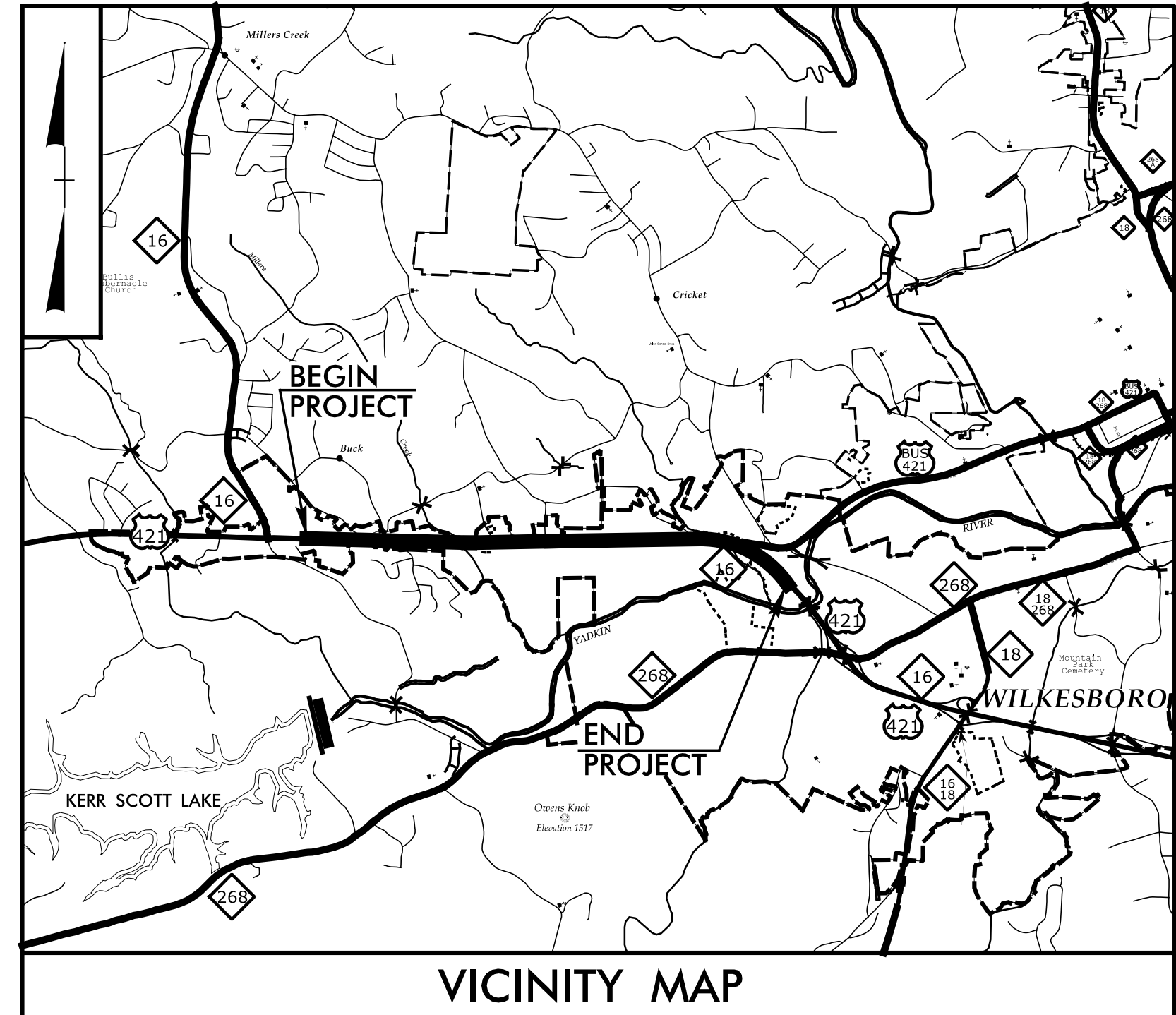


09/28/2019

TIP PROJECT: U-5312

CONTRACT: C204841

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



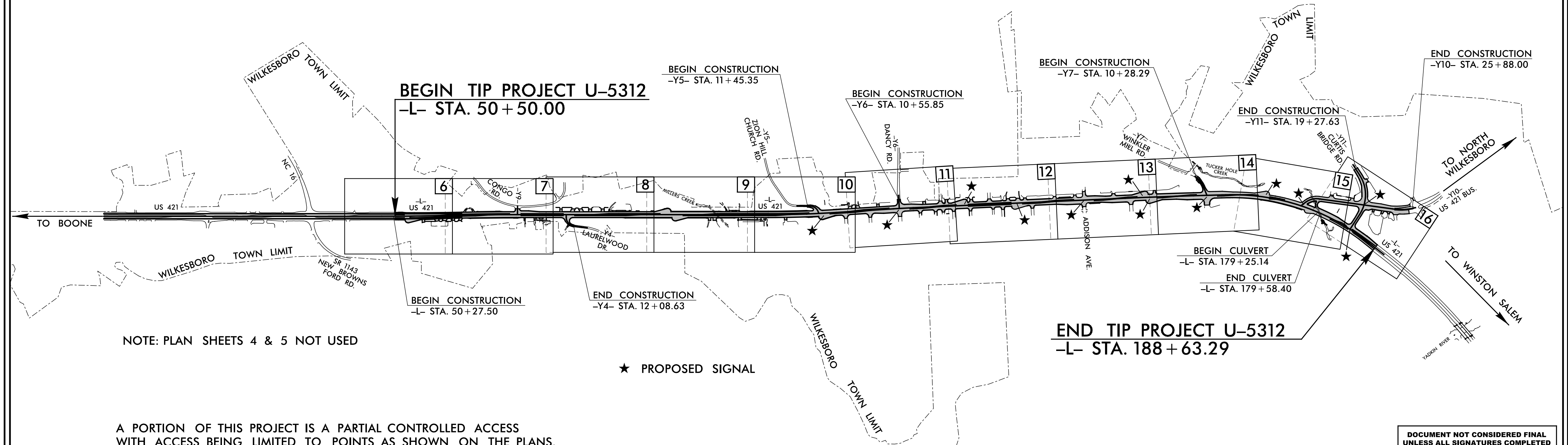
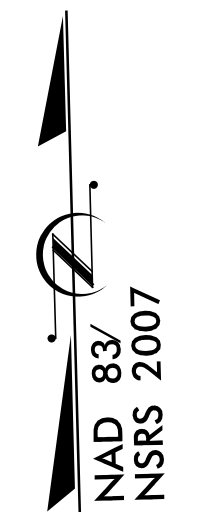
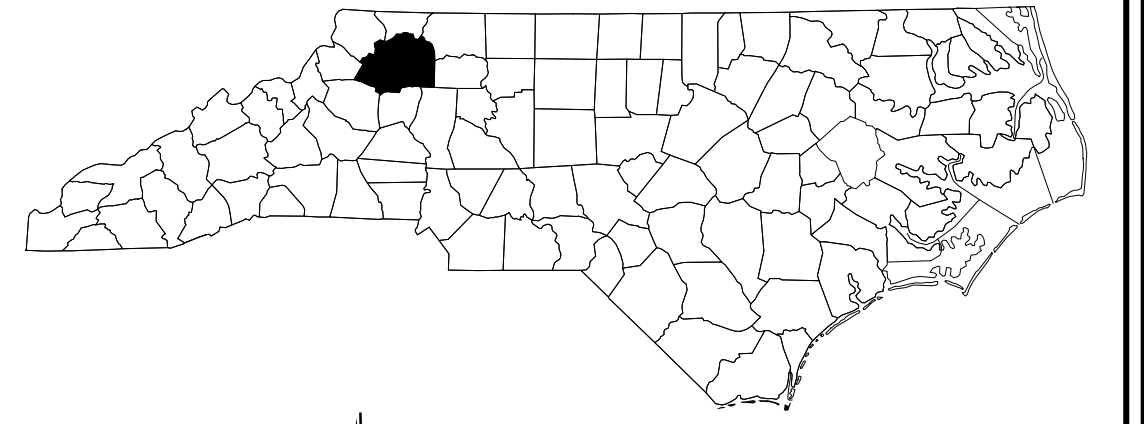
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WILKES COUNTY

**LOCATION: US 421 FROM EAST OF NC 16 TO US 421 BUSINESS
IN WILKESBORO**

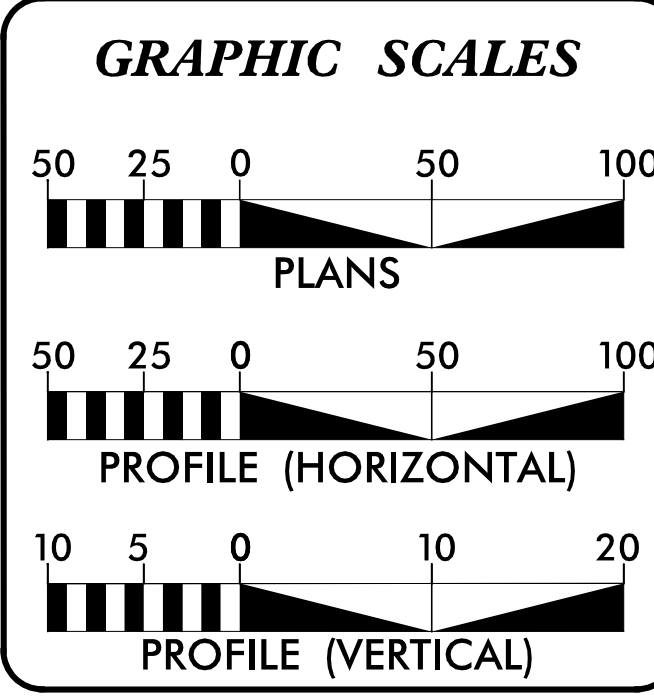
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES,
SIGNALS, AND ITS**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.
N.C.	U-5312	1
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
45446.1.1	NHS-0421(072)	PE
45446.2.1	NHS-0421(072)	R/W
45446.2.U1	NHS-0421(072)	UTILITY
45446.3.1	NHS-0421(072)	CONST.



A PORTION OF THIS PROJECT IS A PARTIAL CONTROLLED ACCESS
WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2023 =	37,700
ADT 2040 =	41,900
K =	8 %
D =	55 %
T =	5 % *
V =	50 MPH
* TTST =	2% DUAL 3%
FUNC CLASS =	ARTERIAL
STATEWIDE TIER	

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT U-5312	=	2.610 MILES
LENGTH OF STRUCTURE TIP PROJECT U-5312	=	0.006 MILES
TOTAL LENGTH OF TIP PROJECT U-5312	=	2.616 MILES

Prepared for the North Carolina Department of Transportation
in the office of:

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27605

SUNGATE DESIGN GROUP, P.A.
100 JAMES FRANKLIN ROAD
100 BIRN, NORTH CAROLINA 27609
TEL: 919.286.2200
ENG. PERM. LICENSE NO. C-880

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 26, 2018

LETTING DATE:
SEPTEMBER 19, 2023

NCDOT CONTACT: RAMIE SHAW, PE
Division Project Development Engineer

JIMMY GOODNIGHT, PE
PROJECT ENGINEER

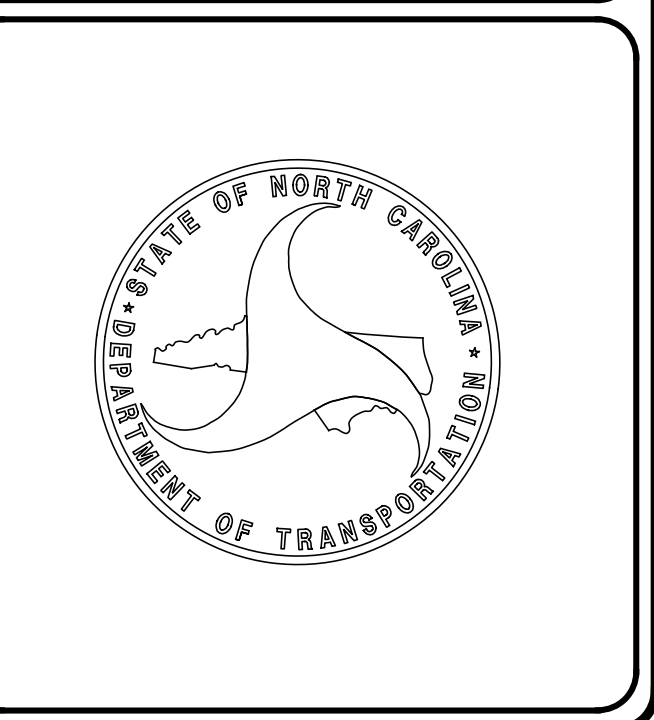
JERRY JAVELLANA, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

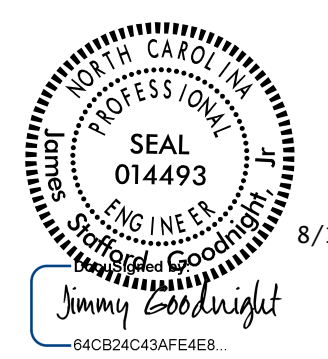
DocuSigned by:
Josh Dalton
SIGNATURE: 4089AD8C14994C3

ROADWAY DESIGN ENGINEER

DocuSigned by:
Jimmy Goodnight
SIGNATURE: 84C824C3A9F6E8



DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA



8/14/2023

INDEX OF SHEETS	
SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, STANDARD DRAWINGS, AND GENERAL NOTES
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-5	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1 THRU 2B-17	ROADWAY DETAILS
2C-1 THRU 2C-17	CONTRACT STANDARDS SPECIAL DETAILS
3B-1 THRU 3B-2	ROADWAY SUMMARIES
3D-1 THRU 3D-14	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX
6 THRU 27	PLAN AND PROFILE SHEETS (SHEETS 4 AND 6 ARE NOT USED)
RW-01 THRU RW-16	SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES
TMP-1 THRU TMP-45	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-16	PAVEMENT MARKING PLANS
EC-1 THRU EC-25	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1 THRU SIGN-16A	SIGNING PLANS
SIG-1.0 THRU SIG-13.3	SIGNAL PLANS
SIG-M1 THRU SIG-M5	STANDARD METAL POLE DETAILS
SCP-1 THRU SCP-14	SIGNAL COMMUNICATIONS PLAN
UC-1 THRU UC-33	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-12	UTILITIES BY OTHERS PLANS
X-1A THRU X1-E	CROSS-SECTION INDEX AND SUMMARY SHEETS
X-1 THRU X-97	CROSS-SECTIONS
C1-1 THRU C1-8	CULVERT PLANS
W-1 THRU W-4	RETAINING WALL PLANS

2018 ROADWAY ENGLISH STANDARD DRAWINGS
EFF. 01-16-2018
REV.

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

STD. NO. TITLE

DIVISION 2 - EARTHWORK
 200.02 METHOD OF CLEARING - METHOD II
 225.01 GUIDE FOR GRADING SUBGRADE - INTERSTATE AND FREEWAY
 225.02 GUIDE FOR GRADING SUBGRADE - SECONDARY AND LOCAL
 225.04 METHOD OF OBTAINING SUPERELEVATION - TWO LANE PAVEMENT
 225.05 METHOD OF OBTAINING SUPERELEVATION - DIVIDED HIGHWAYS
 225.06 METHOD OF GRADING SIGHT DISTANCE AT INTERSECTIONS
 240.01 GUIDE FOR BERM DITCH CONSTRUCTION
 275.01 ROCK PLATING (USE SPECIAL DETAIL)

DIVISION 3 - PIPE CULVERTS
 300.01 METHOD OF PIPE INSTALLATION
 310.10 DRIVEWAY PIPE CONSTRUCTION

DIVISION 5 - SUBGRADE, BASES AND SHOULDERS
 560.01 METHOD OF SHOULDER CONSTRUCTION - HIGH SIDE OF SUPERELEVATED CURVE - METHOD I

DIVISION 6 - ASPHALT BASES AND PAVEMENTS
 654.01 PAVEMENT REPAIRS

DIVISION 8 - INCIDENTALS
 815.03 PIPE UNDERDRAIN AND BLIND DRAIN
 838.01 CONCRETE ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS - 15" THRU 48" PIPE 90 SKEW
 838.11 BRICK ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS - 15" THRU 48" PIPE 90 SKEW
 838.21 REINFORCED CONCRETE ENDWALL - FOR SINGLE 54" PIPE 90 SKEW
 838.27 REINFORCED CONCRETE ENDWALL - FOR SINGLE 60" PIPE 90 SKEW
 838.39 REINFORCED CONCRETE ENDWALL - FOR SINGLE 72" PIPE 90 SKEW
 838.40 REINFORCED CONCRETE ENDWALL - FOR DOUBLE AND TRIPLE 72" PIPES 90 SKEW
 838.45 NOTES FOR REINFORCED CONCRETE ENDWALL - STD. DWG 838.21 THRU 838.40
 838.51 REINFORCED BRICK ENDWALL - FOR SINGLE 54" PIPE 90 SKEW
 838.57 REINFORCED BRICK ENDWALL - FOR SINGLE 60" PIPE 90 SKEW
 838.69 REINFORCED BRICK ENDWALL - FOR SINGLE 72" PIPE 90 SKEW
 838.75 NOTES FOR REINFORCED BRICK ENDWALL - STD. DWG 838.51 THRU 838.70
 838.80 PRECAST ENDWALLS - 12" THRU 72" PIPE 90 SKEW
 840.00 CONCRETE BASE PAD FOR DRAINAGE STRUCTURES
 840.01 BRICK CATCH BASIN - 12" THRU 54" PIPE
 840.02 CONCRETE CATCH BASIN - 12" THRU 54" PIPE
 840.03 FRAME, GRATES AND HOOD - FOR USE ON STANDARD CATCH BASIN
 840.04 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
 840.24 FRAMES AND NARROW SLOT SAG GRATES
 840.25 ANCHORAGE FOR FRAMES - BRICK OR CONCRETE OR PRECAST
 840.26 BRICK GRATED DROP INLET TYPE 'A' - 12" THRU 72" PIPE
 840.27 BRICK GRATED DROP INLET TYPE 'B' - 12" THRU 36" PIPE
 840.29 FRAMES AND NARROW SLOT FLAT GRATES
 840.31 CONCRETE JUNCTION BOX - 12" THRU 66" PIPE
 840.32 BRICK JUNCTION BOX - 12" THRU 66" PIPE
 840.35 TRAFFIC BEARING GRATED DROP INLET - FOR CAST IRON DOUBLE FRAME AND GRATES
 840.45 PRECAST DRAINAGE STRUCTURE
 840.46 TRAFFIC BEARING PRECAST DRAINAGE STRUCTURE
 840.54 MANHOLE FRAME AND COVER
 840.66 DRAINAGE STRUCTURE STEPS
 840.71 CONCRETE AND BRICK PIPE PLUG
 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
 848.04 STREET TURNOUT
 848.05 CURB RAMP - PROPOSED CURB & GUTTER
 848.06 CURB RAMP - EXISTING CURB & GUTTER
 850.01 CONCRETE PAVED DITCHES
 850.10 GUIDE FOR BERM DRAINAGE OUTLET - 15" AND 18" PIPE
 852.01 CONCRETE ISLANDS
 852.06 METHOD FOR PLACEMENT OF DROP INLETS IN CONCRETE ISLANDS
 857.01 PRECAST REINFORCED CONCRETE BARRIER - 41" SINGLE FACED
 862.01 GUARDRAIL PLACEMENT
 862.02 GUARDRAIL INSTALLATION
 876.01 RIP RAP IN CHANNELS
 876.02 GUIDE FOR RIP RAP AT PIPE OUTLETS
 876.04 DRAINAGE DITCHES WITH CLASS 'B' RIP RAP

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

GRADING AND SURFACING OR RESURFACING AND WIDENING:
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

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

SUPERELEVATION:
ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NOS. 225.04 & 225.05 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:
ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

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

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.

UNDERDRAINS:
UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

STREET TURNOUT:
STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

GUARDRAIL:
THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

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

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE CHARTER, DUKE NET, CENTURY LINK & WILKES TELECOMMUNICATIONS - COMMUNICATIONS; FRONTIER - NATURAL GAS; WEST WILKES & TOWN OF WILKESBORO - WATER/SEWER

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

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

CURB RAMPS
CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 and/or 848.06.

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	_____	⊕
Proposed Lateral, Tail, Head Ditch	_____	→
False Sump	_____	⊕

RAILROADS:

Standard Gauge	_____	CSX TRANSPORTATION
RR Signal Milepost	_____	MILEPOST 35
Switch	_____	SWITCH
RR Abandoned	_____	_____
RR Dismantled	_____	_____

RIGHT OF WAY & PROJECT CONTROL:

Primary Horiz Control Point	_____	○
Primary Horiz and Vert Control Point	_____	●
Secondary Horiz and Vert Control Point	_____	◆
Vertical Benchmark	_____	⊕
Existing Right of Way Monument	_____	△
Proposed Right of Way Monument (Rebar and Cap)	_____	▲
Proposed Right of Way Monument (Concrete)	_____	⊕
Existing Permanent Easement Monument	_____	◇
Proposed Permanent Easement Monument (Rebar and Cap)	_____	◆
Existing C/A Monument	_____	△
Proposed C/A Monument (Rebar and Cap)	_____	▲
Proposed C/A Monument (Concrete)	_____	⊕
Existing Right of Way Line	_____	—
Proposed Right of Way Line	_____	—
Existing Control of Access Line	_____	—
Proposed Control of Access Line	_____	—
Proposed ROW and CA Line	_____	—
Existing Easement Line	_____	—
Proposed Temporary Construction Easement	_____	—
Proposed Temporary Drainage Easement	_____	—
Proposed Permanent Drainage Easement	_____	—
Proposed Permanent Drainage/Utility Easement	_____	—
Proposed Permanent Utility Easement	_____	—
Proposed Temporary Utility Easement	_____	—
Proposed Aerial Utility Easement	_____	—

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	_____	_____
Existing Curb	_____	_____
Proposed Slope Stakes Cut	_____	C
Proposed Slope Stakes Fill	_____	F
Proposed Curb Ramp	_____	CR
Existing Metal Guardrail	_____	T T T
Proposed Guardrail	_____	T T T
Existing Cable Guiderail	_____	□ □ □
Proposed Cable Guiderail	_____	□ □ □
Equality Symbol	_____	⊕
Pavement Removal	_____	⊕
VEGETATION:		
Single Tree	_____	⊕
Single Shrub	_____	⊕
Hedge	_____	⊕

Woods Line	_____	_____
Orchard	_____	⊕
Vineyard	_____	Vineyard

EXISTING STRUCTURES:

MAJOR:		
Bridge, Tunnel or Box Culvert	_____	CONC
Bridge Wing Wall, Head Wall and End Wall	_____	CONC WW
MINOR:		
Head and End Wall	_____	CONC HW
Pipe Culvert	_____	_____
Footbridge	_____	_____
Drainage Box: Catch Basin, DI or JB	_____	CB
Paved Ditch Gutter	_____	_____
Storm Sewer Manhole	_____	⊕
Storm Sewer	_____	S

UTILITIES:

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

POWER:		
Existing Power Pole	_____	●
Proposed Power Pole	_____	○
Existing Joint Use Pole	_____	●
Proposed Joint Use Pole	_____	○
Power Manhole	_____	⊕
Power Line Tower	_____	⊕
Power Transformer	_____	⊕
U/G Power Cable Hand Hole	_____	⊕
H-Frame Pole	_____	●
U/G Power Line Test Hole (SUE - LOS A)*	_____	⊕
U/G Power Line (SUE - LOS B)*	_____	P
U/G Power Line (SUE - LOS C)*	_____	P
U/G Power Line (SUE - LOS D)*	_____	P

TELEPHONE:

Existing Telephone Pole	_____	●
Proposed Telephone Pole	_____	○
Telephone Manhole	_____	⊕
Telephone Pedestal	_____	⊕
Telephone Cell Tower	_____	⊕
U/G Telephone Cable Hand Hole	_____	⊕
U/G Telephone Test Hole (SUE - LOS A)*	_____	⊕
U/G Telephone Cable (SUE - LOS B)*	_____	T
U/G Telephone Cable (SUE - LOS C)*	_____	T
U/G Telephone Cable (SUE - LOS D)*	_____	T
U/G Telephone Conduit (SUE - LOS B)*	_____	TC
U/G Telephone Conduit (SUE - LOS C)*	_____	TC
U/G Telephone Conduit (SUE - LOS D)*	_____	TC
U/G Fiber Optics Cable (SUE - LOS B)*	_____	T FO
U/G Fiber Optics Cable (SUE - LOS C)*	_____	T FO
U/G Fiber Optics Cable (SUE - LOS D)*	_____	T FO

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

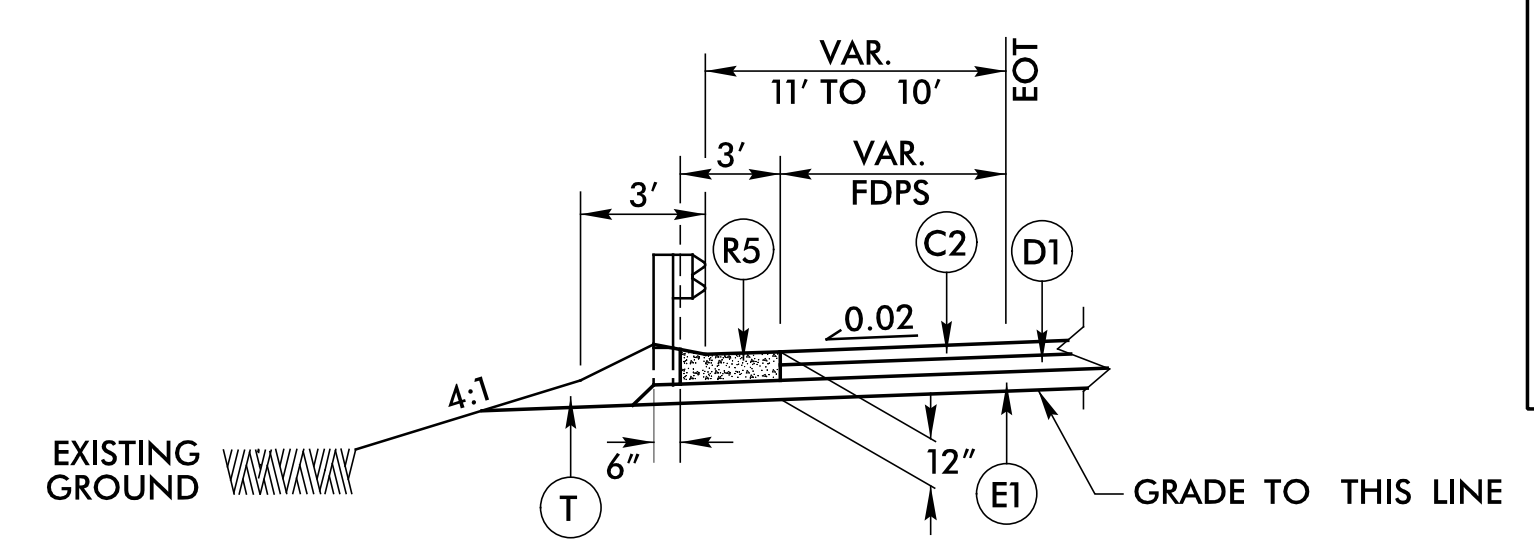
Utility Pole	_____	●
Utility Pole with Base	_____	⊕
Utility Located Object	_____	○
Utility Traffic Signal Box	_____	⊕
Utility Unknown U/G Line (SUE - LOS B)*	_____	UTL
U/G Tank; Water, Gas, Oil	_____	⊕
Underground Storage Tank, Approx. Loc.	_____	UST
A/G Tank; Water, Gas, Oil	_____	⊕
Geoenvironmental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

6/2/2023

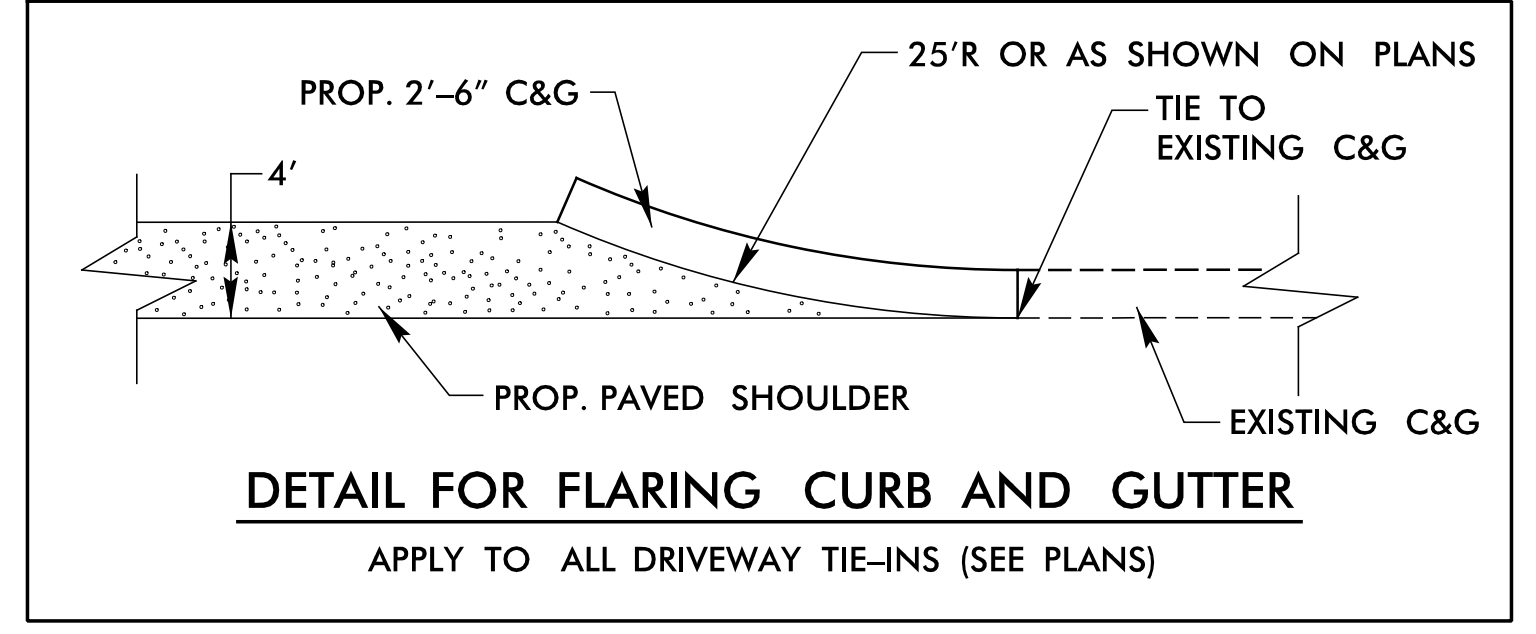
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R4	CONCRETE EXPRESSWAY GUTTER
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R5	SHOULDER BERM GUTTER
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	R6	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	S	4" CONCRETE SIDEWALK.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.	T	EARTH MATERIAL.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.	V	INCIDENTAL MILLING
J	PROP. 6" AGGREGATE BASE COURSE	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)
P	PRIME COAT AT THE RATE OF 0.35 GAL. PER SQ. YD.		
R1	1'-6" CONCRETE CURB AND GUTTER.		
R2	2'-6" CONCRETE CURB AND GUTTER.		
R3	2'-9" CONCRETE CURB AND GUTTER.		

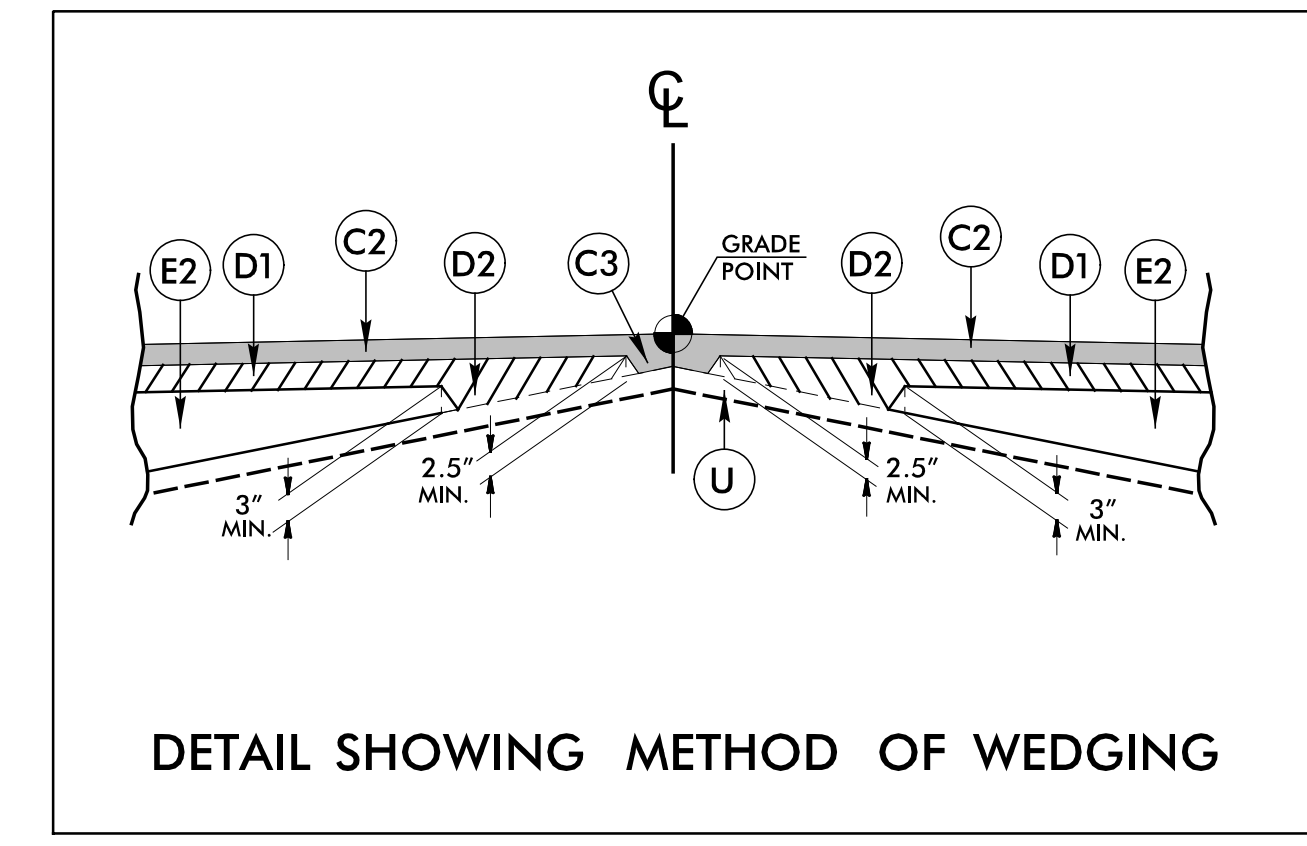
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



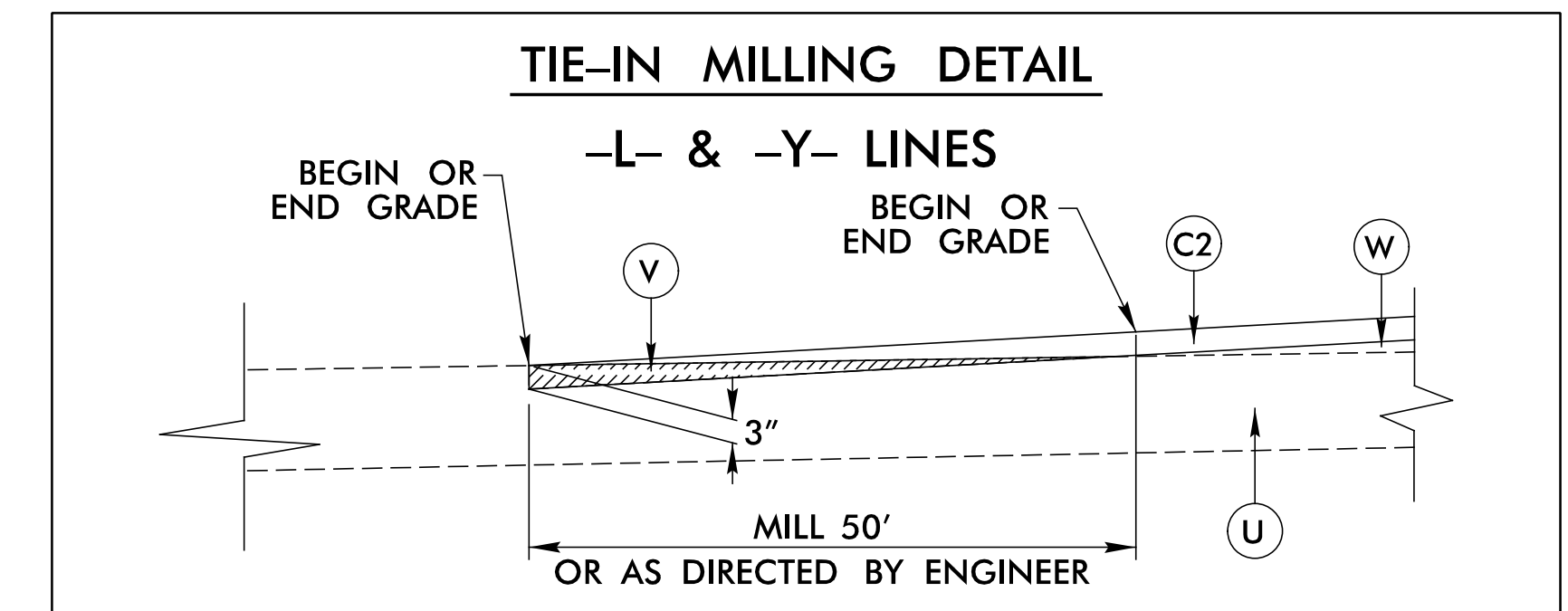
TYPICAL SECTION NO. 1A
 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 1
 -L- STA. 50+50.00 TO STA. 51+00.00 LT
 PROVIDE TRANSITION FROM EXISTING:
 -L- STA. 50+39.59± TO STA. 50+50.00 LT



DETAIL FOR FLARING CURB AND GUTTER
 APPLY TO ALL DRIVEWAY TIE-INS (SEE PLANS)



DETAIL SHOWING METHOD OF WEDGING

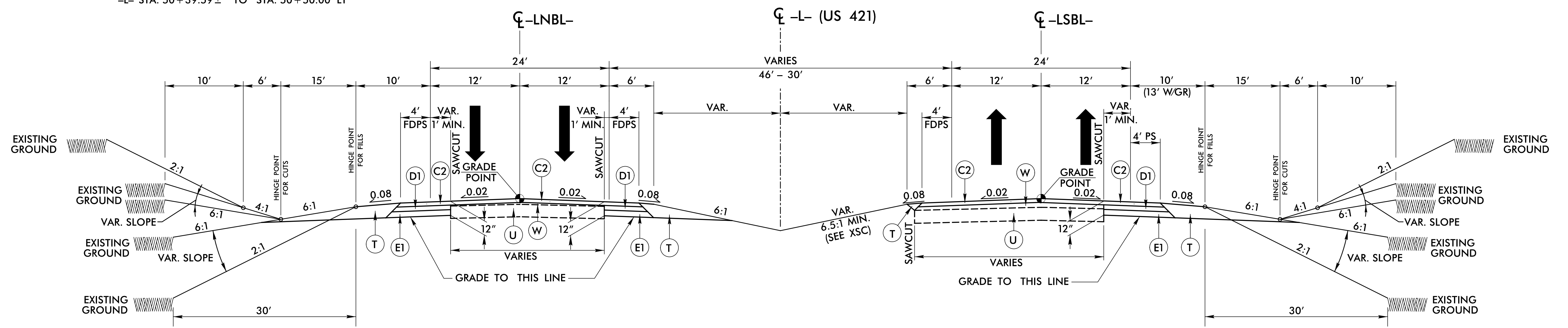


NOTES TO CONTRACTOR

For surface mixes over 1" in thickness, mill the existing pavement in accordance with the following sketch as directed by the Engineer.

Locations shall include ties into existing concrete pavement, at bridge approaches where the bridge will not be resurfaced, and at the beginning and ending point of each resurfacing map.

Perform the work in accordance with Section 607 of the January 2018 North Carolina Department of Transportation Standard Specifications for Roads and Structures. Resurfacing will be accomplished at the same time as the milling operation.



TYPICAL SECTION NO. 1
 -L- STA. 50+50.00 TO STA. 59+75.00

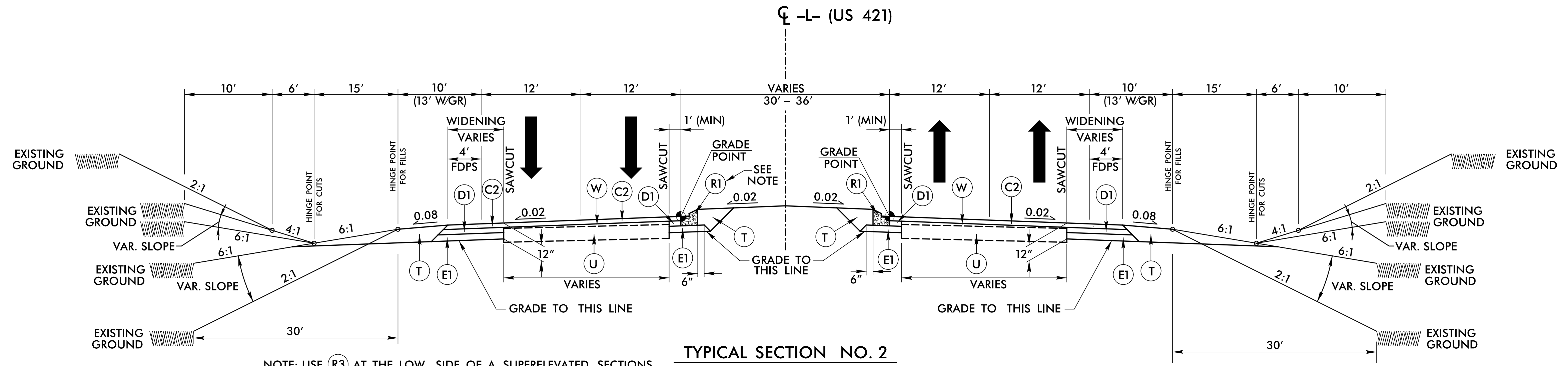
NOTE: SEE PLANS FOR LOCATION OF AUXILIARY LANES

PROJECT REFERENCE NO. U-5312	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared by VHB ENGINEERING, INC. 940 Main Campus Drive, Suite 500 Raleigh, NC 27605	
SUNGATE DESIGN GROUP, P.A. 	

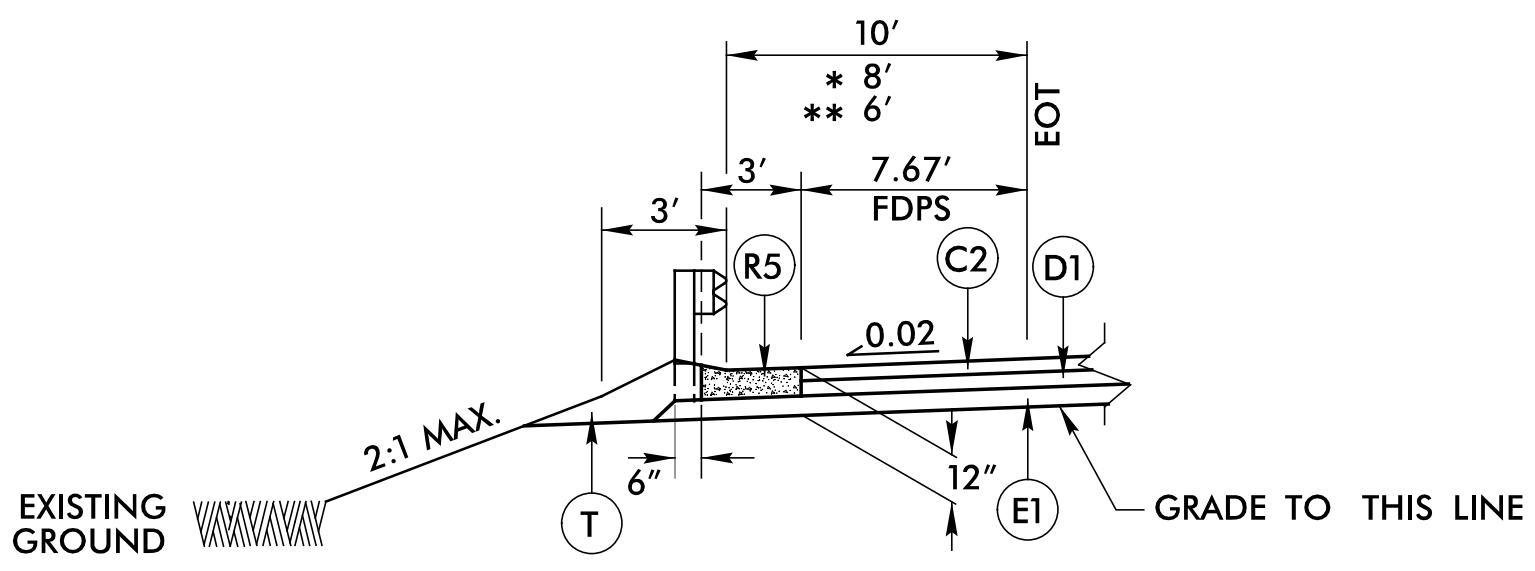
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6/2/2023

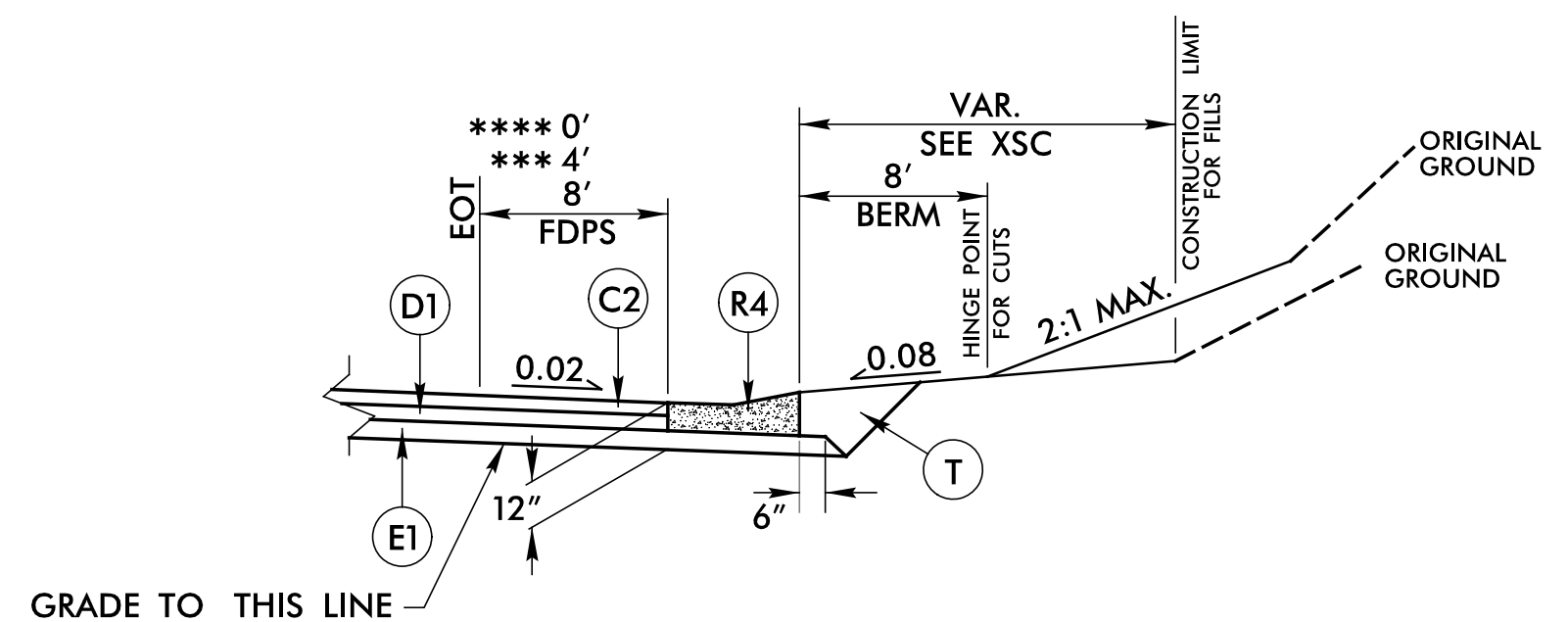
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 11:06:11 AM



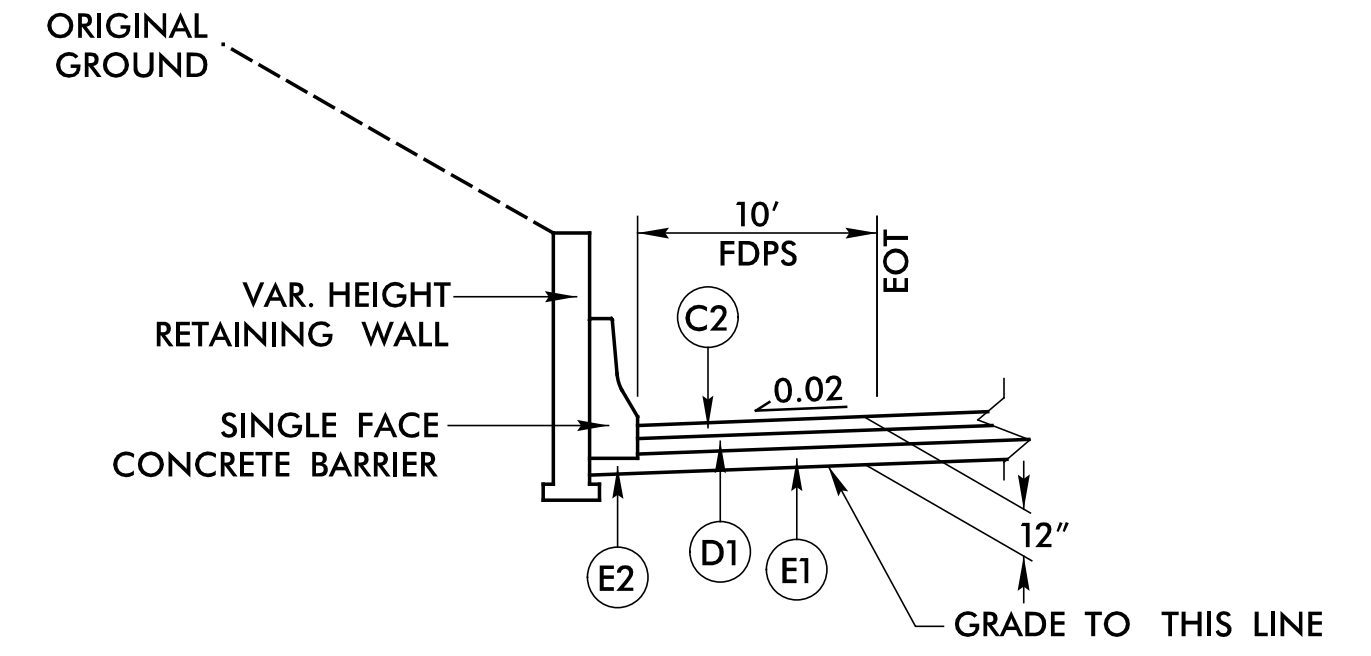
TYPICAL SECTION NO. 2
 -L- STA. 59+75.00 TO STA. 184+54.84
 -L- STA. 164+95.71 TO STA. 170+60.00
 -L- STA. 172+20.00 TO STA. 174+30.76
 -L- STA. 181+20.00 TO STA. 184+02.69
 NOTE: USE (R3) AT THE LOW SIDE OF A SUPERELEVATED SECTIONS
 NOTE: SEE SHEETS 2B-1 & 2B-2 FOR SIDEWALK ALIGNMENT AND LOCATION



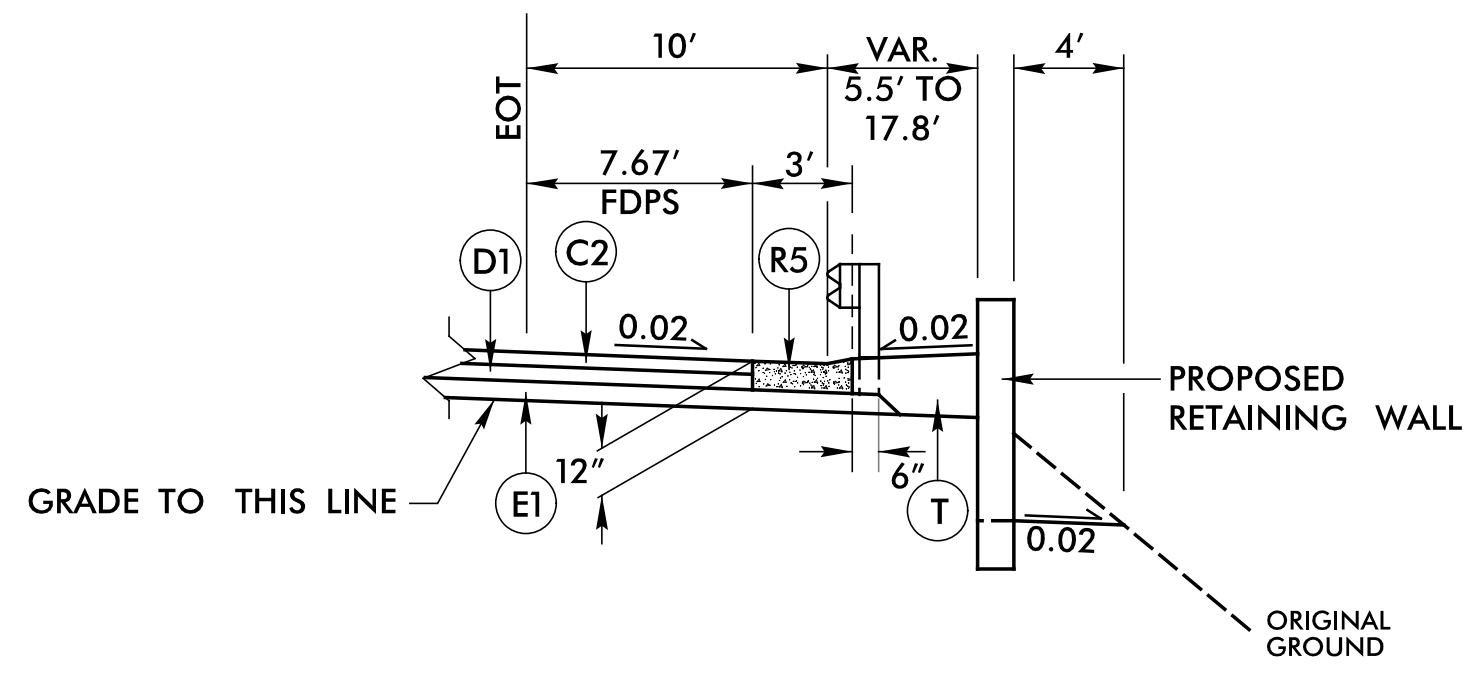
TYPICAL SECTION NO. 2A
 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 2
 -L- STA. 62+00.00 TO STA. 64+50.00 LT
 -L- STA. 61+00.00 TO STA. 67+00.00 RT (MIRROR)
 * -L- STA. 88+00.00 TO STA. 88+91.47 LT
 -L- STA. 88+91.47 TO STA. 95+50.00 LT
 -L- STA. 95+30.70 TO STA. 97+65.00 RT (MIRROR)
 -L- STA. 108+50.00 TO STA. 109+37.07 RT (MIRROR)
 ** -L- STA. 109+50.00 TO STA. 111+50.00 LT
 * -L- STA. 109+37.07 TO STA. 111+50.00 RT (MIRROR)
 -L- STA. 177+00.88 TO STA. 184+54.84 RT (MIRROR)



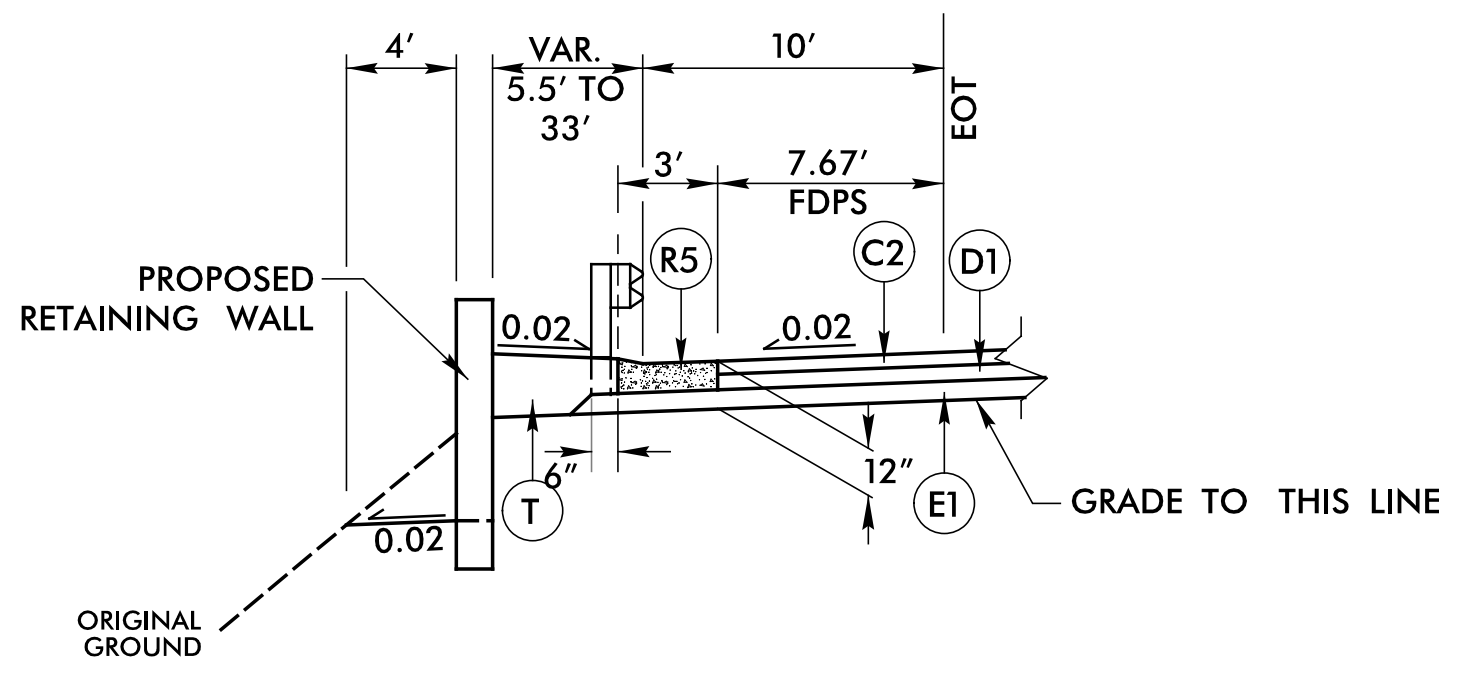
TYPICAL SECTION NO. 2B
 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 2
 -L- STA. 82+50.00 TO STA. 88+98.22 RT
 *** -L- STA. 88+98.22 TO STA. 91+12.97 RT
 -L- STA. 91+12.97 TO STA. 93+81.00 RT
 **** -L- STA. 136+35.00 TO STA. 138+40.00 RT
 -L- STA. 171+09.00 TO STA. 176+22.00 RT



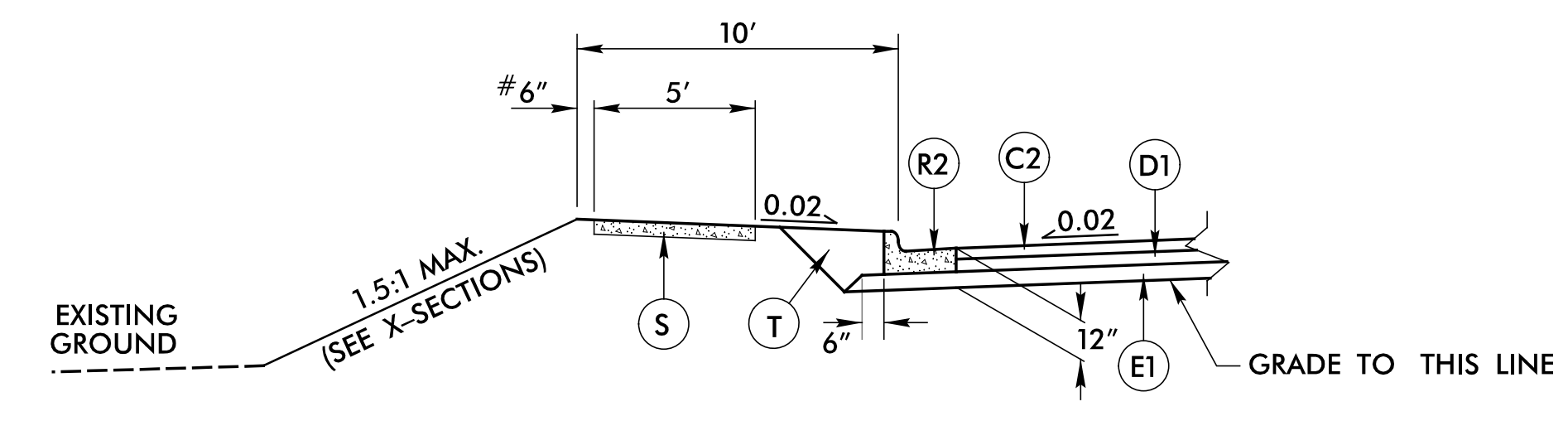
TYPICAL SECTION NO. 2C
 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 2
 -L- STA. 100+00.00 TO STA. 107+50.00 LT



TYPICAL SECTION NO. 2D
 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 2
 -L- STA. 95+50.00 TO STA. 97+70.00 RT



TYPICAL SECTION NO. 2E
 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 2
 -L- STA. 91+50.00 TO STA. 95+00.00 LT



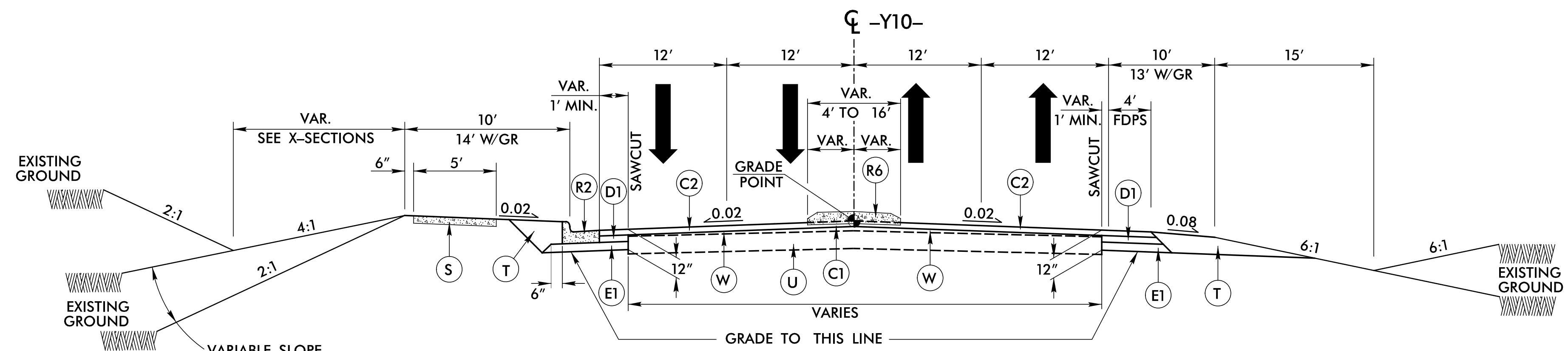
TYPICAL SECTION NO. 2F
 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 2
 -L- STA. 163+87.13 TO STA. 176+42.77 LT
 # 1.5' - WITH 3-BAR HANDRAIL -L- STA. 170+00.00 TO STA. 172+20.00 LT
 (SEE SHEET 2C-1 FOR DETAIL)

PROJECT REFERENCE NO. U-5312	SHEET NO. 2A-2
ROADWAY DESIGN ENGINEER JIMMY BOB WRIGHT SEAL 014493 7/12/2023	PAVEMENT DESIGN ENGINEER JEREMY PLAMM SEAL 039779 7/13/2023
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared by vhb SUNGATE DESIGN GROUP, P.A.	
PAVEMENT SCHEDULE	
C2	3" S9.5C
D1	4" I19.0C
E1	5" B25.0C
R1	1'-6" C&G
R2	2'-6" C&G
R3	2'-9" C&G
R4	EXPRESSWAY GUTTER
R5	SHOULDER BERM GUTTER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

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

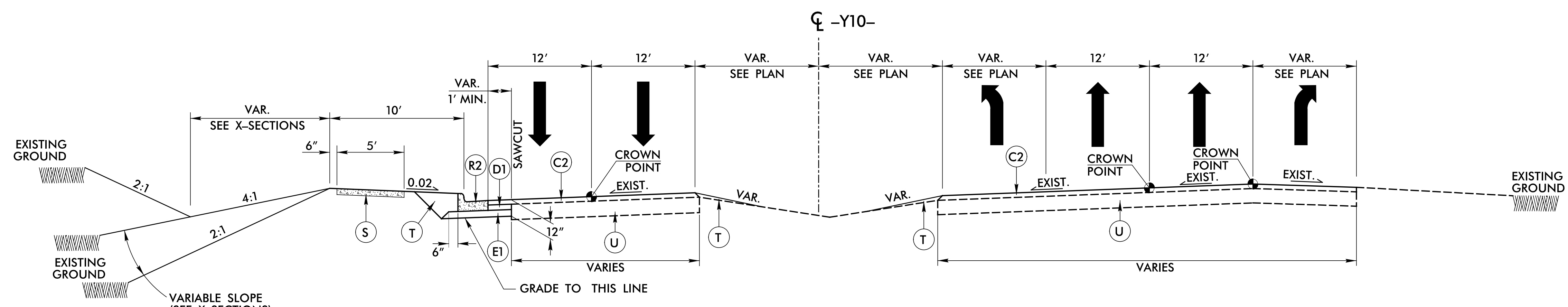
6/2/2023

3/1/2023
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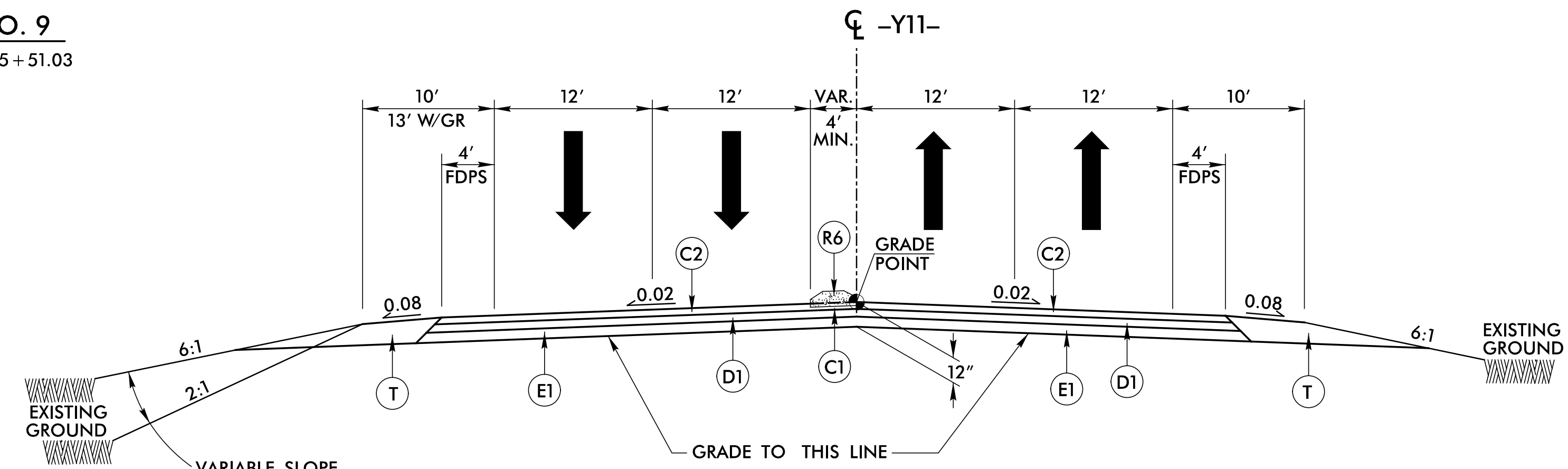
TYPICAL SECTION NO. 8
 -Y10- STA. 10+51.00 TO STA. 23+43.94

NOTE: SEE PLANS FOR LOCATION OF AUXILIARY LANES AND LIMITS OF CONC. ISLANDS



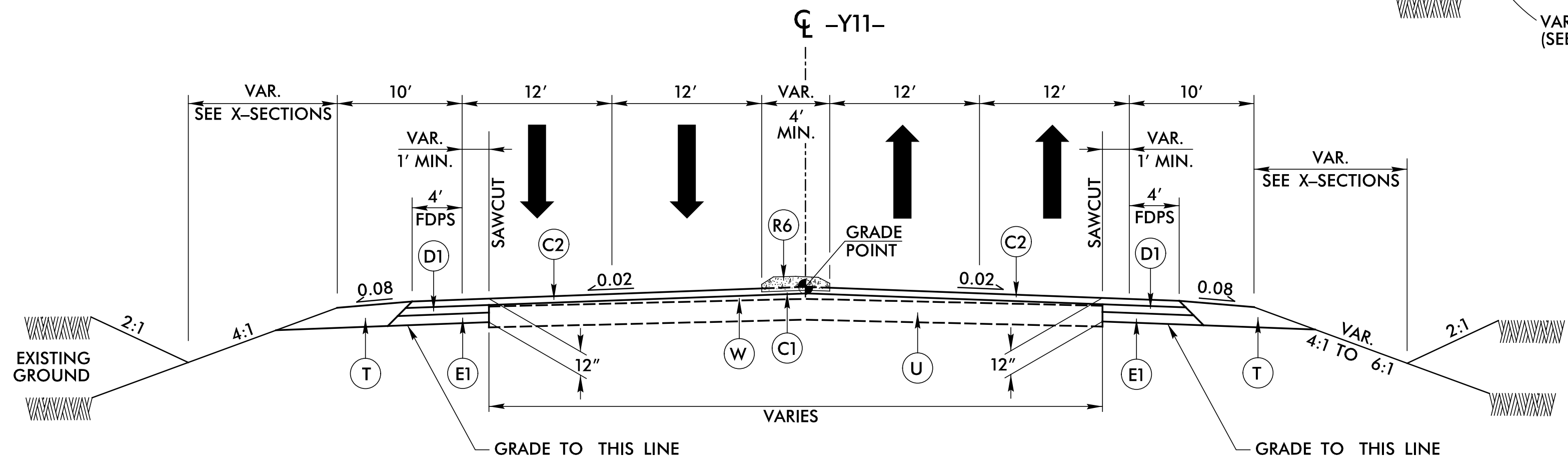
TYPICAL SECTION NO. 9
 -Y10- STA. 23+43.94 TO STA. 25+51.03

NOTE: SEE PLANS FOR LOCATION OF AUXILIARY LANES



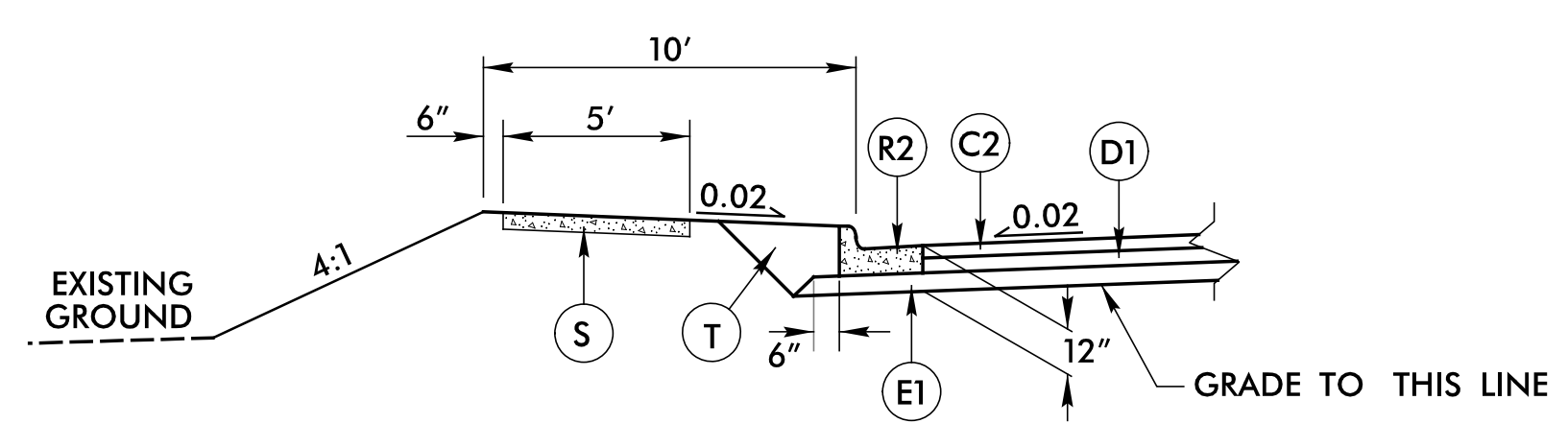
TYPICAL SECTION NO. 10
 -Y11- STA. 10+42.00 TO STA. 13+53.59

NOTE: SEE PLANS FOR LOCATION OF AUXILIARY LANES AND LIMITS OF CONC. ISLANDS



TYPICAL SECTION NO. 11
 -Y11- STA. 14+34.74 TO STA. 19+27.63

NOTE: SEE PLANS FOR LOCATION OF AUXILIARY LANES AND LIMITS OF CONC. ISLANDS



TYPICAL SECTION NO. 11A
 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 11
 -Y11- STA. 14+34.74 TO STA. 15+11.21 LT
 -Y11- STA. 14+34.74 TO STA. 15+06.55 RT (MIRROR)

ROADWAY DESIGN ENGINEER: JIMMY GOODNIGHT, SEAL 014493, 7/12/2023

PAVEMENT DESIGN ENGINEER: JEREMY HAMM, SEAL 039779, 7/13/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

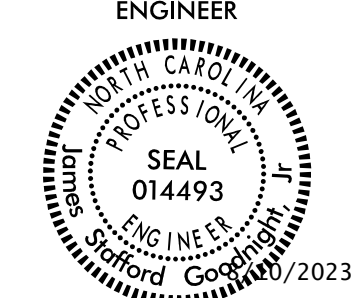
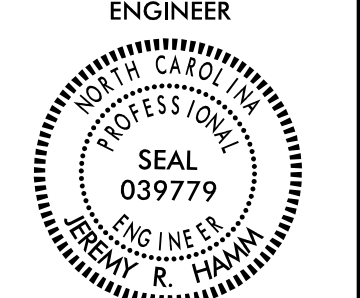
vhb SUNGATE DESIGN GROUP, P.A.

PAVEMENT SCHEDULE

C1	1.5" S9.5C
C2	3" S9.5C
D1	4" I19.0C
E1	5" B25.0C
R2	2'-6" C&G
R6	5" CONC. ISLAND (KEYED IN)
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

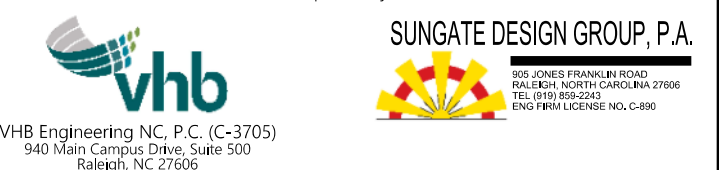
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

6/2/2023

PROJECT REFERENCE NO. U-5312	SHEET NO. 2A-5
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 
Described by: Jimmy Cooknight 643204C43AFFE8E8	
Described by: Jeremy Hamm 8/9/2023 462202348BC6A4	

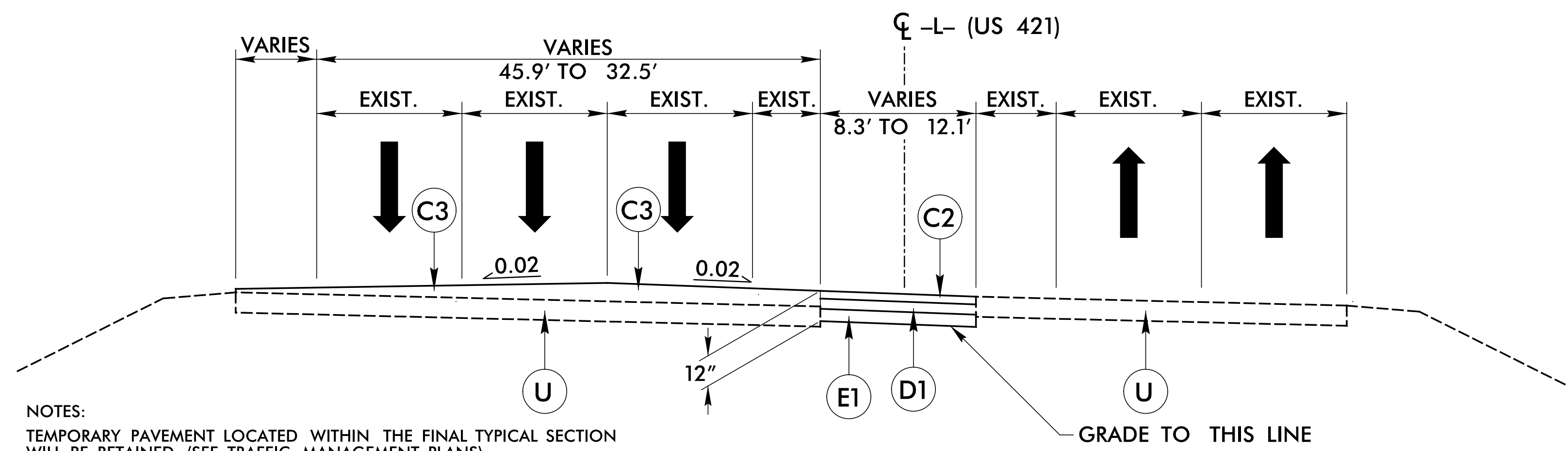
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared by



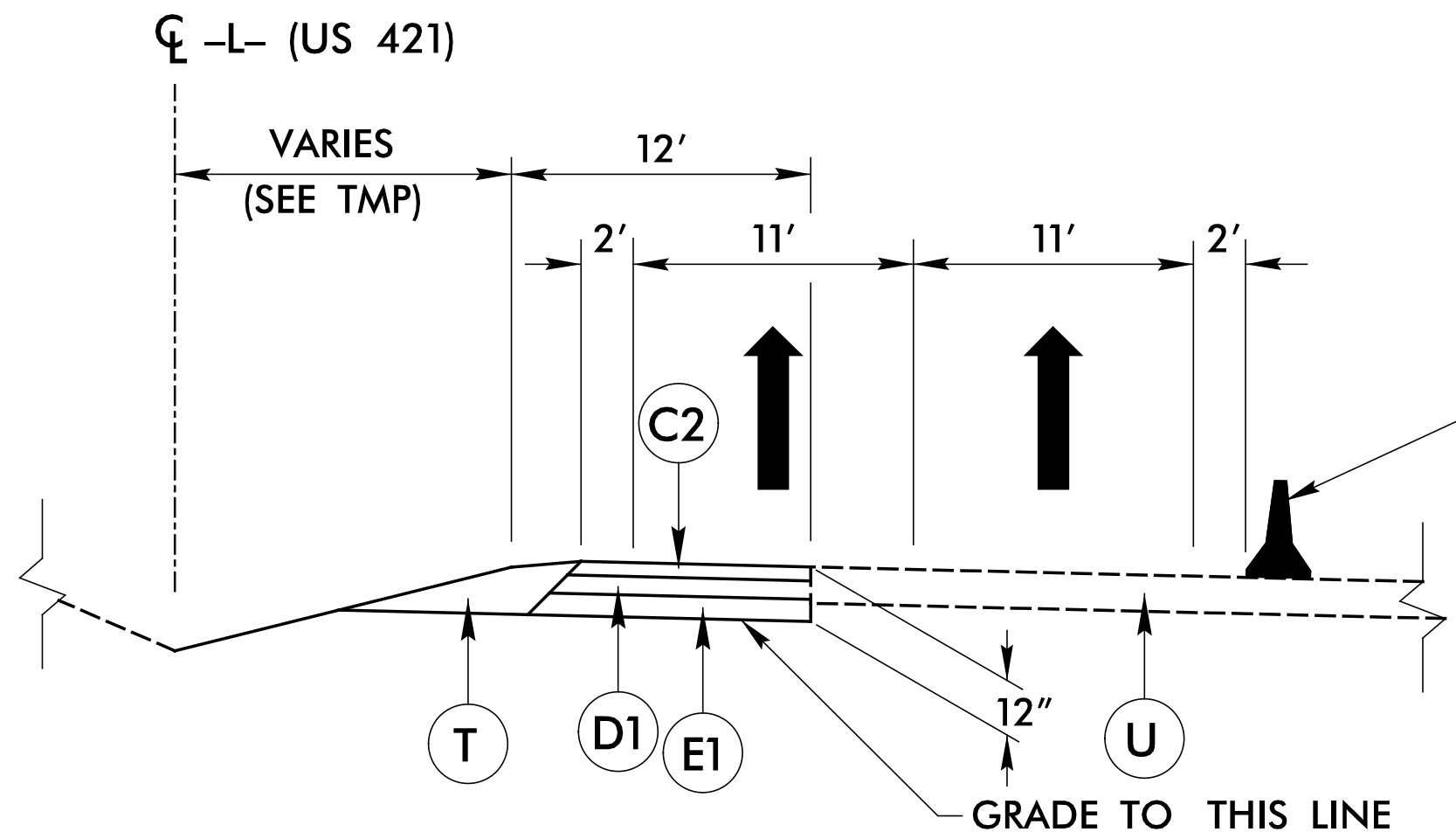
PAVEMENT SCHEDULE	
C2	3" S9.5C
C3	VAR. DEPTH S9.5C
D1	4" I19.0C
E1	5" B25.0C
J	6" ABC
P	PRIME COAT
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT

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



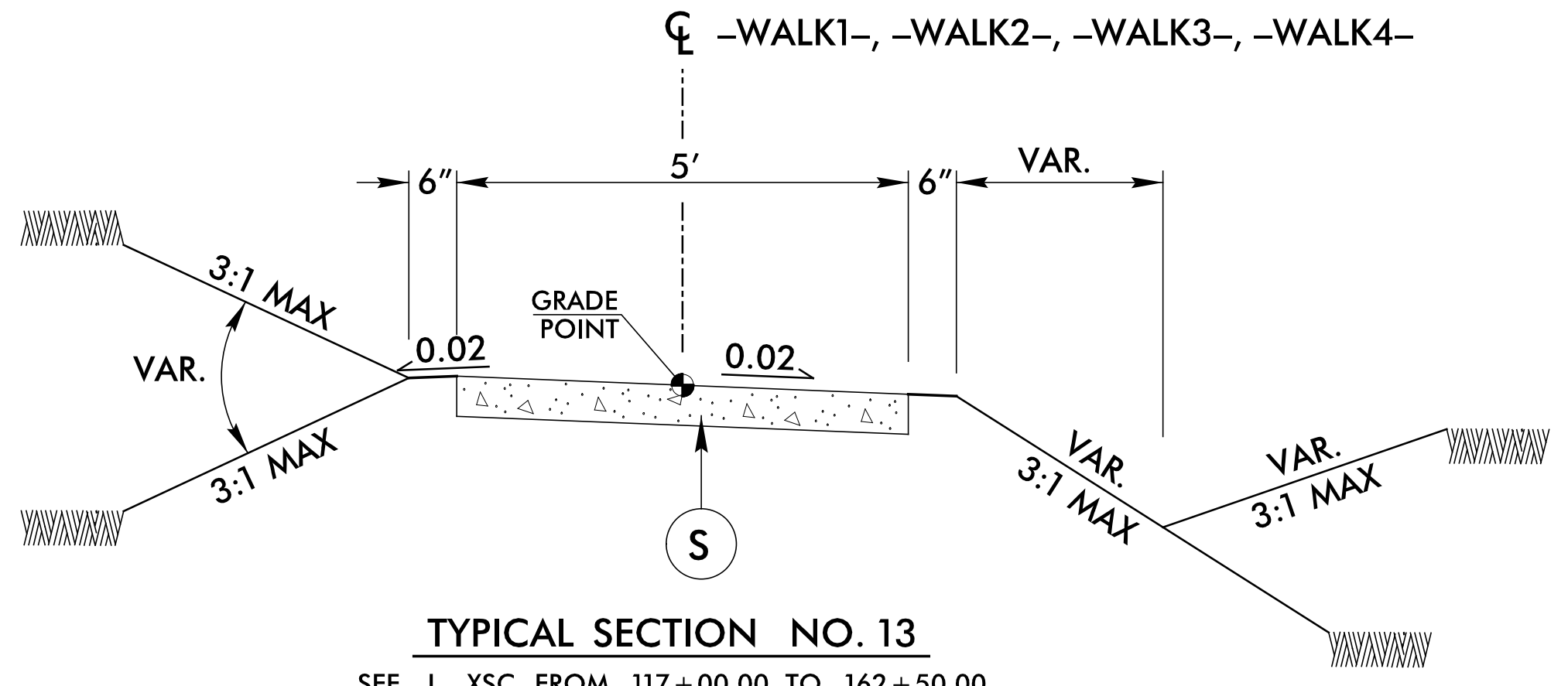
NOTES:
 TEMPORARY PAVEMENT LOCATED WITHIN THE FINAL TYPICAL SECTION WILL BE RETAINED (SEE TRAFFIC MANAGEMENT PLANS)
 REMOVE TEMPORARY PAVEMENT IN THE FOLLOWING LOCATIONS PRIOR TO FINAL PHASE CONSTRUCTION (SEE TRAFFIC MANAGEMENT PLANS)
 -L- STA. 169+10.00 TO STA. 170+60.00 LT
 -L- STA. 167+11.00 TO STA. 171+01.00 LT
 -L- STA. 171+95.70 TO STA. 176+42.00 LT
 -L- STA. 172+20.00 TO STA. 173+95.00 MED

TYPICAL SECTION NO. 12A
 TEMPORARY PAVEMENT
 -L- STA. 167+11.00 TO STA. 176+42.00

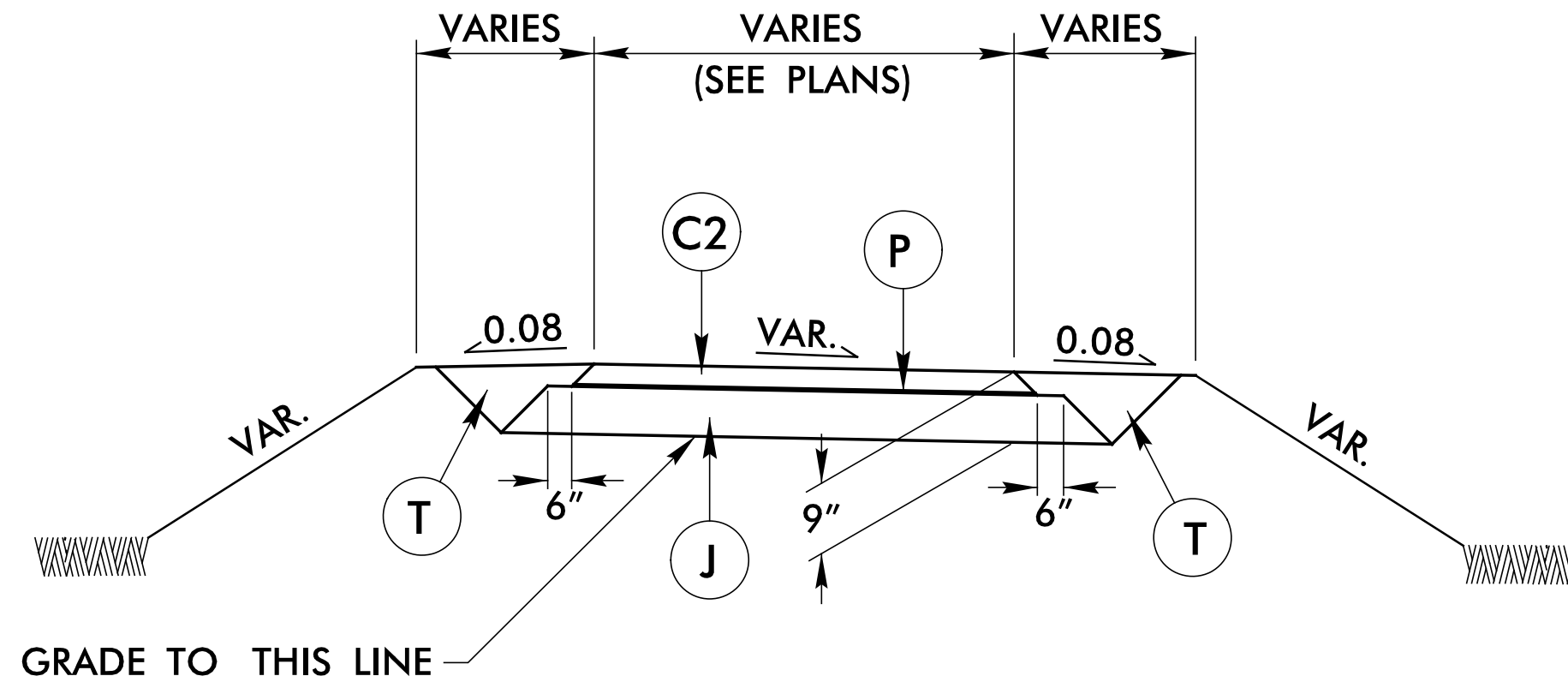


TYPICAL SECTION NO. 12B
 TEMPORARY PAVEMENT
 -L- STA. 177+61.00 TO STA. 191+50.43 RT

PORTABLE CONCRETE BARRIER (TMP PAY ITEM)
 (SEE TRAFFIC MANAGEMENT PLANS)



TYPICAL SECTION NO. 13
 SEE -L- XSC FROM 117+00.00 TO 162+50.00




TYPICAL SECTION NO. 14
 USE TYPICAL SECTION NO. 14 TO ALL DRIVEWAYS

6/18/2023
 R:\Projects\2023\U-5312\Drawings\TJM\p.dgn

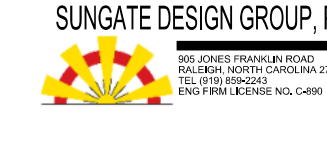
8/17/19

SIDEWALK ALIGNMENT DETAIL

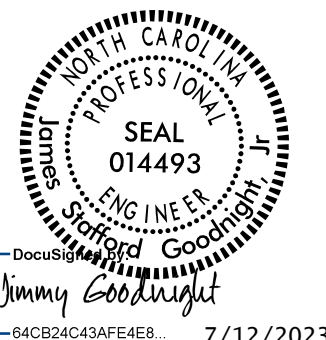
Prepared by

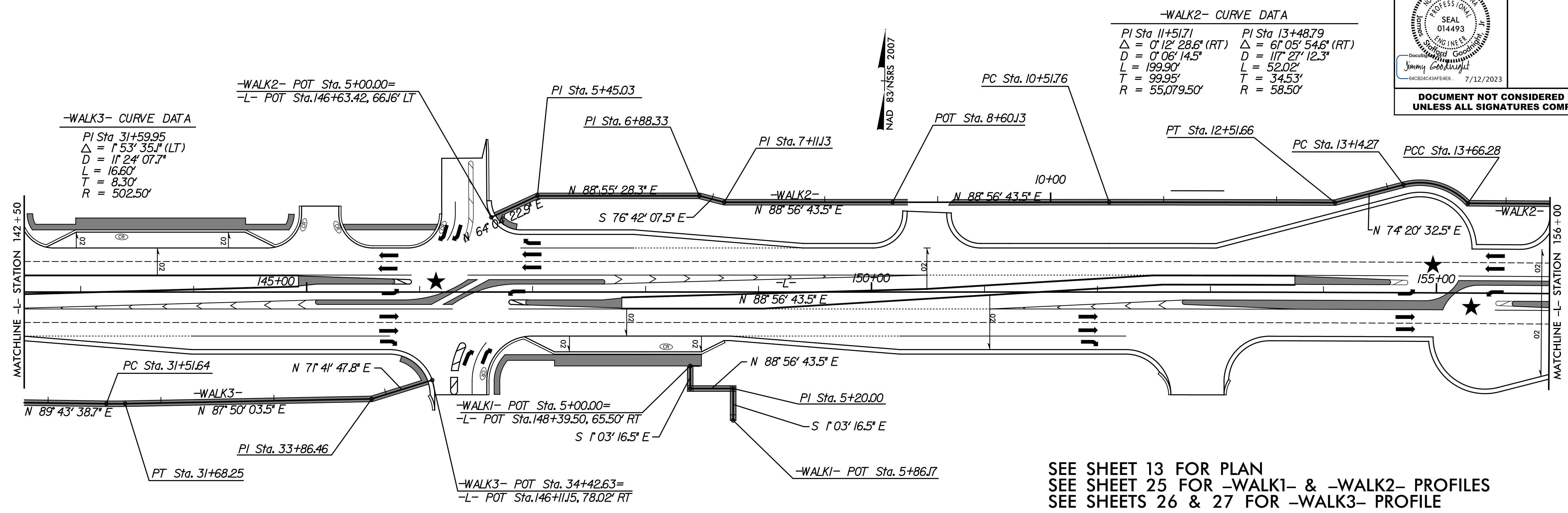


VHB Engineering, Inc. P.C. (C-3705)
950 West Campus Drive, Suite 500
Raleigh, NC 27606

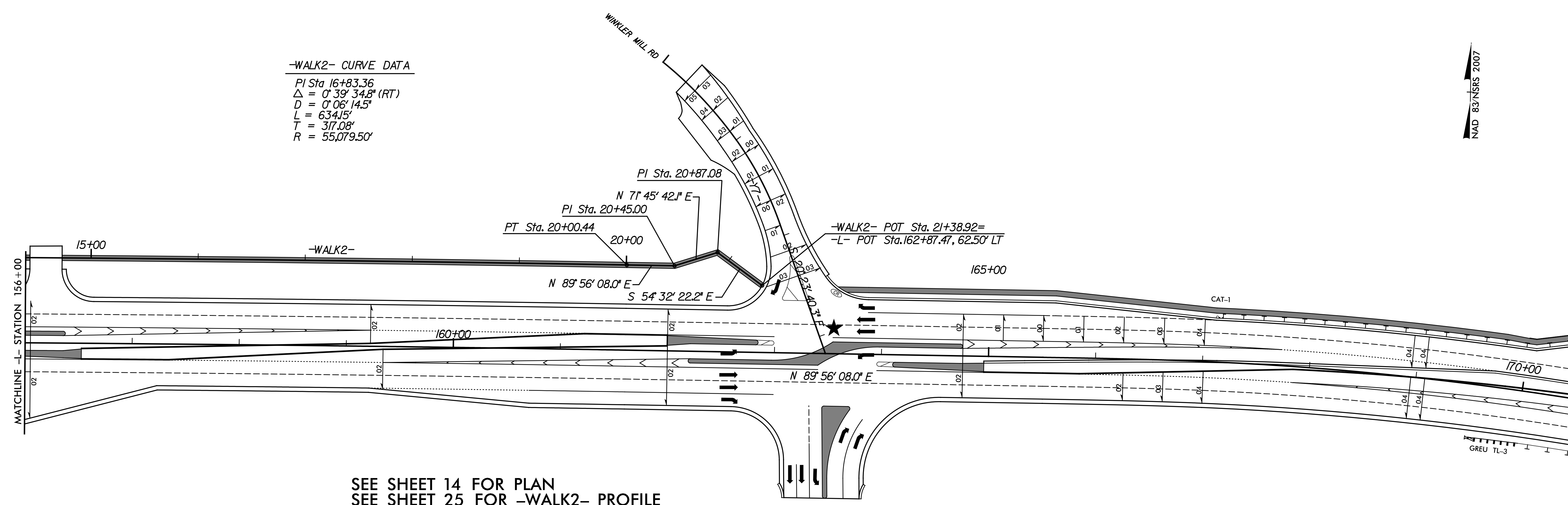


SUNGATE DESIGN GROUP, P.A.
10000 Sun Valley Road, Suite 100
Charlotte, NC 28226

PROJECT REFERENCE NO. U-5312	SHEET NO. 2B-2
ROADWAY DESIGN ENGINEER	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



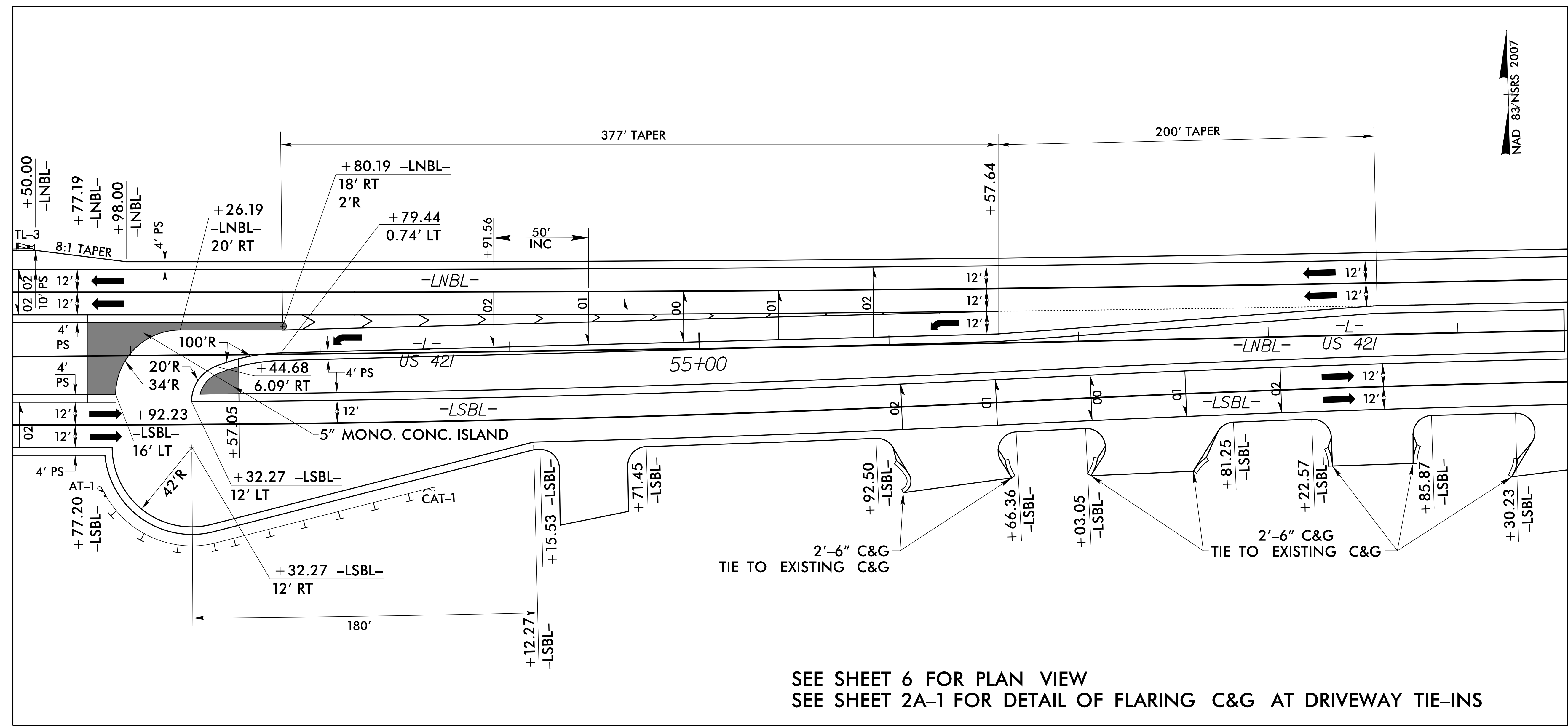
SEE SHEET 13 FOR PLAN
 SEE SHEET 25 FOR -WALK1- & -WALK2- PROFILES
 SEE SHEETS 26 & 27 FOR -WALK3- PROFILE



SEE SHEET 14 FOR PLAN
 SEE SHEET 25 FOR -WALK2- PROFILE

3/11/2023
 U6312-rdy_det-2B-1.dgn
 Havelle

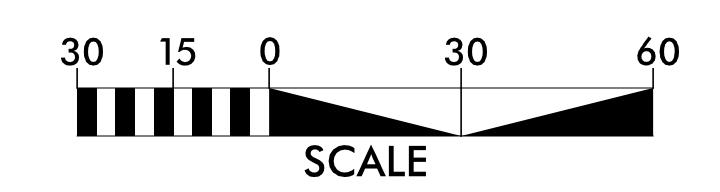
INTERSECTION DETAILS



SEE SHEET 6 FOR PLAN VIEW
SEE SHEET 2A-1 FOR DETAIL OF FLARING C&G AT DRIVEWAY TIE-INS

DETAIL 1
-L- STA. 51+38.00 TO 59+58.00


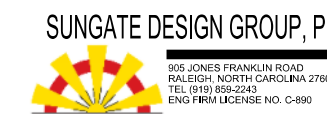
- NOTES:**
- ALL DIMENSIONS ARE BASED OFF OF -L- ALIGNMENT UNLESS OTHERWISE NOTED.
 - 10' RADII FOR ALL DRIVEWAYS UNLESS OTHERWISE NOTED.



NAD 83/NSRS 2007

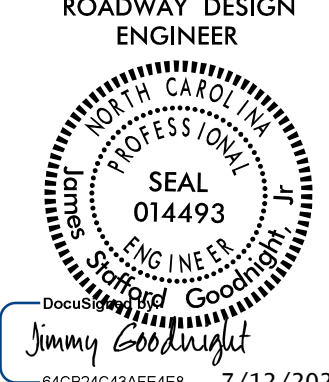

5/14/23

Prepared by

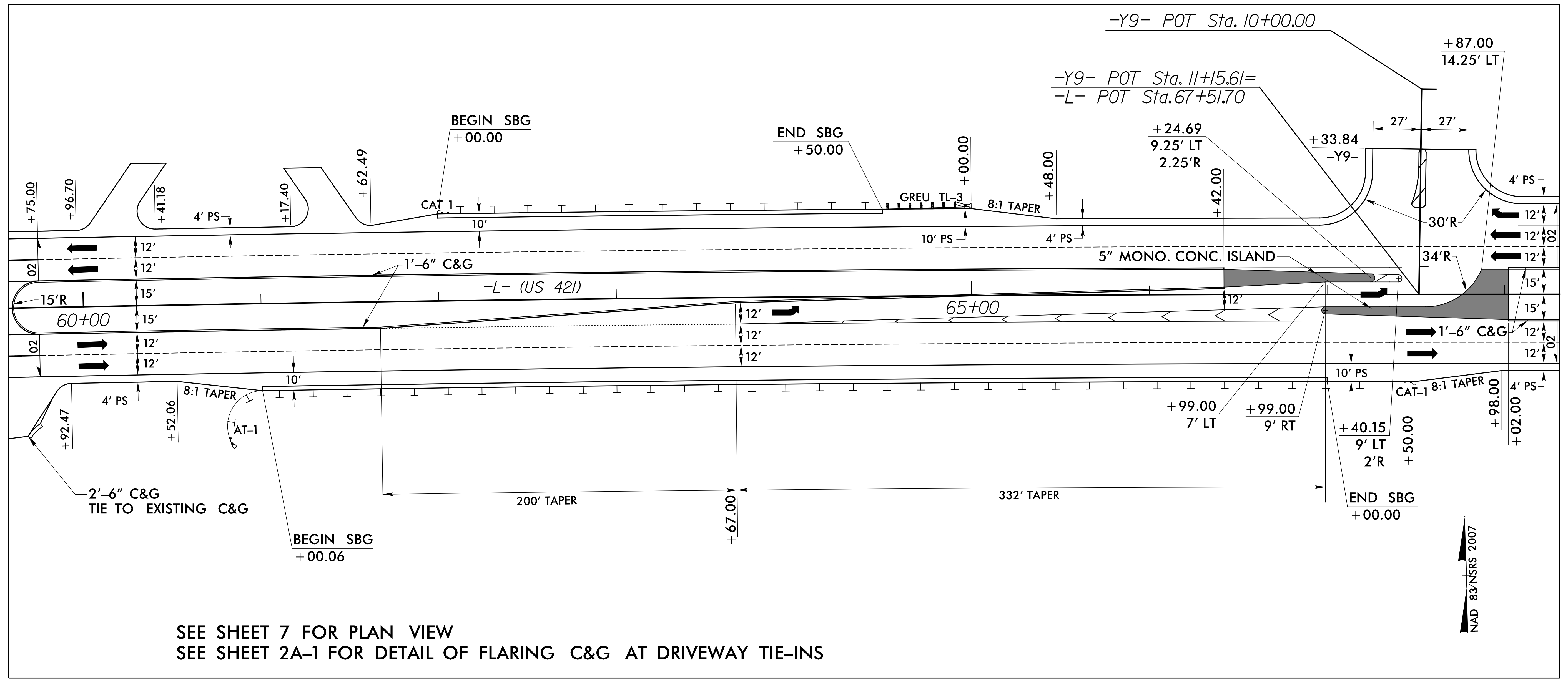



VHB Engineering NC, P.C. (C-2705)
940 Main Campus Drive, Suite 300
Raleigh, NC 27606

SUNGATE DESIGN GROUP, P.A.
10000 Sunset Blvd, Suite 100
Dallas, TX 75248
972-440-0000

PROJECT REFERENCE NO. <i>U-5312</i>	SHEET NO. <i>2B-4</i>
ROADWAY DESIGN ENGINEER	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

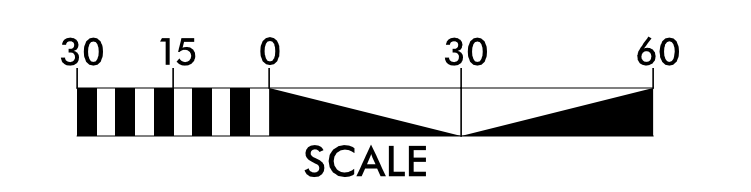
INTERSECTION DETAILS



SEE SHEET 7 FOR PLAN VIEW
SEE SHEET 2A-1 FOR DETAIL OF FLARING C&G AT DRIVEWAY TIE-INS

DETAIL 2
-L- STA. 59+58.00 TO 68+30.00


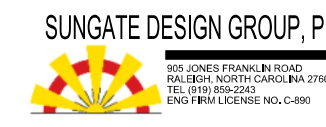
- NOTES:**
- ALL DIMENSIONS ARE BASED OFF OF -L- ALIGNMENT UNLESS OTHERWISE NOTED.
 - 10' RADII FOR ALL DRIVEWAYS UNLESS OTHERWISE NOTED.
 - 2' RADII FOR ALL CONCRETE ISLANDS UNLESS OTHERWISE NOTED.



3/1/2023 3:23:23 rdy_det_2B-4.dgn

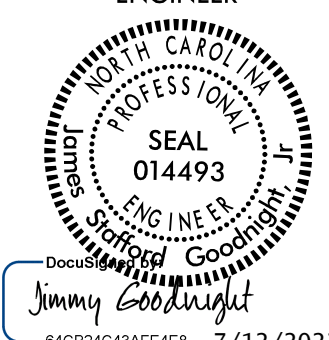
5/14/23

Prepared by

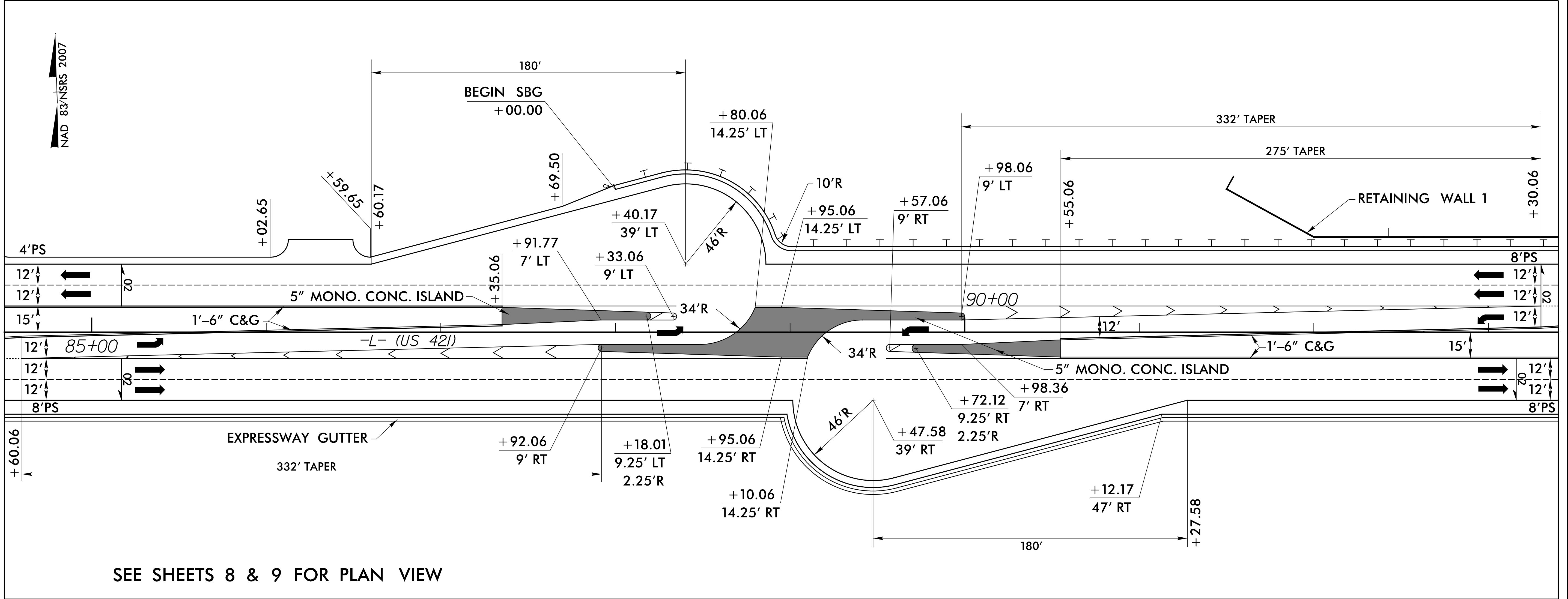



VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 300
Raleigh, NC 27606

SUNGATE DESIGN GROUP, P.A.
10000 Sunset Blvd, Suite 100
Dallas, TX 75242
972.443.8888
www.sungatedesign.com

PROJECT REFERENCE NO. U-5312	SHEET NO. 2B-6
ROADWAY DESIGN ENGINEER	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

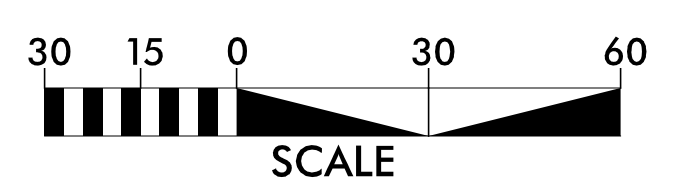
INTERSECTION DETAILS



SEE SHEETS 8 & 9 FOR PLAN VIEW

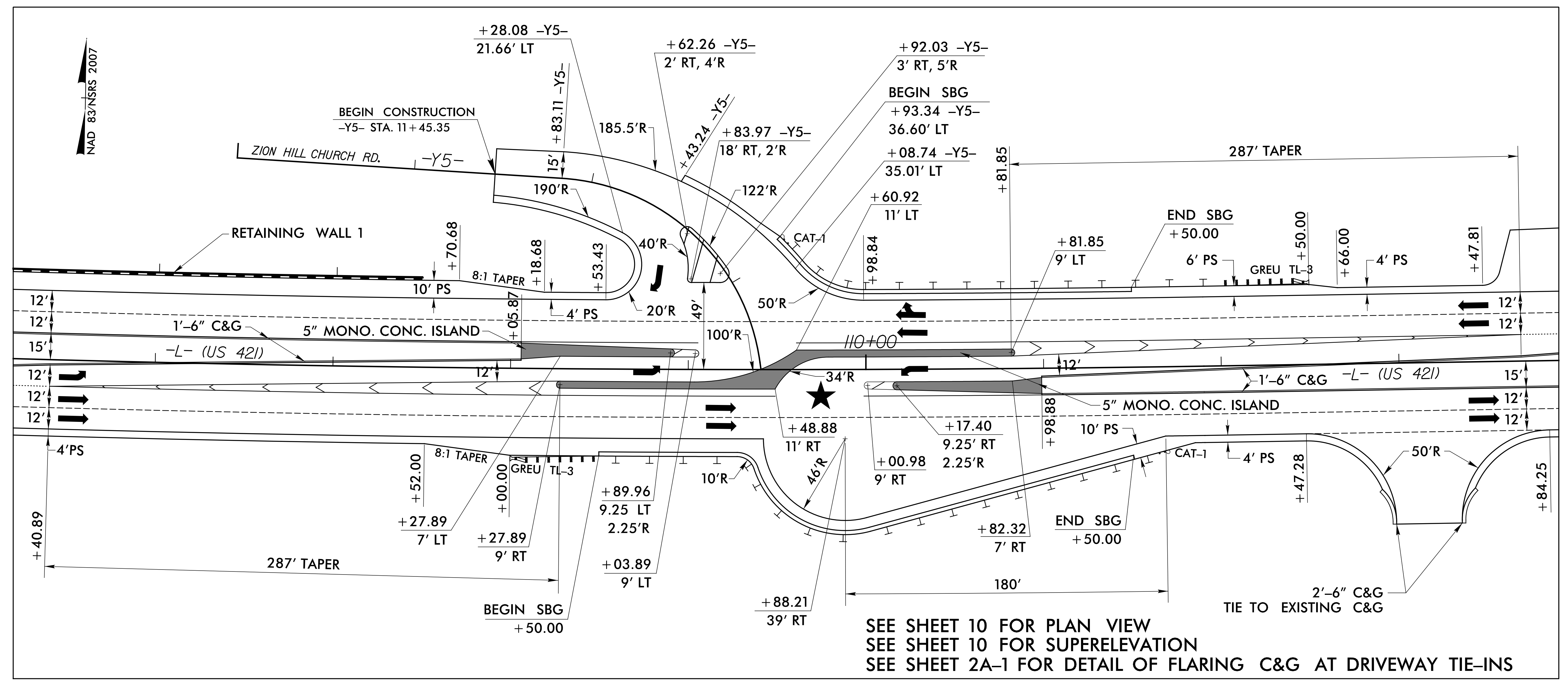
DETAIL 4 -L- STA. 84 + 50.00 TO 93 + 40.00

- NOTES:**
- ALL DIMENSIONS ARE BASED OFF OF -L- ALIGNMENT UNLESS OTHERWISE NOTED.
 - 10' RADII FOR ALL DRIVEWAYS UNLESS OTHERWISE NOTED.
 - 2' RADII FOR ALL CONCRETE ISLANDS UNLESS OTHERWISE NOTED.



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INTERSECTION DETAILS



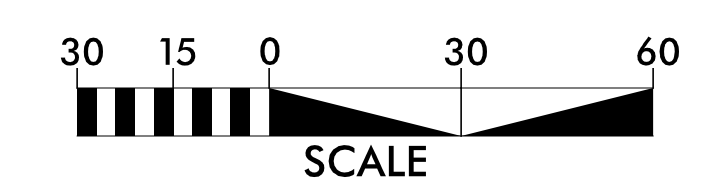
SEE SHEET 10 FOR PLAN VIEW
 SEE SHEET 10 FOR SUPERELEVATION
 SEE SHEET 2A-1 FOR DETAIL OF FLARING C&G AT DRIVEWAY TIE-INS

★ DENOTES PROPOSED SIGNALIZED INTERSECTION

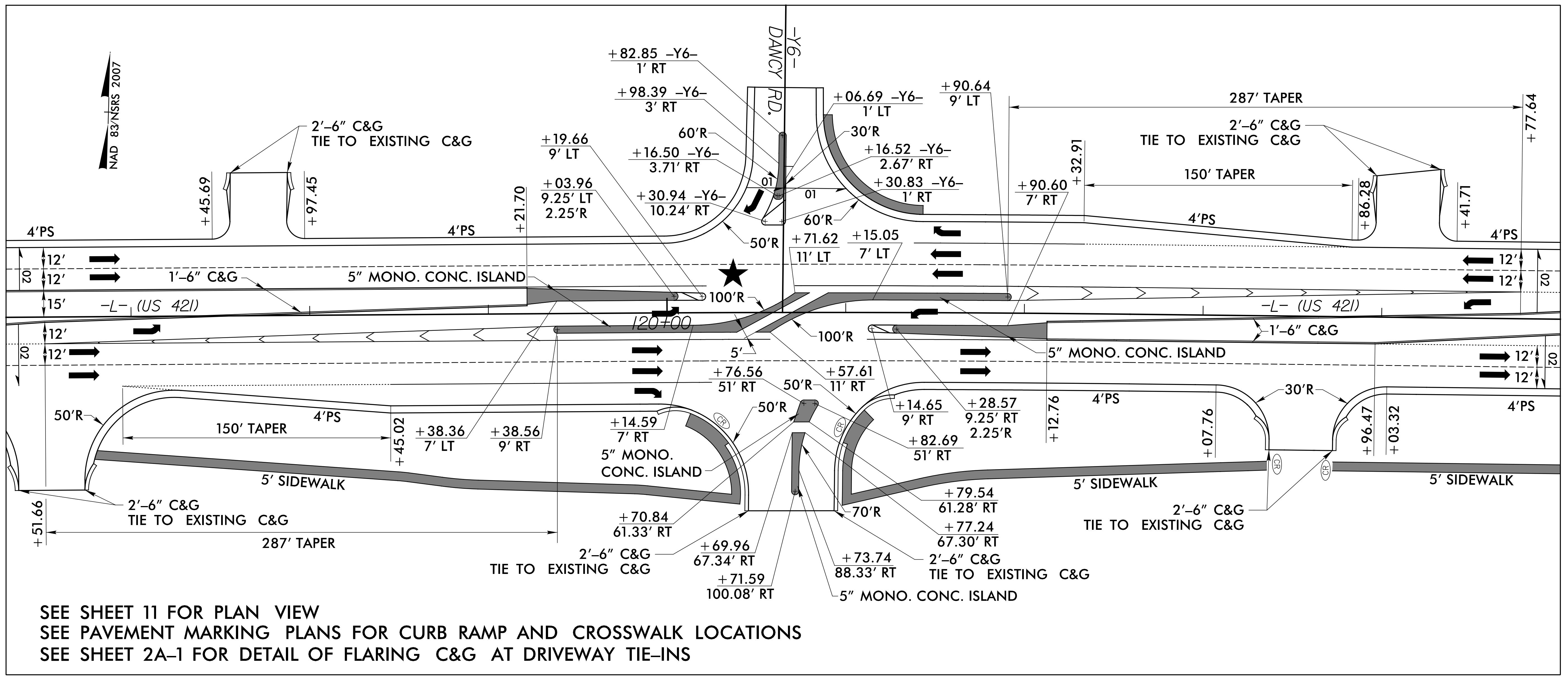
DETAIL 5
 -L- STA. 105+20.00 TO 113+90.00

NOTES:

- ALL DIMENSIONS ARE BASED OFF OF -L- ALIGNMENT UNLESS OTHERWISE NOTED.
- 10' RADII FOR ALL DRIVEWAYS UNLESS OTHERWISE NOTED.
- 2' RADII FOR ALL CONCRETE ISLANDS UNLESS OTHERWISE NOTED.



INTERSECTION DETAILS



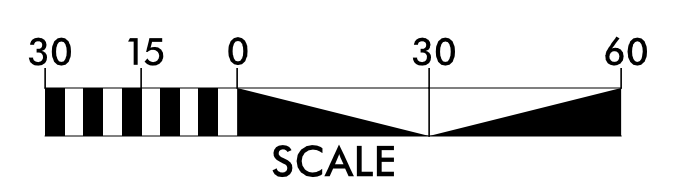
SEE SHEET 11 FOR PLAN VIEW
 SEE PAVEMENT MARKING PLANS FOR CURB RAMP AND CROSSWALK LOCATIONS
 SEE SHEET 2A-1 FOR DETAIL OF FLARING C&G AT DRIVEWAY TIE-INS

★ DENOTES PROPOSED SIGNALIZED INTERSECTION

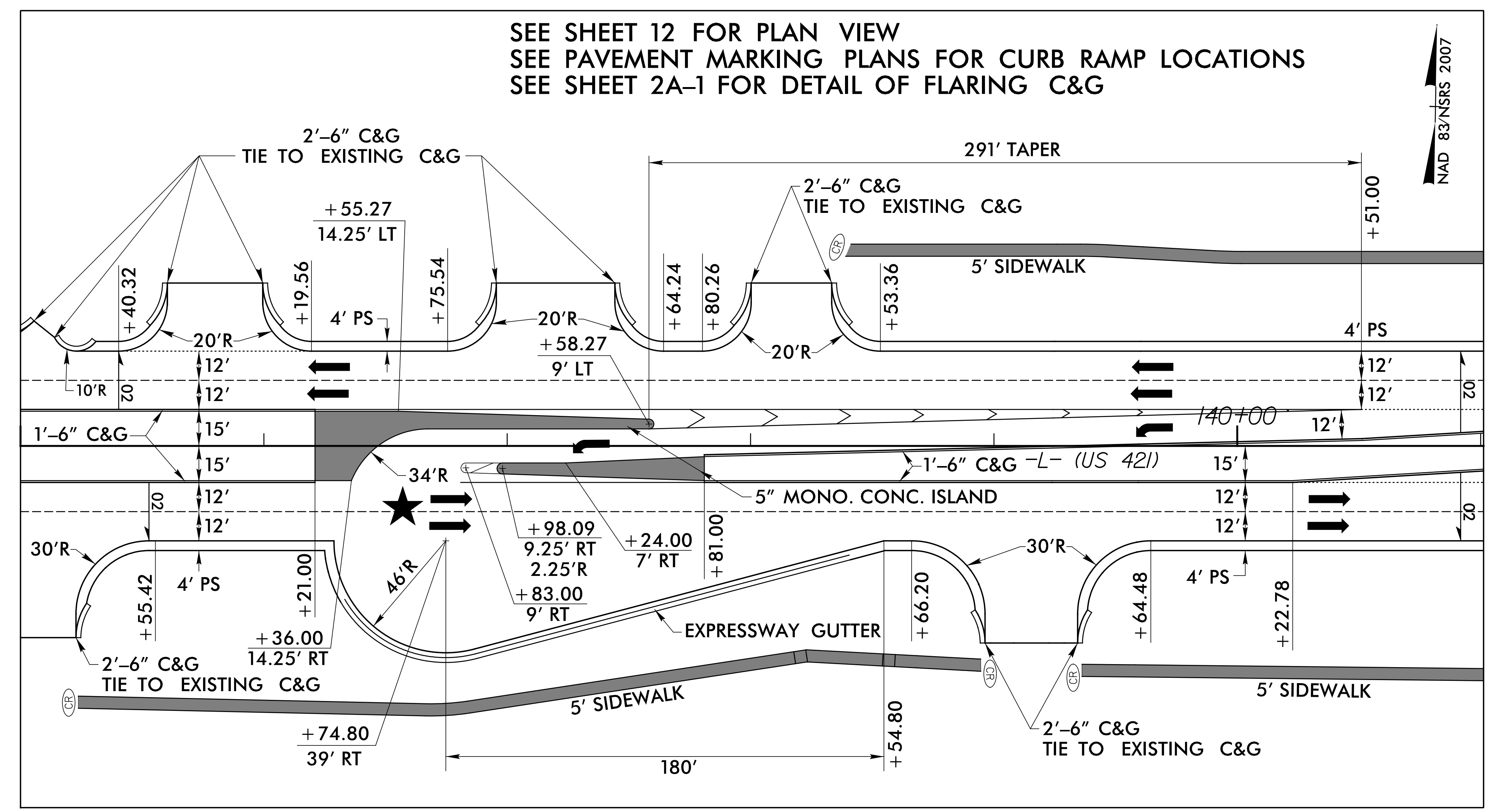
DETAIL 6
 -L- STA. 116 + 30.00 TO 125 + 00.00

NOTES:

- ALL DIMENSIONS ARE BASED OFF OF -L- ALIGNMENT UNLESS OTHERWISE NOTED.
- 10' RADII FOR ALL DRIVEWAYS UNLESS OTHERWISE NOTED.
- 2' RADII FOR ALL CONCRETE ISLANDS UNLESS OTHERWISE NOTED.



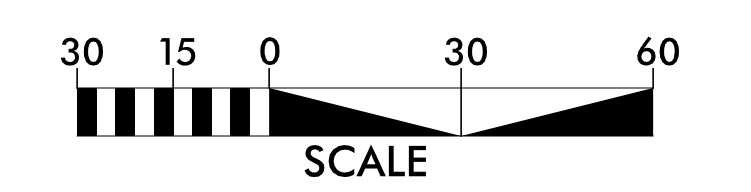
INTERSECTION DETAILS



★ DENOTES PROPOSED SIGNALIZED INTERSECTION

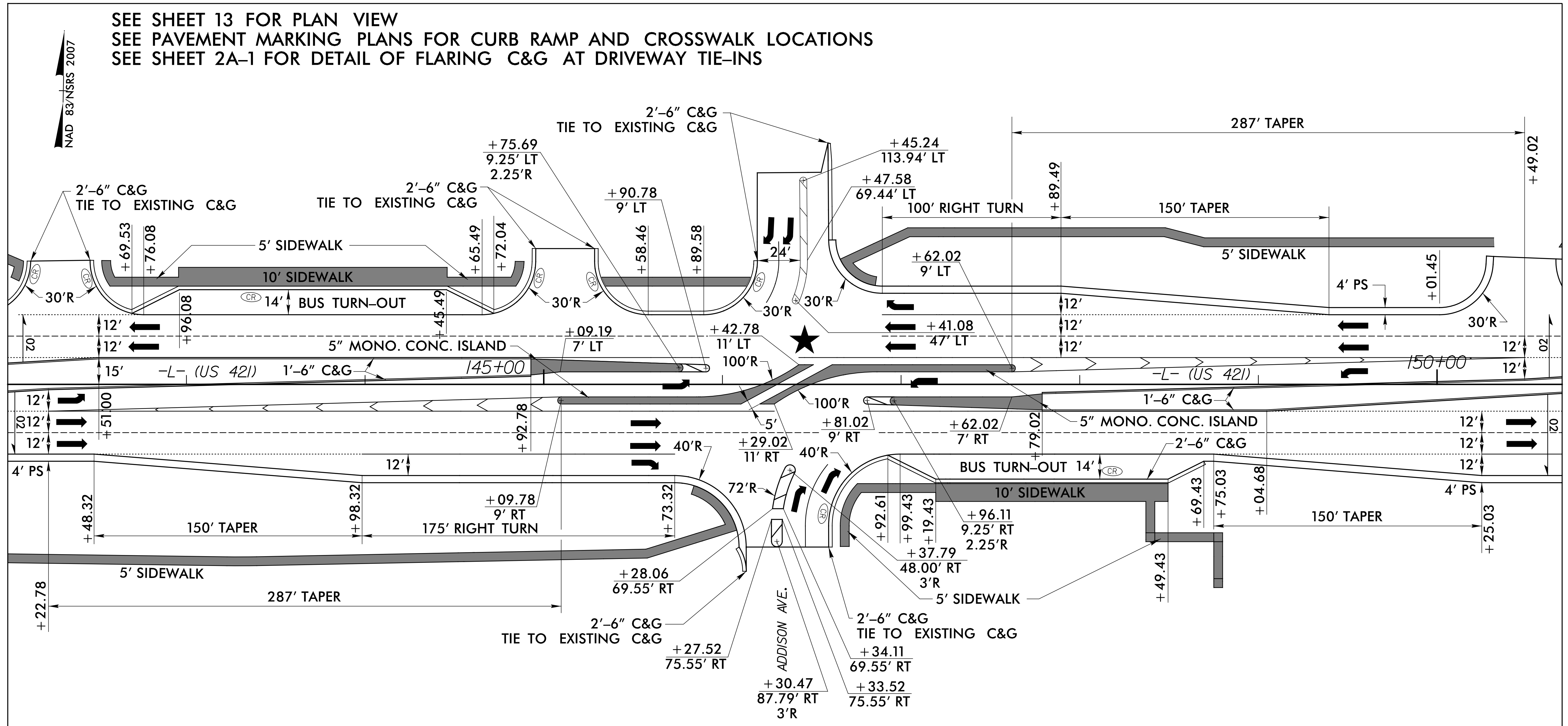
DETAIL 8
-L- STA. 135 + 00.00 TO 141 + 00.00

- NOTES:**
- ALL DIMENSIONS ARE BASED OFF OF -L- ALIGNMENT UNLESS OTHERWISE NOTED.
 - 2' RADII FOR ALL CONCRETE ISLANDS UNLESS OTHERWISE NOTED.



INTERSECTION DETAILS

SEE SHEET 13 FOR PLAN VIEW
 SEE PAVEMENT MARKING PLANS FOR CURB RAMP AND CROSSWALK LOCATIONS
 SEE SHEET 2A-1 FOR DETAIL OF FLARING C&G AT DRIVEWAY TIE-INS



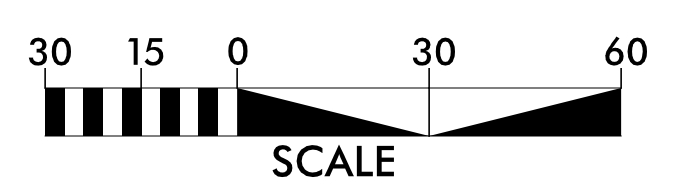
★ DENOTES PROPOSED SIGNALIZED INTERSECTION

DETAIL 9

-L- STA. 142 + 00.00 TO 150 + 70.00


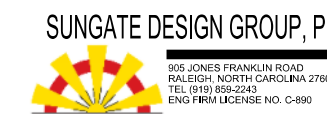
NOTES:

- ALL DIMENSIONS ARE BASED OFF OF -L- ALIGNMENT UNLESS OTHERWISE NOTED.
- 2' RADII FOR ALL CONCRETE ISLANDS UNLESS OTHERWISE NOTED.





5/14/23

Prepared by

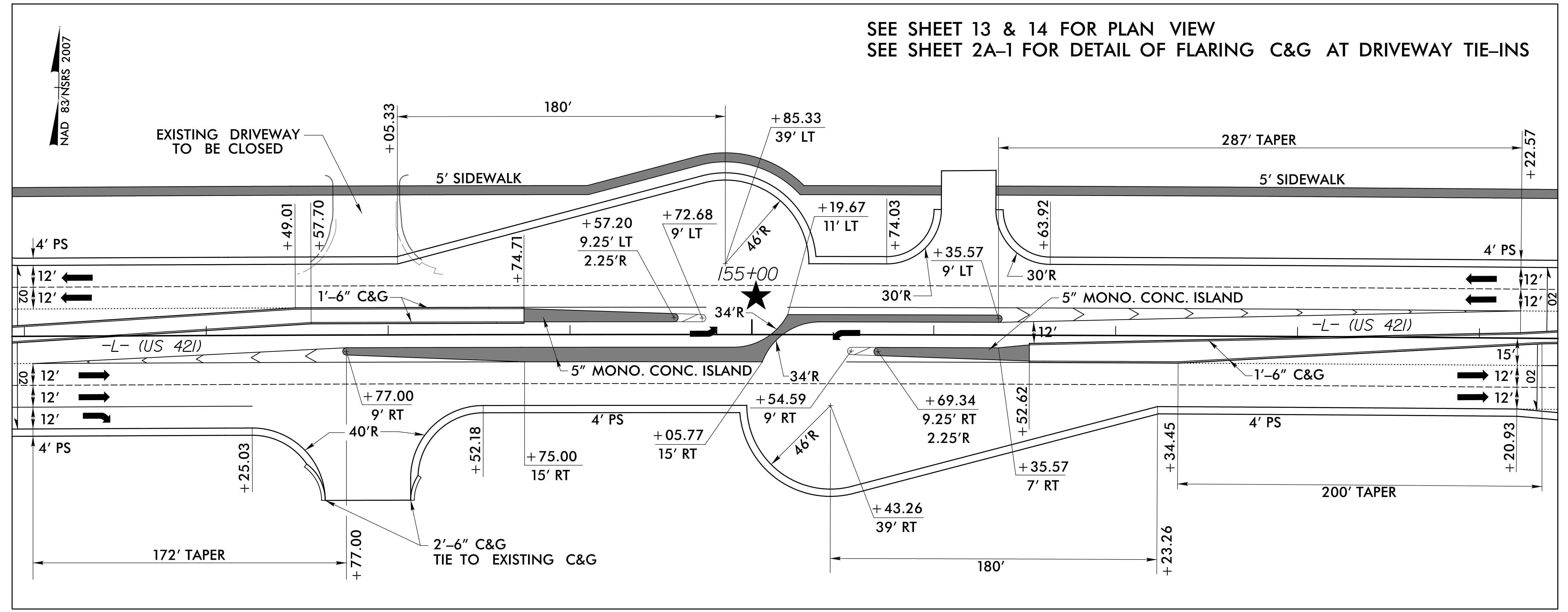



VHB Engineering NC, P.C. (C-2705)
940 Main Campus Drive, Suite 300
Raleigh, NC 27606

PROJECT REFERENCE NO. U-5312	SHEET NO. 2B-12
ROADWAY DESIGN ENGINEER	
 7/12/2023	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

INTERSECTION DETAILS

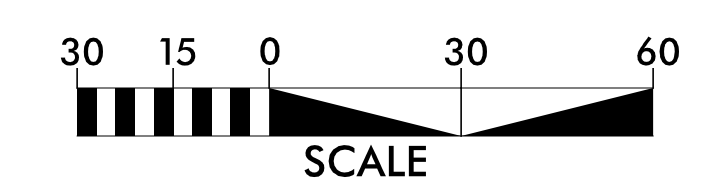
SEE SHEET 13 & 14 FOR PLAN VIEW
SEE SHEET 2A-1 FOR DETAIL OF FLARING C&G AT DRIVEWAY TIE-INS



★ DENOTES PROPOSED SIGNALIZED INTERSECTION

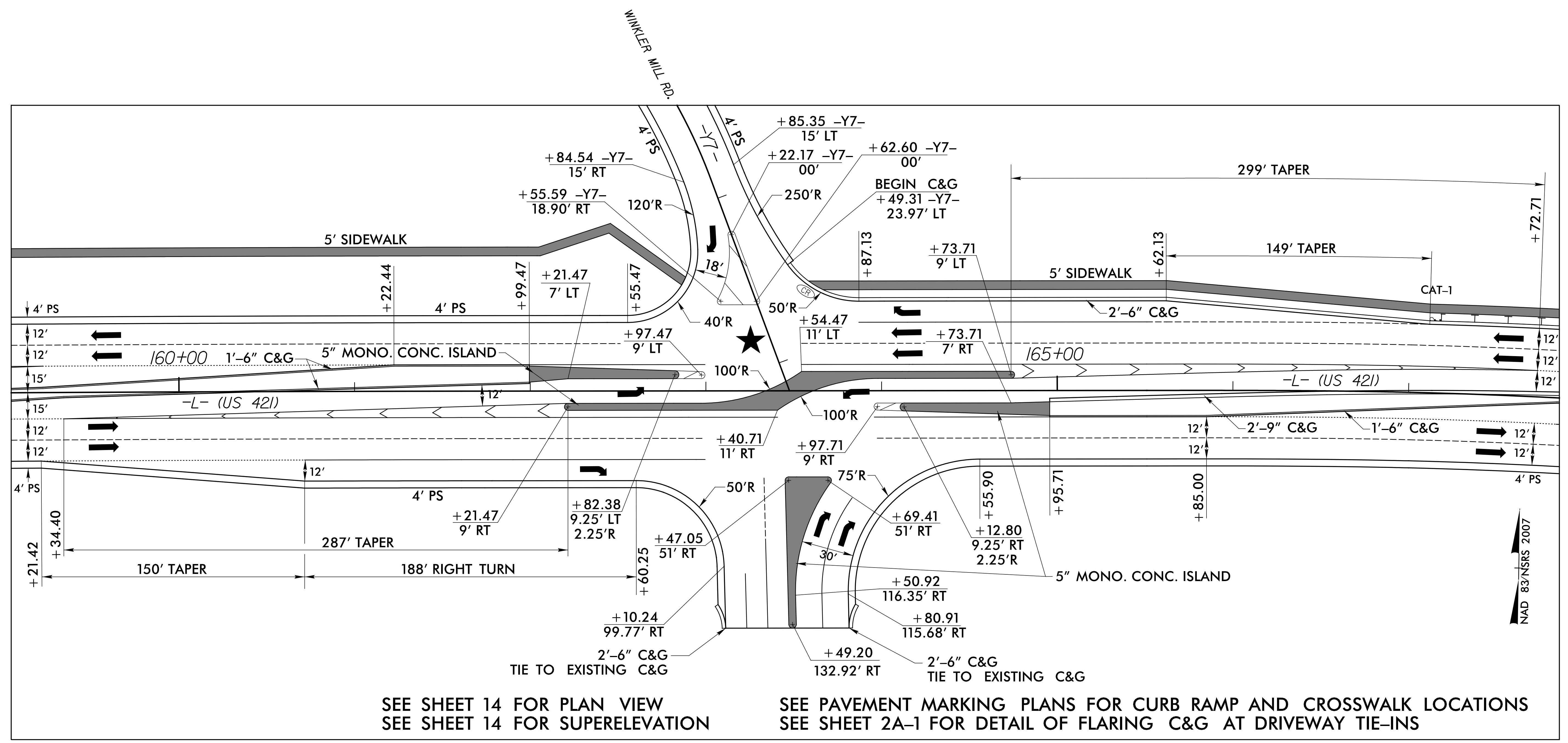
DETAIL 10
-L- STA. 151+00.00 TO 159+35.00

- NOTES:**
- ALL DIMENSIONS ARE BASED OFF OF -L- ALIGNMENT UNLESS OTHERWISE NOTED.
 - 2' RADII FOR ALL CONCRETE ISLANDS UNLESS OTHERWISE NOTED.



3/1/23 11:53:23 rdy_det_2B-12.dgn

INTERSECTION DETAILS



SEE SHEET 14 FOR PLAN VIEW
 SEE SHEET 14 FOR SUPERELEVATION

SEE PAVEMENT MARKING PLANS FOR CURB RAMP AND CROSSWALK LOCATIONS
 SEE SHEET 2A-1 FOR DETAIL OF FLARING C&G AT DRIVEWAY TIE-INS

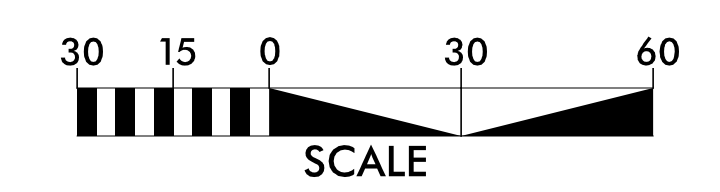
★ DENOTES PROPOSED SIGNALIZED INTERSECTION

DETAIL 11

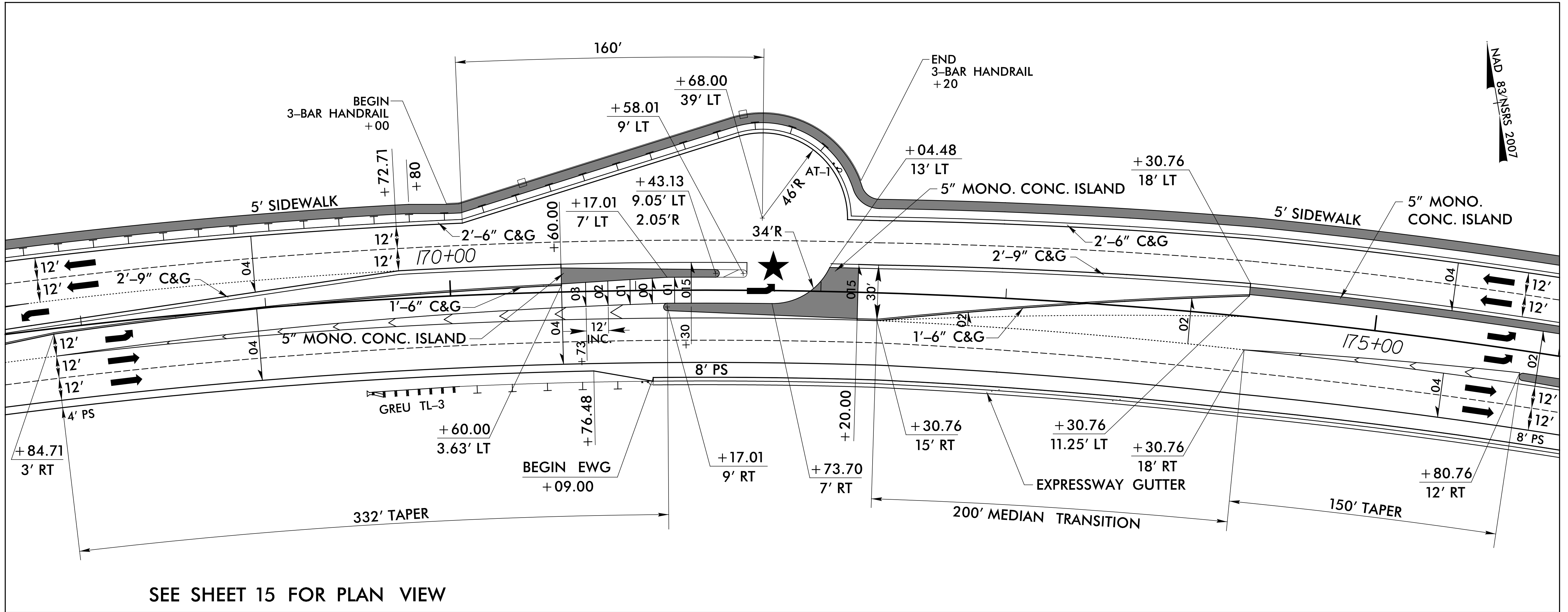
-L- STA. 159 + 20.00 TO 167 + 73.00

NOTES:

- ALL DIMENSIONS ARE BASED OFF OF -L- ALIGNMENT UNLESS OTHERWISE NOTED.
- 2' RADII FOR ALL CONCRETE ISLANDS UNLESS OTHERWISE NOTED.



INTERSECTION DETAILS

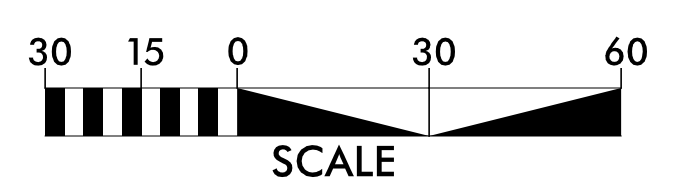


SEE SHEET 15 FOR PLAN VIEW

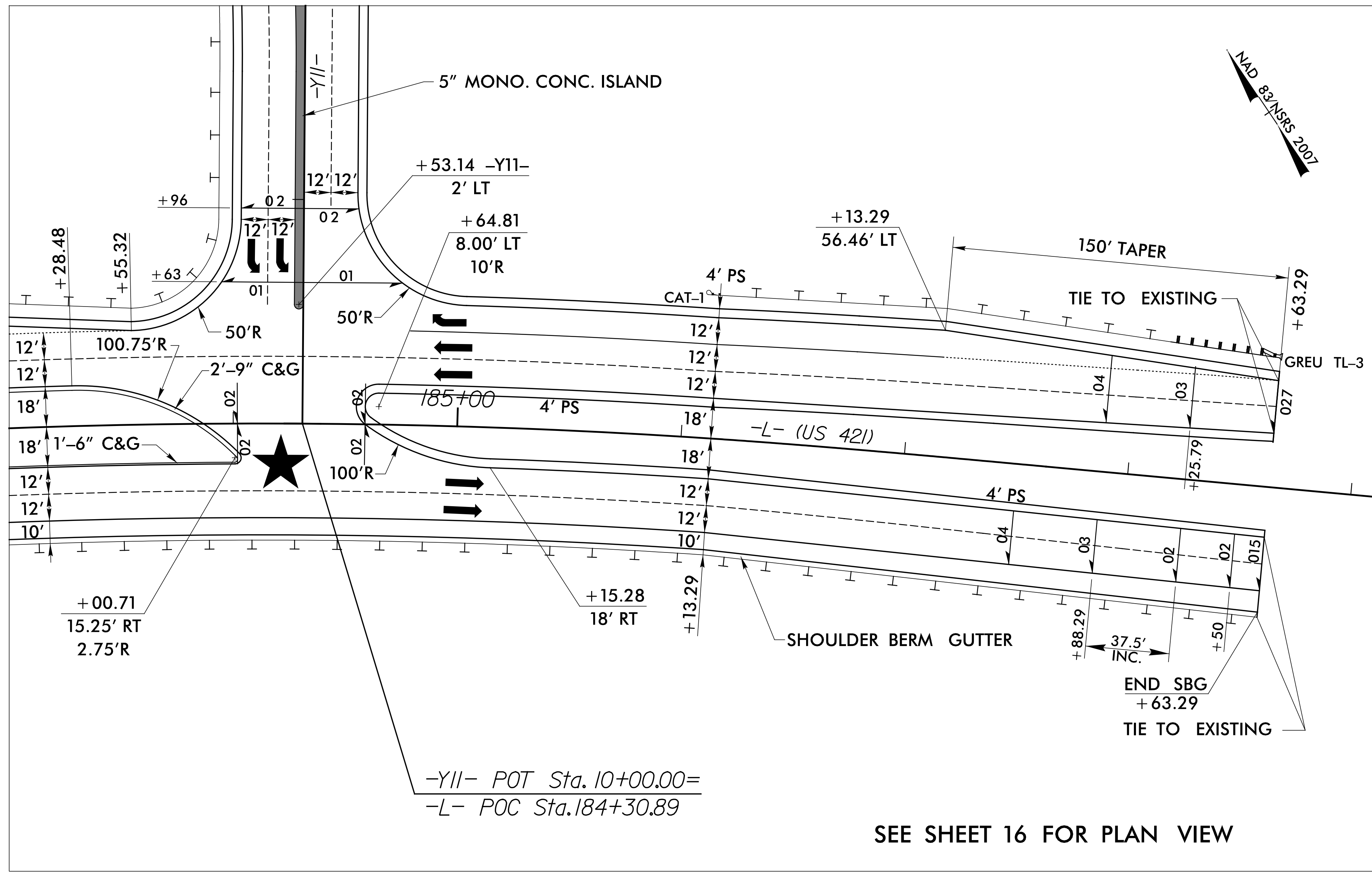
DETAIL 12
-L- STA. 167+80.00 TO 175+90.00

★ DENOTES PROPOSED SIGNALIZED INTERSECTION

- NOTES:**
- ALL DIMENSIONS ARE BASED OFF OF -L- ALIGNMENT UNLESS OTHERWISE NOTED.
 - 2' RADII FOR ALL CONCRETE ISLANDS UNLESS OTHERWISE NOTED.



INTERSECTION DETAILS



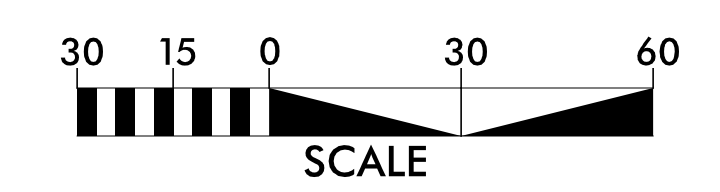
DETAIL 14

-L- STA. 183+00.00 TO 189+00.00


★ DENOTES PROPOSED SIGNALIZED INTERSECTION


NOTES:

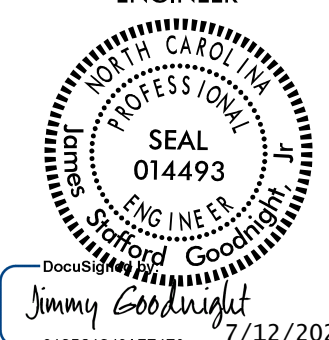
- ALL DIMENSIONS ARE BASED OFF OF -L- ALIGNMENT UNLESS OTHERWISE NOTED.
- 2' RADII FOR ALL CONCRETE ISLANDS UNLESS OTHERWISE NOTED.



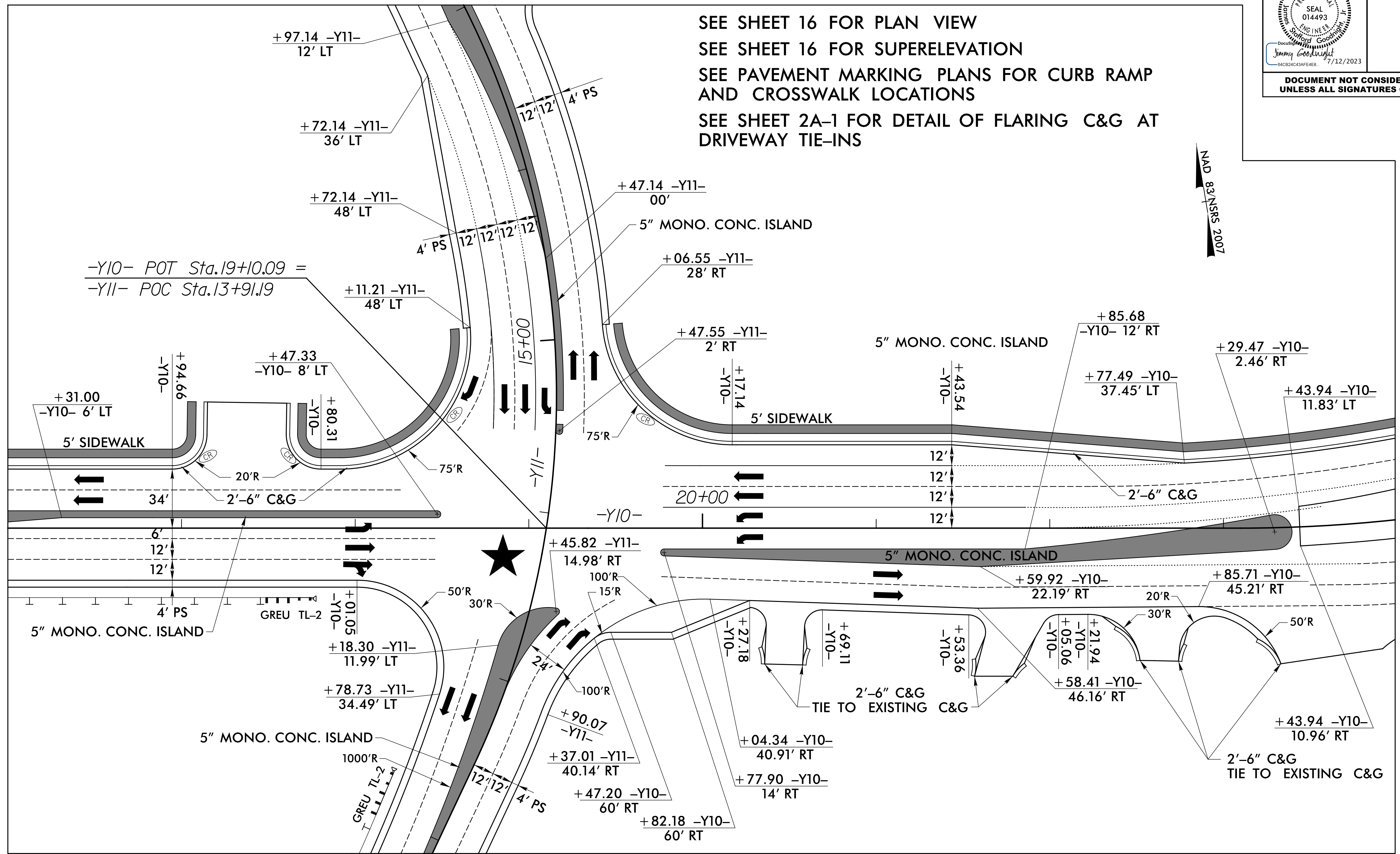
INTERSECTION DETAILS

Prepared by
 **VHB**
 VHB Engineering NC, P.C. (C-2705)
 940 Main Campus Drive, Suite 300
 Raleigh, NC 27606

 **SUNGATE DESIGN GROUP, P.A.**
 10000 Sunset Blvd, Suite 100
 Raleigh, NC 27615

PROJECT REFERENCE NO. U-5312	SHEET NO. 2B-17
ROADWAY DESIGN ENGINEER	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

SEE SHEET 16 FOR PLAN VIEW
 SEE SHEET 16 FOR SUPERELEVATION
 SEE PAVEMENT MARKING PLANS FOR CURB RAMP AND CROSSWALK LOCATIONS
 SEE SHEET 2A-1 FOR DETAIL OF FLARING C&G AT DRIVEWAY TIE-INS



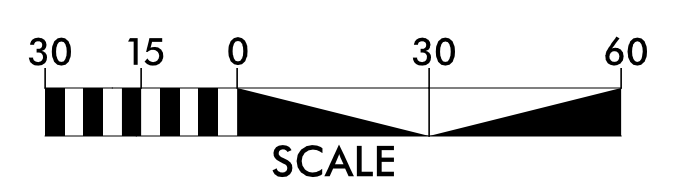
DETAIL 15

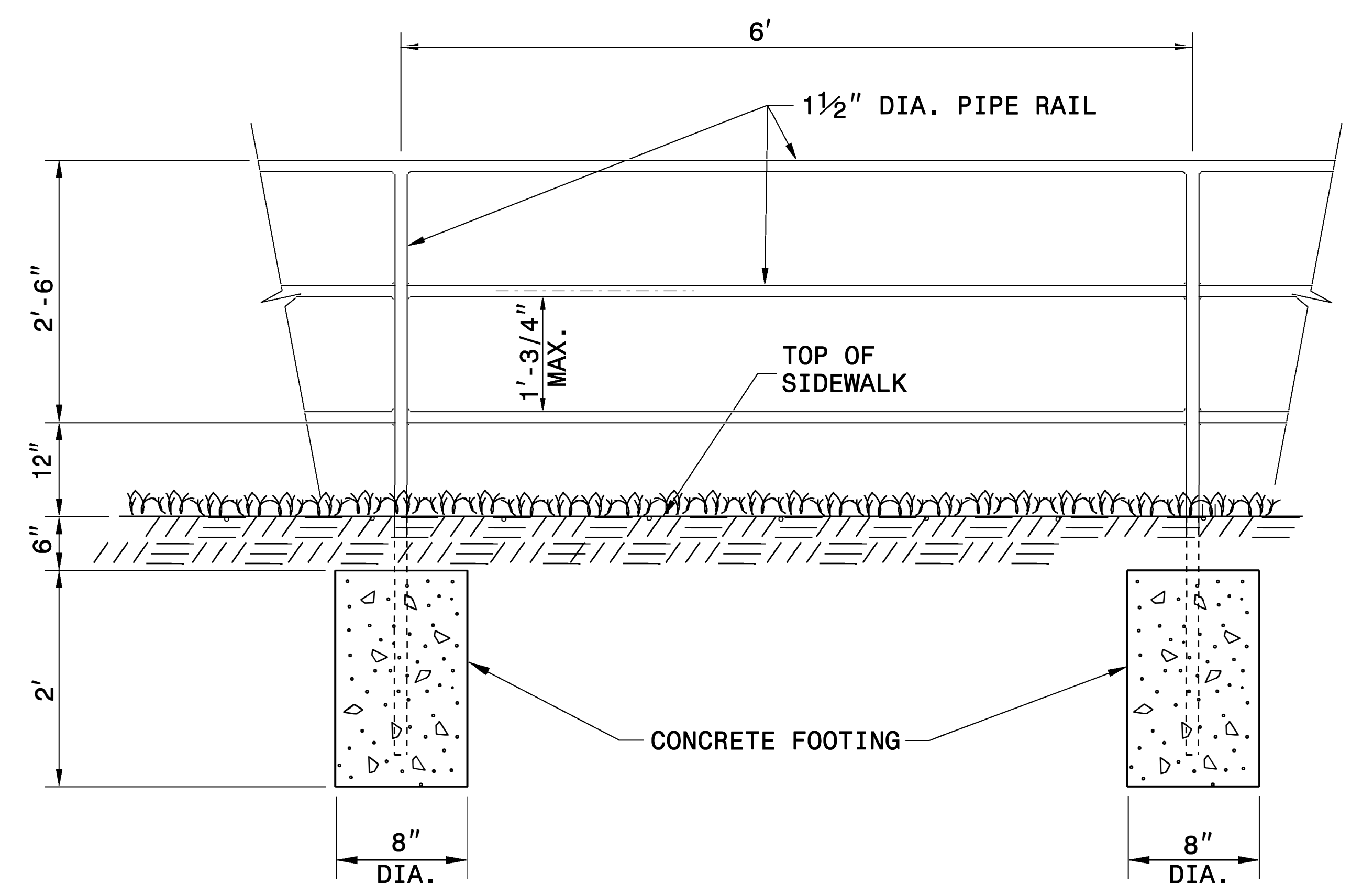
-Y10- STA. 16+00.00 TO 23+50.00

★ DENOTES PROPOSED SIGNALIZED INTERSECTION

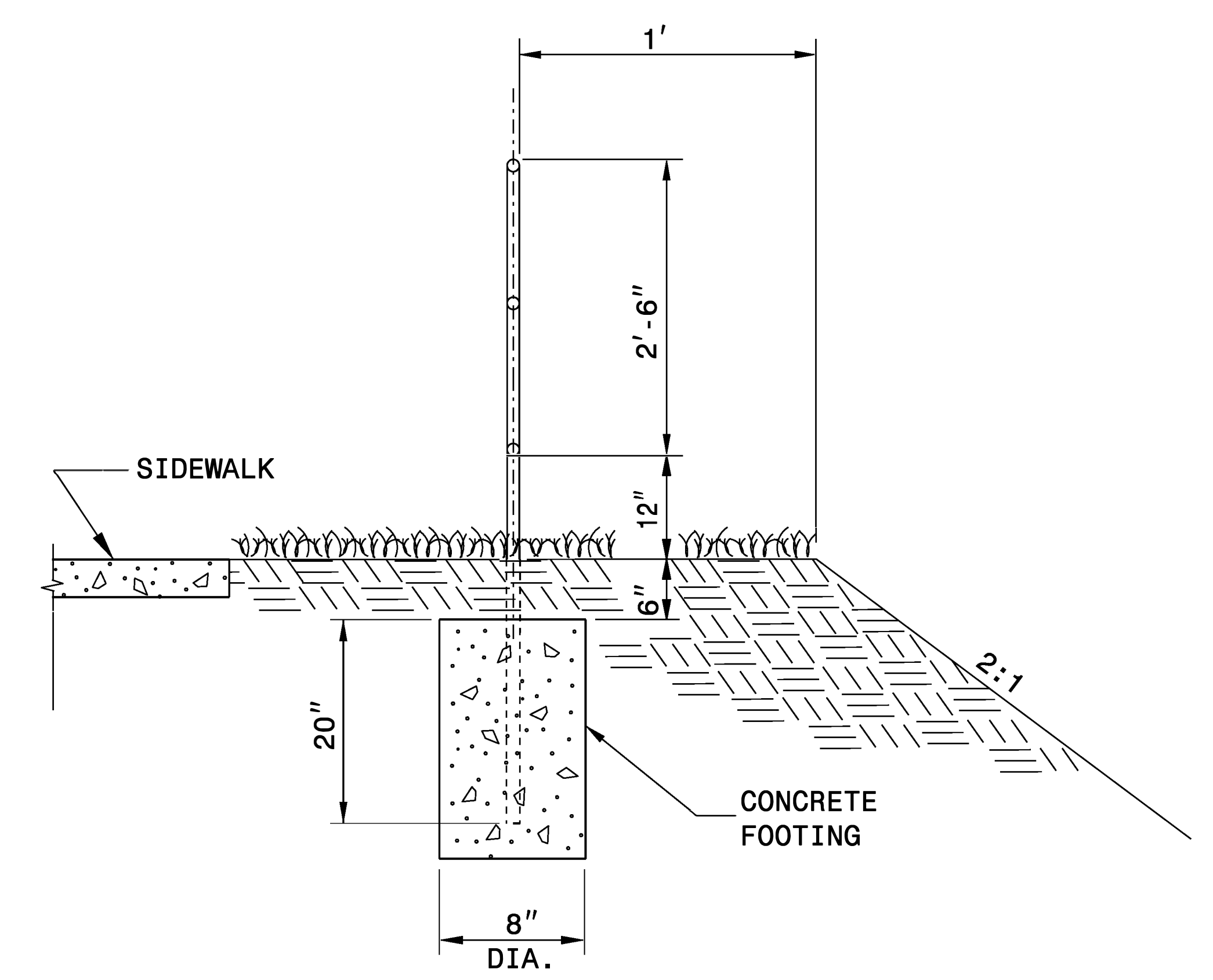
NOTES:

- 10' RADII FOR ALL DRIVEWAYS UNLESS OTHERWISE NOTED.
- 2' RADII FOR ALL CONCRETE ISLANDS UNLESS OTHERWISE NOTED.





ELEVATION OF PROPOSED PEDESTRIAN HANDRAIL



SECTION VIEW

NOTES:

CONSTRUCT PROPOSED STEEL PIPE RAIL OF 1 1/2" DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.

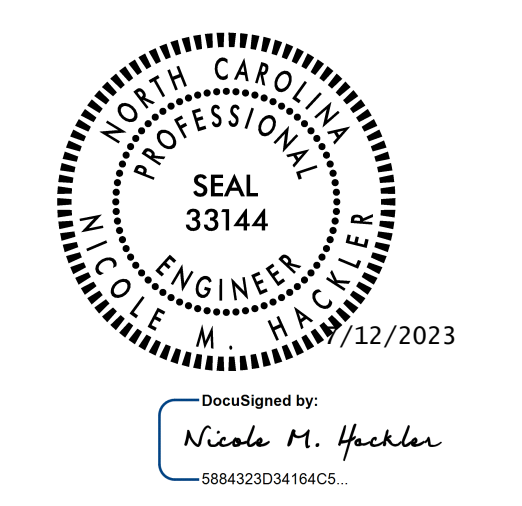
PAINT, IF REQUIRED BY THE ENGINEER, IN ACCORDANCE WITH SECTION 1080 OF THE STANDARD SPECIFICATIONS.

WELD IN ACCORDANCE WITH ARTICLE 1072-20 OF THE STANDARD SPECIFICATIONS.

USE CLASS 'B' CONCRETE FOR HANDRAIL FOOTINGS.

PLACEMENT OF HANDRAIL IN RELATION TO SHOULDER BREAK POINT AND SIDEWALK MAY BE MODIFIED AS DIRECTED BY THE ENGINEER.

C:\MAR-2018\07155\specs\stand\metric\retainwall\handrails.dgn
jhowerton At 050-282595



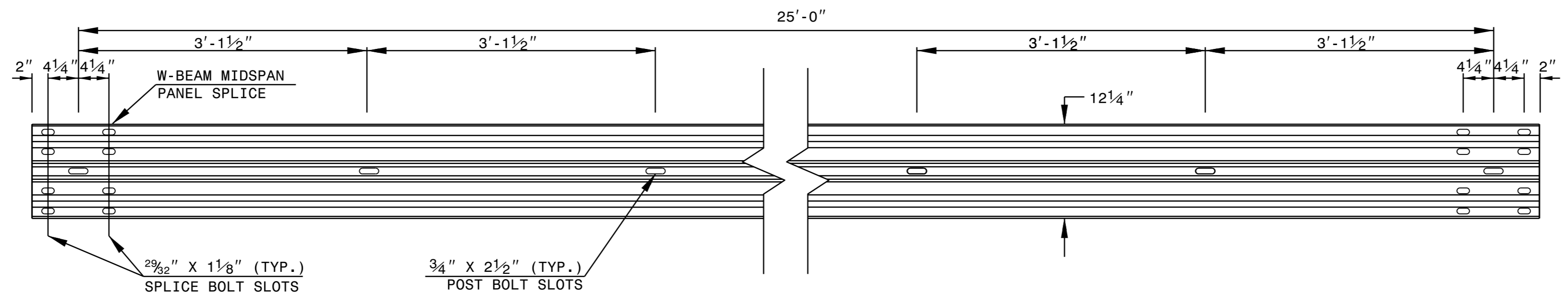
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
PROPOSED PEDESTRIAN SAFETY RAIL	
ORIGINAL BY: E.E. WARD	DATE: 12-98
MODIFIED BY: T.S. Spell	DATE: 1-4-05
CHECKED BY:	DATE:
FILE SPEC.: w:\details\stand\metric\retainwall\handrails.dgn	

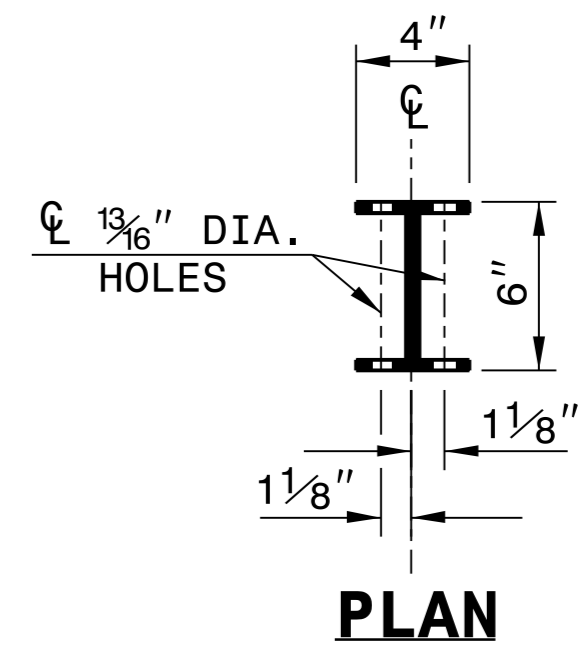
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

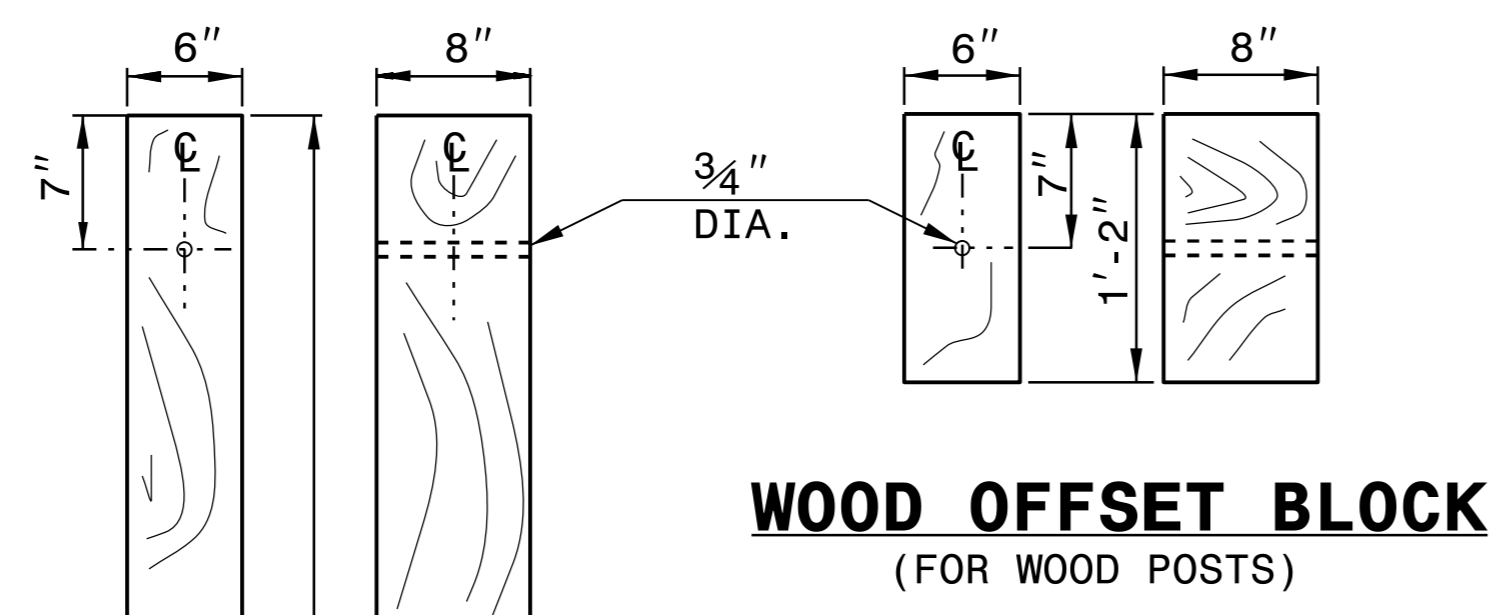
SHEET 6 OF 8
862D02



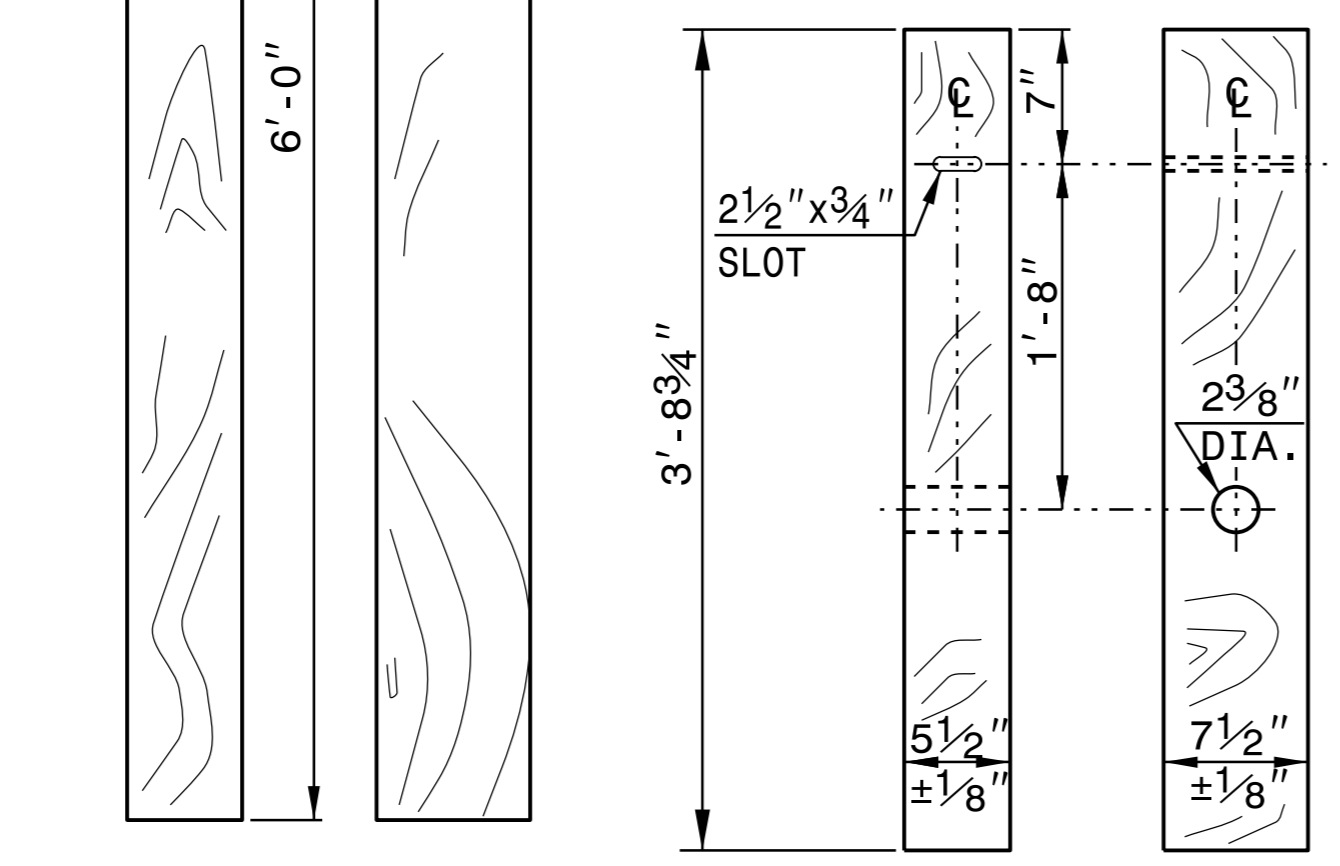
STANDARD W-BEAM GUARDRAIL



PLAN

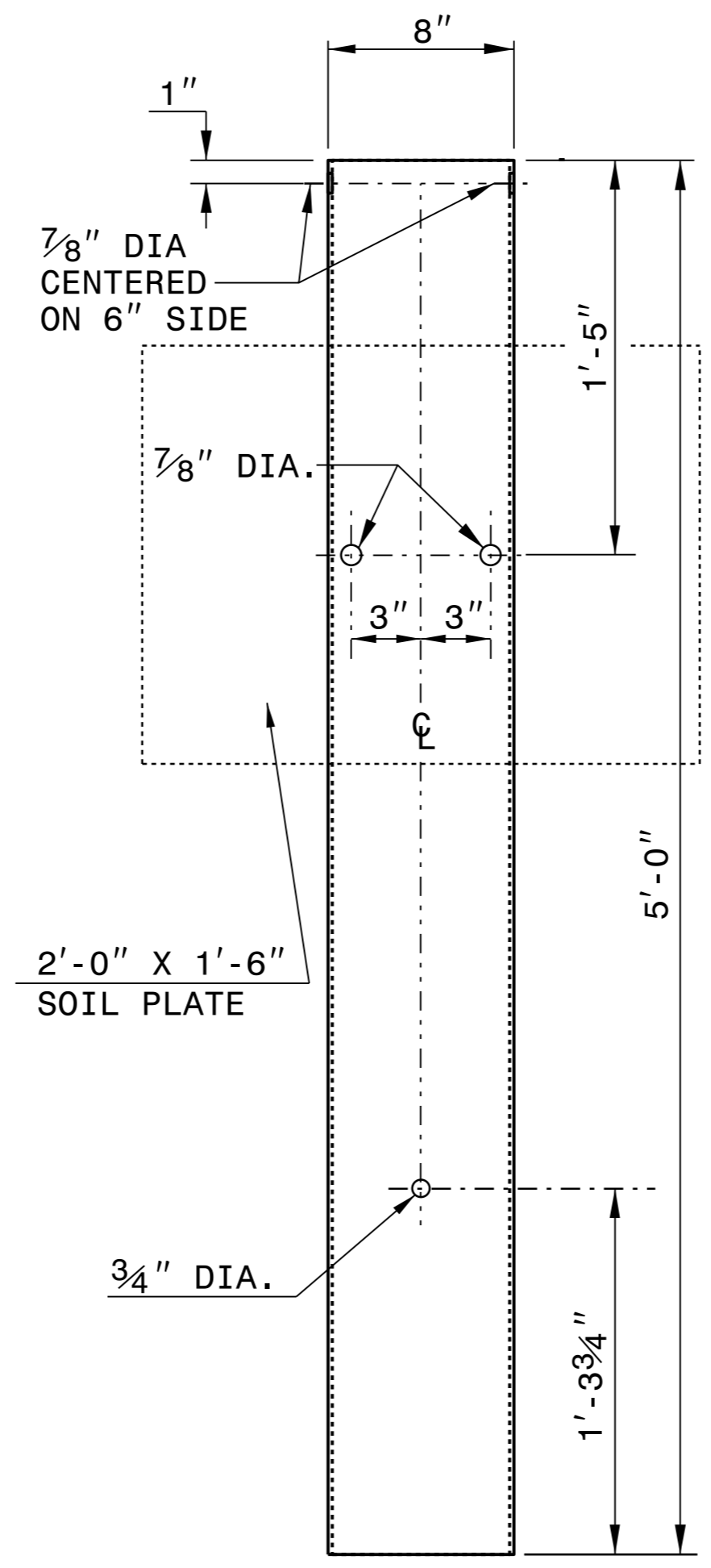


**WOOD OFFSET BLOCK
(FOR WOOD POSTS)**

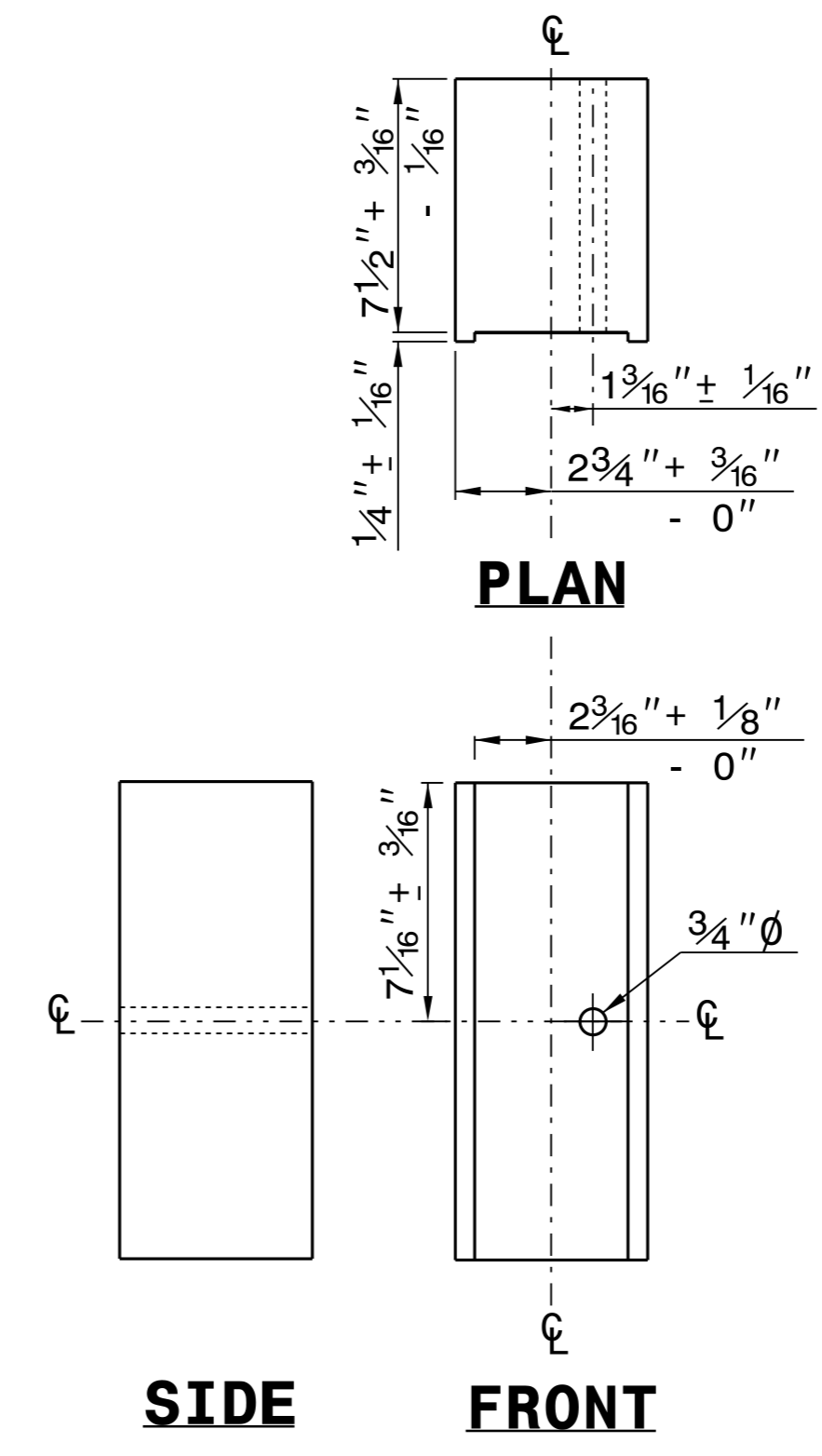


**STANDARD
LINE POST**

**SHORT WOOD
BREAKAWAY POST**



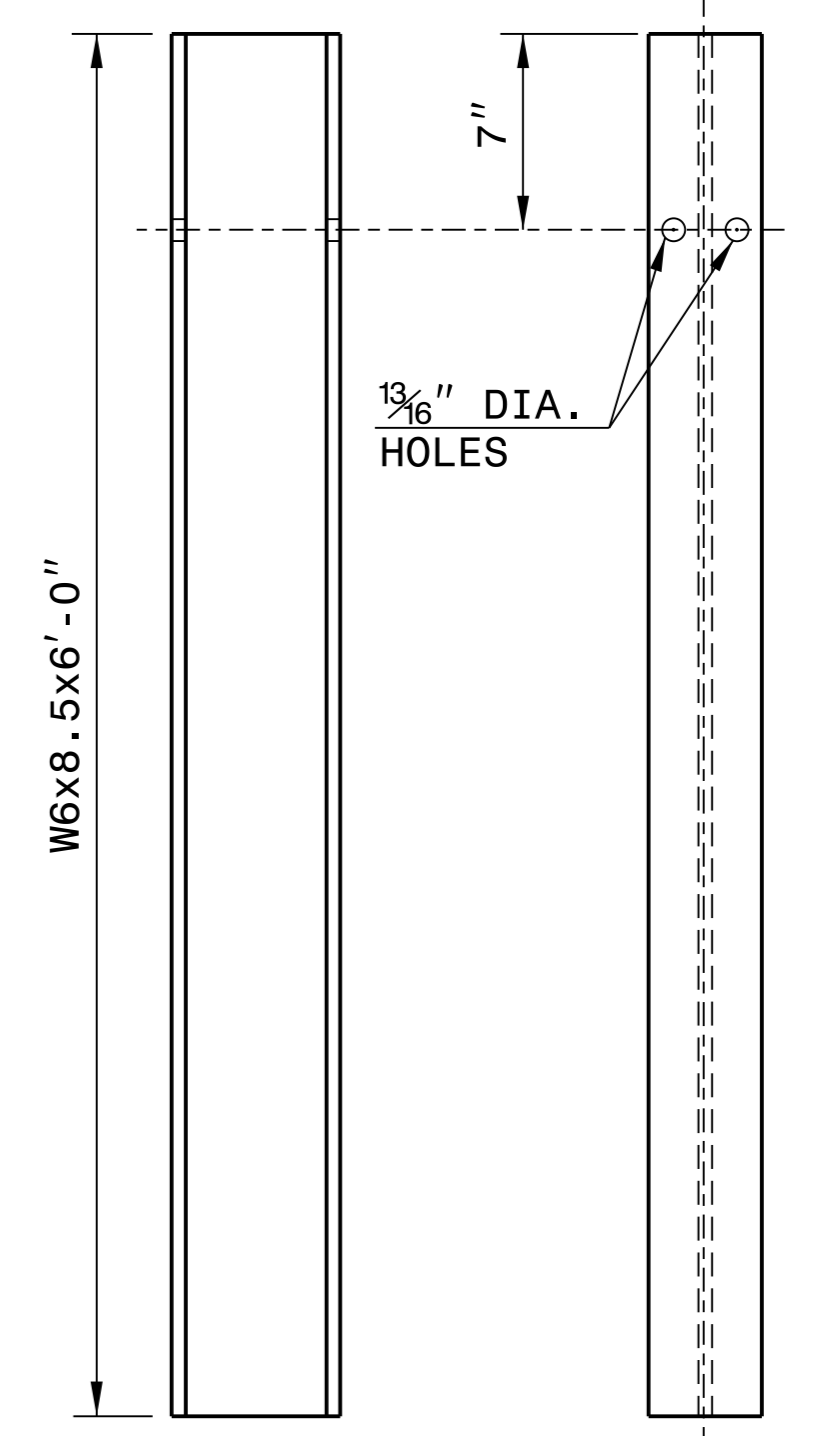
**STEEL TUBE
TS 6"x8"x0.1875"**



SIDE

FRONT

**ROUTED
OFFSET BLOCK**



SIDE

FRONT

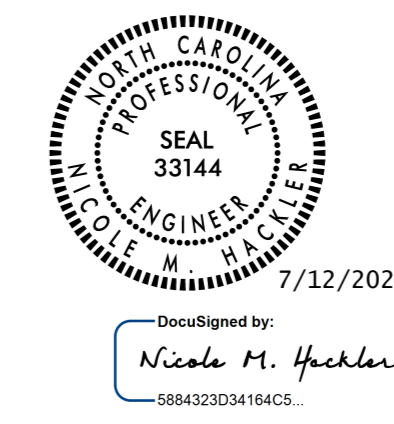
"W6" STEEL POST

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



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

SEE TITLE BLOCK

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

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

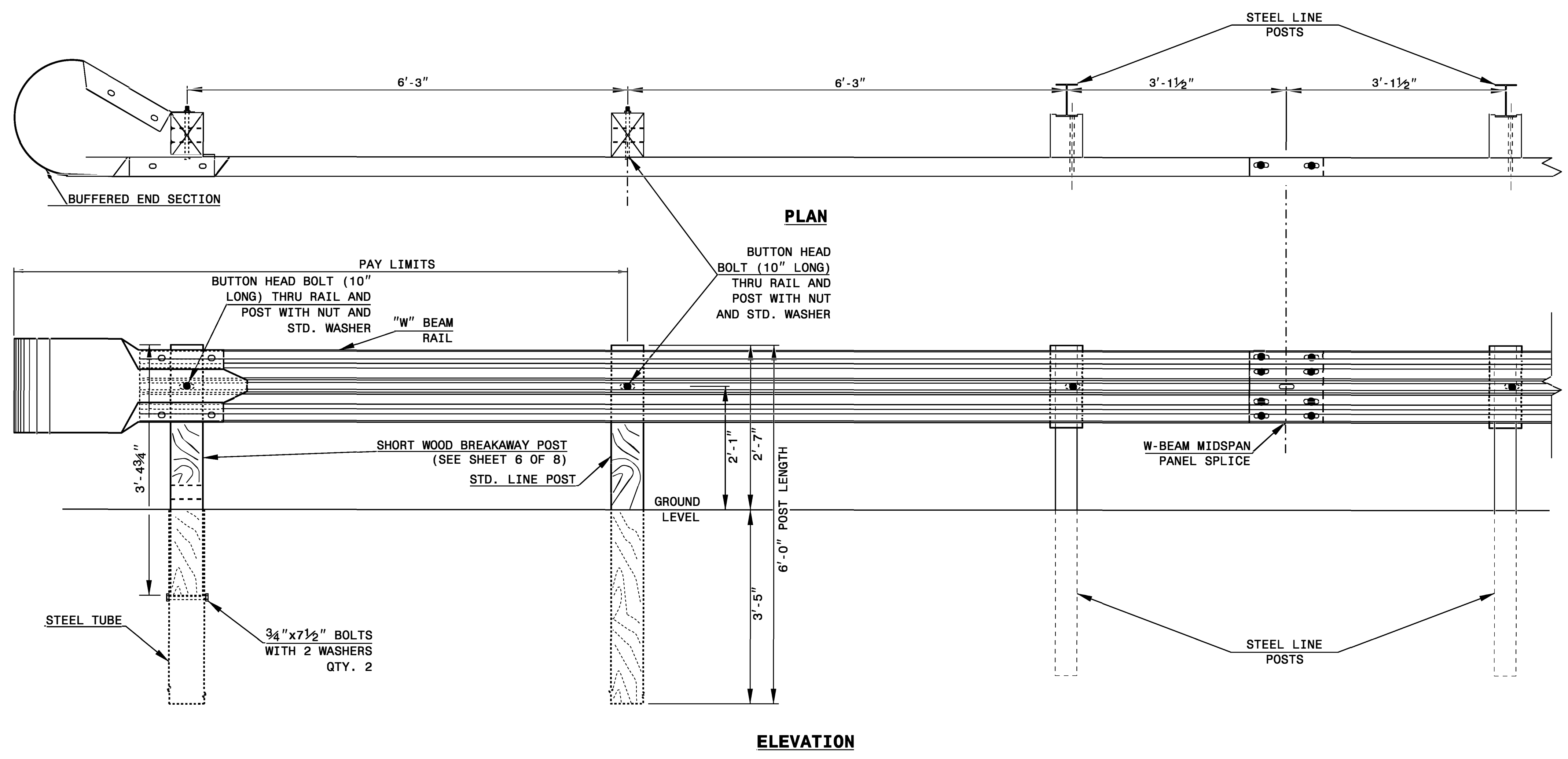
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF



TRAILING END UNIT ASSEMBLY
A.T. - 1 SYSTEM



DocuSigned by:
Nicole M. Heckler
5884323034164CS

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

A.T. - 1 SYSTEM

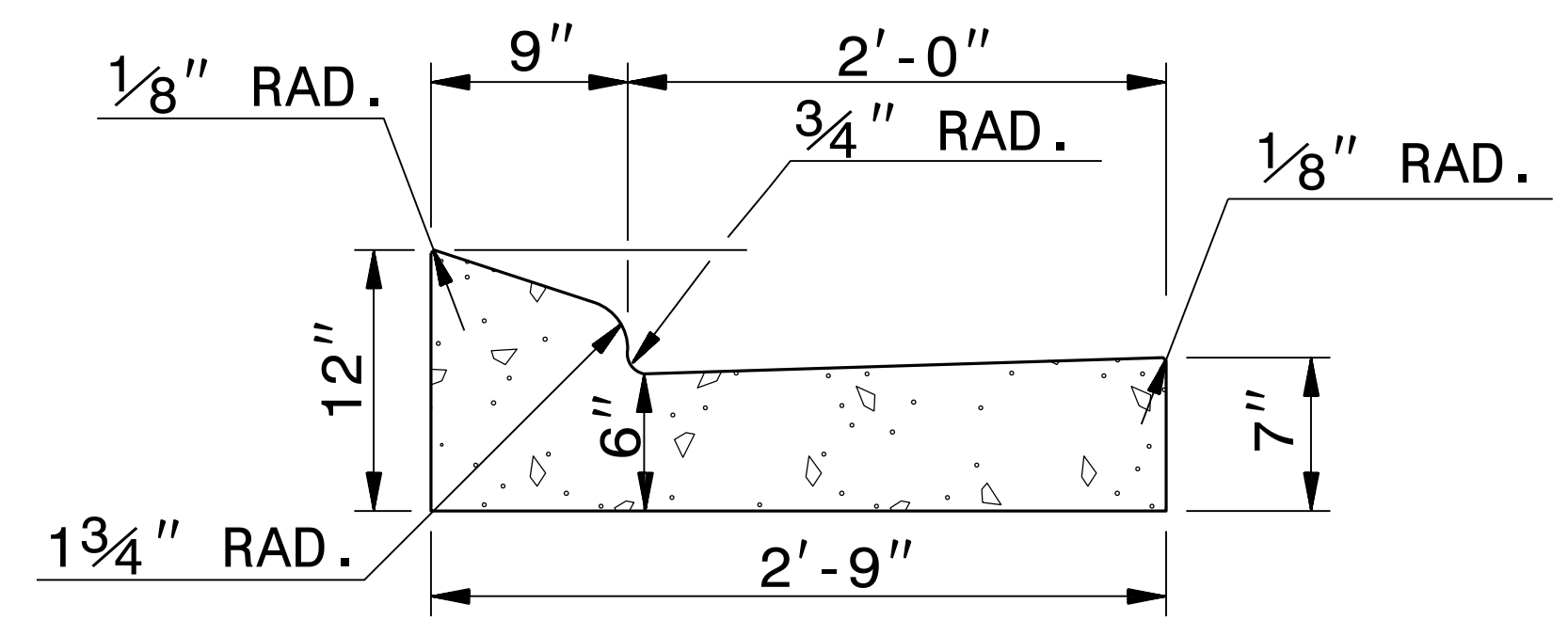
ORIGINAL BY: _____	DATE: _____
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC.: _____	

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

ENGLISH DETAIL DRAWING FOR
2'-9" CONCRETE CURB & GUTTER

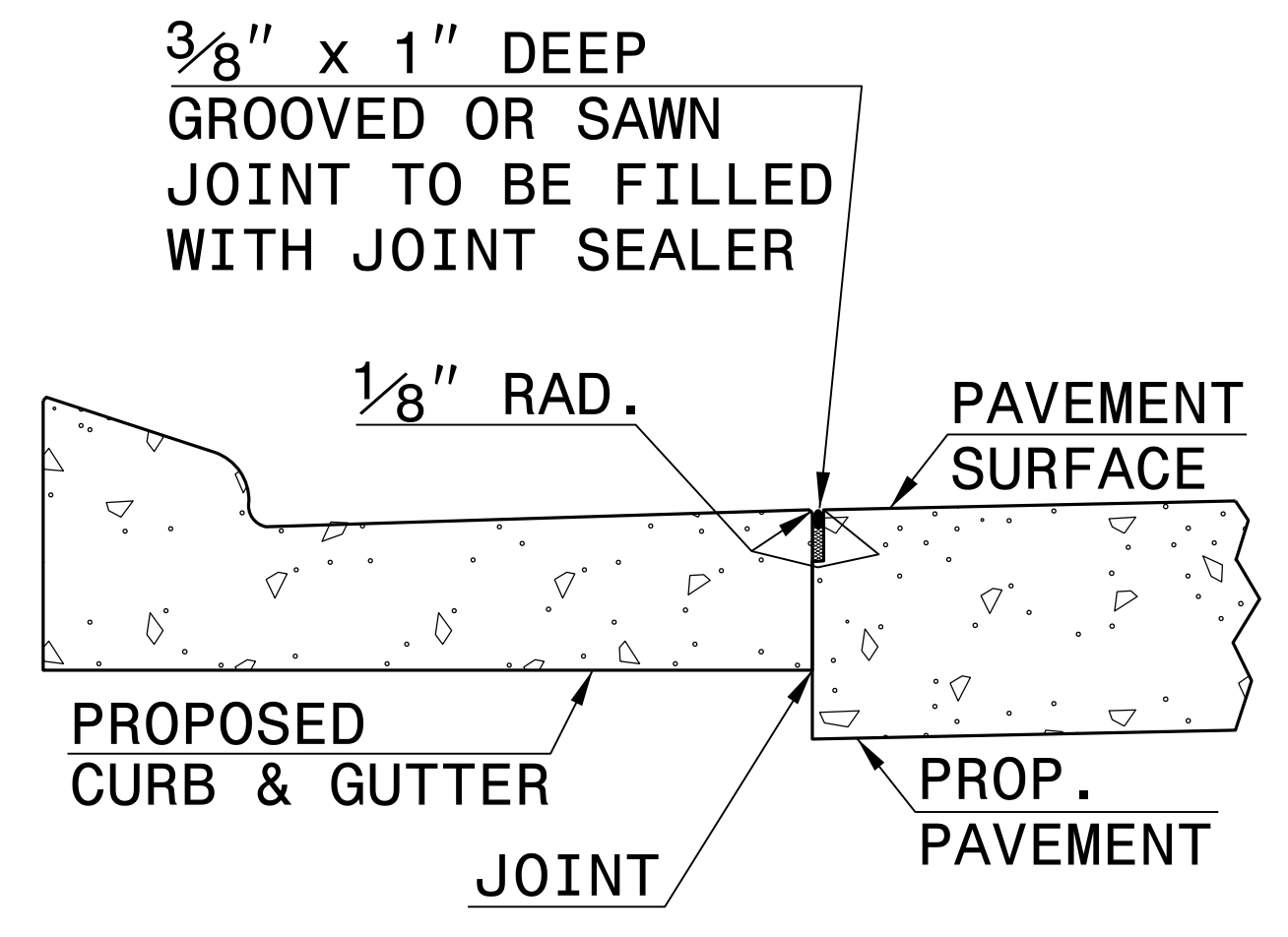
SHEET 1 OF 1
846D01

- GENERAL NOTES:
- PLACE CONTRACTION JOINTS AT 10' INTERVALS, EXCEPT THAT A 15' SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10' INTERVALS.
 - JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
 - CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. MAKE NON-TEMPLATE FORMED JOINTS A MIN. OF 1½" DEEP.
 - FILL ALL CONSTRUCTION JOINTS WITH JOINT FILLER AND SEALER.
 - SPACE EXPANSION JOINTS AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.
 - SEE RDWY. STD. DWG. NO. 846.01, SHEET 2 OF 3 FOR PLACEMENT IN SUPERELEVATIONS. (USE 2'-6" CURB AND GUTTER RATES)

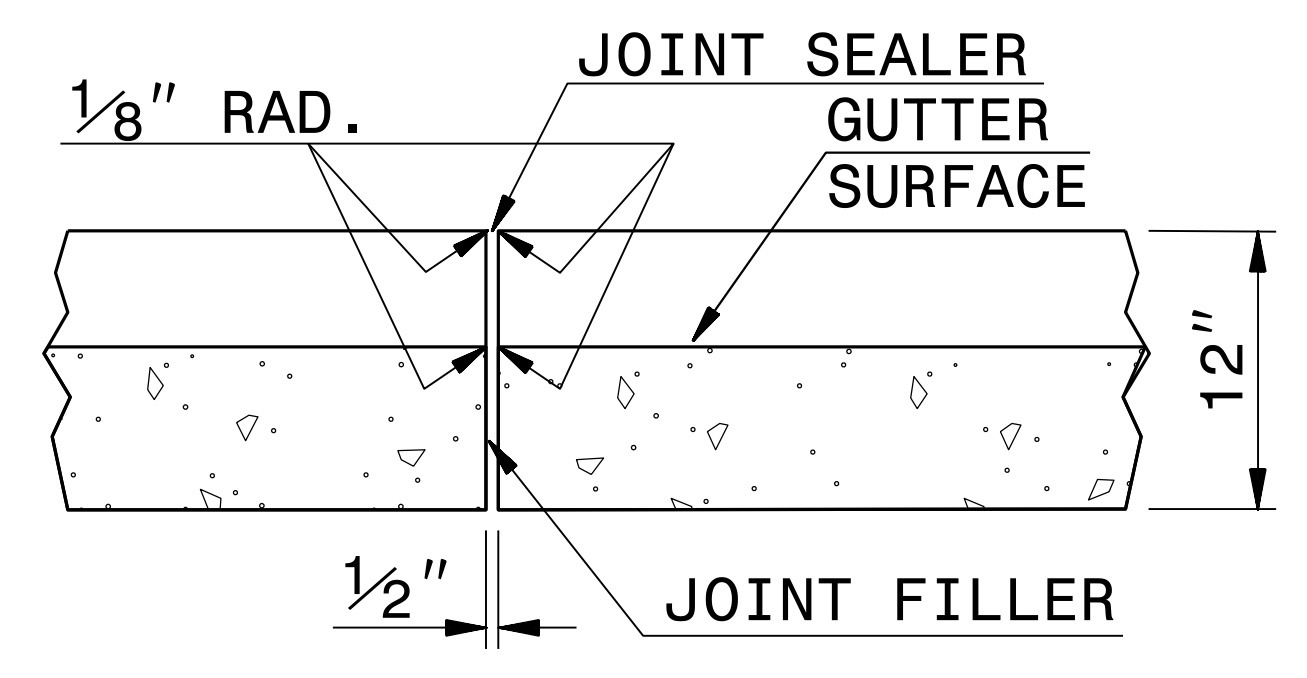


2'-9" CURB AND GUTTER

SECTION VIEW OF CURB AND GUTTER



LONGITUDINAL JOINT



TRANSVERSE EXPANSION JOINT IN CURB AND GUTTER

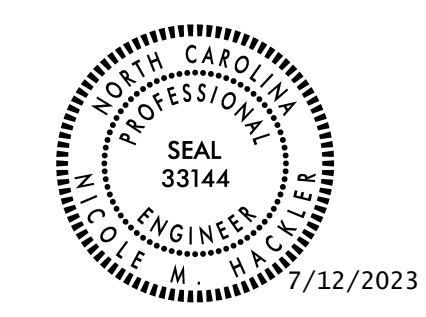
SECTION VIEW OF JOINTS

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

ENGLISH DETAIL DRAWING FOR
2'-9" CONCRETE CURB & GUTTER

SHEET 1 OF 1
846D01

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J:\power\ton AT_CSD-2\2595



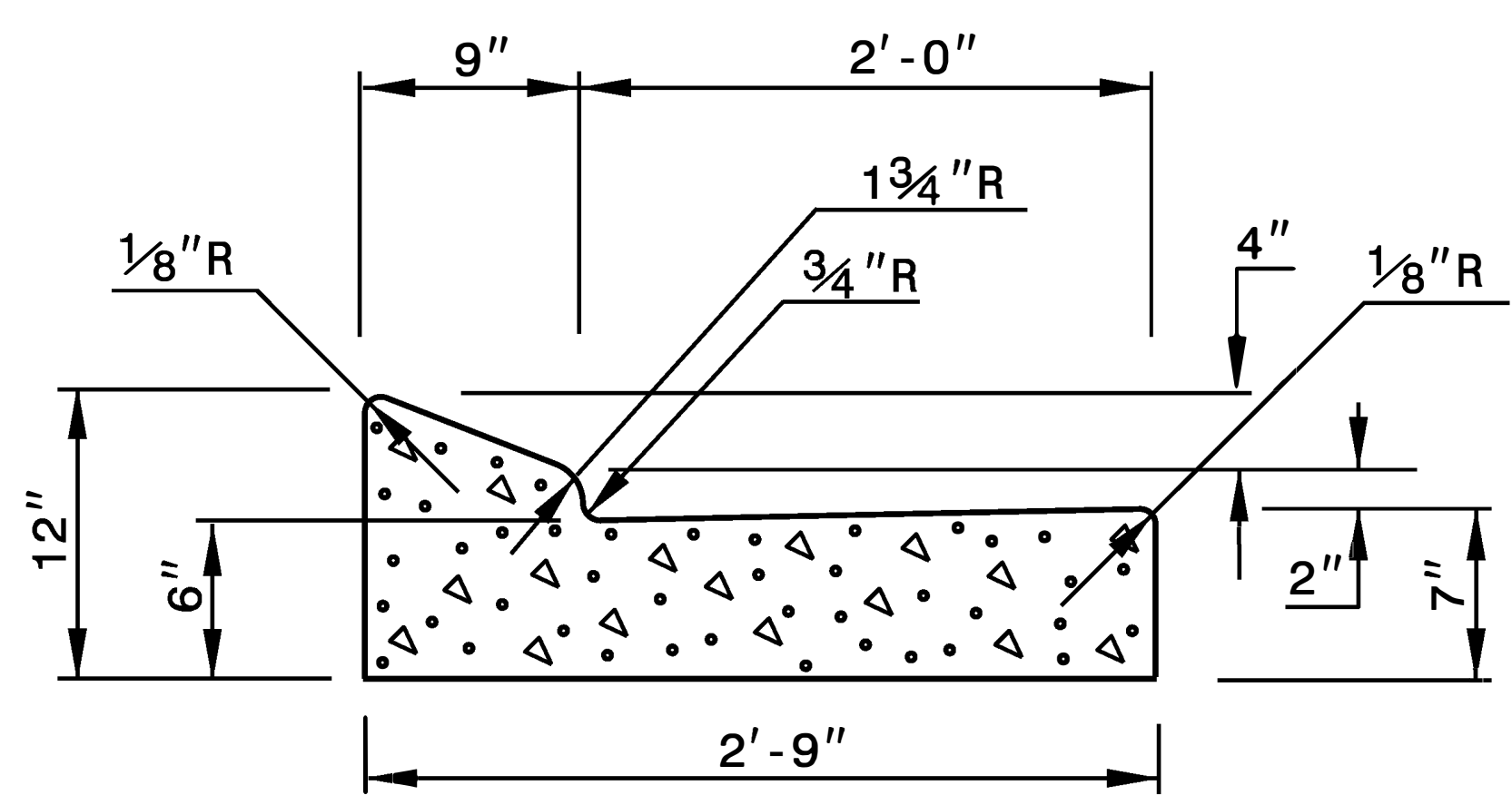
DocuSigned by:
Nicole M. Hecker
5884323034164CS

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

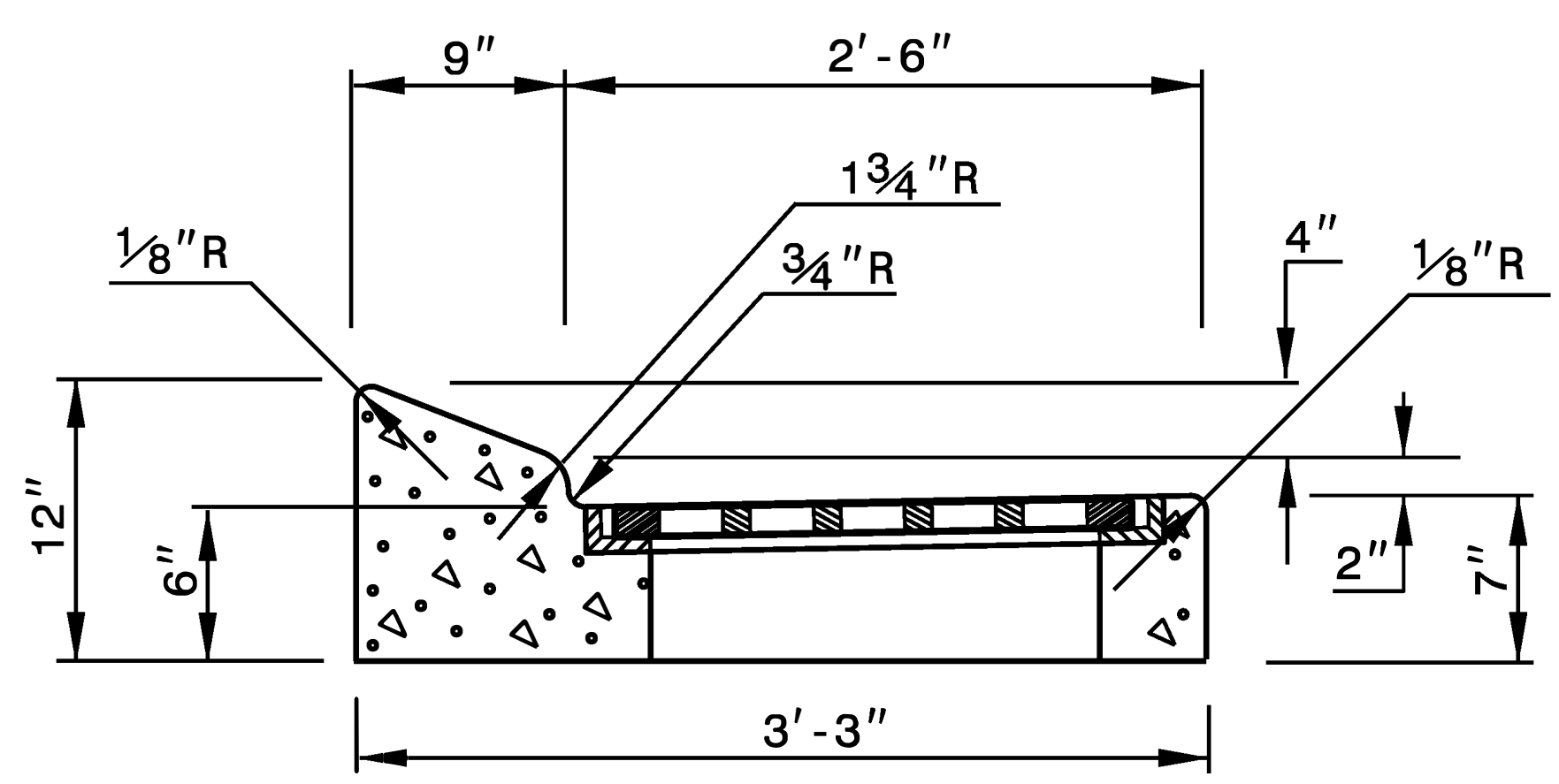
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

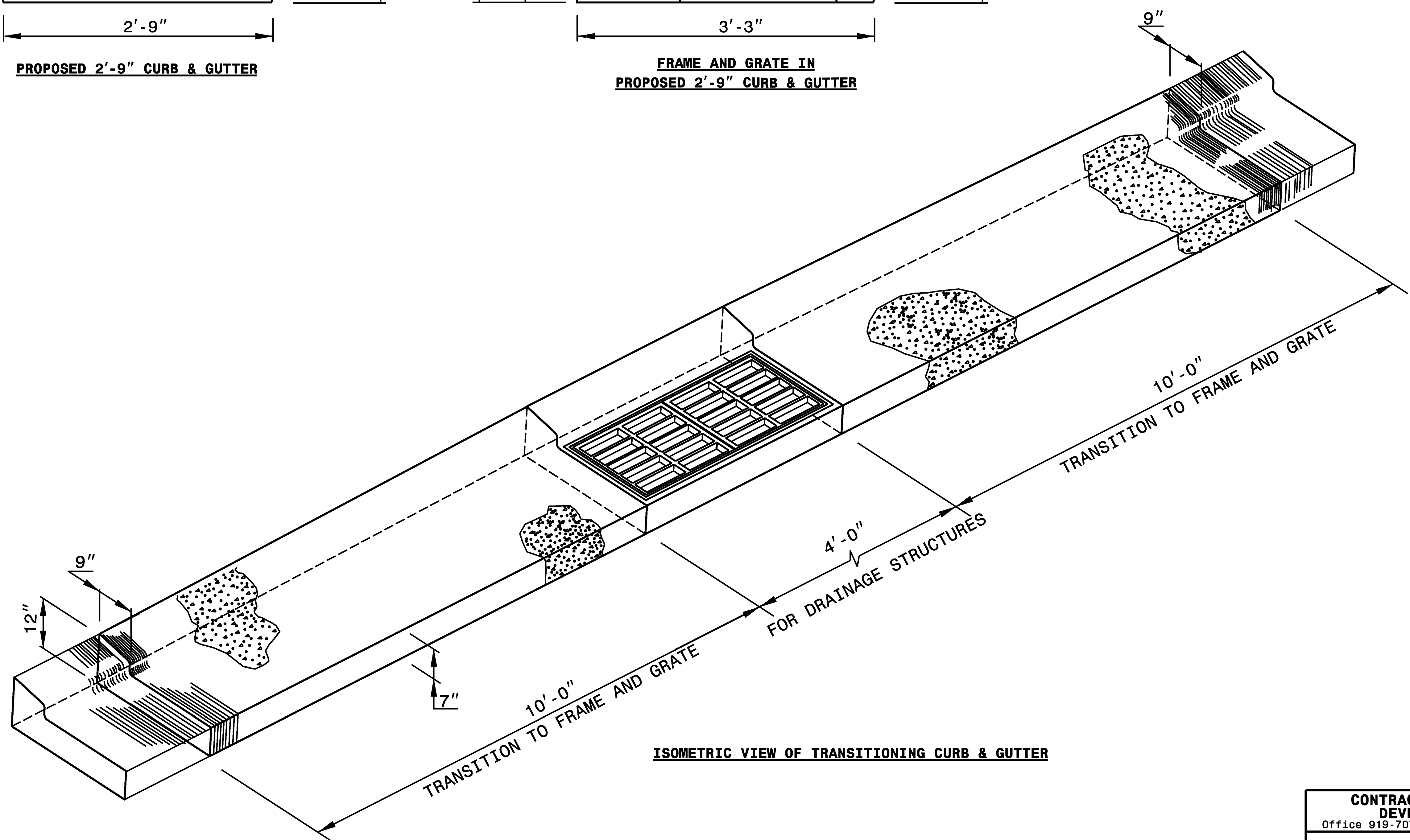
ORIGINAL BY: STD. 846.01 DATE: _____
 MODIFIED BY: E.E. WARD DATE: 8-15-00
 CHECKED BY: _____ DATE: _____
 FILE SPEC.: /usr/details/stand/c&g2'-9.dgn



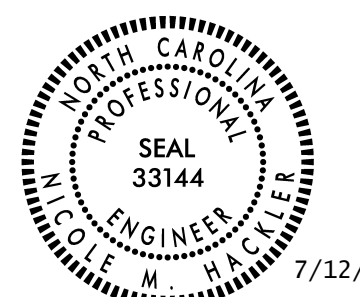
PROPOSED 2'-9" CURB & GUTTER



FRAME AND GRATE IN PROPOSED 2'-9" CURB & GUTTER



ISOMETRIC VIEW OF TRANSITIONING CURB & GUTTER



DocuSigned by:
Nicole M. Hecker
588432034164C5...

7/12/2023


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

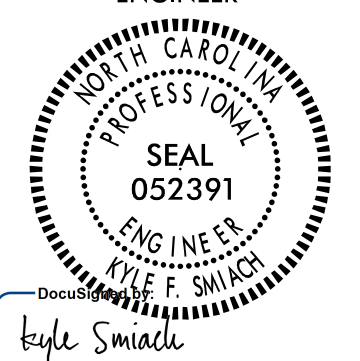
**CONTRACT STANDARDS AND
DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

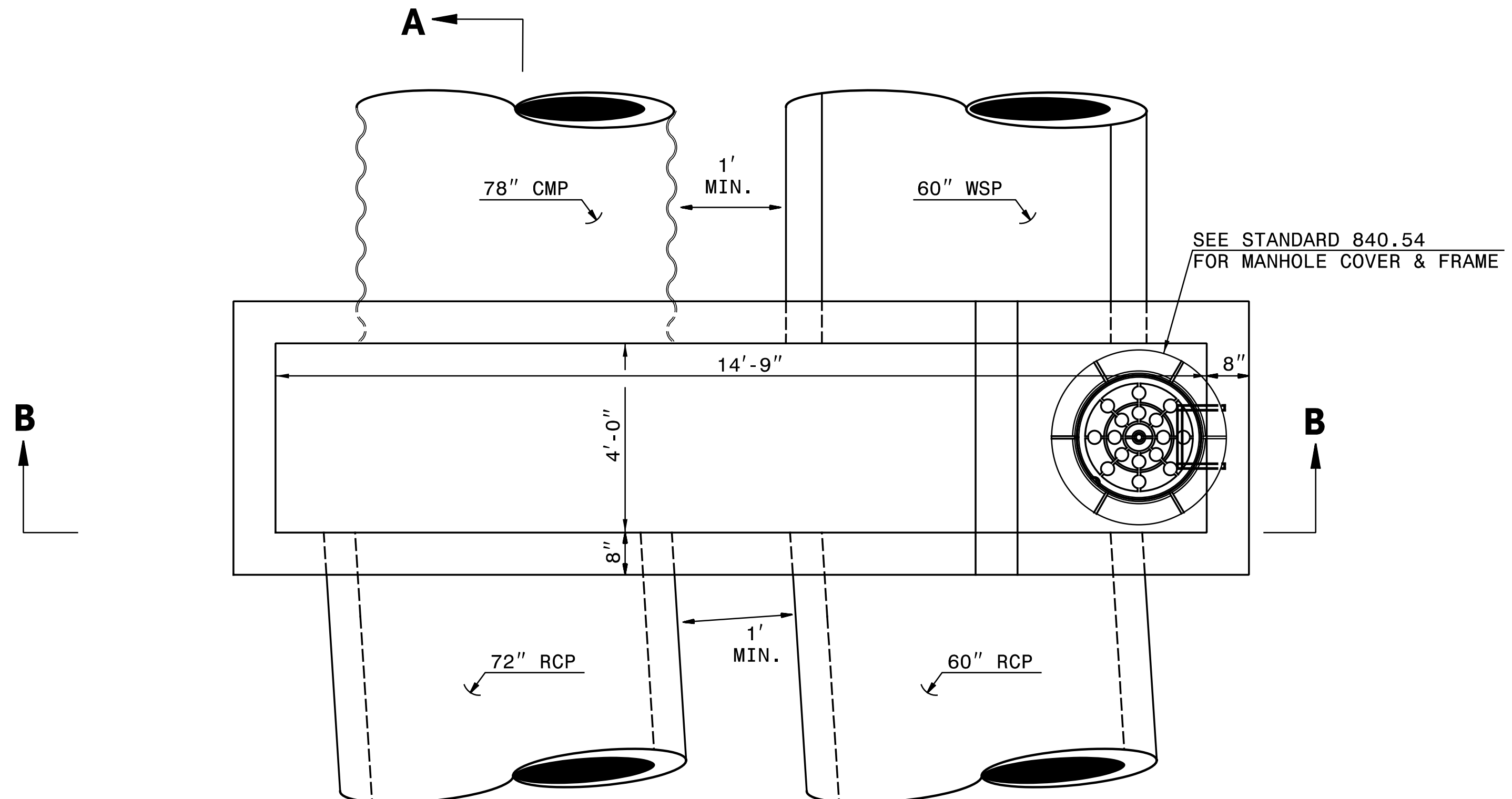
**DETAIL OF 2'-9"
TO FRAME AND GRATE**

ORIGINAL BY: _____	DATE: _____
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC.: <u>kkempf/english/curb gutter transition.dgn</u>	

5/14/99

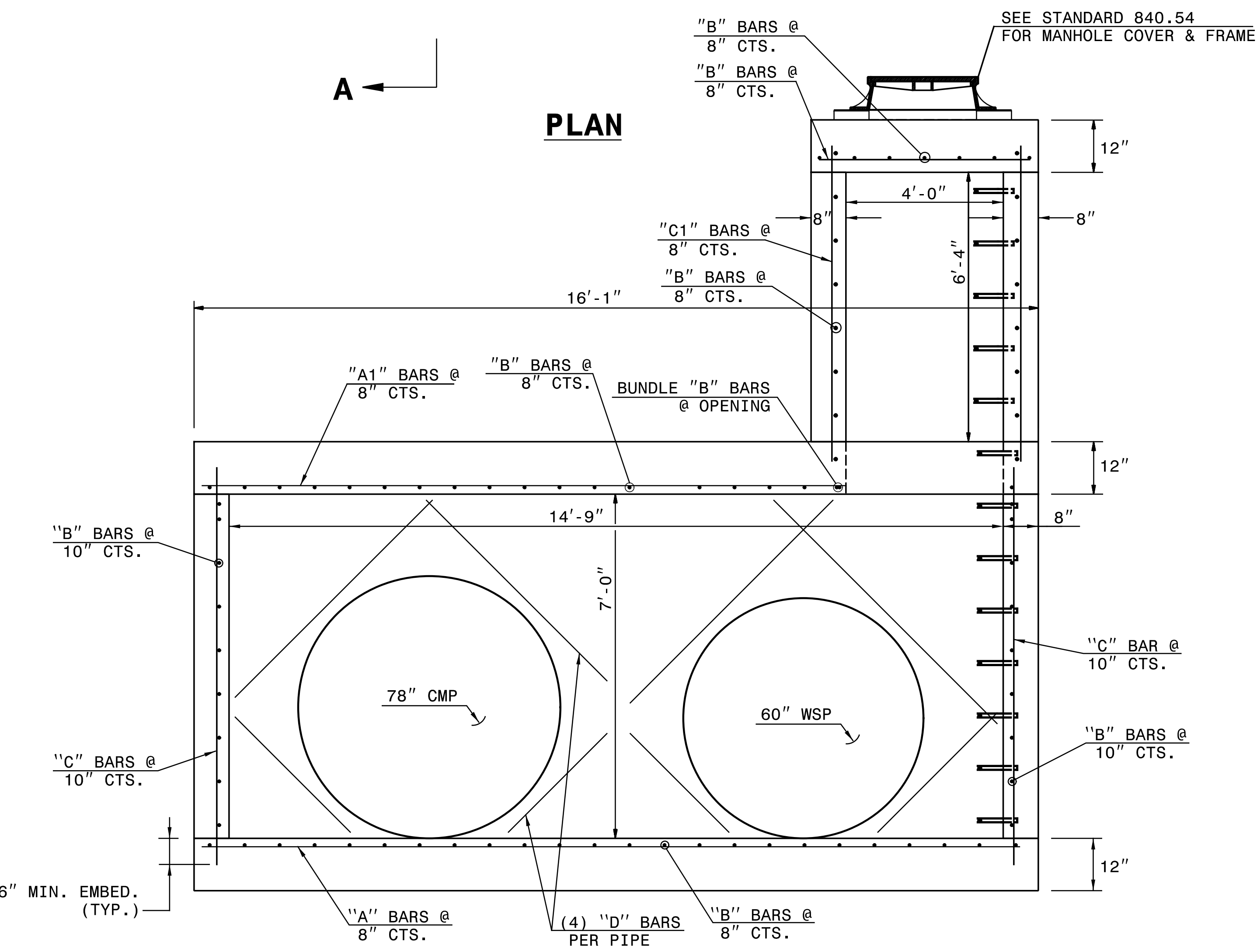
Prepared by

 VHB Engineering NC, P.C. (C-2705)
 940 Main Campus Drive, Suite 300
 Raleigh, NC 27606

PROJECT REFERENCE NO. U-5312	SHEET NO. 2C-7
STRUCTURAL DESIGN ENGINEER	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

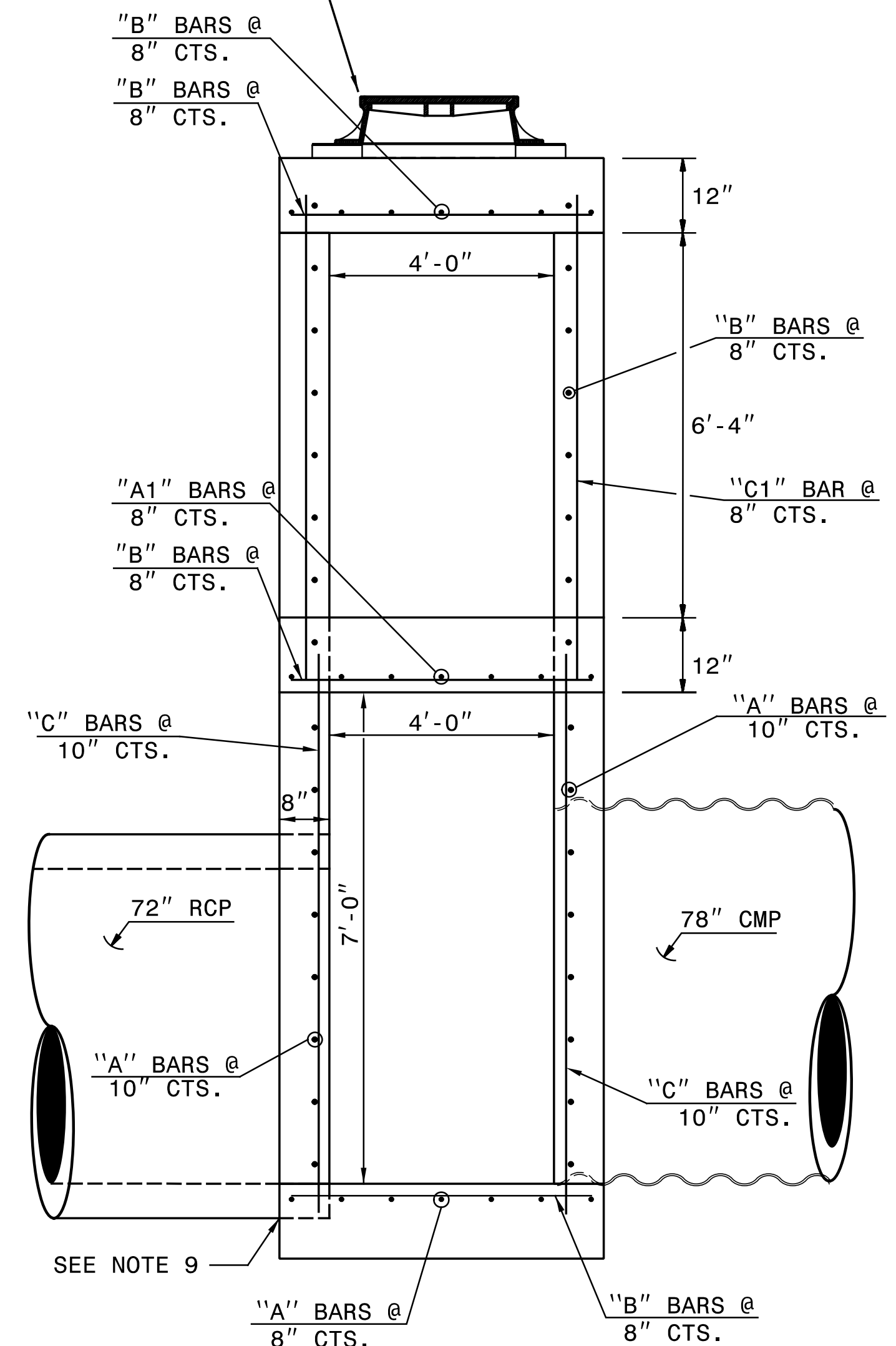


GENERAL NOTES:

1. USE CLASS "B" CONCRETE THROUGHOUT.
2. CONSTRUCT CONCRETE BOX IN ACCORDANCE WITH SECTION 825 OF THE STANDARD SPECIFICATIONS.
3. USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
4. ADJUST LENGTH OF STEEL BARS AS NEEDED TO COMPENSATE FOR PIPES AND FRAME AND GRATE OPENINGS.
5. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60.
6. CUT OR BEND STEEL BARS AS NEEDED TO PROVIDE 2" CLEARANCE.
7. HEIGHT OF JUNCTION BOX MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.
8. PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
9. IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
10. ALL REINFORCING SHALL HAVE 2" MINIMUM COVER UNLESS OTHERWISE NOTED.
11. BUNDLE THE FIRST "C" BARS ON BOTH SIDES OF ANY PIPE OPENING.
12. SEAL JOINTS WITH A FLEXIBLE BUTYL RUBBER BASE CONFORMING TO FEDERAL SPECIFICATION SS-S-21A, AASHTO M-198, TYPE B - BUTYL RUBBER.



SEE STANDARD 840.54 FOR MANHOLE COVER & FRAME



BILL OF MATERIALS

BAR	QTY	SIZE	LENGTH	WEIGHT
A	27	#5	15'-9"	444
B	119	#5	5'-0"	621
C	58	#5	8'-0"	484
A1	9	#5	11'-1"	105
C1	28	#5	7'-4"	215
TOTAL REINF. STEEL (lbs.)				1970
TOTAL CONC. CU. YDS.				16.6

NO DEDUCTIONS HAVE BEEN MADE TO ACCOMMODATE PIPES.

NOTE: MANHOLE RISER NOT IN THIS SECTION BUT SHOWN FOR INFORMATION PURPOSES.

SECTION B-B

SECTION A-A

STRUCTURE #735
NOT TO SCALE

3/21/00 2312.Hyd..JBS.dgn
ksm

01-MAR-2018 07:39
 S:\Contracts\Special Details\Vericard\usr\details\stand\840d17 Extra Depth 2GI.dgn
 J:\power\ton AT_CSD-292595

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

ENGLISH DETAIL DRAWING FOR
CONCRETE MEDIAN DROP INLET TYPE 'A'
EXTRA DEPTH OVER 12' TO 25'
12" THRU 72" PIPE

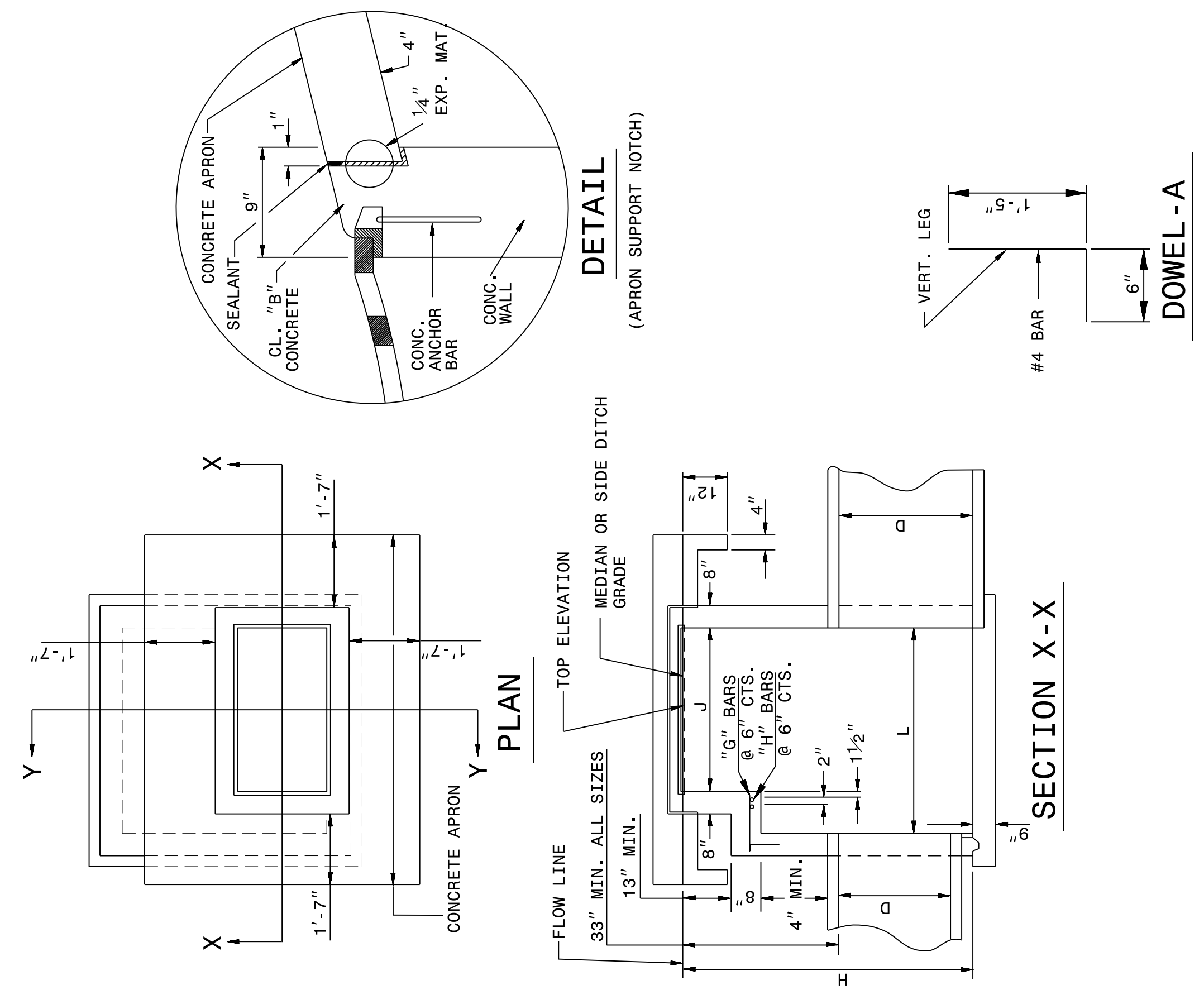
SHEET 1 OF 2
840D17

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

ENGLISH DETAIL DRAWING FOR
CONCRETE MEDIAN DROP INLET TYPE 'A'
EXTRA DEPTH OVER 12' TO 25'
12" THRU 72" PIPE

SHEET 1 OF 2
840D17

GENERAL NOTES:
 USE CLASS "B" CONCRETE THROUGHOUT.
 PROVIDE DROP INLETS WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB WHEN PAYMENT FOR THE DROP INLET IS MADE ON A PER EACH BASIS, THE CONCRETE APRON WILL BE CONSIDERED PART OF THE DROP INLET.
 CONSTRUCT WITH PIPE CROWNS MATCHING.
 USE STANDARD FRAMES AND GRATES 840.22 (SHOWN), 840.24 (SHOWN), 840.20, 840.29, AND 840.33.
 SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.
 MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 25 FEET.



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

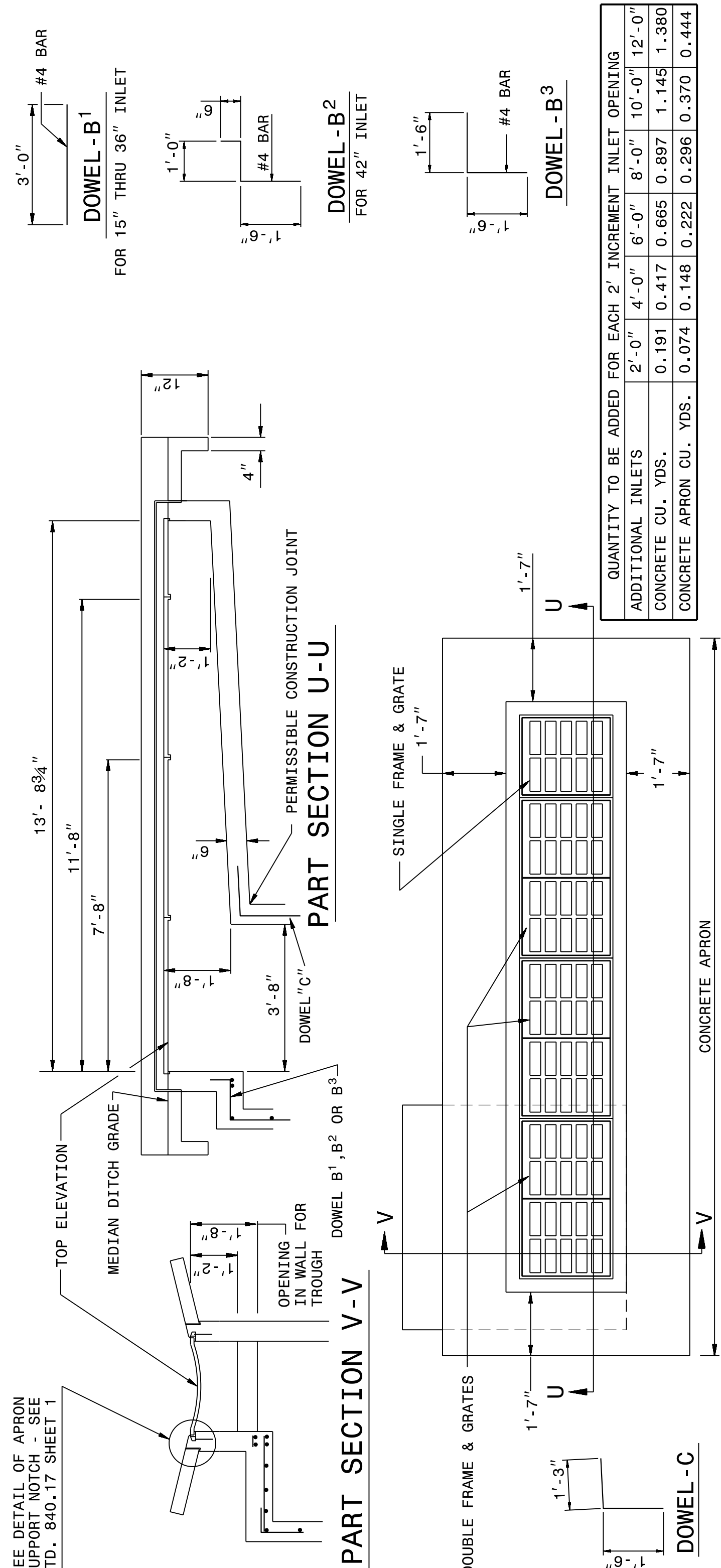
ENGLISH DETAIL DRAWING FOR
CONCRETE MEDIAN DROP INLET TYPE 'A'
EXTRA DEPTH OVER 12' TO 25'
12" THRU 72" PIPE

SHEET 2 OF 2
840D17

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

ENGLISH DETAIL DRAWING FOR
CONCRETE MEDIAN DROP INLET TYPE 'A'
EXTRA DEPTH OVER 12' TO 25'
12" THRU 72" PIPE

SHEET 2 OF 2
840D17



QUANTITY TO BE ADDED FOR EACH 2' INCREMENT INLET OPENING

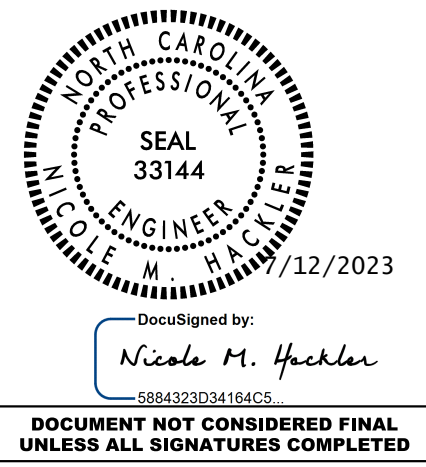
ADDITIONAL INLETS	2'-0"	4'-0"	6'-0"	8'-0"	10'-0"	12'-0"
CONCRETE CU. YDS.	0.191	0.417	0.665	0.897	1.145	1.380
CONCRETE APRON CU. YDS.	0.074	0.148	0.222	0.296	0.370	0.444

DIMENSIONS OF BOX AND PIPE		REINFORCING STEEL - NO. 4 BARS				CU YDS CONC. IN BOX		DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	SPAN	WIDTH	H	H	H	H	TOTAL
D	J	K	L	M	NO.	NO.	NO.	NO.	C.S.
12"	3'-8"	2'-0"	3'-8"	2'-0"	3'-9"	3'-9"	0.362	0.926	0.247
15"	3'-8"	2'-0"	3'-8"	2'-0"	4'-0"	4'-0"	0.362	0.988	0.247
18"	3'-8"	2'-0"	3'-8"	2'-0"	4'-3"	4'-3"	0.362	1.050	0.247
24"	3'-8"	2'-0"	3'-8"	2'-0"	4'-9"	4'-9"	0.444	1.362	0.278
30"	3'-8"	2'-0"	3'-8"	2'-0"	5'-3"	5'-3"	0.502	1.644	0.288
36"	3'-8"	2'-0"	3'-8"	2'-0"	5'-9"	5'-9"	0.560	1.931	0.321
42"	3'-8"	2'-0"	3'-8"	2'-0"	6'-3"	6'-3"	0.704	2.500	0.370
48"	3'-8"	2'-0"	3'-8"	2'-0"	6'-9"	6'-9"	0.823	3.013	0.407
54"	3'-8"	2'-0"	3'-8"	2'-0"	7'-3"	7'-3"	0.951	3.589	0.444
60"	3'-8"	2'-0"	3'-8"	2'-0"	7'-9"	7'-9"	1.311	4.539	0.494
66"	3'-8"	2'-0"	3'-8"	2'-0"	8'-3"	8'-3"	1.136	5.061	0.537
72"	3'-8"	2'-0"	3'-8"	2'-0"	8'-9"	8'-9"	1.500	5.860	0.580
							199	7.868	0.713

CONTRACT STANDARDS AND DEVELOPMENT UNIT
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SEE PLATE FOR TITLE

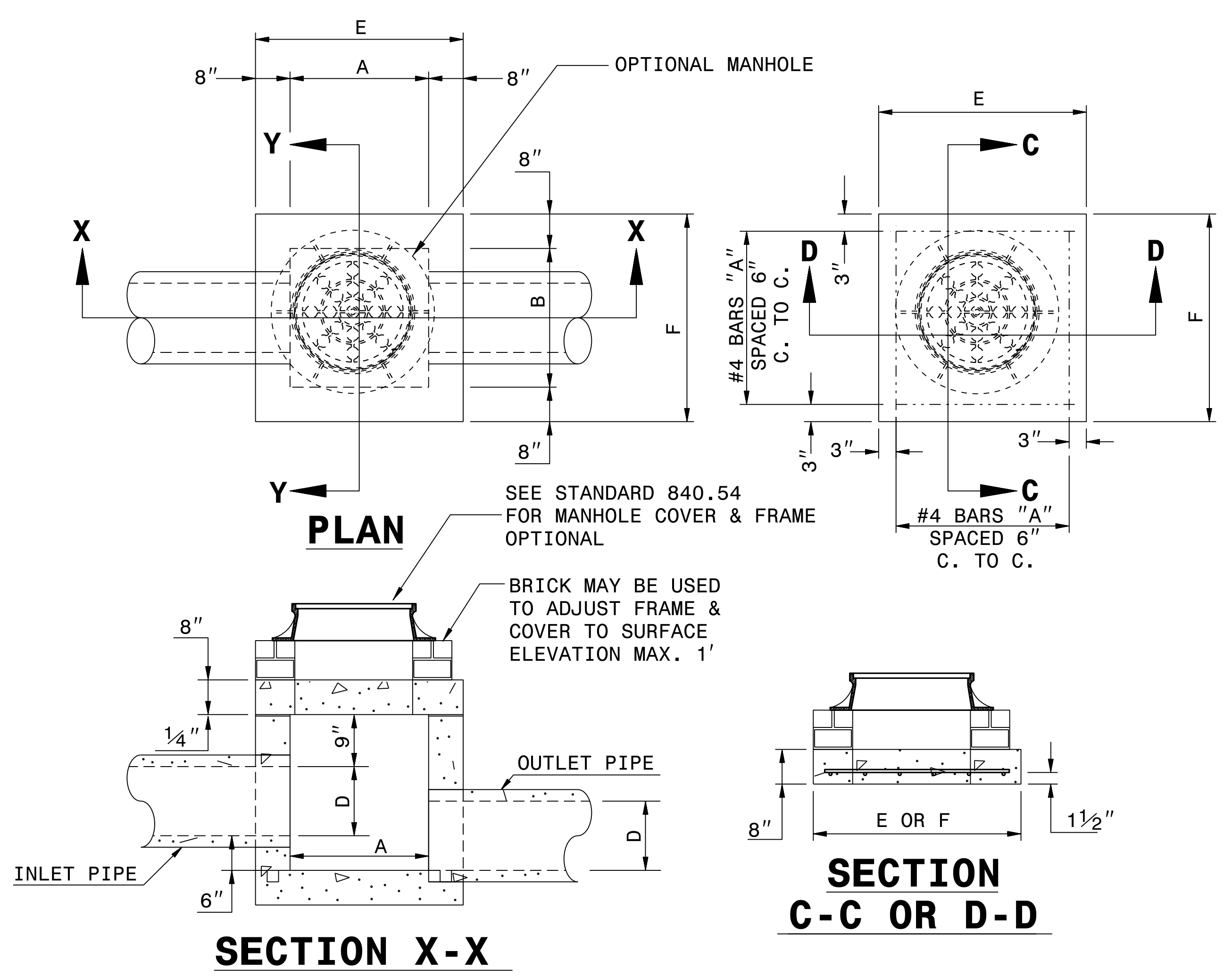
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 CHECKED BY: _____ DATE: _____
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STATE OF
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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
CONCRETE JUNCTION BOX
(WITH OPTIONAL MANHOLE)
UP TO 30' OF FILL

SHEET 1 OF 1
840D31



GENERAL NOTES:
 CHAMFER ALL EXPOSED CORNERS 1".
 USE CLASS "B" CONCRETE THROUGHOUT.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00.
 PROVIDE ALL JUNCTION BOXES OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.66.
 ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE ADDITION OF THE MANHOLE (I.E. DIAGONAL BARS SHORTENED AROUND OPENING IN TOP SLAB, ADDITIONAL VARIABLE HEIGHT BRICK MASONRY, OPENING IN TOP SLAB.)
 MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 25 FEET.

STATE OF
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RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
CONCRETE JUNCTION BOX
(WITH OPTIONAL MANHOLE)
UP TO 30' OF FILL

SHEET 1 OF 1
840D31

DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES														
PIPE	DIMENSIONS OF BOX AND PIPE			REINFORCEMENT BARS "A"		TOP SLAB DIMENSIONS		CUBIC YARDS IN BOX			TOTAL QUANTITIES BOX AND SLABS		DEDUCTIONS FOR ONE PIPE CU.YDS.	
	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	TOP SLAB	BOTTOM SLAB	WALL/ FT. OF HT.	LBS. REINF	CU. YDS. MIN. "H"	C.S.	R.C.
12"	2'-0"	2'-0"	2'-3"	12	2'-9"	3'-0"	3'-0"	0.222	0.222	0.246	22	0.998	0.015	0.024
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-3"	3'-3"	0.261	0.261	0.271	24	1.200	0.023	0.036
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	3'-6"	3'-6"	0.302	0.302	0.295	30	1.416	0.033	0.049
24"	3'-0"	3'-0"	3'-3"	16	3'-9"	4'-0"	4'-0"	0.394	0.394	0.344	40	1.907	0.059	0.085
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	4'-6"	4'-6"	0.499	0.499	0.394	51	2.474	0.092	0.127
36"	4'-0"	4'-0"	4'-3"	20	4'-9"	5'-0"	5'-0"	0.616	0.616	0.443	64	3.114	0.132	0.178
42"	4'-6"	4'-6"	4'-9"	22	5'-3"	5'-6"	5'-6"	0.745	0.745	0.492	77	3.828	0.180	0.243
48"	5'-4"	5'-4"	5'-3"	26	6'-3"	6'-4"	6'-4"	0.988	0.988	0.541	111	4.819	0.235	0.317
54"	5'-10"	5'-10"	5'-9"	28	6'-7"	6'-10"	6'-10"	1.150	1.150	0.591	126	5.696	0.297	0.401
60"	6'-6"	6'-6"	6'-3"	30	7'-3"	7'-6"	7'-6"	1.386	1.386	0.640	145	6.770	0.367	0.495
66"	7'-1"	7'-1"	6'-9"	32	7'-10"	8'-1"	8'-1"	1.609	1.609	0.689	169	7.870	0.444	0.589

30-DEC-2019 09:00 S:\Contracts\Special Details\Howerton\840d31 Special JB up to 30ft of Fill.dgn Jhowerton AT_CSD-320965

7/12/2023
 SEAL 33144
 ENGINEER
 Nicole M. Heckler
 88432303416406
 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT
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SEE PLATE FOR TITLE
 ORIGINAL BY: J. HOWERTON DATE: 12/30/19
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC. jhowerton/840d31 up to 30ft of fill.dgn

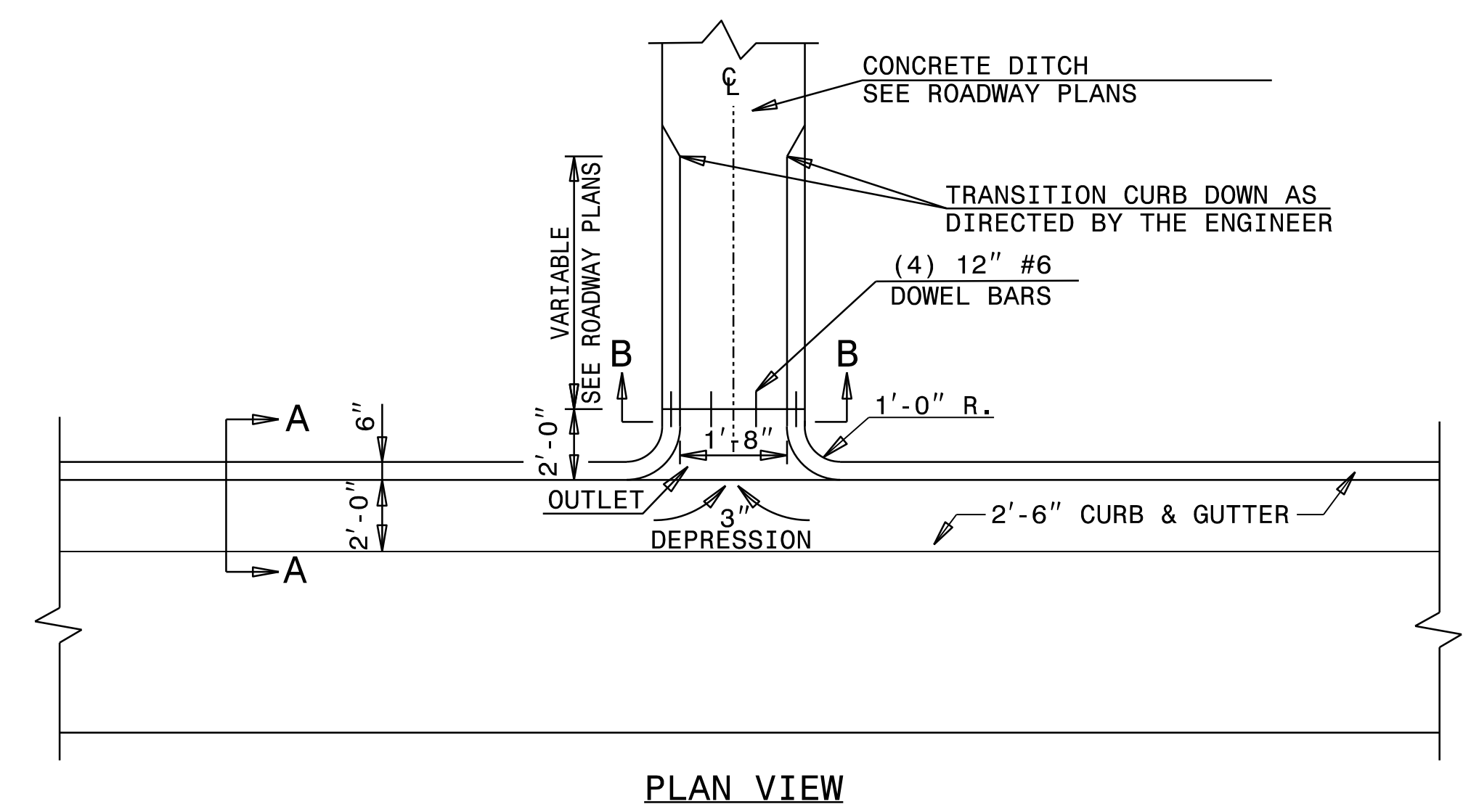
5/14/99

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RALEIGH, N.C.

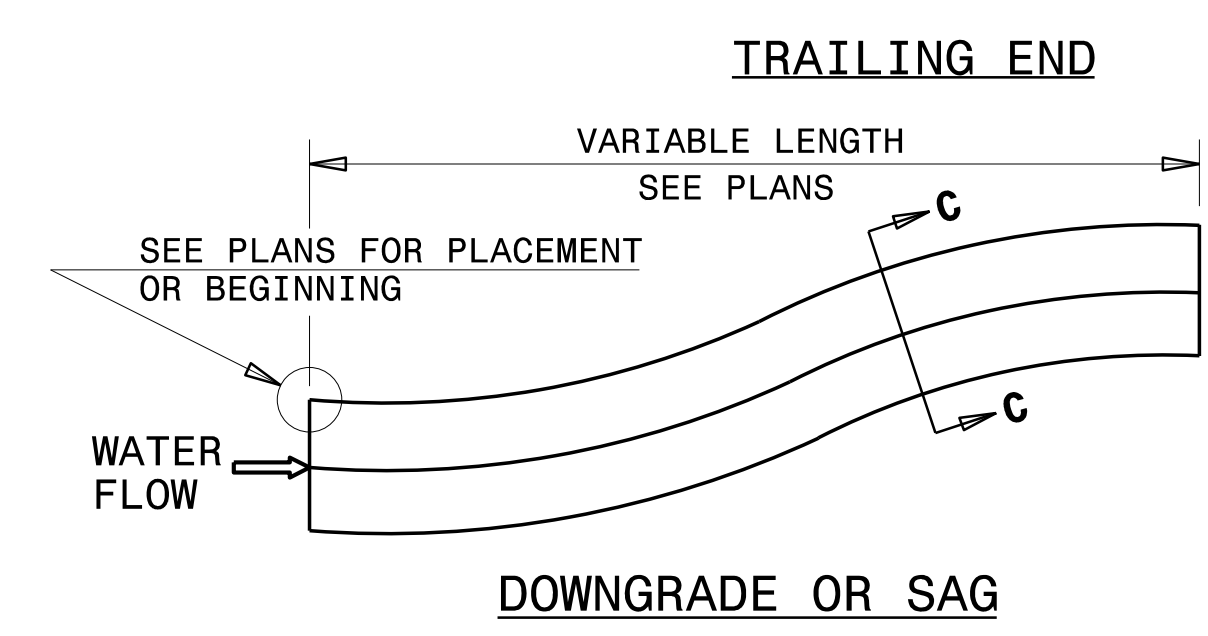
ENGLISH DETAIL DRAWING FOR
2'-6" CURB AND GUTTER
DRAINAGE INSTALLATION IN

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

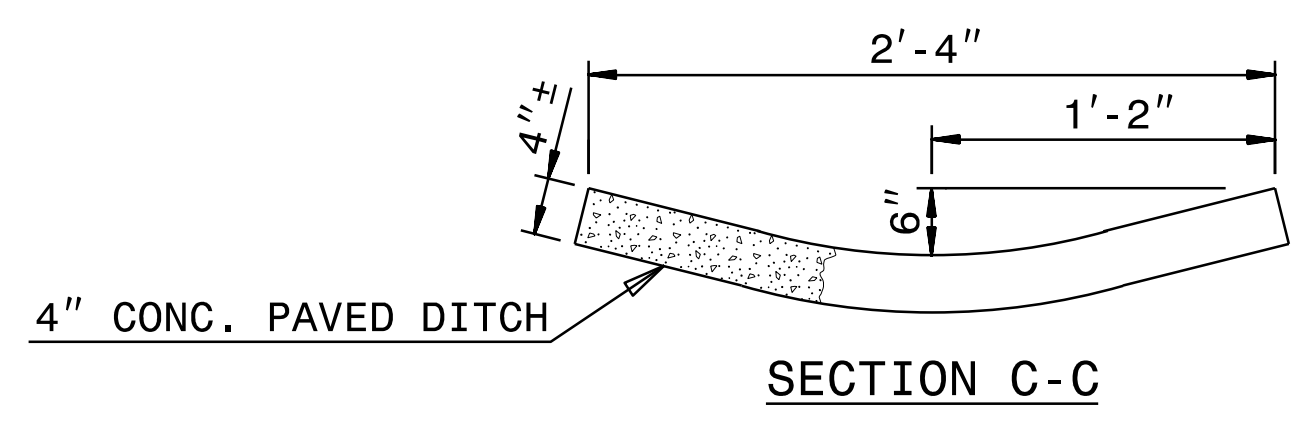
ENGLISH DETAIL DRAWING FOR
2'-6" CURB AND GUTTER
DRAINAGE INSTALLATION IN



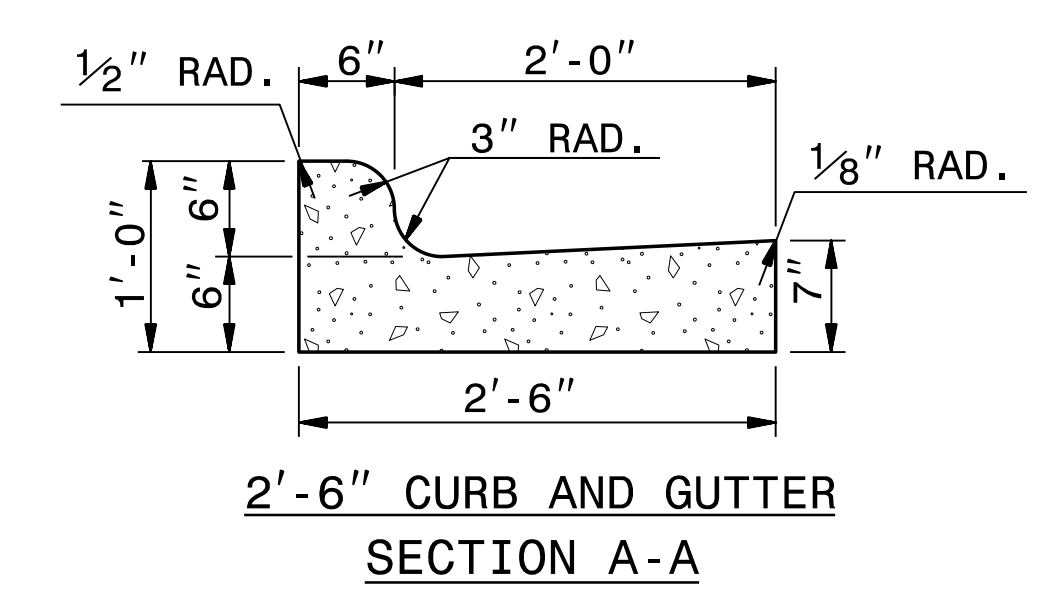
PLAN VIEW



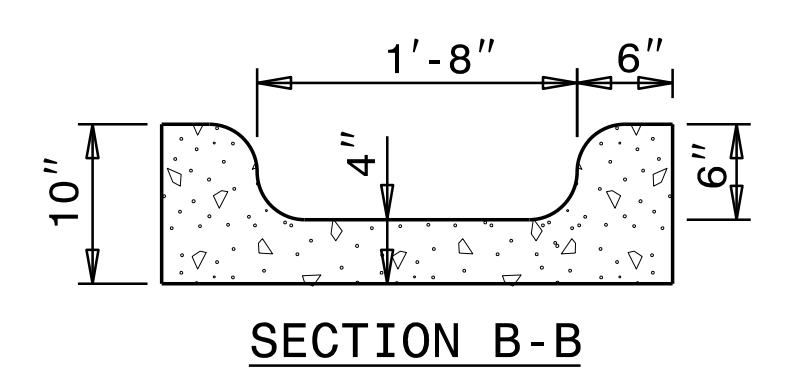
DOWNGRADE OR SAG



SECTION C-C



2'-6" CURB AND GUTTER SECTION A-A



SECTION B-B

NOTES:

- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONCRETE DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18" PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

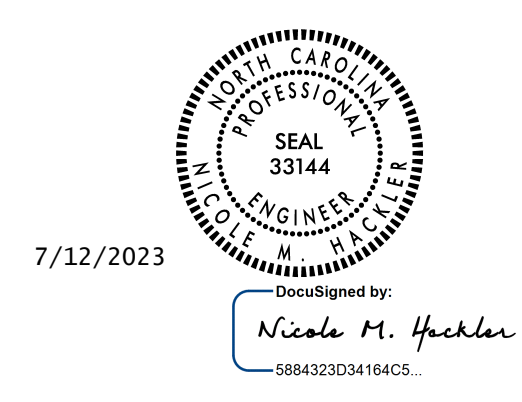
SHEET 1 OF 1
C&GDTCH

SHEET 1 OF 1
C&GDTCH

CONTRACTS STANDARDS AND DEVELOPMENT UNIT
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SEE PLATE FOR TITLE

ORIGINAL BY: E.E. Ward DATE: 3-12-02
 MODIFIED BY: DATE: _____
 CHECKED BY: DATE: _____
 FILE SPEC.: w:\details\stand\modifiedflume.dgn



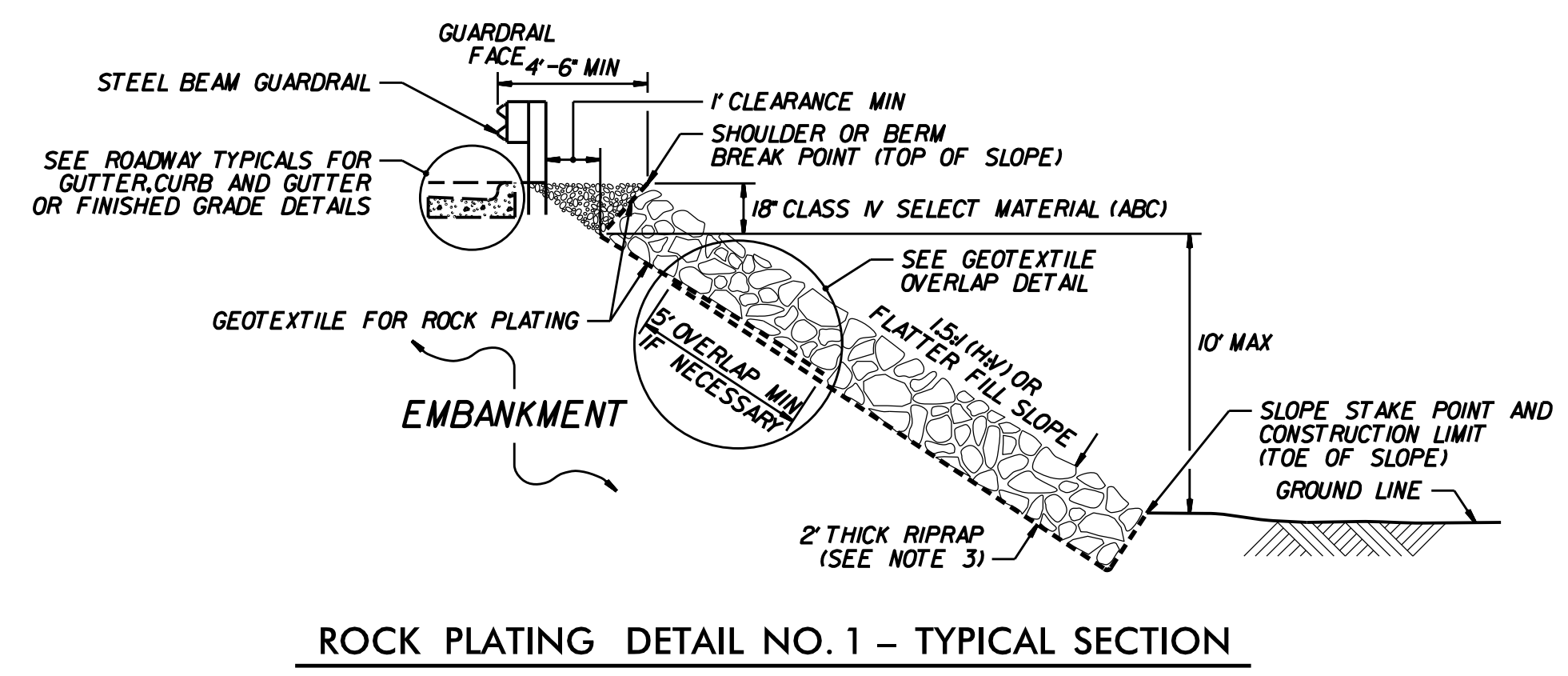
7/12/2023

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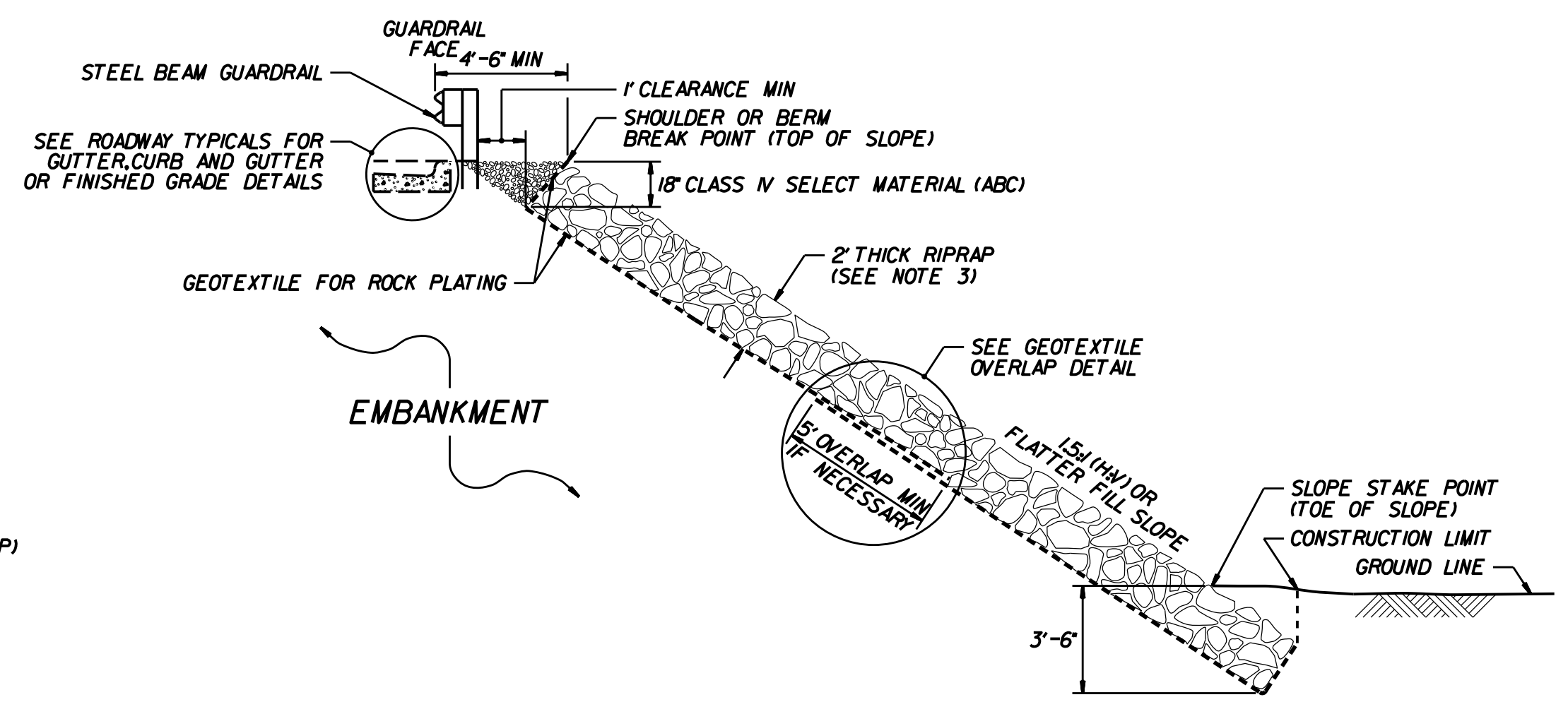
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DEPT. OF TRANSPORTATION
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RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
ROCK PLATING

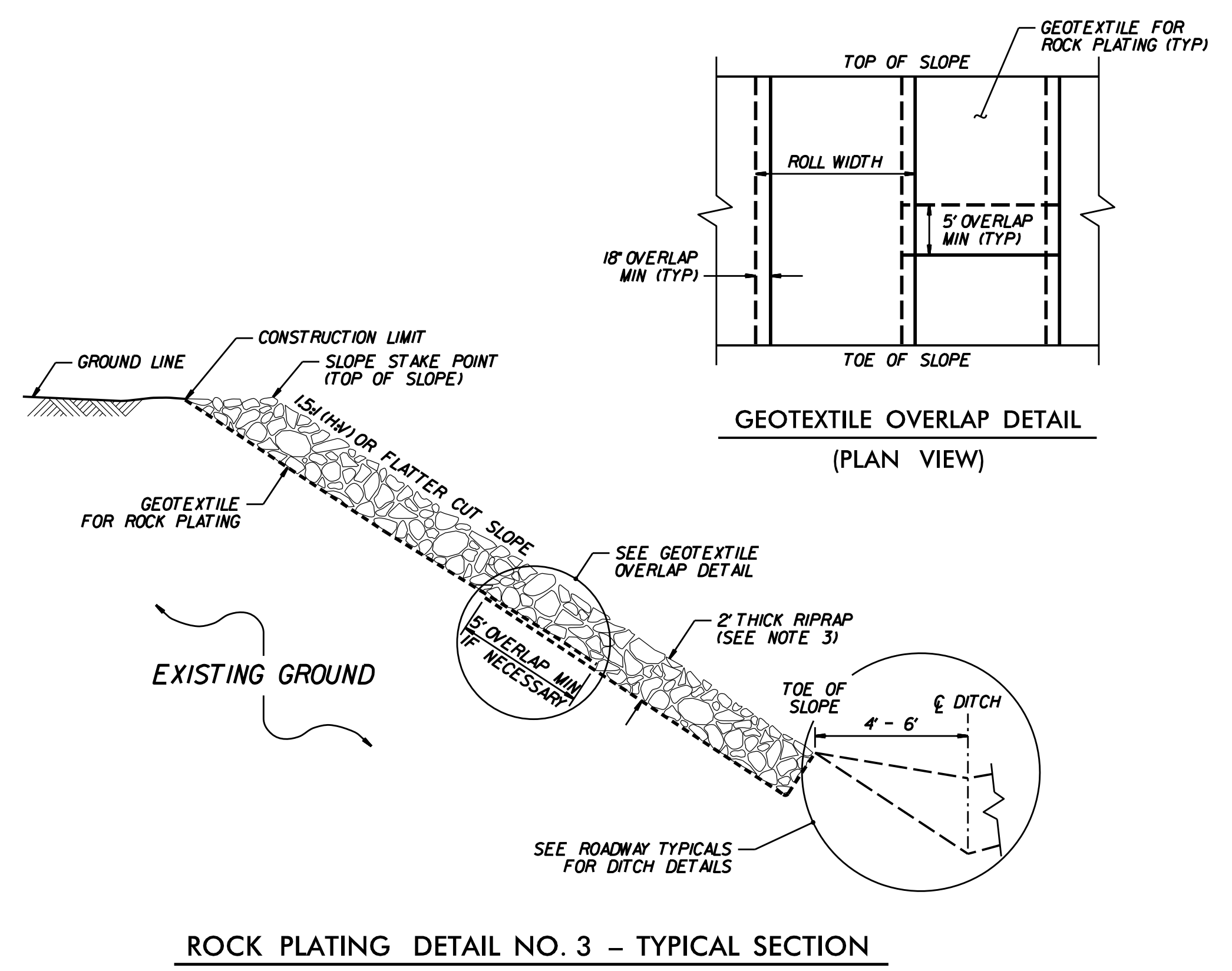
ROADWAY DETAIL DRAWING FOR
ROCK PLATING



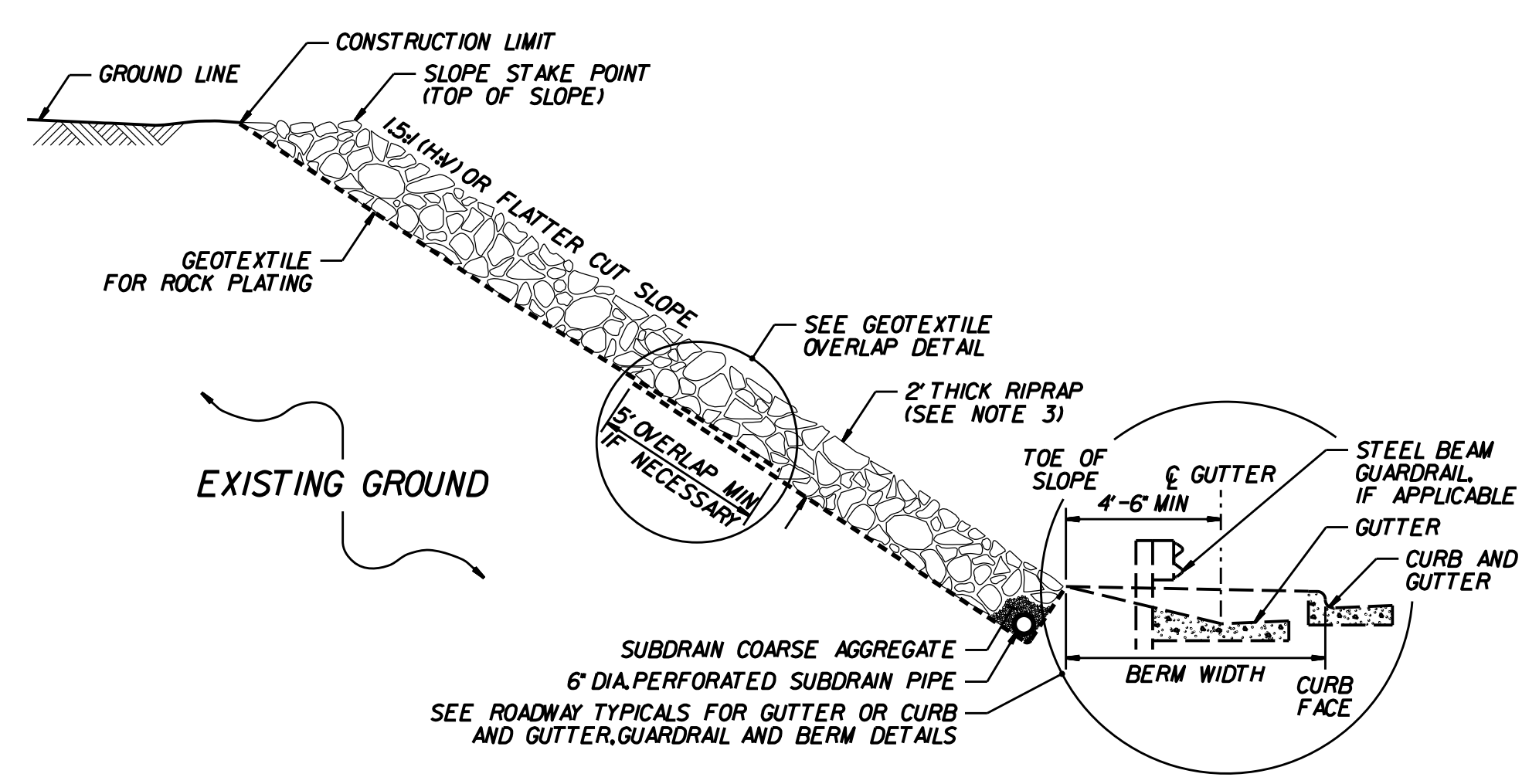
ROCK PLATING DETAIL NO. 1 - TYPICAL SECTION



ROCK PLATING DETAIL NO. 2 - TYPICAL SECTION



ROCK PLATING DETAIL NO. 3 - TYPICAL SECTION

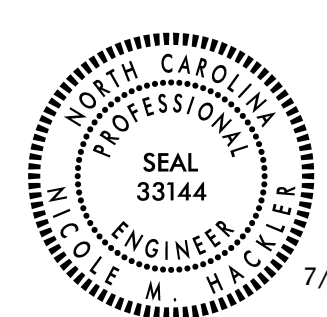


ROCK PLATING DETAIL NO. 4 - TYPICAL SECTION

- NOTES:**
1. SEE ROADWAY PLANS AND SUMMARY SHEETS FOR ROCK PLATING LOCATIONS.
 2. FOR ROCK PLATING, SEE SECTION 275 OF THE STANDARD SPECIFICATIONS.
 3. USE CLASS I, 2 OR B RIPRAP UNLESS REQUIRED OTHERWISE IN THE ROADWAY SUMMARY SHEETS.

SHEET 1 OF 1
275D01

SHEET 1 OF 1
275D01



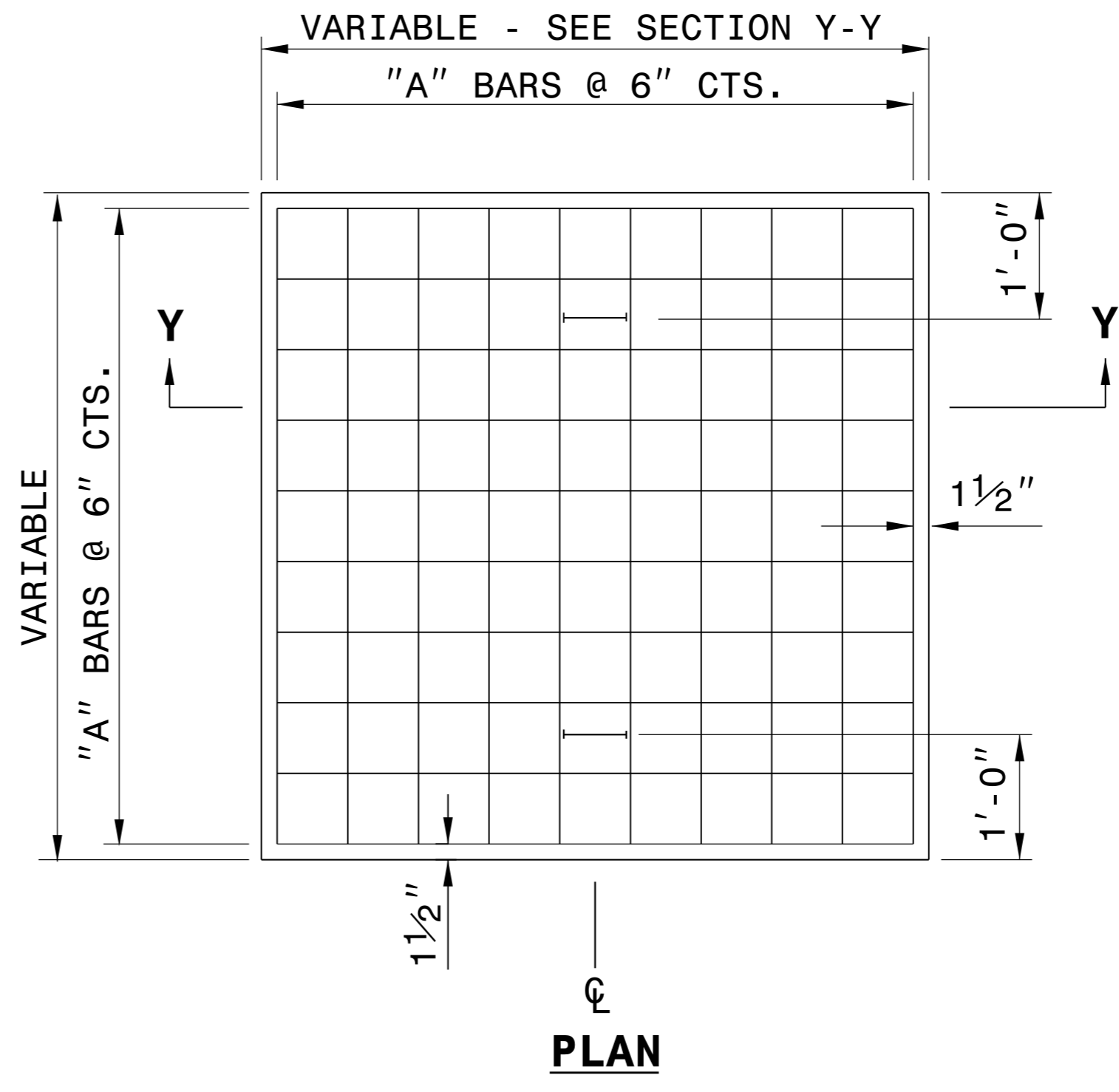
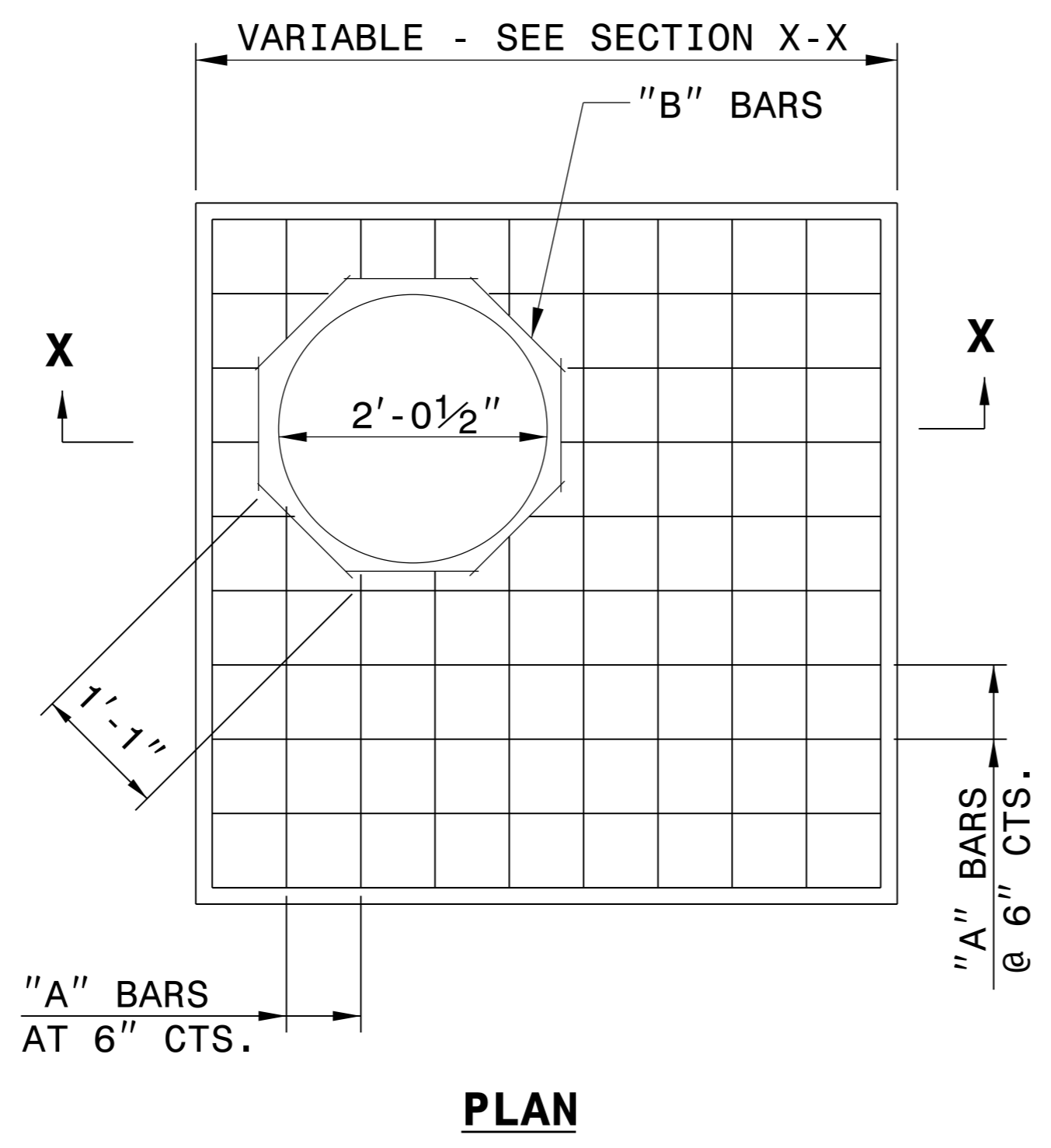
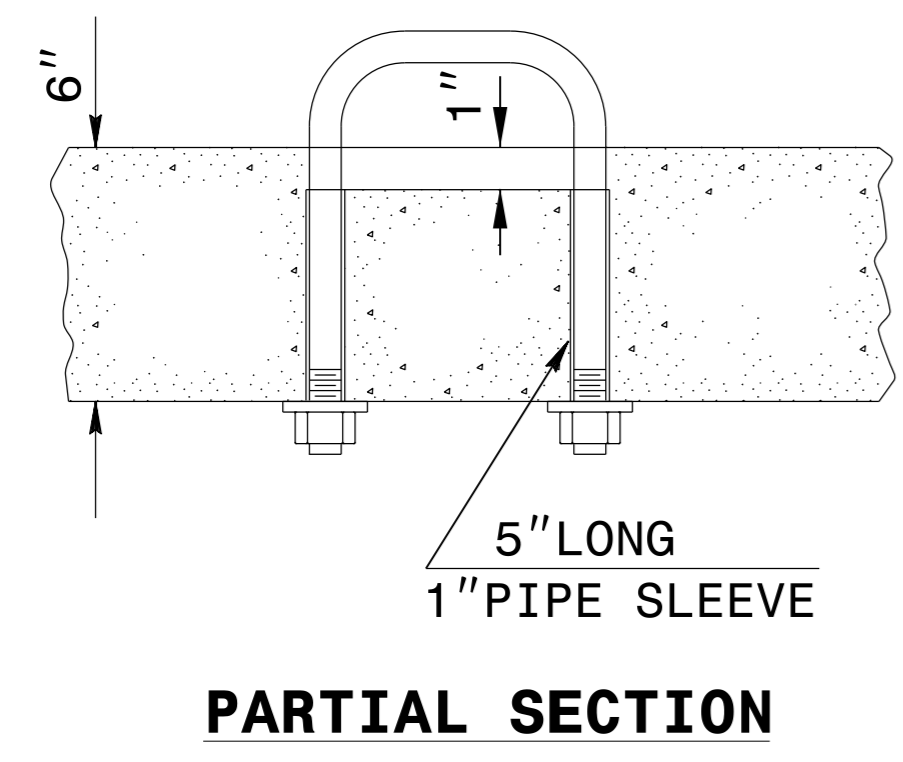
7/12/2023
Nicole M. Yecker
38843203416405

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Office 919-707-6900 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: S. HIDDEN DATE: 03-11-22
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC.:

SYTIME\$\$\$\$\$
 U09\$\$\$\$\$
 CUSTNAME\$\$\$\$\$



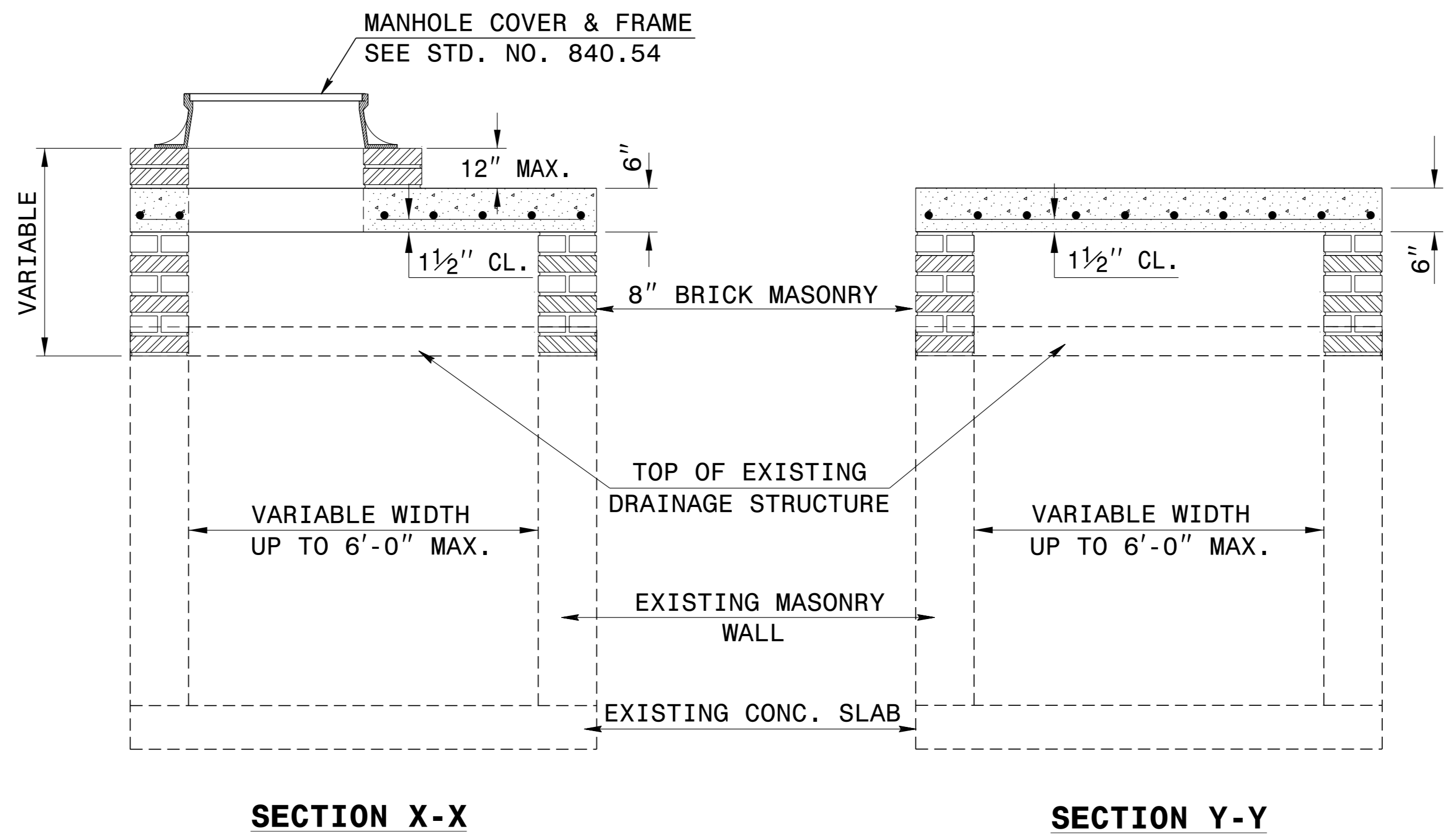
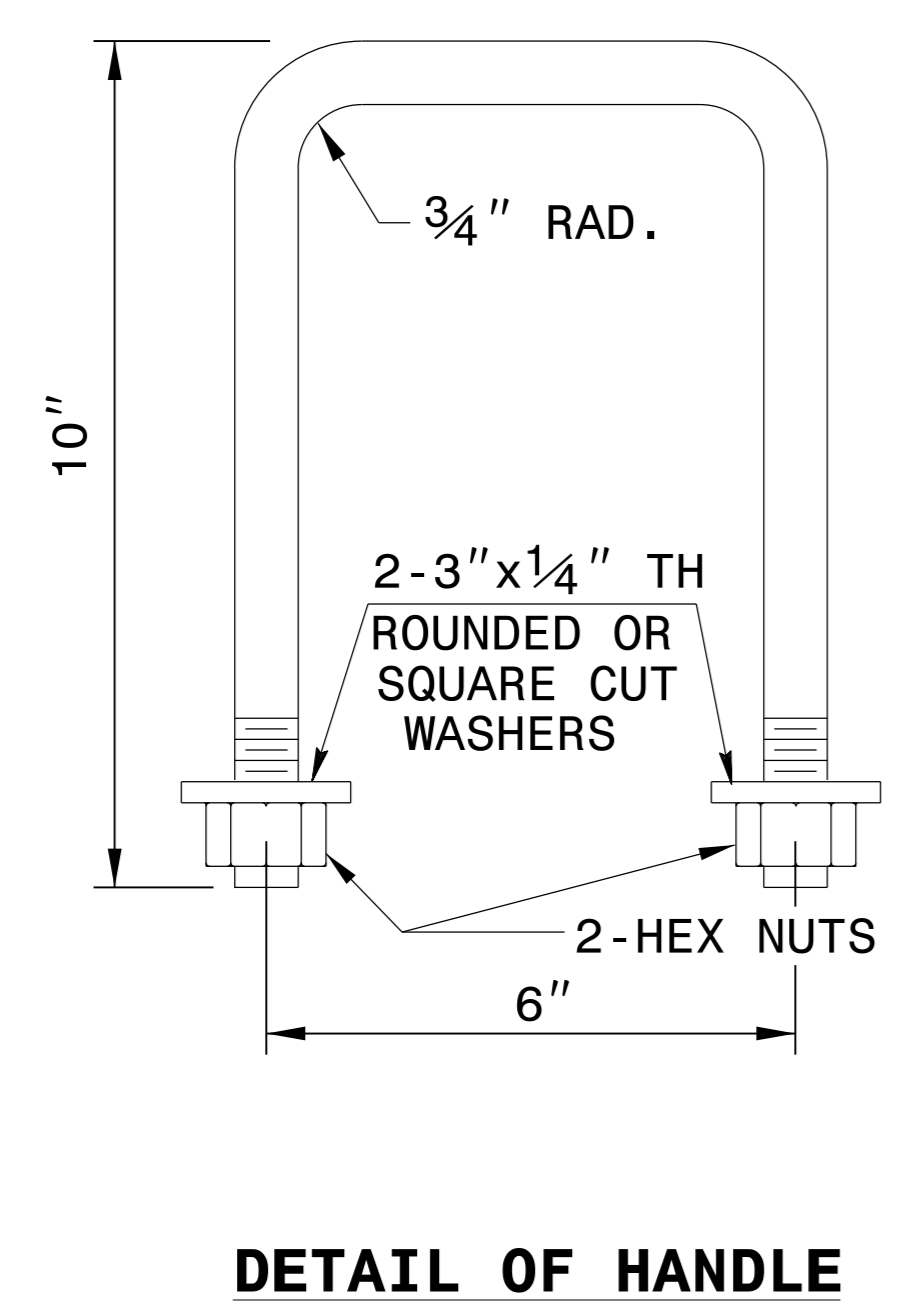
GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

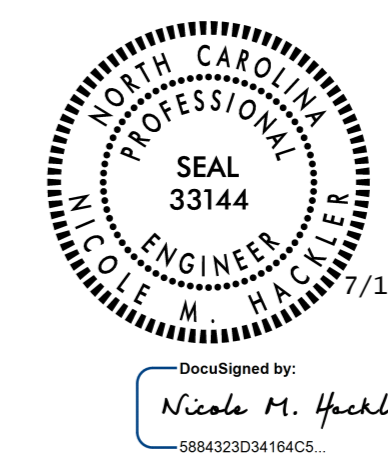
THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

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



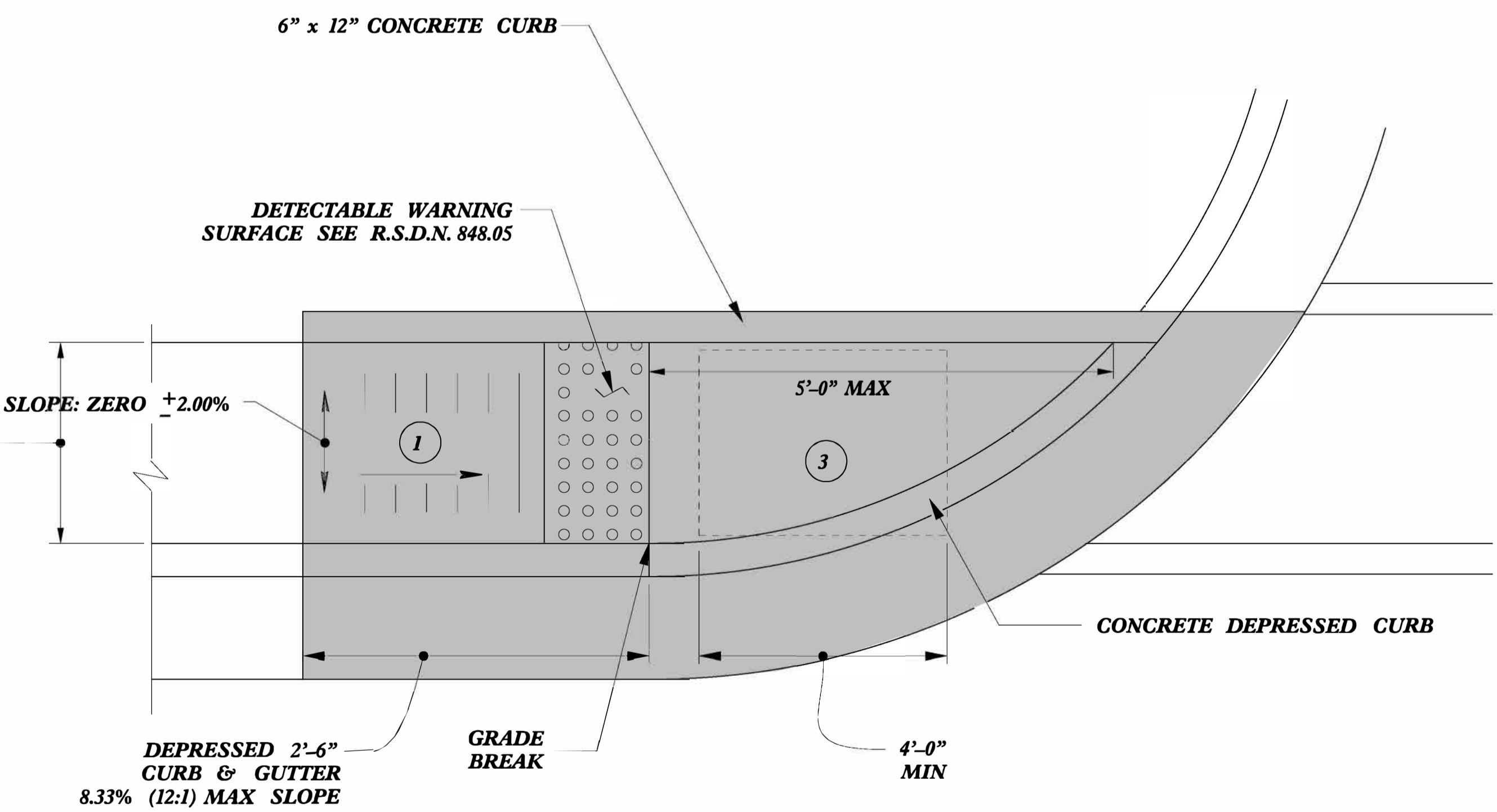
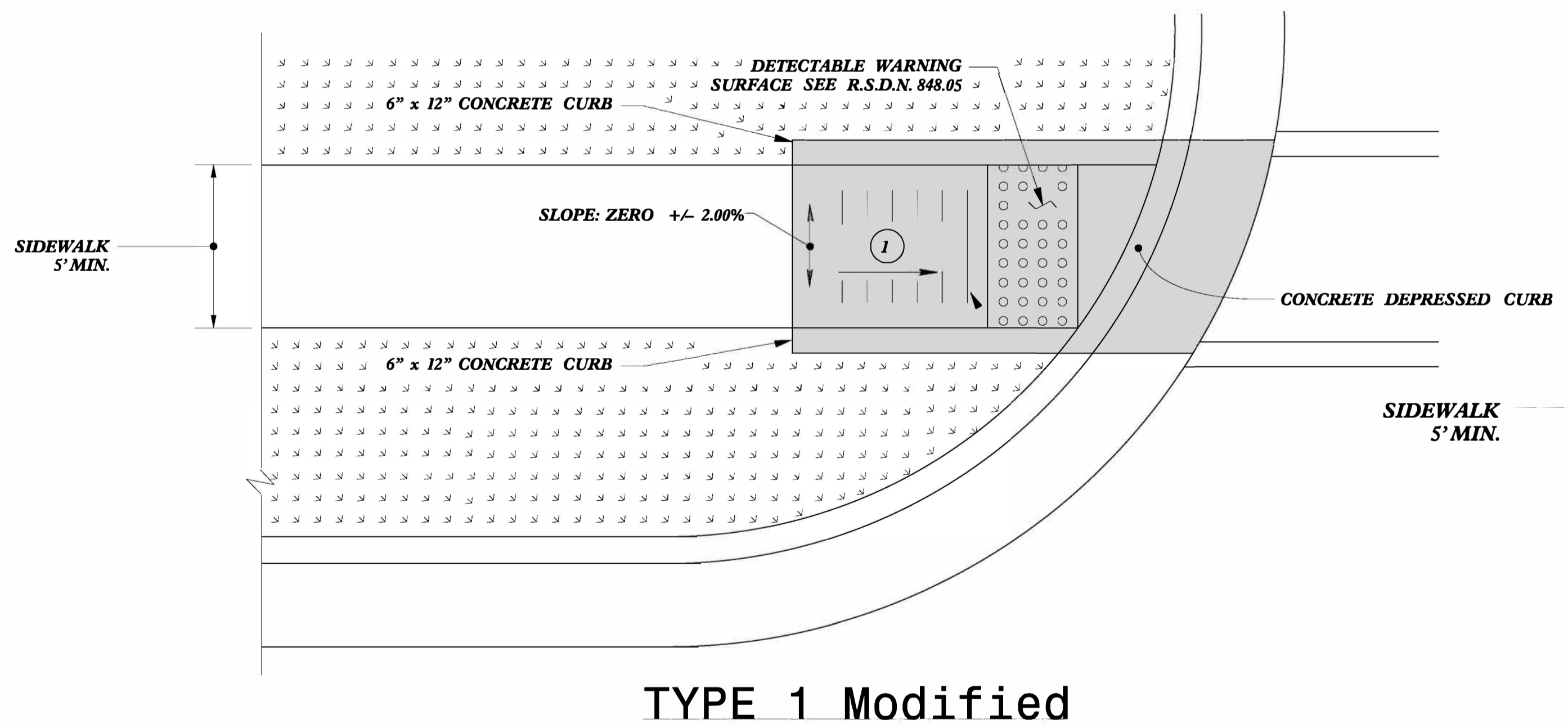
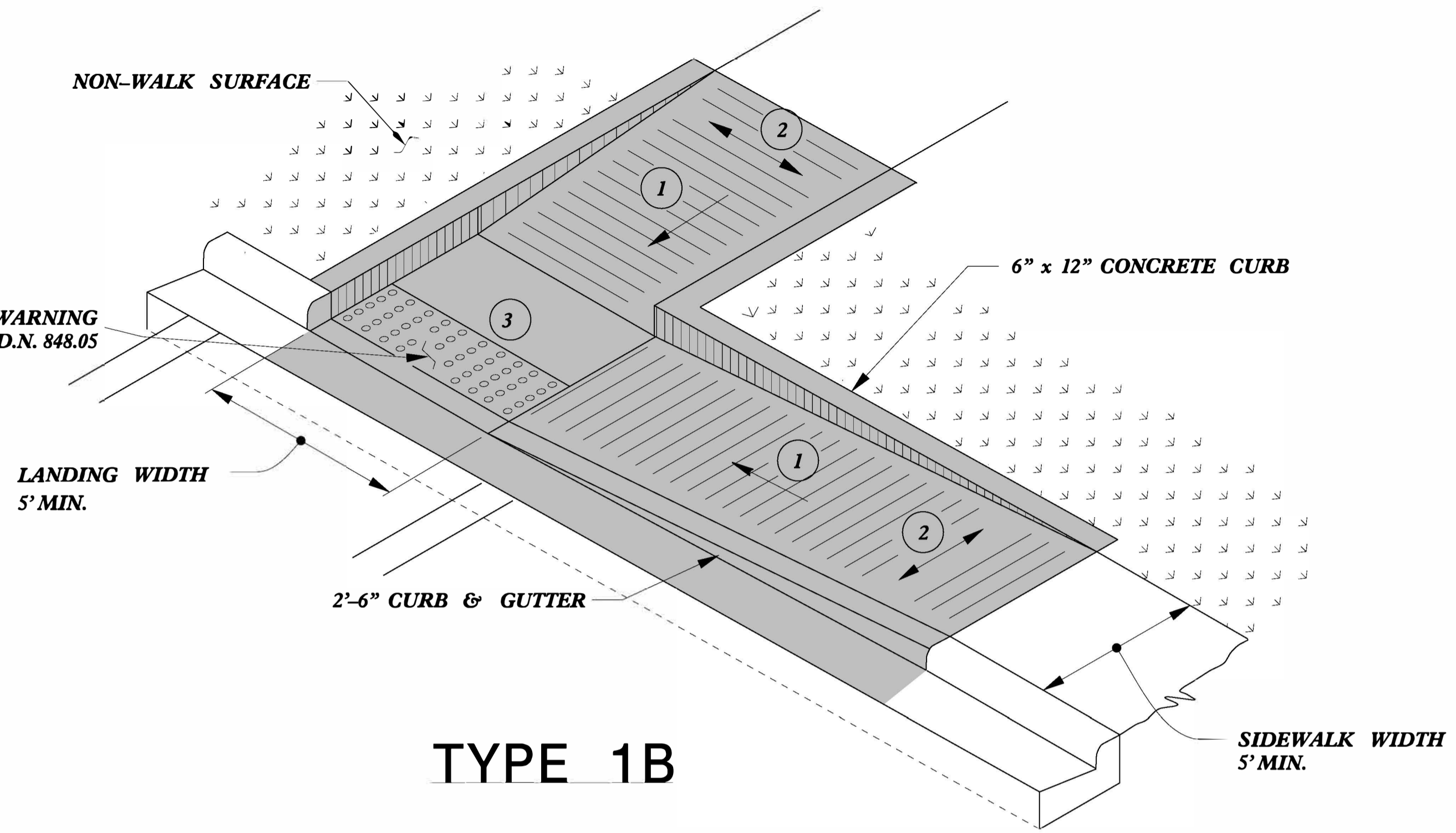
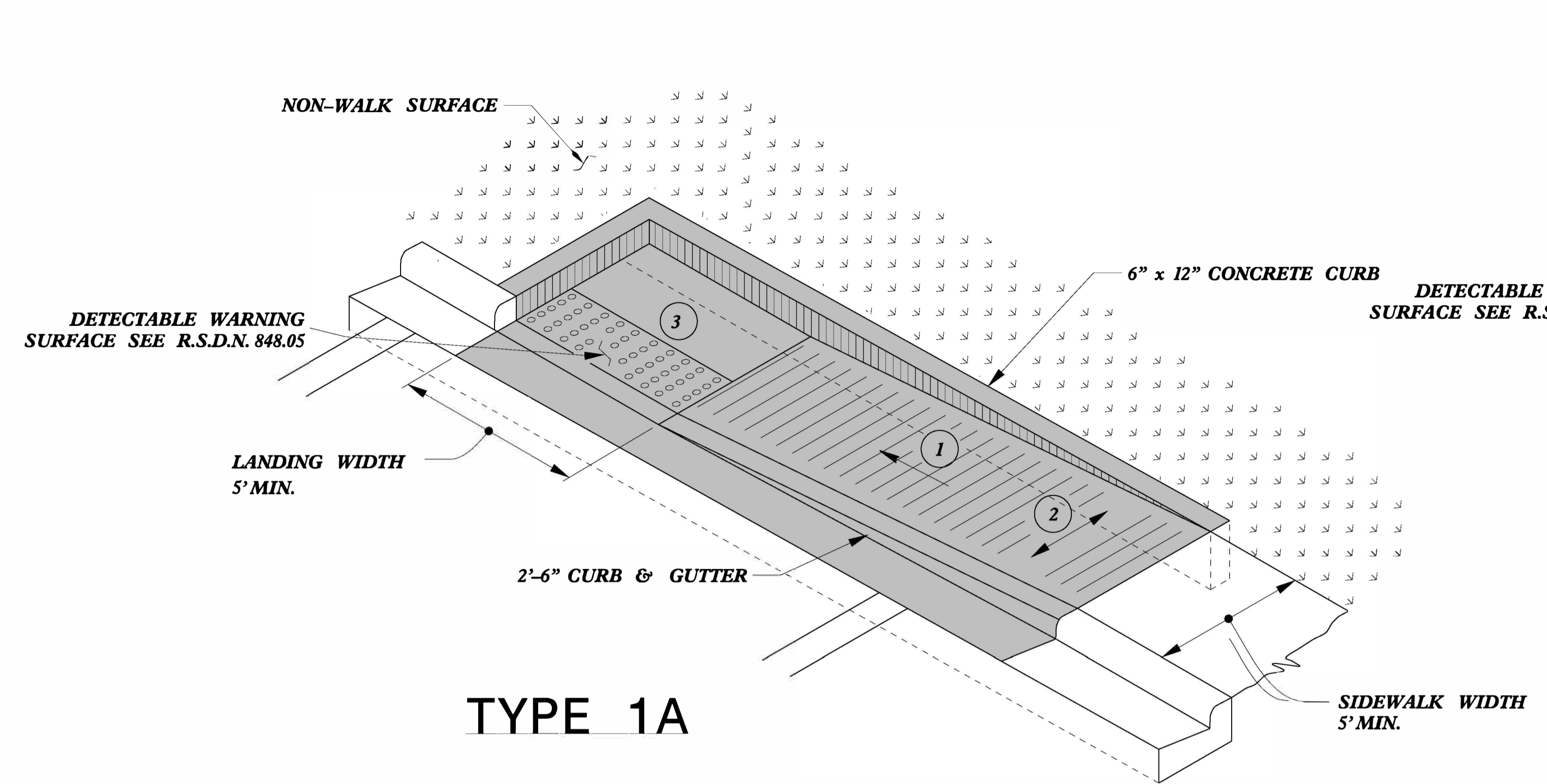
*** NOTE:**
 QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.



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CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
DETAIL TO CONVERT EXISTING DI, CB, OTCB or GI TO JUNCTION BOX (MANHOLE OPTIONAL)	
ORIGINAL BY: T.S.S.	DATE: NOV. 1997
MODIFIED BY: T.S.S.	DATE: FEB. 2000
CHECKED BY:	DATE:
FILE SPEC.: ds174:/usr/details/stand/boxtojbe.dgn	

11/12/2023
 DocuSigned by:
 Nicole M. Hecker
 5884323D34184C5...

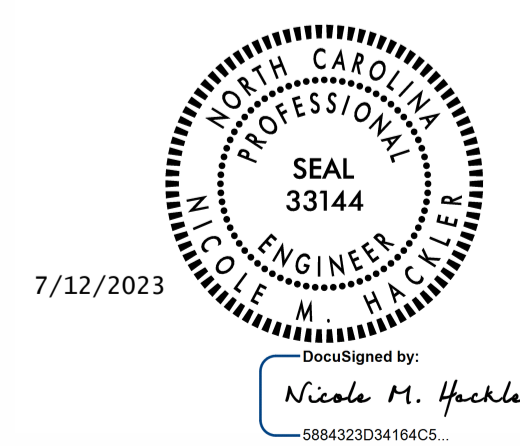


- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

PAY LIMITS FOR 1 CURB RAMP

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

DATE: 7/12/2023

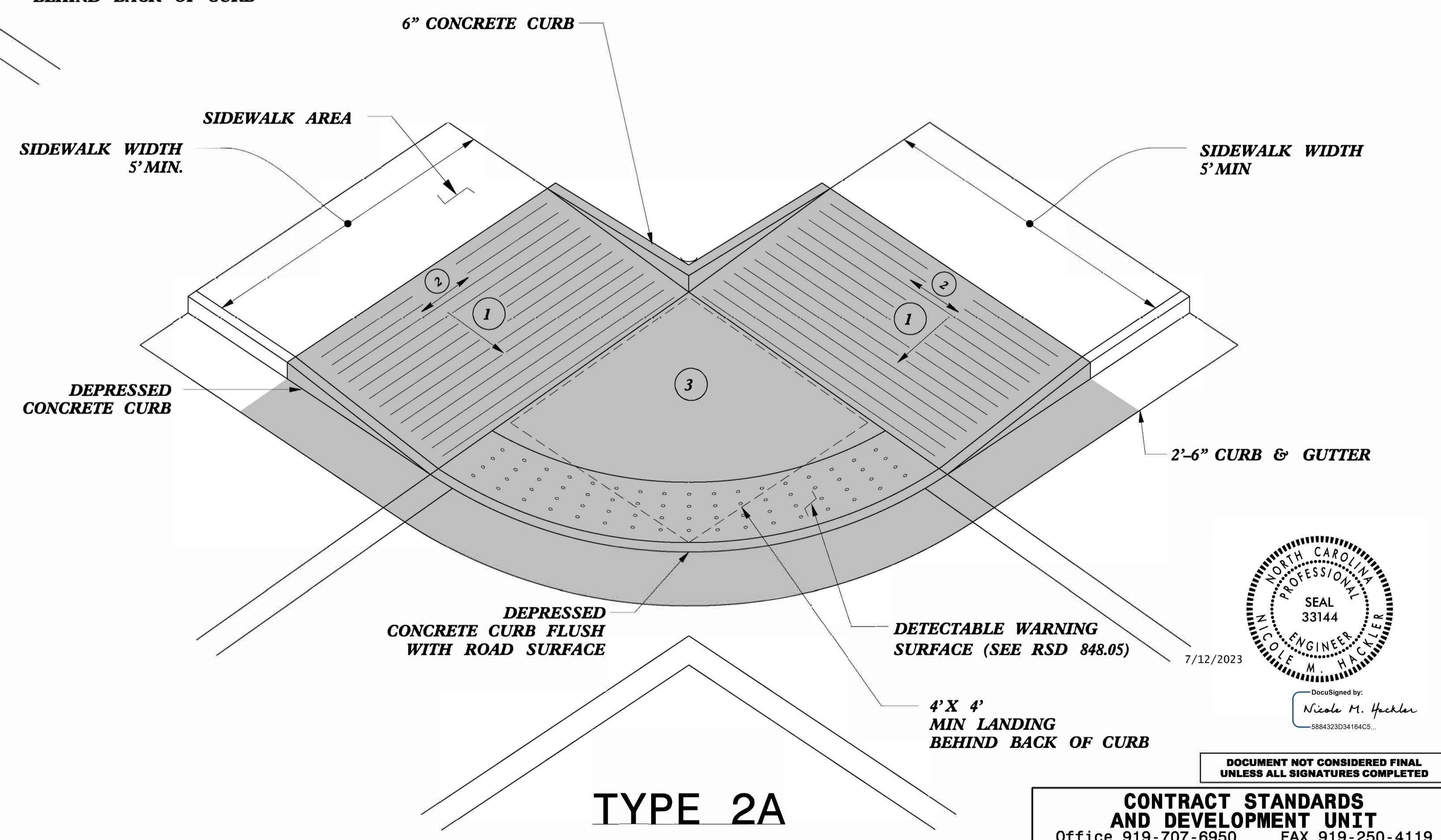
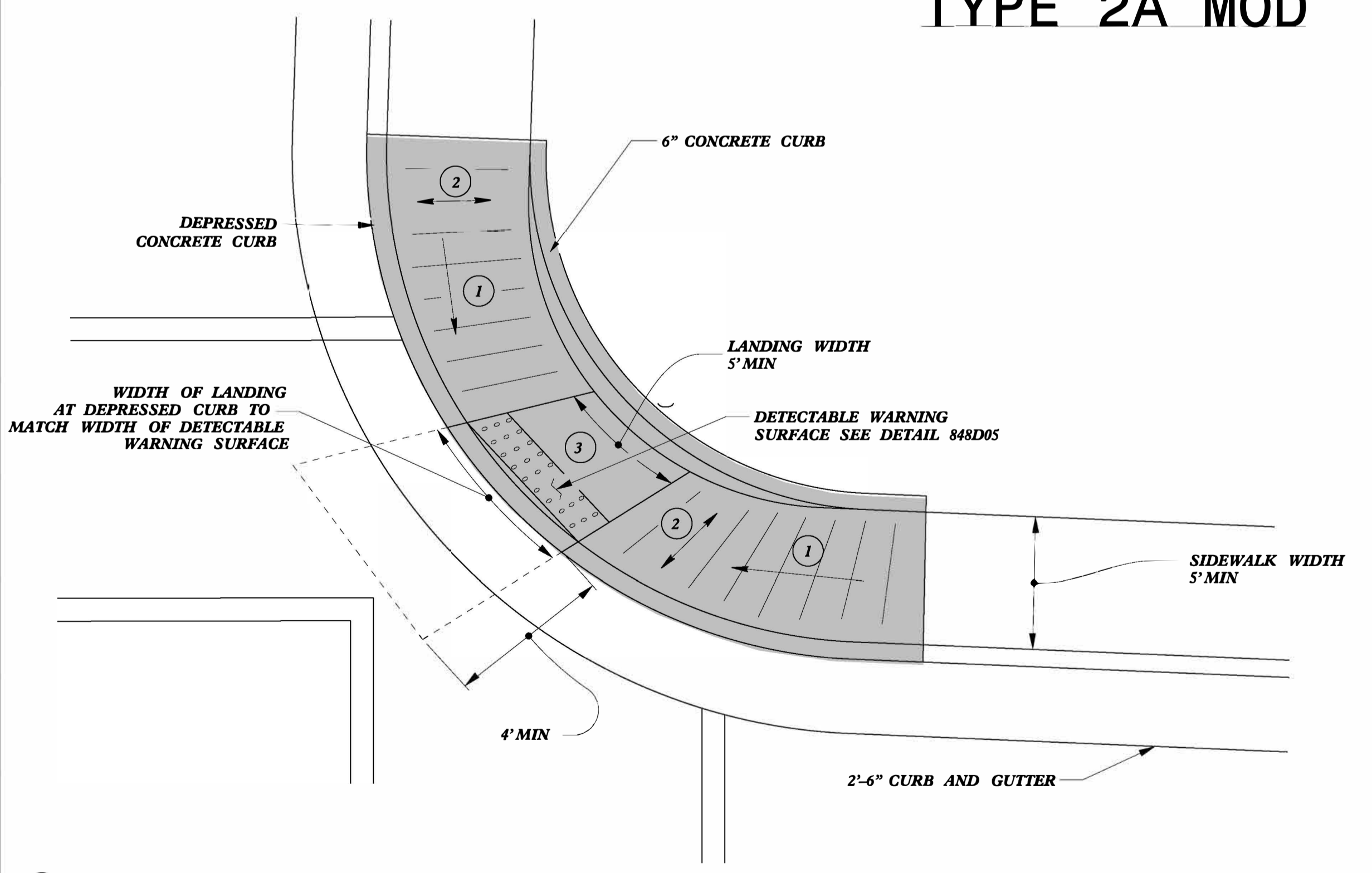
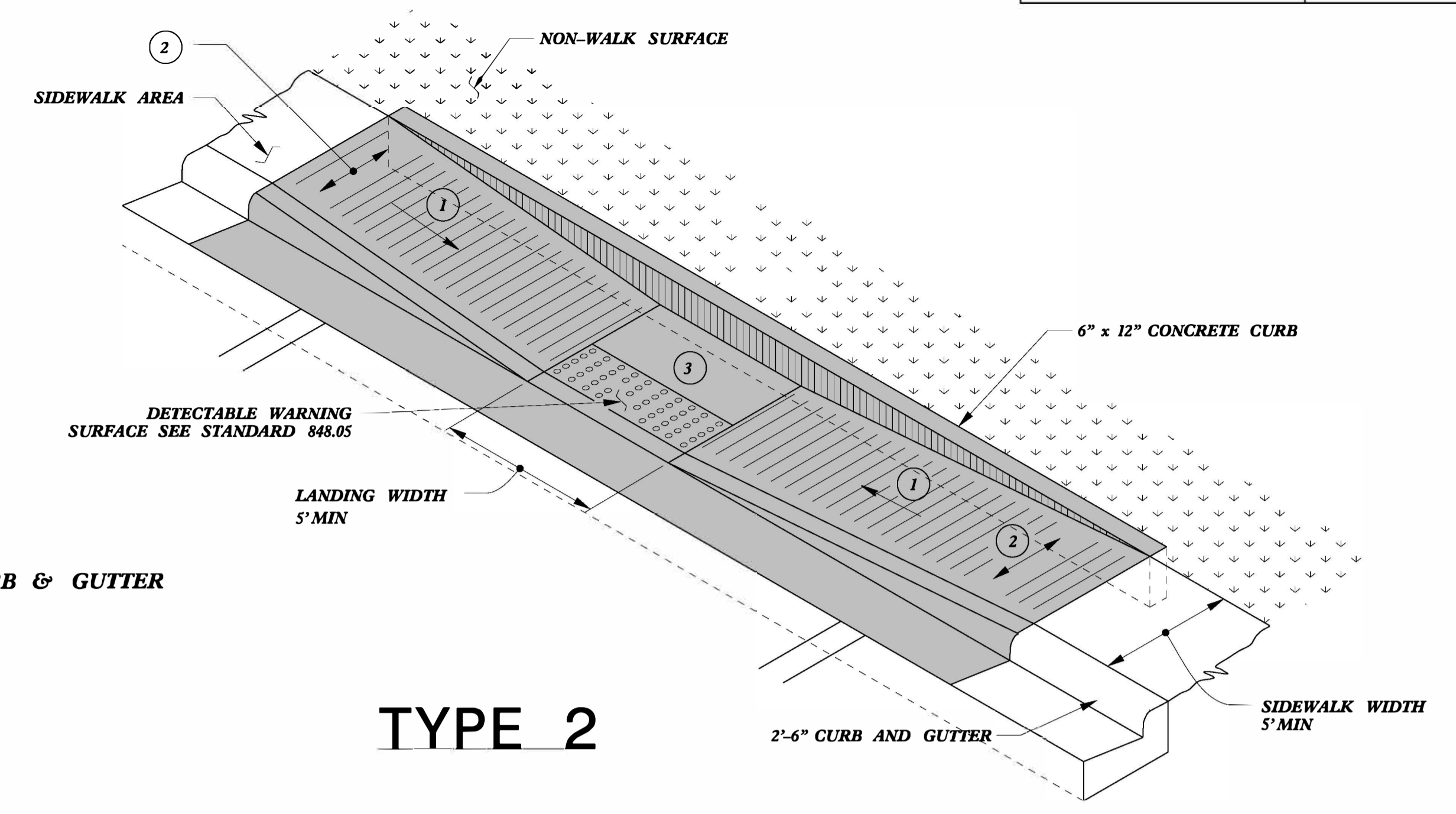
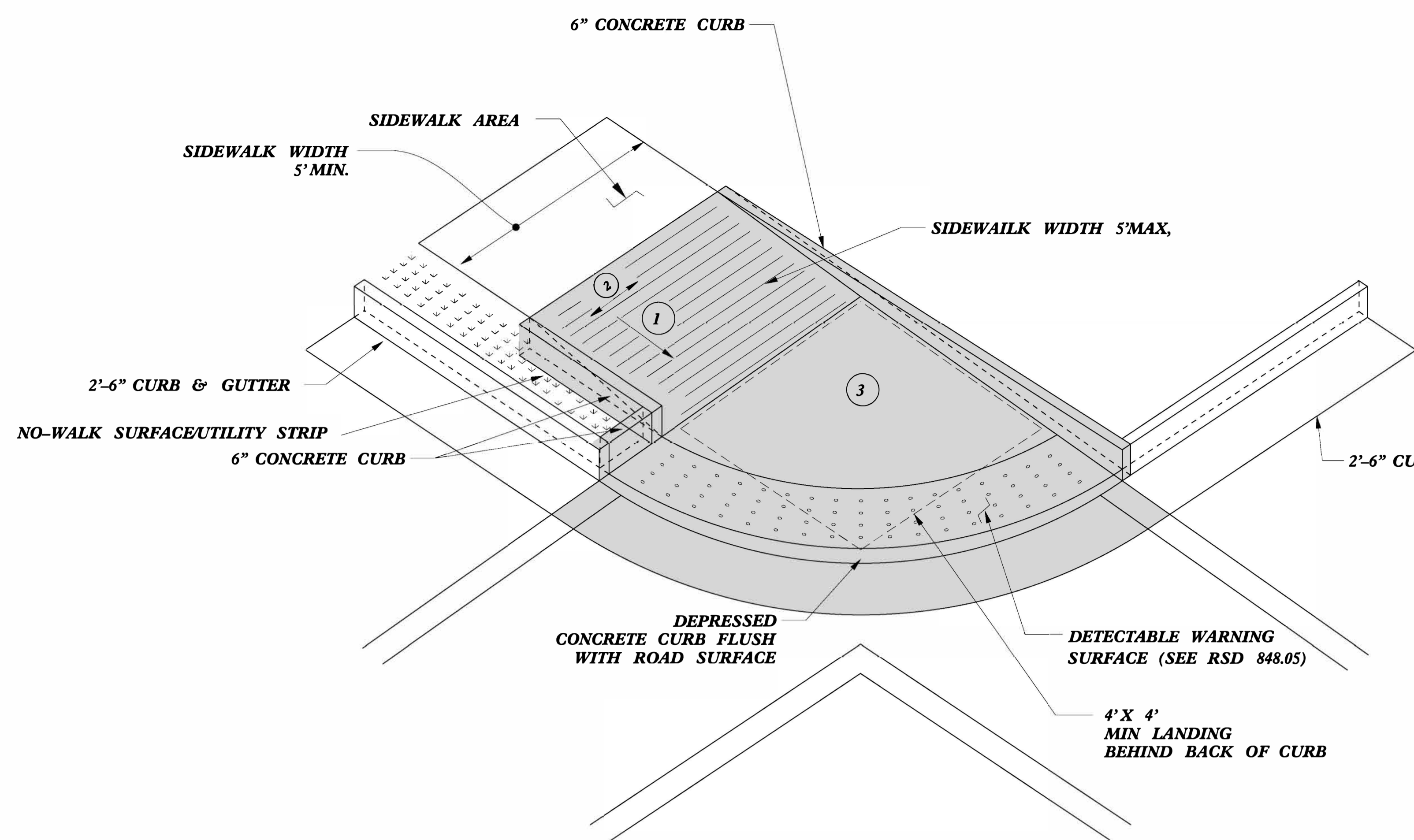


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CURB RAMPS
Directional Ramps

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC: stds/2012CurbRamp/CurbRampDetails.dgn



- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

PAY LIMITS FOR 1 CURB RAMP



7/12/2023

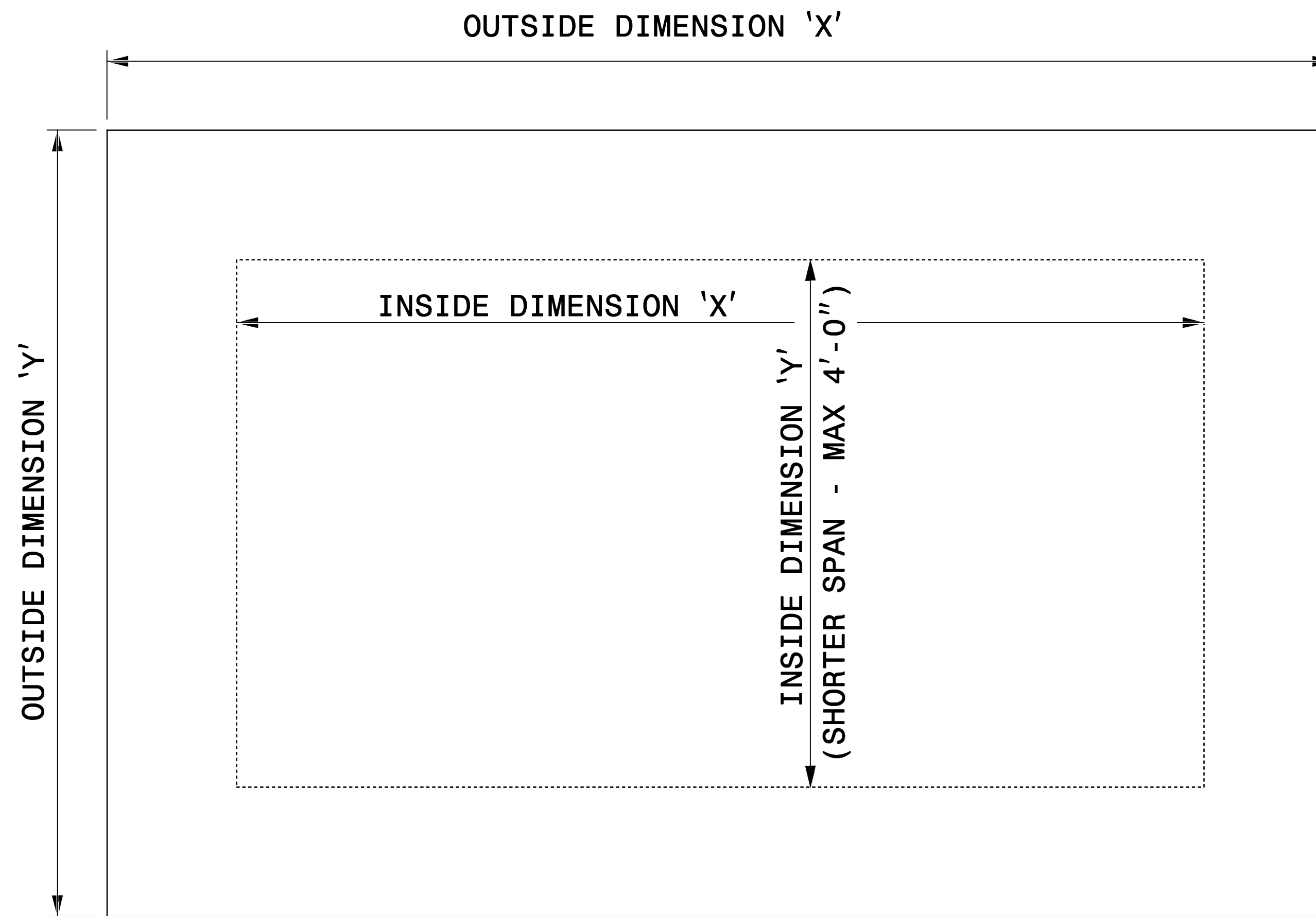
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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CURB RAMPS

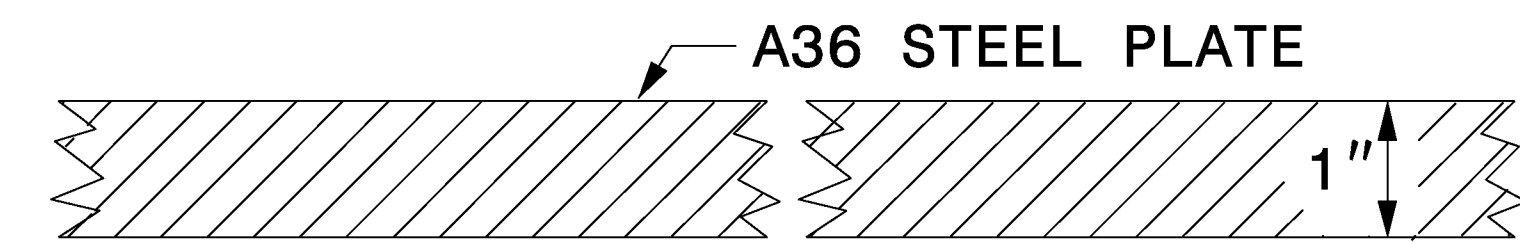
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5/14/99
C:\TEMP\DWG\2012CurbRamp\CurbRampDetails.dgn



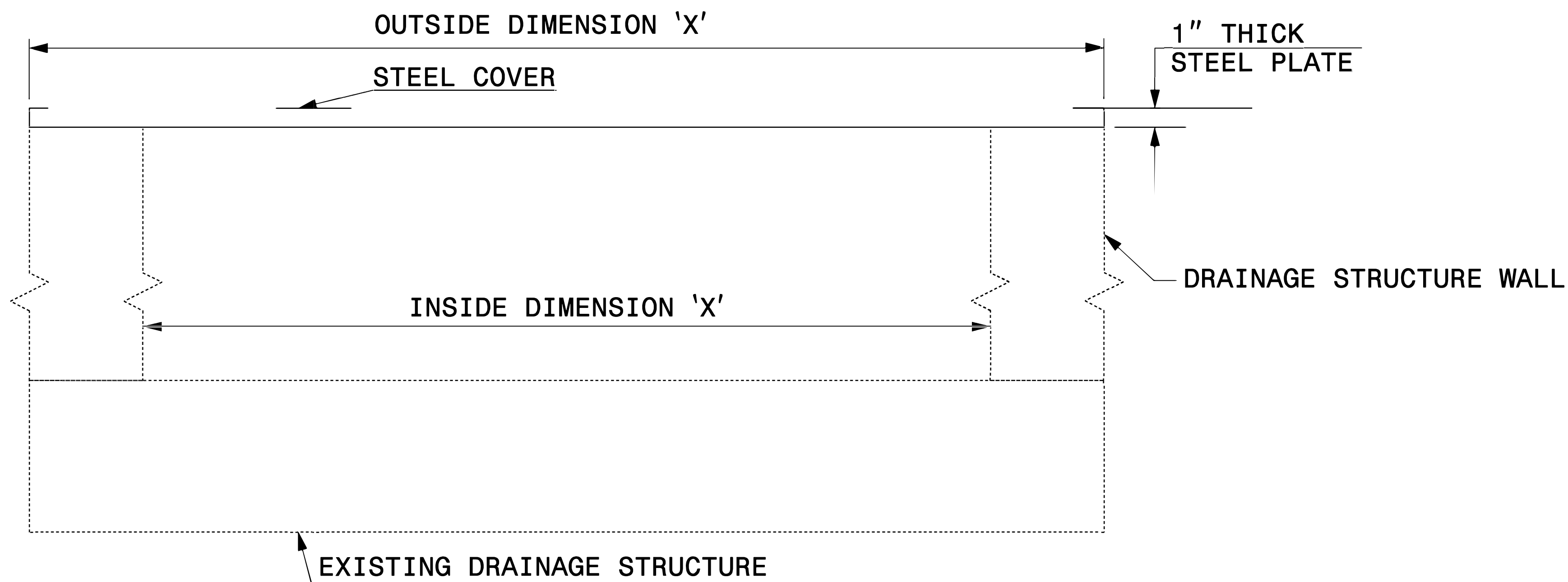
GENERAL NOTES:

- 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.

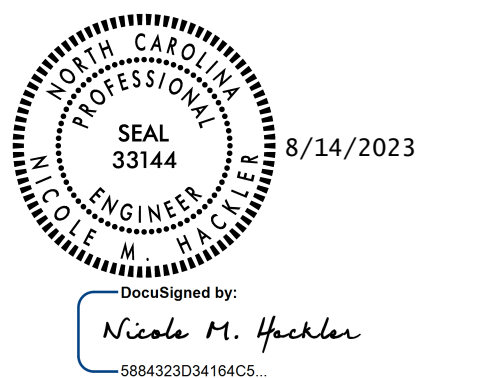


SECTION VIEW OF STEEL TOP PLATE

PLAN VIEWS



ELEVATION VIEWS



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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

SYTIME\$UN\$SRNAME\$

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

GUARDRAIL SUMMARY

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
 TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
 FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
 W = TOTAL WIDTH OF FLARE FROM BEGIN

G = GATING IMPACT ATTENUATOR TYPE 350
 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH (FT)			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR TYPE TL-3		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS	
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-2	GREU TL-3	AT-1	CAT-1	G	NG					
-L-	50+50.00	51+50.00	LT	100.00			50+50.00		10	13	50.00		1									18		TIE TO EXISTING AT TRAILING END	
-L-	51+84.00	53+58.00	RT	125.00	75.00		51+84.00	53+53.33	10	13							1	1							
-L-	60+82.00	67+50.00	RT	662.50	50.00		62+00.00	67+43.75	10	13							1	1				640			
-L-	62+00.00	65+00.00	LT	306.25			66+00.00	62+06.24	10	13	50.00		1				1		1			510			
-L-	87+94.00	96+00.00	LT	743.75	100.00		95+00.00	87+99.41	10	13	50.00		1				1		1			499			
-L-	95+20.00	98+05.00	RT	300.00	25.00		95+50.00	97+70.00	10	13							1	1				289			
-L-	108+00.00	111+69.00	RT	318.75	100.00		107+00.00	111+64.16	10	13	50.00		1				1		1			427			
-L-	109+52.00	112+50.00	LT	281.25	50.00		111+50.00	109+56.07	6	9	50.00		1				1		1			364			
-L-	167+12.00	172+08.00	LT	462.50	62.50		173+08.00	167+17.21	2	N/A							1		1					AT FACE OF CURB	
-L-	169+52.00	171+08.00	RT	156.25			168+52.00	171+02.63	10	13	50.00		1				1		1			364			
-L-	176+50.00	188+63.29	RT	1062.50	75.00		177+50.00		10	13	50.00		1				1					1254		TIE TO EXISTING AT TRAILING END	
-L-	178+84.00	183+95.00	LT	450.00	187.50																	1150			
-L-	186+08.00	188+63.29	LT	268.75			187+63.29	186+13.29	10	13	50.00		1				1		1						
-Y10-	11+55.00	13+88.00	LT	256.25			13+88.00	11+60.00	14	N/A							1		1						
-Y10-	13+18.00	17+78.00	RT	462.50				17+78.00	10	13							1								
-Y11-	10+91.00	12+27.00	LT	137.50			11+27.00		10	13	25.00		1												
-L-	100+00.00	107+50.00	LT																1		750				
DEDUCTION FOR ANCHORS:																									
TYPE				QTY	LT/EA																				
GREU TL-3				8.00	50.00	-400.00																			
GREU TL-2				3.00	25.00	-75.00																			
CAT-1				11.00	6.25	-68.75																			
AT-1				4.00	6.25	-25.00																			
PROJECT TOTAL				5525.00	725.00										3	8	4	11		1	750	5515			
SAY				5,550	750																				
ADDITIONAL GUARDRAIL POSTS					10 EA																				

5/9/2023
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USTANOVICH

COMPUTED BY: DJS DATE: 05/24/2023
CHECKED BY: JGD DATE: 05/24/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. U-5312 SHEET NO. 3D-1

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

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

Table with columns for Line & Station, Offset, Structure Number, Top Elevation, Invert Elevation, Minimum Required Slope, Pipe Material (Side Drain Pipe, C.S. Pipe, R.C. Pipe Class III/IV), Endwalls, Reinforced Endwalls, Drainage Structure, Quantities for Drainage Structures, Frame, Grates, and Hood, Concrete Transitional Section, and Remarks. Includes a SHEET TOTALS row at the bottom.

USTANOVICH

COMPUTED BY: DJS DATE: 05/24/2023
CHECKED BY: JGD DATE: 05/24/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. SHEET NO.
U-5312 3D-2

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

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

Table with columns for Line & Station, Offset, Structure Number, Pipe Type (Side Drain, C.S., R.C. Class III/IV), Quantities for Drainage Structures, Frame/Grates, and Remarks. Includes a SHEET TOTALS row at the bottom.

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

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COMPUTED BY: DJS DATE: 05/24/2023
CHECKED BY: JGD DATE: 05/24/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. SHEET NO.
U-5312 3D-3

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

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

Table with columns for Line & Station, Offset, Structure Number, Pipe Type (Side Drain, C.S., R.C. Class III/IV), Quantities for Drainage Structures, Frame/Grates, and Remarks. Includes a SHEET TOTALS row at the bottom.

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COMPUTED BY: DJS DATE: 05/24/2023
CHECKED BY: JGD DATE: 05/24/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. U-5312 SHEET NO. 3D-5

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

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

Table with columns for Line & Station, Offset, Structure Number, Pipe Type (Side Drain, C.S., R.C. Class III/IV), Quantities for Drainage Structures, Frame/Grates, and Remarks. Includes a 'SHEET TOTALS' row at the bottom.

ABBREVIATIONS table listing symbols like C.A.A., C.B., C.S., D.I., G.D.I., H.D.P.E., J.B., M.H., N.S., P.V.C., R.C., T.B.D.I., T.B.J.B., W.S. and their corresponding material names.

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. SHEET NO.
U-5312 3D-6

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

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

Table with columns for Line & Station, Offset, Structure Number, Pipe Type (Side Drain, C.S., R.C. Class III/IV), Quantities for Drainage Structures, Frame/Grates, and Remarks. Includes a SHEET TOTALS row at the bottom.

ABBREVIATIONS table listing symbols for materials like CORRUGATED ALUMINIUM ALLOY, CORRUGATED STEEL, etc.

SHEET TOTALS

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. SHEET NO.
U-5312 3D-7

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

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

Table with columns for Line & Station, Offset, Structure Number, Pipe Type (Side Drain, C.S., R.C. Class III/IV), Invert Elevations, Slope, Quantities for Drainage Structures, Frame/Grates, and Remarks. Includes a 'SHEET TOTALS' row at the bottom.

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