

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

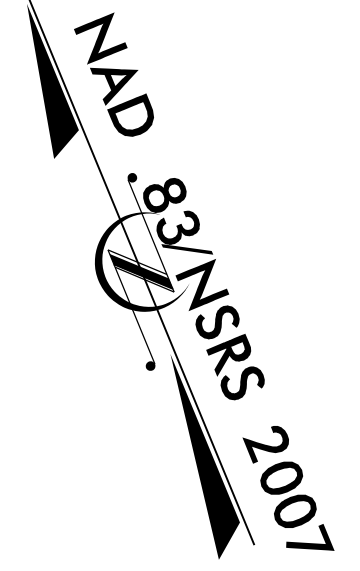
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NEW HANOVER COUNTY

**LOCATION: SR 2048 (GORDON ROAD) FROM
WEST OF INTERSTATE-40 TO
WEST OF US 17 BUS (MARKET STREET)**

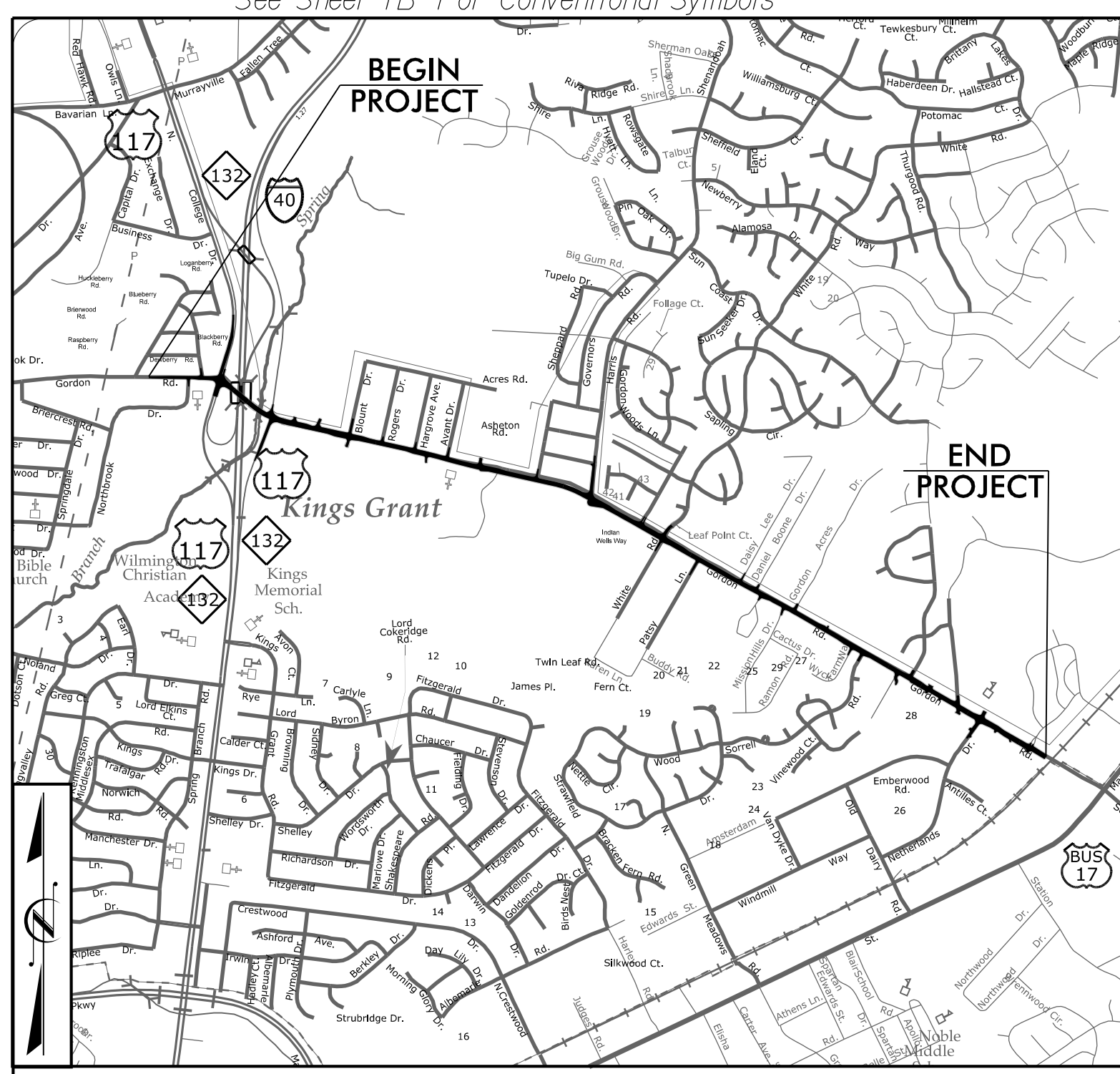
TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERT, AND SIGNALS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-6202	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
48662.1.1		PE	
48662.2.1		ROW	
48662.2.2		UTILITY	
48662.3.1		CONSTRUCTION	

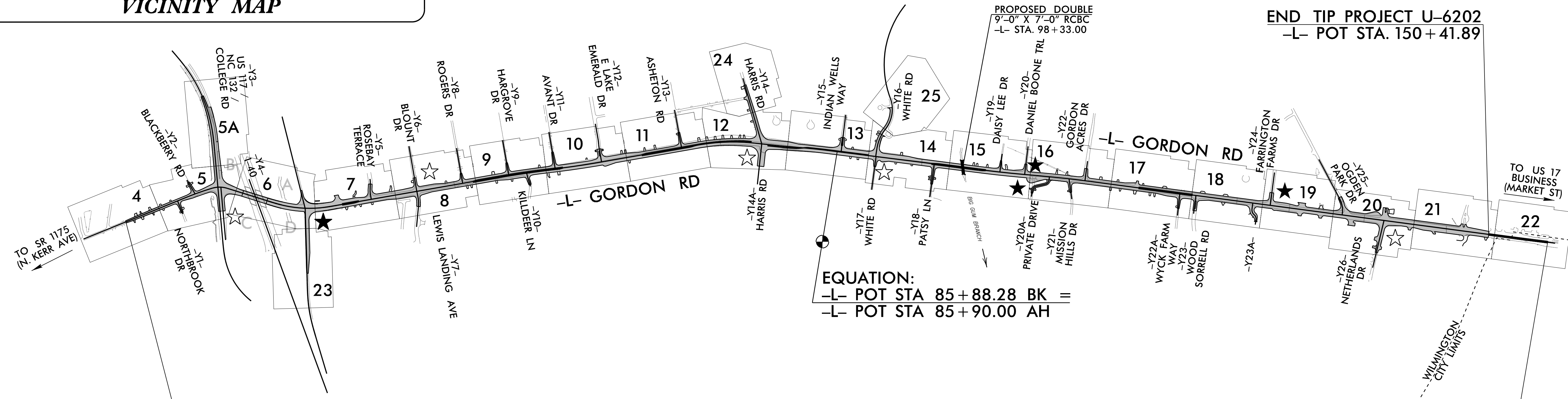


TIP PROJECT: U-6202

CONTRACT: C204942



VICINITY MAP



EQUATION:
 -L- POT STA 85 + 88.28 BK =
 -L- POT STA 85 + 90.00 AH

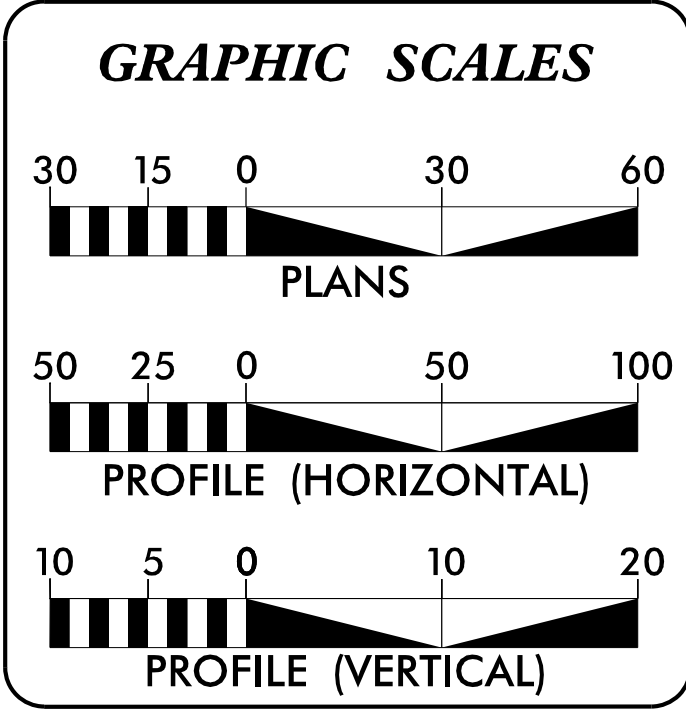
END TIP PROJECT U-6202
-L- POT STA. 150 + 41.89

BEGIN TIP PROJECT U-6202
-L- POT STA. 14 + 50.00

END CONSTRUCTION
-L- POT STA. 156 + 26.89

☆ EXISTING SIGNAL
★ PROPOSED SIGNAL

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2024 =	27,600
ADT 2044 =	35,300
K =	8 %
D =	55 %
T =	4 % *
V =	50 MPH
* TTST = 1% DUAL 3%	
FUNC CLASS = URBAN ARTERIAL	
REGIONAL TIER	

PROJECT LENGTH

LENGTH OF ROADWAY T.I.P. PROJECT U-6202 =	2.574 MILES
TOTAL LENGTH OF T.I.P. PROJECT U-6202 =	2.574 MILES
LENGTH BASED ON -L- CENTERLINE	

PREPARED IN THE OFFICE OF:
HNTB HNTB NORTH CAROLINA, P.C.
 343 E. Six Forks Road, Suite 200
 Raleigh, North Carolina 27609
 NC License No: C-1554
 FOR NCDOT DIVISION 3

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 17, 2022

LETTING DATE:
NOVEMBER 19, 2024

J. MATTHEW PICKENS, PE
PROJECT ENGINEER

ANDREW J. McOMBER, PE
PROJECT DESIGN ENGINEER

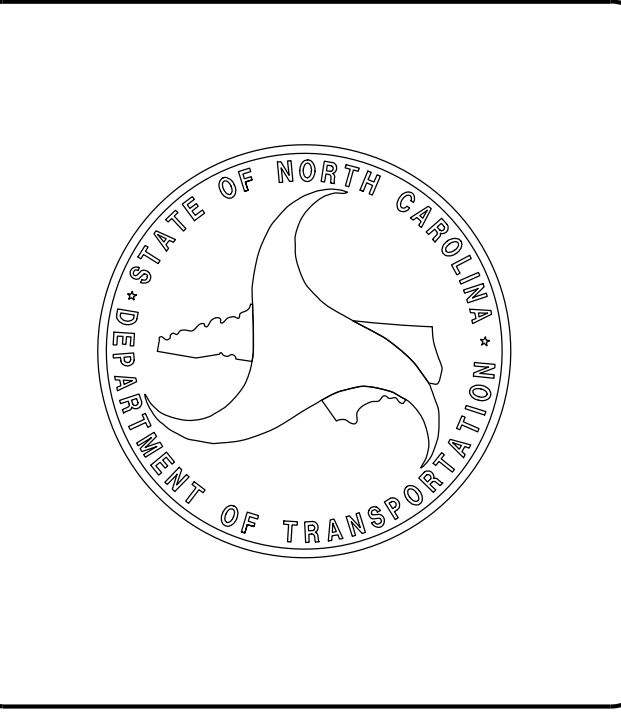
BRIAN HARDING, PE
NCDOT CONTACT

HYDRAULICS ENGINEER


8/23/2024
 SIGNATURE: [Signature]
 P.E.

ROADWAY DESIGN ENGINEER

8/23/2024
 SIGNATURE: [Signature]
 P.E.

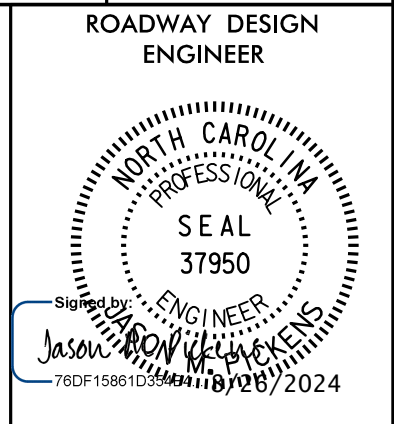


8/17/24



HNTB NORTH CAROLINA, P. C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
U-6202	1A



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

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-5	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1 THRU 2B-6	INTERSECTION DETAILS & DRIVEWAY DETAILS
2C-1	PROPOSED PEDESTRIAN HANDRAIL DETAIL
2C-2	MINIMUM DEPTH CONCRETE CATCH BASIN DETAIL
2C-3	DETAIL OF TEMPORARY 1" STEEL COVER
2C-4	TRANSITION FROM 2'-6" CURB AND GUTTER TO VALLEY GUTTER DETAIL
2C-5	DETAIL TO CONVERT EXISTING DI, CB, OTCB, OR GI TO JUNCTION BOX
2C-6	CURB RAMP DETAIL (TYPE 3 & TYPE 3 MODIFIED)
2C-7	DETAIL OF SHOULDER BERM GUTTER TO 2'-6" CURB AND GUTTER TRANSITION SECTION
2C-8	CONCRETE SIDEWALK
2C-9	GUARDRAIL PLACEMENT
2D-1	DETAIL OF CONCRETE JUNCTION BOX WITH 24" PIPE AND 18" PIPE PASSING THRU
2D-2	MINIMUM DEPTH CONCRETE CATCH BASIN WITH 1' SILL DETAIL
2G-1 THRU 2G-3	GEOTECHNICAL DETAILS
3B-1 & 3B-2	ROADWAY SUMMARIES
3D-1 THRU 3D-18	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
3P-1 THRU 3P-2	PARCEL INDEX SHEETS
4 THRU 38	PLAN AND PROFILE SHEETS
RW01	RIGHT OF WAY TITLE SHEET
RW01-B	RIGHT OF WAY PLAN SHEET SYMBOLS
RW02C-1 THRU RW02C-11	SURVEY CONTROL SHEETS
RW02D-1 THRU RW02D-3	PROPOSED ALIGNMENT CONTROL SHEETS
RW03E-1 THRU RW03E-8	RIGHT OF WAY CONTROL SHEETS
RW-04 THRU RW-25	RIGHT OF WAY SHEETS
TMP-1 THRU TMP-38	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-16	PAVEMENT MARKING PLANS
EC-1 THRU EC-48	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-19	SIGNING PLANS
SIG 1.0 THRU SIG.M9	SIGNAL PLANS
SCP.1 THRU SCP.31	SIGNAL COMMUNICATION PLANS
UC-1 THRU UC-41A	UTILITIES CONSTRUCTION PLANS
UO-1 THRU UO-23	UTILITIES BY OTHERS PLANS
X-0	CROSS-SECTION INDEX
X-0A THRU X-0C	CROSS-SECTION SUMMARY SHEETS
X-1 THRU X-121	CROSS-SECTIONS
S-0	STRUCTURES TITLE SHEET
C1-1 THRU C1-6	CULVERT 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 MODIFIED METHOD III.

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

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

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

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

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

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

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

TEMPORARY SHORING:
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE POWER - DUKE ENERGY
COMM - SPECTRUM, DUKE FIBER, AT&T, SEGRA, LUMEN
GAS - PNG
WATER & SEWER - CAPE FEAR PUBLIC UTILITY AUTHORITY
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

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

CURB RAMPS
CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.06 OR SPECIAL DETAILS.

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
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
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	
815.02	Subsurface Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.21	Reinforced Concrete Endwall - for Single 54" 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
838.51	Reinforced Brick Endwall - for Single 54" Pipe 90 Skew
838.63	Reinforced Brick Endwall - for Single 66" Pipe 90 Skew
838.75	Notes for Reinforced Brick Endwall - Std. Dwg 838.51 thru 838.70
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.17	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
840.24	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
840.28	Brick Grated Drop Inlet Type 'D' - 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
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
848.06	Curb Ramp
852.01	Concrete Islands
852.02	Concrete Mountable Median - for Use with Rigid or Flexible Pavement
852.04	Method for Placement of Drop Inlets in Grassed Median - Using 1'-6" Curb and Gutter
852.06	Method for Placement of Drop Inlets in Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
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

26-AUG-2024 13:30
 (R:\00000000\Projects\2024\U6202\RDY_PSH_01A.dgn
 HNTB

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	☒
Potential Contamination Area: Soil	☒
Known Contamination Area: Water	☒
Potential Contamination Area: Water	☒
Contaminated Site: Known or Potential	☠

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
Small Mine	×
Foundation	□
Area Outline	□
Cemetery	+
Building	□
School	□
Church	□
Dam	▬

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
Jurisdictional Stream	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	T
Proposed Cable Guiderail	T
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)*	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	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:

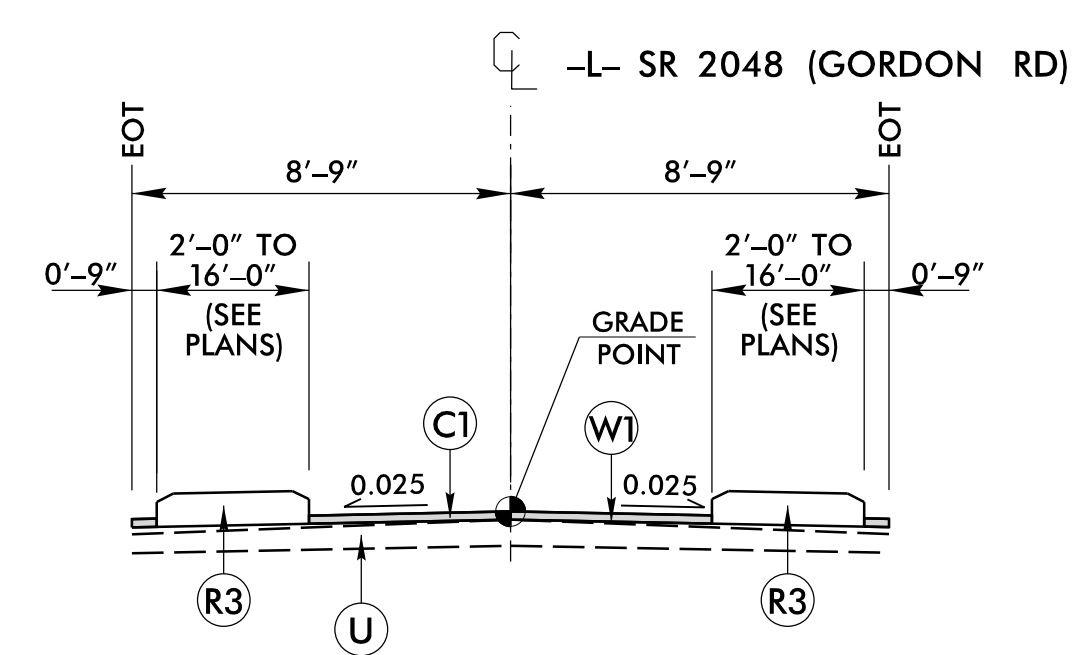
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line (SUE - LOS B)*	UTL
U/G Tank; Water, Gas, Oil	UST
Underground Storage Tank, Approx. Loc.	UST
A/G Tank; Water, Gas, Oil	UST
Geoenvironmental Boring	⊕
Abandoned According to Utility Records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

FINAL PAVEMENT SCHEDULE	
C1	PROP. 1 1/2" ACSC, TYPE S9.5B
C2	PROP. 3" ACSC, TYPE S9.5B
C3	PROP. VAR. DEPTH ACSC, TYPE S9.5B
C4	PROP. 1 1/2" ACSC, TYPE S9.5C
C5	PROP. 3" ACSC, TYPE S9.5C
C6	PROP. VAR. DEPTH ACSC, TYPE S9.5C
D1	PROP. 4" ACIC, TYPE I19.0C
D2	PROP. VAR. DEPTH ACIC, TYPE I19.0C
E1	PROP. 4" ACBC, TYPE B25.0C
E2	PROP. VAR. DEPTH ACBC, TYPE B25.0C
J1	6" PROP. AGGREGATE BASE COURSE
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	1'-6" CONCRETE CURB AND GUTTER.
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
R4	CONCRETE VALLEY GUTTER
R5	SHOULDER BERM GUTTER
S1	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V1	INCIDENTAL MILLING
V2	3" MILLING
V3	1.5" MILLING
W1	VARIABLE DEPTH ASPHALT PAVEMENT. (SEE DETAIL SHOWING METHOD OF WEDGING No. 1 ON SHEET 2A-1)

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

- NOTES:
- SEE PLANS FOR SUPERELEVATIONS, TURN LANES, MONOLITHIC ISLANDS, CURB AND GUTTER, AND LANE TAPER LOCATIONS.
 - SAWCUT EXISTING PAVEMENT WITHIN 2' OF PROPOSED CURB AND GUTTER
 - REPLACE NARROW SECTIONS OF EXISTING PAVEMENT SECTIONS UNDER DIRECTION OF ENGINEER.

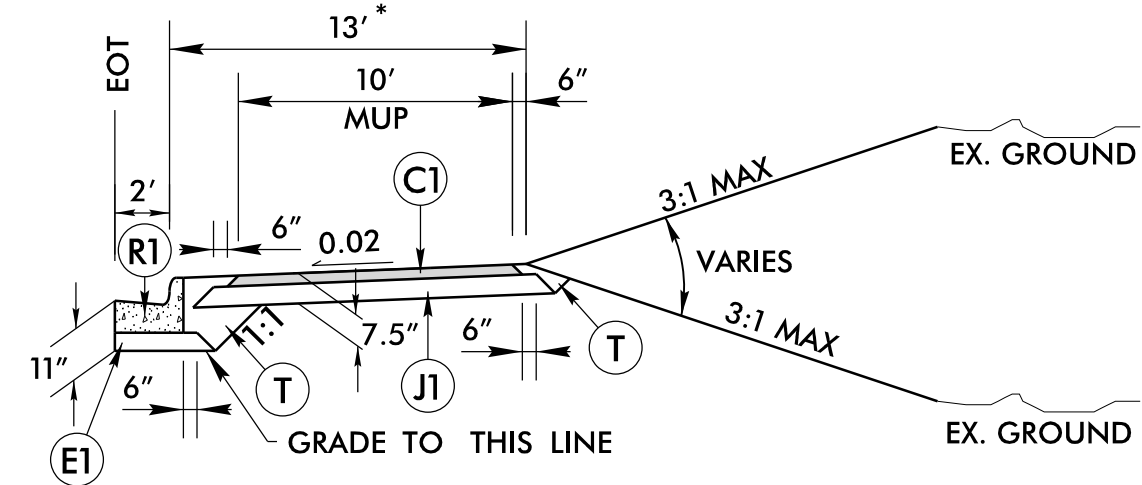
DETAIL 2A



USE DETAIL 2A IN CONJUNCTION WITH TYPICAL SECTIONS 2 & 4

- SEE PLANS FOR LOCATIONS
- L- STA. 25+09.57 TO -L- STA. 26+69.72
 - L- STA. 29+19.72 TO -L- STA. 36+68.22
 - L- STA. 38+36.70 TO -L- STA. 49+72.36
 - L- STA. 58+67.98 TO -L- STA. 66+51.86
 - L- STA. 71+87.16 TO -L- STA. 95+22.02
 - L- STA. 100+61.22 TO -L- STA. 115+71.72
 - L- STA. 121+07.33 TO -L- STA. 150+41.89

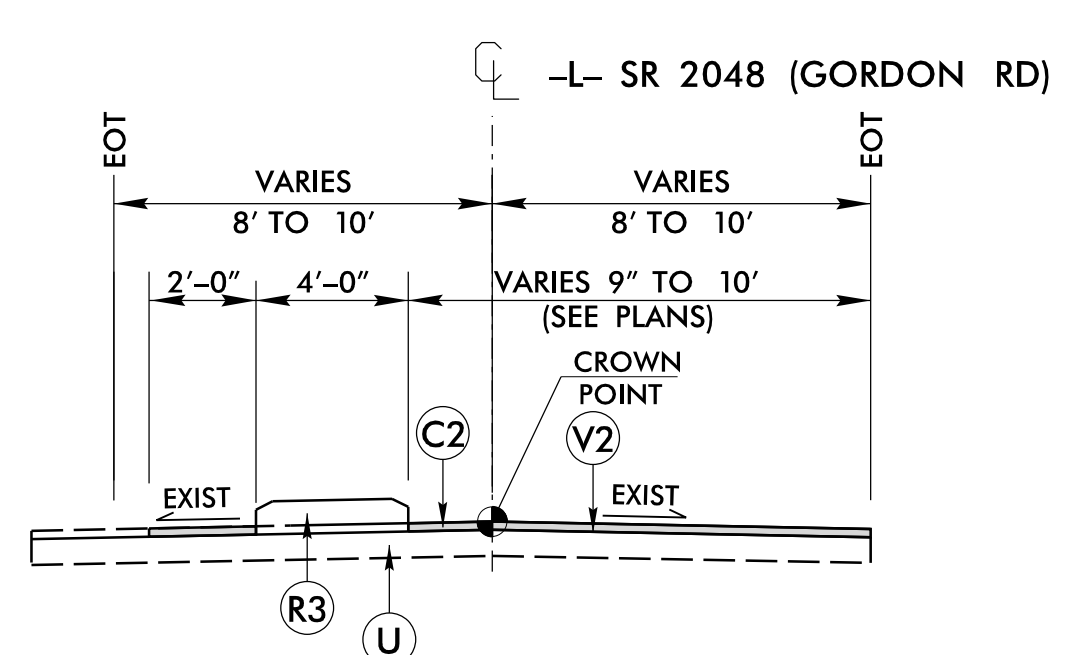
DETAIL 2B



USE DETAIL 2B IN CONJUNCTION WITH TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATIONS

- L- STA. 140+36.44 TO 150+41.89 RT
- * NOTE: USE 11' BERM FROM 143+65 TO 143+80

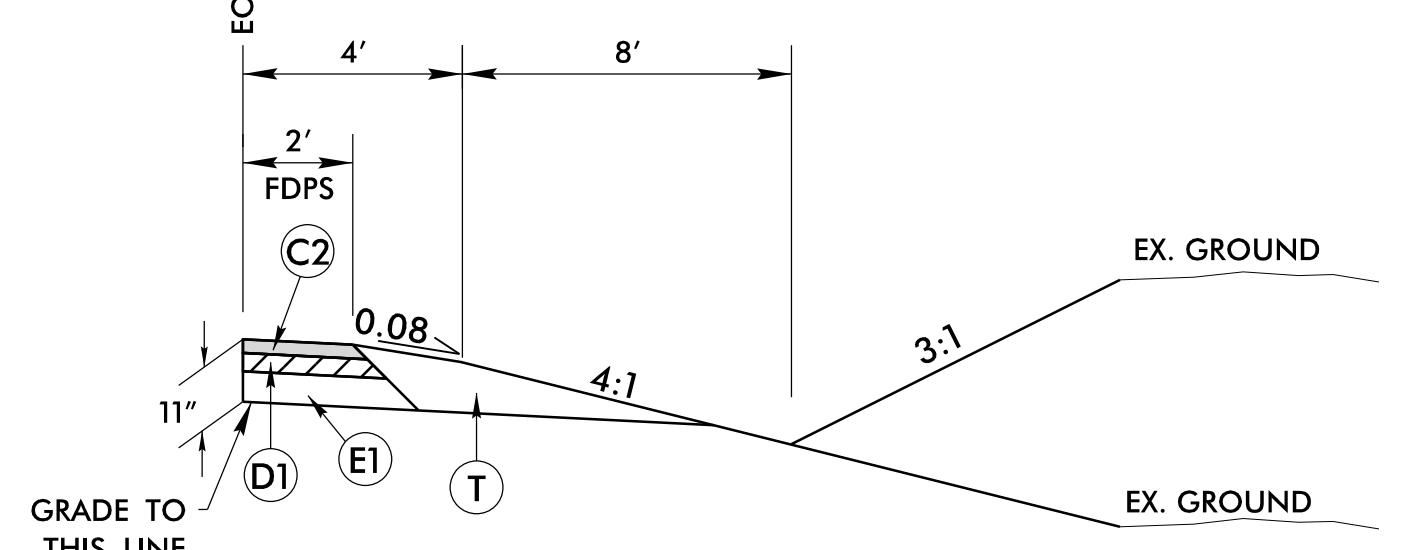
MEDIAN ISLAND EXTENSION DETAIL



USE MEDIAN ISLAND EXTENSION DETAIL AT THE FOLLOWING LOCATIONS

- L- STA 150+41.89 TO 156+26.89

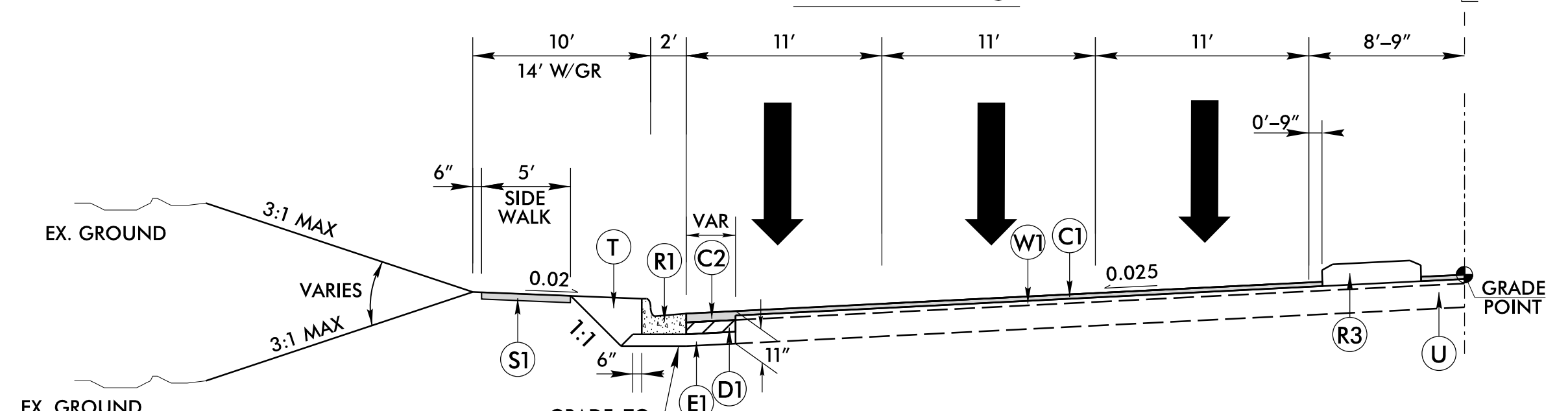
DETAIL 2F



USE DETAIL 2F IN CONJUNCTION WITH TYPICAL SECTION 5

- Y20A- STA. 10+30.77 TO STA. 12+70.00

DETAIL 2G



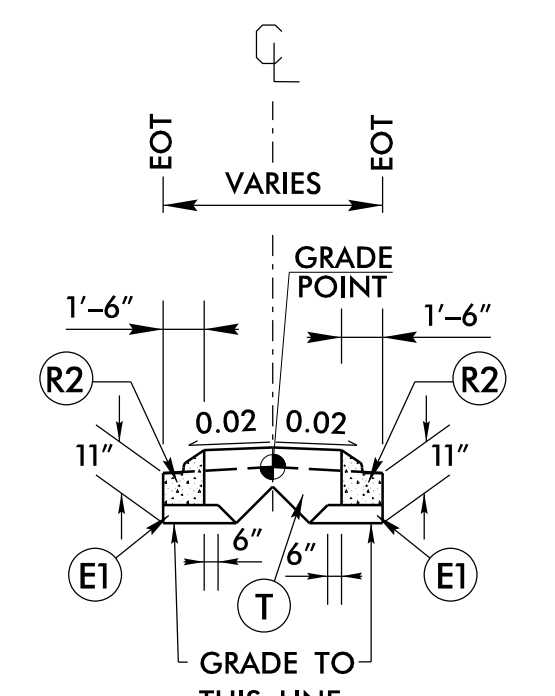
USE DETAIL 2G IN CONJUNCTION WITH TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATIONS

- L- STA. 140+70.00 TO 147+60.00 LT

USE TYPICAL SECTION NO. 5

- Y1- STA. 10+18.00 TO STA. 11+25.00
- Y2- STA. 10+25.00 TO STA. 11+39.36
- Y5- STA. 10+50.00 TO STA. 11+58.92
- Y6- STA. 13+15.00 TO STA. 14+08.24
- Y7- STA. 10+41.75 TO STA. 11+50.00
- Y8- STA. 12+50.00 TO STA. 13+19.25
- Y9- STA. 12+25.00 TO STA. 13+19.67
- Y10- STA. 10+41.84 TO STA. 11+25.00
- Y11- STA. 12+00.00 TO STA. 13+36.09
- Y13- STA. 12+25.00 TO STA. 13+49.26
- Y15- STA. 12+25.00 TO STA. 13+28.24
- Y17- STA. 10+30.75 TO STA. 11+00.00
- Y18- STA. 10+30.75 TO STA. 12+00.00
- Y19- STA. 10+65.00 TO STA. 11+49.04
- Y20- STA. 11+75.00 TO STA. 12+47.95
- Y20A- STA. 10+30.77 TO STA. 12+70.00
- Y21- STA. 10+31.72 TO STA. 11+35.00
- Y22- STA. 10+75.00 TO STA. 11+63.62
- Y22A- STA. 10+41.76 TO STA. 11+50.00
- Y23A- STA. 10+30.75 TO STA. 11+95.60
- Y25- STA. 14+25.00 TO STA. 15+58.70
- Y26- STA. 12+58.63 TO STA. 13+25.00

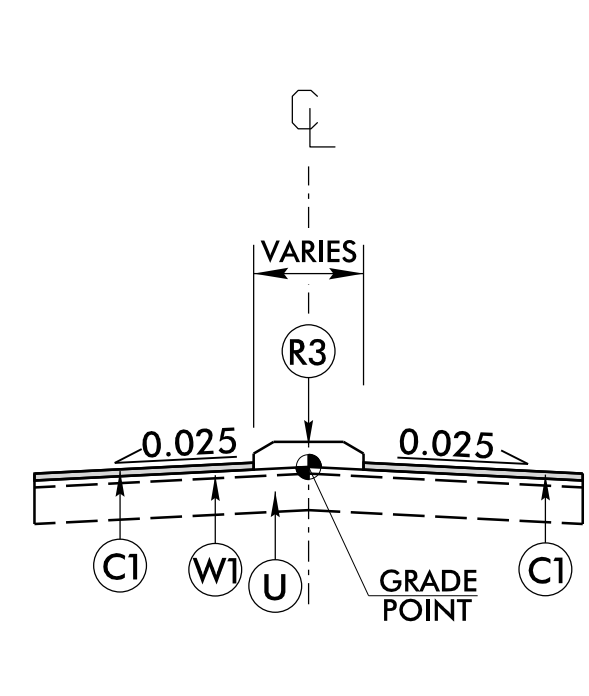
DETAIL 2C



USE DETAIL 2C IN CONJUNCTION WITH TYPICAL SECTION NO. 5 AT THE FOLLOWING LOCATIONS

- Y15- SR 2621 (INDIAN WELLS)

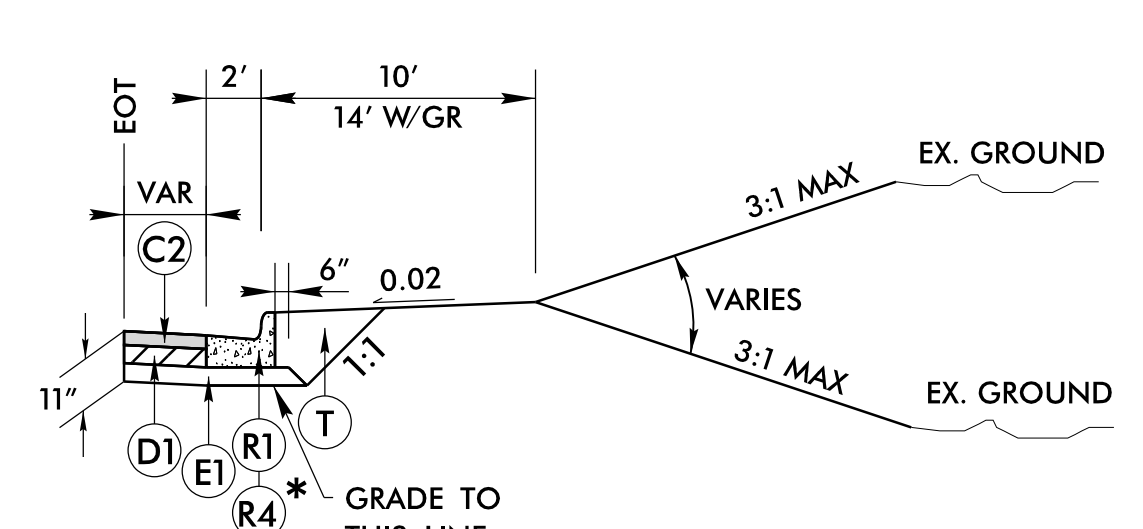
DETAIL 2D



USE DETAIL 2D IN CONJUNCTION WITH TYPICAL SECTION NO. 5 AT THE FOLLOWING LOCATIONS

- Y5- ROSEBAY TERRACE
- Y25- SR 2777 (OGDEN PARK DR)
- Y26- SR 2698 (NETHERLANDS DR)

DETAIL 2E



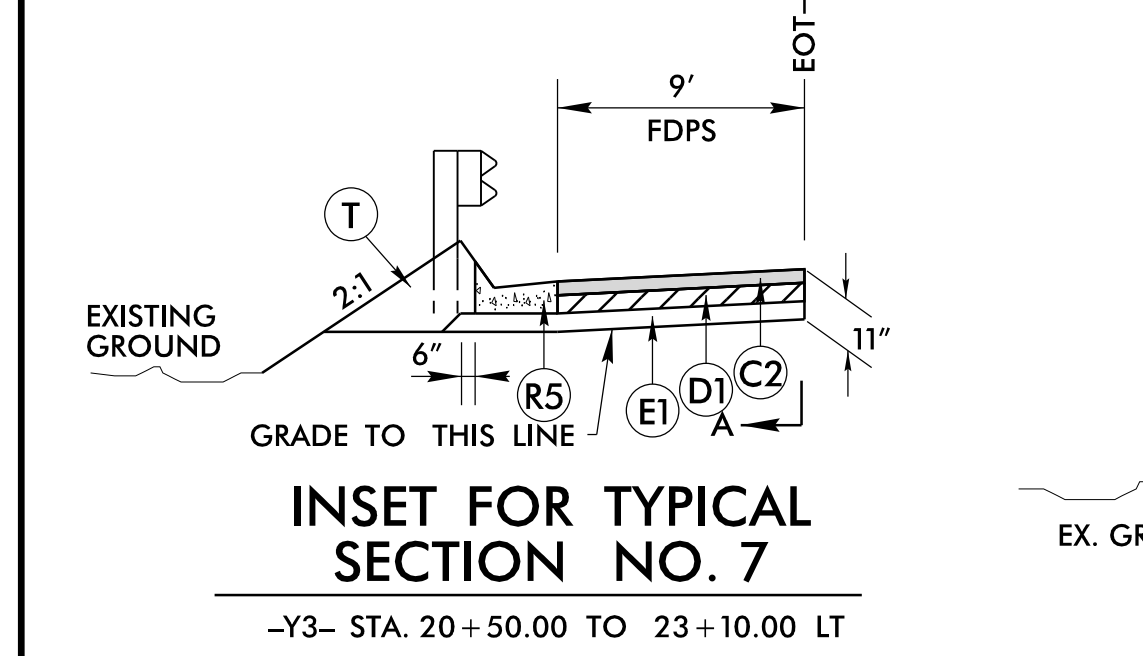
USE DETAIL 2E IN CONJUNCTION WITH TYPICAL SECTION NO. 5

- Y1- STA. 10+18.00 TO STA. 10+48.32 LTRT
- Y2- STA. 10+96.78 TO STA. 11+39.36 LTRT
- Y5- STA. 10+50.00 TO STA. 11+58.92 LTRT
- Y6- STA. 13+25.00 TO STA. 14+08.24 LTRT
- Y7- STA. 10+41.75 TO STA. 11+50.00 LTRT
- Y8- STA. 12+87.36 TO STA. 11+50.00 LTRT
- Y9- STA. 13+85.60 TO STA. 13+19.67 LTRT
- * -Y10- STA. 10+41.84 TO STA. 11+25.00 LTRT
- Y11- STA. 12+99.44 TO STA. 13+36.09 LTRT
- Y13- STA. 13+15.26 TO STA. 13+49.26 LTRT
- * -Y15- STA. 12+25.00 TO STA. 13+28.24 LTRT
- Y17- STA. 10+30.75 TO STA. 10+72.40 LTRT
- Y18- STA. 10+30.75 TO STA. 10+62.89 LTRT
- Y19- STA. 11+15.06 TO STA. 11+49.04 LTRT
- Y20- STA. 12+07.56 TO STA. 12+47.95 LTRT
- Y20A- STA. 10+30.77 TO STA. 10+60.93 RT
- Y20A- STA. 10+30.77 TO STA. 10+45.15 LT
- Y21- STA. 11+30.06 TO STA. 11+63.62 LTRT
- Y22- STA. 11+30.06 TO STA. 11+63.62 LTRT
- * -Y22A- STA. 10+41.76 TO STA. 11+50.00 LTRT
- Y23A- STA. 10+30.75 TO STA. 11+95.60 LTRT
- Y25- STA. 14+25.00 TO STA. 15+58.70 LTRT
- Y26- STA. 12+58.63 TO STA. 12+66.77 RT

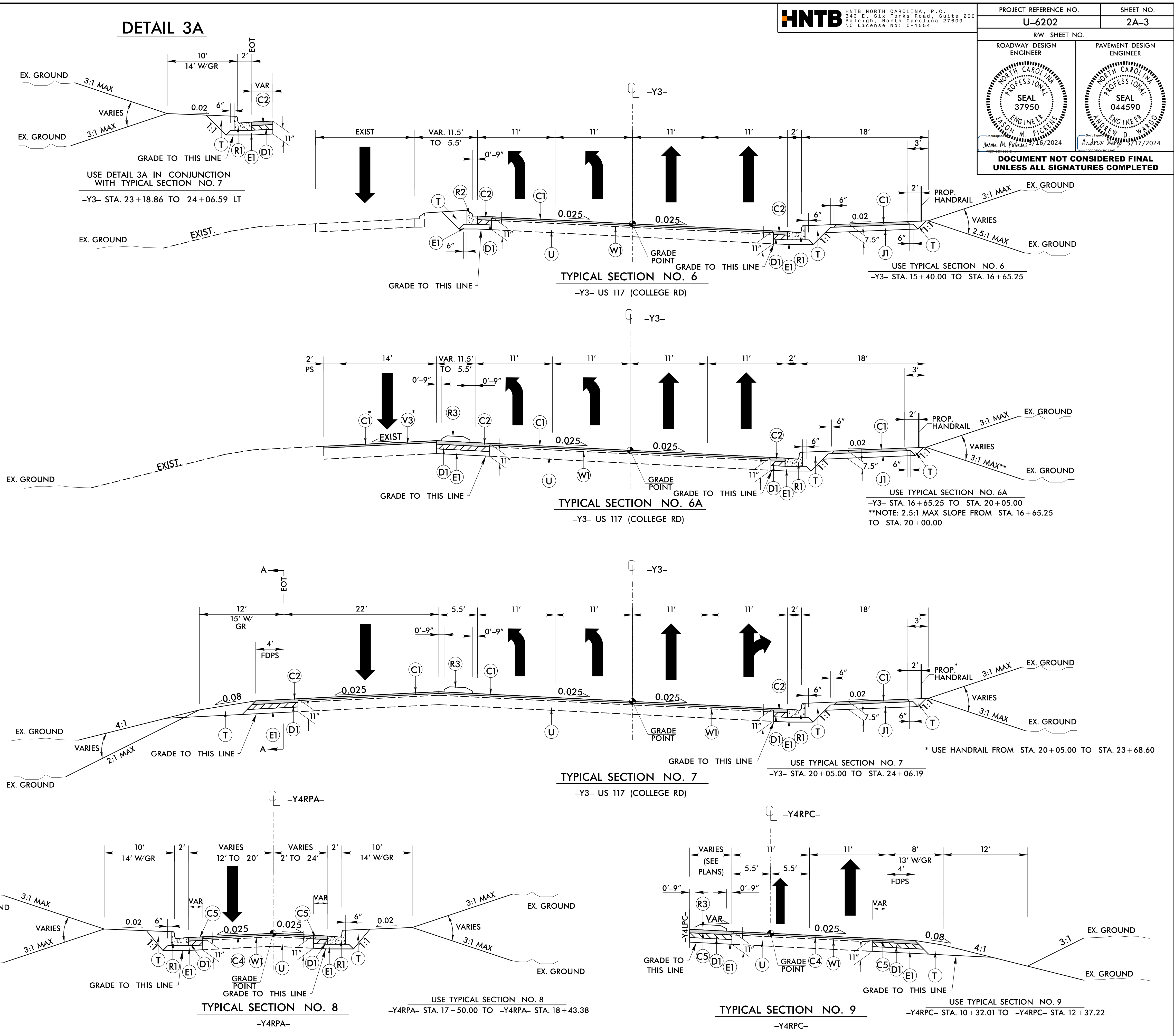
07 MAY 2024 16:11 U6202.RD.V_TYP.dgn

FINAL PAVEMENT SCHEDULE	
C1	PROP. 1 1/2" ACSC, TYPE S9.5B
C2	PROP. 3" ACSC, TYPE S9.5B
C3	PROP. VAR. DEPTH ACSC, TYPE S9.5B
C4	PROP. 1 1/2" ACSC, TYPE S9.5C
C5	PROP. 3" ACSC, TYPE S9.5C
C6	PROP. VAR. DEPTH ACSC, TYPE S9.5C
D1	PROP. 4" ACIC, TYPE I19.0C
D2	PROP. VAR. DEPTH ACIC, TYPE I19.0C
E1	PROP. 4" ACBC, TYPE B25.0C
E2	PROP. VAR. DEPTH ACBC, TYPE B25.0C
J1	6" PROP. AGGREGATE BASE COURSE
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	1'-6" CONCRETE CURB AND GUTTER.
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
R4	CONCRETE VALLEY GUTTER
R5	SHOULDER BERM GUTTER
S1	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V1	INCIDENTAL MILLING
V2	3" MILLING
V3	1.5" MILLING
W1	VARIABLE DEPTH ASPHALT PAVEMENT. (SEE DETAIL SHOWING METHOD OF WEDGING No. 1 ON SHEET 2A-1)

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



NOTES:
SEE PLANS FOR SUPERELEVATIONS, TURN LANES, MONOLITHIC ISLANDS, CURB AND GUTTER, AND LANE TAPER LOCATIONS.
SAWCUT EXISTING PAVEMENT WITHIN 2' OF PROPOSED CURB AND GUTTER
REPLACE NARROW SECTIONS OF EXISTING PAVEMENT SECTIONS UNDER DIRECTION OF ENGINEER.

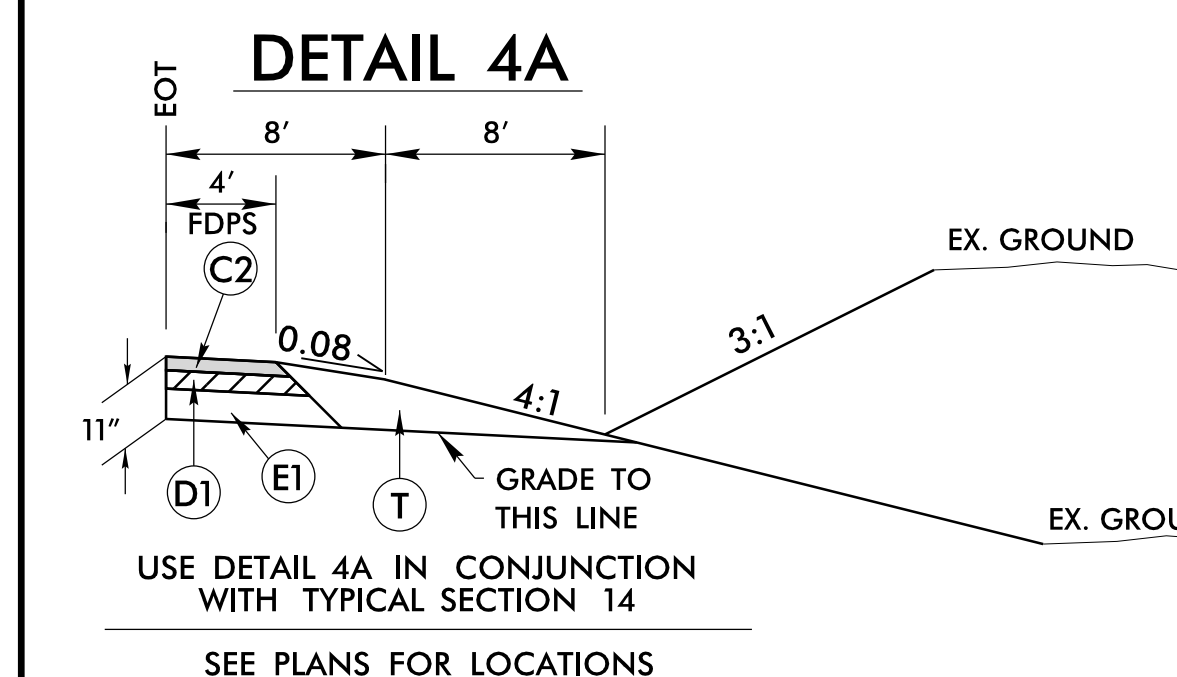


PROJECT REFERENCE NO. U-6202	SHEET NO. 2A-3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER JOSEPH M. PICKENS SEAL 37950 DATE: 5/16/2024	PAVEMENT DESIGN ENGINEER ANDREW W. WATSON SEAL 044590 DATE: 5/17/2024
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

07 MAY 2024 16:09
C:\pwworking\hntb\proj\062022\RDV_TYP.dgn
HNTB

FINAL PAVEMENT SCHEDULE	
C1	PROP. 1 1/2" ACSC, TYPE S9.5B
C2	PROP. 3" ACSC, TYPE S9.5B
C3	PROP. VAR. DEPTH ACSC, TYPE S9.5B
C4	PROP. 1 1/2" ACSC, TYPE S9.5C
C5	PROP. 3" ACSC, TYPE S9.5C
C6	PROP. VAR. DEPTH ACSC, TYPE S9.5C
D1	PROP. 4" ACIC, TYPE I19.0C
D2	PROP. VAR. DEPTH ACIC, TYPE I19.0C
E1	PROP. 4" ACBC, TYPE B25.0C
E2	PROP. VAR. DEPTH ACBC, TYPE B25.0C
J1	6" PROP. AGGREGATE BASE COURSE
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	1'-6" CONCRETE CURB AND GUTTER.
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
R4	CONCRETE VALLEY GUTTER
R5	SHOULDER BERM GUTTER
S1	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V1	INCIDENTAL MILLING
V2	3" MILLING
V3	1.5" MILLING
W1	VARIABLE DEPTH ASPHALT PAVEMENT. (SEE DETAIL SHOWING METHOD OF WEDGING No. 1 ON SHEET 2A-1)

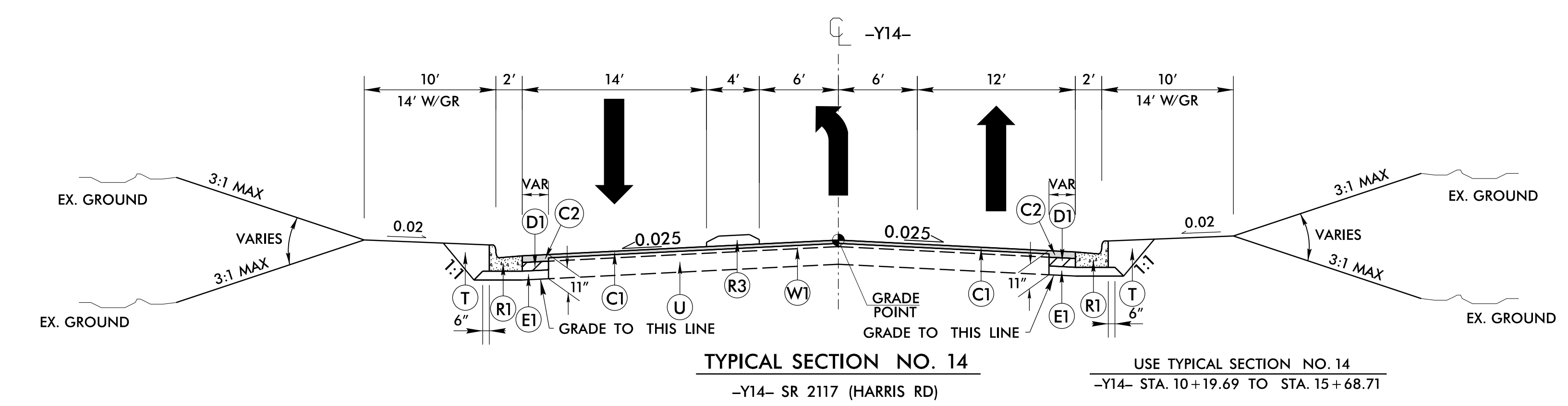
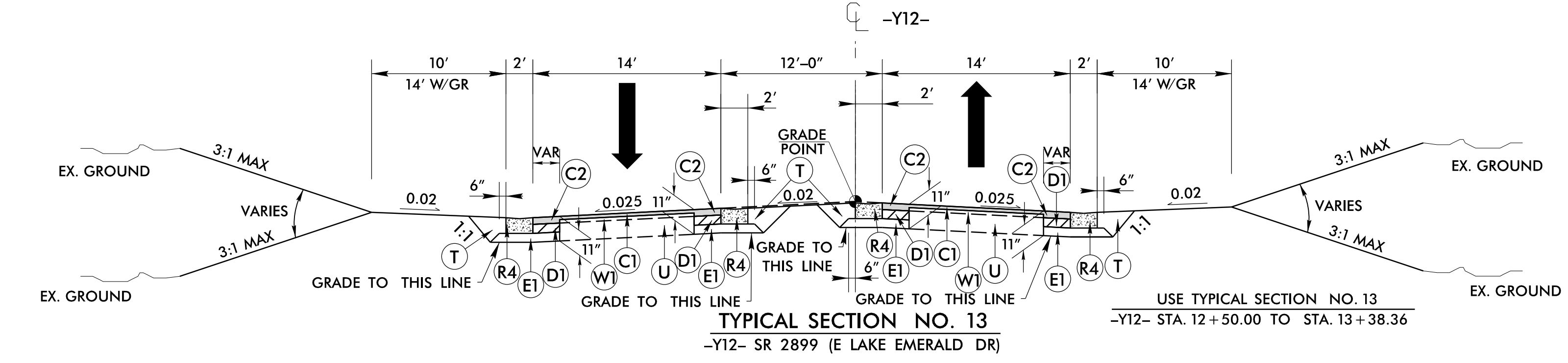
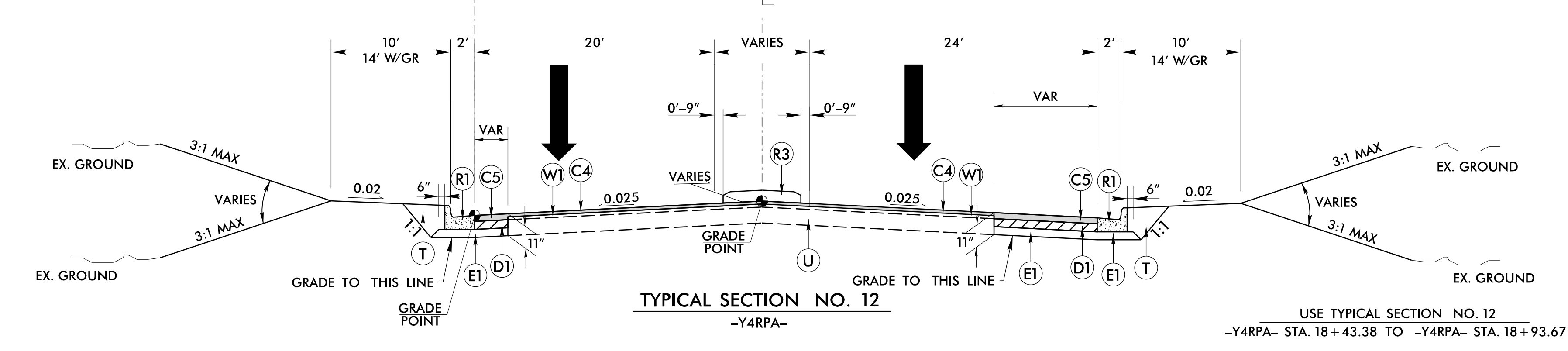
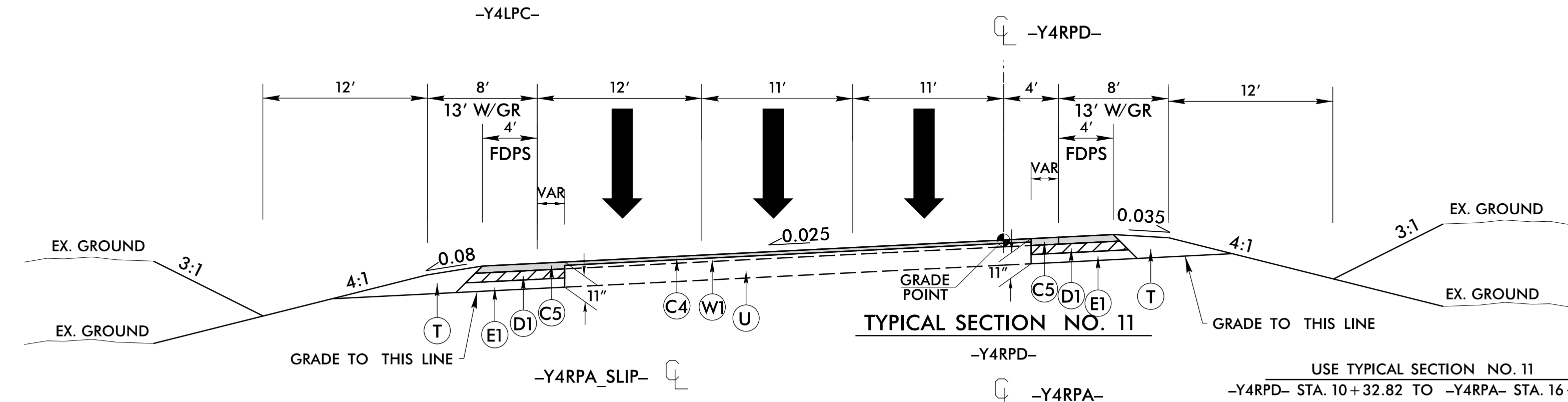
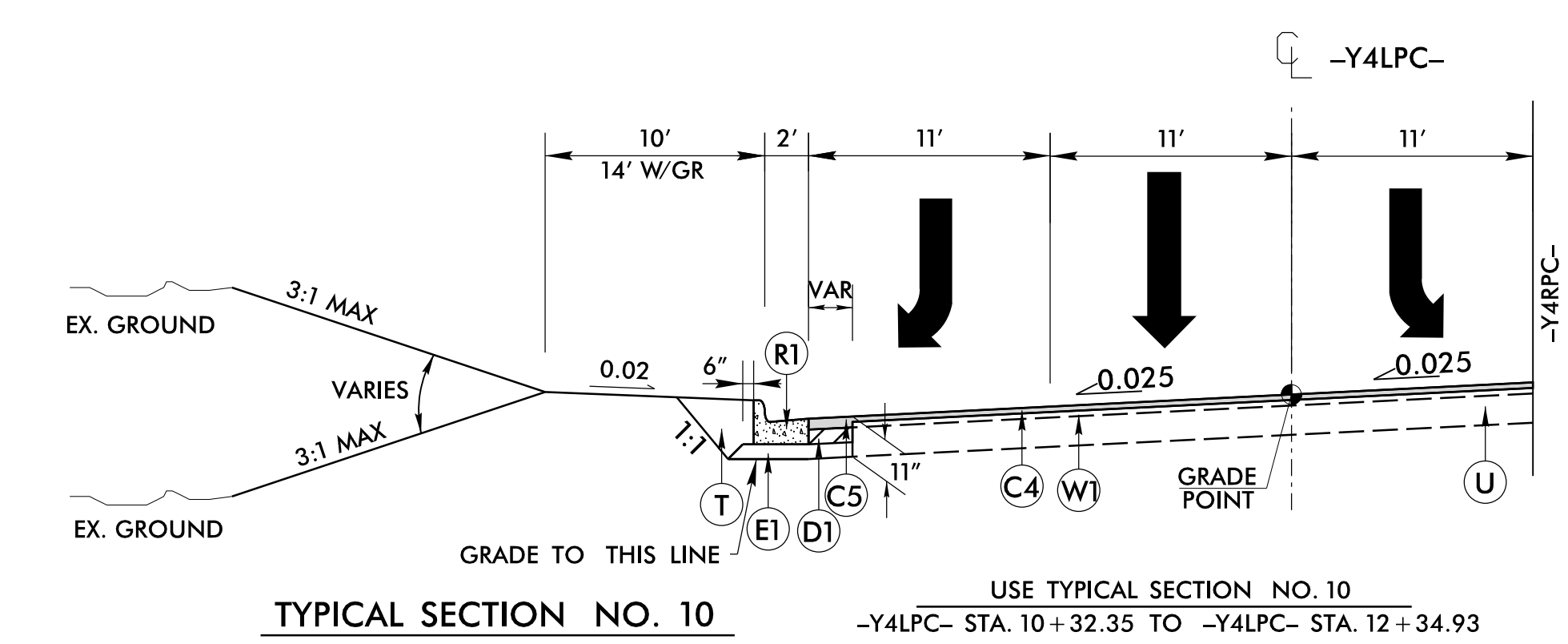
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



USE DETAIL 4A IN CONJUNCTION WITH TYPICAL SECTION 14
SEE PLANS FOR LOCATIONS

NOTES:
SEE PLANS FOR SUPERELEVATIONS, TURN LANES, MONOLITHIC ISLANDS, CURB AND GUTTER, AND LANE TAPER LOCATIONS.
SAWCUT EXISTING PAVEMENT WITHIN 2' OF PROPOSED CURB AND GUTTER
REPLACE NARROW SECTIONS OF EXISTING PAVEMENT SECTIONS UNDER DIRECTION OF ENGINEER.

PROJECT REFERENCE NO. U-6202	SHEET NO. 2A-4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



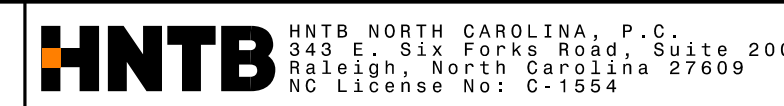
05-MAY-2024 14:41 U6202-RD_V_TYP.dgn

FINAL PAVEMENT SCHEDULE

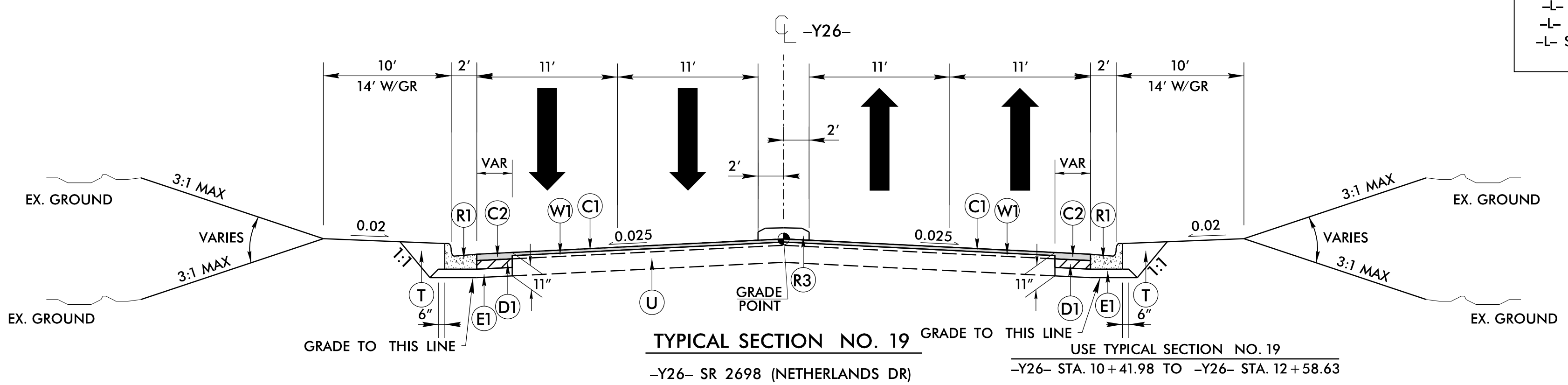
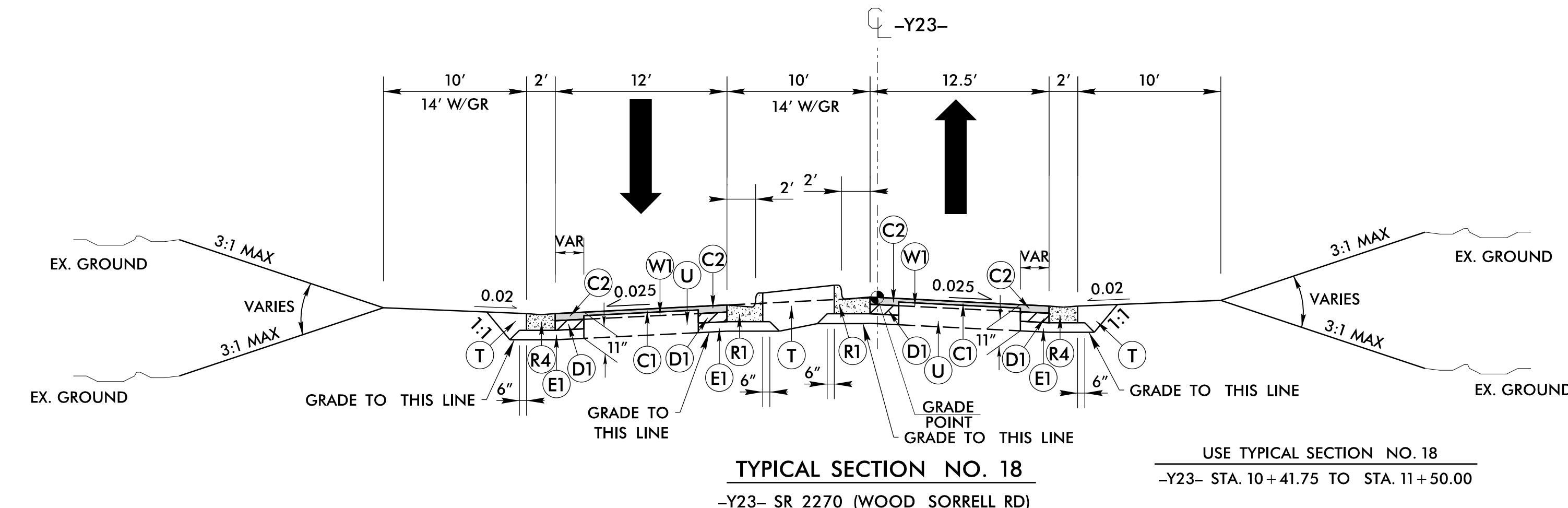
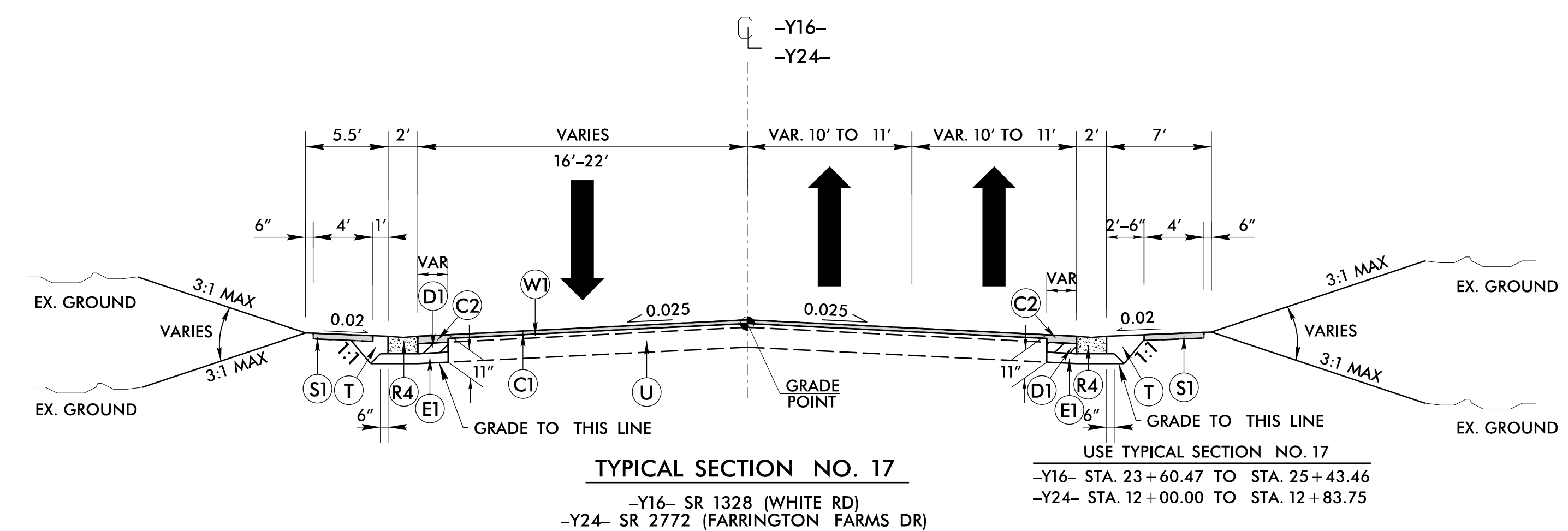
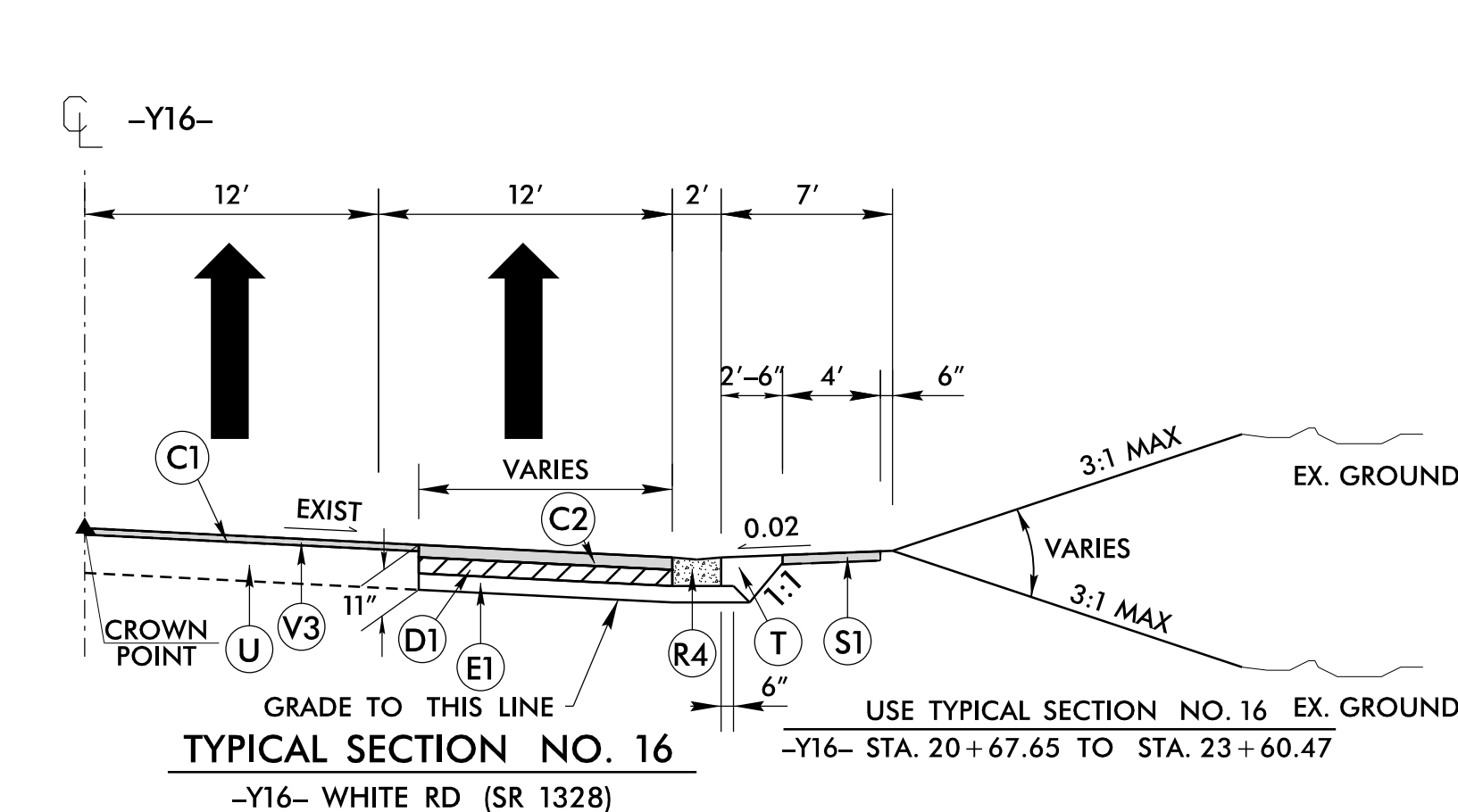
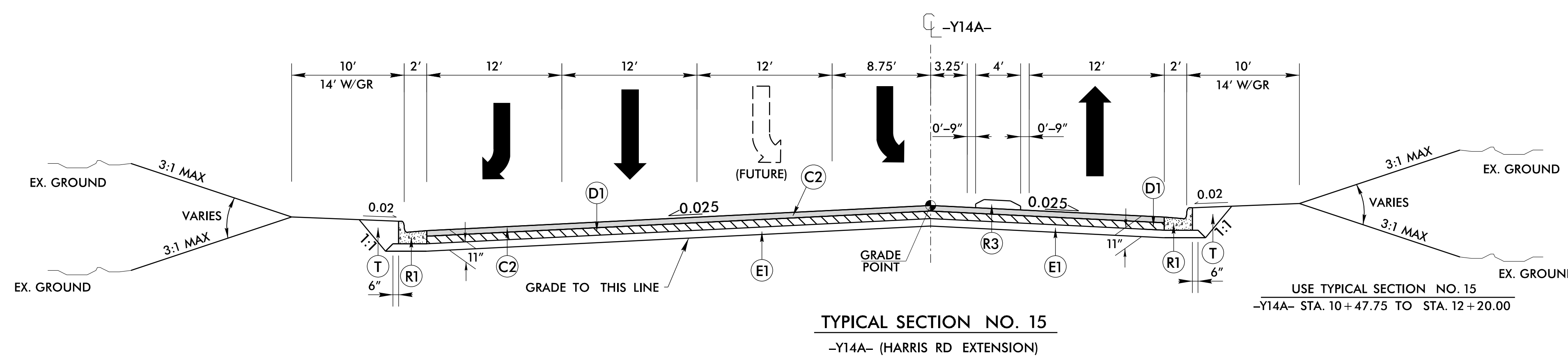
C1	PROP. 1 1/2" ACSC, TYPE S9.5B
C2	PROP. 3" ACSC, TYPE S9.5B
C3	PROP. VAR. DEPTH ACSC, TYPE S9.5B
C4	PROP. 1 1/2" ACSC, TYPE S9.5C
C5	PROP. 3" ACSC, TYPE S9.5C
C6	PROP. VAR. DEPTH ACSC, TYPE S9.5C
D1	PROP. 4" ACIC, TYPE I19.0C
D2	PROP. VAR. DEPTH ACIC, TYPE I19.0C
E1	PROP. 4" ACBC, TYPE B25.0C
E2	PROP. VAR. DEPTH ACBC, TYPE B25.0C
J1	6" PROP. AGGREGATE BASE COURSE
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	1'-6" CONCRETE CURB AND GUTTER.
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
R4	CONCRETE VALLEY GUTTER
R5	SHOULDER BERM GUTTER
S1	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V1	INCIDENTAL MILLING
V2	3" MILLING
V3	1.5" MILLING
W1	VARIABLE DEPTH ASPHALT PAVEMENT. (SEE DETAIL SHOWING METHOD OF WEDGING No. 1 ON SHEET 2A-1)

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

NOTES:
 SEE PLANS FOR SUPERELEVATIONS, TURN LANES, MONOLITHIC ISLANDS, CURB AND GUTTER, AND LANE TAPER LOCATIONS.
 SAWCUT EXISTING PAVEMENT WITHIN 2' OF PROPOSED CURB AND GUTTER
 REPLACE NARROW SECTIONS OF EXISTING PAVEMENT SECTIONS UNDER DIRECTION OF ENGINEER.



PROJECT REFERENCE NO. U-6202	SHEET NO. 2A-5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER <i>Jason M. Pickens</i> SEAL 37950 NORTH CAROLINA PROFESSIONAL ENGINEER EXPIRES 5/16/2024	PAVEMENT DESIGN ENGINEER <i>Andrew Wiley</i> SEAL 044590 NORTH CAROLINA PROFESSIONAL ENGINEER EXPIRES 5/17/2024
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



TEMPORARY PAVEMENT DESIGN
(SEE TMP SHEETS FOR ADDITIONAL INFORMATION)

DETAIL A

- L- STA. 36+68 TO -L- STA. 38+36 (DETAIL B)
- L- STA. 49+73 TO -L- STA. 58+68 (DETAIL B)
- L- STA. 58+51 TO -L- STA. 65+11 (DETAIL B)
- L- STA. 65+28 TO -L- STA. 66+52 (DETAIL B)
- L- STA. 68+22 TO -L- STA. 70+11 (DETAIL A)
- L- STA. 71+87 TO -L- STA. 73+50 (DETAIL B)
- L- STA. 86+61 TO -L- STA. 73+50 (DETAIL B)
- L- STA. 95+22 TO -L- STA. 95+95 (DETAIL B)
- L- STA. 115+72 TO -L- STA. 121+07 (DETAIL B)

DETAIL B

05-MAY-2024 14:41 U6202-RD1-TYP.dgn

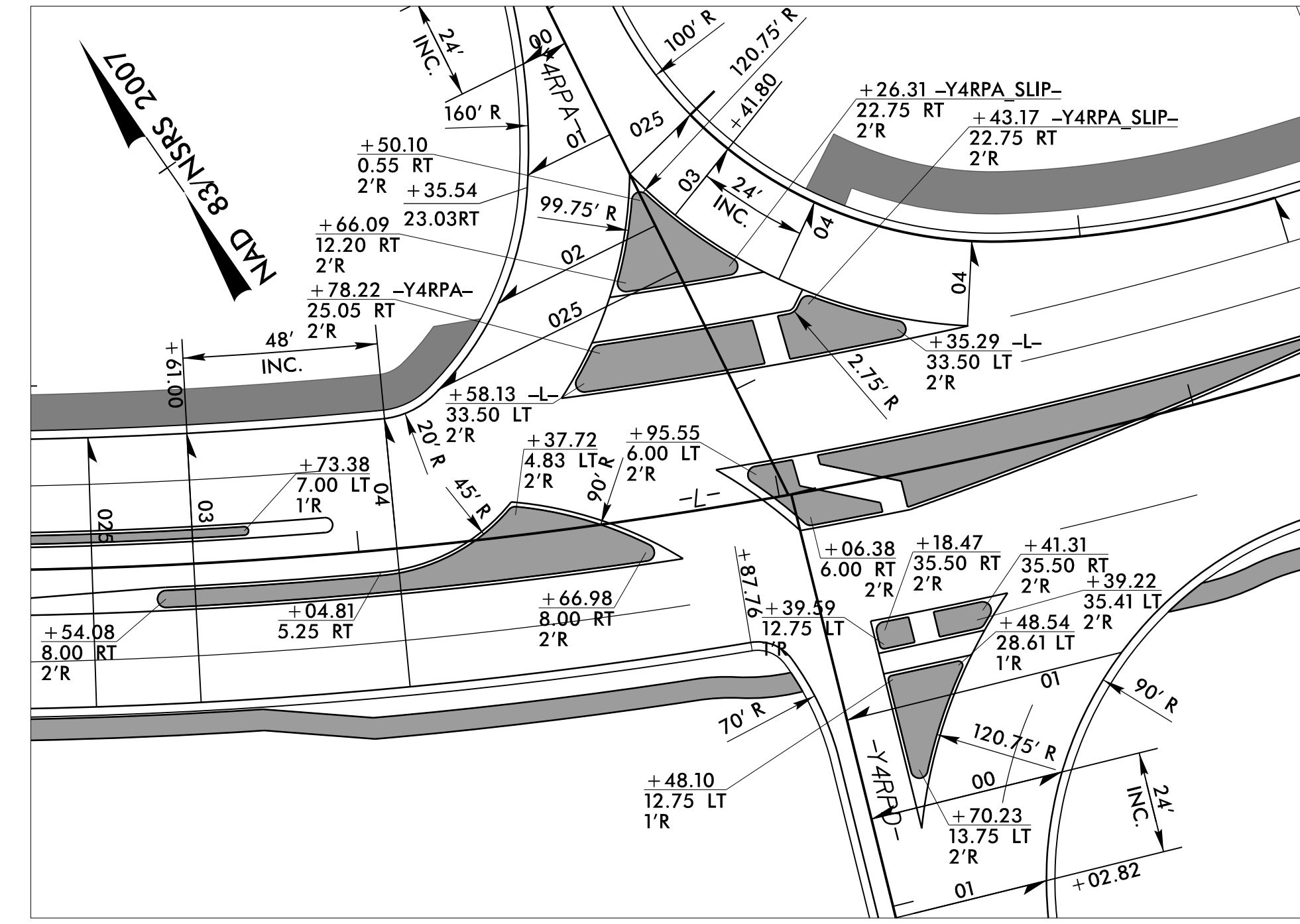
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-6202	2B-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

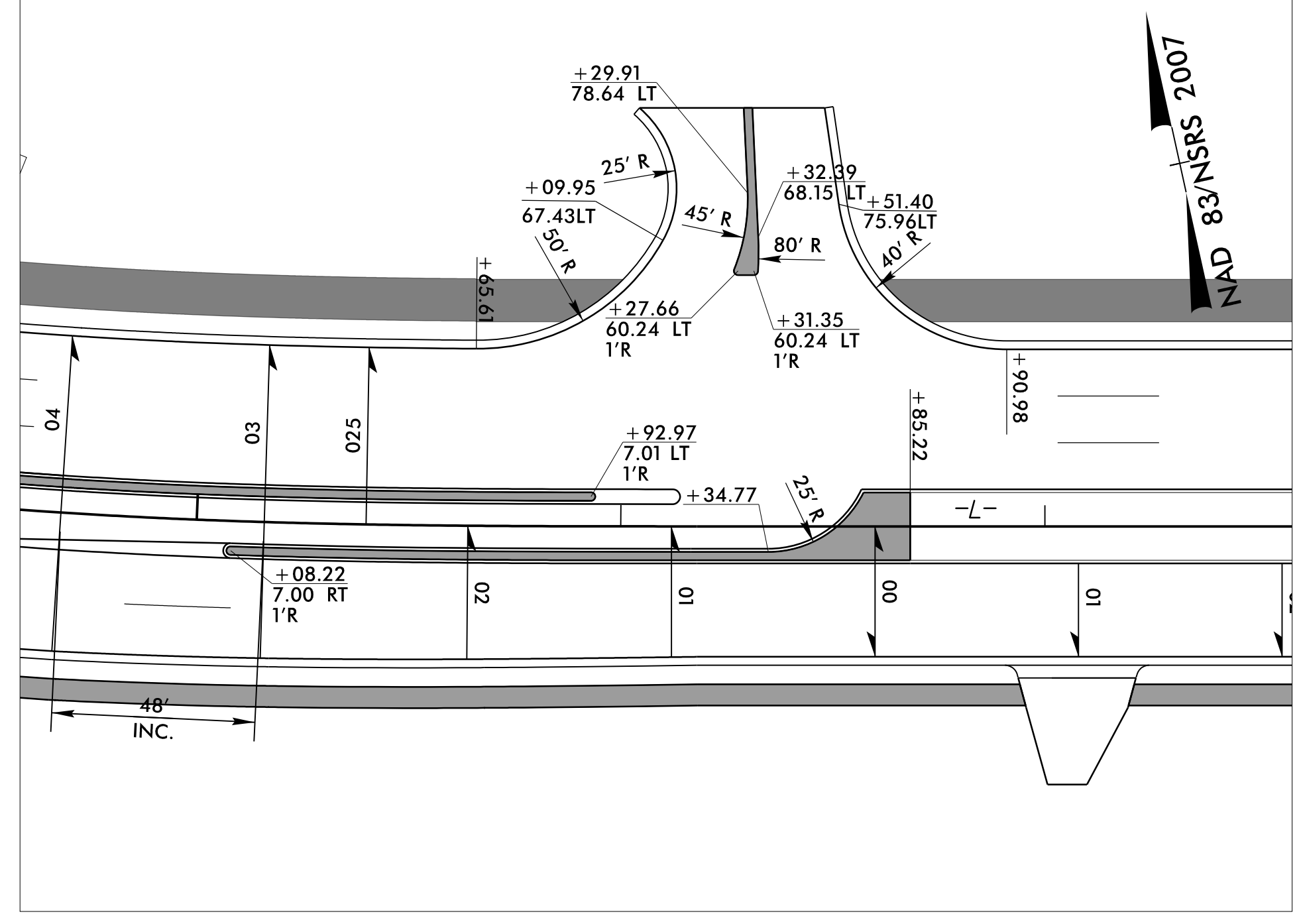
INTERSECTION DETAIL -L- AND -Y3-/-Y4RPC-/-Y4LPC-



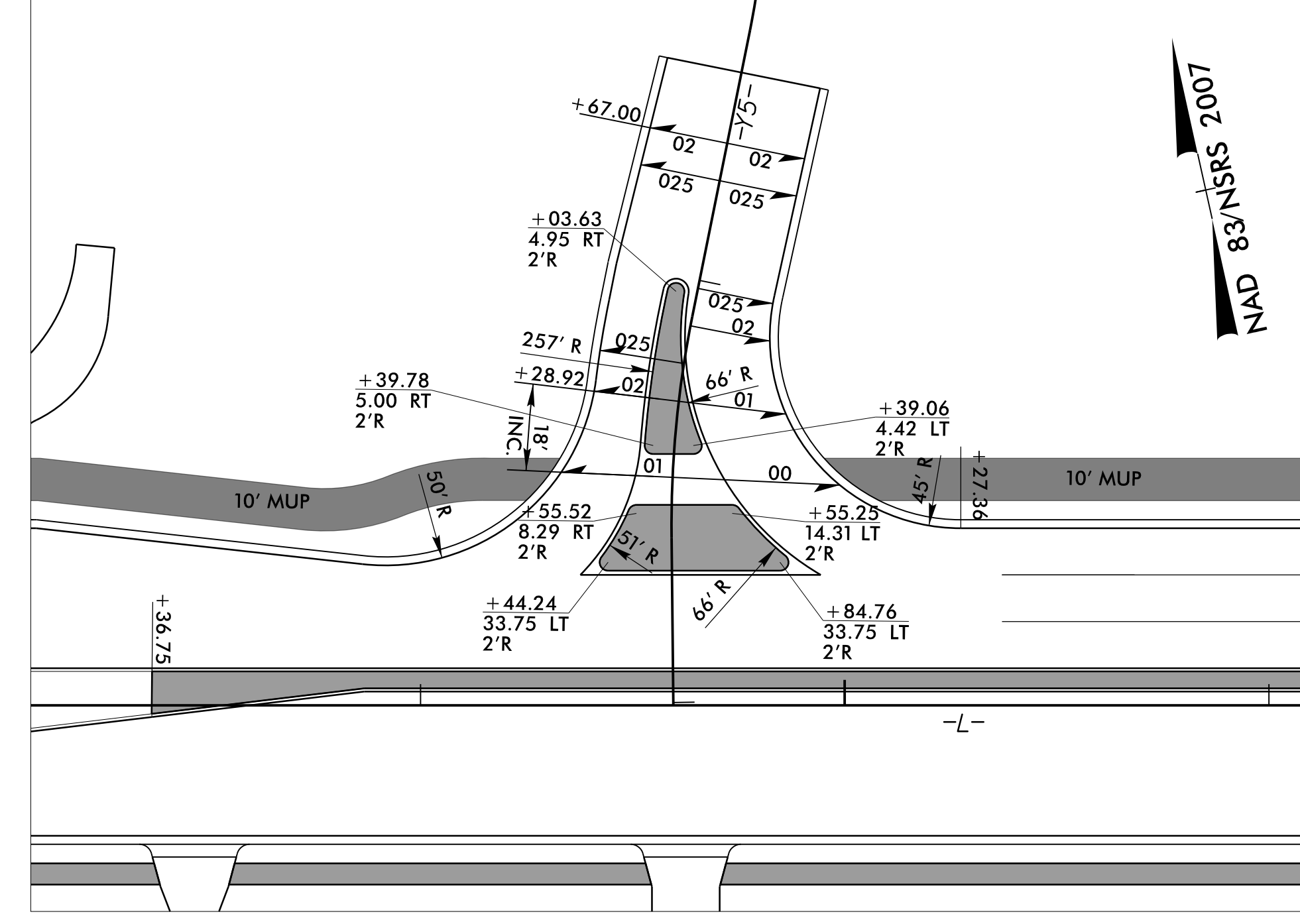
INTERSECTION DETAIL -L- AND -Y4RPA-



INTERSECTION DETAIL -L- AND PARCEL 25 /26 DRIVEWAY



INTERSECTION DETAIL -L- AND -Y5-



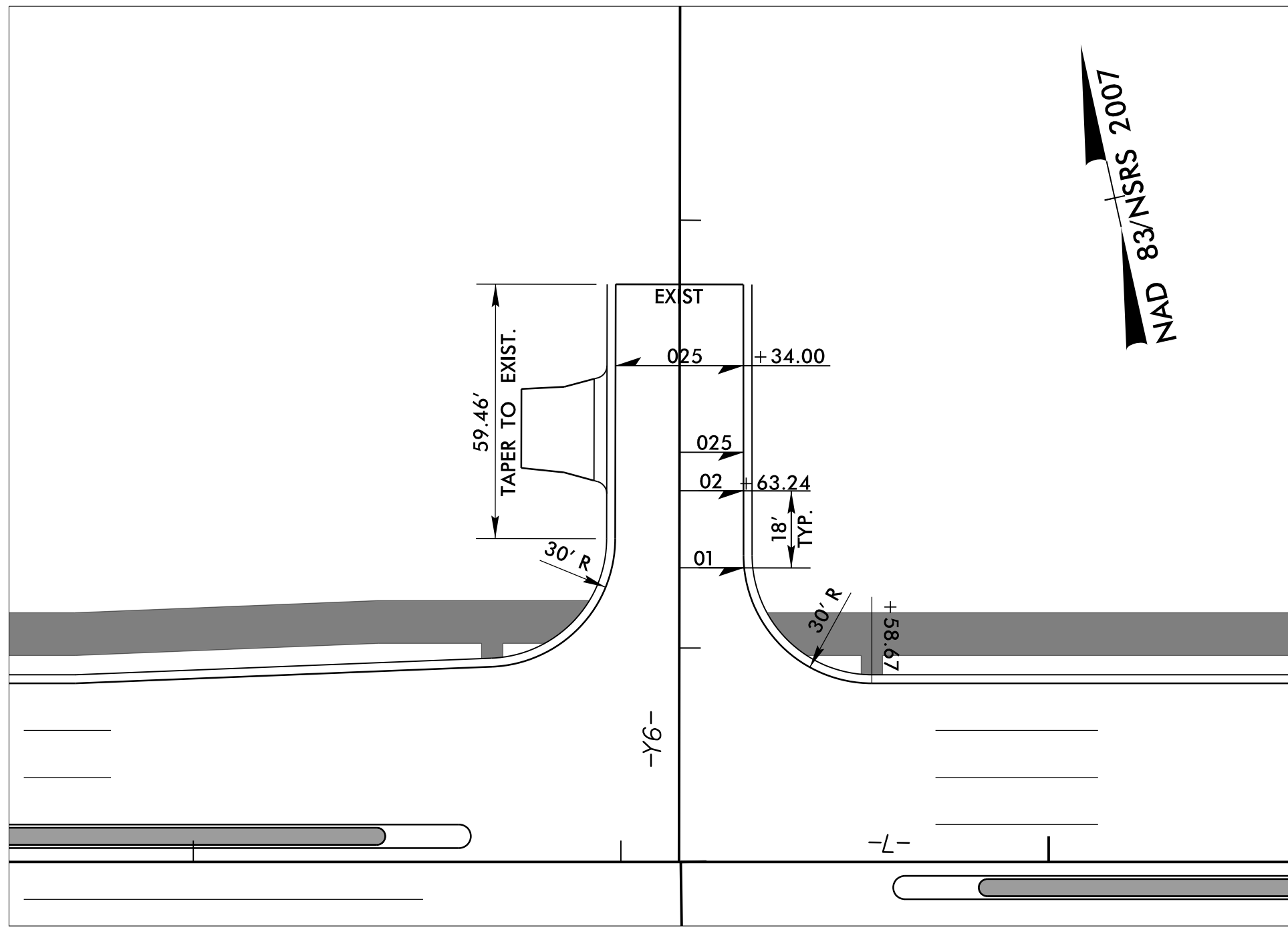
FOR PLAN, SEE SHEETS 5 THRU 7

07-MAY-2024 15:49
 N:\Roadway\Projects\U6202-RD\DET_2B-1.dgn
 JWB

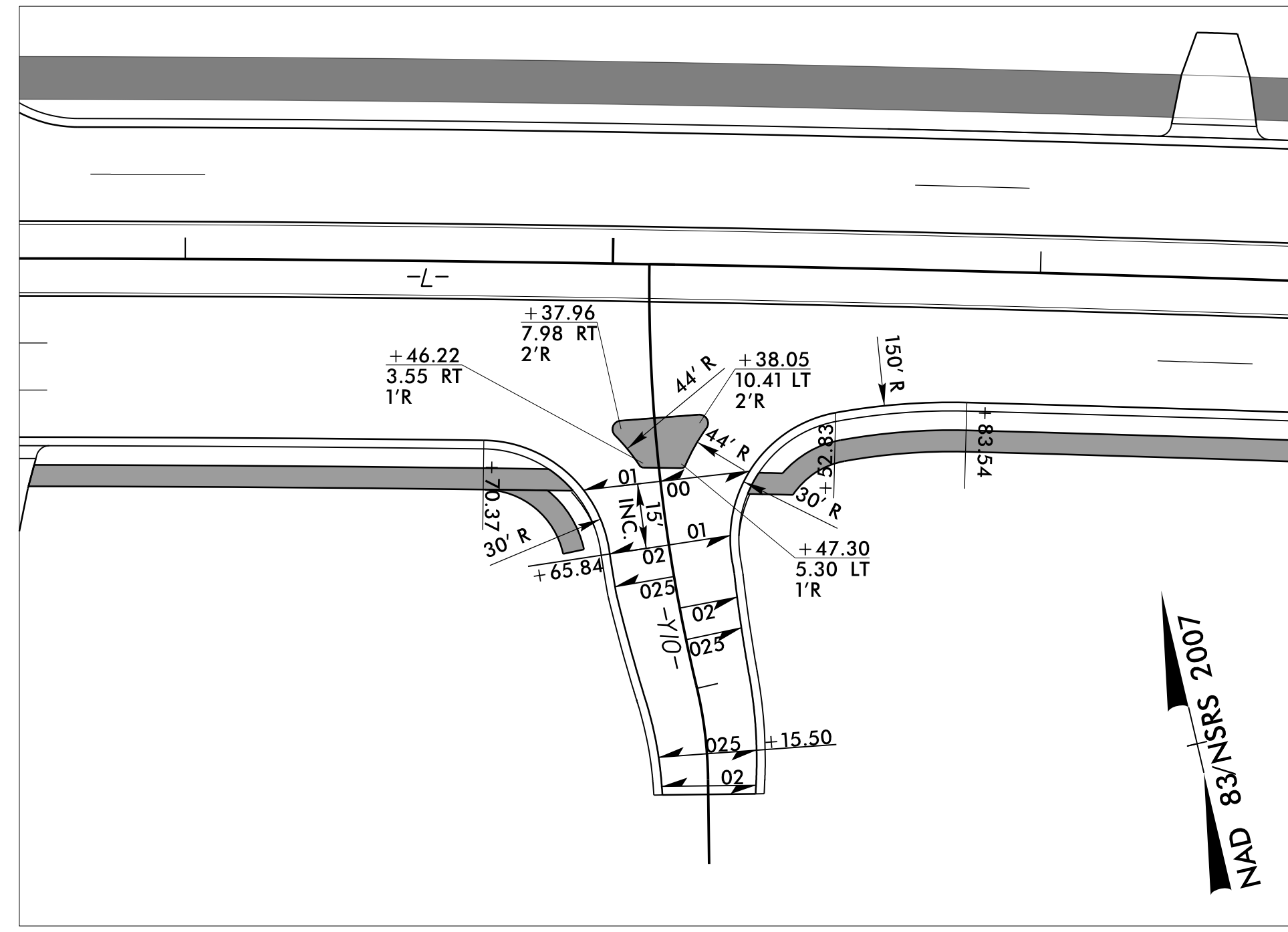
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-6202	2B-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

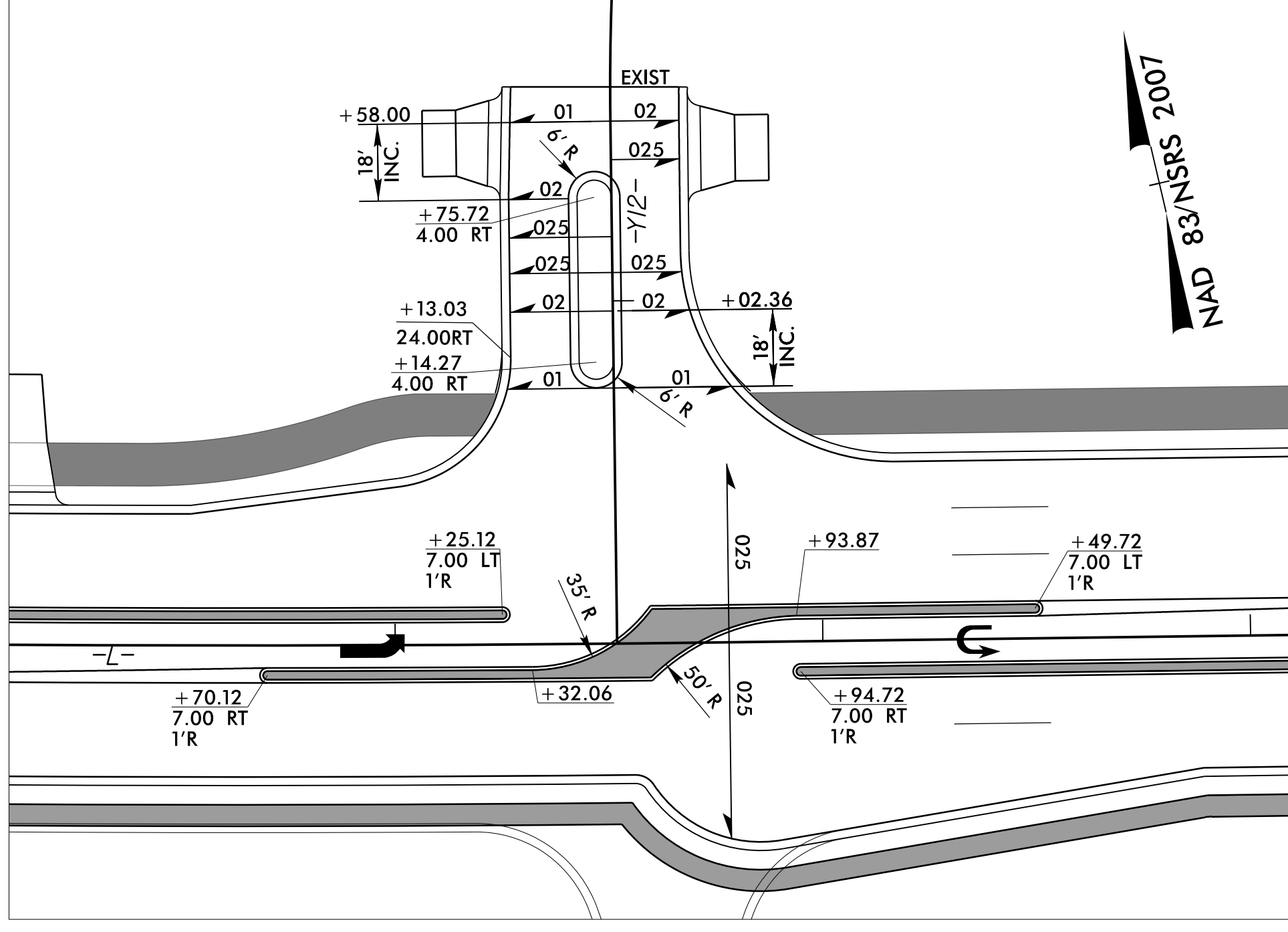
INTERSECTION DETAIL -L- AND -Y6-



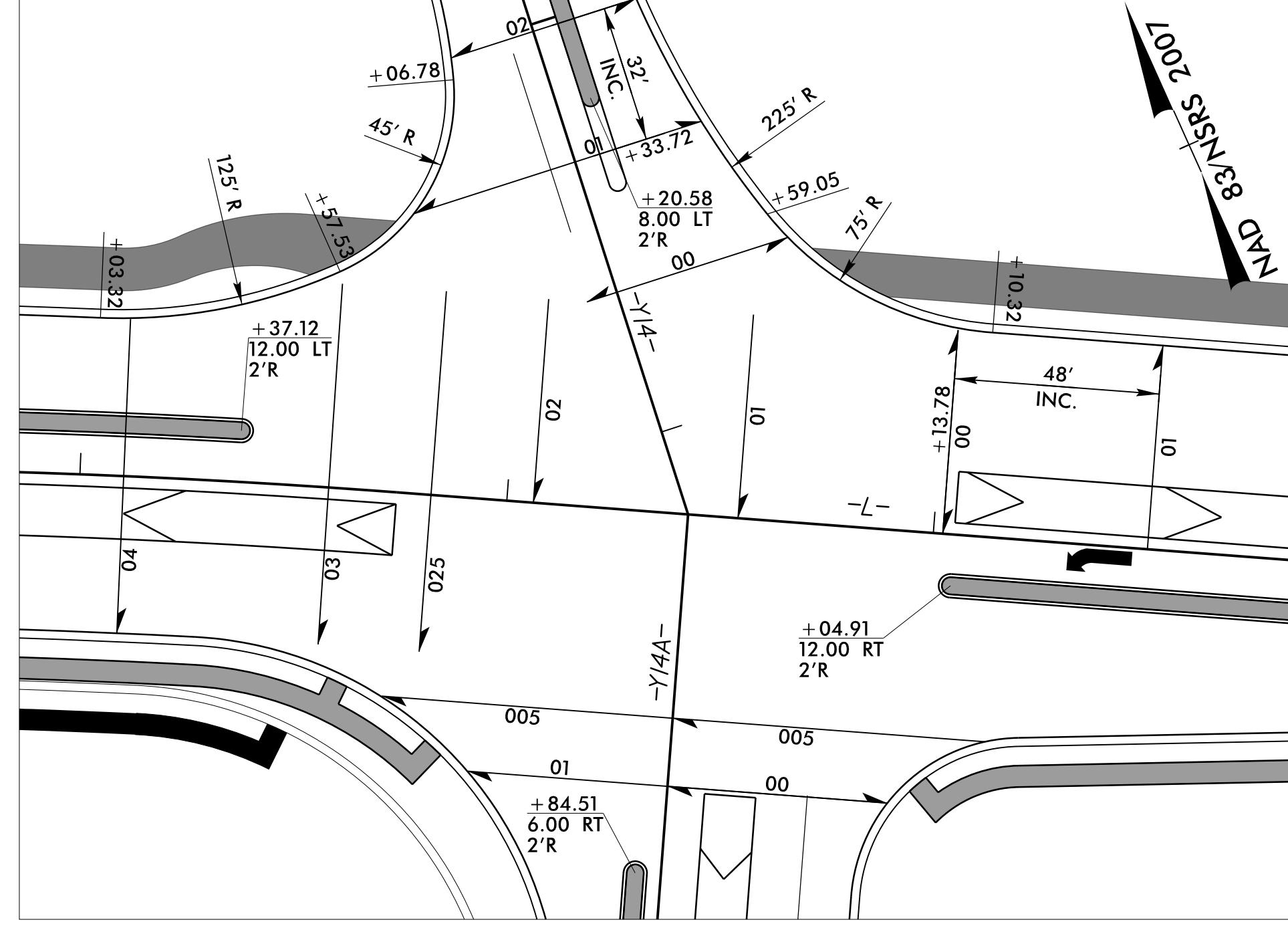
INTERSECTION DETAIL -L- AND -Y10-



INTERSECTION DETAIL -L- AND -Y12-



INTERSECTION DETAIL -L- AND -Y14- /-Y14A-

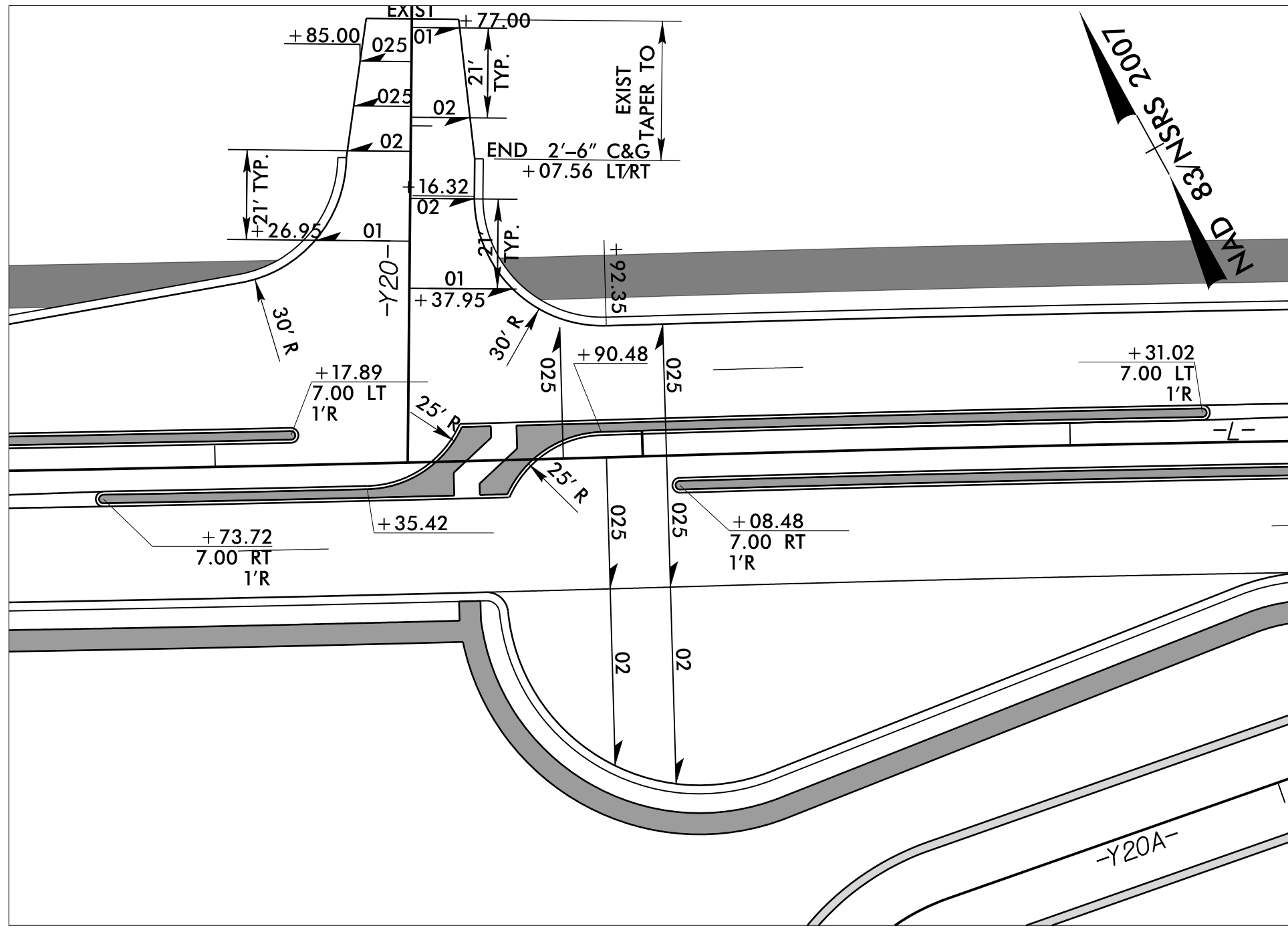


07 MAY 2024 15:50
 C:\pwworking\hntb\proj\U6202\RDY_DET_2B-2.dgn
 HNTB

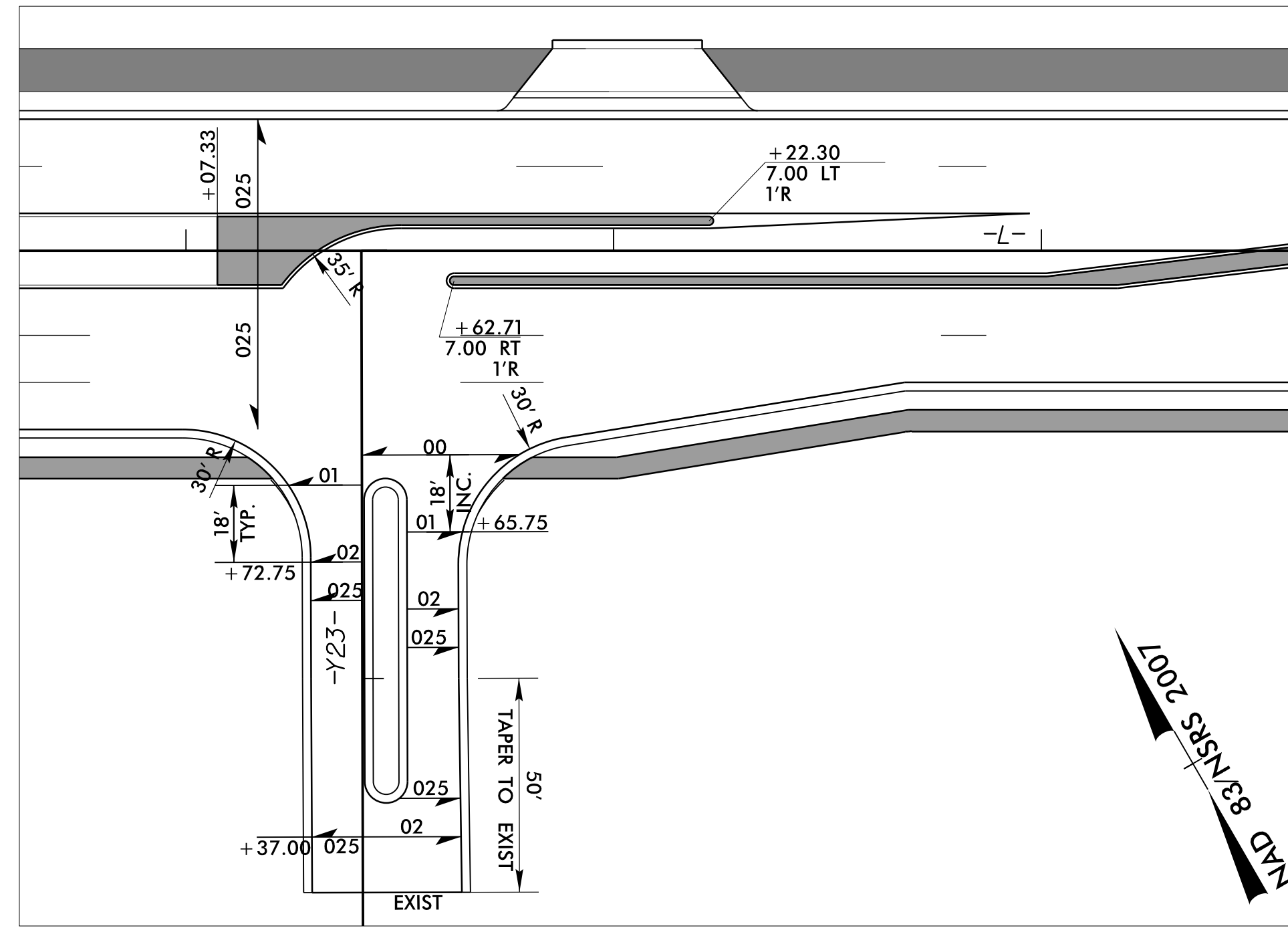
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-6202	2B-3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

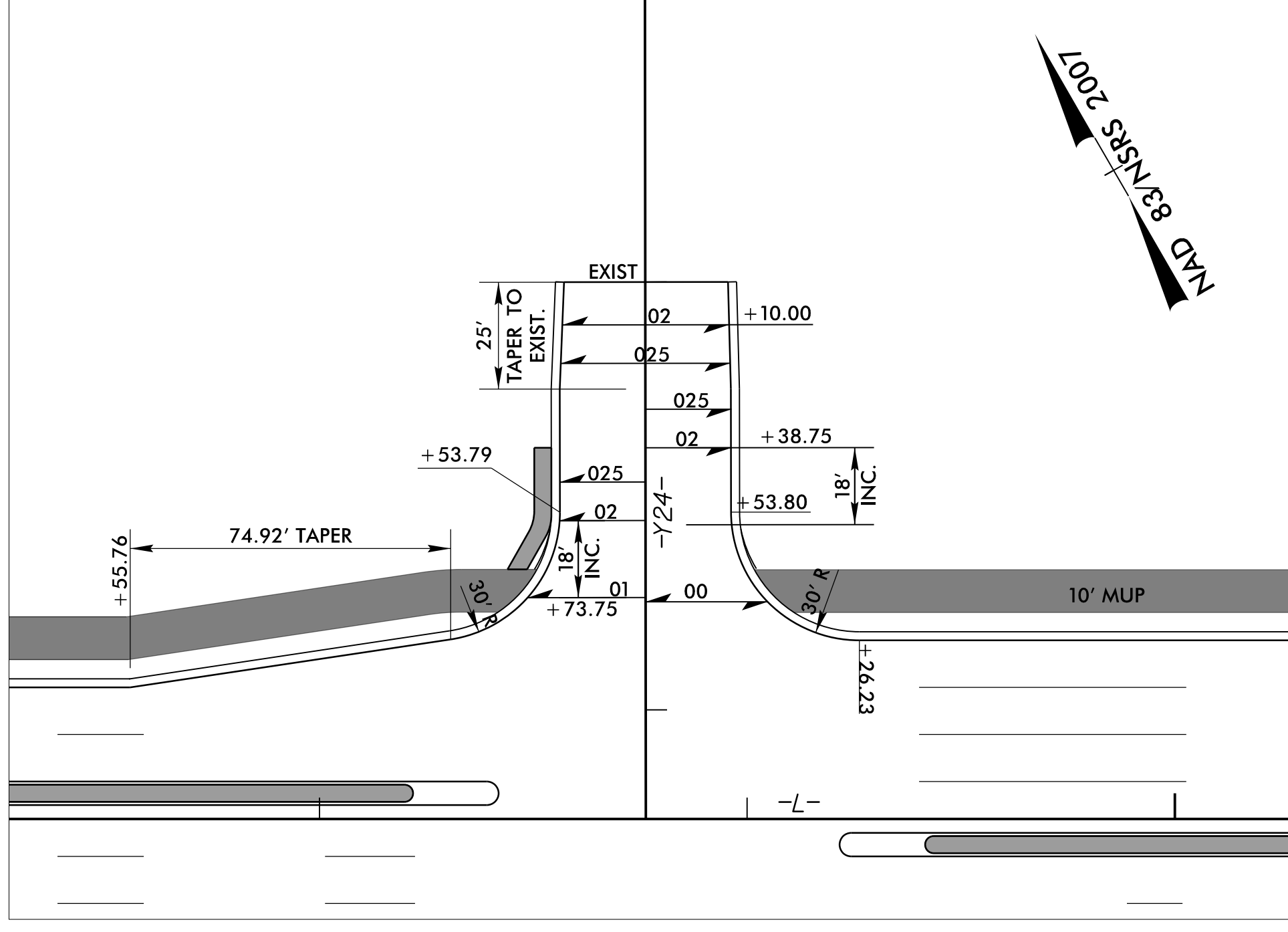
INTERSECTION DETAIL -L- AND -Y20-



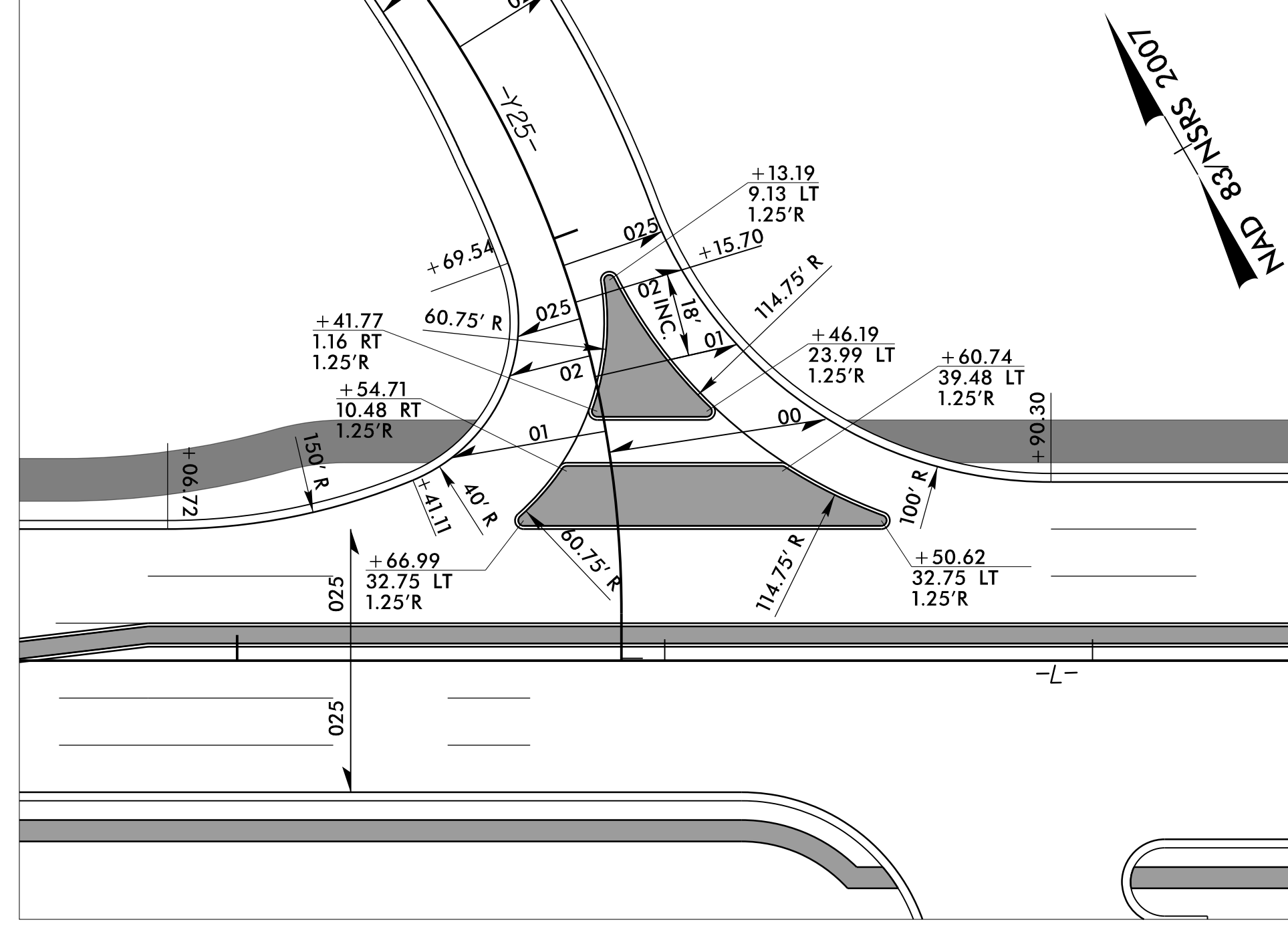
INTERSECTION DETAIL -L- AND -Y23-



INTERSECTION DETAIL -L- AND -Y24-



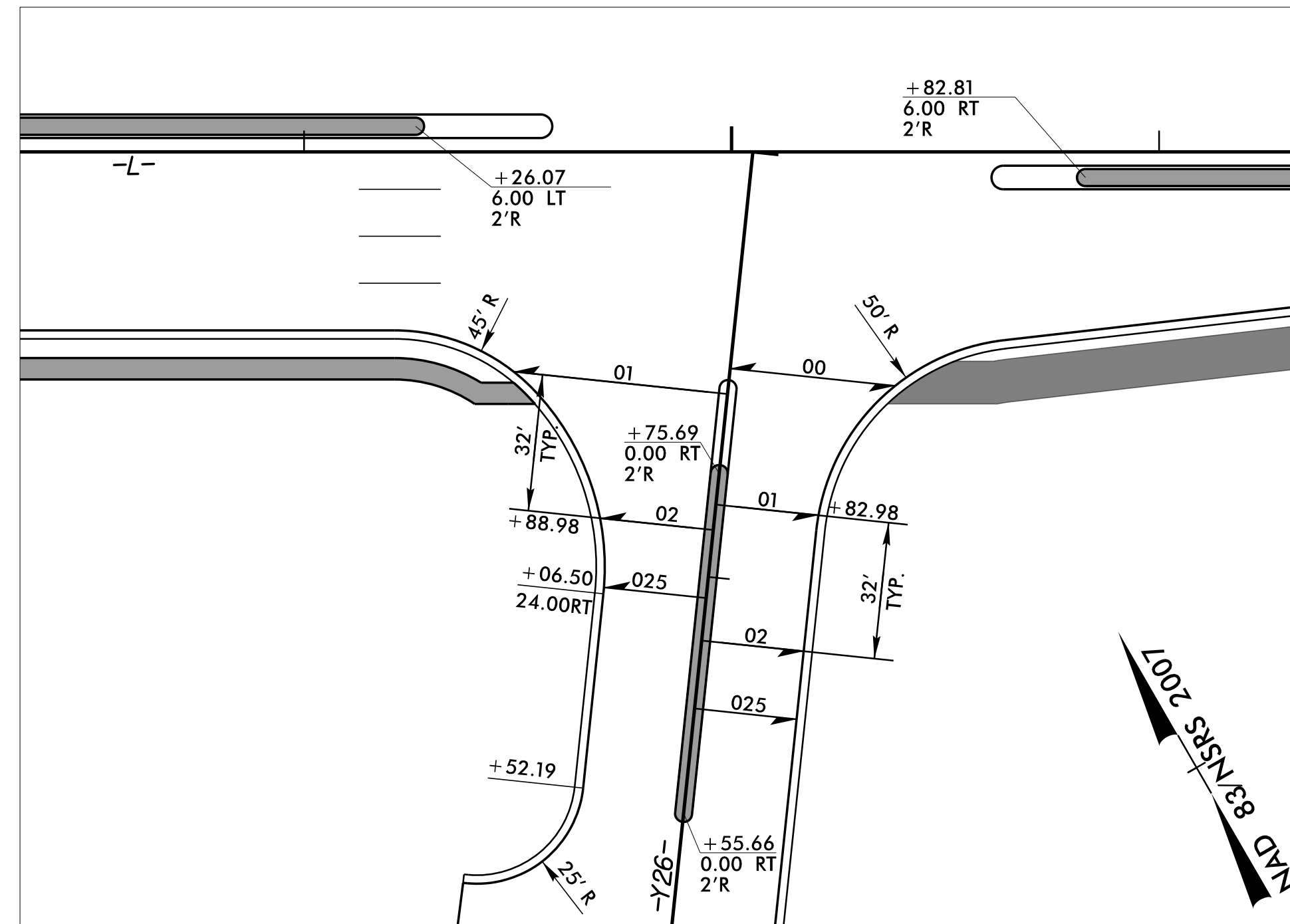
INTERSECTION DETAIL -L- AND -Y25-



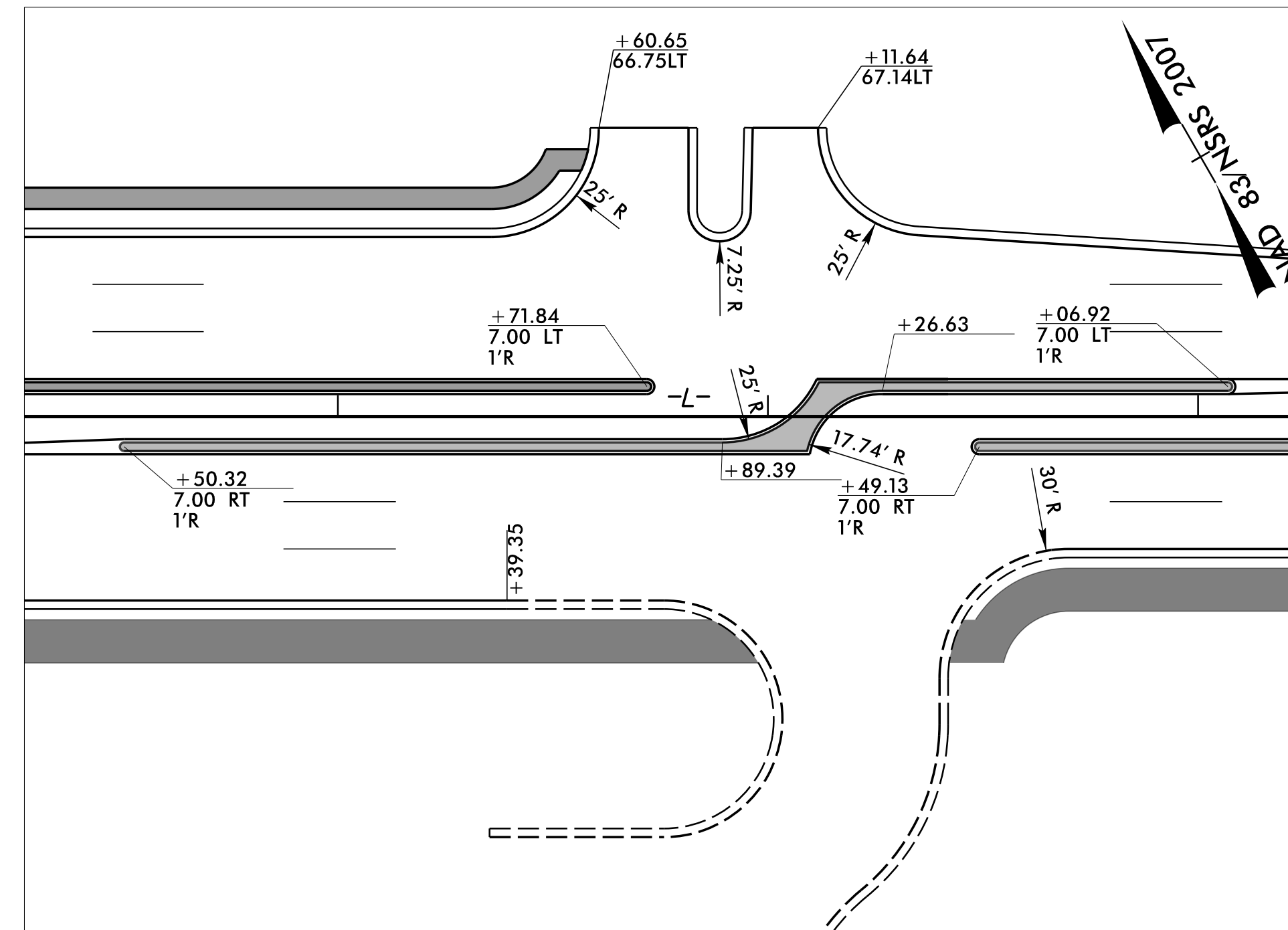
07 MAY 2024 15:50
C:\p062022\RDY_DET_2B-3.dgn

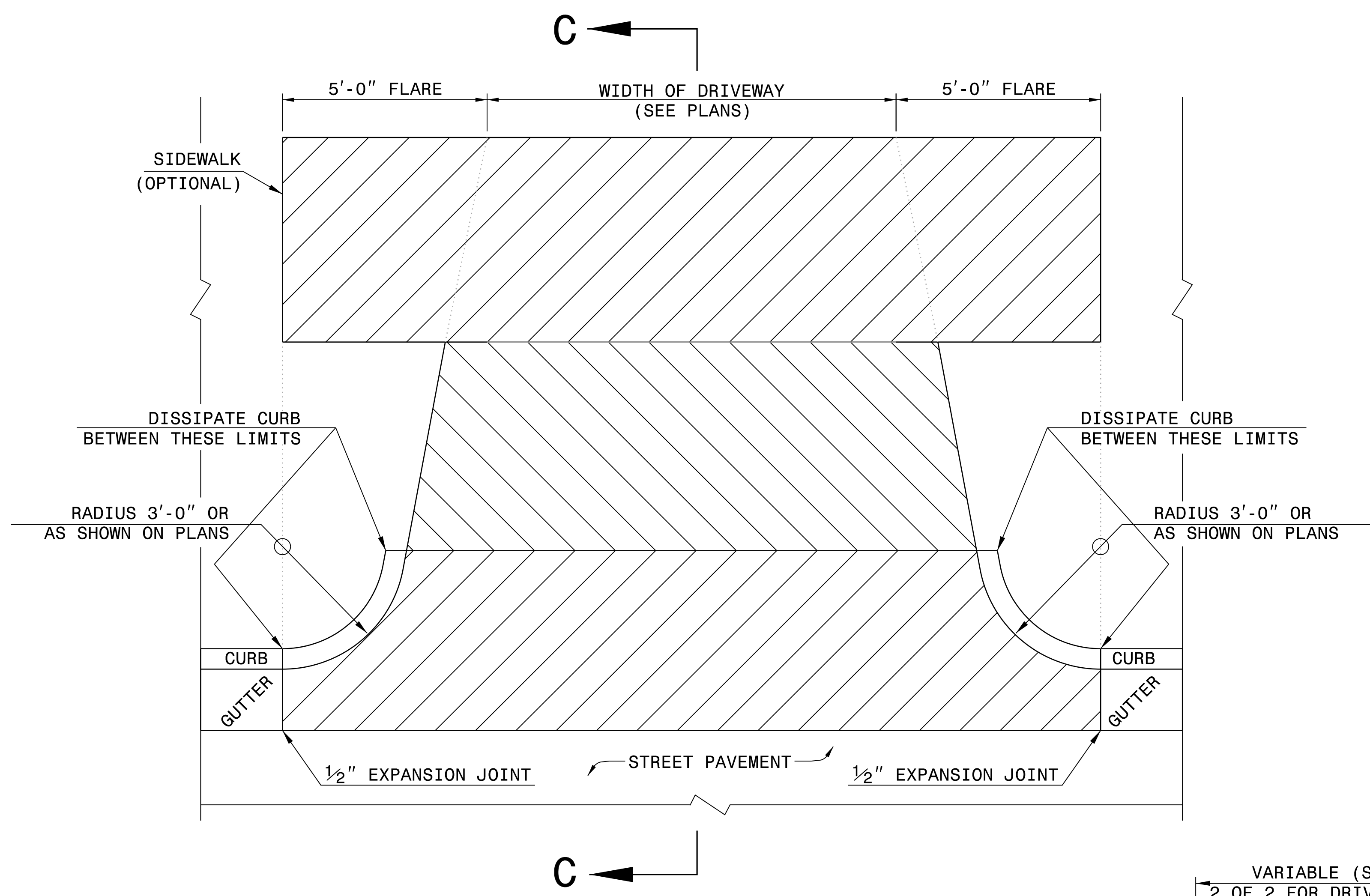
PROJECT REFERENCE NO.	SHEET NO.
U-6202	2B-4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

INTERSECTION DETAIL -L- AND -Y26-

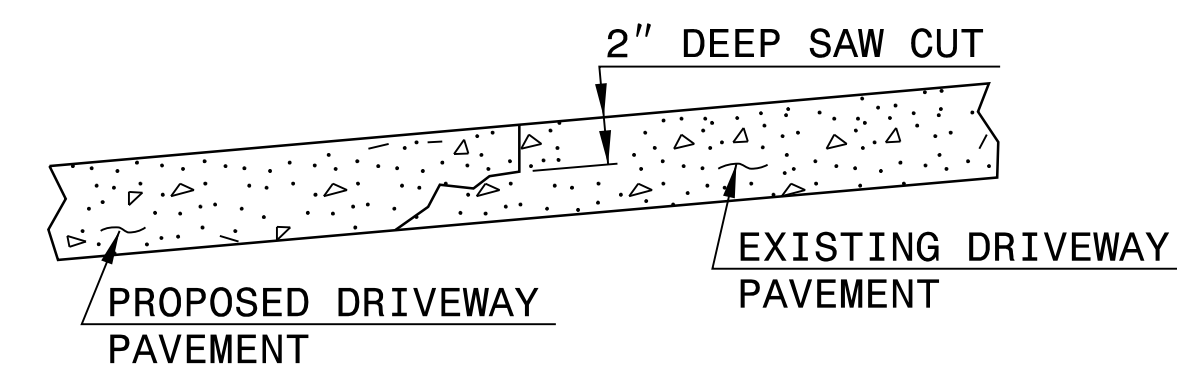


INTERSECTION DETAIL -L- AND PARCEL 150 DRIVEWAY



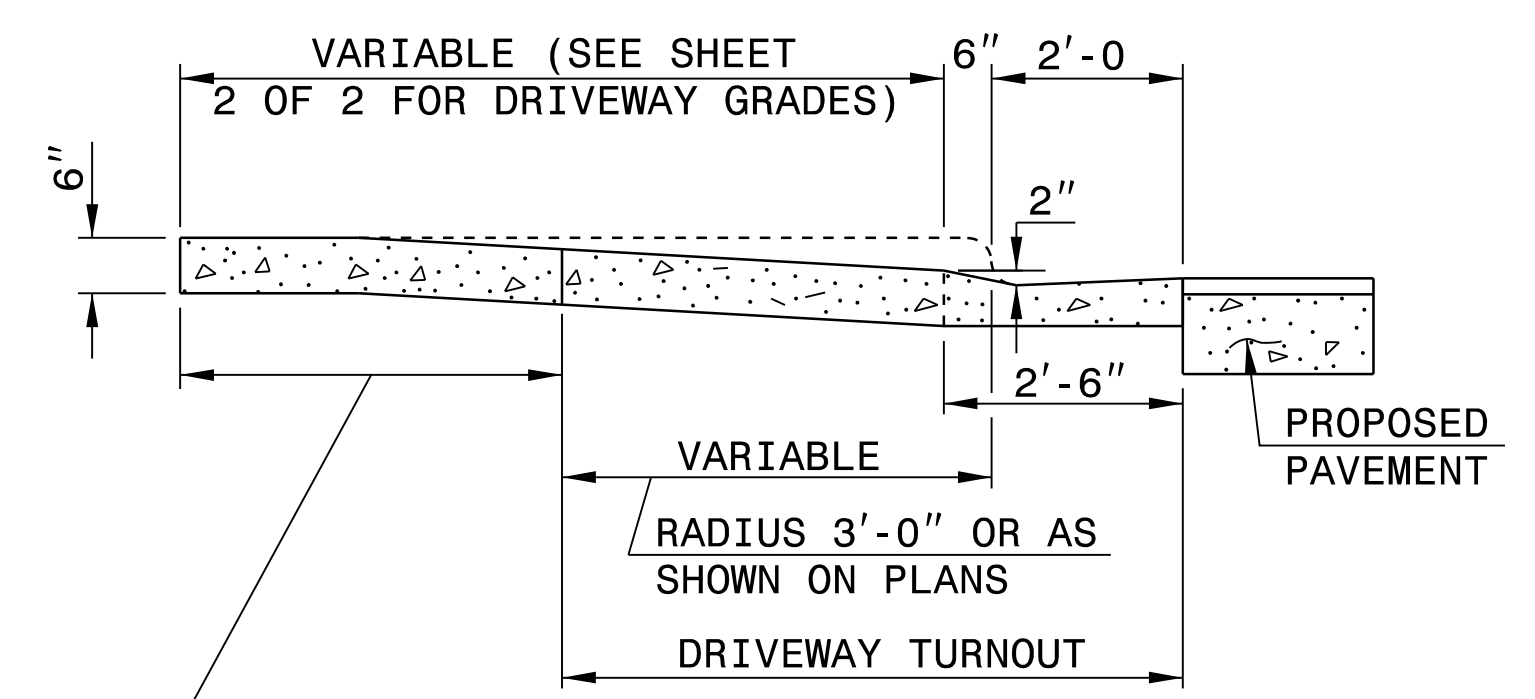


PLAN
DETAIL OF RESIDENTIAL DRIVEWAY



METHOD OF TIE IN

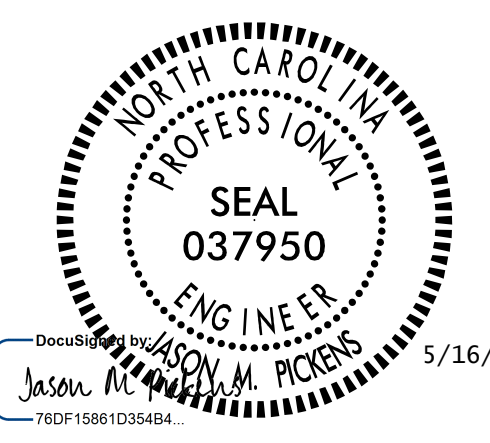
WHEN EXISTING DRIVEWAY PAVEMENT IS CONCRETE, SAW CUT 2" DEEP JOINT AT THE POINT OF TIE-IN. SAW JOINT PERPENDICULAR TO EDGE OF EXISTING DRIVEWAY PAVEMENT.



BUILD THIS PORTION OF DRIVEWAY PAVEMENT ONLY AT LOCATIONS WHEN DIRECTED.

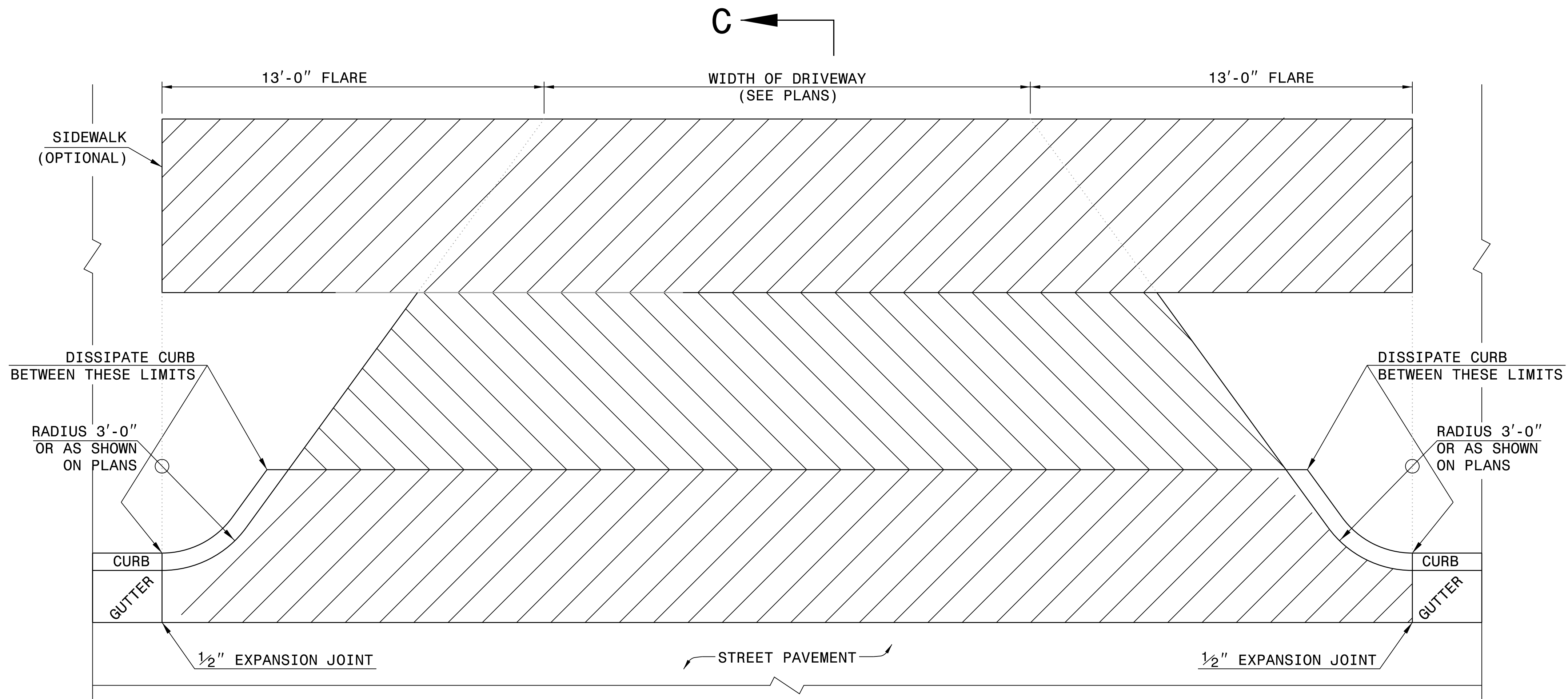
SECTION C-C

NOTE: REFER TO RSD 848.02 (SHEET 2 OF 2) FOR DRIVEWAY GRADES.

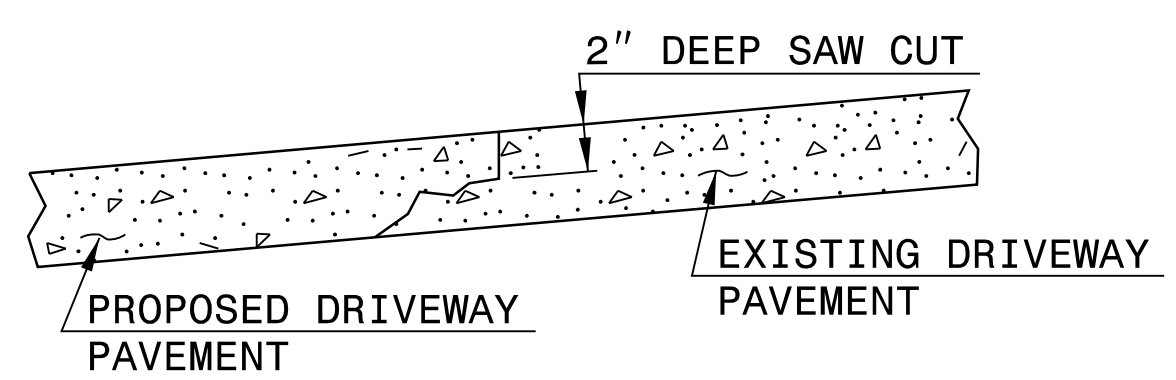


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB	HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Road, Suite 200 Raleigh, North Carolina 27609 NC License No: C-1554	
	DRIVEWAY TURNOUT - RADIUS TYPE	
ORIGINAL BY: J. PICKENS	DATE: APRIL 2021	
MODIFIED BY: _____	DATE: _____	
CHECKED BY: _____	DATE: _____	
FILE SPEC.: _____	DATE: _____	

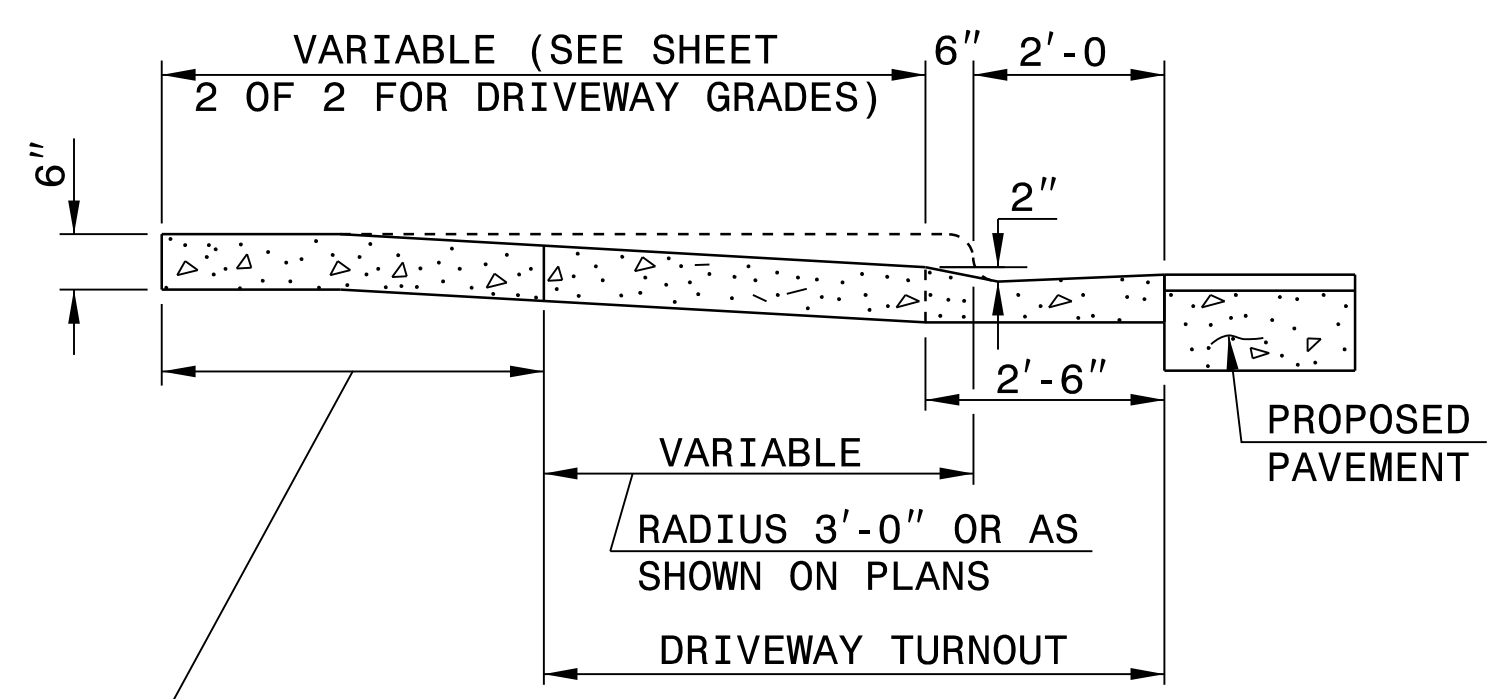


**PLAN
DETAIL OF COMMERCIAL DRIVEWAY**



METHOD OF TIE IN

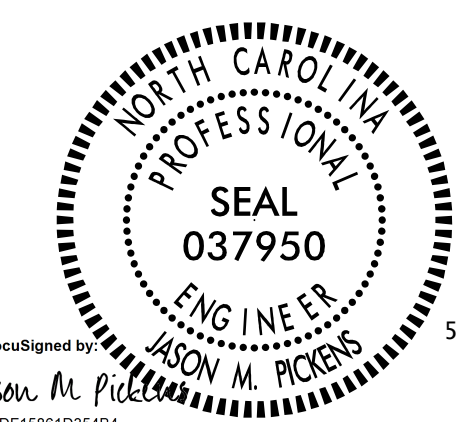
WHEN EXISTING DRIVEWAY PAVEMENT IS CONCRETE, SAW CUT 2" DEEP JOINT AT THE POINT OF TIE-IN. SAW JOINT PERPENDICULAR TO EDGE OF EXISTING DRIVEWAY PAVEMENT.



BUILD THIS PORTION OF DRIVEWAY PAVEMENT ONLY AT LOCATIONS WHEN DIRECTED.

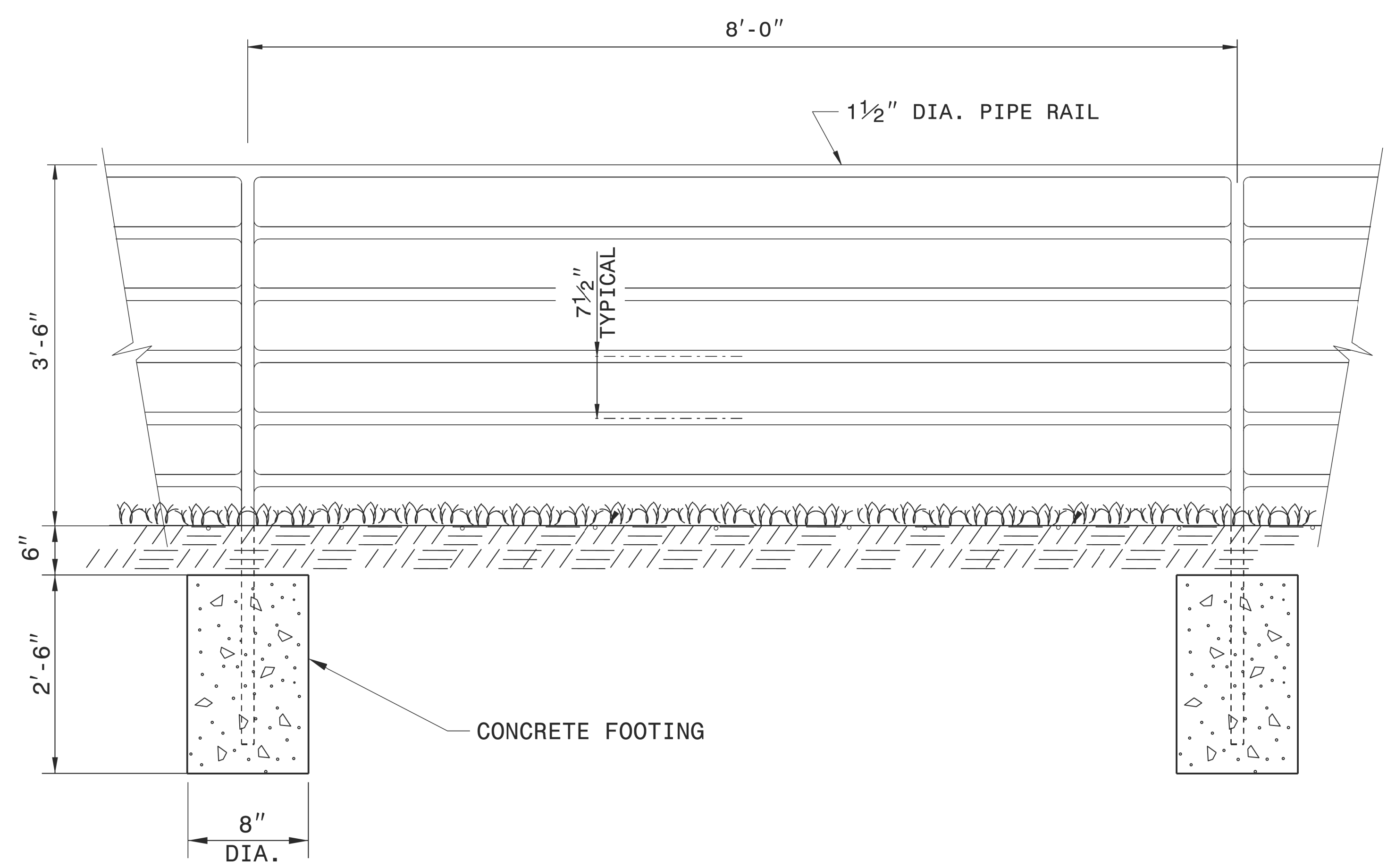
SECTION C-C

NOTE: REFER TO RSD 848.02 (SHEET 2 OF 2) FOR DRIVEWAY GRADES.

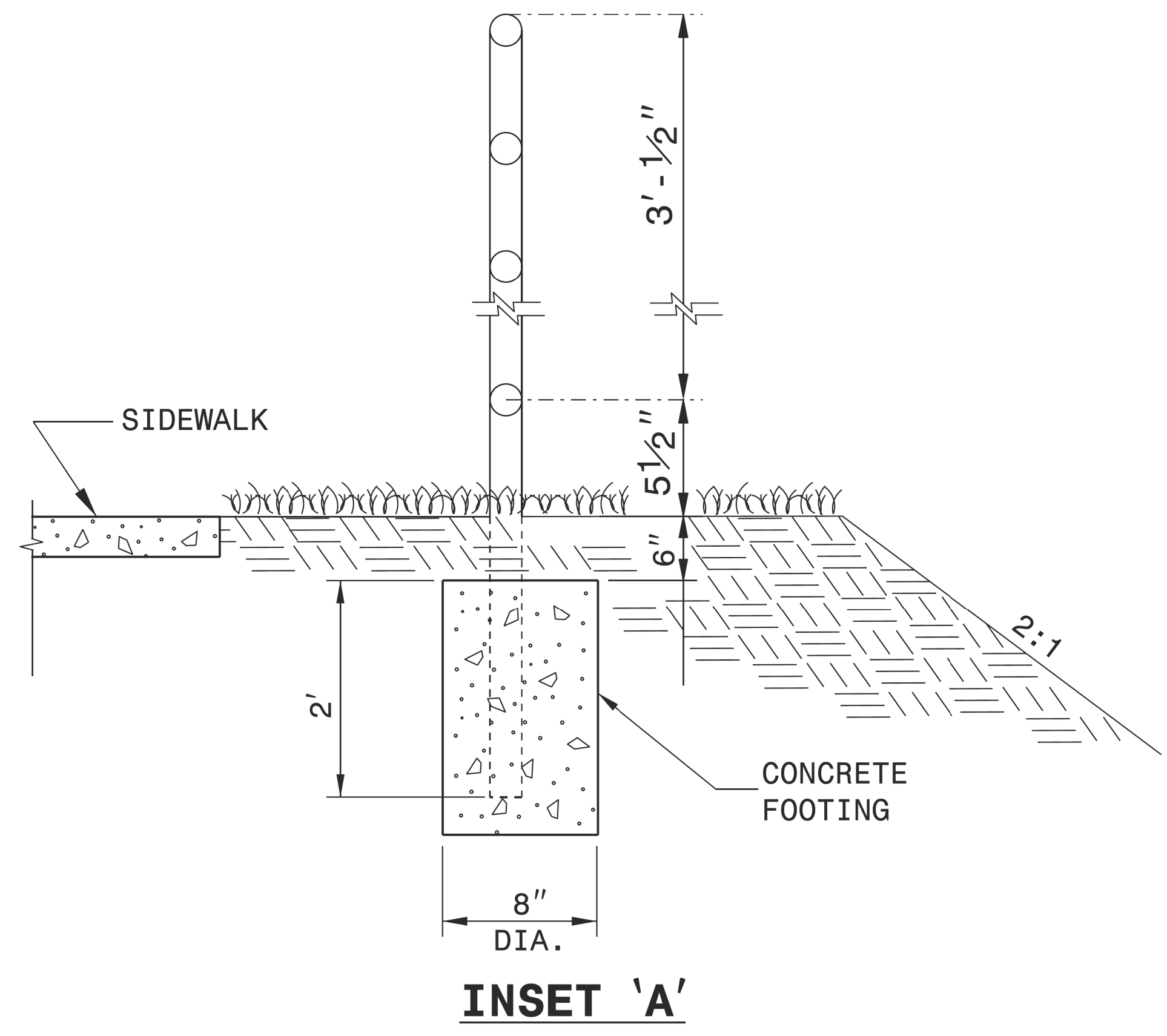


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB	HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Road, Suite 200 Raleigh, North Carolina 27609 NC License No: C-1554	
	DRIVEWAY TURNOUT - RADIUS TYPE	
ORIGINAL BY: J. PICKENS	DATE: APRIL 2021	
MODIFIED BY: _____	DATE: _____	
CHECKED BY: _____	DATE: _____	
FILE SPEC.: _____	DATE: _____	



ELEVATION OF HANDRAIL



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 1072-18 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.



CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
PROPOSED PEDESTRIAN HANDRAIL	
ORIGINAL BY: E.E. WARD	DATE: 12-99
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: jhowerton/handrail adjacent to sidewalk.dgn	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

20-SEP-2018 15:30 S:\Contracts\Special Details\jhowerton\Handrail Adjacent to Sidewalk.dgn jhowerton AT CSD-292595

10-AUG-2017 10:41 AM
 S:\Contracts\Special Details\jhowerton\840d02 Min Depth CB.dgn
 jhowerton AT CSD-292595

5/14/99

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

**ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH
CONCRETE CATCH BASIN
12" THRU 84" PIPE**

SHEET 1 OF 2
840D02

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH 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 AS SHOWN ON STD. NO. 840.00.

USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.

FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" TO 16'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.

CONSTRUCT WITH PIPE CROWNS MATCHING.

CHAMFER ALL EXPOSED CORNERS 1".

** FOR STRUCTURES WITH PIPE LARGER THAN 54", MAKE THE TOP SLAB 8" THICK.

SECTION X-X

SECTION Y-Y

SECTION Z-Z

DETAIL SHOWING METHOD OF RISER CONSTRUCTION

SECTION J-J

PLAN

SECTION M-M

PLAN

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

**ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH
CONCRETE CATCH BASIN
12" THRU 84" PIPE**

SHEET 2 OF 2
840D02

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH 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 AS SHOWN ON STD. NO. 840.00.

USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.

FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" TO 16'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.

CONSTRUCT WITH PIPE CROWNS MATCHING.

CHAMFER ALL EXPOSED CORNERS 1".

** FOR STRUCTURES WITH PIPE LARGER THAN 54", MAKE THE TOP SLAB 8" THICK.

SECTION R-R

SECTION S-S

PLAN OF TOP SLAB

SECTION R-R

SECTION J-J

PLAN

SECTION M-M

PLAN

ELEVATION

ELEVATION

NORMAL CURB AND GUTTER ON STEEP GRADES

DOWEL

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H, WITH NO RISER) *

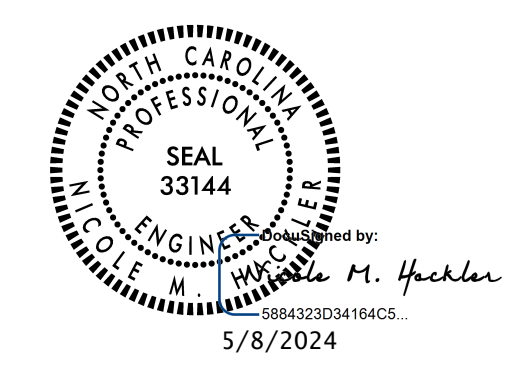
PIPE D.	DIMENSIONS OF BOX AND PIPE			COVER DIMENSION			BARS-V			BARS-W			BARS-U			TOTAL LBS.	DEDUCTIONS ONE PIPE
	SPAN	WIDTH	MIN. HEIGHT	E	F	H	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	CU. YDS. CONC. IN BOX			R.C.
12"	3'-0"	2'-2"	2'-0"	..	..	2'-0"	..	..	..	..	..	..	..	..	0.235	0.015	0.026
15"	3'-0"	2'-2"	2'-3"	..	..	2'-3"	..	..	..	..	..	..	..	..	0.235	0.023	0.036
18"	3'-0"	2'-2"	3'-1"	..	..	3'-1"	..	..	..	..	..	..	..	..	0.235	0.033	0.049
24"	3'-0"	2'-2"	3'-10"	..	..	3'-10"	..	..	..	..	..	..	..	..	0.235	0.059	0.085
30"	3'-0"	2'-2"	3'-4"	..	..	3'-4"	..	..	..	..	..	..	..	..	0.235	0.092	0.127
36"	3'-0"	2'-2"	3'-10"	..	..	3'-10"	..	..	..	..	..	..	..	..	0.235	0.132	0.178
42"	3'-0"	2'-2"	4'-5"	..	..	4'-5"	..	..	..	..	..	..	..	..	0.235	0.180	0.243
48"	3'-0"	2'-2"	5'-0"	..	..	5'-0"	..	..	..	..	..	..	..	..	0.235	0.235	0.317
54"	3'-0"	2'-2"	5'-7"	..	..	5'-7"	..	..	..	..	..	..	..	..	0.235	0.287	0.401
60"	3'-0"	2'-2"	6'-3"	..	..	6'-3"	..	..	..	..	..	..	..	..	0.235	0.363	0.546
66"	3'-0"	2'-2"	6'-11"	..	..	6'-11"	..	..	..	..	..	..	..	..	0.235	0.440	0.655
72"	3'-0"	2'-2"	7'-6"	..	..	7'-6"	..	..	..	..	..	..	..	..	0.235	0.524	0.774
78"	3'-0"	2'-2"	8'-1"	..	..	8'-1"	..	..	..	..	..	..	..	..	0.235	0.615	0.893
84"	3'-0"	2'-2"	8'-9"	..	..	8'-9"	..	..	..	..	..	..	..	..	0.235	0.713	1.010

* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

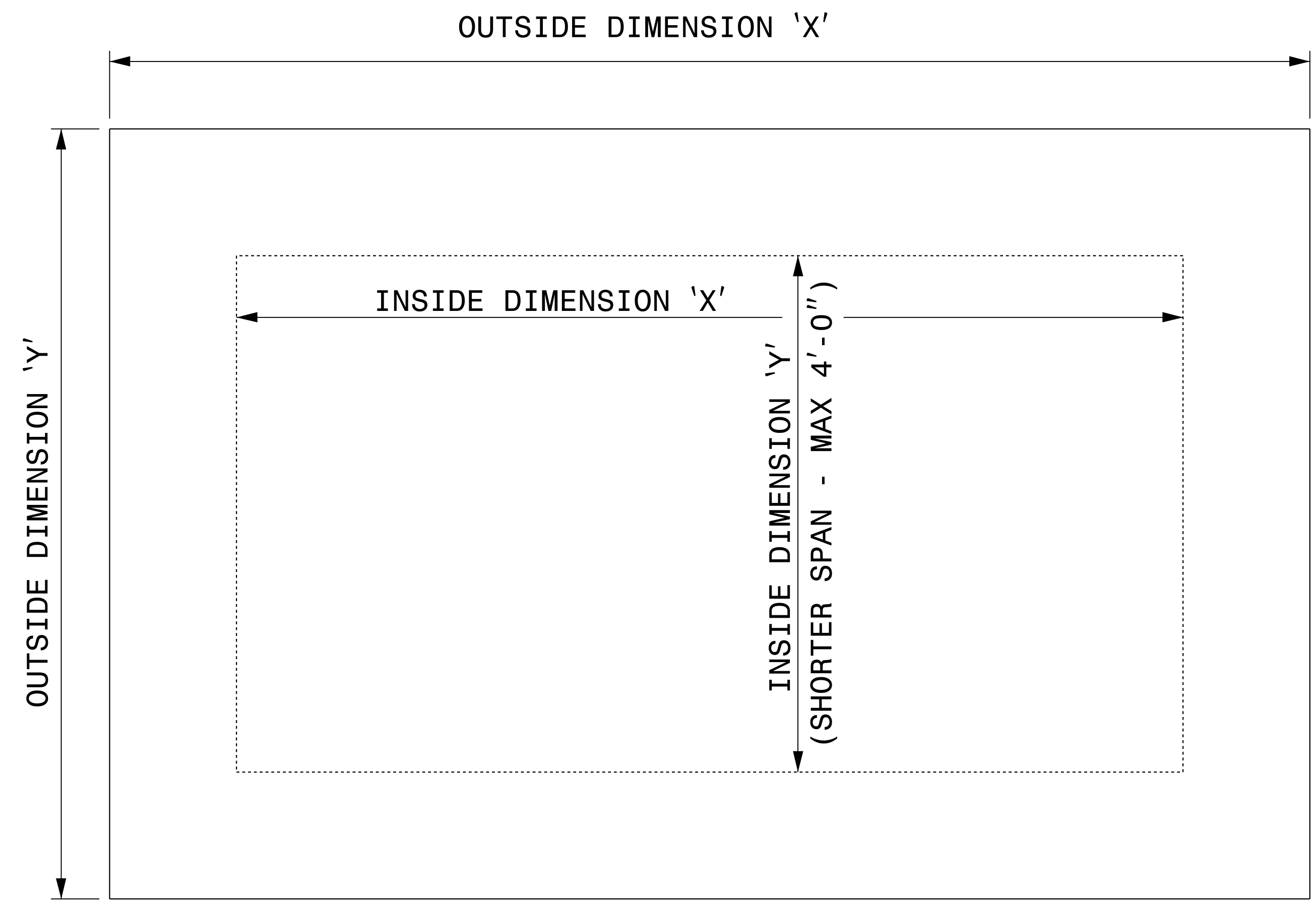
**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: 2002 Std.840.01 DATE: _____
 MODIFIED BY: E.E. WARD DATE: 3-1-02
 CHECKED BY: _____ DATE: _____
 FILE SPEC.: s:Special Details/jhowerton/840d02.dgn

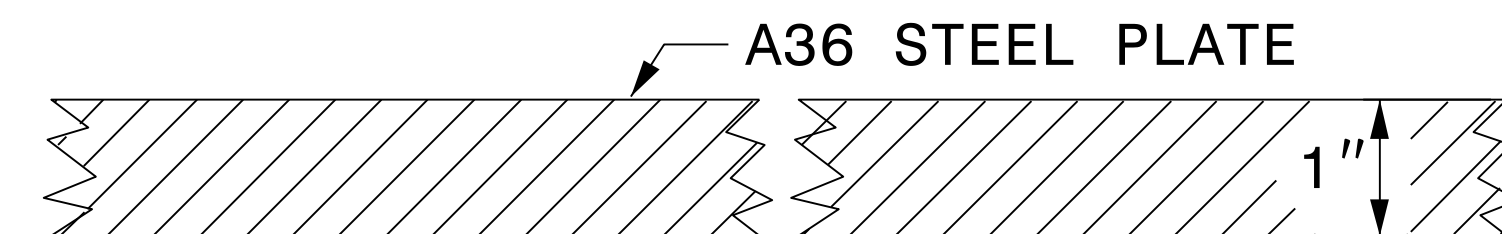


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



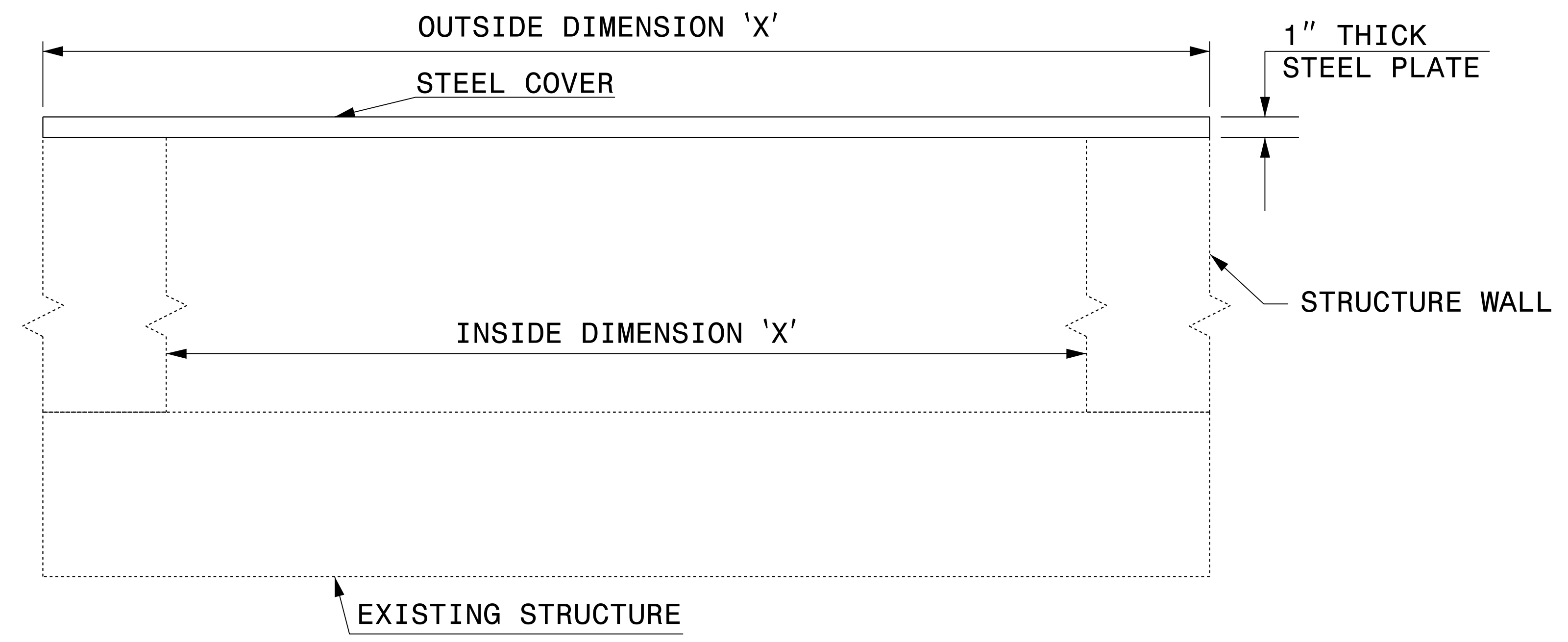
GENERAL NOTES:

- 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.

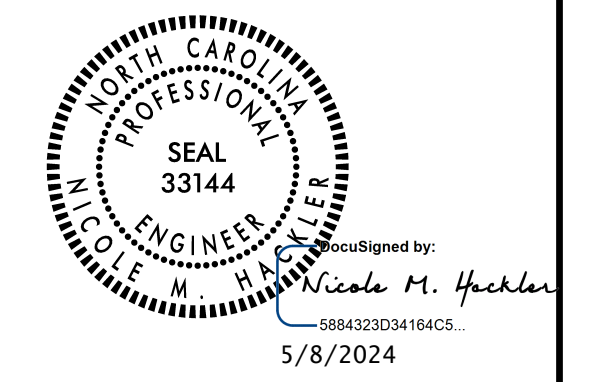


SECTION VIEW OF STEEL TOP PLATE

PLAN VIEWS



ELEVATION VIEWS



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

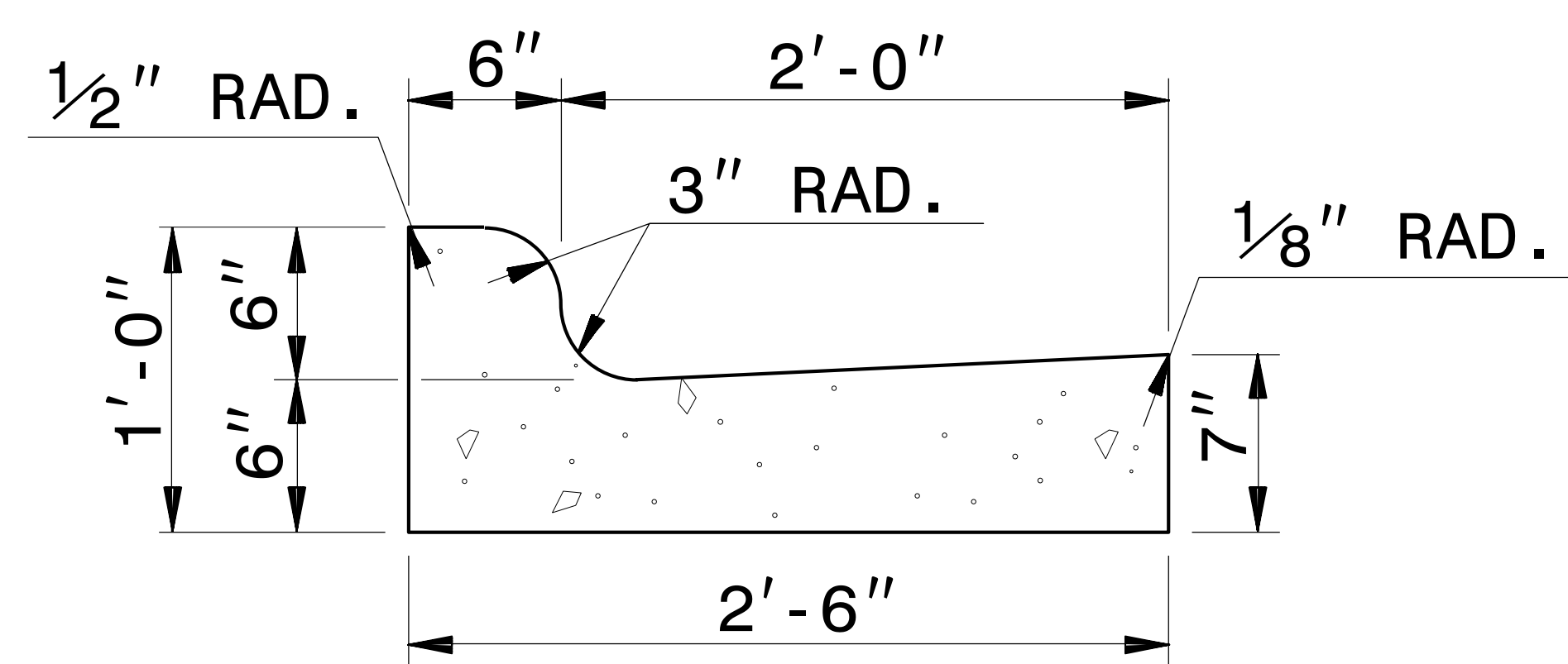
**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

**DETAIL OF TEMPORARY
1" STEEL COVER**

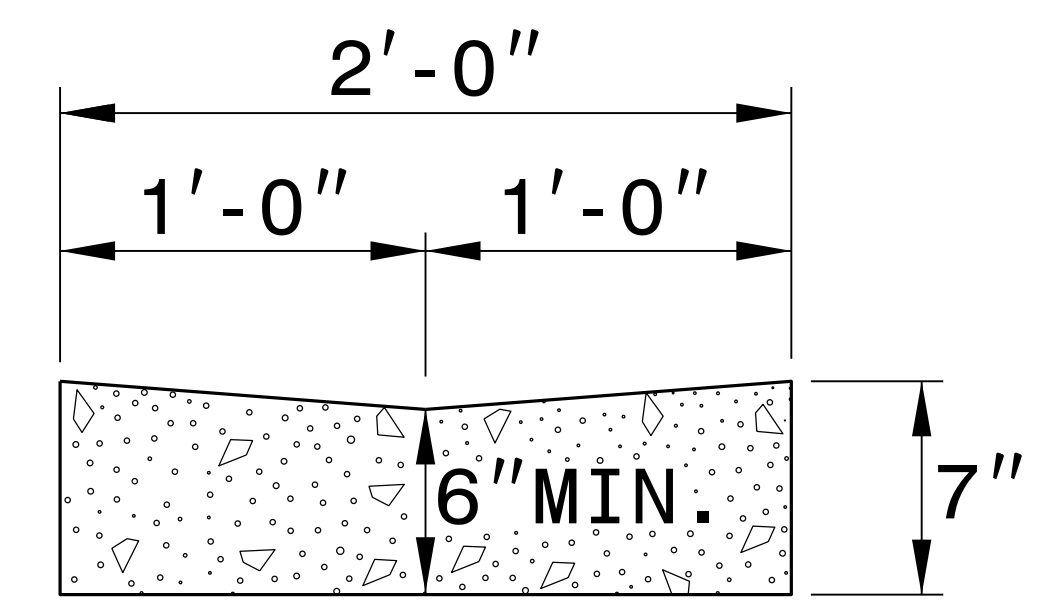
ORIGINAL BY: E.E. WARD DATE: 2-2-98
 MODIFIED BY: _____ DATE: _____
 CHECKED BY: _____ DATE: _____
 FILE SPEC.: eric:/usr/details/metric/stand/stlcvr2.dgn

07-DEC-2018 09:57
 S:\Contracts\Special Details\Jhoverton\Steel Cover.dgn
 Jhoverton AT_CSD-292595

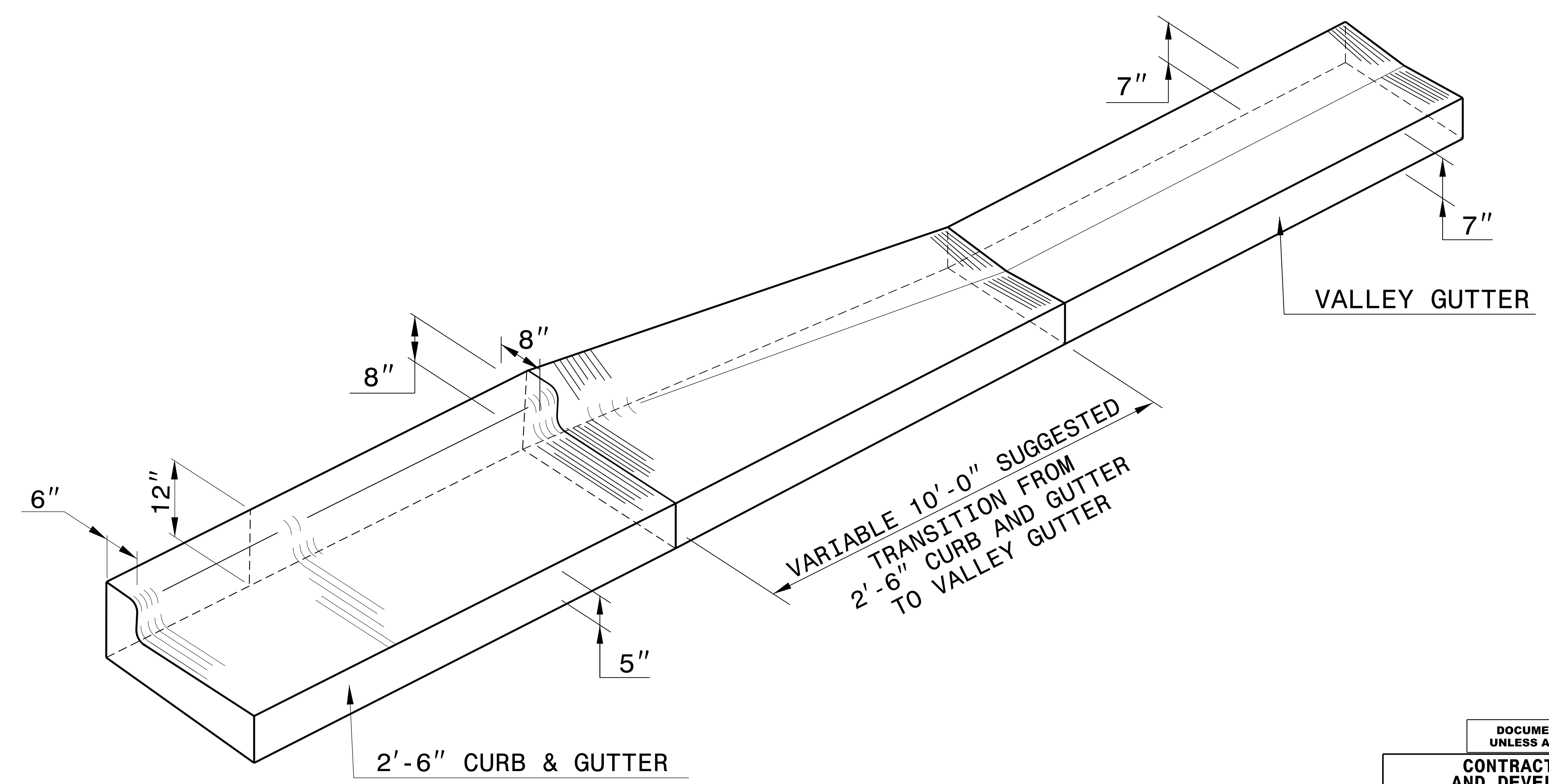
*NOTE: SEE STD. DWG. 846.01 FOR GENERAL NOTES



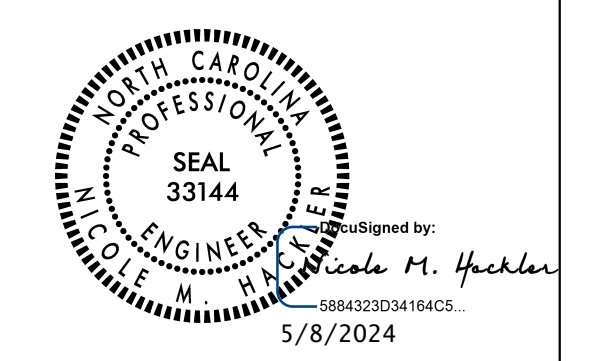
2'-6" CURB AND GUTTER



VALLEY GUTTER



ISOMETRIC VIEW OF TRANSITION



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

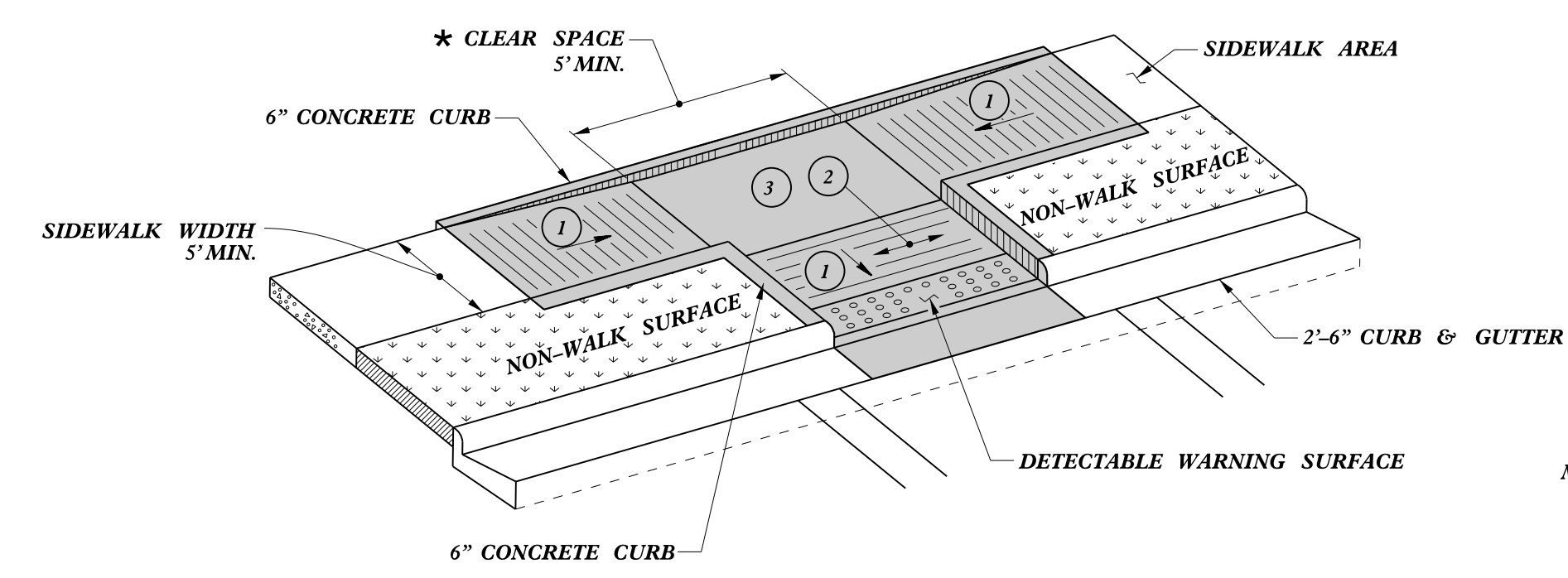
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

TRANSITION FROM 2'-6" CURB AND GUTTER TO VALLEY GUTTER

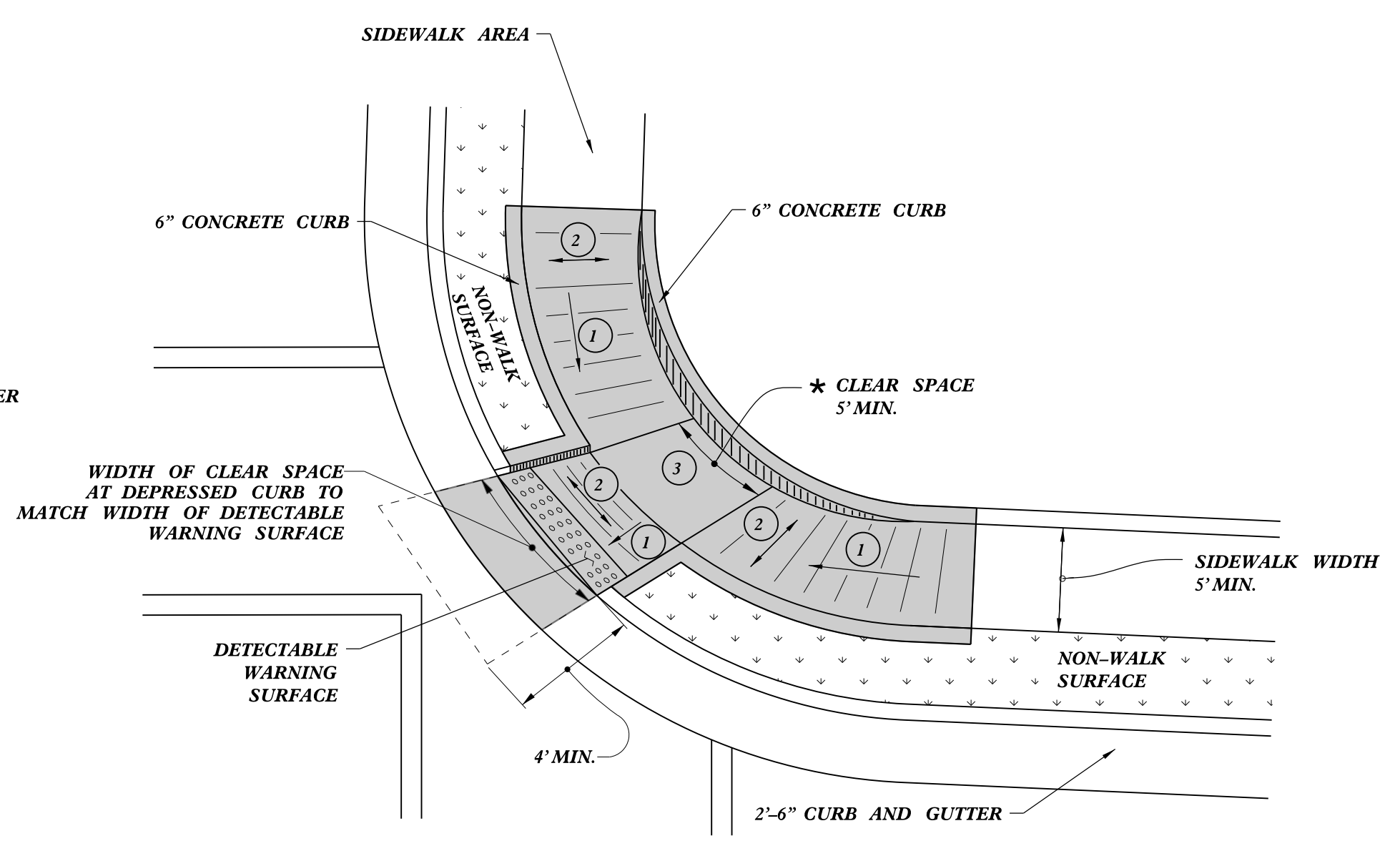
ORIGINAL BY: T.S. SPELL DATE: FEB. 4, 2009
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC.: w:\usr\details\stand\cgtransit.dgn

07-SEP-2017 08:20 S:\Contracts\Contractors\Special Details\ward\usr\details\stand\c&g transition sections.dgn Jhower-ton AT USD-292595

* - WHERE CLEAR SPACE IS CONSTRAINED ON TWO OR MORE SIDES, THE CLEAR SPACE SHALL BE 4' MINIMUM X 5' MINIMUM, WITH 5' PROVIDED IN THE DIRECTION OF THE PEDESTRIAN STREET CROSSING.

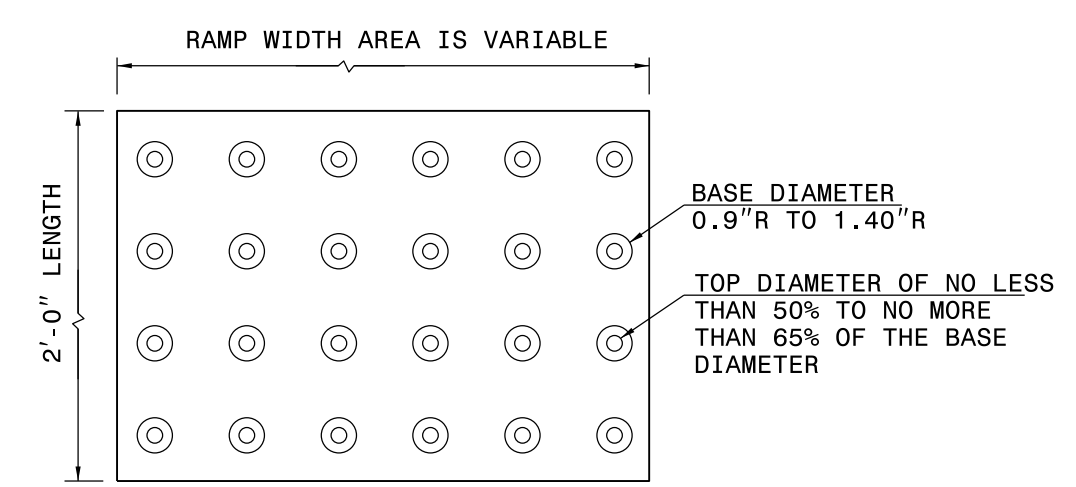


TYPE 3

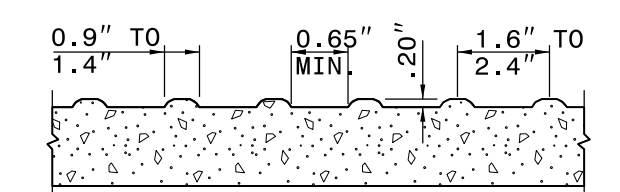


**TYPE 3 MODIFIED
INSTALLATION IN A RADIUS**

NOTES:
 1. DETECTABLE WARNING SURFACE SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.
 2. DETECTABLE WARNING SURFACE SHALL CONTRAST VISIBLY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.



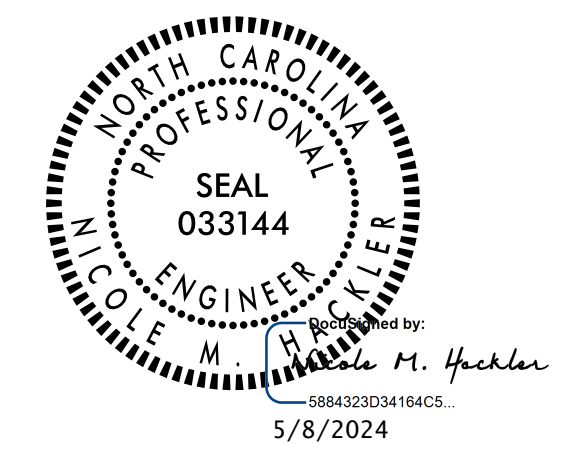
DETECTABLE WARNING SURFACE



- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00%

PAY LIMITS FOR 1 CURB RAMP

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.
 ROADWAY DETAIL DRAWING FOR
CURB RAMP
 PARALLEL RAMP
 SHEET 9 OF 13
848D06

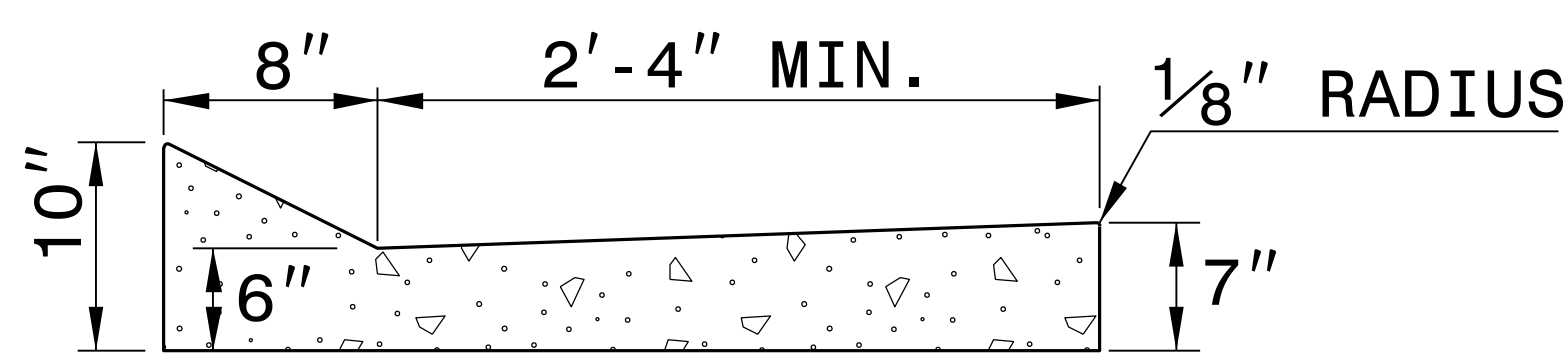


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

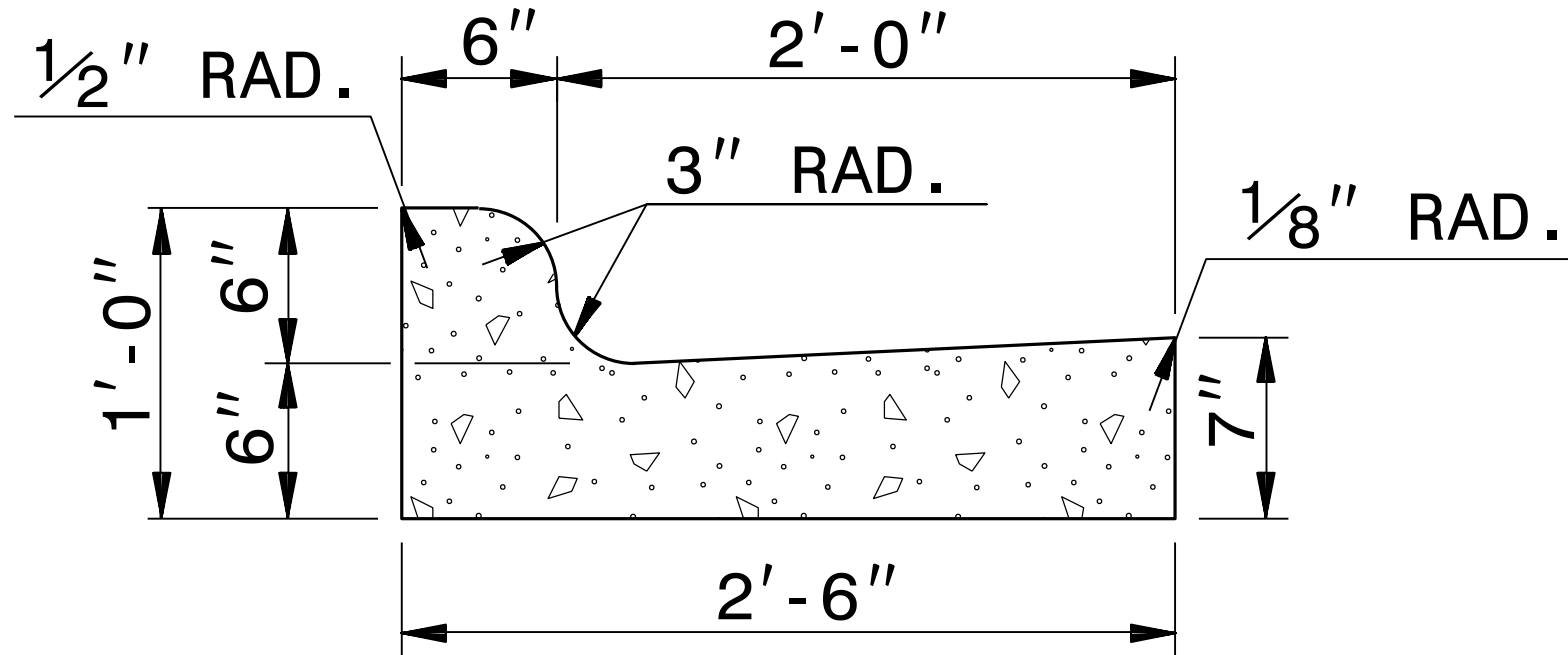
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
 Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 12-22-2023
 MODIFIED BY: DATE: _____
 CHECKED BY: DATE: _____
 FILE SPEC.: special_details\nmhacker\er\0609.dgn

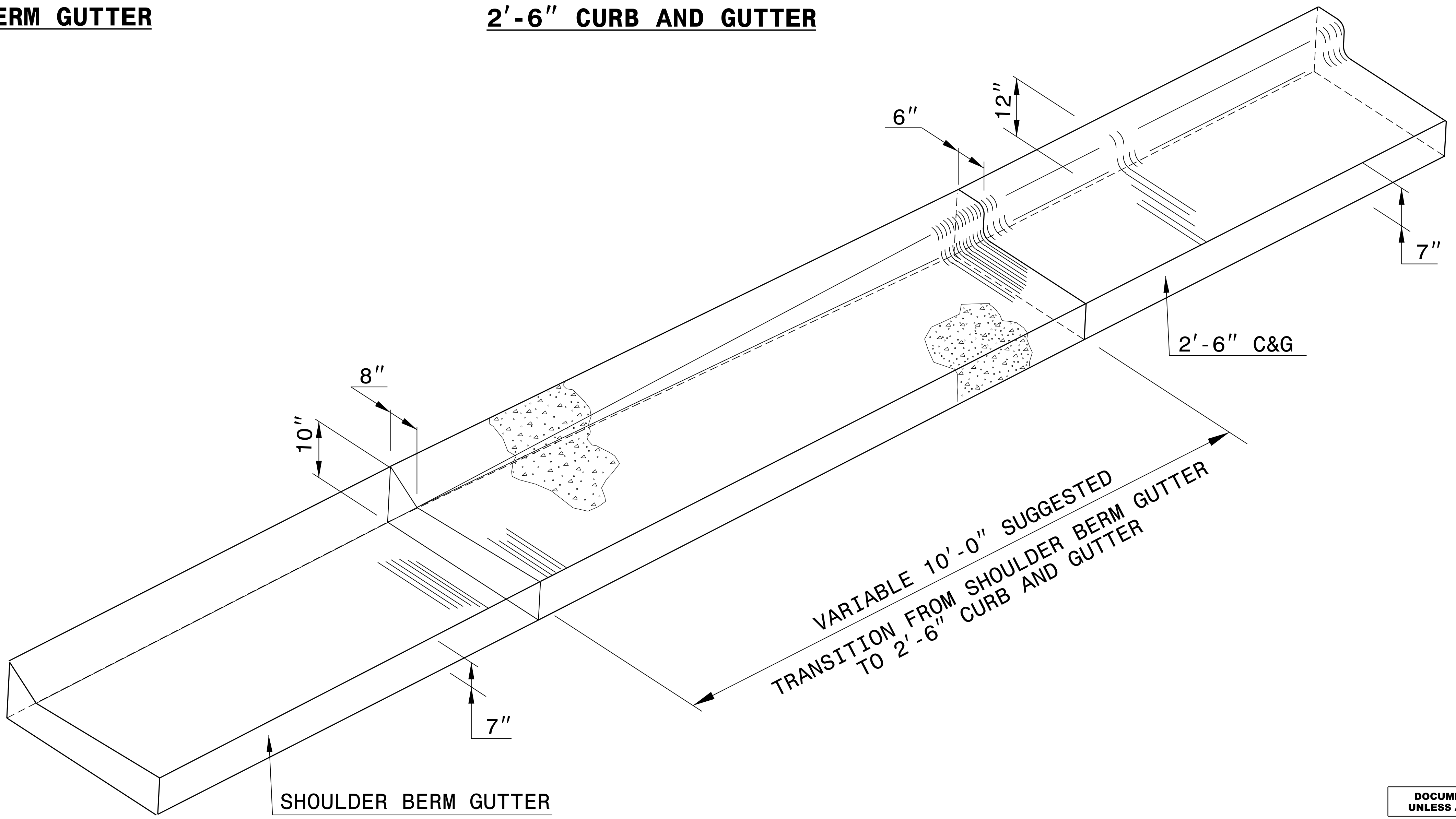


SHOULDER BERM GUTTER



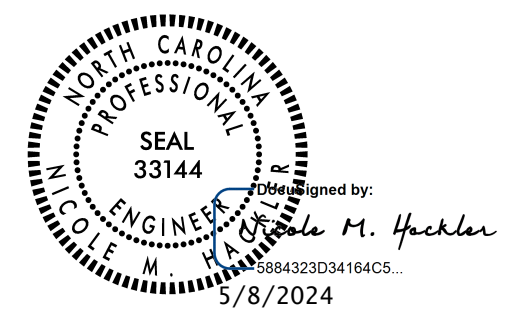
2'-6" CURB AND GUTTER

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



ISOMETRIC VIEW OF TRANSITION

20-OCT-2017 09:40 S:\Contracts\Contractors\Special Details\vericard\usr\details\stand\c&g transition sections.dgn Jhowerston AT USD-292595



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

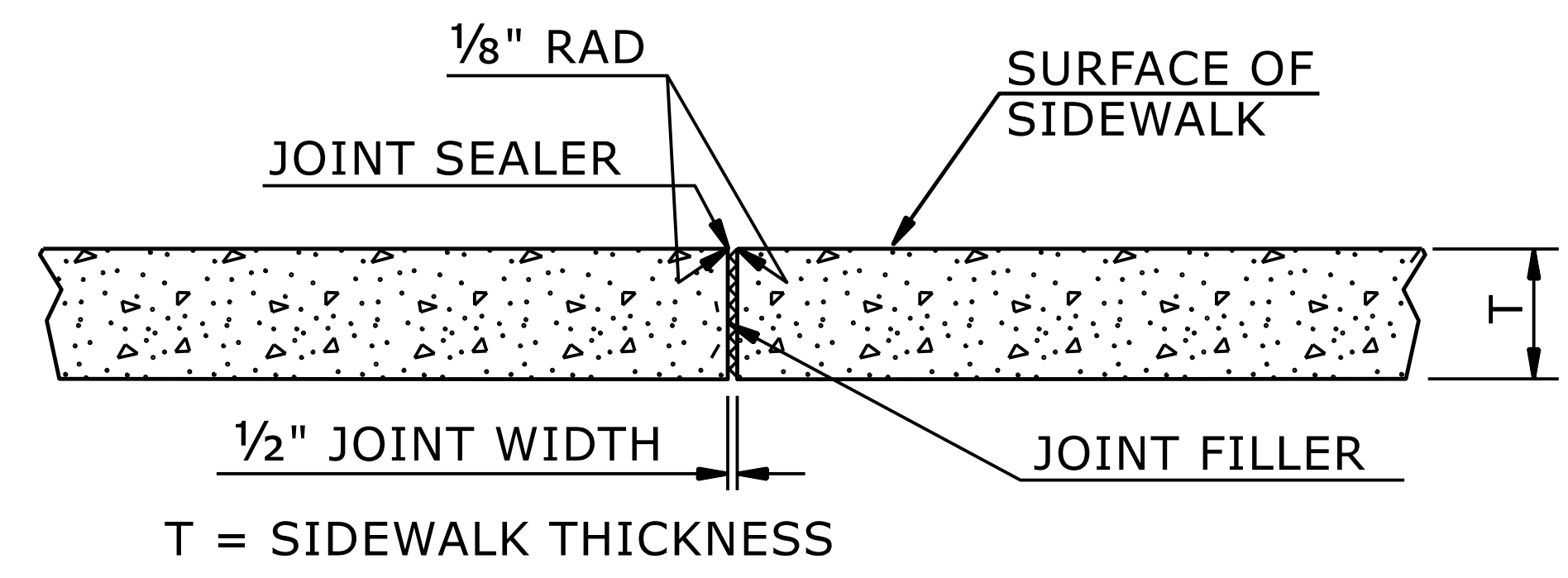
CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
DETAIL OF SHOULDER BERM GUTTER TO 2'-6" CURB & GUTTER TRANSITION SECTION	
ORIGINAL BY: E.E. WARD	DATE: 5-29-02
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: /usr/details/stand/cgtransit.dgn	

NOTES:

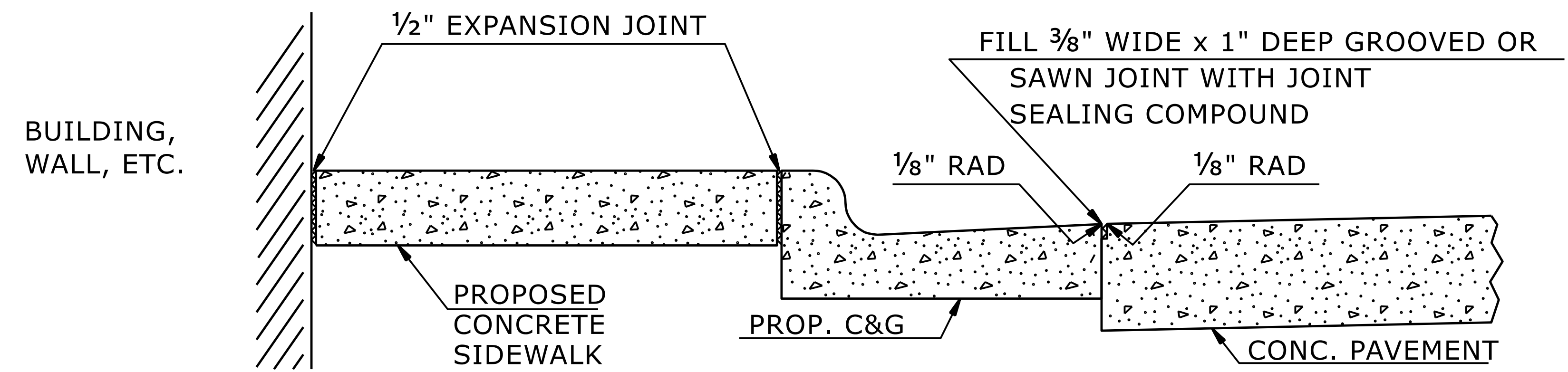
CONSTRUCT STANDARD SIDEWALK 5' WIDE AND 4" THICK UNLESS OTHERWISE DENOTED ON PLANS.

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

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



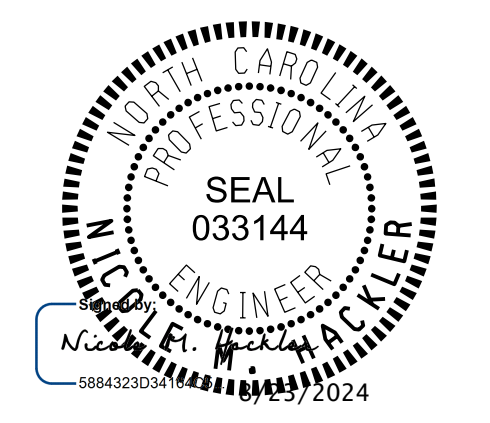
TRANSVERSE EXPANSION JOINT IN SIDEWALK



DETAILS SHOWING JOINTS IN CONCRETE SIDEWALK

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

ROADWAY DETAIL DRAWING FOR
CONCRETE SIDEWALK



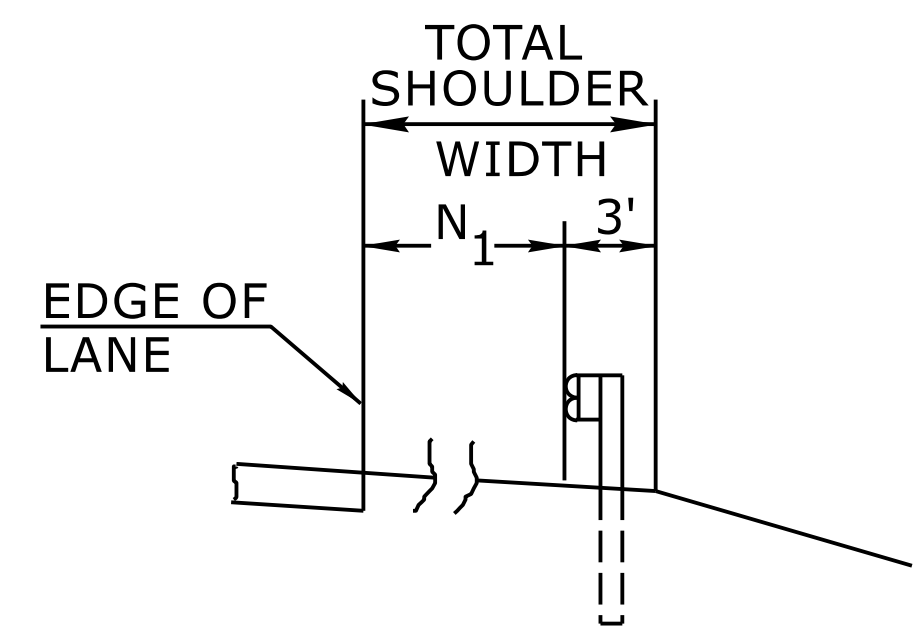
SHEET 1 OF 1
848D01

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

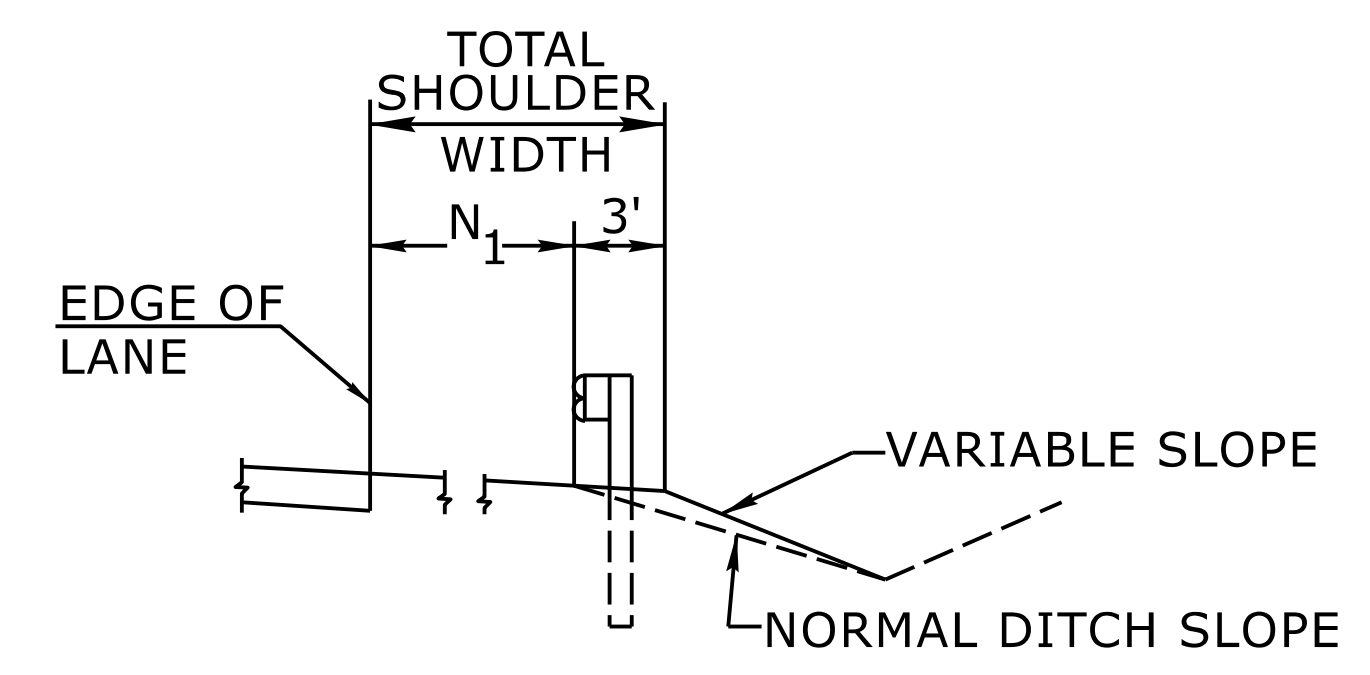
CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

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

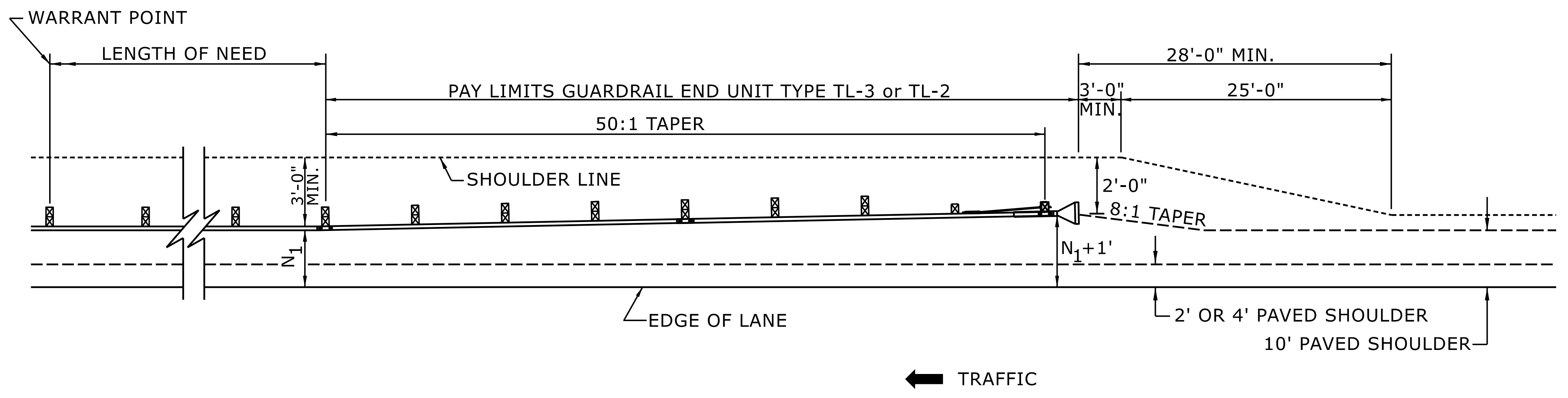


FILL SECTION



CUT SECTION

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

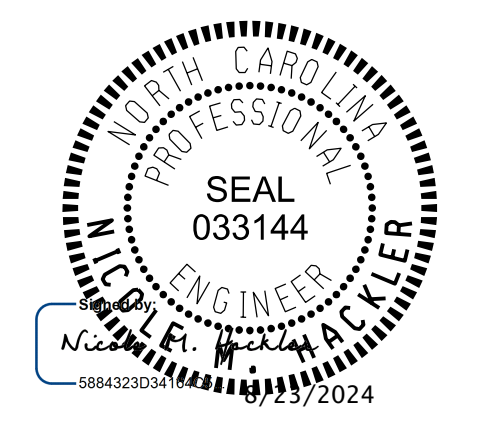


FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT



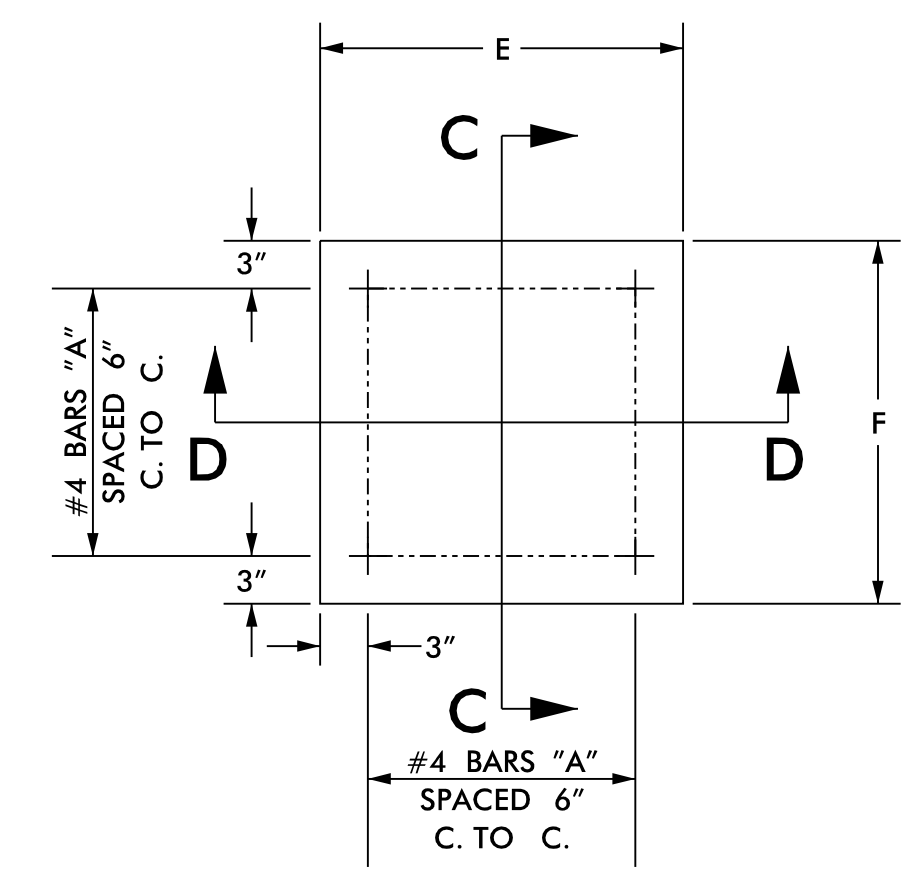
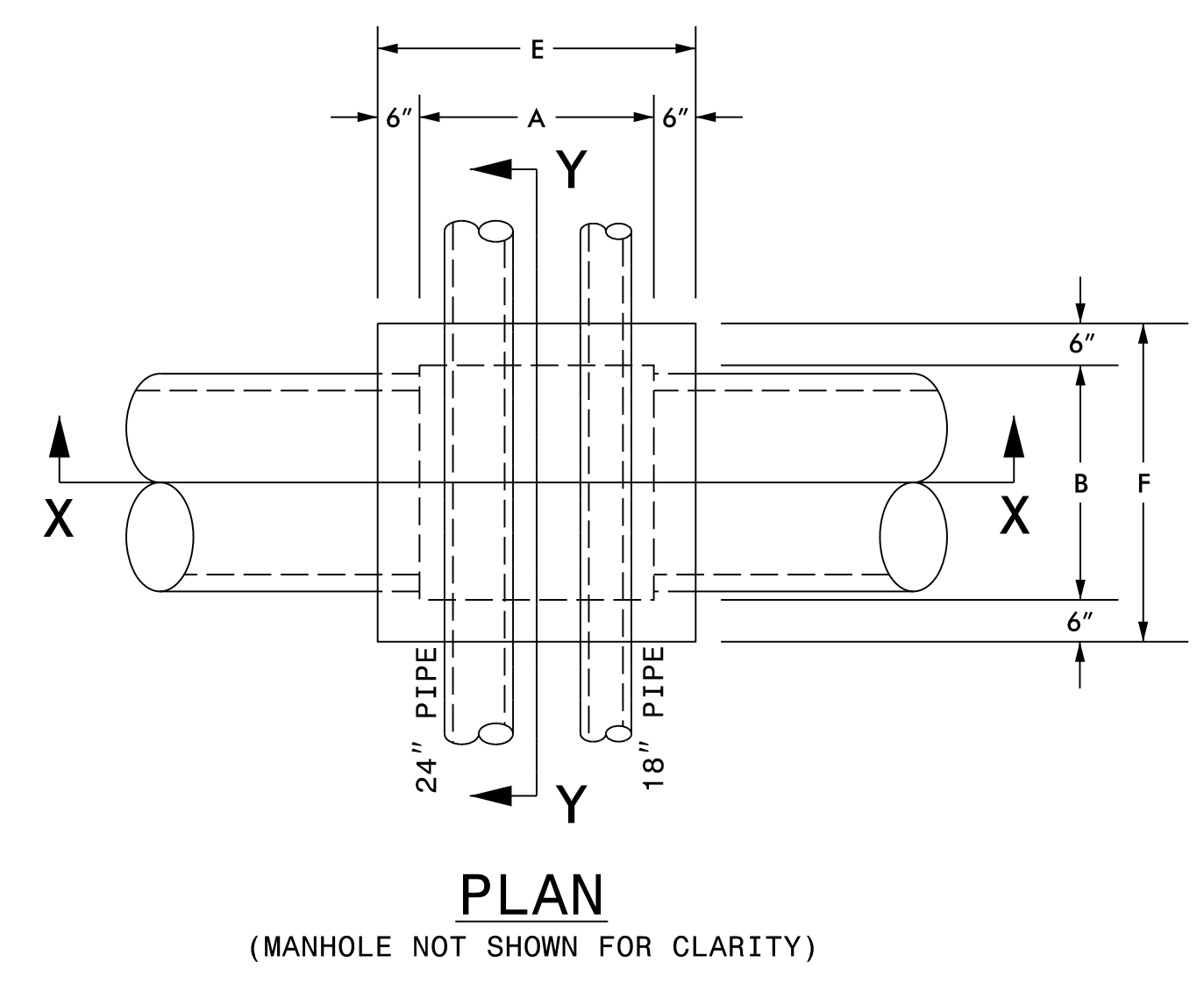
SHEET 6 OF 15
862D01

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

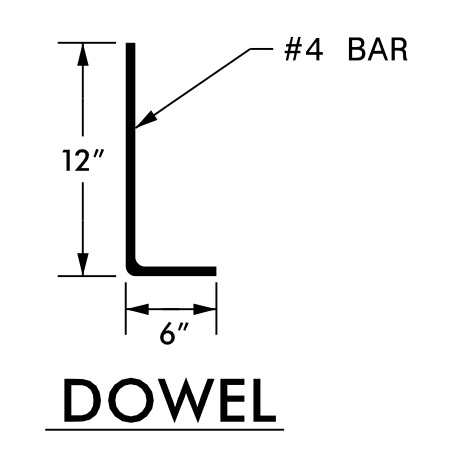
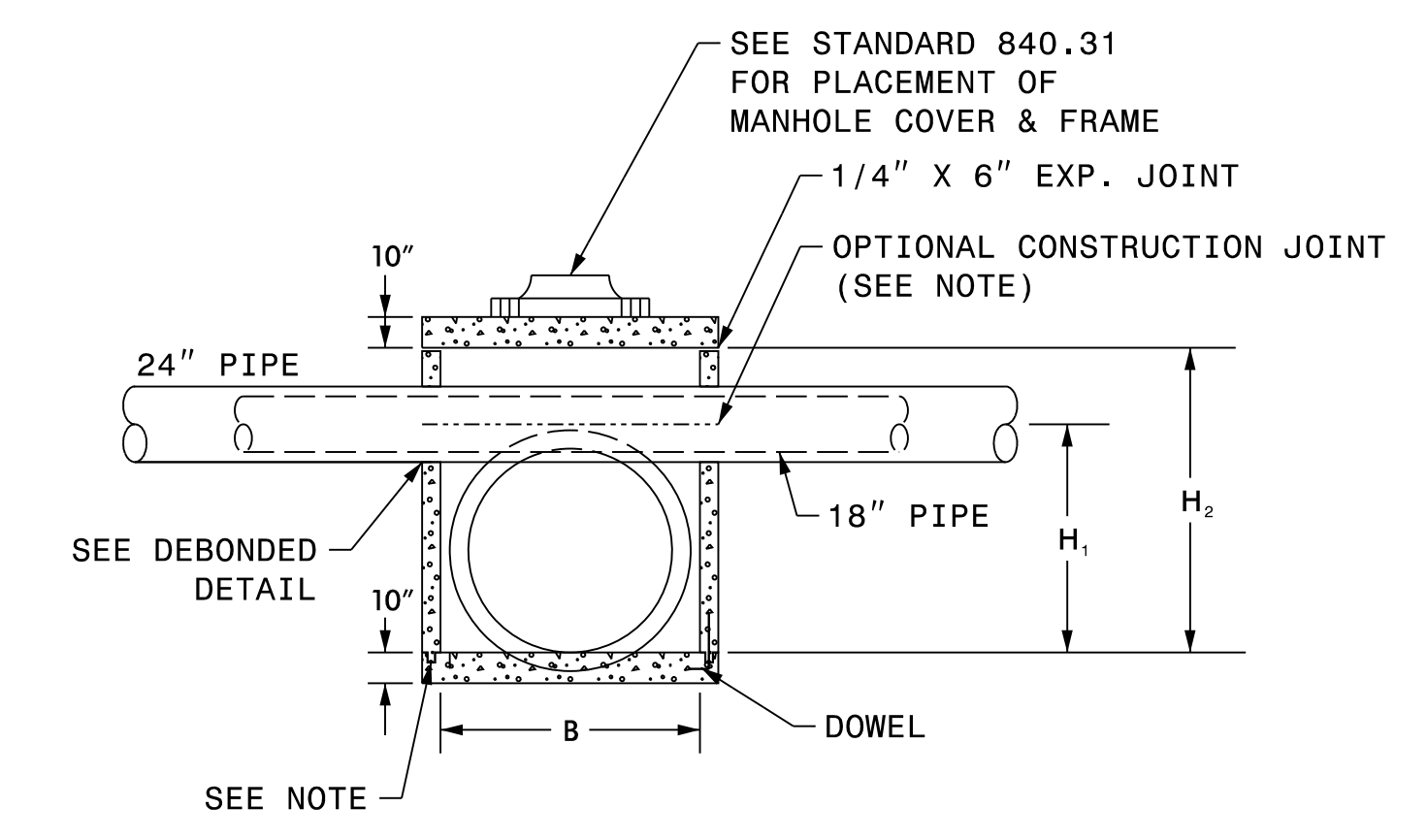
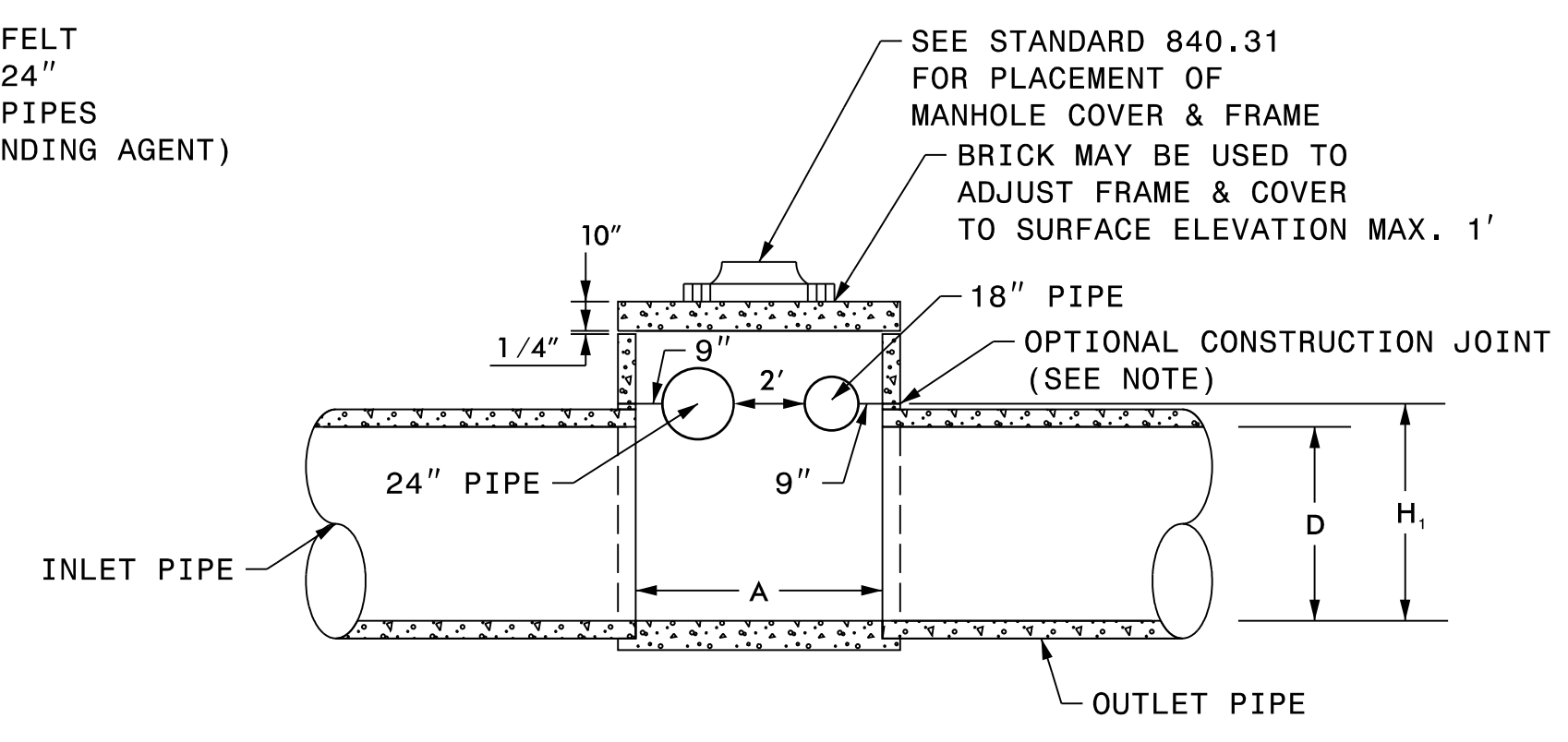
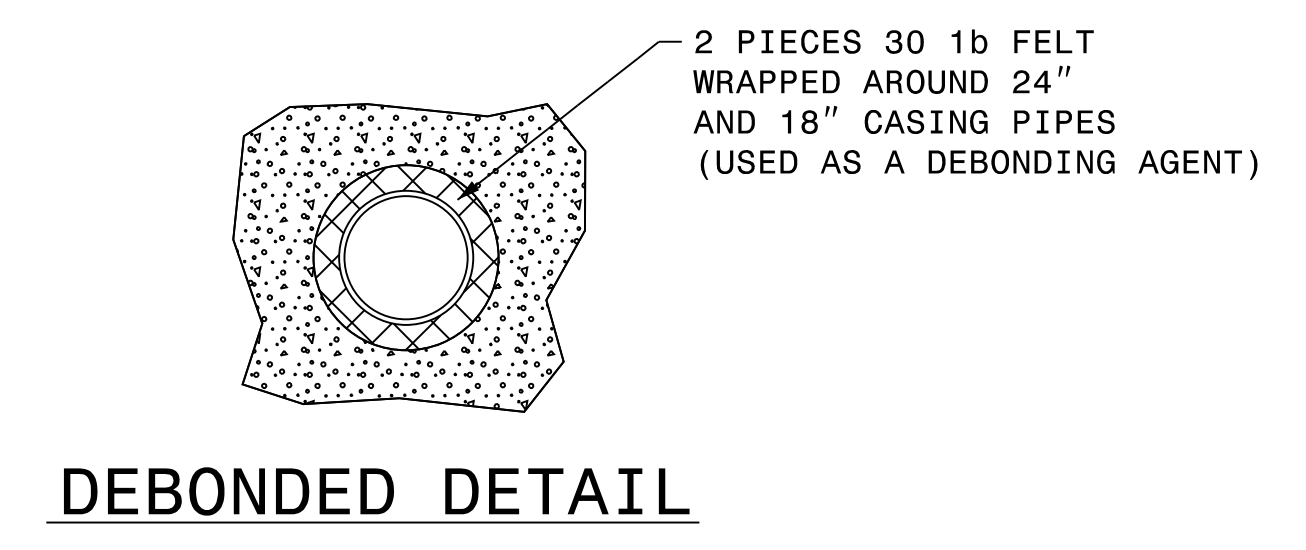
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

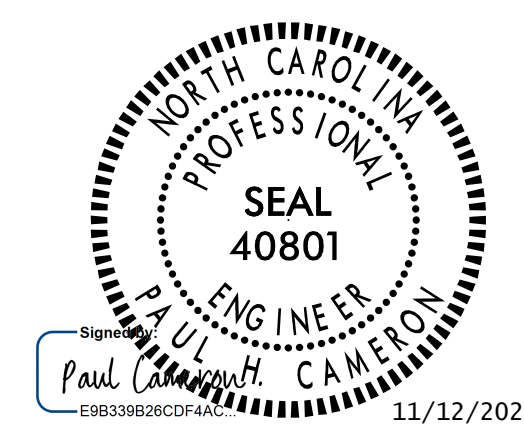
ORIGINAL BY: S.CALHOUN	DATE: 7-25-2024
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	



- GENERAL NOTES:**
1. CHAMFER ALL EXPOSED CORNERS 1"
 2. USE CLASS "B" CONCRETE THROUGHOUT
 3. OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER
 4. USE FORMS TO CONSTRUCT THE BOTTOM SLAB
 5. IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00
 6. REFER TO R.S.D.N. 840.31 FOR PLACEMENT OF MANHOLE COVER IN JUNCTION BOX
 7. NO SEPARATE PAYMENT WILL BE MADE FOR ENCASEMENT PIPES. THEY ARE TO BE CONSIDERED INCIDENTAL TO THE DRAINAGE STRUCTURE.



DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES															
DIMENSIONS OF BOX AND PIPE					REINFORCEMENT BARS "A"		TOP SLAB (COVER) DIMENSIONS		CUBIC YARDS IN BOX			TOTAL QUANTITIES BOX AND SLABS		DEDUCTIONS FOR ONE PIPE (CU. YDS.)	
PIPE	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.
D	A	B	H ₁	H ₂											
66"	7' - 1"	7' - 1"	6' - 2"	8' - 6"	32	7' - 10"	8' - 1"	8' - 1"	1.389	1.389	0.518	183	7.45	0.444	0.655



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

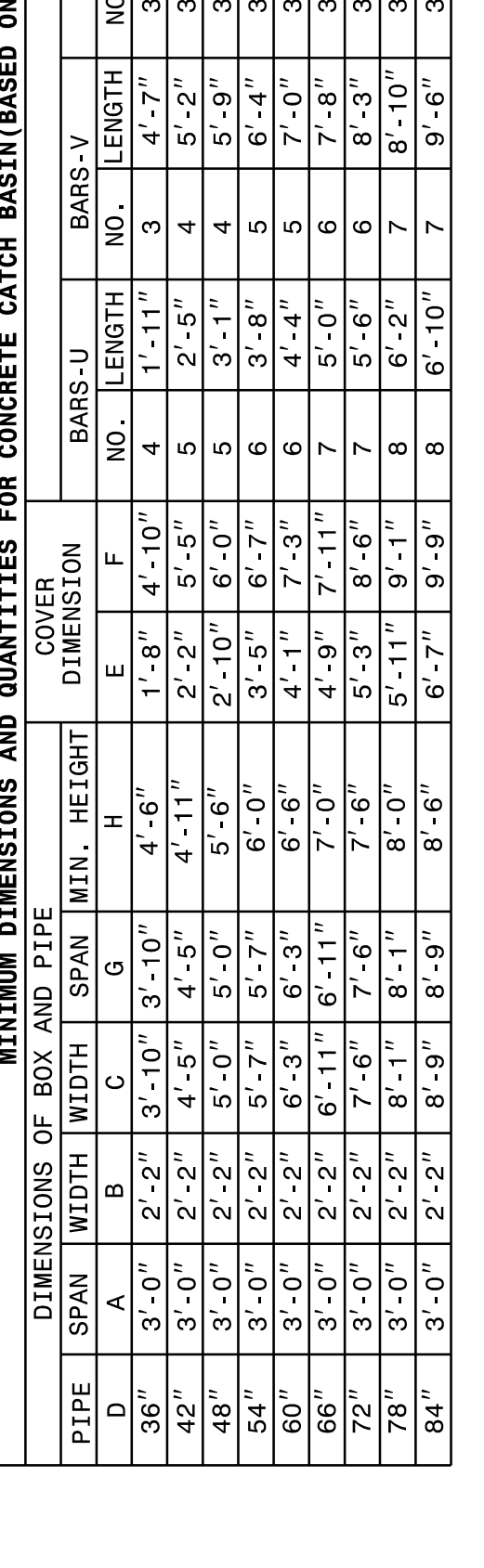
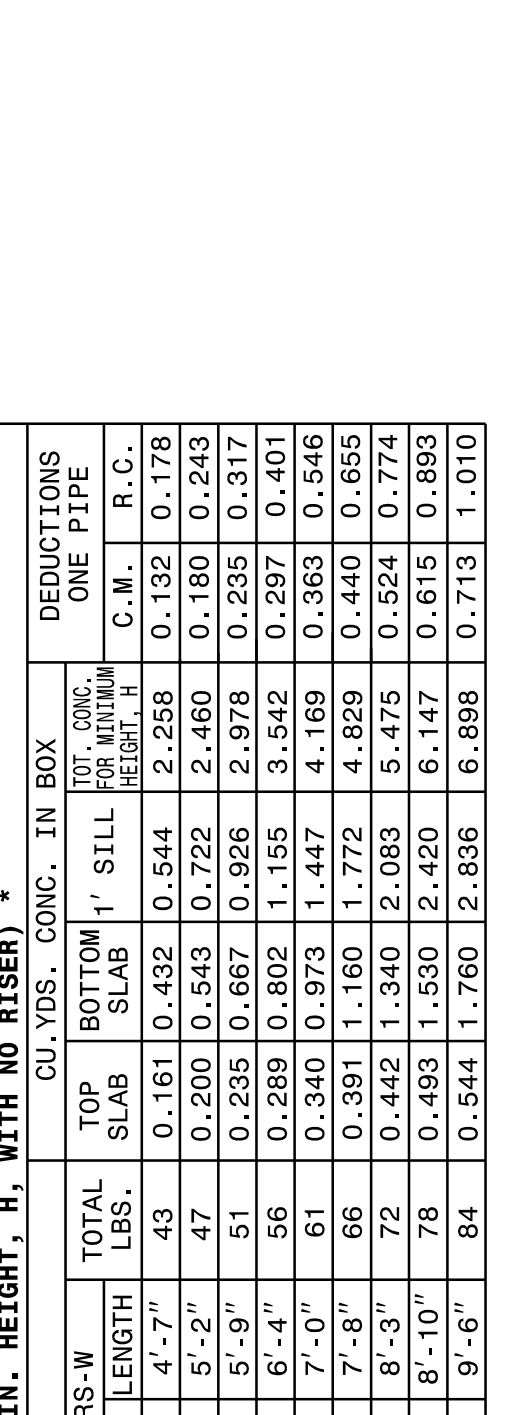
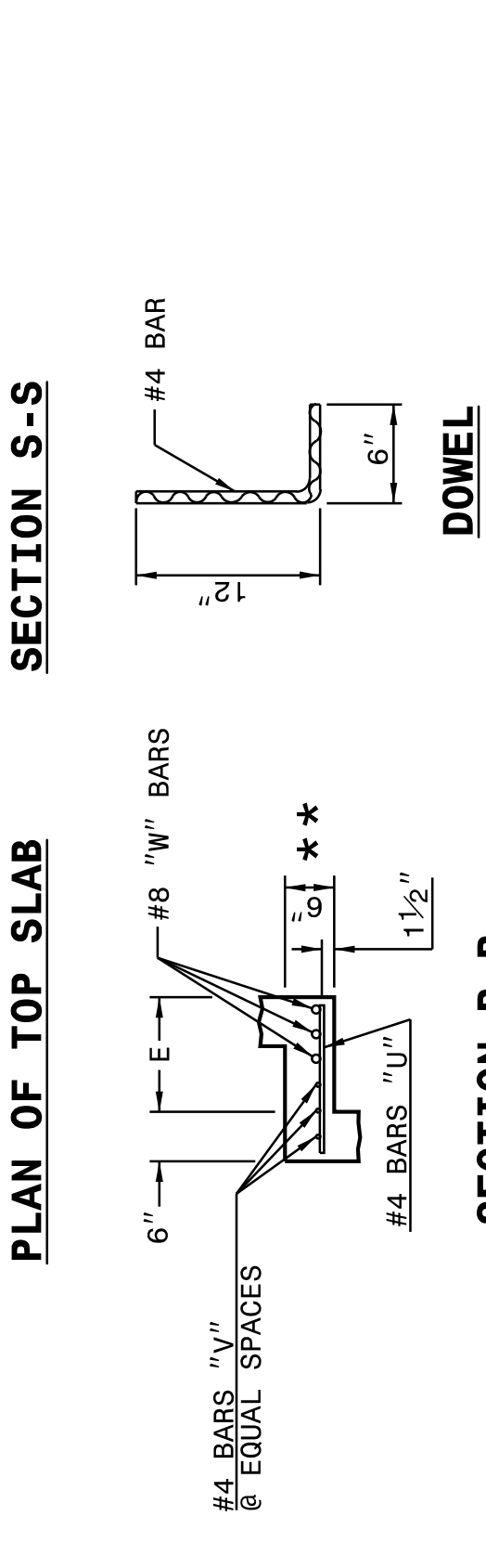
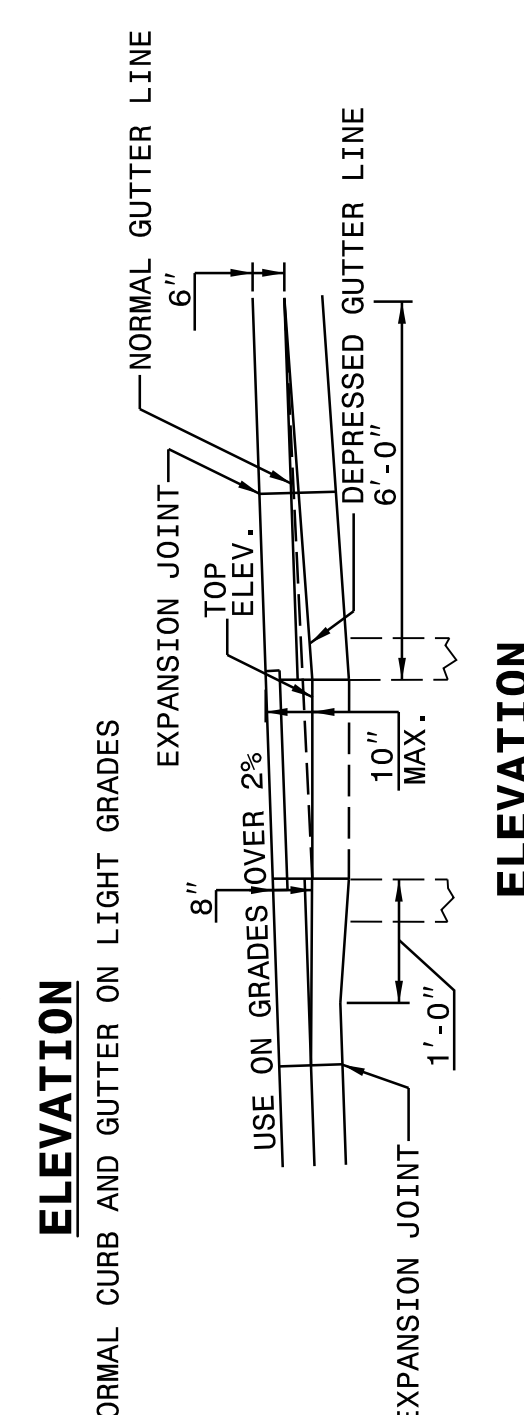
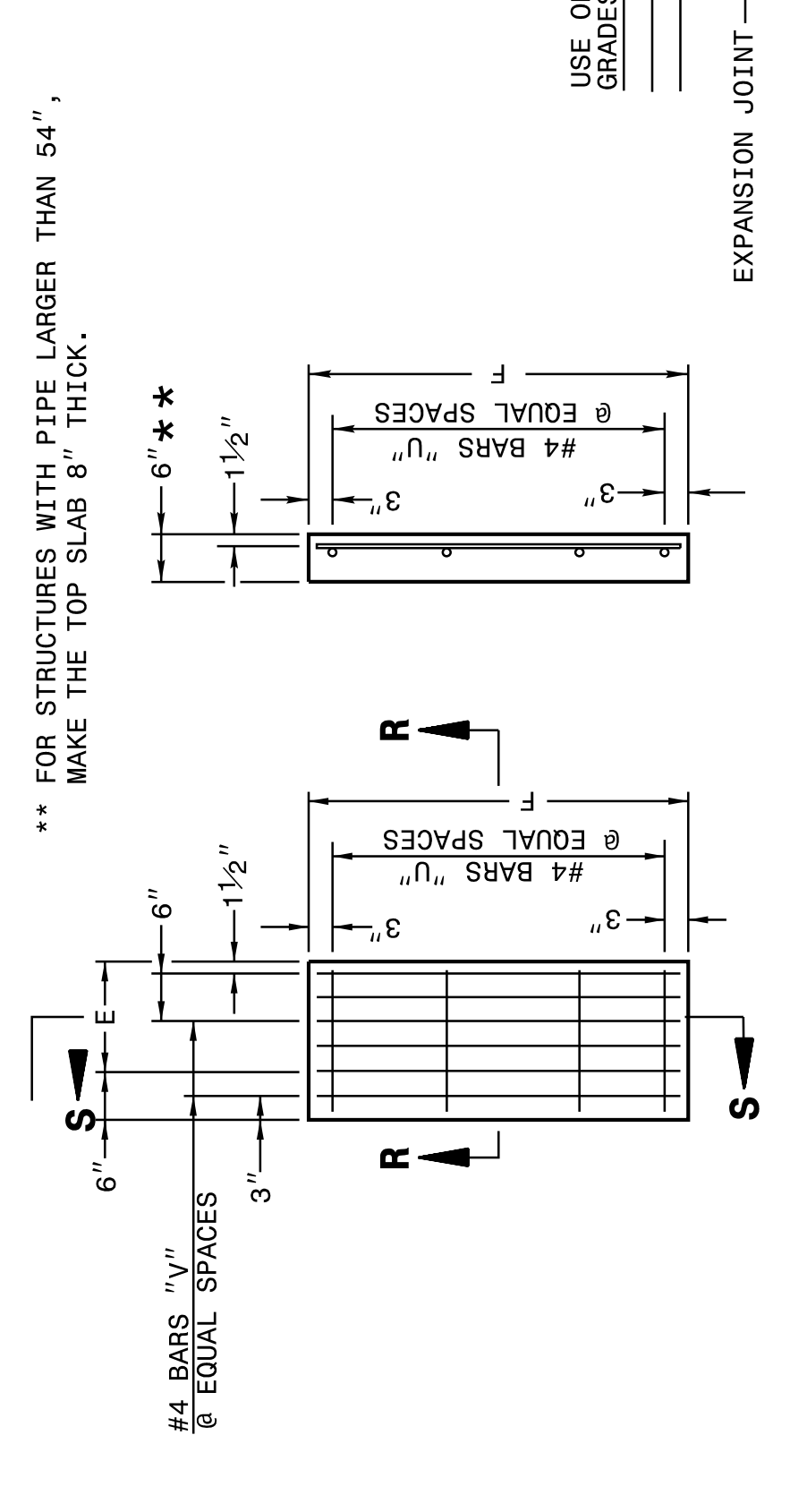
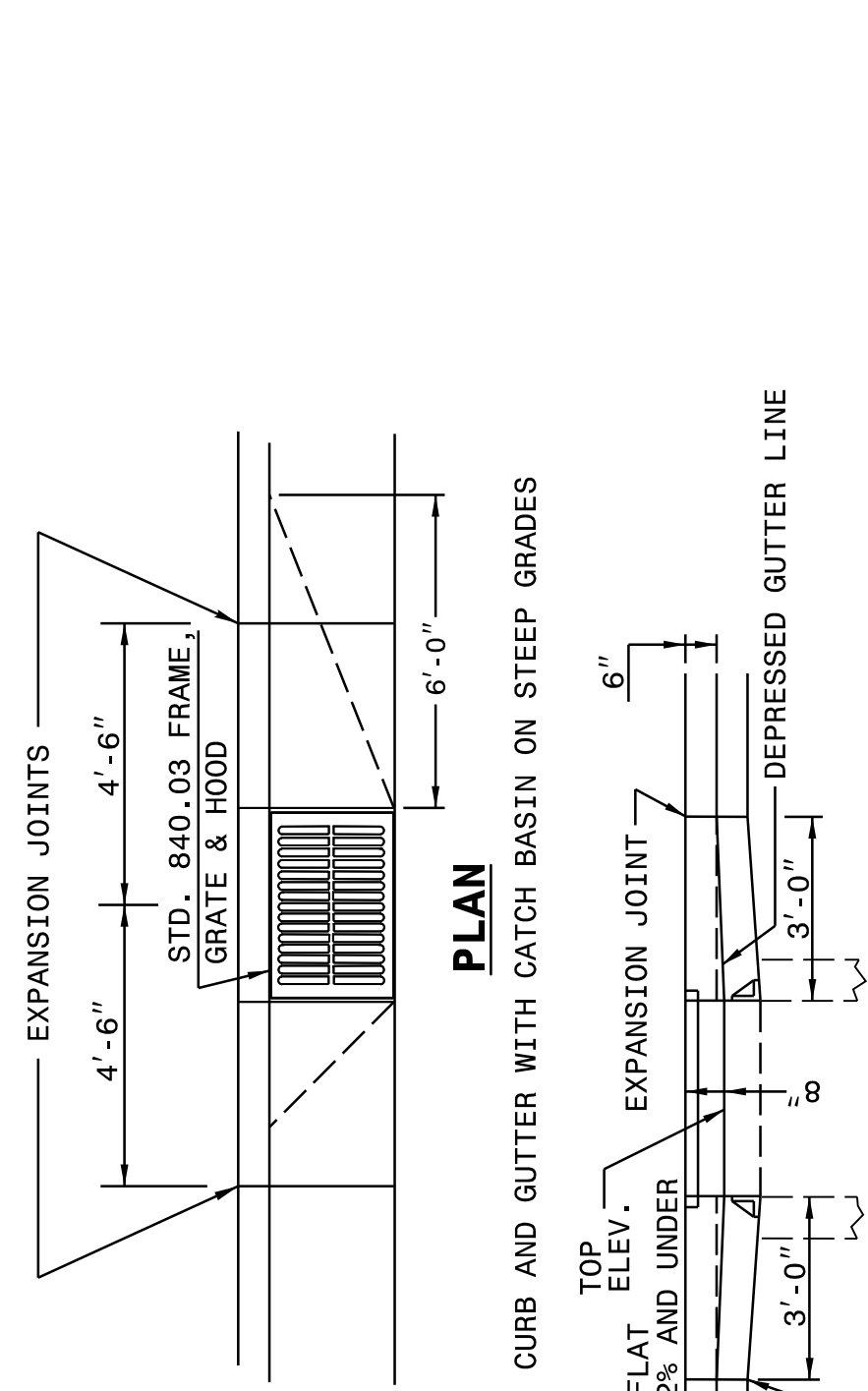
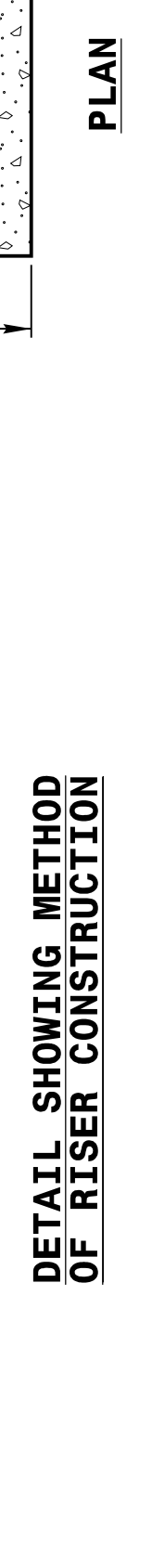
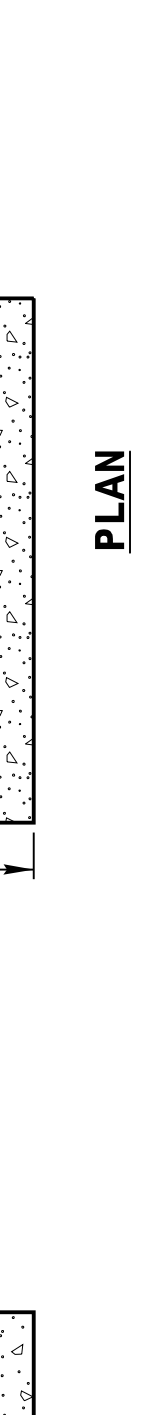
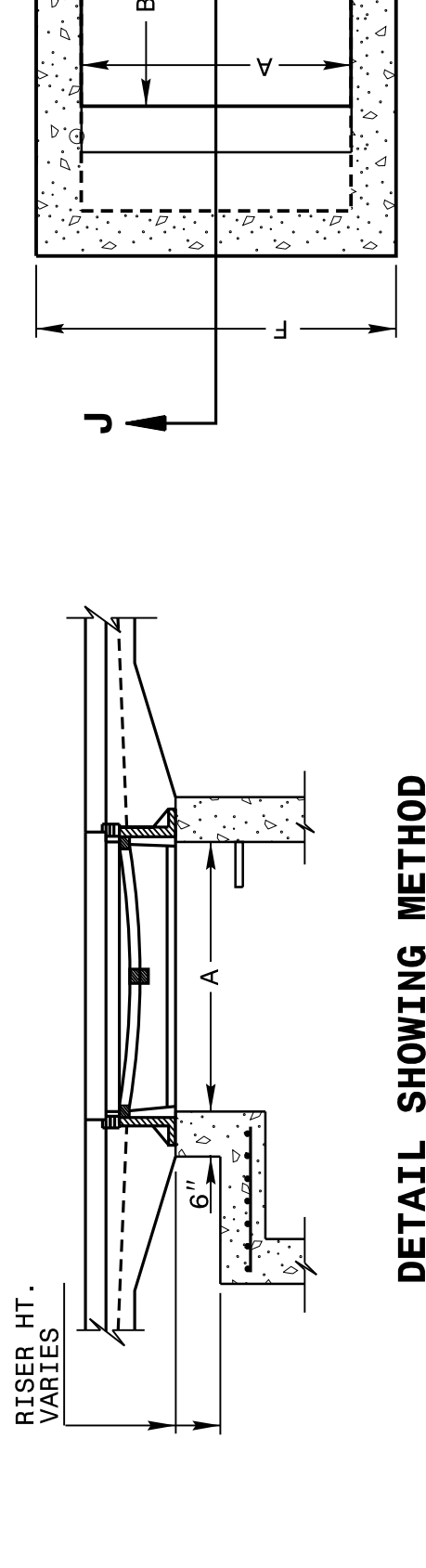
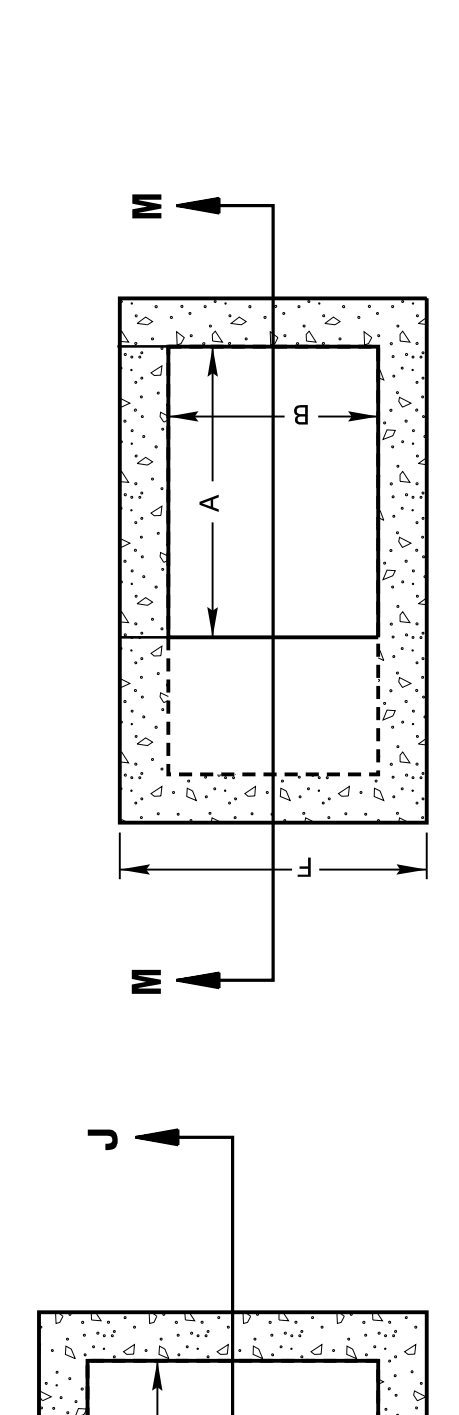
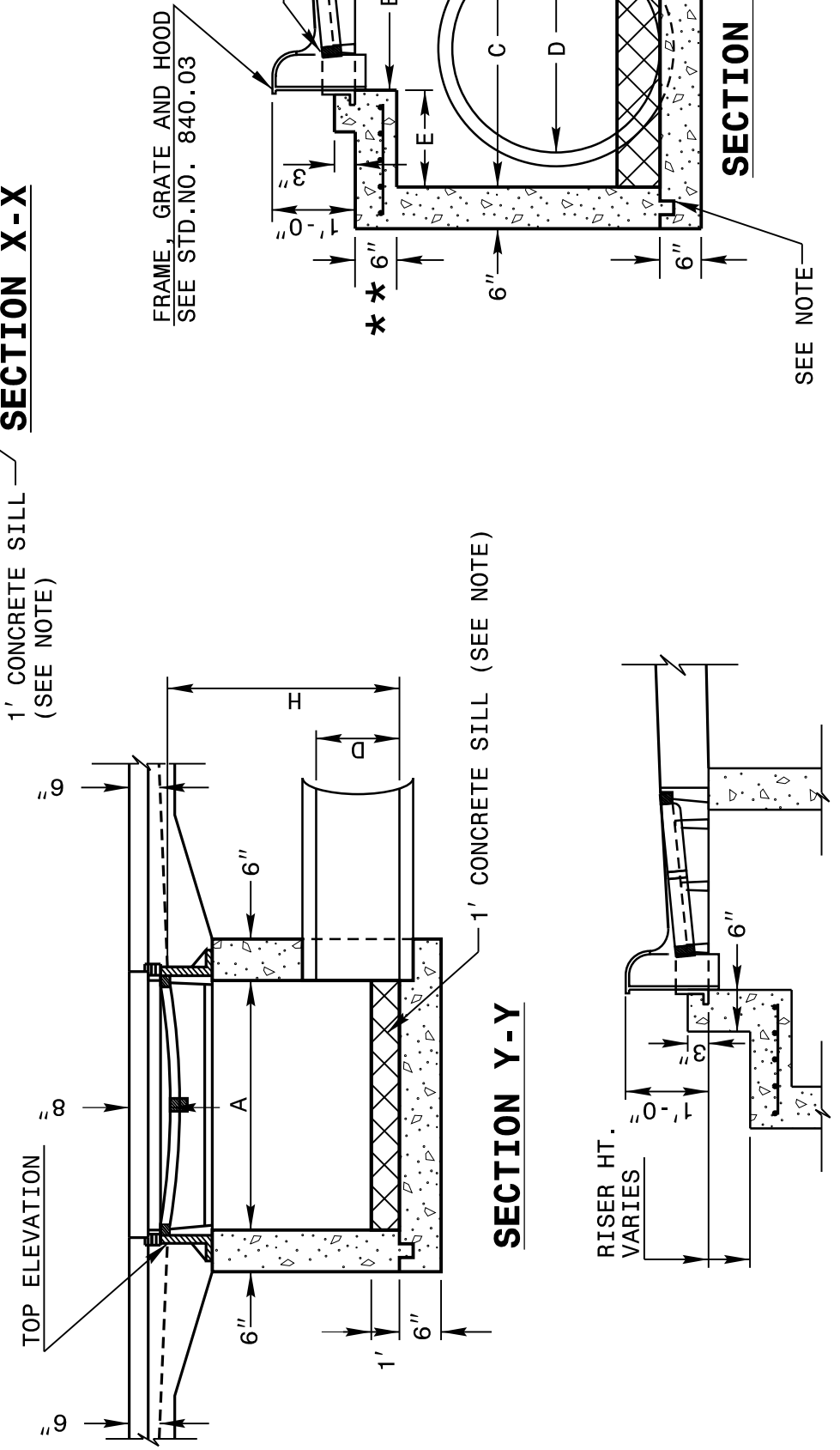
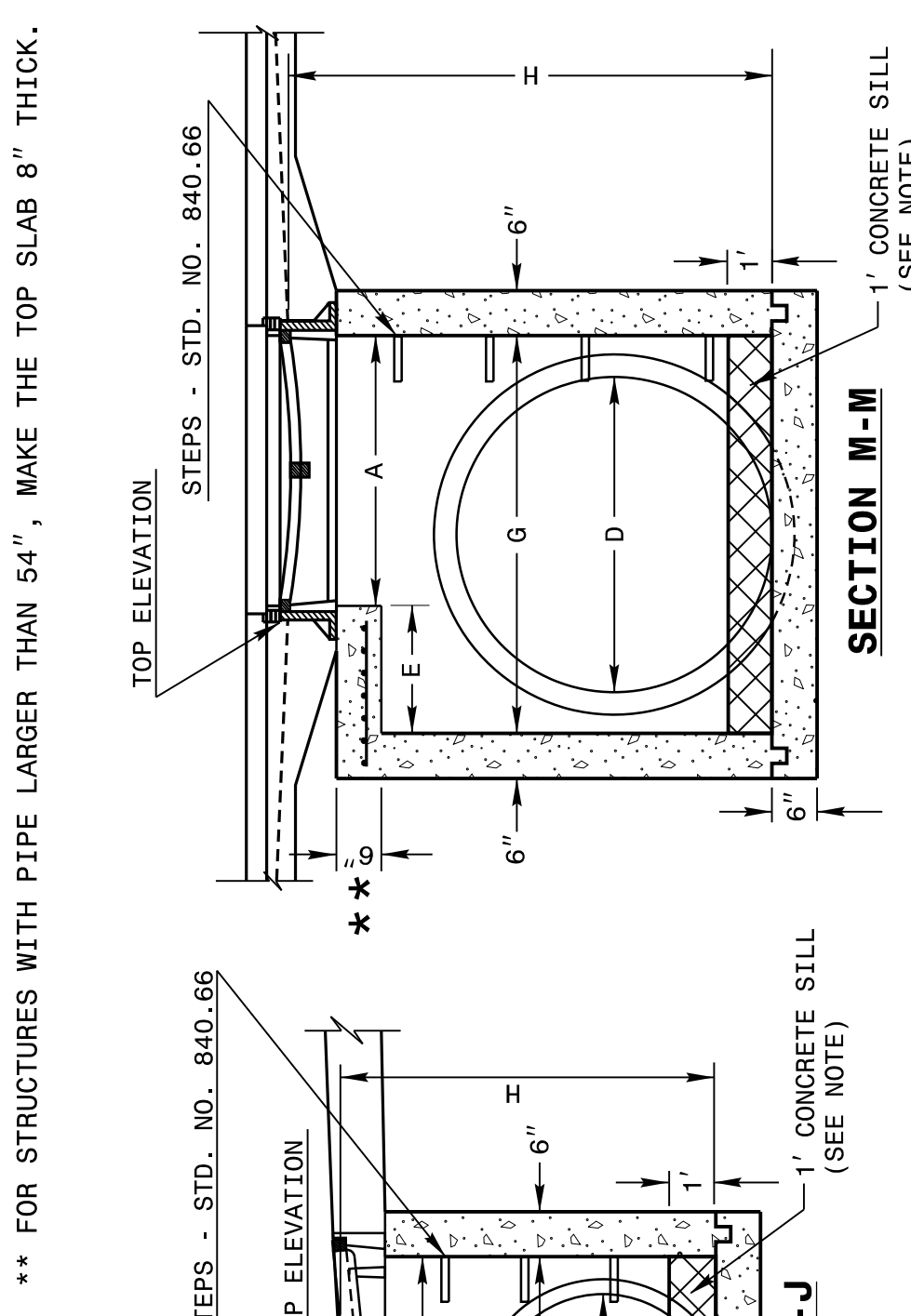
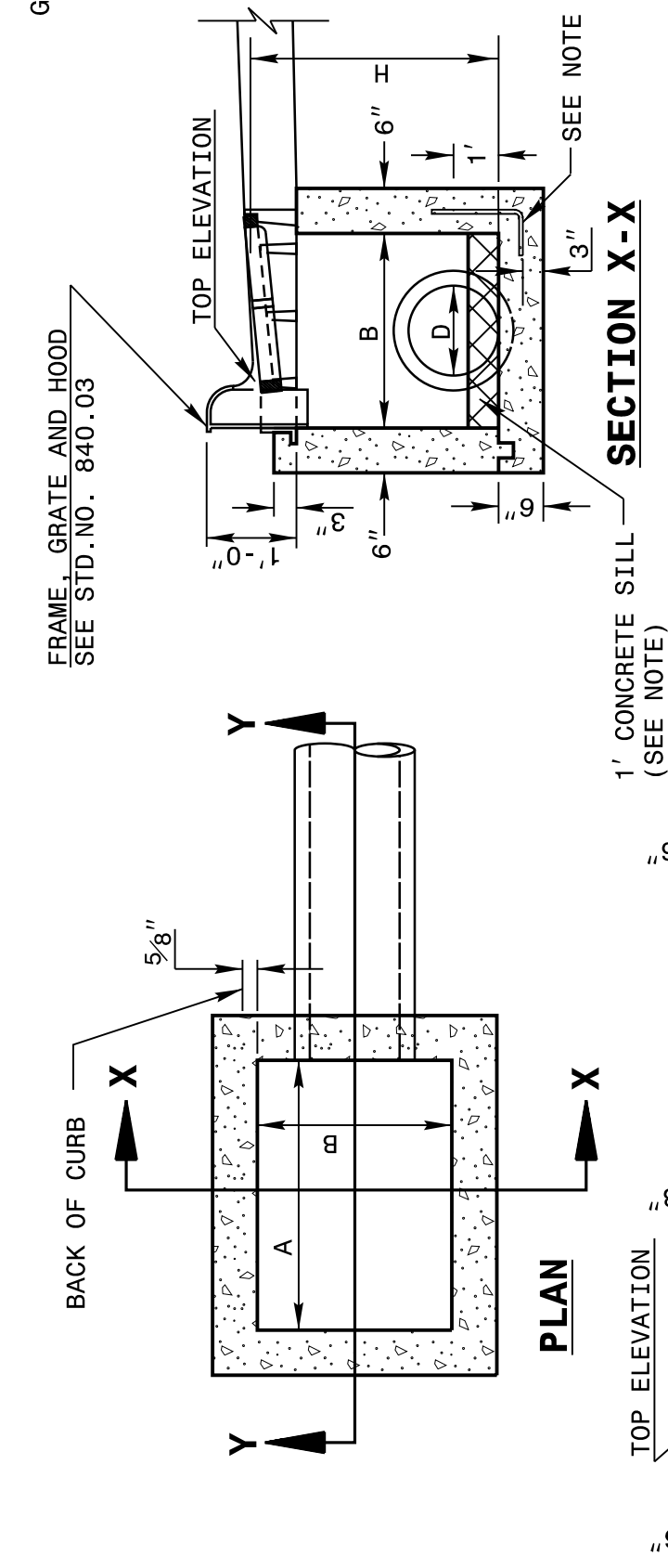
CONCRETE JUNCTION BOX WITH 24" PIPE AND 18" PIPE PASSING THRU

ORIGINAL BY: P. CAMERON DATE: FEB. 2024
 MODIFIED BY: _____ DATE: _____
 CHECKED BY: _____ DATE: _____
 FILE SPEC.: _____ DATE: _____

08-MAY-2024 08:46
 H:\projects\CADD\840d02 Min Depth CB.dgn
 JHN

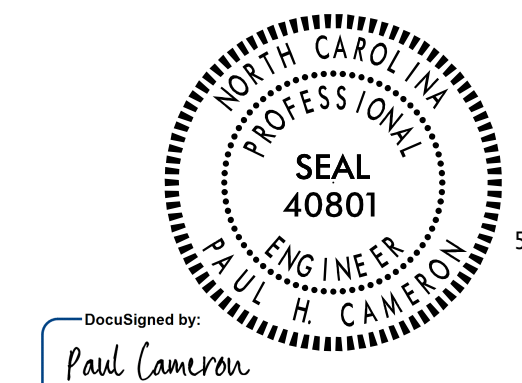
5/14/20

GENERAL NOTES:
 USE CLASS "B" CONCRETE THROUGHOUT.
 PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH 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, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.
 FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" TO 16'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.
 CONSTRUCT WITH PIPE CORNERS MATCHING.
 CHAMFER ALL EXPOSED CORNERS 1".
 CONSTRUCT 1" CONCRETE SILL IN BOTTOM OF BOX WHEN D = 36" OR GREATER
 ** FOR STRUCTURES WITH PIPE LARGER THAN 54", MAKE THE TOP SLAB 8" THICK.



* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

PIPE D	DIMENSIONS OF BOX AND PIPE		COVER DIMENSION		BARS-U		BARS-V		BARS-W		TOTAL LBS.	DEDUCTIONS ONE PIPE				
	SPAN	WIDTH	MIN.	HEIGHT	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH		TOP SLAB	BOTTOM SILL	C.M.	R.C.	
36"	3'-0"	2'-2"	3'-10"	3'-10"	4	1'-11"	3	4'-7"	3	4'-7"	43	0.161	0.432	0.544	0.132	0.178
42"	3'-0"	2'-2"	4'-5"	4'-11"	5	2'-5"	4	5'-2"	3	5'-2"	47	0.200	0.543	0.722	0.180	0.243
48"	3'-0"	2'-2"	5'-0"	5'-6"	5	3'-1"	4	5'-9"	3	5'-9"	51	0.235	0.667	0.926	0.235	0.317
54"	3'-0"	2'-2"	5'-7"	6'-0"	6	3'-8"	5	6'-4"	3	6'-4"	56	0.289	0.802	1.155	0.297	0.401
60"	3'-0"	2'-2"	6'-3"	6'-6"	6	4'-4"	5	7'-0"	3	7'-0"	61	0.340	0.973	1.447	0.363	0.546
66"	3'-0"	2'-2"	6'-11"	7'-0"	7	5'-0"	6	7'-8"	3	7'-8"	66	0.391	1.160	1.772	0.440	0.655
72"	3'-0"	2'-2"	7'-6"	7'-6"	7	5'-6"	6	8'-3"	3	8'-3"	72	0.442	1.340	2.083	0.524	0.774
78"	3'-0"	2'-2"	8'-1"	8'-0"	8	6'-2"	7	8'-10"	3	8'-10"	78	0.493	1.530	2.420	0.615	0.893
84"	3'-0"	2'-2"	8'-9"	8'-6"	8	6'-10"	7	9'-6"	3	9'-6"	84	0.544	1.760	2.836	0.713	1.010



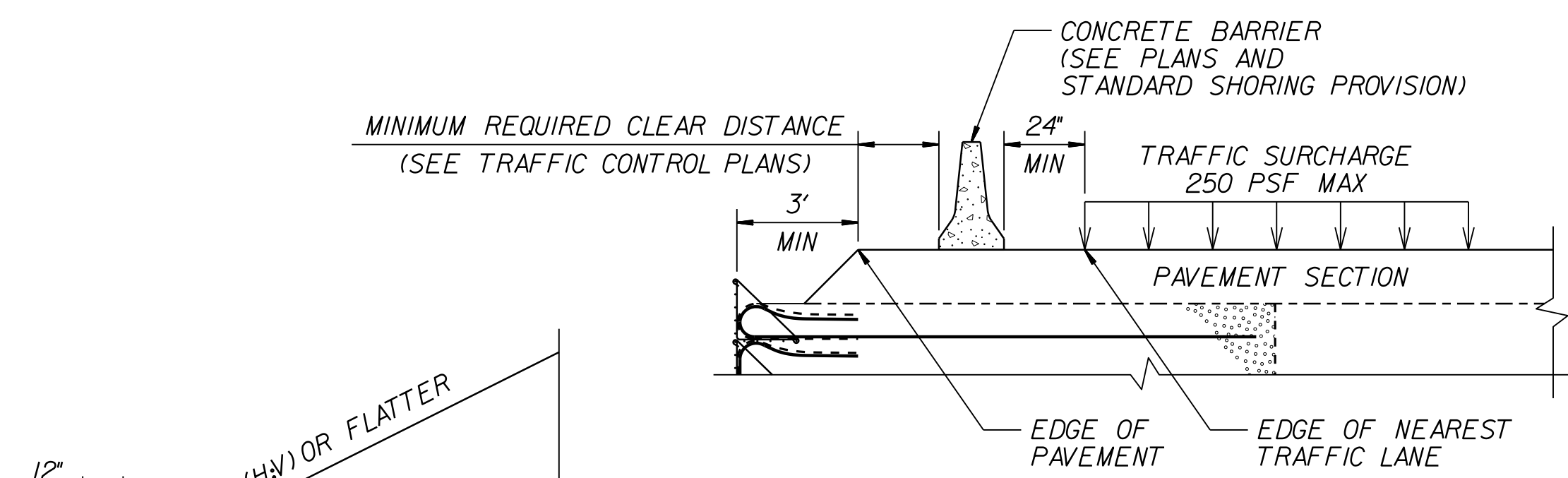
5/16/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

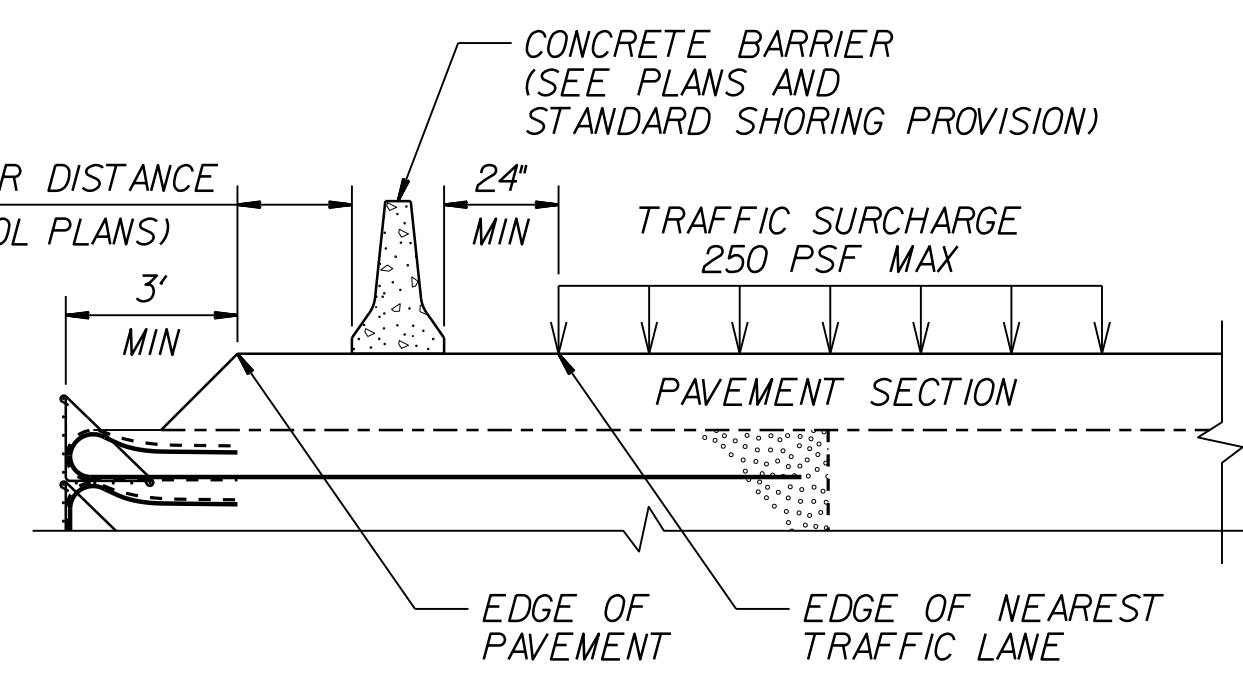
HNTB HNTB NORTH CAROLINA, P.C.
 343 E. Six Forks Road, Suite 200
 Raleigh, North Carolina 27609
 NC License No: C-1554

MINIMUM DEPTH CONCRETE CATCH BASIN WITH 1' SILL

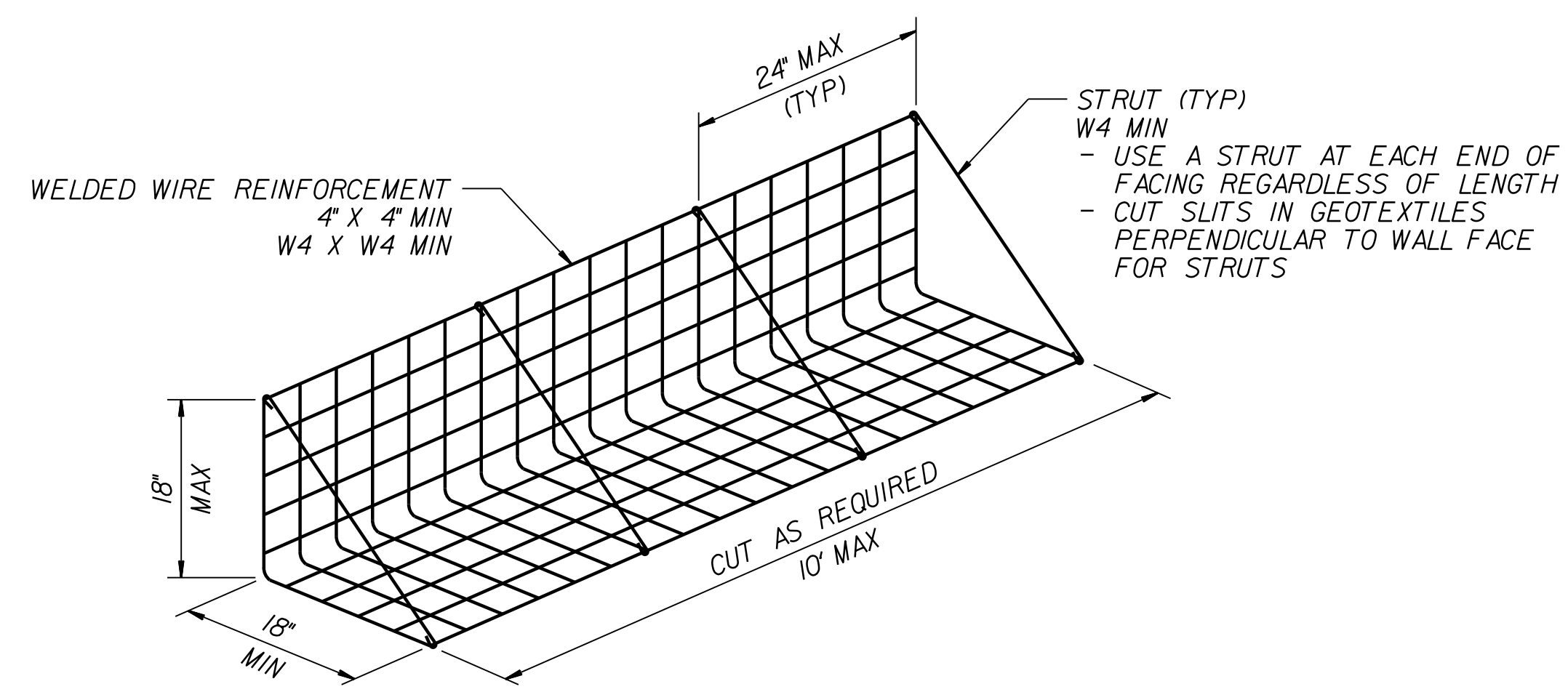
ORIGINAL BY: 2002 Std.840.01 DATE:
 MODIFIED BY: P. H. CAMERON DATE: 5-7-24
 CHECKED BY: DATE:
 FILE SPEC.: s:details/stand/840d01.dgn



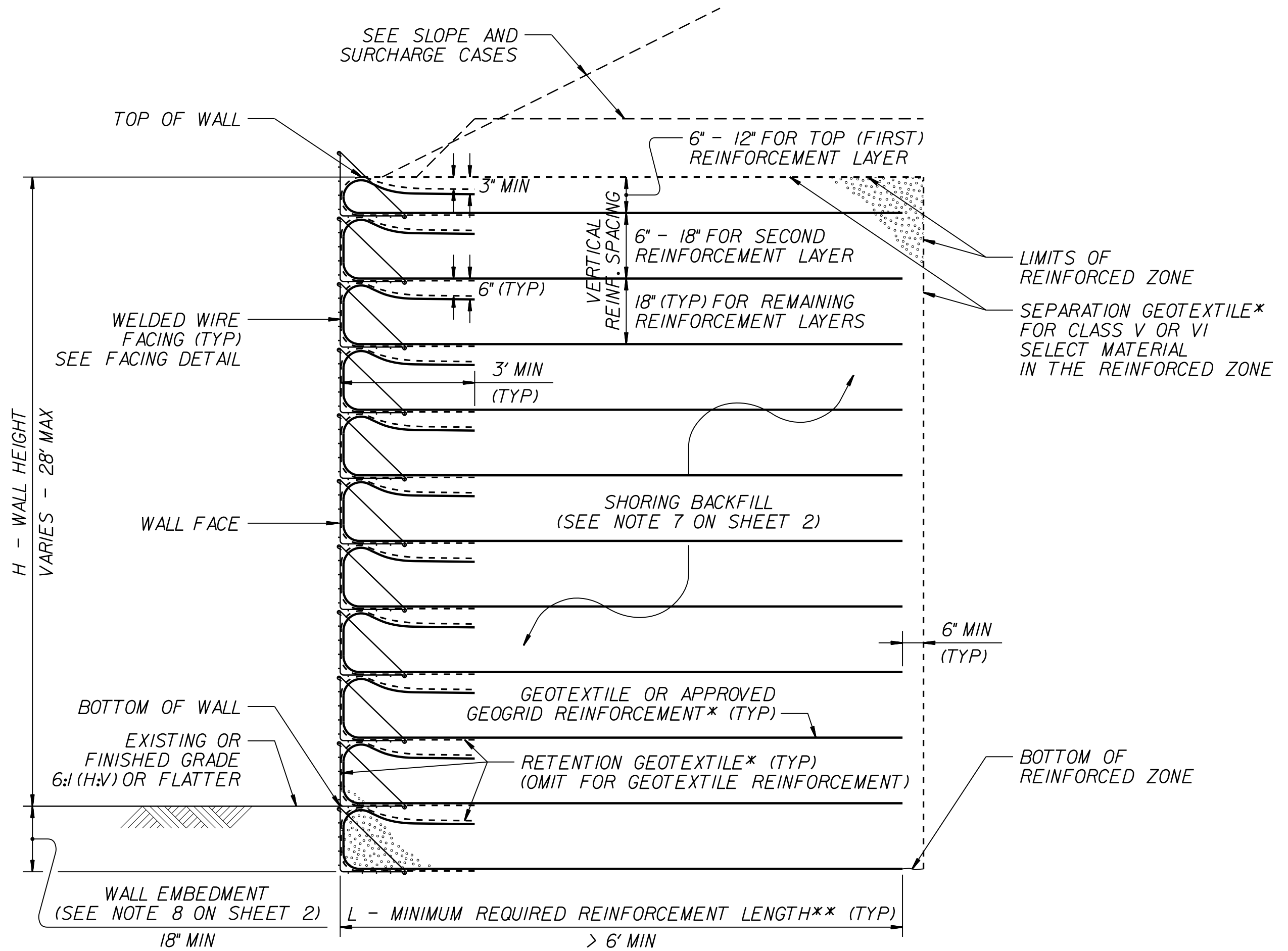
SLOPE CASE



SURCHARGE CASE

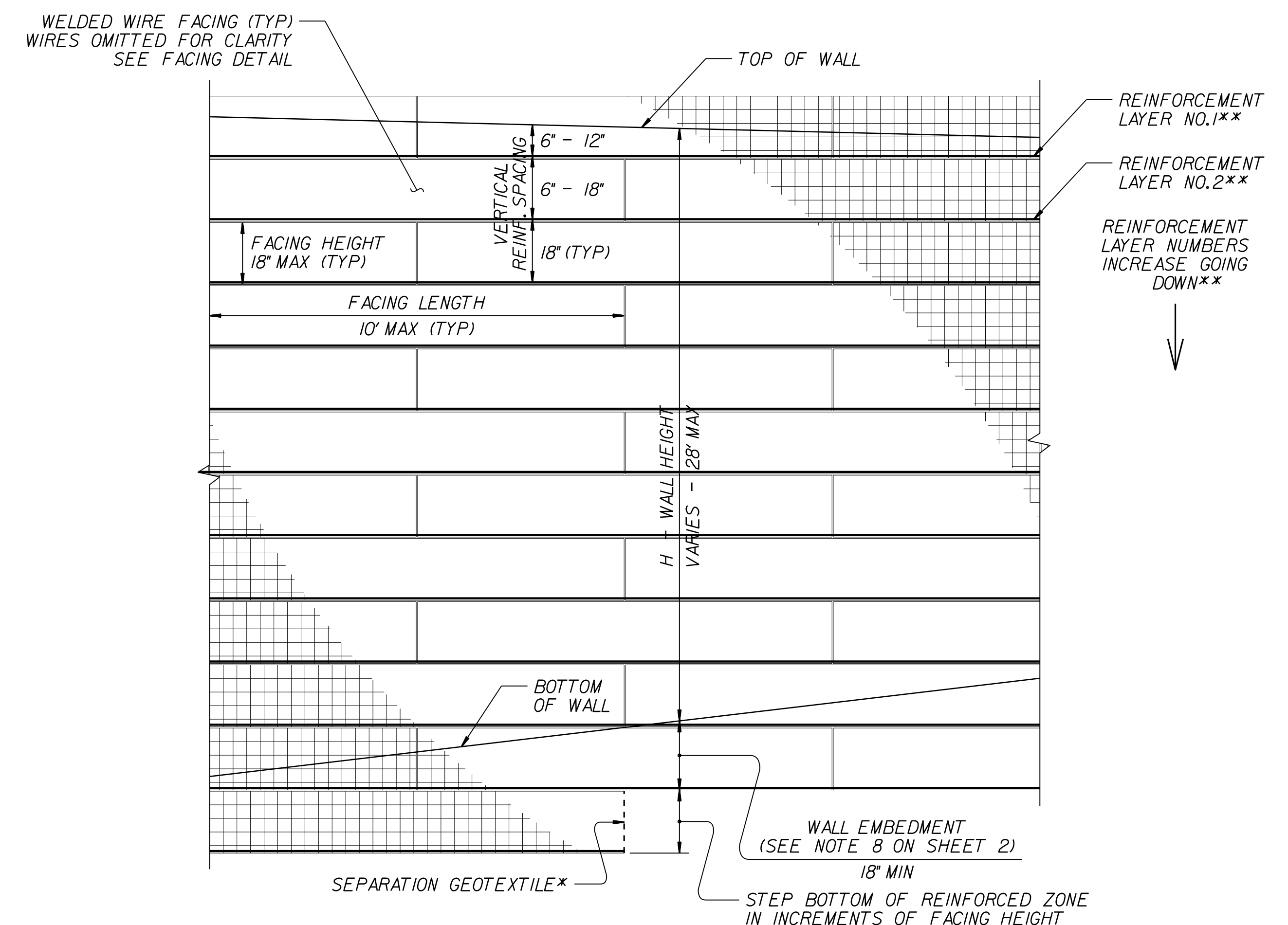


FACING DETAIL



STANDARD TEMPORARY WALL

(FOR STANDARD TEMPORARY WALLS ON STRUCTURES, SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)
 *SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
 **SEE REINFORCEMENT TABLES ON SHEET 3.



STANDARD TEMPORARY WALL – PARTIAL ELEVATION

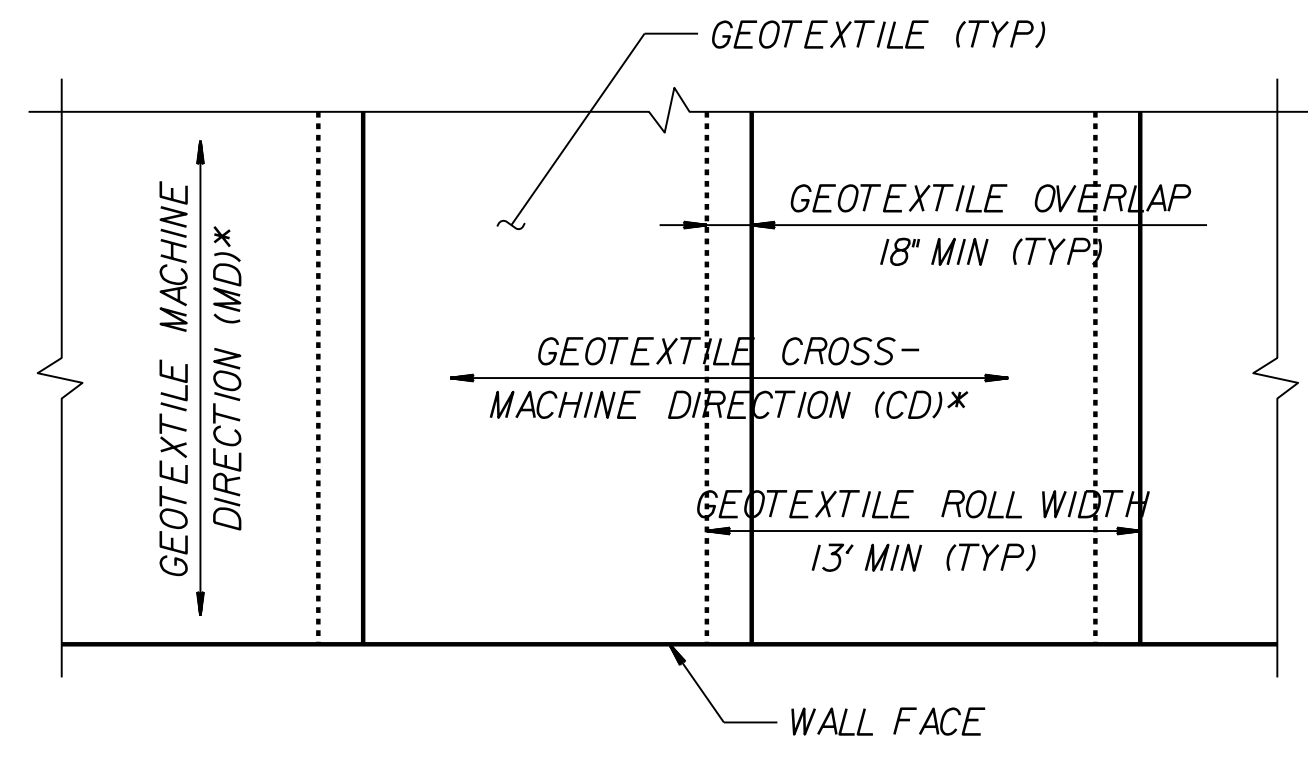
*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
 **SEE REINFORCEMENT TABLES ON SHEET 3.



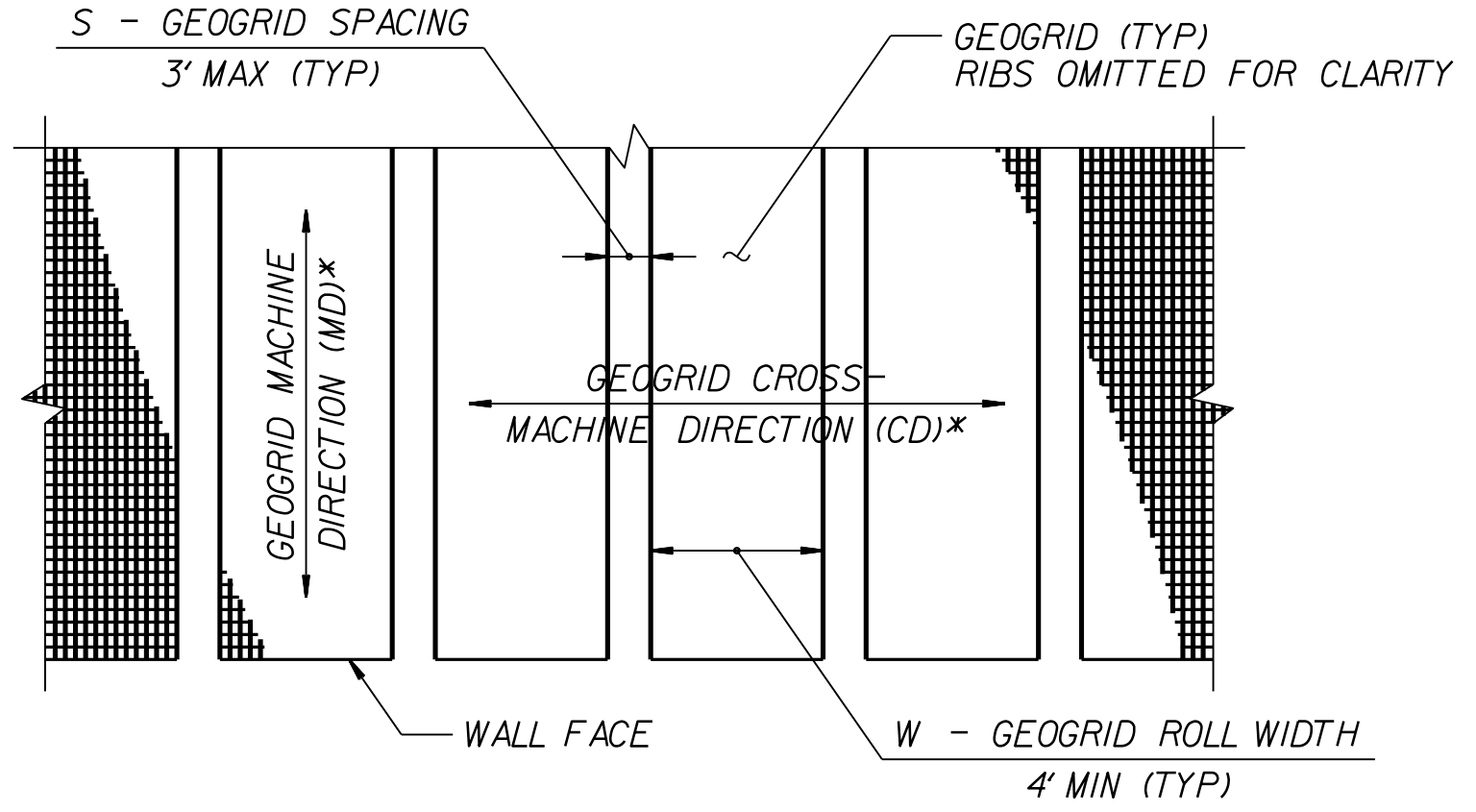
NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
**GEOTECHNICAL
 ENGINEERING UNIT**

STANDARD DETAIL NO. 1801.02

STANDARD
 TEMPORARY WALL
 SHEET 1 OF 3

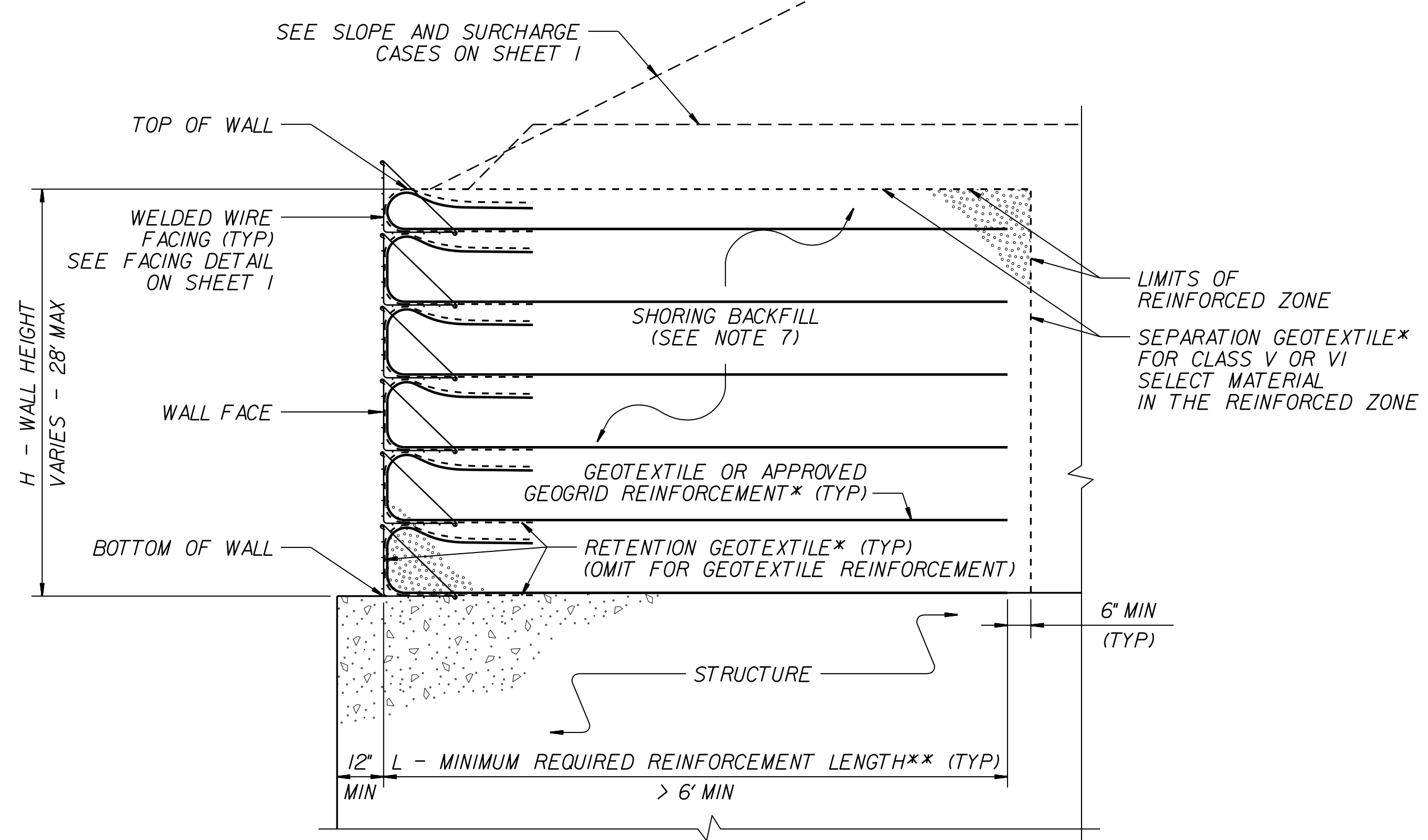


GEOTEXTILE PLACEMENT
(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)



GEOGRID PLACEMENT
(80% COVERAGE MIN FOR GEOGRID REINFORCEMENT - $\frac{W}{W+S} \times 100 \geq 80\%$, SEE NOTE 11)

GEOSYNTHETIC PLACEMENT DETAILS
(PLAN VIEW)
*SEE NOTE 12.




TEMPORARY WALL ON STRUCTURE DETAIL
*SEE GEOSYNTHETIC PLACEMENT DETAILS.
**SEE REINFORCEMENT TABLES ON SHEET 3.

NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, $\gamma = 120$ PCF
FRICTION ANGLE, $\phi = 30$ DEGREES
COHESION, $c = 0$ PSF
4. DO NOT USE STANDARD TEMPORARY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER OR FLOOD ELEVATION IS ABOVE BOTTOM OF REINFORCED ZONE.
7. DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
8. WALL EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
9. DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
10. GEOGRIDS FOR GEOGRID REINFORCEMENT ARE APPROVED FOR SHORT TERM DESIGN STRENGTHS (3-YEAR DESIGN LIFE) IN THE MD AND CD 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 SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE I OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

11. FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
12. AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH OF THE FOLLOWING CONDITIONS OCCUR:
- W (REINFORCEMENT ROLL WIDTH) \geq (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND
- REINFORCEMENT STRENGTH IN CD \geq MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
13. SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
14. DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
15. FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
16. DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
17. CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
18. FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
19. FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.

PROJECT REFERENCE NO. U-6202	SHEET NO. 2G-3
 GEOTECHNICAL ENGINEER ENGINEER	ENGINEER DocuSigned by: <i>Scott A. Holden</i> 04/04/2024 <small>4702CAB886C001 SIGNATURE DATE SIGNATURE DATE</small>
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																									
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
SLOPE CASE	> 0	CLASS II, TYPE I, CLASS III, CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27	
SURCHARGE CASE	> 0 TO 7 FOR H < 20' > 0 TO 10 FOR H ≥ 20'	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22	
		A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21	
		CLASS II, TYPE I OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20	
	> 7 FOR H < 20' > 10 FOR H ≥ 20'	CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19	

L - MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)
(FOR ALL REINFORCEMENT TYPES)

WALL HEIGHT (H) + WALL EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

*BASED ON VERTICAL REINFORCEMENT SPACING SHOWN ON SHEET 1.

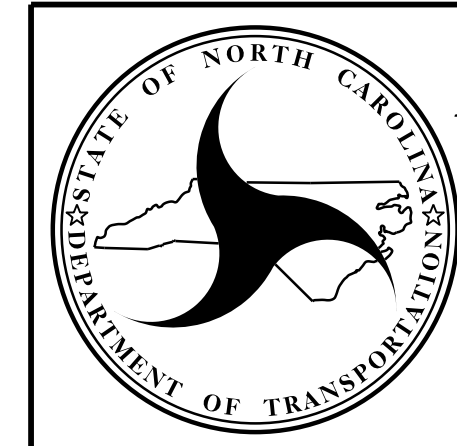
REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

GEOTEXTILE REINFORCEMENT
ULTIMATE TENSILE STRENGTH (LB/FT)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

GEOGRID REINFORCEMENT
SHORT-TERM DESIGN STRENGTH (LB/FT)
(SEE NOTE 10 ON SHEET 2.)

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD
(SEE NOTE 9 ON SHEET 2.)
*SEE PARTIAL ELEVATION ON SHEET 1 FOR REINFORCEMENT LAYER NUMBERING.



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**GEOTECHNICAL
ENGINEERING UNIT**

STANDARD DETAIL NO. 1801.02
STANDARD TEMPORARY WALL SHEET 3 OF 3
DATE: 11-19-13

RALL329

COMPUTED BY: Matthew Stratton, EI DATE: 5/6/2024
CHECKED BY: Paul Cameron, PE DATE: 5/7/2024

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. U-6202 SHEET NO. 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, Drainage Pipe, R.C. Pipe Class IV, Quantities for Drainage Structures, Frame, Grates, and Hood, and Remarks. Includes a SHEET TOTALS row at the bottom.

RALL282

COMPUTED BY: Matthew Stratton, EI DATE: 5/6/2024
CHECKED BY: Paul Cameron, PE DATE: 5/7/2024

PROJECT NO. U-6202 SHEET NO. 3D-6

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

Table with columns for Line & Station, Offset, Structure Number, Invert Elevation, Pipe Size, R.C. Pipe Class, Quantities for Drainage Structures, Frame/Grate, and Remarks. Includes a SHEET TOTALS row at the bottom.

RALL282

COMPUTED BY: Matthew Stratton, EI DATE: 5/6/2024
CHECKED BY: Paul Cameron, PE DATE: 5/7/2024

PROJECT NO. U-6202 SHEET NO. 3D-11

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

Table with columns for Line & Station, Offset, Structure Number, Drainage Pipe, R.C. Pipe Class IV, Quantities for Drainage Structures, Frame, Grates, and Hood, and Remarks. Includes a SHEET TOTALS row at the bottom.

**STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS**

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
-L-	14+50	23+50	LT/RT	SD	1800
-L-	31+20	48+50	LT/RT	SD	3460
-Y1-	10+18	11+25	LT/RT	SD	107
-Y2-	10+25	11+39	LT/RT	SD	114
-Y4RPA-	17+50	18+93	RT	SD	143
-Y6-	13+25	14+08	LT/RT	SD	83
-Y8-	12+50	13+19	LT/RT	SD	69
CONTINGENCY					500
TOTAL LF:					6276

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

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			AST						500
CONTINGENCY			ASU (1)	12"	100	190	300		
TOTAL CY/TONS/SY:					100	190**	300**	0	500

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

*AST = Aggregate Stabilization

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

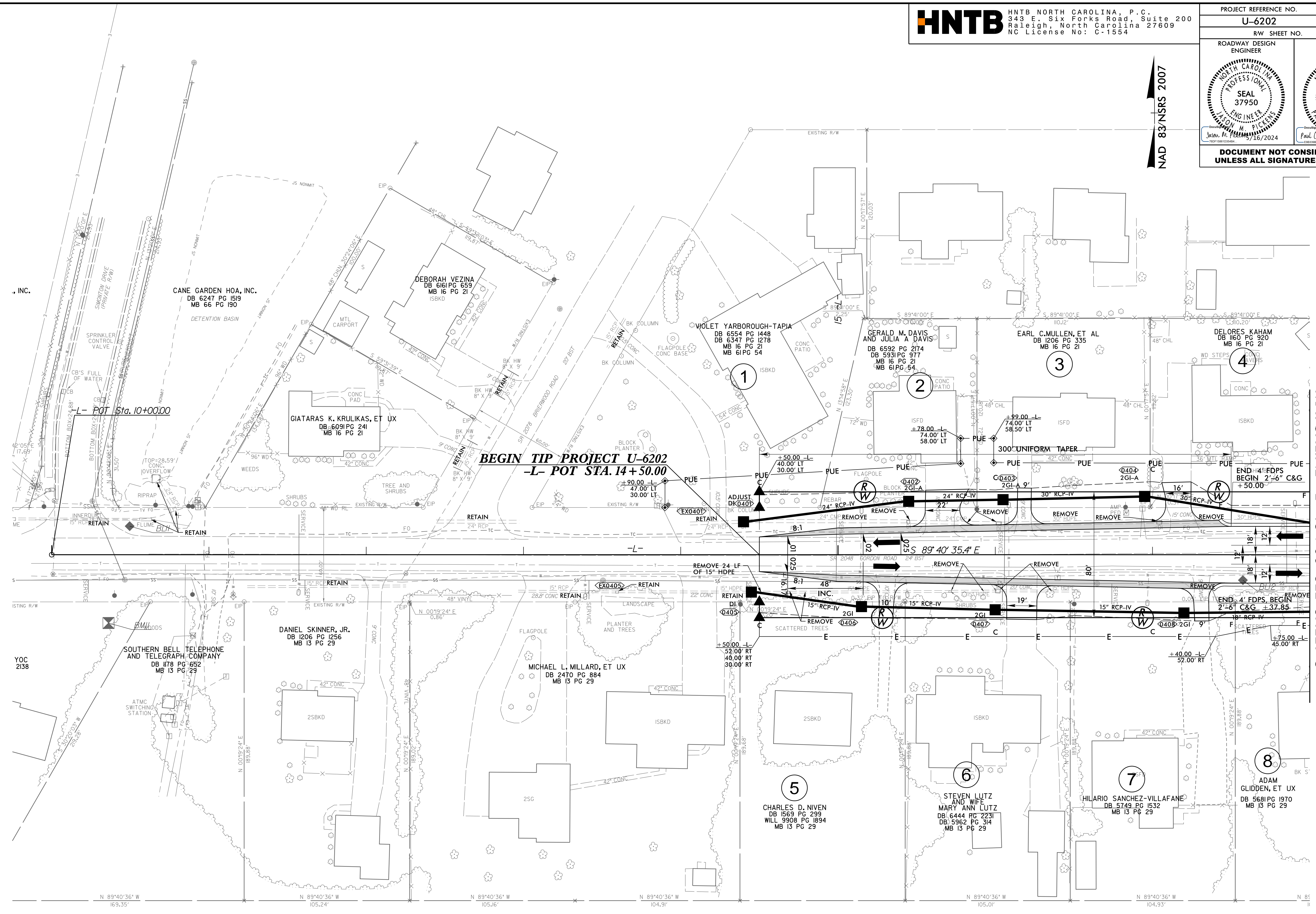
PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	VIOLET YARBOROUGH-TAPIA
2	4	GERALD M. DAVIS AND JULIA A DAVIS
3	4	EARL C.MULLEN, ET AL
4	4,5	DELORES KAHAM
5	4	CHARLES D. NIVEN
6	4	STEVEN LUTZ AND WIFE MARY ANN LUTZ
7	4	HILARIO SANCHEZ-VILLAFANE
8	4,5	ADAM GLIDDEN, ET UX
9	5	CLEMENT E. GOODSON, ET UX
10	5	NORTH POINTE COMMUNITY CHURCH
11	5	
12	5	MICHAEL W. GOODSON, ET UX
13	5	SILVIA L. MIRANDA
14	5	MILES A. RUSHER
15	5	ANTHONY WILSON AND ELOUISE WILSON WHITTED
16	5	ROBARD DEVELOPMENT COMPANY
17 Z	5A	LINDA C. WILSON AND DAUGHTER CATHERING OLIVIA WILSON
18	5A	BAY SHORE DEVELOPMENT, LLC
19	7	CHARLES RUDOLPH CLAY, SR. & ESSIE WADDELL CLAY, TRUSTEES
20	7	CHARLES RUDOLPH CLAY, SR. & ESSIE WADDELL CLAY, TRUSTEES
21	7	CHARLES RUDOLPH CLAY, SR. & ESSIE WADDELL CLAY, TRUSTEES
22	7	TRUSTEES OF ST. PAUL'S MISSIONARY BAPTIST CHURCH
23	7,8	McADAMS HOMES, LLC.
24	7	GORDON 4601, LLC.
25	7	ESTRELLA LANDING APARTMENTS, LLC
26	7	ROBERT EVANS, JR.
27	7	GORDON ROAD INVESTMENTS, LLC.
28	7	HAWTHORNE AT SMITH CREEK APARTMENTS, LLC.
29	7	WILLIAM A. McGLENN, ET UX
30	8	LEWIS CREEK MF, LLC.
31	8	JOSEPH JENKINS, ET UX
32	8,9	DELORES A. FLOWERS, ET AL
33	8	SANTIAGO V. GARCIA
34	8	ROBERT E. HANKINS, HEIRS
35	8	REBECA MENDEZ, ET VIR
36	8	THOMAS R. JONES, ET UX
37	8	ROBERT W. McKOY, SR., ET UX
38	8,9	JAMES C. DESHIELDS
39	9	KSANDRA BANISTER AND HUSBAND WILLIAM BANISTER
40	9	SHAMONE WADDELL
41	9	ADRIA C. JONES
42	9	MOSES L. HOLMES, ET UX
43	9,10	THUY T. T. TRAN, ET VIR
44	9	WILLIAM D. MIKE, ET UX
45	9	DELORES A. FLOWERS
46	9	D. R. HORTON, INC.
48	9,10	MABLE JUSTICE FAMILY IRREVOCABLE TRUST
49	10	TRUSTEES, GORDON ROAD CONGREGATION OF JEHOVAH'S WITNESSES
51	10-13	VENTERS & VENTURES PROPERTIES, LLC.
52	10	WILLIE McGEE, ET UX
52A	10	VIVICA MCGEE
53	10	VINCENTE G. PARADA
54	10	SHIRLEY M. JONES, HEIRS
55	10	EDWARD J. DONALDSON, ET UX
56	10	TERRANT A. SMITH
57	10,11	ROBERT WILSON
58	11	PHILLIP BROWN AND WIFE CYNTHIA J. BROWN
60	11	JBELL SOUTH TELECOMMUNICATIONS, INC.
61	11	JLILLIAN C. JORDAN
62	11	HARRIS M. McINTYRE, ET UX

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
63	11	NEXT 2 US, LLC.
64	11,12	JAMES CLAYTON, ET UX
65	12	SHAMIKA L. THOMAS, ET VIR
66	12	JOSEZELL SMITH
67	12	WANDA HARRIS
68	12	SLYVESTER L. BRYANT, ET UX
69	12	GEORGE M. WHITMORE
70	12,24	STEVEN M. McGOWAN, ET UX
71	12	LEIF HAMAR
72	12	LAVONZEL WILLIAMS, ET UX
73	12	APRIL FARR
74	12,13	BRANDON M. DICKINSON
75	13	JAMIE L. GARRISON
76	13	KRISTY NICOLE PROKOP, WIDOW
77	13	DONNA L. GRIFFITH, ET VIR
78	13	EDWARD F. MAIKOESKI, ET UX
79	13	IDALIA QUILES, ET UX
80	13	MARK D. FITZPATRICK
81	13	DAVID LORENZANA SOBERANIS
82	13,14	ARRON J. RICHARDET, ET UX
83	13,14	JONATHAN G. NELSON, ET AL
84	13	COASTAL HOME RENTALS 6, LLC
85	13	NEW HANOVER COUNTY
86	13	NANCY S. SMITH
87	13,14	JOHN J. PRATI, ET UX
88	14	DOROTHY J. HERRING
89	14	DOROTHEA S. RODRIGUEZ
90	14	SAILIT, LLC.
91	14	ARTURA VEGA-RIVERA
92	14,15	KEITH POWERS, ET UX
93	14,15	ARTURO VEGA-RIVERA
94	14	KIM LITTLE
95	14	AMANDA L. HATCHER
96	14	BRIAN J. COX, ET UX
97	14,15	TUNG LAM BUDDHIST TEMPLE, INC.
98	15	CAROL P. WARD
99	15	RUFINO G. PEREZ ET UX
99 A	15	RUFINO G. PEREZ ET UX
100	15	DONALD E. HOWARD, ET AL
101	15,16	JIMMY D. HOLLINSWORTH, ET UX
102	15,16	DAVID J. MARGUCCIO
103	16	ADVANCED INVESTMENT RESOURCES, LLC.
104	16	ROSE J. BELL
105	16	ADVANCED INVESTMENT RESOURCES, LLC.
106	16	ADVANCED INVESTMENT RESOURCES, LLC.
107	16	ADVANCED INVESTMENT RESOURCES, LLC.
108	16	ADVANCED INVESTMENT RESOURCES, LLC.
109	16	CANH NGUYEN, ET AL
110	16	ROLAND TWIGG, ET UX
111	16	WANDA B. WELLS
112	16,17	FRED A. WHITMAN, ET UX
113	17	ASSOCIATED APARTMENT INVESTORS COLONY-EF, LLC.
114	17,18	EVCALLEE PARTNERS
116	17	DAVID EARP
117	17	DOROTHY TAYLOR HEIRS
118	17	ROBERT W. FAIRCLOTH
119	17	ANNE DOBSON
120	17	ISMAEL S. CORTEZ, ET UX
121	17	TARA JEBITSCH
122	17	ERIC J. BASILE AND WIFE VIRGINIA C. ST. CLAIR

PROJECT REFERENCE NO. U-6202		SHEET NO. 4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

NAD 83/NSRS 2007



MATCHLINE -L- 18 + 00 SEE SHEET 5

NOTE:
 1. ALL DRIVEWAYS HAVE 10' RADII UNLESS OTHERWISE NOTED.

FOR -L- PROFILE, SEE SHEET 26

13 MAY 2024 09:05
C:\p\dw\p\proj\U-6202_RDY_PSH4.dgn