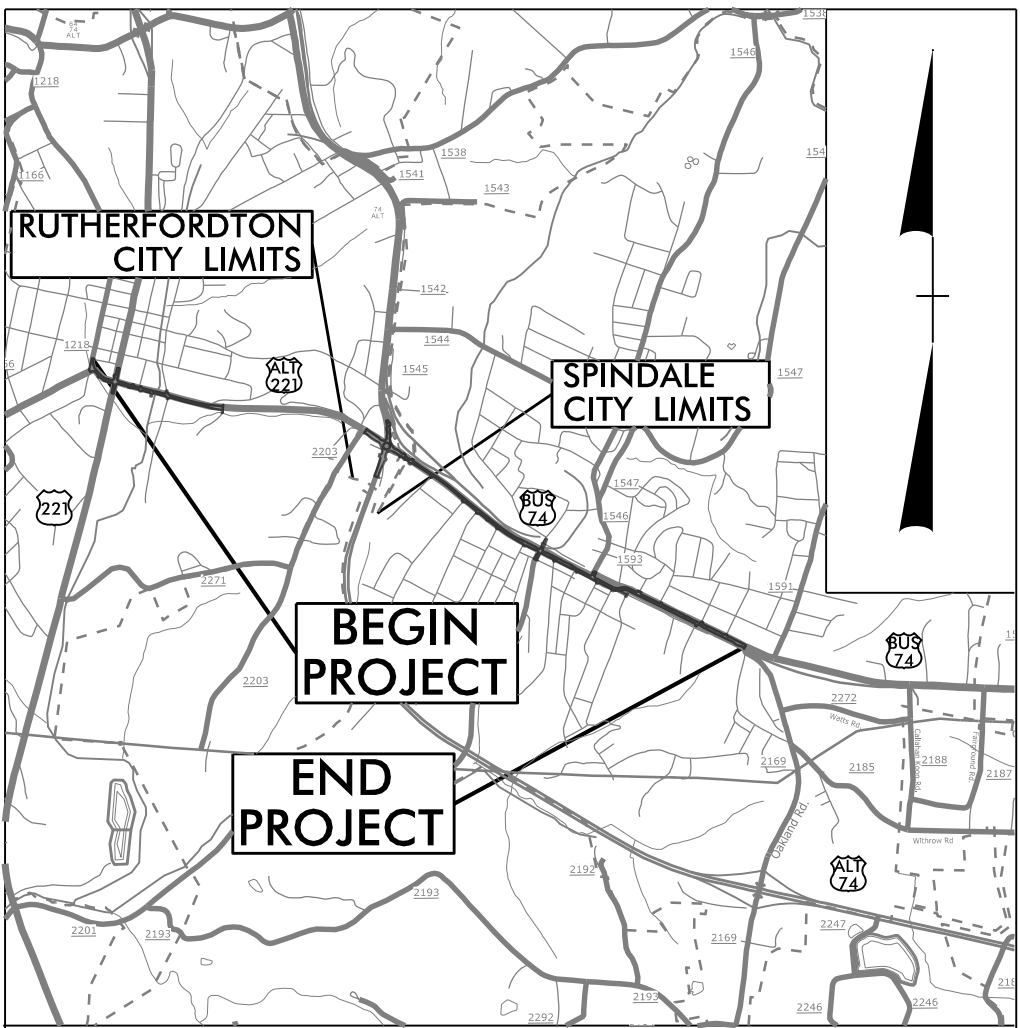


TIP PROJECT: HL-0065

CONTRACT: C205219

See Sheet 1A For Index of Sheets



VICINITY MAP (NTS)

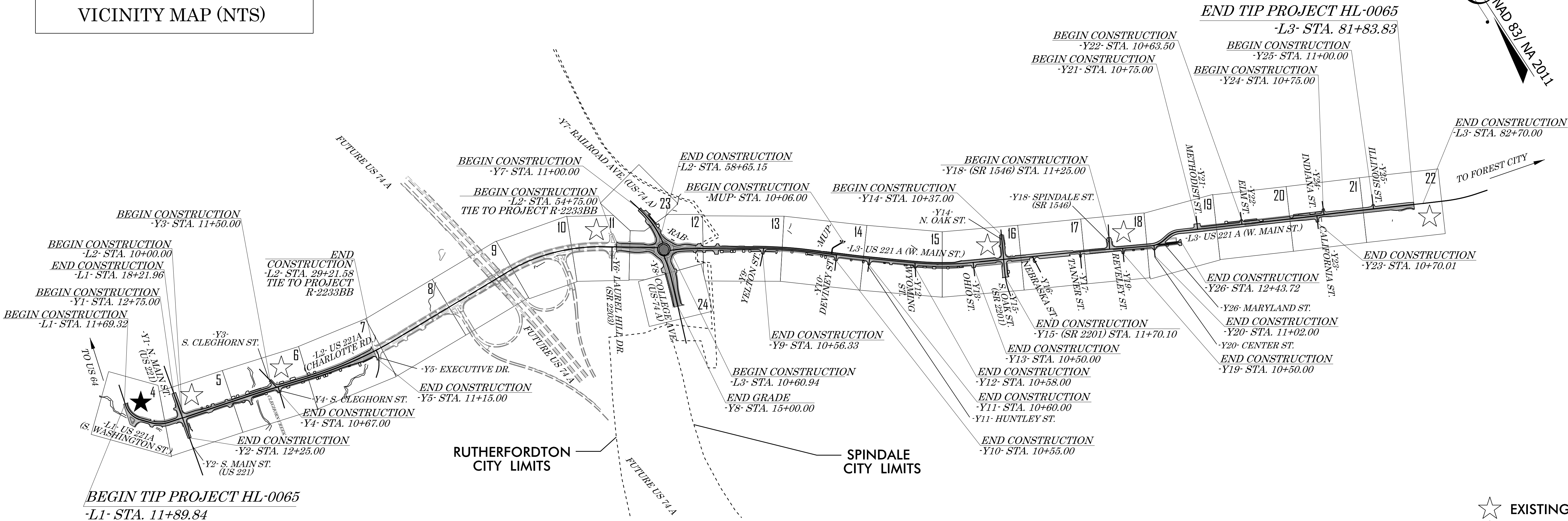
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RUTHERFORD COUNTY

LOCATION: *US 221A (CHARLOTTE ROAD/MAIN STREET) IN RUTHERFORDTON.*
CONSTRUCT COMPLETE STREET.

TYPE OF WORK: *DRAINAGE, GRADING, PAVING, SIGNALS*

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HL-0065	11	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
50685.1.1	5068501	PE	
50685.2.1	5068501	ROW	
50685.2.2	5068501	UTIL	
50685.3.1	5068501	CONST.	

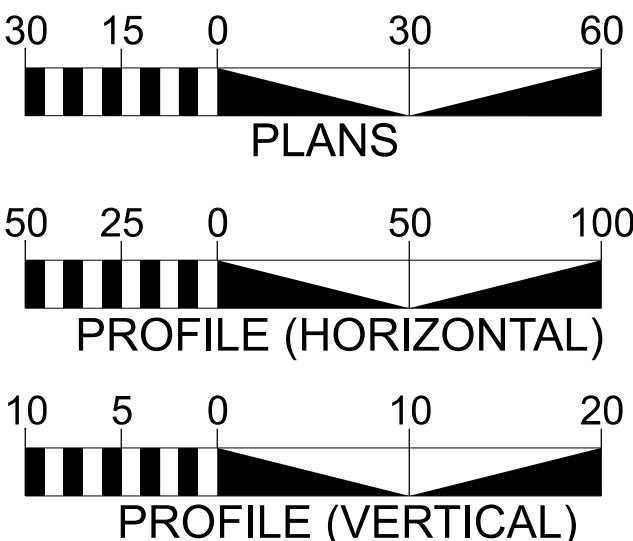


NOTES:
1. THIS IS A NO CONTROL-OF-ACCESS PROJECT EXCEPT WITHIN THE LIMITS OF THE ROUNDABOUT.

★ EXISTING SIGNAL
★ PROPOSED SIGNAL

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2026 = 14,600
ADT 2046 = 21,400
K = 8 %
D = 52.5%
T = 5 % *
V = 40 MPH
* TTST = 1 DUAL = 4
FUNC CLASS =
MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT HL-0065:

-L1- STA. 11+89.84 TO 18+21.96 = 0.120 MILES
-L2- STA. 10+00.00 TO 29+21.58 = 0.364 MILES
-L2- STA. 54+75.00 TO 58+65.15 = 0.074 MILES
-L3- STA. 10+60.94 TO 81+83.83 = 1.349 MILES

TOTAL LENGTH OF TIP PROJECT HL-0065: 1.907 MILES

Prepared in the Office of:
HNTB NORTH CAROLINA, P.C.
4000 Center at North Hills St
Suite 500
Raleigh, North Carolina 27609
NC License No: C-1554



2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 18, 2025

LETTING DATE:
AUGUST 18, 2026

J. JEFF HESS, PE
PROJECT ENGINEER

ANDREW J. MCOMBER, PE
PROJECT DESIGN ENGINEER

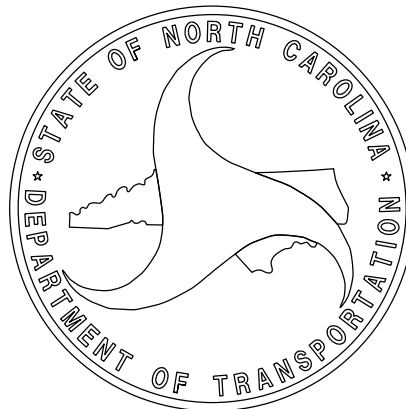
HANNAH K. SMITH, PE
NC DOT DIVISION 13
SENIOR PLANNING ENGINEER

HYDRAULICS ENGINEER

Seal and signature of the Hydraulics Engineer, Richard J. Smith, dated 10/10/2026.

ROADWAY DESIGN ENGINEER

Seal and signature of the Roadway Design Engineer, Hannah K. Smith, dated 10/10/2026.



INDEX OF SHEETS		GENERAL NOTES: 2024 SPECIFICATIONS		EFF. 08-11-2025	
SHEET NUMBER SHEET		EFFECTIVE: 01-16-2024		REV. 11-26-2025	
		REVISED:		2024 ROADWAY ENGLISH STANDARD DRAWINGS	
1	TITLE SHEET	GRADING AND SURFACING OR RESURFACING AND WIDENING:		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:	
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS	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.		STD.NO. TITLE	
1B	CONVENTIONAL SYMBOLS	CLEARING:		DIVISION 2 - EARTHWORK	
2A-1 THRU 2A-5	PAVEMENT SCHEDULE AND TYPICAL SECTIONS	CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.		200.02 Method of Clearing - Method II	
2B-1 THRU 2B-27	ROADWAY DETAILS	SUPERELEVATION:		225.02 Guide for Grading Subgrade - Secondary and Local	
2C-1 THRU 2C-13	SPECIAL DETAILS	ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.		225.04 Method of Obtaining Superelevation - Two Lane Pavement	
2D-1	DRAINAGE DETAILS	SHOULDER CONSTRUCTION:		DIVISION 3 - PIPE CULVERTS	
3B-1	ROADWAY SUMMARIES	ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.02		300.01 Method of Pipe Installation (Use Details in Lieu of Standards for Sheets 1 and 2 of 2)	
3D-1 THRU 3D-7	DRAINAGE SUMMARIES	SIDE ROADS:		310.10 Driveway Pipe Construction	
3G-1	GEOTECHNICAL SUMMARIES	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.		DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
3P-1 THRU 3P-2	PARCEL INDEX SHEET	SUBSURFACE DRAINS:		560.02 Method of Shoulder Construction - High Side of Superelevated Curve - Method II	
4 THRU 32	PLAN AND PROFILE SHEET	SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.		DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
RW01 THRU RW24	SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENT AND PROPERTY TIES	DRIVEWAYS:		654.01 Pavement Repairs	
TMP-1 THRU TMP-49	TRAFFIC MANAGEMENT PLANS	STREET TURNOUT:		DIVISION 7 - CONCRETE PAVEMENTS AND SHOULDERS	
PMP-1 THRU PMP-11	PAVEMENT MARKING PLANS	STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.		700.01 Concrete Pavement Joints - Construction and Contraction Joints	
EC-1 THRU EC-47	EROSION CONTROL PLANS	GUARDRAIL:		700.03 Dowel Assembly	
L1 THRU L26	LANDSCAPING PLANS	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.		700.04 Concrete Pavement Header Board	
SIGN-1 THRU SIGN-24	SIGNING PLANS	TEMPORARY SHORING:		DIVISION 8 - INCIDENTALS	
SIG-1.0 THRU SIG-17.1	SIGNAL PLANS	SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.		806.01 Concrete Right-of-Way Marker	
SCP 1 THRU SCP 3	SIGNAL COMMUNICATION PLANS	UTILITIES:		806.02 Granite Right-of-Way Marker	
UC-1 THRU UC-36	UTILITIES CONSTRUCTION PLANS	UTILITY OWNERS ON THIS PROJECT ARE POWER - DUKE ENERGY		815.02 Subsurface Drain	
UO-1 THRU UO-22	UTILITIES BY OTHERS PLANS	COMM - VYVE BROADBAND, FIBERLIGHT		840.00 Concrete Base Pad for Drainage Structures	
X-0	CROSS-SECTION INDEX	GAS - ENBRIDGE, SEWER - TOWN OF RUTHERFORDTON, TOWN OF SPINDALE		840.01 Brick Catch Basin - 12" thru 54" Pipe	
X-1	CROSS-SECTION SUMMARY SHEET	WATER - BROAD RIVER WATER AUTHORITY		840.02 Concrete Catch Basin - 12" thru 54" Pipe	
X-2 THRU X-122	CROSS-SECTIONS	ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.		840.03 Frame, Grates and Hood - for Use on Standard Catch Basin	
		RIGHT-OF-WAY MARKERS:		840.14 Concrete Drop Inlet - 12" thru 30" Pipe	
		ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.		840.15 Brick Drop Inlet - 12" thru 30" Pipe	
		CURB RAMPS		840.16 Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15	
		CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.06.		840.29 Frames and Narrow Slot Flat Grates	
				840.30 Driveway Drop Inlet	
				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	
				840.72 Pipe Collar	
				846.01 Concrete Curb, Gutter and Curb & Gutter	
				848.01 Concrete Sidewalk (Use Detail in Lieu of Standard for Sheet 1 of 1)	
				848.02 Driveway Turnout - Radius Type	
				848.04 Street Turnout	
				848.06 Curb Ramp (Use Details in Lieu of Standards for Sheets 9 and 10 of 13)	
				848.07 Concrete Sidepath / Shared Use Path / Greenway Construction	
				852.01 Concrete Islands	
				852.06 Method for Placement of Drop Inlets in Concrete Islands	
				862.01 Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, 11, 12, and 14 of 15)	
				862.02 Guardrail Installation (Use Detail in Lieu of Standard for Sheet 5 of 9)	
				866.01 Chain Link Fence - 4', 5' and 6' High Fence	
				876.01 Rip Rap in Channels and Ditches	
				876.02 Guide for Rip Rap at Pipe Outlets	

HL-0065

FP001A

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY



ROADWAY DESIGN UNIT
ENGINEER



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PREPARED BY



2025 OFFICIAL REGISTER

REGISTERED PROFESSIONAL ENGINEER

NO LICENSE NOT TO BE ISSUED

REVISIONS

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	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
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	
Buffer Zone 1	
Buffer Zone 2	
Flow Arrow	
Disappearing Stream	
Spring	
Wetland	
Proposed Lateral, Tail, Head Ditch	
False Sump	

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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	
Permanent 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	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	

VEGETATION:

Single Tree	
Single Shrub	

Hedge	
Woods Line	
Orchard	
Vineyard	

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	
Storm Sewer Manhole	
Storm Sewer	

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

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

TELEPHONE:	
Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
U/G Telephone Test Hole (SUE - LOS A)*	
U/G Telephone Cable (SUE - LOS B)*	
U/G Telephone Cable (SUE - LOS C)*	
U/G Telephone Cable (SUE - LOS D)*	
U/G Telephone Conduit (SUE - LOS B)*	
U/G Telephone Conduit (SUE - LOS C)*	
U/G Telephone Conduit (SUE - LOS D)*	
U/G Fiber Optics Cable (SUE - LOS B)*	
U/G Fiber Optics Cable (SUE - LOS C)*	
U/G Fiber Optics Cable (SUE - LOS D)*	

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

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

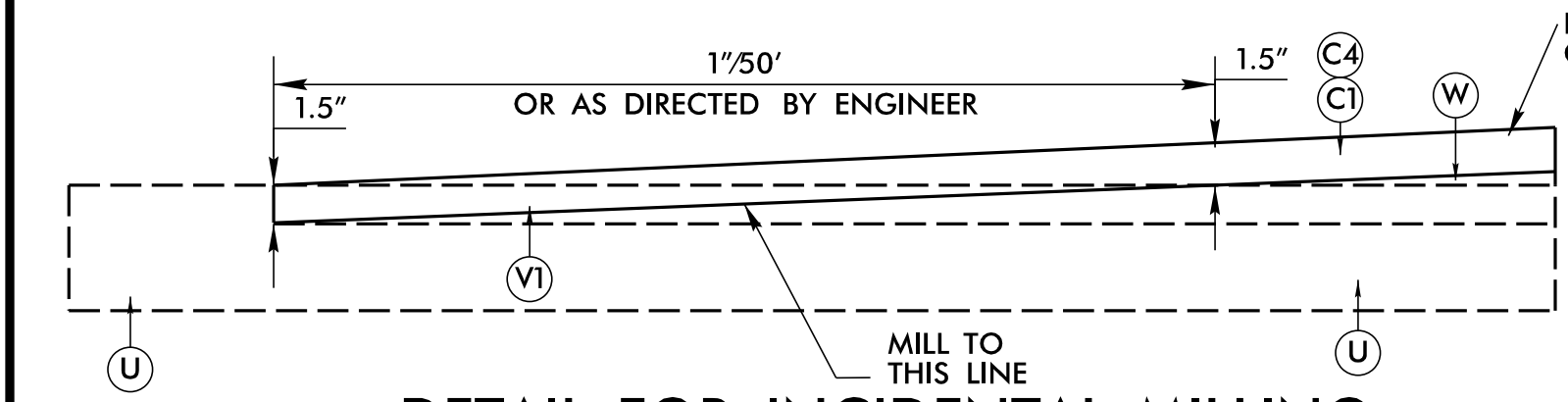
GAS:	
Gas Valve	
Gas Meter	
U/G Gas Line Test Hole (SUE - LOS A)*	
U/G Gas Line (SUE - LOS B)*	
U/G Gas Line (SUE - LOS C)*	
U/G Gas Line (SUE - LOS D)*	
Above Ground Gas Line	

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

MISCELLANEOUS:	
Utility Pole	
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	
Utility Unknown U/G Line (SUE - LOS B)*	
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Loc.	
A/G Tank; Water, Gas, Oil	
Geoenviromental Boring	
Abandoned According to Utility Records	
End of Information	

FINAL PAVEMENT SCHEDULE	
A1	JOINTED CONCRETE PAVEMENT W/ DOWELS (12" DEPTH)
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. PLACED IN TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.
C4	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C5	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. PLACED IN TWO LAYERS.
C6	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 LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
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.
J	AGGREGATE BASE COURSE (6" DEPTH)
K1	PROP 12" CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SUBGRADE STABILIZATION
R1	2'-6" CONCRETE CURB AND GUTTER
R2	1'-6" CONCRETE CURB AND GUTTER
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
R4	9" X 18" CONCRETE CURB
R5	9" X 12" CONCRETE CURB
S1	4" CONCRETE SIDEWALK
S2	4" CONCRETE SIDEPATH
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	INCIDENTAL MILLING
V2	MILLING ASPHALT PAVEMENT (1.5" DEPTH)
W	VARIABLE DEPTH ASPHALT PAVEMENT. (SEE DETAIL SHOWING METHOD OF WEDGING ON THIS SHEET)

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



DETAIL FOR INCIDENTAL MILLING

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

TYPICAL SECTION NO. 1
-L1- S. WASHINGTON ST.
-L2- CHARLOTTE RD (US 221A)
USE TYPICAL SECTION NO. 1
-L1- STA. 11+89.84 TO STA. 18+21.96
-L2- STA. 10+00.00 TO STA. 25+96.07

INSET NO. 1A
USE INSET WITH TYPICAL NO. 1
-L1- STA. 11+89.84 TO STA. 13+84.86 RT
-L1- STA. 16+22.68 TO STA. 17+53.05 RT

INSET NO. 1B
USE INSET WITH TYPICAL NO. 1
-L1- STA. 11+89.84 TO STA. 14+07.07 LT

TYPICAL SECTION NO. 2
-L2- CHARLOTTE RD (US 221A)
USE TYPICAL SECTION NO. 2
-L2- STA. 25+96.07 TO STA. 29+21.58

INSET NO. 1C
USE INSET WITH TYPICAL NO. 1
-L1- STA. 13+84.56 TO STA. 14+06.91 RT

INSET NO. 1D
USE INSET WITH TYPICAL NO. 1
-L1- STA. 14+06.91 TO STA. 16+22.68 RT

TYPICAL SECTION NO. 3
-L2- CHARLOTTE RD (US 221A)
USE TYPICAL SECTION NO. 3
-L2- STA. 29+21.58 TO STA. 54+52.03

INSET NO. 1E
USE INSET WITH TYPICAL NO. 2
-L2- STA. 16+75.00 TO STA. 19+38.59 LT

INSET NO. 1F
USE INSET WITH TYPICAL NO. 2
-L2- STA. 10+00.00 TO STA. 11+95.00 LT

INSET NO. 1G
USE INSET WITH TYPICAL NO. 2
-L2- STA. 10+46.00 TO STA. 11+95.00 LT

INSET NO. 1H
USE INSET WITH TYPICAL NO. 2
-L2- STA. 14+75.07 TO STA. 18+14.68 RT

INSET NO. 1I
USE INSET WITH TYPICAL NO. 2
-L2- STA. 27+84.37 TO STA. 28+84.41 RT

INSET NO. 1J
USE INSET WITH TYPICALS NOS. 1 AND 14
-L1- STA. 17+53.05 TO STA. 18+21.96 RT
-Y2- STA. 10+00.00 TO STA. 10+74.74 RT

DETAIL SHOWING METHOD OF WEDGING

HL-0065

FP 2A-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY

ROADWAY DESIGN
ENGINEER

SEAL
042452
J. W. H. HES
01/01/2026

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PAVEMENT DESIGN
ENGINEER

SEAL
024964
J. W. H. HES
01/01/2026

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PREPARED BY

HNTB

1000 SOUTH PARKWAY, SUITE 100
RUTHERFORD, NJ 07070
TEL: 908.382.1000
WWW.HNTB.COM

REVISIONS

FINAL PAVEMENT SCHEDULE	
A1	JOINTED CONCRETE PAVEMENT W/ DOWELS (12" DEPTH)
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. PLACED IN TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.
C4	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C5	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. PLACED IN TWO LAYERS.
C6	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 LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
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.
J	AGGREGATE BASE COURSE (6" DEPTH)
K1	PROP 12" CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SUBGRADE STABILIZATION
R1	2'-6" CONCRETE CURB AND GUTTER
R2	1'-6" CONCRETE CURB AND GUTTER
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
R4	9" X 18" CONCRETE CURB
R5	9" X 12" CONCRETE CURB
S1	4" CONCRETE SIDEWALK
S2	4" CONCRETE SIDEPATH
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	INCIDENTAL MILLING
V2	MILLING ASPHALT PAVEMENT (1.5" DEPTH)
W	VARIABLE DEPTH ASPHALT PAVEMENT. (SEE DETAIL SHOWING METHOD OF WEDGING ON SHEET 2A-1)

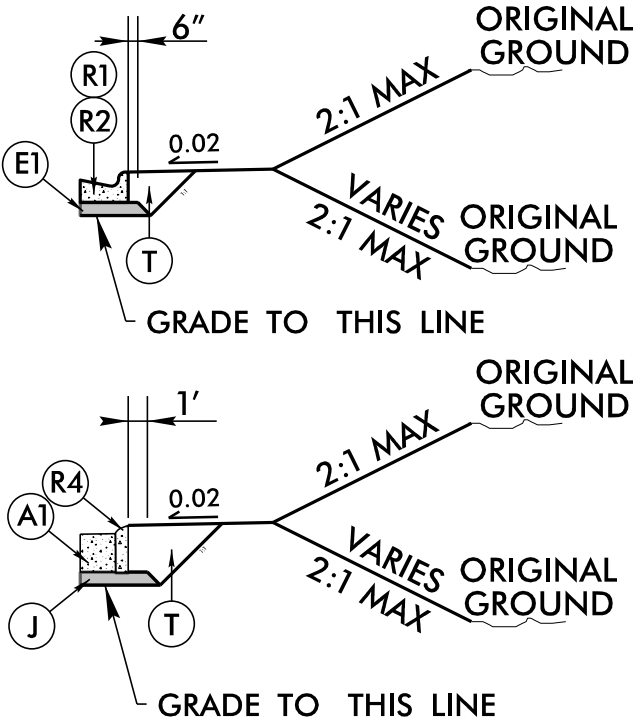
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.

- NOTES:
1.

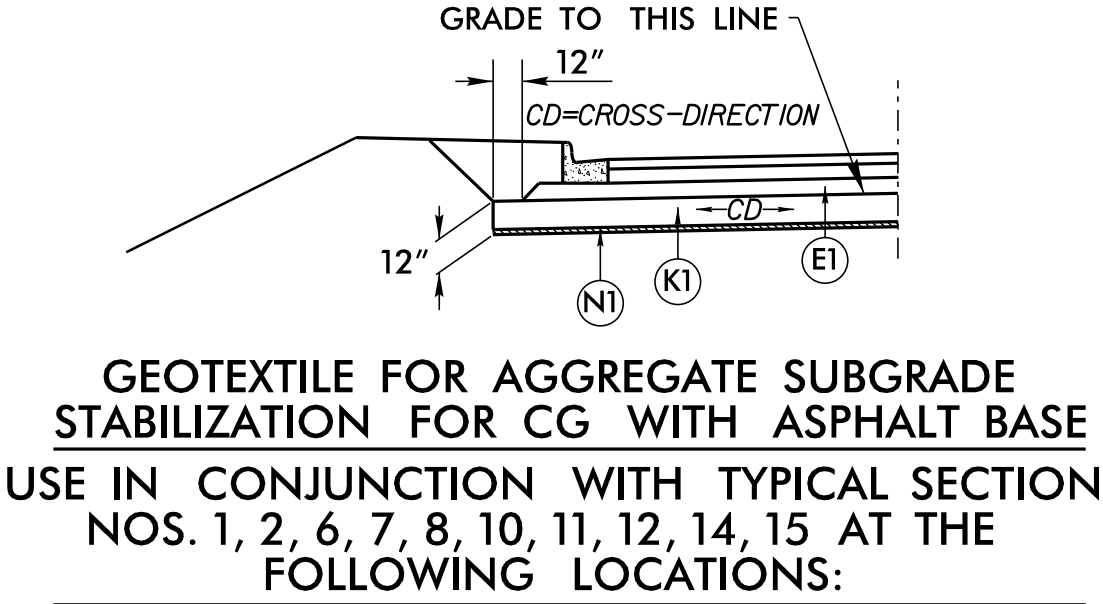
SEE PLANS FOR SUPERELEVATIONS, TURN LANES, MONOLITHIC ISLANDS, CURB AND GUTTER, AND LANE & MEDIAN TAPER LOCATIONS.
2.

SAWCUT EXISTING PAVEMENT WITHIN 2' OF PROPOSED CURB & GUTTER
3.

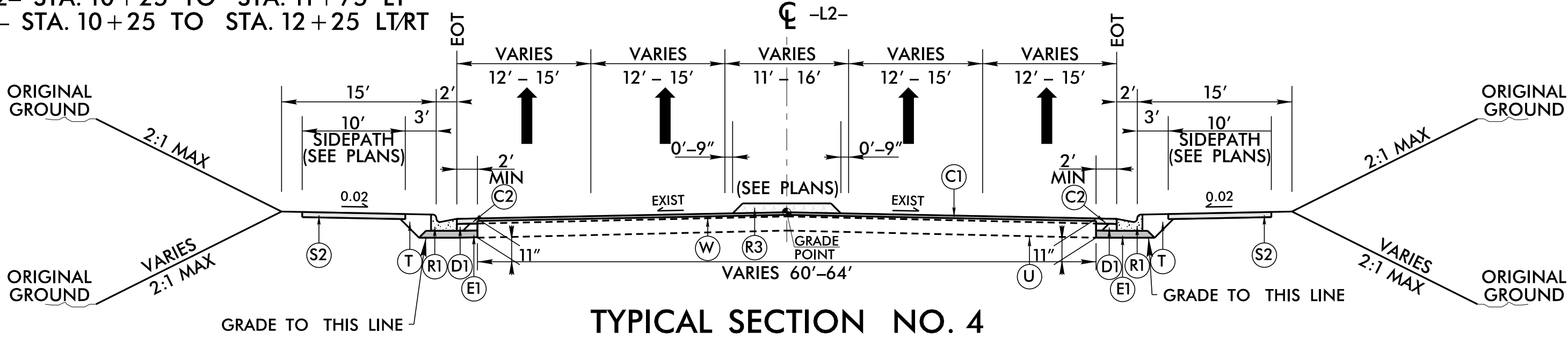
REPLACE NARROW SECTIONS OF EXISTING PAVEMENT SECTIONS UNDER DIRECTION OF ENGINEER.



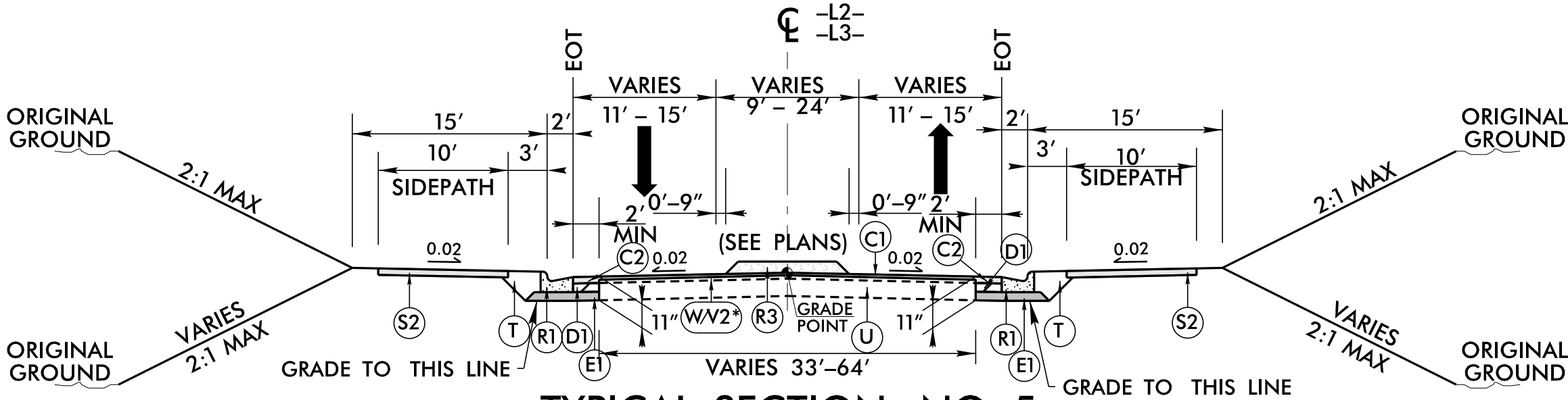
CURB AND GUTTER SHELF DETAIL
USE INSET IN ALL APPLICABLE LOCATIONS



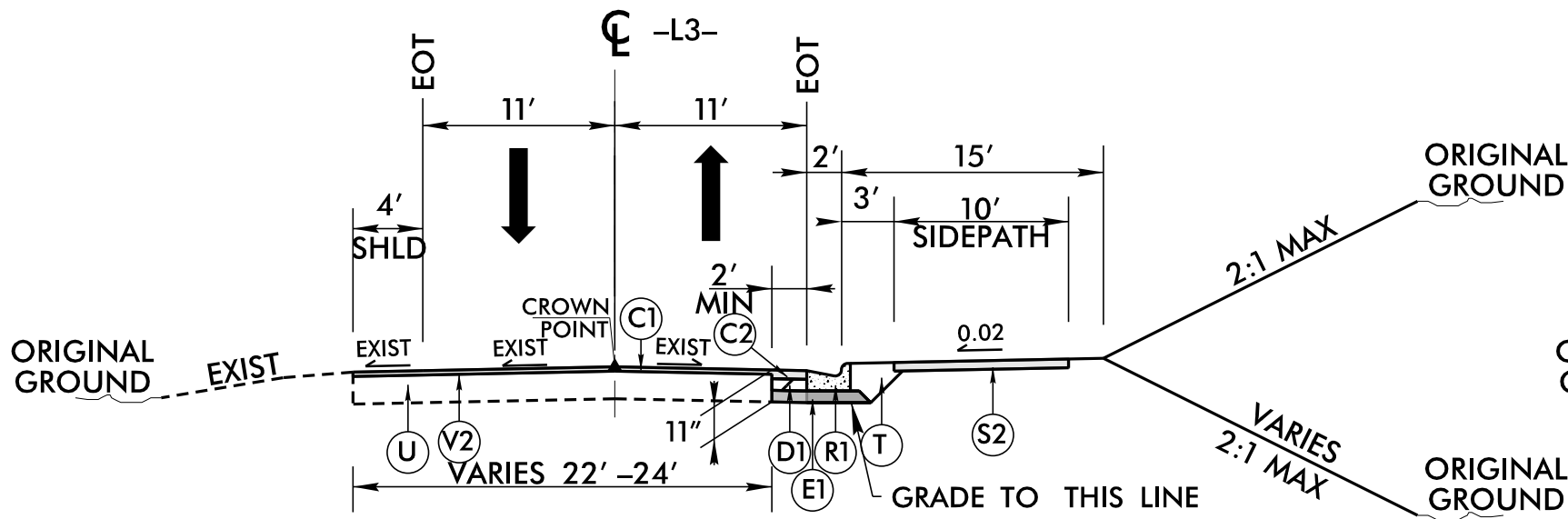
- L1- STA. 11+75 TO STA. 18+22 LT/RT
- L2- STA. 18+25 TO STA. 22+75 LT/RT
- L2- STA. 26+75 TO STA. 27+75 LT/RT
- L2- STA. 31+75 TO STA. 33+26 RT
- L3- STA. 19+75 TO STA. 44+75 LT/RT
- L3- STA. 52+75 TO STA. 81+84 LT/RT
- Y2- STA. 10+25 TO STA. 11+75 LT
- Y14- STA. 10+25 TO STA. 12+25 LT/RT



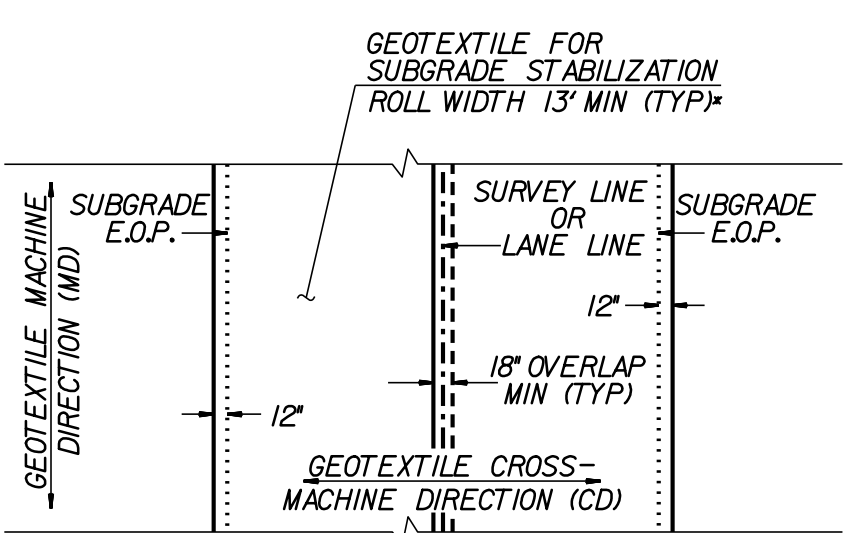
TYPICAL SECTION NO. 4
-L2- CHARLOTTE RD (US 221A)
USE TYPICAL SECTION NO. 4
-L2- STA. 54+75.00 TO STA. 57+31.96



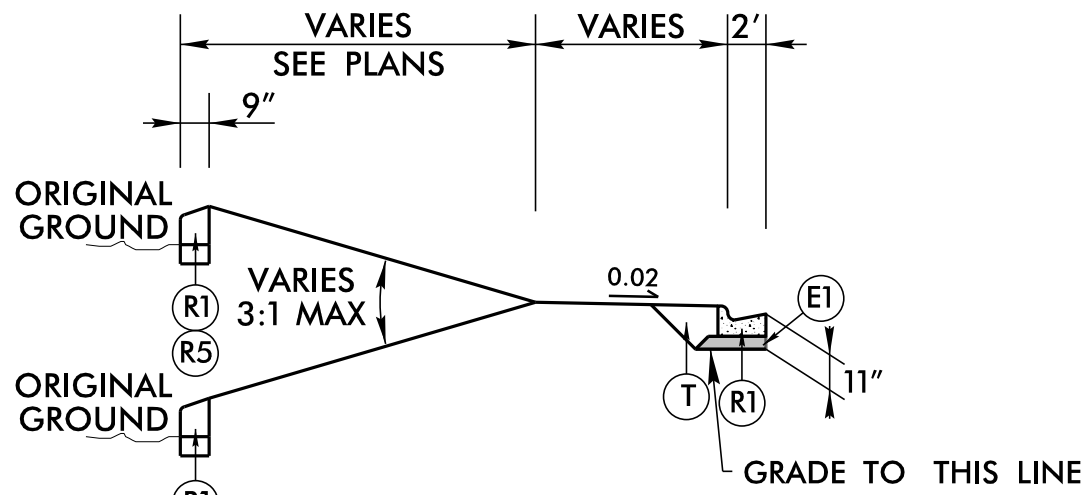
TYPICAL SECTION NO. 5
-L2- CHARLOTTE RD (US 221A)
-L3- WEST MAIN ST (US 221A)
USE TYPICAL SECTION NO. 5
-L2- STA. 57+31.96 TO STA. 58+34.41
-L3- STA. 10+92.17 TO STA. 15+94.23
*NOTE: WEDGING FOR -L2-; -L3- STA 10+92.17 TO STA. 15+75.00



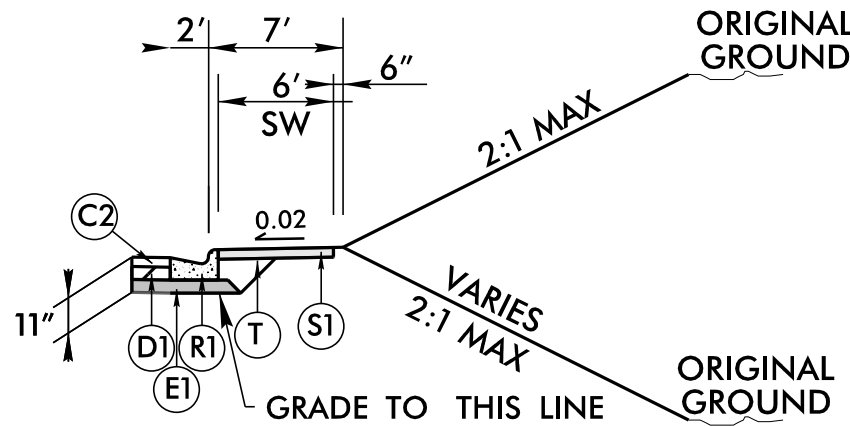
TYPICAL SECTION NO. 6
-L3- WEST MAIN ST (US 221A)
USE TYPICAL SECTION NO. 6
-L3- STA. 15+94.23 TO STA. 26+44.05



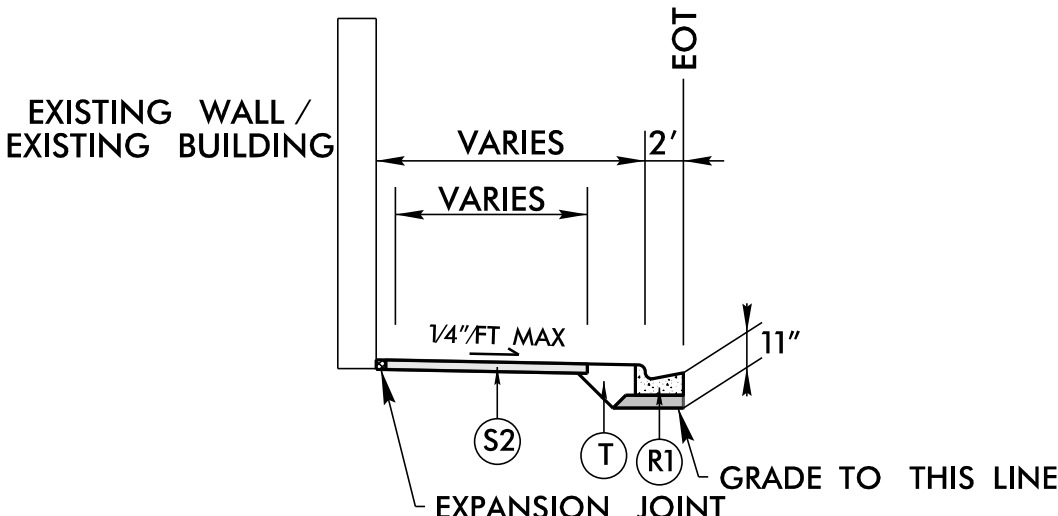
GEOTEXTILE FOR SUBGRADE STABILIZATION PLACEMENT (PLAN VIEW)
(100% COVERAGE REQUIRED)
*INSTALL GEOTEXTILE FOR SUBGRADE STABILIZATION WITH MINIMUM ROLL WIDTH UNDER ROADWAY EDGES AND SHOULDERS ADJACENT TO FILL SLOPES



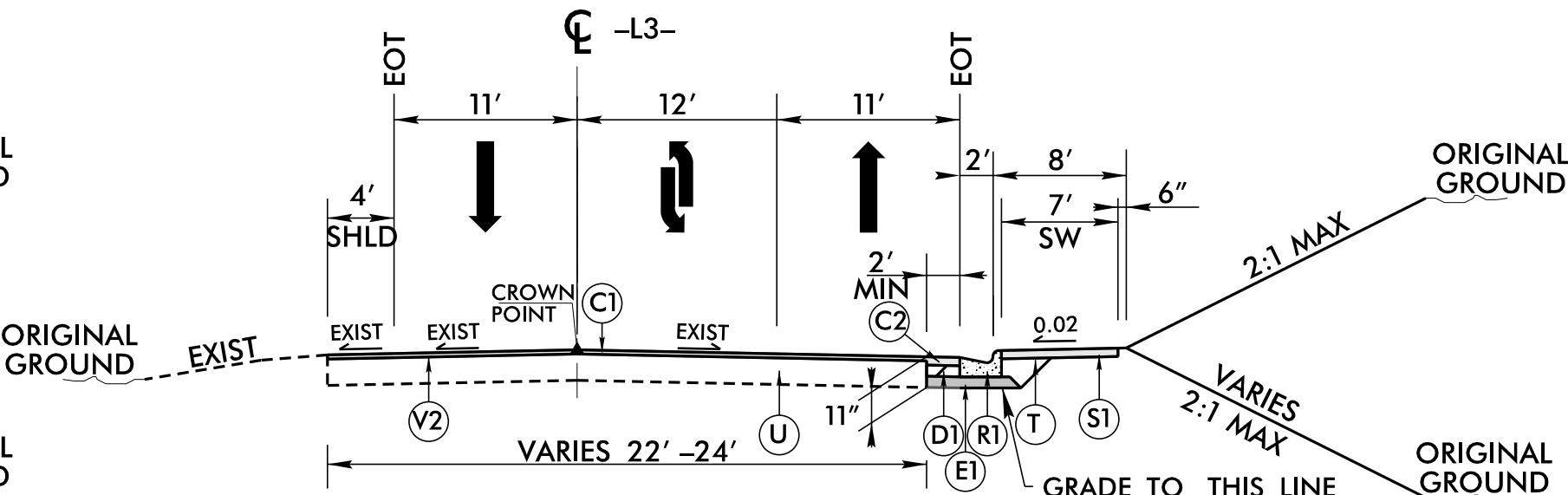
INSET NO. 2A
USE INSET WITH TYPICAL NO. 6
SEE PLANS FOR LOCATIONS



INSET NO. 2B
USE TYPICAL SECTION NO. 7
-L3- STA. 31+78.06 TO STA. 32+87.63



INSET NO. 2C
USE WITH TYPICAL SECTION NOS. 7, 8, AND 11
-L3- STA. 39+65.90 TO STA. 42+04.08 RT
-L3- STA. 43+63.62 TO STA. 44+81.28 RT
-L3- STA. 67+37.13 TO STA. 70+18.04 LT



TYPICAL SECTION NO. 7
-L3- WEST MAIN ST (US 221A)
USE TYPICAL SECTION NO. 7
-L3- STA. 26+44.05 TO STA. 39+44.32

HL-0065

FP2A-2

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY

ROADWAY DESIGN
ENGINEER

Professional Engineer Seal: JOHN J. HESSE, No. 042452, Exp. 12/31/2026

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PAVEMENT DESIGN
ENGINEER

Professional Engineer Seal: JOHN J. HESSE, No. 024964, Exp. 12/31/2026

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PREPARED BY

HNTB

1000 BROADWAY, SUITE 2000
NEW YORK, NY 10004
TEL: 212 512 2000
WWW.HNTB.COM

REVISIONS

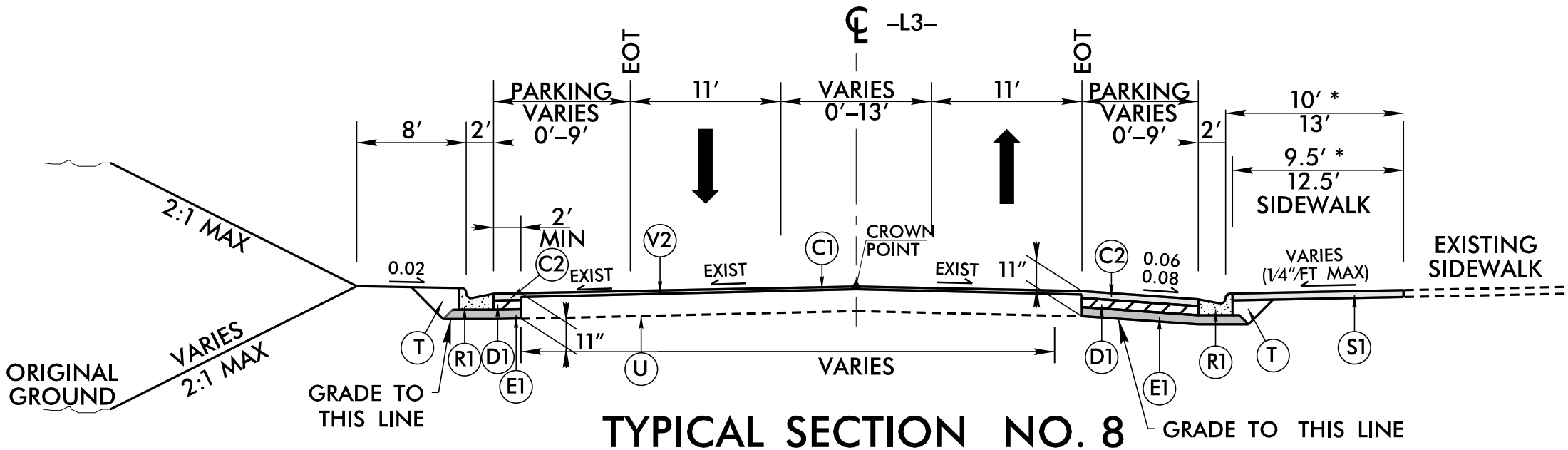
FINAL PAVEMENT SCHEDULE	
A1	JOINTED CONCRETE PAVEMENT W/ DOWELS (12" DEPTH)
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. PLACED IN TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.
C4	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C5	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. PLACED IN TWO LAYERS.
C6	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 LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
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.
J	AGGREGATE BASE COURSE (6" DEPTH)
K1	PROP 12" CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SUBGRADE STABILIZATION
R1	2'-6" CONCRETE CURB AND GUTTER
R2	1'-6" CONCRETE CURB AND GUTTER
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
R4	9" X 18" CONCRETE CURB
R5	9" X 12" CONCRETE CURB
S1	4" CONCRETE SIDEWALK
S2	4" CONCRETE SIDEPATH
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	INCIDENTAL MILLING
V2	MILLING ASPHALT PAVEMENT (1.5" DEPTH)
W	VARIABLE DEPTH ASPHALT PAVEMENT. (SEE DETAIL SHOWING METHOD OF WEDGING ON SHEET 2A-1)
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.	

- NOTES:
1.

SEE PLANS FOR SUPERELEVATIONS, TURN LANES, MONOLITHIC ISLANDS, CURB AND GUTTER, AND LANE & MEDIAN TAPER LOCATIONS.
2.

SAWCUT EXISTING PAVEMENT WITHIN 2' OF PROPOSED CURB & GUTTER
3.

REPLACE NARROW SECTIONS OF EXISTING PAVEMENT SECTIONS UNDER DIRECTION OF ENGINEER.

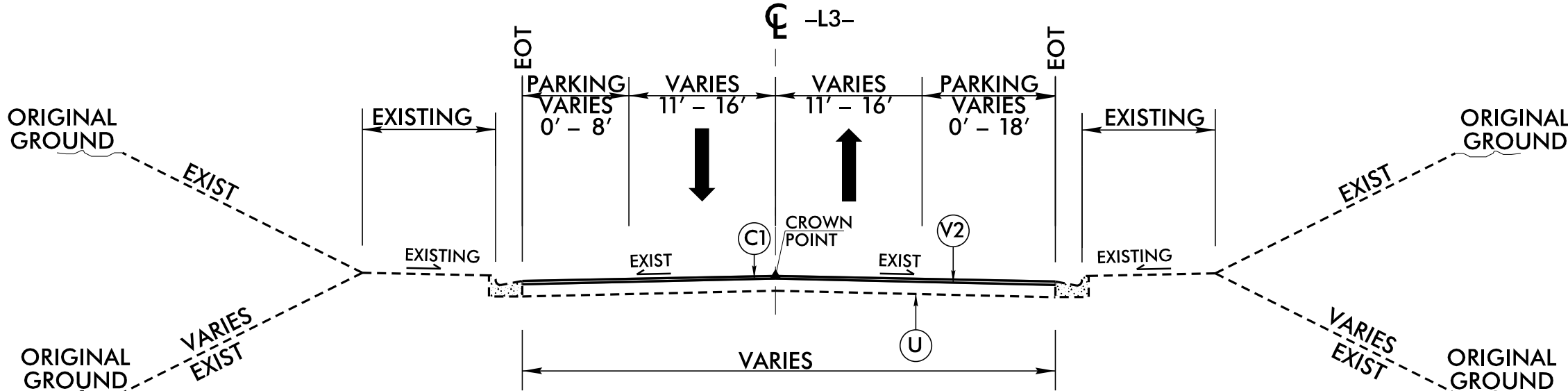


TYPICAL SECTION NO. 8

-L3- EAST MAIN ST (US 221A)

USE TYPICAL SECTION NO. 8

-L3- STA. 39+44.32 TO STA. 44+81.28
-L3- STA. 53+67.92 TO STA. 56+41.00*

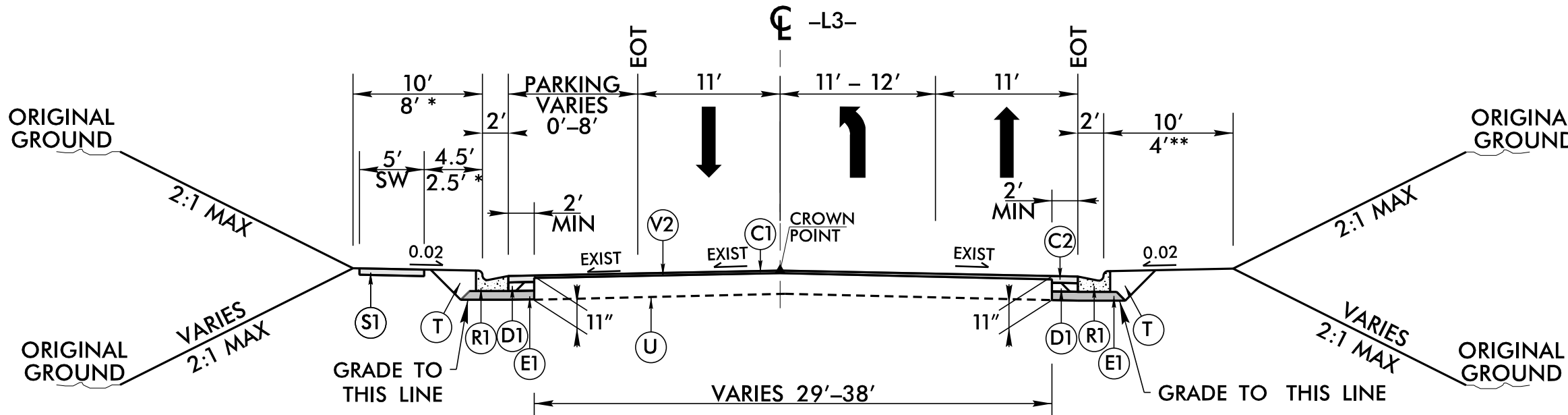


TYPICAL SECTION NO. 9

-L3- EAST MAIN ST (US 221A)

USE TYPICAL SECTION NO. 9

-L3- STA. 44+81.28 TO STA. 50+54.67



TYPICAL SECTION NO. 10

-L3- EAST MAIN ST (US 221A)

USE TYPICAL SECTION NO. 10

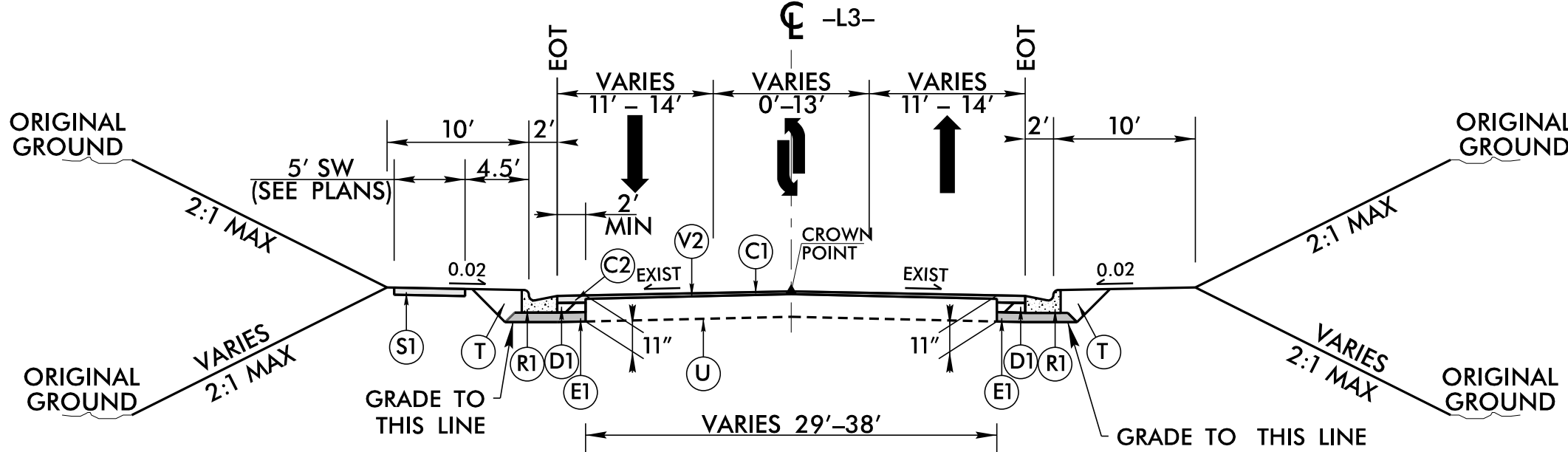
-L3- STA. 50+54.67 TO STA. 53+67.92
-L3- STA. 59+47.45 TO STA. 67+17.17

*USE 8' BERM AT THE FOLLOWING FROM:

-L3- STA. 65+42.81 TO STA. 67+17.51

*USE 4' BERM AT THE FOLLOWING FROM:

-L3- STA. 79+64.63 TO STA. 80+14.63

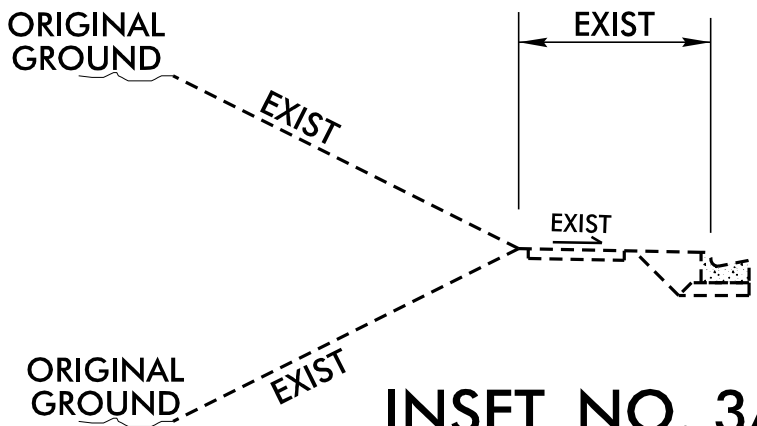


TYPICAL SECTION NO. 11

-L3- EAST MAIN ST (US 221A)

USE TYPICAL SECTION NO. 11

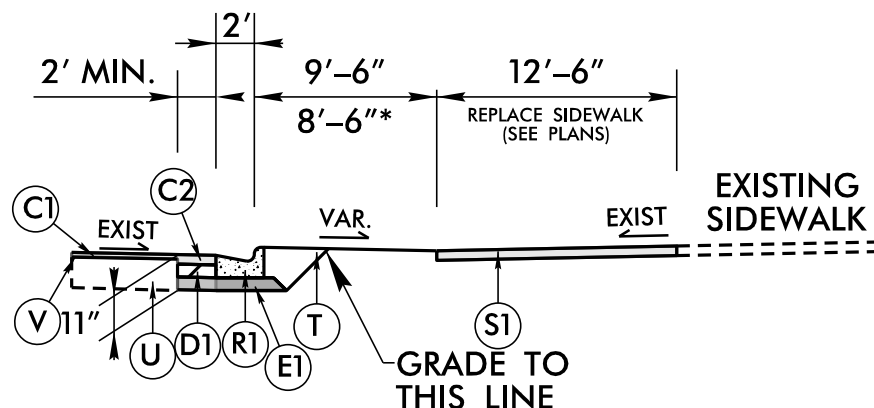
-L3- STA. 56+41.00 TO STA. 59+47.45
-L3- STA. 71+49.44 TO STA. 81+83.83



INSET NO. 3A

USE INSET WITH TYPICAL NOS. 8, 10, AND 11

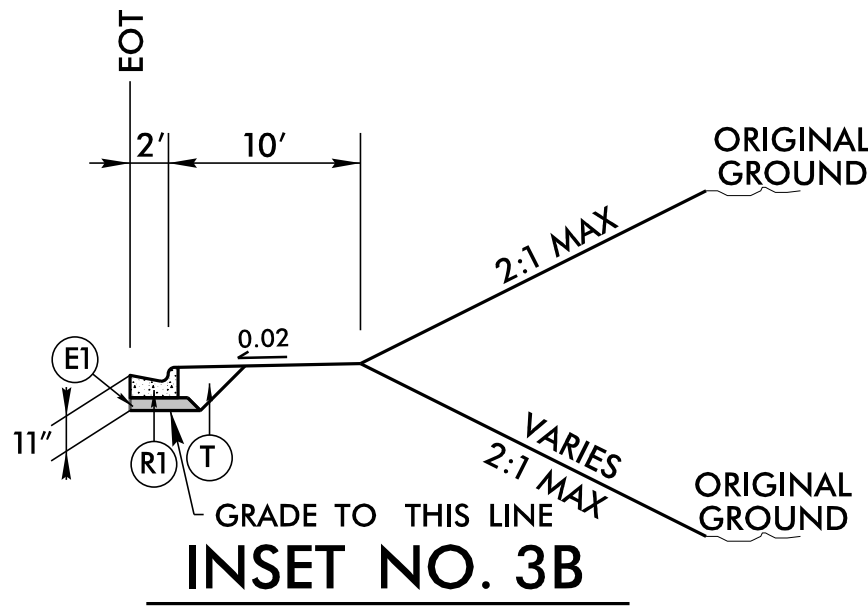
-L3- STA. 43+47.08 TO 44+81.28 LT
-L3- STA. 50+54.67 TO 53+67.92 RT
-L3- STA. 57+38.24 TO 61+20.46 LT
-L3- STA. 73+27.01 TO 81+83.83 LT



INSET NO. 3C

USE INSET WITH TYPICAL NO. 8

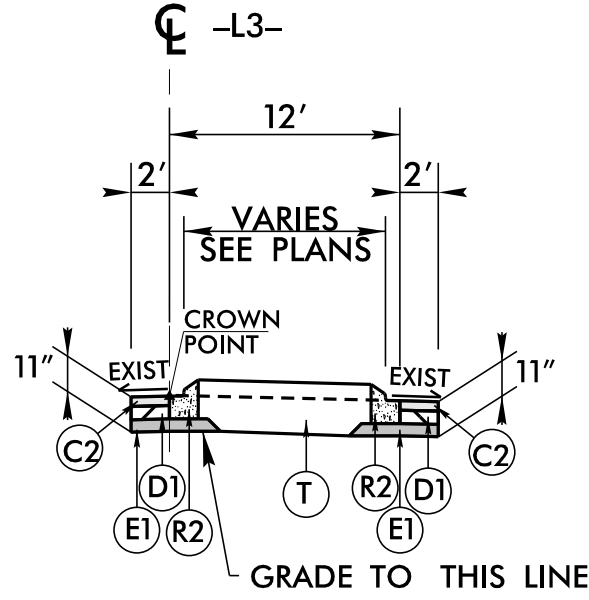
*-L3- STA. 41+63.65 TO STA. 42+34.19 RT
-L3- STA. 42+56.76 TO STA. 43+01.76 RT



INSET NO. 3B

USE INSET WITH TYPICAL NO. 11

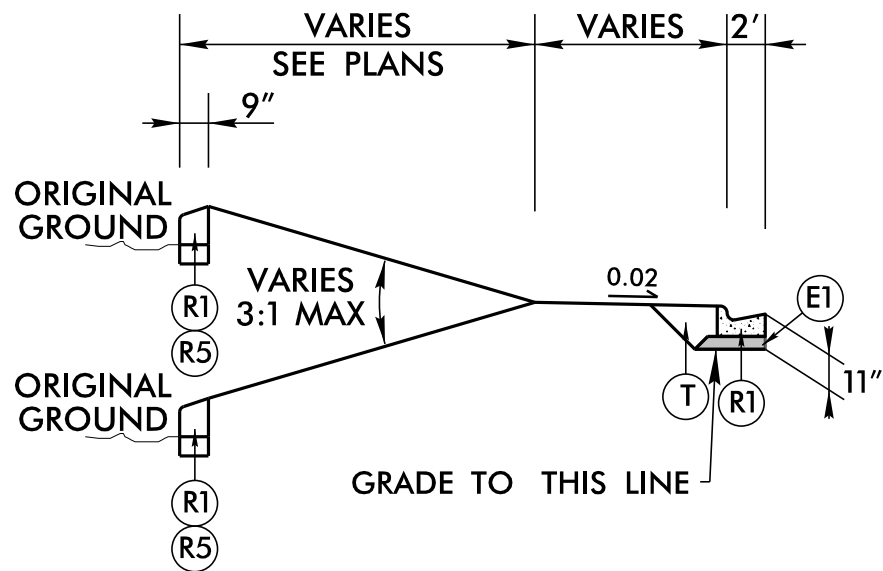
-L3- STA. 56+66.32 TO STA. 59+47.45 RT



INSET NO. 3D

USE TYPICAL SECTION NO. 10

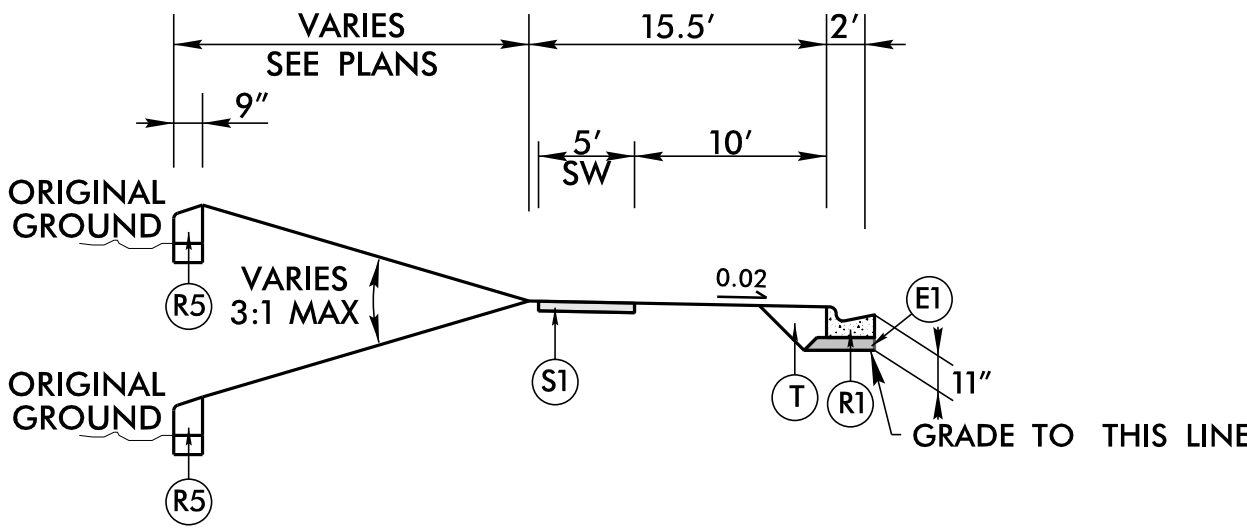
-L3- STA. 65+68.06 TO STA. 66+70.29



INSET NO. 3E

USE INSET WITH TYPICALS NOS. 10, 11, AND 12

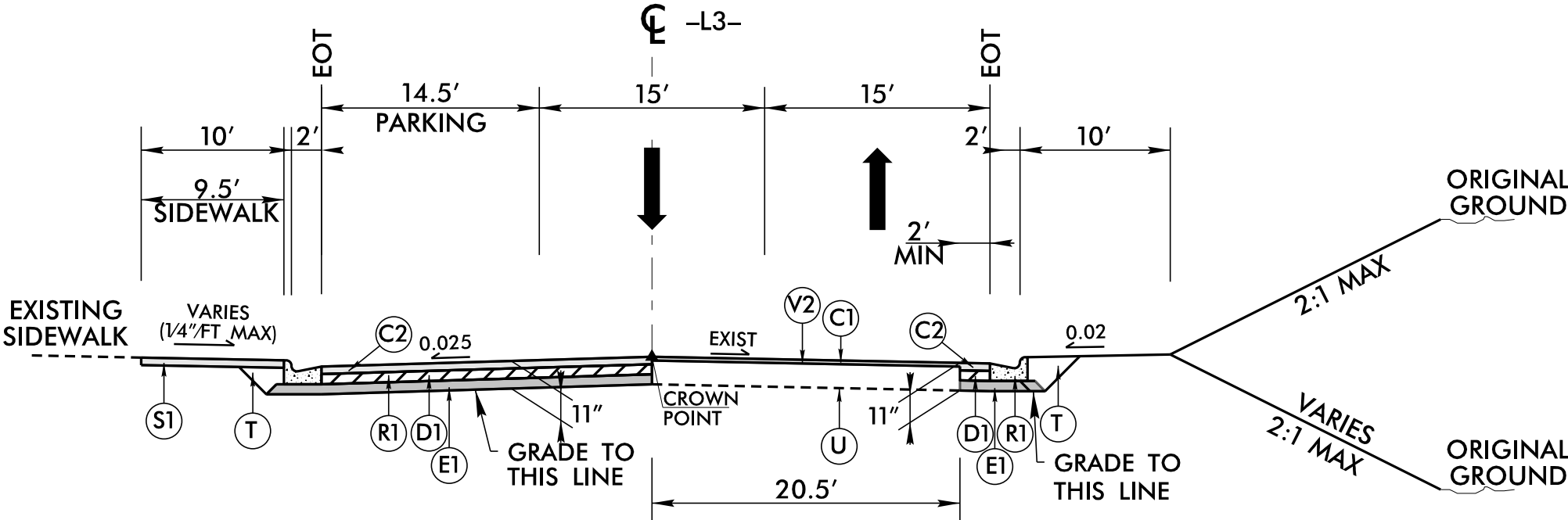
SEE PLANS FOR LOCATIONS



INSET NO. 3F

USE INSET WITH TYPICAL NO. 11

-L3- STA. 71+49.44 TO STA. 73+27.01 LT



TYPICAL SECTION NO. 12

-L3- EAST MAIN ST (US 221A)

USE TYPICAL SECTION NO. 12

-L3- STA. 67+17.17 TO STA. 71+49.44

HL-0065

FP2A-3

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY

ROADWAY DESIGN
ENGINEER

SEAL
042452
JOHN J. HES
7190538165010/2026

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PAVEMENT DESIGN
ENGINEER

SEAL
024964
JOHN J. HES
7190538165010/2026

DOCUMENT NOT CONSIDERED FINAL
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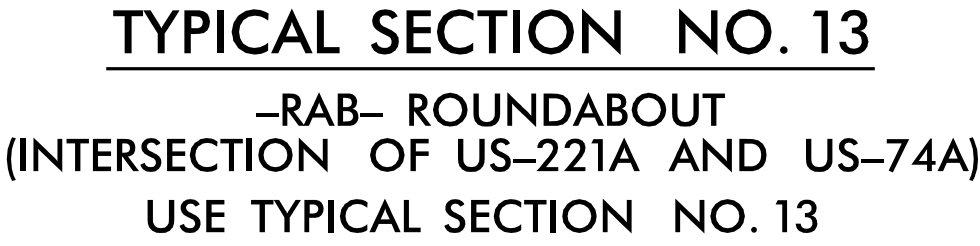
REVISIONS

NOTES:

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

NOTES:

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

[illegible]

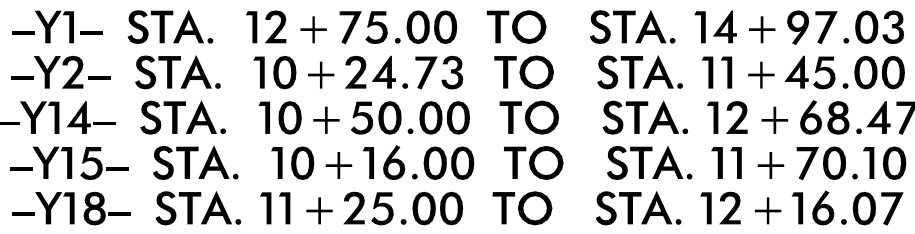
-Y1- N. MAIN ST. (US 221)
-Y2- S. MAIN ST. (US 221)
-Y14- N. OAK ST.
-Y15- S. OAK ST. (SR 2201)
-Y18- SPINDALE ST. (SR 1546)



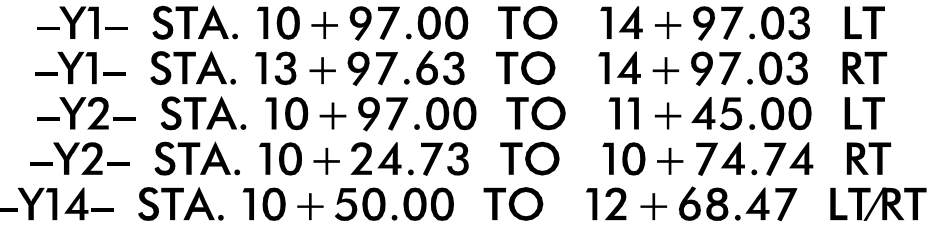
-MUP- STA. 10+06.00 TO STA. 11+73.02



The diagram shows a cross-section of a sewer line. At the top, a vertical dashed line is labeled "C-MUP-". Below this, horizontal dimensions are marked: 4', 8', 10', 8', and 4'. The original ground is shown as a wavy line with slopes of 2:1 on the left and 4:1 on the right. The proposed sewer grade is a straight line below the ground. Key vertical dimensions include 6" offsets from the ground to the sewer line at the ends, and 0.08 and 0.02 feet of depth below the sewer line. Labels "T", "J", "C", and "T" are placed along the sewer line. The text "GRADE TO THIS LINE" appears twice, pointing to the sewer line. The sewer line is labeled "GRADE POINT" at its center.



-Y2- STA. 11+45.00 TO STA. 12+00.00
-Y26- STA. 10+60.95 TO STA. 12+41.49



-Y15- STA. 10+69.17 TO STA. 11+70.10 LT
-Y26- STA. 10+60.95 TO STA. 12+41.49 RT

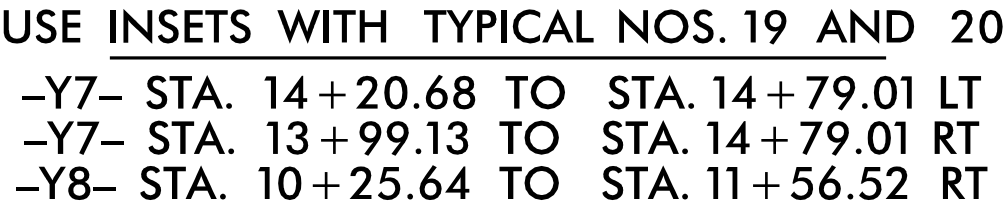
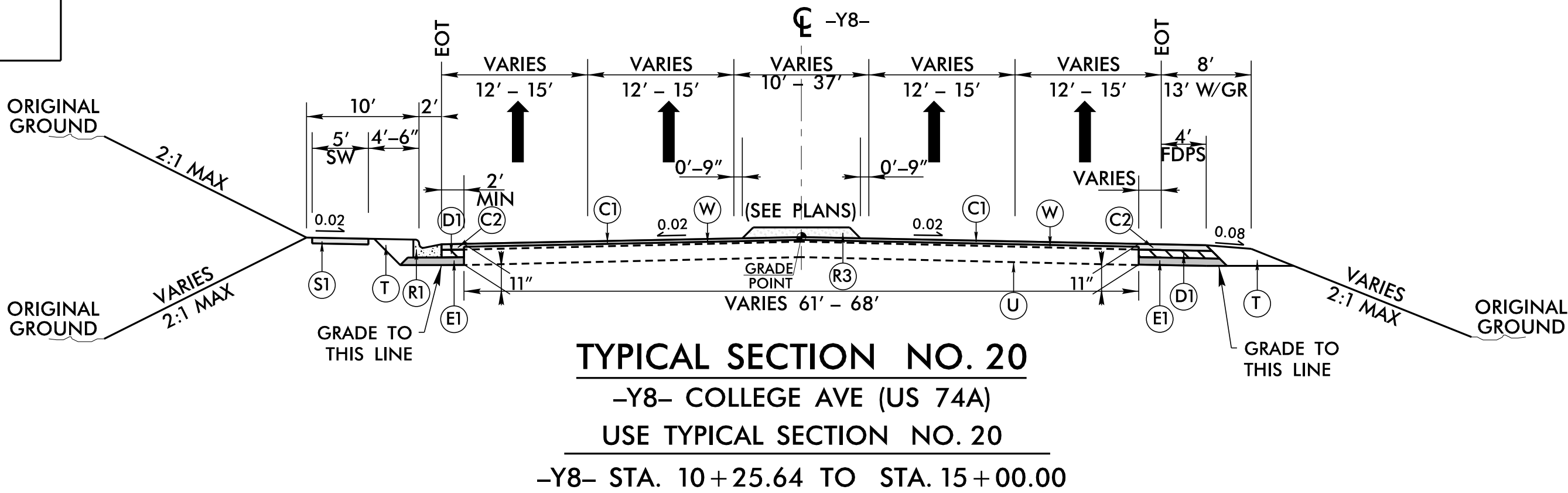


-Y2-	STA. 10 + 24.73	TO	STA. 10 + 97.00	LT
-Y14-	STA. 11 + 55.00	TO	STA. 12 + 68.47	RT
-Y18-	STA. 11 + 62.96	TO	STA. 12 + 16.07	LT
-Y18-	STA. 11 + 64.70	TO	STA. 12 + 16.07	RT

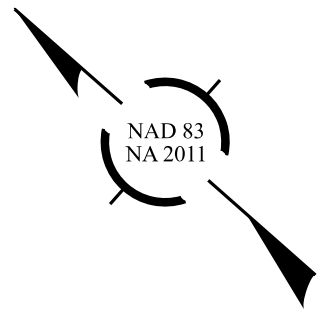
REVISIONS

NOTES:

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



RIGHT OF WAY STATION
AND OFFSET LABELS
DETAIL SHEET



HL-0065

FP2B-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

SEAL
042452

JOHN J. HES
10/2026

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PREPARED BY

HNTB

3030 SOUTH PARKWAY, SUITE 200
RICHMOND, VA 23261
TEL: 804.771.1100
WWW.HNTB.COM

REVISIONS

BEGIN CONSTRUCTION
-L1- STA. 11+59.93

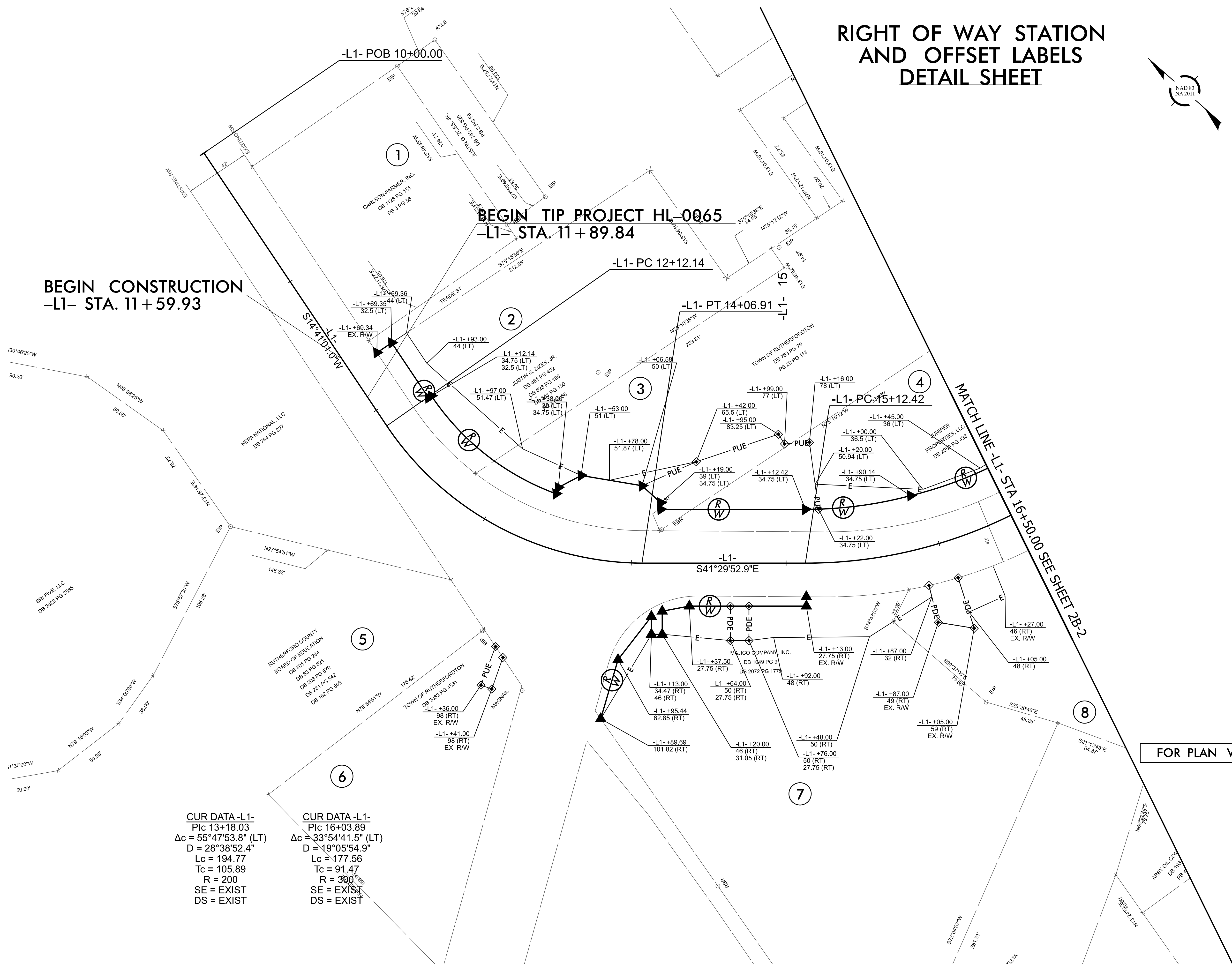
BEGIN TIP PROJECT HL-0065
-L1- STA. 11+89.84

MATCH LINE -L1- STA 16+50.00 SEE SHEET 2B-2

FOR PLAN VIEW, SEE SHEET 4

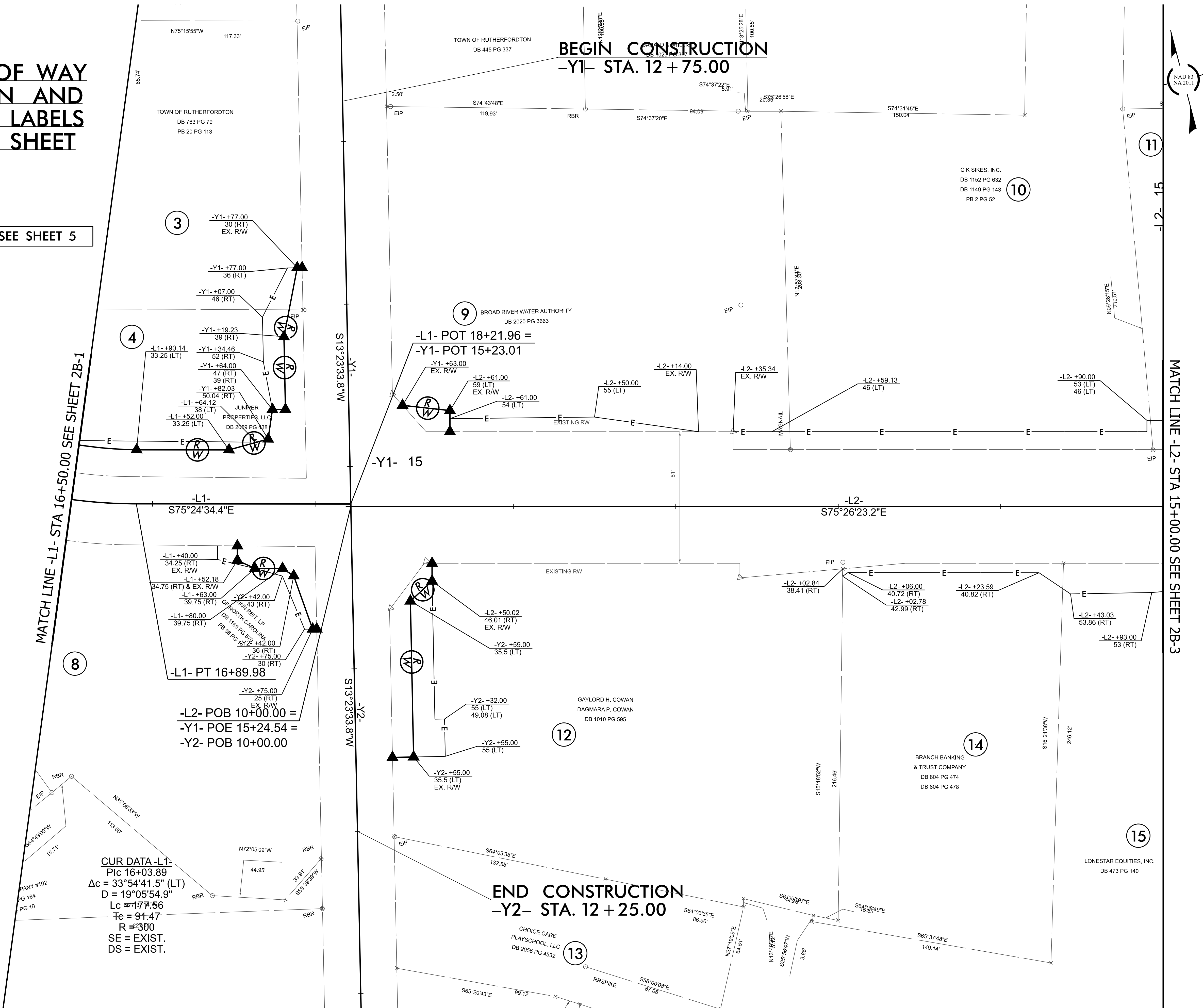
CUR DATA -L1-
Plc 13+18.03
 $\Delta c = 55^{\circ}47'53.8''$ (LT)
 $D = 28^{\circ}38'52.4''$
 $Lc = 194.77$
 $Tc = 105.89$
 $R = 200$
SE = EXIST
DS = EXIST

CUR DATA -L1-
Plc 16+03.89
 $\Delta c = 33^{\circ}54'41.5''$ (LT)
 $D = 19^{\circ}05'54.9''$
 $Lc = 177.56$
 $Tc = 91.47$
 $R = 300$
SE = EXIST
DS = EXIST



RIGHT OF WAY STATION AND OFFSET LABELS DETAIL SHEET

FOR PLAN VIEW, SEE SHEET 5



REVISIONS

HL-0065 FP 2B-2	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RUTHERFORD COUNTY	
	
ROADWAY DESIGN UNIT	
ROADWAY DESIGN ENGINEER	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PREPARED BY HNTB 10000 W. SANDHURST AVENUE SUITE 200 GREENSBORO, NC 27409	



MATCH LINE -L2- STA 22+50.00 SEE SHEET 2B-4

FOR PLAN VIEW, SEE SHEET 6



PREPARED BY

HNTB

HNTB NORTH CAROLINA, P.C.
4000 Center at North Hills
Street, Suite 800
Raleigh, North Carolina 27609
NC License #91-C-1084

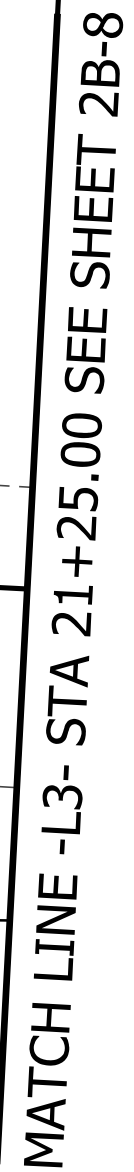
REVISIONS



FOR PLAN VIEW, SEE SHEET 11

REVISIONS

NAD 83
NA 2011

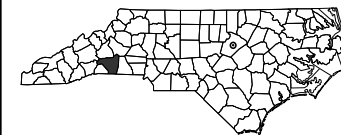


FOR PLAN VIEW, SEE SHEET 13

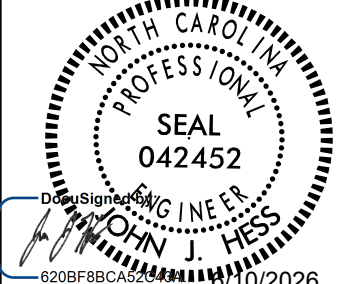
REVISIONS

HI-0065

FP	2B.
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NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROADWAY DESIGN UNIT

ROADWAY DESIGN
ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETE

PREPARED BY



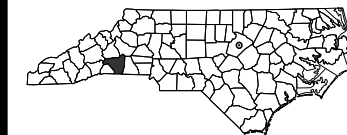


FOR PLAN VIEW, SEE SHEET 14

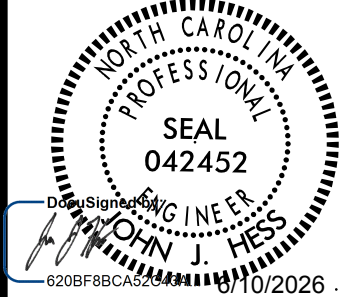
REVISIONS

FP	2B-8
----	------

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION



ROADWAY DESIGN UNIT

ROADWAY DESIGN
ENGINEER

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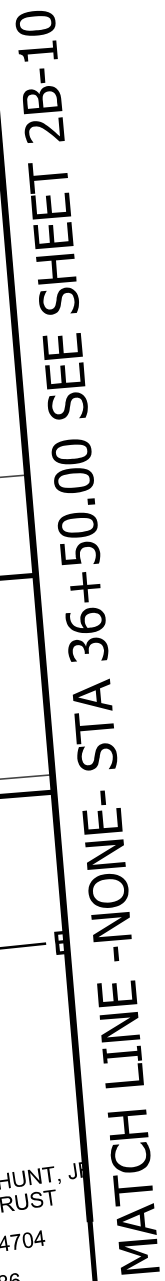
PREPARED BY



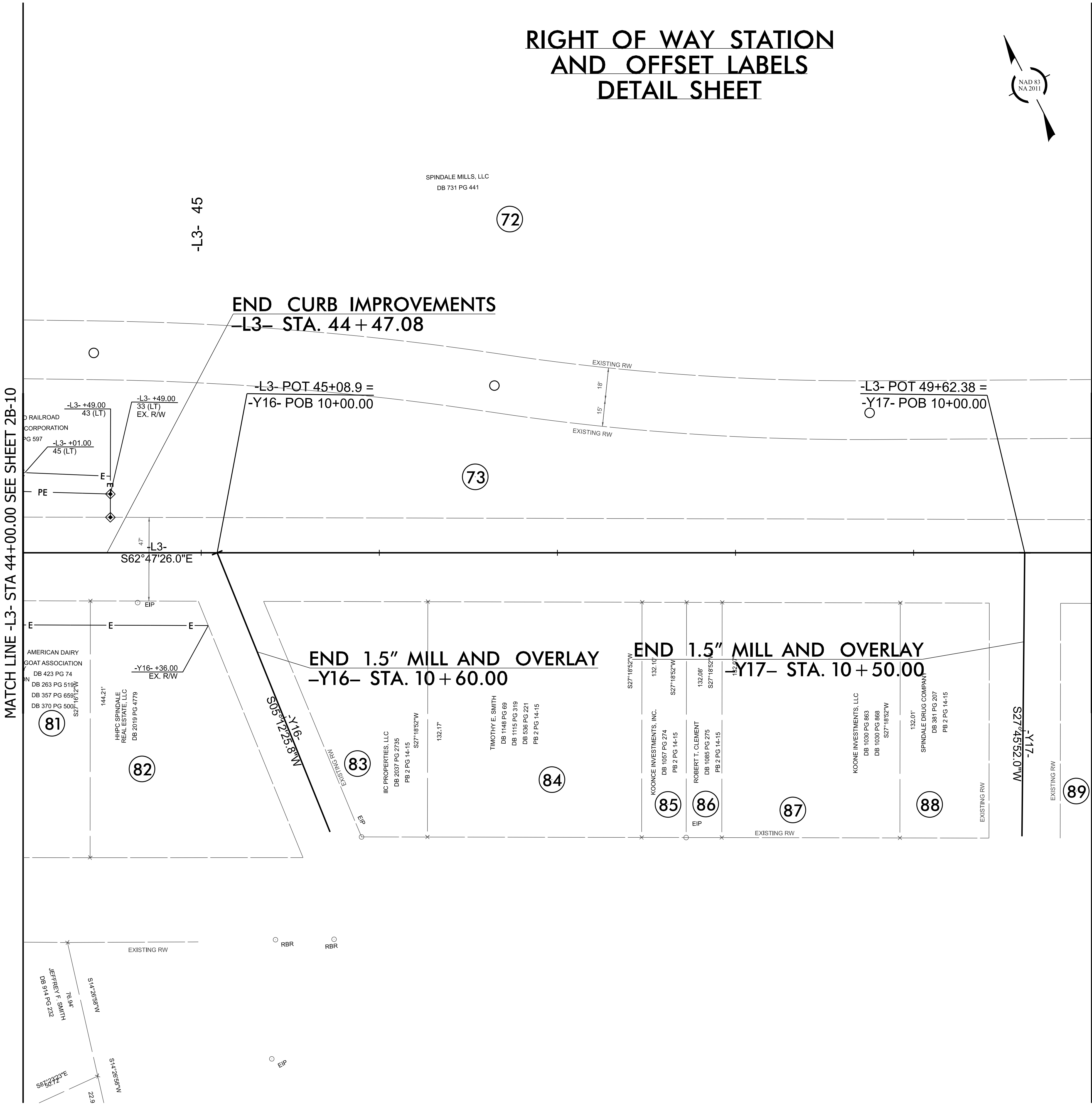
 CHARLES D. TAYLOR

 ESTATE FILE 19E PG 468

 073 PG 324



FOR PLAN VIEW, SEE SHEET 15



MATCH LINE -L3- STA 50+00.00 SEE SHEET 2B-12

FOR PLAN VIEW, SEE SHEET 17

REVISIONS

HL-0065

FP2B-II

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

PROFESSIONAL
SEAL
042452

JOHN J. LEE
10/2026

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HNTB

3030 BAYVIEW PARKWAY, SUITE 200
RUTHERFORD, NJ 07070
TEL: 908.382.1000
WWW.HNTB.COM

MATCH LINE -L3- STA 50+00.00 SEE SHEET 2B-11

MATCH LINE -L3- STA 56+00.00 SEE SHEET 2B-13

SPINDALE MILLS, LLC
DB 731 PG 441

72

BEGIN CONSTRUCTION
-Y18- STA. 10 + 95.00

-L3- POT 52+43.28 =
-Y18- POT 12+35.07

-L3- PC 50+59.37

73

-L3-
S62°47'26.0"E

BEGIN CURB IMPROVEMENTS
-L3- STA. 50 + 54.67

89

CUR DATA -L3-
P/c 51+58.22
 $\Delta c = 02^\circ 15' 54.8''$ (RT)
D = $01^\circ 08' 45.3''$
Lc = 197.68
Tc = 98.85
R = 5,000
SE = EXIST
DS = EXIST

CUR DATA -L3-
P/c 53+27.45
 $\Delta c = 01^\circ 36' 47.8''$ (LT)
D = $01^\circ 08' 45.3''$
Lc = 140.78
Tc = 70.40
R = 5,000
SE = EXIST
DS = EXIST

ADVENT EMERGENCY
LUTHERAN CHURCH
DB AD PG 520
DB 255 PG 247
DB 218 PG 409
PB 1 PG 79

91

S64°09'17"E
161.89'

-Y18-
S29°54'03.9"W

125

VERICK ASSET MANAGEMENT, LLC
DB 2073 PG 2212
-Y18- +26.68
81.9 (LT)

-L3- PRC 52+57.05

-L3- PT 53+97.83

-L3- 55

RUTHERFORD RAILROAD
DEVELOPMENT CORPORATION
1 CVD PG 597

90

-L3- -Y19- 10
S62°08'18.9"E

END CONSTRUCTION
-Y19- STA. 10 + 50.00

92

93

SPINDALE EMERGENCY SUPPORT
DB 233 PG 25

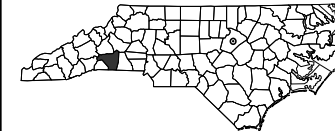


RIGHT OF WAY STATION AND OFFSET LABELS DETAIL SHEET

HL-0065

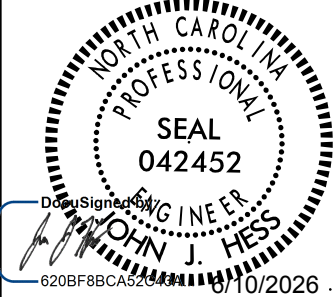
FP 2B-12

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY



ROADWAY DESIGN UNIT

ROADWAY DESIGN
ENGINEER



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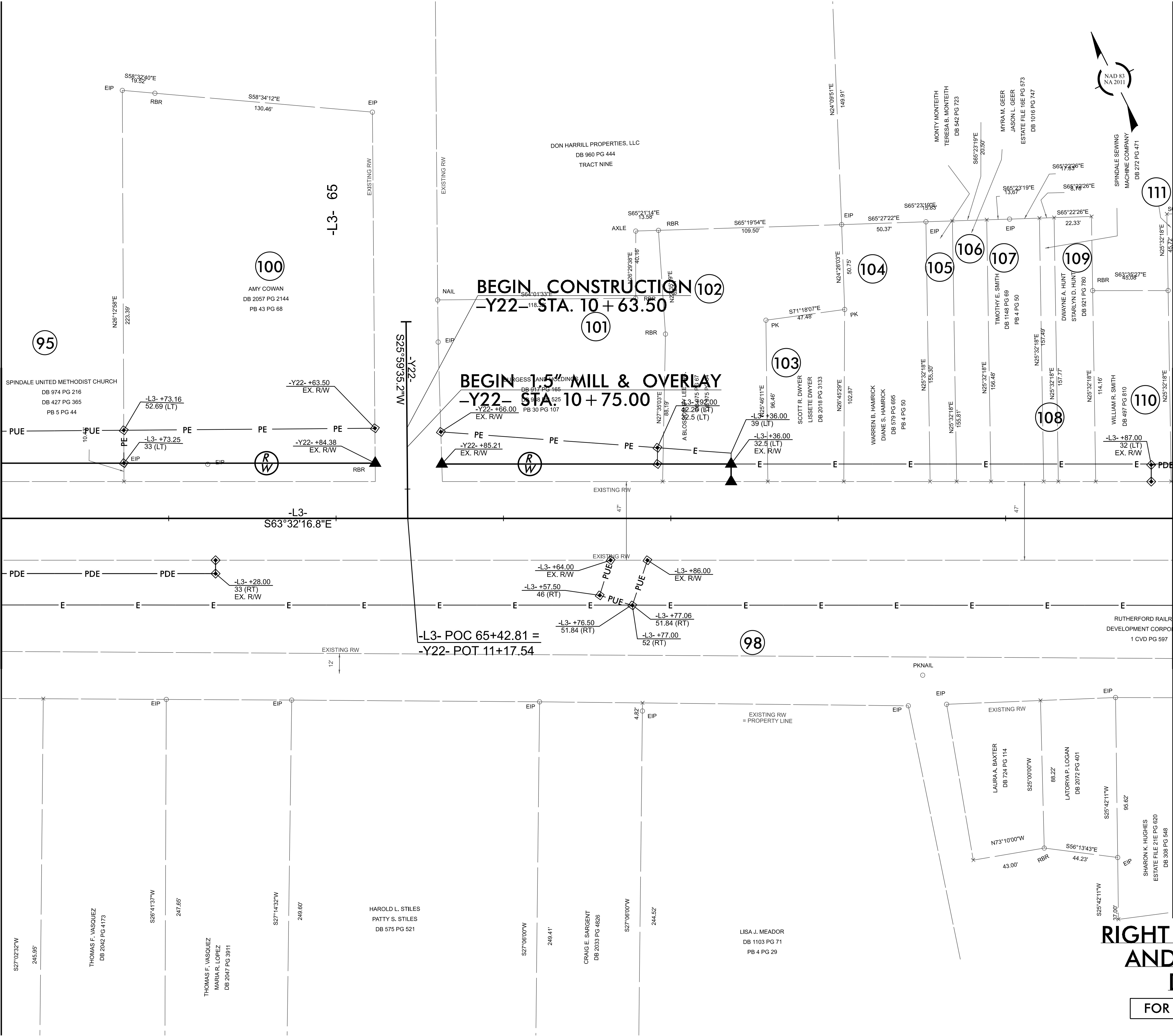
REVISIONS

FOR PLAN VIEW, SEE SHEET 18



FOR PLAN VIEW, SEE SHEET 19

MATCH LINE -L3- STA 63+00.00 SEE SHEET 2B-13



MATCH LINE -L3- STA 70+00.00 SEE SHEET 2B-15

RIGHT OF WAY STATION AND OFFSET LABELS DETAIL SHEET

FOR PLAN VIEW, SEE SHEET 20

REVISIONS

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FP2B-14

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

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PREPARED BY

HNTB
10000 WOODBRIDGE CIRCLE
SUITE 200
GREENSBORO, NC 27409
(336) 285-0000
WWW.HNTB.COM

NAD 83
NA 2011



PREPARED BY

HNTB

HNTB NORTH CAROLINA, P.C.
4000 CENTER ST. NORTH WILKES
STREET, SUITE 500
WILKES, NORTH CAROLINA 27609
NC LICENSE # 931-C-10884

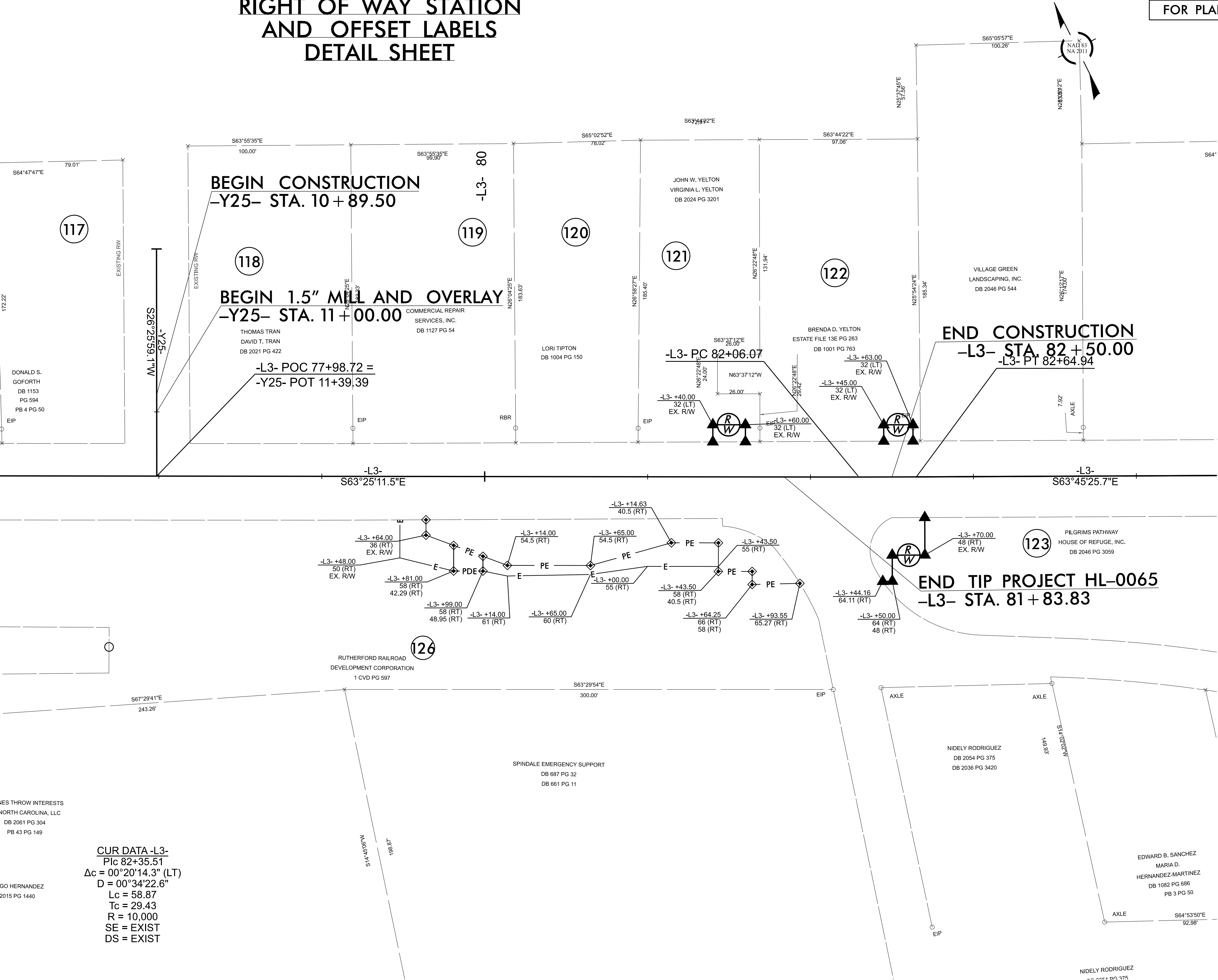
REVISIONS

RIGHT OF WAY STATION
AND OFFSET LABELS
DETAIL SHEET

FOR PLAN VIEW, SEE SHEET 22

MATCH LINE -L3- STA 77+00.00 SEE SHEET 2B-15

CUR DATA -L3-
Plc 82+35.51
 $\Delta c = 00^{\circ}20'14.3''$ (LT)
 $D = 00^{\circ}34'22.6''$
 $L_c = 58.87$
 $T_c = 29.43$
 $R = 10,000$
SE = EXIST
DS = EXIST



HL-0065

FP2B-16

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

SEAL
042452

JOHN J. HESS
10/2026

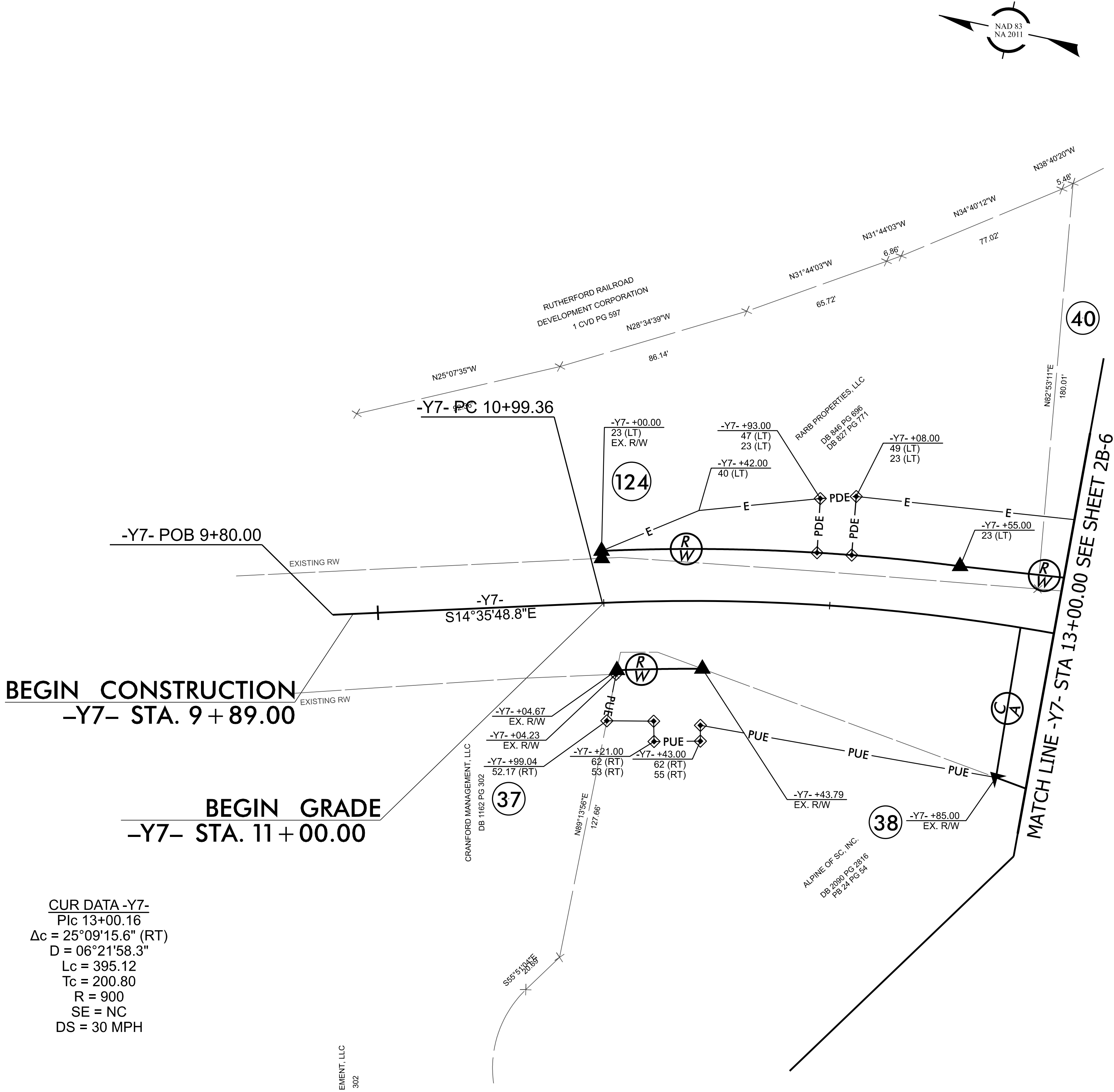
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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JOHN J. HESS
10/2026

REVISIONS



CUR DATA -Y7-
Plc 13+00.16
 $\Delta c = 25^{\circ}09'15.6''$ (RT)
 $D = 06^{\circ}21'58.3''$
 $L_c = 395.12$
 $T_c = 200.80$
 $R = 900$
 $SE = NC$
 $DS = 30$ MPH

ELEMENT, LLC
302



RIGHT OF WAY STATION
AND OFFSET LABELS
DETAIL SHEET

MATCH LINE -Y7- STA 13+00.00 SEE SHEET 2B-6

FOR PLAN VIEW, SEE SHEET 23

REVISIONS

HL-0065

FP2B-17

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

SEAL
042452

JOHN J. HES
10/2026

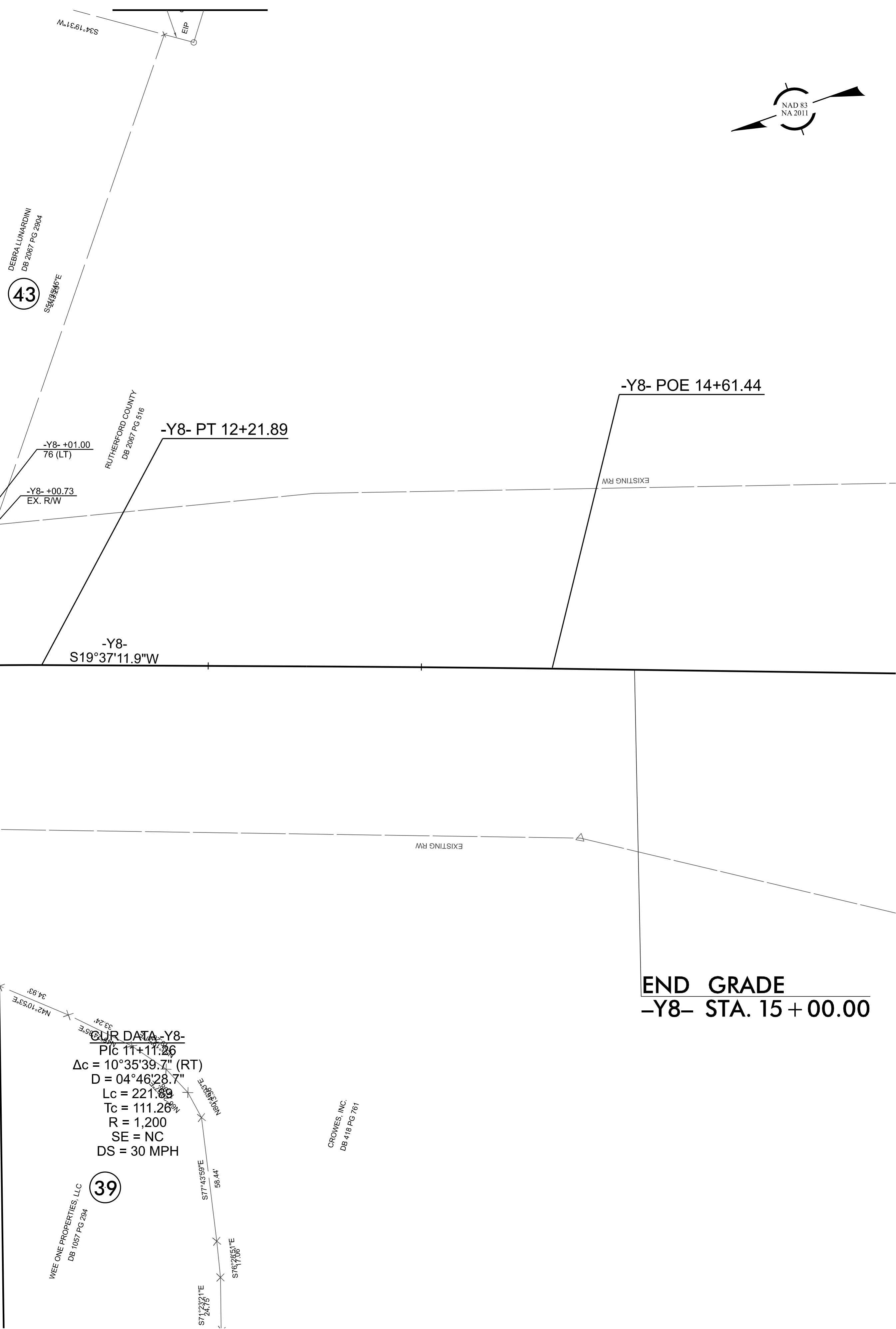
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PREPARED BY

HNTB

2025 NORTH CAROLINA PROFESSIONAL ENGINEER
2025 NORTH CAROLINA PROFESSIONAL ENGINEER
2025 NORTH CAROLINA PROFESSIONAL ENGINEER
2025 NORTH CAROLINA PROFESSIONAL ENGINEER

MATCH LINE -Y8- STA 12+00.00 SEE SHEET 2B-6



RIGHT OF WAY STATION
AND OFFSET LABELS
DETAIL SHEET

DEBRA LUNARDINI
DB 2087 PG 2304
43
S84°38'46"E

-Y8- +01.00
76 (LT)

-Y8- +00.73
EX. R/W

RUTHERFORD COUNTY
DB 2087 PG 518

-Y8- PT 12+21.89

-Y8-
S19°37'11.9"W

-Y8- POE 14+61.44

EXISTING R/W

EXISTING R/W

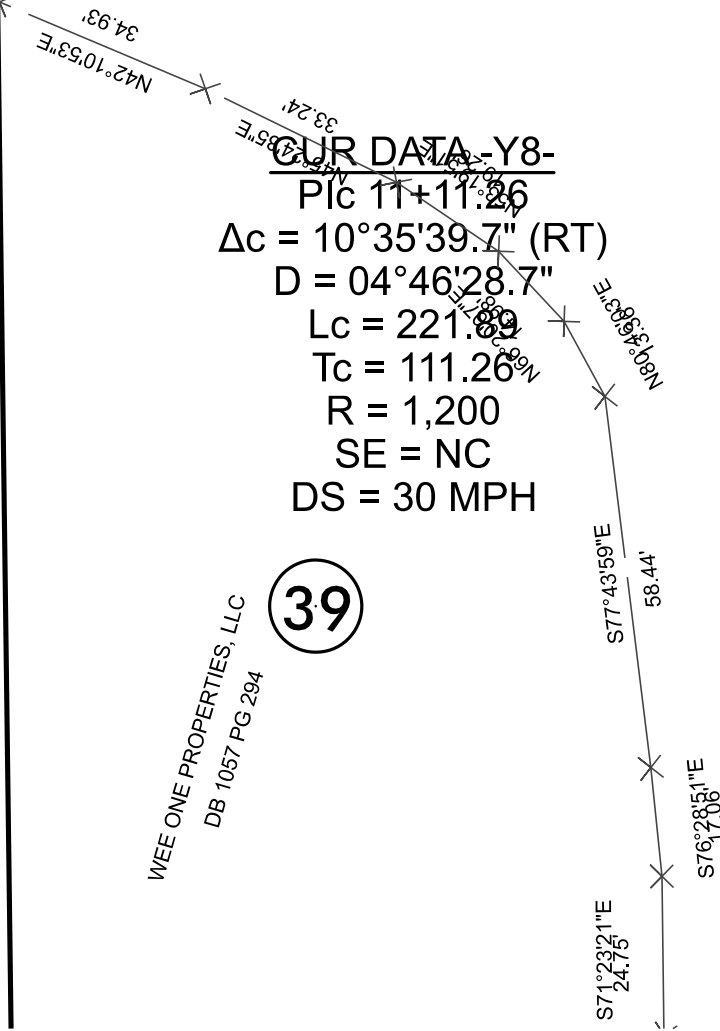
END GRADE
-Y8- STA. 15 + 00.00

CUR DATA -Y8-
PIC 11+11.26
 $\Delta c = 10^{\circ}35'39.7''$ (RT)
 $D = 04^{\circ}46'28.7''$
 $Lc = 221.89$
 $Tc = 111.26$
 $R = 1,200$
 $SE = NC$
 $DS = 30$ MPH

39

WEE ONE PROPERTIES, LLC
DB 1087 PG 284

CROWES, INC.
DB 718 PG 761



FOR PLAN VIEW, SEE SHEET 24

HL-0065

FP2B-18

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

NORTH CAROLINA
PROFESSIONAL
SEAL
042452

JOHN J. HES
10/2026

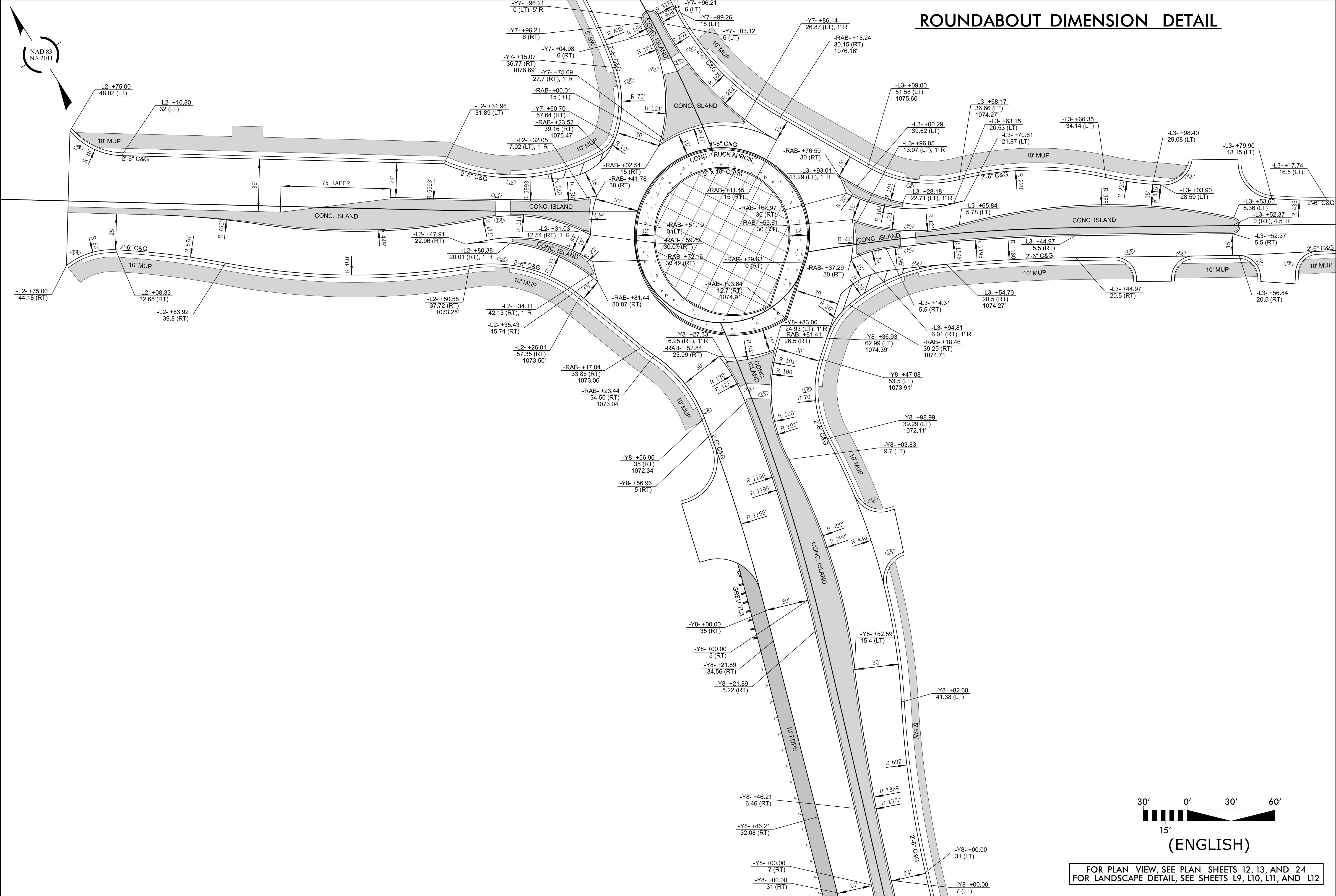
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PREPARED BY

HNTB

3030 BAYVIEW PARKWAY, SUITE 200
DURHAM, NC 27705
919.286.8000
WWW.HNTB.COM

REVISIONS



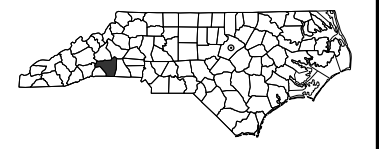
REVISIONS

-L1- /MAPLE ST
INTERSECTION DIMENSION DETAIL

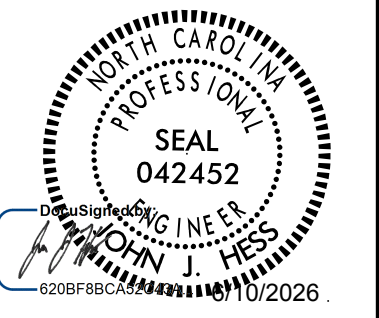
HL-0065

FP28-20

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY



ROADWAY DESIGN UNIT
ENGINEER

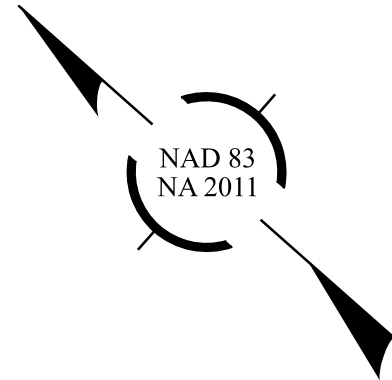


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PREPARED BY


HNTB
Hatch Mott MacDonald
10000 Old Airport Road, Suite 100
Charlotte, NC 28226
NO LICENSE REQUIRED IN NORTH CAROLINA

REVISIONS



-L1- +50.00
15 (LT)

-L1- +20.43
29.04 (RT)

-L1- +19.55
30.77 (RT)

-L1- STA. 13+22.69
24.75' RT
5' R

-L1- +22.69
17.75 (RT)

-L1- +22.69
19.75 (RT)

-L1- +22.69
30.59 (RT)

-L1- +50.59
54.44 (RT)

-L1- +53.05
53.64 (RT)

-L1- +56.41
58.89 (RT)

-L1- +56.52
63.49 (RT)

-L1- +56.82
61.19 (RT)

-L1- +57.52
61.98 (RT)

-L1- +57.83
59.68 (RT)

-L1- STA. 13+60.06
58.23' RT
5' R

-L1- +53.89
17.75 (RT)

-L1- +53.89
19.75 (RT)

-L1- +62.88
26.56 (RT)

-L1- +63.86
40.62 (RT)

-L1- +63.11
40.19 (RT)

-L1- +51.59
52.89 (RT)

-L1- +64.69
40.67 (RT)

-L1- +65.47
58.55 (RT)

-L1- +63.93
58.44 (RT)

-L1- +62.66
24.48 (RT)

-L1- +61.27
25.72 (RT)

-L1- +66.76
33.25 (RT)

-L1- +86.44
60.5 (RT)

-L1- +84.86
72.71 (RT)

-L1- STA. 13+86.31
82.80' RT

-L1- +37.50
15.75 (RT)

-L1- +88.09
15.75 (RT)

-L1- +16.44
37.53 (RT)

-L1- +87.15
17.25 (LT)

-L1- PT 14+06.91

-L1- PC 15+12.42

150' LANE TRANSITION

5' SIDEWALK

10' SIDEPATH

2' 6" C&G

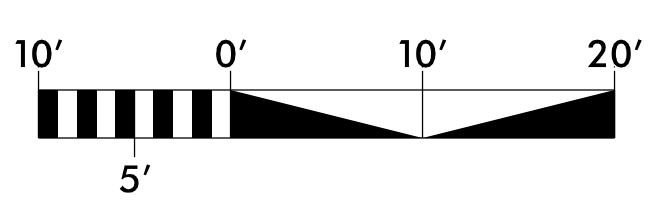
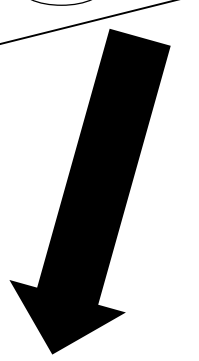
2' 6" C&G

-L1-
S41°29'52.9"E

CR

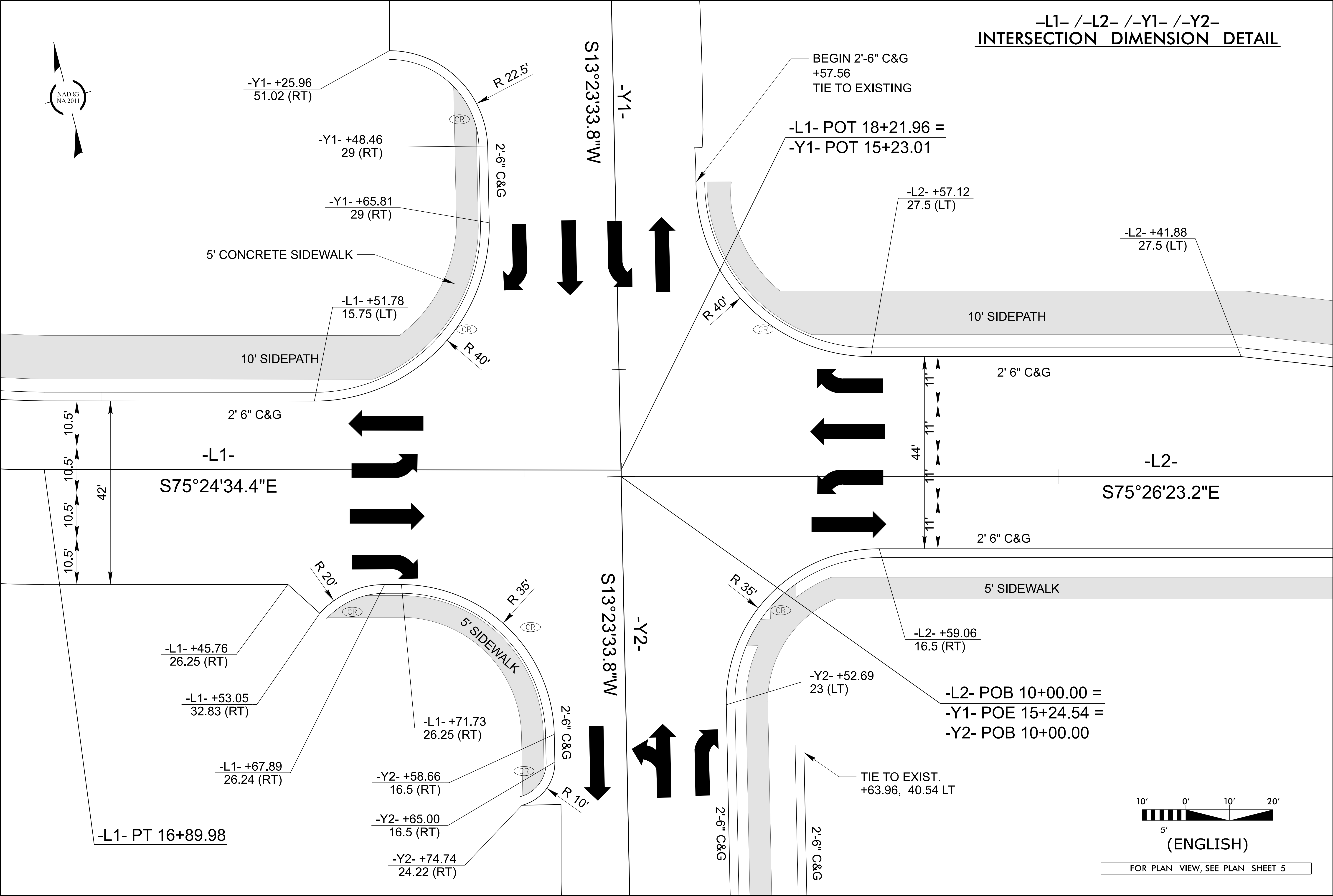
CR

CR



(ENGLISH)

FOR PLAN VIEW, SEE PLAN SHEET 4
FOR LANDSCAPE DETAIL, SEE SHEET L5



HL-0065

FP28-21

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN ENGINEER

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UNLESS ALL SIGNATURES COMPLETED

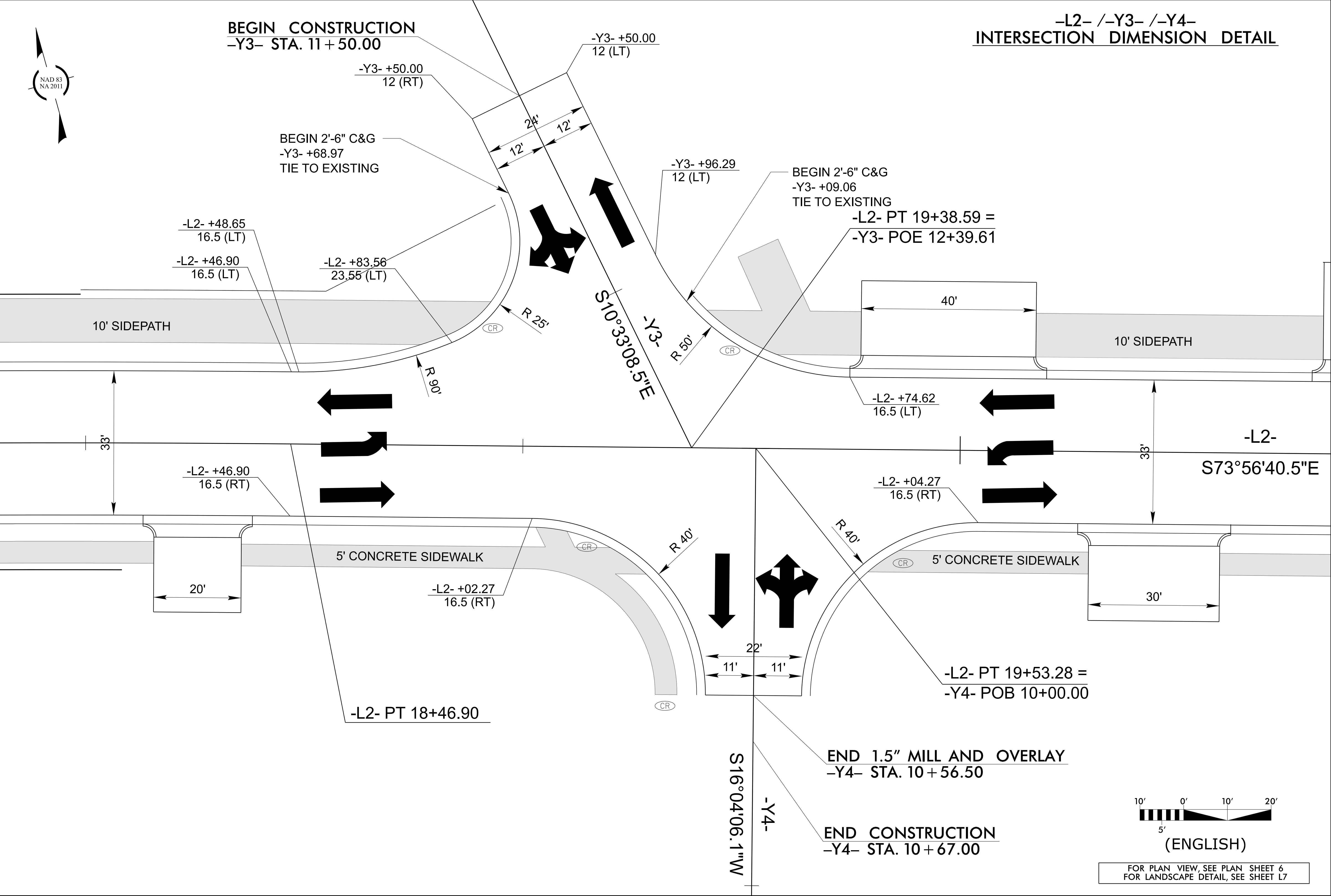
PREPARED BY

HNTB
2000 OFFICE: 10000 N. HILLS
SUITE 100, RUTHERFORD COUNTY, NC 28133
NO LICENSE NOT 01/15/11/18/2026

REVISIONS

(ENGLISH)
FOR PLAN VIEW, SEE PLAN SHEET 5

11/14/23



HL-0065

FP28-22

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

NORTH CAROLINA
PROFESSIONAL
SEAL
042452
JOHN J. HES
10/2026

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PREPARED BY

HNTB

2020 OFFICIAL NORTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
NO LICENSE NOT 07/16/24 11/20/2026

REVISIONS

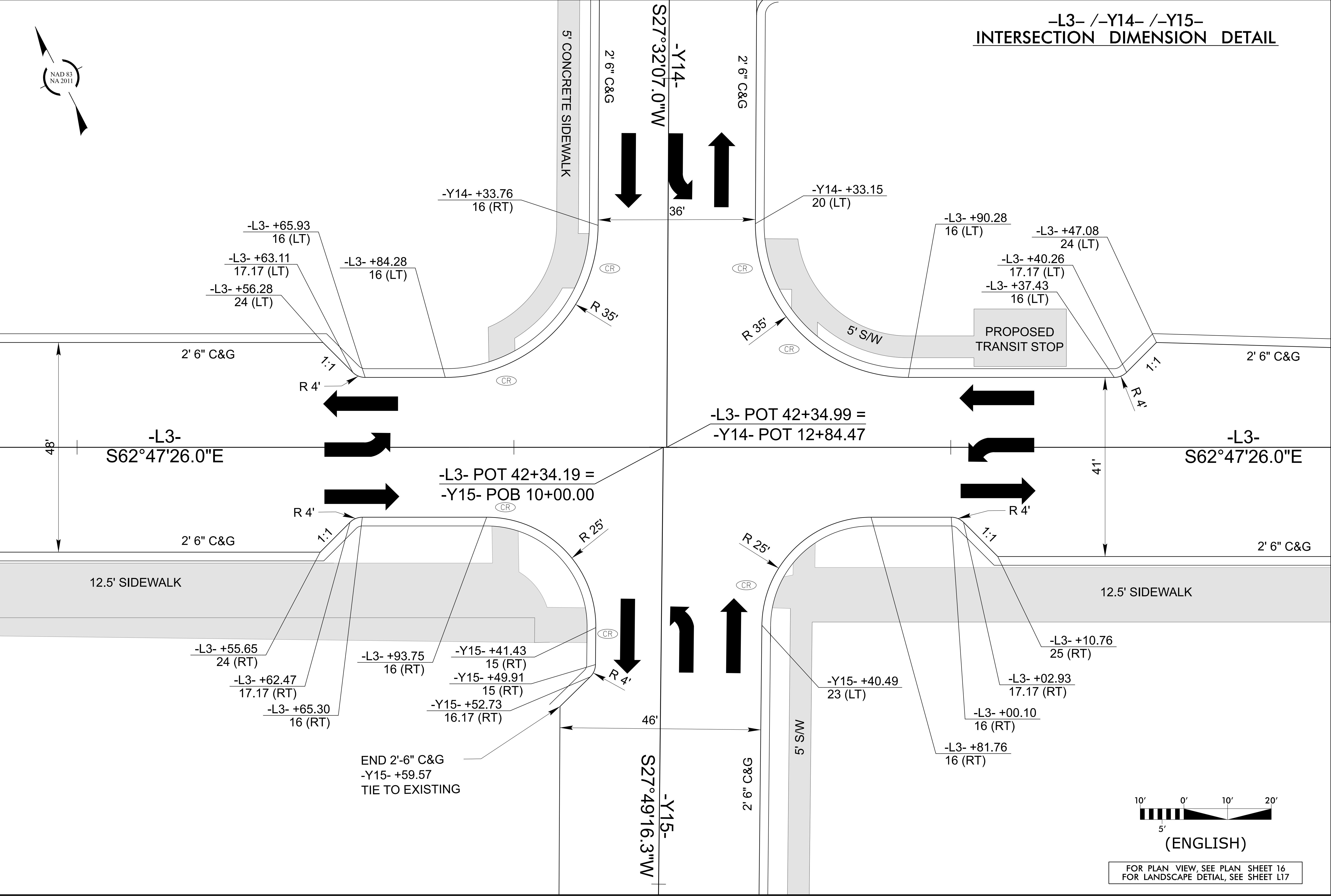
10'0'10'20'

5'

(ENGLISH)

FOR PLAN VIEW, SEE PLAN SHEET 6
FOR LANDSCAPE DETAIL, SEE SHEET L7

11/14/23



HL-0065

FP2B-23

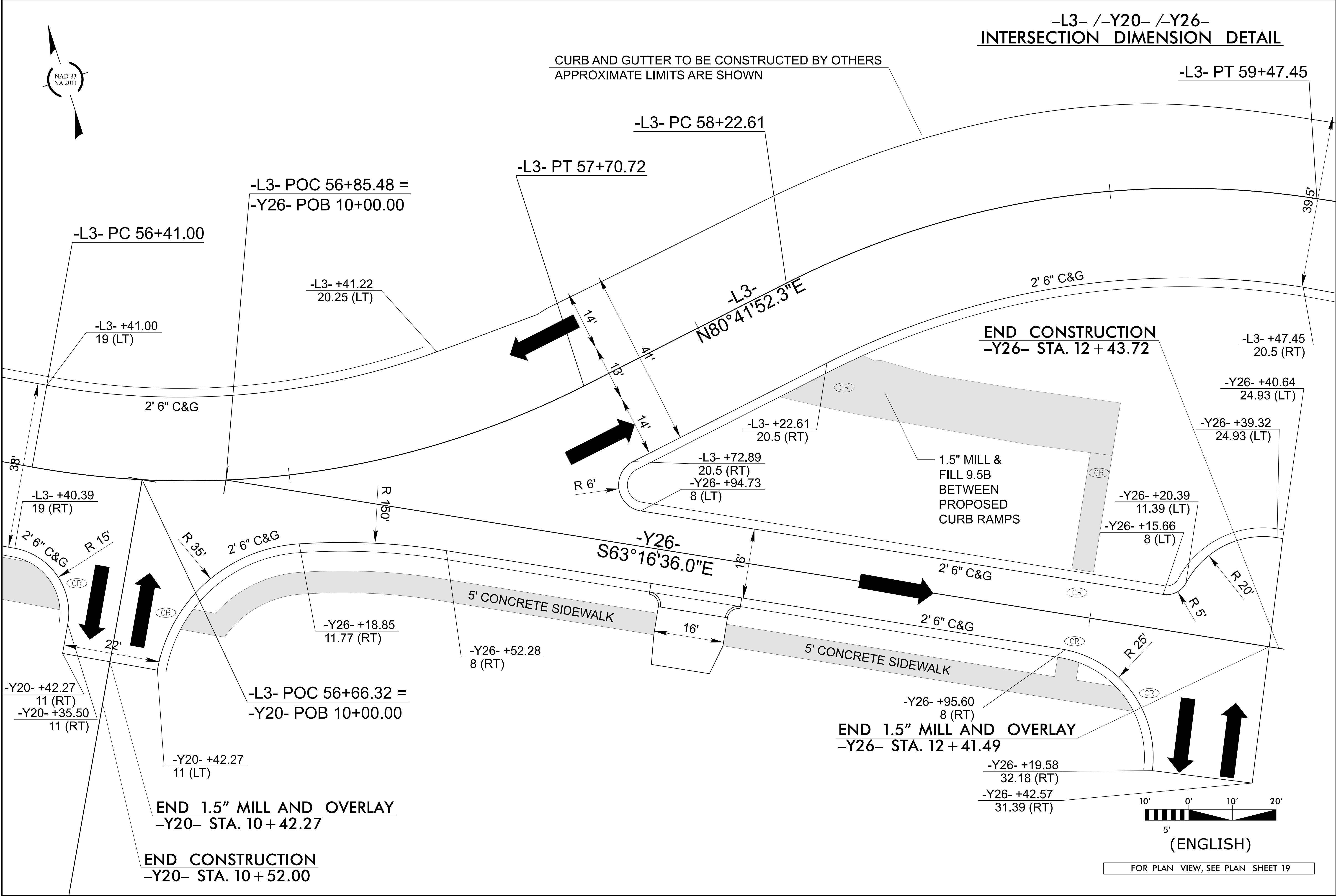
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY

ROADWAY DESIGN UNIT
ENGINEER

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UNLESS ALL SIGNATURES COMPLETED

PREPARED BY
HNTB
HNTB CONSULTANTS, INC.
2000 OFFICE PARKWAY, SUITE 100
RUTHERFORD, NEW JERSEY 07070
NO LICENSE REQUIRED IN NEW JERSEY

REVISIONS



HL-0065

FP28-24

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY



ROADWAY DESIGN UNIT
ROADWAY DESIGN ENGINEER

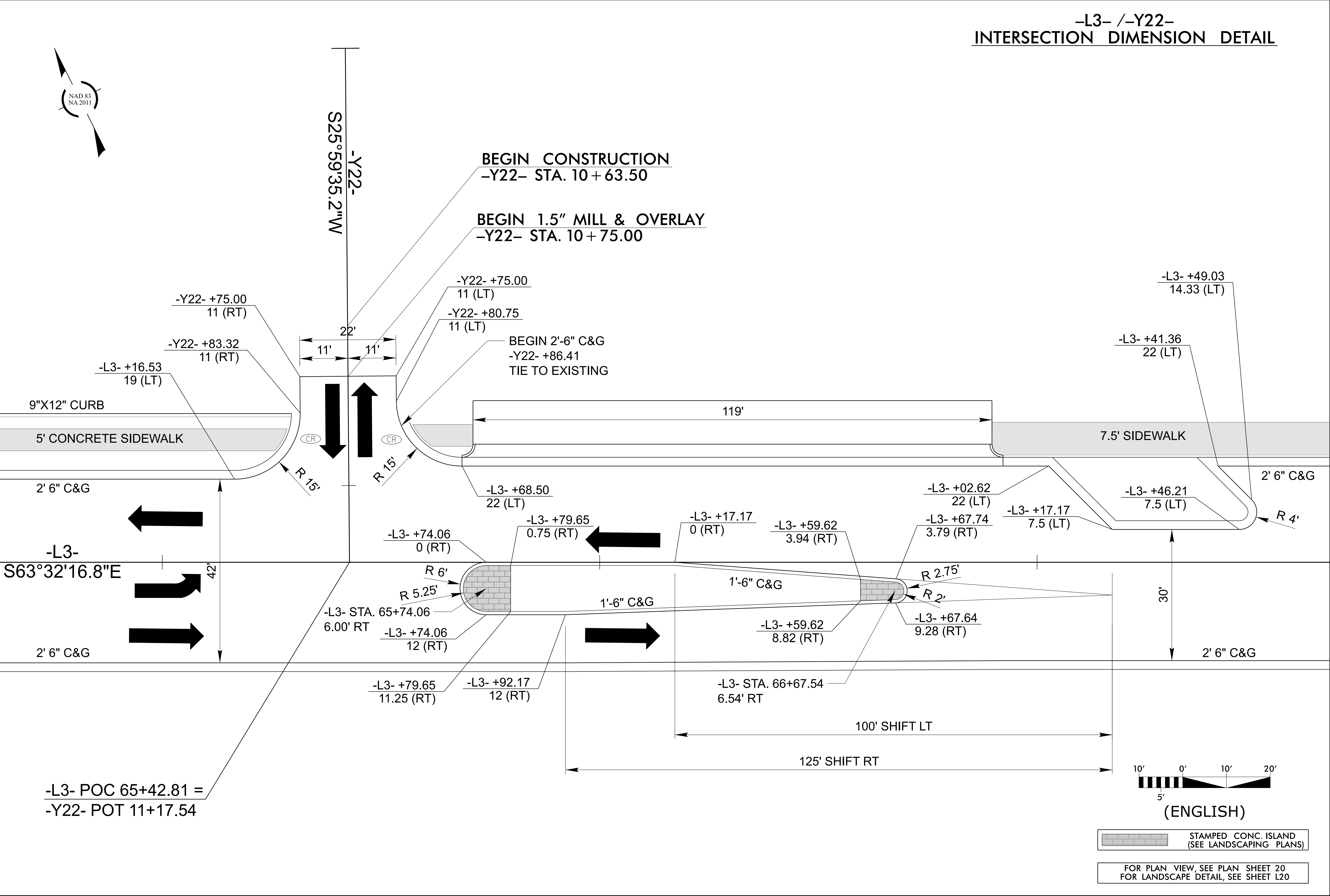


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FP28-25

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY

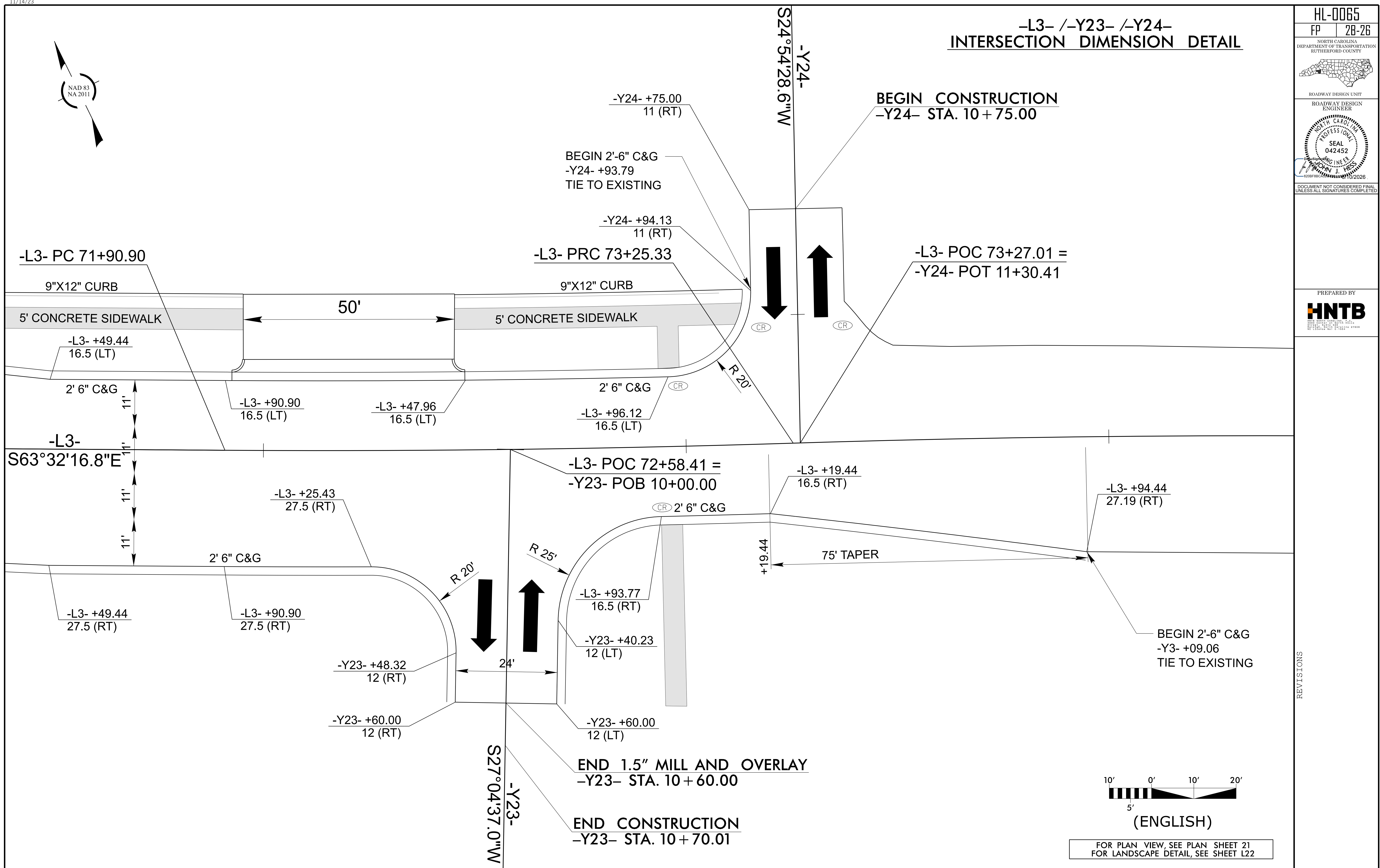
ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

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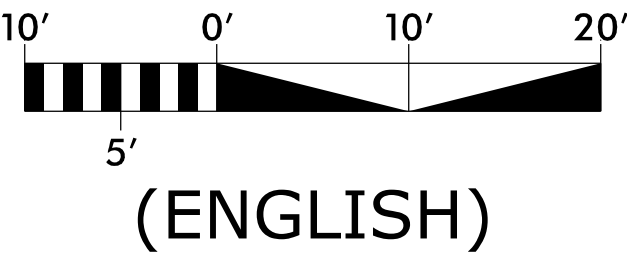
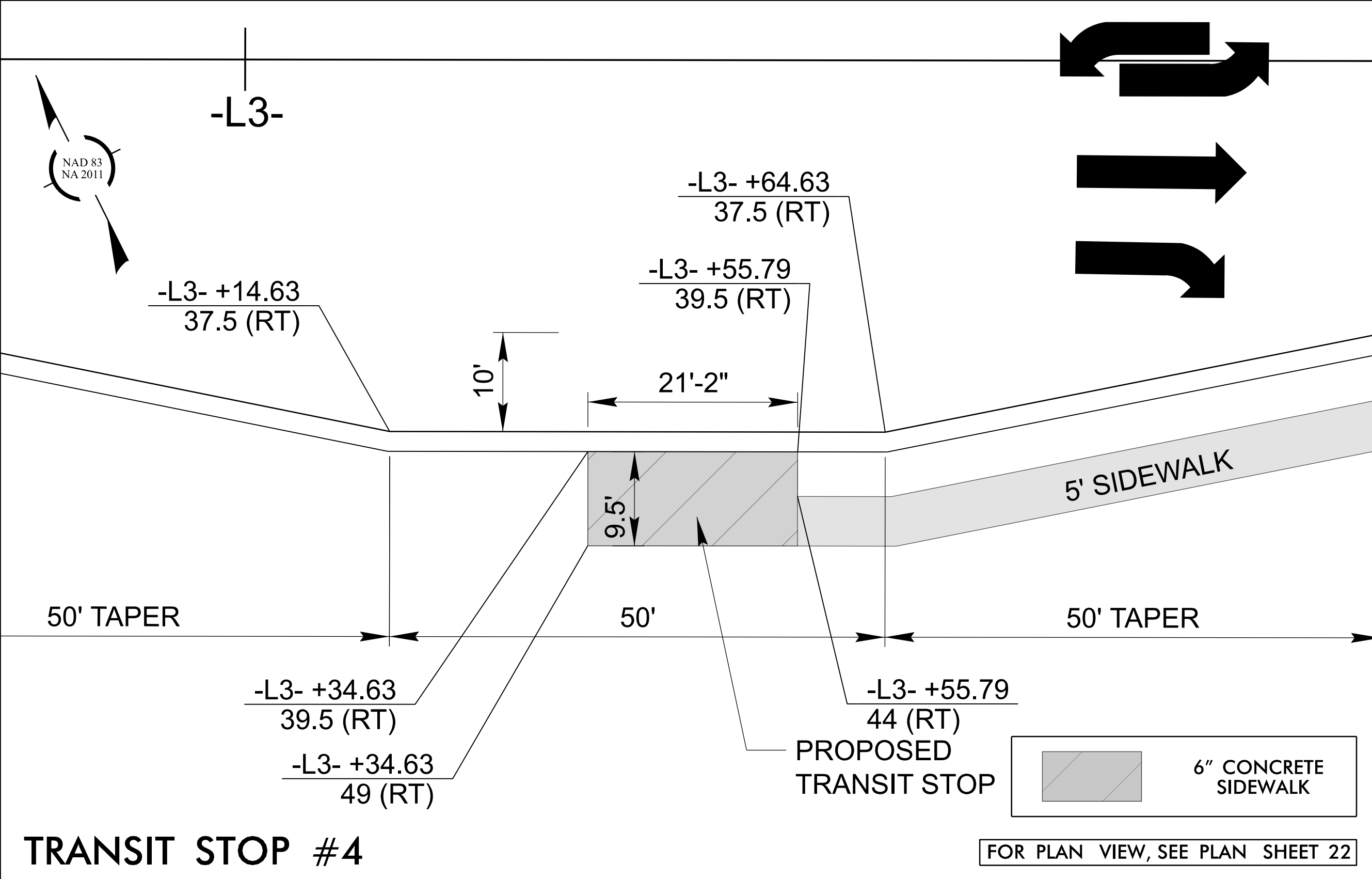
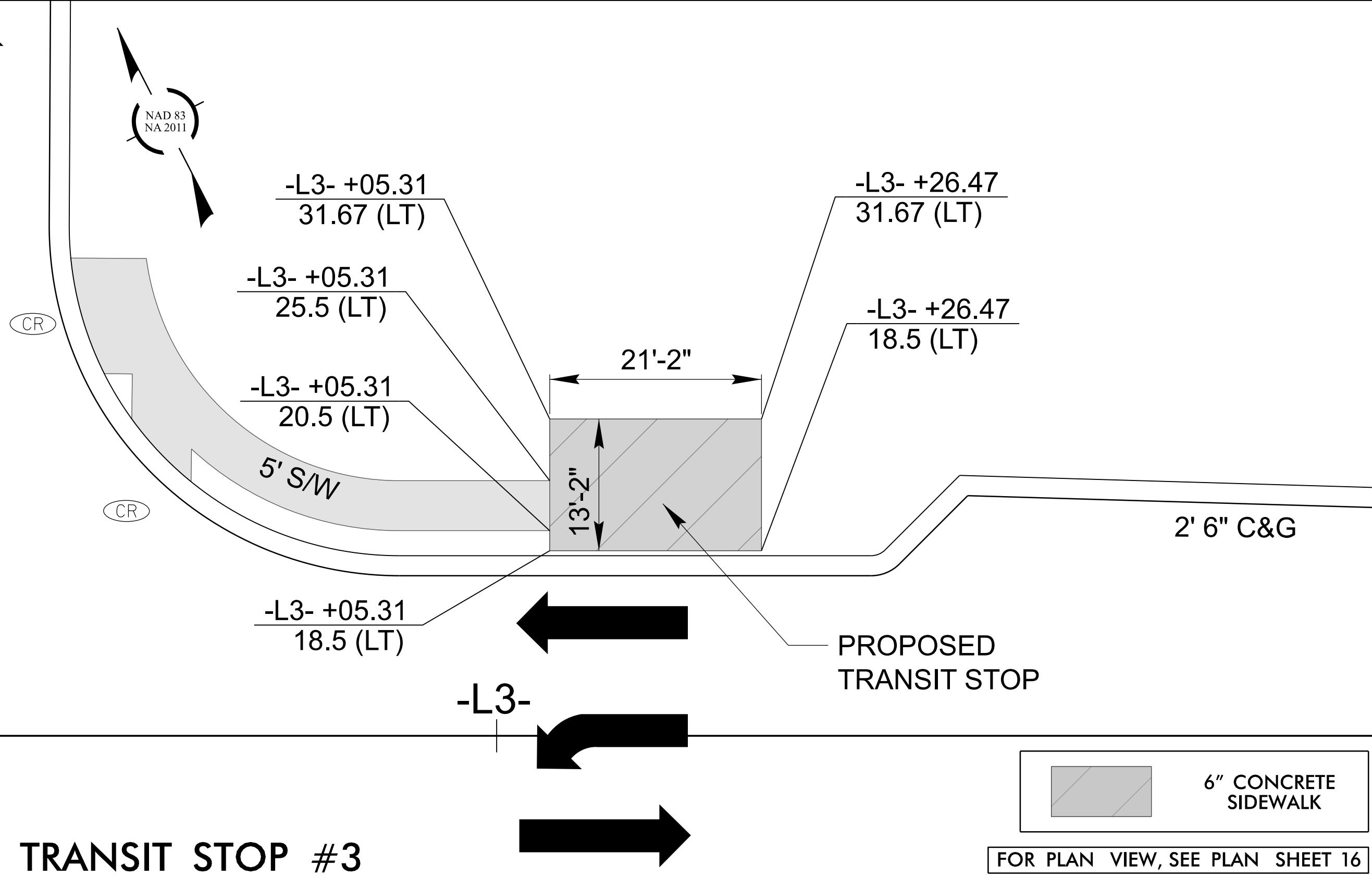
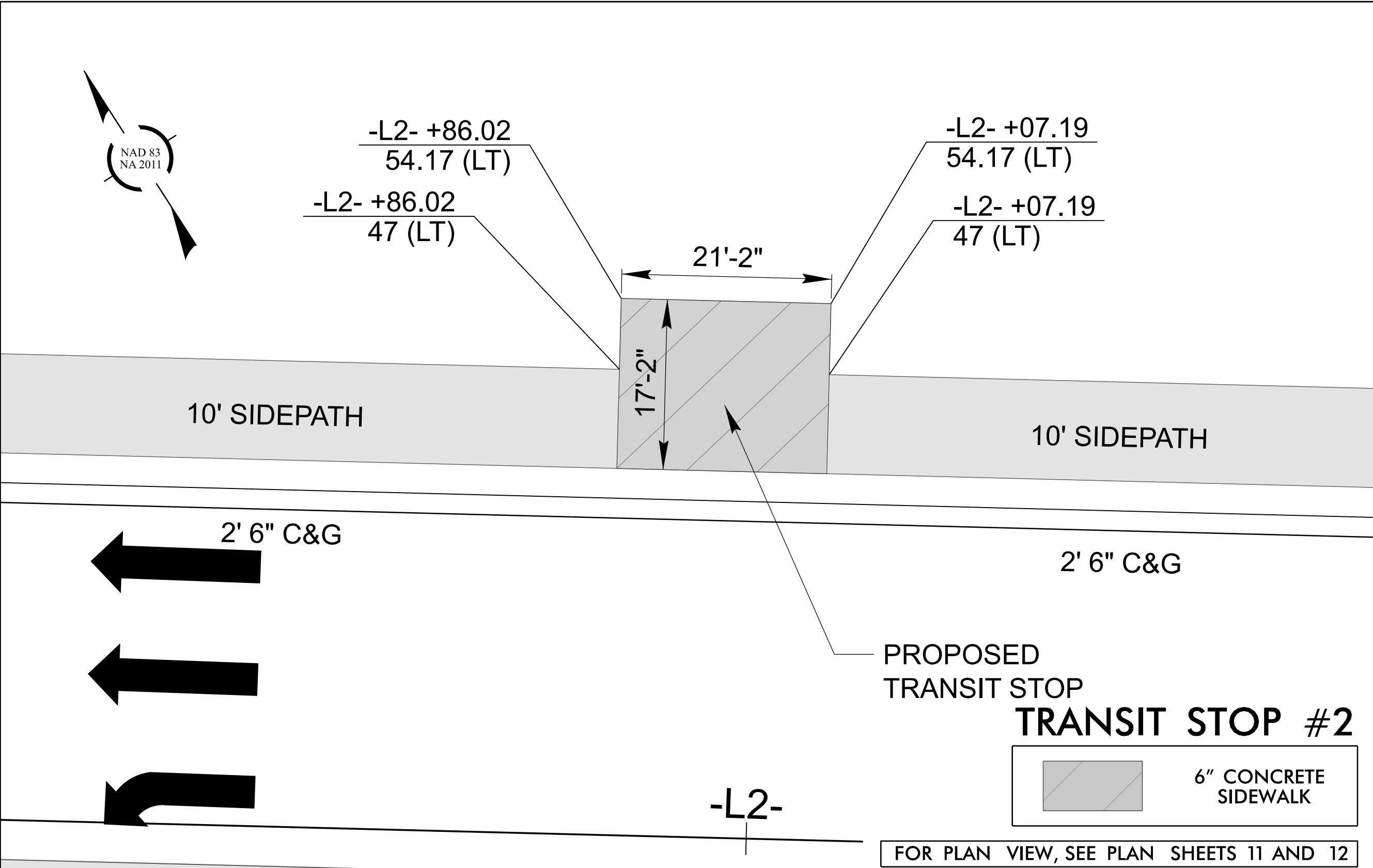
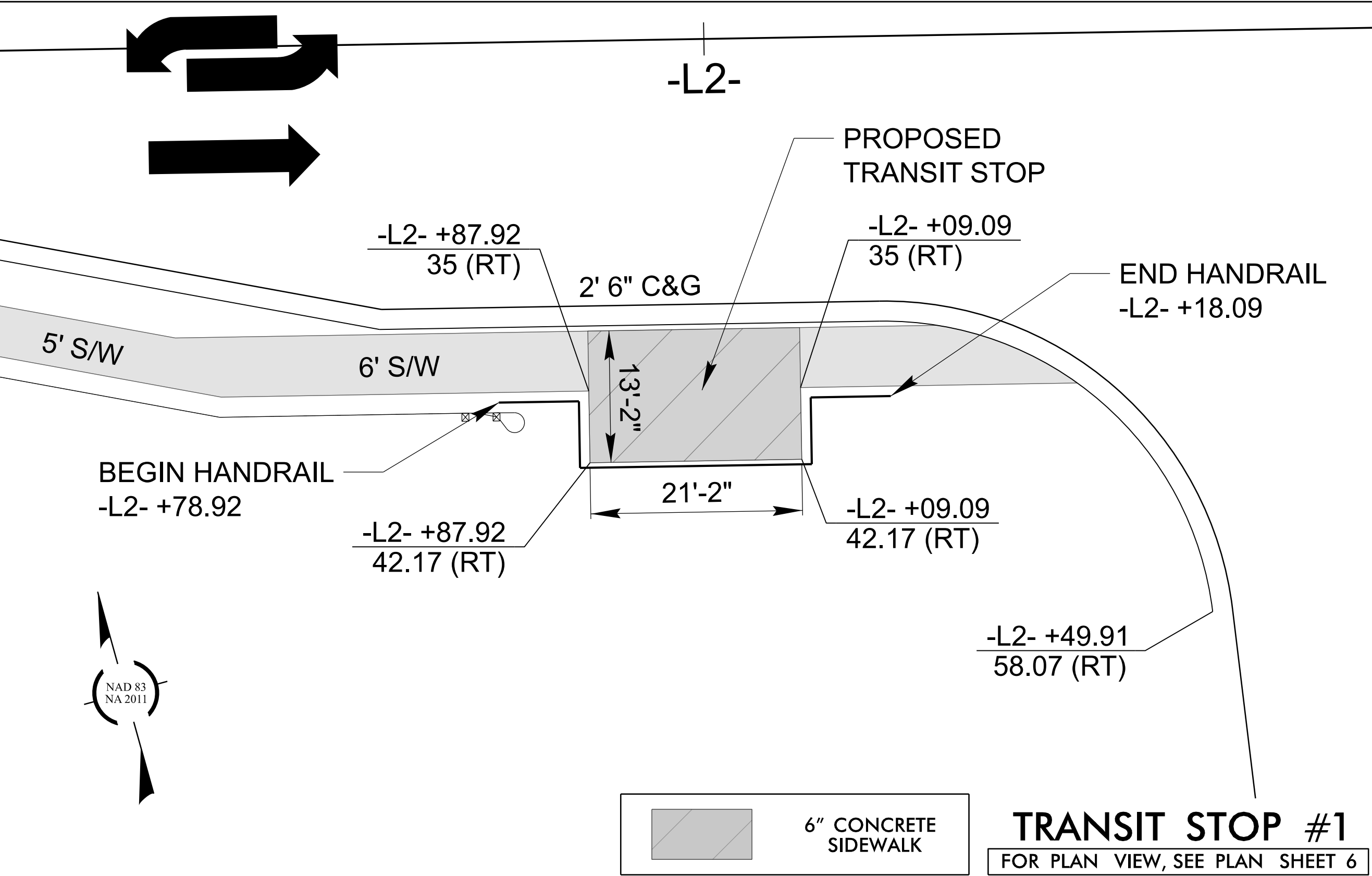
HNTB
2000 OFFICE: 10000 HILLS
BOULEVARD, SUITE 200, RALEIGH, NC 27615
NO LICENSE REQUIRED TO PREPARE

REVISIONS



REVISIONS

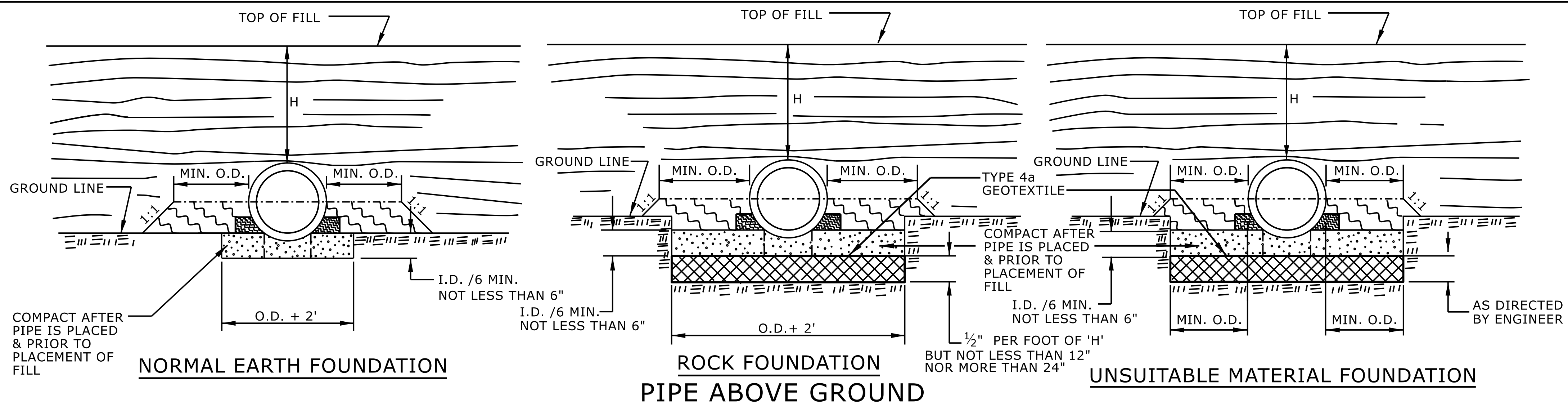
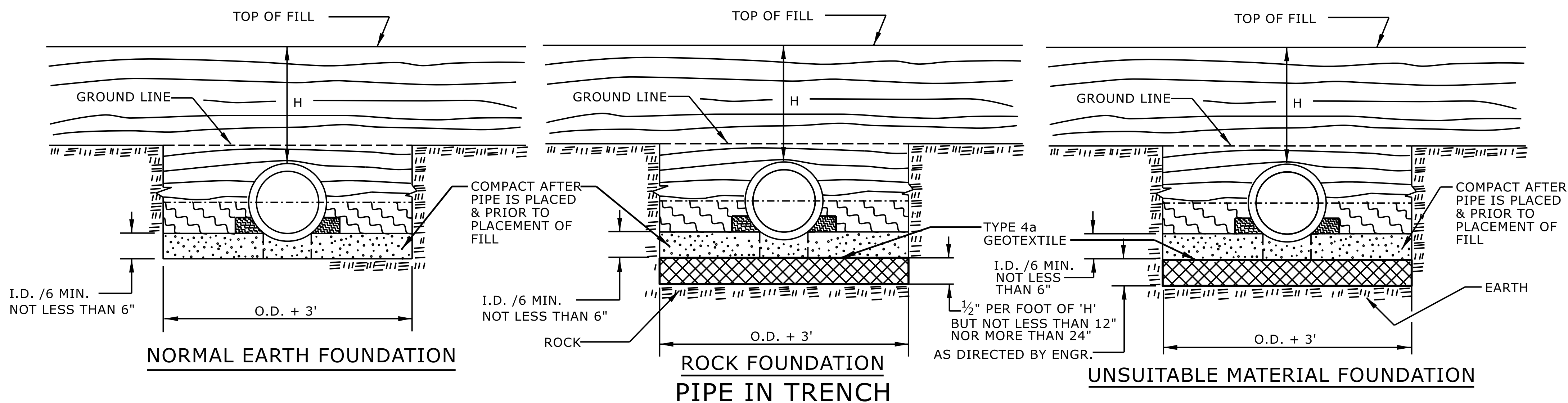
TRANSIT STOP DIMENSION DETAILS



HL-0065
FP 28-27
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY
ROADWAY DESIGN UNIT
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 042452
J. HES
10/2026
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HNTB
HNTB CONSULTANTS, INC.
2000 OFFICE PARKWAY, SUITE 100
RICHMOND, VIRGINIA 23261
NO LICENSE REQUIRED IN VIRGINIA

REVISIONS



GENERAL NOTES:
 I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT
 ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP
 OF THE EMBANKMENT AT THAT POINT.

	APPROVED SUITABLE LOCAL MATERIAL.
	TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
	LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

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

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

	SPRINGLINE OF PIPE
	SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.
	UNDISTURBED EARTH MATERIAL
	SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

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

ROADWAY DETAIL DRAWING FOR METHOD OF PIPE INSTALLATION RIGID PIPE

SHEET 2 OF 2

300.01



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UNLESS ALL SIGNATURES COMPLETED

**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
919-707-6950 FAX 919-250-4

SEE TITLE BLOCK

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

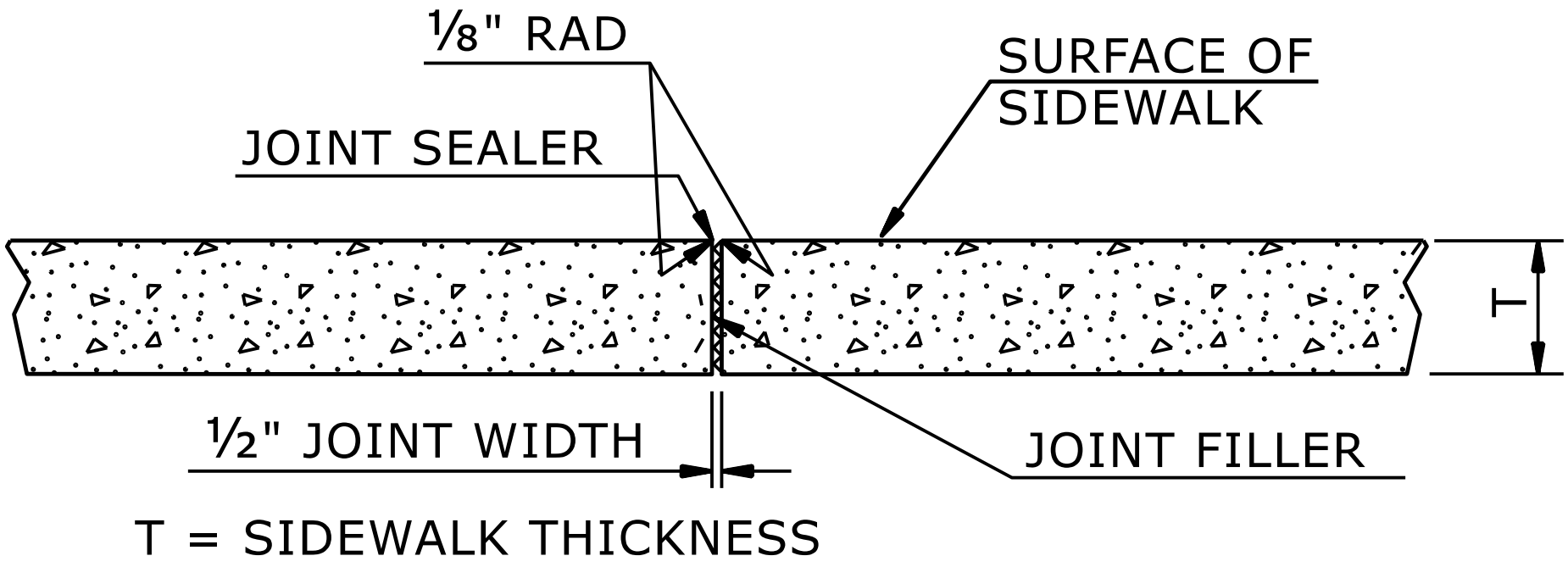
PROJECT REFERENCE NO.	SHEET NO.
HL-0065	2C-2

NOTES:

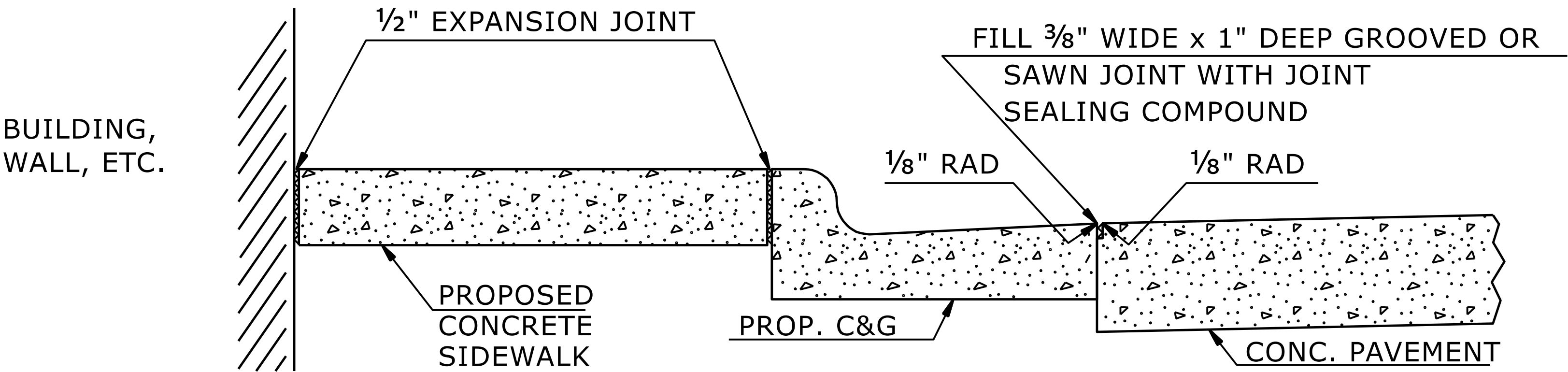
CONSTRUCT STANDARD SIDEWALK 5' WIDE AND 4" THICK UNLESS OTHERWISE DENOTED ON PLANS.

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.



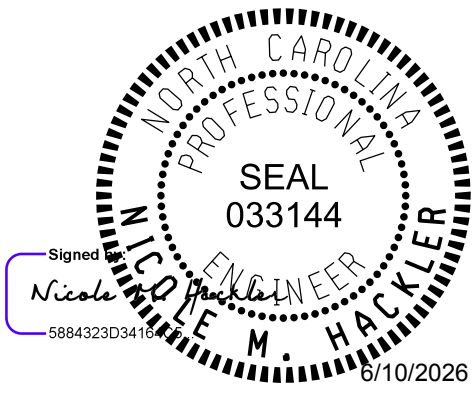
TRANSVERSE EXPANSION JOINT
IN SIDEWALK



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

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UNLESS ALL SIGNATURES COMPLETED

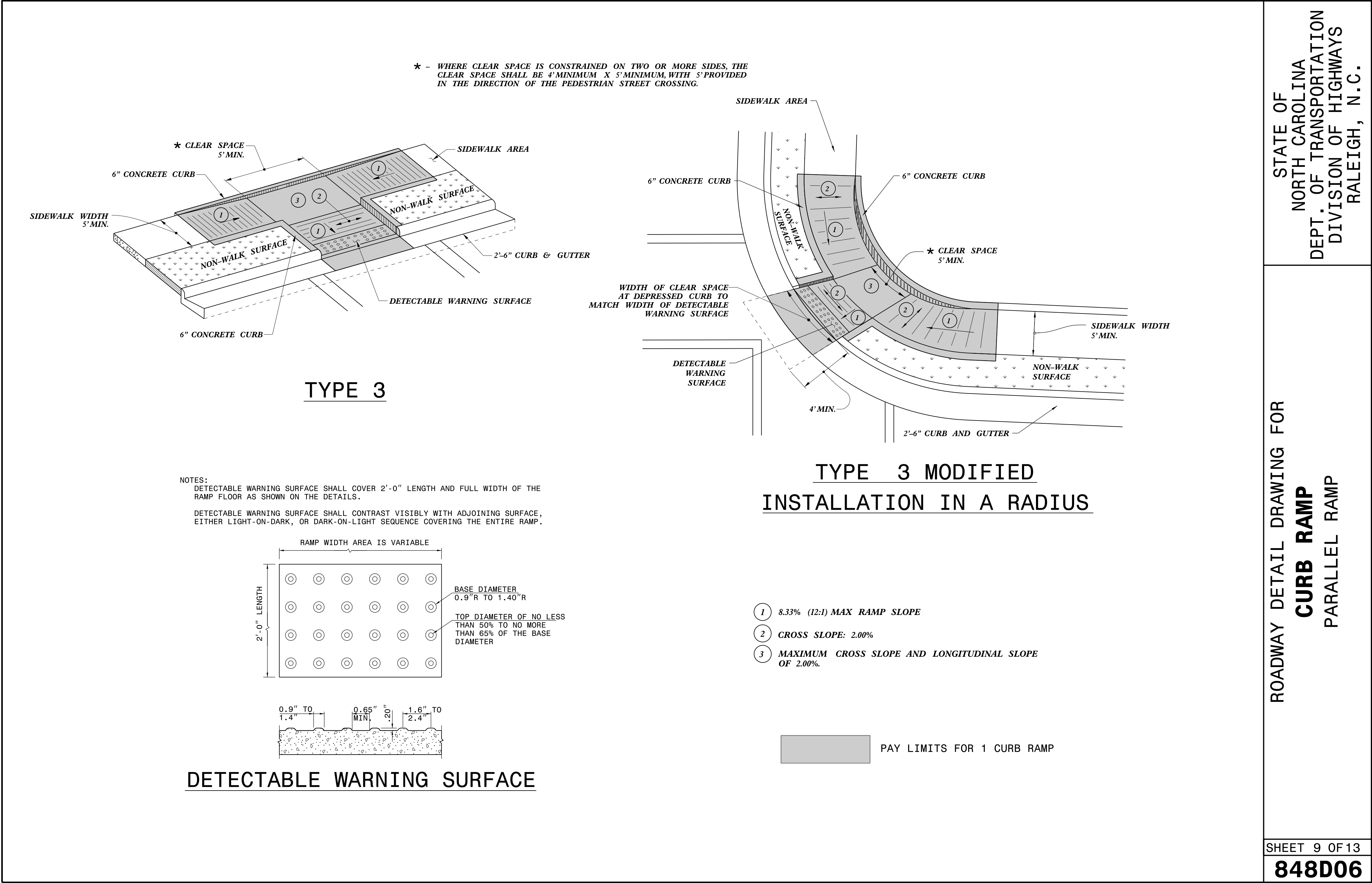
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**

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

SEE TITLE BLOCK

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

PROJECT REFERENCE NO.	SHEET NO.
HL-0065	2C-3



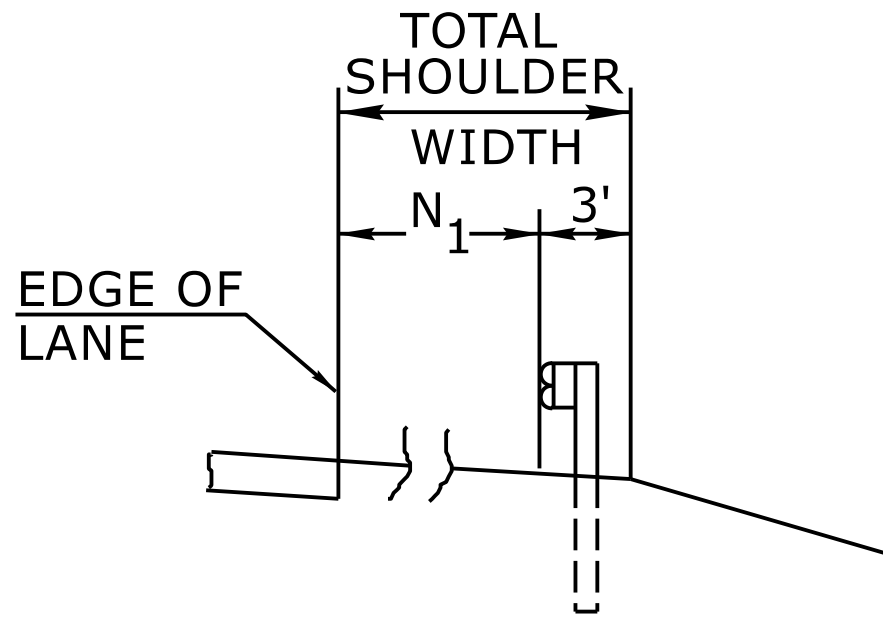
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

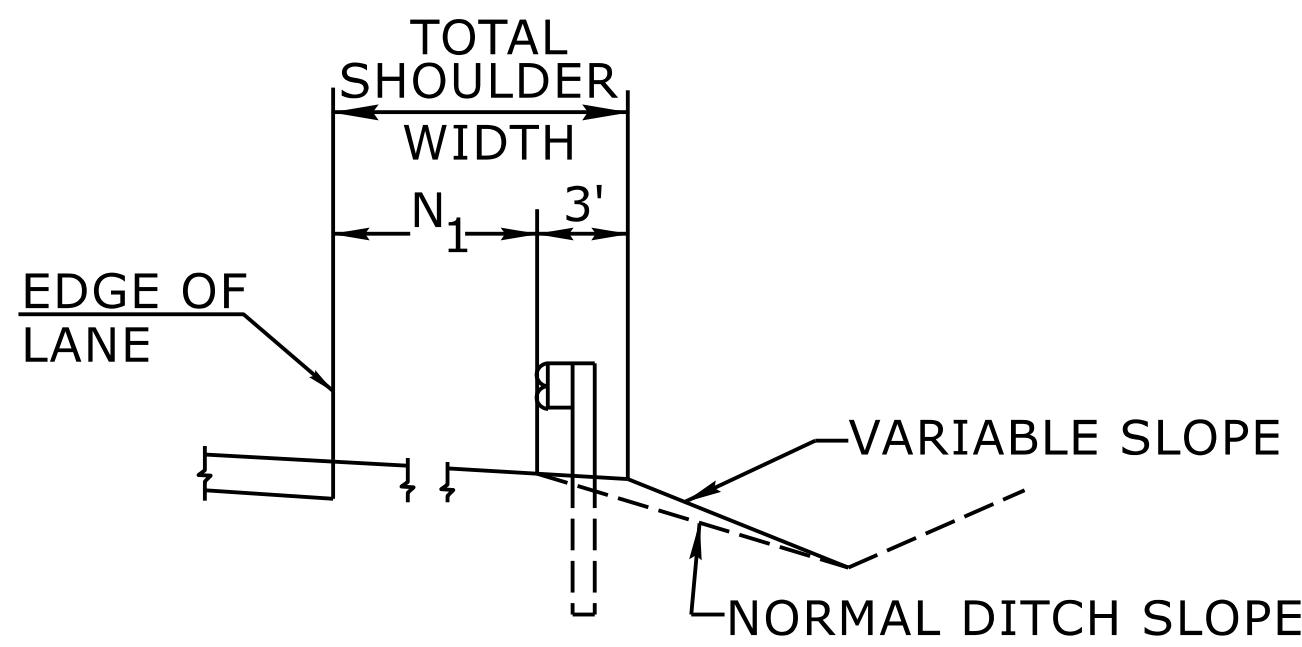
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ORIGINAL BY: S.CALHOUN DATE: 12-22-2023
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: special_details\nmhackler\DO609.dgn

PROJECT REFERENCE NO.	SHEET NO.
HL-0065	2C-4

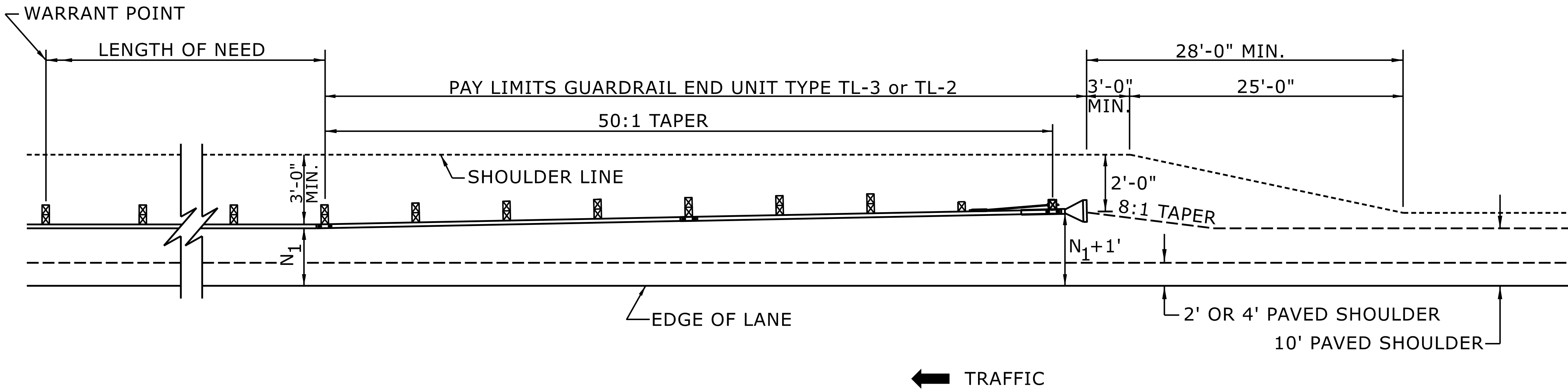


FILL SECTION



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
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RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 15
862D01



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

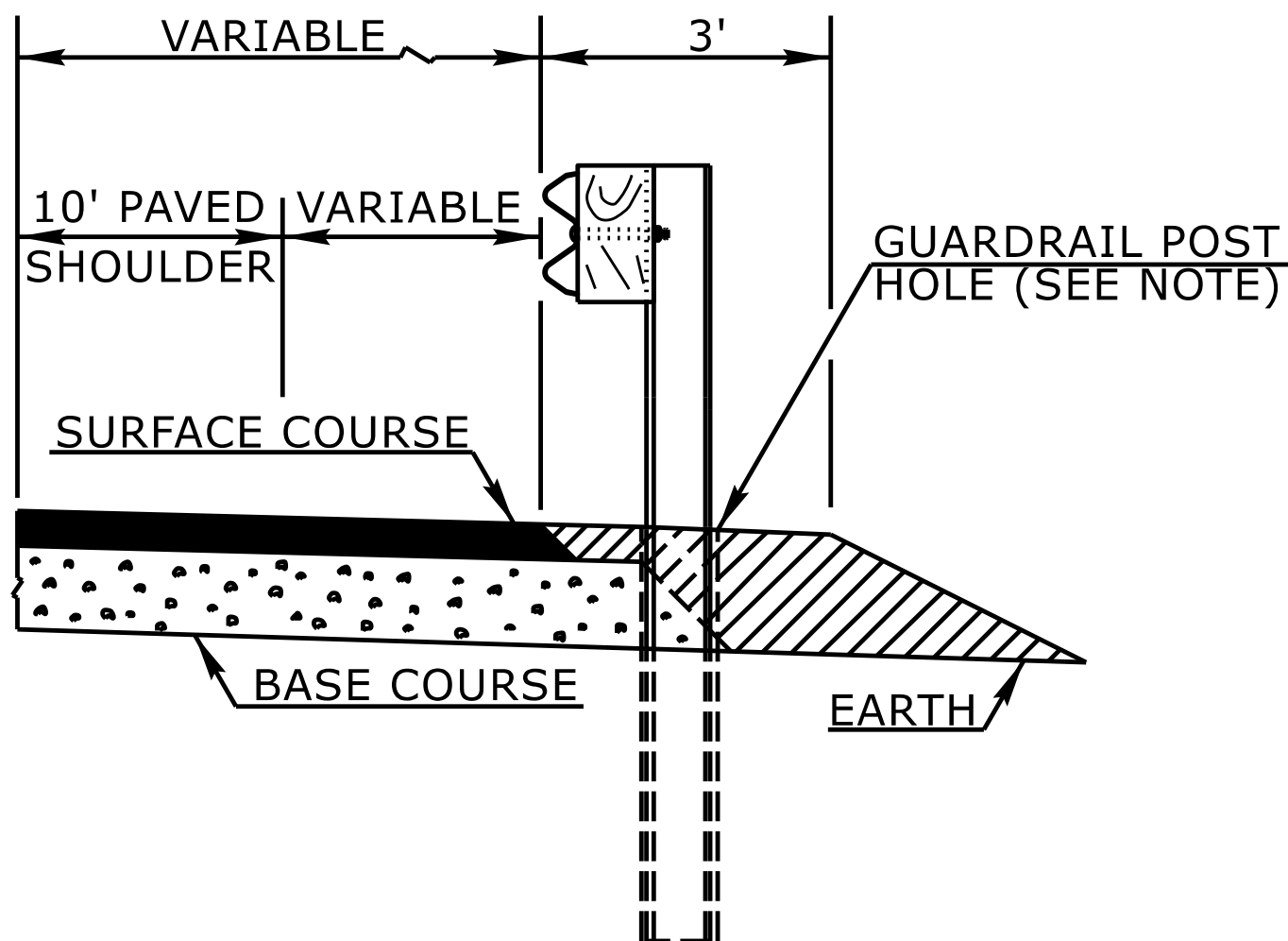
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**

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

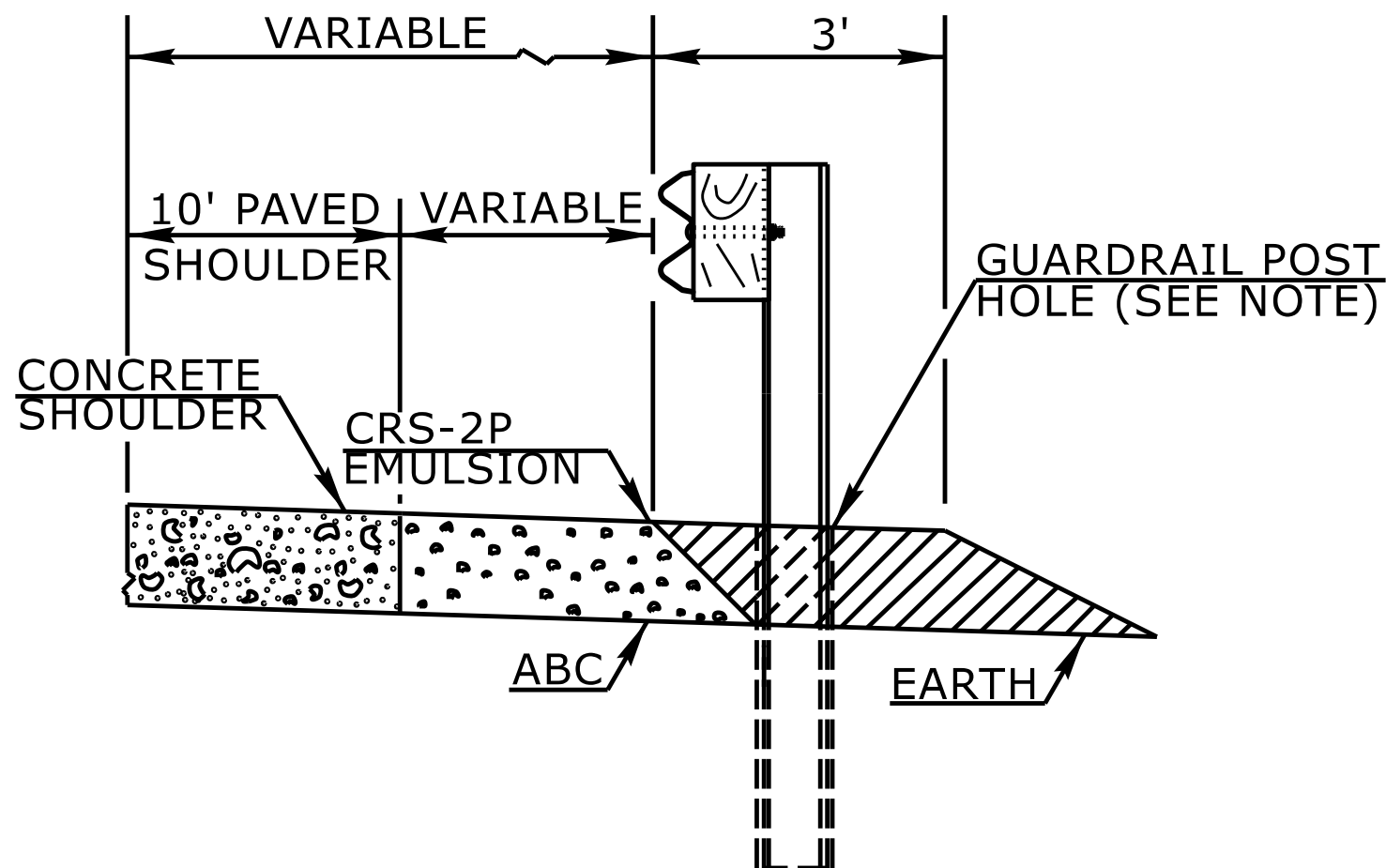
SEE TITLE BLOCK

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

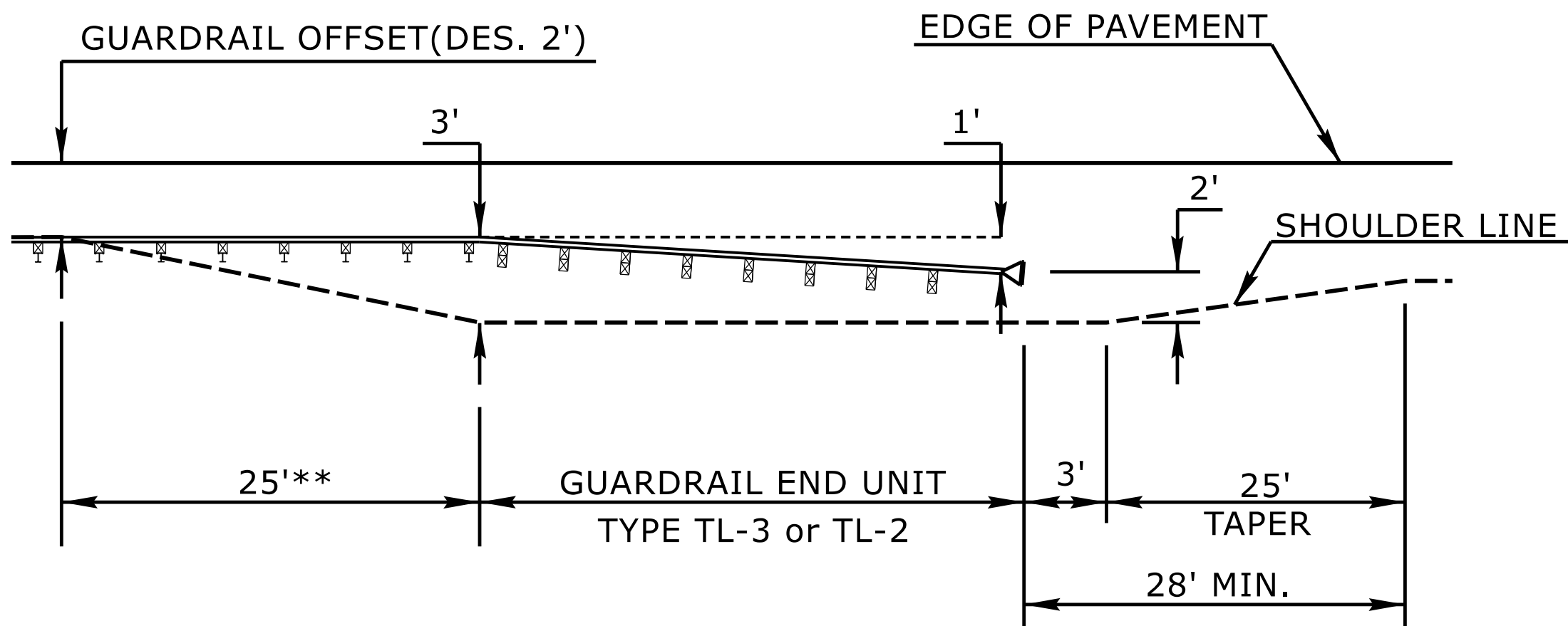
PROJECT REFERENCE NO.	SHEET NO.
HL-0065	2C-5



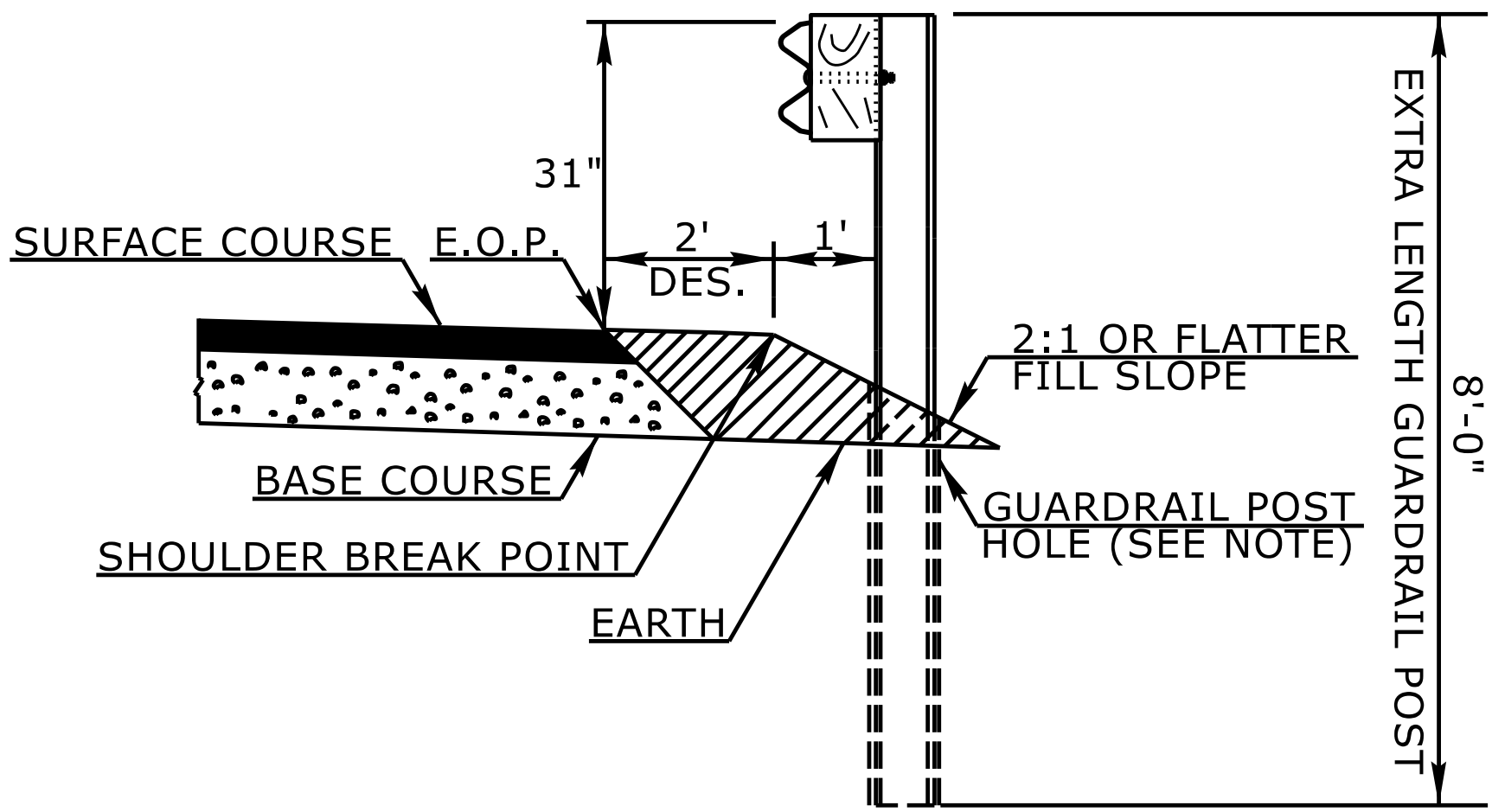
FLEXIBLE PAVED SHOULDER



CONCRETE PAVED SHOULDER



8' GUARDRAIL POST ON 2:1 SLOPE-END UNIT TRANSITION*
PLAN VIEW



8' GUARDRAIL POST ON 2:1 SLOPE*

- * THE 8' GUARDRAIL POST ON 2:1 SLOPE DETAIL IS INTENDED FOR USE ONLY IN SEVERELY CONSTRAINED AREAS WITH A POSTED SPEED $\leq$ 60 MPH. GUARDRAIL END UNITS MAY NOT BE PLACED ON THE 2:1 SLOPE AND MUST TRANSITION TO THE SHOULDER.
- ** 8' GUARDRAIL POST SHOULD BE USED IN THIS RANGE

NOTE:
WHEN WOODEN GUARDRAIL POSTS ARE USED, DRILL HOLES THROUGH EARTH MATERIAL AND BASE COURSE.THE POST MAY THEN BE DRIVEN TO THE PROPER DEPTH. DRILL THE HOLE OF SUFFICIENT SIZE TO ACCOMMODATE THE PARTICULAR POST BEING USED. BACKFILL AND TAMP HOLES USING THE EXCAVATED MATERIAL.

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RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 11 OF 15
862D01



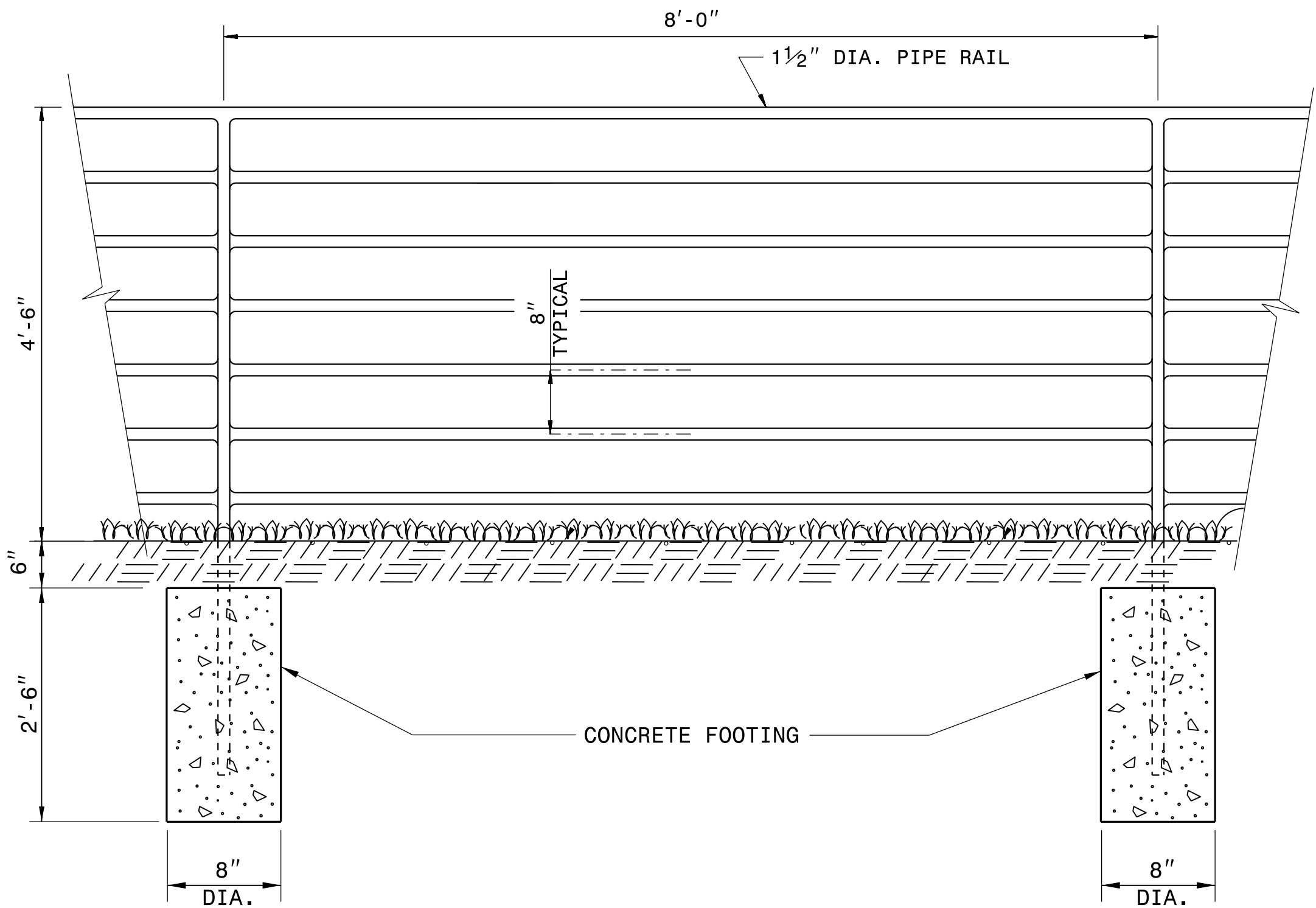
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

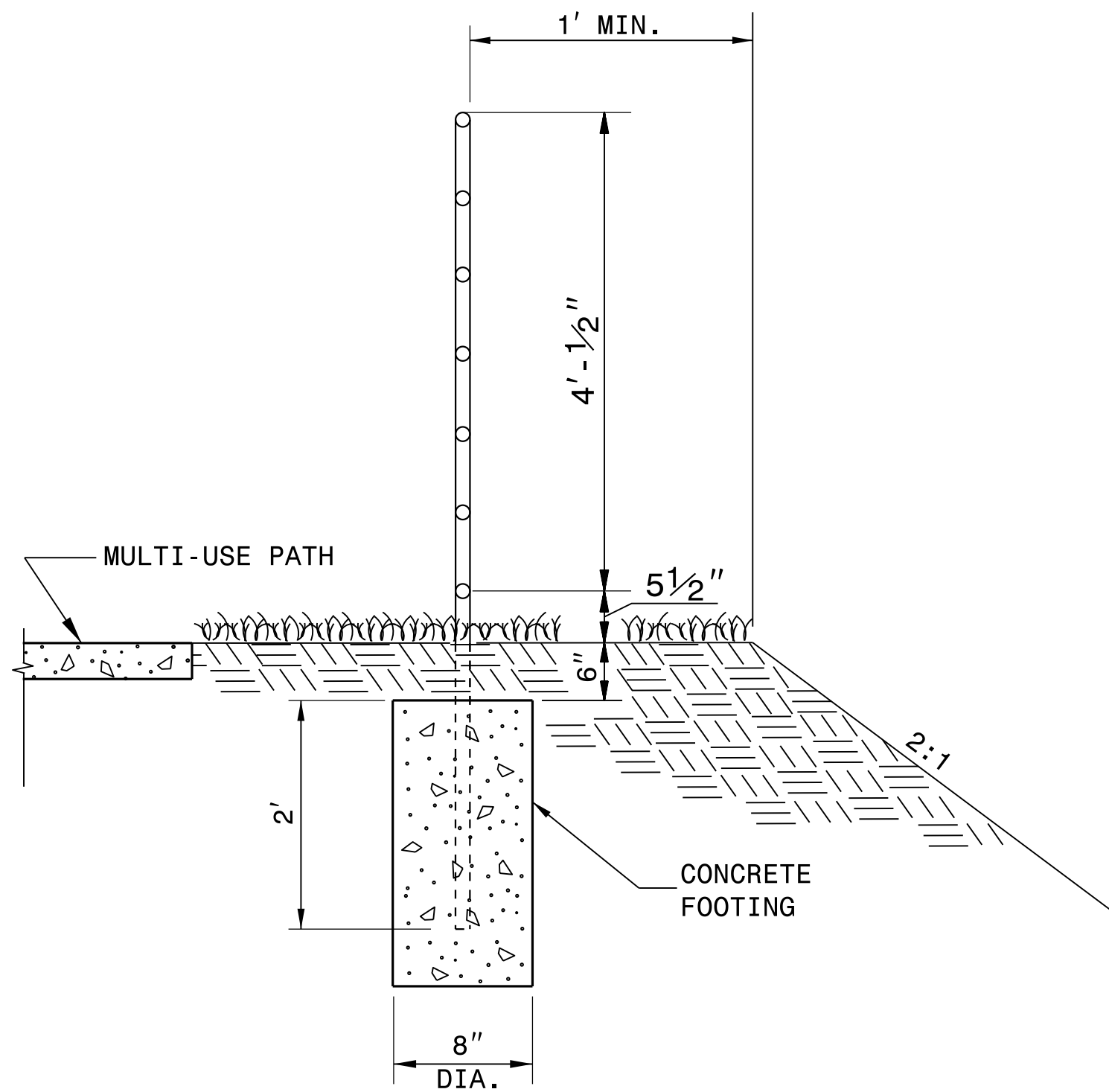
SEE TITLE BLOCK

ORIGINAL BY: L.SMITH DATE: 10-14-2025
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

PROJECT REFERENCE NO.	SHEET NO.
HL-0065	2C-6



ELEVATION



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.

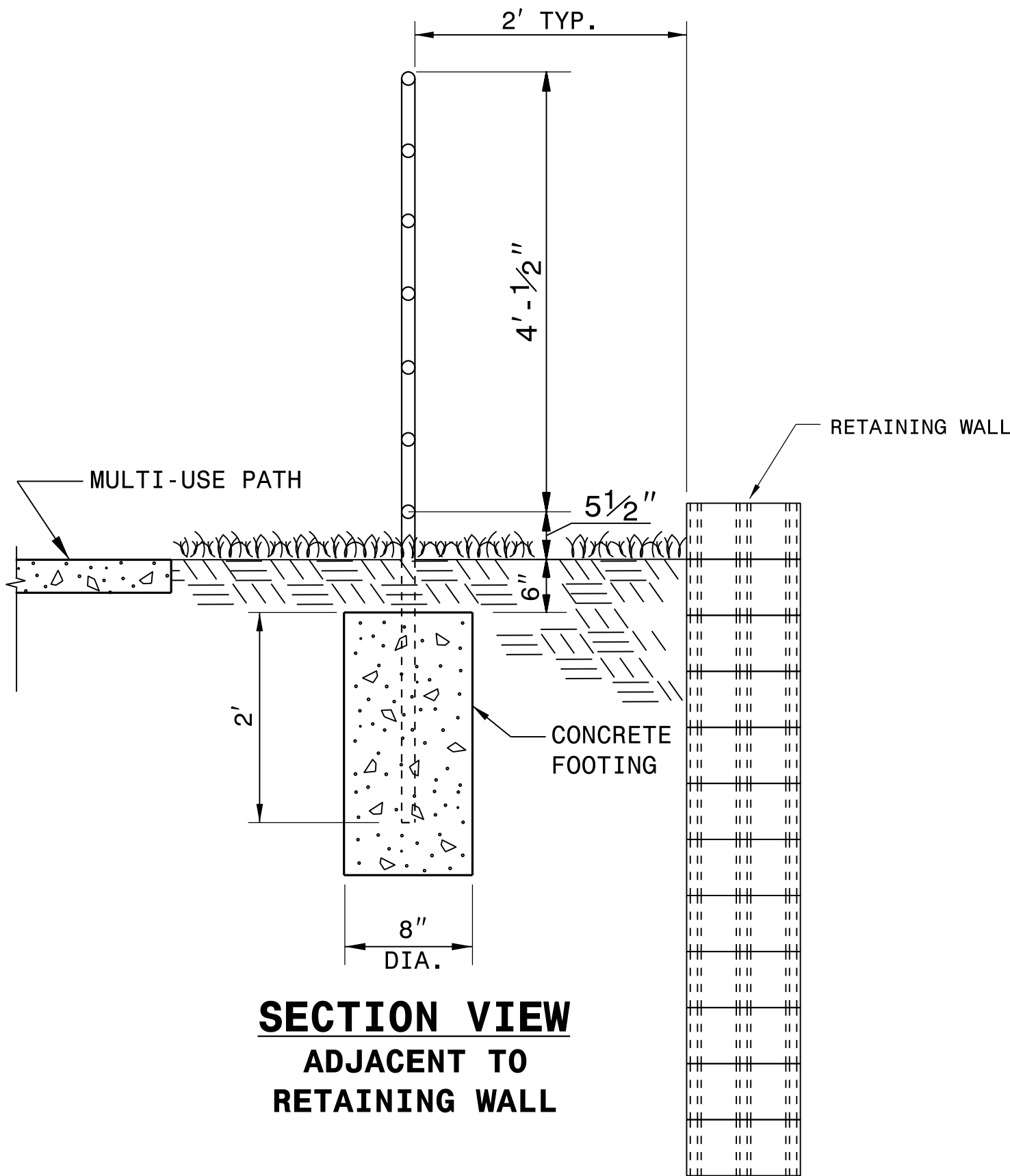
REPAIR GALVANIZING IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1076.

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

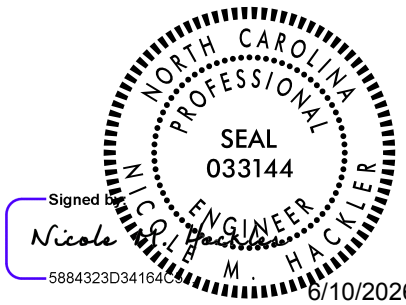
WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.

USE CLASS 'B' CONCRETE FOR HANDRAIL FOOTINGS.

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



SECTION VIEW
ADJACENT TO
RETAINING WALL



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**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119
**BICYCLE / PEDESTRIAN
SAFETY RAIL**

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: K.A. KEMPF DATE: 7-20-23
CHECKED BY: _____ DATE: _____
FILE SPEC.: details\kempf\english\safety rails 2024.dgn

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

ROADWAY DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FLEXIBLE PIPE

SHEET 1 OF 2
300.01

TOP OF FILL

NORMAL EARTH FOUNDATION

TOP OF FILL

**ROCK FOUNDATION
PIPE IN TRENCH**

TOP OF FILL

UNSUITABLE MATERIAL FOUNDATION

TOP OF FILL

NORMAL EARTH FOUNDATION

TOP OF FILL

**ROCK FOUNDATION
PIPE ABOVE GROUND**

TOP OF FILL

UNSUITABLE MATERIAL FOUNDATION

GENERAL NOTES:

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

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

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

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

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

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

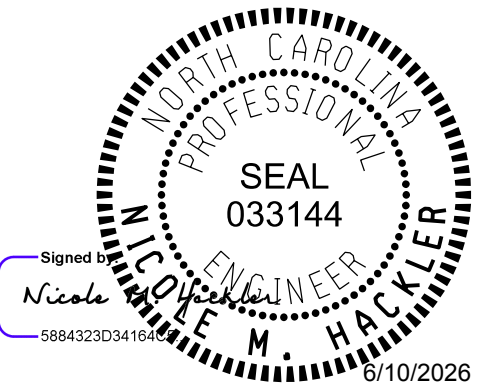
REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

SPRINGLINE OF PIPE

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

UNDISTURBED EARTH MATERIAL

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



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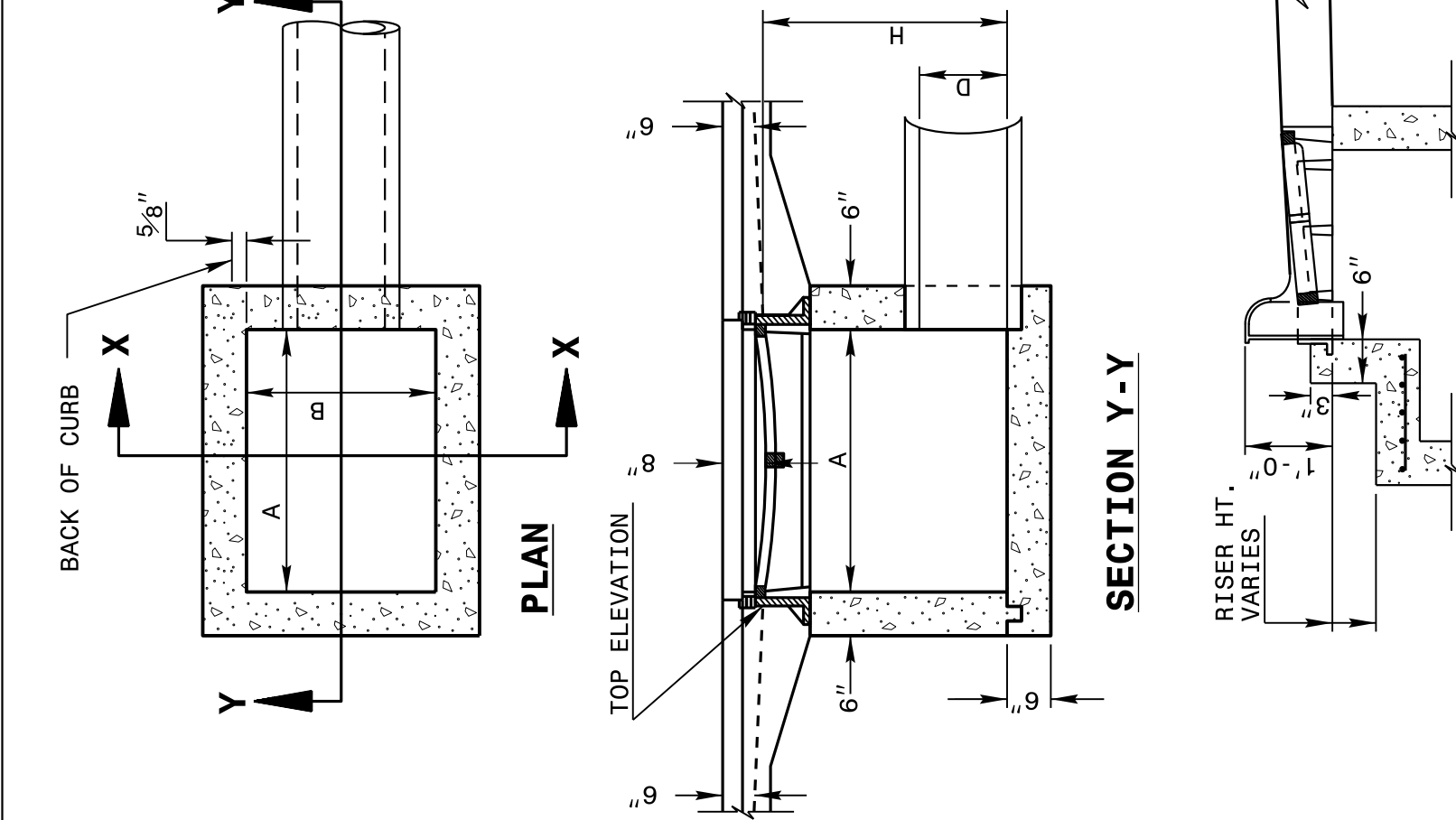
CONTRACTS STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

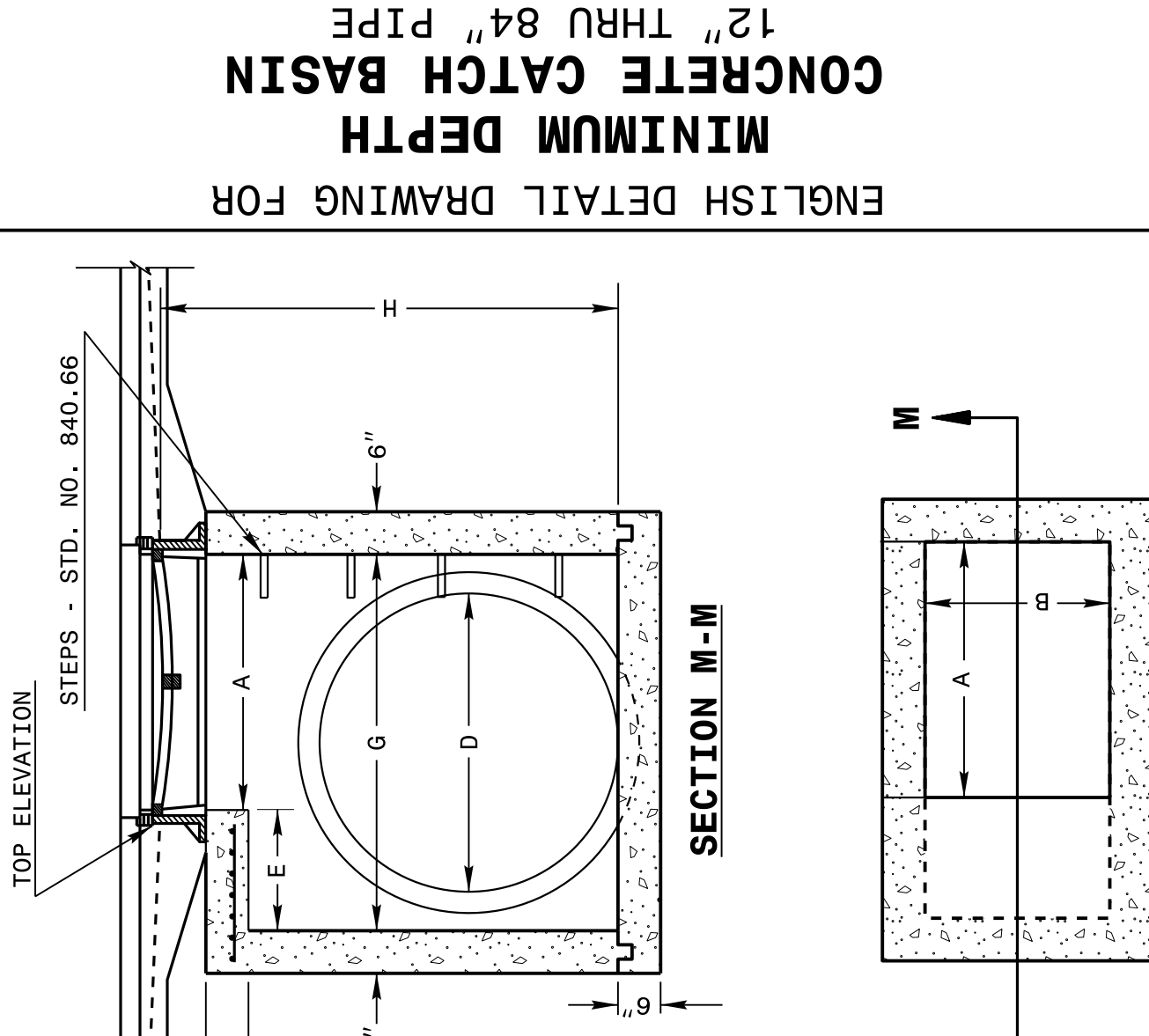
ORIGINAL BY:	S. CALHOUN	DATE:	7-25-2024
MODIFIED BY:		DATE:	
CHECKED BY:		DATE:	
FILE SPEC.:			

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

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 FOUR, 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.



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

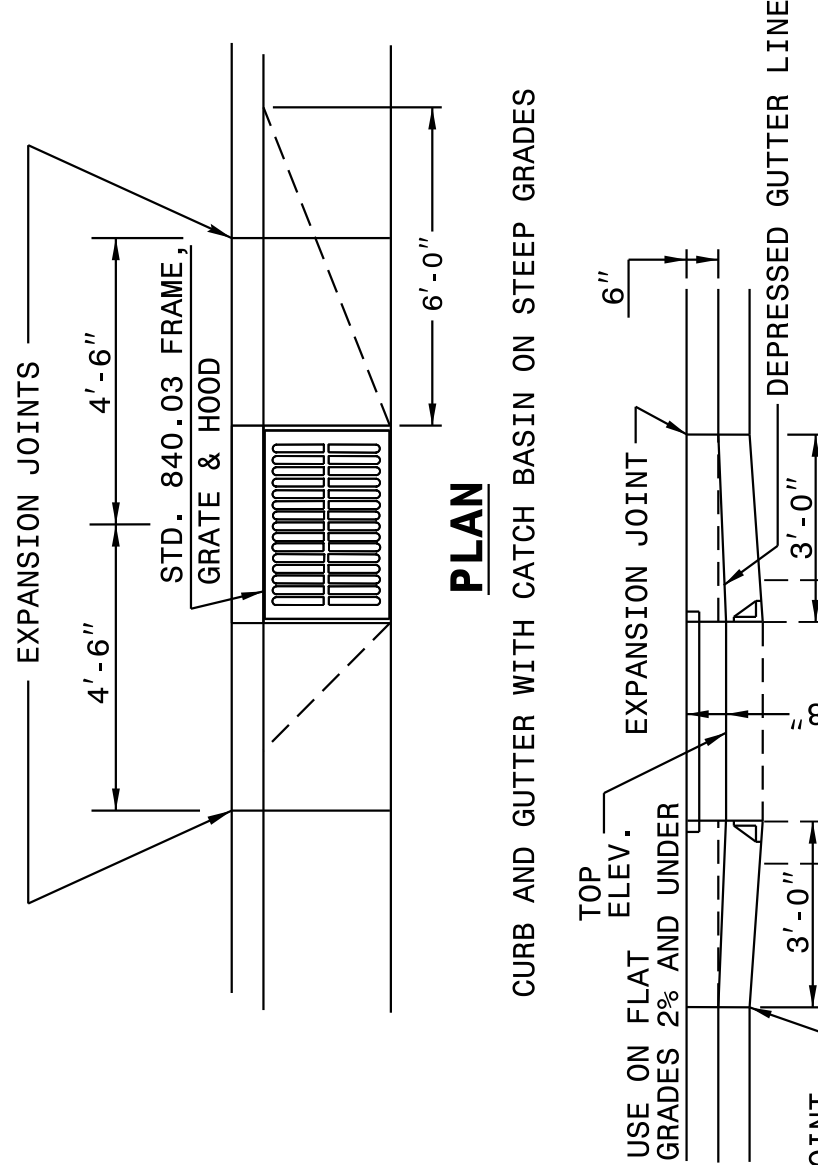


DETAIL SHOWING METHOD
OF RISER CONSTRUCTION

SHEET 1 OF 2
840D02

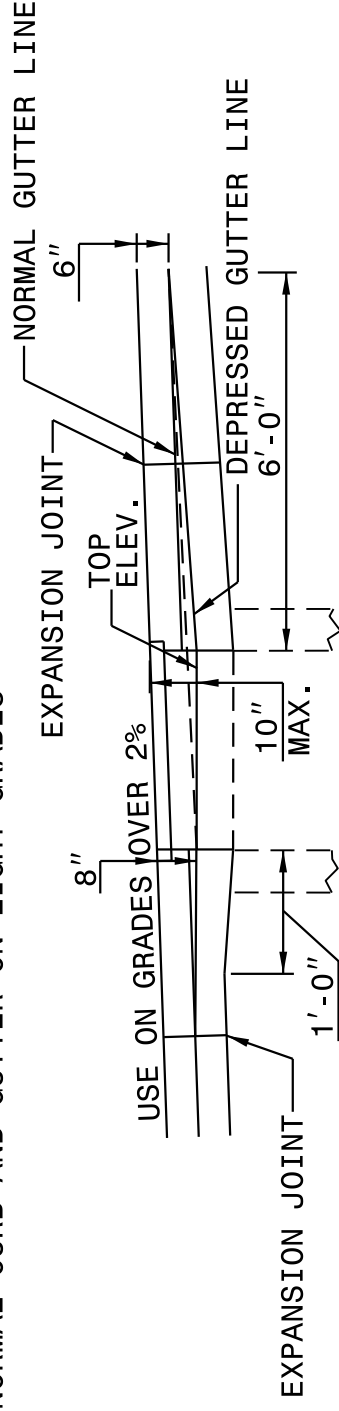
SHEET 1 OF 2
840D02

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



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

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



SECTION R-R

DOWEL

ELEVATION

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

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H, WITH NO RISER) *									
COVER					CU. YDS. CONC. IN BOX				
DIMENSIONS OF BOX AND PIPE					DEDUCTIONS				
PIPE D.	SPAN	WIDTH	DEPTH	MIN. HEIGHT	COVER	TOP SLAB	TOTAL LBS.	BAR-S-W NO.	BAR-S-V NO.
12"	3'-0"	2'-2"	2'-2"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"
15"	3'-0"	2'-2"	2'-2"	2'-3"	2'-3"	2'-3"	2'-3"	2'-3"	2'-3"
18"	3'-0"	2'-2"	2'-2"	2'-6"	2'-6"	2'-6"	2'-6"	2'-6"	2'-6"
24"	3'-0"	2'-2"	2'-2"	3'-1"	3'-1"	3'-1"	3'-1"	3'-1"	3'-1"
30"	3'-0"	2'-2"	2'-2"	3'-4"	3'-4"	3'-4"	3'-4"	3'-4"	3'-4"
36"	3'-0"	2'-2"	2'-2"	3'-10"	3'-10"	3'-10"	3'-10"	3'-10"	3'-10"
42"	3'-0"	2'-2"	2'-2"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"
48"	3'-0"	2'-2"	2'-2"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"
54"	3'-0"	2'-2"	2'-2"	5'-7"	5'-7"	5'-7"	5'-7"	5'-7"	5'-7"
60"	3'-0"	2'-2"	2'-2"	6'-3"	6'-3"	6'-3"	6'-3"	6'-3"	6'-3"
66"	3'-0"	2'-2"	2'-2"	6'-11"	6'-11"	6'-11"	6'-11"	6'-11"	6'-11"
72"	3'-0"	2'-2"	2'-2"	7'-6"	7'-6"	7'-6"	7'-6"	7'-6"	7'-6"
78"	3'-0"	2'-2"	2'-2"	8'-1"	8'-1"	8'-1"	8'-1"	8'-1"	8'-1"
84"	3'-0"	2'-2"	2'-2"	8'-9"	8'-9"	8'-9"	8'-9"	8'-9"	8'-9"

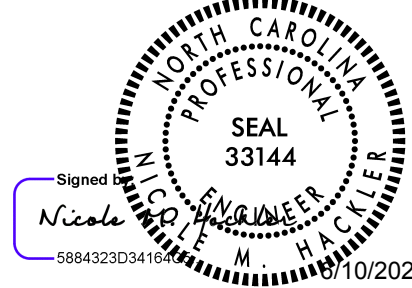
SHEET 2 OF 2
840D02

SHEET 2 OF 2
840D02

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

SEE PLATE FOR TITLE

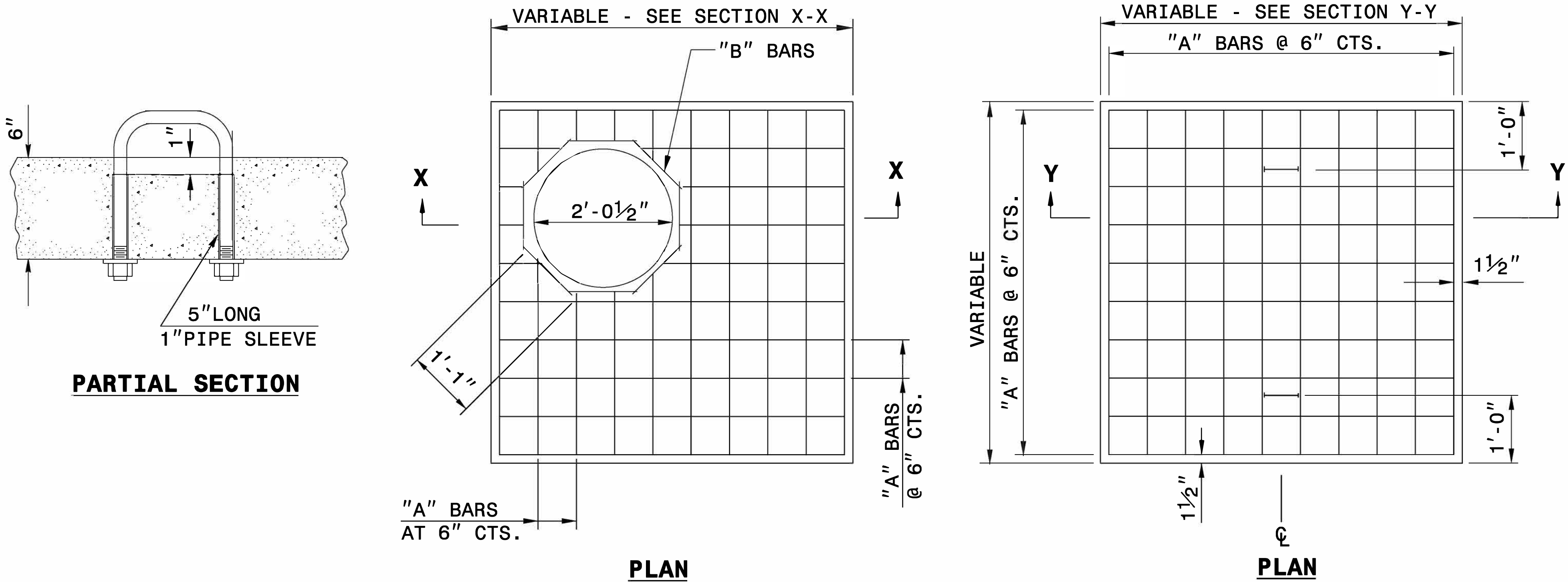
ORIGINAL BY: 2002 Std.840.01 DATE:
MODIFIED BY: E.E. WARD DATE: 3-1-02
CHECKED BY: DATE:
FILE SPEC.: s:Special Details/jhowerton/840d02.dgn



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CONTRACT STANDARDS & DEVELOPMENT UNIT	
STANDARDS AND SPECIAL DESIGN	
Office 919-707-6950	FAX 919-250-4119
4" CONCRETE SIDEWALK DETAIL	
ORIGINAL BY: _____	DATE: _____
MODIFIED BY: <u>kakempf</u>	DATE: <u>03-31-15</u>
CHECKED BY: _____	DATE: _____
FILE SPEC.: <u>details/english/conc_sidewalk.dgn</u>	

PROJECT REFERENCE NO.	SHEET NO.
HL-0065	2C-10



GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

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

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

BILL OF MATERIALS

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

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

DETAIL OF HANDLE

SECTION X-X

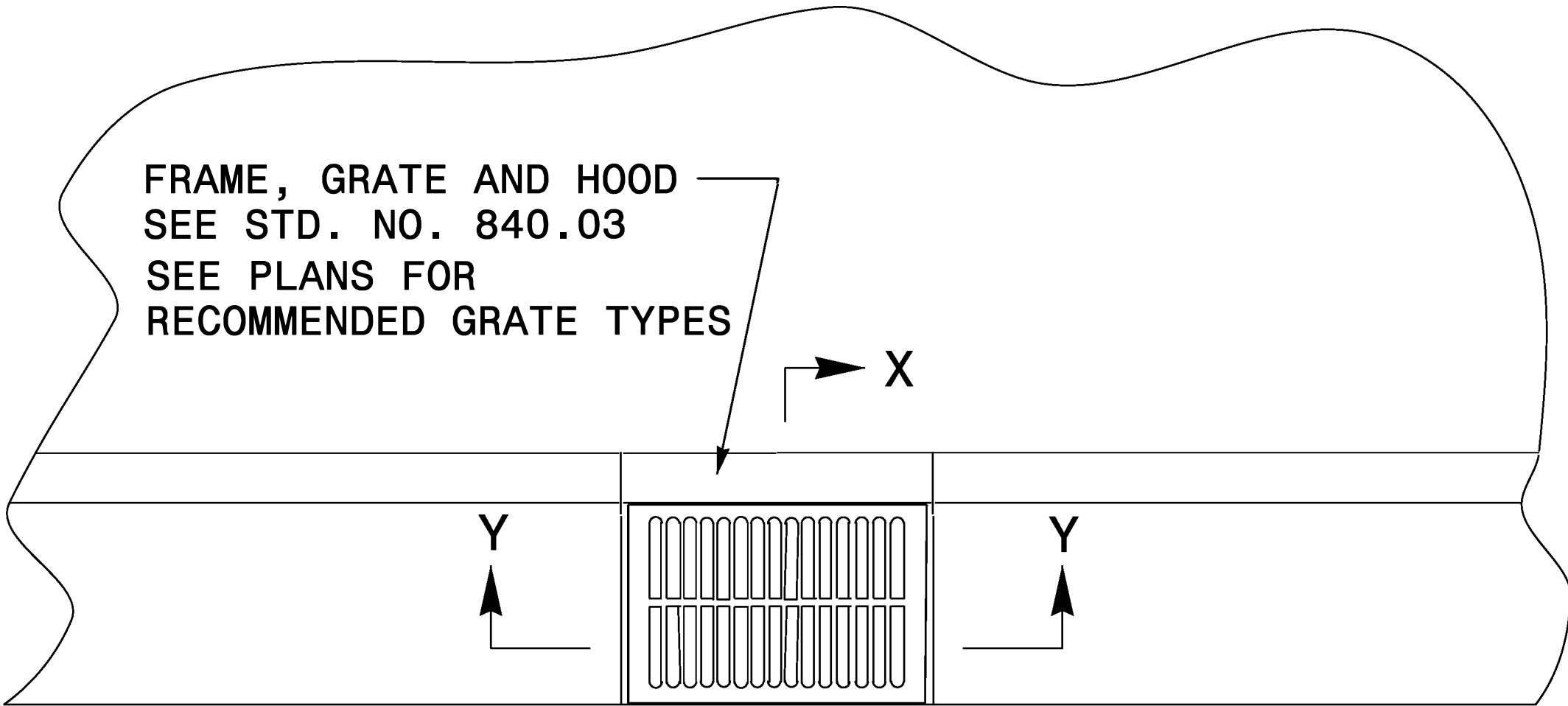
SECTION Y-Y



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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/boxtojb.dgn			

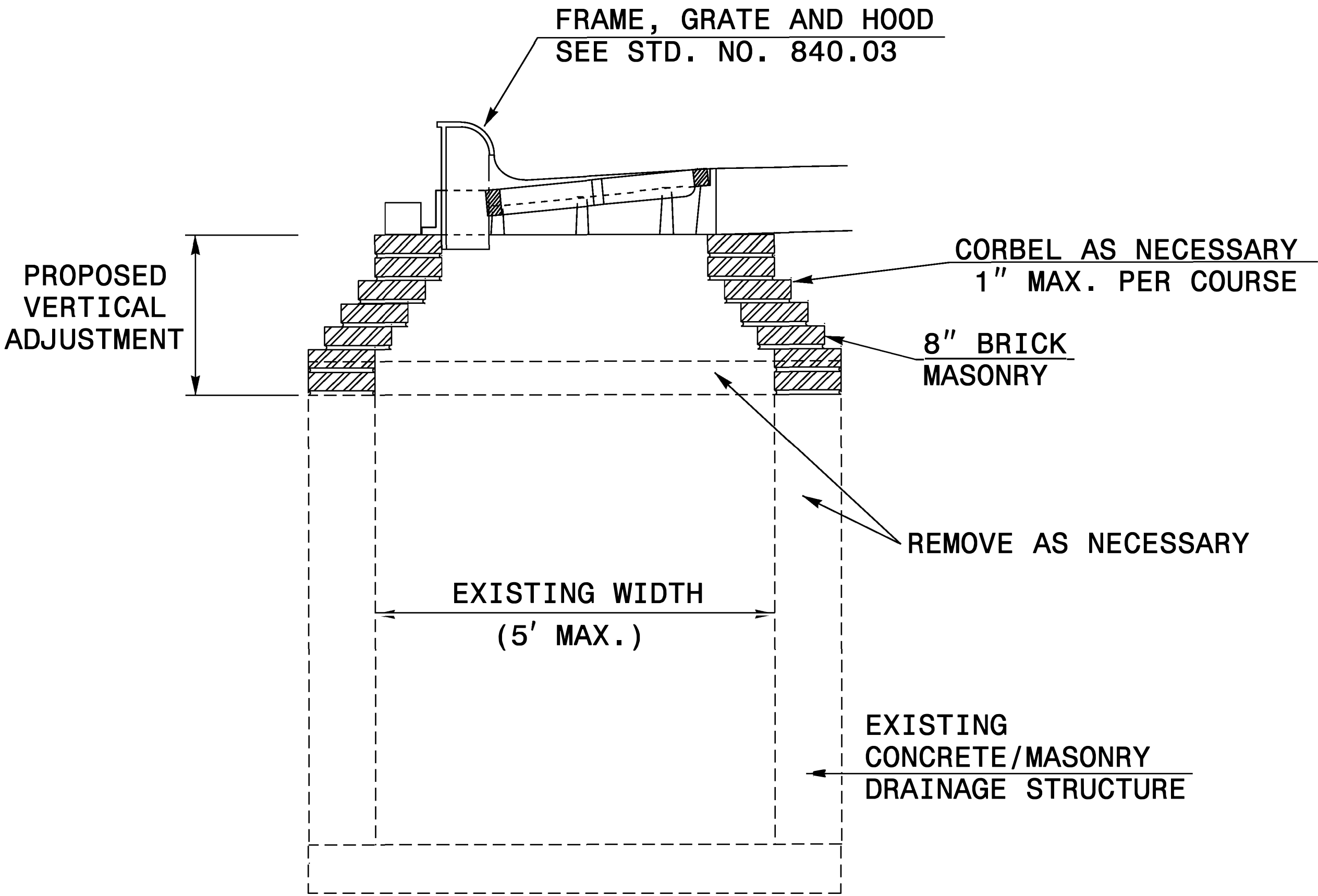
PROJECT REFERENCE NO.	SHEET NO.
HL-0065	2C-11



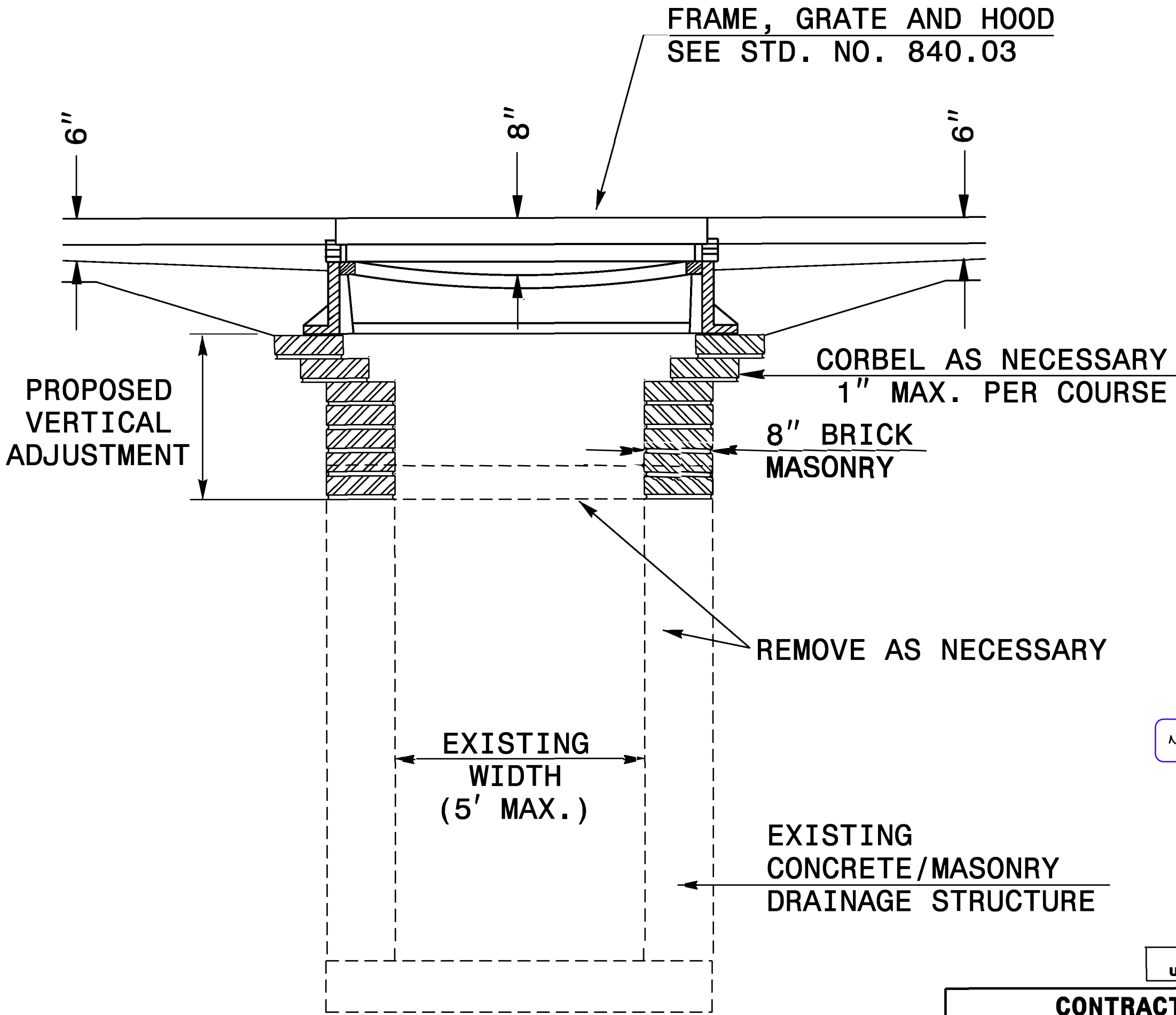
PLAN

GENERAL NOTES:

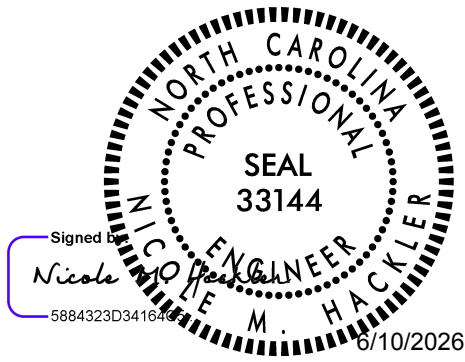
- THE ROADWAY PLANS INDICATE STRUCTURES TO BE CONVERTED.
- AFTER REMOVAL, STORE GRATES AND FRAMES AS DIRECTED BY THE ENGINEER.
- 4" SOLID CLAY BRICK, JUMBO BRICK, CONCRETE, OR 4" SOLID CONCRETE BLOCK MAY BE USED FOR VERTICAL ADJUSTMENT OF THE STRUCTURE.
- CONVERT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.



SECTION X-X



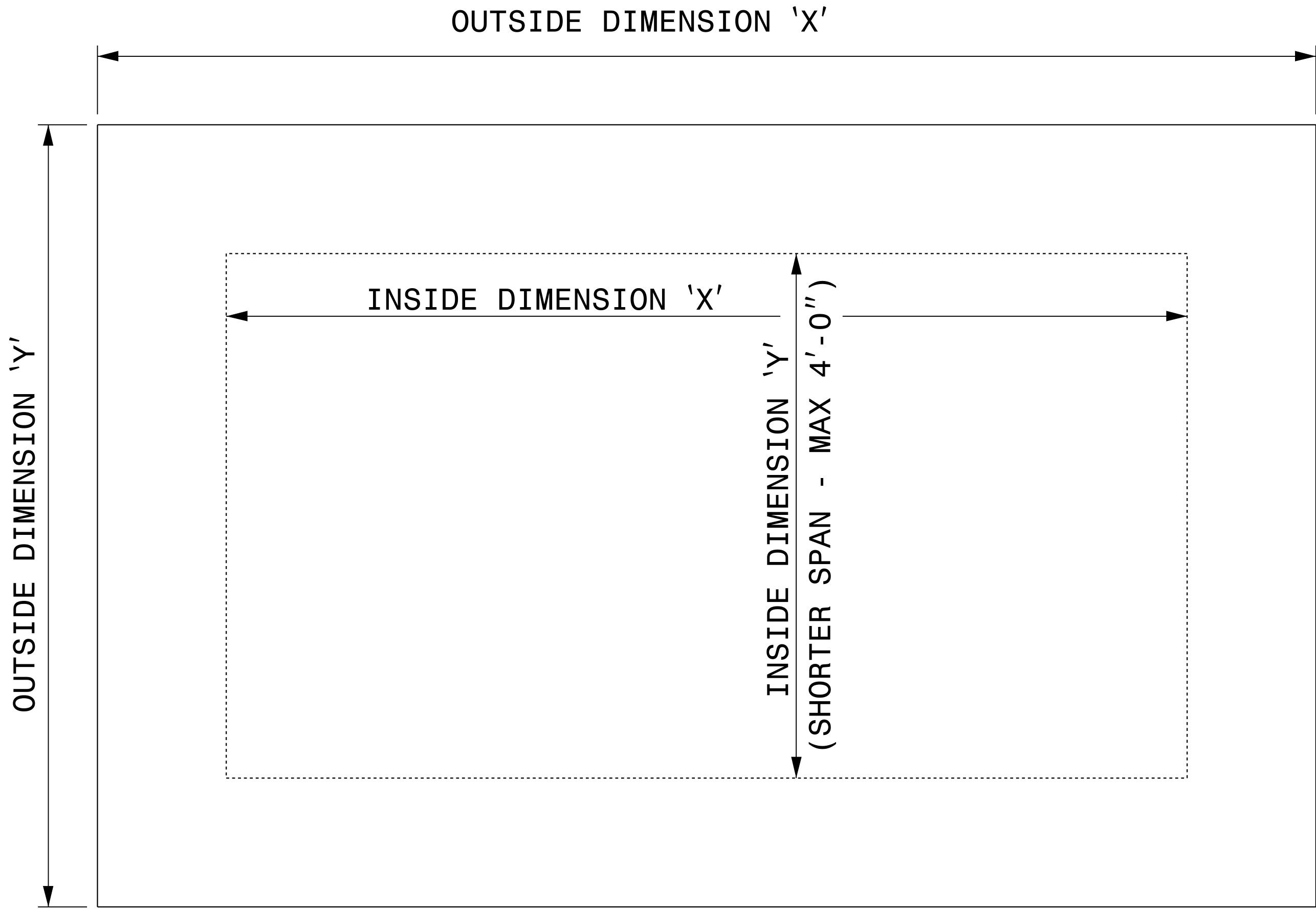
SECTION Y-Y



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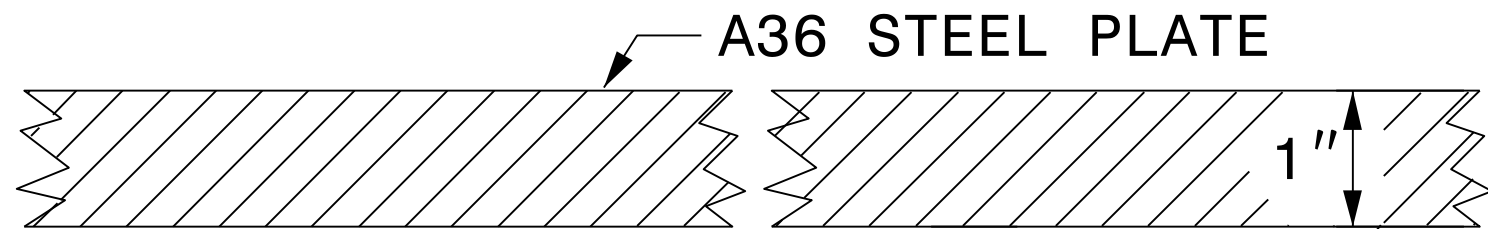
CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
DETAIL TO CONVERT DROP INLET OR JB TO CATCH BASIN	
ORIGINAL BY: <u>E.E. WARD</u>	DATE: <u>11-97</u>
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC.: <u>DS37:usr\details\stand\jbtocb.dgn</u>	

PROJECT REFERENCE NO.	SHEET NO.
HL-0065	2C-12



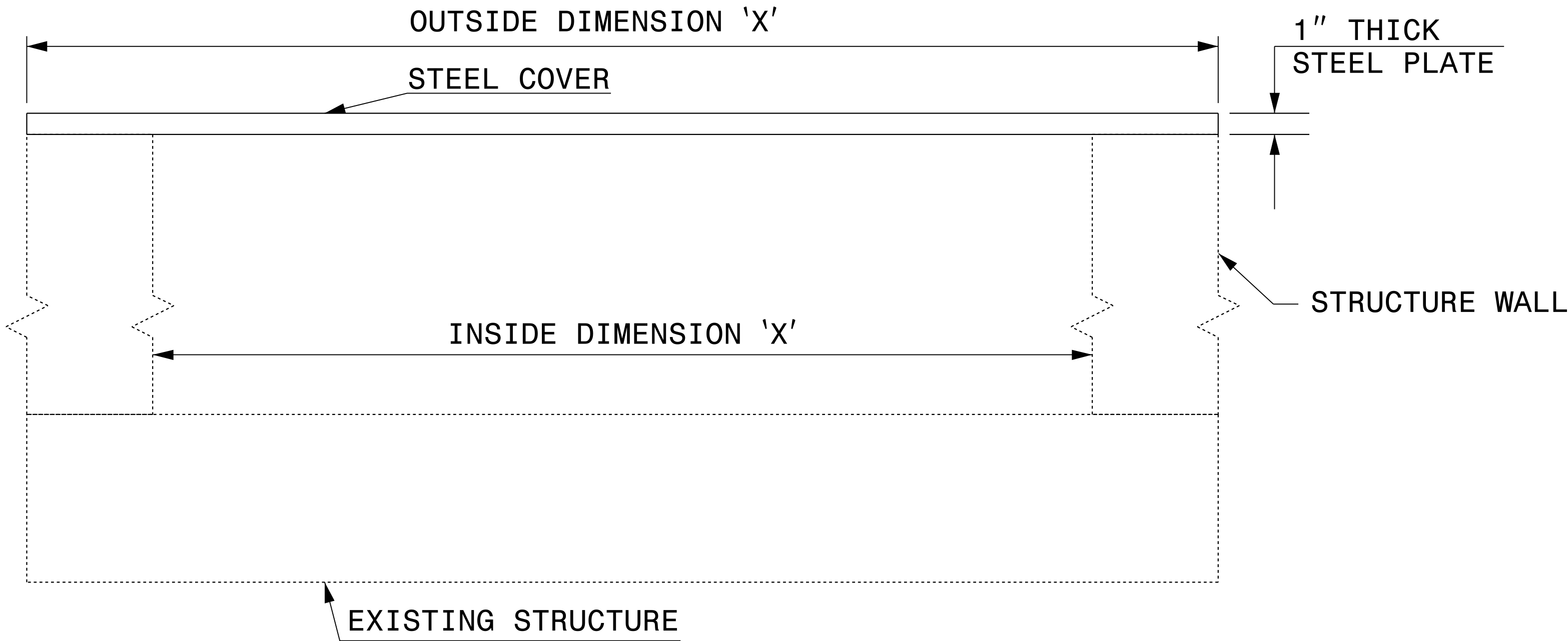
GENERAL NOTES:

- 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.

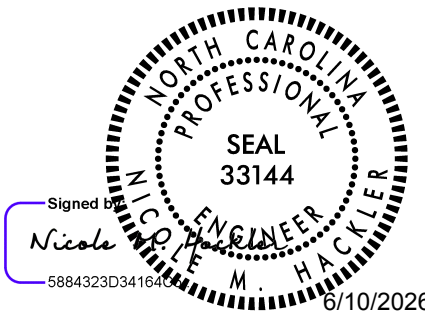


SECTION VIEW OF STEEL TOP PLATE

PLAN VIEWS



ELEVATION VIEWS



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

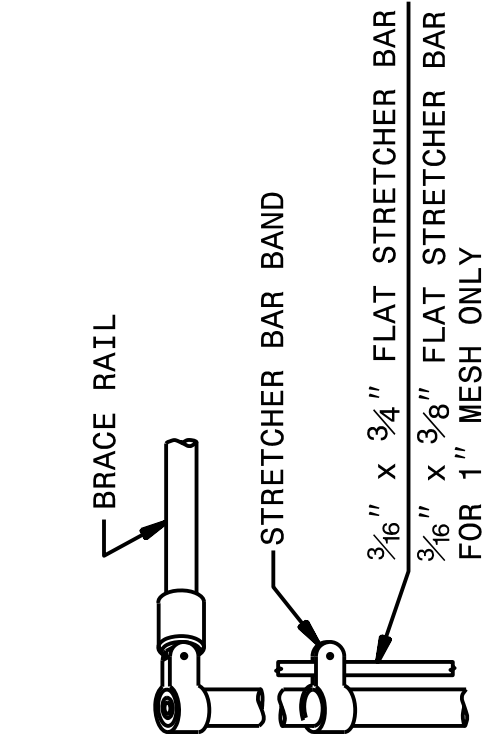
CONTRACT STANDARDS AND DEVELOPMENT UNIT Office 919-707-6950 FAX 919-250-4119	
DETAIL OF TEMPORARY 1" STEEL COVER	
ORIGINAL BY: E.E. WARD	DATE: 2-2-98
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: eric:/usr/details/metric/stand/stlcvr2.dgn	

\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$USERNAME\$\$\$\$\$

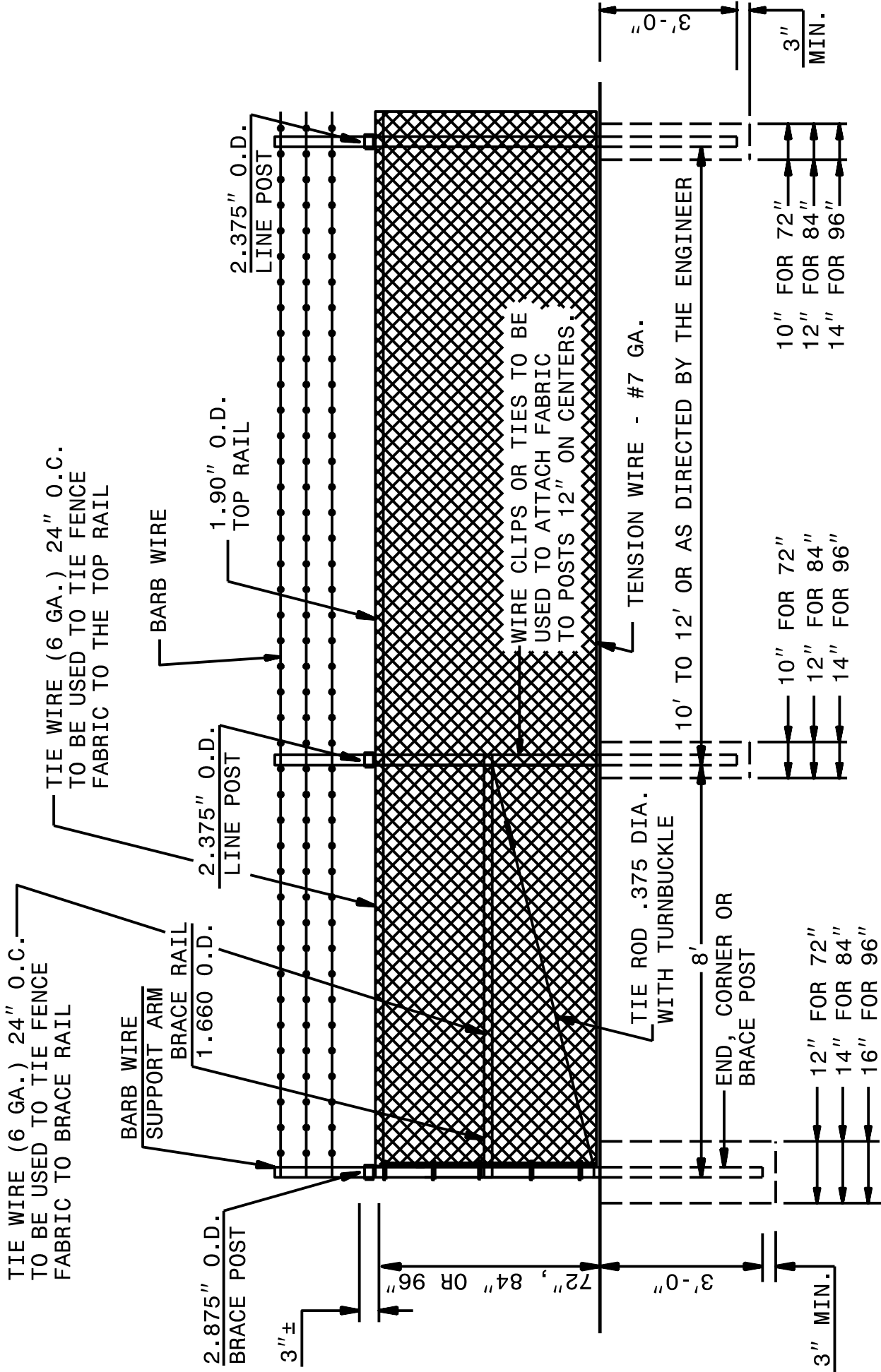
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CHAIN LINK FENCE WITH BARBED WIRE
6', 7' AND 8' HEIGHT

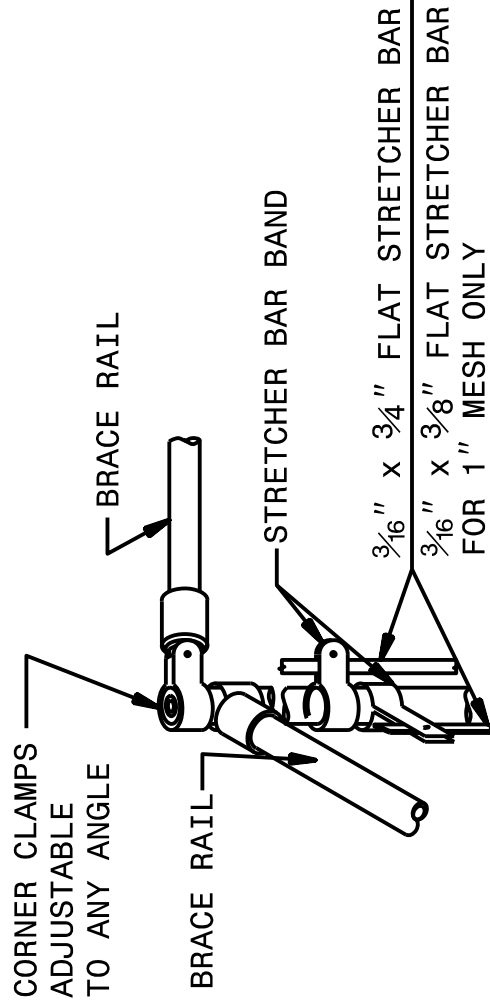
SHEET 1 OF 2
fence4c1



**END, GATE OR BRACE POST
WITH STRETCHER BAR ATTACHMENT**



ELEVATION VIEW



**CORNER WITH STRETCHER
BAR ATTACHMENT**

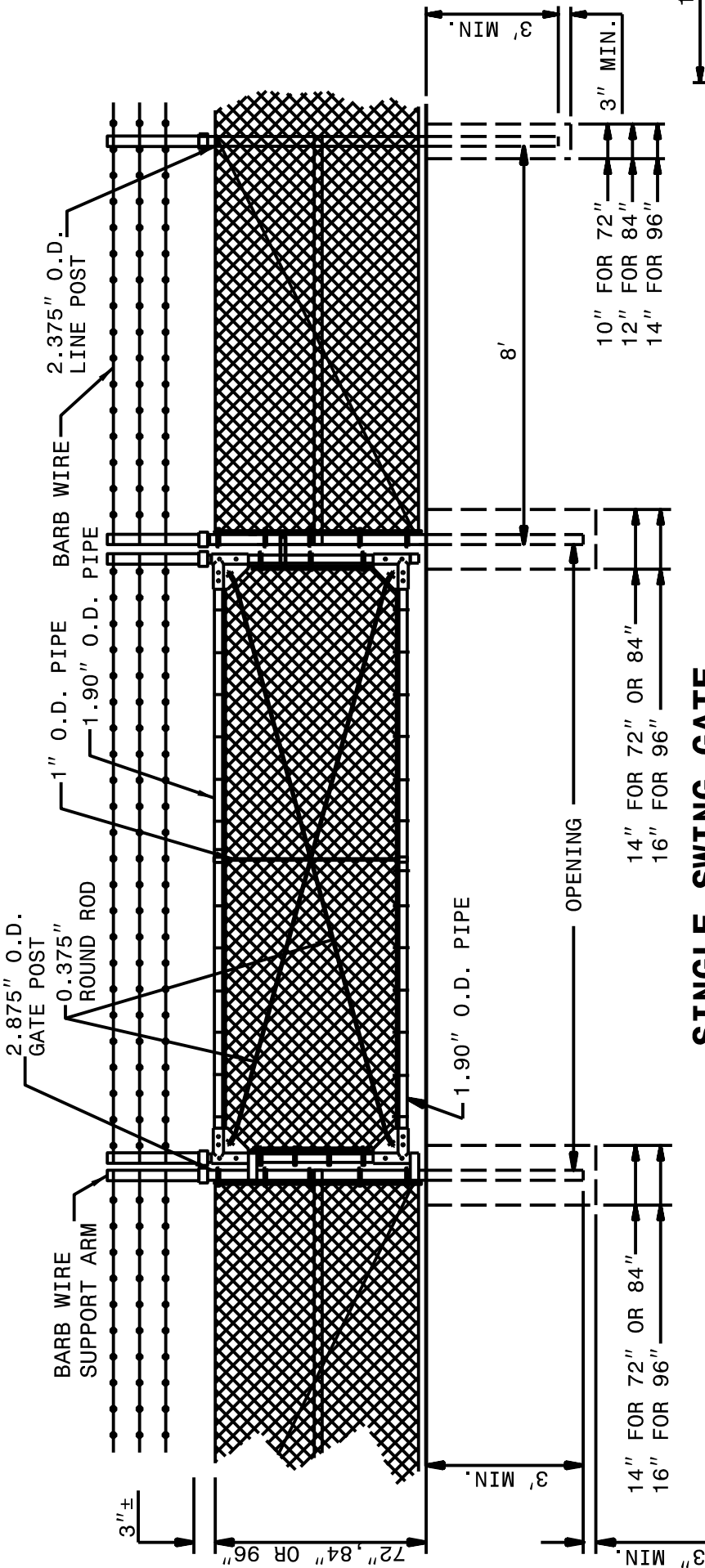
ENGLISH DETAIL DRAWING FOR
CHAIN LINK FENCE WITH BARBED WIRE
6', 7' AND 8' HEIGHT

SHEET 1 OF 2
fence4c1

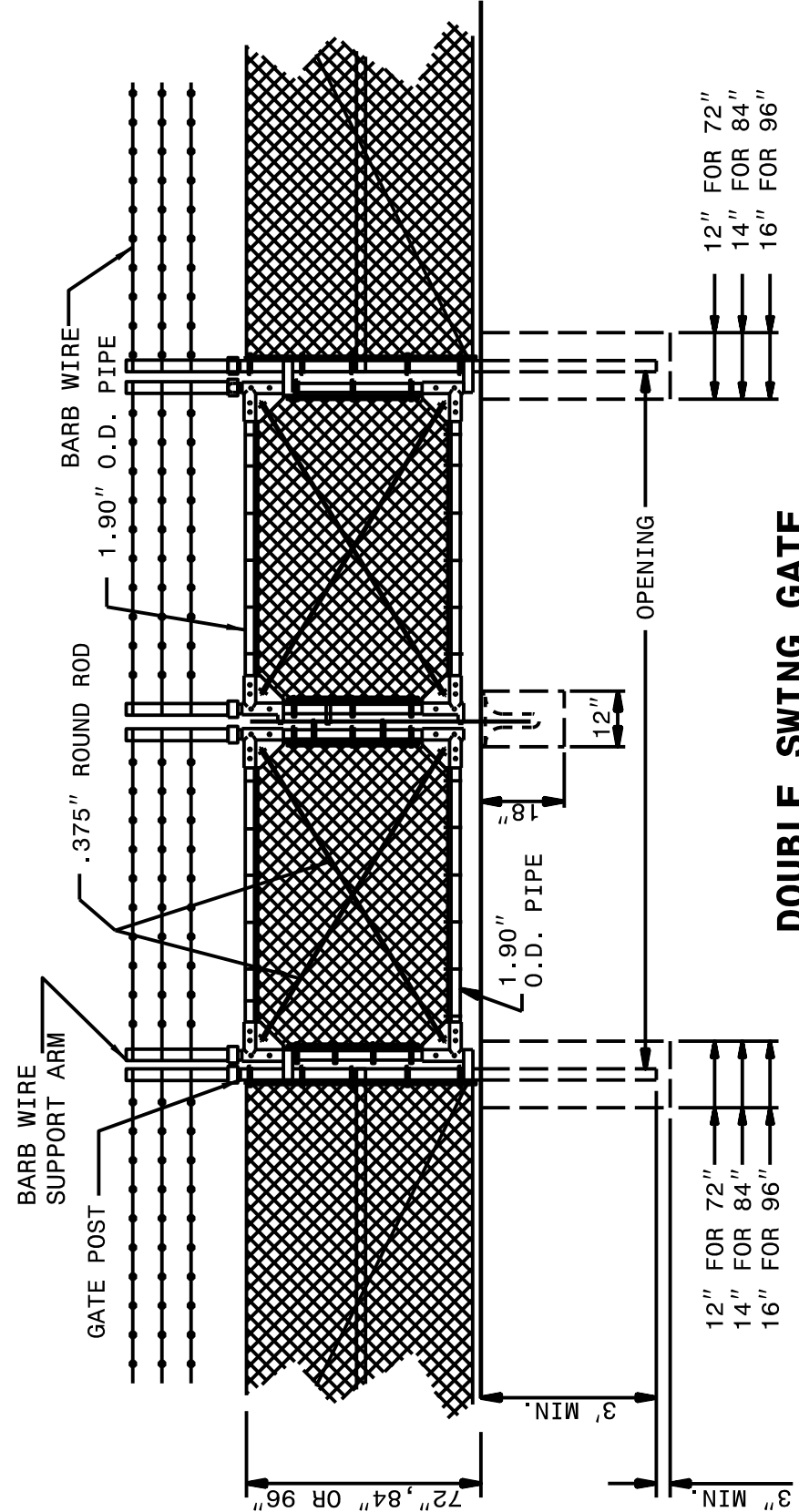
STATE OF
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CHAIN LINK FENCE WITH BARBED WIRE
6', 7' AND 8' HEIGHT

SHEET 2 OF 2
fence4c1



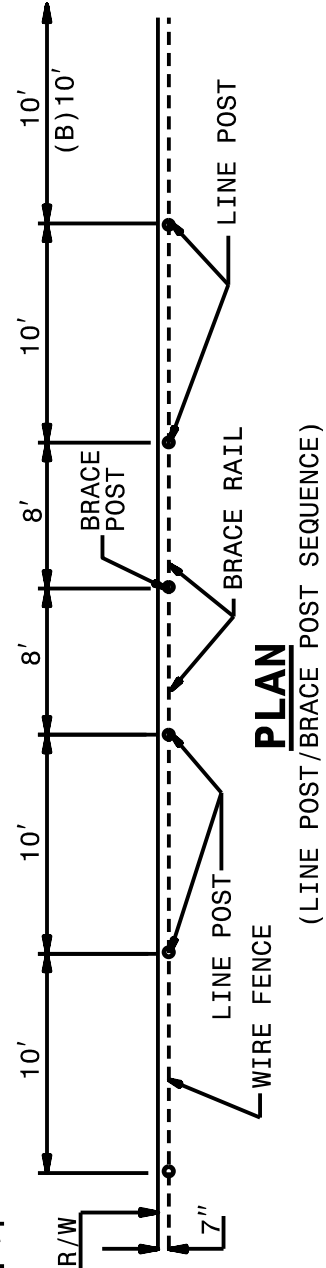
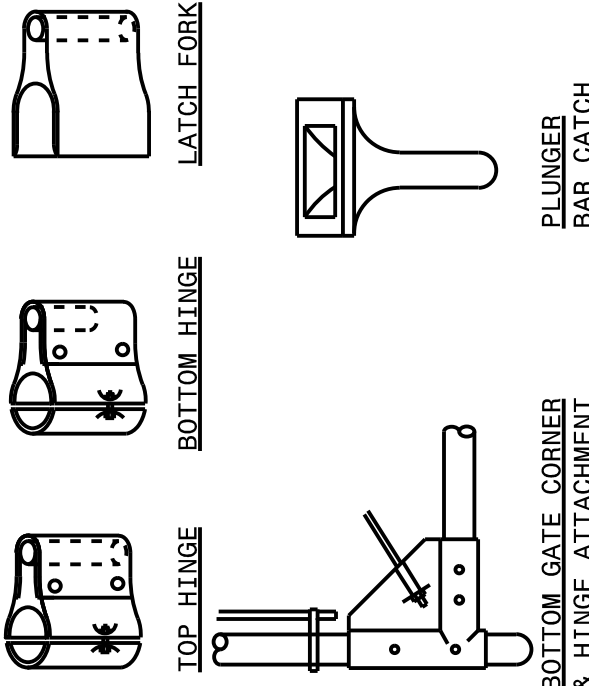
SINGLE SWING GATE
TO BE USED WHERE SWINGING CLEARANCE IS LIMITED



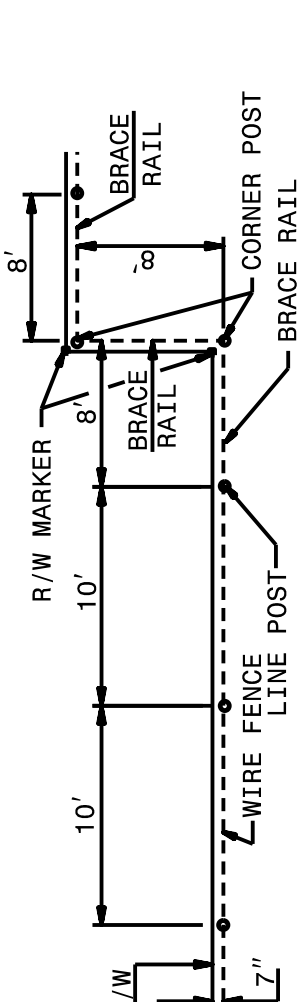
DOUBLE SWING GATE
TO BE USED WHERE SWINGING CLEARANCE IS LIMITED

MAXIMUM WIRE SPACING TO BE 6".
MAXIMUM CLEARANCE BETWEEN LOWEST STRAND AND GROUND TO BE 6".
BRACE POSTS SHALL BE ERCTED BETWEEN END, CORNER OR GATE POSTS AT
INTERVALS NOT EXCEEDING 700' ON TANGENTS OR 350' ON SHORT RADIUS CURVES.
ADDITIONAL BRACE POSTS SHALL BE ERCTED IF SO DIRECTED BY THE ENGINEER.
BRACE POSTS SHALL BE BRACED FROM BOTH SIDES OF POST.

NOTE: FENCE HARDWARE VARIES DUE TO
DIFFERING MANUFACTURES SUPPLIES.

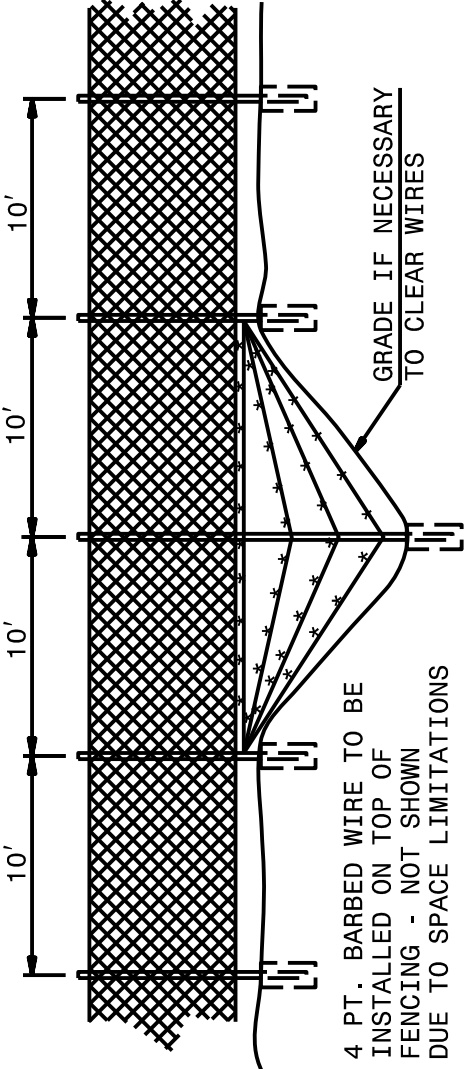


PLAN
(LINE POST/BRACE POST SEQUENCE)



PLAN

PLACEMENT OF FENCE ALONG RIGHT OF WAY
(ALL CORNER POSTS ARE TO BE BRACED AS SHOWN ABOVE)

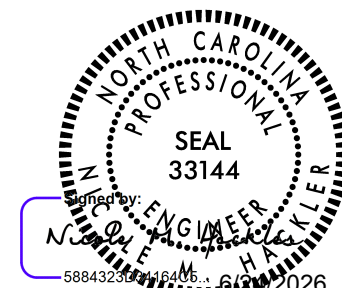


DETAIL OF DITCH CROSSING

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

SEE PLATE FOR TITLE

ORIGINAL BY: N.T. KEGLERS DATE: MAR. 11, 1996
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DETAIL #1

-L3- STA 43+10 RT
-Y15- STA 10+58 LT

PEDESTRIAN SAFE
CAST IRON OR STEEL
FRAME AND GRATE

QUANTITIES
STANDARD TRENCH
GRATE 30 EA
STD. 840.30



DETAIL #2

-L3- STA 67+03 TO 67+39 LT

PEDESTRIAN SAFE
- CAST IRON OR STEEL
FRAME AND GRATE

~~FL ELEV. = 1090.47'~~

FL. ELEV. = 1090.55'

32.82'

A

R 2

QUANTITIES
STANDARD TRENCH
ITEM 17 EA
840.30

SUMMARY OF EARTHWORK

STATION	STATION	UNCL EXCAV.	UNDERCUT	EMBANK. +15%	BORROW	WASTE
-L1- 11+69.32	-L- 18+00.00	824		41		783
-L2- 10+00.00	-L2- 29+50.00	1,309		689		620
-L2- 54+50.00	-L2- 58+50.00	671		77		594
-L3- 11+00.00	-L3- 41+00.00	791		898	107	
-L3- 41+00.00	-L3- 45+00.00	223		97		127
-L3- 50+50.00	-L3- 74+00.00	1,327		885		442
-L3- 79+50.00	-L3- 82+70.00	101		22		79
-Y1- 12+75.00	-Y1- 14+97.03	279	50	2		276
-Y2- 10+24.73	-Y2- 12+00.00	138		2		136
-Y7- 11+00.00	-Y7- 14+79.01	138		186	48	
-Y8- 10+25.64	-Y8- 15+00.00	206		356	151	
-Y14- 10+50.00	-Y14- 12+68.47	217		35		183
-Y15- 10+16.00	-Y15- 11+70.10	90		0		90
-Y18- 11+25.00	-Y18- 12+16.07	16		50	34	
-Y26- 10+60.95	-Y26- 12+41.49	102		94		
-RAB- 10+00.00	-RAB- 13+76.99	465		1,438	974	
-MUP- 10+00.00	-MUP- 11+73.02	1,076		0		1,076
PROJECT TOTALS:		7,970	50	4,872	1,312	4,460
EST. SHOULDER MATERIAL						
LOSS DUE TO CLEARING AND GRUBBING		-3,700				-3,700
ADDITIONAL UNDERCUT			950			950
WASTE IN LIEU OF BORROW					-1,312	-1,312
PROJECT TOTAL		4,270	1000	4,872	0	398
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT						
GRAND TOTALS:		4,270		4,872	0	398
SAY:		4,400	1000			

UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN TOP 3' OF EMBANKMENT OR BACKFILL -L1- 11+75 TO 18+22, -L2- 18+25 TO 22+75, -L2- 26+75 TO 27+75, -L2- 31+75 TO 33+26, -L3- 19+75 TO 44+75, -L3- 52+75 TO 81+84, -Y2- 10+25 TO 11+75, -MUP- 10+07 TO 12+25, -Y14- 10+25 TO 12+25 (6,820 CY)

Note: Approximate quantities only. Unclassified Excavation, Shoulder Borrow, Fine Grading, Removal of Existing Pavement and Clearing and Grubbing will be paid for at the contract lump sum price for "Grading."

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HANDRAIL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LF
-L2-	15+78.92	16+18.09	RT	52.50
-L2-	16+82.78	17+98.83	LT	116.65
-L2-	16+94.49	18+08.39	RT	114.00
-L2-	27+84.37	28+84.41	RT	101.34
			TOTAL:	384.49
			SAY:	400

72" CHAIN LINK FENCE WITH 3
STRANDS BARBED WIRE SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LF	LINE POSTS	TERMINAL POSTS
-L2-	17+98.83	18+93.17	LT	99.54	8.13	3
-Y14-	10+50.00	11+47.77	LT	98.00	7.83	2
			TOTAL:	197.54	15.96	5
			SAY:	200	16	5

REMOVAL OF EXISTING
ASPHALT PAVEMENT SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD ¹
-L1-	11+87.84	17+71.73	CL	502.09
-L2-	10+15.12	29+24.35	CL	3,420.03
-L2-	54+73.51	58+63.92	CL	267.27
-L3-	10+52.81	44+84.15	CL	3,707.51
-L3-	50+54.67	57+41.28	CL	748.73
-L3-	57+67.91	79+94.73	CL	2,786.76
-L3-	79+65.22	81+83.83	RT	54.61
-Y1-	13+79.63	14+98.86	RT	85.81
-Y2-	10+21.89	11+50.84	CL	180.00
-Y7-	10+98.76	14+93.81	CL	542.78
-Y8-	10+05.58	14+91.02	CL	377.19
-Y14-	10+25.00	14+43.27	CL	105.85
-Y15-	10+40.49	11+71.72	LT	29.07
-Y18-	11+62.45	11+89.85	CL	11.49
-Y23-	10+39.13	10+60.00	CL	10.12
-Y26-	10+15.63	12+40.71	CL	559.52
-RAB-	10+00.00	13+76.99	CL	1,316.19
TEMP PWMT			CL	451.78
			TOTAL:	15,156.80
			SAY:	15,160

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 BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS										IMPACT ATTENUATOR TYPE 350					REMOVE 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	CAT-1	TES									PERMITTED						
																											NO.					G	NG
-L2-	14 + 86.31	15 + 75.20	RT	80.98	25.39		14 + 86.31	15 + 75.20	10'	12.5' BERM							2											164.59					
-L2-	16 + 83.88	18 + 08.39	RT	113.77	32.15		16 + 83.88	18 + 08.39	10'	12.5' BERM							2											103.38					
-L2-	16 + 86.59	18 + 02.04	LT	172.05			16 + 86.59	18 + 02.04	15'	16.5' BERM	50'		1'			1	1											115.29					
-L2-	27 + 30.68	27 + 37.05	LT	20.09			27 + 30.68	27 + 37.05									2																
-L2-	28 + 33.28	28 + 80.76	RT	104.38			28 + 33.28	28 + 80.76	10'	7.5' BERM	50'		1'			1	1										128.90	USE 8' GUARDRAIL POSTS					
-Y7-	12 + 11.93	13 + 06.64	LT	128.14			12 + 11.93	13 + 06.64	2.5'	5' BERM					1		1																
-Y8-	12 + 21.89	14 + 50.00	RT	278.57			12 + 21.89	14 + 50.00	8'	13'	50'		1'			1												316.92	TIE TO EXISTING				
		SUBTOTALS		897.98	57.54																							829.08					
DEDUCTION FOR ANCHOR UNITS		(1 GREU TL-2 @ 25')		-25																													
		(3 GREU TL-3 @ 50')		-150																													
		(7 CAT-1 @ 6.25')		-43.75																													
		(2 TES @ 2.29')		-4.58																													
PROJECT TOTAL			674.65	57.54												1	3	7	2									829.08					
ADDITIONAL GUARDRAIL POSTS = 5 EA			SAY	700	75											1	3	7	2									850.0					

REVISIONS

HL-0065

FP38-I

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RUTHERFORD COUNTY

ROADWAY DESIGN UNIT

PREPARED BY

HNTB

10000 HUNTERS LANE, SUITE 200
DURHAM, NORTH CAROLINA 27706
919.486.8000 FAX 919.486.8001

