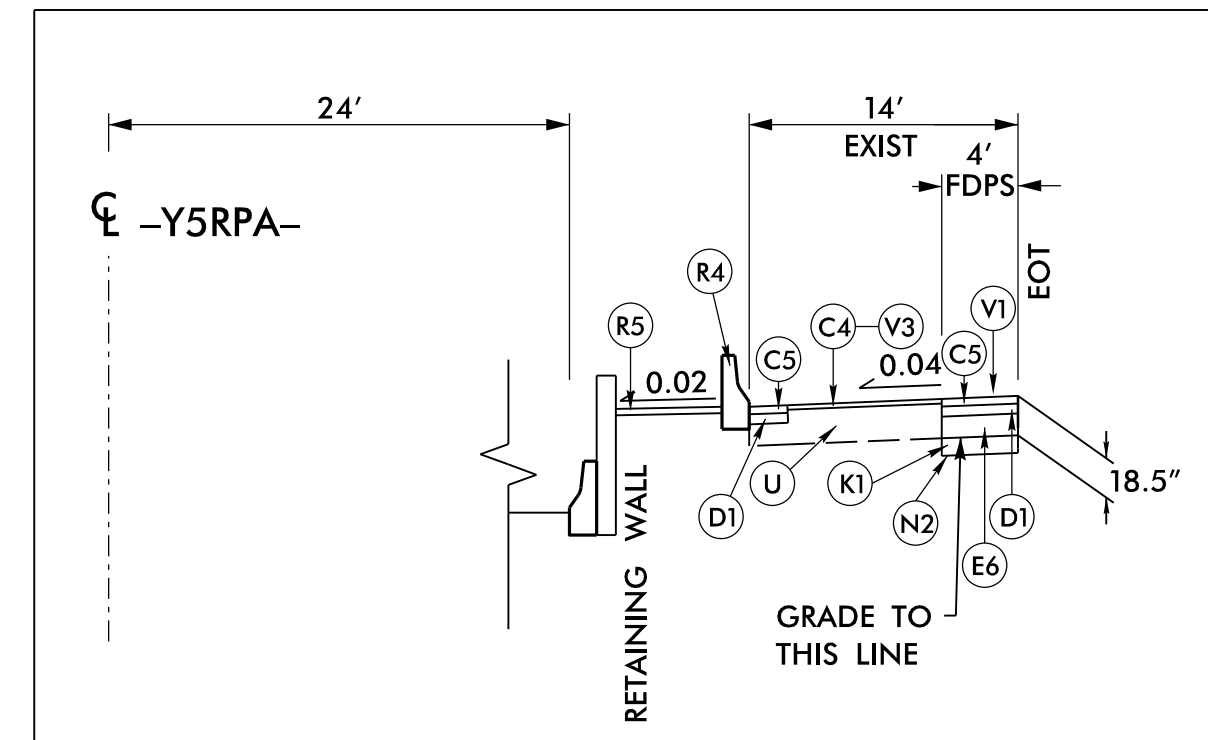
A1	12" PCC PAVE.
A2	14" CONC. PAVE.
C1	1 1/4" S9.5B
C2	1 1/2" S9.5B
C3	3" S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	1 1/2" S9.5D
C7	3" S9.5D
C8	VAR. S9.5D
D1	4" I19.0C
D2	VAR. I19.0C
D3	2 1/2" I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	6.5" B25.0C
E4	7" B25.0C
E5	9" B25.0C
E6	11.5" B25.0C
E7	VAR. B25.0C
F1	5/8" ULTRA-THIN
J1	8" ABC
J2	10" ABC
K1	8" CL IV SUB. STAB.
N1	NONWOVEN GEO.
N2	GEO. SUB. STAB.
P1	PRIME COAT
R1	2'-6" C&G
R2	EXPRESS. GUTTER
R3	SH. BERM GUTTER
R4	PRECAST BARRIER
R5	4" CONC. COVER
T	EARTH MATERIAL
U	EXIST. PVMT.
U1	EXIST. C. PVMT.
U2	EXIST. A. PVMT.
V1	RUMBLE STRIPS
V2	1 1/2" MILLING
V3	VAR. MILLING
W1	WEDGING DET.#1
W2	WEDGING DET.#2



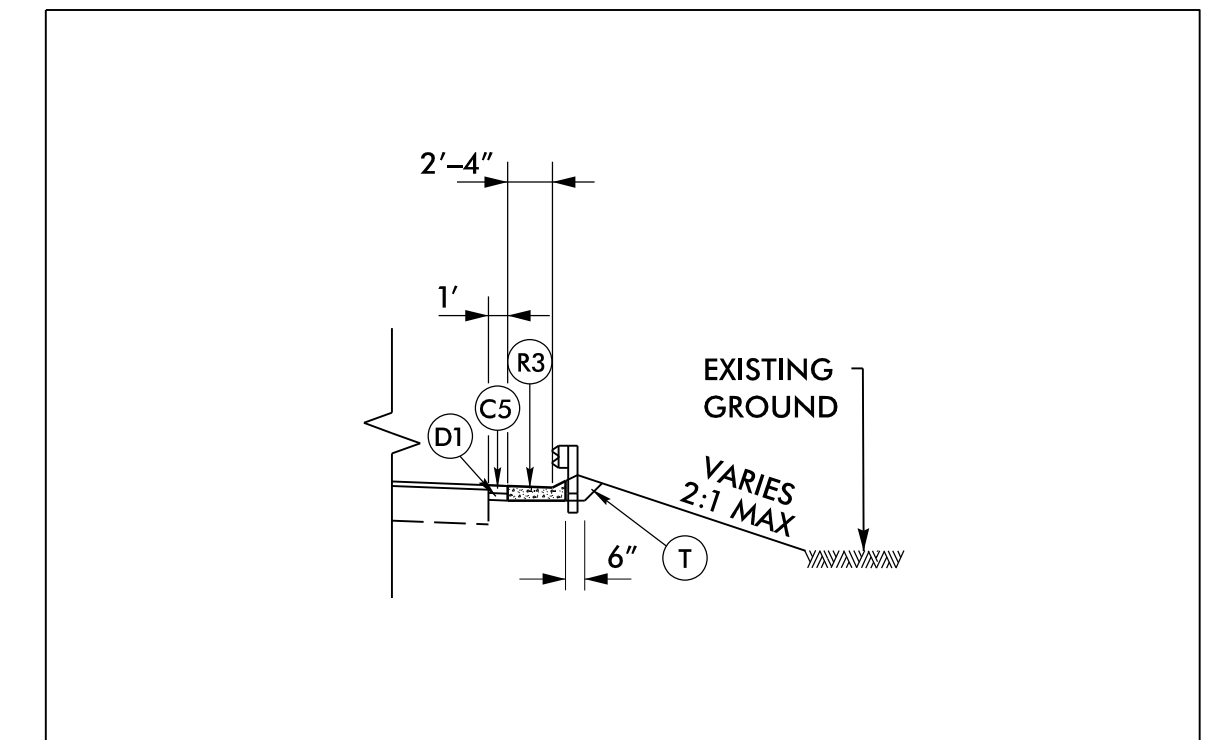
INSET NO. 2
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 9A
-Y LT- STA. 42+45.99 TO 45+60.47 (APPROACH SLAB)



INSET NO. 2A
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 9A
-Y LT- STA. 47+86.07 (APPROACH SLAB) TO 51+79.81



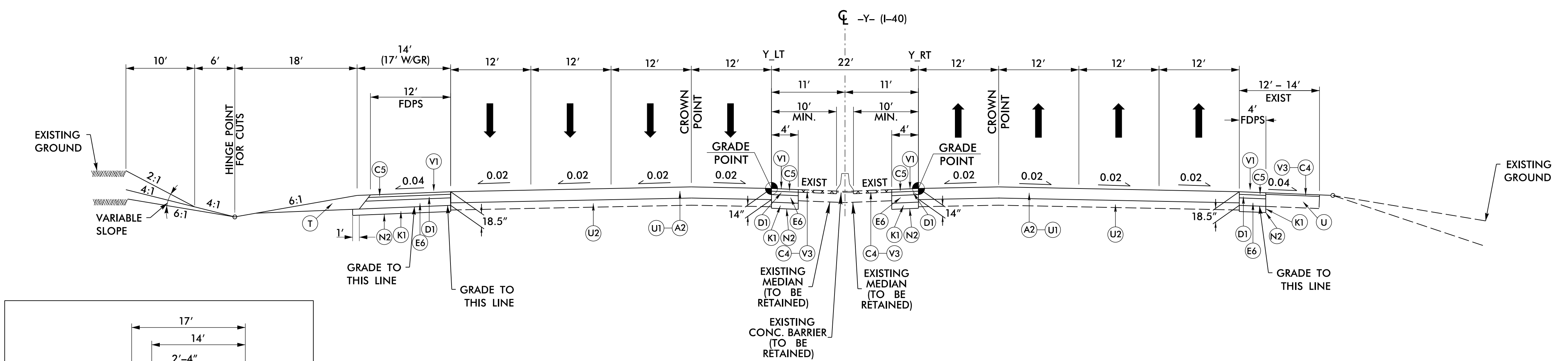
INSET NO. 2B
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 9A
-Y LT- STA. 51+79.81 TO 53+04.15 (APPROACH SLAB)



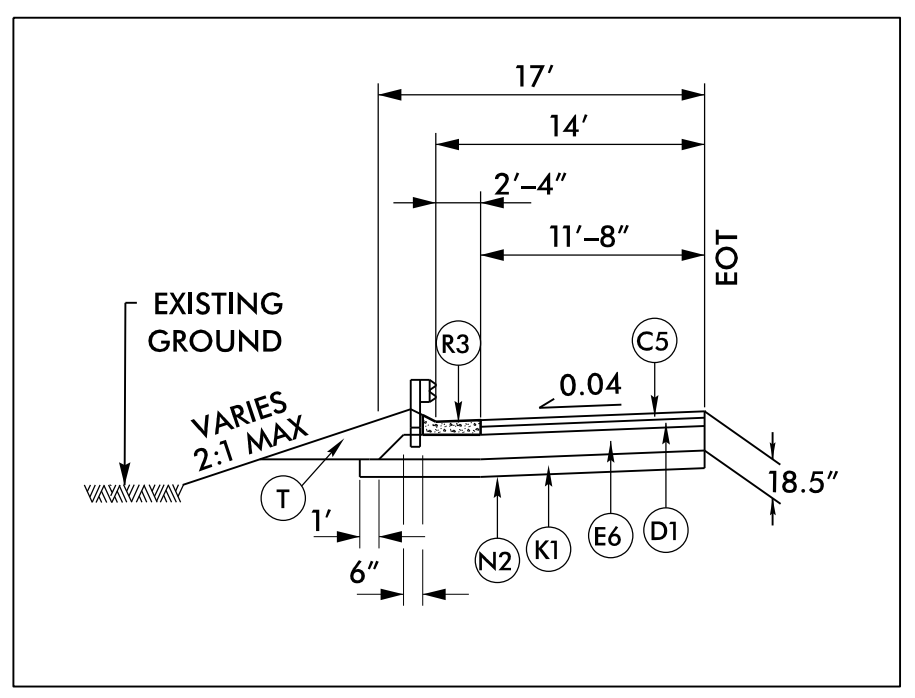
INSET NO. 2C
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 9A
-Y RT- STA. 23+23.00 TO 30+13.00

6/2/2024

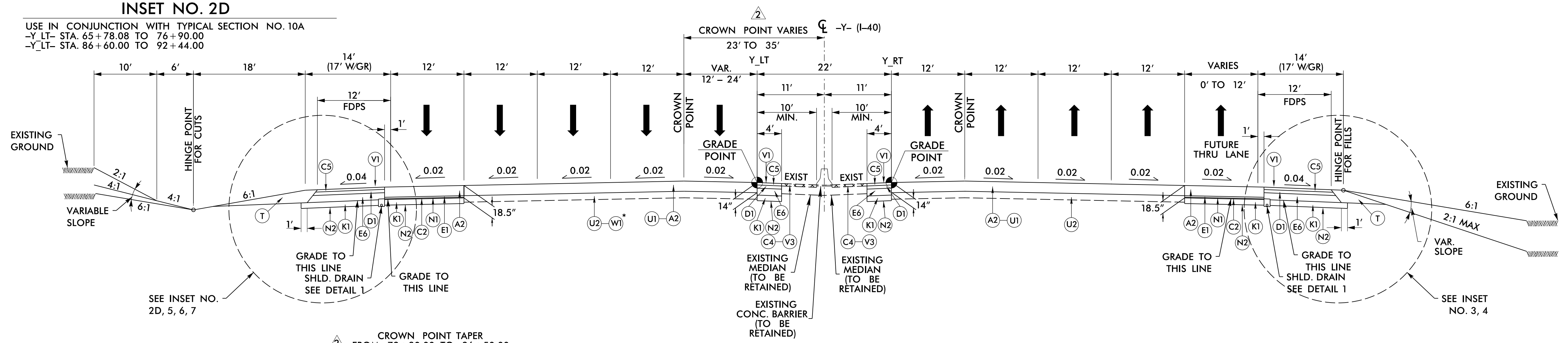
PROJECT REFERENCE NO. 1-2513AA/AB	SHEET NO. 2A-5
ROADWAY DESIGN ENGINEER Barry Smith 2/8/2024	PAVEMENT DESIGN ENGINEER Joseph T. Holladay 8/2024
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 KCI ASSOCIATES OF N.C., P.A. 4505 Falls of Neuse Road, Suite 400 Raleigh, NC 27609-4270 Phone (919) 783-9214 NC Firm License No. C-0764	



TYPICAL SECTION NO. 10
 -Y_LT- STA. 55+92.12 (APPR. SLAB) TO 65+78.08
 -Y_RT- STA. 55+65.43 (APPR. SLAB) TO 63+61.68 (NW5A)

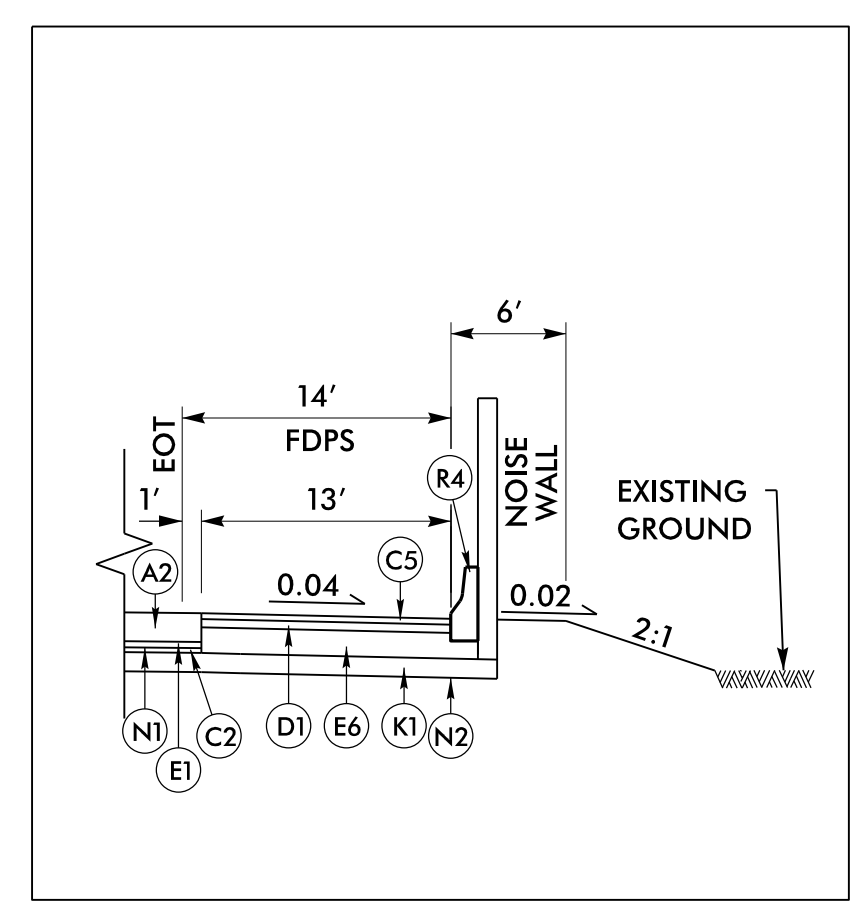


INSET NO. 2D
 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 10A
 -Y_LT- STA. 65+78.08 TO 76+90.00
 -Y_RT- STA. 86+60.00 TO 92+44.00

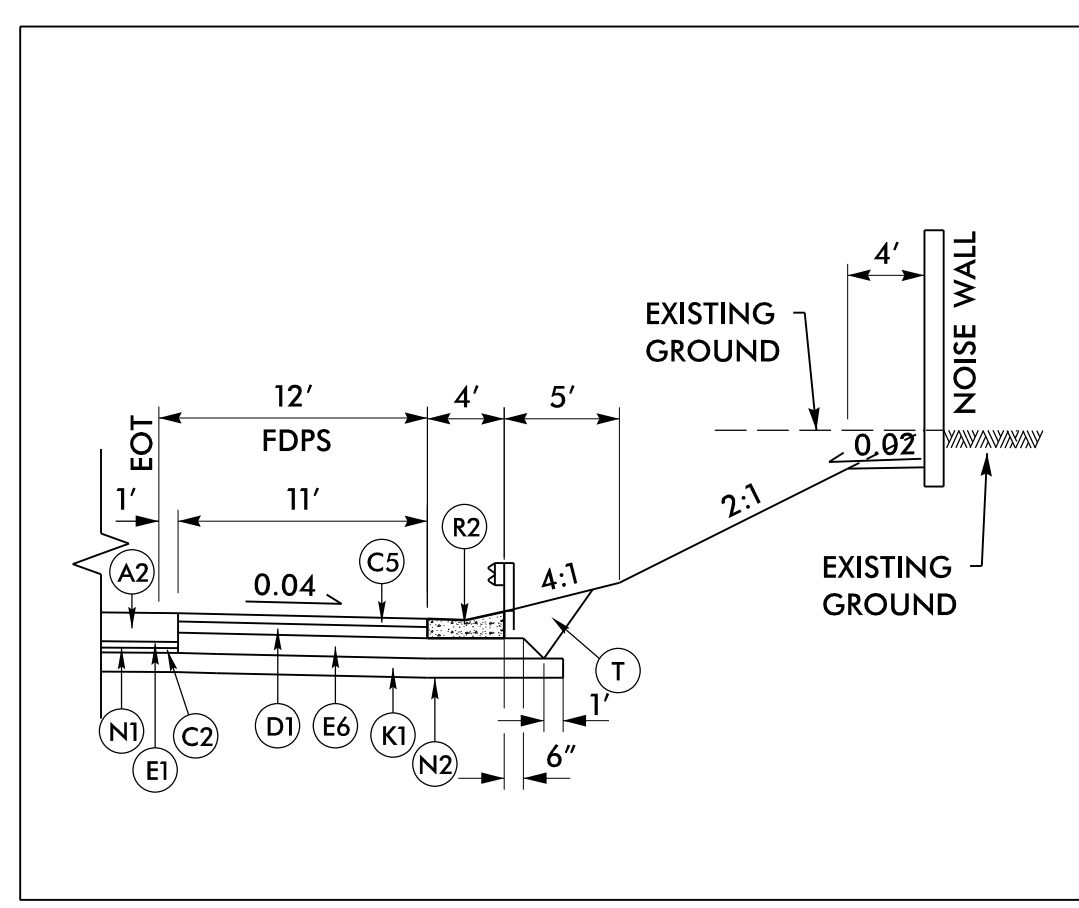


TYPICAL SECTION NO. 10A
 -Y_LT- STA. 65+78.08 TO 92+44.00
 -Y_RT- STA. 63+61.68 (NW5A) TO 92+44.00

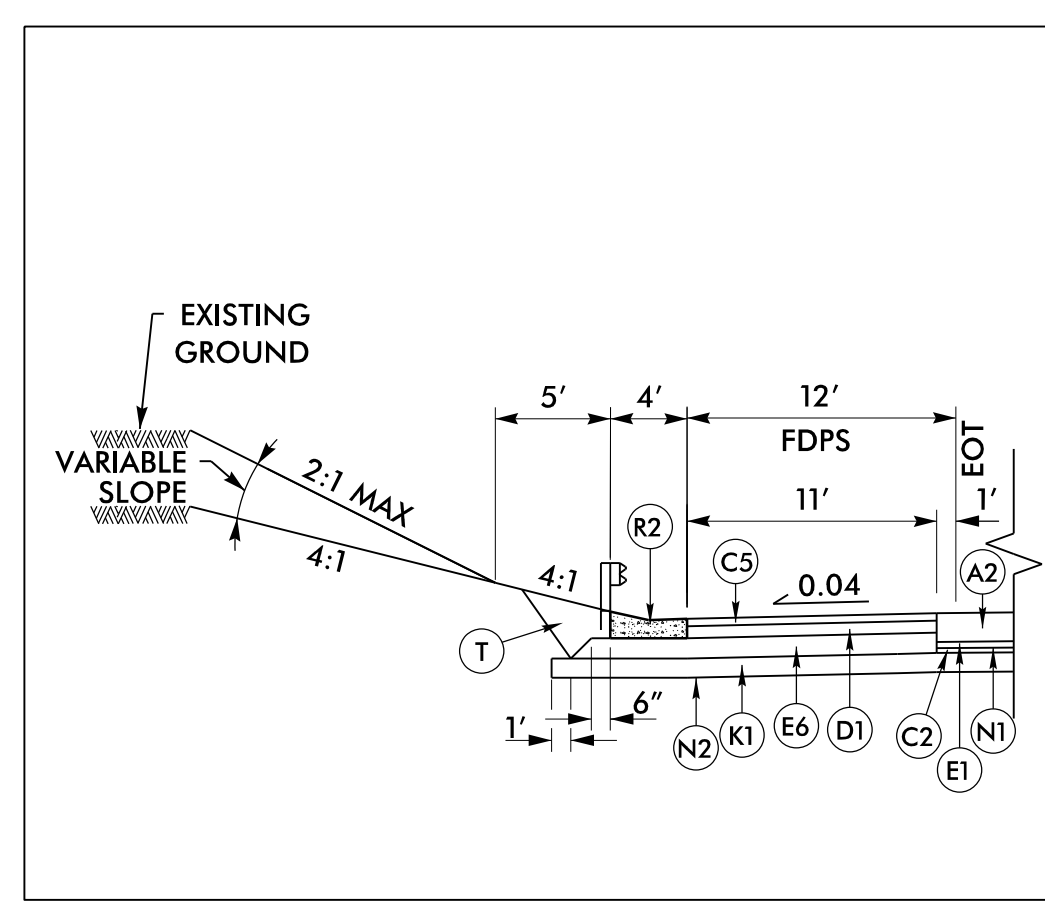
▲ CROWN POINT TAPER
 FROM 79+30.00 TO 86+50.00
 * NOTE: USE WEDGE DETAIL W1
 FROM 79+30.00 TO 92+44.00



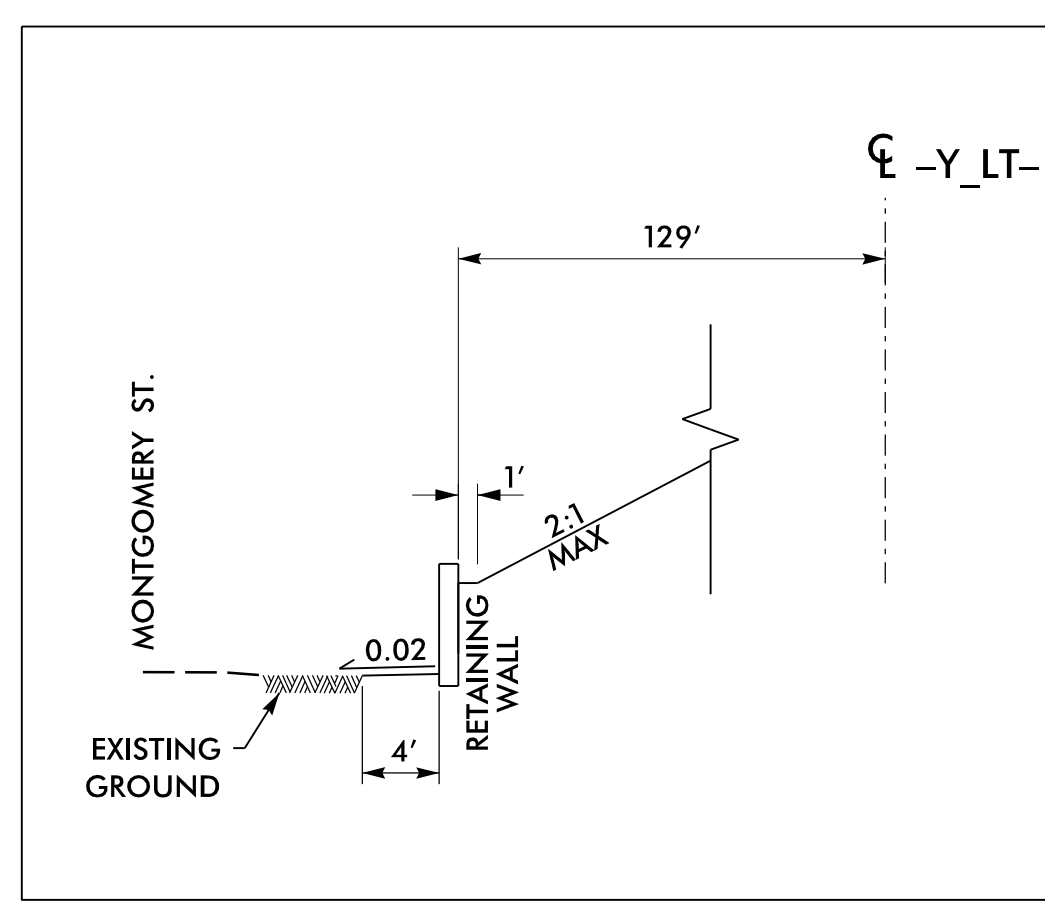
INSET NO. 3
 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 10A
 -Y_RT- STA. 63+61.68 TO 77+80.27
 -Y_RT- STA. 89+66.00 TO 93+44.02



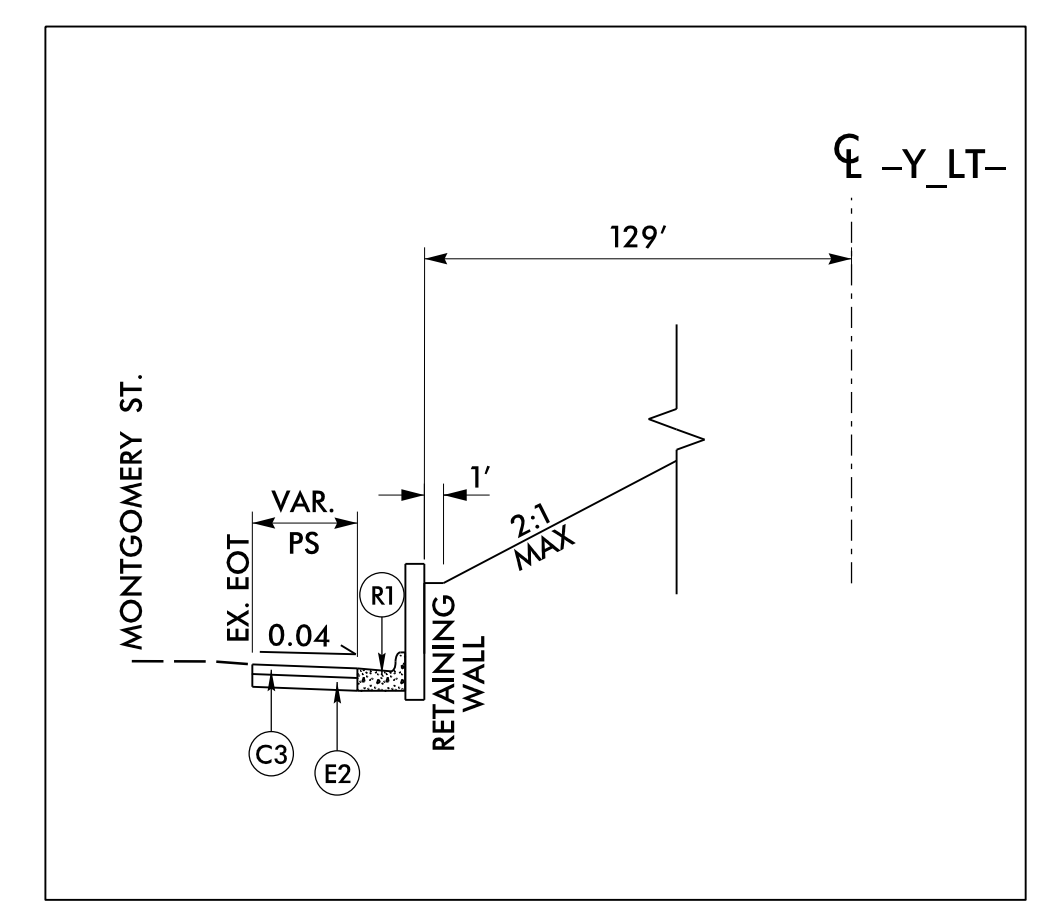
INSET NO. 4
 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 10A
 -Y_RT- STA. 77+80.27 TO 89+66.00



INSET NO. 5
 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 10A
 -Y_LT- STA. 76+90.00 TO 86+60.00



INSET NO. 6 (MONTGOMERY ST.)
 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 10A
 -Y_LT- STA. 66+46.00 TO 68+05.00
 -Y_LT- STA. 73+57.00 TO 74+55.00

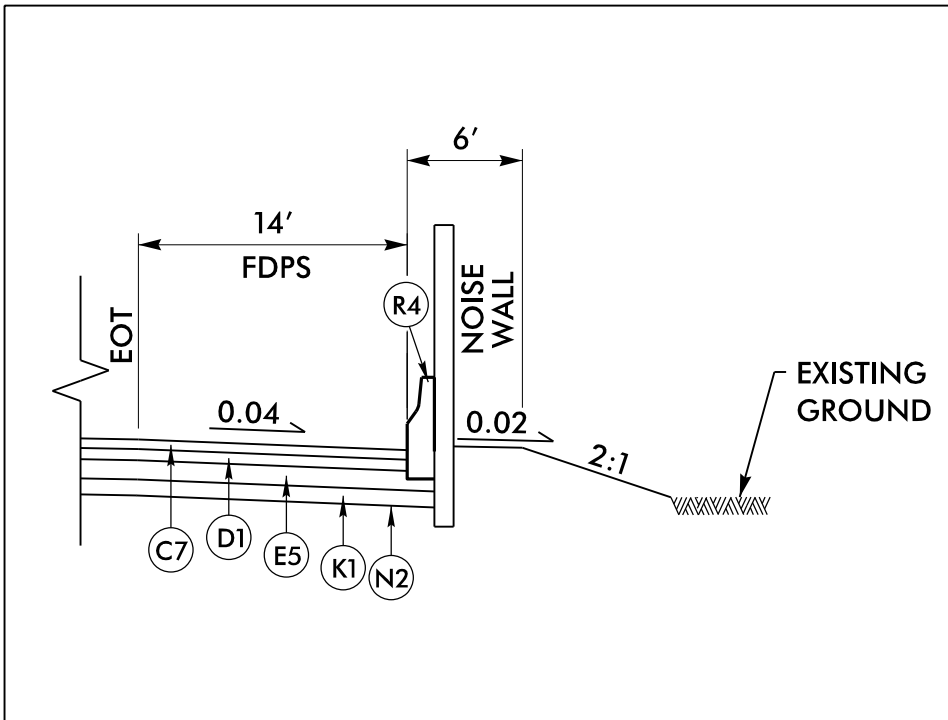


INSET NO. 7 (MONTGOMERY ST.)
 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 10A
 -Y_LT- STA. 68+05.00 TO 73+57.00

A1	12" PCC PAVE.
A2	14" CONC. PAVE.
C1	1 1/4" S9.5B
C2	1 1/2" S9.5B
C3	3" S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	1 1/2" S9.5D
C7	3" S9.5D
C8	VAR. S9.5D
D1	4" I19.0C
D2	VAR. I19.0C
D3	2 1/2" I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	6.5" B25.0C
E4	7" B25.0C
E5	9" B25.0C
E6	11.5" B25.0C
E7	VAR. B25.0C
F1	5/8" ULTRA-THIN
J1	8" ABC
J2	10" ABC
K1	8" CL IV SUB. STAB
N1	NONWOVEN GEO.
N2	GEO. SUB. STAB.
P1	PRIME COAT
R1	2'-6" C&G
R2	EXPRESS. GUTTER
R3	SH. BERM GUTTER
R4	PRECAST BARRIER
R5	4" CONC. COVER
T	EARTH MATERIAL
U	EXIST. PVMT.
U1	EXIST. C. PVMT.
U2	EXIST. A. PVMT.
V1	RUMBLE STRIPS
V2	1 1/2" MILLING
V3	VAR. MILLING
W1	WEDGING DET.#1
W2	WEDGING DET.#2

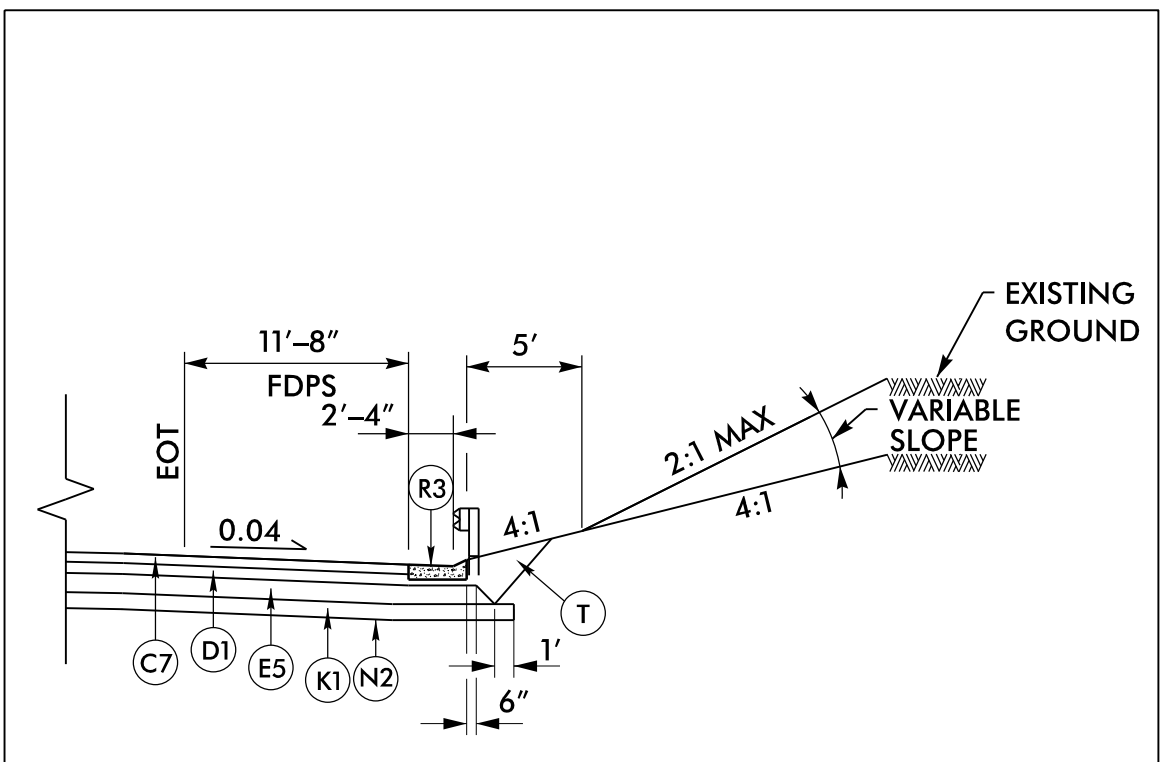
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 12/1/2023 - du_tj.p.dgn

6/2/2024



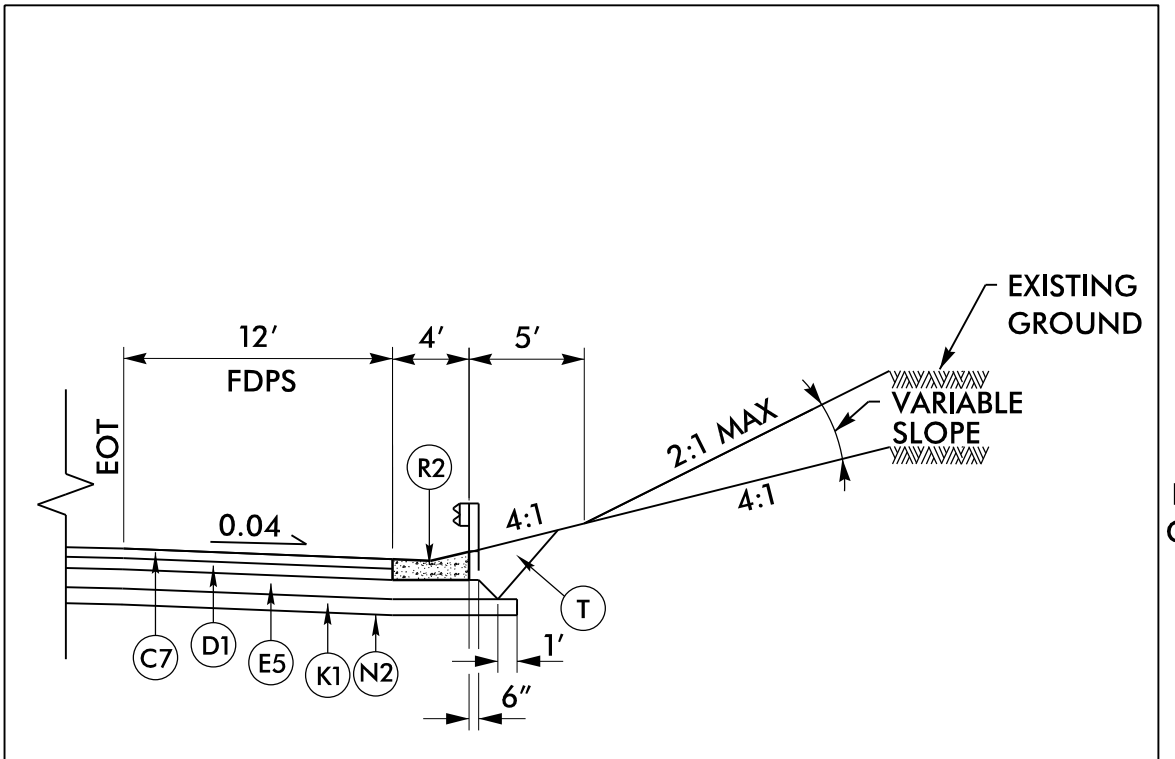
INSET NO. 8

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 11
 -Y_EB- STA. 10+44.00 TO 13+66.36



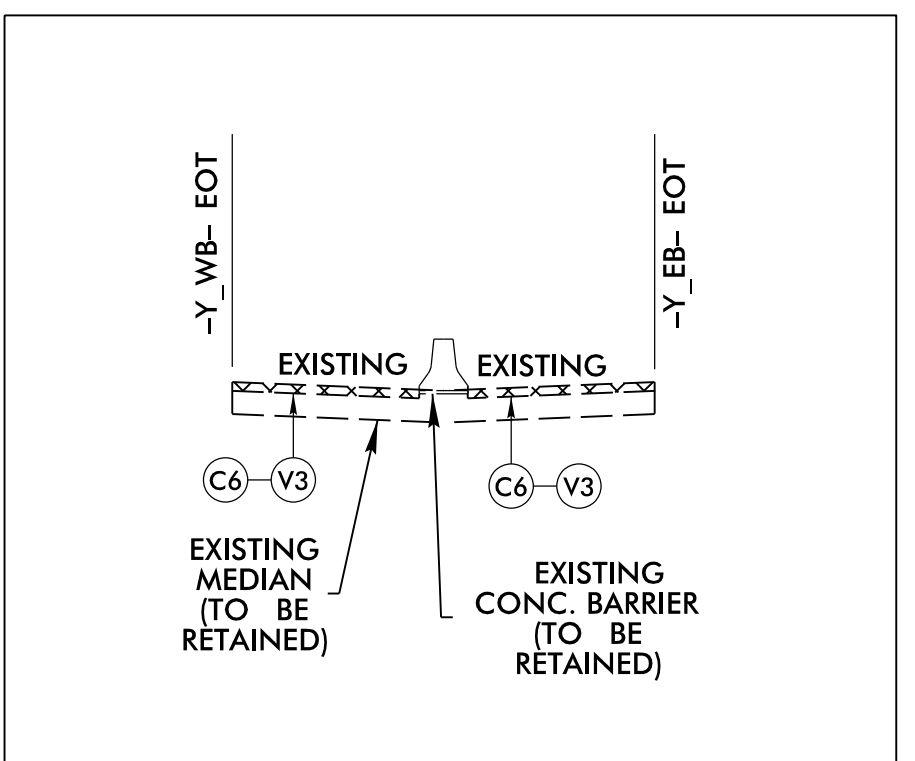
INSET NO. 9

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 11
 -Y_EB- STA. 13+66.36 TO 13+89.40



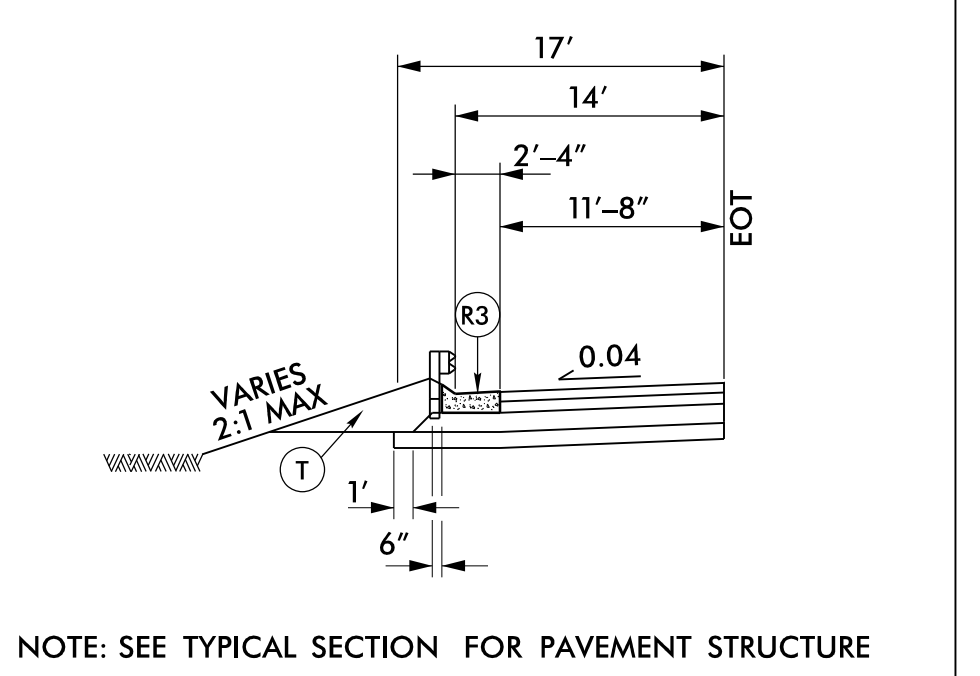
INSET NO. 9A

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 11
 -Y_EB- STA. 13+89.40 TO 15+08.00



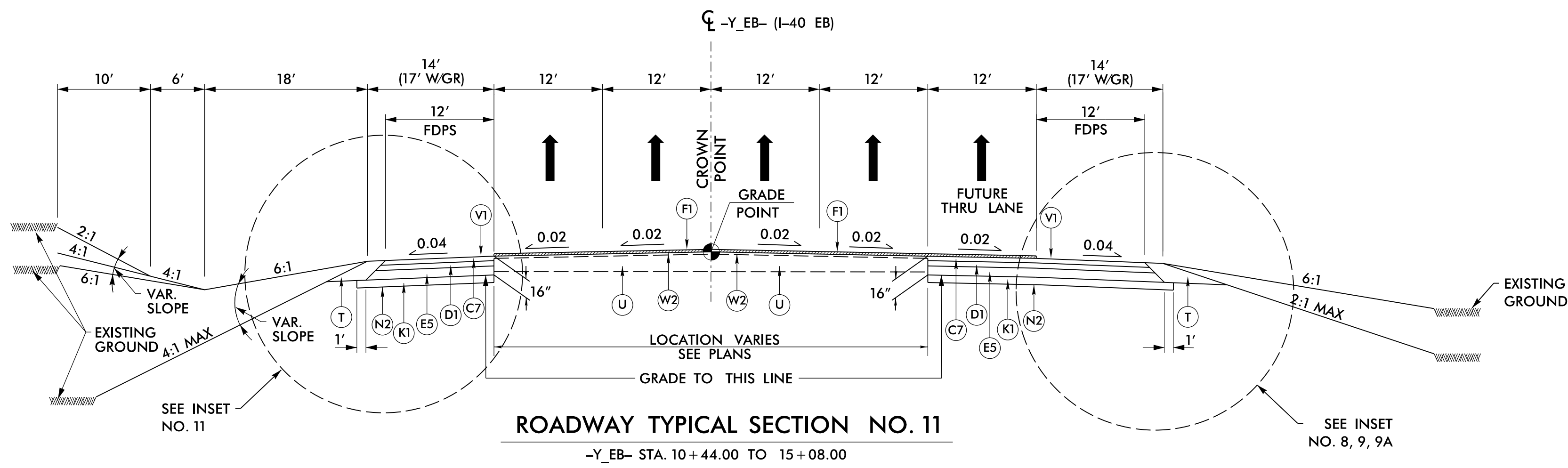
INSET NO. 11

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 11, 13
 -Y_WB- STA. 10+44.00 TO 13+55.55 RT
 -Y_EB- STA. 10+44.00 TO 13+54.36 LT



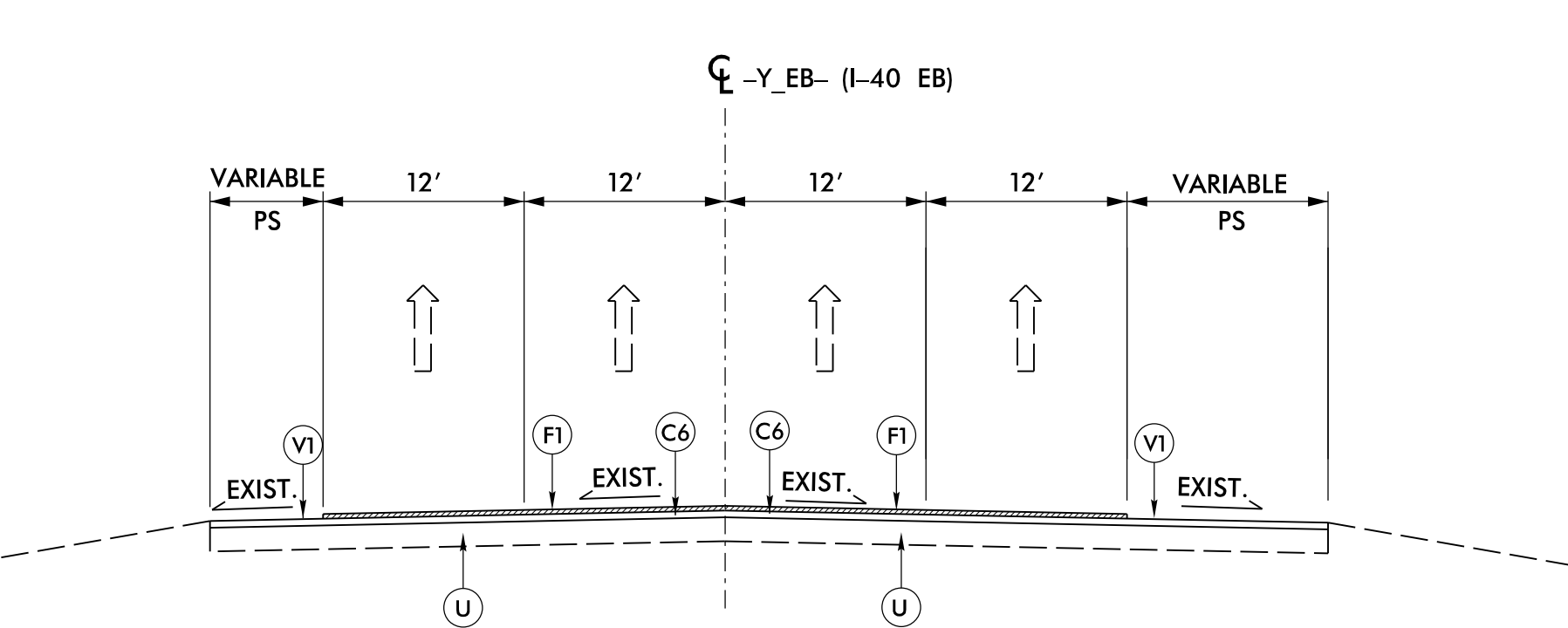
INSET NO. 10

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 13
 -Y_WB- STA. 10+44.00 TO 13+45.00



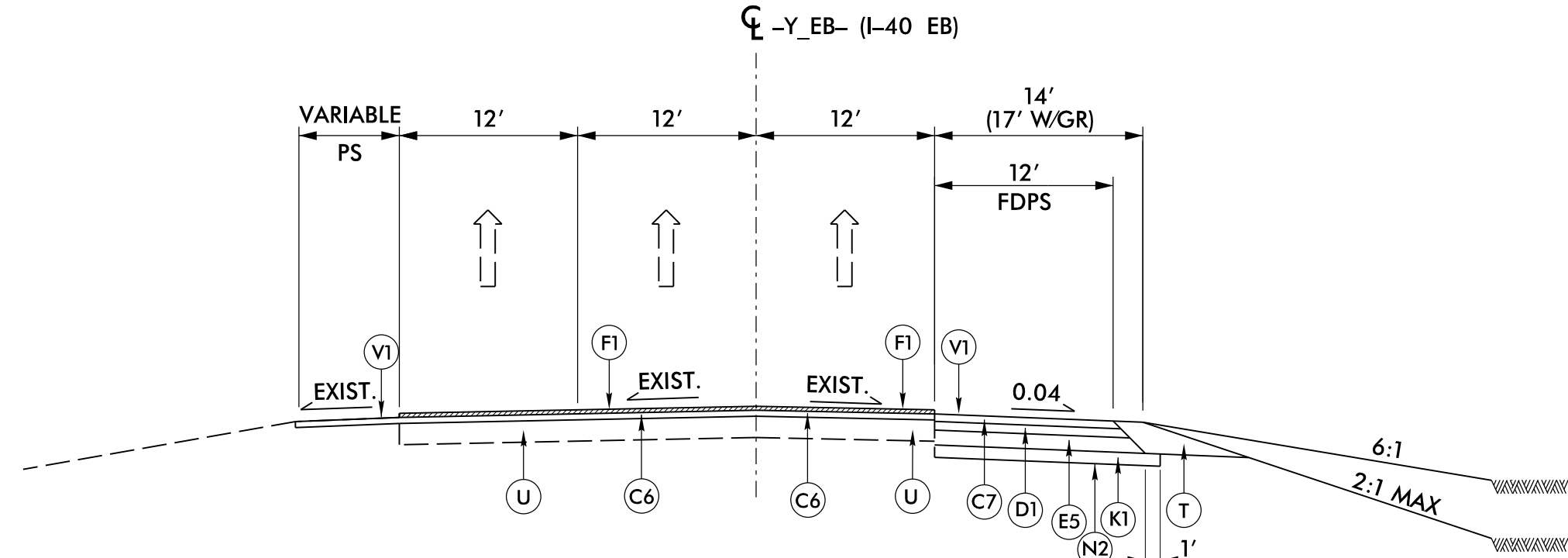
ROADWAY TYPICAL SECTION NO. 11

-Y_EB- STA. 10+44.00 TO 15+08.00



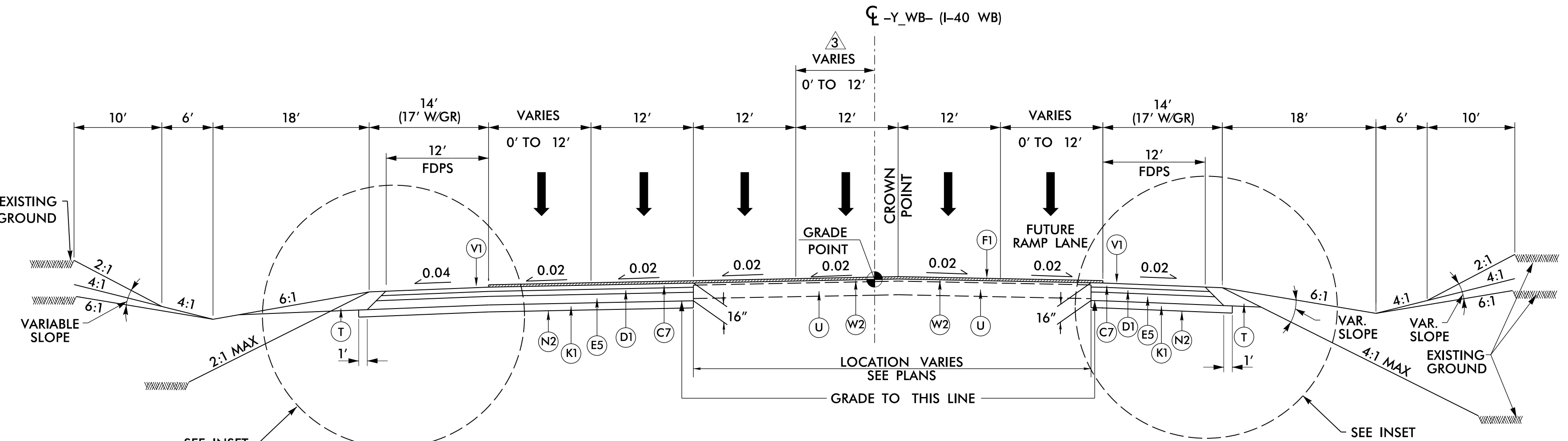
ROADWAY TYPICAL SECTION NO. 11A

-Y_EB- STA. 15+08.00 TO 23+69.74



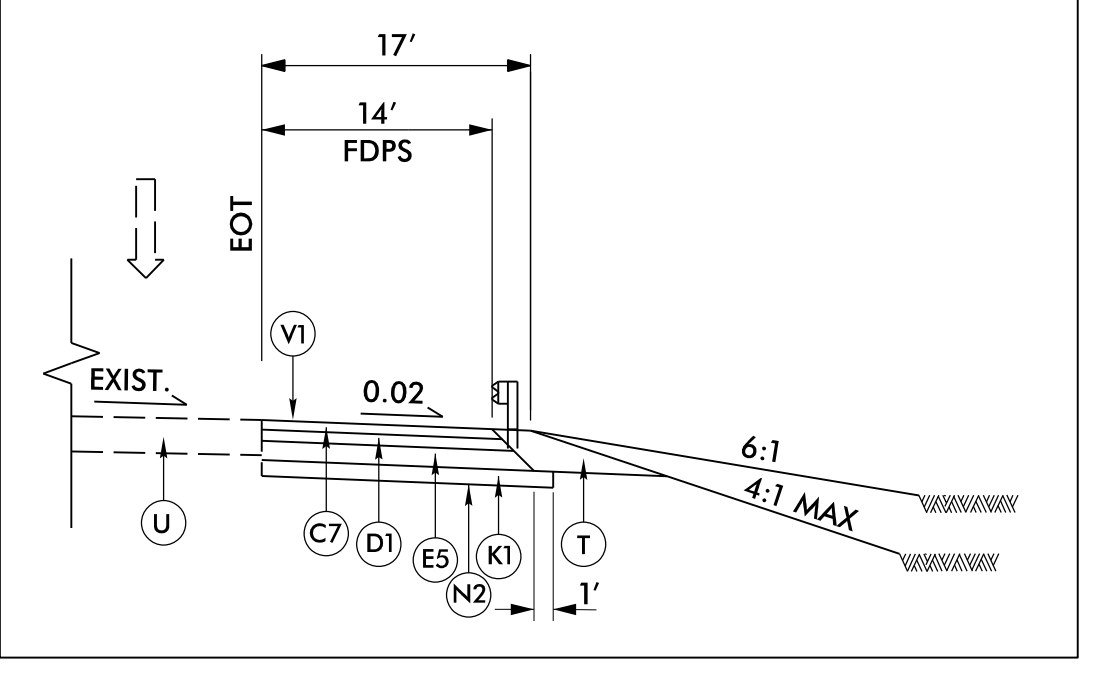
ROADWAY TYPICAL SECTION NO. 12

-Y_EB- STA. 23+69.74 TO 39+00.00



ROADWAY TYPICAL SECTION NO. 13

-Y_WB- STA. 10+44.00 TO 18+70.00



ROADWAY TYPICAL SECTION NO. 13A

-Y_WB- STA. 18+70.00 TO 20+82.00 RT

PROJECT REFERENCE NO. 1-2513AA/AB	SHEET NO. 2A-6
ROADWAY DESIGN ENGINEER Barry Smith 2/8/2024	PAVEMENT DESIGN ENGINEER Joseph T. Holladay 2/8/2024
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p> <p>KCI ASSOCIATES OF N.C., P.A. 4505 Falls of Neuse Road, Suite 400 Raleigh, NC 27609-4270 Phone (919) 783-9214 NC Firm License No. C-0764</p>	

A1	12" PCC PAVE.
A2	14" CONC. PAVE.
C1	1 1/4" S9.5B
C2	1 1/2" S9.5B
C3	3" S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	1 1/2" S9.5D
C7	3" S9.5D
C8	VAR. S9.5D
D1	4" I19.0C
D2	VAR. I19.0C
D3	2 1/2" I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	6.5" B25.0C
E4	7" B25.0C
E5	9" B25.0C
E6	11.5" B25.0C
E7	VAR. B25.0C
F1	5/8" ULTRA-THIN
J1	8" ABC
J2	10" ABC
K1	8" CL IV SUB. STAB
N1	NONWOVEN GEO.
N2	GEO. SUB. STAB.
P1	PRIME COAT
R1	2'-6" C&G
R2	EXPRESS. GUTTER
R3	SH. BERM GUTTER
R4	PRECAST BARRIER
R5	4" CONC. COVER
T	EARTH MATERIAL
U	EXIST. PVMT.
U1	EXIST. C. PVMT.
U2	EXIST. A. PVMT.
V1	RUMBLE STRIPS
V2	1 1/2" MILLING
V3	VAR. MILLING
W1	WEDGING DET.#1
W2	WEDGING DET.#2

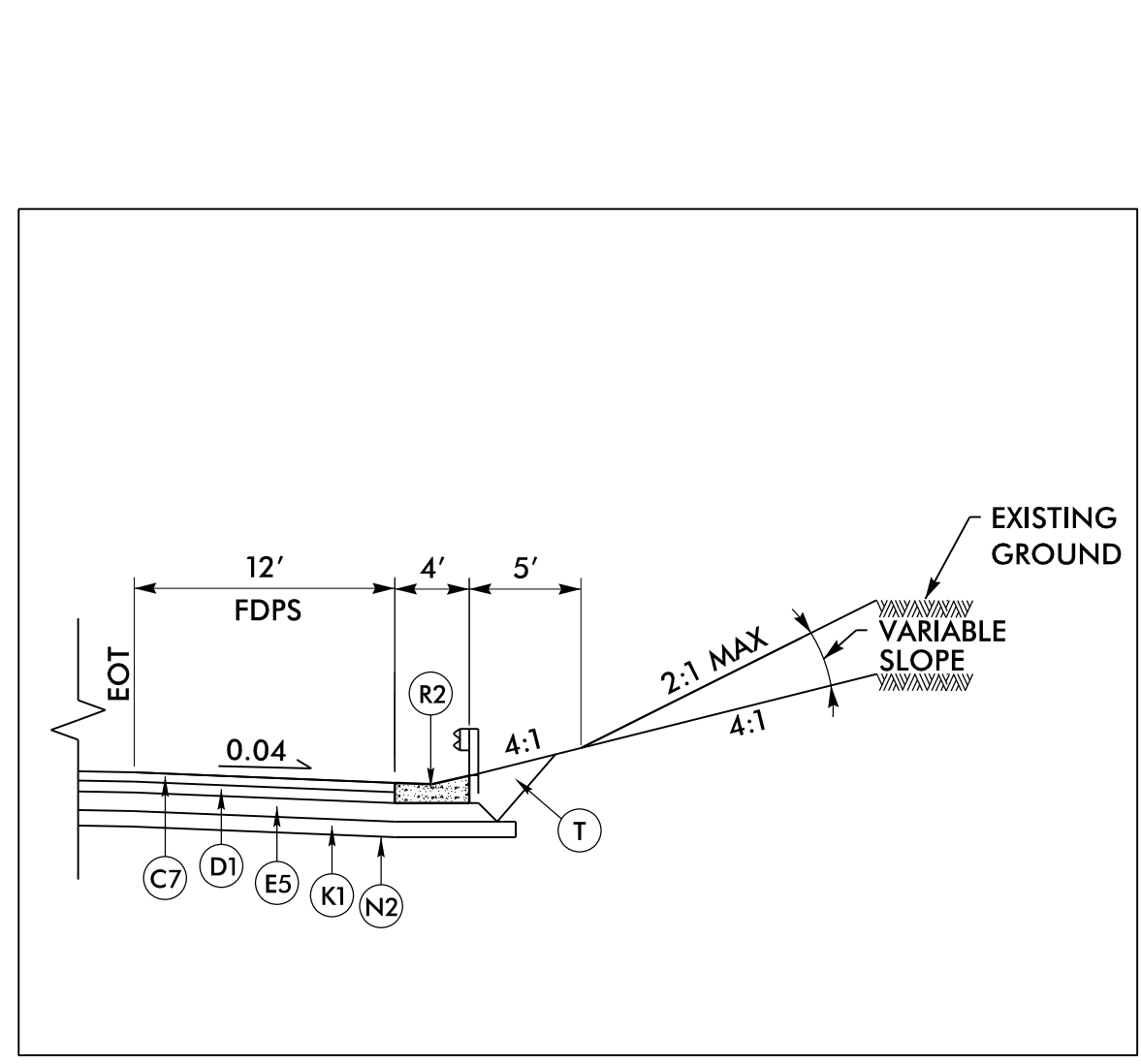
2/5/2024
 12:51:36 PM
 Barry Smith

PROJECT REFERENCE NO. 1-2513AA/AB	SHEET NO. 2A-7
ROADWAY DESIGN ENGINEER Barry Smith 2/8/2024	PAVEMENT DESIGN ENGINEER Joseph T. Holland 2/8/2024

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

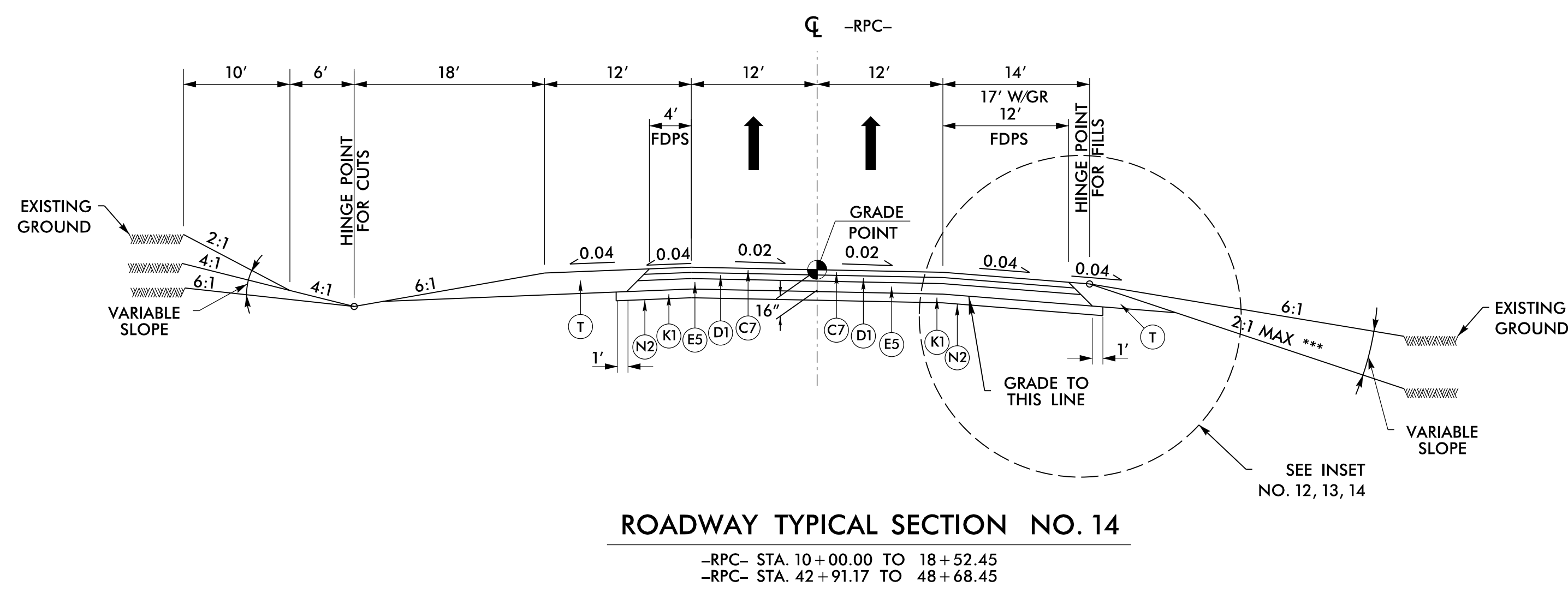
KCI ASSOCIATES OF N.C., P.A.
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609-4270
Phone (919) 783-9214
NC Firm License No. C-0764

A1	12" PCC PAVE.
A2	14" CONC. PAVE.
C1	1 1/4" S9.5B
C2	1 1/2" S9.5B
C3	3" S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	1 1/2" S9.5D
C7	3" S9.5D
C8	VAR. S9.5D
D1	4" I19.0C
D2	VAR. I19.0C
D3	2 1/2" I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	6.5" B25.0C
E4	7" B25.0C
E5	9" B25.0C
E6	11.5" B25.0C
E7	VAR. B25.0C
F1	5/8" ULTRA-THIN
J1	8" ABC
J2	10" ABC
K1	8" CL IV SUB. STAB
N1	NONWOVEN GEO.
N2	GEO. SUB. STAB.
P1	PRIME COAT
R1	2'-6" C&G
R2	EXPRESS. GUTTER
R3	SH. BERM GUTTER
R4	PRECAST BARRIER
R5	4" CONC. COVER
T	EARTH MATERIAL
U	EXIST. PVMT.
U1	EXIST. C. PVMT.
U2	EXIST. A. PVMT.
V1	RUMBLE STRIPS
V2	1 1/2" MILLING
V3	VAR. MILLING
W1	WEDGING DET.#1
W2	WEDGING DET.#2



INSET NO. 12

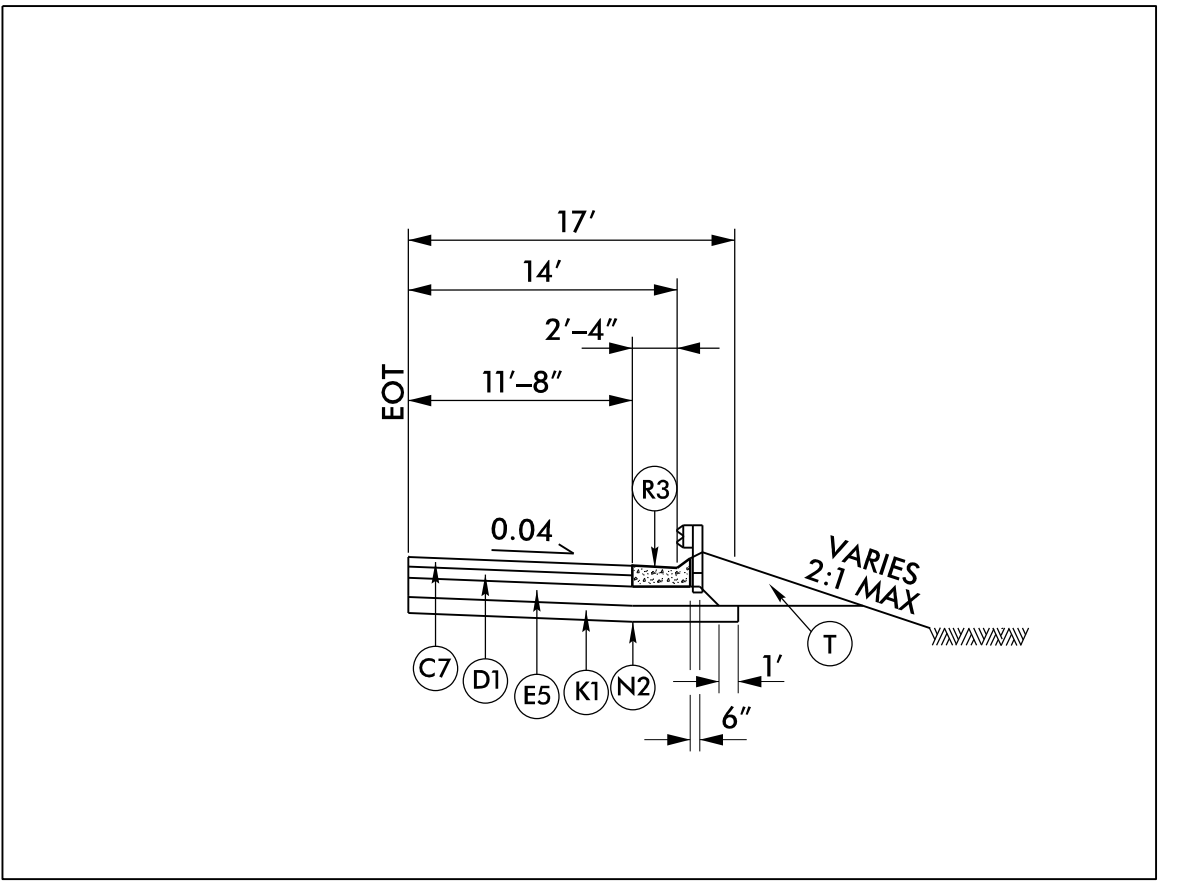
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 14
-RPC- STA. 10+81.25 TO 17+80.32 RT
-RPC- STA. 48+20.00 TO 48+68.45 RT



ROADWAY TYPICAL SECTION NO. 14

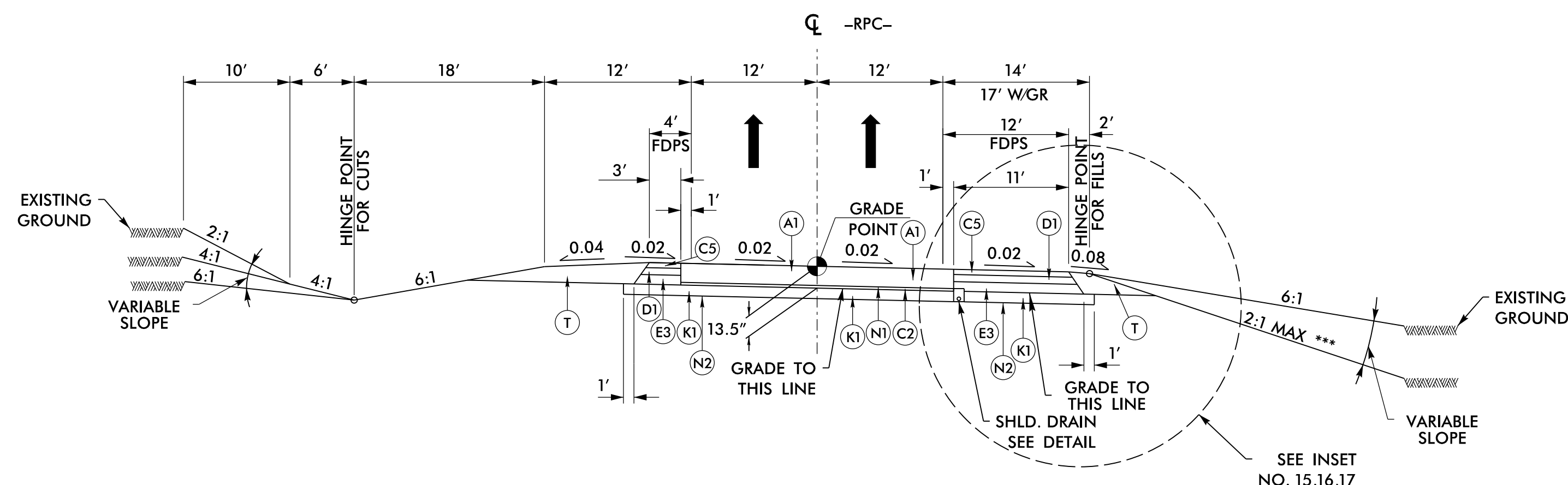
-RPC- STA. 10+00.00 TO 18+52.45
-RPC- STA. 42+91.17 TO 48+68.45

*** USE 4:1 MAX SLOPES INSIDE INTERCHANGE



INSET NO. 13

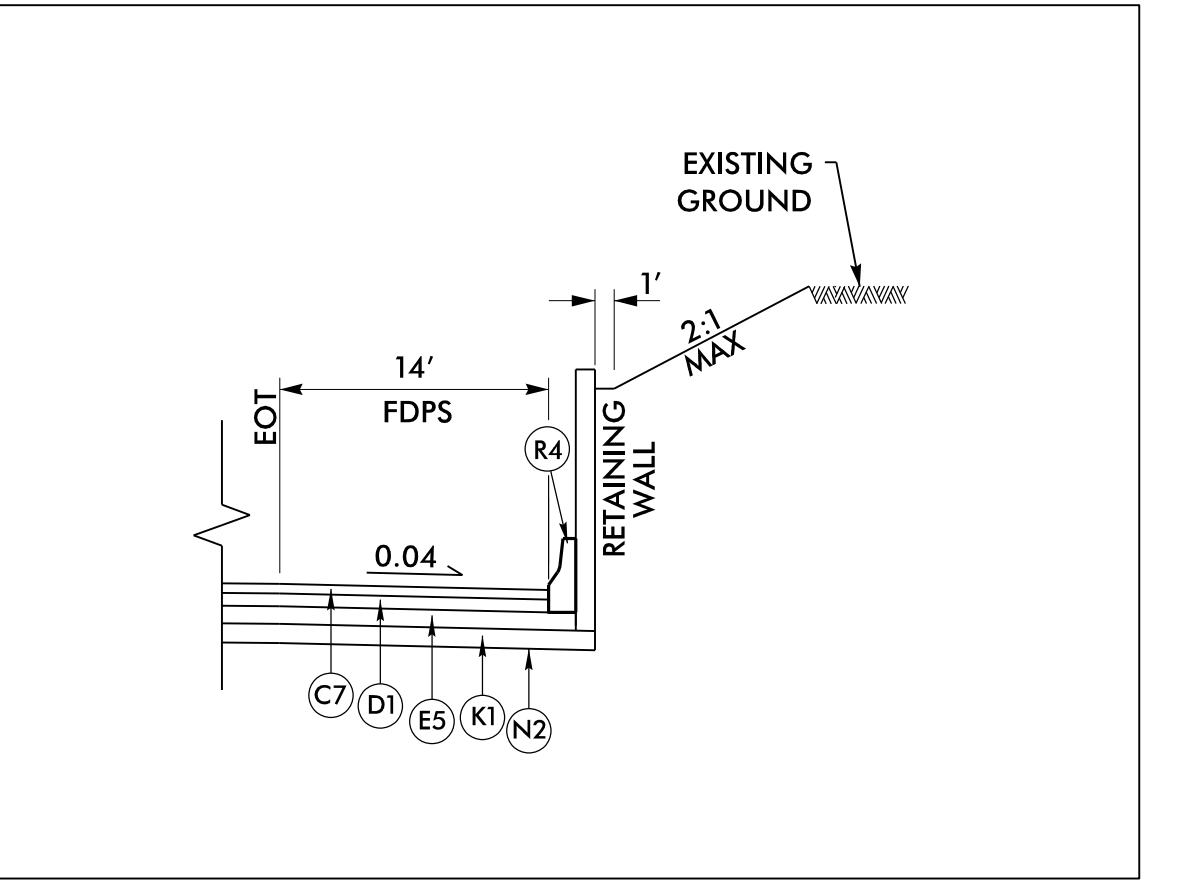
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 14
-RPC- STA. 10+48.34 TO 10+81.25 RT
-RPC- STA. 17+80.32 TO 18+13.15 RT
-RPC- STA. 42+91.17 TO 48+20.00 RT



ROADWAY TYPICAL SECTION NO. 15

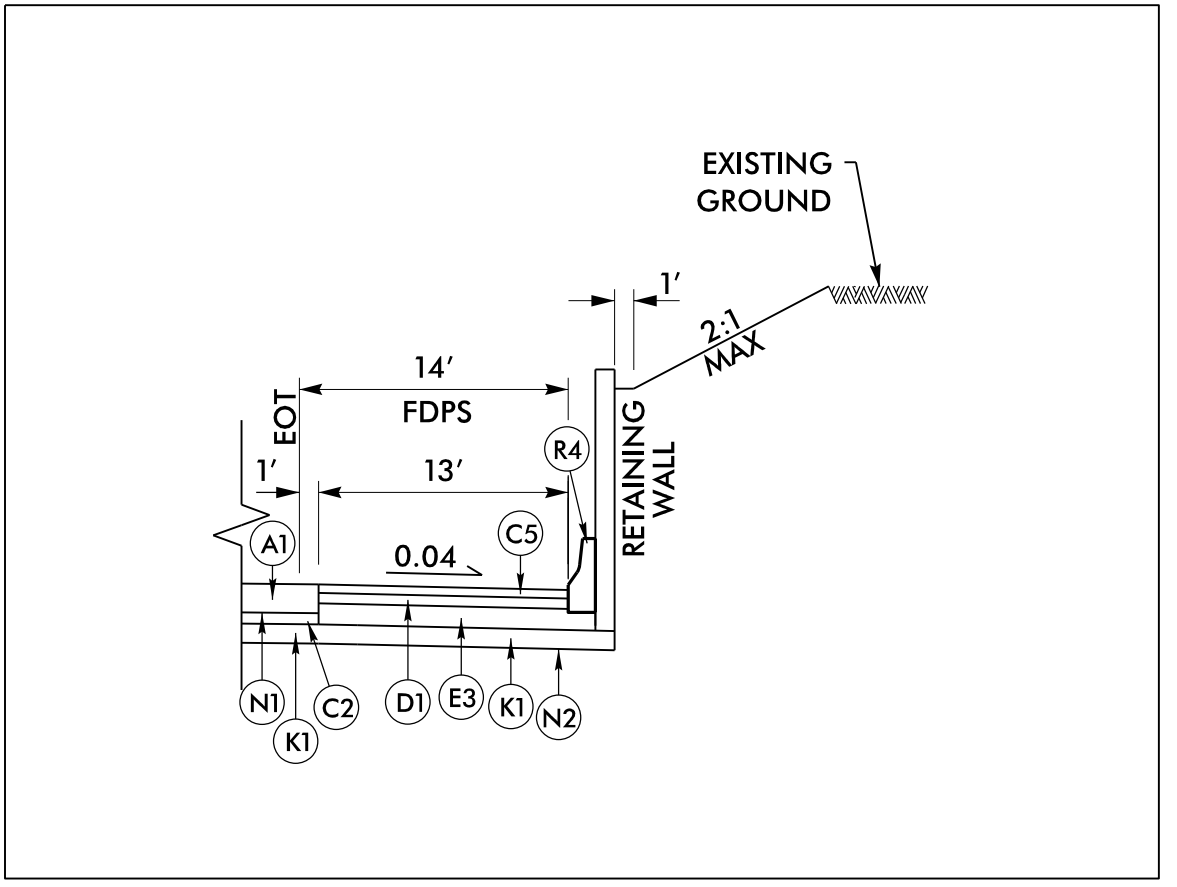
-RPC- STA. 18+52.45 TO 42+91.17

*** USE 4:1 MAX SLOPES INSIDE INTERCHANGE



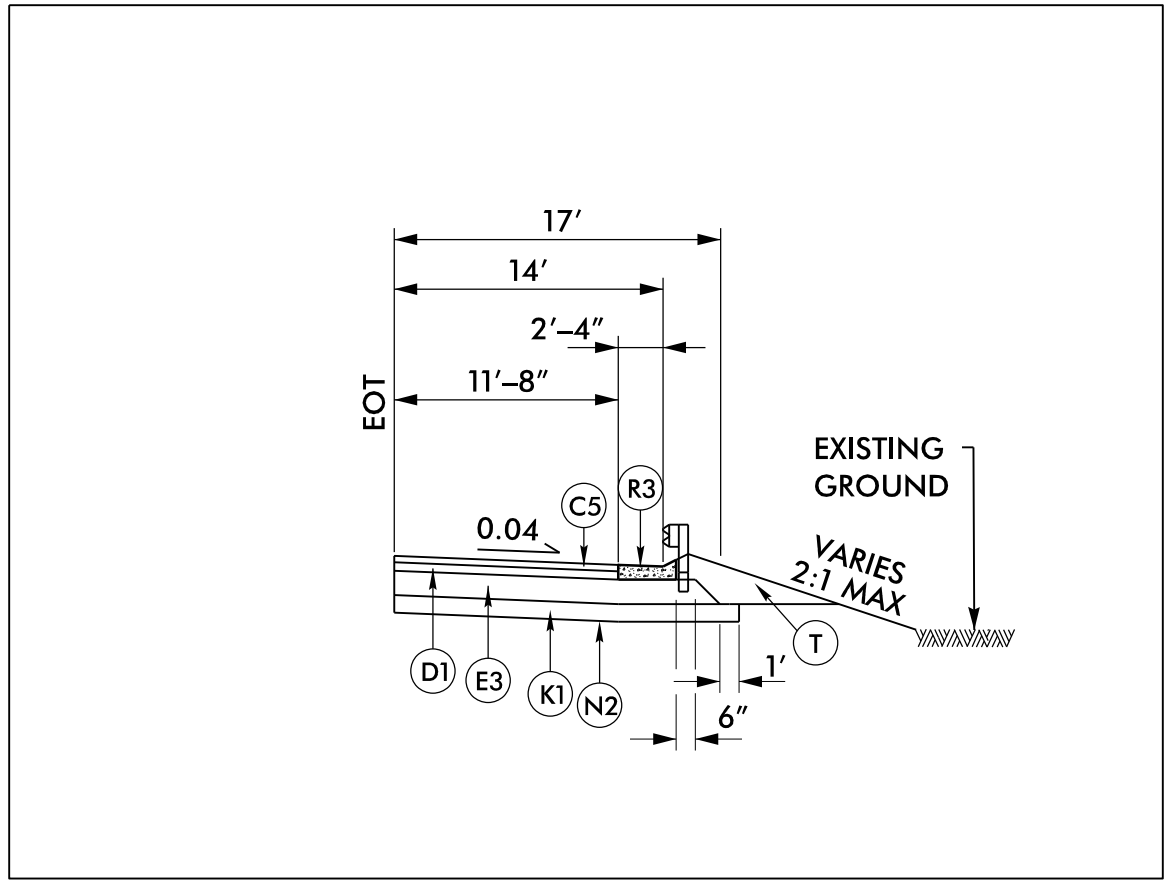
INSET NO. 14

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 14
-RPC- STA. 18+13.15 TO 18+52.45 RT



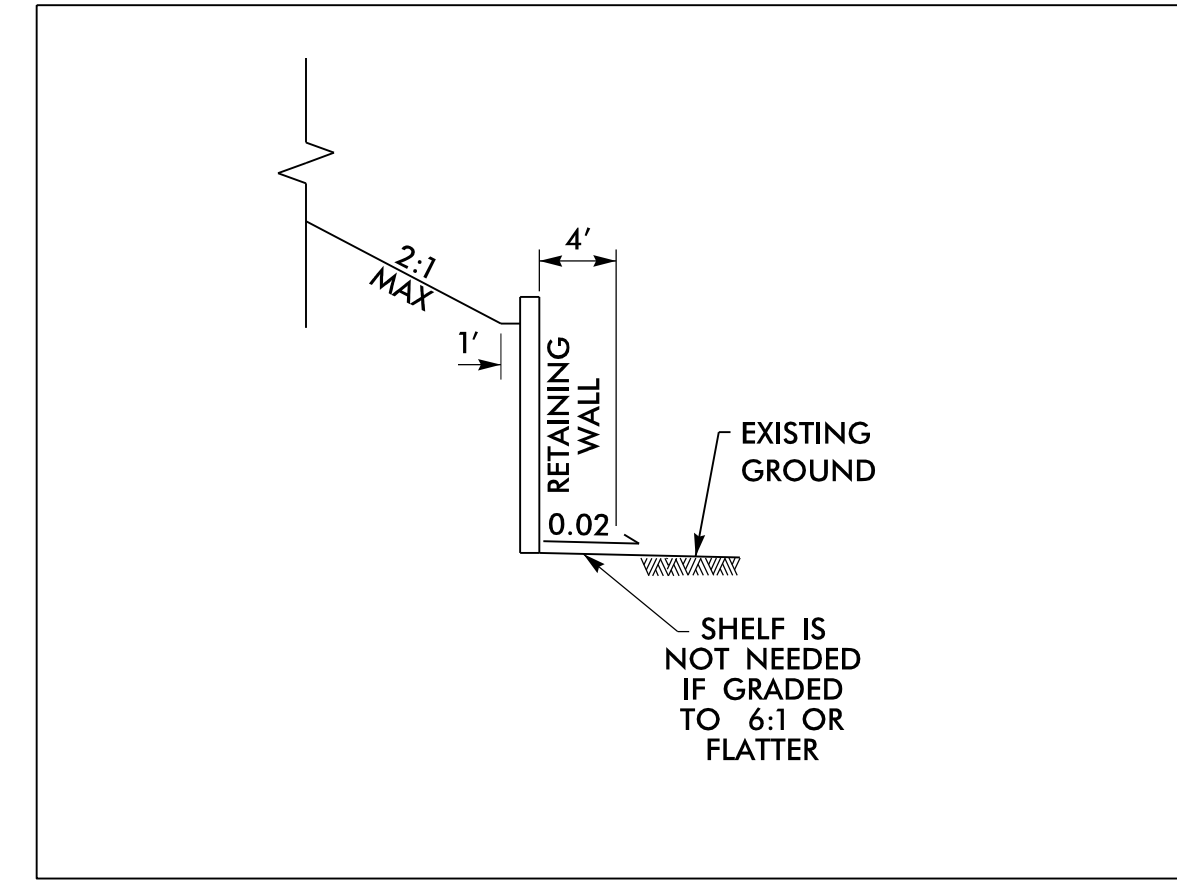
INSET NO. 15

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 15
-RPC- STA. 18+52.45 TO 21+36.15 RT
-RPC- STA. 33+78.15 TO 39+95.15 RT



INSET NO. 16

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 15
-RPC- STA. 21+36.15 TO 33+78.15 RT
-RPC- STA. 39+95.15 TO 42+91.17 RT



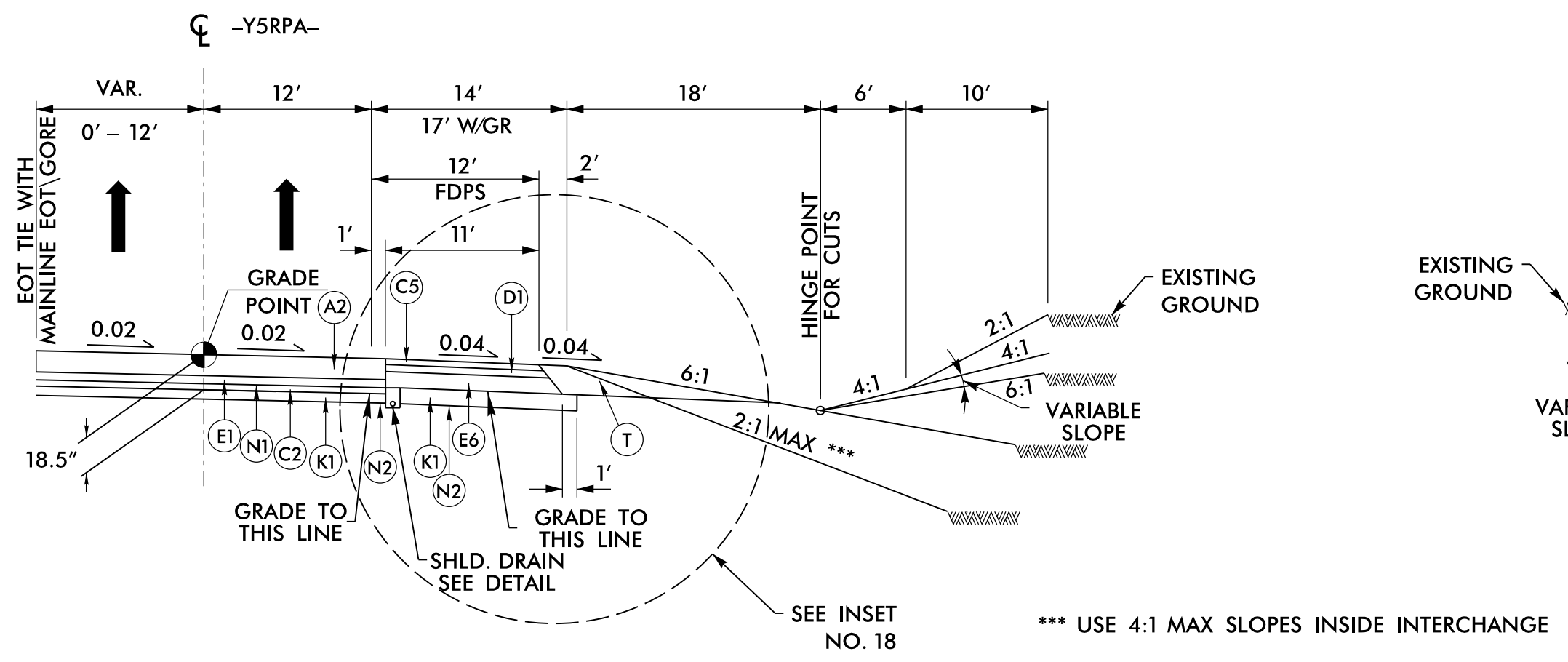
INSET NO. 17

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 15
-RPC- STA. 23+68.60 TO 29+85.00 RT

PROJECT REFERENCE NO. 1-2513AA/AB	SHEET NO. 2A-8
ROADWAY DESIGN ENGINEER BARRY C. SMITH SEAL 034375 2/8/2024	PAVEMENT DESIGN ENGINEER JOSEPH T. HOLLAND SEAL 024964 2/8/2024

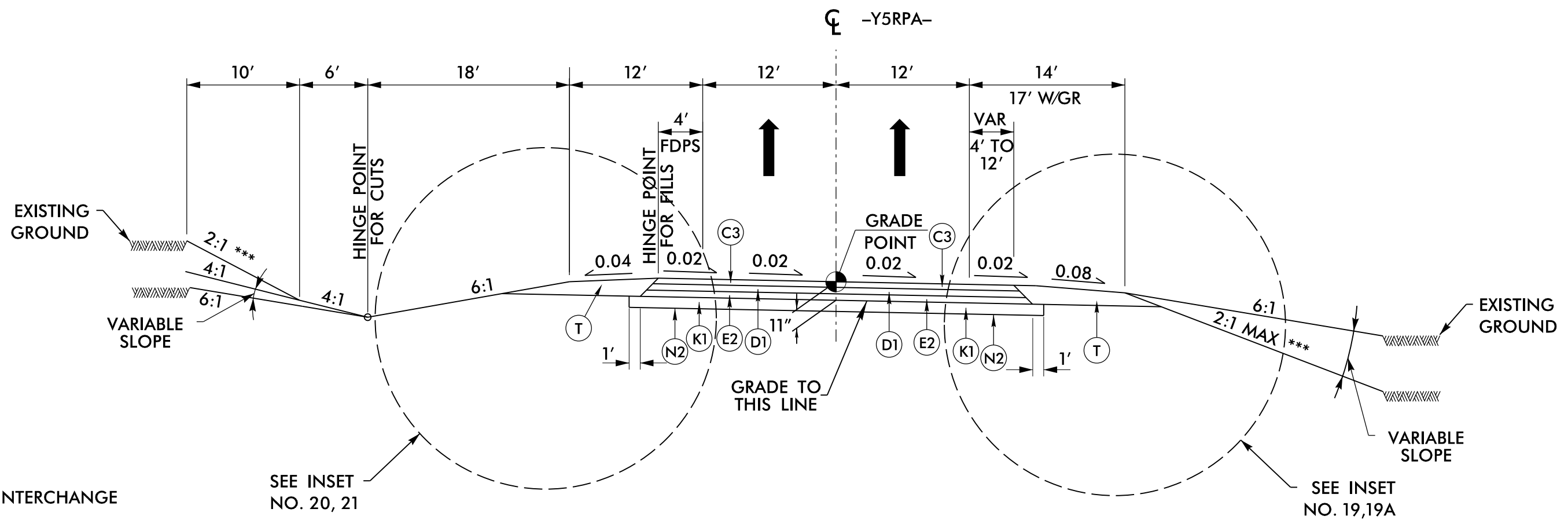
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

KCI ASSOCIATES OF N.C., P.A.
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609-4270
Phone (919) 783-9214
NC Firm License No. C-0764



ROADWAY TYPICAL SECTION NO. 16

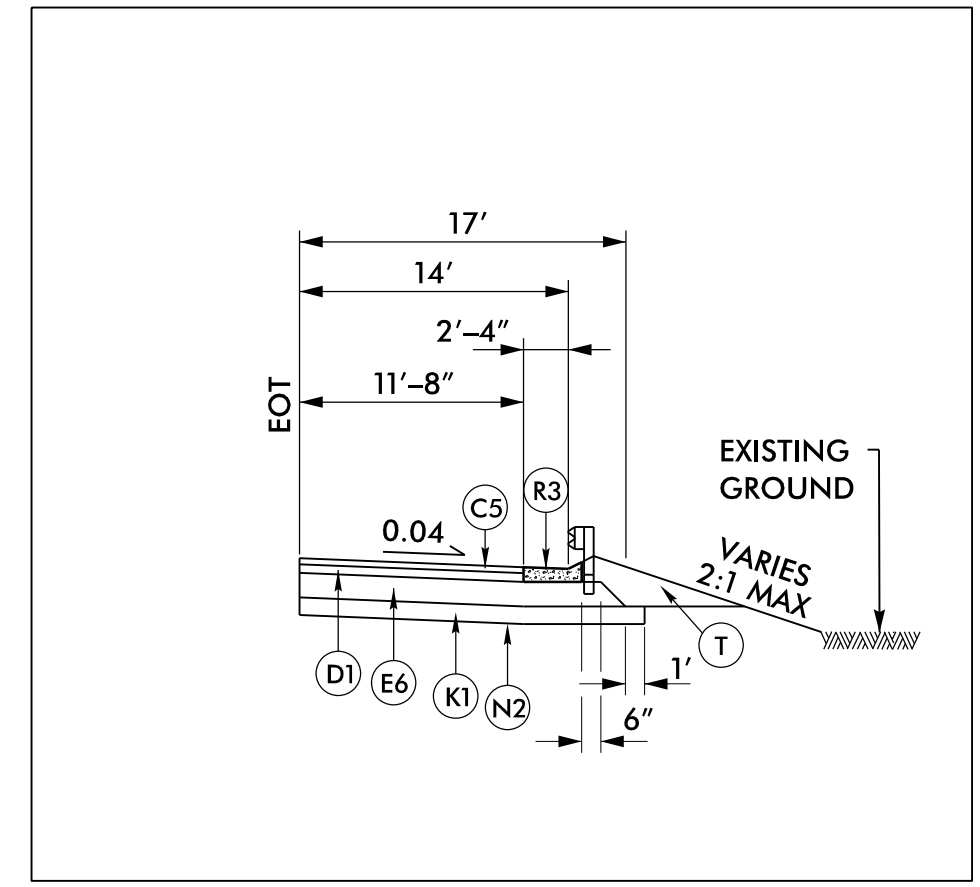
-Y5RPA- STA. 10+00.00 TO 18+44.60 (BRIDGE)



ROADWAY TYPICAL SECTION NO. 17

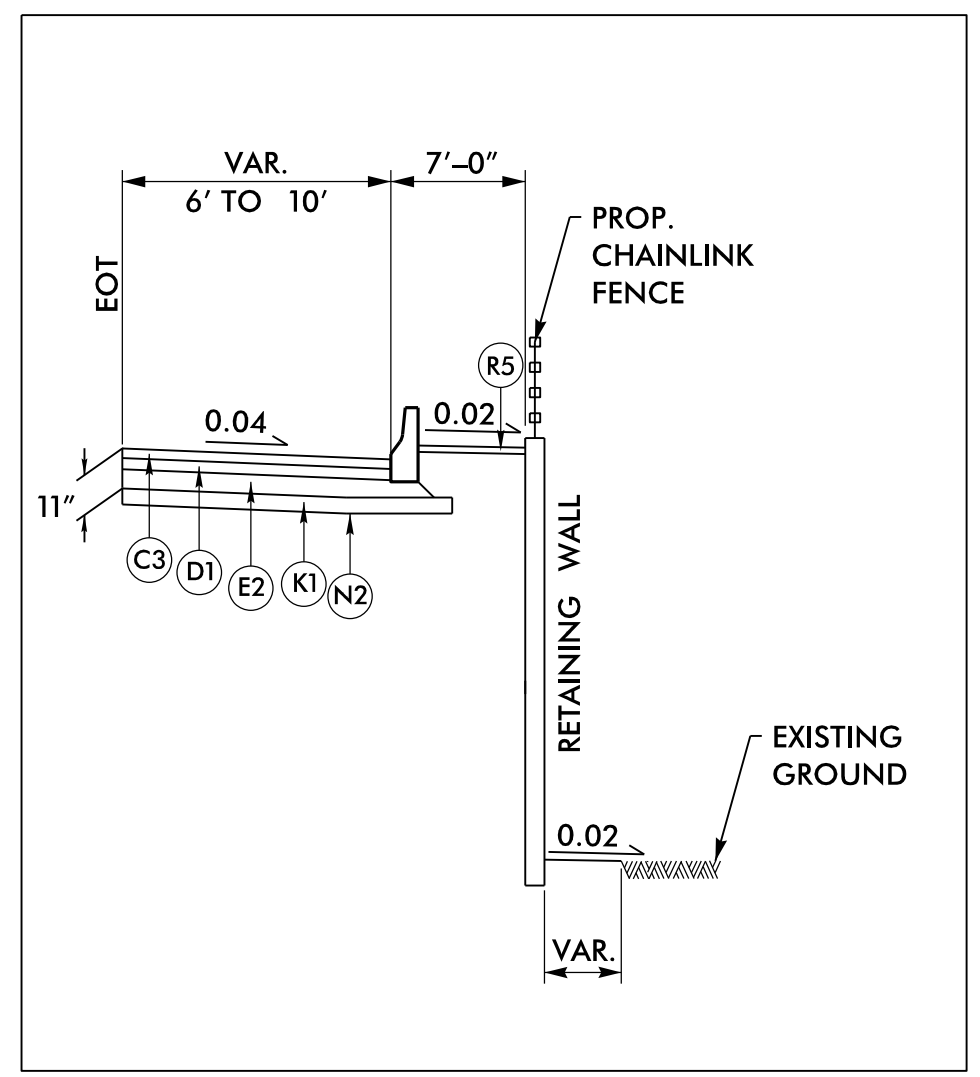
-Y5RPA- STA. 21+27.10 (BRIDGE) TO 27+49.95

*** USE 4:1 MAX SLOPES INSIDE INTERCHANGE



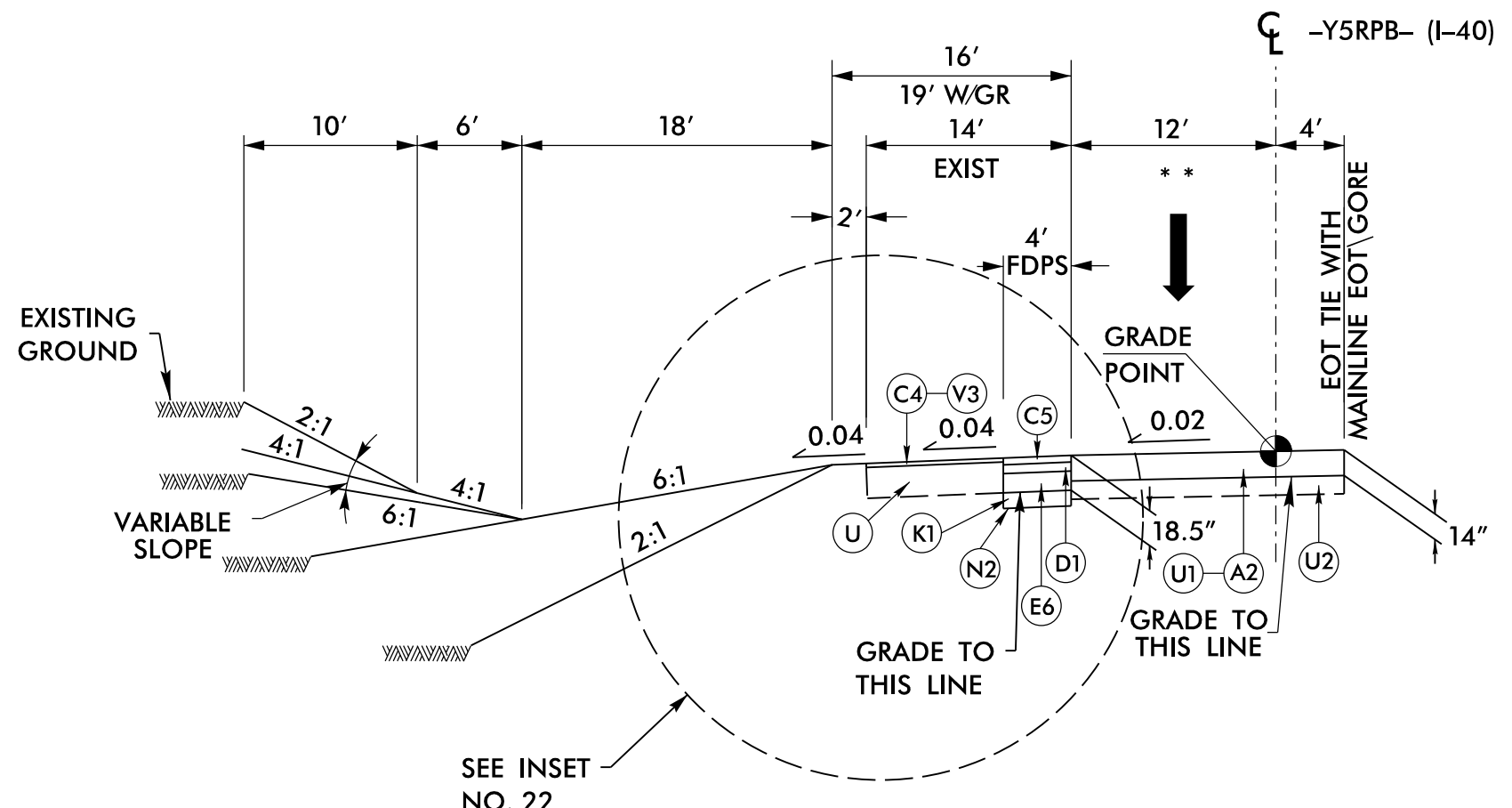
INSET NO. 18

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 16
-Y5RPA- STA. 10+00.00 TO 18+24.09 RT



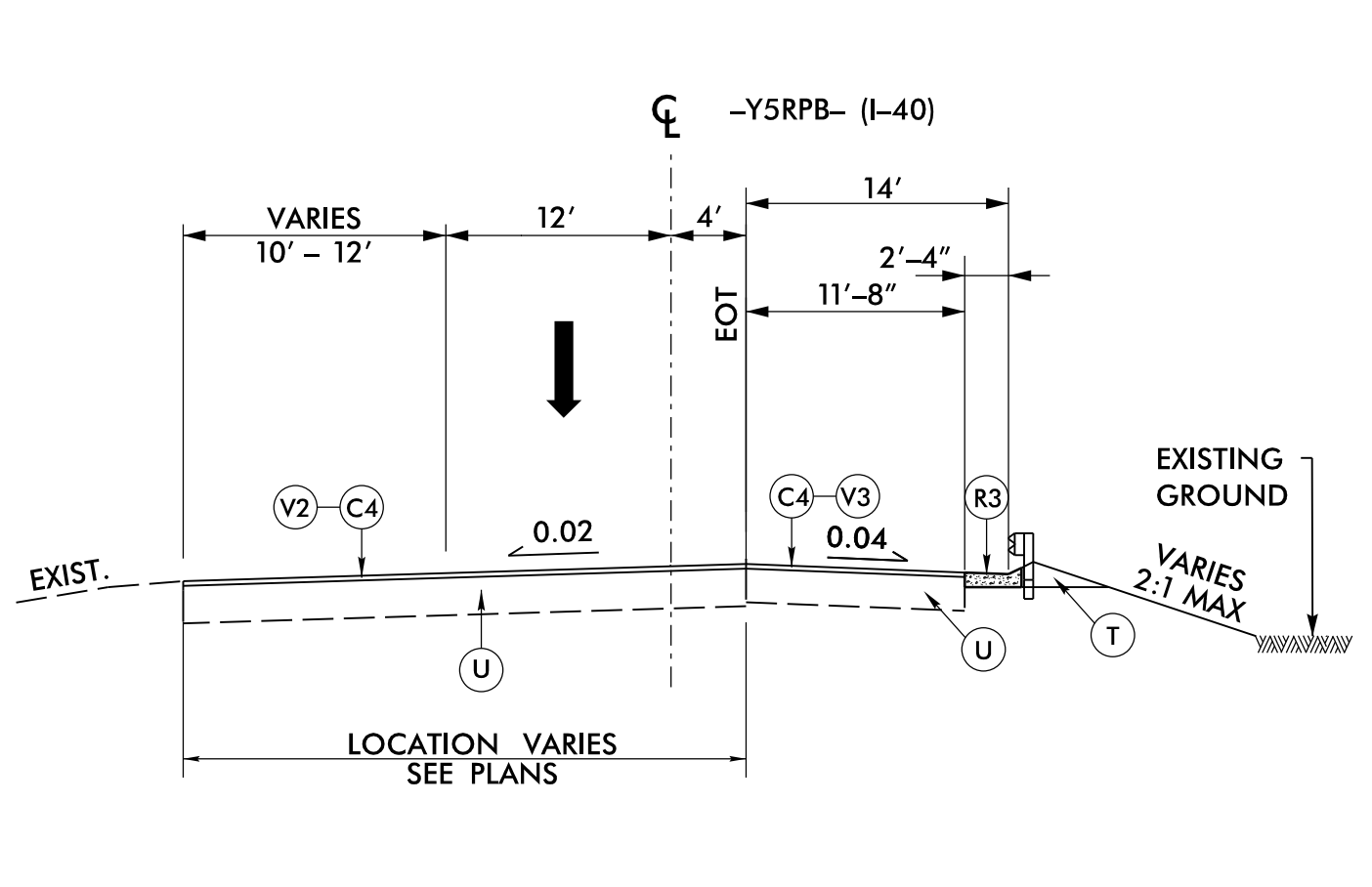
INSET NO. 19

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 17
-Y5RPA- STA. 21+30.11 TO 23+50.00 RT



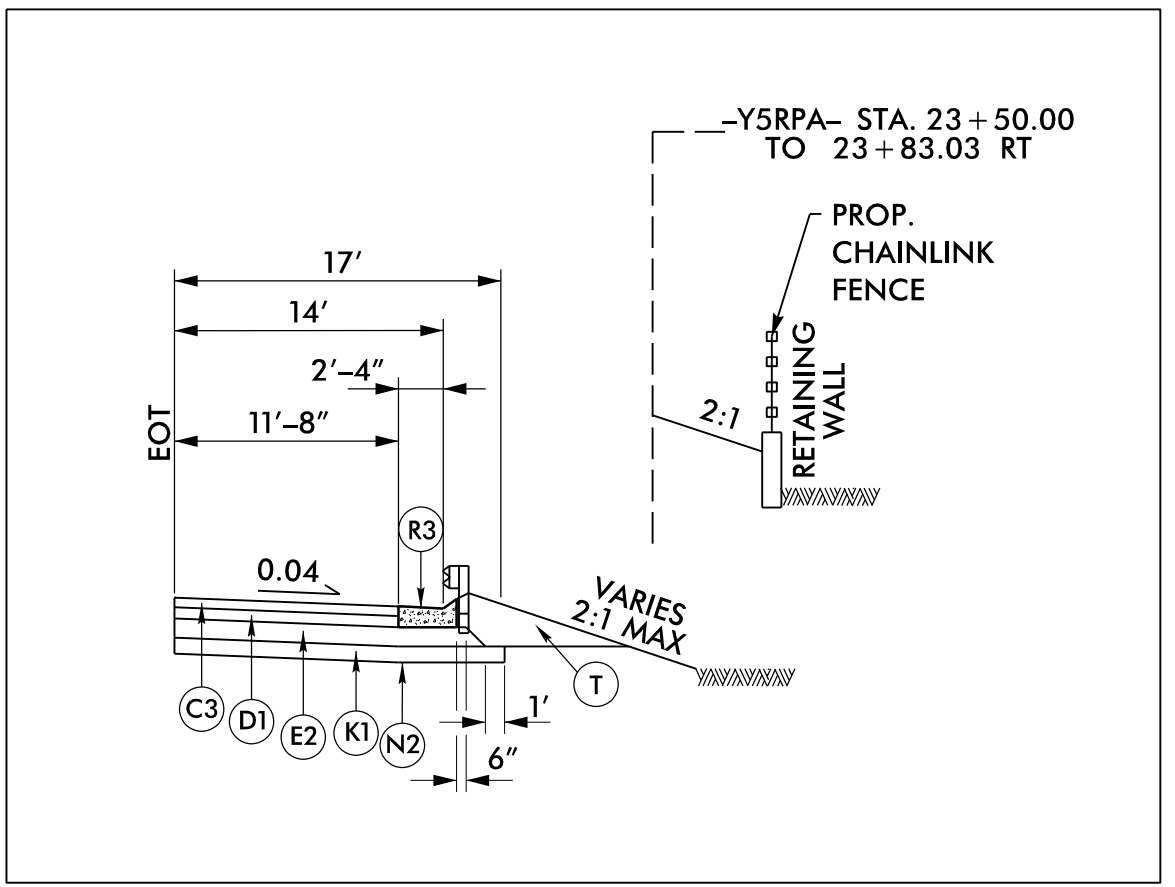
ROADWAY TYPICAL SECTION NO. 18

-Y5RPB- STA. 10+00.00 TO 13+15.00



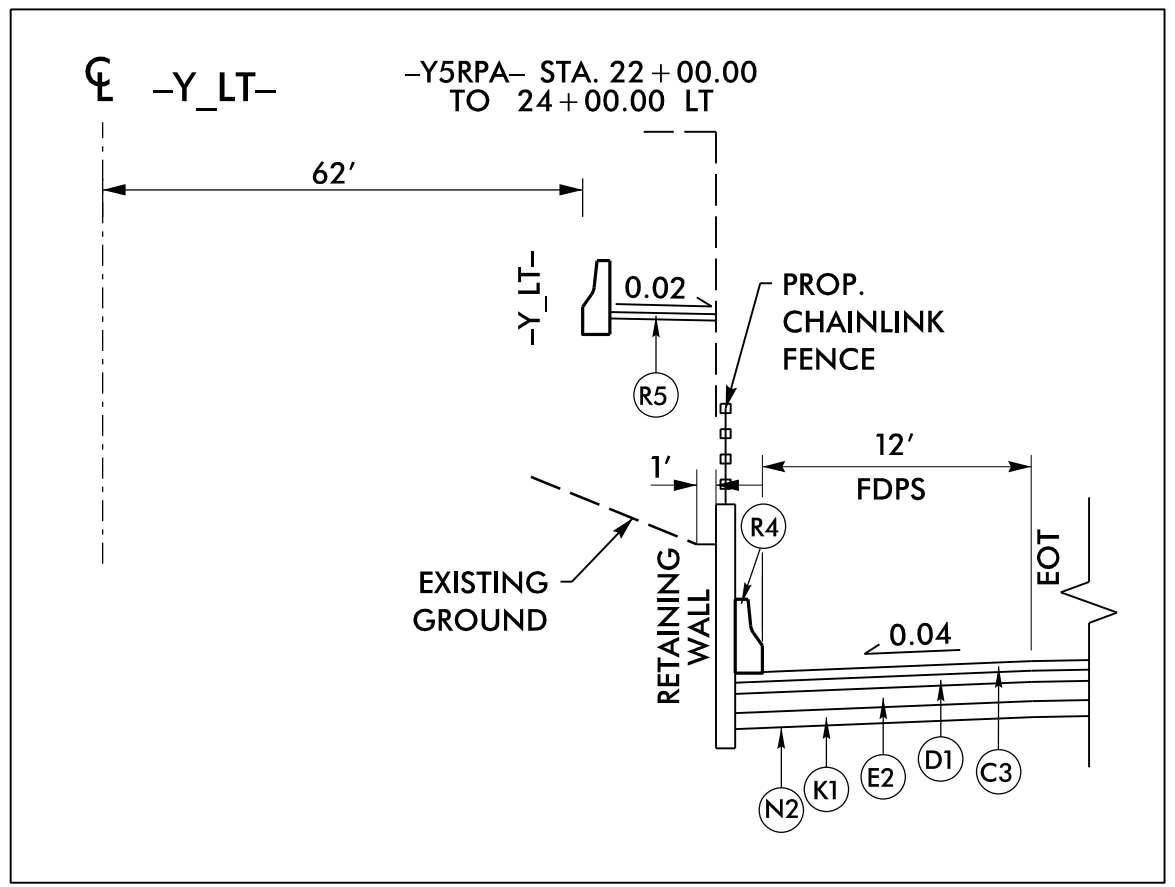
ROADWAY TYPICAL SECTION NO. 18A

-Y5RPB- STA. 13+15.00 TO 13+80.00



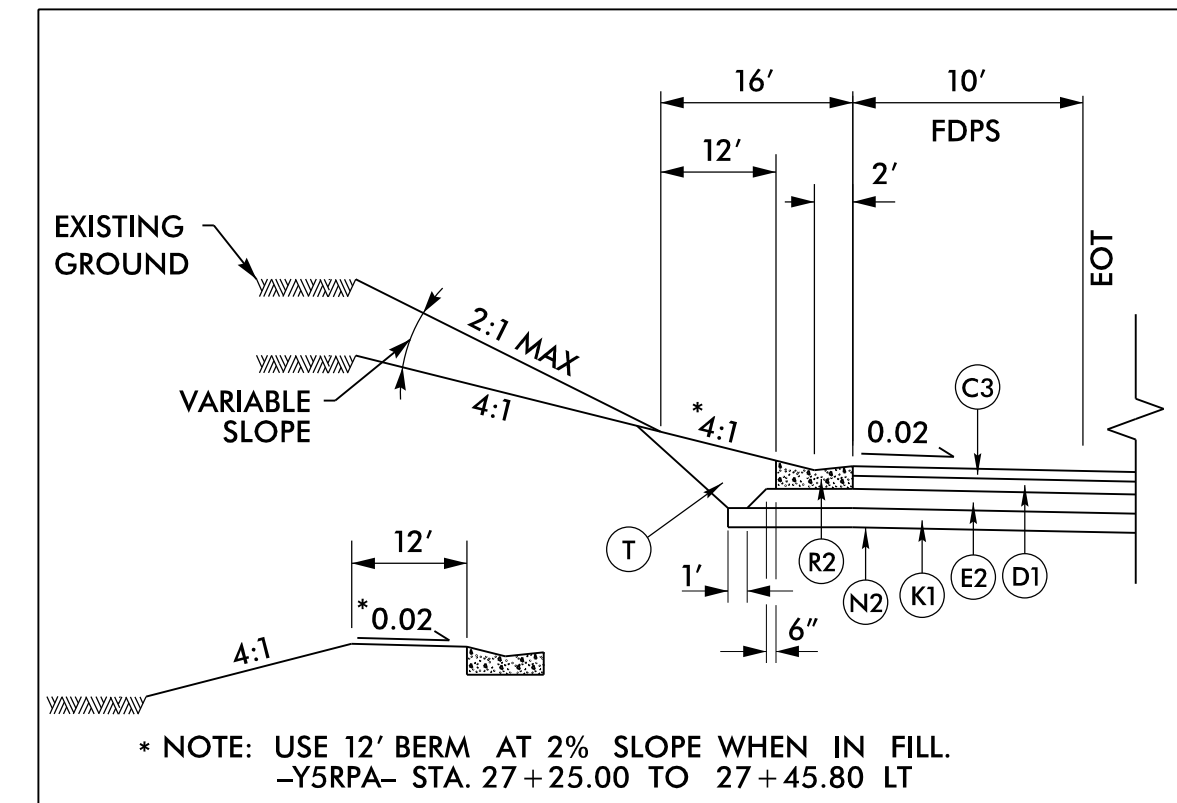
INSET NO. 19A

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 17
-Y5RPA- STA. 23+50.00 TO 24+50.00 RT



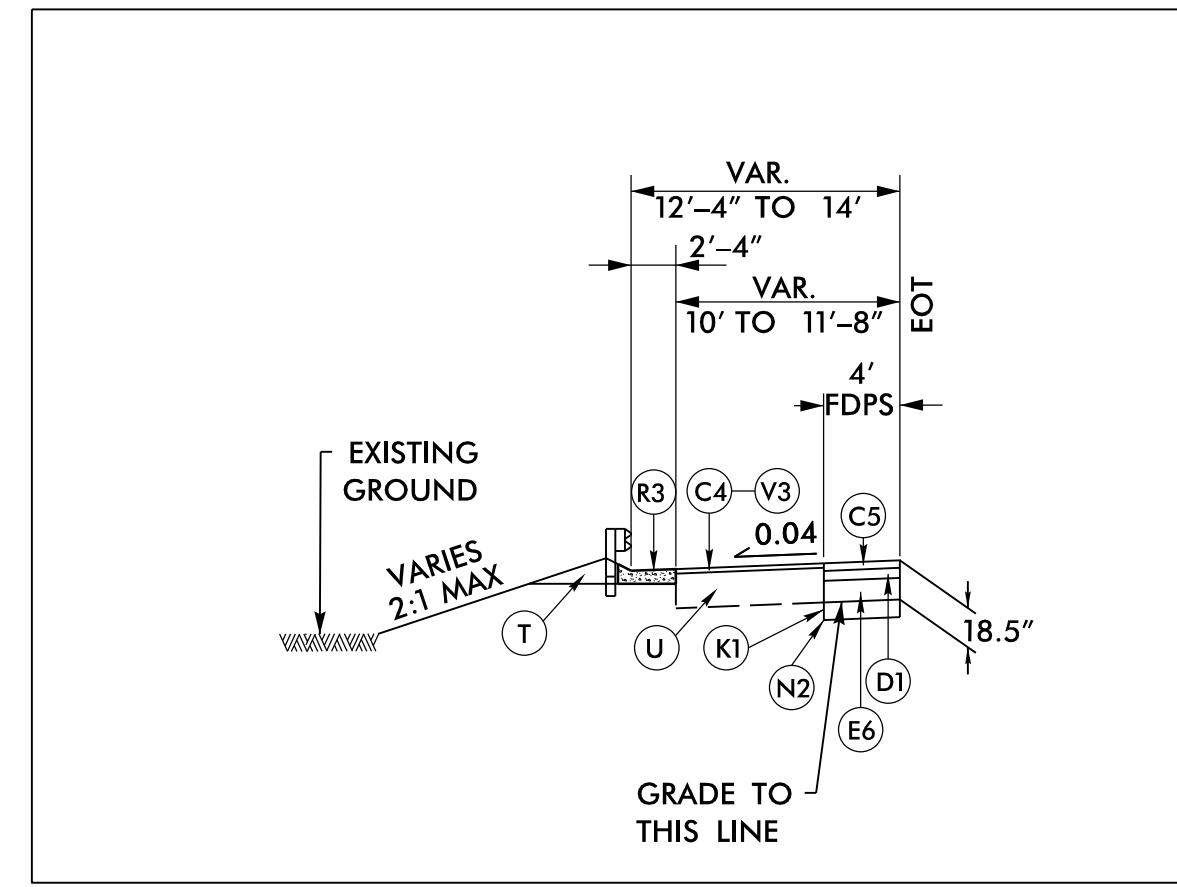
INSET NO. 20

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 17
-Y5RPA- STA. 21+56.71 TO 26+60.00 LT



INSET NO. 21

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 17
-Y5RPA- STA. 26+60.00 TO 27+25.00 LT

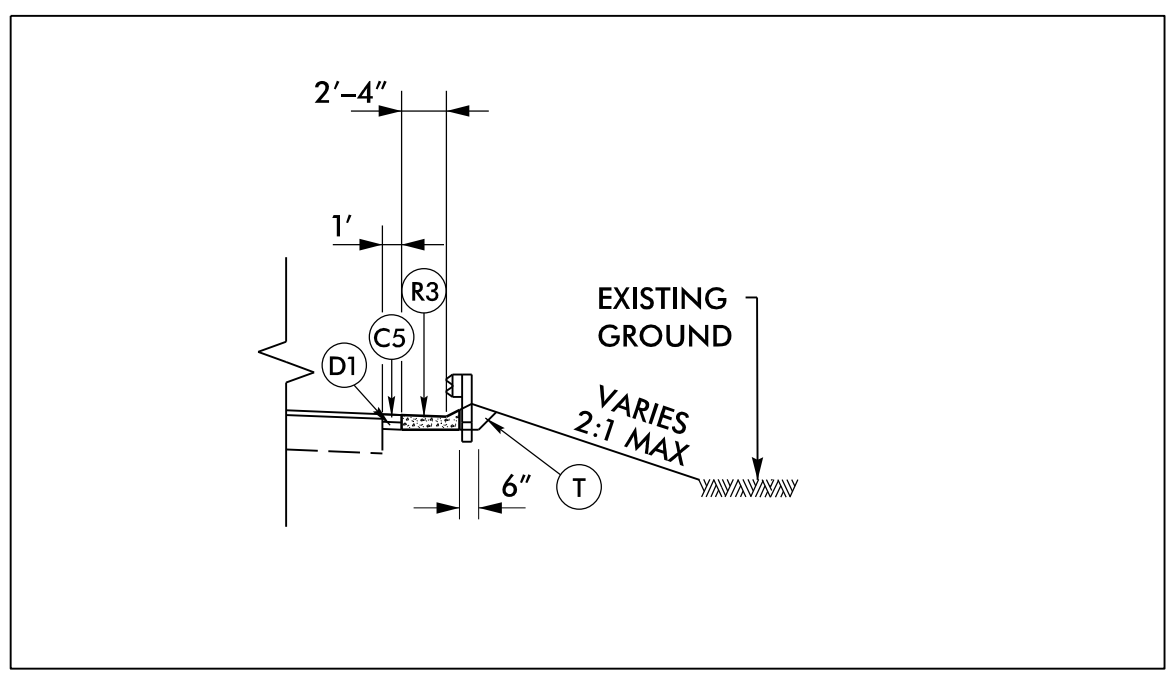


INSET NO. 22

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 18
-Y5RPB- STA. 11+20.00 TO 13+80.00 LT

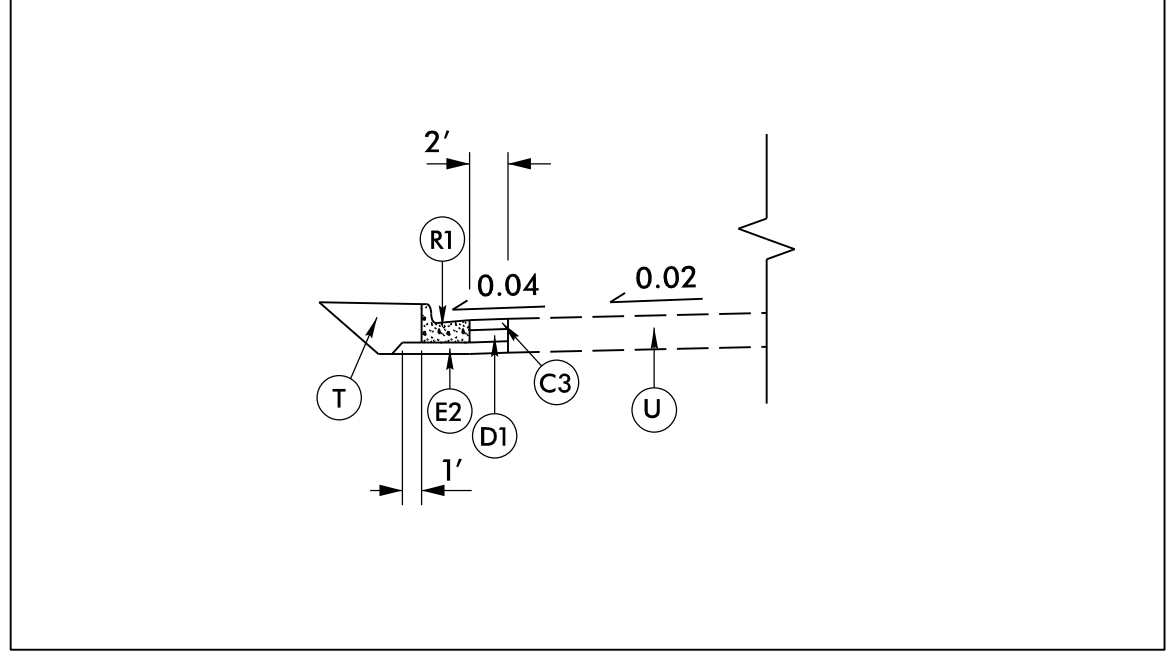
A1	12" PCC PAVE.
A2	14" CONC. PAVE.
C1	1 1/4" S9.5B
C2	1 1/2" S9.5B
C3	3" S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	1 1/2" S9.5D
C7	3" S9.5D
C8	VAR. S9.5D
D1	4" I19.0C
D2	VAR. I19.0C
D3	2 1/2" I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	6.5" B25.0C
E4	7" B25.0C
E5	9" B25.0C
E6	11.5" B25.0C
E7	VAR. B25.0C
F1	5/8" ULTRA-THIN
J1	8" ABC
J2	10" ABC
K1	8" CL IV SUB. STAB
N1	NONWOVEN GEO.
N2	GEO. SUB. STAB.
P1	PRIME COAT
R1	2'-6" C&G
R2	EXPRESS. GUTTER
R3	SH. BERM GUTTER
R4	PRECAST BARRIER
R5	4" CONC. COVER
T	EARTH MATERIAL
U	EXIST. PVMT.
U1	EXIST. C. PVMT.
U2	EXIST. A. PVMT.
V1	RUMBLE STRIPS
V2	1 1/2" MILLING
V3	VAR. MILLING
W1	WEDGING DET.#1
W2	WEDGING DET.#2

6/2/2024



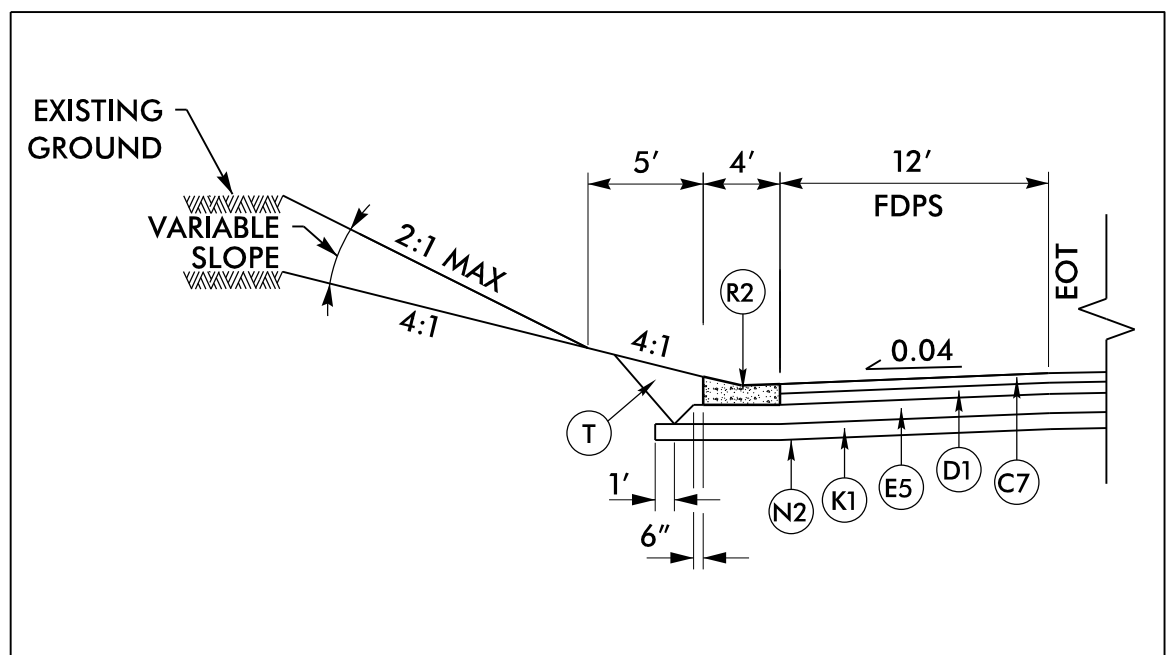
INSET NO. 22A

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 19
-Y5RPC- STA. 10+00.00 TO 18+25.00 RT



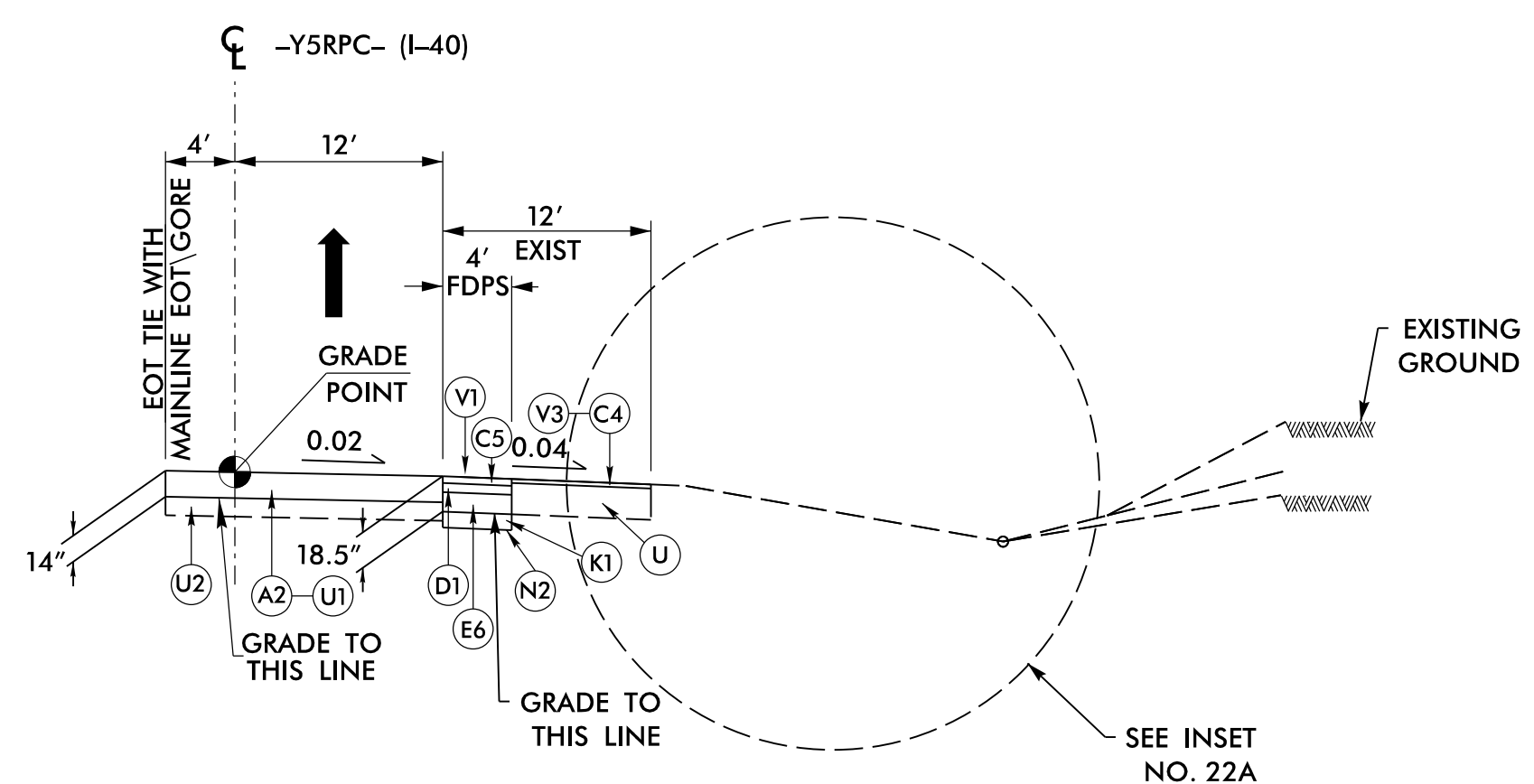
INSET NO. 23

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 20
-Y5LPB- STA. 21+70.00 TO 22+38.00 LT



INSET NO. 24

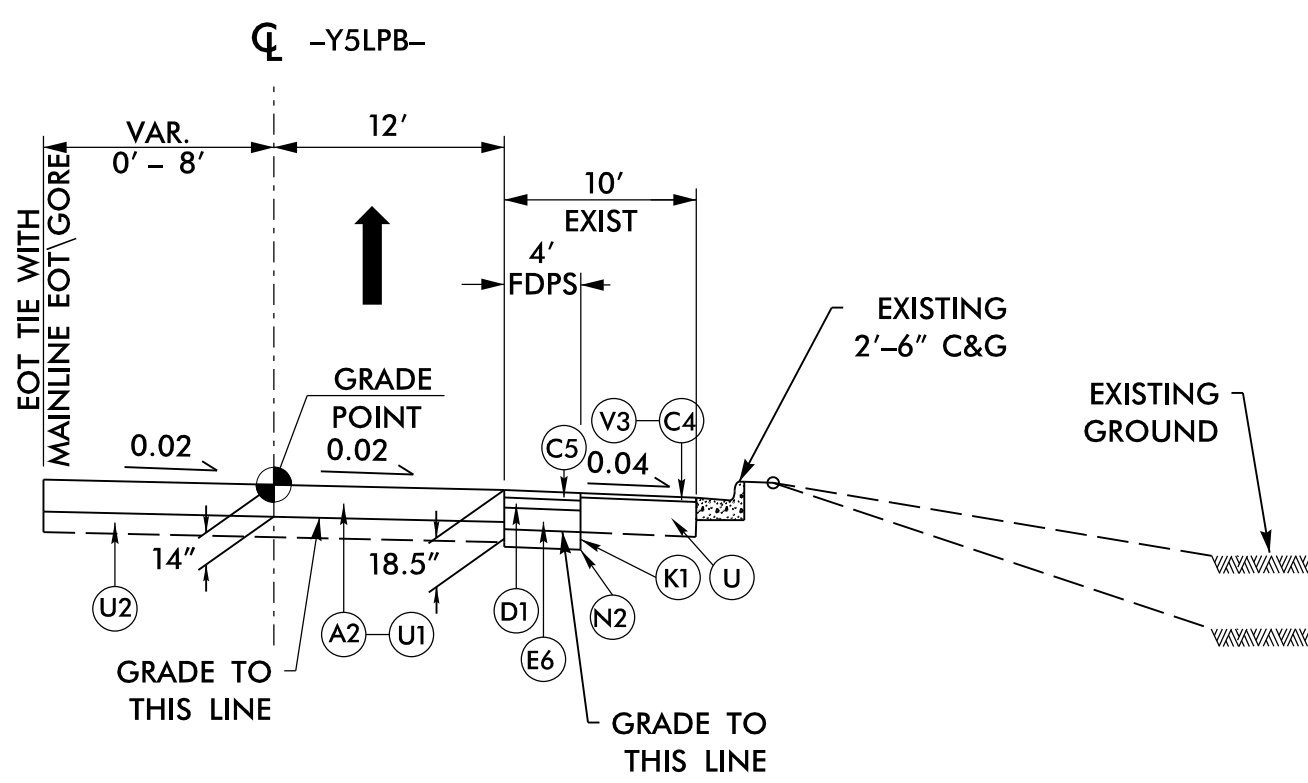
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 21
-RPDB- STA. 11+73.69 TO 15+00.00 LT



ROADWAY TYPICAL SECTION NO. 19

-Y5RPC- STA. 10+00.00 TO 15+65.00

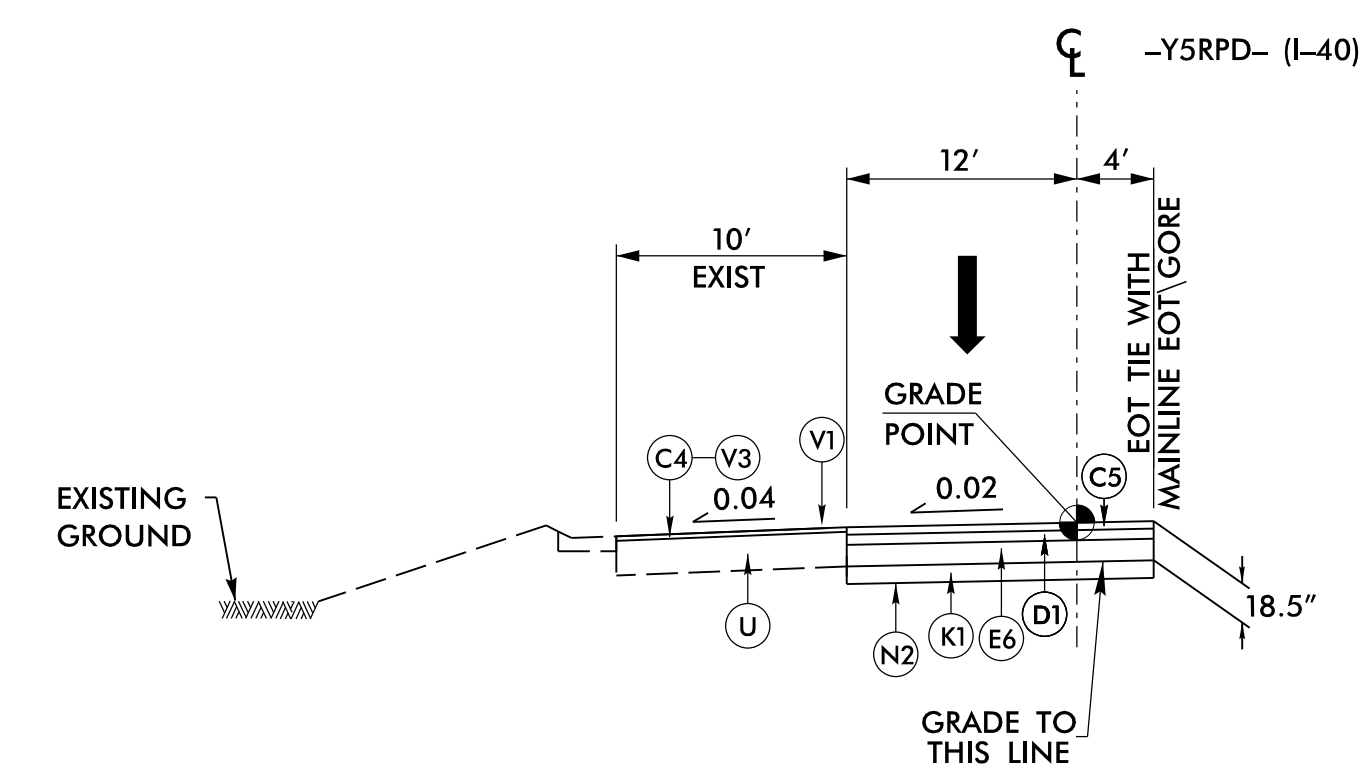
NOTES:
1) PAVEMENT MARKING CORRECTION AREAS: OVERLAY WITH 1.5" S9.5C AND 5/8" ULTRA-THIN BONDED WEARING COURSE (-Y5RPC- STA. 15+65.00 TO 18+25.00)



ROADWAY TYPICAL SECTION NO. 20

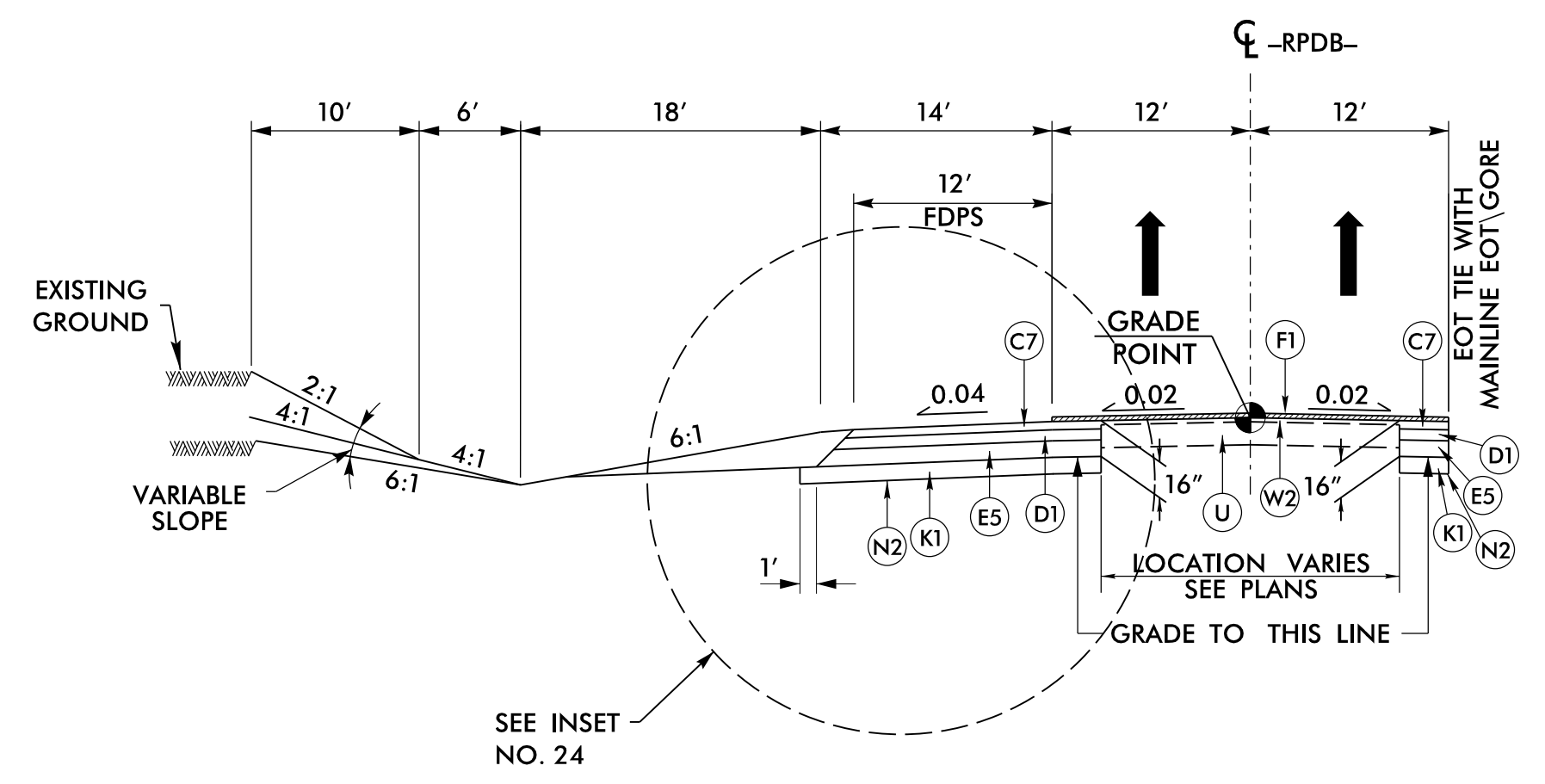
-Y5LPB- STA. 10+00.00 TO 12+84.28

NOTES:
1) MILL AND OVERLAY AREAS: MILL 1.5" AND OVERLAY WITH 1.5" S9.5C (-Y5LPB- STA. 12+84.28 TO 13+43.00)
2) PAVEMENT MARKING CORRECTION AREAS: OVERLAY WITH 1.5" S9.5C AND 5/8" ULTRA-THIN BONDED WEARING COURSE (-Y5LPB- STA. 13+43.00 TO 22+38.00)



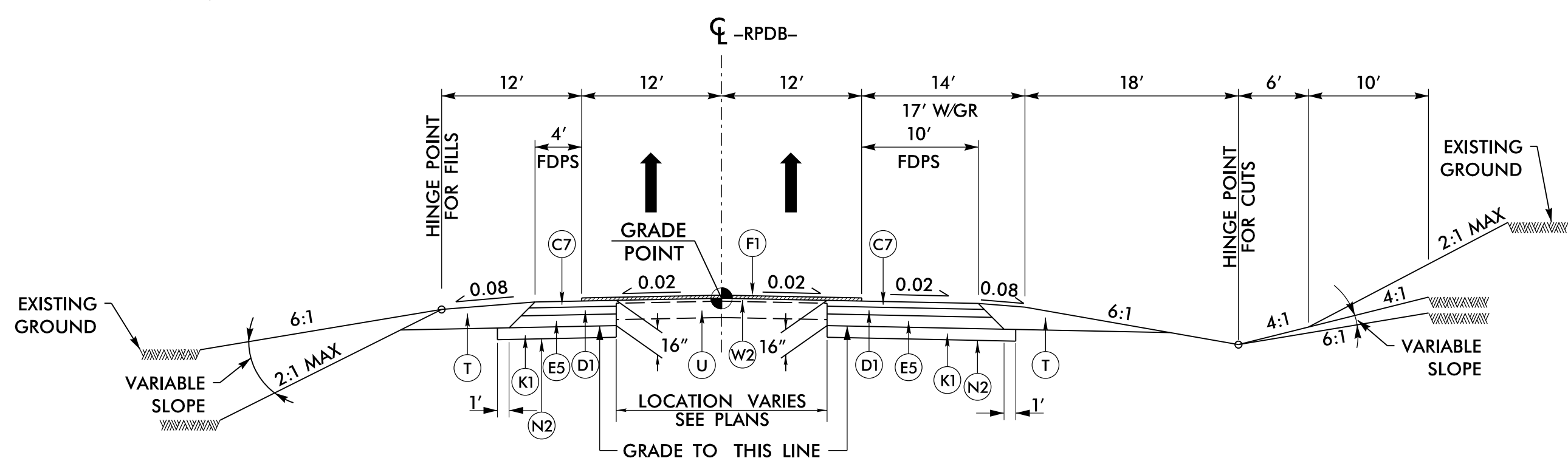
ROADWAY TYPICAL SECTION NO. 19A

-Y5RPD- STA. 10+00.00 TO 12+77.06



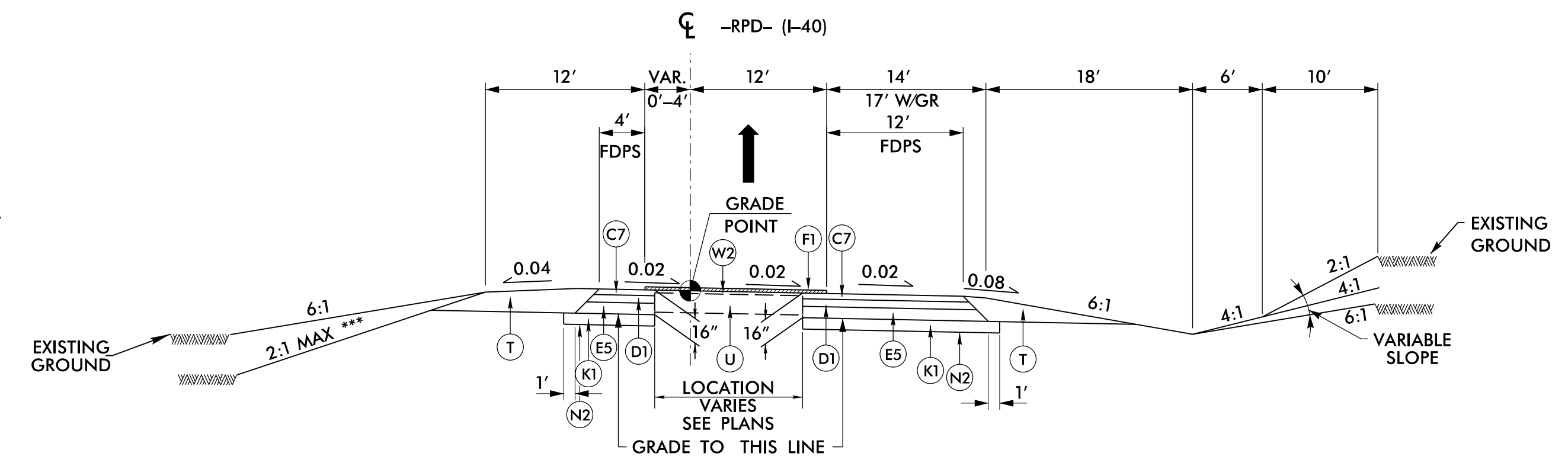
TYPICAL SECTION NO. 21

-RPDB- STA. 11+73.69 TO 17+29.56



TYPICAL SECTION NO. 22

-RPDB- STA. 17+29.56 TO 20+70.00



ROADWAY TYPICAL SECTION NO. 23

-RPD- STA. 10+00.00 TO 16+96.30

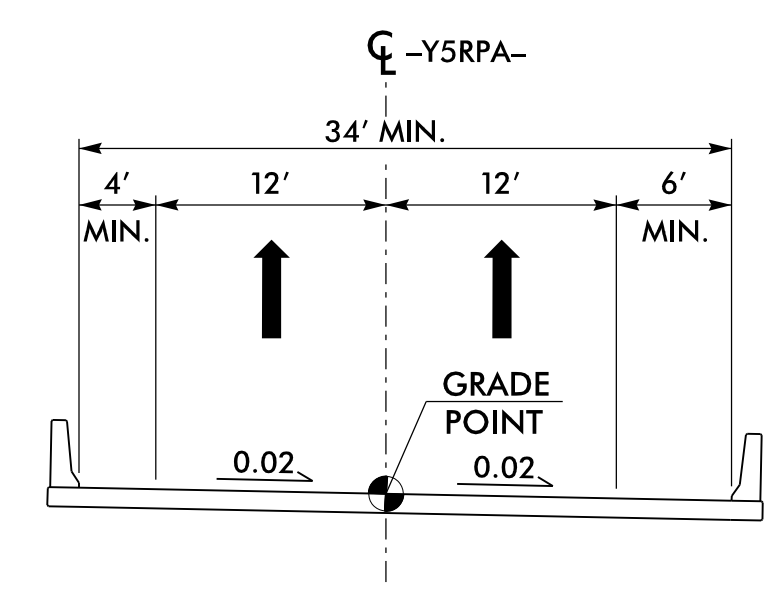
*** USE 4:1 MAX SLOPES INSIDE INTERCHANGE

PROJECT REFERENCE NO. 1-2513AA/AB	SHEET NO. 2A-9
ROADWAY DESIGN ENGINEER Barry Smith 2/8/2024	PAVEMENT DESIGN ENGINEER Joseph T. Holladay 2/8/2024
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 KCI ASSOCIATES OF N.C., P.A. 4505 Falls of Neuse Road, Suite 400 Raleigh, NC 27609-4270 Phone (919) 783-9214 NC Firm License No. C-0764	

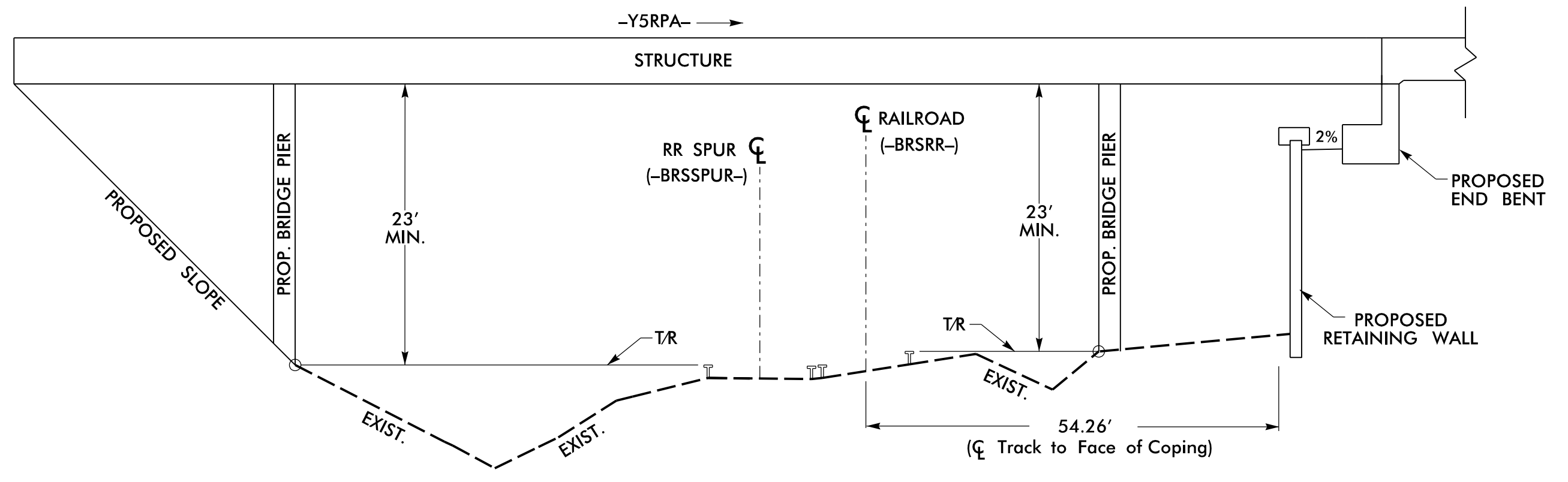
A1	12" PCC PAVE.
A2	14" CONC. PAVE.
C1	1 1/4" S9.5B
C2	1 1/2" S9.5B
C3	3" S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	1 1/2" S9.5D
C7	3" S9.5D
C8	VAR. S9.5D
D1	4" I19.0C
D2	VAR. I19.0C
D3	2 1/2" I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	6.5" B25.0C
E4	7" B25.0C
E5	9" B25.0C
E6	11.5" B25.0C
E7	VAR. B25.0C
F1	5/8" ULTRA-THIN
J1	8" ABC
J2	10" ABC
K1	8" CL IV SUB. STAB
N1	NONWOVEN GEO.
N2	GEO. SUB. STAB.
P1	PRIME COAT
R1	2'-6" C&G
R2	EXPRESS. GUTTER
R3	SH. BERM GUTTER
R4	PRECAST BARRIER
R5	4" CONC. COVER
T	EARTH MATERIAL
U	EXIST. PVMT.
U1	EXIST. C. PVMT.
U2	EXIST. A. PVMT.
V1	RUMBLE STRIPS
V2	1 1/2" MILLING
V3	VAR. MILLING
W1	WEDGING DET.#1
W2	WEDGING DET.#2

12/1/2023 12:51:36 PM - du - tujp.dgn

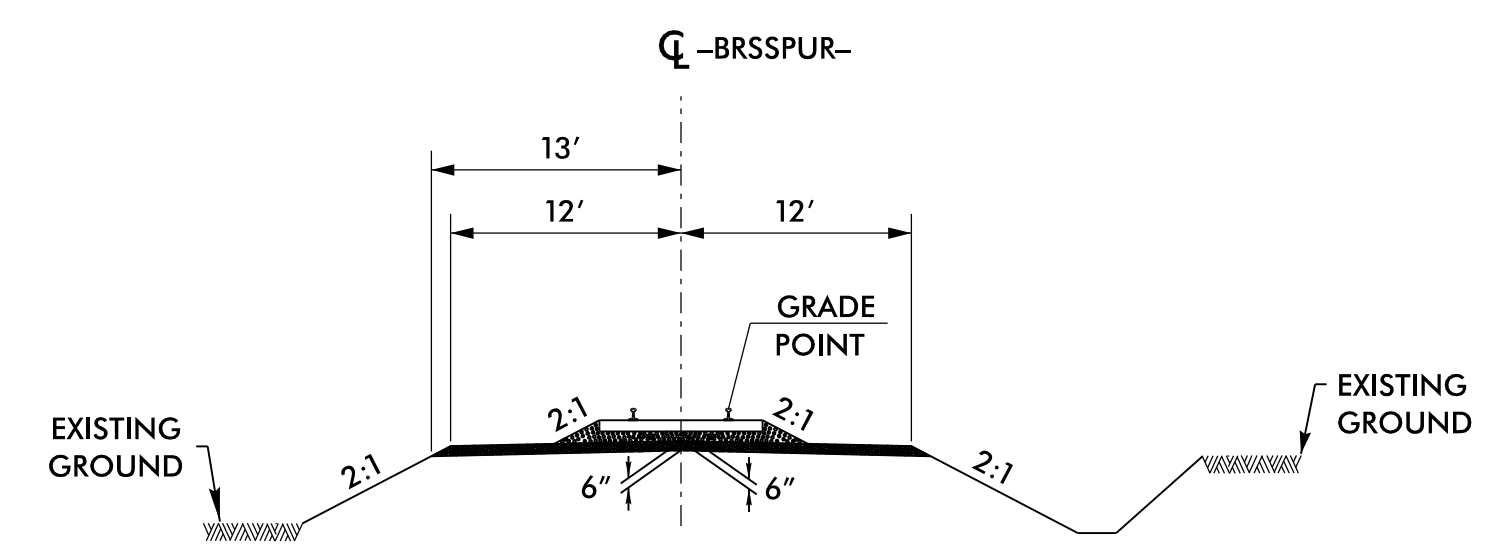
BRIDGE AT -Y5RPA- STA. 20+16.24 OVER BLUE RIDGE SOUTHERN RAILROAD



STRUCTURE TYPICAL SECTION



**TYPICAL SECTION UNDER STRUCTURE
-Y5RPA- OVER BLUE RIDGE SOUTHERN RAILROAD**

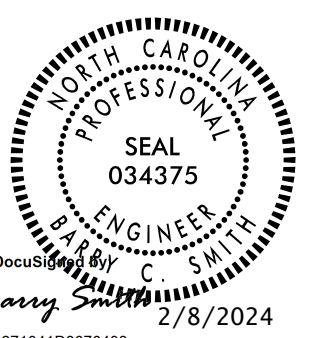
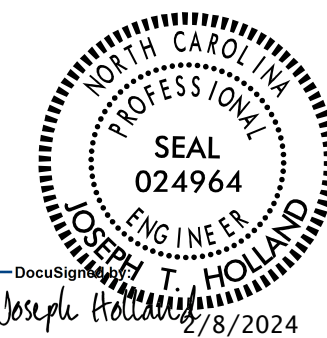


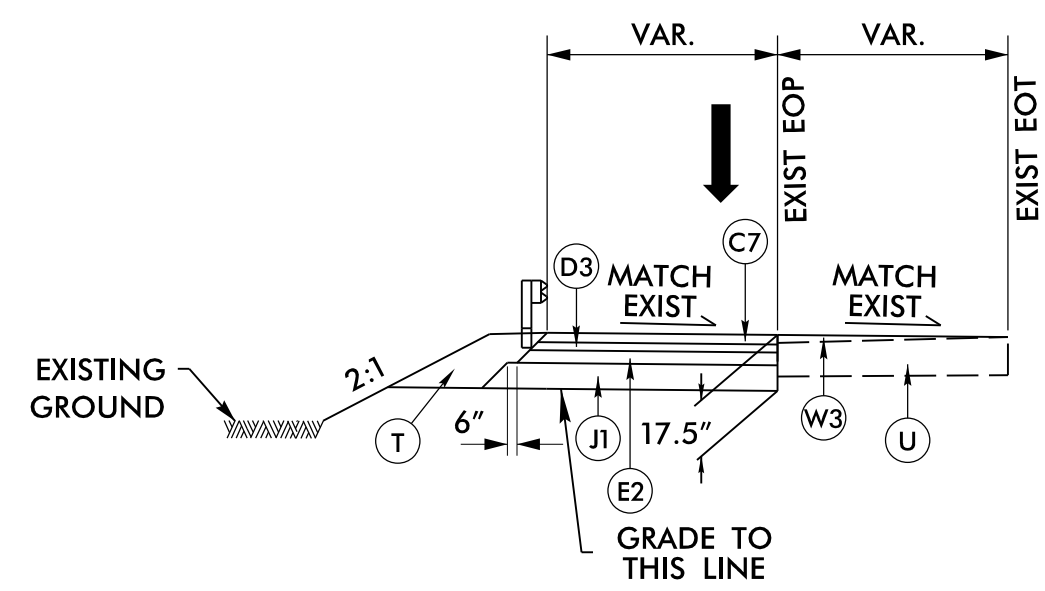
**RAILROAD TYPICAL SECTION NO. 1
-BRSSPUR- STA. 13+35.00 TO 14+55.00**

PROJECT REFERENCE NO. <i>1-2513AA/AB</i>	SHEET NO. <i>2A-10</i>
ROADWAY DESIGN ENGINEER <i>Barry Smith</i> 2/8/2024	PAVEMENT DESIGN ENGINEER <i>Joseph T. Holladay</i> 2/8/2024
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

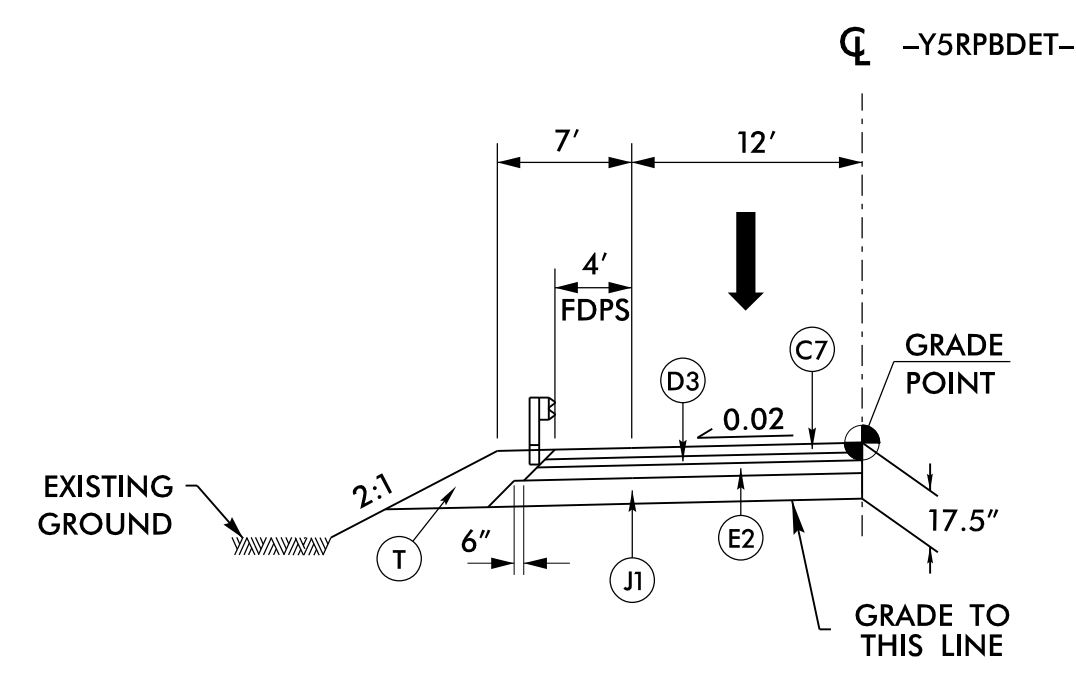
A1	12" PCC PAVE.
A2	14" CONC. PAVE.
C1	1 1/4" S9.5B
C2	1 1/2" S9.5B
C3	3" S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	1 1/2" S9.5D
C7	3" S9.5D
C8	VAR. S9.5D
D1	4" I19.0C
D2	VAR. I19.0C
D3	2 1/2" I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	6.5" B25.0C
E4	7" B25.0C
E5	9" B25.0C
E6	11.5" B25.0C
E7	VAR. B25.0C
F1	5/8" ULTRA-THIN
J1	8" ABC
J2	10" ABC
K1	8" CL IV SUB. STAB.
N1	NONWOVEN GEO.
N2	GEO. SUB. STAB.
P1	PRIME COAT
R1	2'-6" C&G
R2	EXPRESS. GUTTER
R3	SH. BERM GUTTER
R4	PRECAST BARRIER
R5	4" CONC. COVER
T	EARTH MATERIAL
U	EXIST. PVMT.
U1	EXIST. C. PVMT.
U2	EXIST. A. PVMT.
V1	RUMBLE STRIPS
V2	1 1/2" MILLING
V3	VAR. MILLING
W1	WEDGING DET.#1
W2	WEDGING DET.#2

TEMPORARY PAVEMENT DETAILS

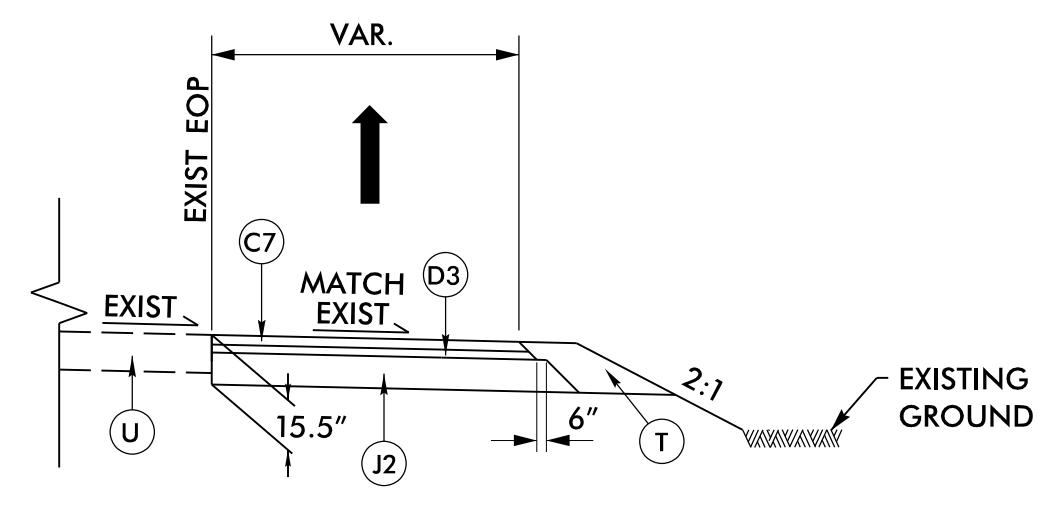
PROJECT REFERENCE NO. 1-2513AA/AB	SHEET NO. 2A-11
ROADWAY DESIGN ENGINEER Barry Smith 2/8/2024	PAVEMENT DESIGN ENGINEER Joseph T. Holland 2/8/2024
 	
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	
<p>KCI ASSOCIATES OF N.C., P.A. 4505 Falls of Neuse Road, Suite 400 Raleigh, NC 27609-4270 Phone (919) 783-9214 NC Firm License No. C-0764</p>	



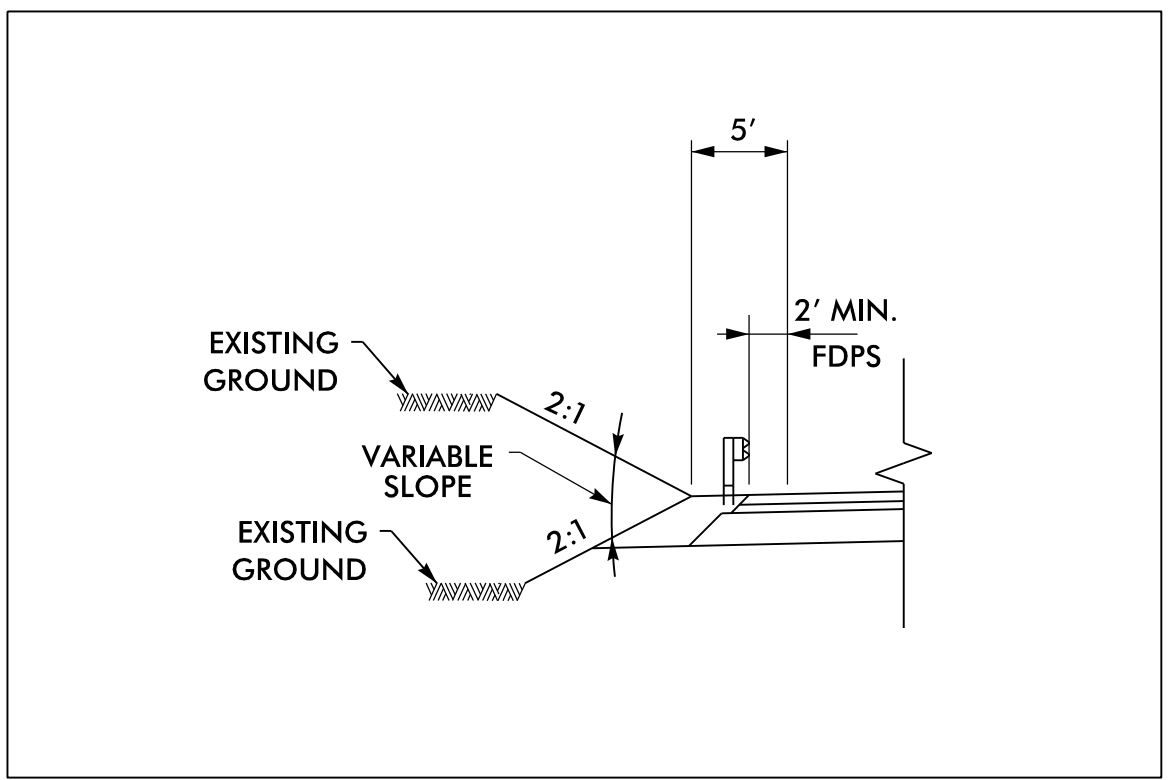
DETAIL 1: TEMPORARY WIDENING
 -Y- STA. 18+75.00 TO 35+45.00 LT
 -Y- STA. 35+48.03 TO 42+45.82 LT



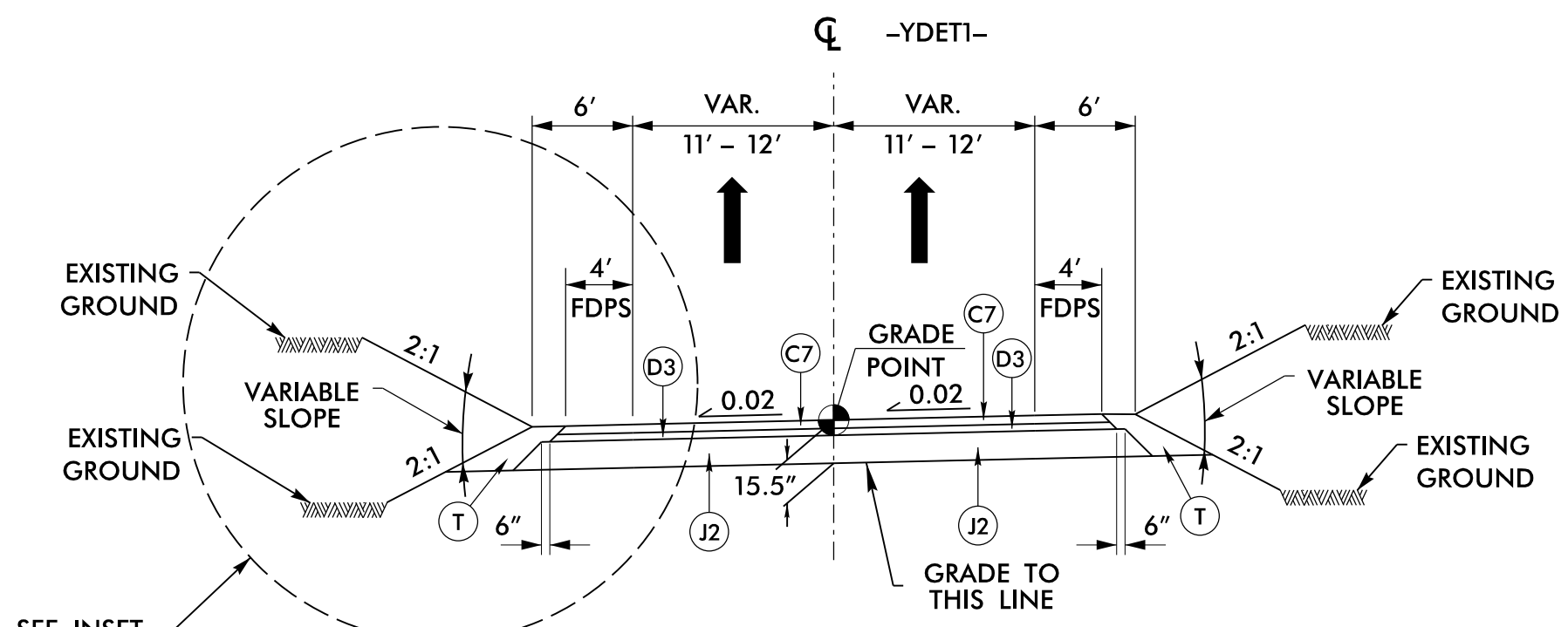
DETAIL 2: TEMPORARY DETOUR PAVEMENT
 -Y5RPBDET- STA. 10+00.00 TO 12+86.78



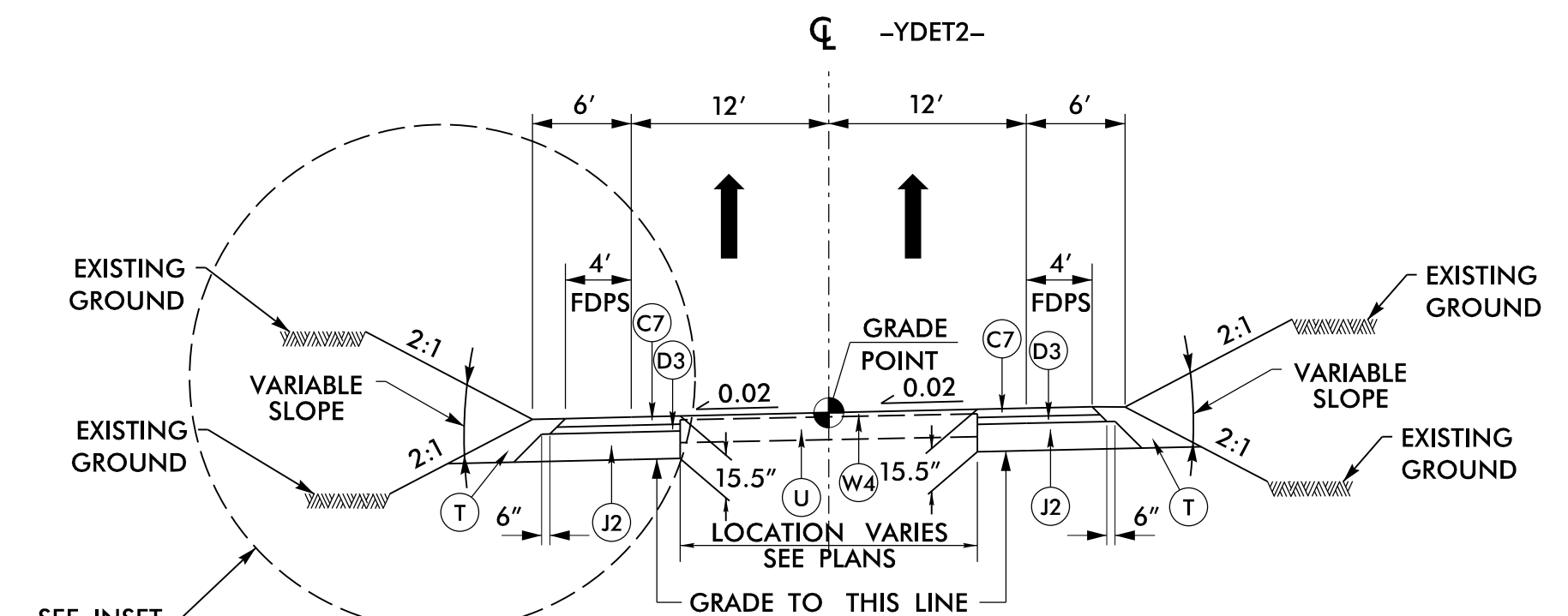
DETAIL 3: TEMPORARY WIDENING
 -Y- STA. 23+30.00 TO 38+40.00 RT
 -YDETI- STA. 12+38.43 TO 19+61.82 (MIRROR)
 -YDETI- STA. 23+35.96 TO 24+73.46 RT
 -Y5RPD- STA. 12+78.73 TO 14+69.69 RT
 -L1_EB- STA. 65+83.57 TO 68+12.39 (MIRROR)



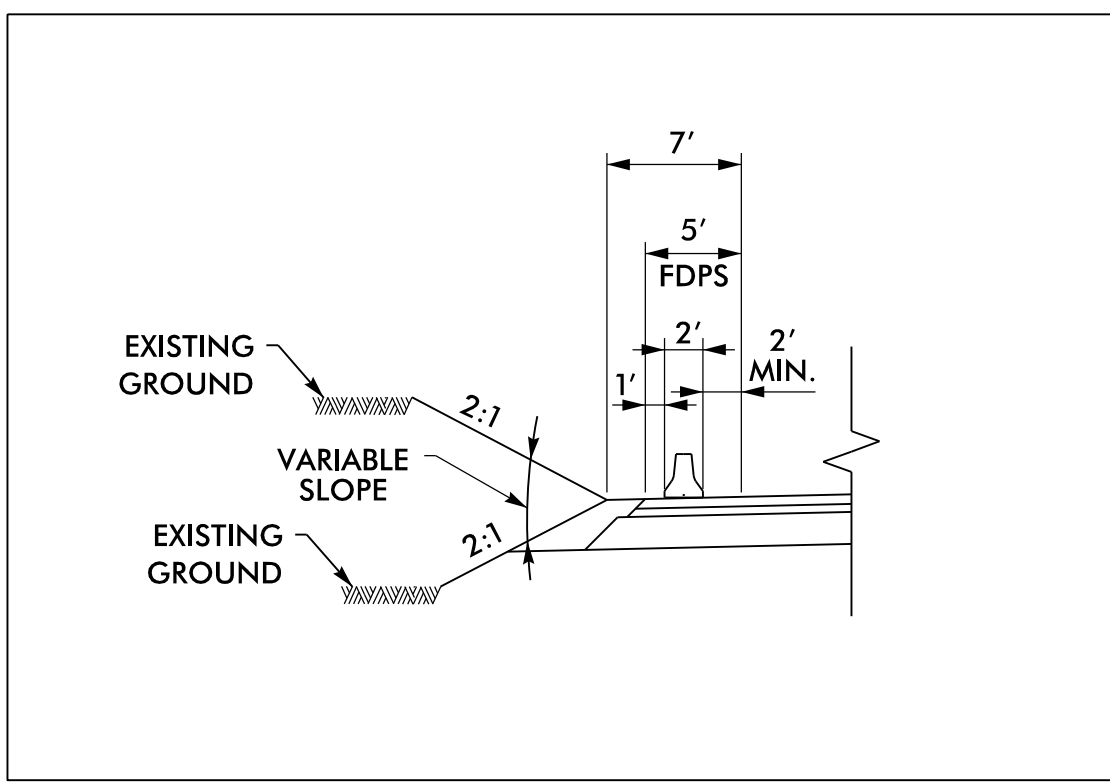
INSET NO. 25
 USE IN CONJUNCTION WITH DETAIL 4
 -YDETI- STA. 15+00.00 TO 19+76.75 LT



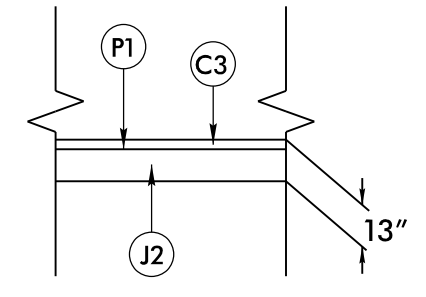
DETAIL 4: TEMPORARY CROSSOVER PAVEMENT
 -YDETI- STA. 19+61.82 TO 23+35.96



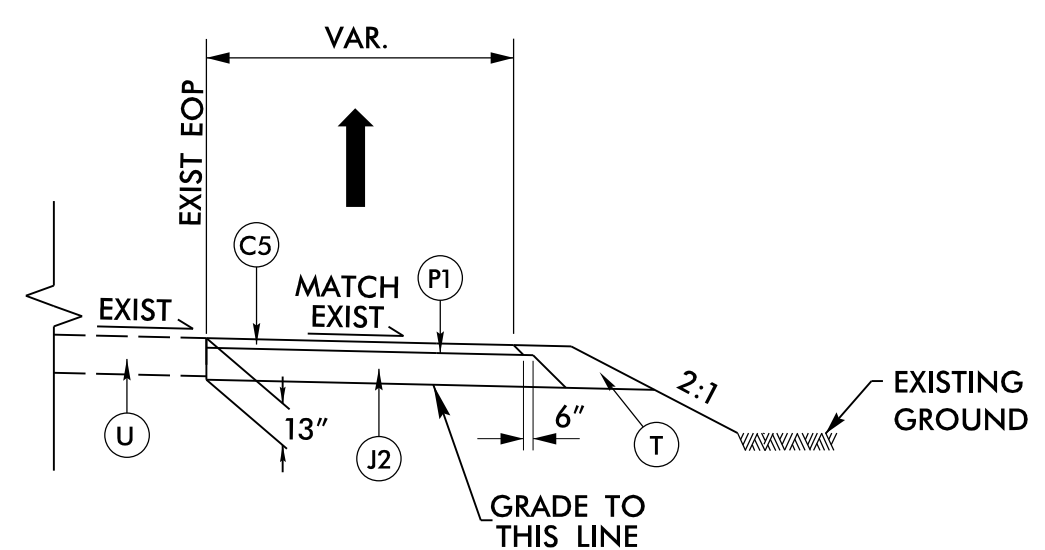
DETAIL 5: TEMPORARY CROSSOVER PAVEMENT
 -YDET2- STA. 10+00.00 TO 20+68.71



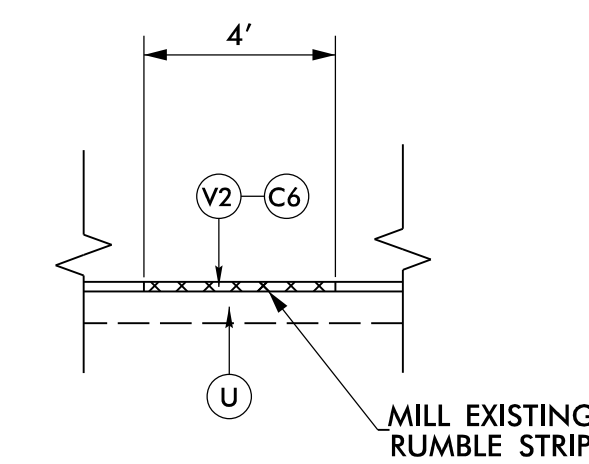
INSET NO. 26
 USE IN CONJUNCTION WITH DETAIL 4 & 5
 -YDETI- STA. 22+00.00 TO 23+35.96 LT
 -YDET2- STA. 10+00.00 TO 17+78.15 LT



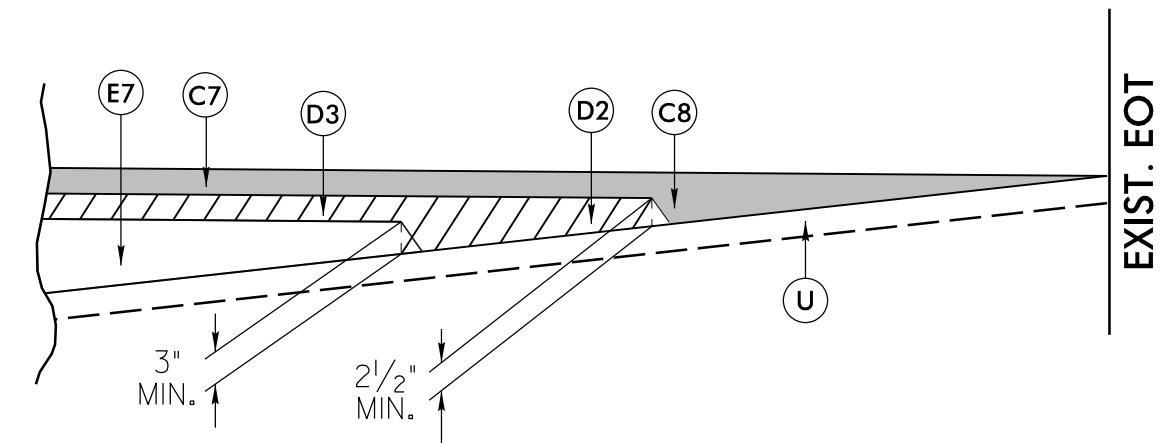
DETAIL 6: TEMPORARY PAVEMENT
 -Y5RPA- STA. 26+60.00 TO 27+49.45 LT



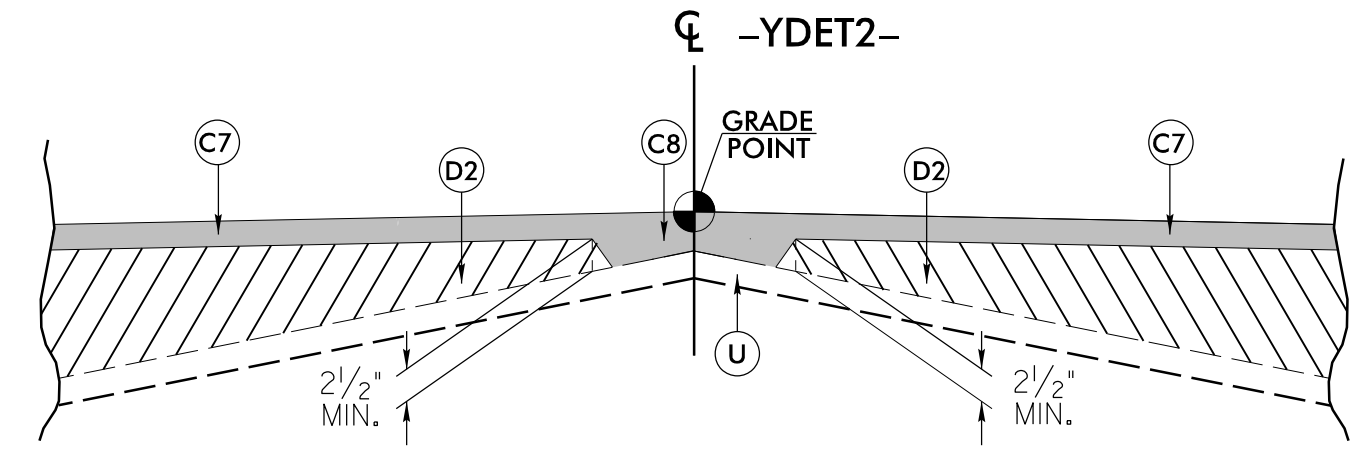
DETAIL 7: TEMPORARY WIDENING
 -RPD- STA. 13+00.00 TO 19+00.00 RT



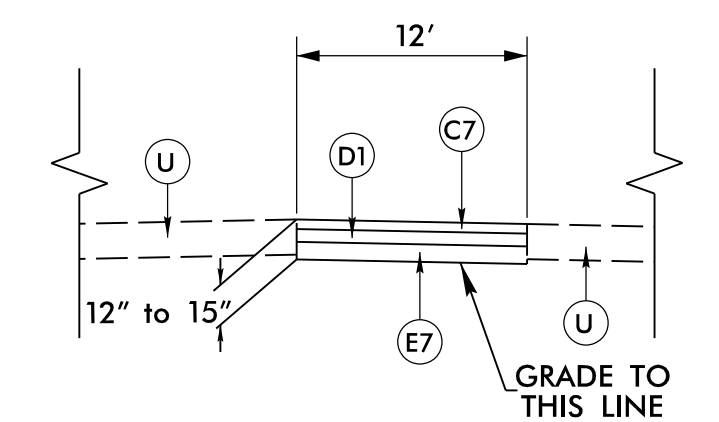
DETAIL 8: TEMPORARY PAVEMENT
 -YDETI- STA. 21+70.00 TO 23+15.00 LT
 -YDETI- STA. 14+69.64 TO 20+47.56 RT
 -Y- STA. 15+81.26 TO 45+87.31 LT
 -Y- STA. 47+52.29 TO 53+38.46 LT
 -Y- STA. 55+58.50 TO 93+44.02 LT
 -Y WB- STA. 11+44.02 TO 14+17.05 LT
 -Y WB- 61+19.82 TO 64+68.61 LT
 -Y- STA. 13+20.62 TO 45+73.20 RT
 -Y- STA. 47+36.43 TO 53+10.55 RT
 -Y- STA. 55+31.23 TO 93+44.02 RT
 -Y EB- STA. 11+43.85 TO 12+44.43 RT
 -RPD- STA. 10+00.00 TO 18+49.86 RT
 -L1_WB- STA. 48+15.00 TO 45+08.36 LT



W3: Detail Showing Method of Wedging
 USE THIS DETAIL IN CONJUNCTION WITH DETAIL #1



W4: Detail Showing Method of Wedging
 USE THIS DETAIL IN CONJUNCTION WITH DETAIL #5

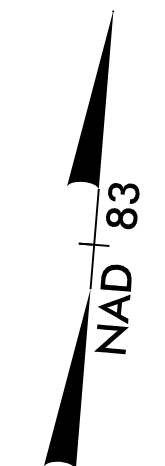


DETAIL 9: TEMPORARY PAVEMENT REPAIR
 -Y- STA. 42+30.00 TO 92+44.00 LT
 OTHER LOCATIONS AS DIRECTED BY THE ENGINEER

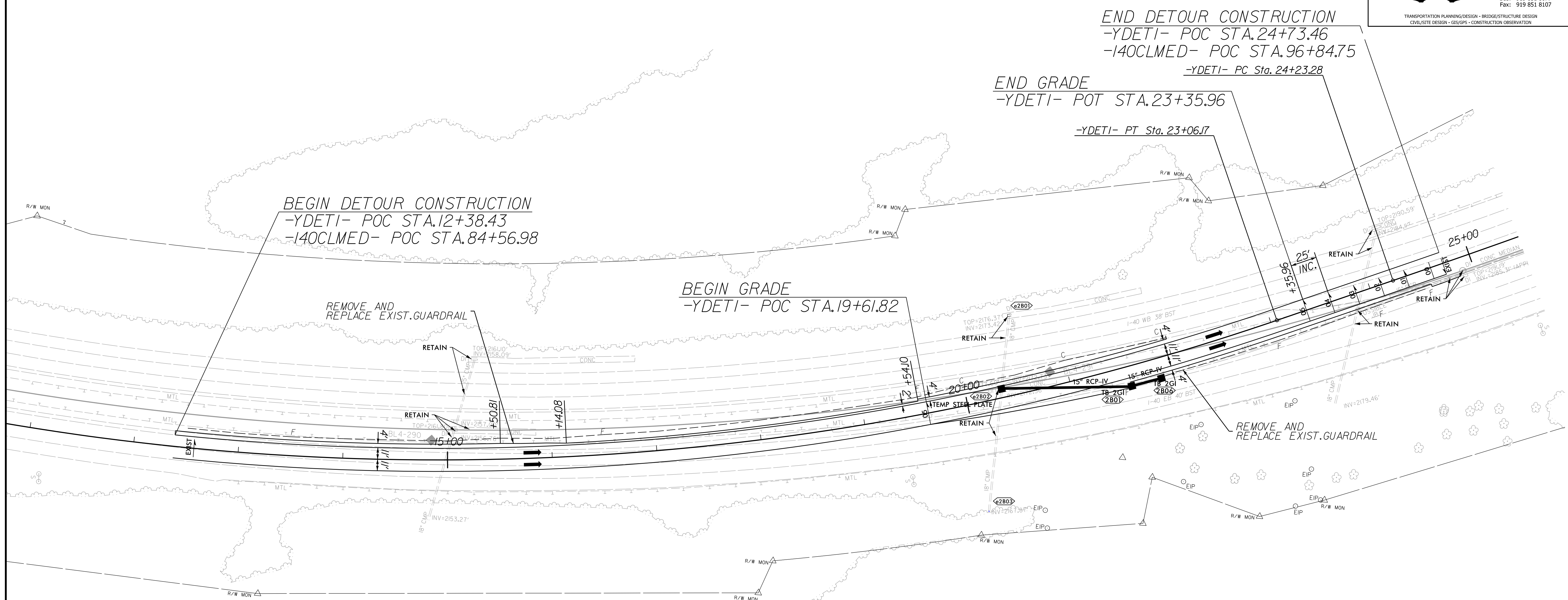
A1	12" PCC PAVE.
A2	14" CONC. PAVE.
C1	1 1/4" S9.5B
C2	1 1/2" S9.5B
C3	3" S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	1 1/2" S9.5D
C7	3" S9.5D
C8	VAR. S9.5D
D1	4" I19.0C
D2	VAR. I19.0C
D3	2 1/2" I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	6.5" B25.0C
E4	7" B25.0C
E5	9" B25.0C
E6	11.5" B25.0C
E7	VAR. B25.0C
F1	5/8" ULTRA-THIN
J1	8" ABC
J2	10" ABC
K1	8" CL IV SUB. STAB.
N1	NONWOVEN GEO.
N2	GEO. SUB. STAB.
P1	PRIME COAT
R1	2'-6" C&G
R2	EXPRESS. GUTTER
R3	SH. BERM GUTTER
R4	PRECAST BARRIER
R5	4" CONC. COVER
T	EARTH MATERIAL
U	EXIST. PVMT.
U1	EXIST. C. PVMT.
U2	EXIST. A. PVMT.
V1	RUMBLE STRIPS
V2	1 1/2" MILLING
V3	VAR. MILLING
W1	WEDGING DET.#1
W2	WEDGING DET.#2

5/14/24

TEMPORARY DETOUR DETAIL (-YDETI-)



PROJECT REFERENCE NO. 1-2513AA/AB		SHEET NO. 2B-1	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER BARRY C. SMITH SEAL 034375 2/8/2024		HYDRAULICS ENGINEER MATTHEW L. HARVEY SEAL 053425 2/8/2024	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
KCI ASSOCIATES OF N.C., P.A. 4505 Falls of Noce Road, Suite 400 Raleigh, NC 27609-6270 Phone (919) 783-9214 NC Firm License No. C-0764		ETHERILL 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			



-YDETI-	
PI Sta 16+68.74	PI Sta 26+16.73
$\Delta = 30' 17" 55.3" (LT)$	$\Delta = 2' 16' 49.1" (LT)$
$D = 2' 19' 10.8"$	$D = 0' 35' 22.1"$
$L = 1,306.17'$	$L = 386.84'$
$T = 668.74'$	$T = 193.45'$
$R = 2,470.00'$	$R = 9,720.00'$
$e = 5.0\%$	$e = NC$
$DS = 55 MPH$	$DS = 55 MPH$

FOR DETOUR PHASING AND TRAFFIC CONTROL
SEE TRANSPORTATION MANAGEMENT PLANS

FOR -YDETI- PROFILE SEE SHEET 31

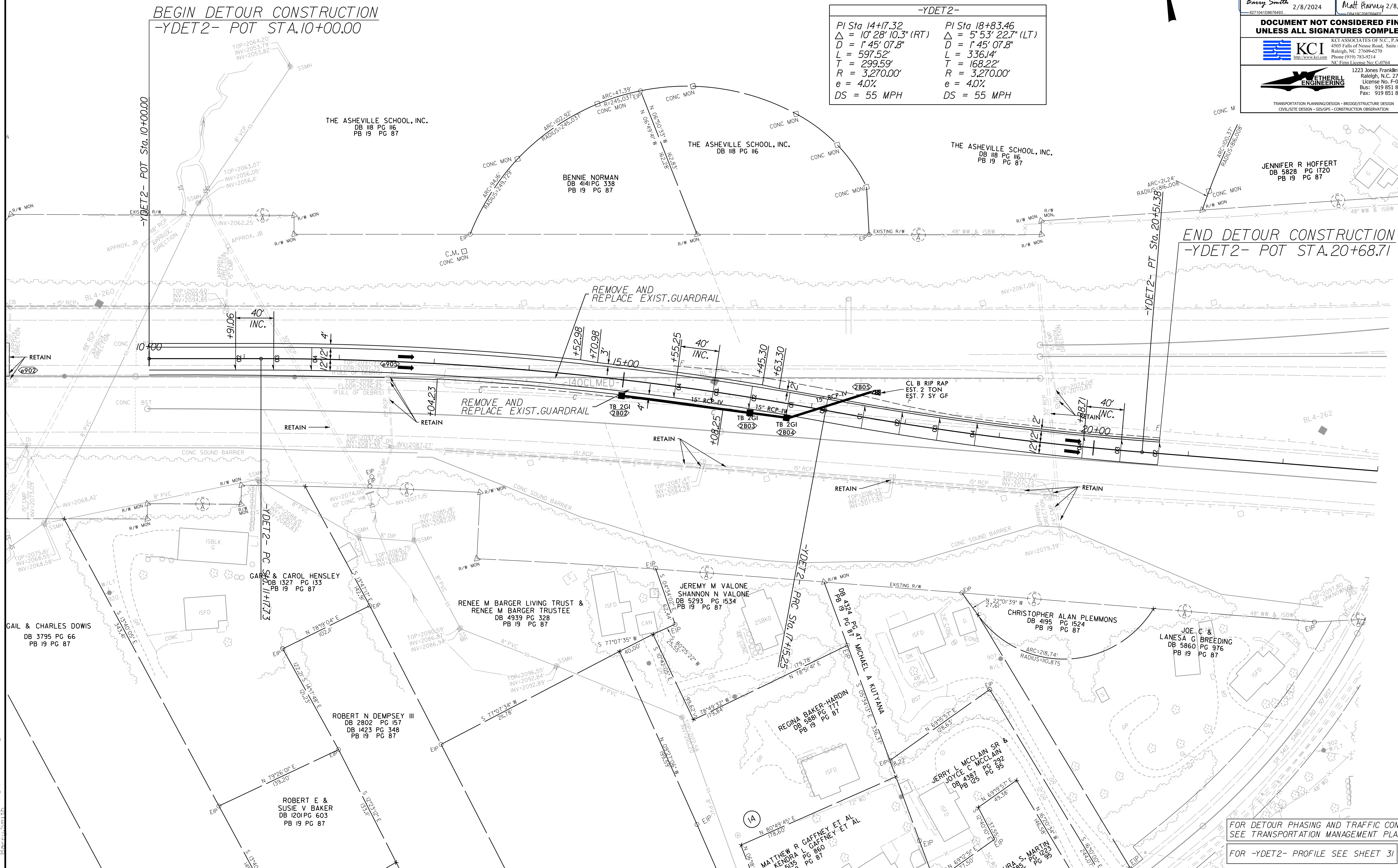
9/17/2023
2636a_rdy_psh_2B-1.dgn
Barry C. Smith

5/14/2024
9/15/2023
Barrill Smith

TEMPORARY DETOUR DETAIL (-YDET2-)

PROJECT REFERENCE NO. I-2513AA/AB		SHEET NO. 2B-2	
ROADWAY DESIGN ENGINEER BARRY C SMITH SEAL 034375 2/8/2024		HYDRAULICS ENGINEER MATTHEW HALEY SEAL 053425 2/8/2024	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
KCI ASSOCIATES OF N.C., P.A. 4505 Falls of Noce Road, Suite 400 Raleigh, NC 27609-4270 Phone (919) 783-9214 NC Firm License No. C-0764		ETHERILL ENGINEERING 1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-3377 Bus: 919 851 8077 Fax: 919 851 8107	

-YDET2-	
PI Sta 14+7.32	PI Sta 18+83.46
$\Delta = 10^\circ 28' 10.3''$ (RT)	$\Delta = 5^\circ 53' 22.7''$ (LT)
$D = 1' 45' 07.8''$	$D = 1' 45' 07.8''$
$L = 597.52'$	$L = 336.14'$
$R = 3,270.00'$	$R = 3,270.00'$
$e = 4.0\%$	$e = 4.0\%$
DS = 55 MPH	DS = 55 MPH

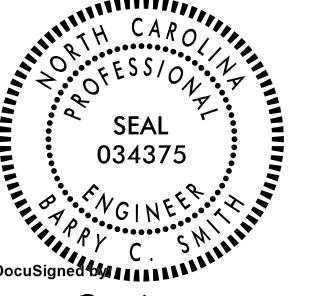
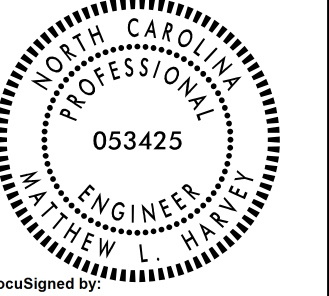




FOR DETOUR PHASING AND TRAFFIC CONTROL
SEE TRANSPORTATION MANAGEMENT PLANS

FOR -YDET2- PROFILE SEE SHEET 31

5/14/2023 10:14:20 AM Barry Smith

TEMPORARY DETOUR DETAIL (-Y5RPBDET-)

PROJECT REFERENCE NO. 1-2513AA/AB		SHEET NO. 2B-3	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER BARRY C SMITH		HYDRAULICS ENGINEER MATTHEW L HARVEY	
 Barry Smith 2/8/2024		 Matt Harvey 2/8/2024	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
 KCI ASSOCIATES OF N.C., P.A. 4505 Falls of Noce Road, Suite 400 Raleigh, NC 27609-6270 Phone (919) 783-9214 NC Firm License No. C-0764		 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			

-Y5RPBDET-
 PI Sta 12+40.53
 $\Delta = 14^{\circ} 48' 25.3" (LT)$
 $D = 15^{\circ} 54' 55.8"$
 $L = 93.04'$
 $T = 46.78'$
 $R = 360.00'$
 $e = 7.0\%$
 $DS = 30 MPH$

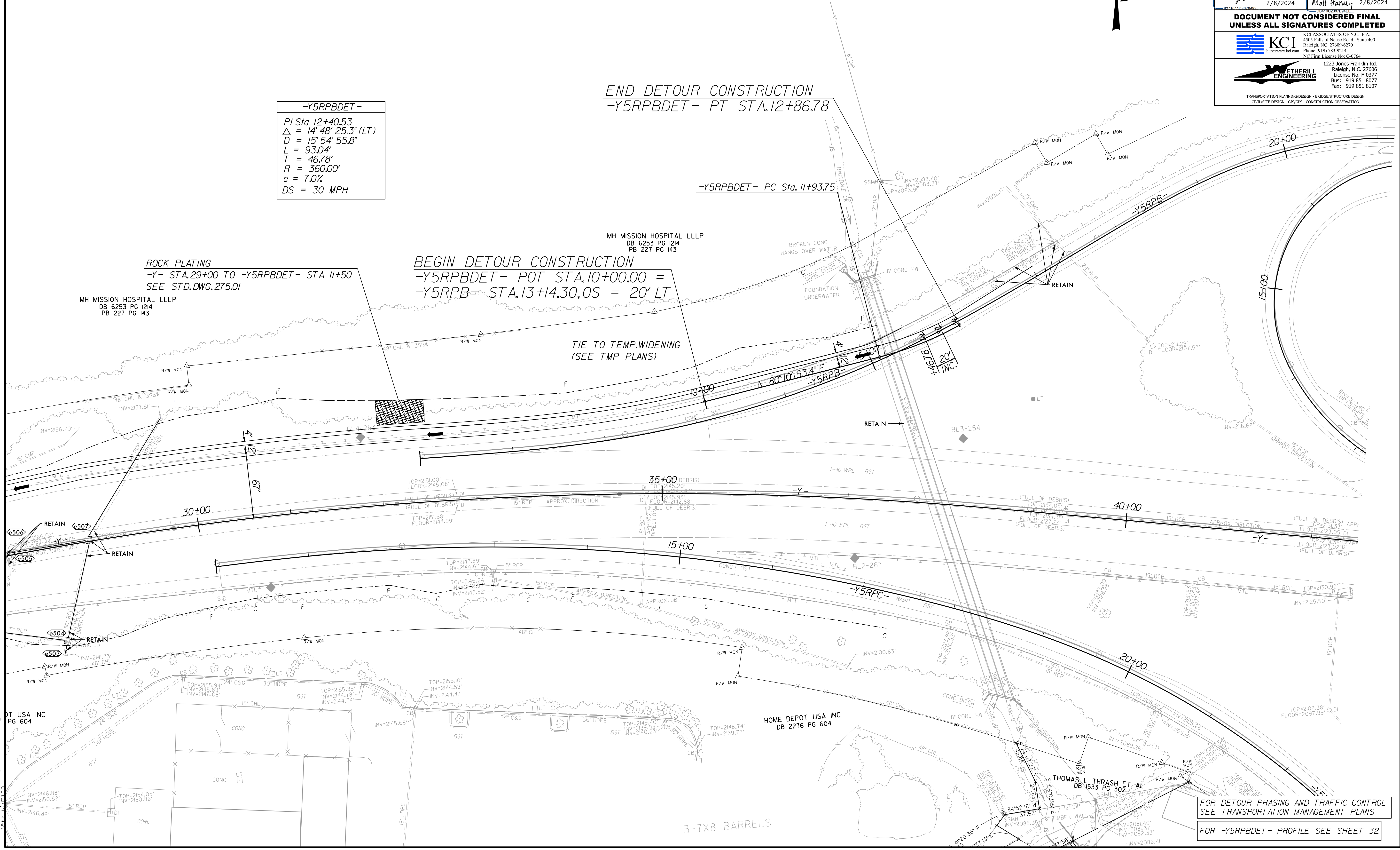
END DETOUR CONSTRUCTION
 -Y5RPBDET- PT STA.12+86.78

ROCK PLATING
 -Y- STA.29+00 TO -Y5RPBDET- STA 11+50
 SEE STD.DWG.275.01

MH MISSION HOSPITAL LLLP
 DB 6253 PG 124
 PB 227 PG 143

BEGIN DETOUR CONSTRUCTION
 -Y5RPBDET- POT STA.10+00.00 =
 -Y5RPB- STA.13+14.30,0S = 20' LT

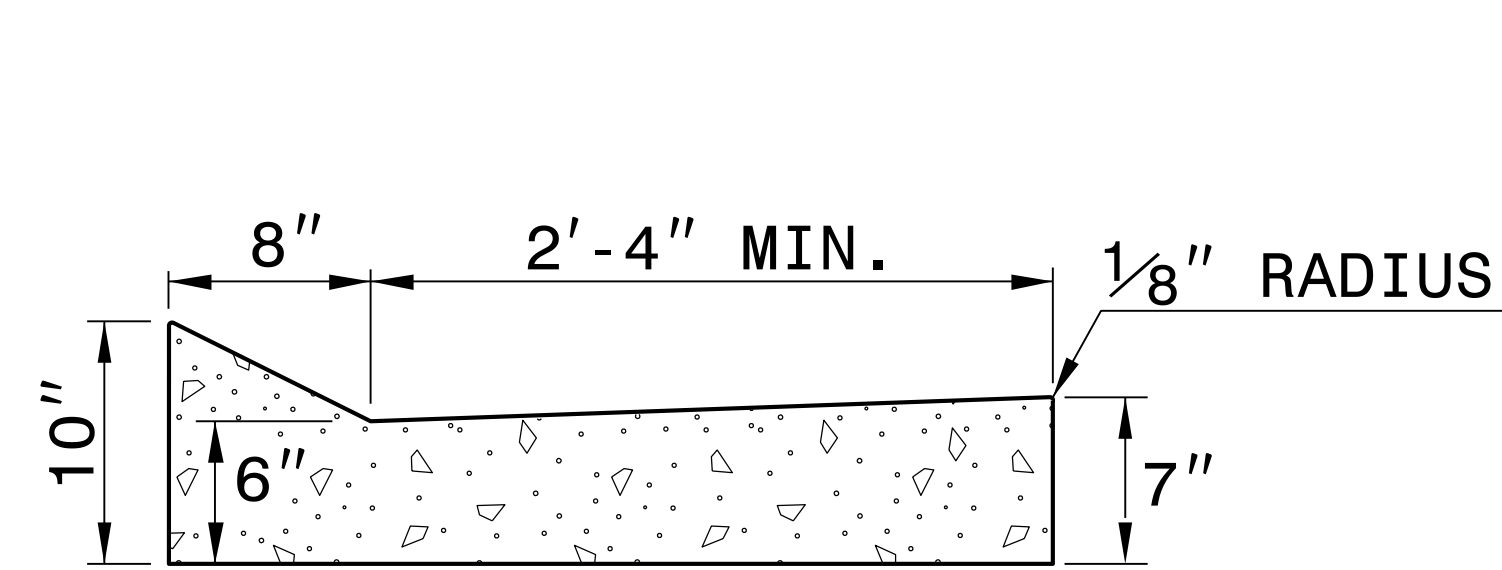
TIE TO TEMP.WIDENING
 (SEE TMP PLANS)



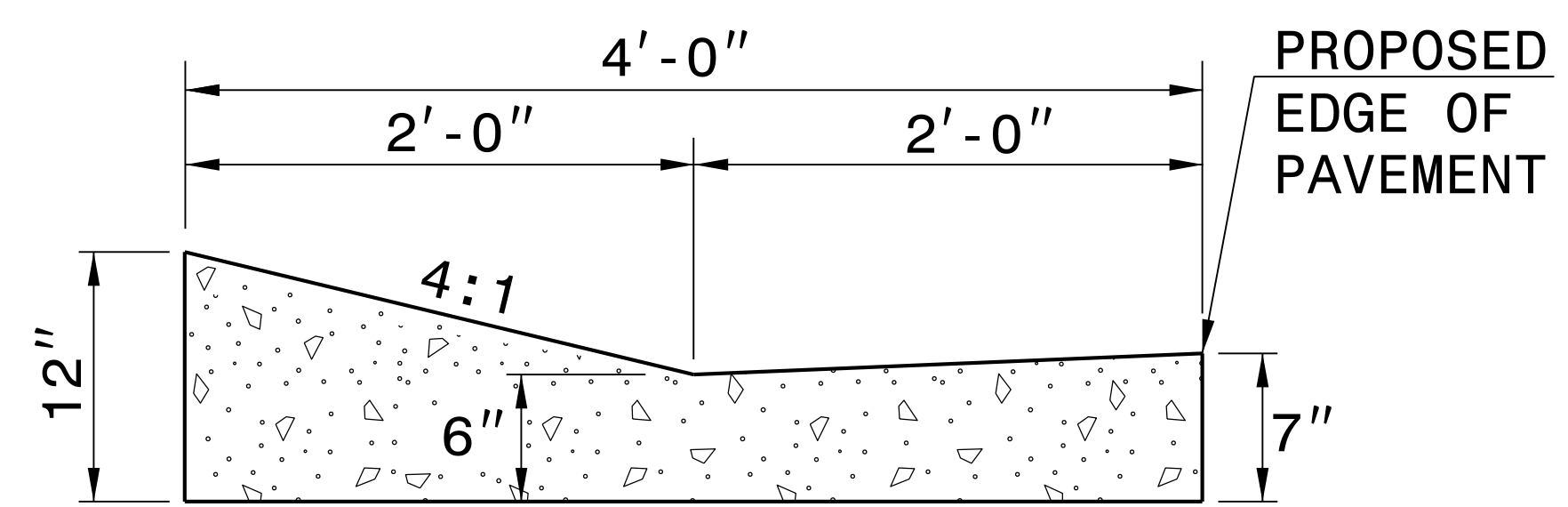
FOR DETOUR PHASING AND TRAFFIC CONTROL
 SEE TRANSPORTATION MANAGEMENT PLANS

FOR -Y5RPBDET- PROFILE SEE SHEET 32

3-7X8 BARRELS

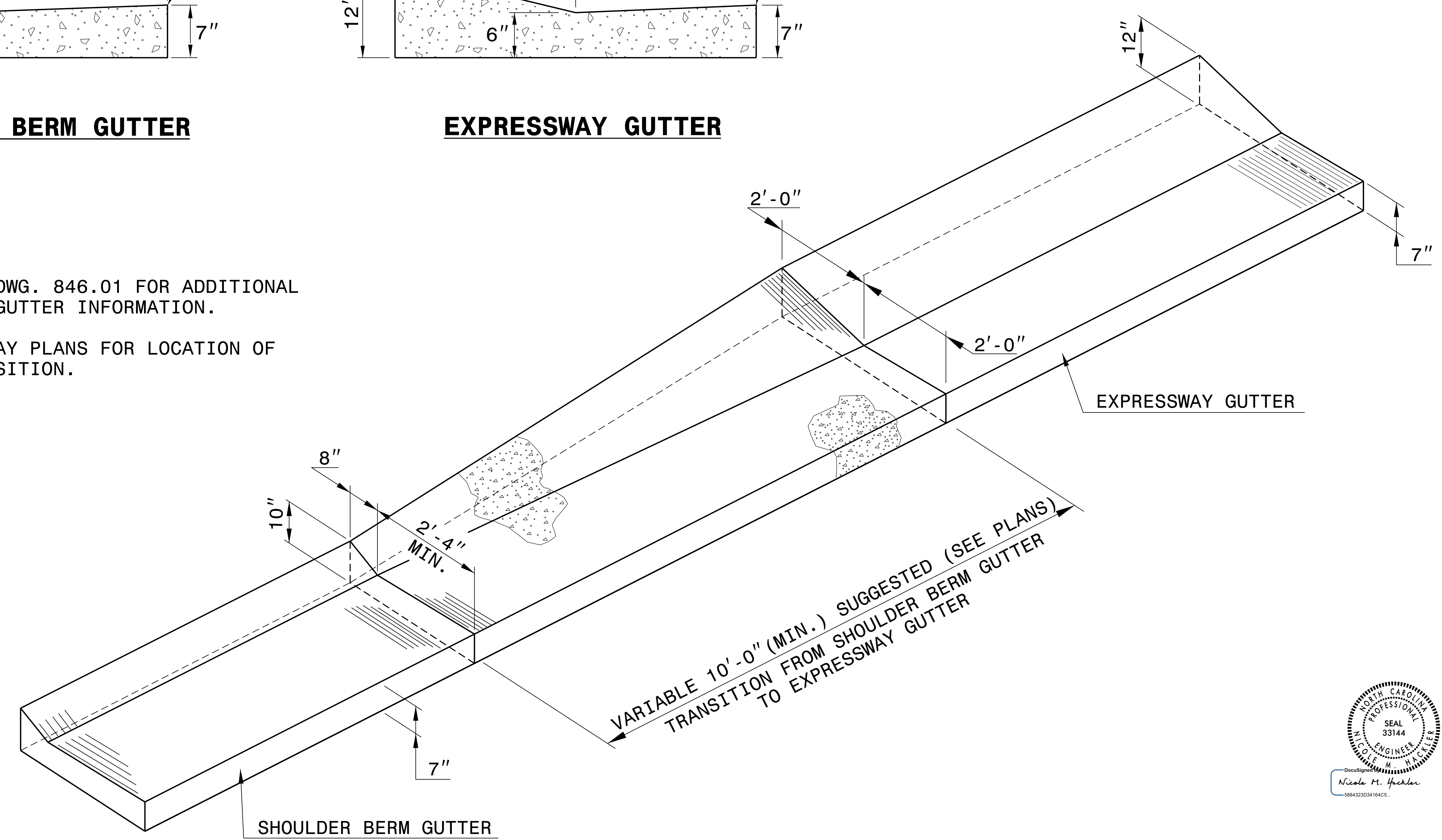


SHOULDER BERM GUTTER

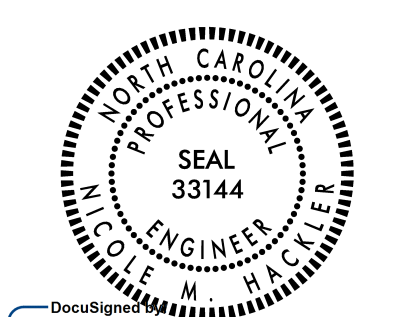


EXPRESSWAY GUTTER

NOTE: SEE STD. DWG. 846.01 FOR ADDITIONAL CURB AND GUTTER INFORMATION.
SEE ROADWAY PLANS FOR LOCATION OF CURB TRANSITION.



ISOMETRIC VIEW OF TRANSITION



Nicole M. Hecker
2/8/2024

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

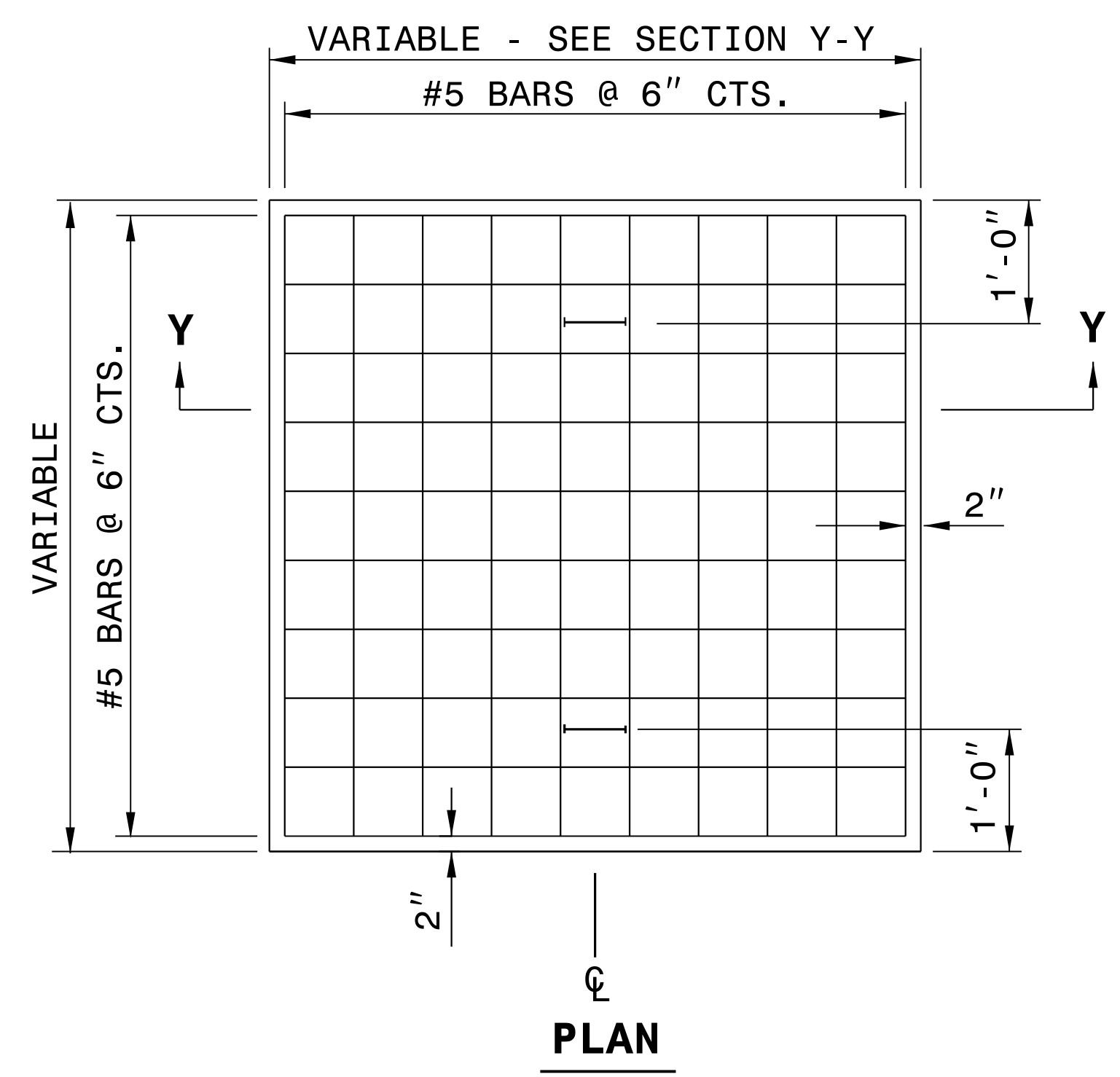
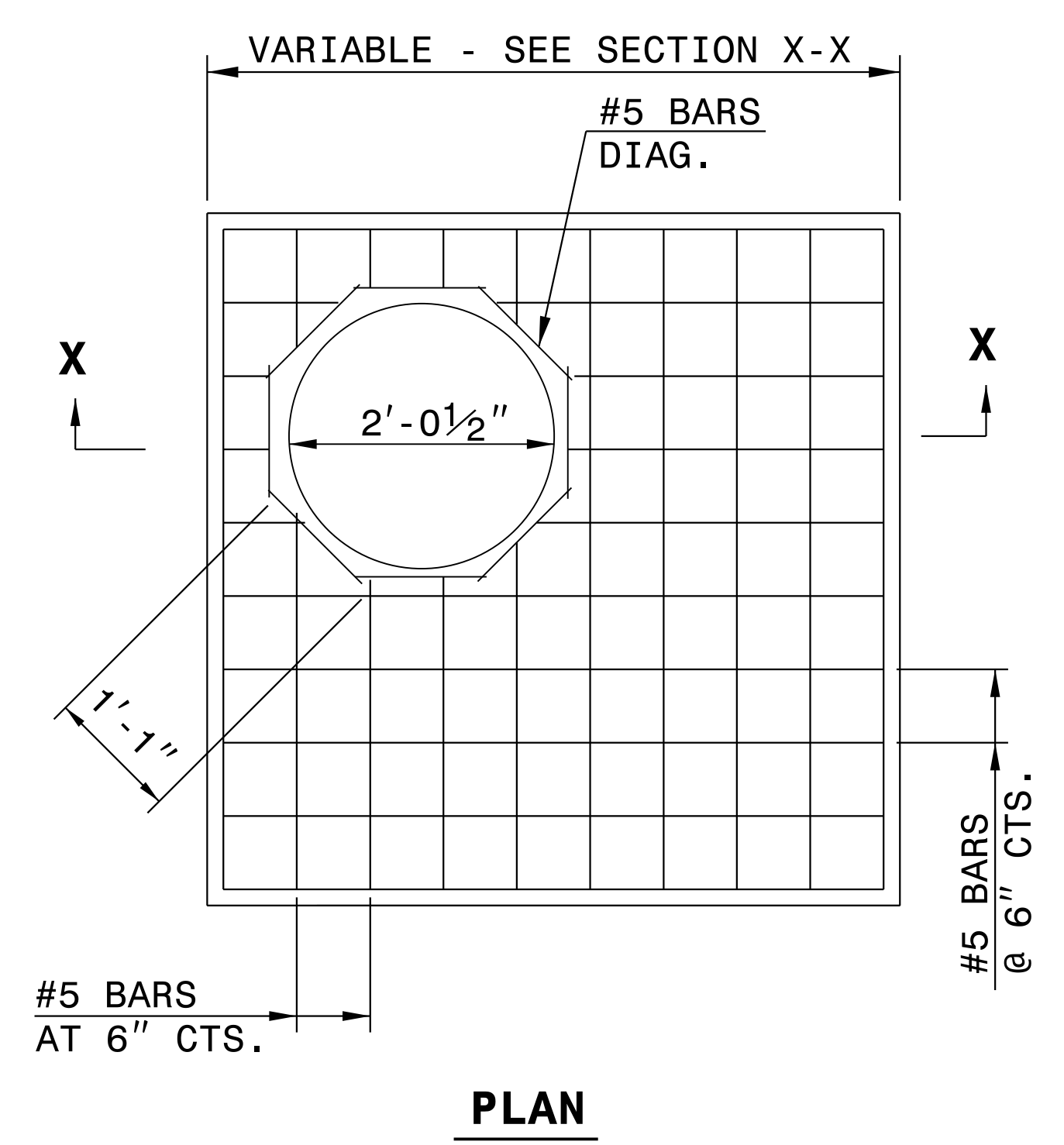
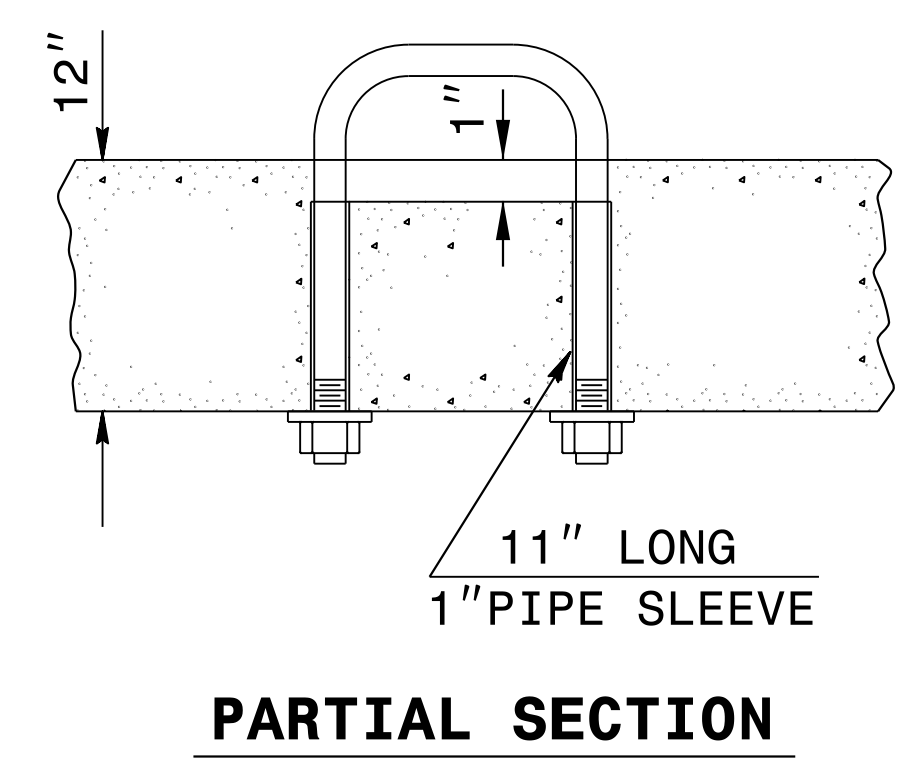
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119
DETAIL OF SHOULDER BERM GUTTER TO EXPRESSWAY GUTTER TRANSITION SECTION

ORIGINAL BY: T.S.Spell DATE: 8-13-02
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: w:usr/details/stand/cgtransit.dgn

04-JUN-2019 10:25 S:\Contracts\Special Details\ward\usr\details\stand\c&g transition sections.dgn J:\overton AT USD-292595

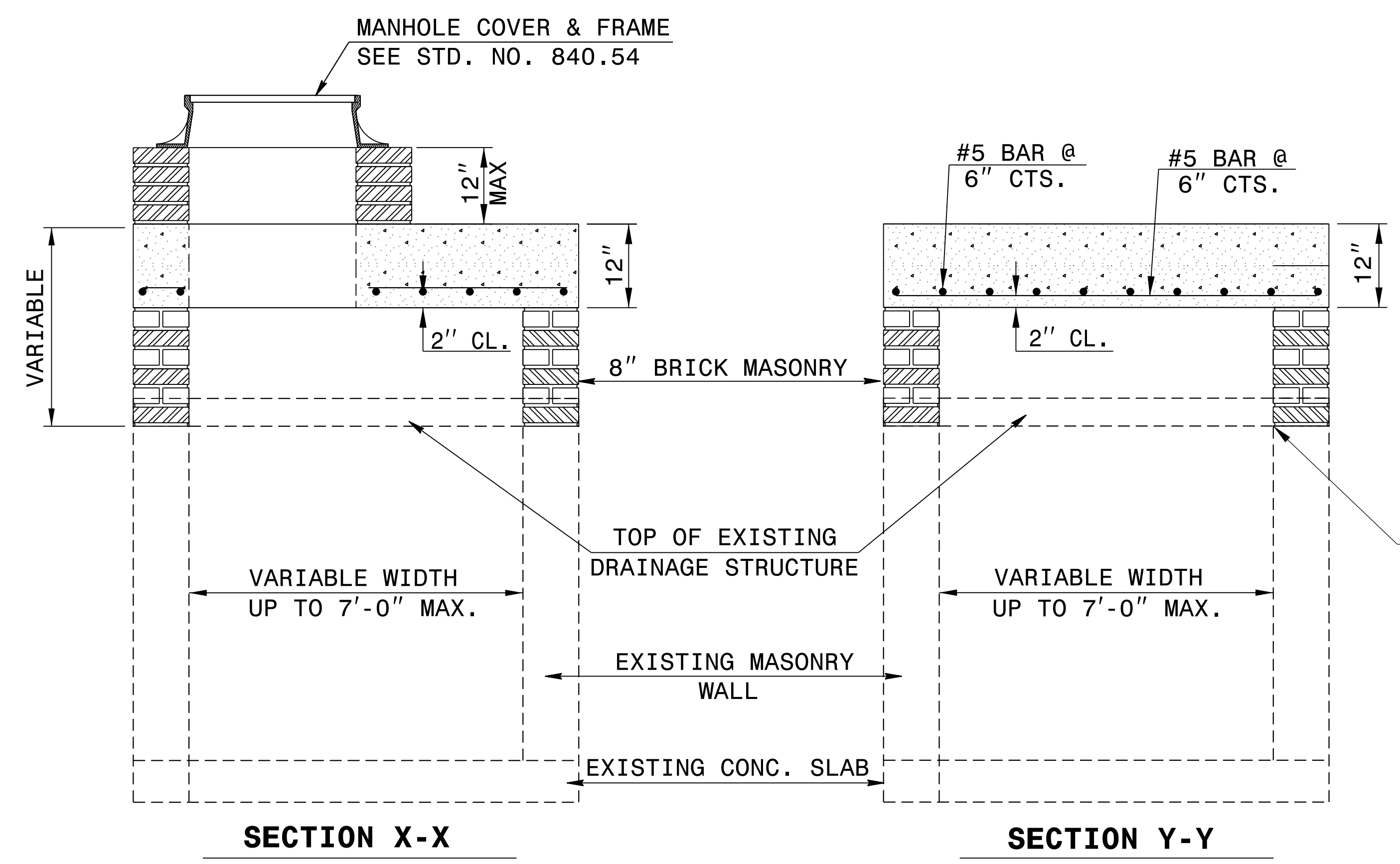
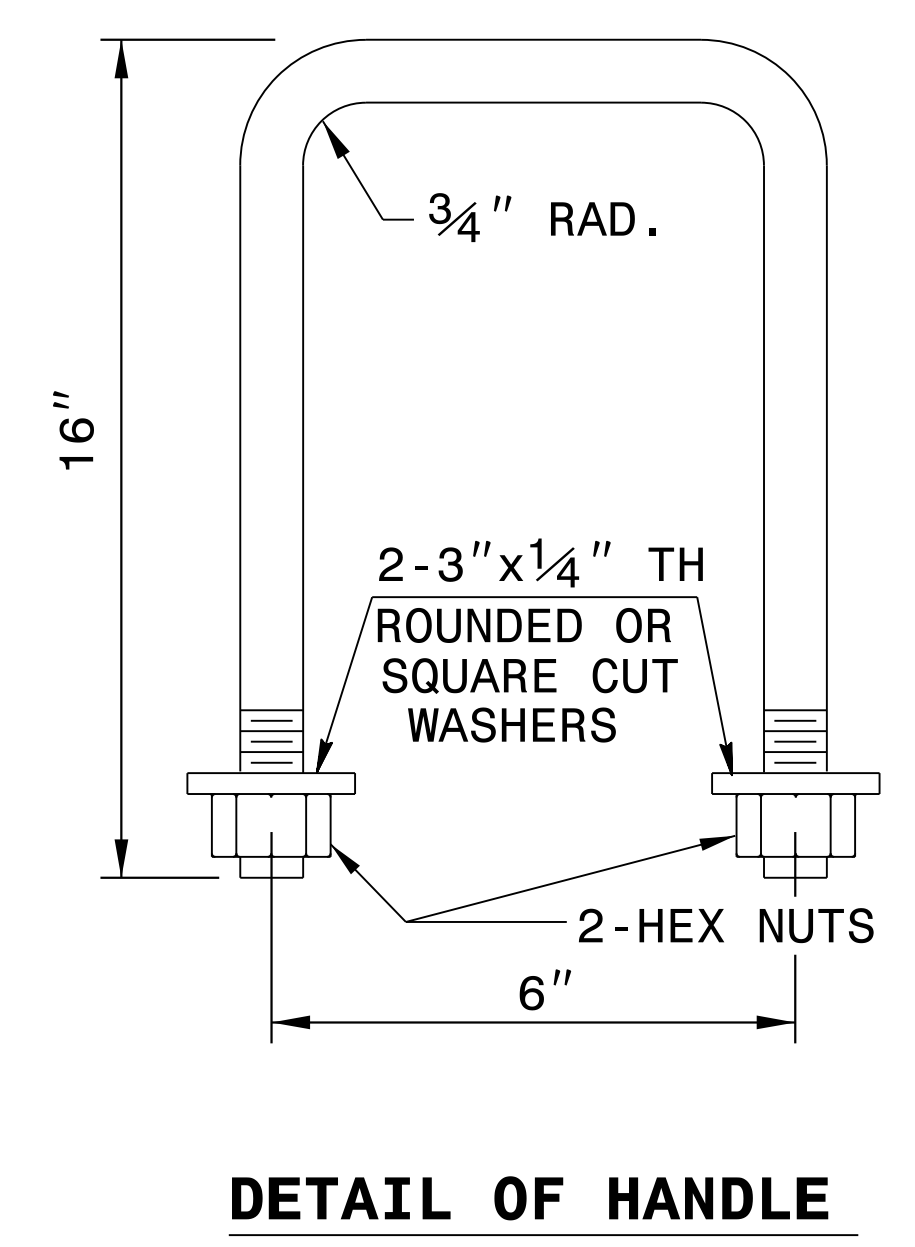
5/14/99

5/14/99



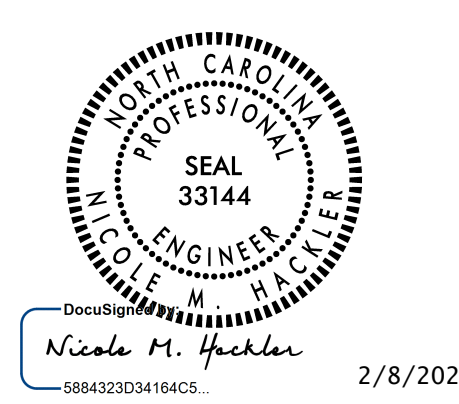
GENERAL NOTES:
 CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.
 FIELD VERIFY THE DIMENSIONS FOR THE EXISTING BOXES.

BILL OF MATERIALS			
MASONRY			
TOP SLAB CONCRETE CLASS "A"		.037YDS ³	PER FT ²
BRICK MASONRY		.025YDS ³	PER FT ²
REINFORCING STEEL		7.64LBS	PER FT ²
MANHOLE OPTION QUANTITIES			
SIZE	QTY.	LENGTH	REINF. STEEL LBS.
#5 DIAG.	8	1'-1"	9.04



NOTE:
 CONCRETE AND REINFORCING STEEL QUANTITIES BASED ON SQUARE FOOT AREA OF THE PROPOSED TOP SLAB FOR THE EXISTING DRAINAGE STRUCTURE.
 BRICK MASONRY QUANTITY IS BASED ON THE TOTAL SQUARE FOOTAGE OF EXTERIOR WALL SURFACE AREA TO BE CONSTRUCTED.

ALIGN PROPOSED BRICK VERTICAL ADJUSTMENT TO INNER FACE OF WALL



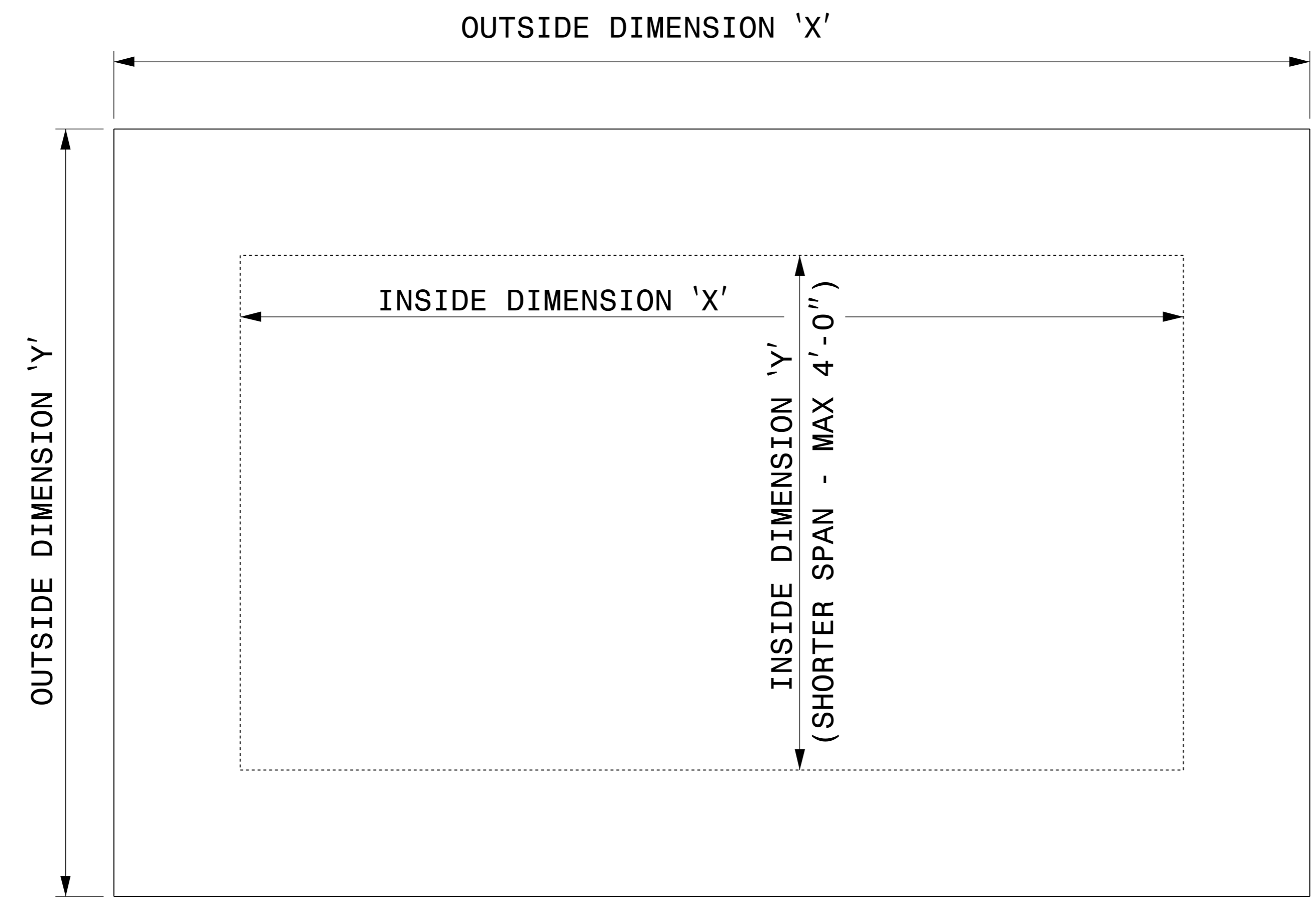
2/8/2024

CONTRACT STANDARDS AND DEVELOPMENT UNIT
 Office 919-707-6950 FAX 919-250-4119
DETAIL TO CONVERT EXISTING TRAFFIC BEARING DROP INLET OR CATCH BASIN TO TRAFFIC BEARING JUNCTION BOX (MANHOLE OPTIONAL)

ORIGINAL BY: T.S.S. DATE: FEB. 2000
 MODIFIED BY: E.E.W. DATE: NOV. 2001
 CHECKED BY: DATE:
 FILE SPEC.: w:ericward/usr/details/stand/boxtotbjbe.dgn

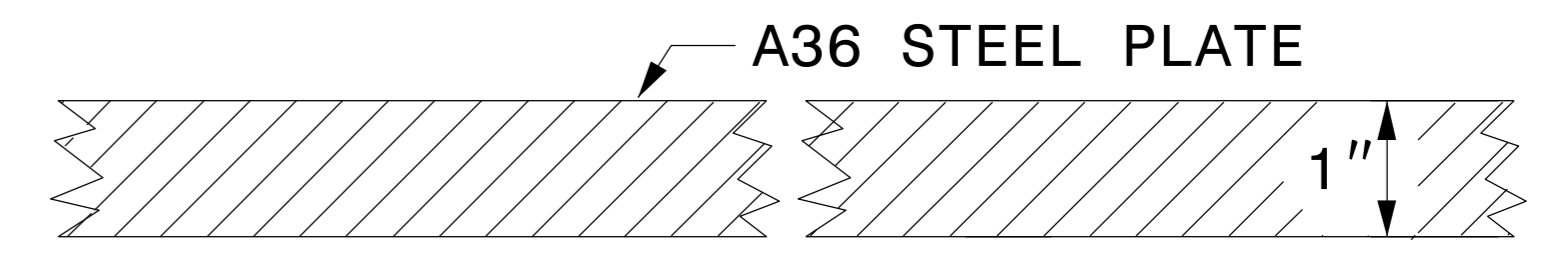
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

05-MAR-2018 08:41 S:\Contracts\Special Details\ericward\usr\details\stand\boxtotbjbe.dgn J:\overton AT USD-292595



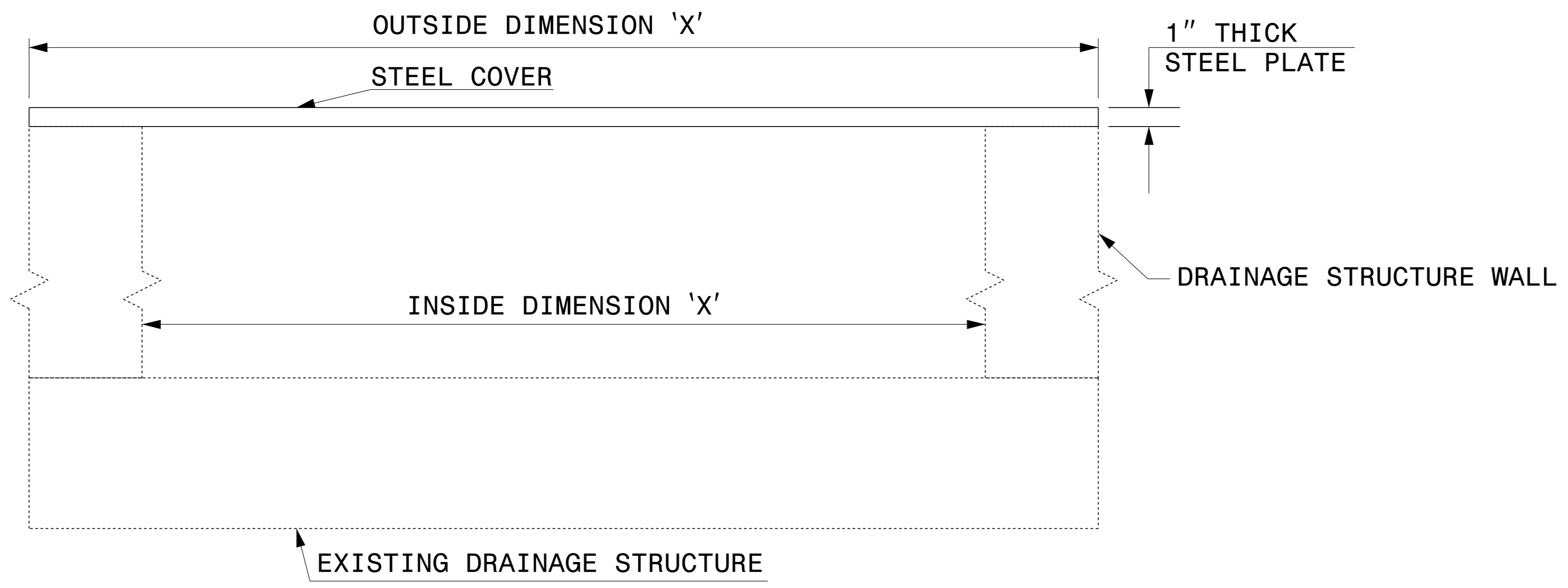
GENERAL NOTES:

- USE GRADE A36 STEEL
- STEEL COVERS ARE FOR TEMPORARY USE DURING PHASE CONSTRUCTION.
- FILL SHALL BE PLACED DIRECTLY OVER THE STEEL PLATES.
- SEE ROADWAY PLANS AND PROVISIONS FOR LOCATIONS
- QUANTITIES TO BE PAID FOR AT THE UNIT PRICE BID PER EACH.

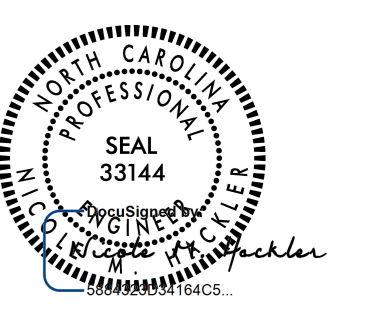


SECTION VIEW OF STEEL TOP PLATE

PLAN VIEWS



ELEVATION VIEWS



2/9/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
DETAIL OF TEMPORARY 1" STEEL COVER OVER DRAINAGE STRUCTURE	
ORIGINAL BY: E.E. WARD	DATE: 2-2-98
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: eric:/usr/details/metric/stand/st1cvr2.dgn	

\$\$\$\$\$CUTME\$\$\$\$\$
\$\$\$\$\$DATE\$\$\$\$\$
\$\$\$\$\$USER\$\$\$\$\$

PROJECT REFERENCE NO. 1-2513AA/AB
SHEET NO. 2D-1
RW SHEET NO.

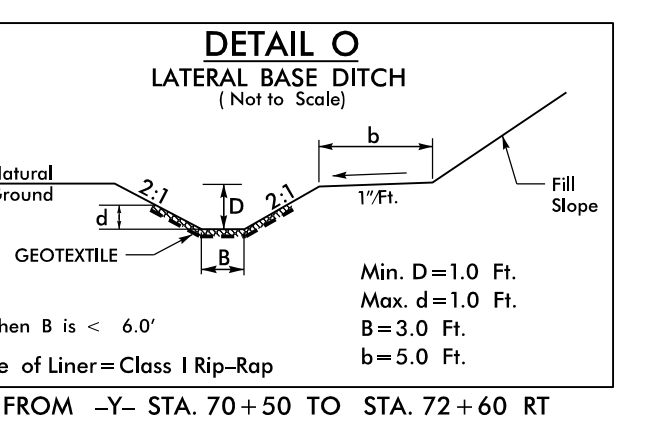
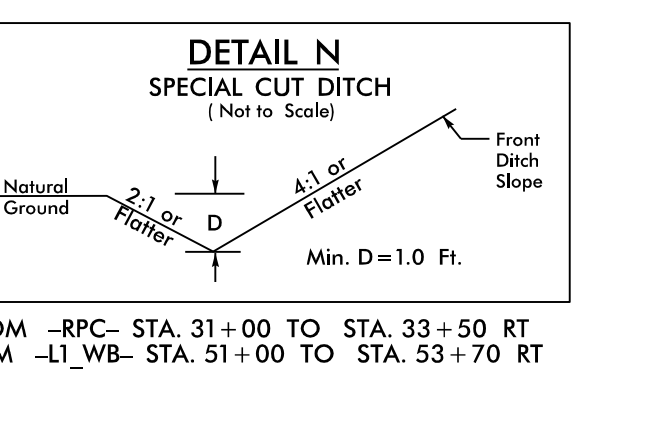
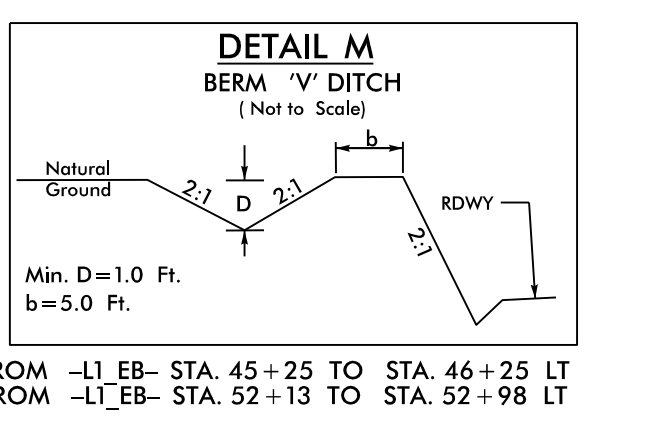
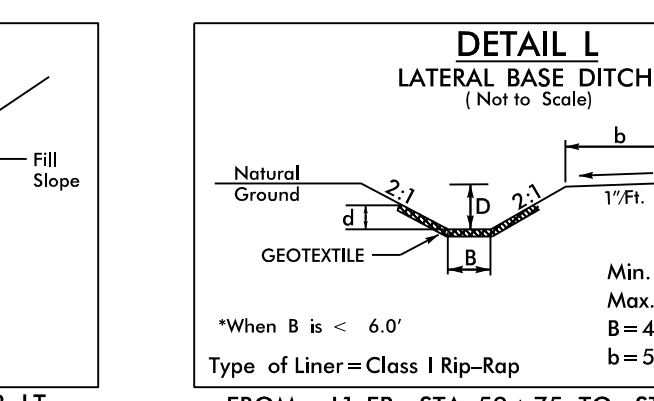
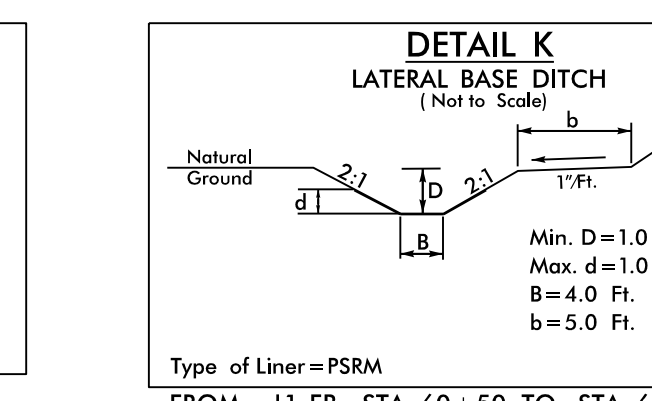
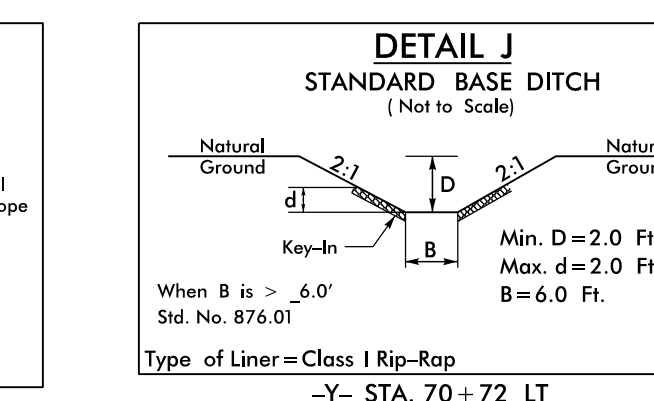
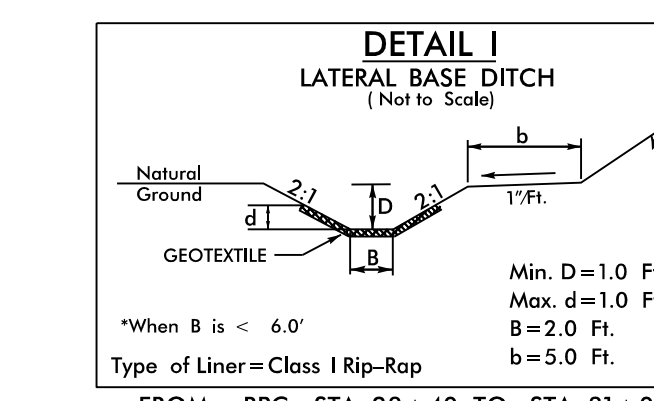
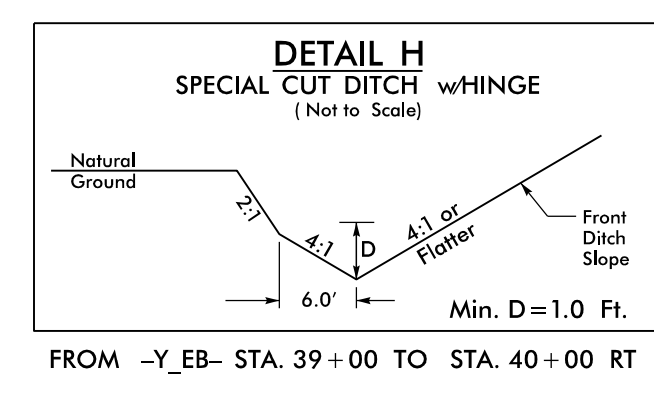
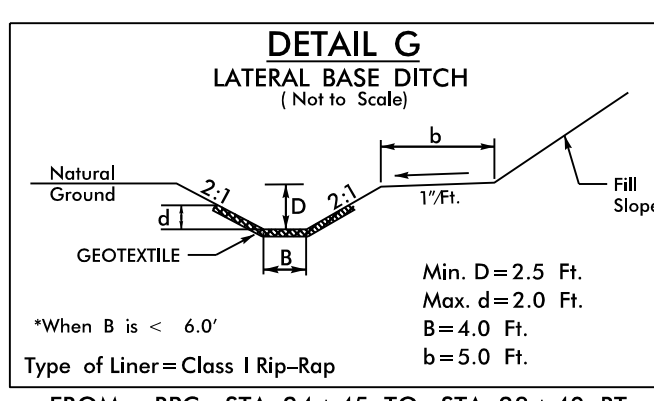
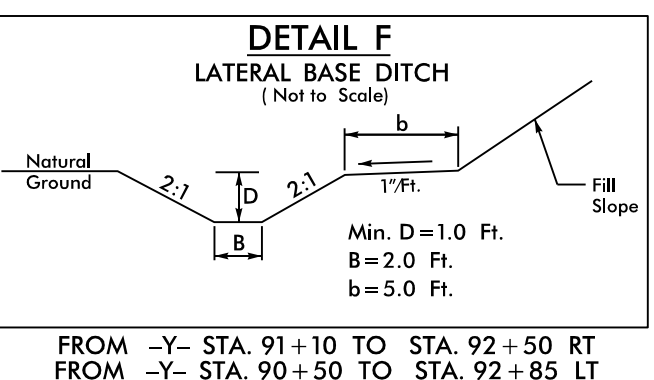
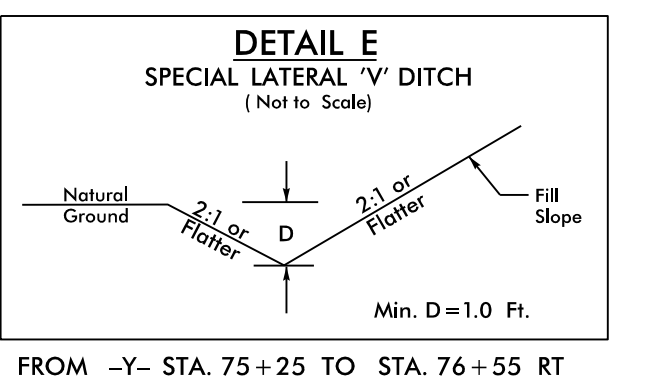
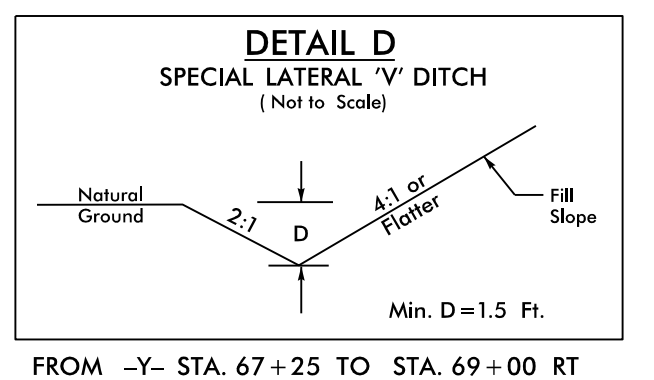
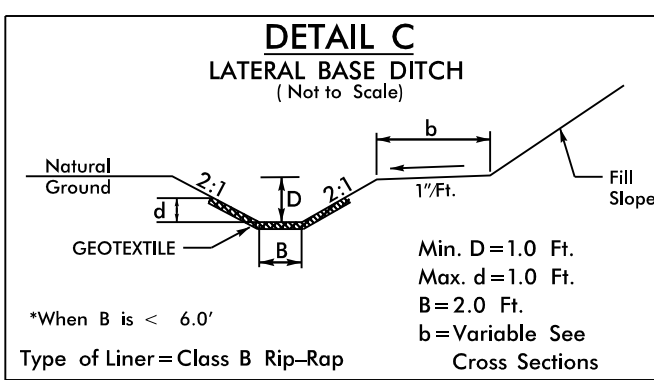
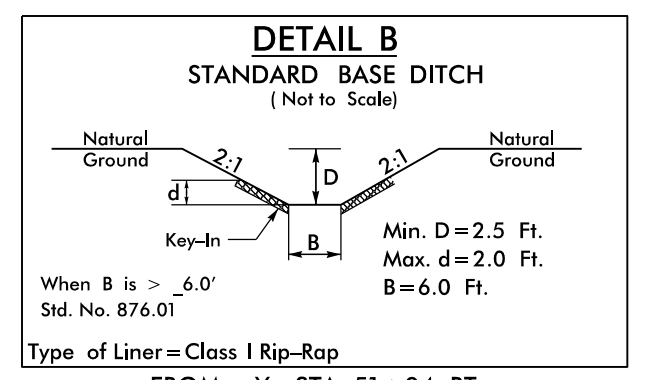
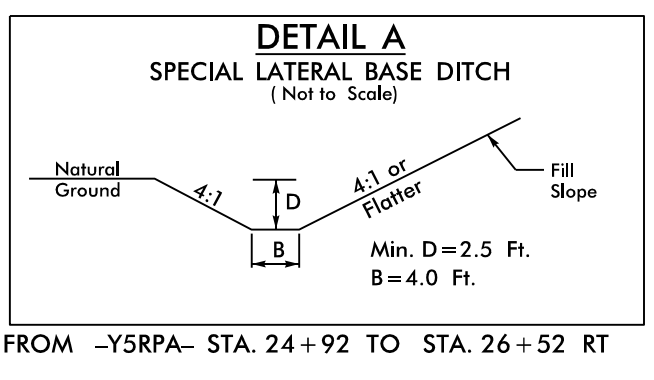
HYDRAULICS ENGINEER
KCI PROFESSIONAL ENGINEERING
053425
Matthew L. HALEY
2/8/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

KCI ASSOCIATES OF N.C., P.A.
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609-6270
Phone (919) 783-9214
http://www.kci.com
NC Firm License No. C-0764

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-2377
BUS: 919 851 8077
FAX: 919 851 8107

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



DETAIL P
RIP-RAPPED ENERGY DISSIPATOR BASIN

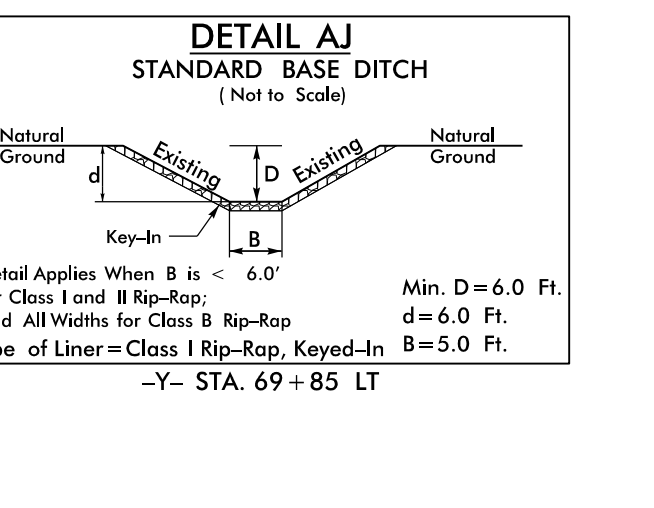
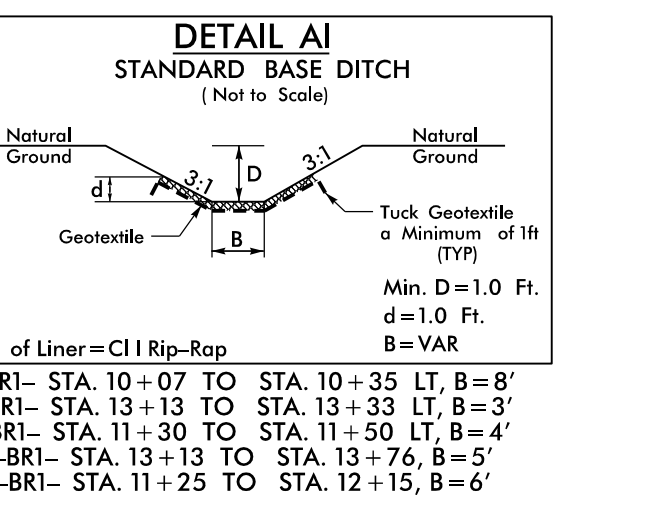
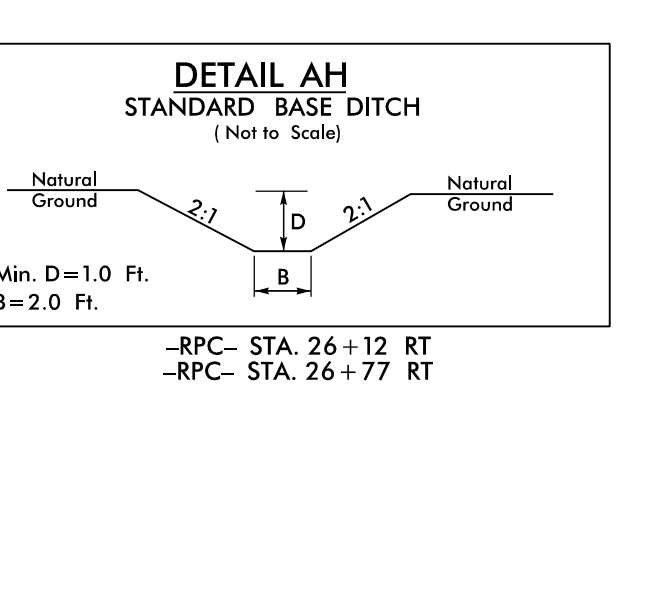
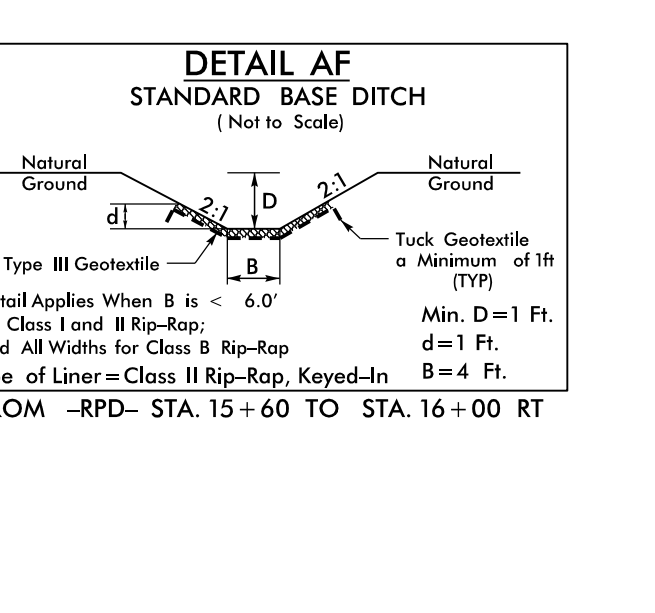
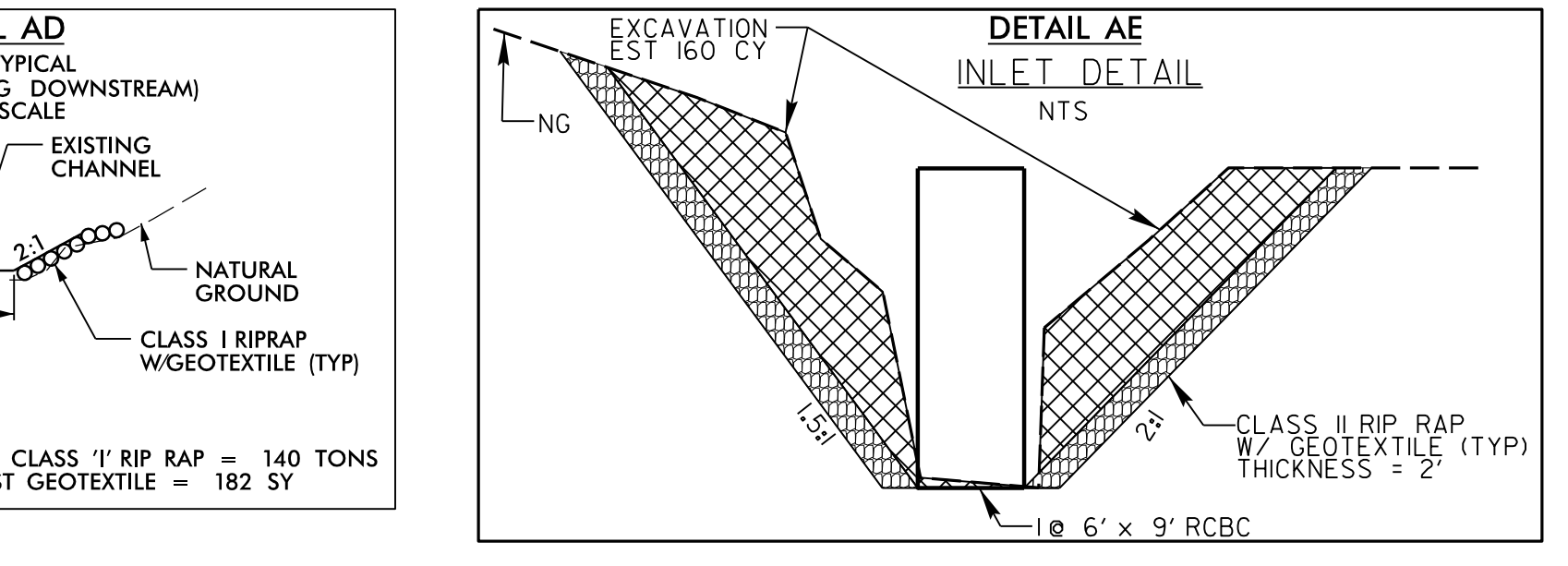
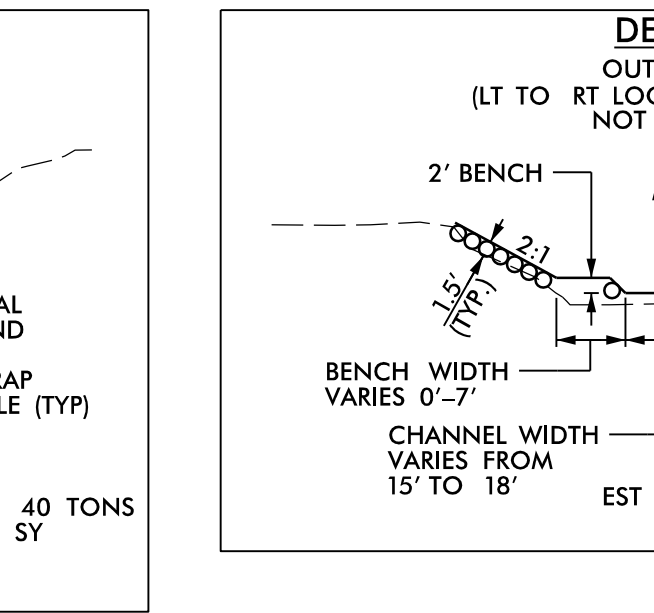
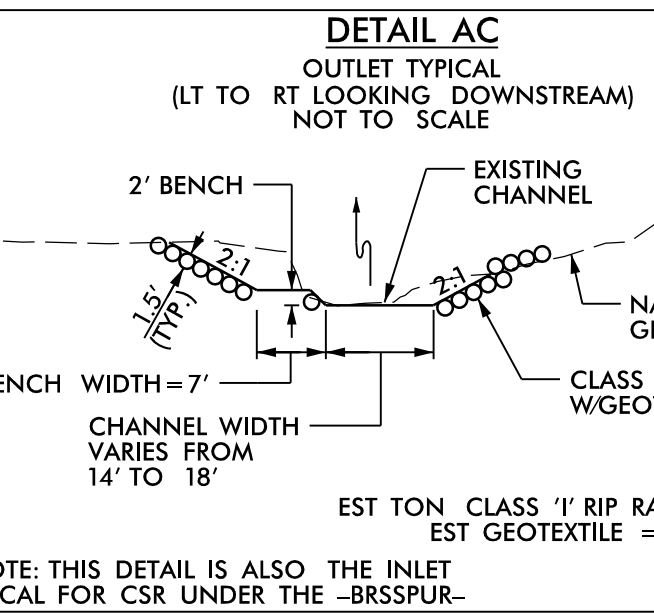
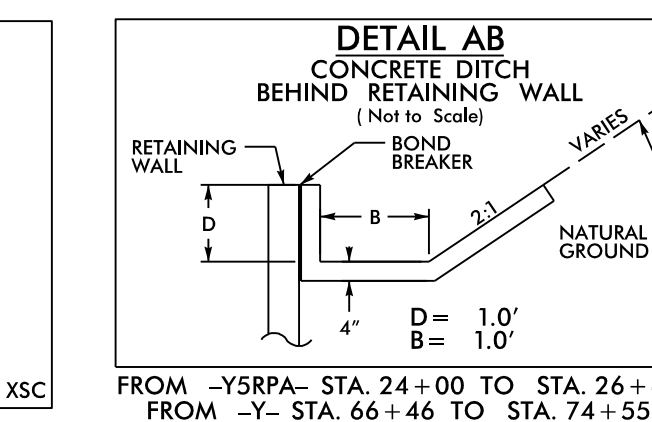
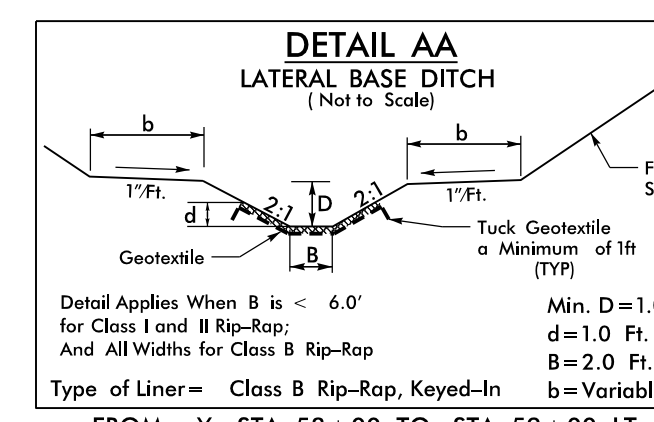
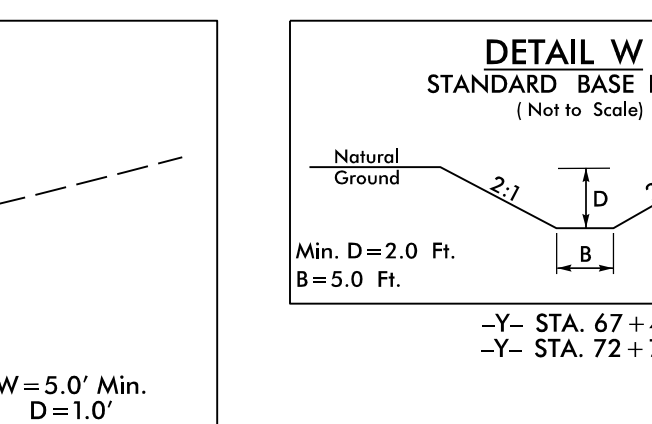
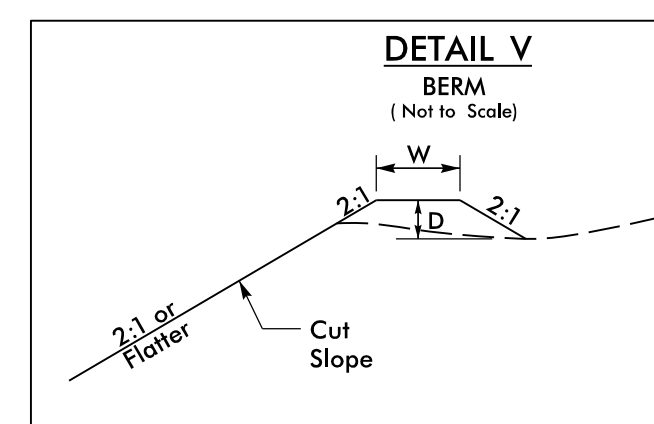
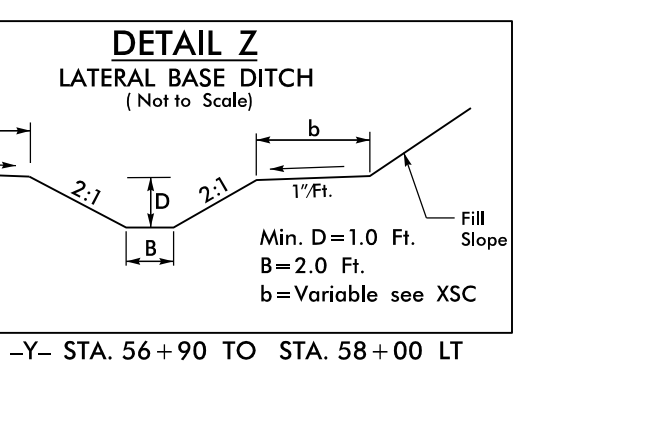
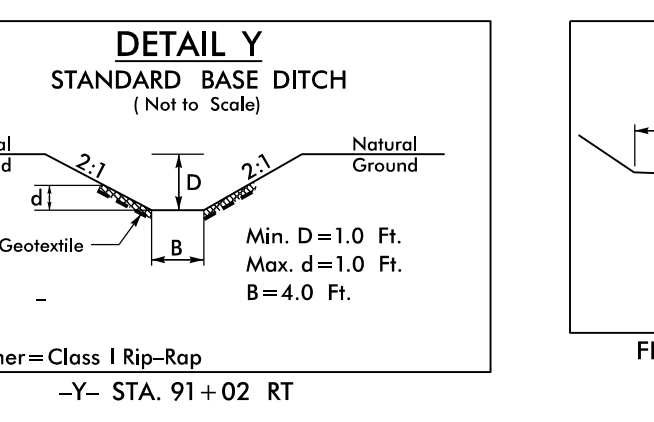
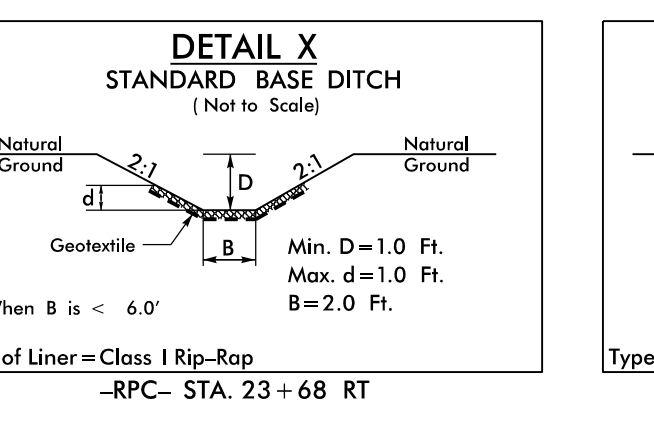
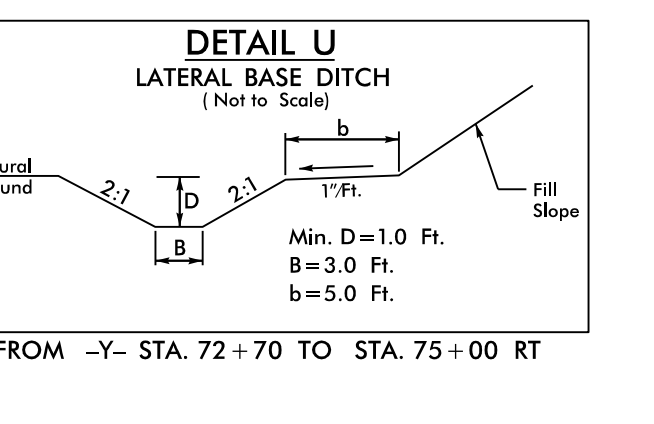
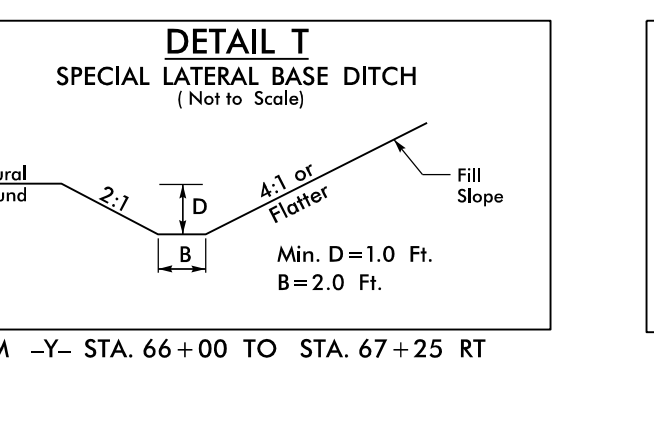
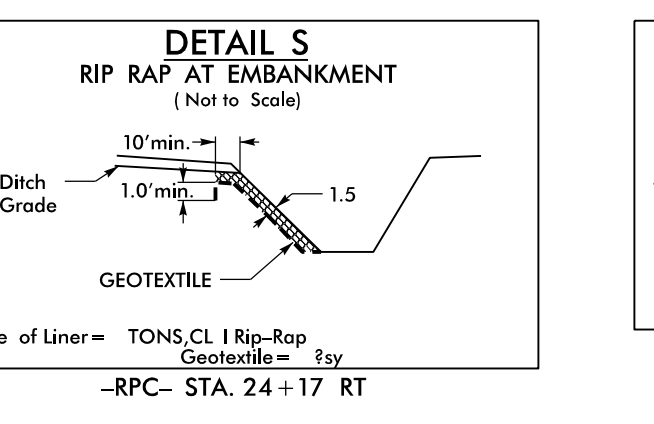
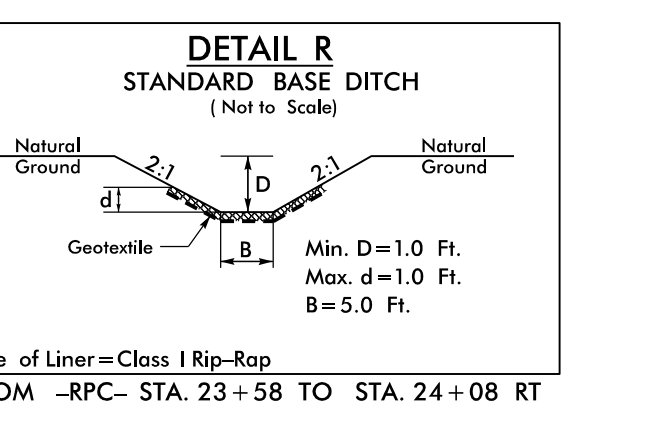
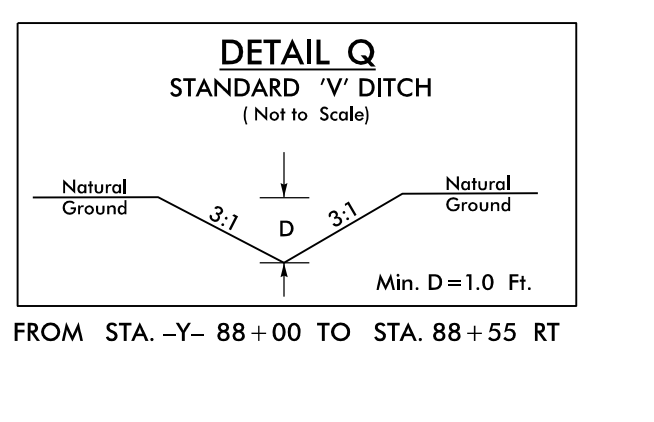
DIM. (ft)	1	2
A	2.5	2.0
B	1.7	1.4
C	1.4	0.5
D	1.4	0.5
E	7.0	2.5
F	18.0	9.0
G	14.0	7.5

ALL DIMENSIONS APPROXIMATE

PLAN and SECTION views showing rip-rapped basin with apron, dissipator pool, and culvert.



BASIN #	LOCATION (AT OUTLET)
1	-Y- 92+94 LT
2	-Y- 93+22 LT

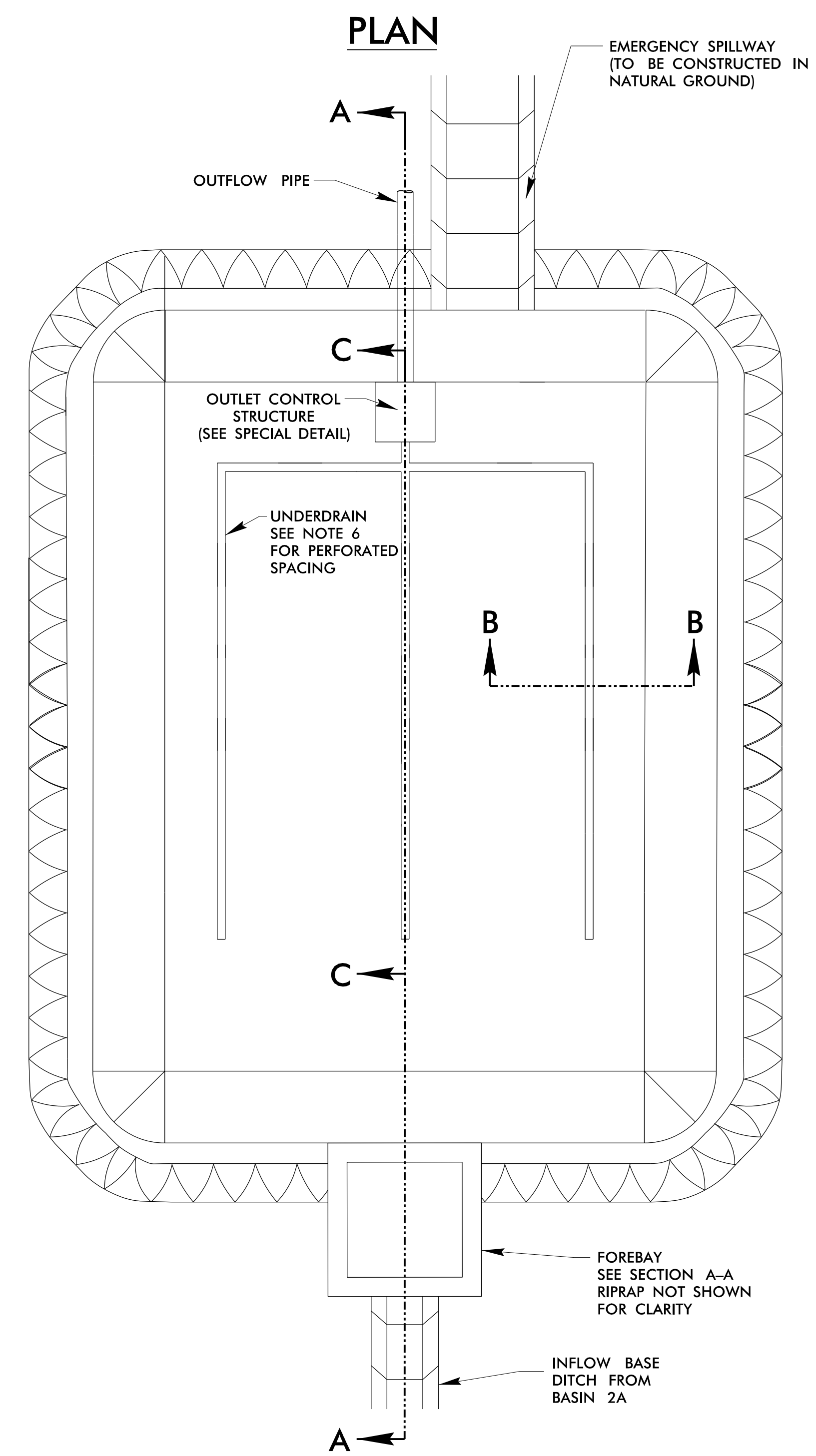
7/08



5/14/99

FILTRATION BASIN DETAILS (BASIN 2B)

PROJECT REFERENCE NO. 1-2513AA/AB	SHEET NO. 2D-2
RW SHEET NO.	
HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER 053425 Matt Harvey 2/8/2024	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 KCI ASSOCIATES OF N.C., P.A. 4505 Falls of Neuse Road, Suite 400 Raleigh, NC 27609-6270 Phone: (919) 733-9214 http://www.kci.com NC Firm License No. C-0764	
 1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
<small>TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION</small>	

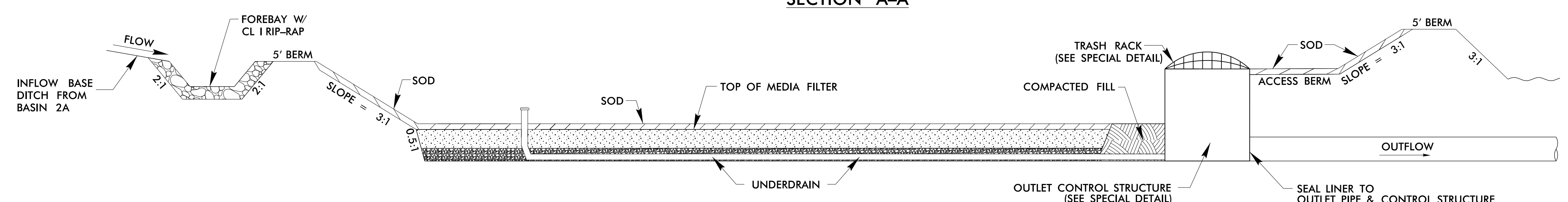
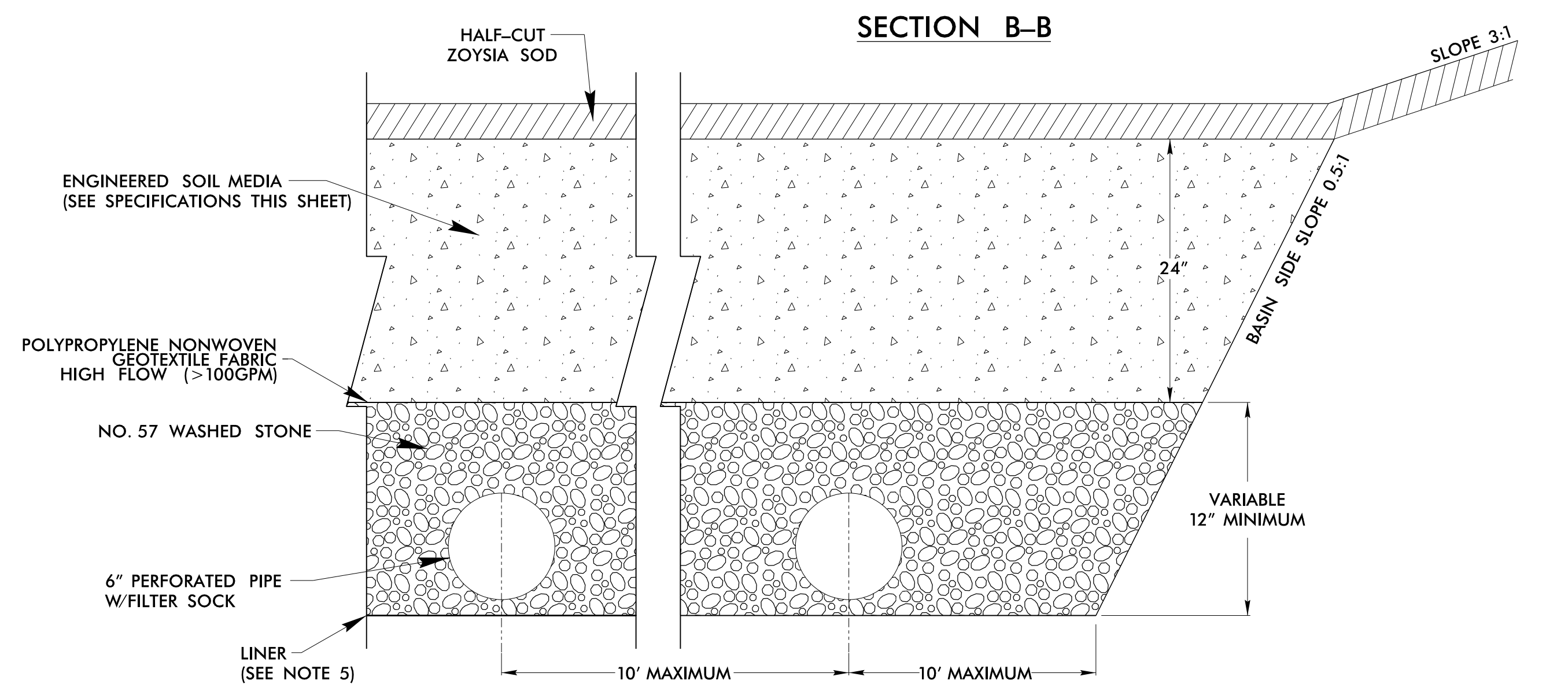
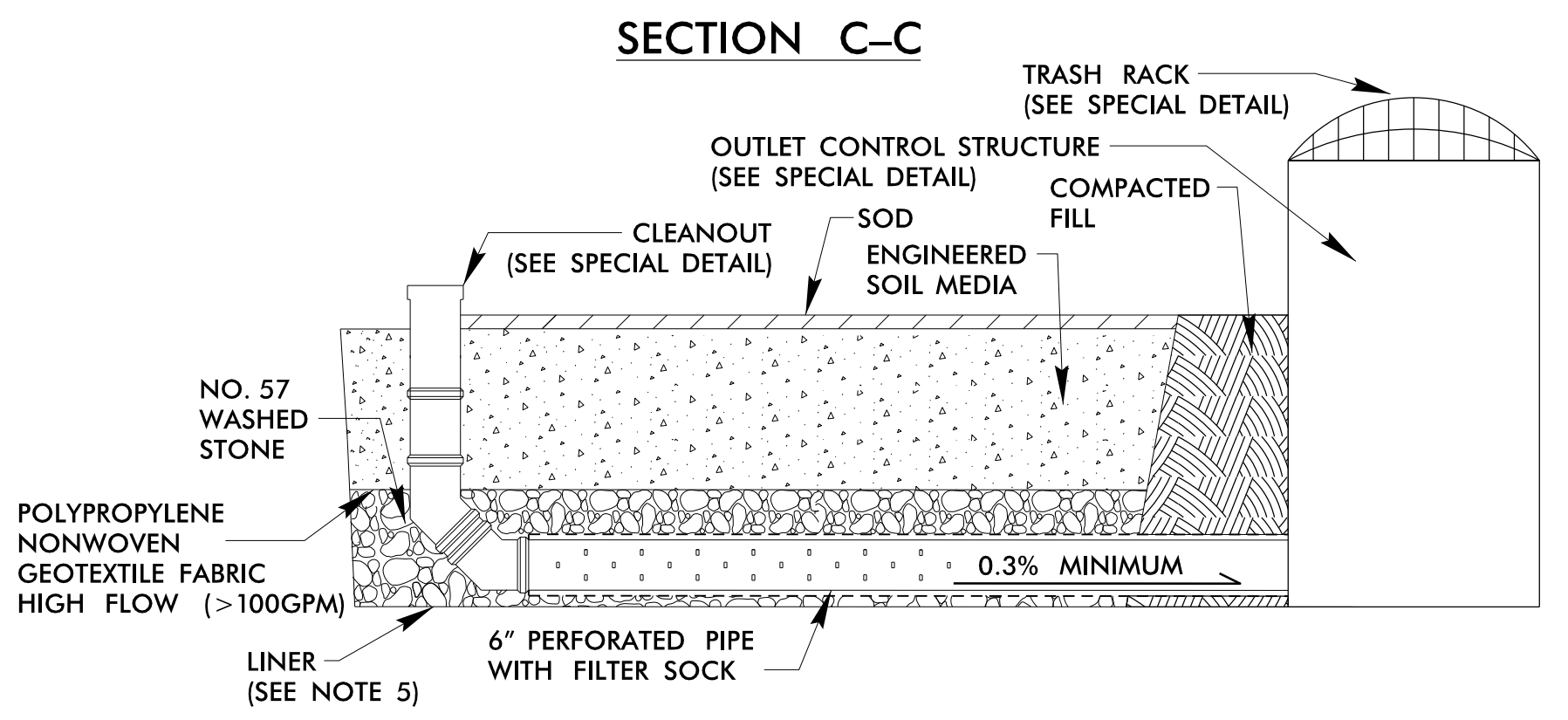


- NOTES**
1. AN EMERGENCY SPILLWAY SHOULD BE INCORPORATED WHERE SITE PERMITS.
 2. AN ACCESS BERM SHOULD BE PROVIDED FOR MAINTENANCE.
 3. THE 6-INCH UNDERDRAIN IS THE PRIMARY DRAWDOWN DEVICE.
 4. UNDERDRAIN PIPES SHOULD BE PLACED A MAXIMUM OF 10 FEET FROM THE EDGE OF THE BASIN AND MUST HAVE A MAXIMUM OF 10 FEET BETWEEN THE PERFORATED UNDERDRAIN PIPES.
 5. UNDERDRAIN SHOULD BE BEDDED ON A THIN LAYER OF NO.57 WASHED STONE AND BACKFILLED TO A TOTAL MINIMUM STONE DEPTH OF 12 INCHES.
 6. UNDERDRAIN PERFORATED PIPE HOLES ARE 3/8 INCH IN DIAMETER AND LONGITUDINALLY SPACED 6 INCHES ON CENTER ALONG 4 ROWS.
 7. TOP OF MEDIA FILTER MUST BE LEVEL.

REFERENCED SPECIAL DETAILS

FOR "OUTLET CONTROL STRUCTURE DETAILS" SEE SHEET 2D-8
 FOR "TRASH RACKS DETAIL" SEE SHEET 2D-9

- SPECIFICATIONS**
- ENGINEERED SOIL MEDIA SHALL CONSIST OF:
- (1) HOMOGENOUS SOIL MIX OF 85-88 PERCENT BY WEIGHT SAND (USDA SOIL TEXTURAL CLASSIFICATION), 8 TO 12 PERCENT FINES (SILT AND CLAY), AND 2 TO 5 PERCENT ORGANIC MATTER (ORGANIC MATTER SHALL BE LEAF OR BARK COMPOST, OR SIMILAR, AND SHALL NOT BE ANIMAL MANURE).
 - (2) P-INDEX BETWEEN 10 AND 30
 - (3) PH VALUE BETWEEN 5.5 - 7.5
 - (4) PERMEABILITY BETWEEN 1 AND 2 INCHES/HOUR MINIMUM
 - (5) BE UNIFORM AND FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR MATERIAL GREATER THAN 2 INCHES






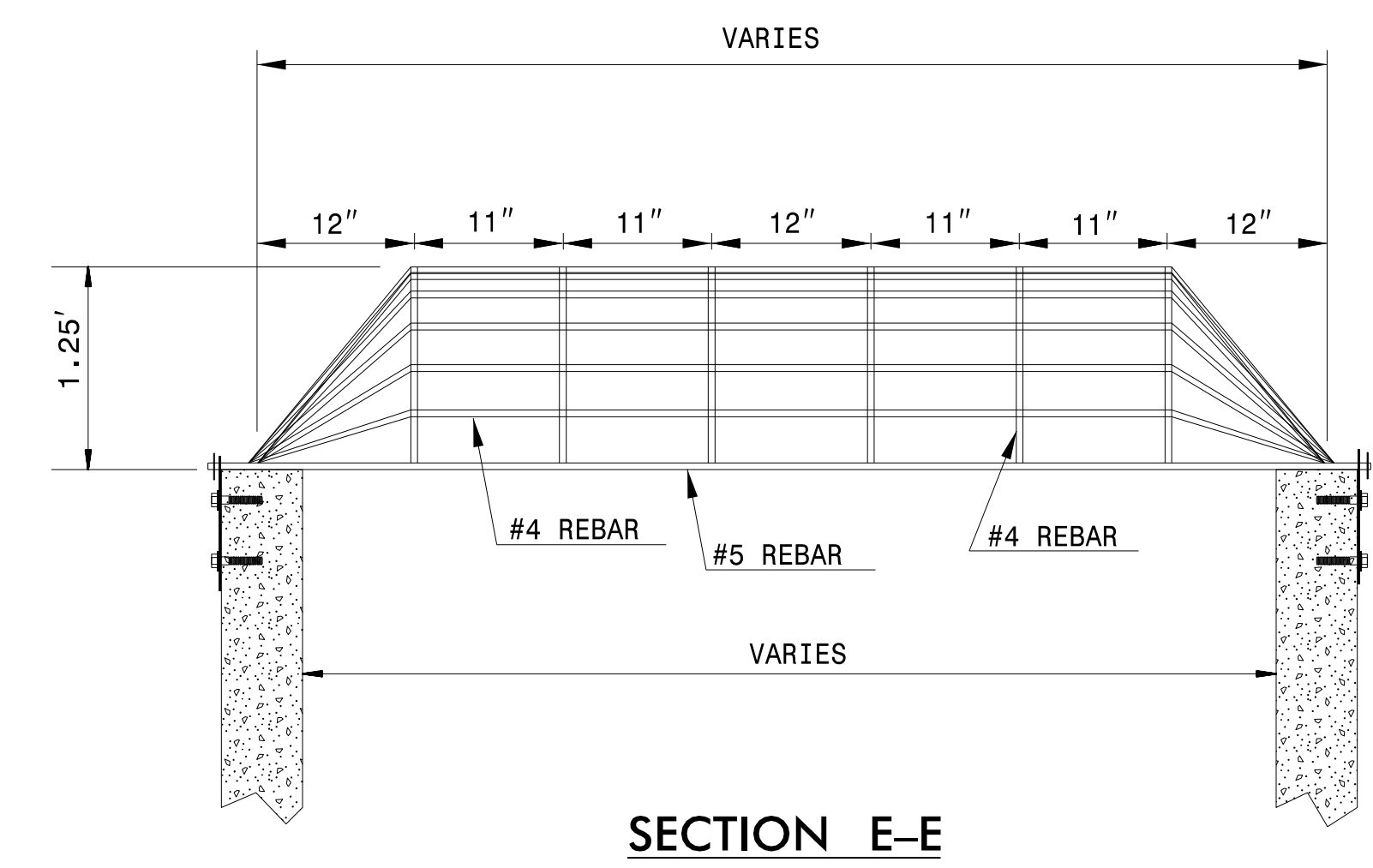
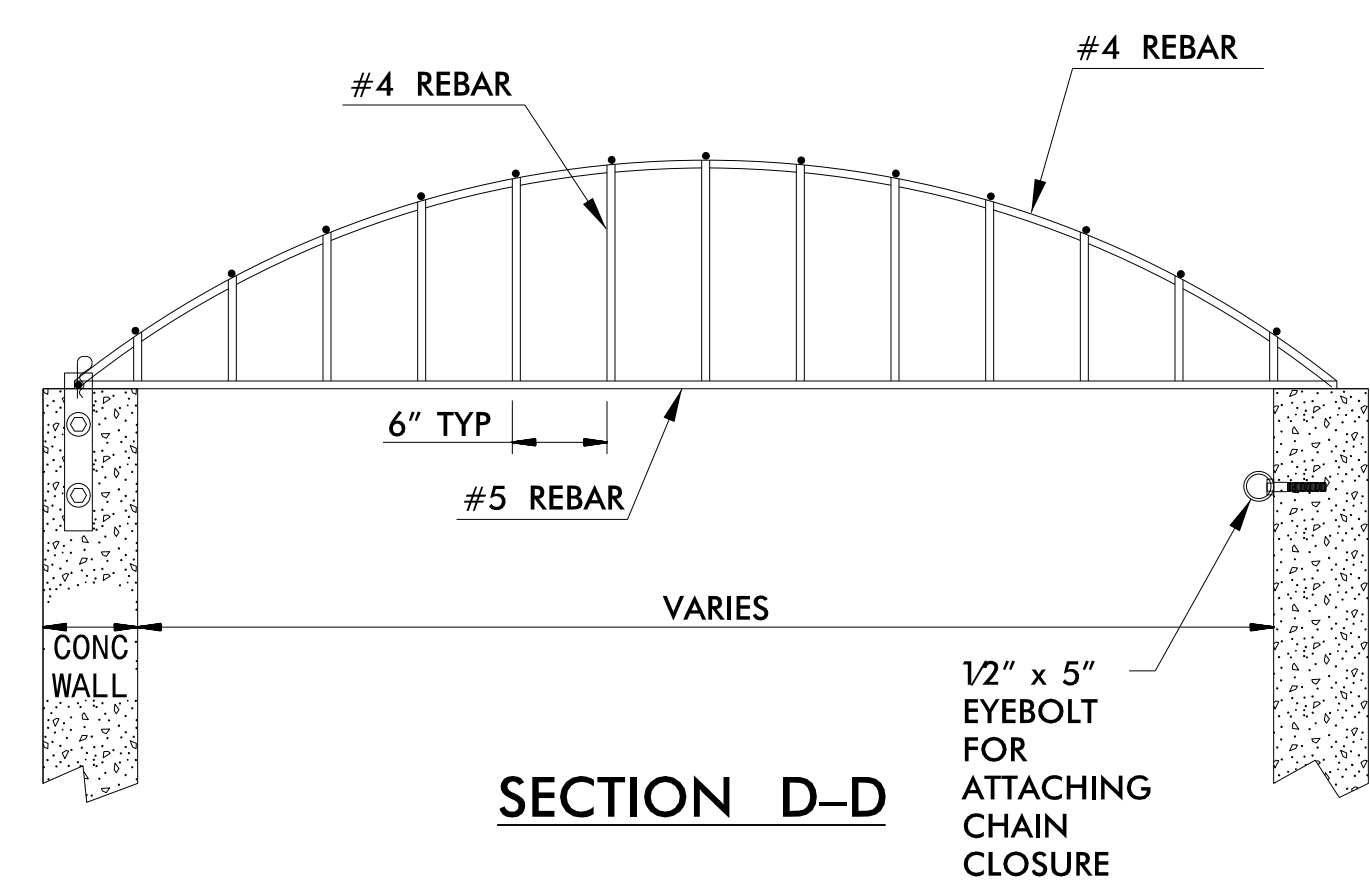
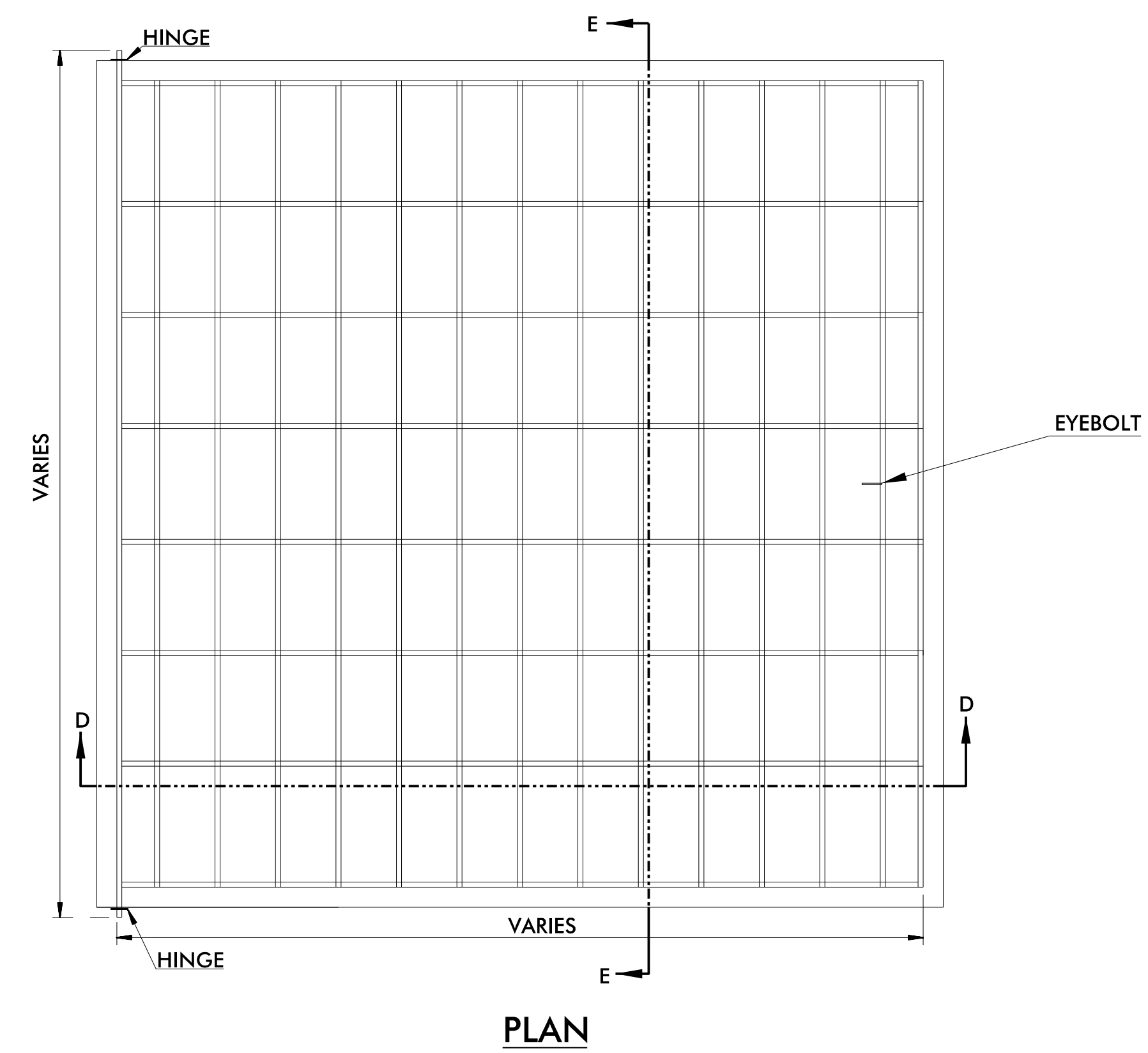
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1/25/2024 2:26:24 PM 1/25/2024 hyd_Details.dgn BarchSmith

5/14/99

TRASH RACKS DETAIL

PROJECT REFERENCE NO. <i>1-2513AA/AB</i>	SHEET NO. <i>2D-4</i>
RW SHEET NO.	
HYDRAULICS ENGINEER	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	
	



- RISER TRASH RACK NOTES:
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A 1/4" BEAD.
 2. IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DWG. 862.03 AND 862.04 FOR ANCHORING PROCEDURE.
 3. EYEBOLT FOR CHAIN CLOSURE SHALL BE INSTALLED BY THE SAME METHOD AS THE HINGE PLATE BOLTS.
 4. RACK AND HARDWARE SHALL BE REBAR AND GALVANIZED IN ACCORDANCE WITH ASTM A-153.

REBAR TRASH RACK

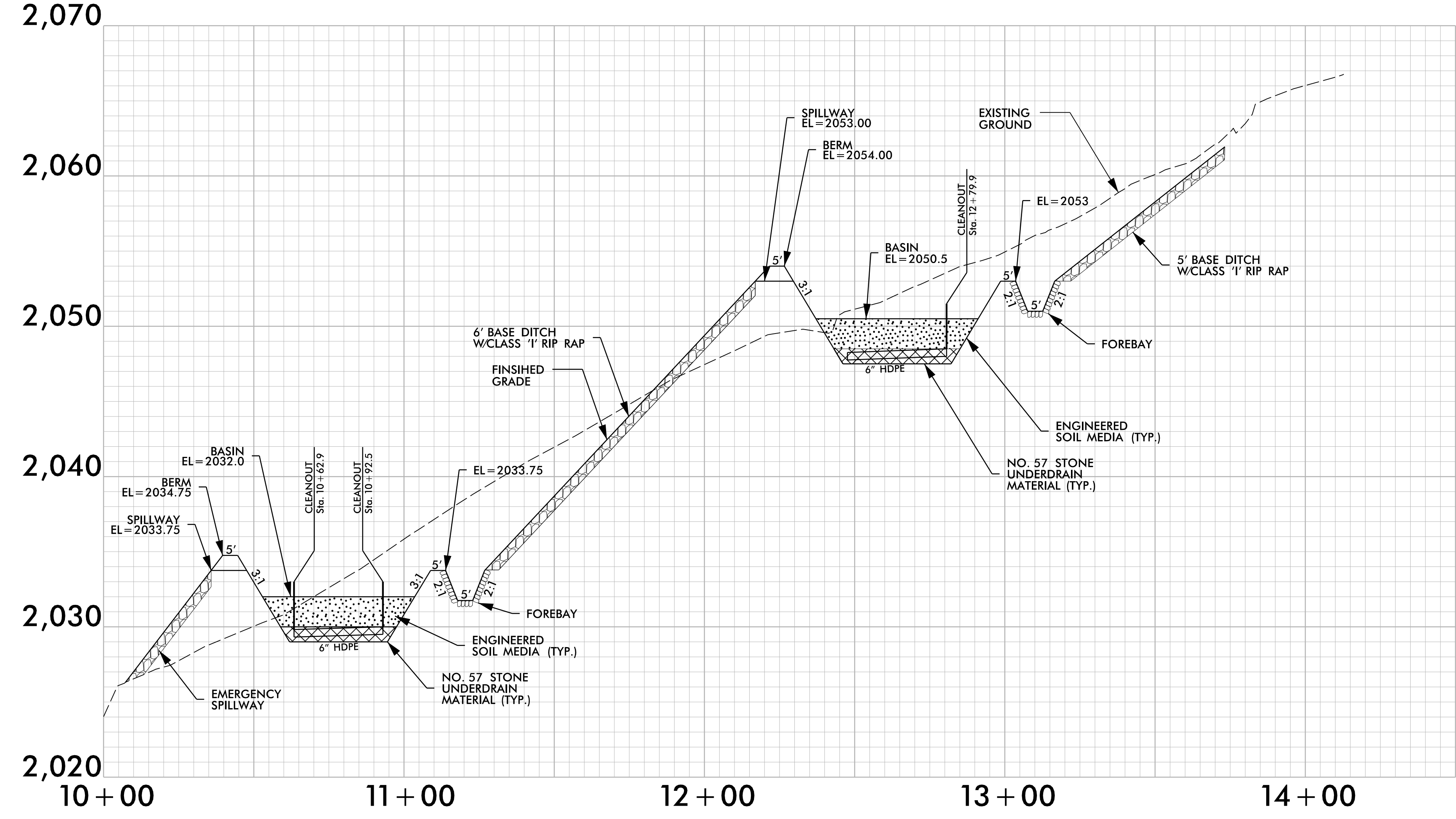
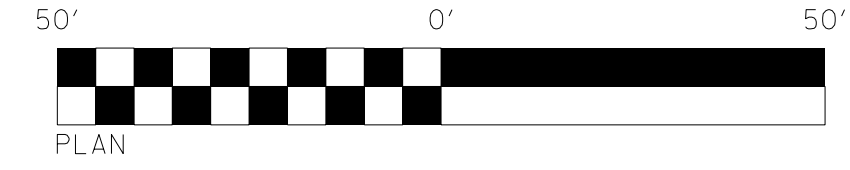
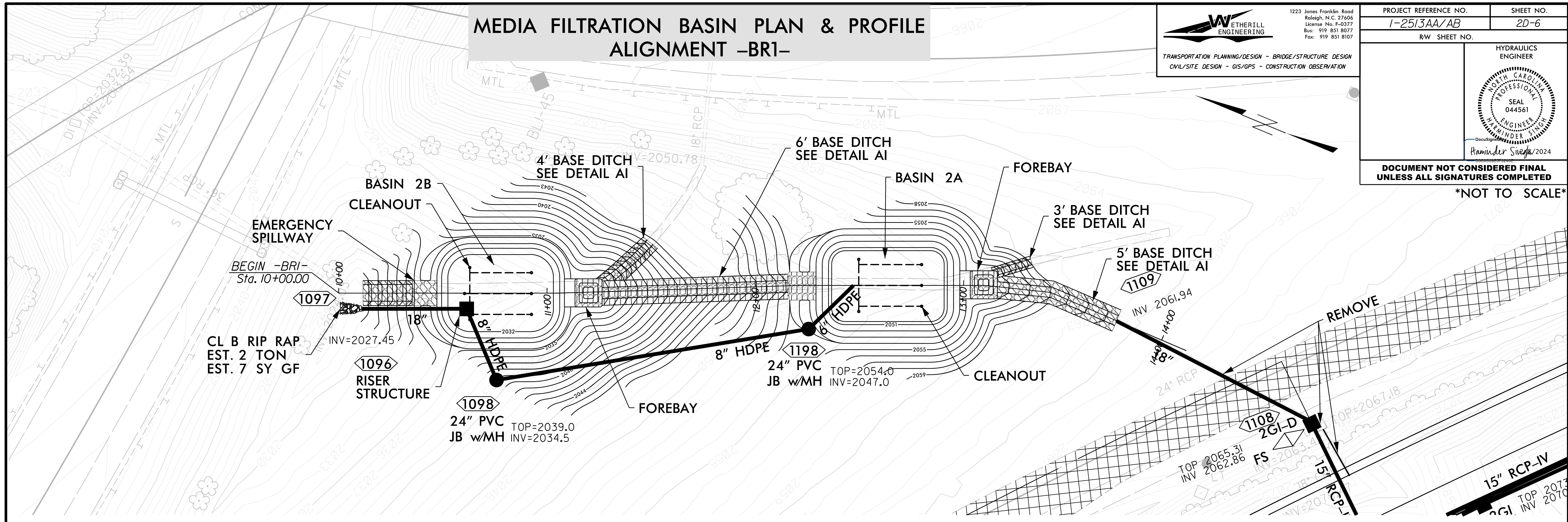
2/26/2024
2513AA-hyd_Details.dgn
Barth Smith

MEDIA FILTRATION BASIN PLAN & PROFILE ALIGNMENT -BR1-

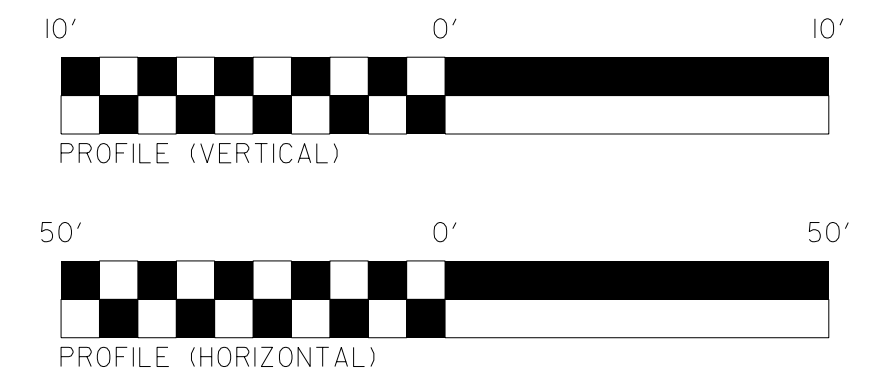
WETHERILL ENGINEERING
 1223 Jones Franklin Road
 Raleigh, N.C. 27606
 License No. F-0377
 Bus: 919 851 8077
 Fax: 919 851 8107

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

PROJECT REFERENCE NO. 1-2513AA/AB	SHEET NO. 2D-6
RW SHEET NO.	
HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED *NOT TO SCALE*	



FOR BASIN LOCATION
SEE SHEET 10 & 11

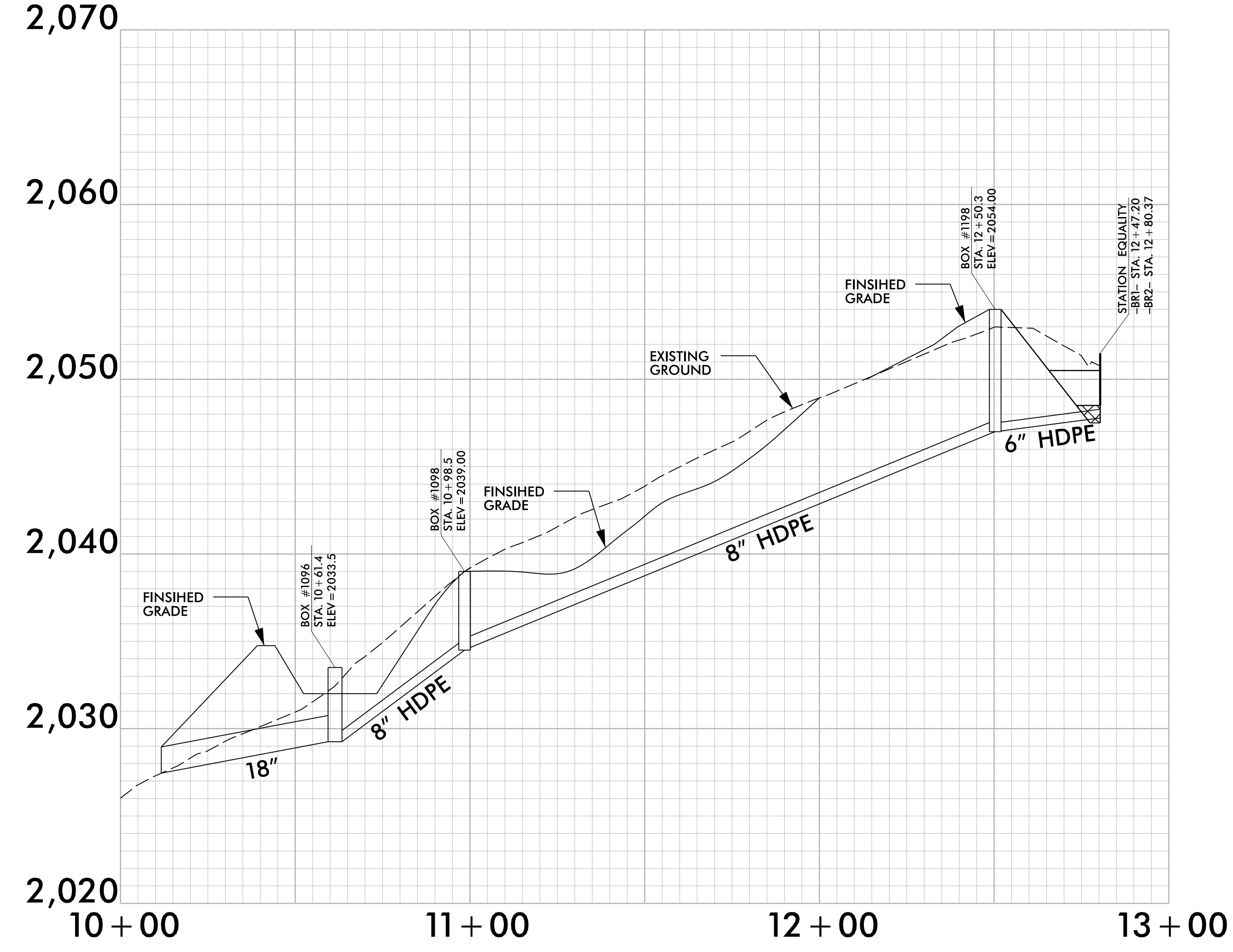
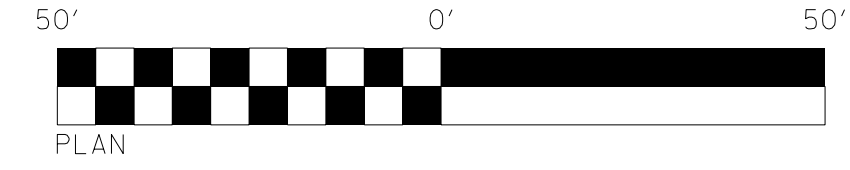
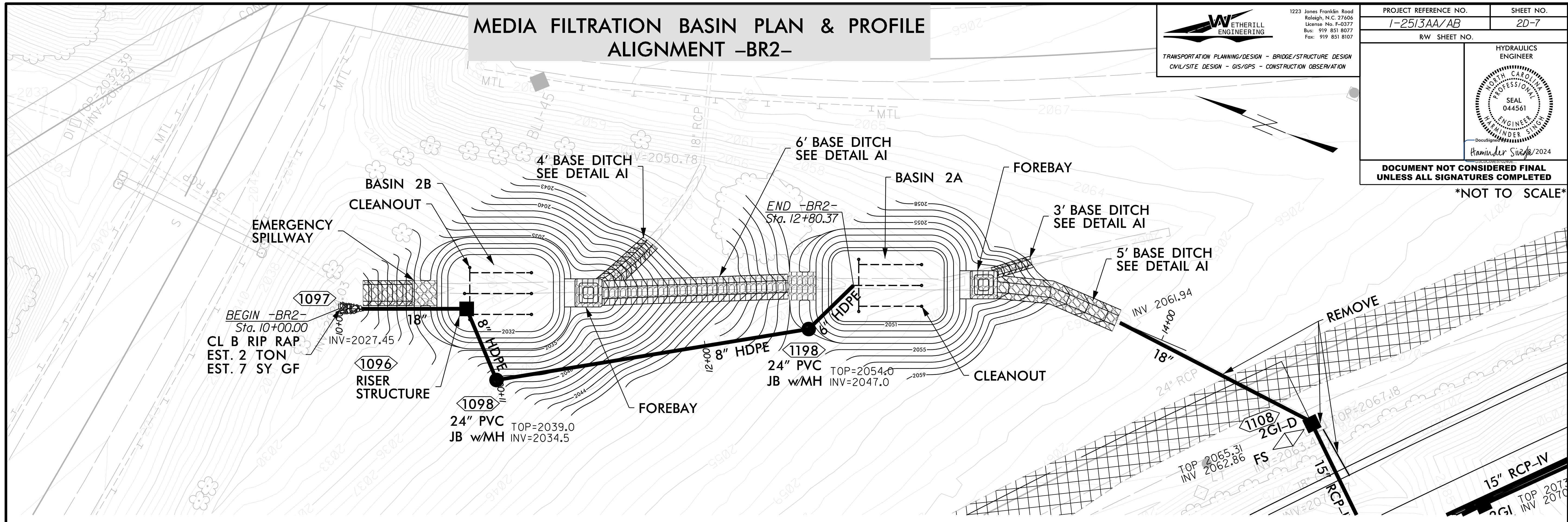


MEDIA FILTRATION BASIN PLAN & PROFILE ALIGNMENT -BR2-

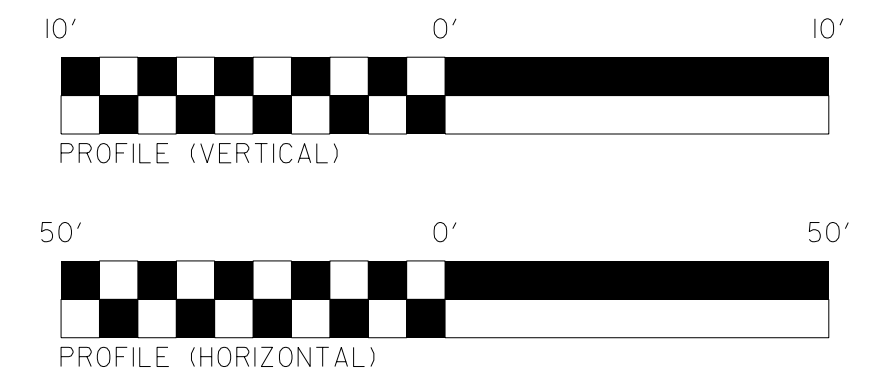
WETHERILL ENGINEERING
 1223 Jones Franklin Road
 Raleigh, N.C. 27606
 License No. F-0377
 Bus: 919 851 8077
 Fax: 919 851 8107

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

PROJECT REFERENCE NO. 1-2513AA/AB	SHEET NO. 2D-7
RW SHEET NO.	
HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED *NOT TO SCALE*	



FOR BASIN LOCATION
SEE SHEET 10 & 11



NOTES

DESIGN DATA:
 SPECIFICATIONS ----- A.A.S.H.T.O. (CURRENT)

MATERIAL AND WORKMANSHIP:
 EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

ALL CONCRETE SHALL BE CLASS A; f'c = 3000 psi

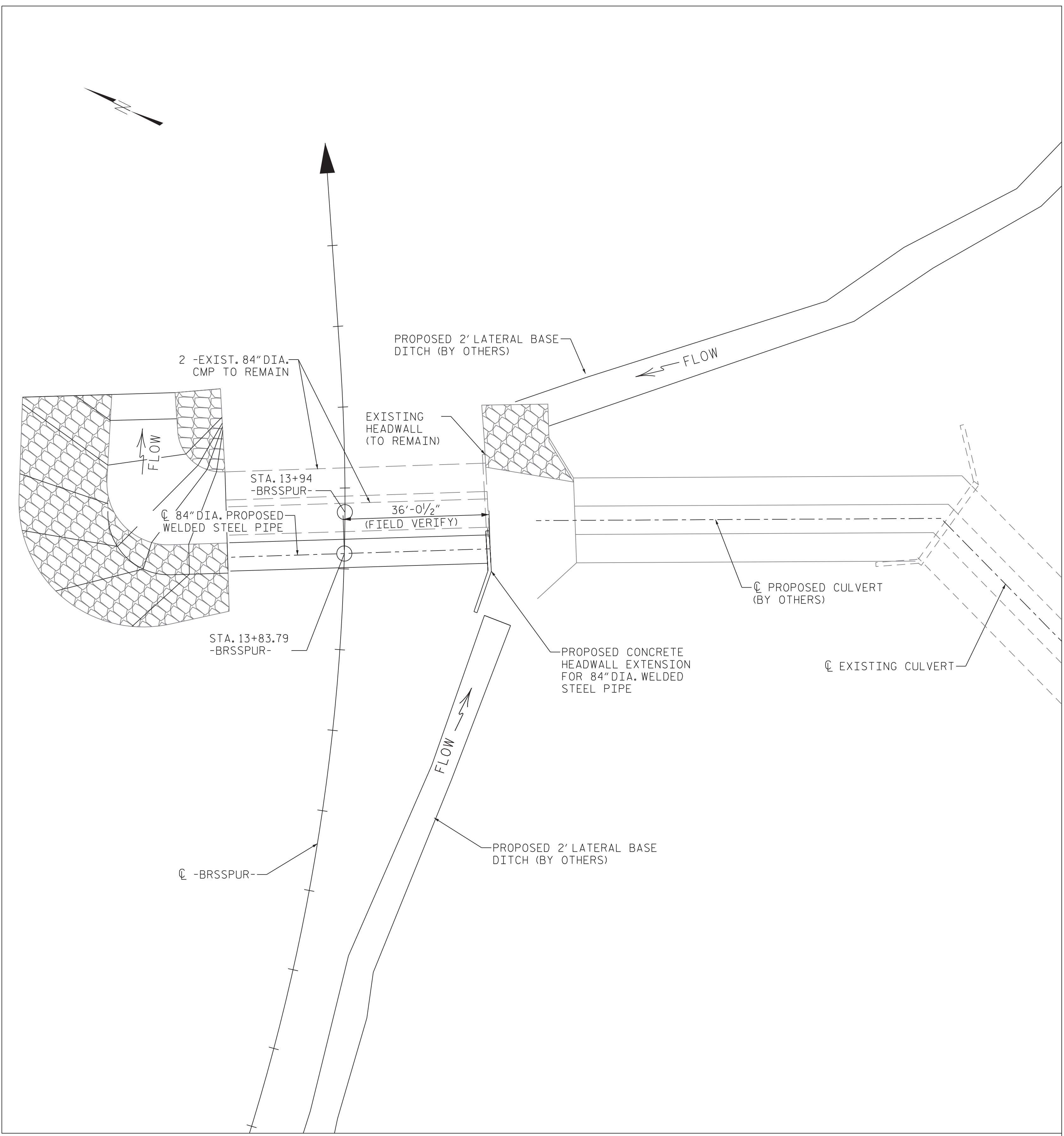
CONCRETE CHAMFERS:
 UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4".

REINFORCED STEEL:
 ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

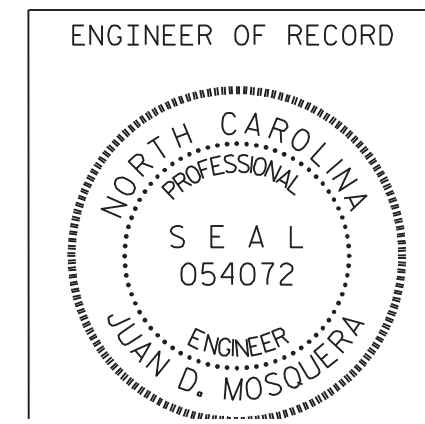
REMOVAL NOTES

- 1) THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PROTECT THE EXISTING STRUCTURE DURING THE REMOVAL OF THE 1'-0" PORTION OF THE EXISTING CONCRETE HEADWALL. PHASE OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING CONCRETE HEADWALL AND CORRUGATED METAL PIPES DURING THE REMOVAL. CONSTRUCTION OF THE STRUCTURE SHALL BE THE CONTRACTORS RESPONSIBILITY, AT NO ADDITIONAL COST TO THE PROJECT.
- 2) THE CONTRACTOR SHALL SUBMIT A WORK PLAN FOR REVIEW AND APPROVAL BY THE ENGINEER ON THE EQUIPMENT AND PROCEDURES TO BE USED FOR REMOVAL OF PORTION OF EXISTING CONCRETE HEADWALL, PRIOR TO THE COMMENCEMENT OF THE REMOVAL OPERATION.
- 3) THE COST OF MATERIALS AND LABOR NECESSARY TO REMOVE THE 1'-0" PORTION OF THE EXISTING CONCRETE HEADWALL SHALL BE INCIDENTAL TO THE COST OF THE CONCRETE HEADWALL EXTENSION AND NO SEPERATE PAYMENT SHALL BE MADE.



LOCATION SKETCH

PROJECT NO. I-2513 AA/AB
BUNCOMBE COUNTY
 STATION: 13+94-BRSSPUR-



DocuSigned by:
2/8/2024
 ETHERILL
 5DC8F08E8AE54F2, INEERING

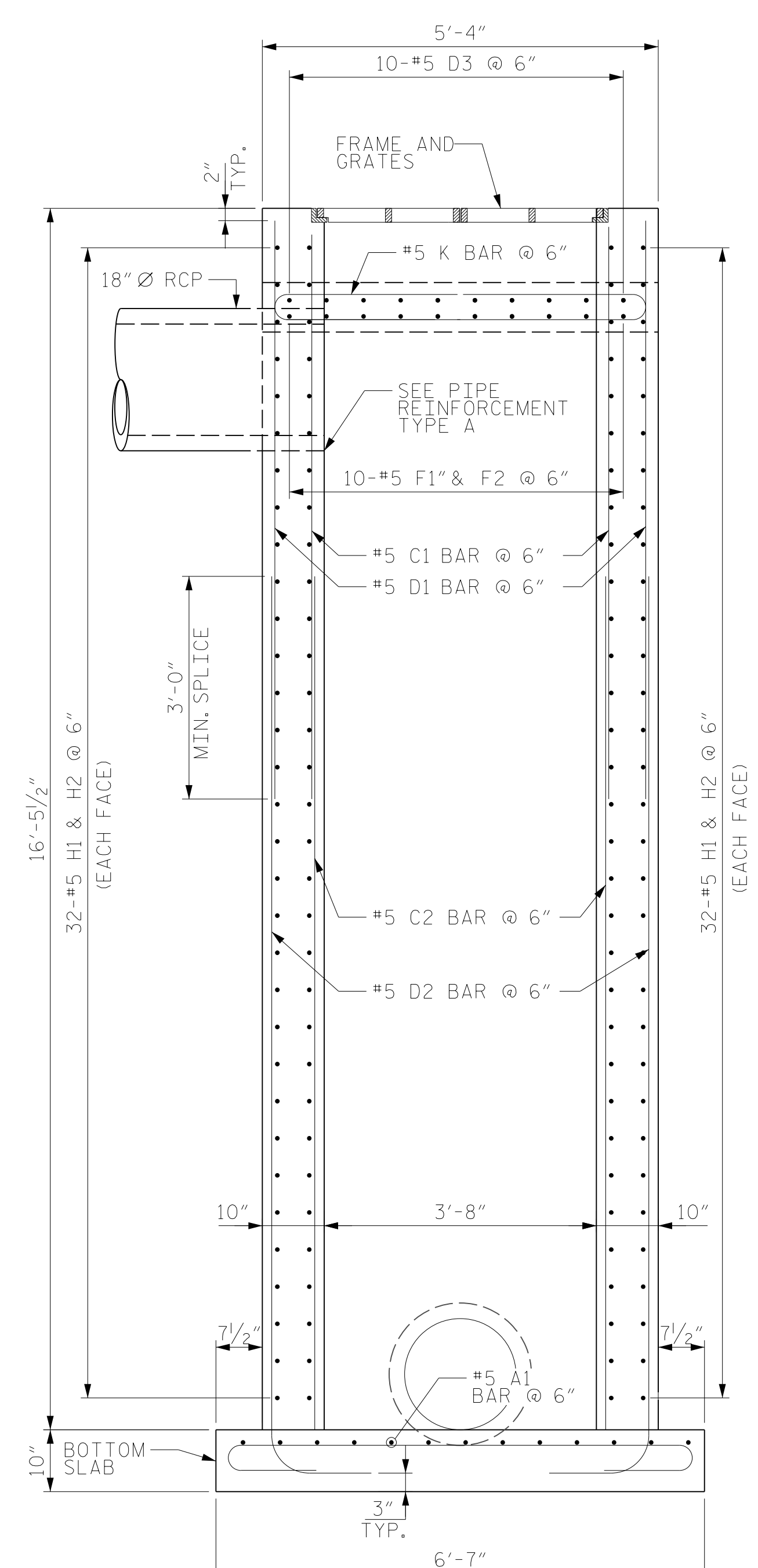
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

RENFORCED CONCRETE HEADWALL EXTENSION FOR 84" DIA. WELDED STEEL PIPE

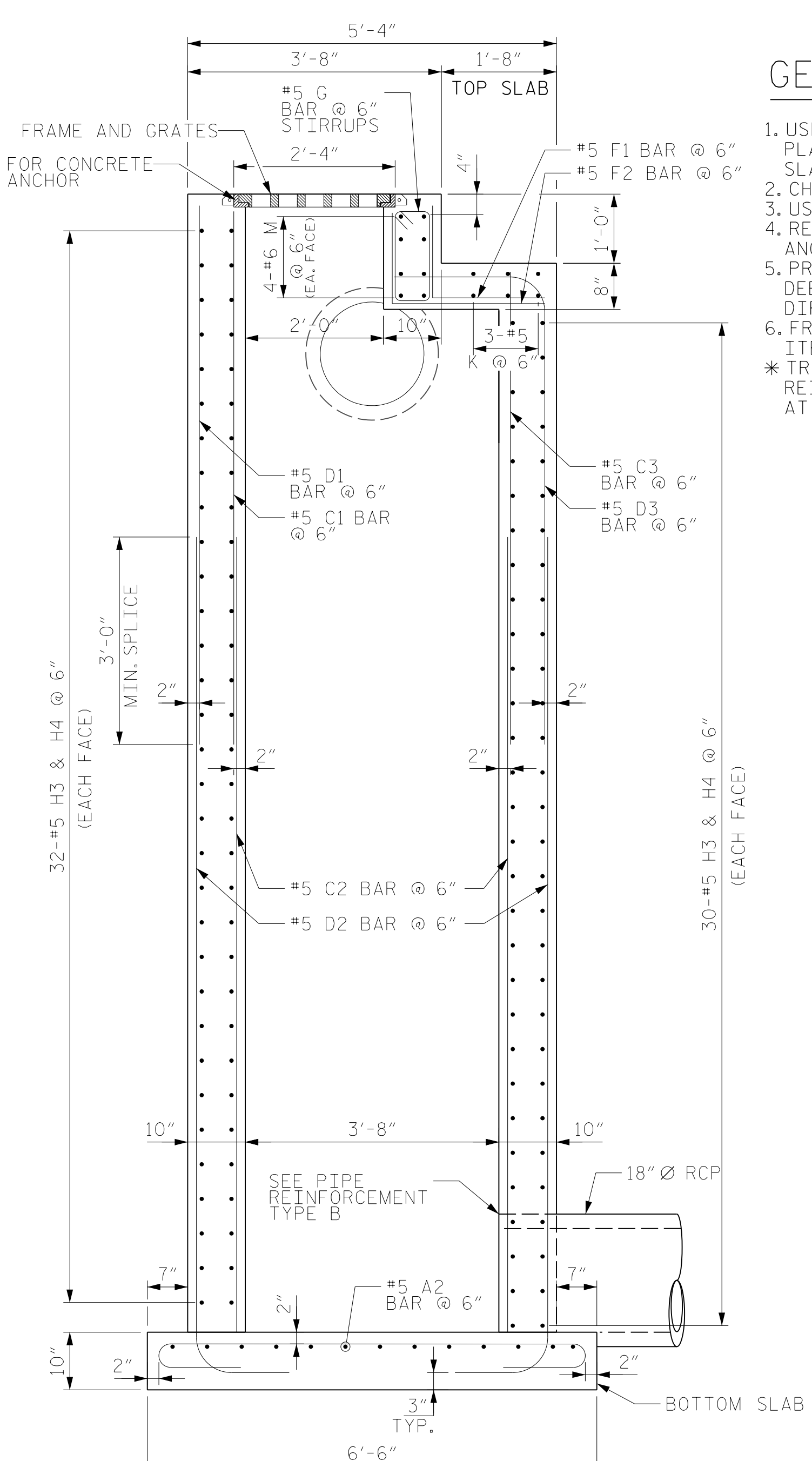
REVISIONS						SHEET NO. 2D-9
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			2

DRAWN BY : B. GONZALEZ DATE : 9-5-2023
 CHECKED BY : D. MOSQUERA DATE : 9-5-2023

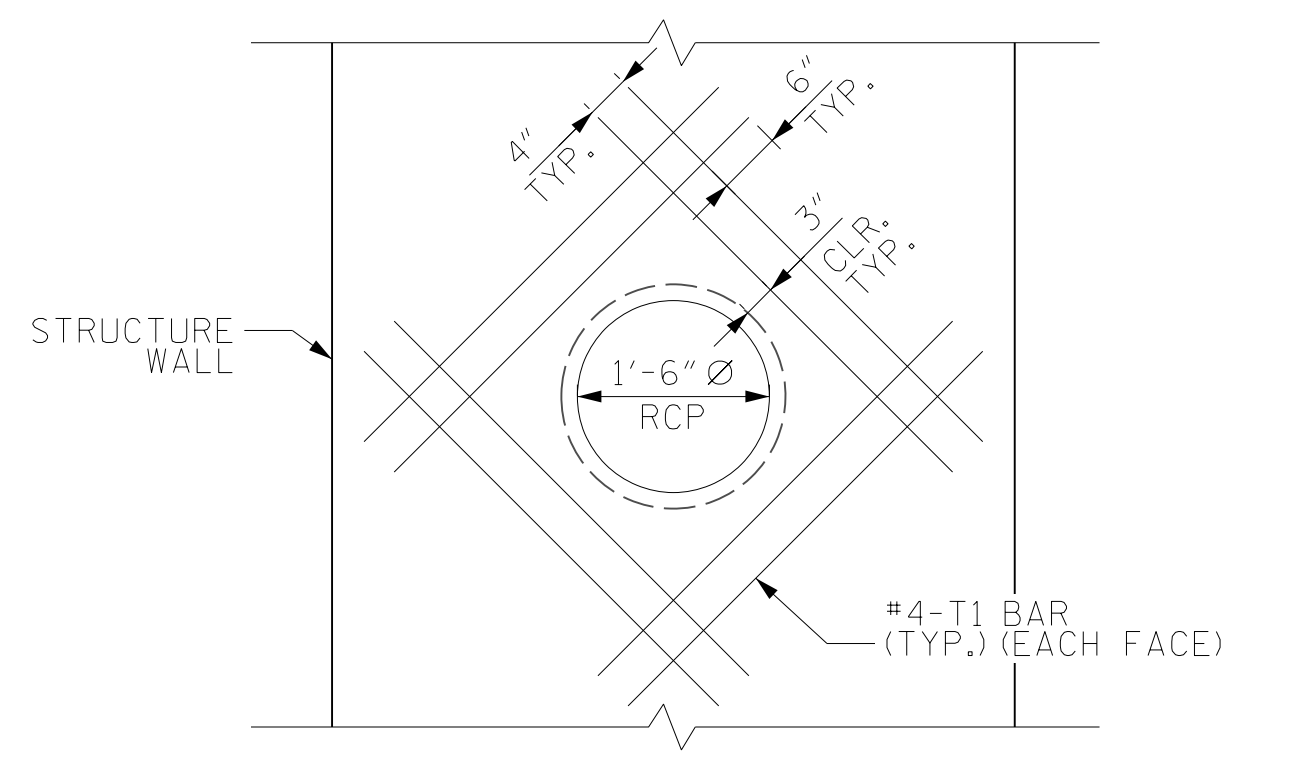
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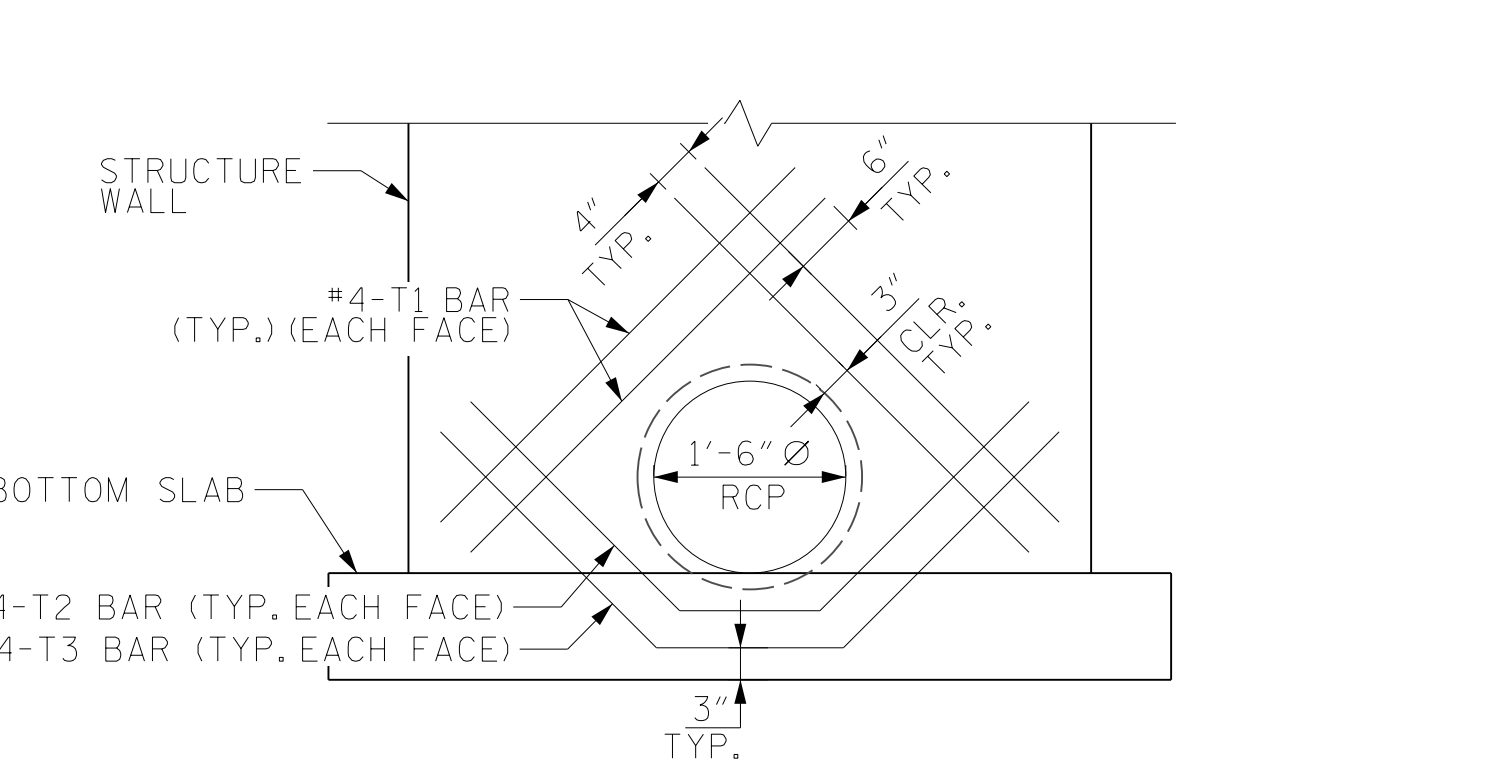
SECTION X-X



SECTION Y-Y



PIPE REINFORCEMENT TYPE A

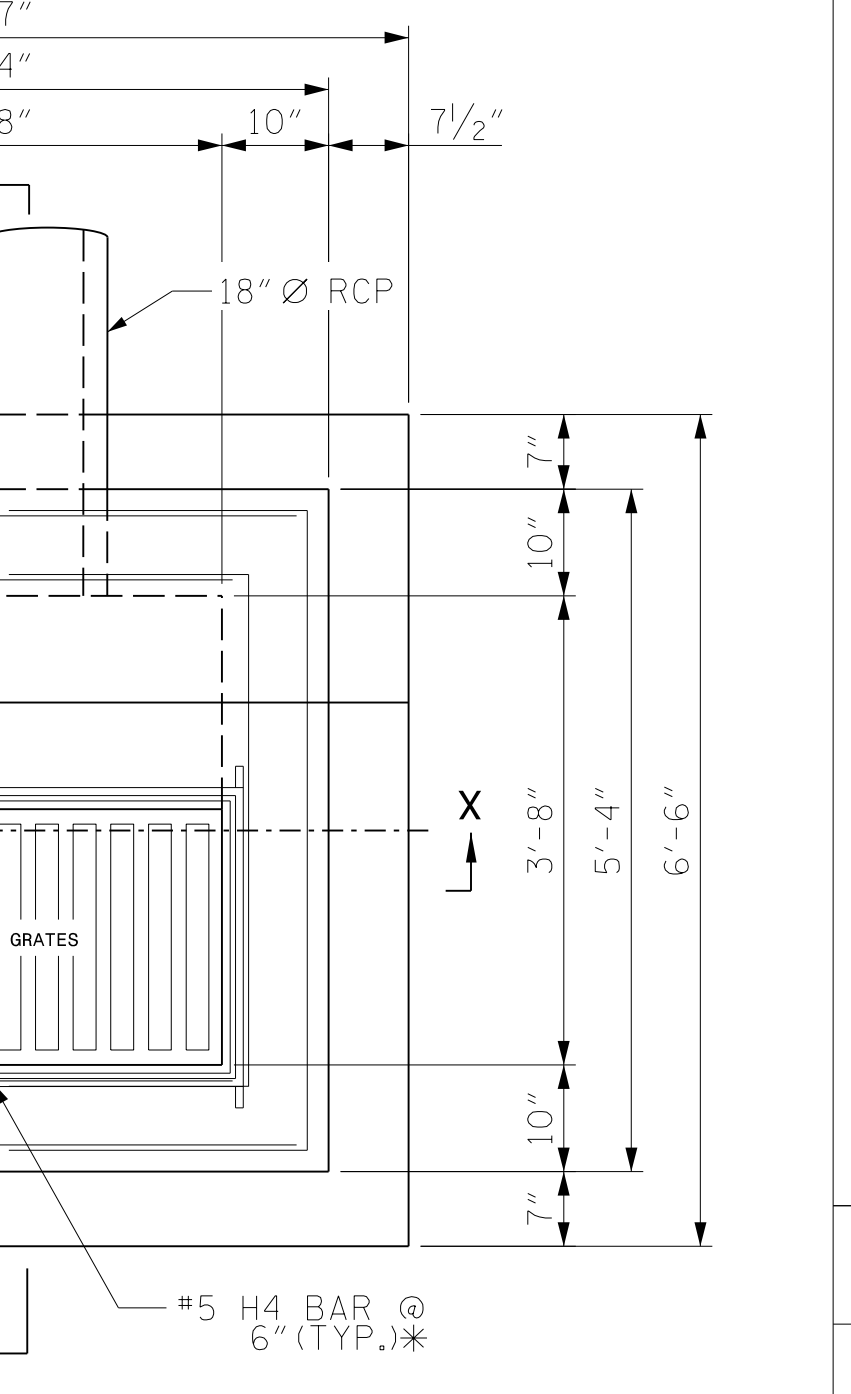


PIPE REINFORCEMENT TYPE B

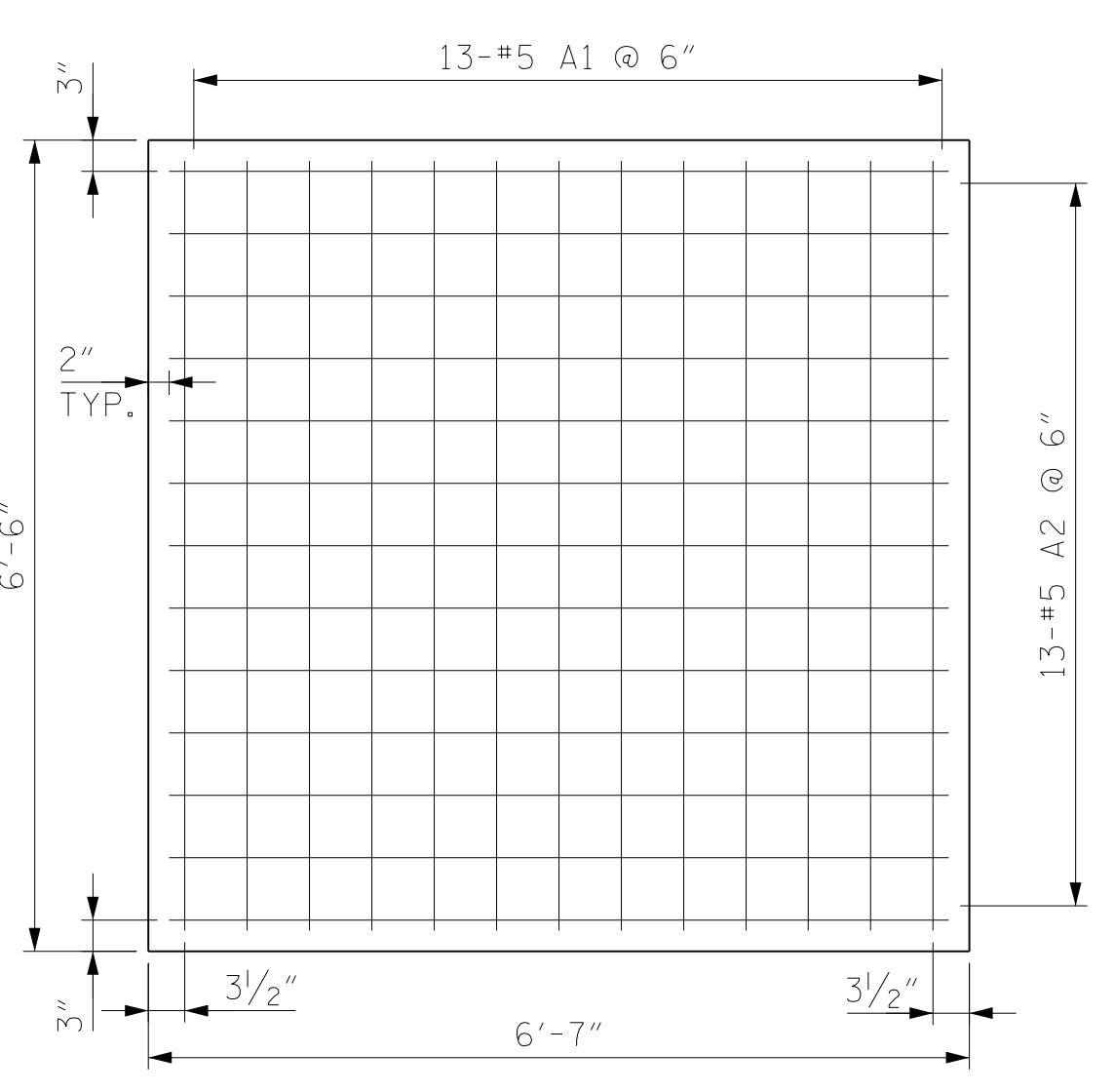
GENERAL NOTES:

1. USE CLASS 'AA' CONCRETE FOR CAST IN PLACE CONCRETE BOX WALLS AND BOTTOM SLAB.
 2. CHAMFER ALL EXPOSED CONCRETE CORNERS 1" DEEP WITH STEPS SPACED 12" ON CENTER AS DIRECTED BY STD. DWG. 840.66.
 3. USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
 4. REFERENCE STD. DWG. 840.25 FOR FRAME ANCHORAGE.
 5. PROVIDE GRATED DROP INLETS OVER 3'-6" DEEP WITH STEPS SPACED 12" ON CENTER AS DIRECTED BY STD. DWG. 840.66.
 6. FRAME AND GRATES ARE SEPARATE CONTRACT ITEMS.
- * TRIM HORIZONTAL AND VERTICAL REINFORCEMENT 3" CLR. FROM PIPE OPENING AT NEEDED LOCATIONS.

BILL OF MATERIAL						
DIMENSIONS ARE OUT TO OUT						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
A1	13	#5	2	7'-4"	99	
A2	13	#4	2	7'-5"	101	
C1	26	#5	STR	7'-8"	208	
C2	34	#5	STR	11'-6"	408	
C3	8	#5	STR	6'-10"	57	
D1	32	#5	STR	7'-10"	261	
D2	42	#5	1	13'-3"	580	
D3	10	#5	4	8'-9"	91	
H1	64	#5	3	9'-8"	645	
H2	64	#5	3	7'-8"	512	
H3	62	#5	STR	4'-10"	313	
H4	62	#5	STR	3'-10"	248	
F1	10	#5	5	3'-0"	31	
F2	10	#5	5	3'-5"	36	
G	10	#4	6	4'-3"	28	
K	3	#5	8	9'-2"	29	
M	8	#6	STR	5'-0"	60	
T1	24	#4	STR	3'-11"	63	
T2	2	#4	7	5'-9"	8	
T3	2	#4	7	6'-3"	8	
REINFORCING STEEL FOR TOP SLAB & WALLS AND BOTTOM SLAB					3790 LBS.	

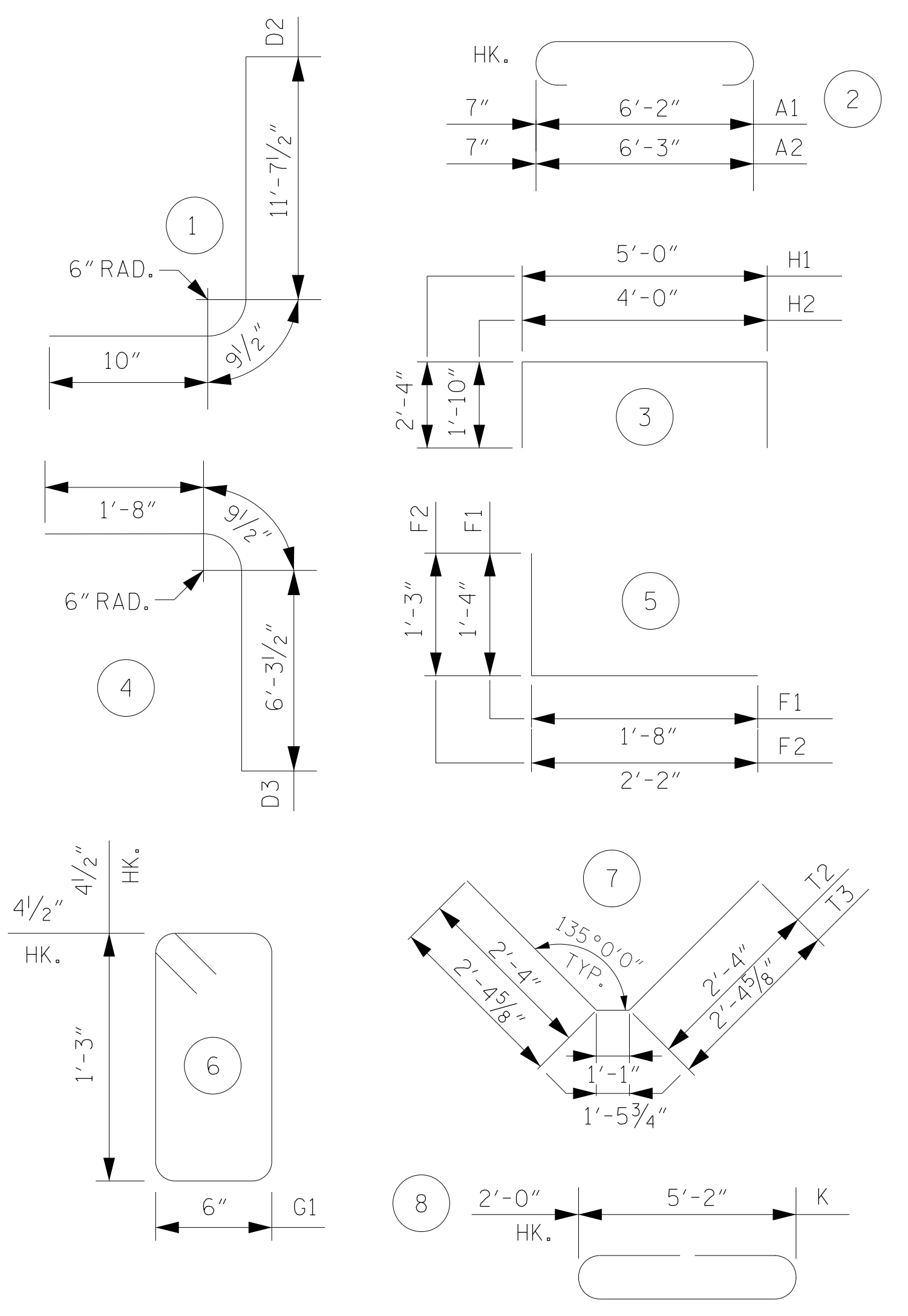


STRUCTURE PLAN



PLAN OF BOTTOM SLAB

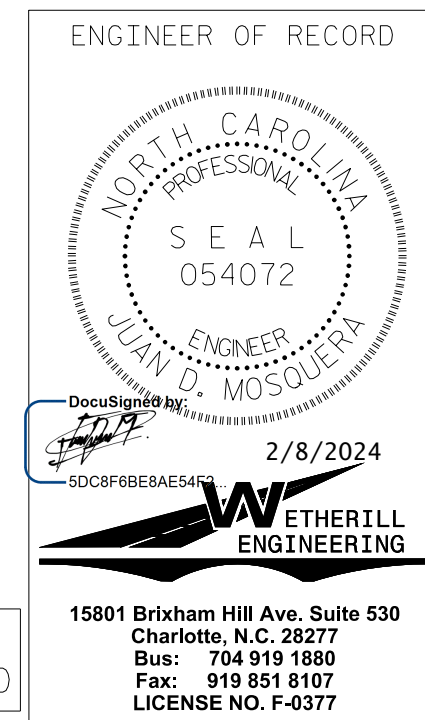
BAR TYPES



STRUCTURE QUANTITIES

REINFORCING STEEL FOR TOP SLAB & WALLS AND BOTTOM SLAB	3790 LBS.
CLASS A CONCRETE	
1 TOP SLAB & 4 WALLS	9.2 C.Y.
1 BOTTOM SLAB	1.3 C.Y.
TOTAL	10.5 C.Y.

PROJECT NO. I-2513 AA/AB
BUNCOMBE COUNTY
 STATION: 93+39 LEFT



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**SPECIAL JUNCTION
 BOX FOR TRAFFIC
 BEARING DROP INLET
 NO. 0905**

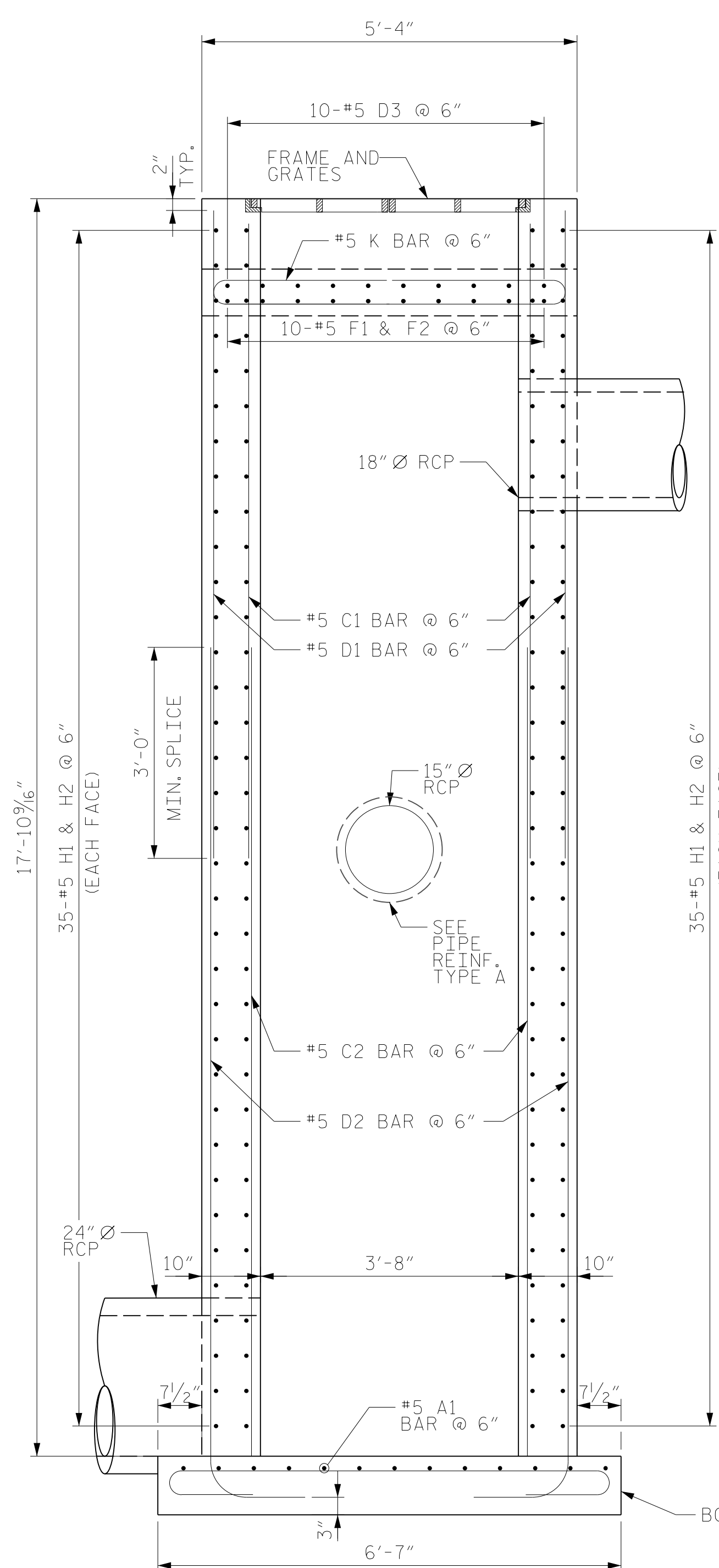
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NO.	BY:	DATE:	NO.	BY:	DATE:	20-11
1			3			TOTAL SHEETS
2			4			3

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

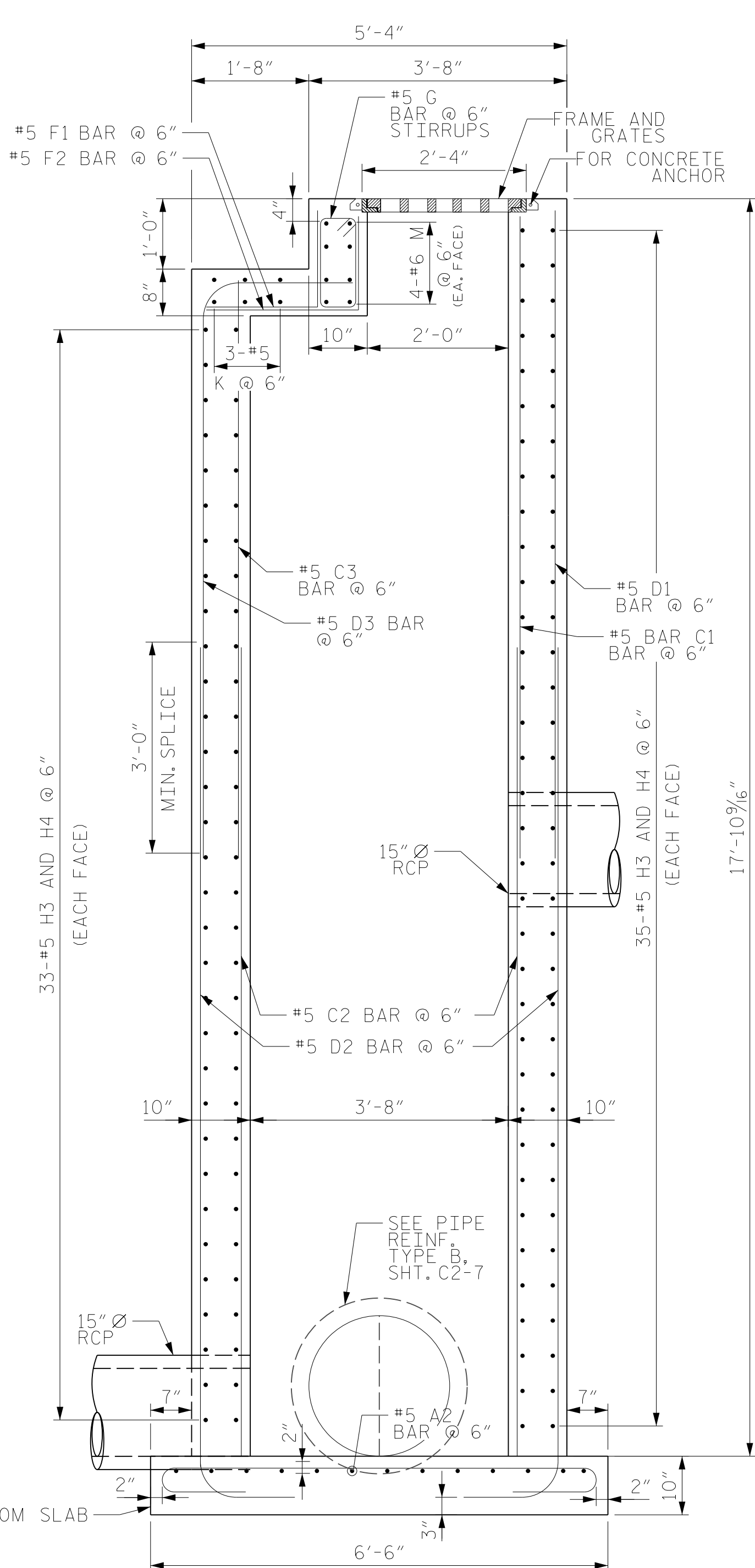
15801 Brixham Hill Ave, Suite 530
 Charlotte, N.C. 28277
 Bus: 704 919 1880
 Fax: 919 851 8107
 LICENSE NO. F-0377

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 \$TIME\$

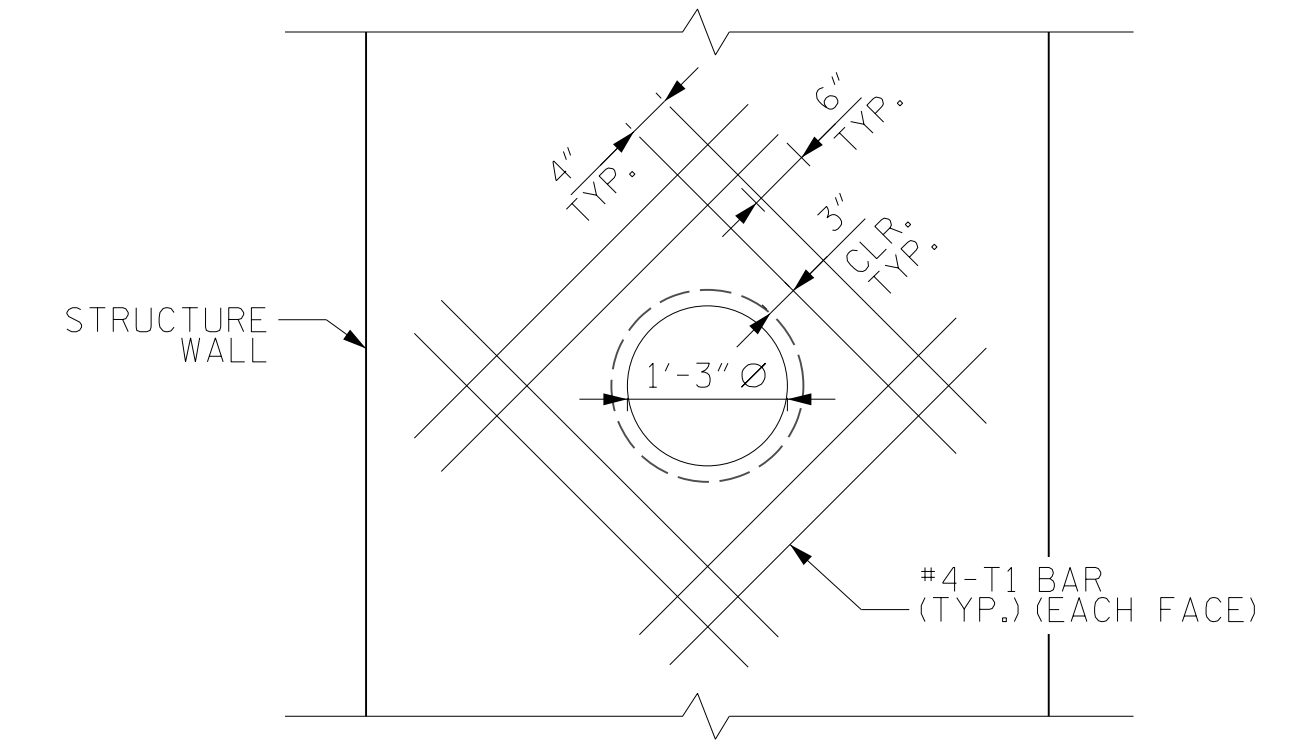
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 CHECKED BY: J. DILWORTH DATE: 9/13/2023



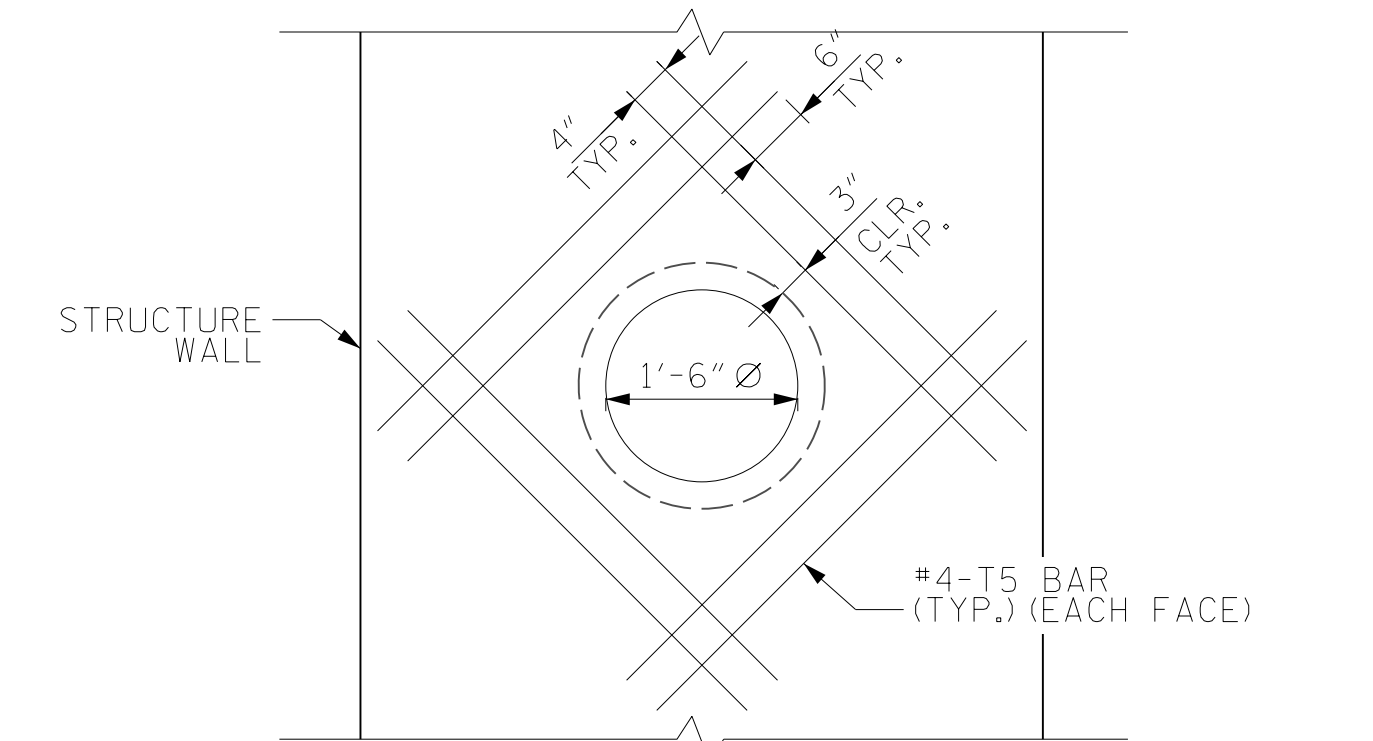
SECTION X-X



SECTION Y-Y



PIPE REINFORCEMENT TYPE A

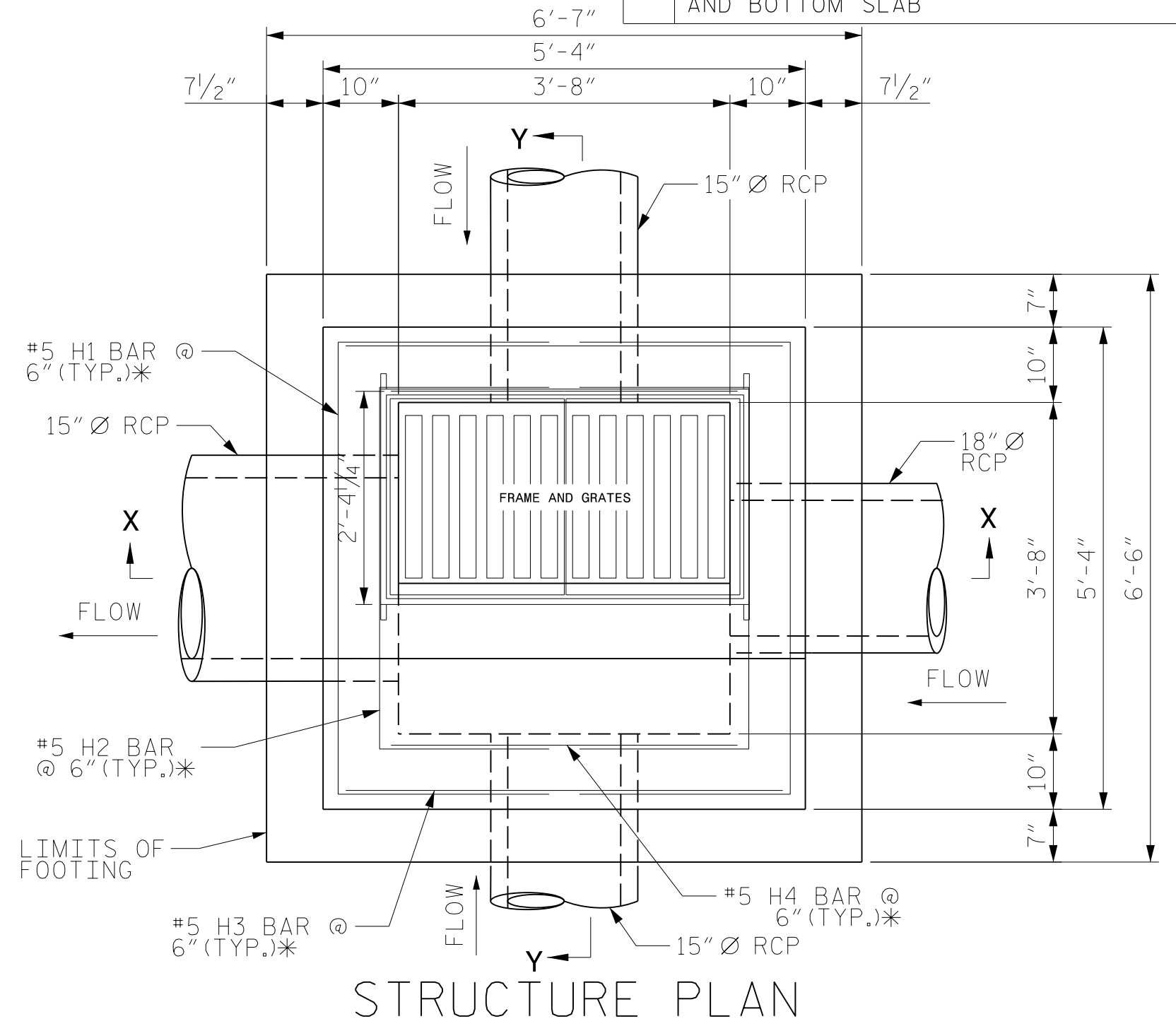


PIPE REINFORCEMENT TYPE B

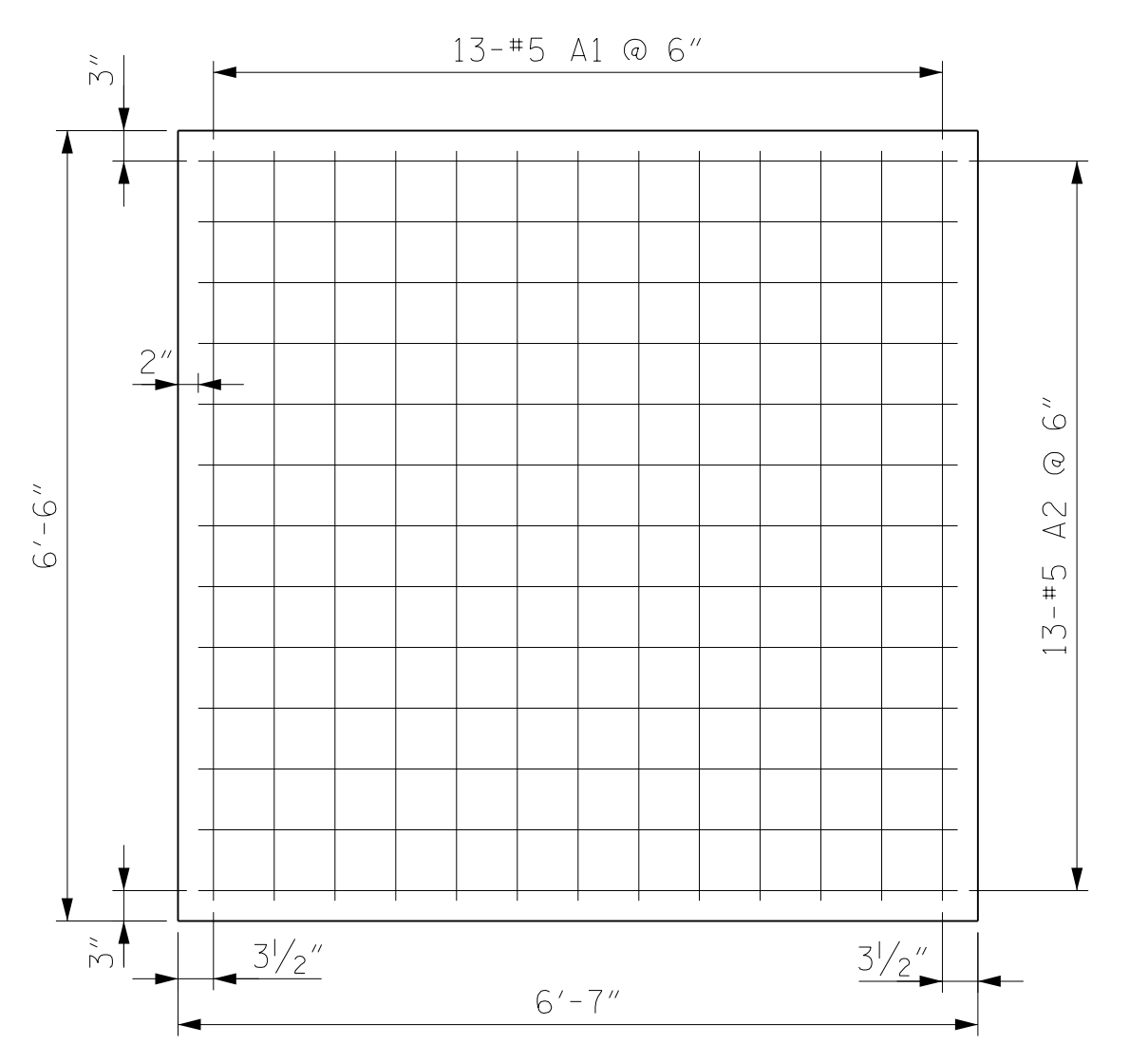
GENERAL NOTES:

1. USE CLASS 'AA' CONCRETE FOR CAST IN PLACE CONCRETE BOX WALLS AND BOTTOM SLAB.
 2. CHAMFER ALL EXPOSED CONCRETE CORNERS 1" DEEP WITH STEPS SPACED 12" ON CENTER AS DIRECTED BY STD. DWG. 840.66.
 3. USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
 4. REFERENCE STD. DWG. 840.25 FOR FRAME ANCHORAGE.
 5. PROVIDE GRATED DROP INLETS OVER 3'-6" DEEP WITH STEPS SPACED 12" ON CENTER AS DIRECTED BY STD. DWG. 840.66.
 6. FRAME AND GRATES ARE SEPARATE CONTRACT ITEMS.
 7. T2, T3 AND T4 BAR TYPES CORRESPOND TO TYPE 3 & 5 ON SHEET 2C-7.
- * TRIM HORIZONTAL AND VERTICAL REINFORCEMENT 3" CLR. FROM PIPE OPENING AT NEEDED LOCATIONS.

BILL OF MATERIAL					
DROPPED INLET STRUCTURE NO.1012					
DIMENSIONS ARE OUT TO OUT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	13	#5	2	7'-4"	99
A2	13	#5	2	7'-5"	101
C1	26	#5	STR	9'-1"	246
C2	34	#5	STR	11'-6"	408
C3	8	#5	STR	8'-3"	69
D1	32	#5	STR	9'-3"	309
D2	42	#5	1	13'-2"	580
D3	10	#5	4	10'-2"	106
H1	70	#5	3	7'-8"	706
H2	70	#5	3	7'-8"	560
H3	68	#5	STR	4'-10"	343
H4	68	#5	STR	3'-10"	272
F1	10	#5	5	3'-0"	31
F2	10	#5	5	3'-5"	36
G	10	#4	6	4'-3"	28
K	3	#5	7	9'-2"	29
M	8	#6	STR	5'-0"	60
T1	16	#4	STR	3'-10"	41
T2	2	#4	3	6'-4"	8
T3	2	#4	3	5'-10"	8
T4	8	#4	5	5'-5"	29
T5	16	#4	STR	4'-2"	45
REINFORCING STEEL FOR TOP SLAB & WALLS AND BOTTOM SLAB					4070 LBS.

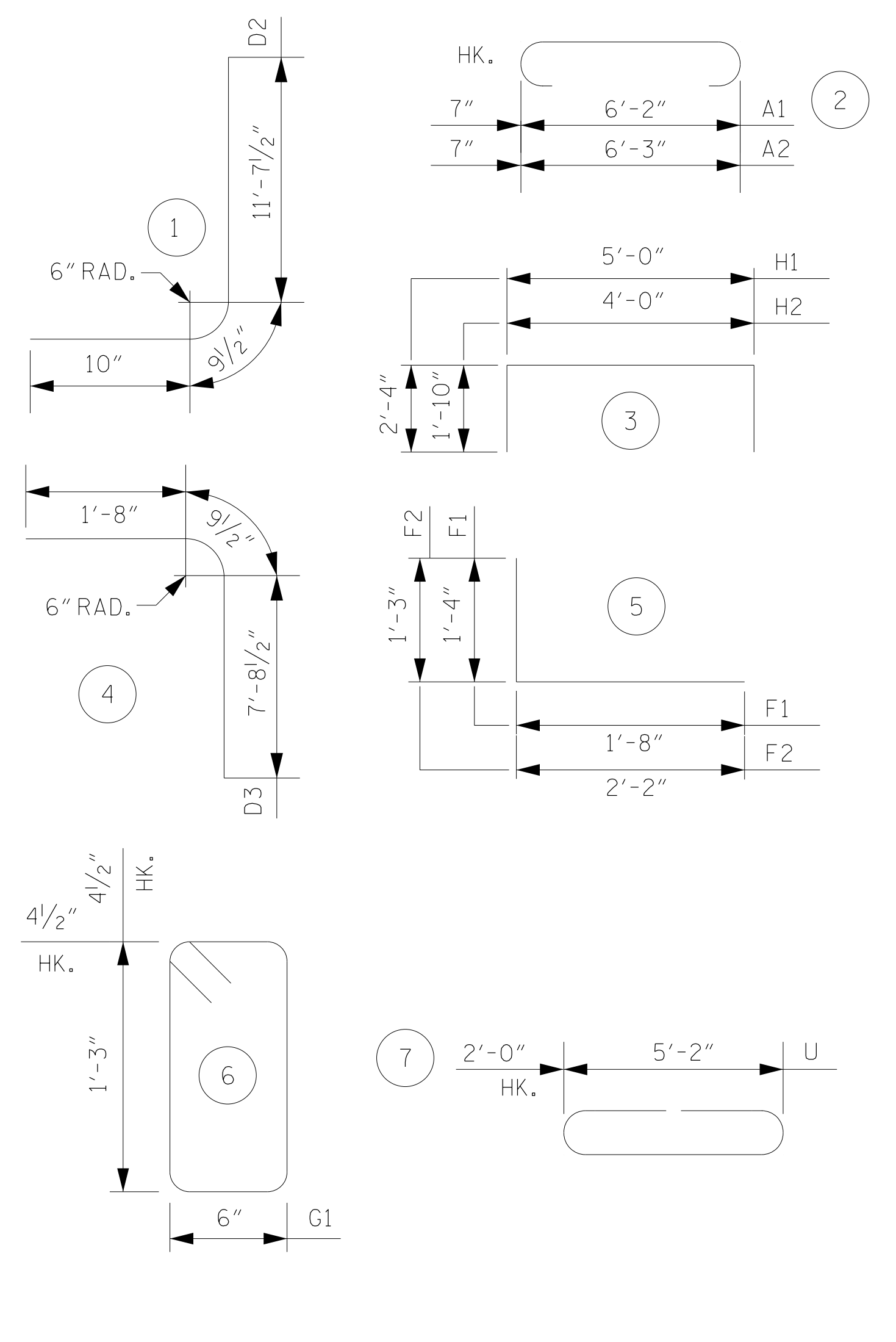


STRUCTURE PLAN



PLAN OF BOTTOM SLAB

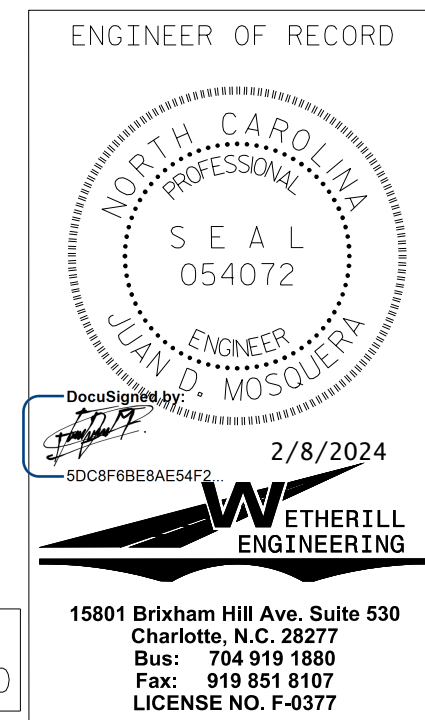
BAR TYPES



STRUCTURE QUANTITIES

REINFORCING STEEL FOR TOP SLAB & WALLS AND BOTTOM SLAB		4070 LBS.
CLASS A CONCRETE		
1 TOP SLAB & 4 WALLS		9.8 C.Y.
1 BOTTOM SLAB		1.3 C.Y.
TOTAL		11.1 C.Y.

PROJECT NO. I-2513 AA/AB
 BUNCOMBE COUNTY
 STATION: 93+39 LEFT



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SPECIAL JUNCTION
 BOX FOR TRAFFIC
 BEARING DROP INLET
 NO. 1012

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

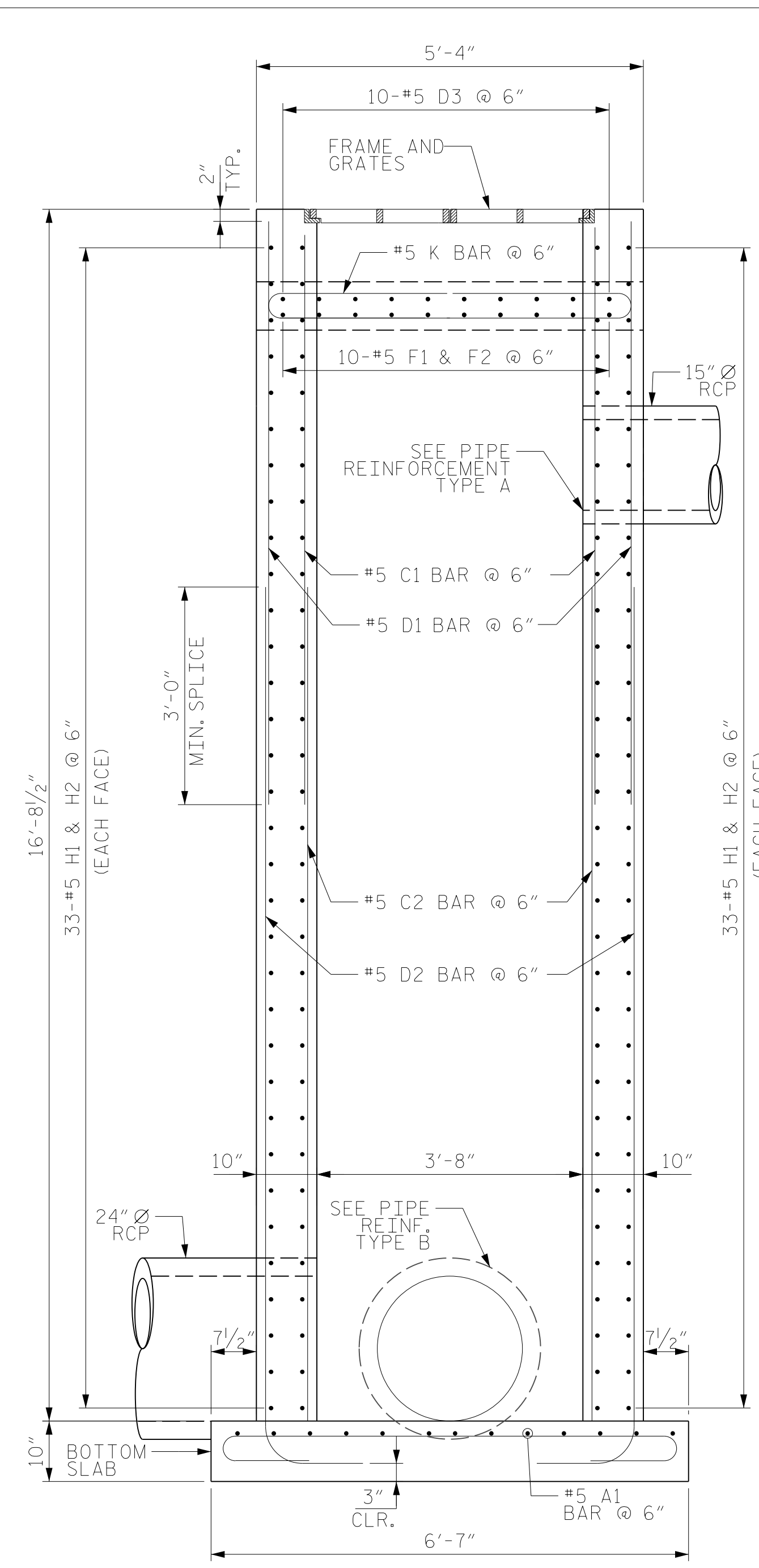
SHEET NO.
 2D-12
 TOTAL SHEETS
 3

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

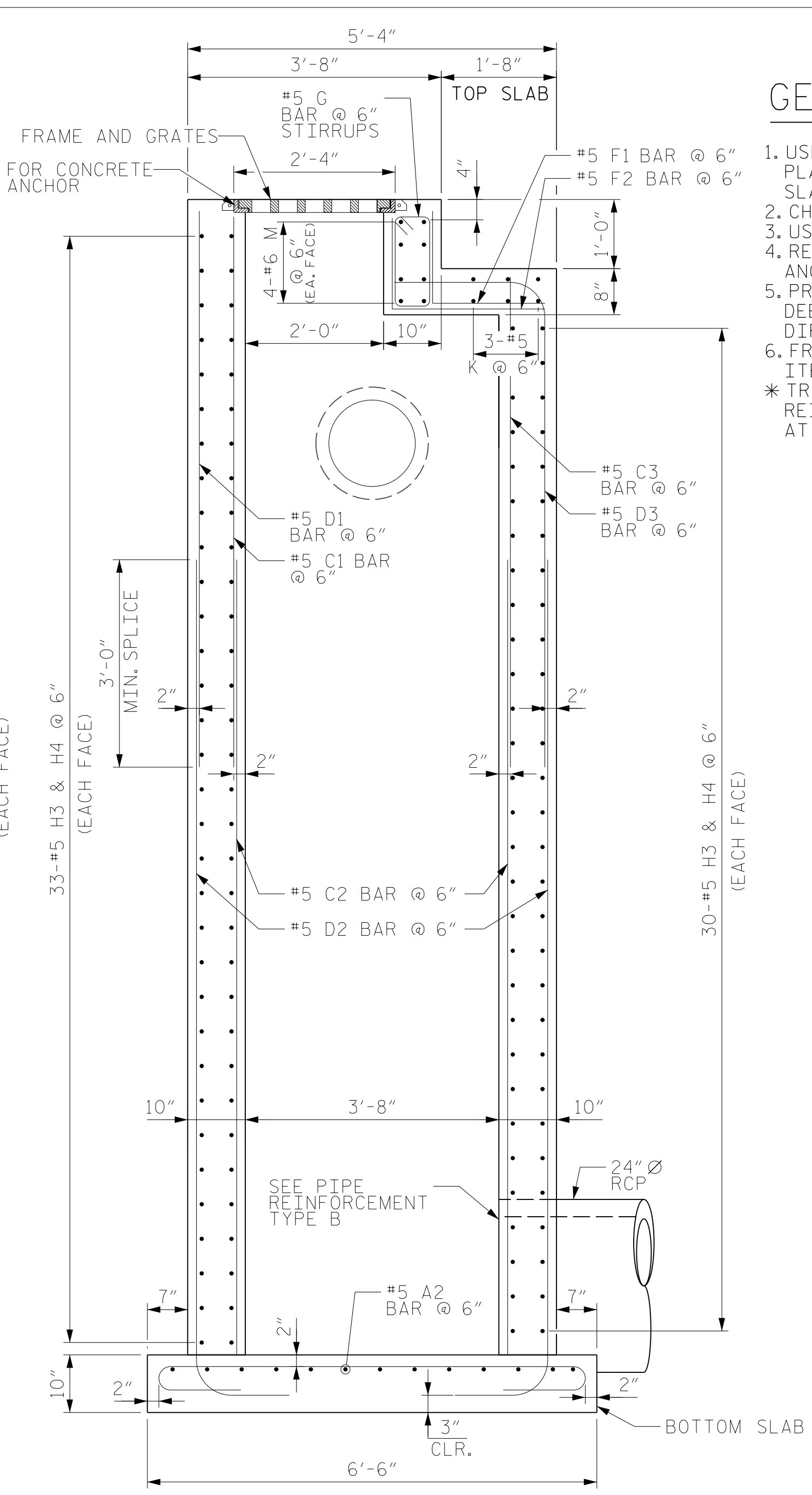
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DRAWN BY : B. GONZALEZ DATE : 9/13/2023
 CHECKED BY : D. MOSQUERA DATE : 9/13/2023

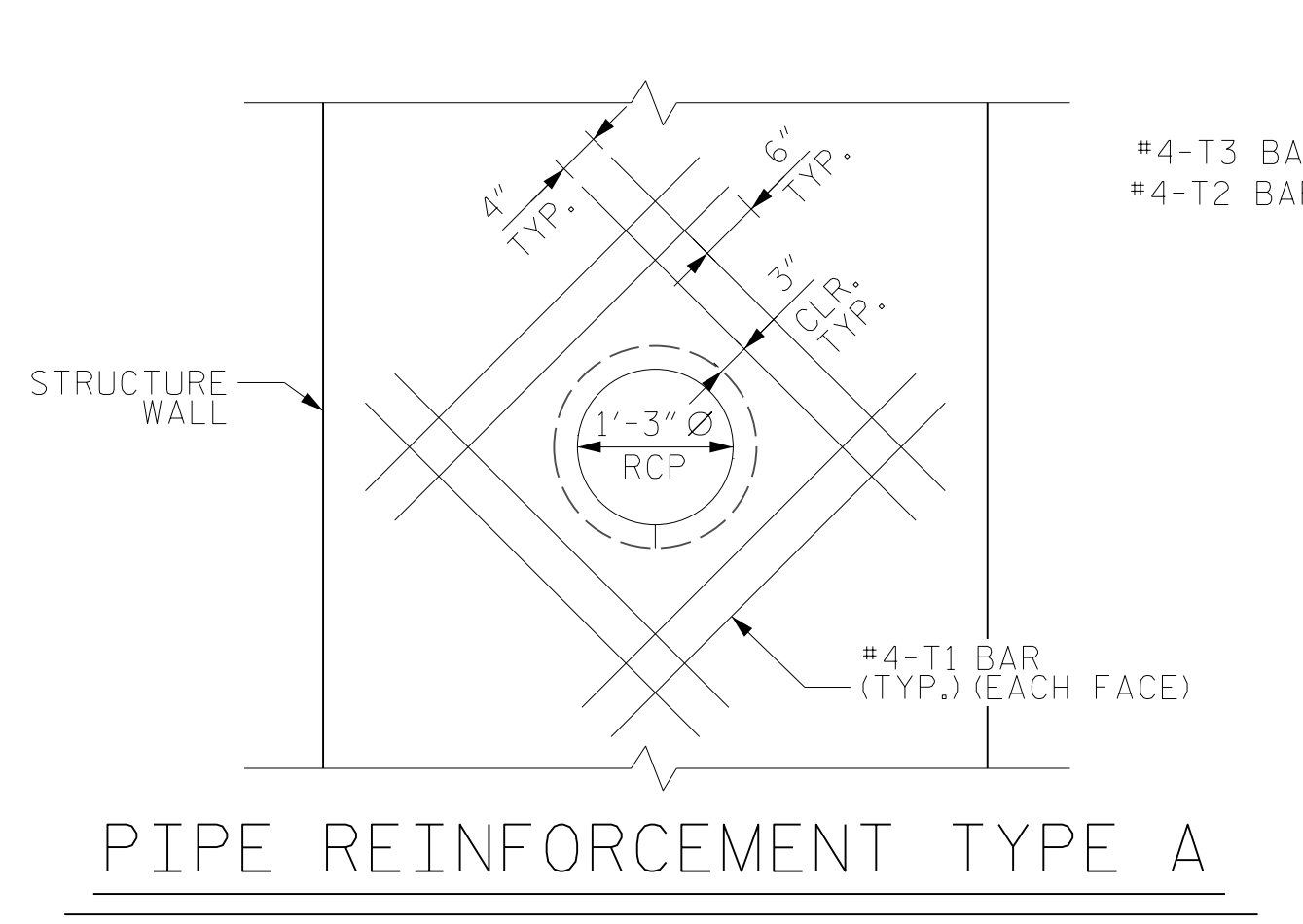
15801 Brixham Hill Ave, Suite 530
 Charlotte, N.C. 28277
 Bus: 704.919.1880
 Fax: 919.851.8107
 LICENSE NO. F-0377



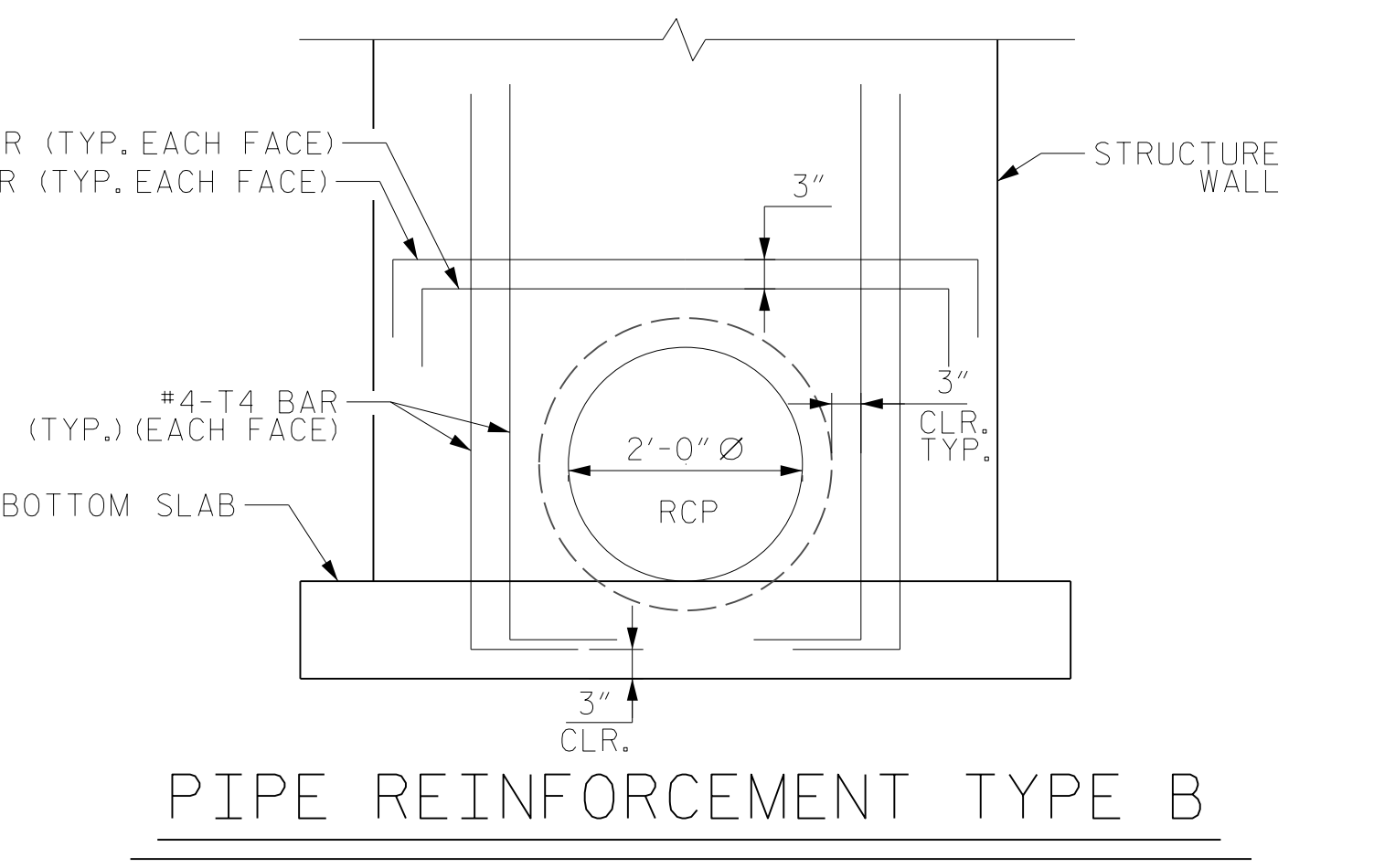
SECTION X-X



SECTION Y-Y



PIPE REINFORCEMENT TYPE A



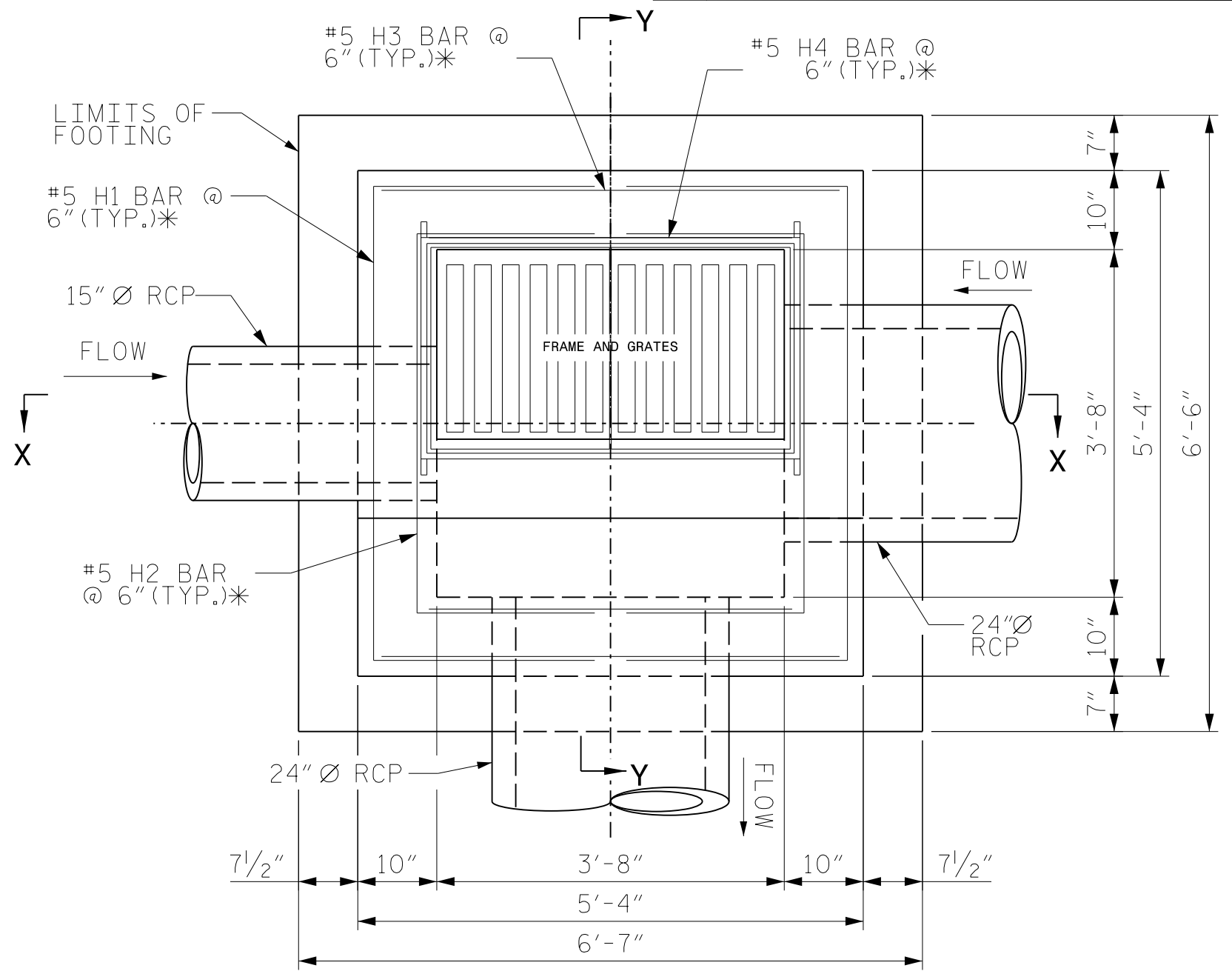
PIPE REINFORCEMENT TYPE B

GENERAL NOTES:

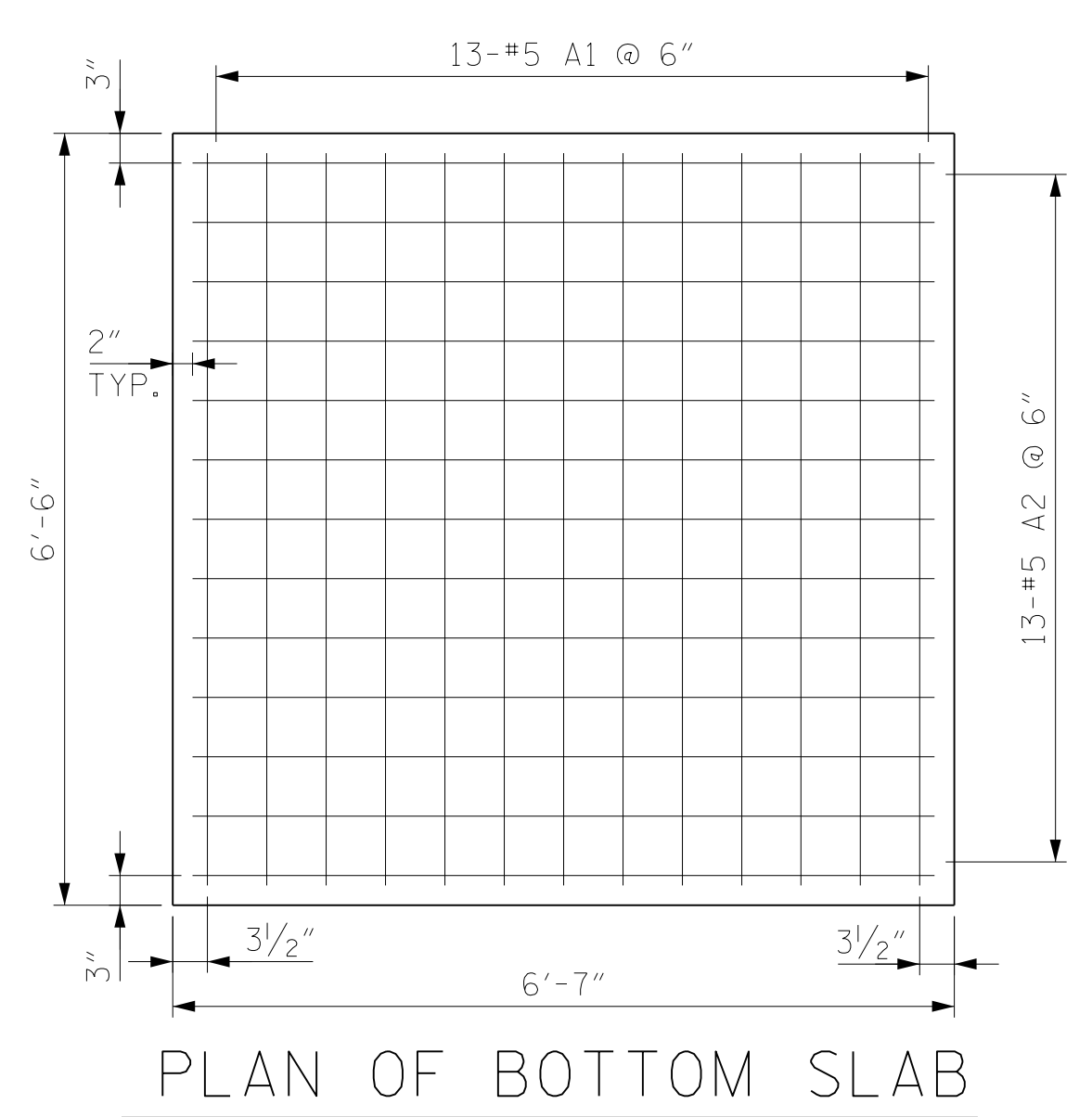
1. USE CLASS 'AA' CONCRETE FOR CAST IN PLACE CONCRETE BOX WALLS AND BOTTOM SLAB.
 2. CHAMFER ALL EXPOSED CONCRETE CORNERS 1" DEEP WITH STEPS SPACED 12" ON CENTER AS DIRECTED BY STD. DWG. 840.66.
 3. USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
 4. REFERENCE STD. DWG. 840.25 FOR FRAME ANCHORAGE.
 5. PROVIDE GRATED DROP INLETS OVER 3'-6" DEEP WITH STEPS SPACED 12" ON CENTER AS DIRECTED BY STD. DWG. 840.66.
 6. FRAME AND GRATES ARE SEPARATE CONTRACT ITEMS.
- * TRIM HORIZONTAL AND VERTICAL REINFORCEMENT 3" CLR. FROM PIPE OPENING AT NEEDED LOCATIONS.

BILL OF MATERIAL					
DROPPED INLET STRUCTURE NO. 1013					
DIMENSIONS ARE OUT TO OUT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	13	#5	2	7'-4"	99
A2	13	#4	2	7'-5"	101
C1	26	#5	STR	7'-11"	215
C2	34	#5	STR	11'-6"	408
C3	8	#5	STR	7'-2"	60
D1	32	#5	STR	8'-1"	270
D2	42	#5	1	13'-3"	580
D3	10	#5	4	9'-0"	94
H1	66	#5	3	9'-8"	665
H2	66	#5	3	7'-8"	528
H3	63	#5	STR	4'-10"	318
H4	63	#5	STR	3'-10"	252
F1	10	#5	5	3'-0"	31
F2	10	#5	5	3'-5"	36
G	10	#4	6	4'-3"	28
K	3	#5	7	9'-2"	29
M	8	#6	STR	5'-0"	60
T1	16	#4	STR	3'-10"	41
T2	4	#4	3	6'-4"	17
T3	4	#4	3	5'-10"	16
T4	16	#4	5	5'-5"	58

REINFORCING STEEL FOR TOP SLAB & WALLS AND BOTTOM SLAB 3910 LBS.

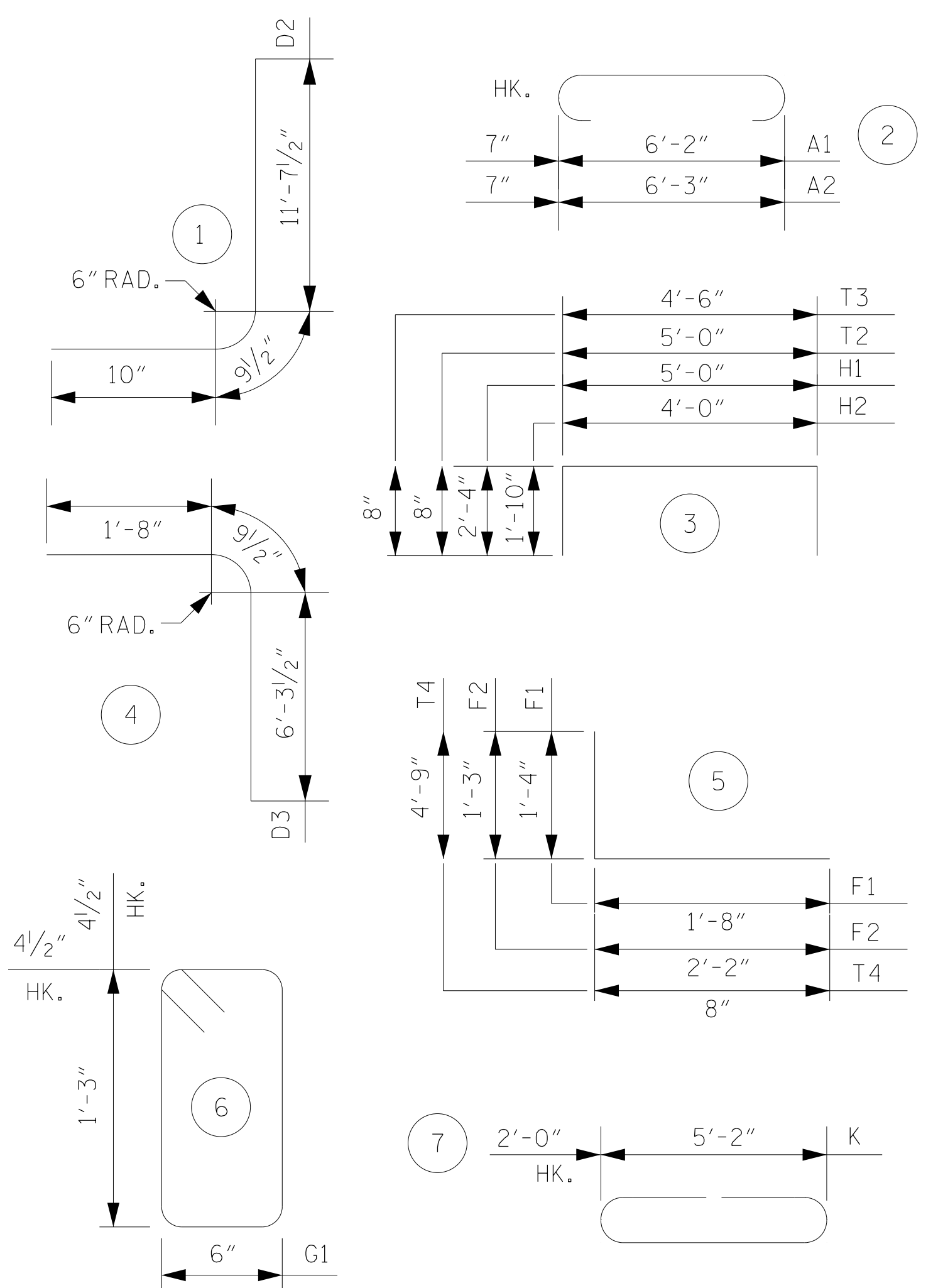


STRUCTURE PLAN



PLAN OF BOTTOM SLAB

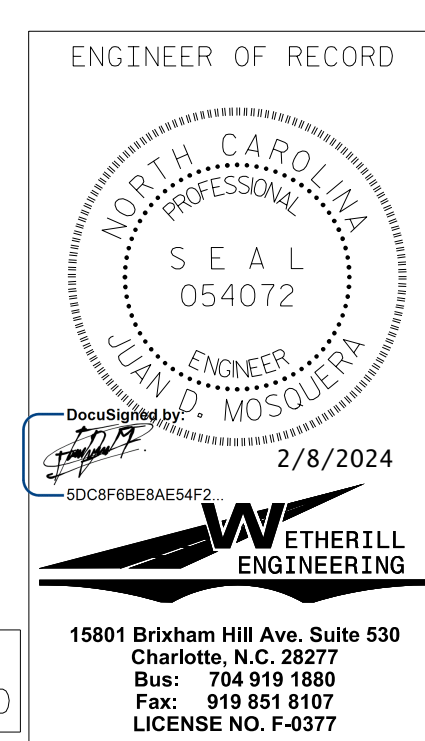
BAR TYPES



STRUCTURE QUANTITIES

REINFORCING STEEL FOR TOP SLAB & WALLS AND BOTTOM SLAB		3910 LBS.
CLASS A CONCRETE		
1 TOP SLAB & 4 WALLS		9.2 C.Y.
1 BOTTOM SLAB		1.3 C.Y.
TOTAL		10.5 C.Y.

PROJECT NO. I-2513 AA/AB
BUNCOMBE COUNTY
 STATION: 93+39 LEFT



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**SPECIAL JUNCTION
 BOX FOR TRAFFIC
 BEARING DROP INLET
 NO. 1013**


REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

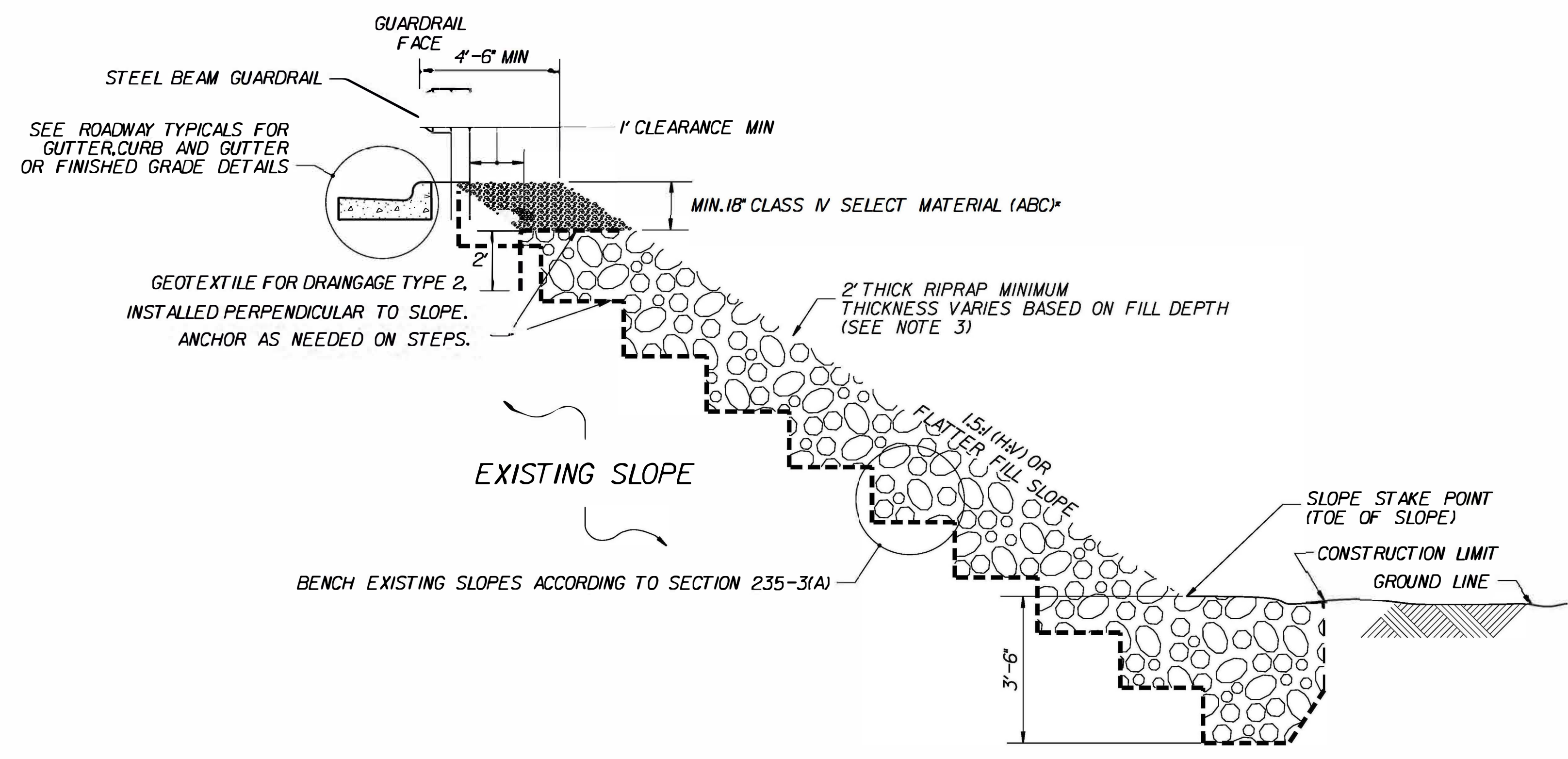
SHEET NO.
 2D-13
 TOTAL SHEETS
 3

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DRAWN BY: D. MOSQUERA DATE: 9/13/2023
 CHECKED BY: J. DILWORTH DATE: 9/13/2023

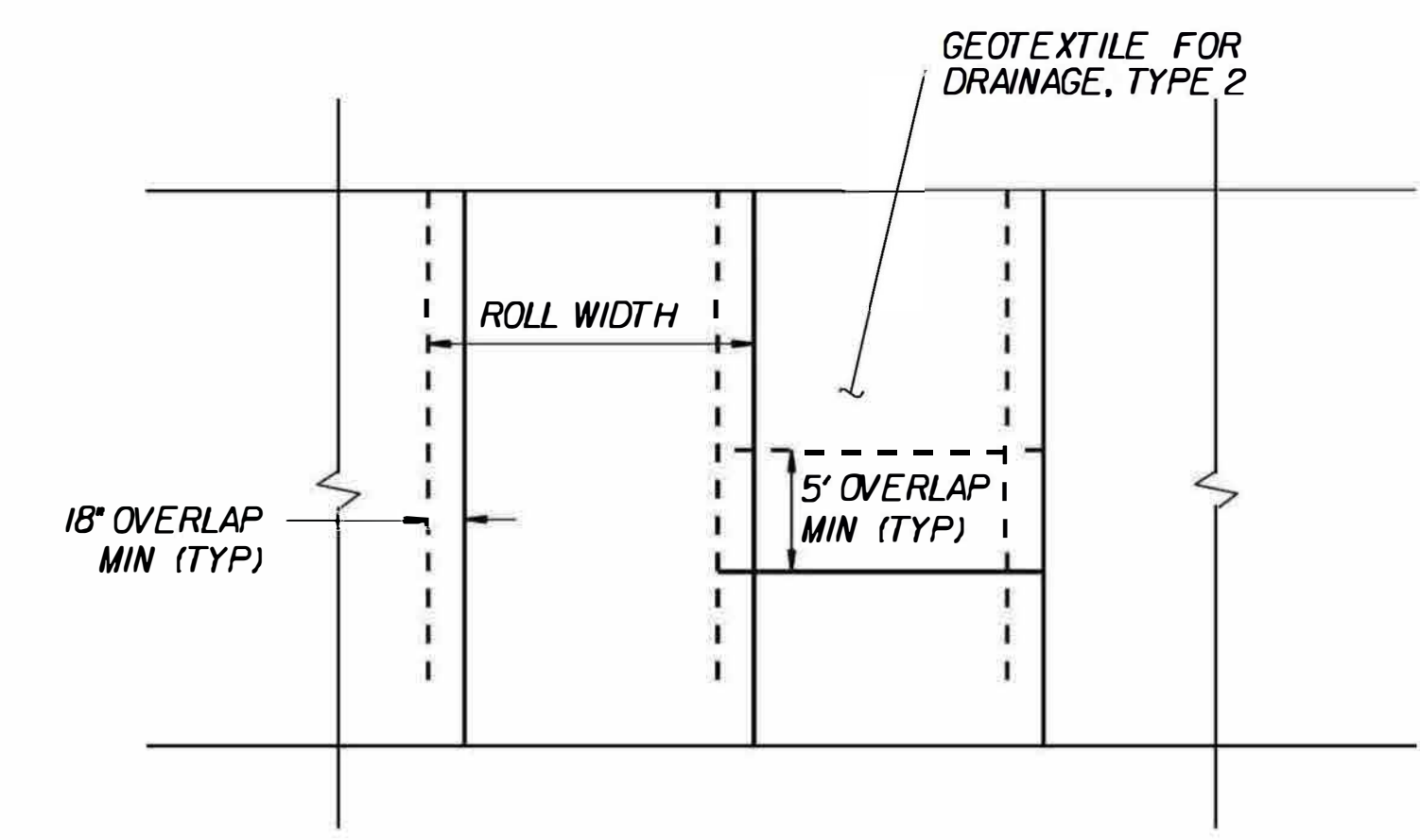
15801 Brixham Hill Ave, Suite 530
 Charlotte, N.C. 28277
 Bus: 704 919 1880
 Fax: 919 851 8107
 LICENSE NO. F-0377

PROJECT REFERENCE NO. I-2513AA/AB	SHEET NO. 2G-1
PROFESSIONAL ENGINEER  DATE: 2/12/2024 SIGNATURE: <i>Douglas Anthony Campbell</i>	ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



ROCK FILL STEEPENED SLOPE SECTION DETAIL

* MINIMUM 18" CLASS IV SELECT MATERIAL.
ACTUAL DEPTH WILL BE VARIABLE AND DEPENDENT ON GUARDRAIL FOUNDATIONS.



**GEOTEXTILE OVERLAP DETAIL
(PLAN VIEW)**

NOTES: RIP RAP, CLASS II

- USE UNLESS REQUIRED OTHERWISE IN THE ROADWAY SUMMARY SHEETS.
- USE ROCK FILL AT FOLLOWING LOCATIONS:

ESTIMATED QUANTITIES FOR ROCK FILL STEEPENED SLOPE SECTION								
LINES	BEGINNING SLOPE	APPROX. STATION	ENDING SLOPE	APPROX. STATION	LOCATION LT/RT	GEOTEXTILE FOR DRAINAGE, SY	RIP RAP CLASS II TONS*	SELECT MATERIAL CLASS IV TONS**
-L1_EB-	1.75:1	59+50	1.75:1	60+50	LT	1,650	5,500	65

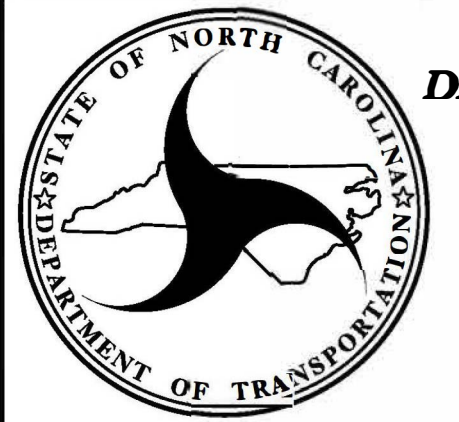
- *BASED ON UNIT WEIGHT OF 105 PCF.
**BASED ON MINIMUM 18" DEPTH.
- BASED ON ROADWAY DESIGN FILES, UP TO 8 FEET OF ROCK FILL SHOULD BE ANTICIPATED.

PREPARED BY: EAM	DATE: 08/23
REVIEWED BY: DC	DATE: 08/23

Prepared in the Office of:



CHARLOTTE, NC 28217
(704) 525-5152 [PHONE]
(704) 357-0023 [FAX]
NC REGISTERED ENGINEERING FIRM # F-1078




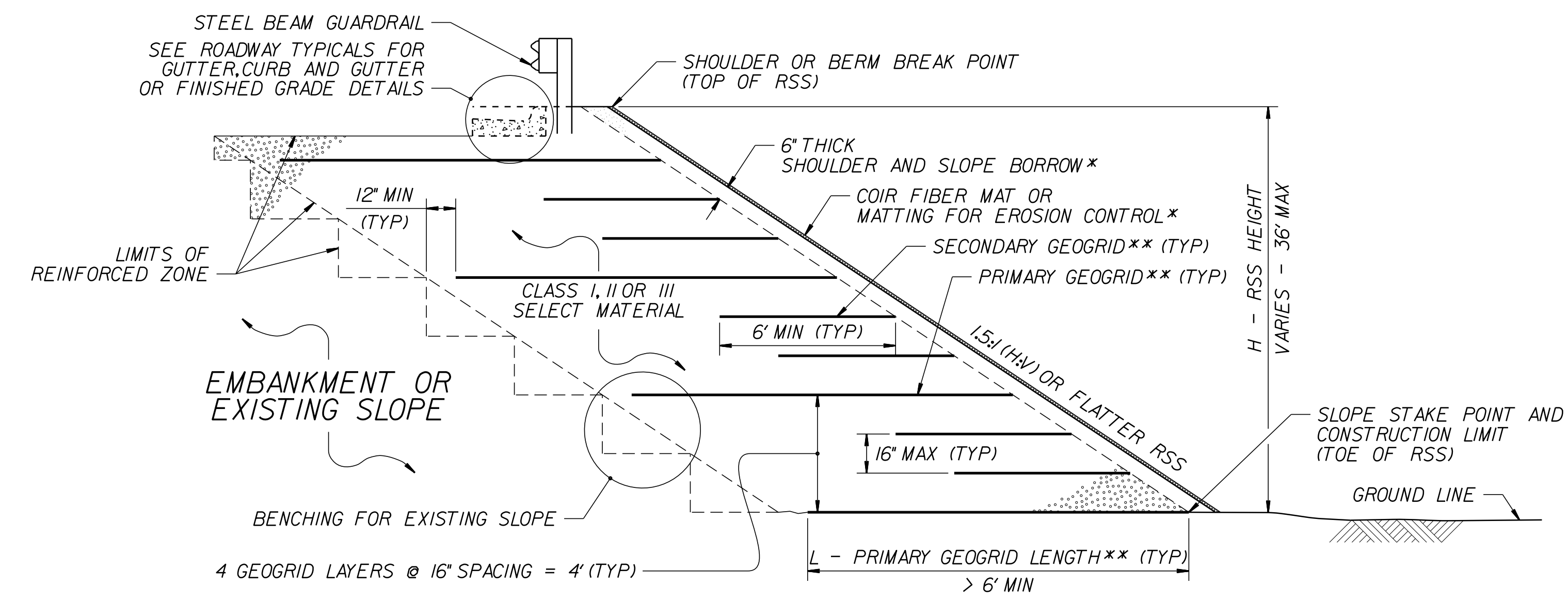
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**GEOTECHNICAL
ENGINEERING UNIT**

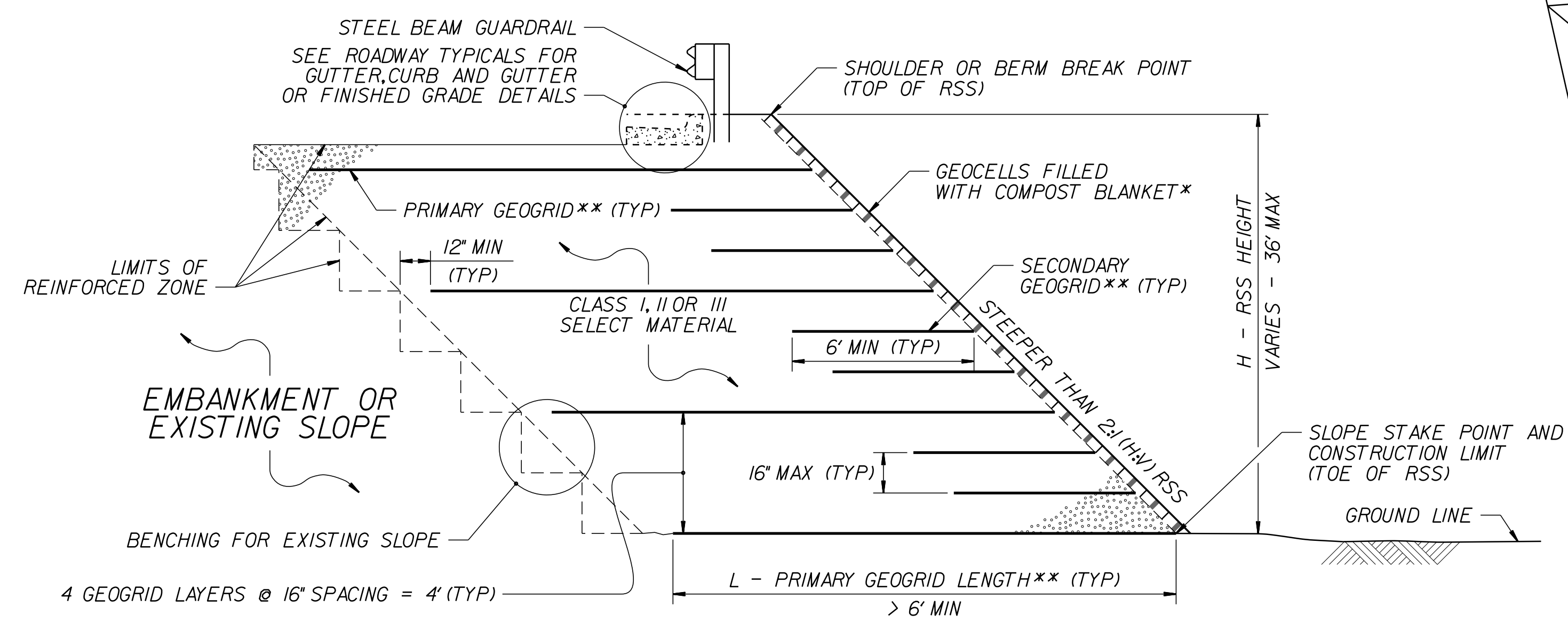
ROCK FILL
STEEPENED SLOPE SECTION
-L1_EB- STA. 59+50 to 60+50, LT

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

PROJECT REFERENCE NO. I-2513AA/AB	SHEET NO. 2G-2
GEOTECHNICAL ENGINEER  Documented by: Kelly De Montbrun DATE: 9/15/2023 SIGNATURE: _____ DATE: _____	ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

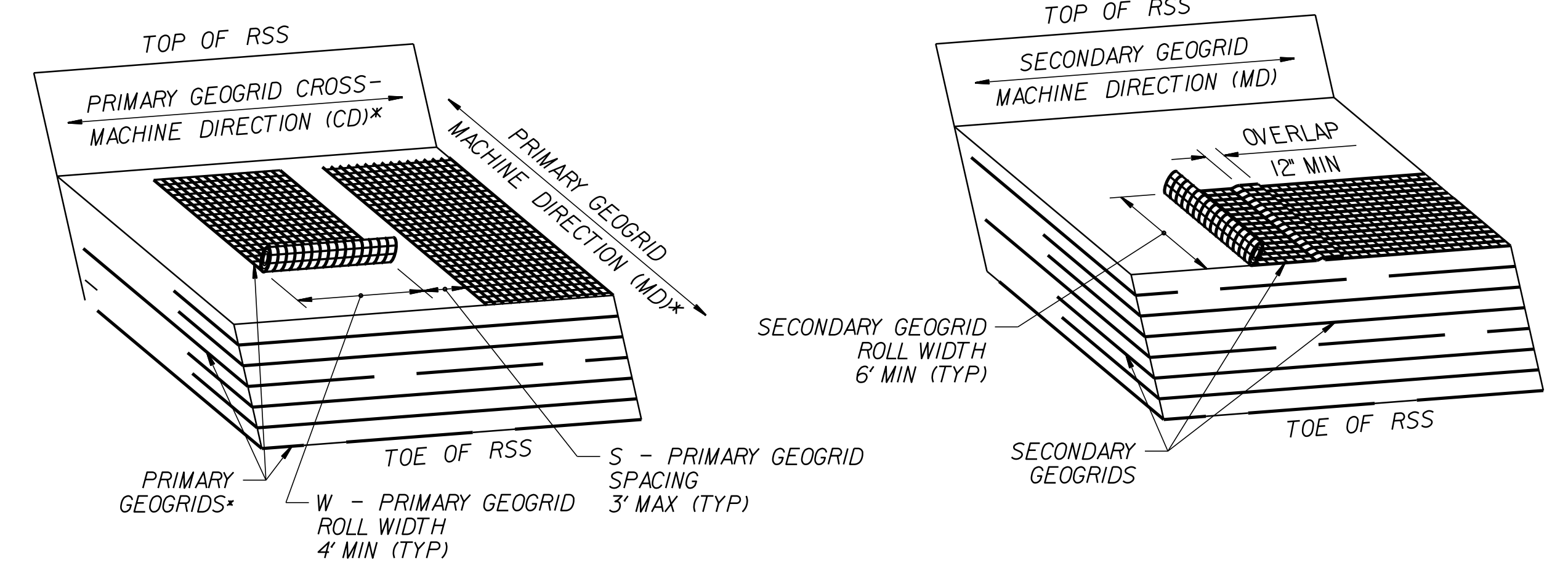


MATTING WITH SHOULDER AND SLOPE BORROW
*SEE NOTES 3 AND 10 ON SHEET 2.



GEOCELLS WITH COMPOST BLANKET
*SEE NOTES 3 AND 10 ON SHEET 2.

****SEE TABLES ON SHEET 2 AND GEOGRID PLACEMENT DETAILS. IF RSS ANGLE IS 2:1 (H:V) OR FLATTER, REPLACE PRIMARY GEOGRID WITH SECONDARY GEOGRID PLACED AS SHOWN IN THE GEOGRID PLACEMENT DETAILS.**



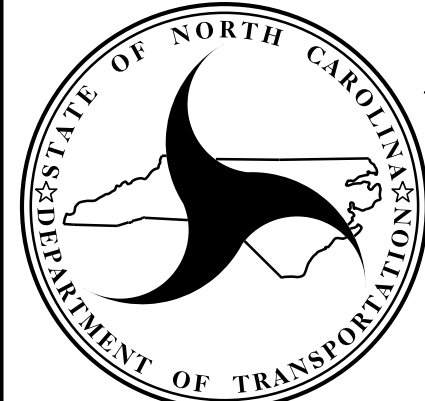
GEOGRID PLACEMENT DETAILS
 $(\% \text{ COVERAGE} = \frac{W}{W+S} \times 100 \geq 75\%)$
***SEE NOTE 8 ON SHEET 2. DO NOT OVERLAP PRIMARY GEOGRIDS IN ANY DIRECTION.**

STANDARD REINFORCED SOIL SLOPE (RSS)
-Y_LT- STATION 59+50 TO 61+50, LT

Prepared in the Office of:



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 (704) 525-5152 [PHONE]
 (704) 357-0023 [FAX]
 NC REGISTERED ENGINEERING FIRM # F-1078



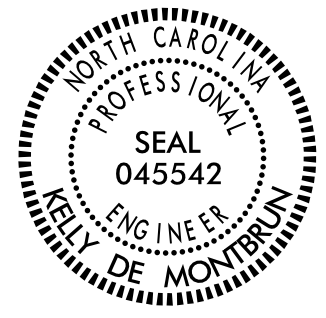
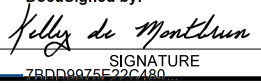
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1802.01

STANDARD REINFORCED SOIL SLOPE (RSS)
WITH HIGH GROUNDWATER
SHEET 1 OF 2

DATE: 12-17-19

PROJECT REFERENCE NO. I-2513AA/AB	SHEET NO. 2G-3
GEOTECHNICAL ENGINEER  ENGINEER	ENGINEER
DocuSigned by: 	9/15/2023 DATE
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

H (FT)	0 - < 12		12 - 24		> 24 - 36	
	I	II OR III	I	II OR III	I	II OR III
1:1 TO < 1.5:1 (H:V) RSS	900	500	1200	900	1800	1200
1.5:1 TO 1.75:1 (H:V) RSS	500	500	900	500	1400	1000
> 1.75:1 TO < 2:1 (H:V) RSS	500	500	600	500	1000	800

**MINIMUM REQUIRED PRIMARY GEOGRID
LONG-TERM DESIGN STRENGTH (LTDS, LB/FT) IN MACHINE DIRECTION (MD)**
(LTDS IS BASED ON 100% COVERAGE FOR PRIMARY GEOGRID.
SEE NOTE 8 FOR LESS THAN 100% COVERAGE.)

NOTES:

1. SEE EROSION CONTROL AND ROADWAY PLANS AND SUMMARY SHEETS FOR REINFORCED SOIL SLOPE (RSS) AND SLOPE EROSION CONTROL LOCATIONS.
2. FOR STANDARD REINFORCED SOIL SLOPES, SEE REINFORCED SOIL SLOPES PROVISION. FOR STEEL BEAM GUARDRAIL, SEE SECTION 862 OF THE STANDARD SPECIFICATIONS.
3. FOR SHOULDER AND SLOPE BORROW, SEE ARTICLE 1019-2 OF THE STANDARD SPECIFICATIONS. FOR GEOCELLS, SEE CELLULAR CONFINEMENT SYSTEMS PROVISION. FOR COIR FIBER MAT MATTING FOR EROSION CONTROL AND COMPOST BLANKET, SEE EROSION CONTROL PROVISIONS, SECTION 1631 OF THE STANDARD SPECIFICATIONS AND ROADWAY STANDARD DRAWING NO. 1631.01.
4. STANDARD RSS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, $\gamma = 120$ PCF
FRICTION ANGLE, $\phi = 30$ DEGREES
COHESION, $c = 0$ PSF
5. DO NOT USE STANDARD RSS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER OR FLOOD ELEVATION IS ABOVE TOE OF RSS.
6. DO NOT USE STANDARD RSS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW RSS.
7. PRIMARY GEOGRIDS ARE APPROVED FOR LTDS FOR A 75-YEAR DESIGN LIFE IN THE MD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Products.aspx
DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SELECT MATERIAL AS FOLLOWS:

MATERIAL TYPE	SELECT MATERIAL
BORROW	CLASS I SELECT MATERIAL
FINE AGGREGATE	CLASS II OR III SELECT MATERIAL

8. FOR PRIMARY GEOGRIDS WITH 100% COVERAGE, PLACE PRIMARY GEOGRIDS SO GEOGRIDS ARE ADJACENT TO EACH OTHER IN THE CD. FOR PRIMARY GEOGRIDS WITH 75% TO LESS THAN 100% COVERAGE,

 MINIMUM REQUIRED PRIMARY GEOGRID LTDS = LTDS BASED ON 100% COVERAGE $\times (W + S) / W$

 SEE TABLE FOR LTDS BASED ON 100% COVERAGE AND GEOGRID PLACEMENT DETAILS FOR PRIMARY GEOGRID ROLL WIDTH (W) AND SPACING (S). FOR PRIMARY GEOGRIDS WITH LESS THAN 100% COVERAGE, STAGGER PRIMARY GEOGRIDS SO GEOGRIDS ARE CENTERED OVER GAPS IN THE PRIMARY GEOGRID LAYER BELOW. DO NOT USE LESS THAN 75% COVERAGE FOR PRIMARY GEOGRIDS.
9. DO NOT PLACE ANY GEOGRIDS UNTIL EXCAVATION DIMENSIONS AND IN-SITU MATERIAL ARE APPROVED.
10. FOR SLOPE EROSION CONTROL, USE GEOCELLS OR MATTING ON SLOPE FACES OF RSS AS FOLLOWS:

RSS ANGLE	SLOPE EROSION CONTROL
1:1 TO < 1.5:1 (H:V)	GEOCELLS WITH COMPOST BLANKET
1.5:1 TO < 2:1 (H:V)	GEOCELLS WITH COMPOST BLANKET OR COIR FIBER MAT WITH SHOULDER AND SLOPE BORROW*
2:1 (H:V) OR FLATTER	MATting FOR EROSION CONTROL WITH SHOULDER AND SLOPE BORROW

*SEE REINFORCED SOIL SLOPES AND SLOPE EROSION CONTROL SUMMARY TABLE IN THE ROADWAY SUMMARY SHEETS FOR SLOPE EROSION CONTROL ON SLOPE FACES OF RSS 1.5:1 (H:V) TO STEEPER THAN 2:1.

11. FOR EMBANKMENT STABILITY, THE SUBGRADE SOILS SHOULD BE UNDERCUT TO FIRM MATERIAL OR A MINIMUM DEPTH OF 3 FEET PRIOR TO CONSTRUCTING THE RSS. GEOTEXTILE FOR SOIL STABILIZATION SHALL BE PLACED AT THE BOTTOM OF UNDERCUT PRIOR TO FILL PLACEMENT.
12. TEMPORARY DEWATERING MAY BE REQUIRED DURING UNDERCUTTING.
13. CLASS II OR III SELECT GRANULAR MATERIAL SHALL BE USED FOR UNDERCUT BACKFILL. FOR UNDERCUT BACKFILLING IN WATER, USE SELECT MATERIAL CLASS III.
14. REFER TO ECS GEOTECHNICAL REPORT - RECOMMENDATIONS DATED AUGUST 26, 2022 FOR ADDITIONAL INFORMATION.

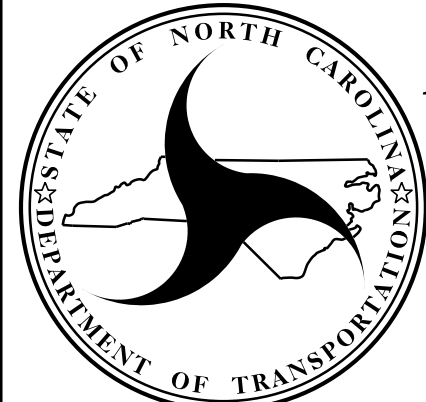
H (FT)	0 - < 12		12 - 24		> 24 - 36	
SELECT MATERIAL CLASS	I	II OR III	I	II OR III	I	II OR III
1:1 TO < 1.5:1 (H:V) RSS	1.25	1.20	1.15	1.10	1.10	1.00
1.5:1 TO 1.75:1 (H:V) RSS	1.10	1.00	0.95	0.90	0.90	0.85
> 1.75:1 TO < 2:1 (H:V) RSS	1.00	0.85	0.80	0.75	0.75	0.70

PRIMARY GEOGRID LENGTH / RSS HEIGHT (L / H) RATIO (L > 6' MIN)
(IF $L \leq 6'$, USE SECONDARY GEOGRID INSTEAD OF PRIMARY GEOGRID.)

Prepared in the Office of:



CHARLOTTE, NC 28217
(704) 525-5152 [PHONE]
(704) 357-0023 [FAX]
NC REGISTERED
ENGINEERING
FIRM # F-1078




**NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS**

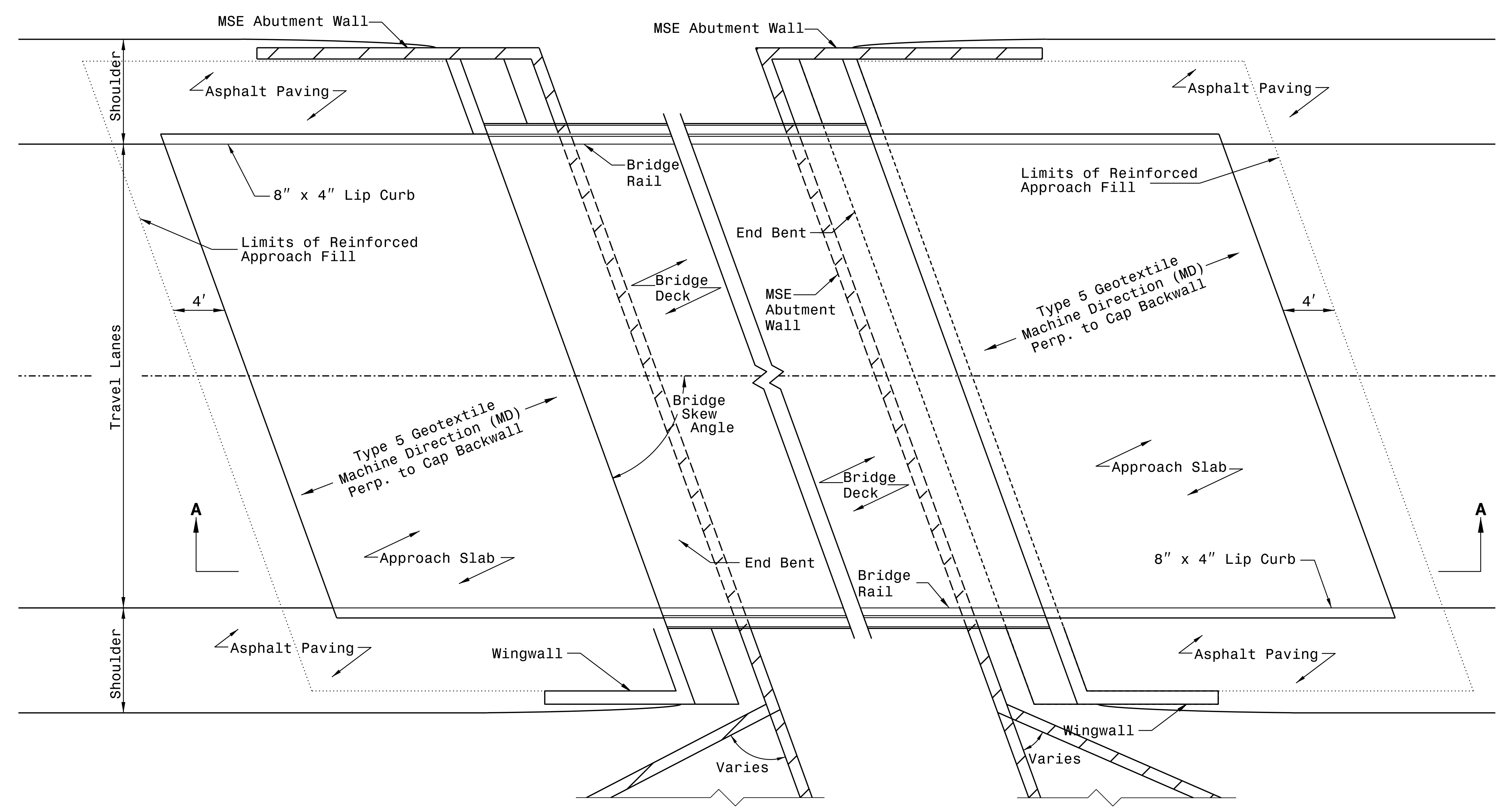
**GEOTECHNICAL
ENGINEERING UNIT**

STANDARD DETAIL NO. 1802.01

**STANDARD
REINFORCED SOIL SLOPE (RSS)
WITH HIGH GROUNDWATER
SHEET 2 OF 2**

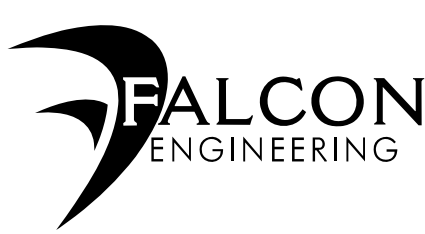
DATE: 12-17-19

PROJECT REFERENCE NO. I-2513AA		SHEET NO. 2G-4	
GEOTECHNICAL ENGINEER  DocuSigned by: Stephen Crockett 1/9/2024		ENGINEER _____ SIGNATURE DATE	
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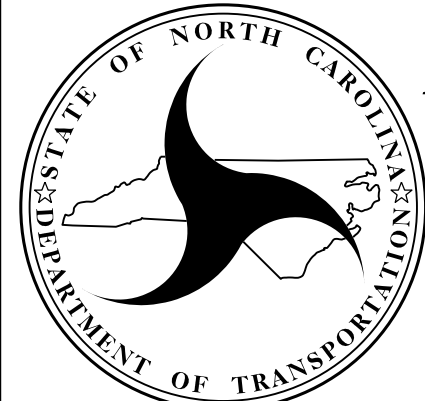


**PLAN VIEW
APPROACH SLAB**

PREPARED BY: CROCKETT, S.C.	DATE: 01/2024
REVIEWED BY: HAMM, J.R.	DATE: 01/2024



FALCON ENGINEERING, INC.
1210 TRINITY ROAD, SUITE 110
CARY, NC 27513
PHONE: 919.871.0800
www.falconengineers.com




**NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS**

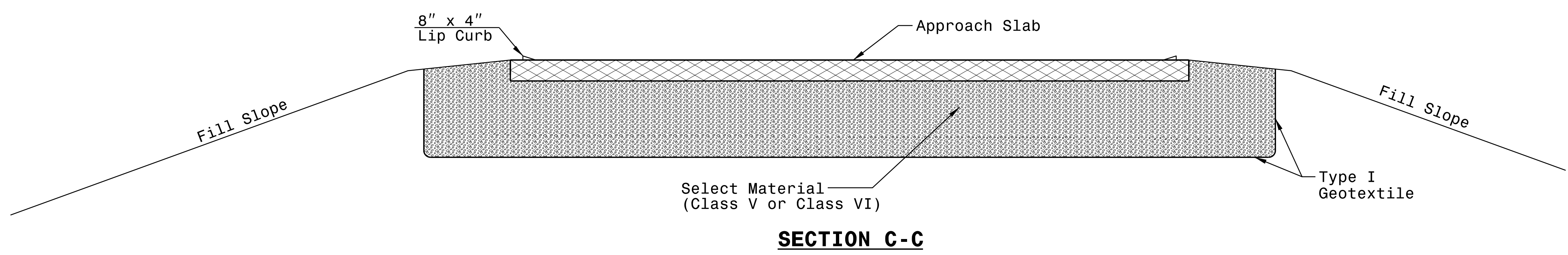
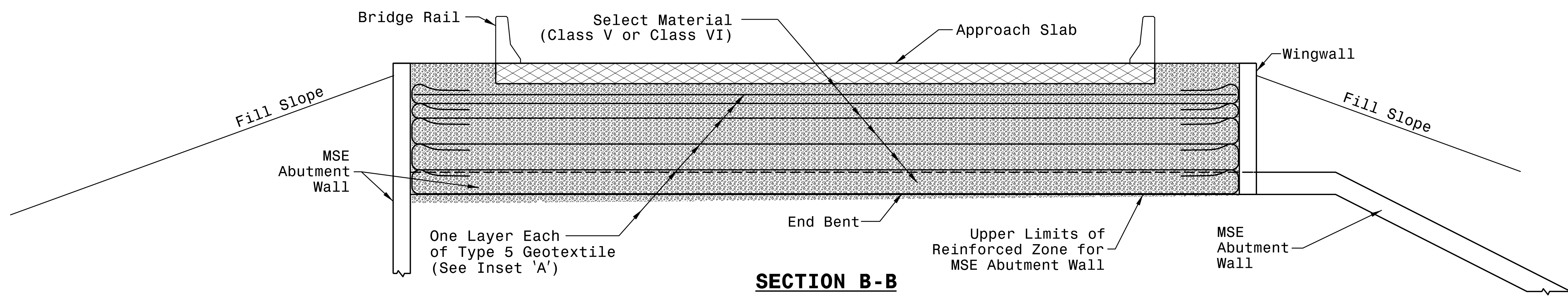
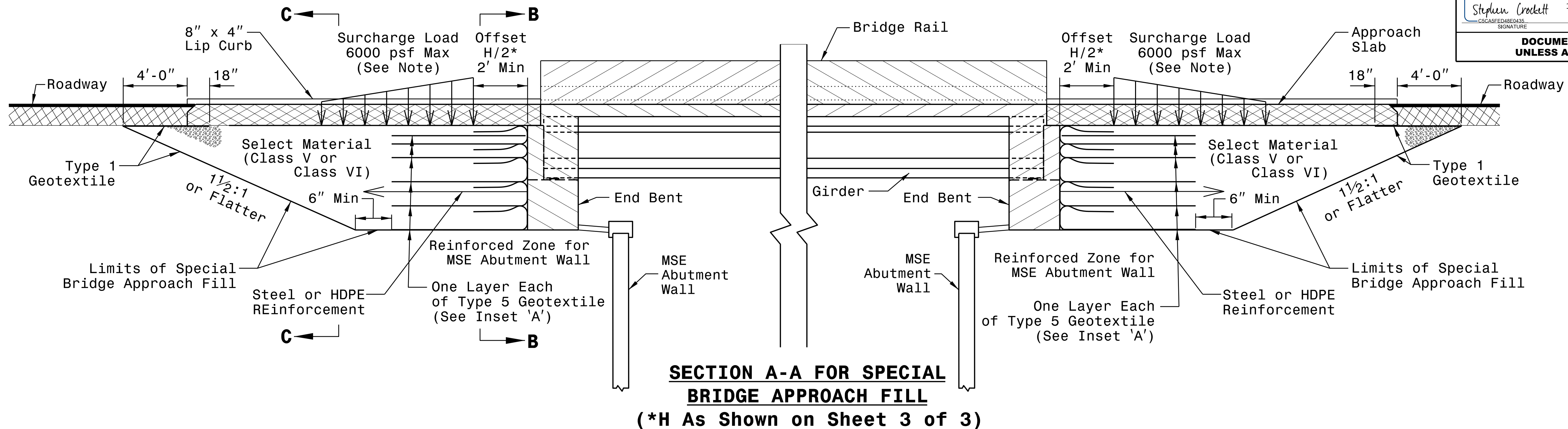
**GEOTECHNICAL
ENGINEERING UNIT**

**SPECIAL BRIDGE APPROACH FILLS
SHEET 1 OF 3**

REVISIONS					
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1			3		
2			4		

PROJECT REFERENCE NO. I-2513AA		SHEET NO. 2G-5	
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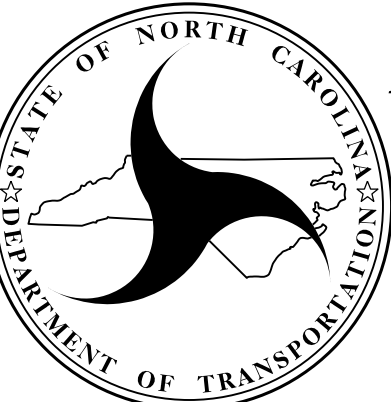
NOTE: Temporary geotextile walls are designed for a maximum eccentric surcharge pressure of 6000 psf for the offset shown. Surcharge loads from construction equipment, e.g., cranes that exceed 6000 psf are the Contractor's responsibility.



PREPARED BY: CROCKETT, S.C. DATE: 01/2024
 REVIEWED BY: HAMM, J.R. DATE: 01/2024




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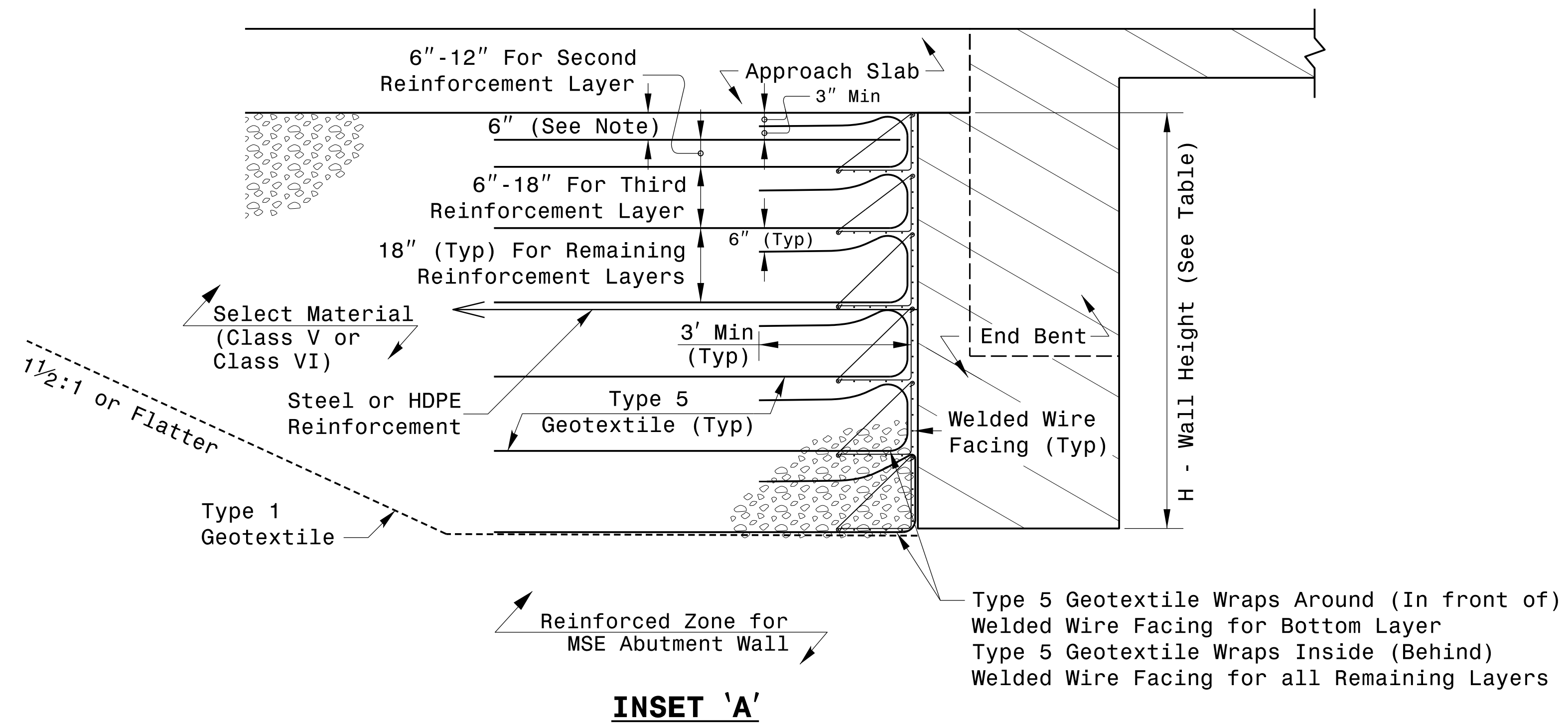


NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SPECIAL BRIDGE APPROACH FILLS
SHEET 2 OF 3

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

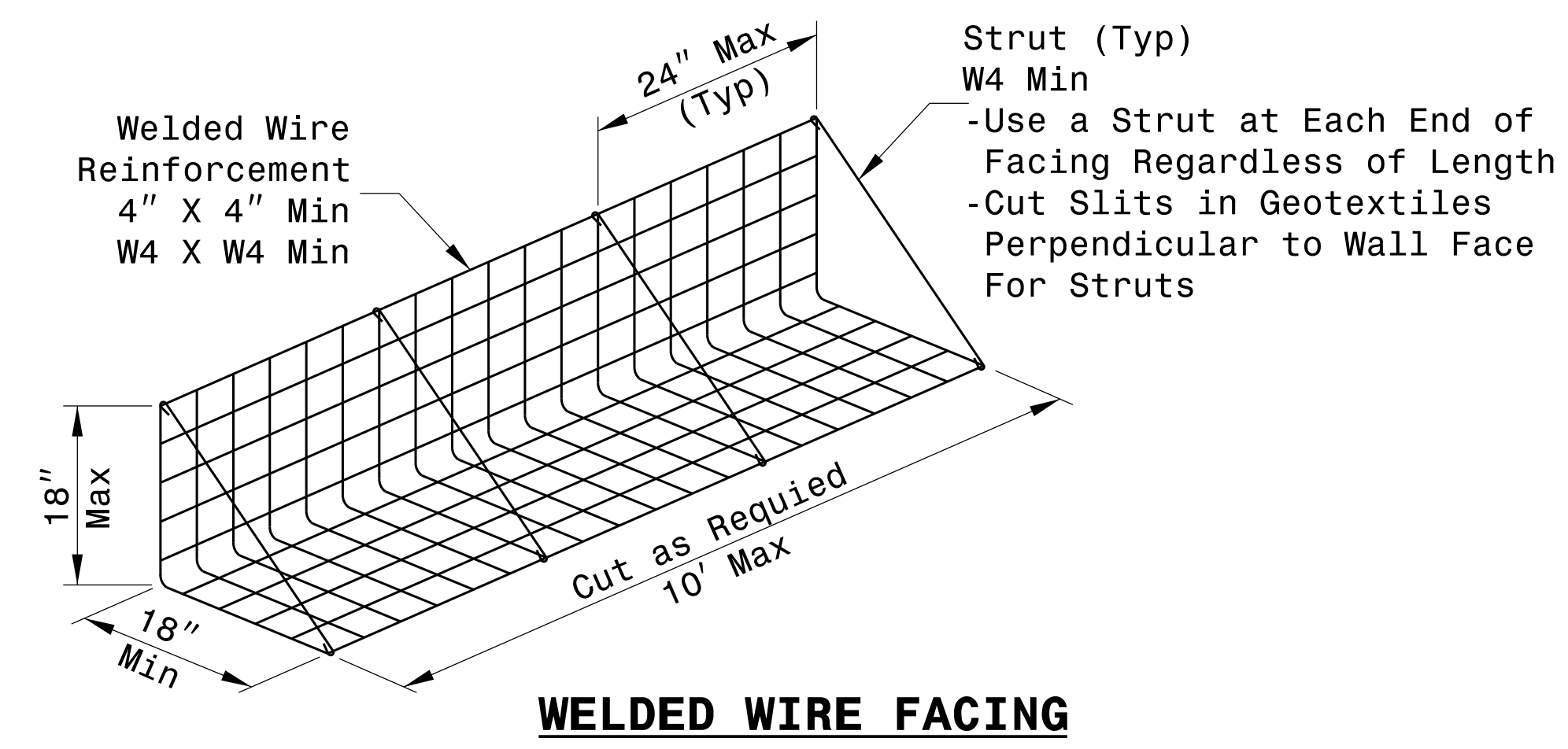
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



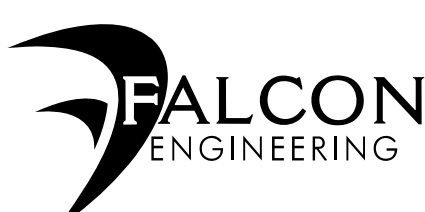
NOTE: Place top (first) reinforcement layer 6" below top of wall regardless of vertical spacing for underlying reinforcement layers. As shown in insets above, it is not necessary to wrap the top layer of geotextile reinforcement at the wall face.

TEMPORARY GEOTEXTILE WALL DETAILS

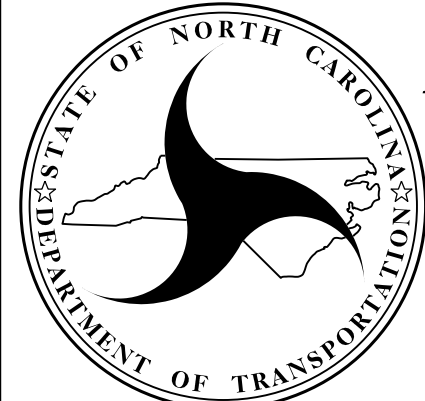
GEOTEXTILE REINFORCEMENT (TYPE 5 GEOTEXTILE)		
WALL HEIGHT H (ft)	REINF. LENGTH L (ft)	WIDE WIDTH TENSILE STRENGTH @ ULTIMATE (MD) (lb/ft)
< 8	8	5000
8 TO 12	= H	



PREPARED BY: CROCKETT, S.C.	DATE: 01/2024
REVIEWED BY: HAMM, J.R.	DATE: 01/2024



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 1210 TRINITY ROAD, SUITE 110
 CARY, NC 27513
 PHONE: 919.871.0800
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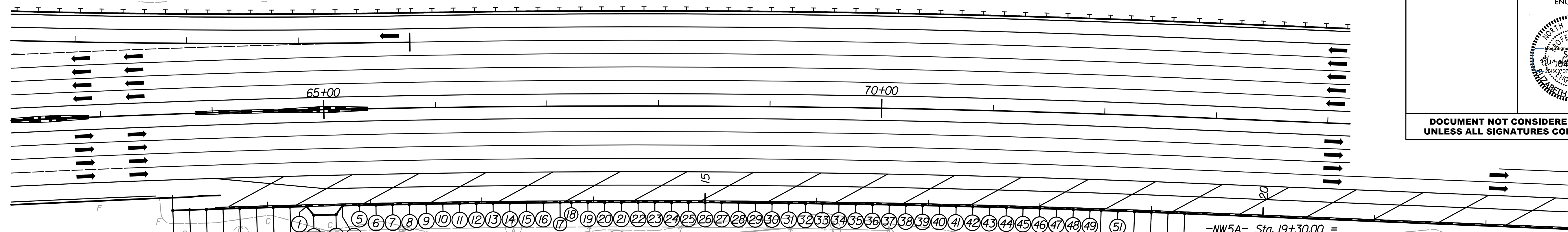
**NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS**

**GEOTECHNICAL
 ENGINEERING UNIT**

**SPECIAL BRIDGE APPROACH FILLS
 SHEET 3 OF 3**

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

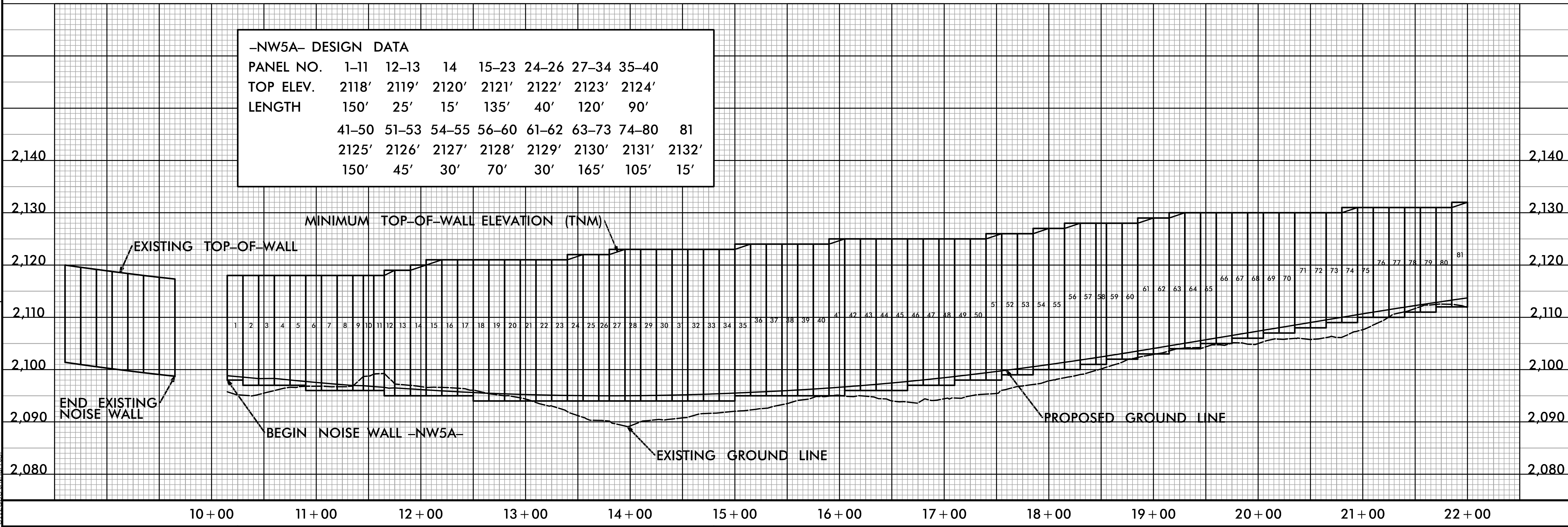
PROJECT REFERENCE NO. I-2513AA/AB	SHEET NO. 2N-1
RW SHEET NO.	
TRAFFIC NOISE ENGINEER	
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- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|
| ① -NW5A- Sta.11+20.00 =
-Y- Sta.64+67.44 86.50' RT | ② -NW5A- Sta.11+05.00 =
-Y- Sta.64+52.33 86.50' RT | ③ -NW5A- Sta.10+90.00 =
-Y- Sta.64+37.23 86.50' RT | ④ -NW5A- Sta.10+75.00 =
-Y- Sta.64+22.12 86.50' RT | ⑤ -NW5A- Sta.10+60.00 =
-Y- Sta.64+07.01 86.50' RT | ⑥ -NW5A- Sta.10+45.00 =
-Y- Sta.63+91.90 86.50' RT | ⑦ -NW5A- Sta.10+30.00 =
-Y- Sta.63+76.79 86.50' RT | BEG PROP. NOISE WALL
-NW5A- Sta.10+15.00 =
-Y- Sta.63+61.68 86.50' RT | ⑧ -NW5A- Sta.11+35.00 =
-Y- Sta.64+82.55 86.50' RT | ⑨ -NW5A- Sta.11+45.00 =
-Y- Sta.64+88.67 94.44' RT | ⑩ -NW5A- Sta.11+65.00 =
-Y- Sta.65+08.83 94.53' RT | ⑪ -NW5A- Sta.11+75.00 =
-Y- Sta.65+14.84 86.50' RT | ⑫ -NW5A- Sta.11+90.00 =
-Y- Sta.65+29.95 86.50' RT | ⑬ -NW5A- Sta.12+05.00 =
-Y- Sta.65+45.06 86.50' RT | ⑭ -NW5A- Sta.12+20.00 =
-Y- Sta.65+60.17 86.50' RT | ⑮ -NW5A- Sta.12+35.00 =
-Y- Sta.65+75.28 86.50' RT | ⑯ -NW5A- Sta.12+50.00 =
-Y- Sta.65+90.39 86.50' RT | ⑰ -NW5A- Sta.12+65.00 =
-Y- Sta.66+05.50 86.50' RT | ⑱ -NW5A- Sta.12+80.00 =
-Y- Sta.66+20.61 86.50' RT | ⑲ -NW5A- Sta.12+95.00 =
-Y- Sta.66+35.72 86.50' RT | ⑳ -NW5A- Sta.13+10.00 =
-Y- Sta.66+50.82 86.50' RT | ㉑ -NW5A- Sta.13+25.00 =
-Y- Sta.66+65.93 86.50' RT | ㉒ -NW5A- Sta.13+40.00 =
-Y- Sta.66+81.04 86.50' RT | ㉓ -NW5A- Sta.13+55.00 =
-Y- Sta.66+96.15 86.50' RT | ㉔ -NW5A- Sta.13+70.00 =
-Y- Sta.67+11.26 86.50' RT | ㉕ -NW5A- Sta.13+80.00 =
-Y- Sta.67+21.33 86.50' RT | ㉖ -NW5A- Sta.13+95.00 =
-Y- Sta.67+36.44 86.50' RT | ㉗ -NW5A- Sta.14+10.00 =
-Y- Sta.67+51.55 86.50' RT | ㉘ -NW5A- Sta.14+25.00 =
-Y- Sta.67+66.66 86.50' RT | ㉙ -NW5A- Sta.14+40.00 =
-Y- Sta.67+81.77 86.50' RT | ㉚ -NW5A- Sta.14+55.00 =
-Y- Sta.67+96.88 86.50' RT | ㉛ -NW5A- Sta.14+70.00 =
-Y- Sta.68+11.99 86.50' RT | ㉜ -NW5A- Sta.14+85.00 =
-Y- Sta.68+27.10 86.50' RT | ㉝ -NW5A- Sta.15+00.00 =
-Y- Sta.68+42.20 86.50' RT | ㉞ -NW5A- Sta.15+15.00 =
-Y- Sta.68+57.31 86.50' RT | ㉟ -NW5A- Sta.15+30.00 =
-Y- Sta.68+72.42 86.50' RT | ㊱ -NW5A- Sta.15+45.00 =
-Y- Sta.68+87.53 86.50' RT | ㊲ -NW5A- Sta.15+60.00 =
-Y- Sta.69+02.64 86.50' RT | ㊳ -NW5A- Sta.15+75.00 =
-Y- Sta.69+17.75 86.50' RT | ㊴ -NW5A- Sta.15+90.00 =
-Y- Sta.69+32.86 86.50' RT | ㊵ -NW5A- Sta.16+05.00 =
-Y- Sta.69+47.97 86.50' RT | ㊶ -NW5A- Sta.16+20.00 =
-Y- Sta.69+63.08 86.50' RT | ㊷ -NW5A- Sta.16+35.00 =
-Y- Sta.69+78.18 86.50' RT | ㊸ -NW5A- Sta.16+50.00 =
-Y- Sta.69+93.29 86.50' RT | ㊹ -NW5A- Sta.16+65.00 =
-Y- Sta.70+08.40 86.50' RT | ㊺ -NW5A- Sta.16+80.00 =
-Y- Sta.70+23.51 86.50' RT | ㊻ -NW5A- Sta.16+95.00 =
-Y- Sta.70+38.62 86.50' RT | ㊼ -NW5A- Sta.17+10.00 =
-Y- Sta.70+53.73 86.50' RT | ㊽ -NW5A- Sta.17+25.00 =
-Y- Sta.70+68.84 86.50' RT | ㊾ -NW5A- Sta.17+40.00 =
-Y- Sta.70+83.95 86.50' RT | ㊿ -NW5A- Sta.17+55.00 =
-Y- Sta.70+99.06 86.50' RT | ④④ -NW5A- Sta.17+70.00 =
-Y- Sta.71+14.16 86.50' RT | ④⑤ -NW5A- Sta.17+85.00 =
-Y- Sta.71+29.27 86.50' RT | ④⑥ -NW5A- Sta.18+00.00 =
-Y- Sta.71+44.38 86.50' RT | ④⑦ -NW5A- Sta.18+15.00 =
-Y- Sta.71+59.49 86.50' RT | ④⑧ -NW5A- Sta.18+30.00 =
-Y- Sta.71+74.60 86.50' RT | ④⑨ -NW5A- Sta.18+45.00 =
-Y- Sta.71+89.71 86.50' RT | ④⑩ -NW5A- Sta.18+55.00 =
-Y- Sta.71+99.78 86.50' RT | ④⑪ -NW5A- Sta.18+70.00 =
-Y- Sta.72+14.89 86.50' RT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|

NOISE WALL -NW5A- STA 10+15.00 TO -NW5A- STA 22+00.00

-NW5A- DESIGN DATA								
PANEL NO.	1-11	12-13	14	15-23	24-26	27-34	35-40	
TOP ELEV.	2118'	2119'	2120'	2121'	2122'	2123'	2124'	
LENGTH	150'	25'	15'	135'	40'	120'	90'	
	41-50	51-53	54-55	56-60	61-62	63-73	74-80	81
	2125'	2126'	2127'	2128'	2129'	2130'	2131'	2132'
	150'	45'	30'	70'	30'	165'	105'	15'



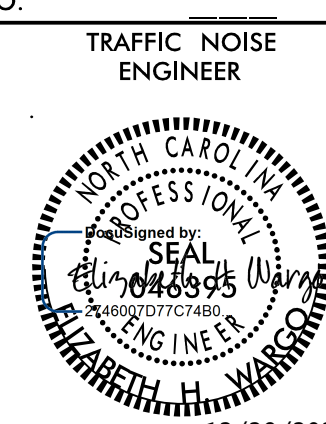
REVISIONS

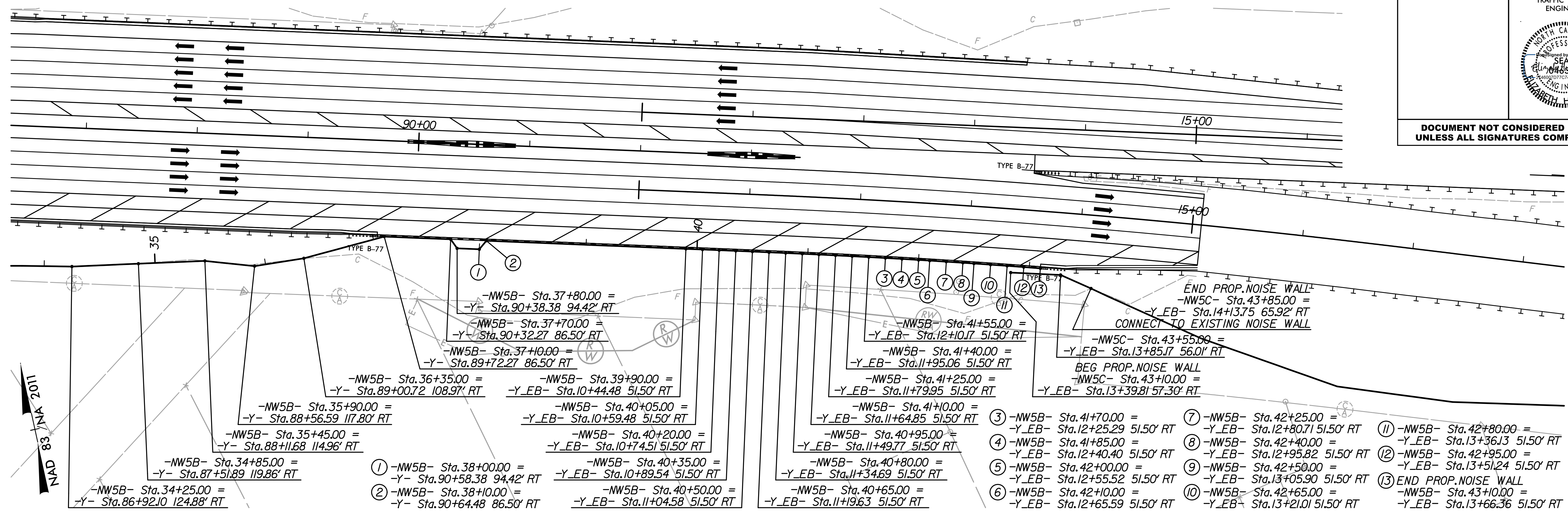
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 Elizabeth H. Wasco

NAD 83 / NTA 2011

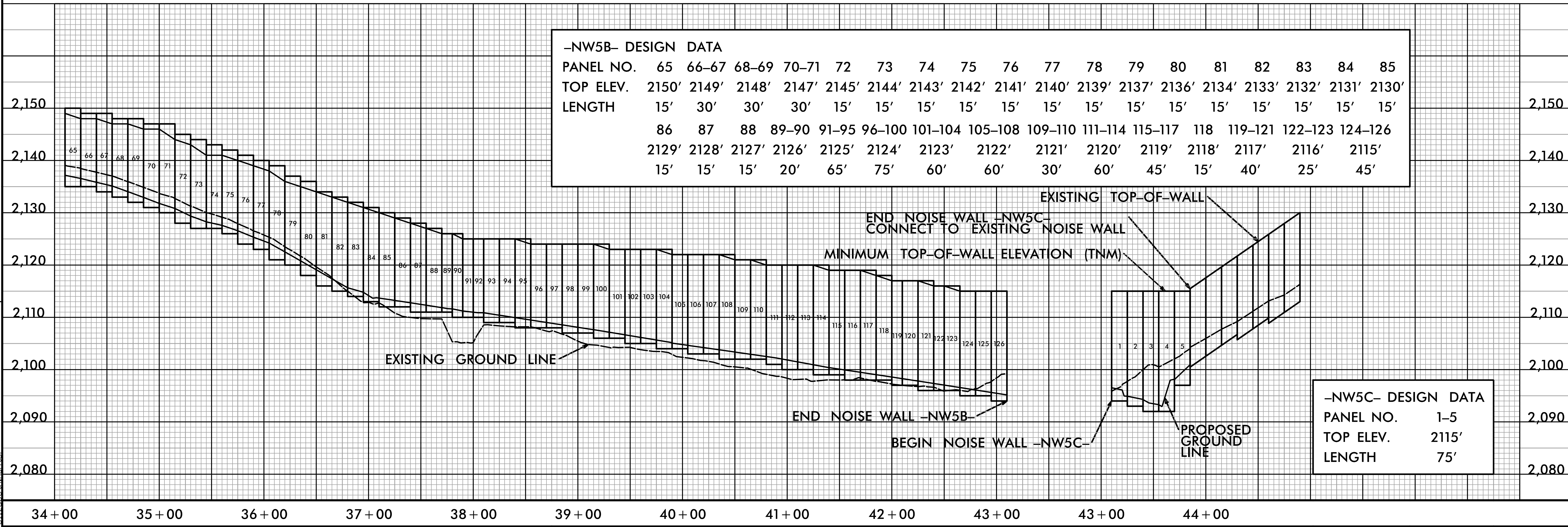
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 Elizabeth Hunter

REVISIONS

PROJECT REFERENCE NO. I-2513AA/AB	SHEET NO. 2N-3
RW SHEET NO.	
TRAFFIC NOISE ENGINEER	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



NOISE WALL -NW5B- STA 34+10.00 TO 43+10.00 AND -NW5C- STA 43+10.00 TO 43+85.00



STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK
 IN CUBIC YARDS

I-2513AA

SUMMARY OF EARTHWORK

Station	Station	Uncl. Excav.	Undercut	Embank. +%	Borrow	Waste
-YLT- 18+75.00	36+50.00	34	403	3,924	3,890	403
-YLT- 36+50.00	45+80.15 (BRIDGE)	0	216	0		216
SUBTOTAL:		34	619	3,924	3,890	619
-YLT- 47+44.25 (BRIDGE)	53+24.24 (BRIDGE)	0	103	0		103
SUBTOTAL:		0	103	0	0	103
-YLT- 55+44.78 (BRIDGE)	85+00.00	11,333	2,194	26,936	16,108	2,699
SUBTOTAL:		11,333	2,194	26,936	16,108	2,699
-YLT- 85+00.00	92+44.00	1,273	651	3,281	2,008	651
SUBTOTAL:		1,273	651	3,281	2,008	651
-YRT- 18+75.00	38+00.00	265	351	687	422	351
-YRT- 38+00.00	45+80.15 (BRIDGE)	0	154	0		154
SUBTOTAL:		265	505	687	422	505
-YRT- 47+44.25 (BRIDGE)	53+24.24 (BRIDGE)	0	160	0		160
SUBTOTAL:		0	160	0	0	160
-YRT- 55+44.78 (BRIDGE)	85+00.00	10,864	1,822	3,171		9,515
SUBTOTAL:		10,864	1,822	3,171	0	9,515
-YRT- 85+00.00	92+44.00	4,680	617	3,647		1,650
SUBTOTAL:		4,680	617	3,647	0	1,650
-Y_WB- 10+44.00	20+82.00	9,651	377	5,127		4,901
SUBTOTAL:		9,651	377	5,127	0	4,901
-Y_EB- 10+44.00	15+08.00	946	199	1,452	506	199
SUBTOTAL:		946	199	1,452	506	199
TOTAL:		39,046	7,247	48,224	22,934	21,003
LOSS DUE TO CLEARING & GRUBBING		-2,408			2,408	
ADDITIONAL UNDERCUT			2,650	3,048	3,048	2,650
EST. SHOULDER MATERIAL				2,300	2,300	
SELECT GRANULAR MATERIAL IN LIEU OF BORROW				-2,300	-2,300	
WASTE IN LIEU OF BORROW					-12,831	-12,831
I-2513AA PROJECT TOTALS:		36,638	9,897	51,272	15,559	10,822
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					778	
TOTALS:		36,638	9,897	51,272	16,337	10,822
I-2513AA GRAND TOTALS:		36,638	9,897	51,272	16,337	10,822
SAY:		36,650	9,900		16,350	

EST. UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN TOP 3FT OF EMBANKMENT OR BACKFILL (PER GEOTECH RECOMMENDATION: -Y- 50+75 to 52+75 = 575CY, -Y_WB- 15+25 to 17+25 = 725CY)

EST. DDE = 2,030 CUBIC YARDS

Note: Earthwork quantities are calculated by the roadway designer. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

I-2513AB

SUMMARY OF EARTHWORK

Station	Station	Uncl. Excav.	Undercut	Embank. +%	Borrow	Waste
-Y5RPA- 21+24.50	27+49.45	2,703	333	9,990	7,287	333
SUBTOTAL:		2,703	333	9,990	7,287	333
-RPC- 10+00.00	40+00.00	96,202	2,496	81,397		17,301
SUBTOTAL:		96,202	2,496	81,397	0	17,301
-L1_EB- 37+52.34	66+10.00	35,845	2,071	14,331		23,585
SUBTOTAL:		35,845	2,071	14,331	0	23,585
-L1_WB- 37+17.52	66+00.00	13,296	2,254	1,551		13,999
SUBTOTAL:		13,296	2,254	1,551	0	13,999
TOTAL:		148,046	7,154	107,270	7,287	55,217
SHOULDER MATERIAL TO BE USED IN LIEU OF SHOULDER BORROW				2,415	2,415	
LOSS DUE TO CLEARING & GRUBBING		-4,817				-4,817
ADDITIONAL UNDERCUT			2,050	2,358	2,358	2,050
SELECT GRANULAR MATERIAL IN LIEU OF BORROW				-748	-748	
WASTE IN LIEU OF BORROW					-11,312	-11,312
I-2513AB PROJECT TOTALS:		143,229	9,204	111,295	0	41,138
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT						
TOTALS:		143,229	9,204	111,295	0	41,138
I-2513AB GRAND TOTALS:		143,229	9,204	111,295	0	41,138
SAY:		143,250	9,210			

EST. UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN TOP 3FT OF EMBANKMENT OR BACKFILL (PER GEOTECH RECOMMENDATION: -L1- 64+75 to 65+75 = 550CY, -Y5RPA- 25+00 to 27+19 = 1,175CY, -RPC- 38+75 to 39+50 = 275CY)

EST. DDE = 3,280 CUBIC YARDS (PER GEOTECH RECOMMENDATIONS - 475 CY IS UNSUITABLE WASTE MATERIAL)

Pavement Structure Volume -RPC- 5,000 CY

I-2513AA & I-2513AB

	Uncl. Excav.	Undercut	Embank. +%	Borrow	Waste
I-2513AA TOTAL:	36,650	9,900		16,350	
I-2513AB TOTAL:	143,250	9,210			
I-2513AA/AB GRAND TOTALS:	179,900	19,110		16,350	

Note: Earthwork quantities are calculated by the roadway designer. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

12/06/07

12/06/07
 I-2513AA-AB-03B-1.dgn
 JLC