

**This electronic collection of documents is provided
for the convenience of the user
and is Not a Certified Document –**

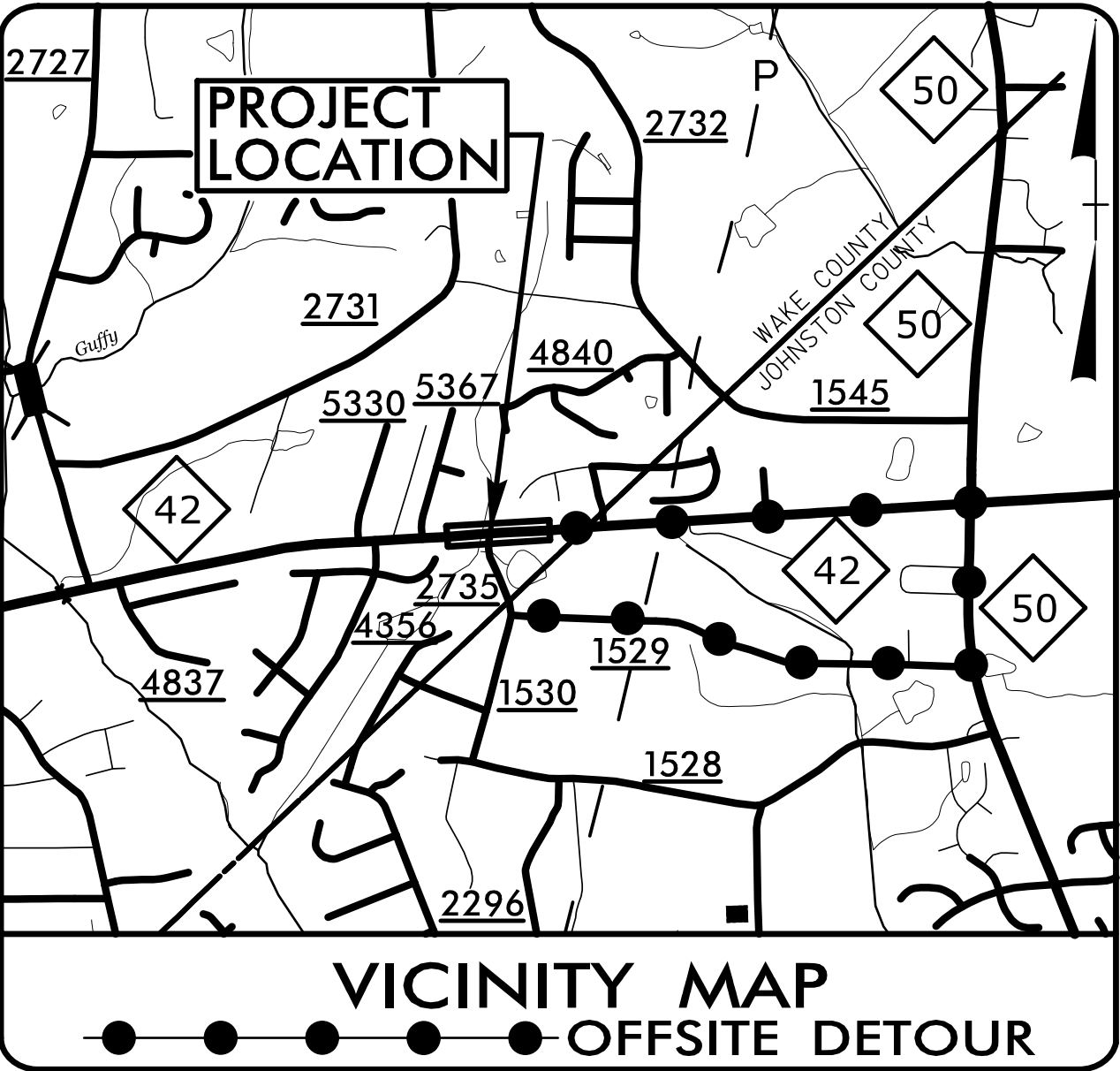
**The documents contained herein were originally issued
and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

**This file or an individual page
shall not be considered a certified document.**

TIP PROJECT: HL-00080

CONTRACT: DE00421

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
WAKE COUNTY

LOCATION: NC 42 AT SR 2735 (JOHNSTON ROAD).
CONSTRUCT LEFT TURN LANE.

TYPE OF WORK: GRADING, DRAINAGE, AND PAVING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HL-00080	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
49367.1.10	N/A	PE	
49367.2.11	N/A	RW	
49367.2.20	N/A	UTIL	
49367.3.10	N/A	CONST.	

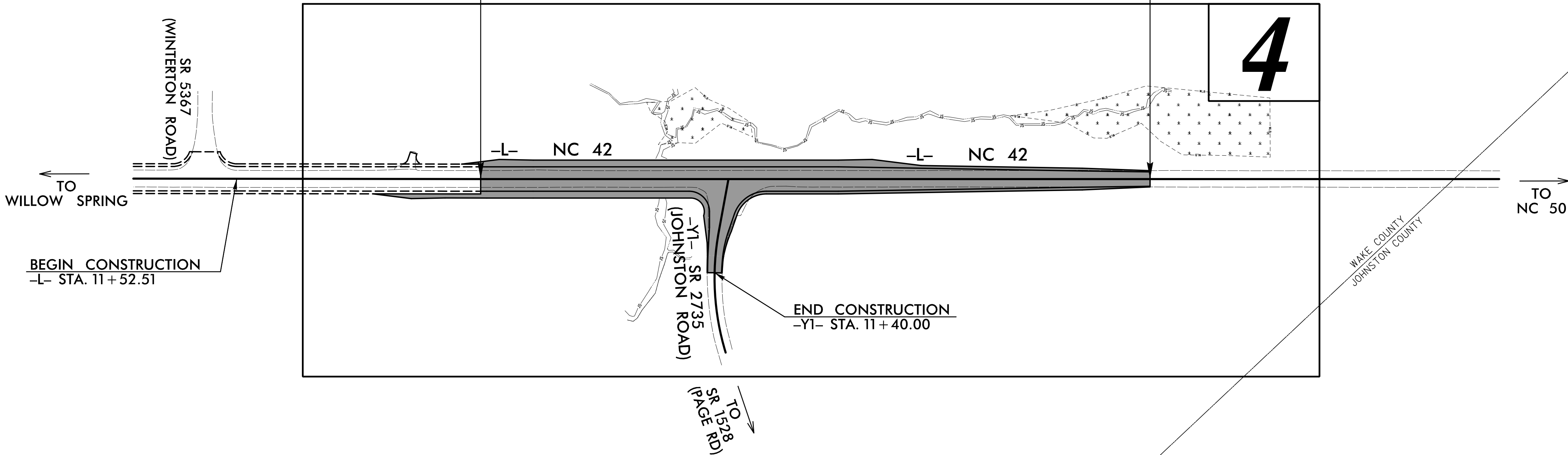


BEGIN TIP PROJECT HL-00080

-L- STA. 15 + 12.51
(TIE TO TIP NO.: W-5601EX)

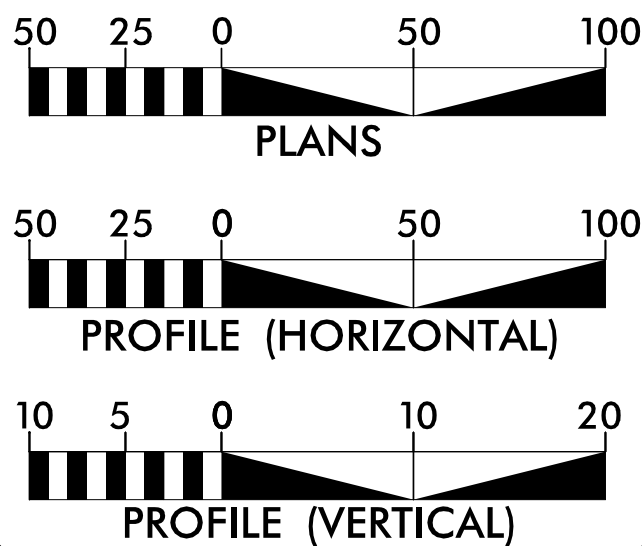
END TIP PROJECT HL-00080

-L- STA. 25 + 00.00



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

(NC 42)	(SR 2735)
ADT 2026 = 19400	ADT 2026 =
ADT 2046 = 31400	ADT 2046 =
K = %	K = %
D = %	D = %
T = % *	T = %
V = 60 MPH	V = 60 MPH
TTST = % DUAL = %	TTST = % DUAL = %
FUNC CLASS =	FUNC CLASS =
MINOR ARTERIAL	LOCAL

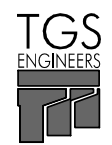
OTHER /REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY = 0.187 mile
TIP PROJECT HL-00080

TOTAL LENGTH = 0.187 mile
TIP PROJECT HL-00080

Prepared For:
DIVISION OF HIGHWAYS
815 Stadium Drive, Durham, NC 27704



TGS ENGINEERS
706 HILLSBOROUGH ST
SUITE 200
RALEIGH, NC 27603

By:
PH (919) 773-8887
CORP. LICENSE NO.:
C-0275

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 20, 2023

LETTING DATE:
OCTOBER 28, 2026

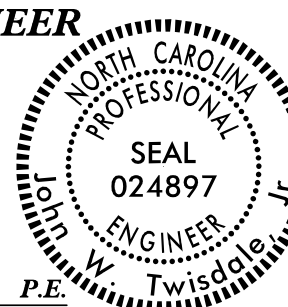
V. MARCUS LOWERY, PE
PROJECT ENGINEER

ELIZABETH GALLEGOS, EI
NCDOT CONTACT

HYDRAULICS ENGINEER

10/5/2026

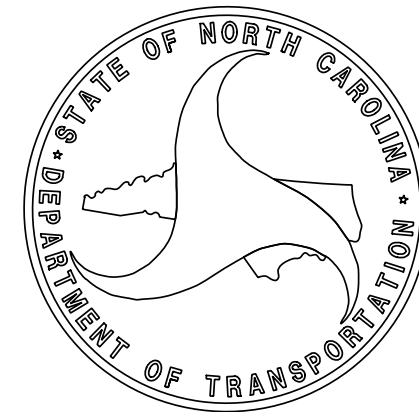
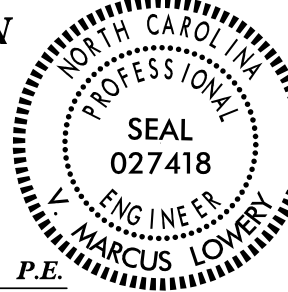
Signed by:
John W. Twissdale, Jr.
SIGNATURE:



ROADWAY DESIGN
ENGINEER

10/4/2026

DocuSigned by:
Marcus Lowery
SIGNATURE:



6/29/2026
C:\Projects\NCDOT\Div 5 HL-00080\Roadway\Proj\H100080\rdy_psh_1.dgn
User: mlowery

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1 THRU 2C-4	DETAILS IN LIEU OF STANDARDS
2D-1 THRU 2D-2	DRAINAGE DETAILS
3B-1	ROADWAY SUMMARIES
3D-1 THRU 3D-2	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
04	PLAN /PROFILE SHEET
RW02C-1 THRU RW04	SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES
TMP-1 THRU TMP-7	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1 THRU SIGN-3	SIGNING PLANS
UC-1 THRU UC-4	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1	CROSS SECTION INDEX SHEET
X-1A	CROSS SECTION EARTHWORK VOLUME SUMMARY SHEET
X-2 THRU X-8	CROSS SECTIONS

GENERAL NOTES

GENERAL NOTES:	2024 SPECIFICATIONS
	EFFECTIVE: 01-16-2024 REVISED:
GRADING AND SURFACING OR RESURFACING AND WIDENING:	THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.
CLEARING:	CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
SUPERELEVATION:	ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.
SHOULDER CONSTRUCTION:	ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01
SIDE ROADS:	THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.
SUBSURFACE DRAINS:	SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.
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 DUKE ENERGY (POWER), AT&T (TELECOM), & CHARTERSPECTRUM (TELECOM) 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 CONTRACT.

STANDARD DRAWINGS

2024 ROADWAY ENGLISH STANDARD DRAWINGS	EFF: 01-16-2024 REV.
The following Roadway Standards as appear in "Roadway Standard Drawings" Contracts Standards and Development Unit – N. C. Department of Transportation – Raleigh, N. C., Dated January 16, 2024 are applicable to this project and by reference hereby are considered a part of these plans:	
STD.NO.	TITLE
DIVISION 2 – EARTHWORK	
200.03	Method of Clearing – Method III
225.02	Guide for Grading Subgrade – Secondary and Local
225.04	Method of Obtaining Superelevation – Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 – PIPE CULVERTS	
300.01	Method of Pipe Installation (See Details in Lieu of Standard 300D0101 & 300D0102)
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	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.02	Subsurface Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts – 15" thru 48" Pipe 90 Skew
838.22	Reinforced Concrete Endwall – for Double and Triple 54" Pipes 90 Skew
838.45	Notes for Reinforced Concrete Endwall – Std. Dwg 838.21 thru 838.40
838.80	Precast Endwalls – 12" thru 72" Pipe 90 Skew
840.18	Concrete Grated Drop Inlet Type 'B' – 12" thru 36" Pipe
840.20	Frames and Wide Slot Flat Grates
840.27	Brick Grated Drop Inlet Type 'B' – 12" thru 36" Pipe
840.34	Traffic Bearing Junction Box – for Use with Pipes 42" and Under
840.51	Brick Manhole – 12" thru 36" Pipe
840.52	Precast Manhole – 4', 5' and 6' Diameter 12" thru 48" Pipe
840.53	Precast Manhole with Masonry Base – 12" thru 42" Pipe
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement (See Details in Lieu of Standard 862D0106 & 862D0111)
862.02	Guardrail Installation
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

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	

RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Secondary Horiz and Vert Control Point	
Vertical Benchmark	
Existing Right of Way Monument	
Proposed Right of Way Monument (Rebar and Cap)	
Proposed Right of Way Monument (Concrete)	
Existing Permanent Easement Monument	
Proposed Permanent Easement Monument (Rebar and Cap)	
Existing C/A Monument	
Proposed C/A Monument (Rebar and Cap)	
Proposed C/A Monument (Concrete)	
Existing Right of Way Line	
Proposed Right of Way Line	
Existing Control of Access Line	
Proposed Control of Access Line	
Proposed ROW and CA Line	
Existing Easement Line	
Proposed Temporary Construction Easement	
Proposed Temporary Drainage Easement	
Proposed Permanent Drainage Easement	
Proposed Permanent Drainage/Utility Easement	
Proposed Permanent Utility Easement	
Proposed Temporary Utility Easement	
Proposed Aerial Utility Easement	

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
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)*	

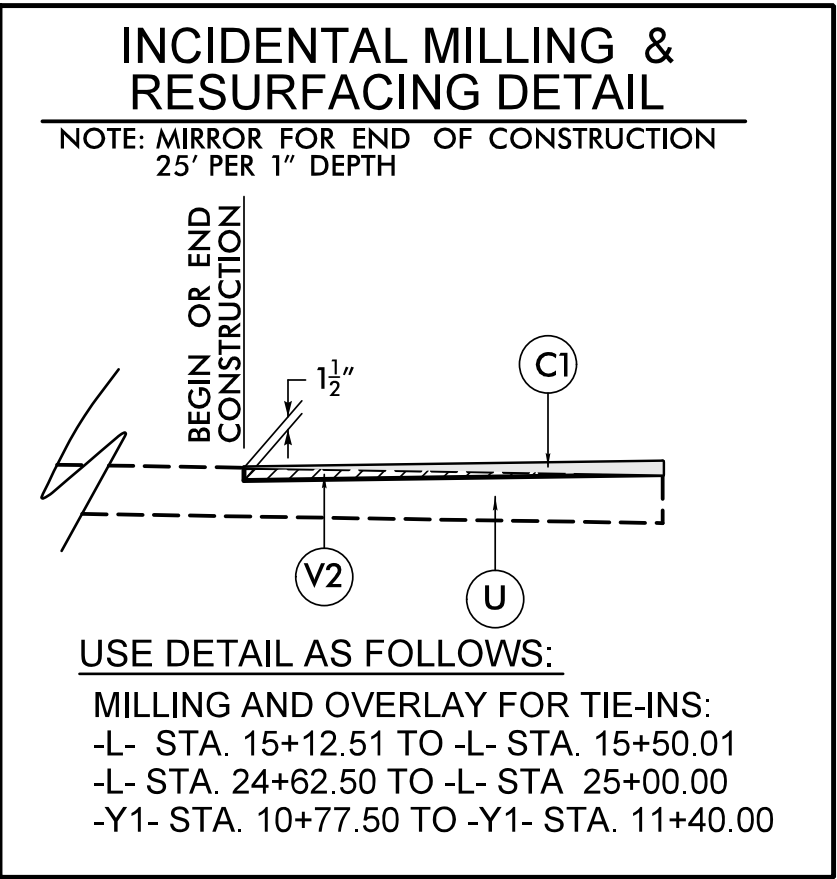
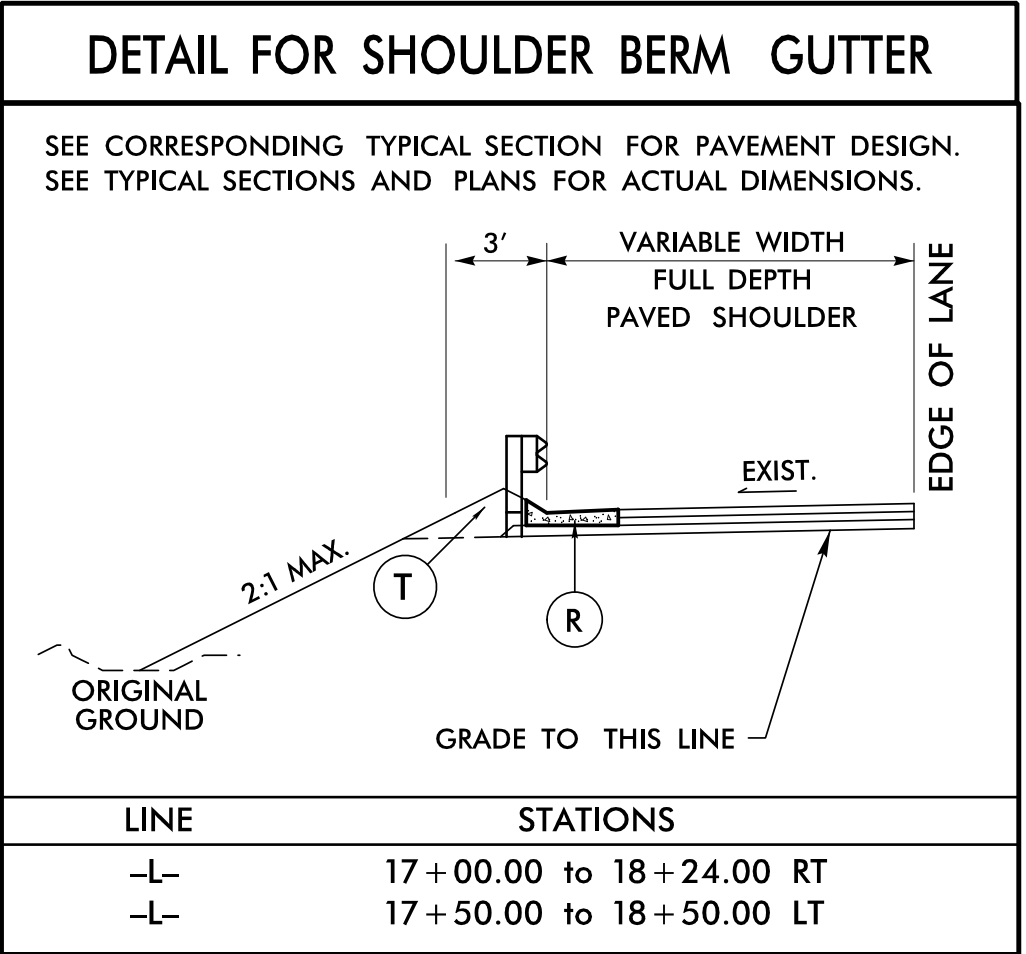
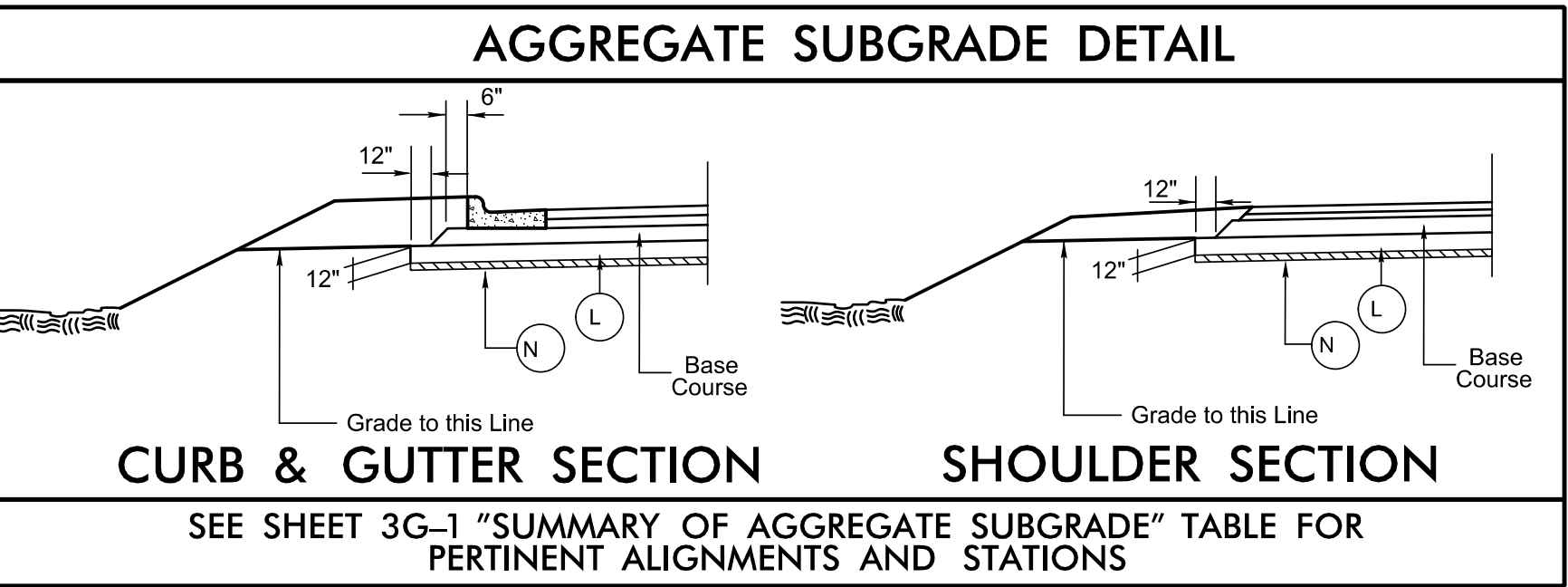
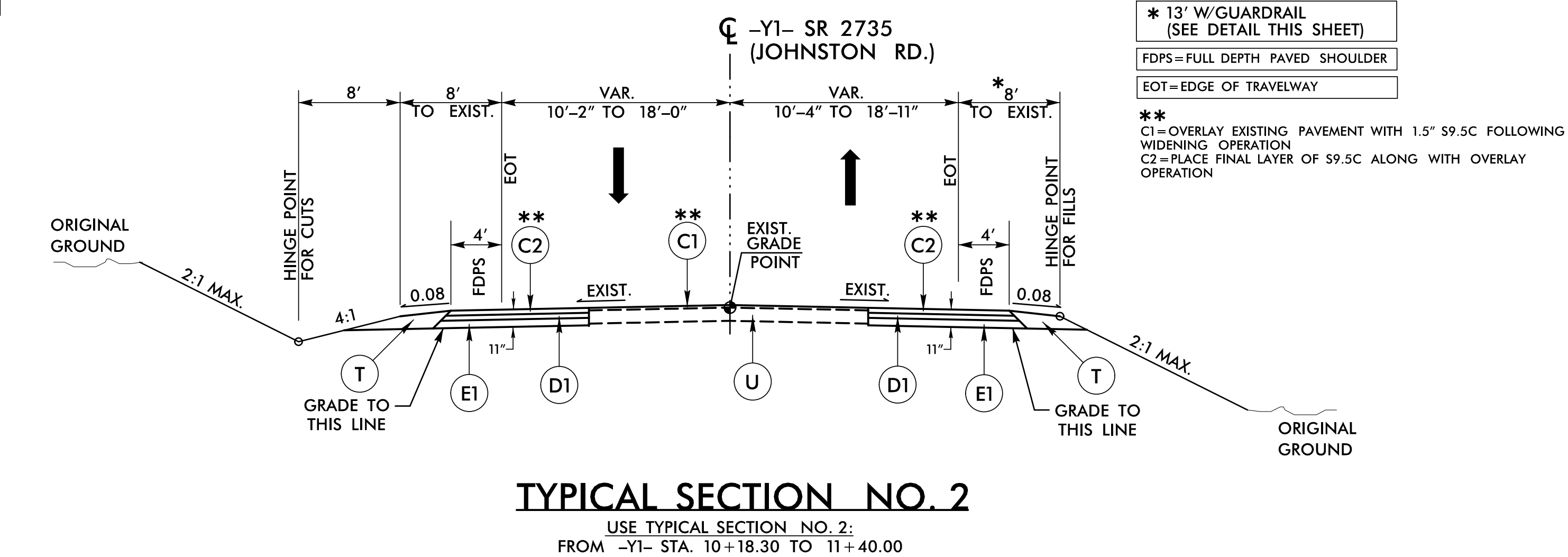
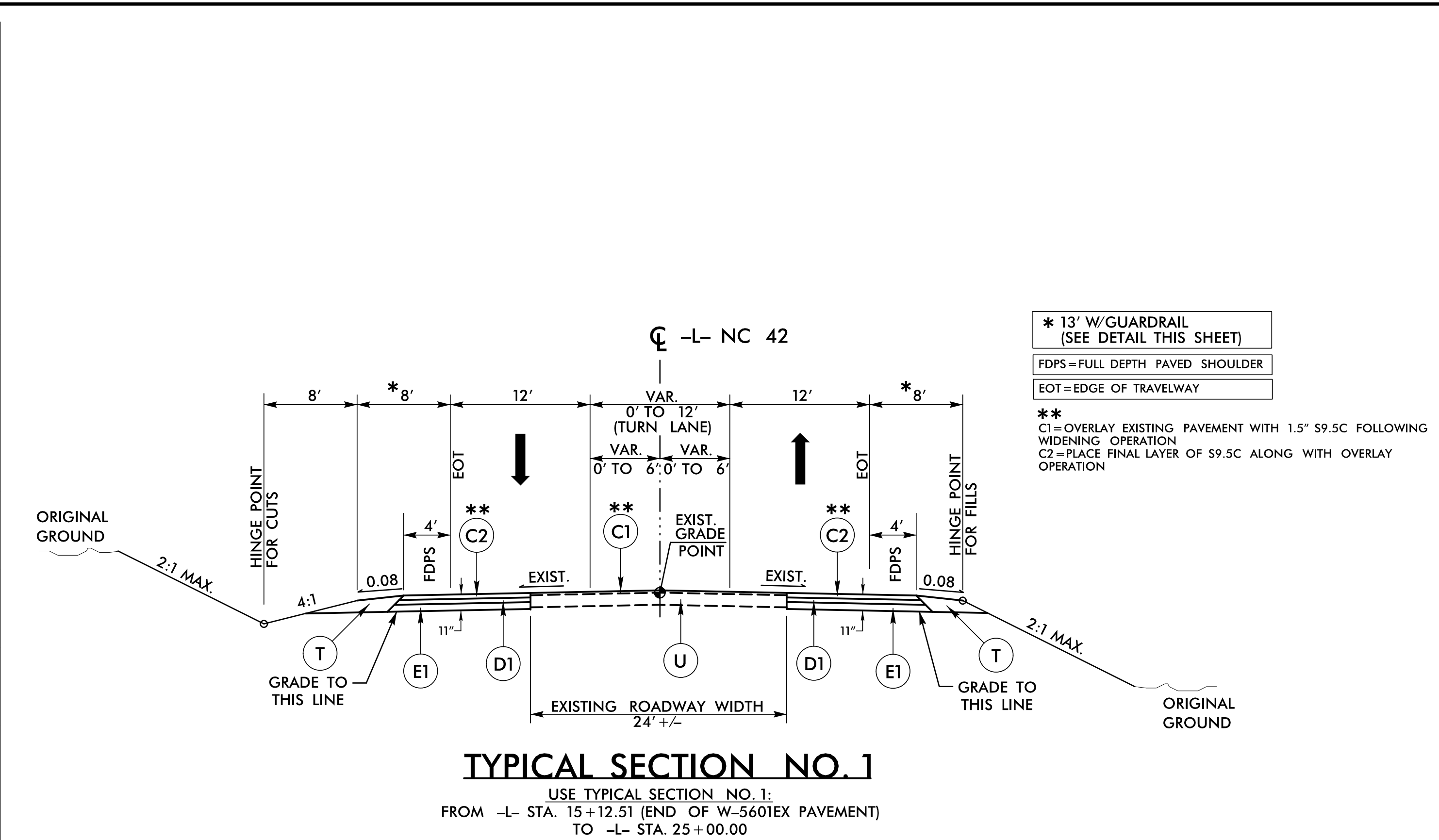
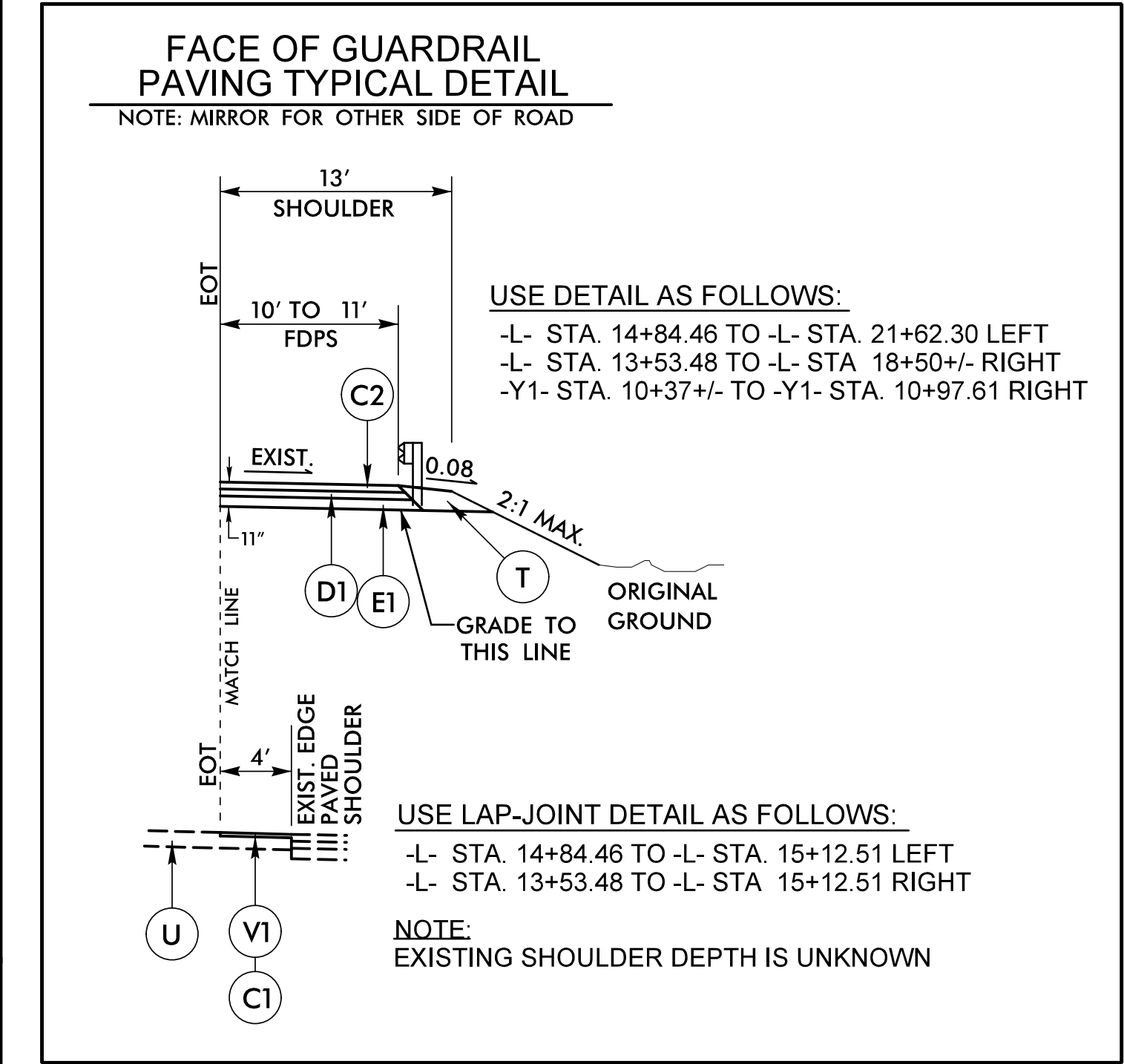
MISCELLANEOUS:

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	
Geoenvironmental Boring	
Abandoned According to Utility Records	
End of Information	

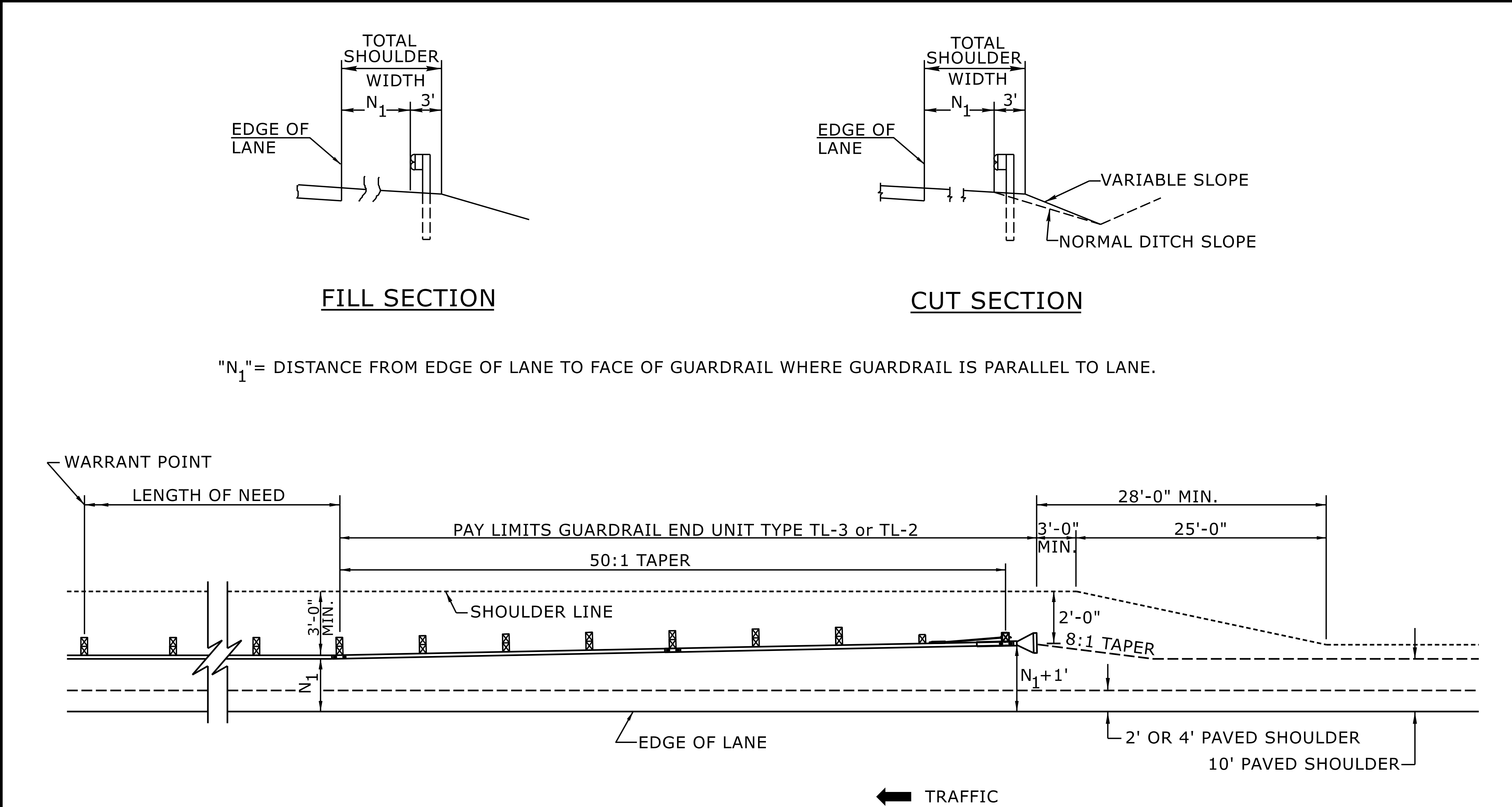
6/2/2024 9:13:20 AM C:\Projects\NCDOT\Div 5 HL-00080\Roadway\Pro\1102080_r.dwg tujp.dgn User: tujp

PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN: MAY 3, 2023	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
L	CLASS IV SUBGRADE STABILIZATION
N	GEOTEXTILE FOR SOIL STABILIZATION
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V1	MILLING BITUMINOUS PAVEMENT (1.5" DEPTH)
V2	MILLING BITUMINOUS PAVEMENT (INCIDENTAL MILLING - SEE MILLING DETAIL THIS SHEET)

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



PROJECT REFERENCE NO.	SHEET NO.
HL-00080	2C-1



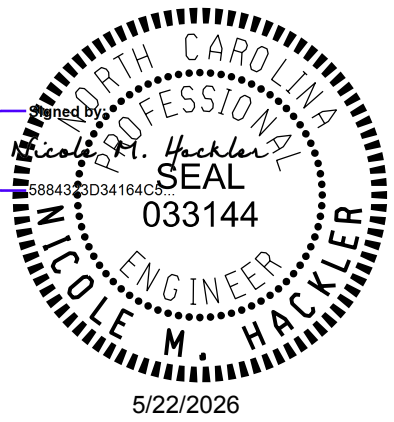
FOR POSTED SPEEDS $\geq$ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS $<$ 45mph USE GREU TYPE TL-2

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

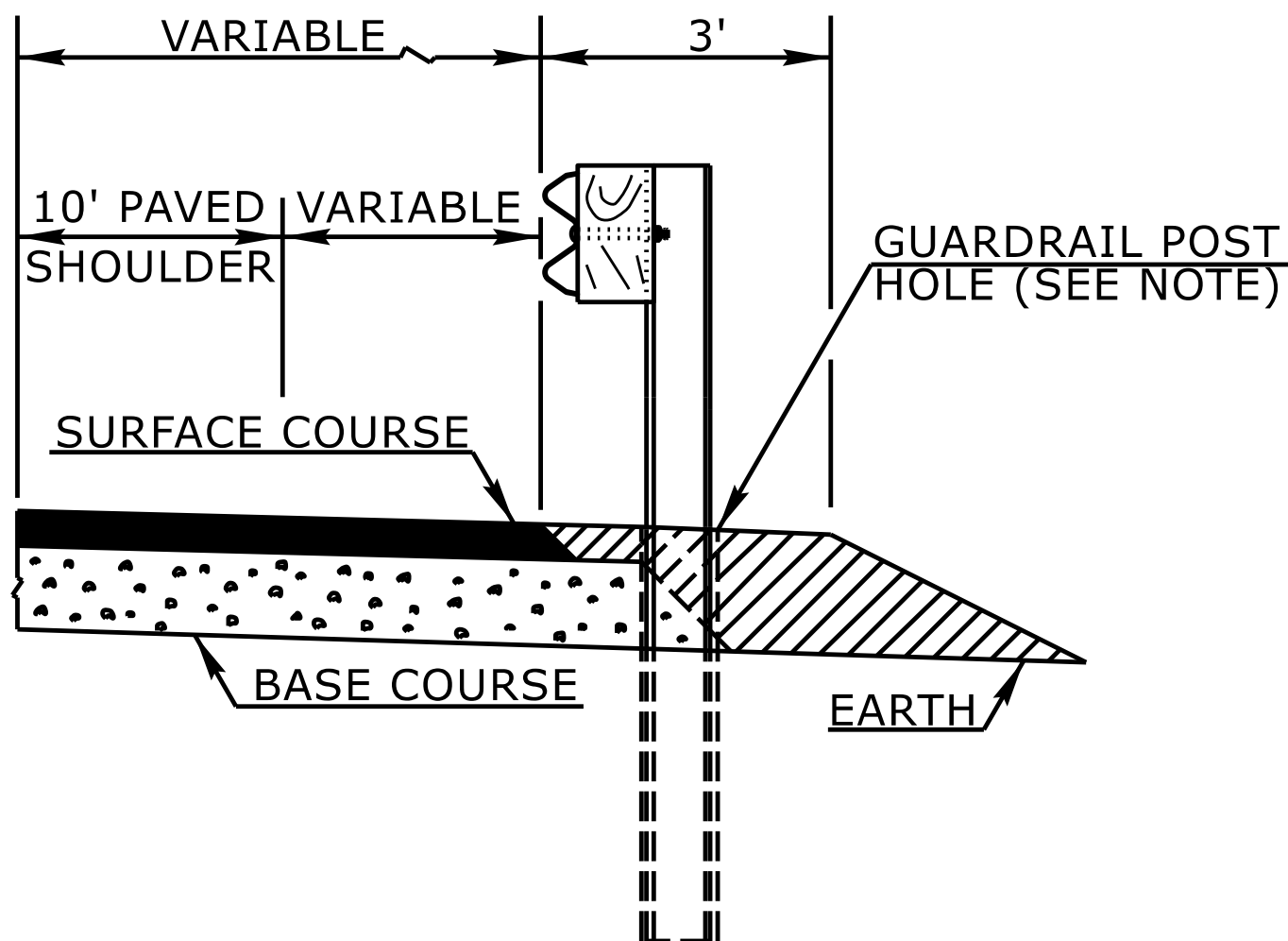
SHEET 6 OF 15
862D01



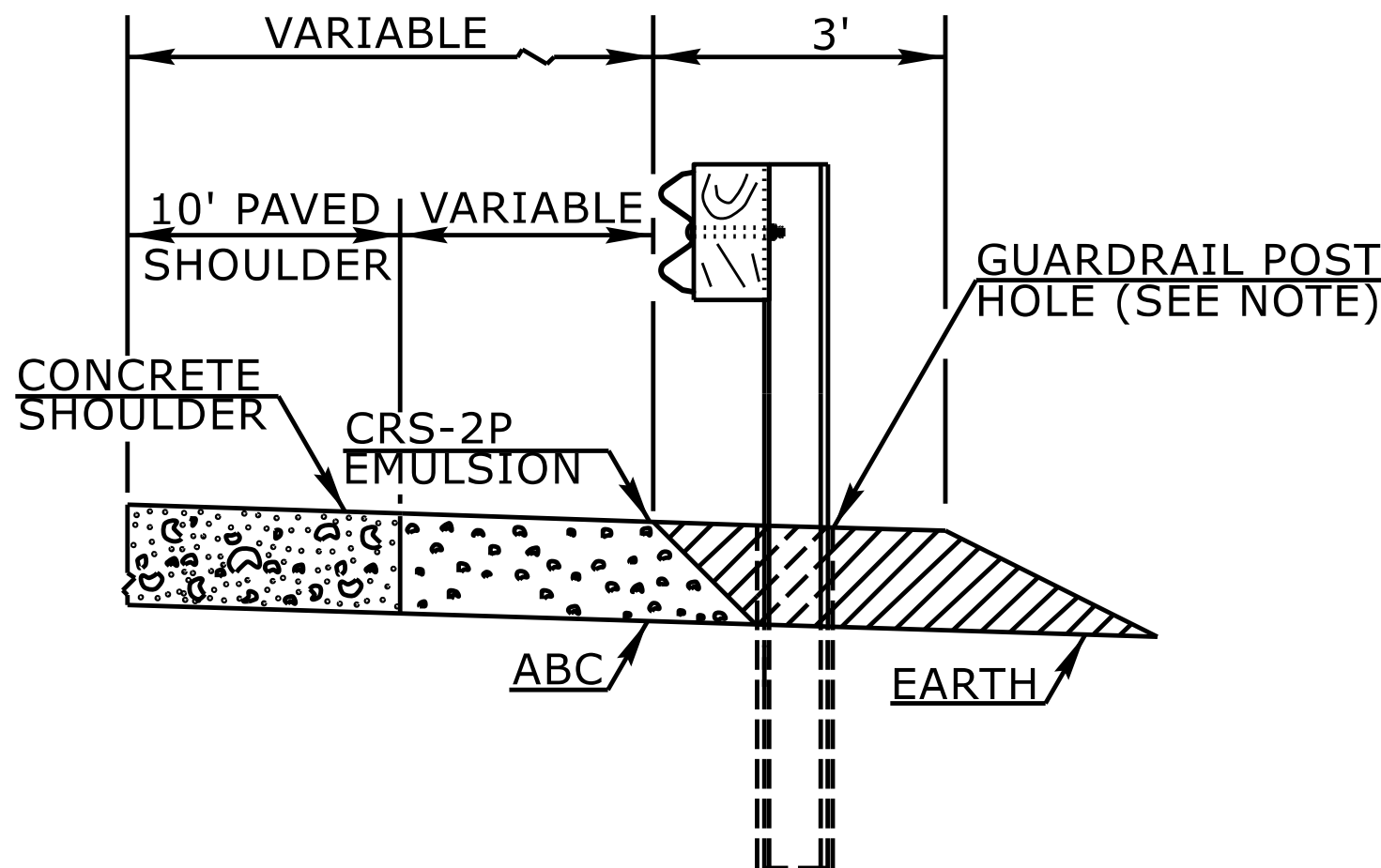
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACTS STANDARDS AND DEVELOPMENT UNIT			
Office 919-707-6950		FAX 919-250-4119	
SEE TITLE BLOCK			
ORIGINAL BY:	<u>S.CALHOUN</u>	DATE:	<u>7-25-2024</u>
MODIFIED BY:	_____	DATE:	_____
CHECKED BY:	_____	DATE:	_____
FILE SPEC.:	_____		

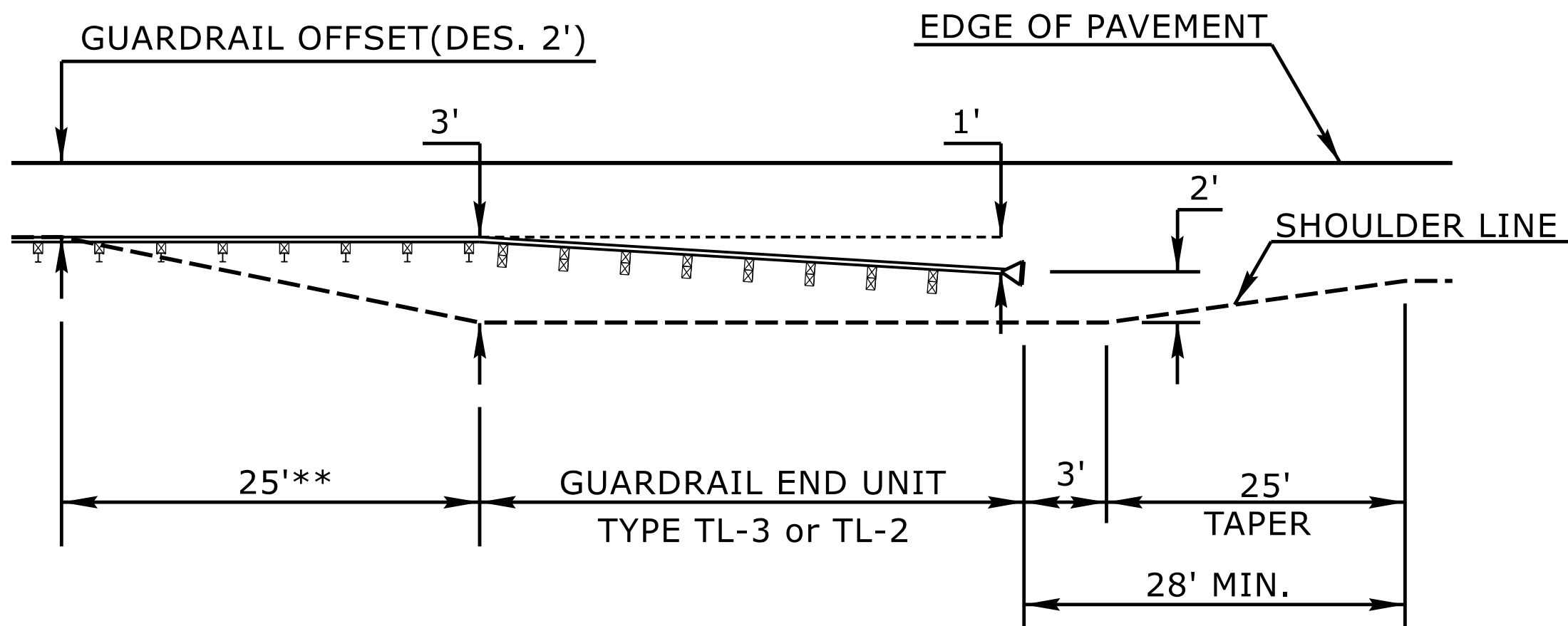
PROJECT REFERENCE NO.	SHEET NO.
HL-00080	2C-2



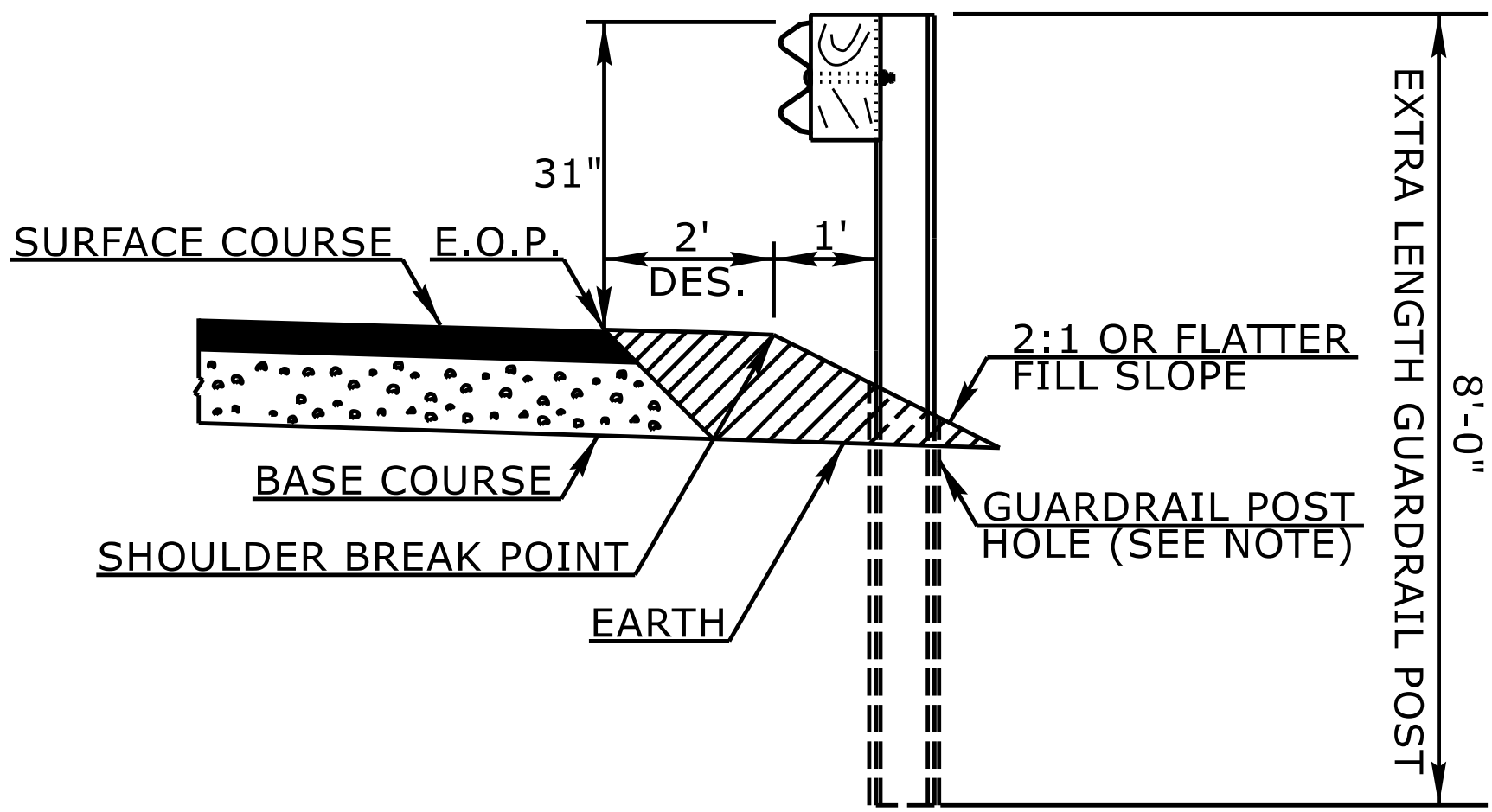
FLEXIBLE PAVED SHOULDER



CONCRETE PAVED SHOULDER



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



8' GUARDRAIL POST ON 2:1 SLOPE*

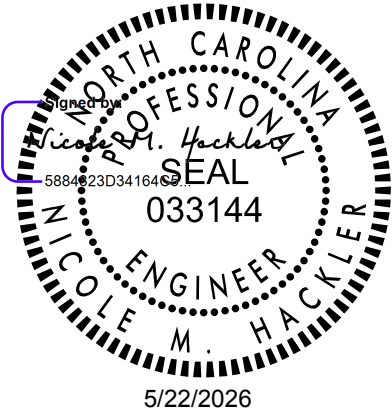
* THE 8' GUARDRAIL POST ON 2:1 SLOPE DETAIL IS INTENDED FOR USE ONLY IN SEVERELY CONSTRAINED AREAS WITH A POSTED SPEED $\leq$ 60 MPH. GUARDRAIL END UNITS MAY NOT BE PLACED ON THE 2:1 SLOPE AND MUST TRANSITION TO THE SHOULDER.
** 8' GUARDRAIL POST SHOULD BE USED IN THIS RANGE

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.

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 11 OF 15
862D01

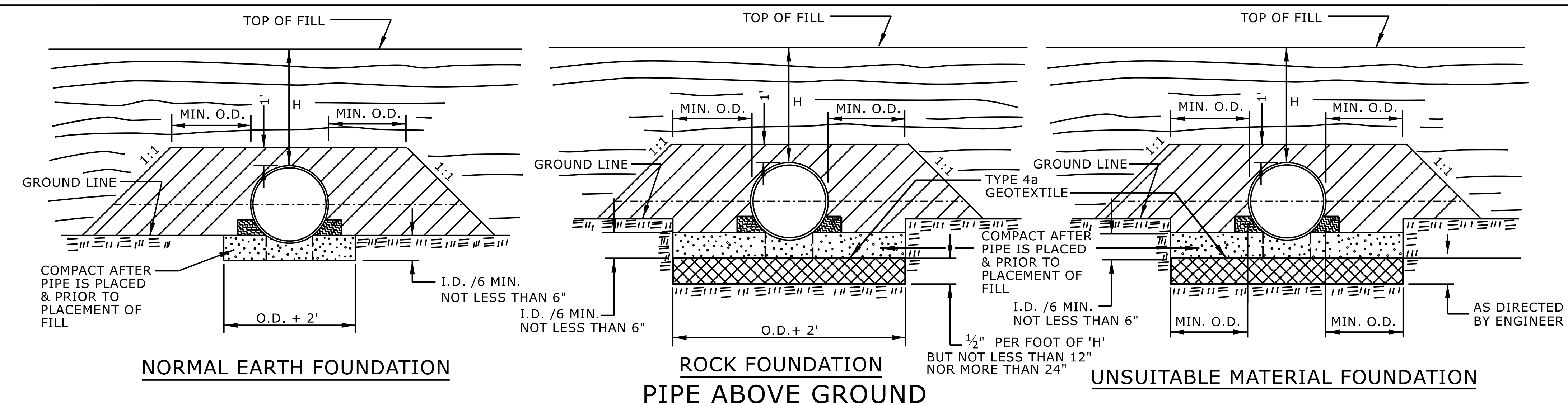
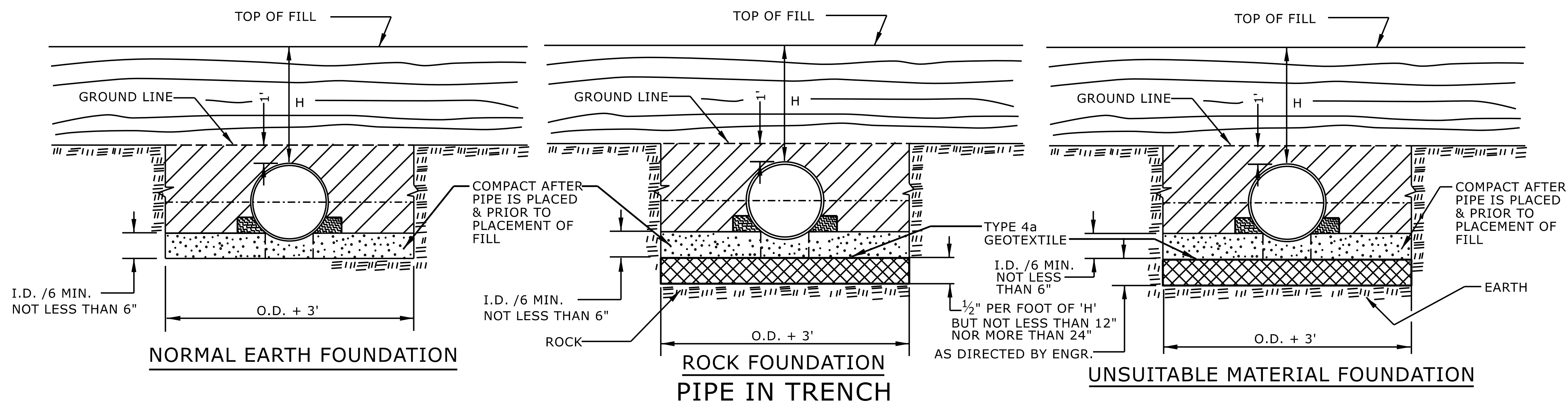


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**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.: _____



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.

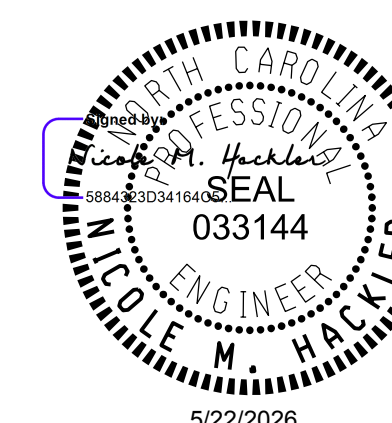
REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS
FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

	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.

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



DOCUMENT NOT CONSIDERED FINAL
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.: _____

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

Diagram showing a pipe in a trench with normal earth foundation. The pipe is surrounded by compacted backfill. Labels include: TOP OF FILL, GROUND LINE, H (fill height), I.D. /6 MIN. NOT LESS THAN 6", O.D. + 3', and COMPACT AFTER PIPE IS PLACED & PRIOR TO PLACEMENT OF FILL.

NORMAL EARTH FOUNDATION

Diagram showing a pipe in a trench with a rock foundation. The pipe sits on a layer of rock. Labels include: TOP OF FILL, GROUND LINE, H, I.D. /6 MIN. NOT LESS THAN 6", O.D. + 3', ROCK, TYPE 4a GEOTEXTILE, I.D. /6 MIN. NOT LESS THAN 6", 1/2" PER FOOT OF 'H' BUT NOT LESS THAN 12" NOR MORE THAN 24" AS DIRECTED BY ENGR., and COMPACT AFTER PIPE IS PLACED & PRIOR TO PLACEMENT OF FILL.

**ROCK FOUNDATION
PIPE IN TRENCH**

Diagram showing a pipe in a trench with a suitable material foundation. The pipe sits on a layer of suitable material. Labels include: TOP OF FILL, GROUND LINE, H, I.D. /6 MIN. NOT LESS THAN 6", O.D. + 3', EARTH, TYPE 4a GEOTEXTILE, I.D. /6 MIN. NOT LESS THAN 6", 1/2" PER FOOT OF 'H' BUT NOT LESS THAN 12" NOR MORE THAN 24" AS DIRECTED BY ENGR., and COMPACT AFTER PIPE IS PLACED & PRIOR TO PLACEMENT OF FILL.

UNSUITABLE MATERIAL FOUNDATION

Diagram showing a pipe above ground with normal earth foundation. The pipe is surrounded by compacted backfill. Labels include: TOP OF FILL, GROUND LINE, MIN. O.D., I.D. /6 MIN. NOT LESS THAN 6", O.D. + 2', and COMPACT AFTER PIPE IS PLACED & PRIOR TO PLACEMENT OF FILL.

NORMAL EARTH FOUNDATION

Diagram showing a pipe above ground with a rock foundation. The pipe sits on a layer of rock. Labels include: TOP OF FILL, GROUND LINE, MIN. O.D., I.D. /6 MIN. NOT LESS THAN 6", O.D. + 2', ROCK, TYPE 4a GEOTEXTILE, I.D. /6 MIN. NOT LESS THAN 6", 1/2" PER FOOT OF 'H' BUT NOT LESS THAN 12" NOR MORE THAN 24" AS DIRECTED BY ENGINEER, and COMPACT AFTER PIPE IS PLACED & PRIOR TO PLACEMENT OF FILL.

**ROCK FOUNDATION
PIPE ABOVE GROUND**

Diagram showing a pipe above ground with a suitable material foundation. The pipe sits on a layer of suitable material. Labels include: TOP OF FILL, GROUND LINE, MIN. O.D., I.D. /6 MIN. NOT LESS THAN 6", O.D. + 2', EARTH, TYPE 4a GEOTEXTILE, I.D. /6 MIN. NOT LESS THAN 6", 1/2" PER FOOT OF 'H' BUT NOT LESS THAN 12" NOR MORE THAN 24" AS DIRECTED BY ENGINEER, and COMPACT AFTER PIPE IS PLACED & PRIOR TO PLACEMENT 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, BELOW SPRINGLINE.

UNDISTURBED EARTH MATERIAL

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

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

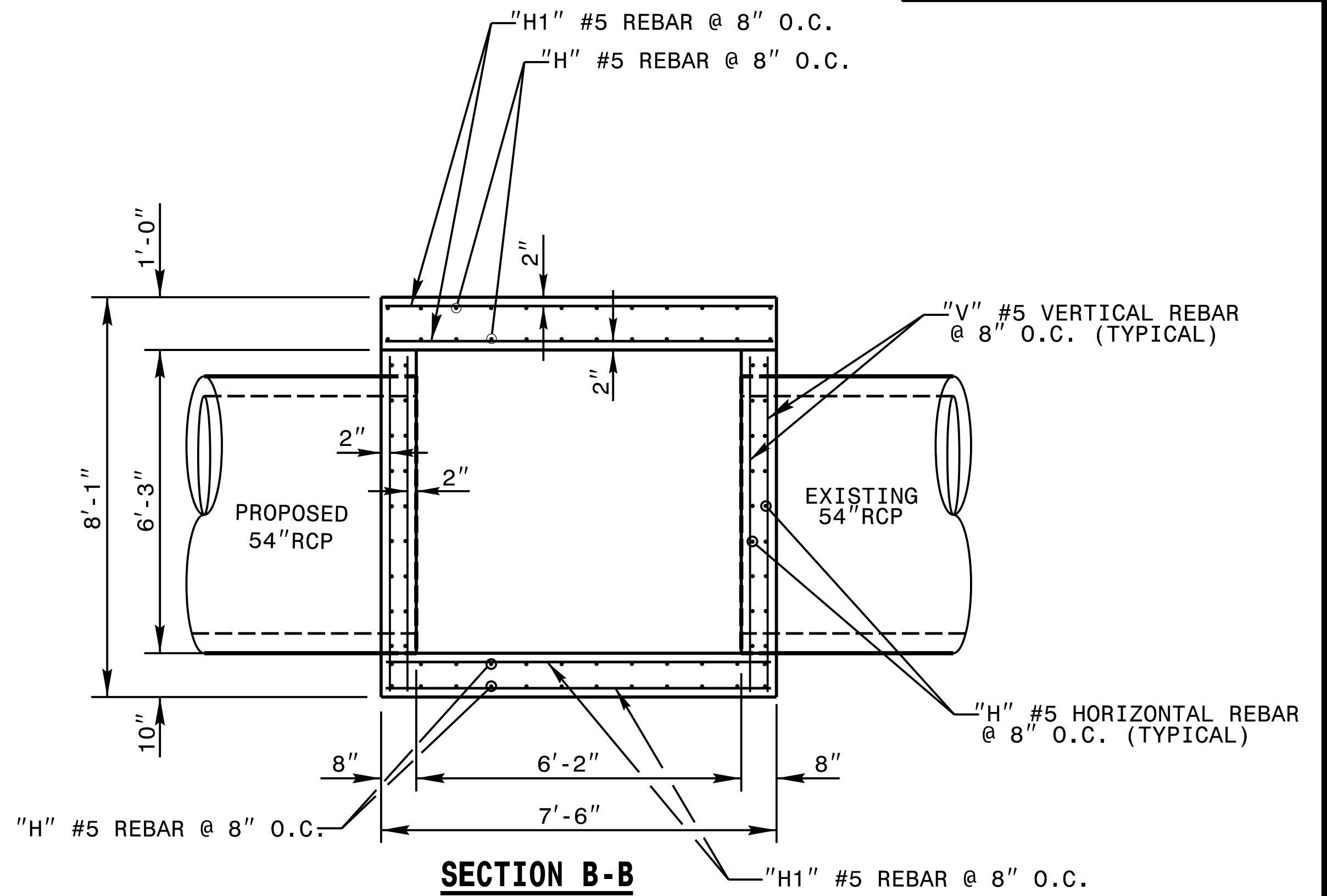
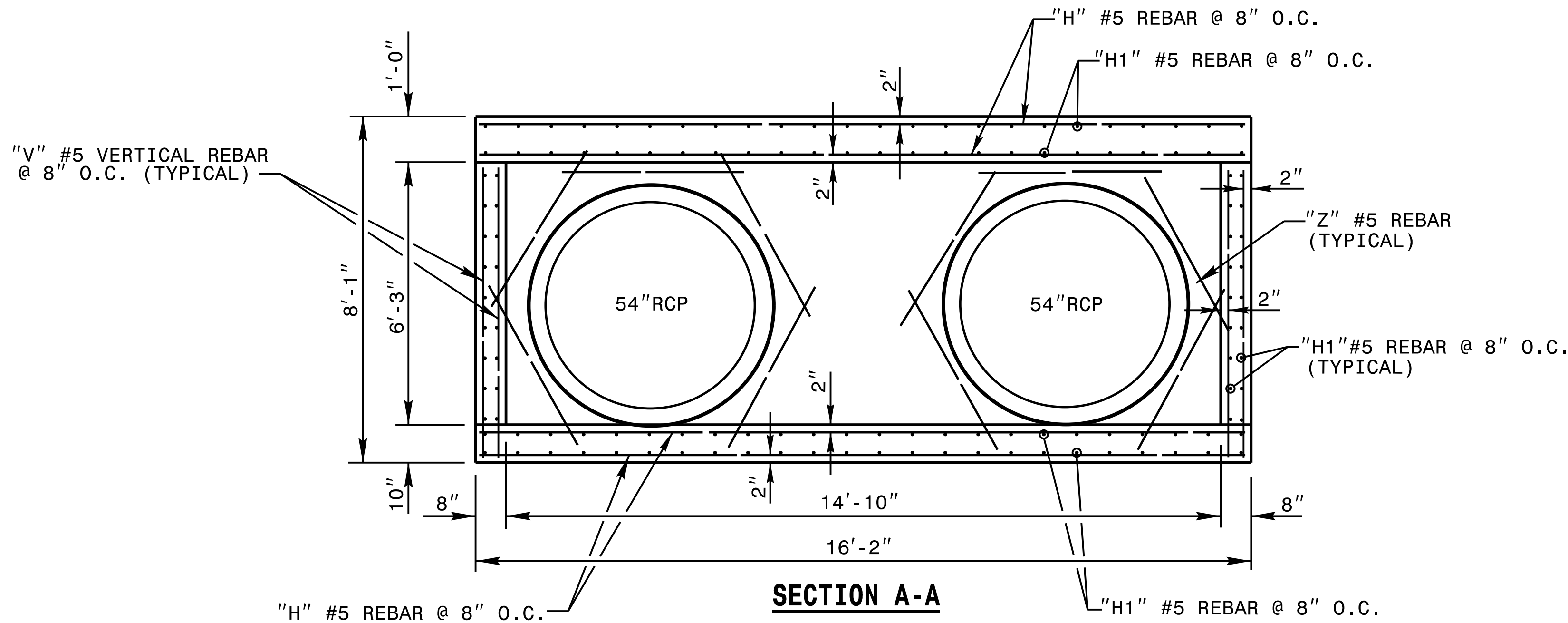
SEE TITLE BLOCK

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

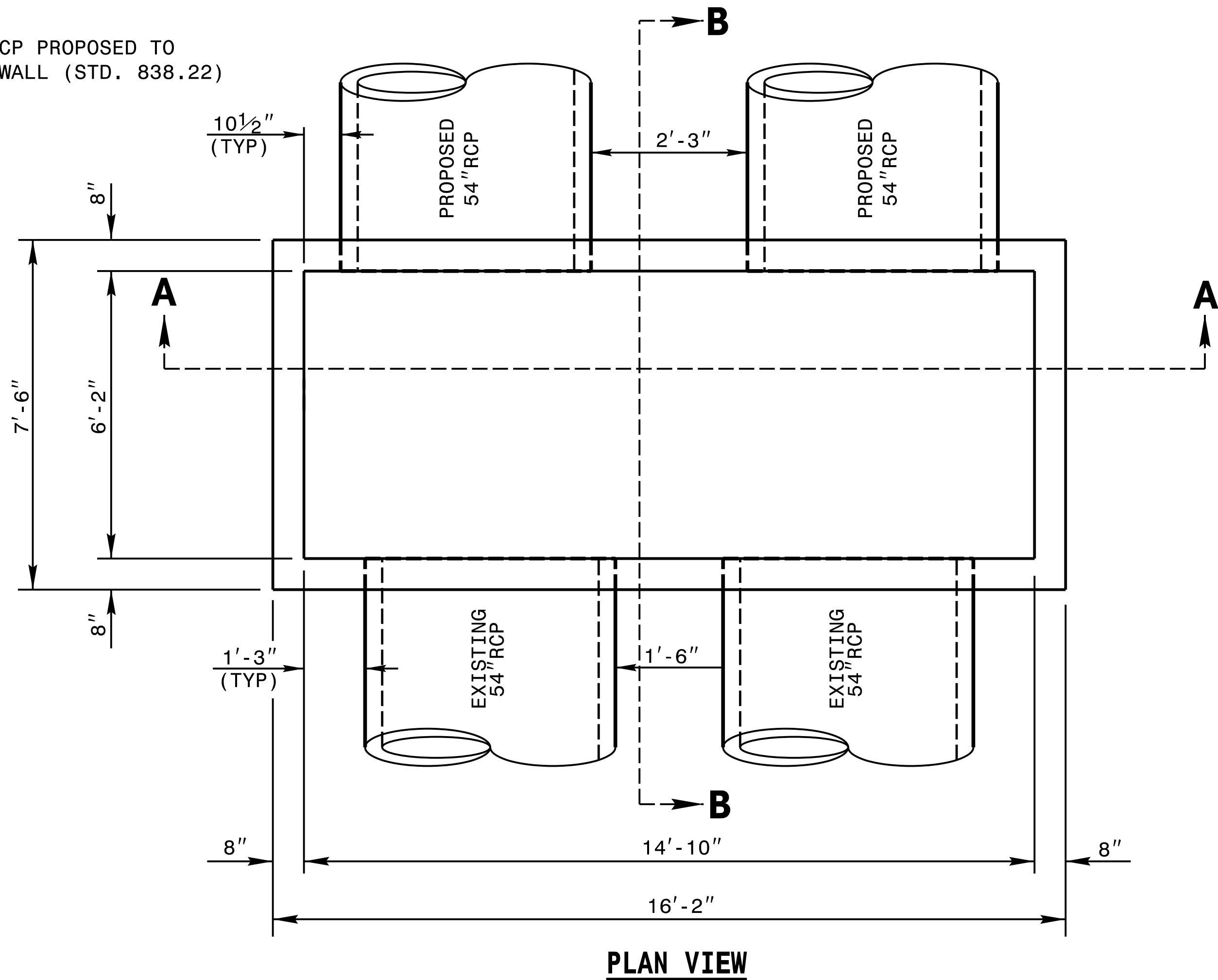
5/14/99

6/29/2026
User:smosainople

PROJECT REFERENCE NO.	SHEET NO.
HL-00080	2D-1



NOTE:
EXTEND 54" RCP PROPOSED TO
CONCRETE ENDWALL (STD. 838.22)



GENERAL NOTES:

USE CLASS "AA" CONCRETE THROUGHOUT.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

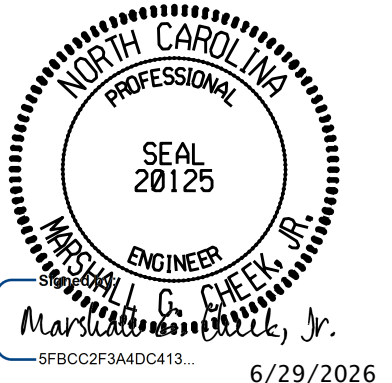
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

CHAMFER ALL EXPOSED CORNERS 1".

2" MINIMUM CONCRETE COVERAGE ON ALL REBAR.

BILL OF MATERIALS				
BAR	NO.	SIZE	LENGTH	WEIGHT
H	80	#5	15'-10"	1321
H1	132	#5	7'-2"	987
V	136	#5	6'-10"	969
Z	20	#5	4'-0"	83
TOTAL REINF. STEEL (LBS.)				3360
TOTAL CONCRETE (CU. YDS.)				15.1

* NO DEDUCTIONS MADE FOR PIPES



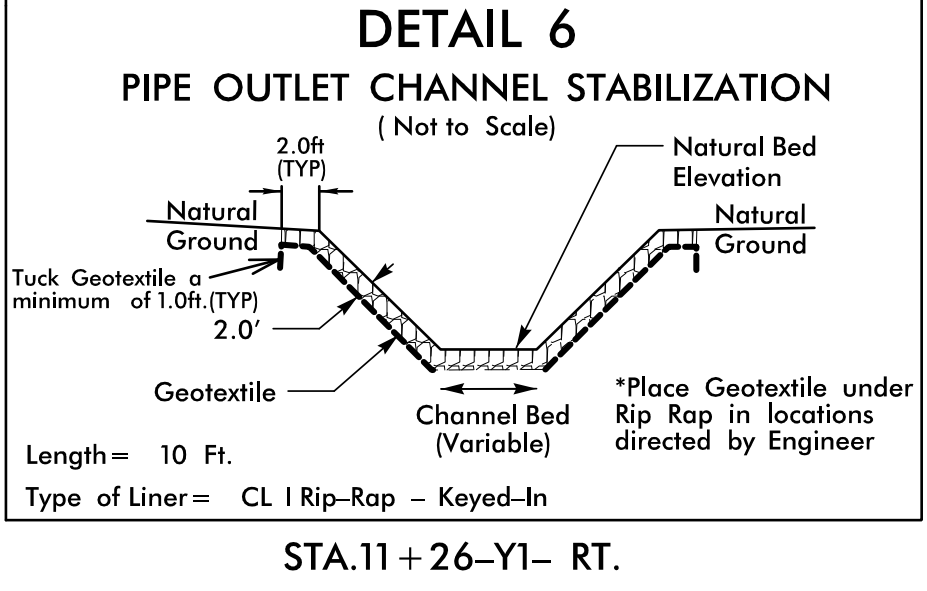
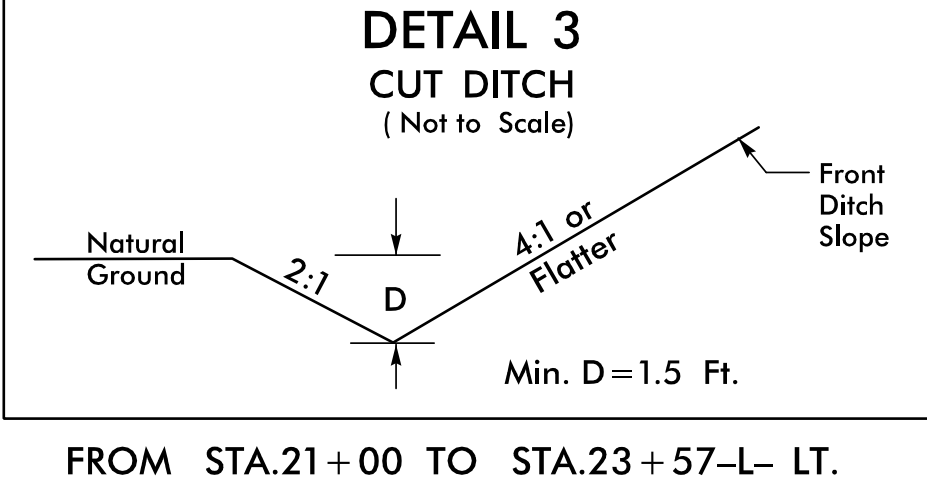
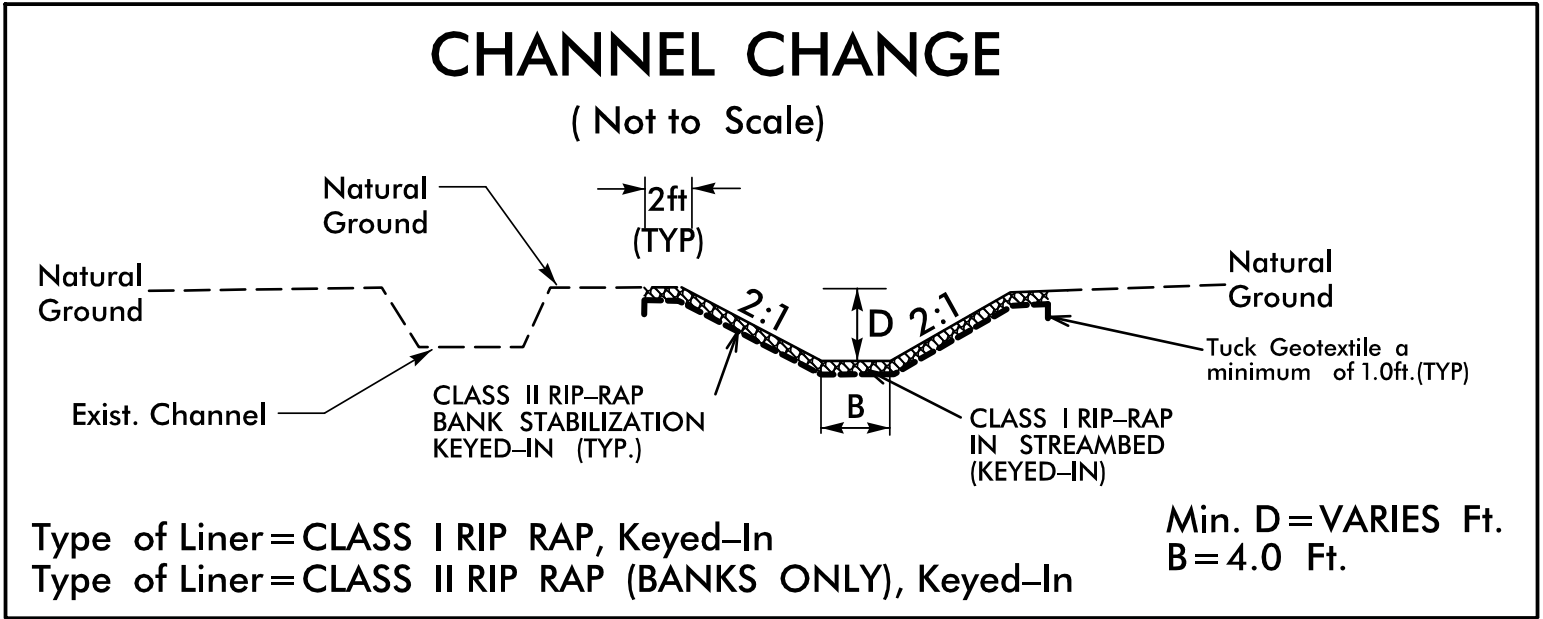
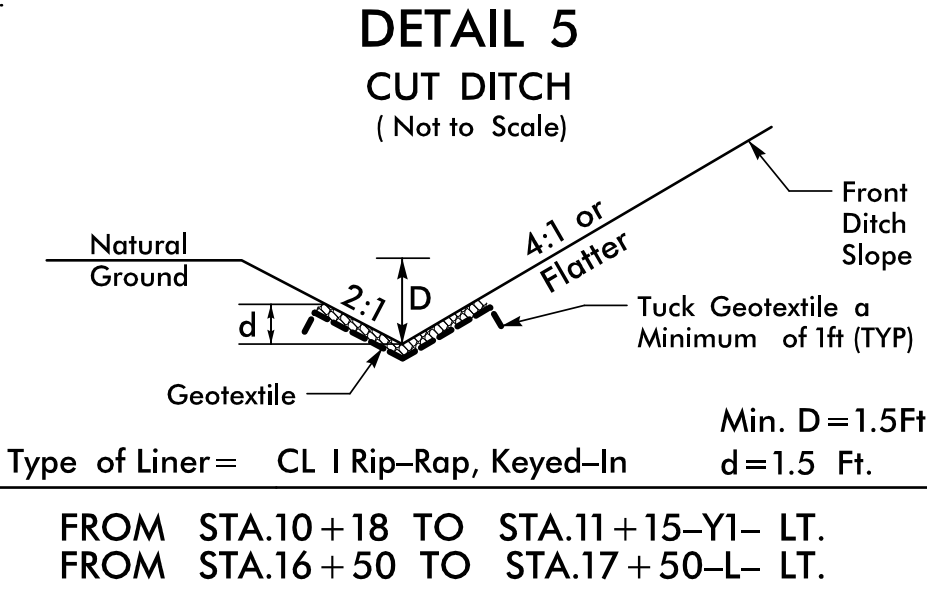
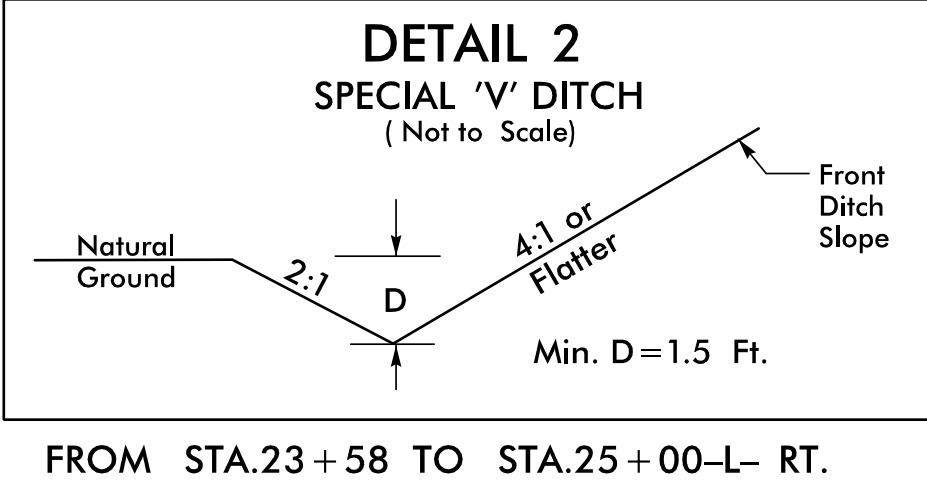
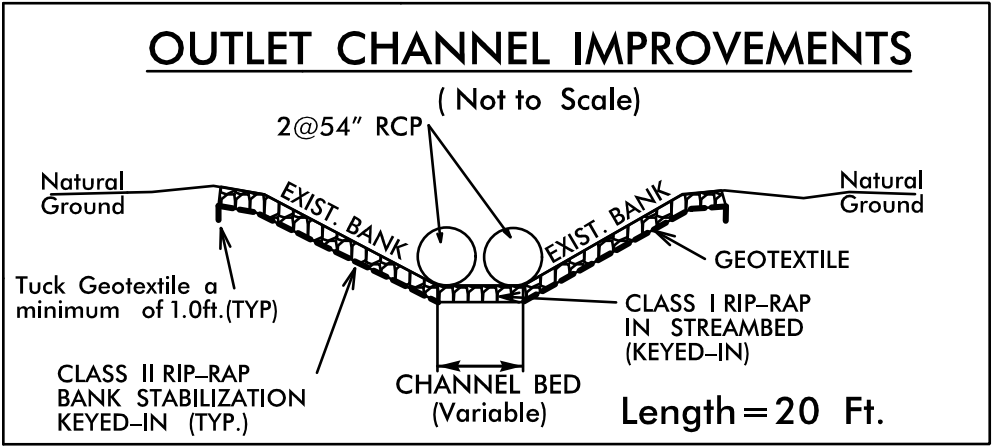
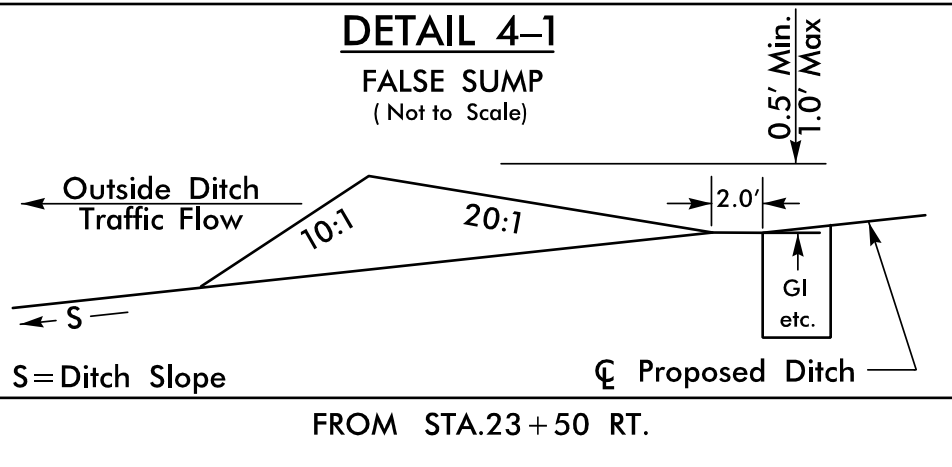
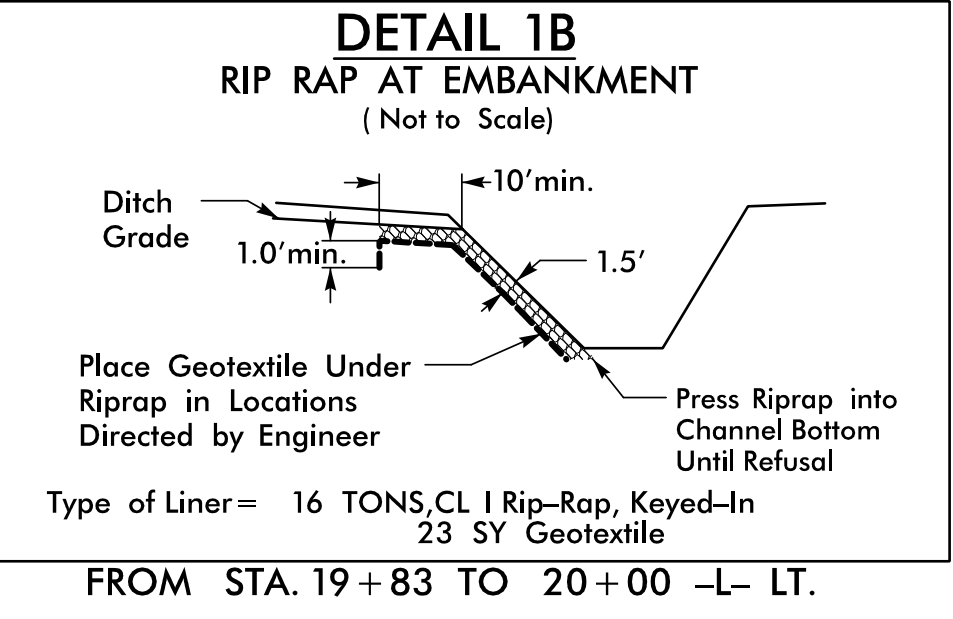
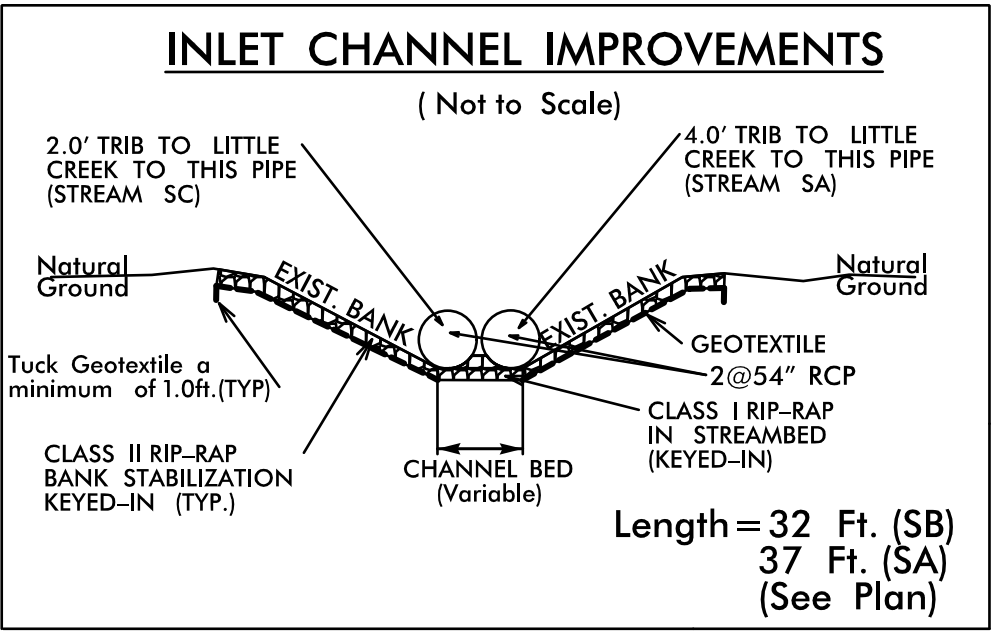
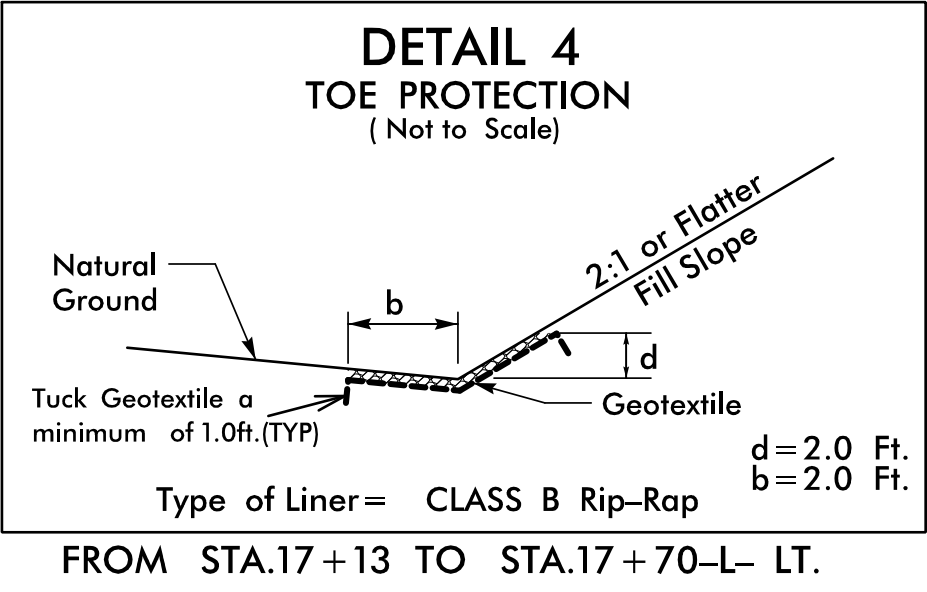
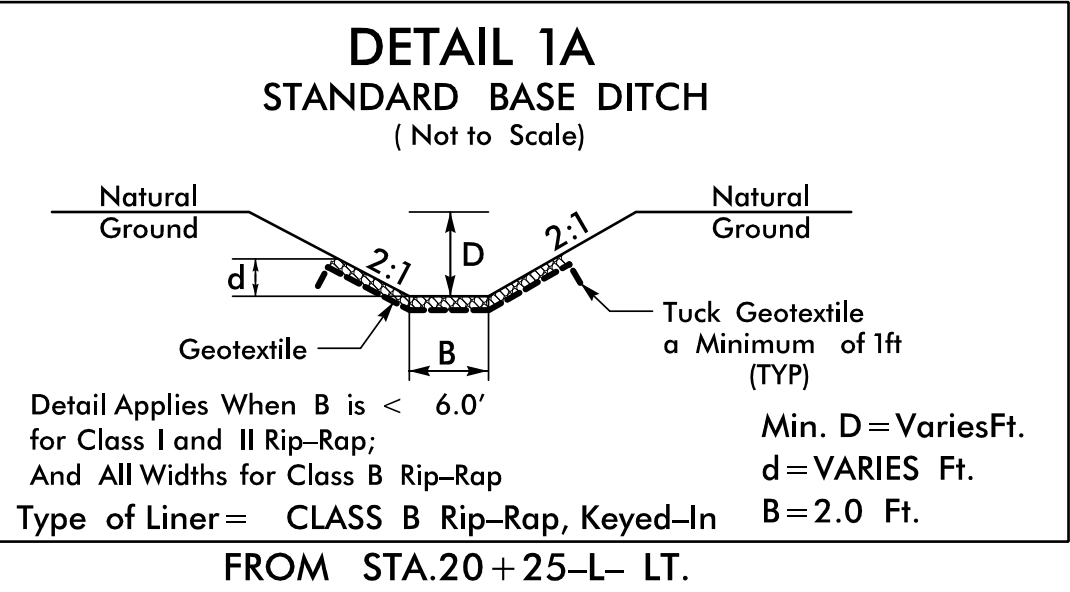
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

TBJB WITH SLAB LID

ORIGINAL BY: nbritt DATE: 07/22/05
MODIFIED BY: Z. SMITH DATE: 8/20/24
CHECKED BY: M. CHEEK DATE: 9/4/24

DRAINAGE DETAILS



PROJECT REFERENCE NO.	SHEET NO.
HL-00080	2D-2
RW SHEET NO.	
HYDRAULICS ENGINEER TGS ENGINEERS 024897 6/29/2026	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS	TGS ENGINEERS 706 HILLSBOROUGH ST. SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275

SUMMARY OF EARTHWORK

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	*EMBT + %	*BORROW	WASTE
–L– 11+52.51 LT TO 25+00.00 LT	728		850	272	150
SUBTOTAL	728		850	272	150
–L– 11+52.51 RT TO 25+00.00 RT	1391		1002		389
SUBTOTAL	1391		1002		389
–YI– 10+18.30 TO 11+40.00	106		50		56
SUBTOTAL	106		50		56
PROJECT SUBTOTAL	2225		1902	272	595
WASTE IN LIEU OF BORROW				–272	–272
PROJECT TOTAL	2225		1902		323
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					
GRAND TOTAL	2225		1902		323
SAY	2450				

DDE = 120 CY

PER GEOTECHNICAL RECOMMENDATIONS DATED SEPTEMBER 4, 2024:

ESTIMATED UNDERCUT = 200 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)

SELECT GRANULAR MATERIAL = 200 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)

GEOTEXTILE FOR SOIL STABILIZATION = 200 SY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)

ESTIMATED SHALLOW UNDERCUT = 100 CY (BY STATION) + 100 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER) = 200 CY

UNSUITABLE WASTE = 150 CY (-L- STA 15+12 TO 16+75 LT/RT)

SEE GEOTECHNICAL SUMMARIES ON SHEET 3G-1 FOR FURTHER INFORMATION

Approximate quantities only. Clearing and Grubbing, Unclassified Excavation, Borrow Excavation, Fine Grading, and Removal of Existing Asphalt Pavement 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.

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SY
-L-	15 + 12	25 + 00	LT	205.8
-L-	15 + 12	18 + 46	RT	46.6
-L-	19 + 14	25 + 00	RT	80.1
-YI-	10 + 11	11 + 15	LT	48.2
-YI-	10 + 23	11 + 15	RT	15.4
TOTAL:				396.1
SAY:				400

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LOCATION	LENGTH (LF)
-L-	17 + 00.00	18 + 24.00	RT	124.0
-L-	17 + 50.00	18 + 50.00	LT	100.0
TOTAL:				224.0
SAY:				230

**MILLING ASPHALT
PAVEMENT, 1.5" DEPTH**

SURVEY LINE	STATION	STATION	YD ²
-L- (RT)	13 + 53.48	15 + 12.51	70.78
-L- (LT)	14 + 84.46	15 + 12.51	12.56
TOTAL:			83.33
SAY:			90

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS										IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS		
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TYPE GREU, TL-3	CAT-I	AT-I	TYPE II	B-77								EA					G	NG
-L-	15 + 40.00	20 + 90.00	LT	550.00'			18 + 30.00	17 + 40.00	10'	13'	50'	50'	1'	1'	2																		
-L/-YI-	14 + 10.00 (-L-)	10 + 65.37 (-YI-)	RT/RT	418.75'	37.50'		16 + 60.00 (-L-)	18 + 00.00 (-L-)	10'	13'	50'	6.25'	1'	4'	1			1										R = 20.00'					
																												</					

TEMPORARY GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS										IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS			
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TYPE GREU, TL-3	CAT-I	AT-I	TYPE III	B-77															
-L/-YI-	14+10.00 (-L-)	10+50.00 (-YI-)	RT/RT	181.25'	37.50'		17+68.64 (-L-)	17+91.48 (-L-)	3'	6'	50'	6.25'	1'	4'	1		1											R = 20.00' TMP - PHASE II						

(2-3-23)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY					100
				TOTAL LF:	100

*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
-L-	15+12	16+75	ASU(1)	12"	100	200	300		
CONTINGENCY			ASU(1)	12"	100	200	300		
			TOTAL CY/TONS/SY:		200	400**	600**	0	0

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

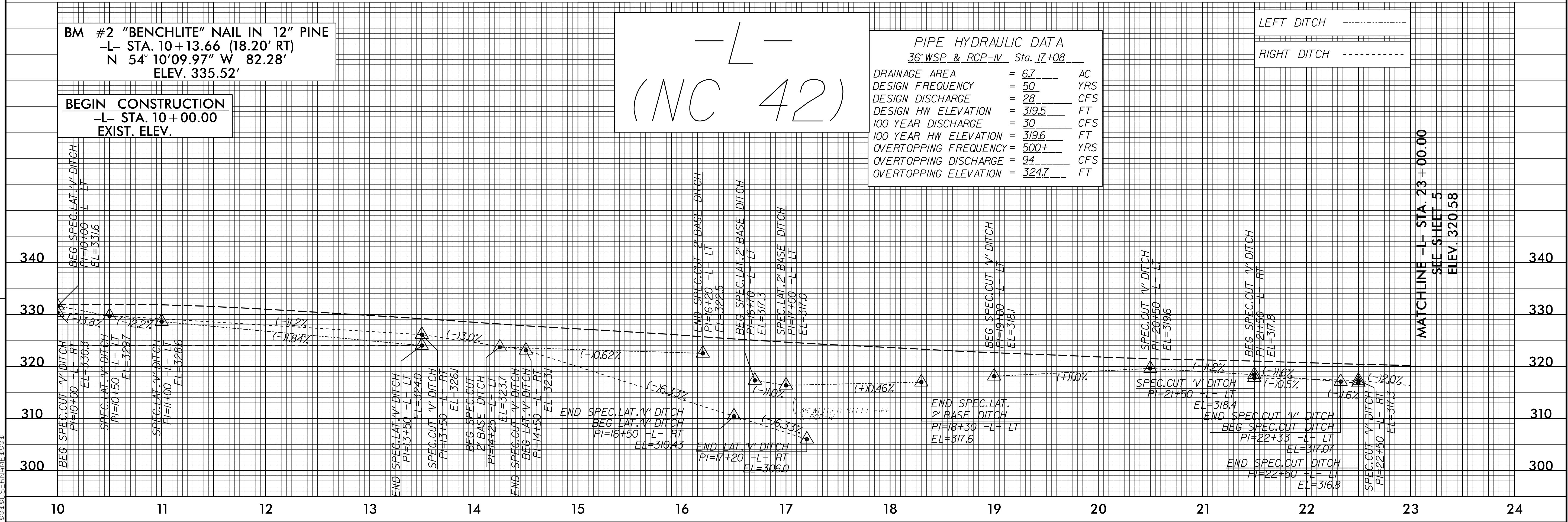
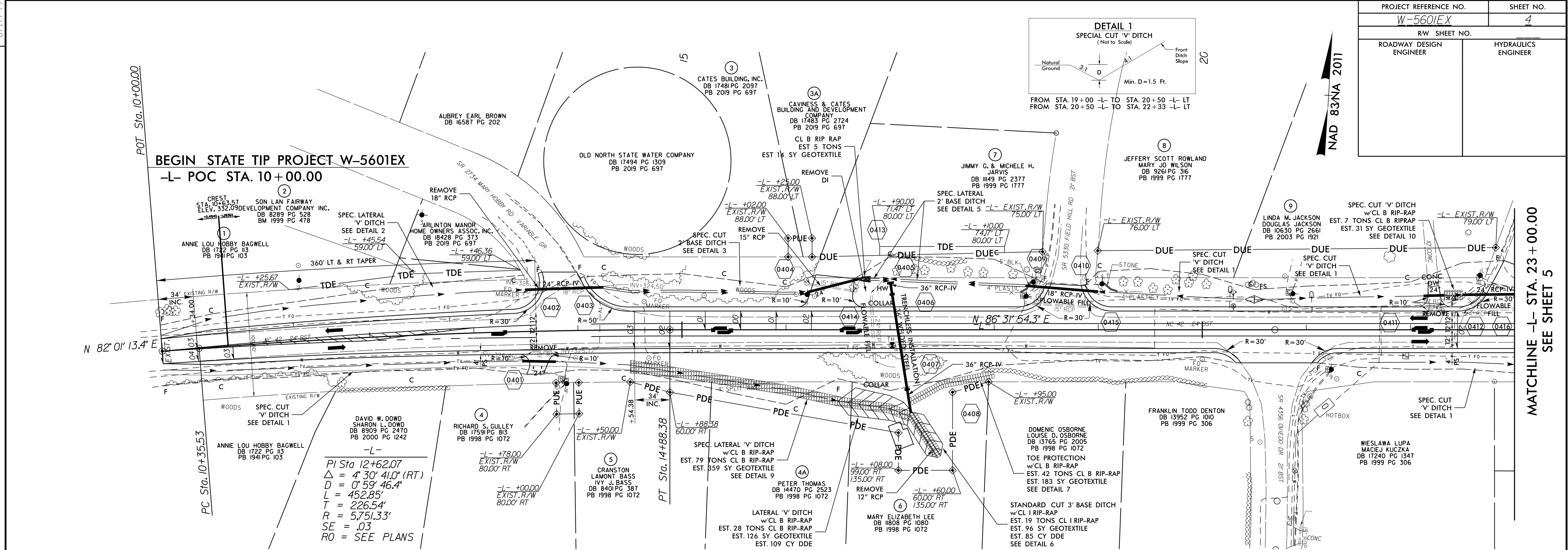
REVISIONS

CONSTRUCTION REVISION: THIS CONSTRUCTION REVISION CONSISTS OF REVISING DITCH DETAIL 1 BACK SLOPE FROM 3:1 TO 4:1 FROM STA. 20+50 TO 22+33

7/17/26

8/17/99

17-JUL-2026 12:30
S:\PROJECTS\2026\1230\UNDED TIP\HL-00080\Roadway\Prq\HL-00080_Rd.dwg, det, 251.dgn
\$\$\$\$\$ (SYTIME) \$\$\$\$\$



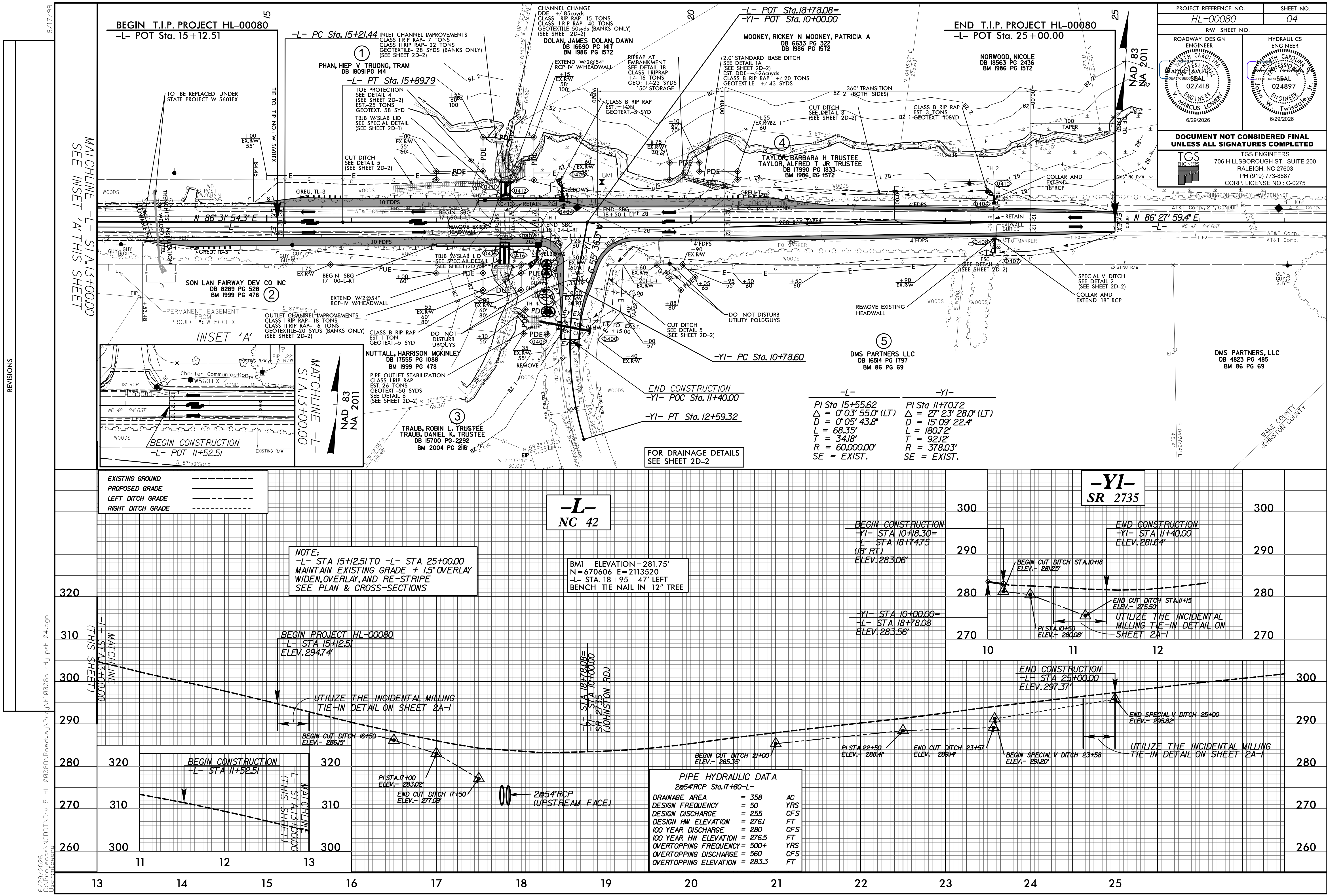
-L-
(NC 42)

PIPE HYDRAULIC DATA			
36" WSP & RCP-N	Sta. 17+08		
DRAINAGE AREA	= 6.7	AC	
DESIGN FREQUENCY	= 50	YRS	
DESIGN DISCHARGE	= 28	CFS	
DESIGN HW ELEVATION	= 319.5	FT	
100 YEAR DISCHARGE	= 30	CFS	
100 YEAR HW ELEVATION	= 319.6	FT	
OVERTOPPING FREQUENCY	= 500+	YRS	
OVERTOPPING DISCHARGE	= 94	CFS	
OVERTOPPING ELEVATION	= 324.7	FT	

LEFT DITCH -----

RIGHT DITCH -----

MATCHLINE -L- STA. 23+00.00
SEE SHEET 5
ELEV. 320.58



EXISTING GROUND	---
PROPOSED GRADE	---
LEFT DITCH GRADE	---
RIGHT DITCH GRADE	---

NOTE:
-L- STA 15+12.51 TO -L- STA 25+00.00
MAINTAIN EXISTING GRADE + 1.5' OVERLAY
WIDEN, OVERLAY, AND RE-STRIPE
SEE PLAN & CROSS-SECTIONS

-L-
NC 42

BM1 ELEVATION = 281.75'
N = 670606 E = 2113520
-L- STA. 18+95 47' LEFT
BENCH TIE NAIL IN 12" TREE

BEGIN CONSTRUCTION
-YI- STA 10+18.30=
-L- STA 18+74.75
(18' RT)
ELEV. 283.06'

-YI- STA 10+100.00=
-L- STA 18+78.08
ELEV. 283.56'

-YI-
SR 2735

END CONSTRUCTION
-YI- STA 11+40.00
ELEV. 281.64'

END CONSTRUCTION
-L- STA 25+00.00
ELEV. 297.37'

END SPECIAL V DITCH 25+00
ELEV. = 285.82'

UTILIZE THE INCIDENTAL
MILLING TIE-IN DETAIL ON
SHEET 2A-1

PIPE HYDRAULIC DATA		
2054" RCP Sta. 17+80 -L-		
DRAINAGE AREA	= 358	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 255	CFS
DESIGN HW ELEVATION	= 276J	FT
100 YEAR DISCHARGE	= 280	CFS
100 YEAR HW ELEVATION	= 276.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 560	CFS
OVERTOPPING ELEVATION	= 283.3	FT

8/17/99
6/29/2006
C:\Procs\NCDOT\Div 5 HL-00080\Roadway\Project\100080\rdy_psh_04.dgn
User:lmavery

SURVEY CONTROL SHEET
W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.
HL-0008-O

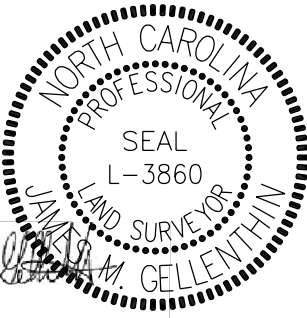
SHEET NO.
RW02C-3

Location and Surveys



KCI Associates of N.C., P.A.
4505 Falls of Neuse Rd, Suite 400
Raleigh, NC 27609
Phone (919) 783-9214
<http://www.kci.com>

PROJECT SURVEYOR



James M. Gellenthin
JAMES M. GELLENTHIN

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

I, JAMES M. GELLENTHIN, PLS, certify that the Project Control was Performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: **AA**
Type of GPS field procedure: RTN/VRS
Dates of survey: 4-14-2022
Datum/Epoch: NAD83/2011
Published/Fixed-control use: N/A
Localized around: W5601BC-1
Northing: 668836.711
Easting: 2103837.604
Combined grid factor: 0.99988135 (1/x= 1.00011866)
Geoid model: GEOID 12
Units: US SURVEY FEET

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 4-14-2022 to 5-4-2022 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 13th day of MAY, 2022.



Professional Land Surveyor L-3860

EL									
POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	670504.712	2112629.350							
LINE			N 86°31'54.3" E	521.44					
PC	670536.256	2113149.836							
CURVE			N 86°29'56.8" E	68.35	00°03'55.0"(LT)	00°05'43.8"	68.35	34.18	60000.00
PT	670540.430	2113218.058							
LINE			N 86°27'59.4" E	1425.40					
POT	670628.281	2114640.747							

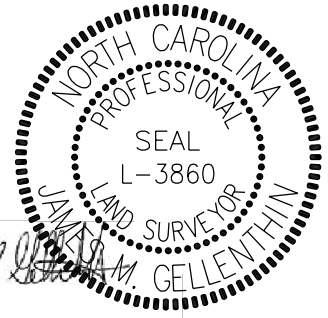
EY1				
POINT	N	E	BEARING	DIST
POT	670511.145	2112735.505		
LINE			N 03°37'25.8" W	130.31
POT	670641.194	2112727.269		

EY2									
POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	670558.198	2113505.796							
LINE			S 03°51'45.2" W	134.72					
PC	670423.780	2113496.721							
CURVE			S 11°11'38.4" E	163.66	30°06'47.3"(LT)	18°11'20.9"	165.56	84.74	315.00
PCC	670263.237	2113528.492							
CURVE			N 11°11'38.4" W	163.66	30°06'47.3"(RT)	18°11'20.9"	165.56	84.74	315.00
PT	670423.780	2113496.721							

NOTES:

- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
- THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

SURVEY CONTROL SHEET
W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
HL-0008-O	RW02C-2
Location and Surveys	
 KCI http://www.kci.com	KCI Associates of N.C., P.A. 4505 Falls of Neuse Rd, Suite 400 Raleigh, NC 27609 Phone (919) 783-9214
PROJECT SURVEYOR  	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, JAMES M. GELLENTHIN, PLS, certify that the Project Control was Performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: **AA**
Type of GPS field procedure: RTN/VRS
Dates of survey: 4-14-2022
Datum/Epoch: NAD83/2011
Published/Fixed-control use: N/A
Localized around: W5601BC-1
Northing: 668836.711
Easting: 2103837.604
Combined grid factor: 0.99988135 (1/x= 1.00011866)
Geoid model: GEOID 12
Units: US SURVEY FEET

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 4-14-2022 to 5-4-2022 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 13th day of May, 2022.



Professional Land Surveyor L-3860

BL	POINT	DESC.	NORTH	EAST	ELEVATION
1		HL00080-1	670487.2240	2112073.5930	321.45
2		HL00080-2	670534.8410	2112765.0380	311.77
101		BL-101	670574.6791	2113492.4260	282.23
102		BL-102	670624.9452	2114318.0150	300.75
103		BL-103	670661.9834	2114712.1720	306.72

BM1 ELEVATION = 281.75
N 670606 E 2113520
BENCH TIE NAIL IN 12IN TREE

NOTES:

- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
- THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HL-0008-O	RW01	4

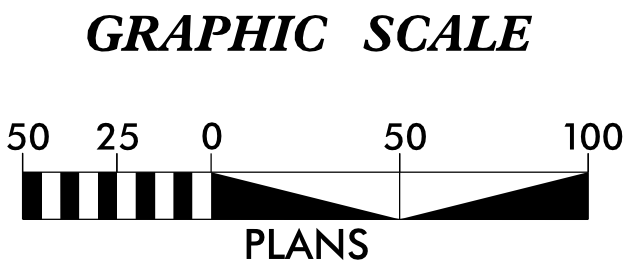
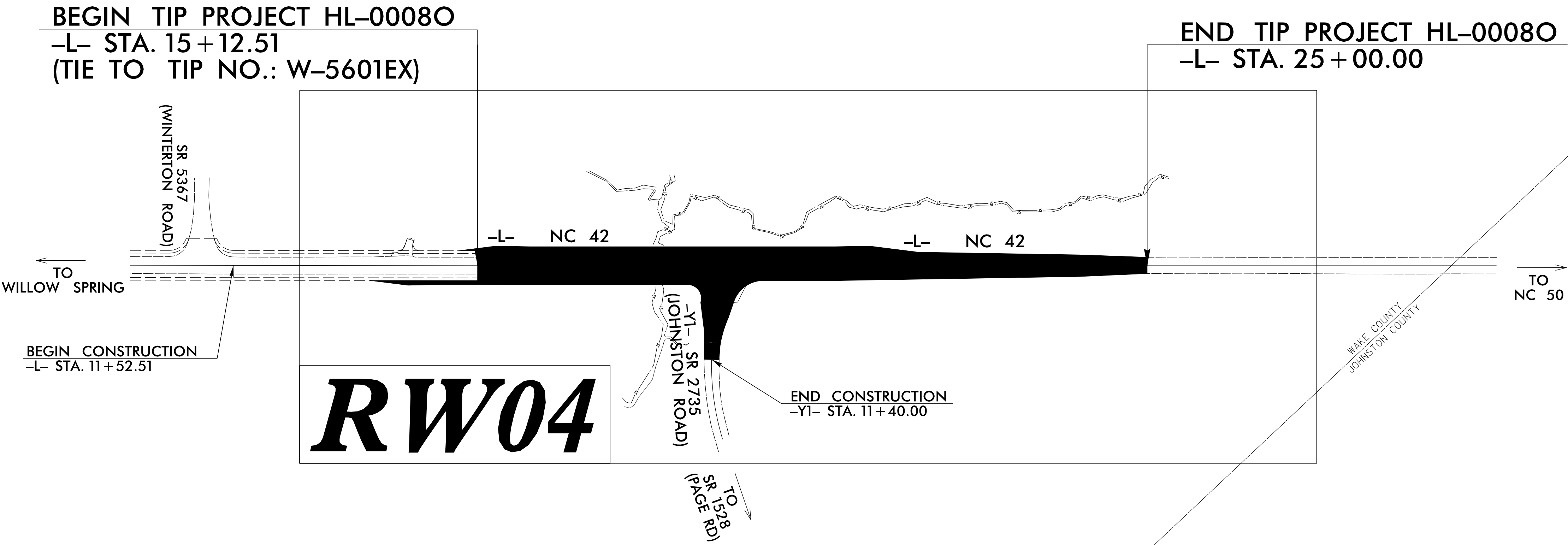
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SURVEY CONTROL, EXISTING CENTERLINES,
RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

WAKE COUNTY

LOCATION: NC 42 AT SR 2735 (JOHNSTON ROAD).
CONSTRUCT LEFT TURN LANE.

TYPE OF WORK: GRADING, DRAINAGE, AND PAVING



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "W5601BC-1" WITH NAD 83/NSRS 2011 STATE PLANE GRID COORDINATES OF NORTHING: 668,836.711(ft) EASTING: 2,103,837.604(ft) ELEVATION: N/A

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99988135

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "W5601BC-1" TO -L- STATION 15+12.51 IS N 79°39'02" E 9,457.18(ft)

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES

VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

WithersRavenel
Engineers | Planners | Surveyors

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 19, 2023

LETTING DATE:

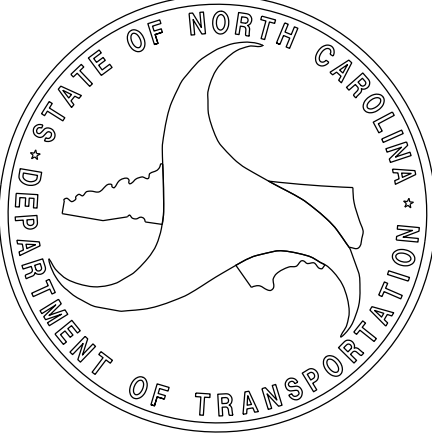
PROFESSIONAL LAND SURVEYOR



2/23/2026 REVISION:
UPDATED 2018 STANDARD SPECIFICATIONS TO 2024, AND REMOVED LETTING DATE PER NCDOT REQUEST.

DocuSigned by:
Rudolf A. VanderVelde Jr.
SIGNATURE

2/23/2026
Date:



6/2/99

REVISIONS

04-AUG-2023 14:03
J:\23\0346-0001\HL-0008-0 ROW Stakeout\Geomatics\NCDOT\RW Sheets\h10008o.1s_rw02d-1.dgn
r.vanderVelde AT WR1963

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.
HL-0008-O

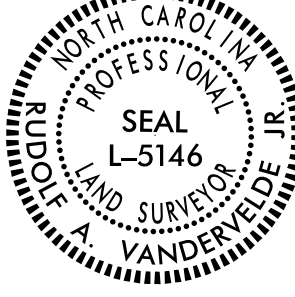
SHEET NO.
RW02D-1

Location and Surveys

WithersRavenel

Engineers | Planners | Surveyors

PROJECT SURVEYOR



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

I, RUDOLF A. VANDERVELDE JR., PLS, certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

This 4TH day of AUGUST, 2023.

DocuSigned by:

8/4/2023

Professional Land Surveyor L-5146

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	670504.7117	2112629.3502
PC	15+21.44	670536.2563	2113149.8358
PT	15+89.79	670540.4301	2113218.0584
POT	30+15.19	670628.2807	2114640.7473

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	670558.1978	2113505.7962
PC	10+78.60	670480.1742	2113496.3173
PT	12+59.32	670302.4130	2113517.4159

- NOTES:
1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

2. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

6/2/99

REVISIONS

04-AUG-2023 14:53
J:\23\0346-000\HL-0008-0 ROW Stakeout\Geomatics\NCDDT\RW Sheets\hl0008o.1s-rw03e-1.dgn
r.vanderVelde AT WRI963

RIGHT OF WAY AND PERMANENT EASEMENT CONTROL SHEET

PROJECT REFERENCE NO.
HL-0008-O

SHEET NO.
RW03E-1

Location and Surveys

WithersRavenel

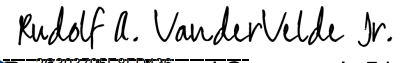
Engineers | Planners | Surveyors

PROJECT SURVEYOR



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

I, RUDOLF A. VANDERVELDE JR., certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 8/1/2023 to 8/3/2023, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 4TH day of AUGUST, 2023.
 8/4/2023
Rudolf A. VanderVelde Jr.
Professional Land Surveyor L-5146

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	18+30.00	50.00	670505.3298	2113460.8926
L	18+30.00	60.00	670495.3488	2113461.5089

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	11+10.00	30.00	670450.0138	2113463.8500
Y1	11+10.00	25.43	670449.8412	2113468.4120

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	15+75.00	50.00	670489.6146	2113206.3649
L	17+00.00	-60.00	670607.1084	2113324.3602
L	17+00.00	-50.00	670597.1275	2113324.9765
L	17+00.00	60.00	670487.3366	2113331.7560
L	17+55.00	-60.00	670610.4982	2113379.2556
L	17+55.00	-100.00	670650.4222	2113376.7903
L	17+55.00	60.00	670490.7263	2113386.6515
L	17+55.00	80.00	670470.7644	2113387.8841
L	17+55.00	50.00	670500.7073	2113386.0352
L	18+00.00	60.00	670493.4998	2113431.5659
L	18+00.00	80.00	670473.5378	2113432.7986
L	18+00.00	50.00	670503.4808	2113430.9496
L	18+15.00	-100.00	670654.1201	2113436.6763
L	18+15.00	-50.00	670604.2152	2113439.7579
L	19+60.00	50.00	670513.3420	2113590.6454
L	19+75.00	-70.00	670634.0383	2113598.2210
L	19+75.00	-50.00	670614.0763	2113599.4537
L	19+88.00	80.00	670485.1247	2113620.4412
L	19+90.00	50.00	670515.1909	2113620.5884
L	20+05.00	65.00	670501.1439	2113636.4844
L	20+10.00	-60.00	670626.2145	2113633.7708
L	20+10.00	-70.00	670636.1954	2113633.1545
L	20+55.00	-50.00	670619.0069	2113679.3016
L	20+55.00	-60.00	670628.9879	2113678.6853

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	11+10.00	55.00	670450.9592	2113438.8679
Y1	11+35.00	55.00	670422.3275	2113438.7316
Y1	11+35.00	27.10	670423.1171	2113466.6182

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED 8/1/2023 TO 8/3/2023 .

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

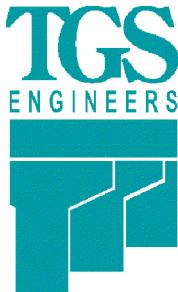
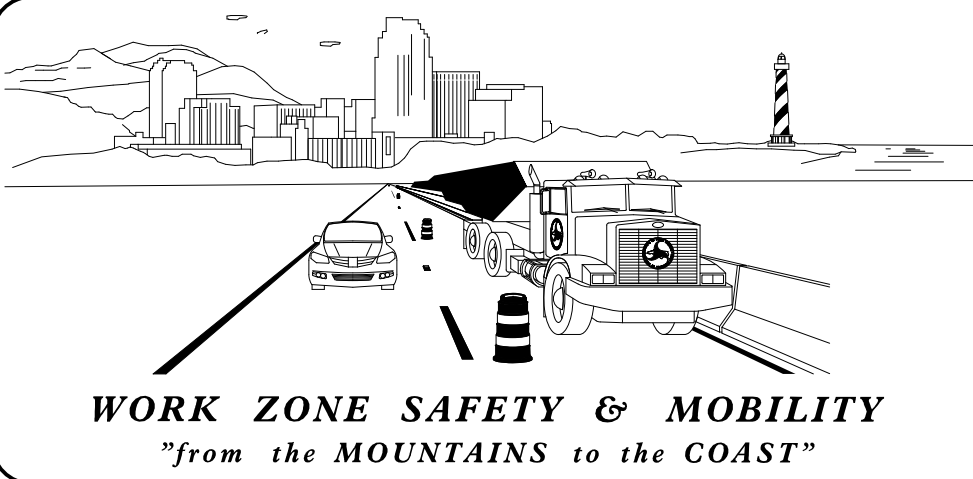
TRANSPORTATION MANAGEMENT PLAN

WAKE COUNTY
LOCATION: NC 42 AT SR 2735 (JOHNSTON ROAD)



VICINITY MAP

OFFSITE DETOUR

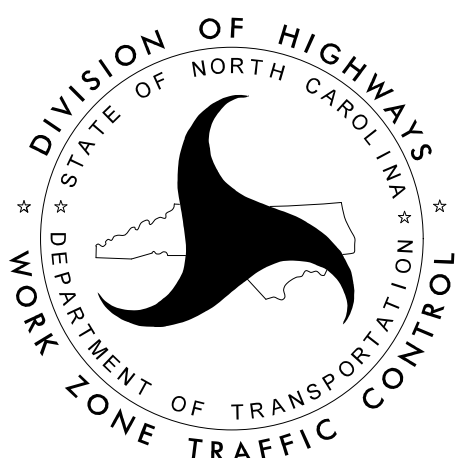


PLANS PREPARED FOR N.C.D.O.T. BY:

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

DON A. PARKER, P.E.
PROJECT ENGINEER

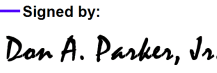
CODA BRANNAN, E.I.
DESIGN ENGINEER



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B THRU TMP-1C	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, AND GENERAL NOTES)
TMP-2A	PORTABLE CONCRETE BARRIER AT TEMP. SHORING
TMP-2B	TEMPORARY SHORING NOTES
TMP-2C	OFF SITE DETOUR DETAIL
TMP-3	GENERAL NOTES, MANAGEMENT STRATEGY, TEMPORARY TRAFFIC CONTROL PHASING
TMP-4 THRU TMP-5	TEMPORARY TRAFFIC CONTROL PHASE I
TMP-6 THRU TMP-7	TEMPORARY TRAFFIC CONTROL PHASE II

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

APPROVED: 
DATE: 6/24/2026



TIP PROJECT: HL-00080

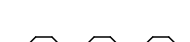
ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

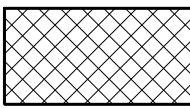
STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1170.01	PORTABLE CONCRETE BARRIER
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS (SEE PMP-1A FOR REVISED ROADWAY STANDARD DRAWING)
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING (SEE PMP-1B FOR REVISED ROADWAY STANDARD DRAWING)
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

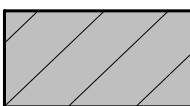
LEGEND

GENERAL

-  DIRECTION OF TRAFFIC FLOW
-  DIRECTION OF PEDESTRIAN TRAFFIC FLOW
-  EXIST. PVMT.
-  NORTH ARROW
-  PROPOSED PVMT.
-  TEMP. SHORING (LOCATION PURPOSES ONLY)

 WORK AREA

 REMOVAL

 WEDGING

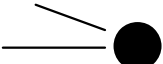
SIGNALS

-  EXISTING
-  PROPOSED
-  TEMPORARY

PAVEMENT MARKINGS

-  EXISTING LINES
-  TEMPORARY LINES

TRAFFIC CONTROL DEVICES

-  BARRICADE (TYPE III)
-  CONE
-  DRUM  SKINNY DRUM  TUBULAR MARKER
-  TEMPORARY CRASH CUSHION
-  FLASHING ARROW BOARD
-  FLAGGER
-  LAW ENFORCEMENT
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

-  PORTABLE SIGN
-  STATIONARY SIGN
-  STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

-  CRYSTAL/CRYSTAL
-  CRYSTAL/RED
-  YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

-     PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

- P1

4" WHITE EDGE LINE
- P5

4" 2 FT. - 6 FT. / SP WHITE MINISKIP
- P13

4" YELLOW DOUBLE CENTER
- MA

TEMPORARY RAISED YELLOW/YELLOW MARKING

APPROVED:

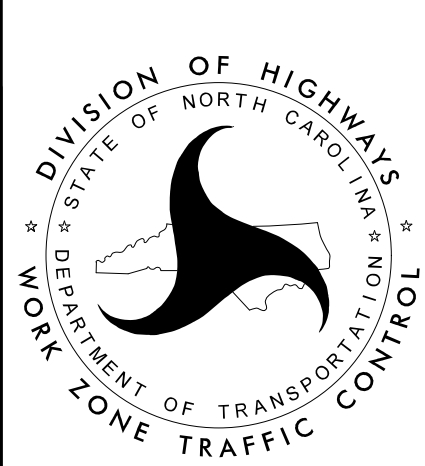
Signed by

Don A. Parker, Jr.

75DB9B90ADE440...

DATE: 6/24/2026





ROADWAY STANDARD
DRAWINGS & LEGEND

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAILS, DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRE

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
ALL ROADS	MONDAY TO FRIDAY 6:00 AM TO 9:00 AM MONDAY TO FRIDAY 3:00 PM TO 7:00 PM

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME
ALL ROADS
HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31st TO 7:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY.

3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.

4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.

5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 7:00 P.M. TUESDAY.

7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 7:00 P.M. MONDAY.

8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

LANE AND SHOULDER CLOSURE REQUIREMENTS

C) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

G) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

H) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

I) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) IN ACCORDANCE WITH RSD 1101.11.

TRAFFIC PATTERN ALTERATIONS

J) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

K) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

L) INSTALL SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

INSTALL SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

M) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

N) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

O) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) ACCORDING TO RSD 1101.11, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC BARRIER

P) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

Q) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

TRAFFIC CONTROL DEVICES

R) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT,10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

S) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

APPROVED:

Signed by:

Don A. Parker

75DB9E9ADEF440...

DATE: 12/9/2024

SEAL

043251

ENGINEER

DON A. PARKER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

WORK ZONE TRAFFIC CONTROL

TRANSPORTATION
OPERATIONS
PLAN

PAVEMENT MARKINGS AND MARKERS

- T) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
ALL ROADS	PAINT	TEMPORARY RAISED

- U) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE IN ACCORDANCE WITH FINAL PAVEMENT MARKING PLANS.

- V) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

- W) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

- X) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY’S OPERATION.

MANAGEMENT STRATEGIES

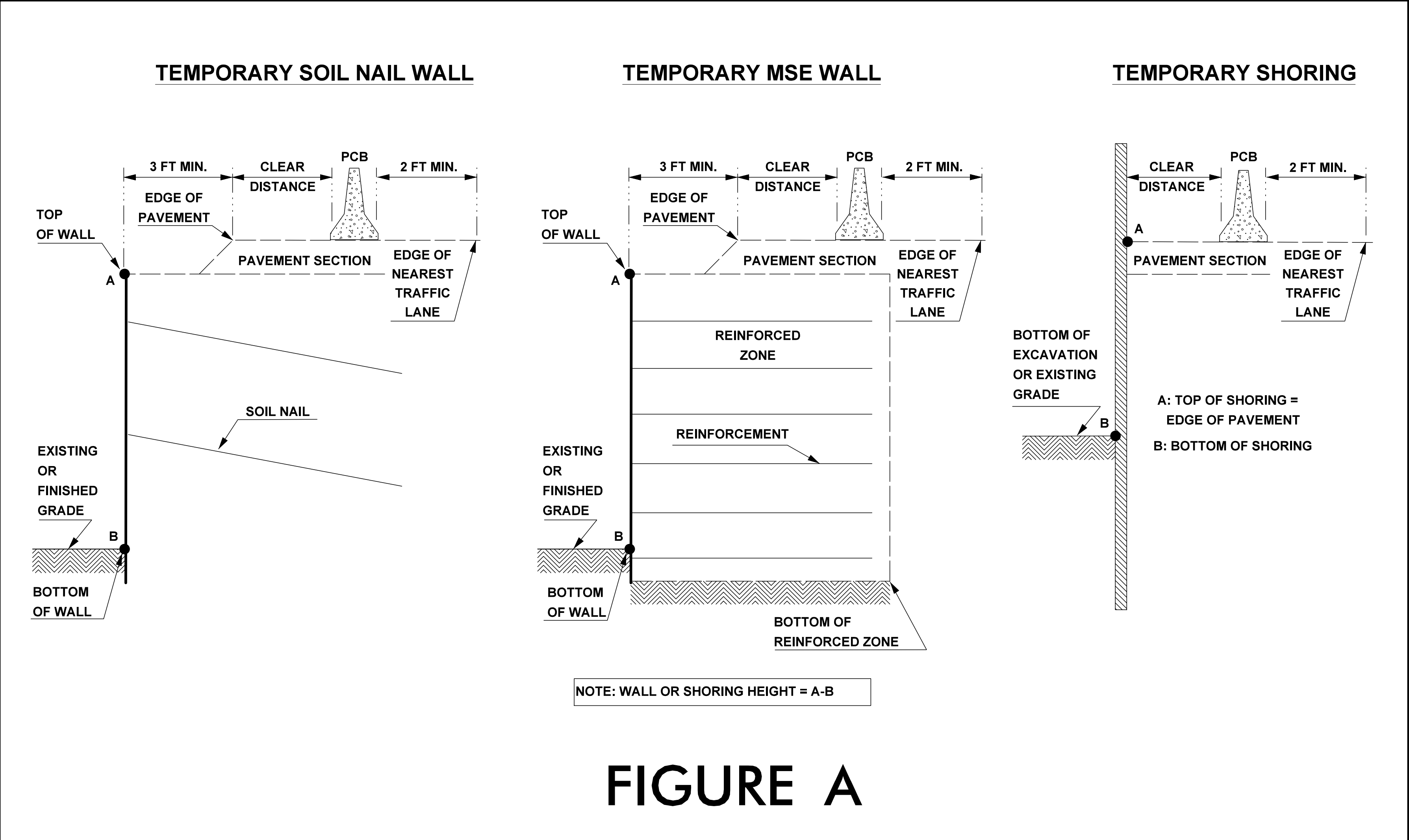
THE FOLLOWING LISTED WORK ZONE STRATEGIES ARE RECOMMENDED FOR INCLUSION WITHIN THIS TRANSPORTATION MANAGEMENT PLAN (TMP).

RECOMMENDED STRATEGIES:

- TRAFFIC MANAGEMENT STRATEGIES:
- FULL ROADWAY CLOSURES
 - LANE SHIFTS
 - ONE-LANE, TWO WAY OPERATION (FLAGGING)
 - WEEKEND WORK
 - OFF-SITE DETOURS / USE OF ALTERNATIVE ROUTES

8/28/2024
X:\NC001\Div 5 HL-00080\TrafficControl\TCP\HL-00080_TC-TMP_IC (GENERAL NOTES).dgn
User: tbrannan

APPROVED: Don A. Parker 750B8E9ADEF440... DATE: 12/9/2024 NORTH CAROLINA PROFESSIONAL SEAL 043251 ENGINEER DON A. PARKER DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	TRANSPORTATION OPERATIONS PLAN
--	--	---



- NOTES

1- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.

2- REFER TO THE "TEMPORARY SHORING" STANDARD PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).

3- PCB IS REQUIRED IF TEMPORARY SHORING/WALL IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT FOR APPLICABLE PAVEMENT DESIGN).

4- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.

5- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING/WALLS EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.

6- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.

7- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS OR APPROVED BY THE ENGINEER.

8- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THIS MINIMUM REQUIRED DISTANCE IS NOT AVAILABLE, CONTACT THE ENGINEER.

9- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS.
- | PROJ. REFERENCE NO.
HL -00080 | | SHEET NO.
TMP -2A | | | | | | |
|---|--|----------------------|--------------------------|-------|-------|-------|-------|-------|
| MINIMUM REQUIRED CLEAR DISTANCE, inches | | | | | | | | |
| Barrier Type | Pavement Type | Offset *
ft | Design Speed, mph | | | | | |
| | | | <30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Unanchored PCB | Asphalt | <8 | 24 | 26 | 29 | 32 | 36 | 40 |
| | | 8-14 | 26 | 28 | 31 | 35 | 38 | 42 |
| | | 14-20 | 27 | 29 | 34 | 36 | 39 | 43 |
| | | 20-26 | 28 | 31 | 35 | 38 | 40 | 44 |
| | | 26-32 | 29 | 32 | 36 | 39 | 42 | 45 |
| | | 32-38 | 30 | 34 | 38 | 41 | 43 | 46 |
| | | 38-44 | 31 | 34 | 41 | 43 | 45 | 48 |
| | | 44-50 | 31 | 35 | 41 | 43 | 46 | 49 |
| | Concrete | 50-56 | 32 | 36 | 42 | 44 | 47 | 50 |
| | | >56 | 32 | 36 | 42 | 45 | 47 | 51 |
| | | <8 | 17 | 18 | 21 | 22 | 25 | 26 |
| | | 8-14 | 19 | 20 | 23 | 25 | 26 | 29 |
| | | 14-20 | 22 | 22 | 24 | 26 | 28 | 31 |
| | | 20-26 | 23 | 24 | 26 | 27 | 30 | 34 |
| | | 26-32 | 24 | 25 | 27 | 28 | 32 | 35 |
| | | 32-38 | 24 | 26 | 27 | 30 | 33 | 36 |
| Anchored PCB | Asphalt | All Offsets | 24 for All Design Speeds | | | | | |
| | | All Offsets | 12 for All Design Speeds | | | | | |
| Anchored PCB | Concrete (including bridge approach slabs) | All Offsets | 12 for All Design Speeds | | | | | |

* See Figure Below

FIGURE B

APPROVED:

Don A. Parker

DATE: 12/18/2024

SEAL 043251

PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
- 12/18/2024
X:\NCDOT\Div 5 HL-00080\TrafficControl\TCP\HL-00080_TC_TMP_02A-1(PCB).dgn
User: tbrannan

PROJ. REFERENCE NO.	SHEET NO.
HL-00080	TMP-2B
TGS ENGINEERS TGS ENGINEERS 706 HILLSBOROUGH ST. SUITE 200 RALEIGH, NC 27603 FH (919) 773-8887 CORP. LICENSE NO.: C-0275	

TEMPORARY SHORING NOTES

SHORING LOCATION NO. 1

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINED ACTUAL HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION -L- 17+57±, 23.0 FT LT, TO STATION -L- 18+05±, 23.0 FT LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 115 PCF
FRICTION ANGLE (ϕ) = 29 DEGREES
COHESION (c) = 0 PSF
GROUNDWATER ELEVATION = 271.0 FT±

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 17+57±, 23.0 FT LT, TO STATION -L- 18+05±, 23.0 FT LT.

SHORING LOCATION NO. 2

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINED ACTUAL SHORING HEIGHTS.

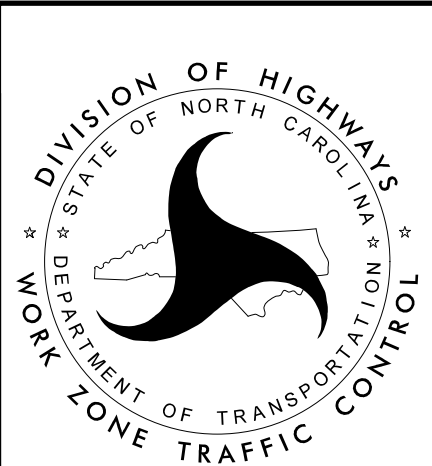
DESIGN TEMPORARY SHORING FROM STATION -L- 17+52±, 21.0 FT RT, TO STATION -L- 18+10±, 21.0 FT RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 115 PCF
FRICTION ANGLE (ϕ) = 29 DEGREES
COHESION (c) = 0 PSF
GROUNDWATER ELEVATION = 269.0 FT±

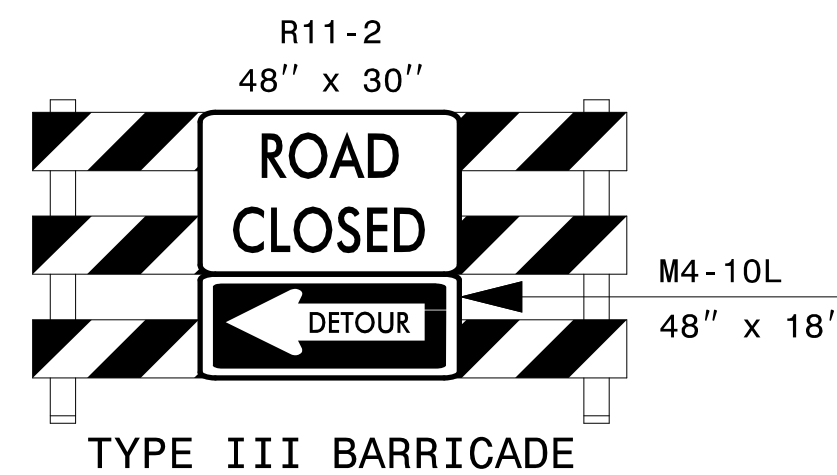
DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 23+55±, 40.0 FT LT, TO STATION -L- 24+87±, 40.0 FT LT.

8/28/2024 8:26:00 AM Div 5 HL-00080\Traffic\TrafficControl\TCP\HL-00080_TC_TMP_02A-2 (SHORING).dgn User: r3dr amman

THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH A SEALED DOCUMENT FROM THE GEOTECHNICAL ENGINEERING UNIT. THE DOCUMENT WAS PROVIDED TO TGS ENGINEERS ON 06/21/2023 AND SEALED BY A PROFESSIONAL ENGINEER, JINYOUNG PARK, LICENSE # 032171



TEMPORARY SHORING
DATA



A

B

MESSAGE NO. 1	MESSAGE NO. 2
JOHNSTON ROAD CLOSED	THIS COMING WEEKEND
CHANGEABLE MESSAGE SIGN	

MESSAGE NO. 1	MESSAGE NO. 2
JOHNSTON ROAD CLOSED	FOLLOW DETOUR
CHANGEABLE MESSAGE SIGN	

1

(SHORT TERM)

MESSAGE NO. 1	MESSAGE NO. 2
JOHNSTON ROAD CLOSED	THIS COMING WEEKEND
CHANGEABLE MESSAGE SIGN	

MESSAGE NO. 1	MESSAGE NO. 2
JOHNSTON ROAD CLOSED	FIND ALT. ROUTE
CHANGEABLE MESSAGE SIGN	

2

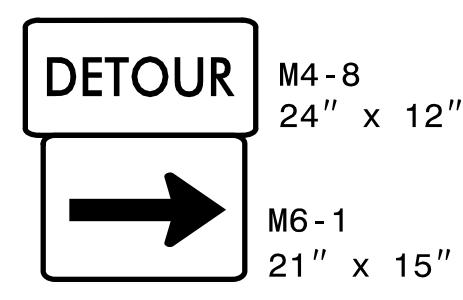
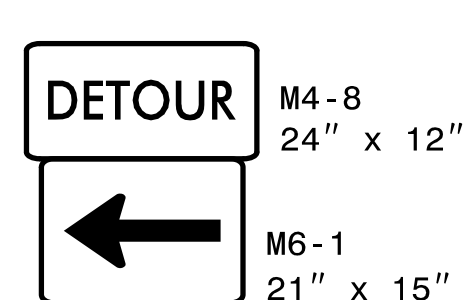
(SHORT TERM)

MESSAGE NO. 1	MESSAGE NO. 2
JOHNSTON ROAD CLOSED	THIS COMING WEEKEND
CHANGEABLE MESSAGE SIGN	

MESSAGE NO. 1	MESSAGE NO. 2
ROAD CLOSED	FOLLOW DETOUR
CHANGEABLE MESSAGE SIGN	

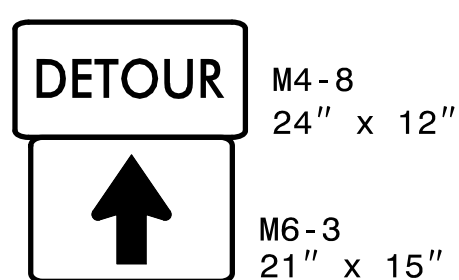
3

(SHORT TERM)



4

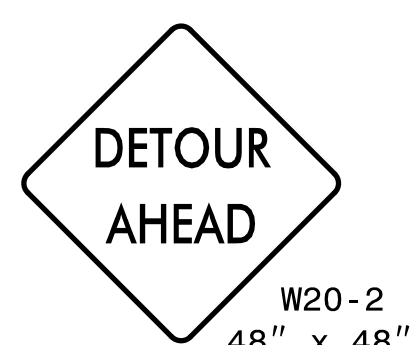
5



6



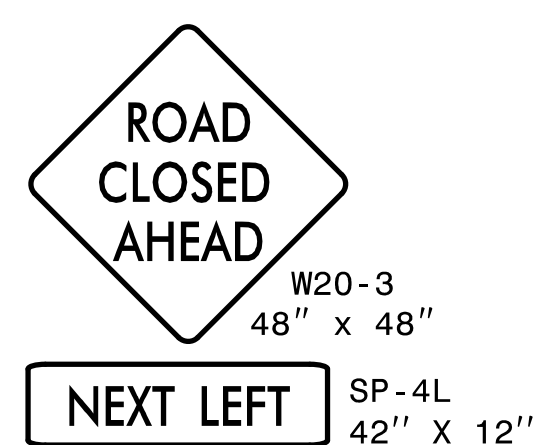
7



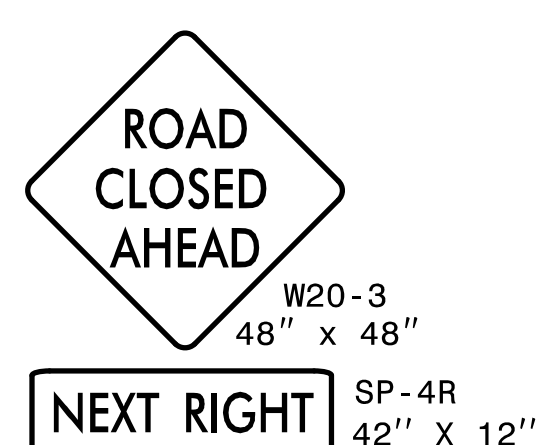
8



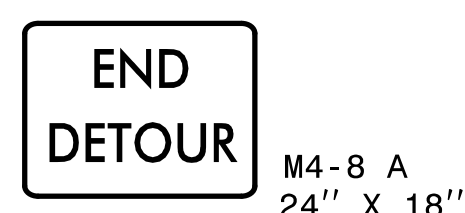
9



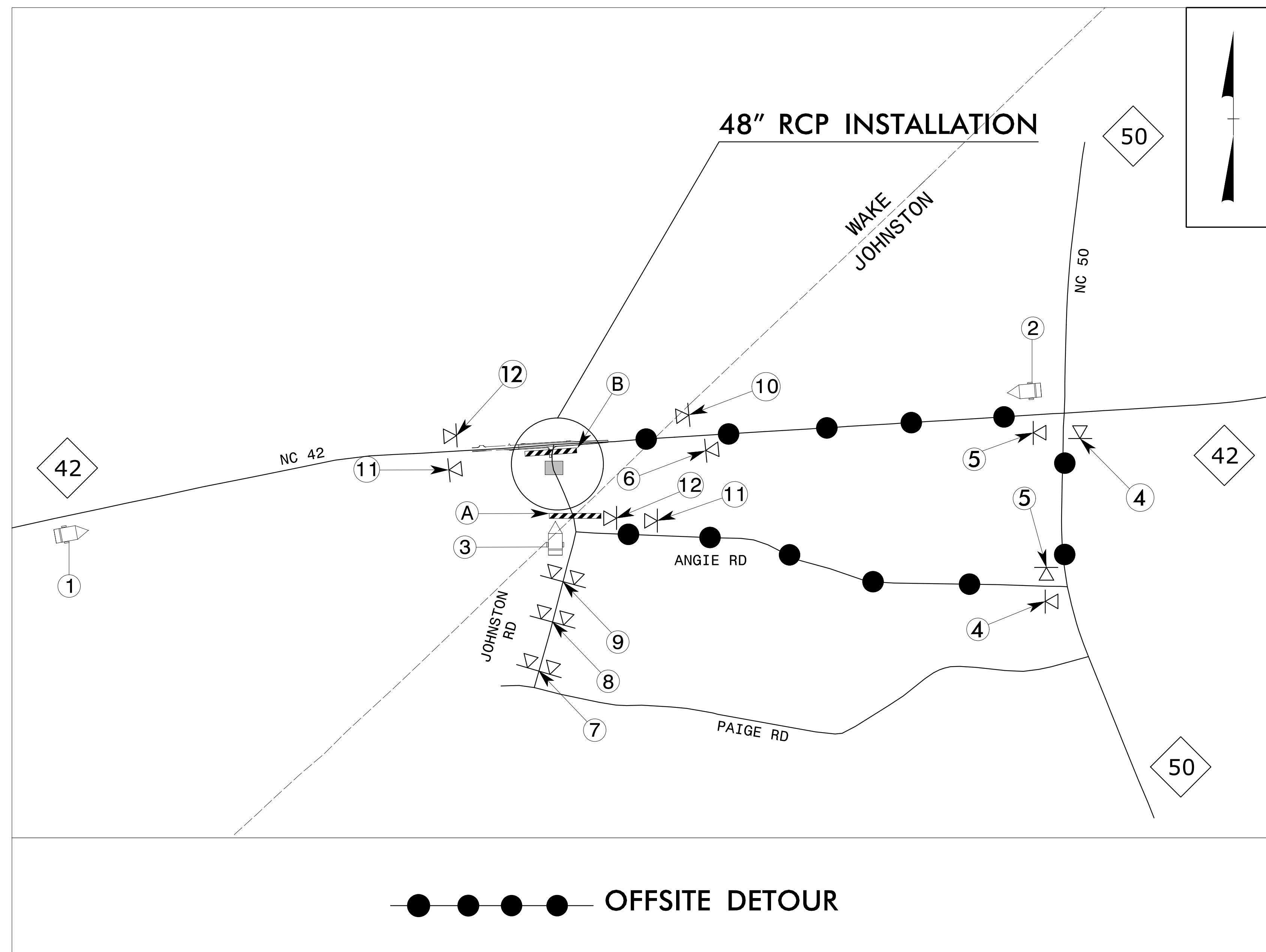
10



11



12

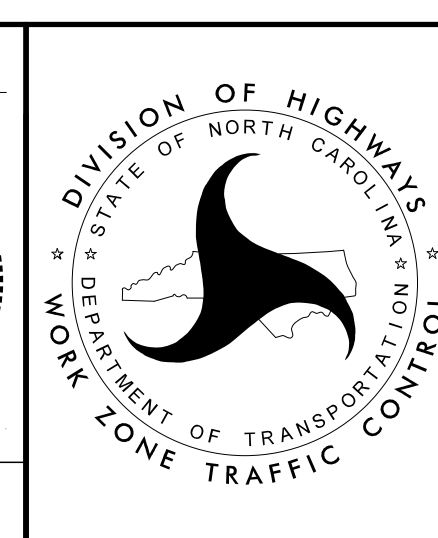


Signed by: Don A. Parker, Jr.
750BERNARDER400...

APPROVED: _____

DATE: _____ 6/24/2026 _____

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



JOHNSTON RD. (-Y1-)
OFFSITE DETOUR

PROJ. REFERENCE NO.	SHEET NO.
HL -00080	TMP -3
TGS ENGINEERS TGS ENGINEERS 706 HILLSBOROUGH ST, SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	

PHASING

PHASE II

STEP 1 -- USING FLAGGERS, REMOVE EXISTING PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKINGS/MARKERS FOR THE PHASE II TRAFFIC PATTERN (SEE TMP-6).

NOTE: STEP 2 MAY BE PERFORMED CONCURRENTLY WITH STEPS 3 OR 4

COMPLETE THE WORK OF PHASE II, STEP 2 BETWEEN THE HOURS OF FRIDAY AT 7:00 PM AND THE FOLLOWING MONDAY AT 6:00 AM. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 2 -- CLOSE JOHNSTON RD. BETWEEN NC 42 AND ANGIE RD. (SEE TMP-2C FOR DETOUR DETAIL).

-- CONSTRUCT 48" CROSS PIPE, 8" WATER LINE RELOCATION, BACKFILL, AND REPAIR ASPHALT.

-- RE-OPEN JOHNSTON RD TO TRAFFIC

STEP 3 -- CONSTRUCT RIGHT SIDE TBJB AND 54" RCP EXTENSIONS AS FOLLOWS:

A. USE FLAGGERS TO INSTALL TEMPORARY GUARDRAIL.

B. BEHIND GUARDRAIL, INSTALL TEMPORARY SHORING AND CONSTRUCT TBJB AND RCP EXTENSIONS.

C. BEHIND GUARDRAIL REMOVE TEMPORARY SHORING AND CONSTRUCT PROPOSED EMBANKMENT LEVEL WITH THE EXISTING SHOULDER BREAK

D. USE FLAGGERS TO REMOVE GUARDRAIL AND REPLACE WITH DRUMS AT 45 FT ENTERS.

STEP 4 -- USING FLAGGERS, COMPLETE RIGHT SIDE EMBANKMENT, SHOULDER BERM GUTTER, PROPOSED WIDENING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AND INSTALL PROPOSED GUARDRAIL.

PHASE III

STEP 1 -- USING FLAGGERS, PAVE THE FINAL LAYER OF SURFACE COURSE ON THE PROPOSED WIDENING AND OVERLAY EXISTING PAVEMENT

STEP 2 -- USING FLAGGERS, REMOVE EXISTING CONFLICTING PAVEMENT MARKING LINES FROM PROJECT W-5601EX AND INSTALL THE FINAL PAVEMENT MARKINGS THROUGHOUT THE PROJECT LIMITS. TIE TO FINAL MARKINGS ON W-5601EX.

STEP 3 -- REMOVE ALL TRAFFIC CONTROL DEVICES

PHASE I

STEP 1 -- INSTALL WORK ZONE ADVANCE WARNING SIGNS (SEE RSD 1101.01). ADD 24" X 24" 45 MPH ADVISORY SPEED PLAQUE (W13-1P) TO "ROAD WORK AHEAD" (W20-1) SIGN ON BOTH APPROACHES OF NC 42.

STEP 2 -- CONSTRUCT LEFT SIDE TBJB AND 54" RCP EXTENSIONS AS FOLLOWS (SEE TMP-4):

A. USE FLAGGERS TO GRADE AS NECESSARY AND CONSTRUCT 7' ASPHALT PAVED SHOULDER UP TO EDGE AND ELEVATION OF EXISTING PAVEMENT FROM -L- STA. 15+50± TO STA. 20+50±. (THIS PAVEMENT MAY BE INCLUDED IN FINAL PAVEMENT STRUCTURE AS DIRECTED BY THE ENGINEER.)

B. USE FLAGGERS TO INSTALL PCB WITH CRASH CUSHIONS FROM -L- STA. 15+50± TO STA. 20+50±.

C. BEHIND PCB, INSTALL TEMPORARY SHORING, CONSTRUCT TBJB AND RCP EXTENSIONS.

D. BEHIND PCB, REMOVE TEMPORARY SHORING AND CONSTRUCT PROPOSED EMBANKMENT LEVEL WITH THE EXISTING SHOULDER BREAK FROM -L- STA. 15+50± TO STA. 20+50±.

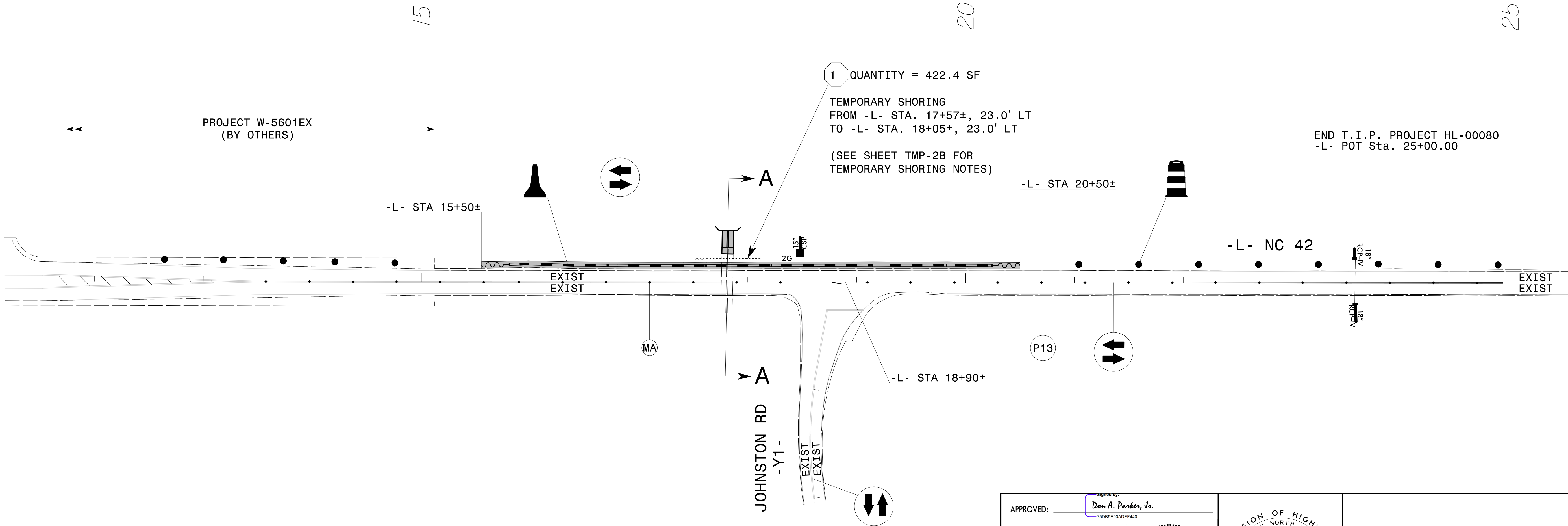
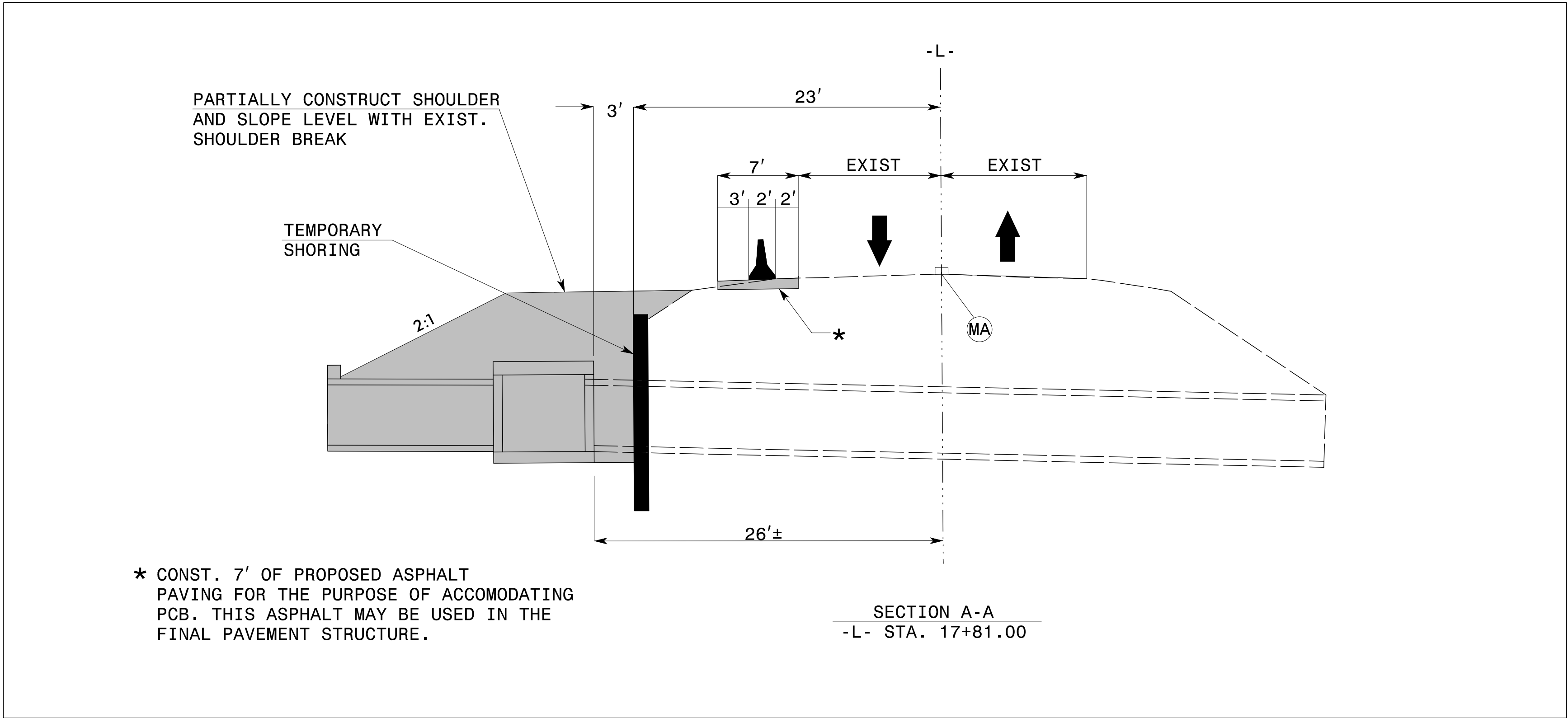
E. USE FLAGGERS TO REMOVE PCB AND CRASH CUSHIONS AND REPLACE WITH DRUMS AT 45 FT CENTERS.

STEP 3 -- USING FLAGGERS, COMPLETE LEFT SIDE EMBANKMENT, SHOULDER BERM GUTTER, PROPOSED WIDENING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AND INSTALL PROPOSED GUARDRAIL. (SEE TMP-5)

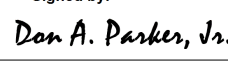
ICT

APPROVED: Signed by: Don A. Parker 75DB6B60ADEF440... DATE: 12/9/2024 NORTH CAROLINA PROFESSIONAL SEAL 043251 ENGINEER DON A. PARKER DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	PHASING
--	--	--------------------

PROJ. REFERENCE NO.	SHEET NO.
HL - 00080	TMP - 4
TGS ENGINEERS TGS ENGINEERS 706 HILLSBOROUGH ST., SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	



6/24/2026
X:\NGDOT\Div 5 HL-00080\TrafficControl\TCP\HL-00080_TC_TMP_04.dgn
User: cbrannan

APPROVED: 
750B9E69ADEFA40...

DATE: 6/24/2026



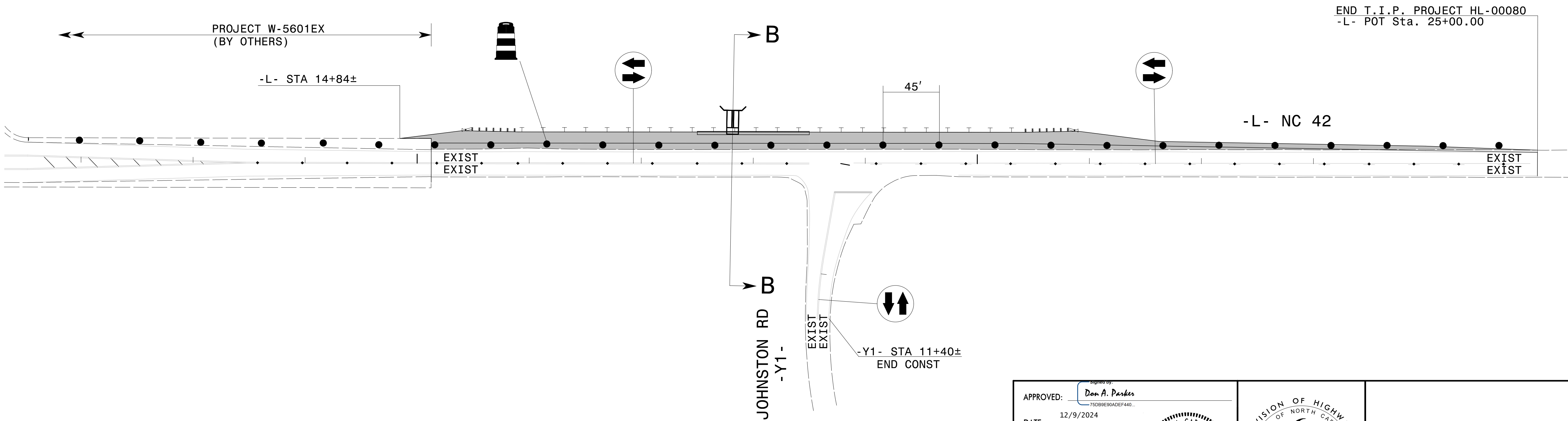
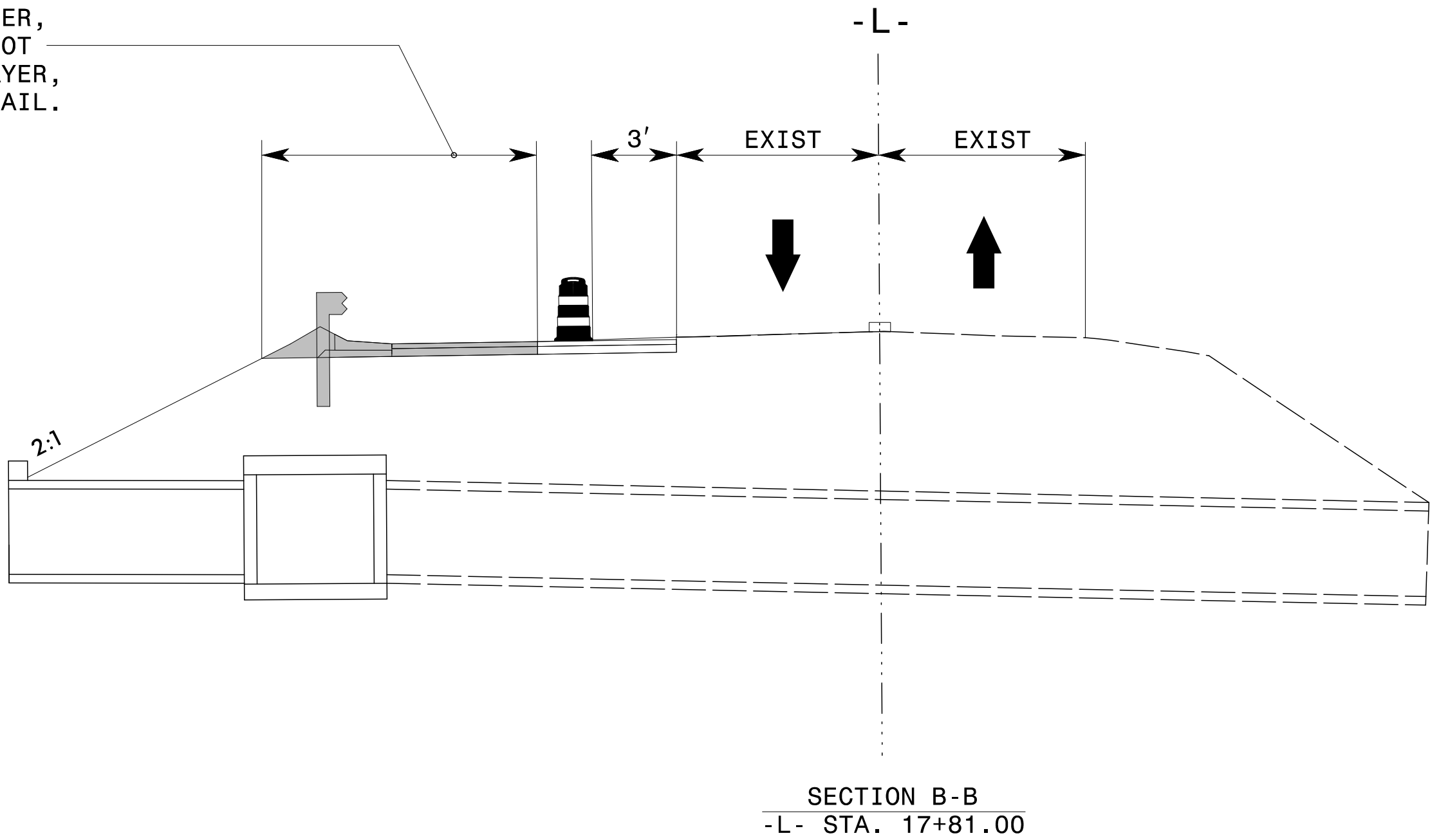
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



PHASE I
STEP 2

PROJ. REFERENCE NO.	SHEET NO.
HL-00080	TMP-5
TGS ENGINEERS TGS ENGINEERS 706 HILLSBOROUGH ST., SUITE 200 RALEIGH, NC 27603 FH (919) 773-8887 CORP. LICENSE NO.: C-0275	

COMPLETE SHOULDER,
SHOULDER BERM GUTTER,
PAVING UP TO BUT NOT
INCLUDING FINAL LAYER,
AND INSTALL GUARDRAIL.



APPROVED: Don A. Parker
750B9B9DADEF440...

DATE: 12/9/2024

NORTH CAROLINA

PROFESSIONAL

SEAL

043251

ENGINEER

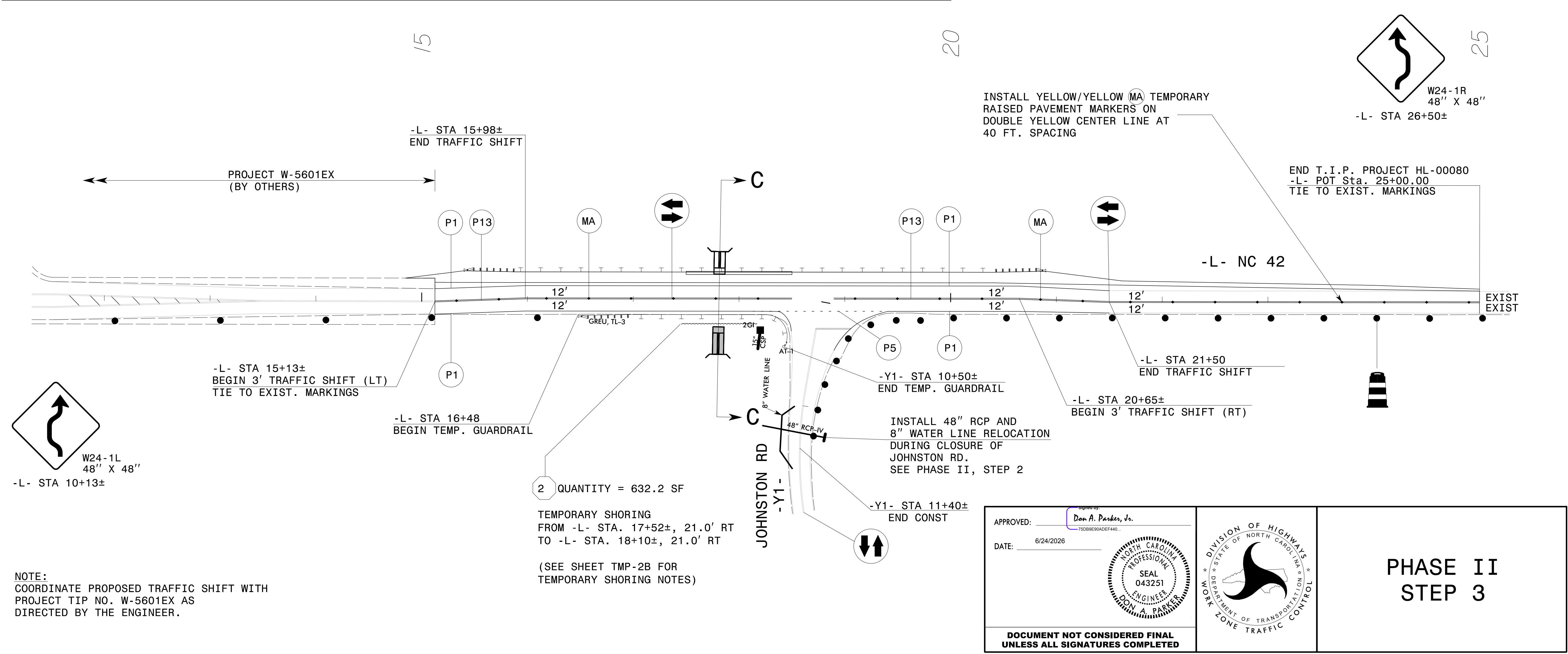
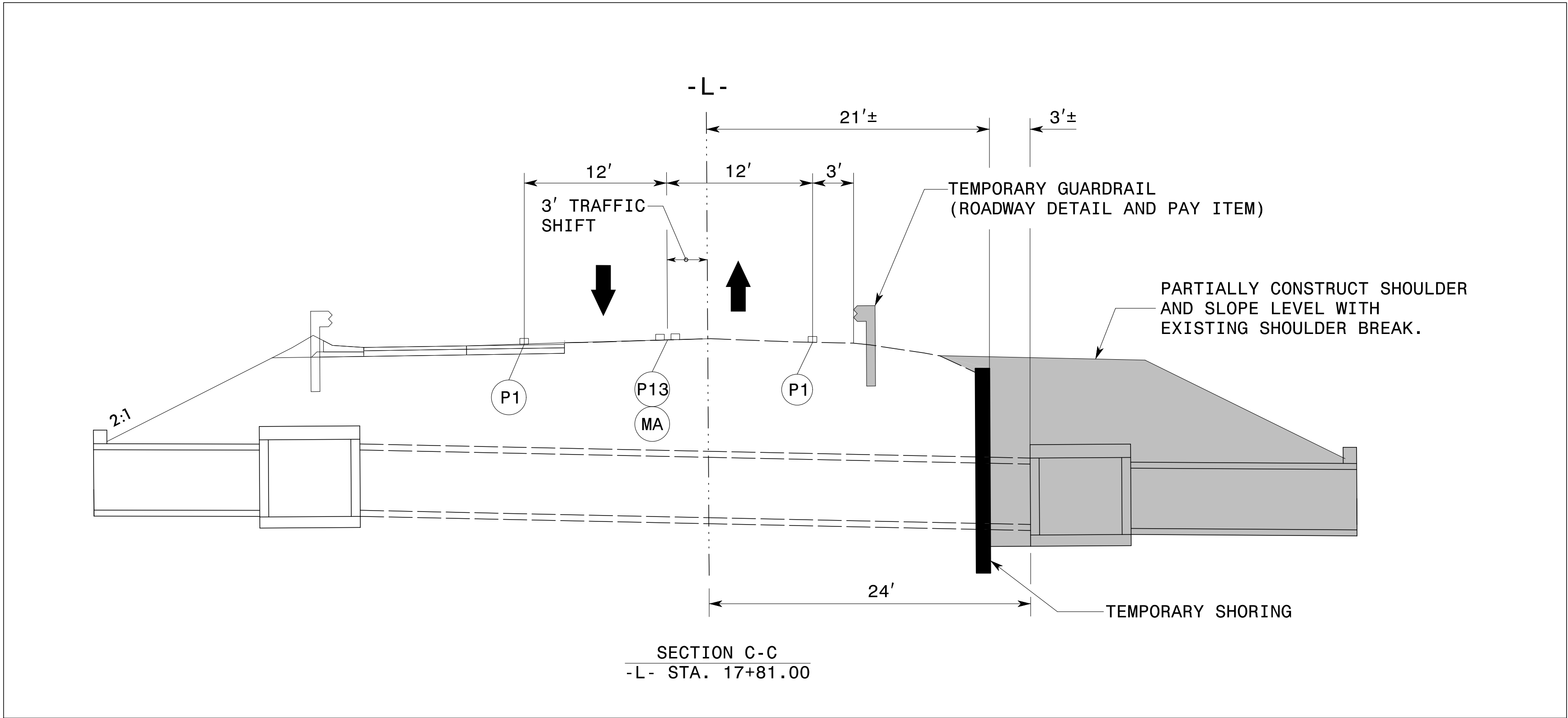
DON A. PARKER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

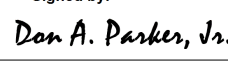


PHASE I
STEP 3

PROJ. REFERENCE NO.	SHEET NO.
HL - 00080	TMP - 6
TGS ENGINEERS TGS ENGINEERS 706 HILLSBOROUGH ST., SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	

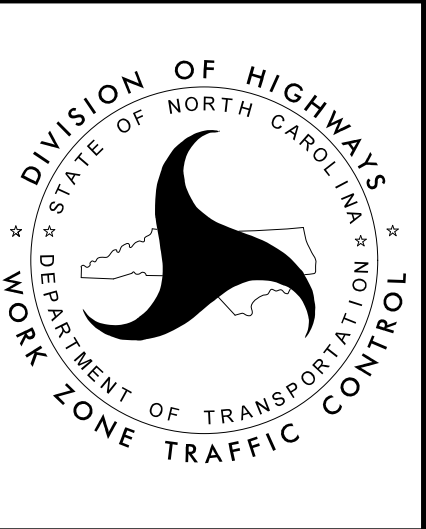


NOTE:
COORDINATE PROPOSED TRAFFIC SHIFT WITH
PROJECT TIP NO. W-5601EX AS
DIRECTED BY THE ENGINEER.

APPROVED: 
DATE: 6/24/2026

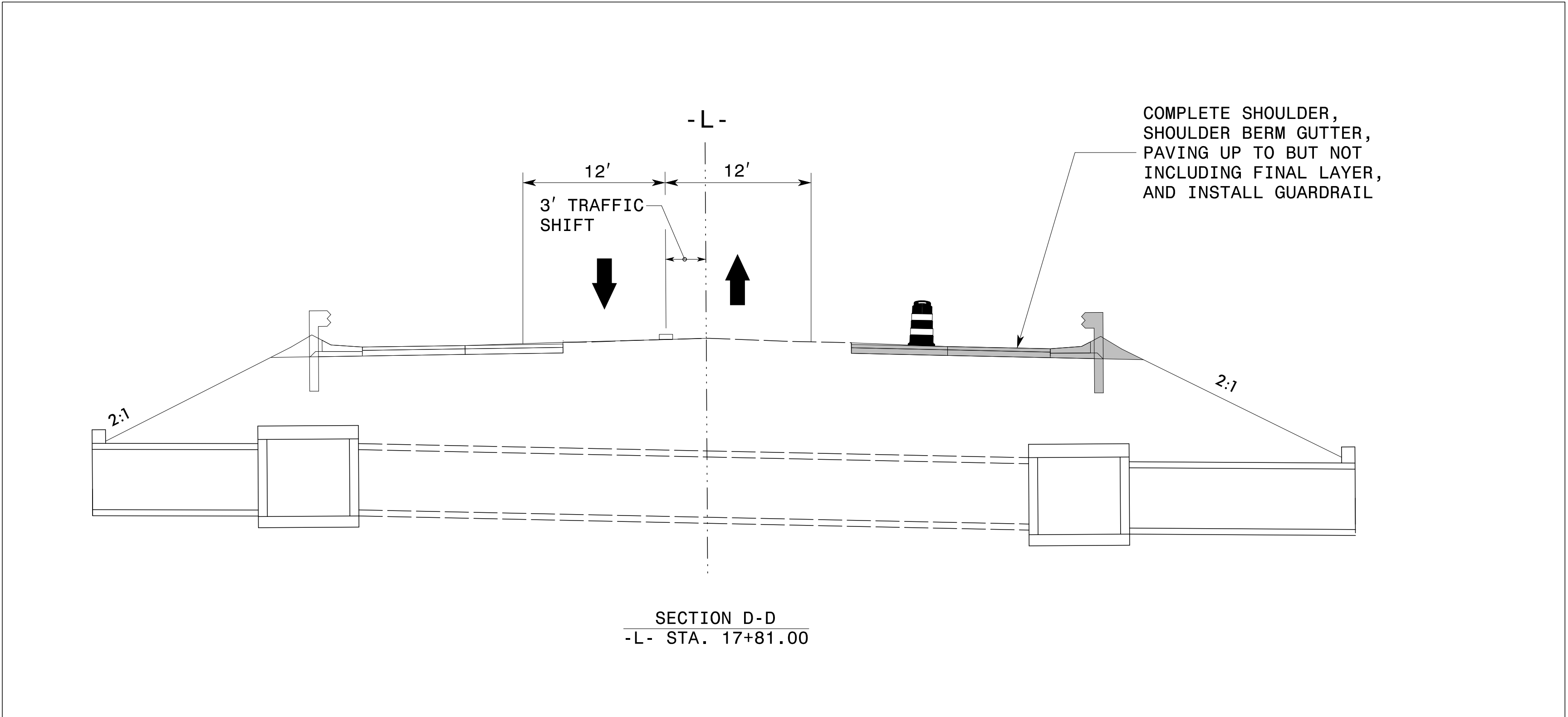


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



PHASE II
STEP 3

PROJ. REFERENCE NO.	SHEET NO.
HL-00080	TMP-7
TGS ENGINEERS TGS ENGINEERS 706 HILLSBOROUGH ST., SUITE 200 RALEIGH, NC 27603 FH (919) 773-8887 CORP. LICENSE NO.: C-0275	



①

MESSAGE NO. 1	MESSAGE NO. 2
WORKERS IN ROAD AHEAD	BE PREPARED TO STOP
CHANGEABLE MESSAGE SIGN	

CHANGEABLE MESSAGE SIGN

INSTALL CMS 1 MILE IN ADVANCE OF THE PROJECT LIMITS (BOTH DIRECTIONS)

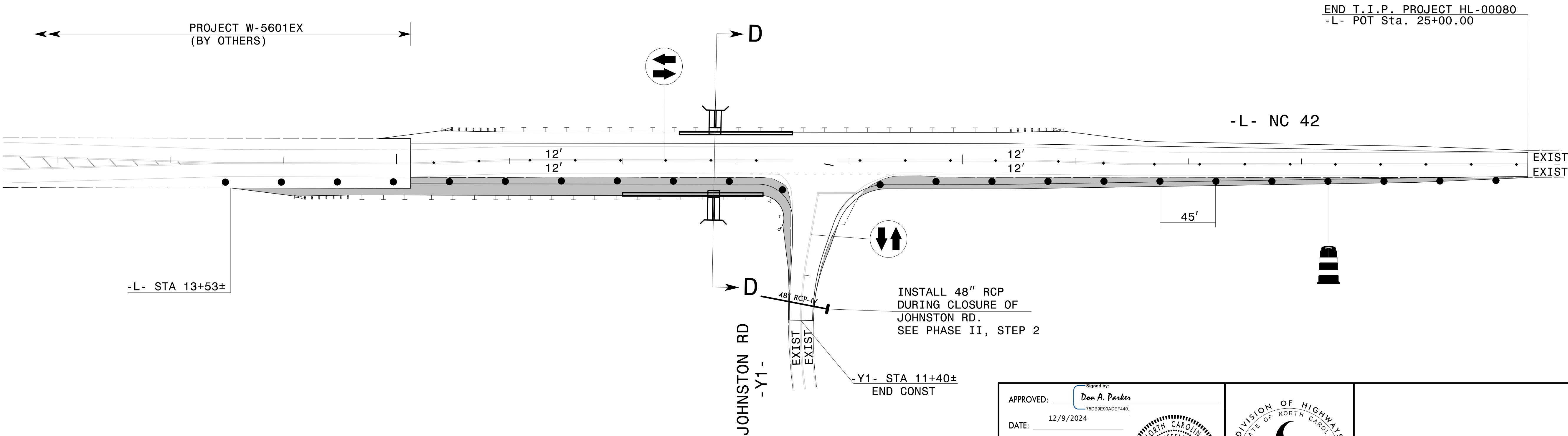
WHEN WORKERS ARE PRESENT, IN THE TRAVELWAY OR OTHERWISE, USE MESSAGE ①

②

MESSAGE NO. 1	MESSAGE NO. 2
ROAD WK 1 MILE AHEAD	USE CAUTION
CHANGEABLE MESSAGE SIGN	

CHANGEABLE MESSAGE SIGN

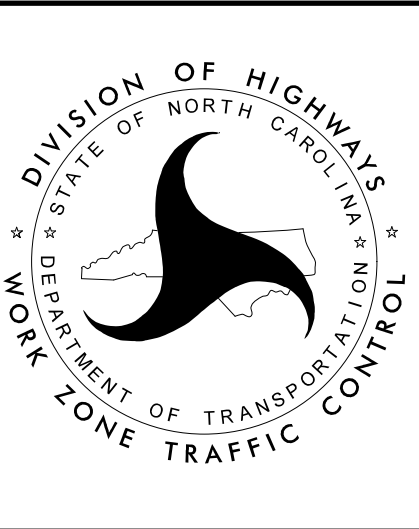
WHEN WORKERS ARE NOT PRESENT, USE MESSAGE ②



APPROVED: Don A. Parker
DATE: 12/9/2024

Seal of Don A. Parker, North Carolina Professional Engineer, Seal 043251.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



PHASE II
STEP 4

5/15/2026
X:\ncdot\div 5 h1-00080\traffic\pavement markings\HL-00080_Sgn_PMP_01.dgn
Mortenson

T.I.P.: HL-00080

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
WAKE COUNTY

LOCATION: NC 42 AT SR 2735 (JOHNSTON ROAD)

TIP NO.	SHEET NO.
HL - 00080	PMP - 1
APPROVED: Signed by: Don A. Parker, Jr. 753B8E80ADEF440...	
DATE: 5/27/2026	
SEAL	
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION SEAL 043251 ENGINEER DON A. PARKER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

INDEX

SHEET NO.	DESCRIPTION
PMP - 1	PAVEMENT MARKING PLAN TITLE, SCHEDULE SHEET, INDEX OF SHEETS, LIST OF APPPLICABLE ROADWAY STANDARD DRAWINGS, GENERAL NOTES, AND FINAL PAVEMENT MARKING SCHEDULE
PMP - 1A	REVISED ROADWAY STANDARD DRAWING (1205D01)
PMP - 1B	REVISED ROADWAY STANDARD DRAWING (1250D01)
PMP - 2	PAVEMENT MARKING DETAIL

GENERAL NOTES

- THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.
- A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:
- | ROAD NAME | MARKING | MARKER |
|------------------|---------------|--|
| -L- NC 42 | THERMOPLASTIC | POLYCARBONATE H-SHAPED (SEE SPECIAL PROVISION) |
| -Y1- JOHNSTON RD | THERMOPLASTIC | NONE |
- B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
- D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.
- E) STOP BAR LOCATION AT NON-SIGNALIZED INTERSECTIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.
- F) UNLESS OTHERWISE SPECIFIED, HEATED-IN-PLACE THERMOPLASTIC MAY BE USED IN LIEU OF EXTRUDED THERMOPLASTIC FOR STOP BARS, SYMBOLS, CHARACTERS AND DIAGONALS. IF HEATED-IN-PLACE IS USED, IT SHALL BE PAID FOR USING THE EXTRUDED THERMOPLASTIC PAY ITEM.

FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
PAVEMENT MARKINGS	
THERMOPLASTIC (4",90 MILS)	
T1	(4") WHITE EDGELINE
T2	(4") WHITE SOLID LANE LINE
T4	(4") 3 FT.-9 FT./SP WHITE MINISKIP
T5	(4") 2 FT.-6 FT./SP WHITE MINISKIP
T11	(4") YELLOW SINGLE CENTER
T12	(4") 10 FT. YELLOW SKIP
T13	(4") YELLOW DOUBLE CENTER
THERMOPLASTIC (12", 90 MILS)	
T52	(12") YELLOW DIAGONAL
THERMOPLASTIC (24", 90 MILS)	
T61	WHITE STOPBAR (24", 90 MILS)
THERMOPLASTIC PAVEMENT MARKING SYMBOLS	
T70	LEFT TURN ARROW
SNOWPLOWABLE PAVEMENT MARKERS (POLYCARBONATE H-SHAPED) (SEE SPECIAL PROVISION)	
ME	YELLOW/YELLOW
MF	CRYSTAL/RED

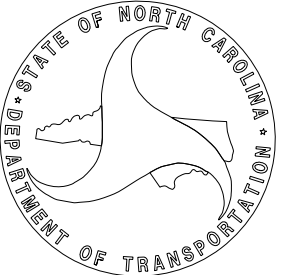
ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

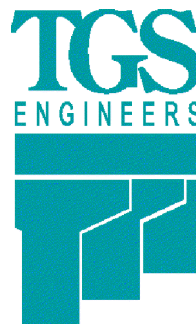
PLAN SUBMITTED TO: NCDOT

ELIZABETH L. GALLEGOS, E.I. ASSISTANT DIVISION DESIGN ENGINEER



PLAN PREPARED BY: TGS ENGINEERS

DON PARKER, P.E. PROJECT ENGINEER
CODA BRANNAN, E.I. DESIGN ENGINEER



TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

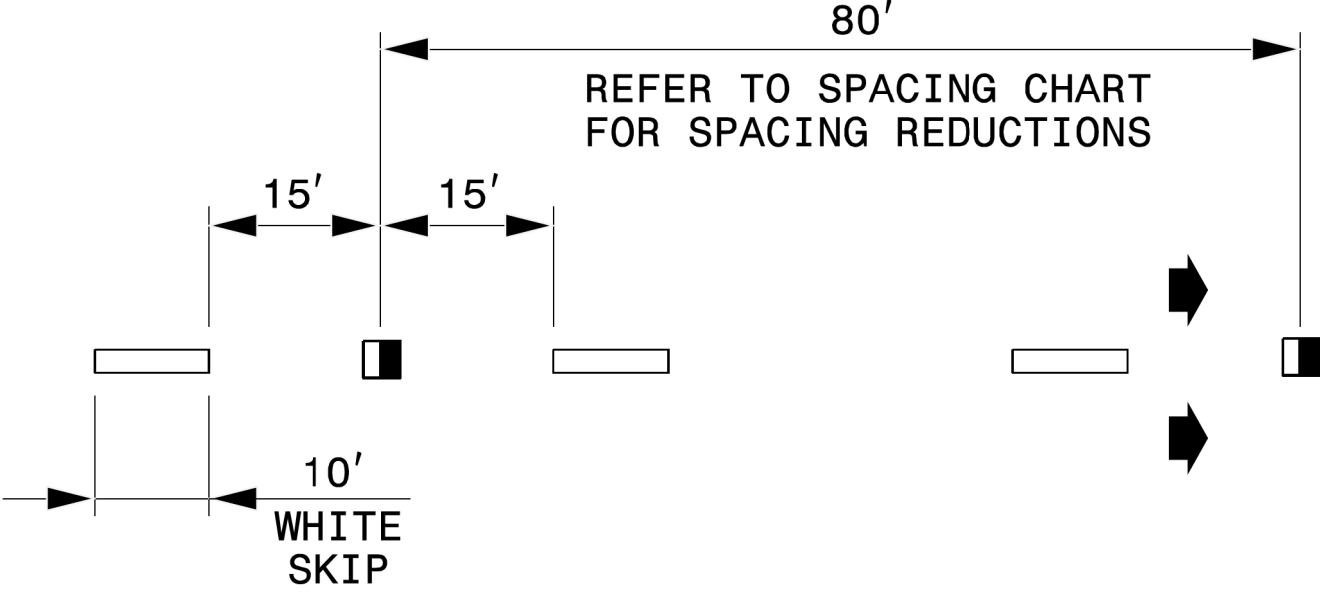
CONTINUOUS LINES EDGE LINE YELLOW OR WHITE 4" / 6" LANE LINE WHITE 4" / 6" CENTER LINE YELLOW 4" / 6" GORE LINE WHITE 8" / 12" DIAGONAL LINE YELLOW OR WHITE 12" 45 MPH OR HIGHER 8" LESS THAN 45 MPH 4"-6" FOR BICYCLE FACILITIES CROSSWALK LINE WHITE 8" TRANSVERSE 24" LONGITUDINAL RxR LINE WHITE 16" STOP OR TRANSVERSE BAR WHITE 24"	10'-30'/SP SKIP LINE UNLESS OTHERWISE SHOWN, USE 10'-30'/SP SKIPS FOR SKIP LANE LINES AND SKIP CENTER LINES. 10' 30' 4" / 6" YELLOW OR WHITE	2'-6'/SP MINI-SKIP LINE UNLESS OTHERWISE SHOWN, USE 2'-6'/SP MINI-SKIPS FOR LANE LINE EXTENSIONS THROUGH INTERSECTIONS, EDGE LINE EXTENSIONS THROUGH INTERSECTIONS AND BICYCLE LANE EXTENSIONS. 2' 6' 4" / 6" YELLOW OR WHITE	STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
	3'-3'/SP MINI-SKIP LINE UNLESS OTHERWISE SHOWN, USE 3'-3'/SP MINI-SKIPS FOR THE WHITE EDGE LINE EXTENSIONS AT ROUNDABOUTS. 3' 3' 8" / 12" WHITE	3'-9'/SP MINI-SKIP LINE UNLESS OTHERWISE SHOWN, USE 3'-9'/SP MINI-SKIPS FOR MINI-SKIP LANE LINES, LINE EXTENSIONS THROUGH TAPERS, AND MINI-SKIPS USED FOR BICYCLE LANE LINES. 3' 9' 4" / 6" WHITE	
GENERAL NOTES: 1- USE 6" LANE, EDGE, AND CENTER LINES ON ALL FULL CONTROL OF ACCESS FACILITIES AND OTHER ROUTES AS DIRECTED BY THE ENGINEER. 2- LANE LINES INDICATED AS "WIDE" ON THE ROADWAY STANDARD DRAWINGS SHALL BE AT LEAST TWICE THE WIDTH OF THE NORMAL LINE. 3- GORE LINES SHALL BE TWICE THE WIDTH OF THE NORMAL LINE.			
		ROADWAY DETAIL DRAWING FOR PAVEMENT MARKINGS LINE TYPES AND OFFSETS	
		SHEET 1 OF 2 1205D01	



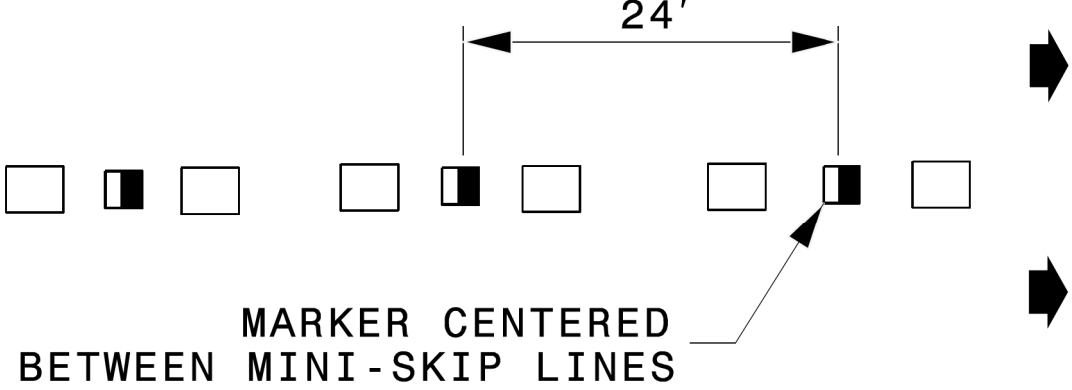
Signed by:
Matthew V. Springer, PE
5/27/2026

CONTRACTS STANDARDS AND DEVELOPMENT UNIT Office 919-707-8950 FAX 919-250-4119
SEE TITLE BLOCK
ORIGINAL BY: M.V. SPRINGER DATE: 2-15-24 MODIFIED BY: DATE: CHECKED BY: DATE: FILE SPEC.:

10'-30'/SP SKIP LINE



3'-9'/SP MINI-SKIP LINE



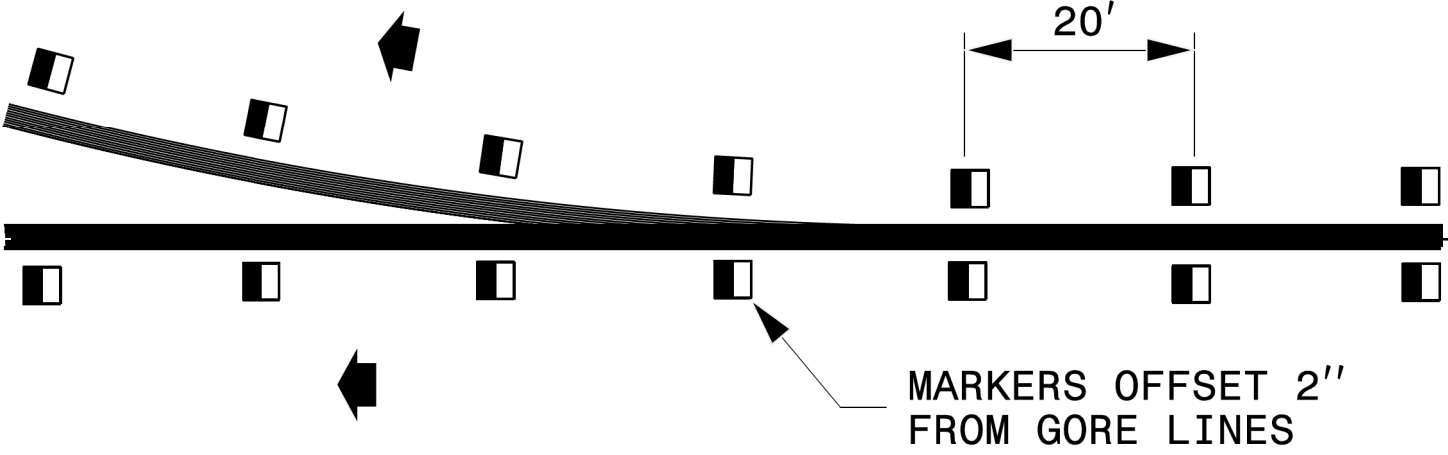
LEGEND

 CRYSTAL/RED PAVEMENT MARKER

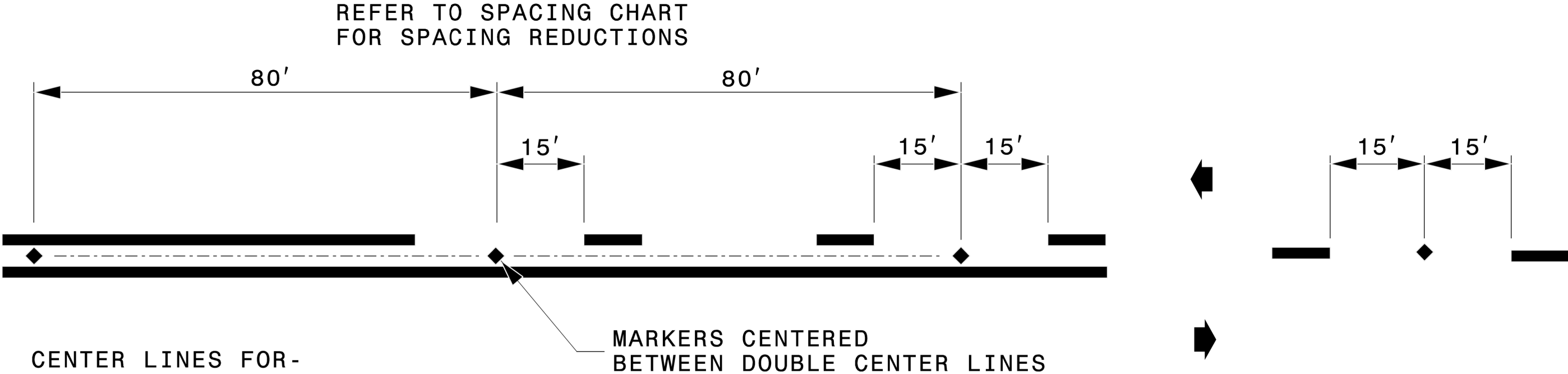
 YELLOW/YELLOW PAVEMENT MARKER

 DIRECTION OF TRAFFIC FLOW

GORE LINES

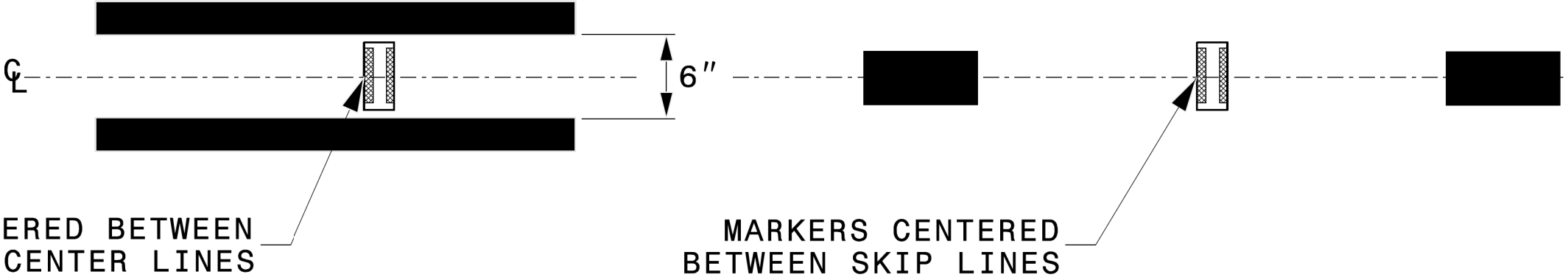


YELLOW CENTER LINES



DETAIL OF PAVEMENT MARKER PLACEMENT

RAISED REFLECTIVE PAVEMENT MARKERS



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

ROADWAY DETAIL DRAWING FOR
RAISED PAVEMENT MARKERS
INSTALLATION SPACING

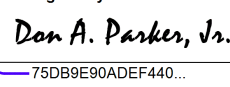
SHEET 2 OF 3
1250D01

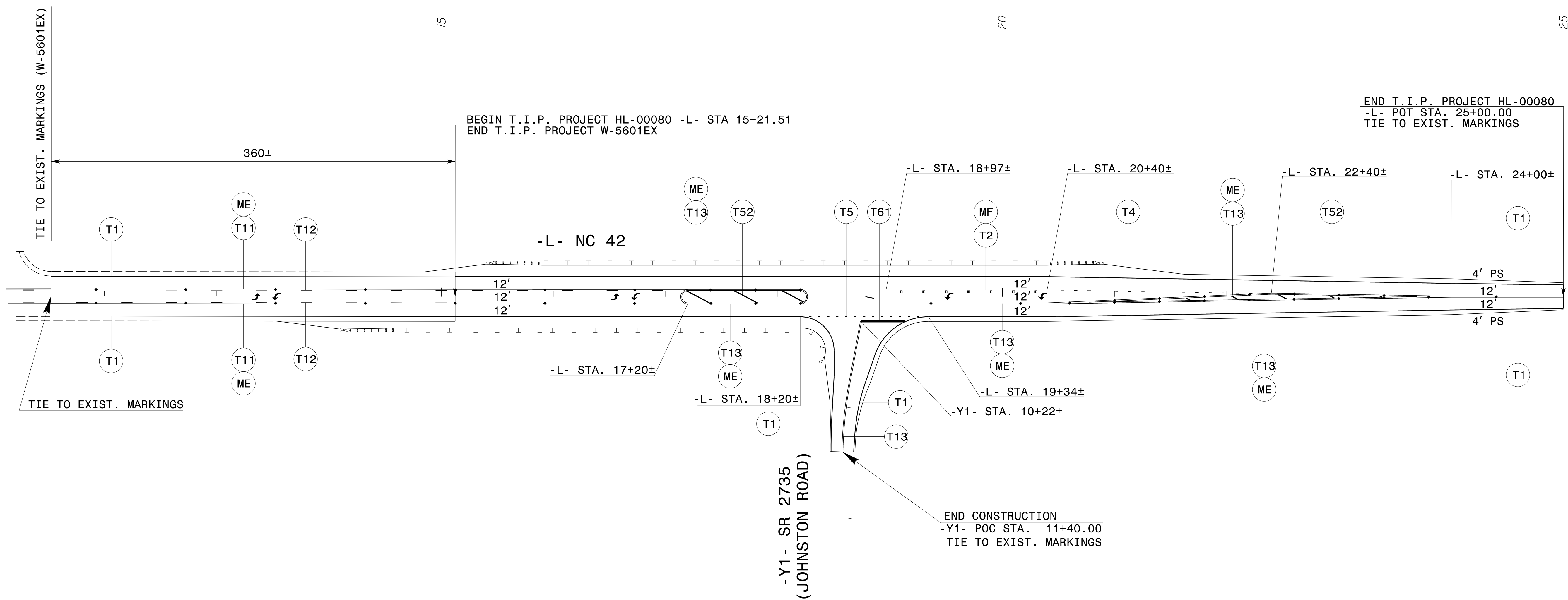
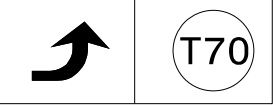
Signed by:
Matthew V. Springer, PE
SC0016695804403...
5/27/2026

CONTRACTS STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-8950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: M.V. SPRINGER	DATE: 2-15-24
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	

TIP NO. HL - 00080	SHEET NO. PMP - 2
APPROVED:  75069E90ADEFA40...	
DATE: 5/27/2026	
SEAL 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TCS ENGINEERS 706 HILLSBOROUGH STREET (SUITE 200) RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	



NOTE: FOR INSTALLATION SPACING OF PAVEMENT MARKERS,
SEE RSD 1250.01 AND PMP-1B.

PAVEMENT MARKING DETAIL

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HL-00080	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	



THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.

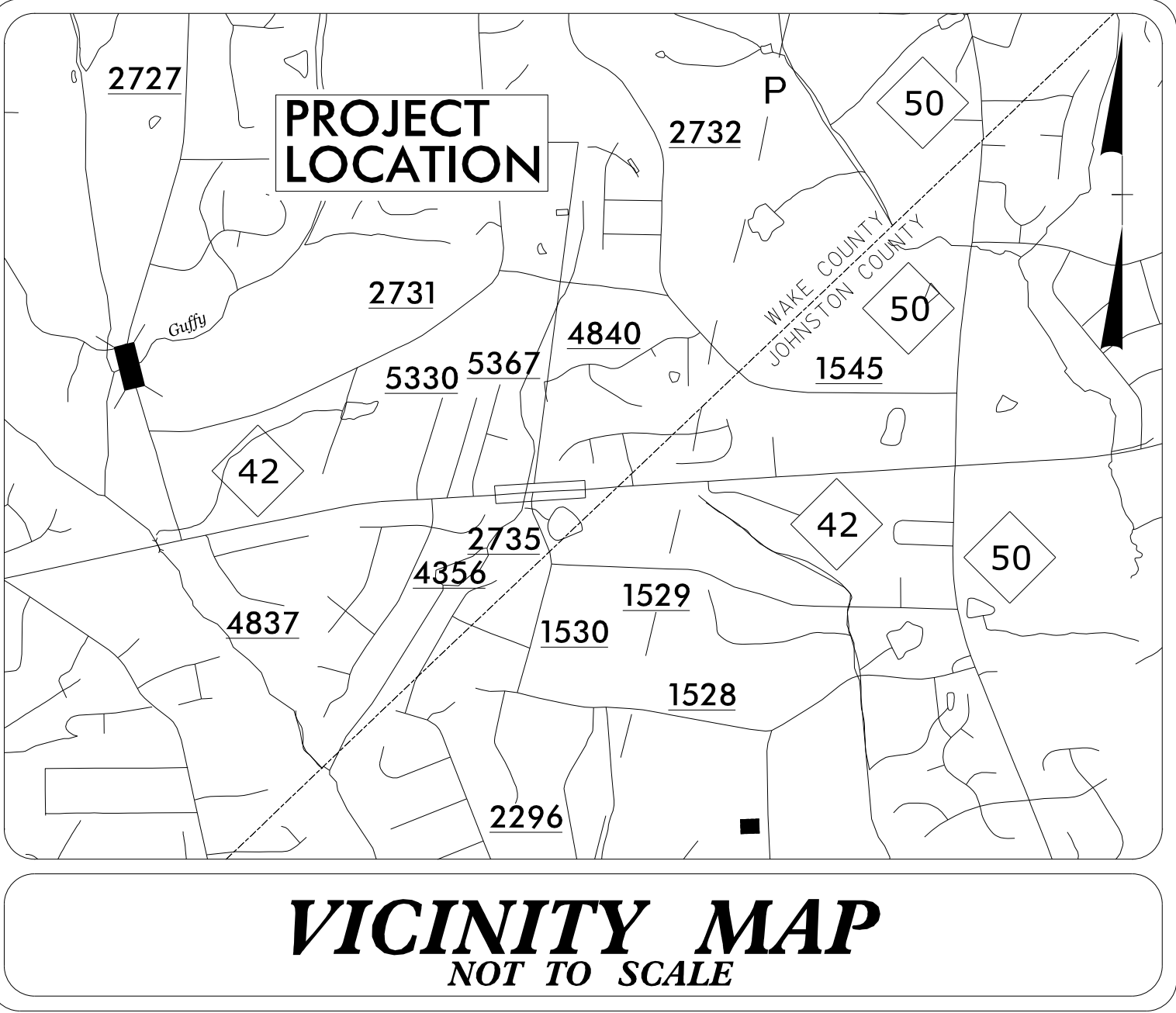
THIS PROJECT HAS
BEEN DESIGNED TO
SENSITIVE WATERSHED
STANDARDS.

ENVIRONMENTALLY
SENSITIVE AREA(S) EXIST
ON THIS PROJECT

Refer To E. C. Special Provisions
for Special Considerations.

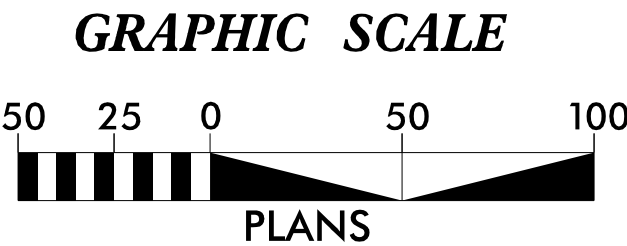
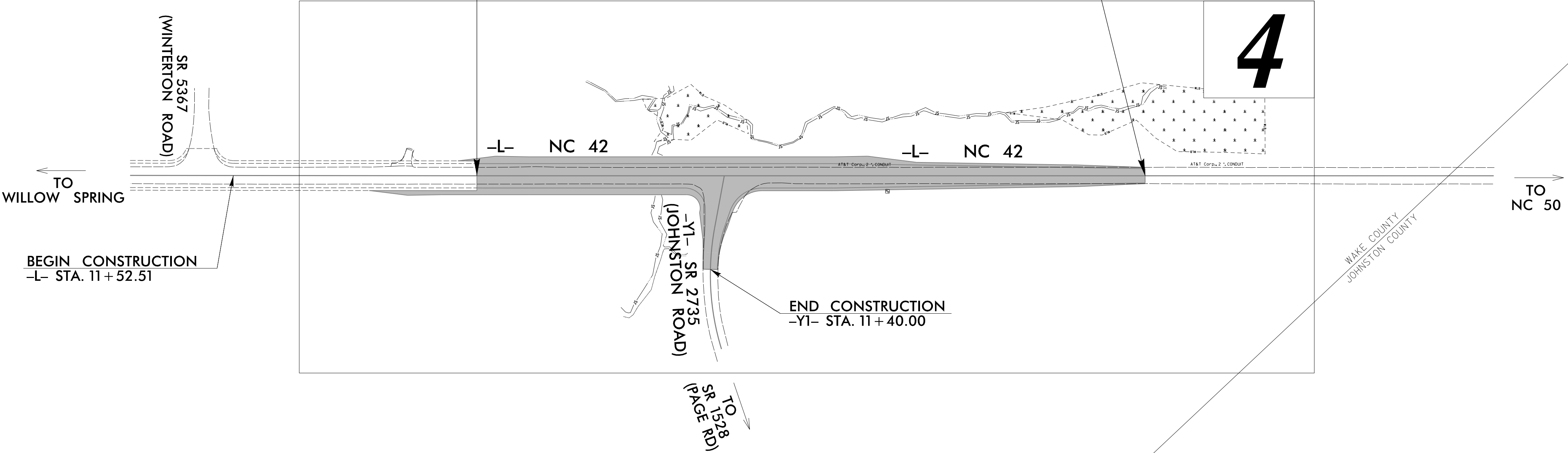
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
WAKE COUNTY

LOCATION: NC 42 AT SR 2735 (JOHNSTON ROAD).
CONSTRUCT LEFT TURN LANE.
TYPE OF WORK: GRADING, DRAINAGE, AND PAVING

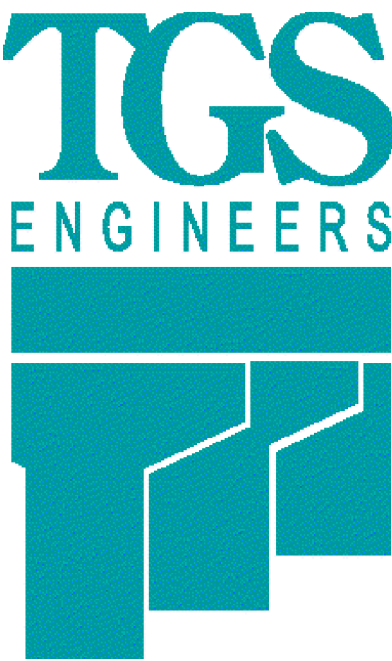


BEGIN TIP PROJECT HL-00080
-L- STA. 15 + 12.51
(TIE TO TIP NO.: W-5601EX)

END TIP PROJECT HL-00080
-L- STA. 25 + 00.00



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH
THE REGULATIONS SET FORTH BY THE NCG 010000 GENERAL
STORMWATER CONSTRUCTION PERMIT ISSUED BY THE NORTH
CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION
OF ENERGY, MINERAL, AND LAND RESOURCES.



Prepared in the Office of:
TGS ENGINEERS
706 HILLSBOROUGH ST. - SUITE 200
RALEIGH, NC 27603

Designed by:
Ben Henegar, PE 3564
NAME LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

The "Roadway Standard Drawings"- Roadway Design Unit - N. C.
Department of Transportation - Raleigh, N. C., dated January 2024
and the latest revision thereto are applicable to this project and by
reference hereby are considered a part of these plans.

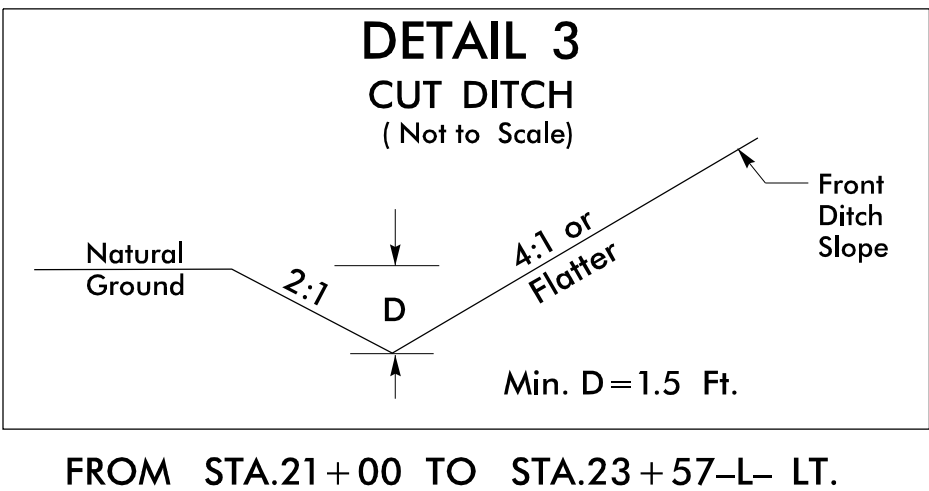
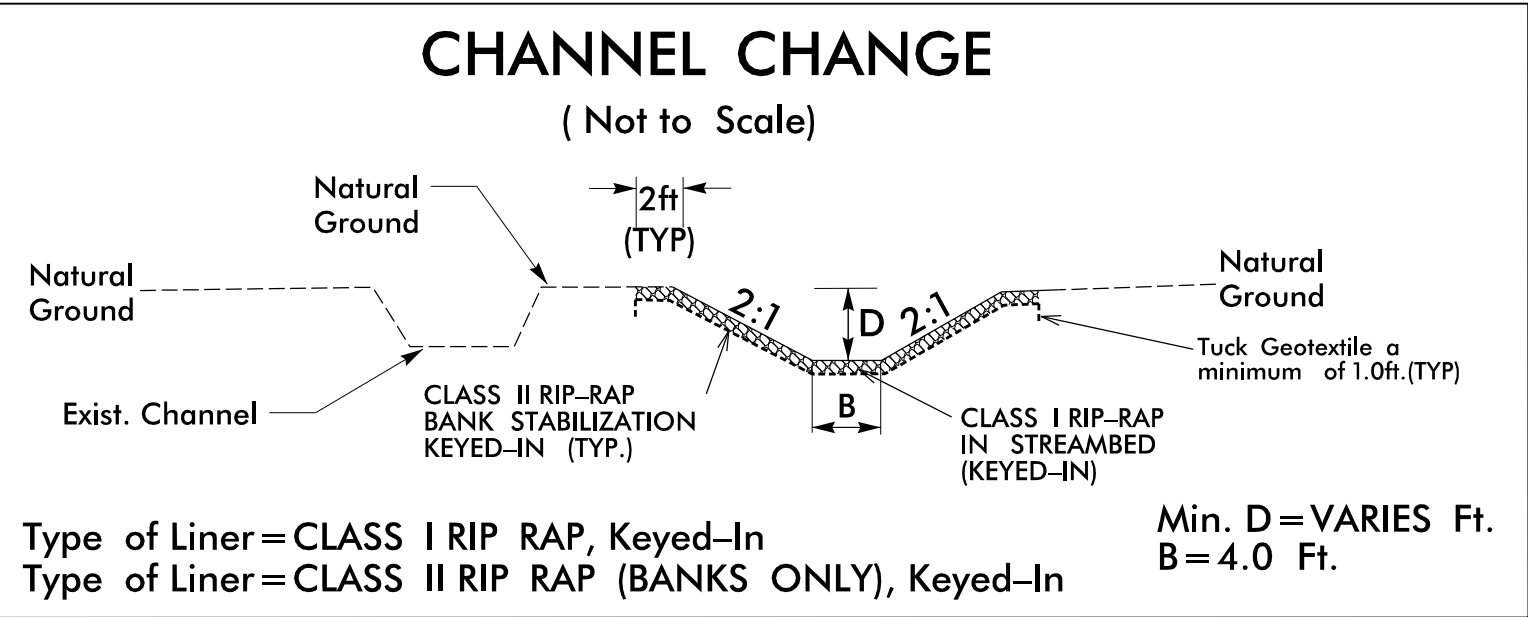
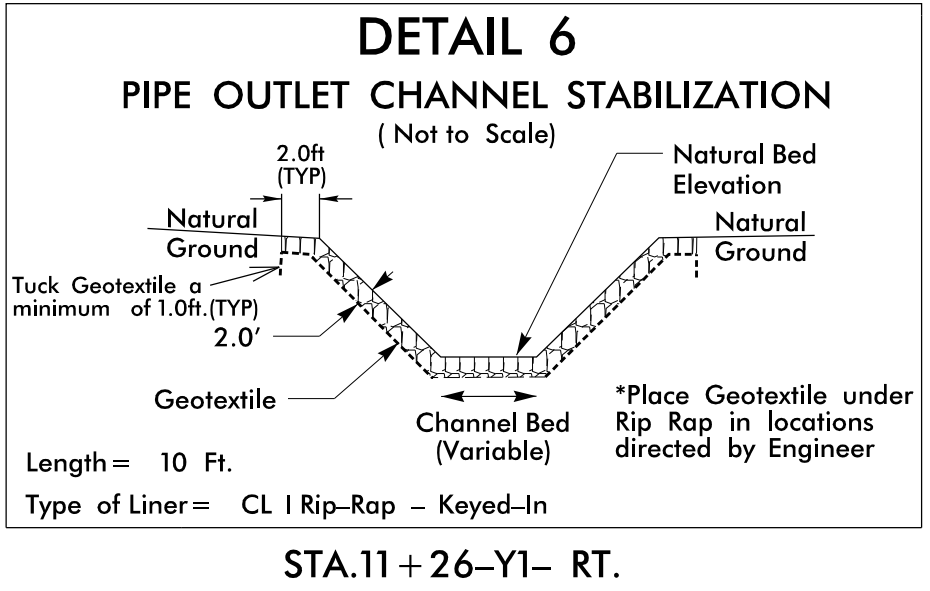
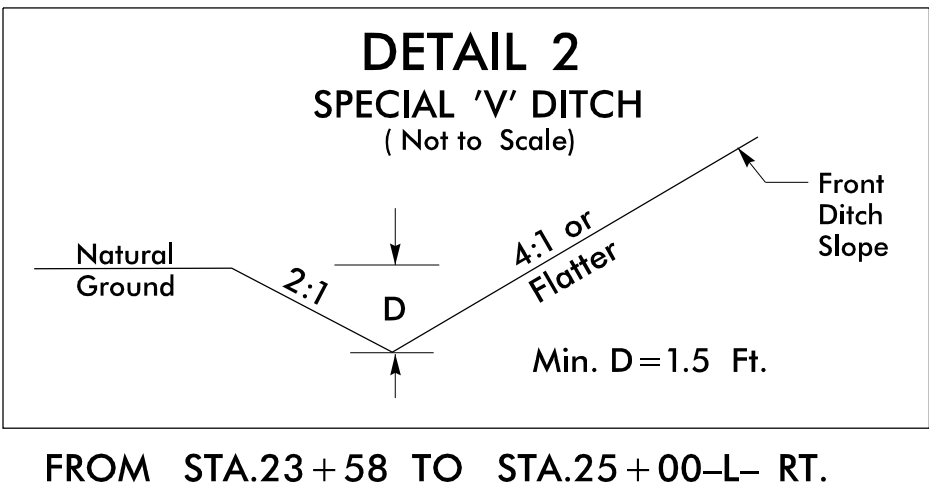
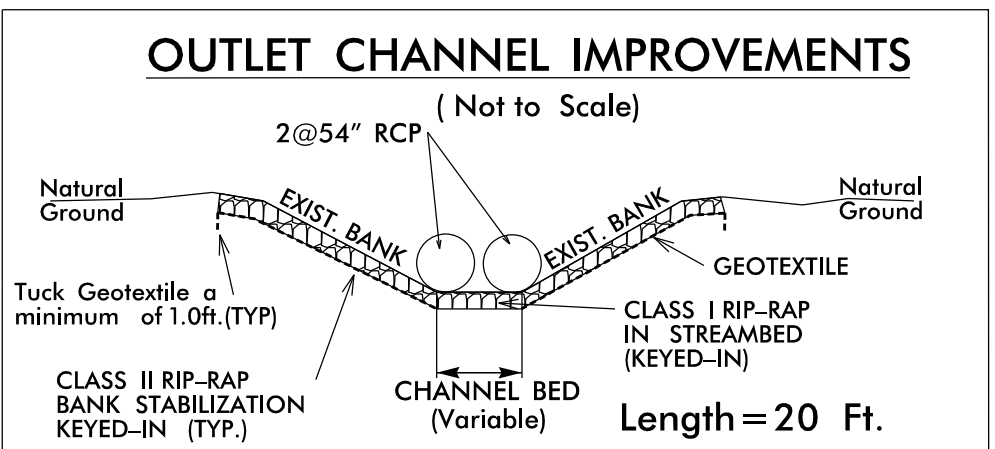
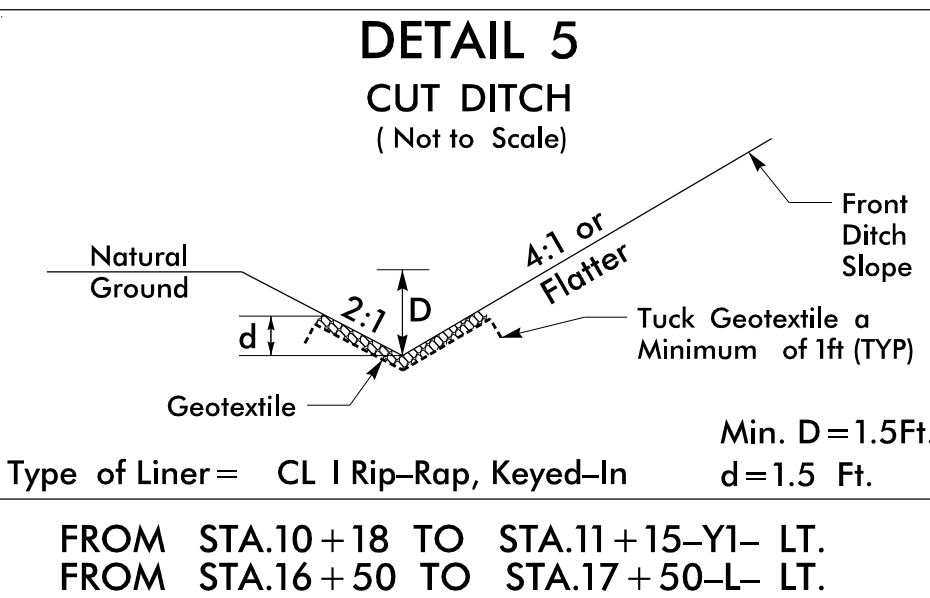
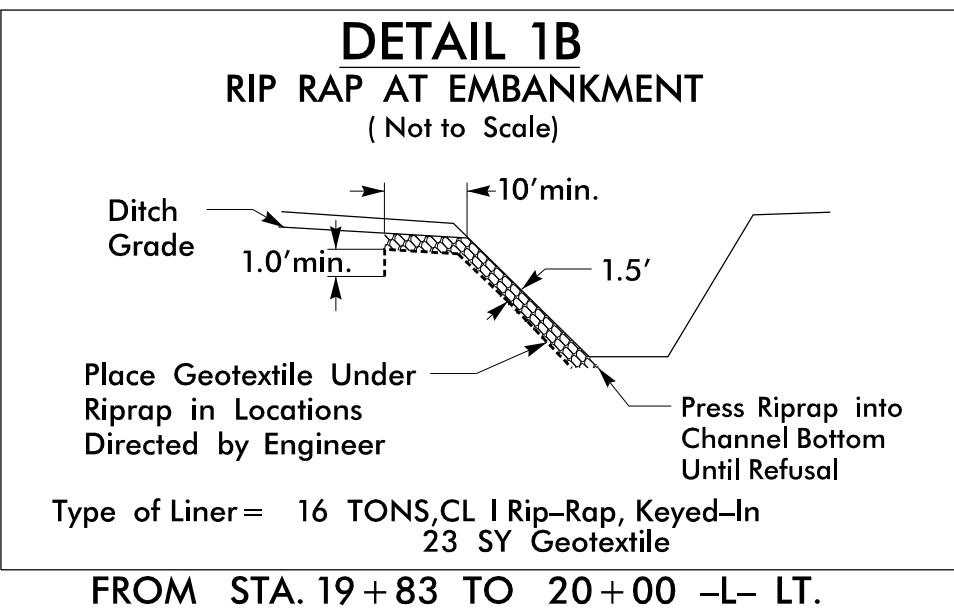
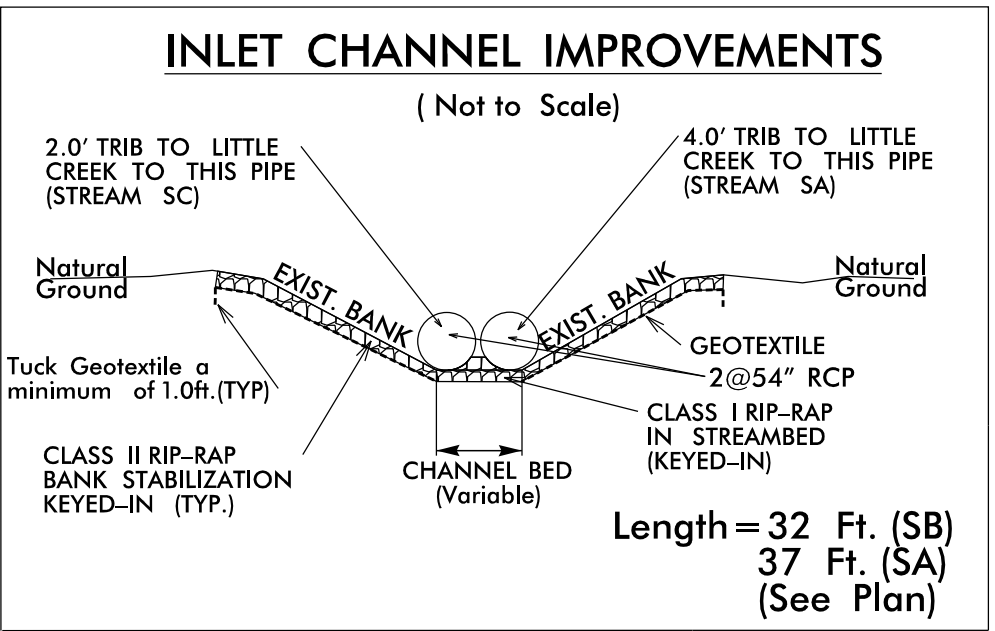
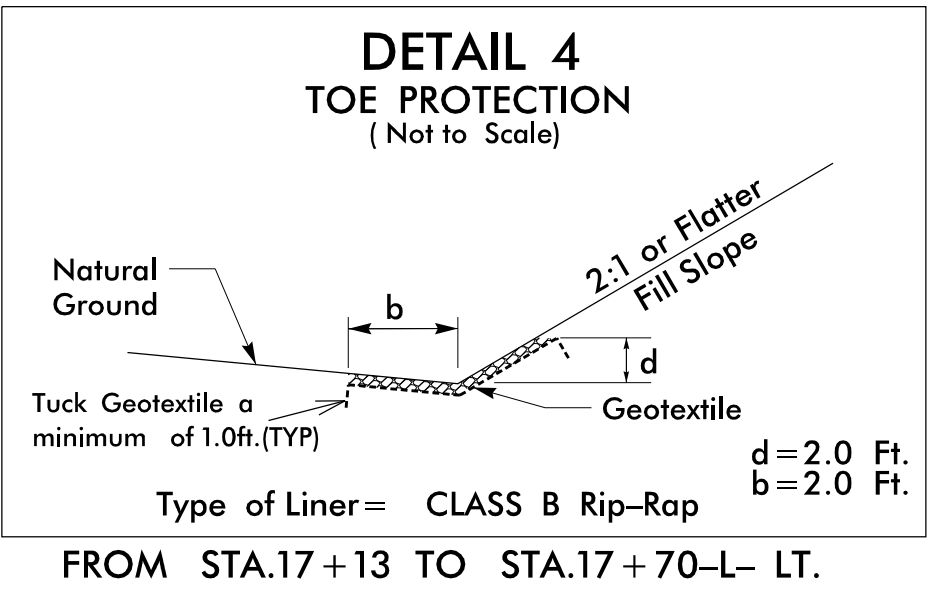
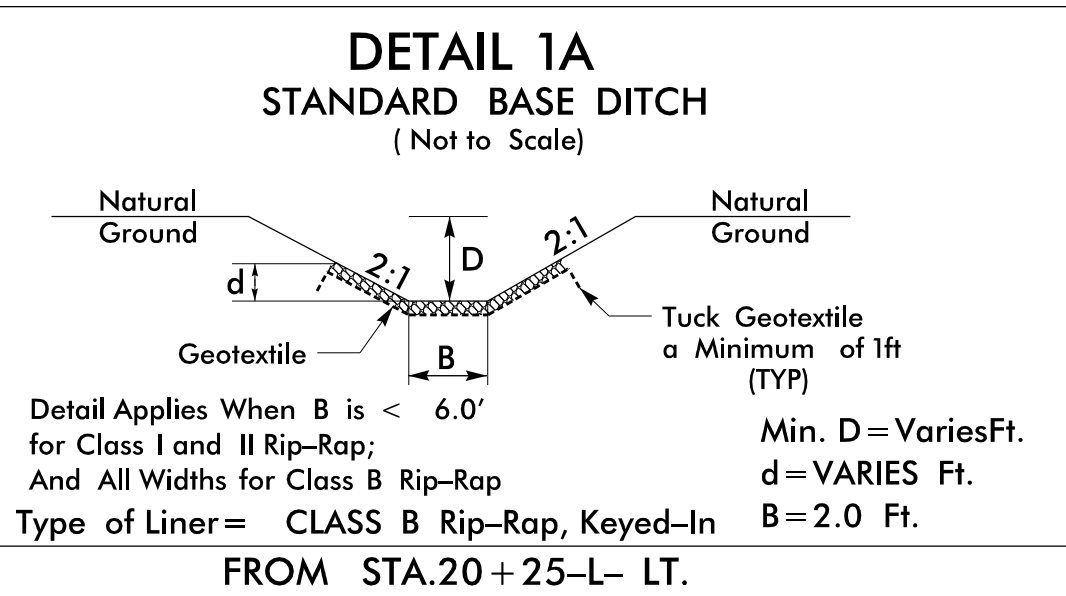
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
HL-00080	EC-2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EROSION & SEDIMENT CONTROL LEGEND

Std. #	Description	Symbol	Std. #	Description	Symbol
1605.01	Temporary Silt Fence		1633.01	Temporary Rock Silt Check Type A	
1606.01	Special Sediment Control Fence		1633.02	Temporary Rock Silt Check Type B	
1622.01	Temporary Berms and Slope Drains		1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1630.02	Silt Basin Type B		1634.01	Temporary Rock Sediment Dam Type A	
1630.03	Temporary Silt Ditch		1634.02	Temporary Rock Sediment Dam Type B	
1630.04	Stilling Basin		1635.01	Rock Pipe Inlet Sediment Trap Type A	
1630.05	Temporary Diversion		1635.02	Rock Pipe Inlet Sediment Trap Type B	
1630.06	Special Stilling Basin		1636.01	Excelsior Wattle Check	
1630.07	Skimmer Basin		1636.01	Excelsior Wattle Check with Flocculant	
1630.08	Tiered Skimmer Basin		1636.01	Coir Fiber Wattle Check	
1630.09	Earthen Dam with Skimmer		1636.01	Coir Fiber Wattle Check with Flocculant	
	Infiltration Basin		1636.02	Silt Fence Excelsior Wattle Break	
	Rock Inlet Sediment Trap:			Silt Fence Coir Fiber Wattle Break	
1632.01	Type A		1636.03	Excelsior Wattle Barrier	
1632.02	Type B		1636.03	Coir Fiber Wattle Barrier	
1632.03	Type C				

DRAINAGE DETAILS



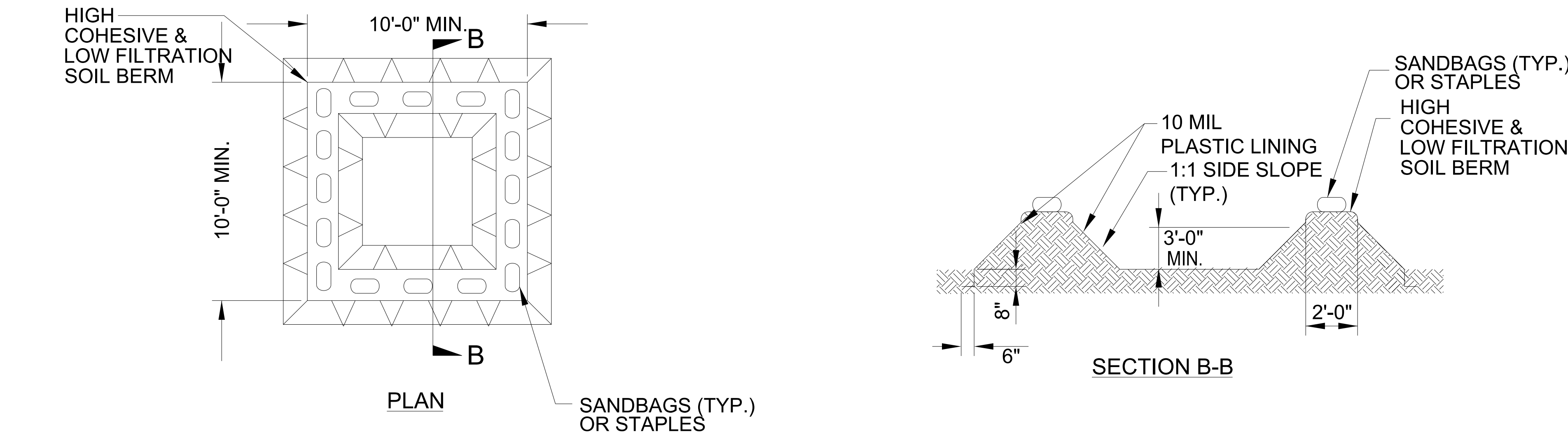
ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER

PROJECT REFERENCE NO.	SHEET NO.
HL-00080	EC-2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE
NOT TO SCALE



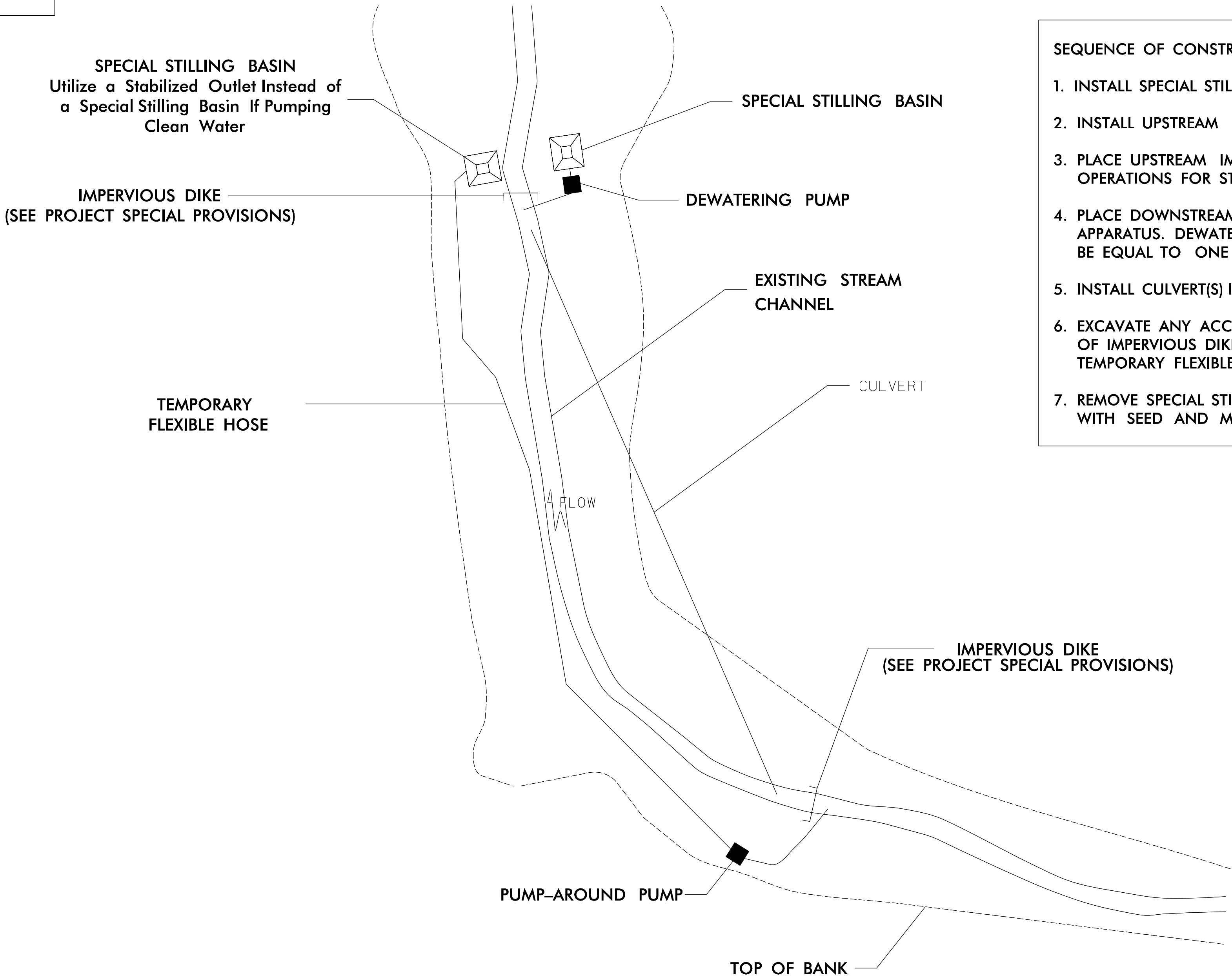
- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

EXAMPLE OF PUMP-AROUND OPERATION

PROJECT REFERENCE NO.		SHEET NO.	
HL-00080		EC-2C	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
TGS ENGINEERS TGS ENGINEERS 706 HILLSBOROUGH STREET SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275			

- NOTES:
- 1) All excavation shall be performed in only dry or isolated areas of the work zone.
 - 2) Impervious dikes are to be used to isolate work from stream flow when necessary.
 - 3) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
 - 4) Pumps and hoses shall be of sufficient size to dewater the work area.



- SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA
1. INSTALL SPECIAL STILLING BASIN(S).
 2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
 3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
 4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
 5. INSTALL CULVERT(S) IN ACCORDANCE WITH THE PLANS.
 6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
 7. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10’ OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 TO 4:1	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50’ IN LENGTH WITH SLOPES STEEPER THAN 4:1. 7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND HQW ZONES.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND HQW ZONES.

MATTING FOR EROSION CONTROL

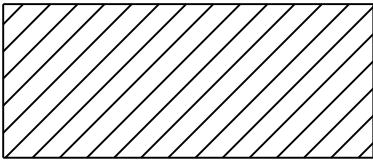
CONST SHEET NO.	LINE & TYPE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L- DITCH	14 + 78	16 + 50	LT	125
4	-L- DITCH	21 + 00	22 + 50	LT	105
4	-L- DITCH	19 + 50	25 + 00	RT	385
4	-L- SLOPE	17 + 50	18 + 50	LT	205
4	-L- SLOPE	17 + 00	18 + 35	RT	370
SUBTOTAL					1,190
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					1,200
TOTAL					2,390
SAY					2,400

Wake County
NC 42 /SR 2735 (Johnston Rd.)

PROJECT REFERENCE NO. HL-00080		SHEET NO. EC-4/CONST.4	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER			

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.



ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

MATTING WITH NYLON MESH CANNOT BE
USED ON THE STREAM BANKS OR WITHIN
25 FT OF THE TOP OF THE STREAM BANK

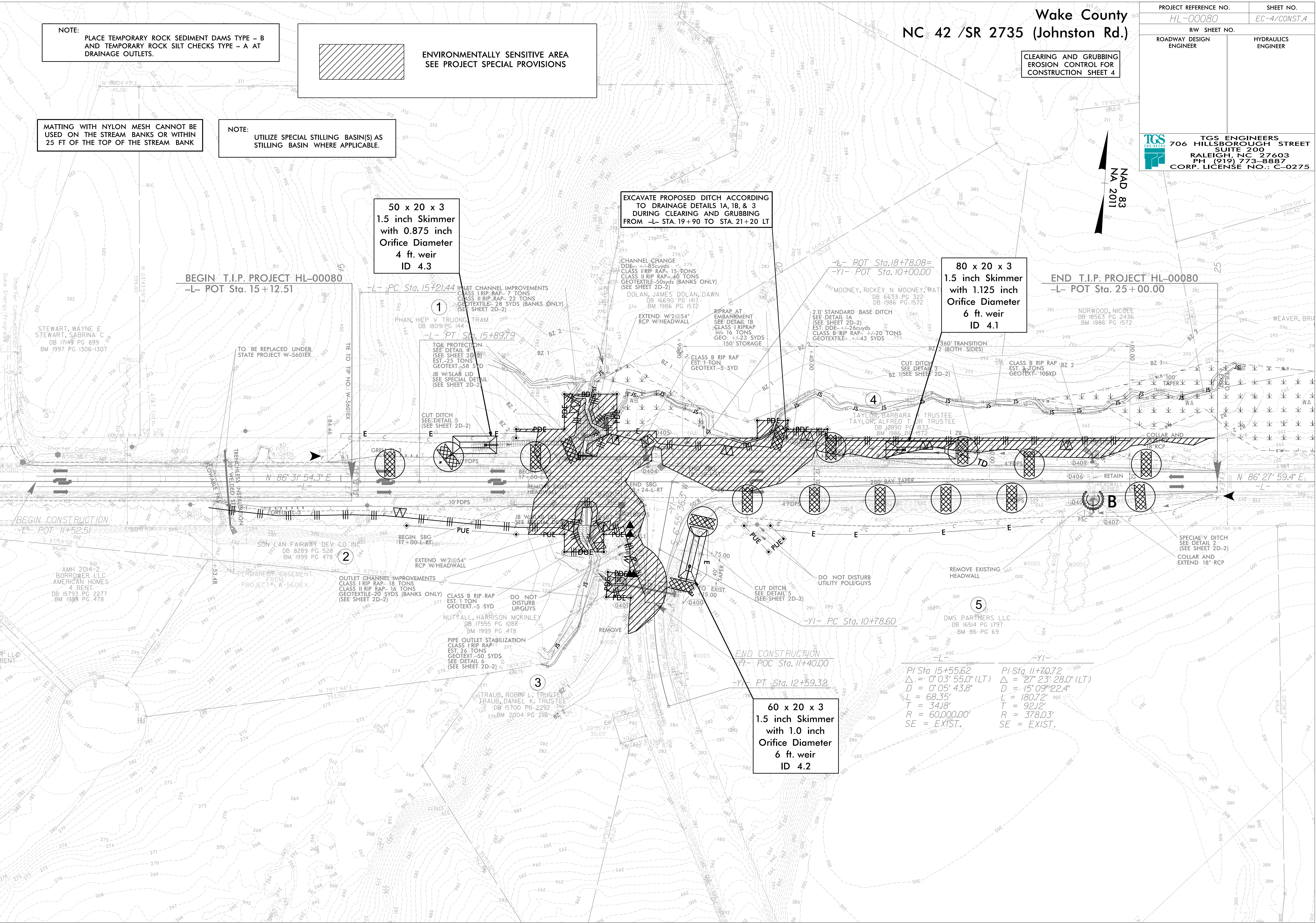
NOTE:
UTILIZE SPECIAL STILLING BASIN(S) AS
STILLING BASIN WHERE APPLICABLE.

50 x 20 x 3
1.5 inch Skimmer
with 0.875 inch
Orifice Diameter
4 ft. weir
ID 4.3

EXCAVATE PROPOSED DITCH ACCORDING
TO DRAINAGE DETAILS 1A, 1B, & 3
DURING CLEARING AND GRUBBING
FROM -L- STA. 19+90 TO STA. 21+20 LT

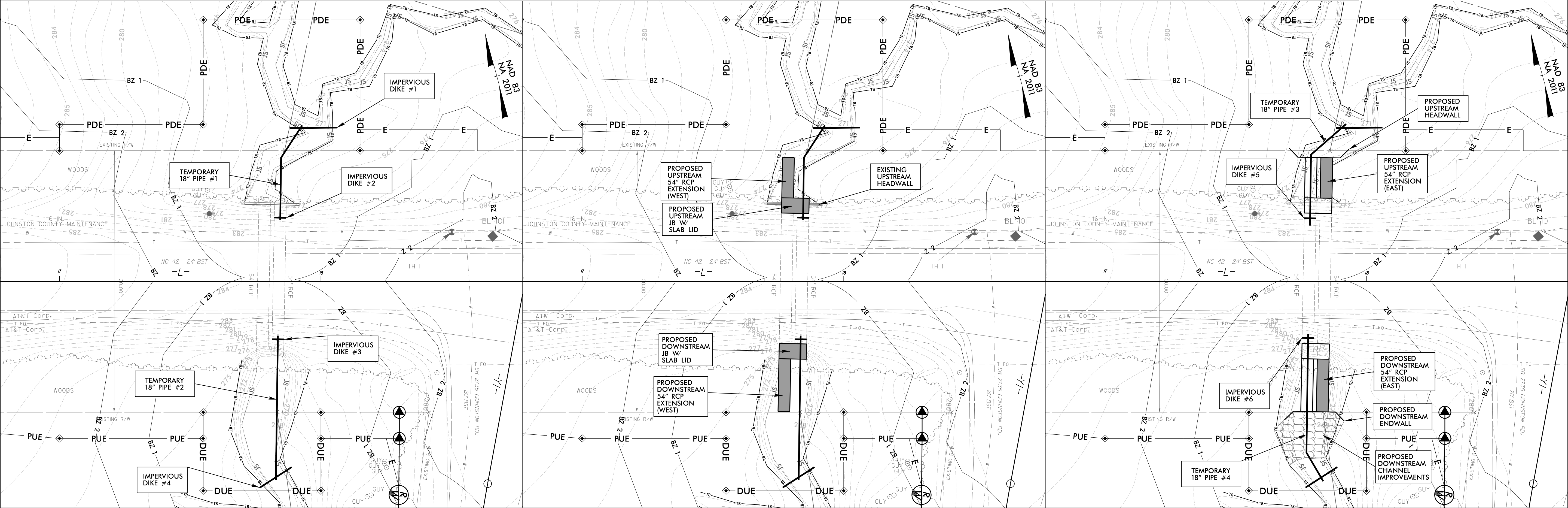
80 x 20 x 3
1.5 inch Skimmer
with 1.125 inch
Orifice Diameter
6 ft. weir
ID 4.1

60 x 20 x 3
1.5 inch Skimmer
with 1.0 inch
Orifice Diameter
6 ft. weir
ID 4.2



HL-00080 2 @ 54" RCP EXTENSION – PHASING –L– 17+81
WAKE COUNTY
1" = 20'

PROJECT REFERENCE NO.	SHEET NO.
HL-00080	EC-4A/CONST.4
RW SHEET NO.	
TGS ENGINEERS 706 HILLSBOROUGH STREET SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	



PHASE 1

1. INSTALL IMPERVIOUS DIKES #1 ,#2, #3, & #4, TEMPORARY 18" PIPES #1 & #2, AND SPECIAL STILLING BASIN(S).
2. DEWATER CONSTRUCTION AREAS INTO SPECIAL STILLING BASIN(S) AS REQUIRED.

PHASE 2

1. REMOVE EXISTING UPSTREAM HEADWALL.
2. CONSTRUCT PROPOSED UPSTREAM JB W/SLAB LID & PROPOSED UPSTREAM 54" RCP EXTENSION (WEST). UTILIZE PUMP-AROUND OPERATION AS REQUIRED FOR INSTALLATION OF JUNCTION BOX.
3. CONSTRUCT PROPOSED DOWNSTREAM JB W/SLAB LID & PROPOSED DOWNSTREAM 54" RCP EXTENSION (WEST). UTILIZE PUMP-AROUND OPERATION AS REQUIRED FOR INSTALLATION OF JUNCTION BOX.
4. DEWATER CONSTRUCTION AREAS INTO SPECIAL STILLING BASIN(S) AS REQUIRED.

PHASE 3

1. REMOVE IMPERVIOUS DIKES #2 & #3 AND TEMPORARY 18" PIPES #1 & #2.
2. INSTALL IMPERVIOUS DIKES #5 & #6 AND TEMPORARY 18" PIPES #3 & #4. DEWATER CONSTRUCTION AREA INTO SPECIAL STILLING BASIN(S) AS REQUIRED.
3. CONSTRUCT PROPOSED UPSTREAM 54" RCP EXTENSION (EAST) & PROPOSED UPSTREAM HEADWALL. UTILIZE PUMP-AROUND OPERATION AS REQUIRED FOR INSTALLATION OF HEADWALL.
4. CONSTRUCT PROPOSED DOWNSTREAM 54" RCP EXTENSION (EAST), PROPOSED DOWNSTREAM ENDWALL, AND PROPOSED DOWNSTREAM CHANNEL IMPROVEMENTS. UTILIZE PUMP-AROUND OPERATION AS REQUIRED FOR INSTALLATION OF ENDWALL AND DOWNSTREAM CHANNEL IMPROVEMENTS.
5. DEWATER CONSTRUCTION AREAS INTO SPECIAL STILLING BASIN(S) AS REQUIRED.

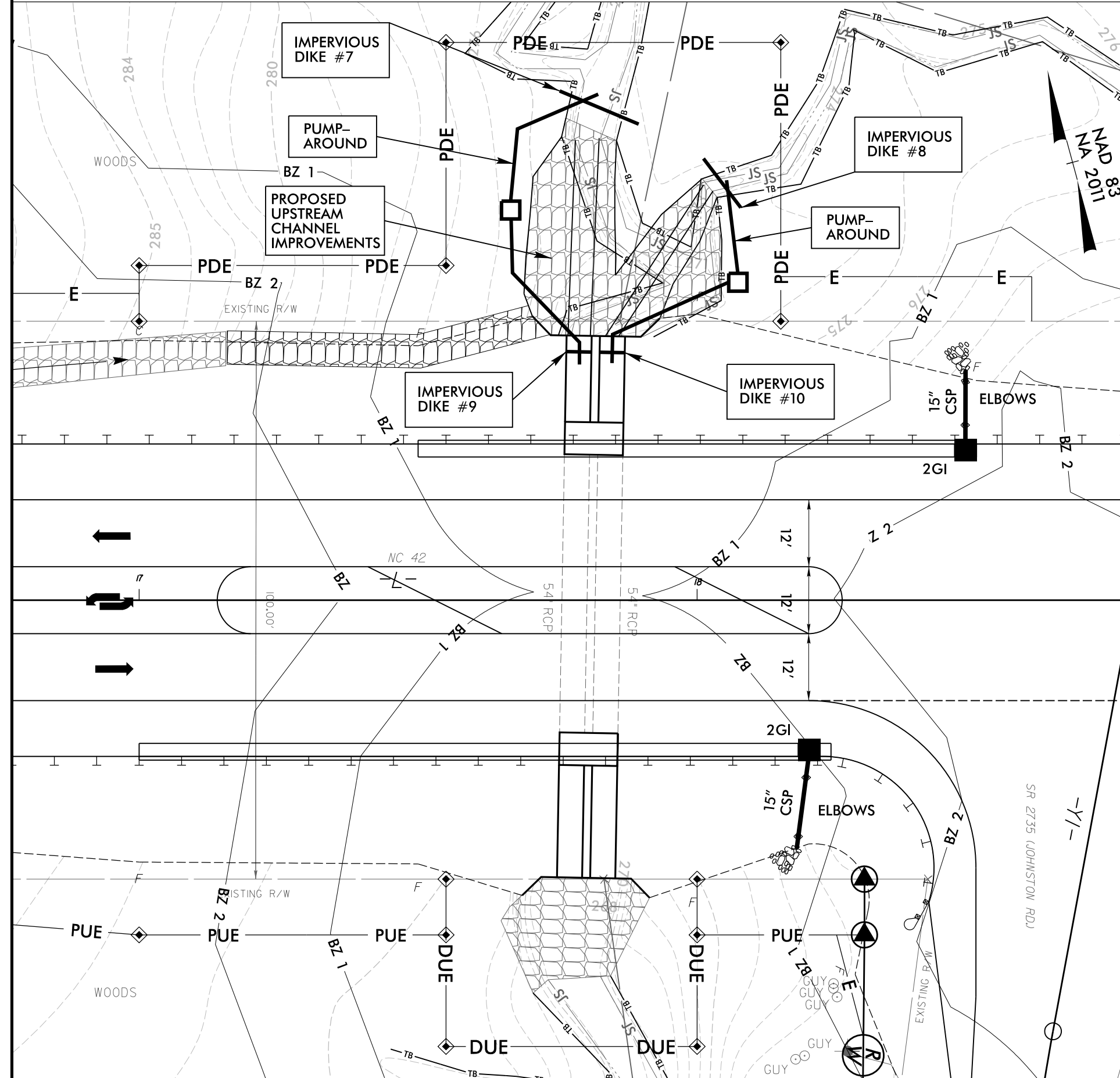
8/17/99

HL-00080 2 @ 54" RCP EXTENSION – PHASING –L– 17 + 81

WAKE COUNTY

1" = 20'

PROJECT REFERENCE NO.	SHEET NO.
HL-00080	EC-4B/CONST.4
RW SHEET NO.	
 TGS ENGINEERS 706 HILLSBOROUGH STREET SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	



PHASE 4

1. INSTALL IMPERVIOUS DIKES #7 & #8. REMOVE IMPERVIOUS DIKES #1, #4, #5, & #6 AND TEMPORARY 18" PIPES #3 & #4.
2. INSTALL IMPERVIOUS DIKES #9 & #10. UTILIZE PUMP-AROUND OPERATION AS REQUIRED.
3. DEWATER CONSTRUCTION AREAS INTO SPECIAL STILLING BASIN(S) AS REQUIRED.
4. CONSTRUCT PROPOSED UPSTREAM CHANNEL IMPROVEMENTS.
5. REMOVE IMPERVIOUS DIKES #7, #8, #9, & #10, TEMPORARY PUMP-AROUNDS, AND SPECIAL STILLING BASIN(S).
6. CONSTRUCT PROPOSED ROADWAY AND DRAINAGE IMPROVEMENTS.

Wake County
NC 42 /SR 2735 (Johnston Rd.)

PROJECT REFERENCE NO.
HL-00080

SHEET NO.
EC-5/CONST.4

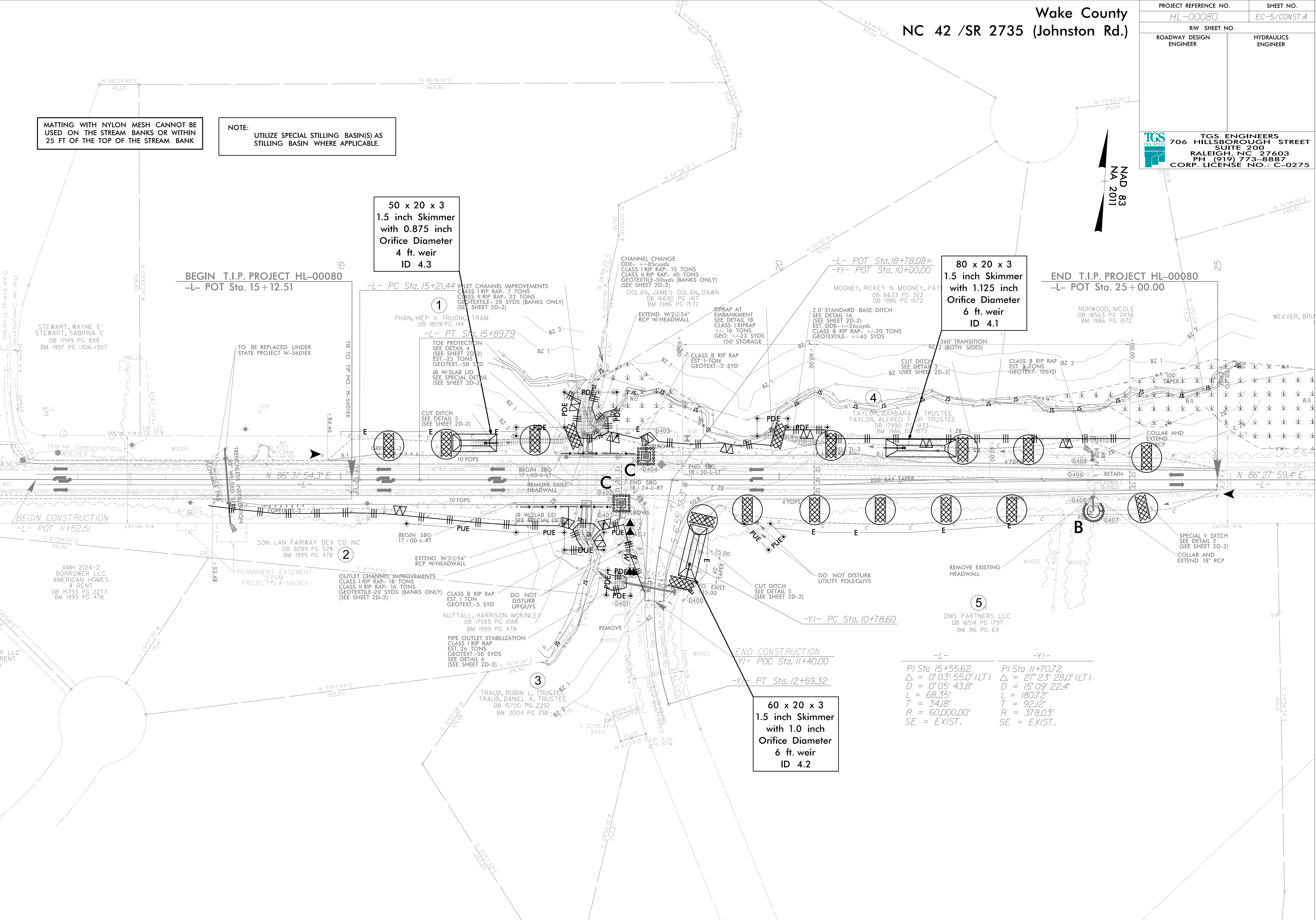
RW SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

TGS ENGINEERS

706 HILLSBOROUGH STREET SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



MATting WITH NYLON MESH CANNOT BE USED ON THE STREAM BANKS OR WITHIN 25 FT OF THE TOP OF THE STREAM BANK

NOTE: UTILIZE SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

50 x 20 x 3
1.5 inch Skimmer
with 0.875 inch
Orifice Diameter
4 ft. weir
ID 4.3

80 x 20 x 3
1.5 inch Skimmer
with 1.125 inch
Orifice Diameter
6 ft. weir
ID 4.1

60 x 20 x 3
1.5 inch Skimmer
with 1.0 inch
Orifice Diameter
6 ft. weir
ID 4.2

-L-	-YI-
PI Sta 15+55.62	PI Sta 11+70.72
$\Delta = 0^{\circ} 03' 55.0''$ (LT)	$\Delta = 27^{\circ} 23' 28.0''$ (LT)
$D = 0^{\circ} 05' 43.8''$	$D = 15^{\circ} 09' 22.4''$
$L = 68.35'$	$L = 180.72'$
$T = 34.18'$	$T = 92.12'$
$R = 60,000.00'$	$R = 378.03'$
SE = EXIST.	SE = EXIST.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HL-00080	RF-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

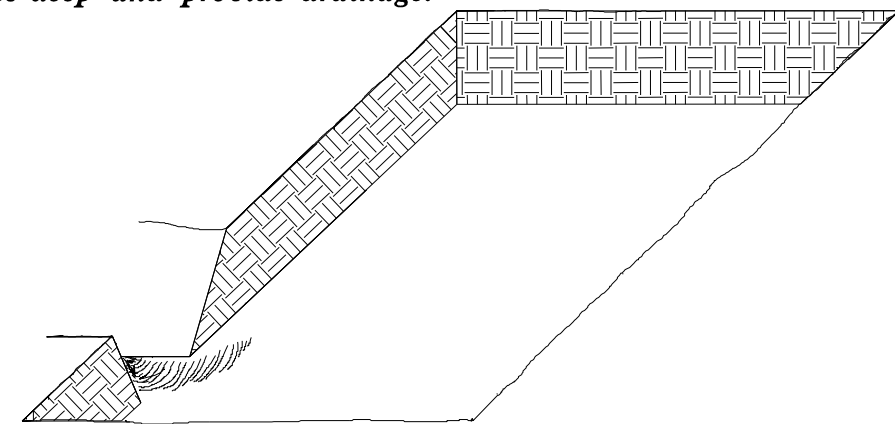
TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH: (919) 773-8887
CORP. LICENSE NO.: C-0275

PLANTING DETAILS

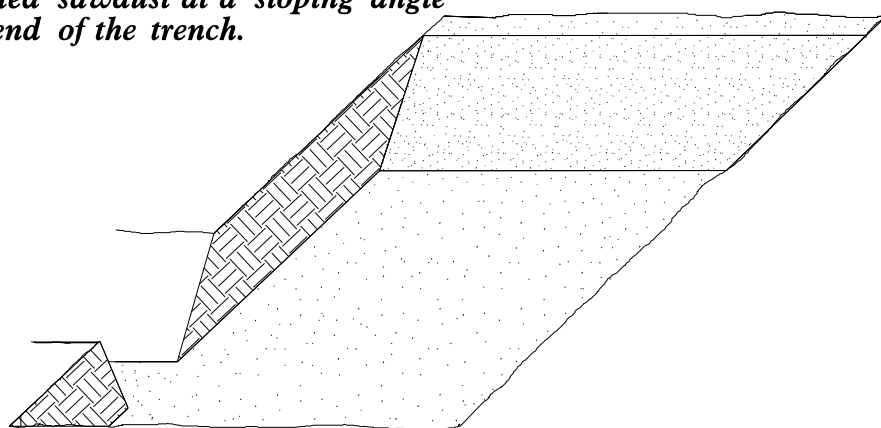
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

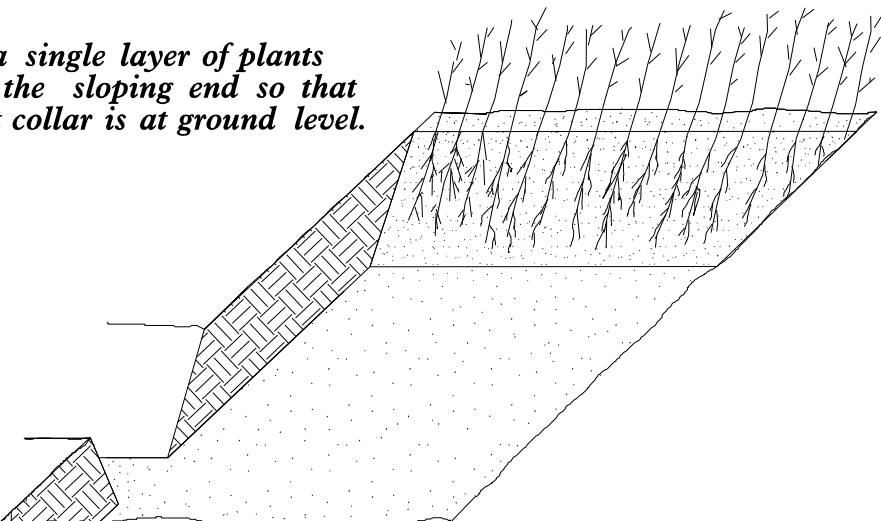
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



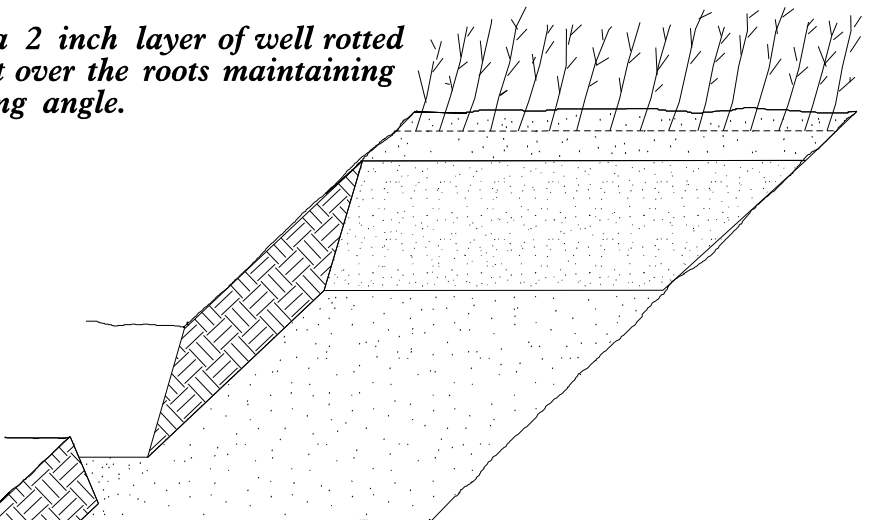
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

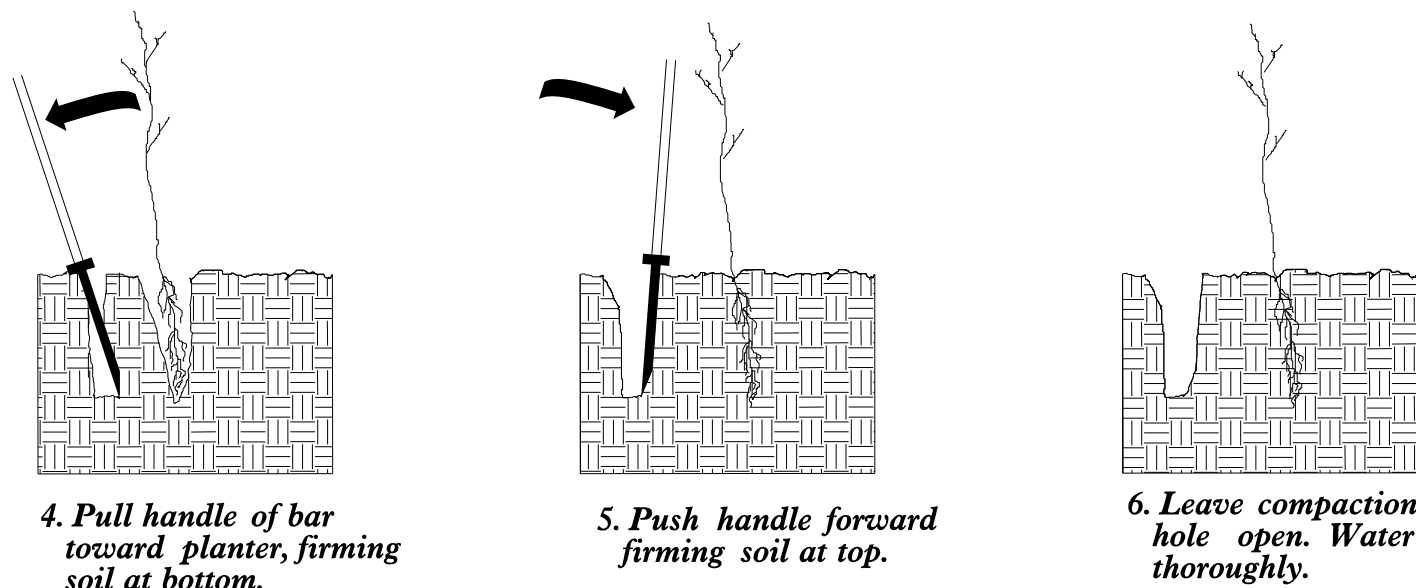
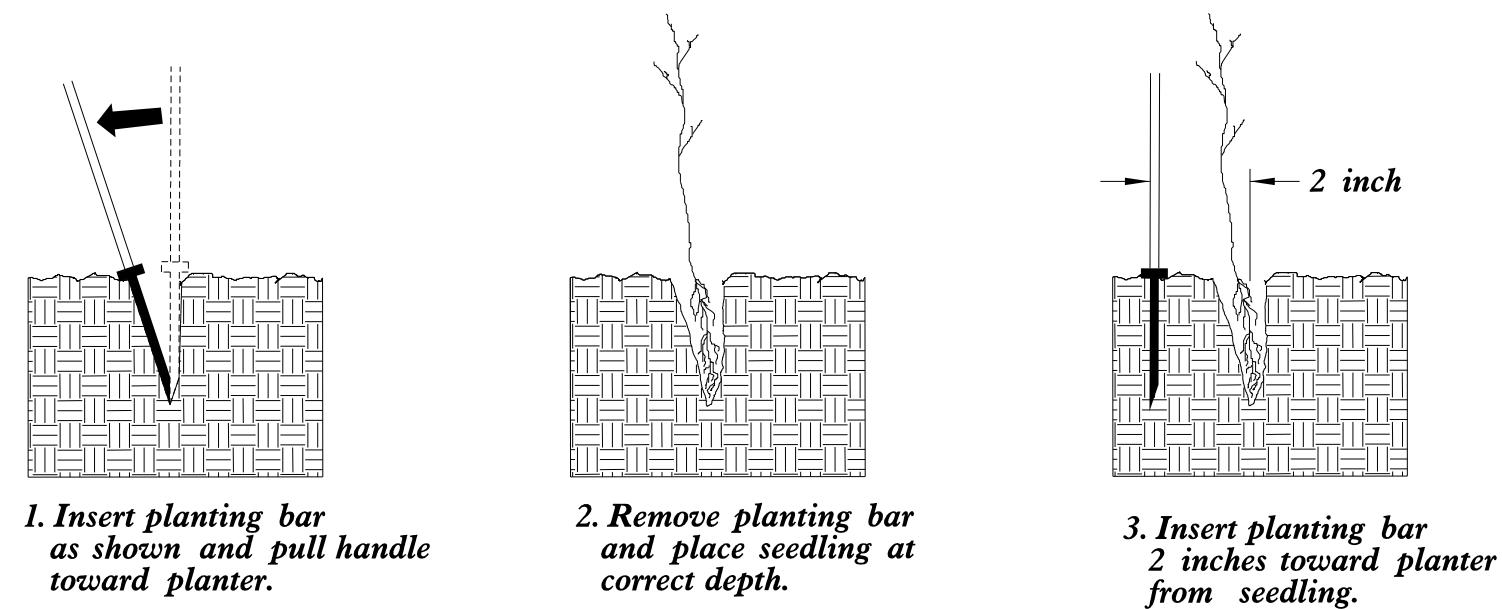


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.



6. Repeat layers of plants and sawdust as necessary and water thoroughly.

DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR

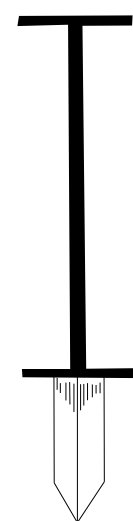


PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

- ☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

33%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
33%	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in - 18 in BR
33%	BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

T.I.P.: HL-00080

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SIGNING PLAN
WAKE COUNTY

LOCATION: NC 42 AT SR 2735 (JOHNSTON ROAD)

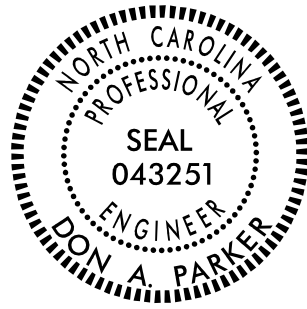
TIP NO.
HL - 00080

SHEET NO.
SIGN - 1

APPROVED:

Signed by:
Don A. Parker
TS00000000DEF440
12/18/2024

DATE:

SEAL


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

GENERAL NOTES

- SIGNS FURNISHED BY STATE
- CONFIRM IN WRITING AT LEAST 4 MONTHS IN ADVANCE, THE ACTUAL DATE THE DEPARTMENT FURNISHED SIGNS WILL BE REQUIRED.
- IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.
- WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER
- ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

SUMMARY OF QUANTITIES

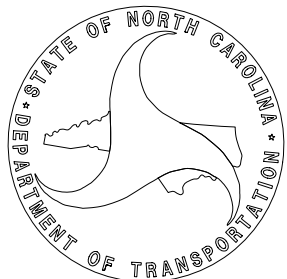
ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	68.5	L.F.
4102000000	904	SIGN ERECTION, TYPE E	5	EA.
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	4	EA.

INDEX

SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET
SIGN-2	E SHEETS
SIGN-3	SIGN DETAIL SHEETS

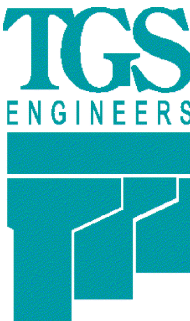
PLAN SUBMITTED TO: NCDOT

MATTHEW NOLFO, P.E. DIVISION DESIGN ENGINEER



PLAN PREPARED BY: TGS ENGINEERS

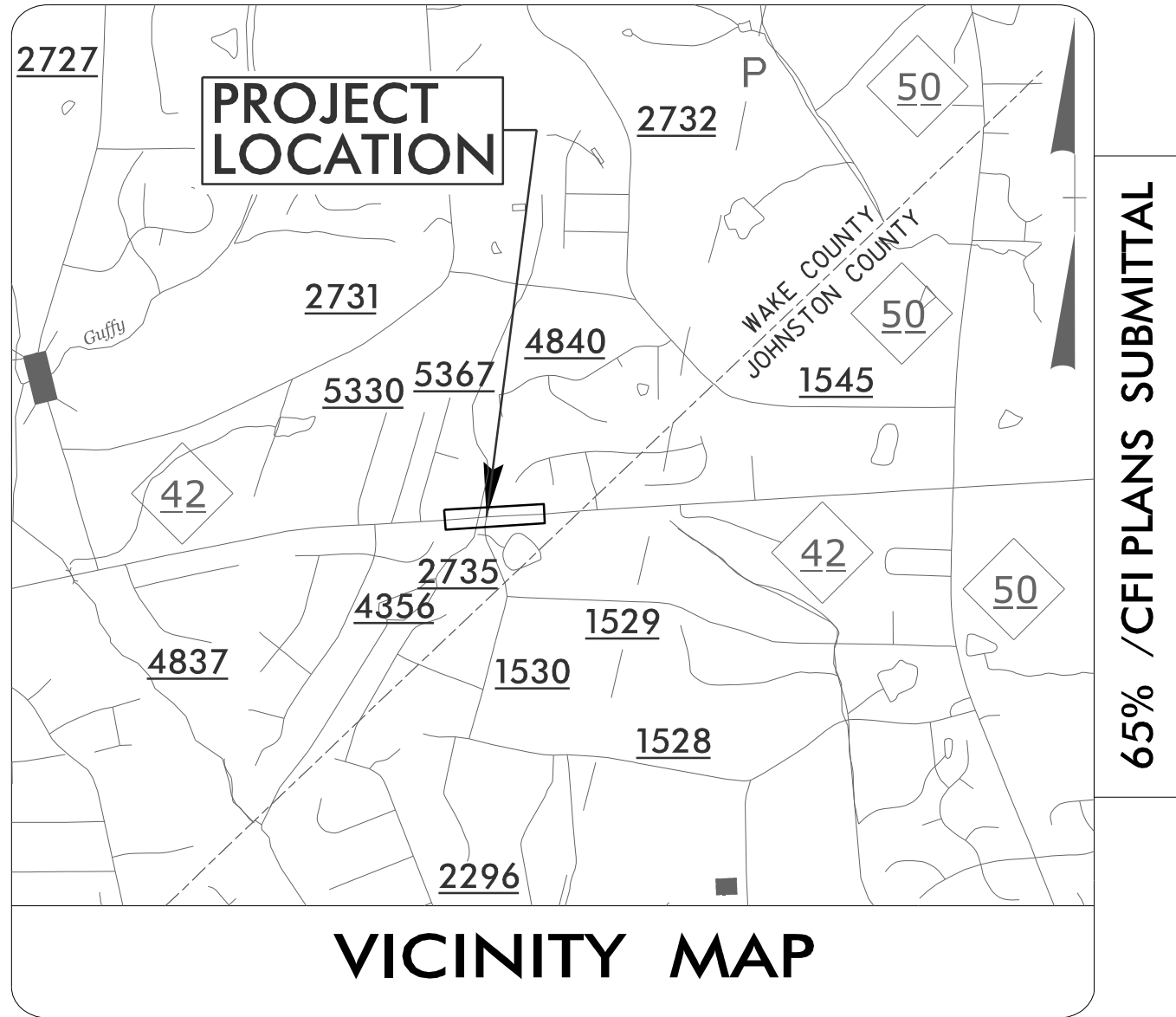
DON A. PARKER, P.E. PROJECT ENGINEER
CODA BRANNAN, E.I. DESIGN ENGINEER



TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

I:\DEC-2024_10+02
S:\Server_Files\PROJECTS\2021\A20210101_00_TGS_HL-00080\Design\Utilities\Engineering\UC\ProJ\HL-00080_Ut_tsh_UC_Lpsh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

TIP PROJECT: HL-00080



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
WAKE COUNTY

LOCATION: NC 42 AT SR 2735 (JOHNSTON ROAD).
CONSTRUCT LEFT TURN LANE.

TYPE OF WORK: WATER LINE RELOCATION

T.I.P. NO. HL-00080
SHEET NO. UC-1

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

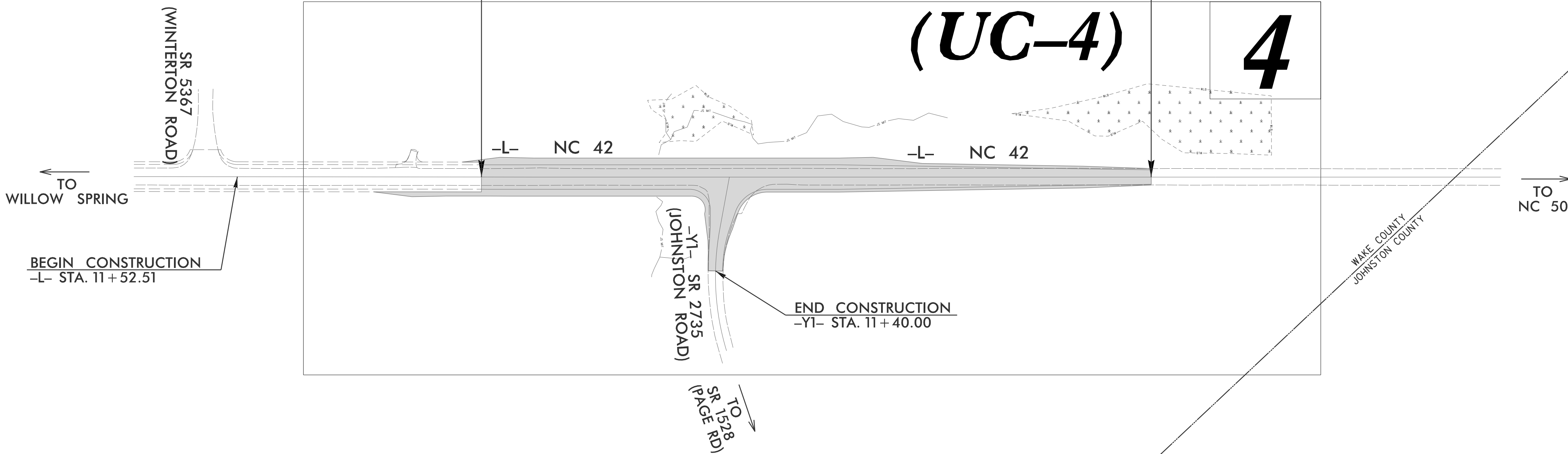


BEGIN TIP PROJECT HL-00080

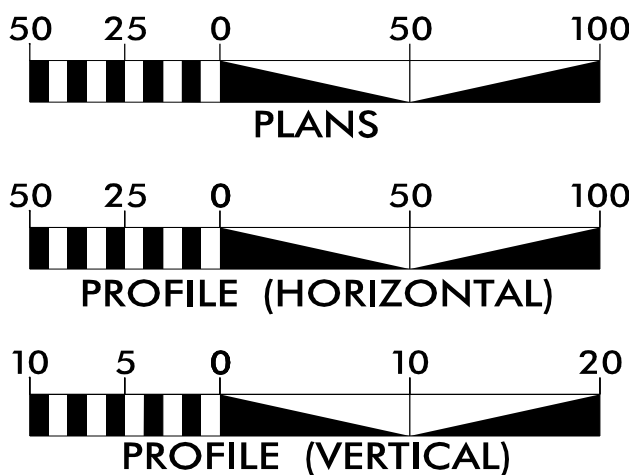
-L- STA. 15+12.51
(TIE TO TIP NO.: W-5601EX)

END TIP PROJECT HL-00080

-L- STA. 25+00.00



GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A	DETAILS
UC-4	UTILITY CONSTRUCTION PLAN & PROFILE

WATER OWNER
ON PROJECT

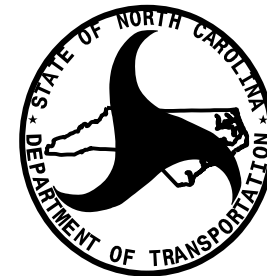
(A) JOHNSTON COUNTY

PREPARED IN THE OFFICE OF:



CLINT L. STEVENS, P.E. UTILITIES PROJECT MANAGER
JORDAN K. CHAPMAN, E.I. UTILITIES PROJECT ENGINEER
JAMES N. ARNOLD UTILITIES PROJECT DESIGNER

SEAL

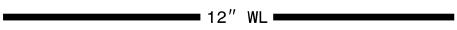


DIVISION OF HIGHWAYS
DIVISION 5
2612 N. DUKE STREET
DURHAM NC 27704
PHONE (919) 317-4700
FAX (919) 317-4710

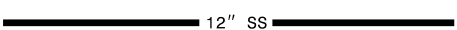
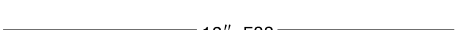
BEN UPSHAW, P.E. TEAM LEAD
MATTHEW NOLFO, P.E. PROJECT MANAGER
DONALD PROPER DIVISION UTILITY ENGINEER
JAMES SWINSON UTILITY ENGINEER

UTILITIES PLAN SHEET SYMBOLS

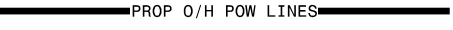
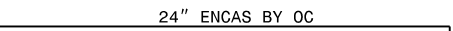
PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11¼ Degree Bend	
22½ Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	
Water Meter	
Relocate Water Meter	
Remove Water Meter	
Water Pump Station	
RPZ Backflow Preventer	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	

PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement by Open Cut	
Encasement	

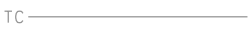
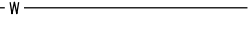
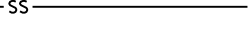
Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

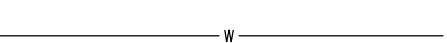
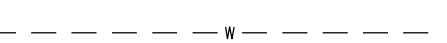
NOTE

PAY ITEM

EXISTING UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Utility Pole	
Utility Pole with Base	
H-Frame Pole	
Power Transmission Line Tower	
Water Manhole	
Power Manhole	
Telephone Manhole	
Sanitary Sewer Manhole	
Hand Hole for Cable	
Power Transformer	
Telephone Pedestal	
CATV Pedestal	
Gas Valve	
Gas Meter	
Located Miscellaneous Utility Object	
Abandoned According to Utility Records	
End of Information	

*Underground Power Line	
*Underground Telephone Cable	
*Underground Telephone Conduit	
*Underground Fiber Optics Telephone Cable	
*Underground TV Cable	
*Underground Fiber Optics TV Cable	
*Underground Gas Pipeline	
Aboveground Gas Pipeline	
*Underground Water Line	
Aboveground Water Line	
*Underground Gravity Sanitary Sewer Line	
Aboveground Gravity Sanitary Sewer Line	
*Underground SS Forced Main Line	
Underground Unknown Utility Line	
SUE Test Hole	
Water Meter	
Water Valve	
Fire Hydrant	
Sanitary Sewer Cleanout	

*For Existing Utilities	
Utility Line Drawn from Record (Type as Shown)	
Designated Utility Line (Type as Shown)	

I:\DEC-2024_09\38% PROJECTS\2021\A20211201.00_TGS_HL-00080\Design\Utilities\Engineering\UC\Proj\HL-00080_Ut_notes_UC03_psh.dgn
12/11/2024 09:38
12/11/2024 09:38
12/11/2024 09:38

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2024.

2. THE EXISTING UTILITIES BELONG TO JOHNSTON COUNTY. THE CONTACT PERSON IS:

MICHAEL KEEN
UTILITY PROJECTS MANAGER
919-209-8333

IN THE EVENT OF A CONFLICT BETWEEN THE UTILITY OWNER'S TECHNICAL SPECIFICATIONS AND NCDOT STANDARD SPECIFICATIONS/PROJECT SPECIAL PROVISIONS, THE MOST STRINGENT SHALL GOVERN.

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.

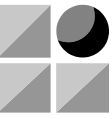
7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

10. ALL WATER LINE INSTALLED ON THIS PROJECT SHALL MEET THE REQUIREMENTS OF THE RULES GOVERNING PUBLIC WATER SYSTEMS. VERTICAL SEPARATION BETWEEN PROPOSED WATER MAINS AND STORM DRAINAGE SHALL BE A MINIMUM OF 24-INCHES PER RECOMMENDED STANDARDS OF WATER WORKS. ALL PROPOSED WATER LINE SHALL HAVE A MINIMUM COVER OF 36-INCHES. PROPOSED WATER MAINS SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF 10-FEET FROM SEWER MAINS (REF. RULE .0904, RULE.0906). UTILITIES BEING RELOCATED OR INSTALLED AS SHOWN ON THE UTILITY CONSTRUCTION PLANS MUST BE ADJUSTED ACCORDINGLY TO MEET THESE CRITERIA.

UTILITY CONSTRUCTION



HINDE
ENGINEERING
License No. C-2639
401 Harrison Oaks Blvd., Suite 220 Cary, NC 27513

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

PROJECT REFERENCE NO.		SHEET NO.
HL - 00080		UC - 3
DESIGNED BY: JKC		
DRAWN BY: JNA		
CHECKED BY: JKC		
APPROVED BY: CLS		
REVISED:		
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		UTILITY CONSTRUCTION PLANS ONLY
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		

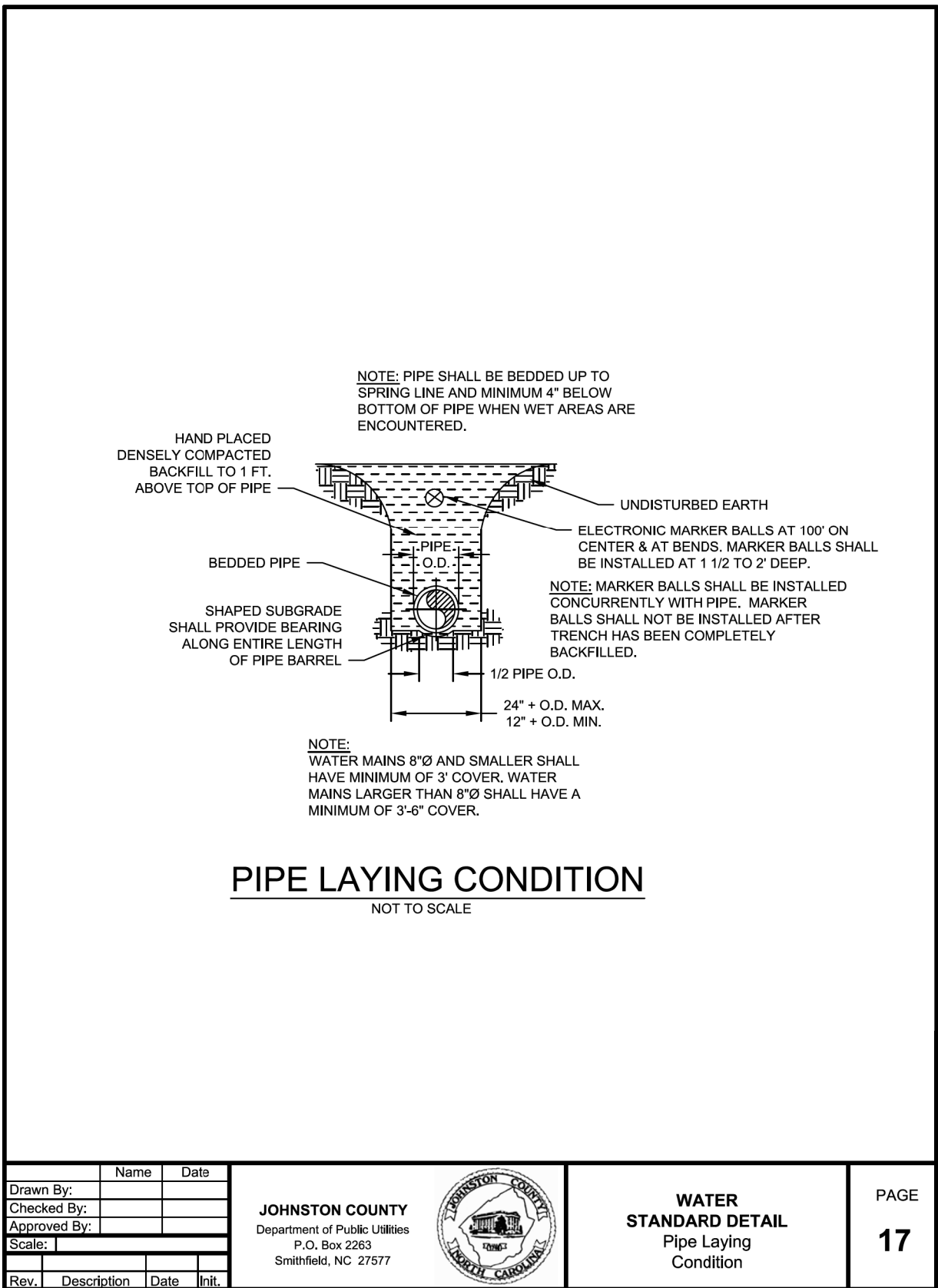
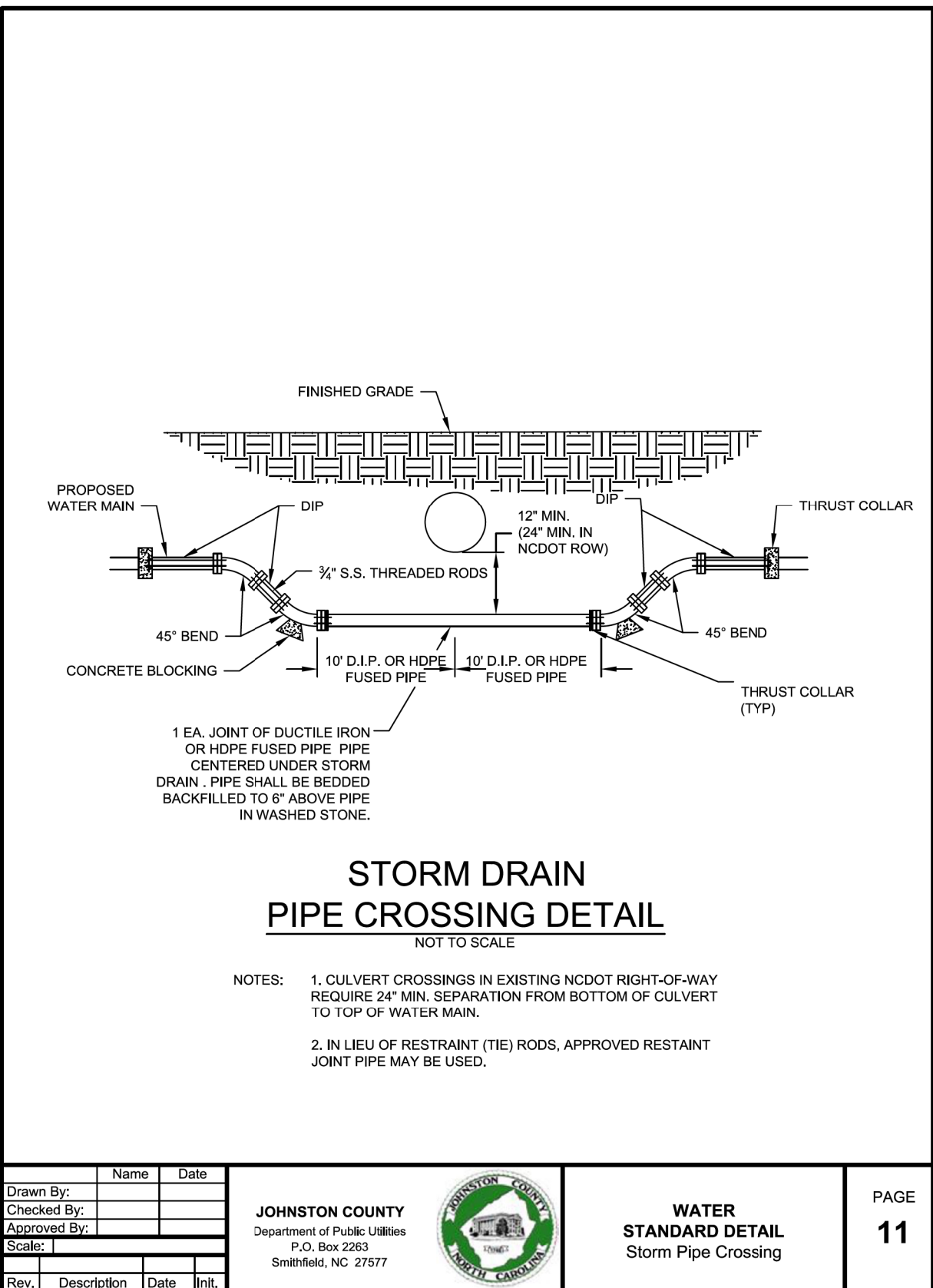
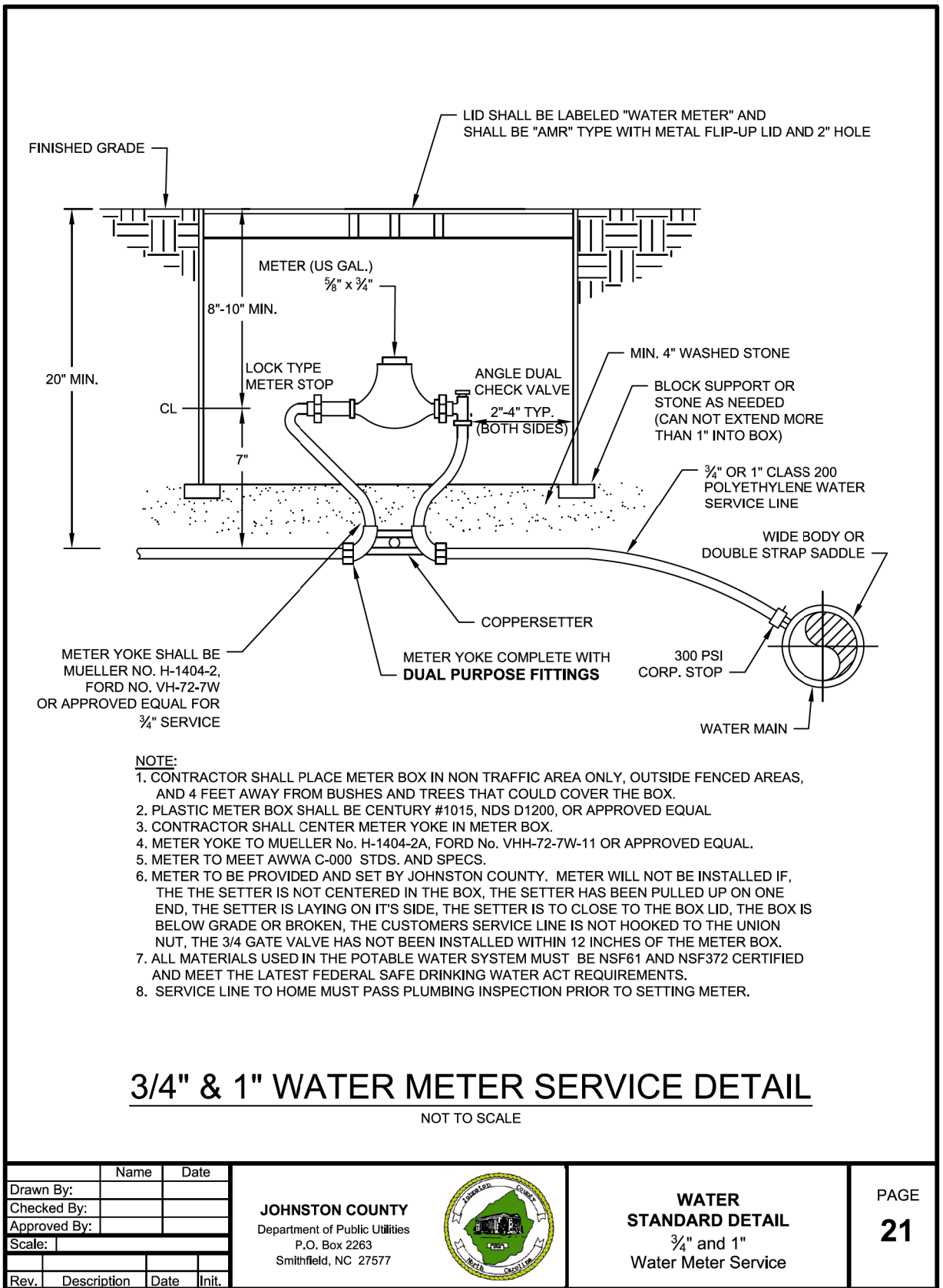
STANDARD WATER DETAILS



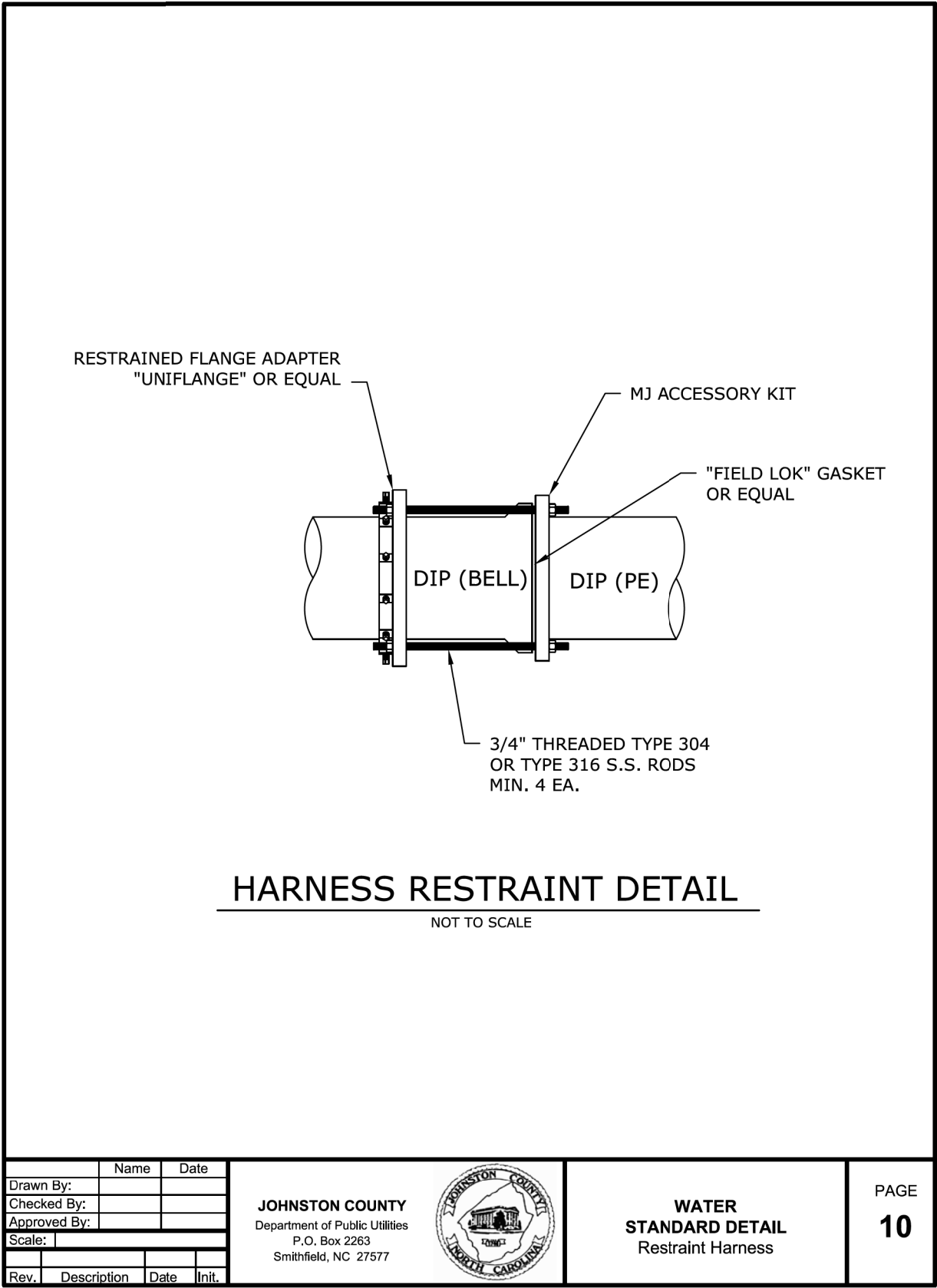
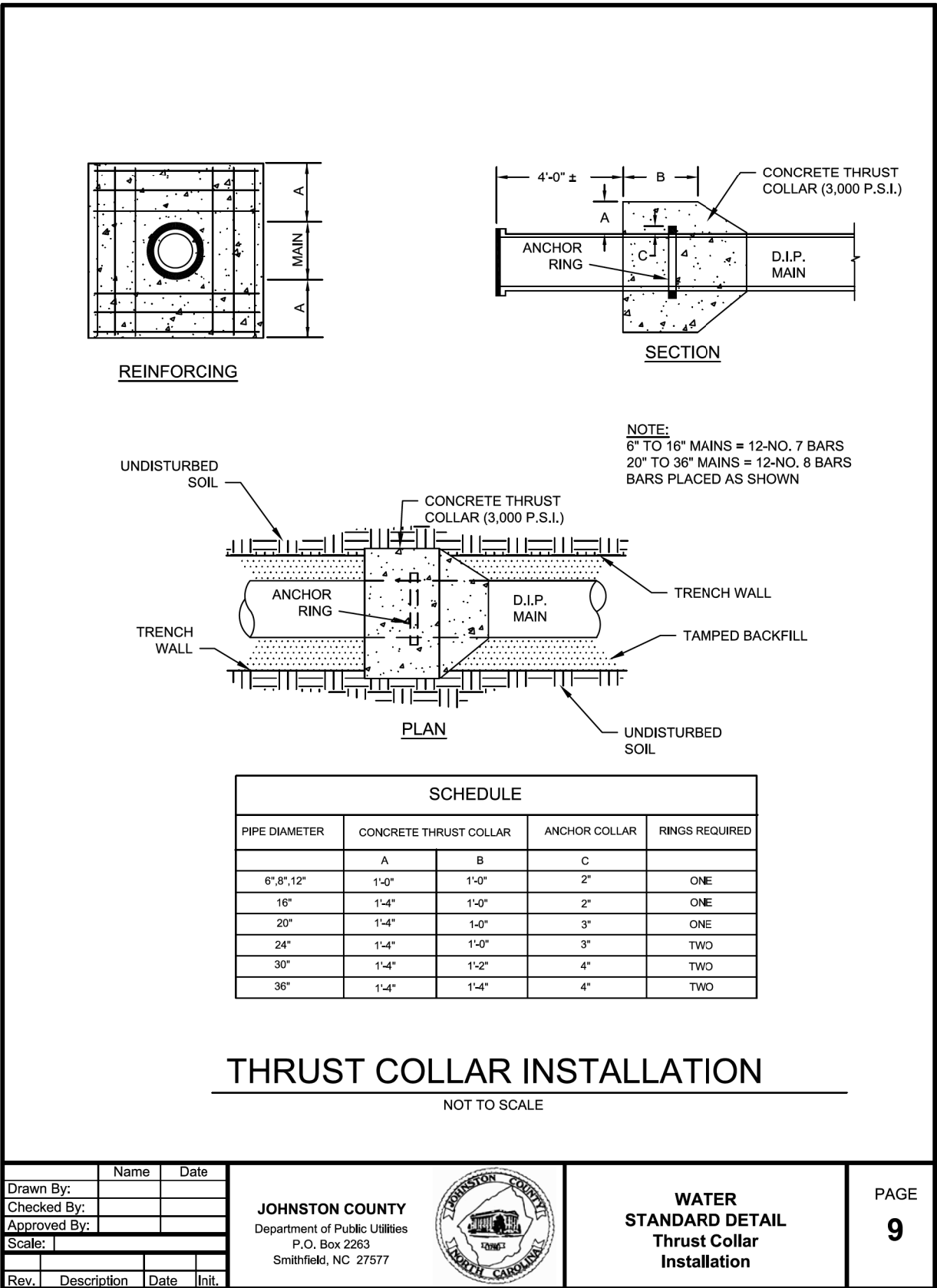
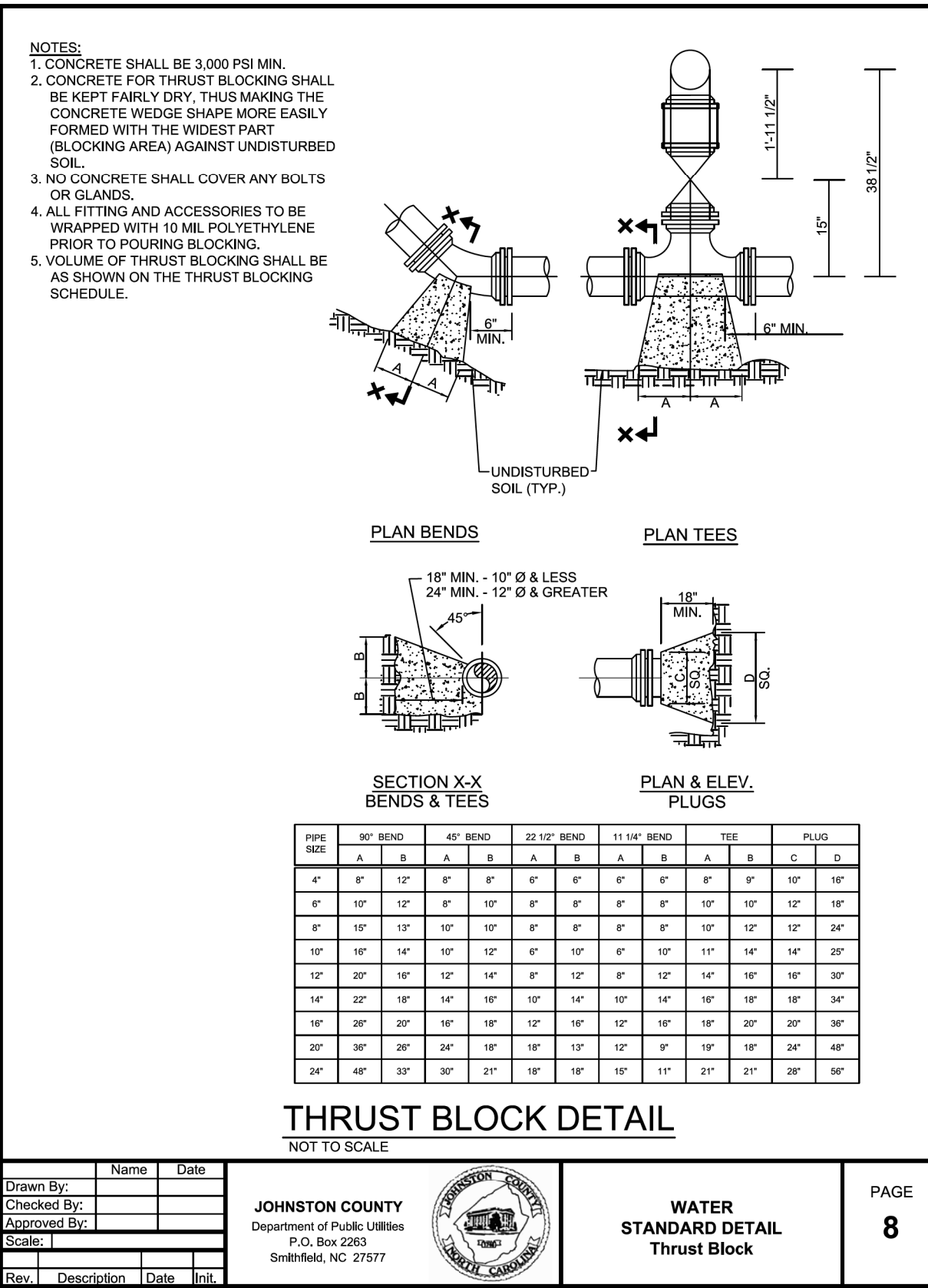
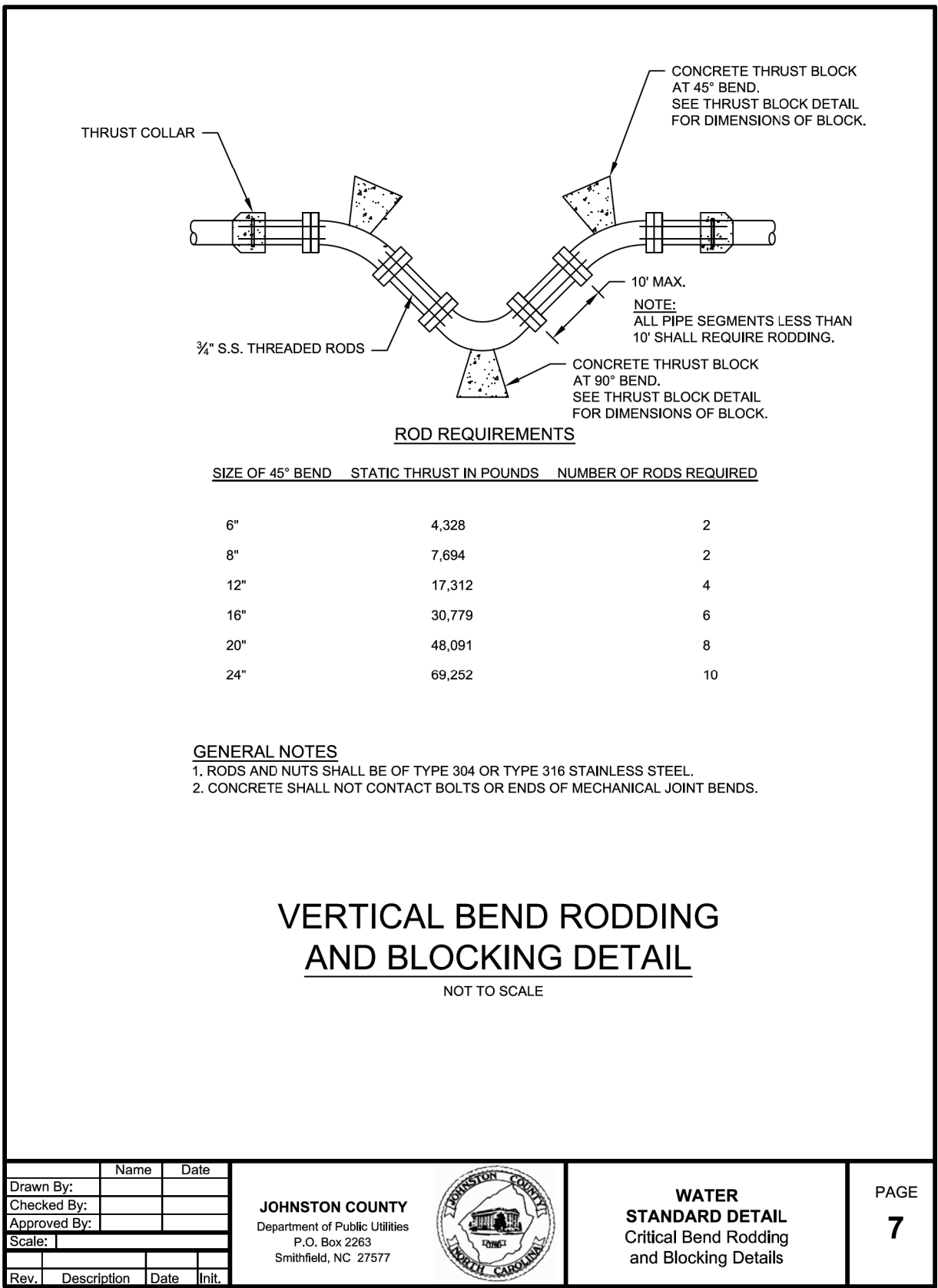
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.		SHEET NO.
HL-00080		UC-3A
DESIGNED BY: JKC		
DRAWN BY: JNA		
CHECKED BY: JKC		
APPROVED BY: CLS		
REVISED:		
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		UTILITY CONSTRUCTION PLANS ONLY
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		

UTILITY CONSTRUCTION



MAXIMUM TRENCH WIDTH AT TOP OF PIPE			
NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)	NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28	20	44
6	30	24	48
8	32	30	54
10	34	36	60
12	36	42	66
14	38	48	72
16	40	54	78
18	42		

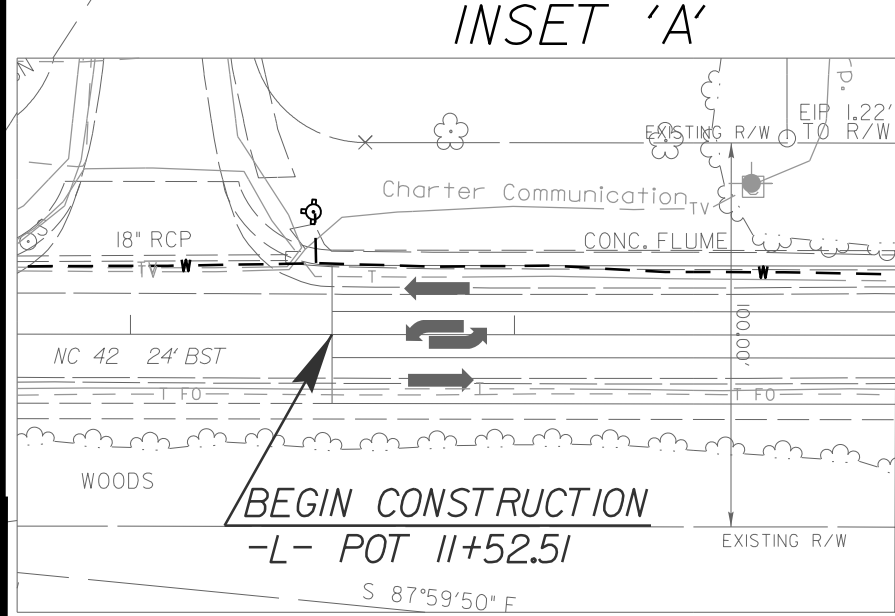
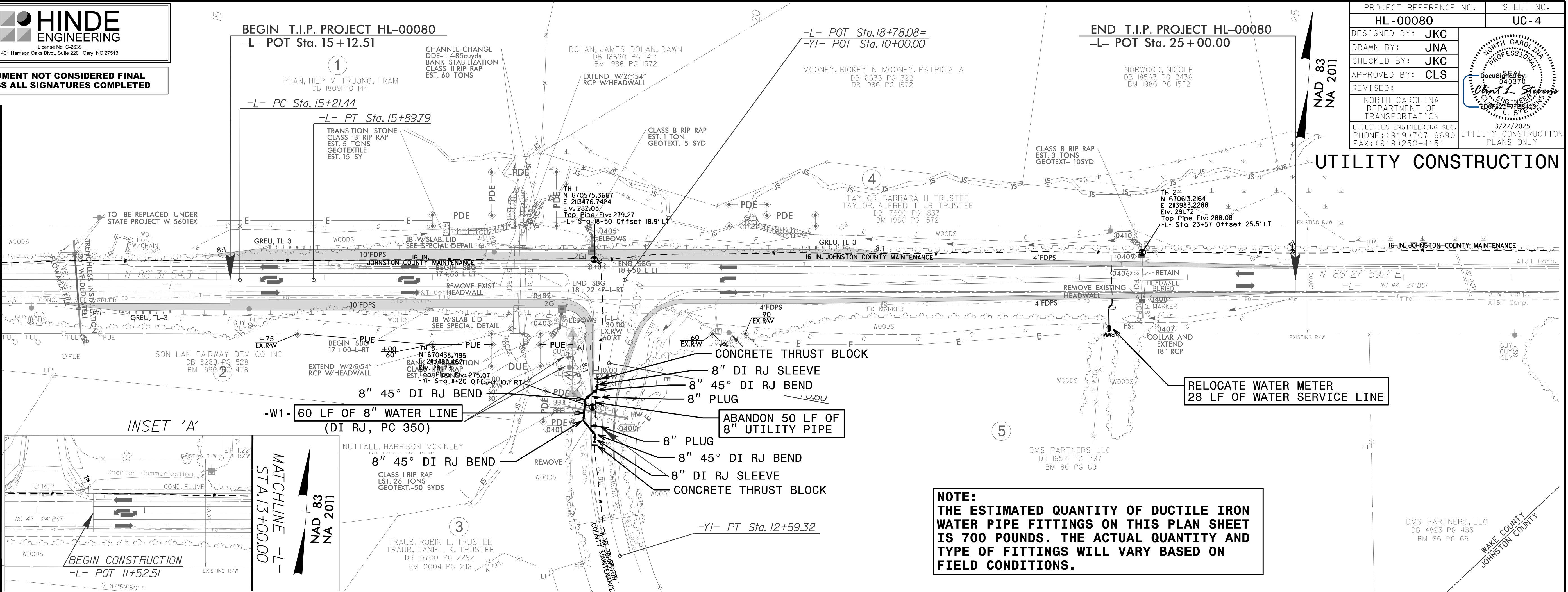


L:\DEC-2024_09\338\PROJECTS\2021\A20211201.00_TGS_HL-00080\Design\Utilities\Engineering\UC\ProJ\HL-00080_Ut_dtl_UC03A_psh.dgn
12/11/2024 09:38
C:\Users\jstevens\OneDrive\Documents\Projects\2021\A20211201.00_TGS_HL-00080\Design\Utilities\Engineering\UC\ProJ\HL-00080_Ut_dtl_UC03A_psh.dgn
12/11/2024 09:38



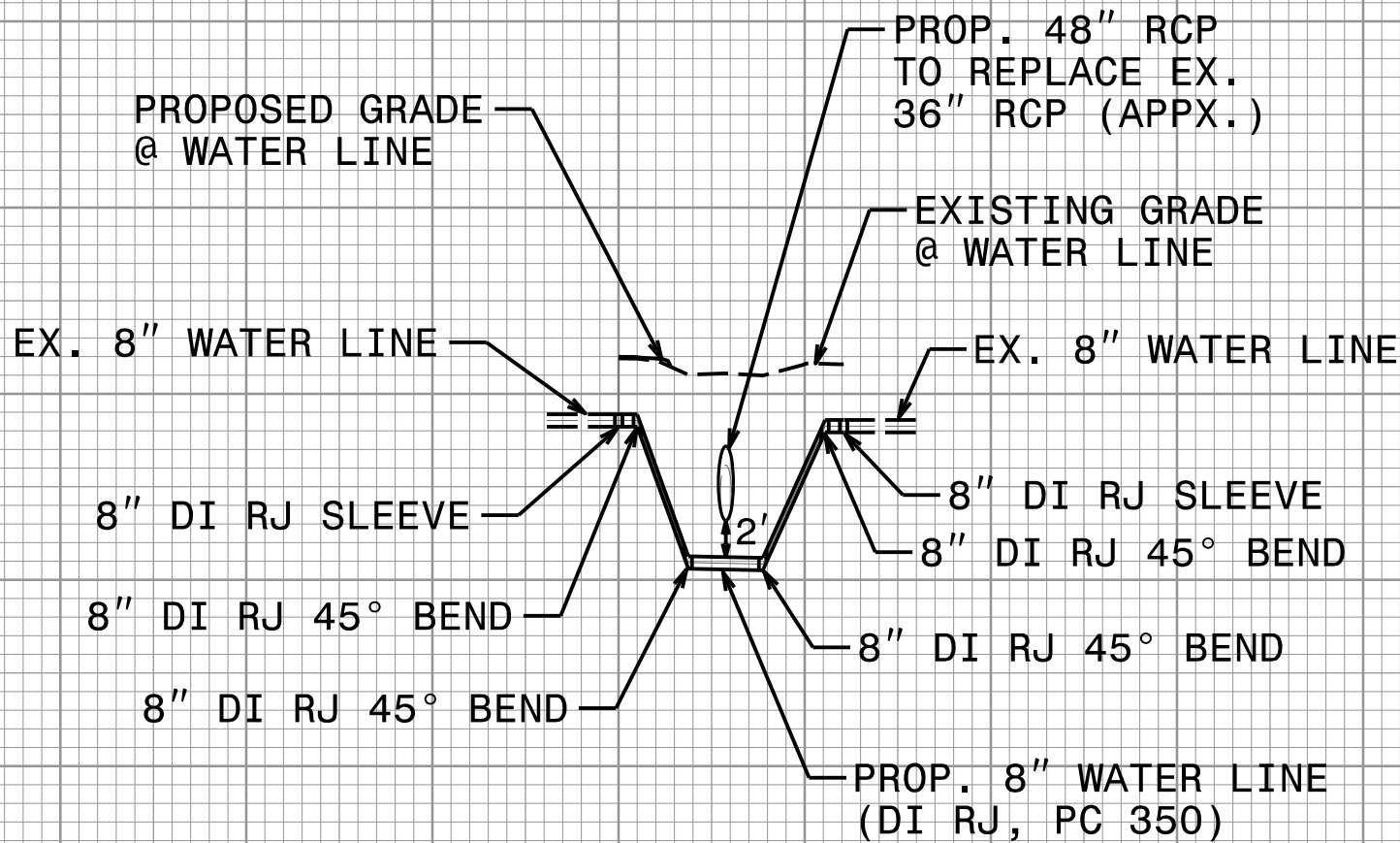
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -L- STA.13+00.00
SEE INSET 'A' THIS SHEET



NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON
WATER PIPE FITTINGS ON THIS PLAN SHEET
IS 700 POUNDS. THE ACTUAL QUANTITY AND
TYPE OF FITTINGS WILL VARY BASED ON
FIELD CONDITIONS.

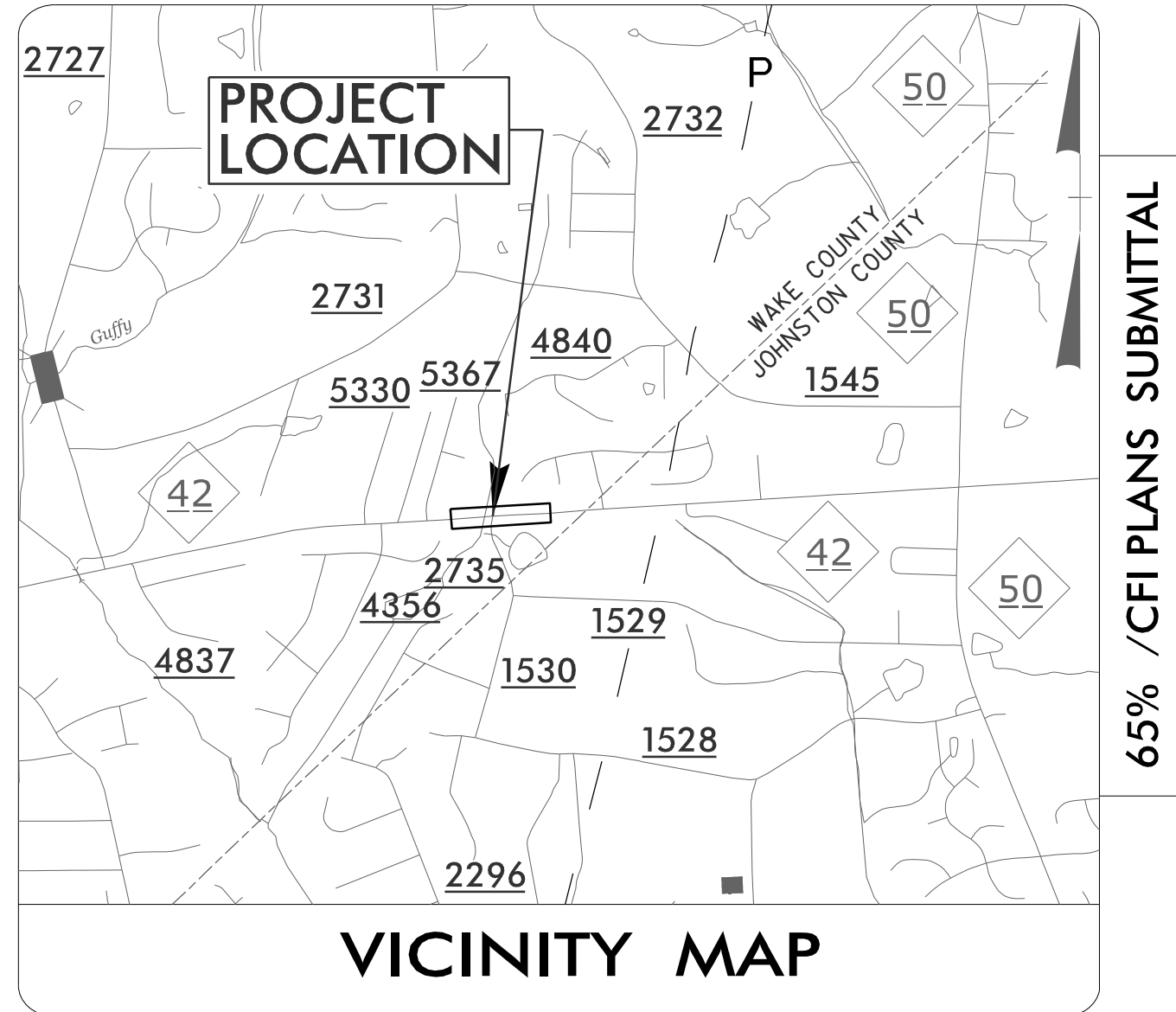
-W1-



25-MAR-2025 15:47:33 S:\PROJECTS\2021\A20211201.00_TGS_HL-00080\Design\Utilities\Engineering\UC\Proj\HL-00080_Ut_rdy4_UC4_psh.dgn

I:\DEC-2024_09\15
\\Hinde\local\shares\Server Files\PROJECTS\2021\A202120100_TCS_HL-00080\Design\Utilities\Engineering\UBO\Proj\HL-00080_Ut_tsh_U01_psh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

TIP PROJECT: HL-00080



65% / CFI PLANS SUBMITTAL

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
WAKE COUNTY

LOCATION: NC 42 AT SR 2735 (JOHNSTON ROAD).
CONSTRUCT LEFT TURN LANE

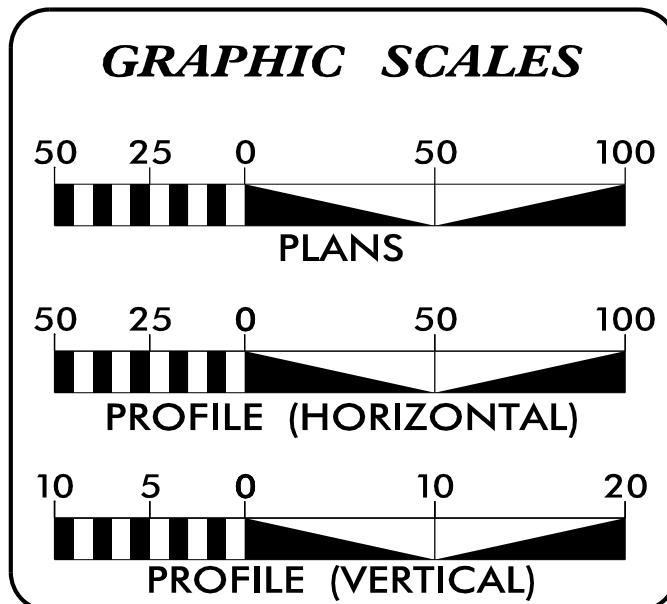
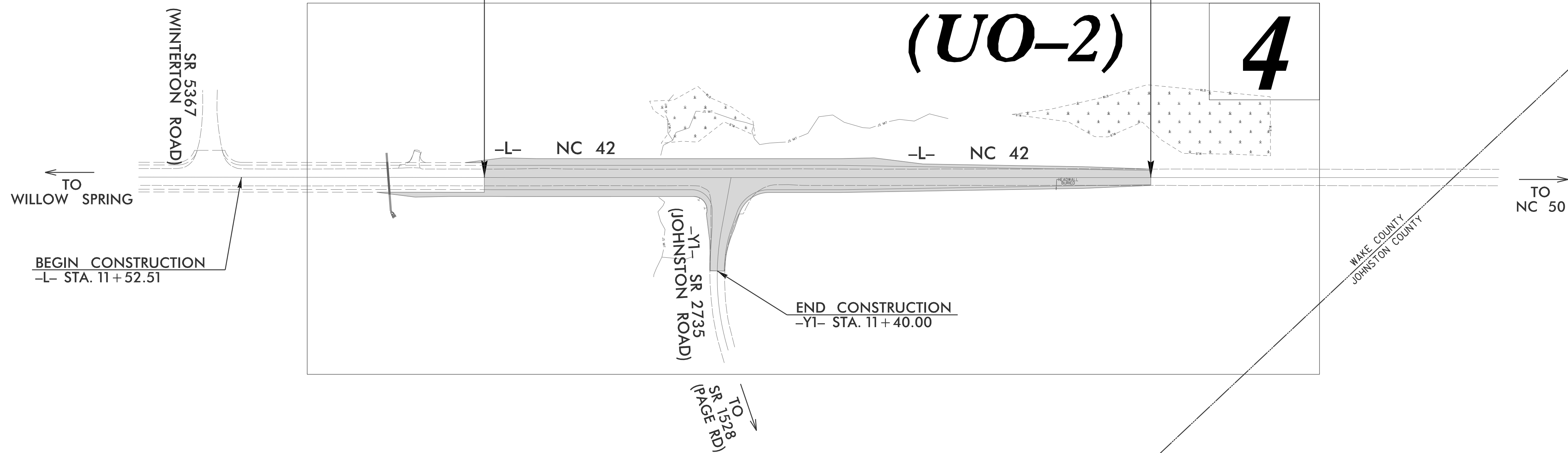
TYPE OF WORK: POWER DISTRIBUTION & TELECOM RELOCATIONS

T.I.P. NO.	SHEET NO.
HL-00080	UO-1
NOTE: ALL UTILITY WORK SHOWN ON THIS SHEET IS DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.	



BEGIN TIP PROJECT HL-00080
-L- STA. 15+12.51
(TIE TO TIP NO.: W-5601EX)

END TIP PROJECT HL-00080
-L- STA. 25+00.00



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UBO PLAN SHEET

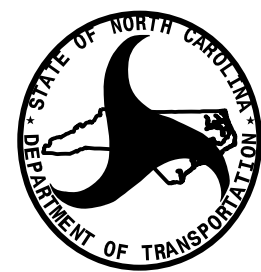
UTILITY OWNERS WITH CONFLICTS

- (A) POWER DISTRIBUTION - DUKE ENERGY
(B) TELECOM - AT&T
(C) TELECOM - CHARTER/SPECTRUM

PREPARED IN THE OFFICE OF:



Clint L. Stevens, PE	UTILITY COORDINATION PROJECT MANAGER
Harris Winters	PROJECT UTILITY COORDINATOR
James N. Arnold	PROJECT UTILITY DESIGNER



DIVISION OF HIGHWAYS
DIVISION 5

2612 DUKE STREET
DURHAM, NC 27704
PHONE (919) 317-4700
FAX (919) 317-4710

Ben Upshaw, P.E.	TEAM LEAD
Matthew Nolfo, P.E.	PROJECT MANAGER
Donald Proper	DIVISION UTILITY ENGINEER
James Swinson	UTILITY ENGINEER

NOTE:
ALL UTILITY WORK SHOWN ON THIS
SHEET WILL BE DONE BY OTHERS.
NO PAYMENT WILL BE MADE TO THE
CONTRACTOR FOR UTILITY WORK
SHOWN ON THIS SHEET.



PROJ. REFERENCE NO.	SHEET NO.
HL-00080	X-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF CROSS SECTION SHEETS

-L-

NC 42

X-2 TO X-6

-Y1-

SR 2735 - JOHNSTON ROAD

X-7 TO X-8

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

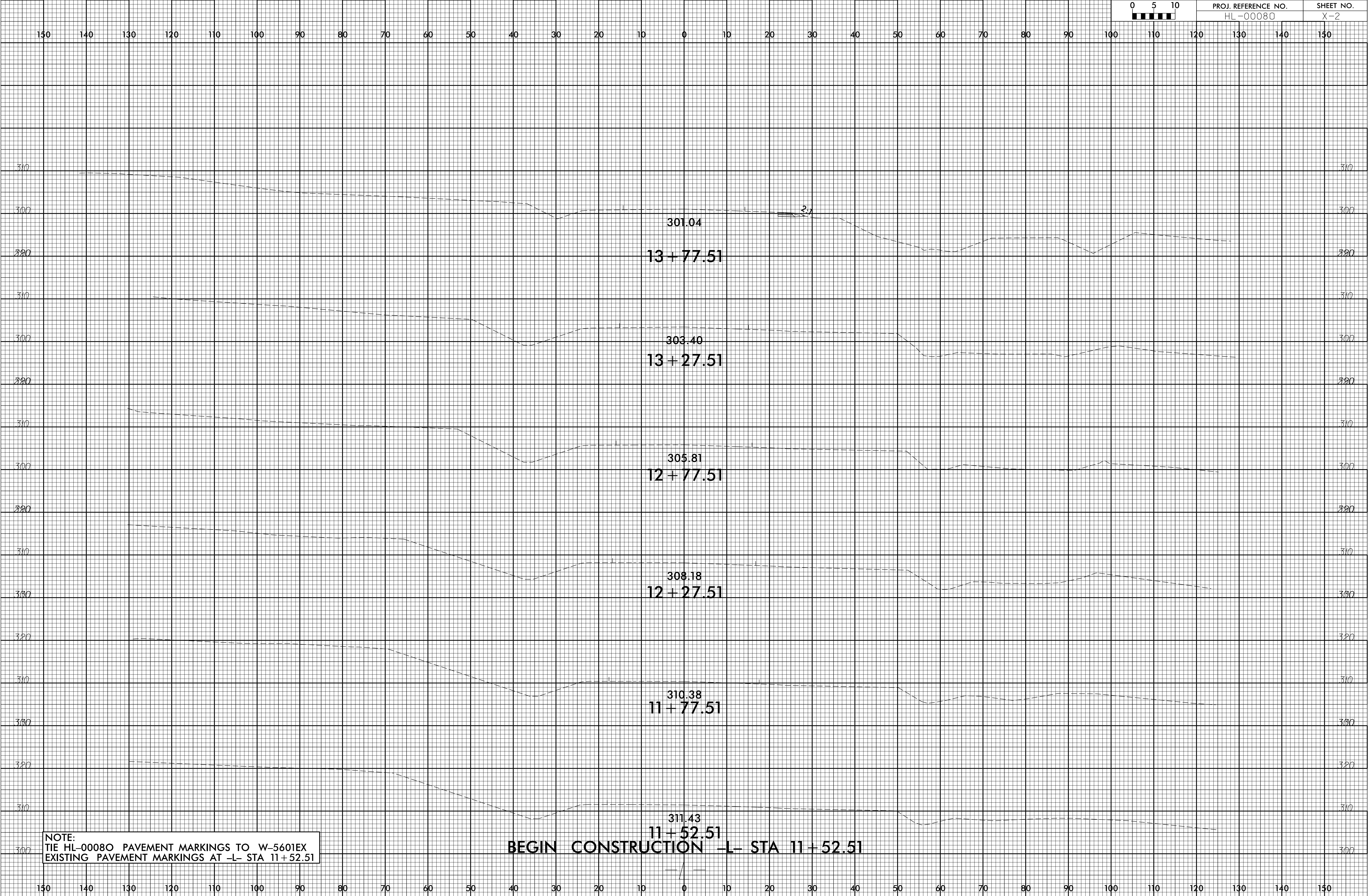
CROSS-SECTION SUMMARY

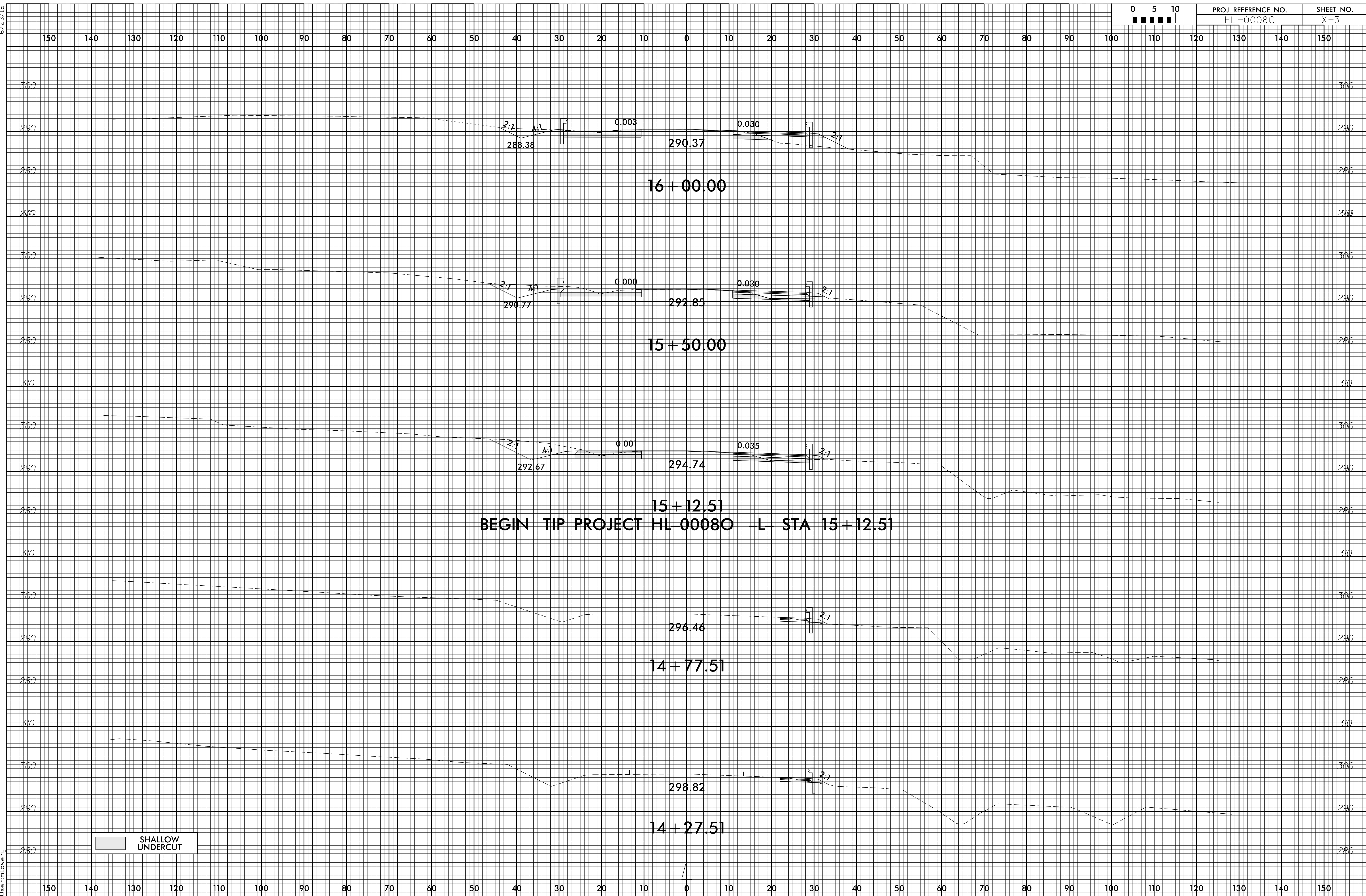
Station	Uncl. Exc.	Embt	Station	Uncl. Exc.	Embt												
L (LT)	(cu. yd.)	(cu. yd.)	Y1	(cu. yd.)	(cu. yd.)												
15+12.51	37	0	10+18.30	0	0												
15+50.00	71	1	10+50.00	16	9												
16+00.00	65	0	10+75.00	26	14												
16+50.00	46	6	11+00.00	46	15												
17+00.00	32	38	11+15.00	18	4												
17+50.00	14	127															
18+00.00	7	208															
18+50.00	6	144															
19+00.00	7	46															
19+50.00	7	38															
20+00.00	6	32															
20+50.00	17	13															
21+00.00	32	7															
21+50.00	34	5															
22+00.00	29	5															
22+50.00	25	5															
23+00.00	29	6															
23+50.00	58	6															
24+00.00	44	9															
24+50.00	6	9															
25+00.00	6	3															
Station	Uncl. Exc.	Embt															
L (RT)	(cu. yd.)	(cu. yd.)															
13+77.51	0	0															
14+27.51	8	1															
14+77.51	8	1															
15+12.51	5	4															
15+50.00	4	11															
16+00.00	6	38															
16+50.00	6	93															
17+00.00	5	168															
17+50.00	4	215															
18+00.00	5	191															
18+50.00	8	80															
19+00.00	11	0															
19+50.00	27	1															
20+00.00	63	4															
20+50.00	125	7															
21+00.00	194	7															
21+50.00	218	6															
22+00.00	175	5															
22+50.00	122	2															
23+00.00	103	1															
23+50.00	95	0															
24+00.00	98	0															
24+50.00	75	0															
25+00.00	26	0															

Approximate quantities only. Unclassified excavation, borrow excavation, shoulder borrow, fine grading, clearing and grubbing, breaking of existing pavement and removal of existing pavement will be paid for at the lump sum price for "Grading".

6/23/16

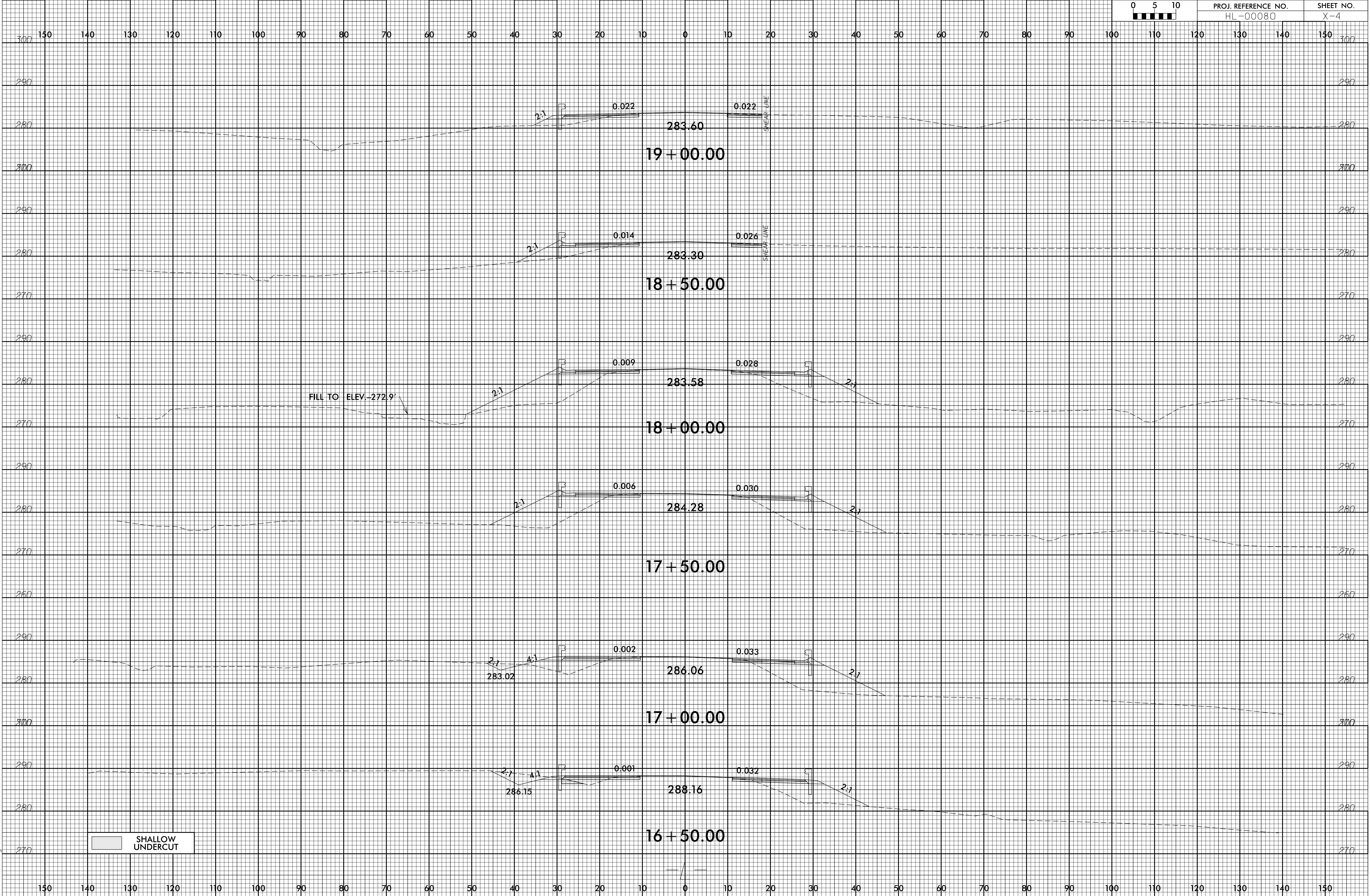
2/8/2024
C:\Projects\NCDOT\Div 5 HL-00080\Roadway\CorridorModeling\h00080_rdy_xpl.L.dgn
User: mlowery



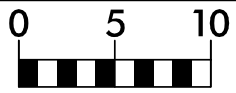


6/23/16

2/8/2024
C:\Projects\NC0001\Div 5 HL-00080\Roadway\CorridorModeling\h00080_rdy_xpl.L.dgn
User: mlowery

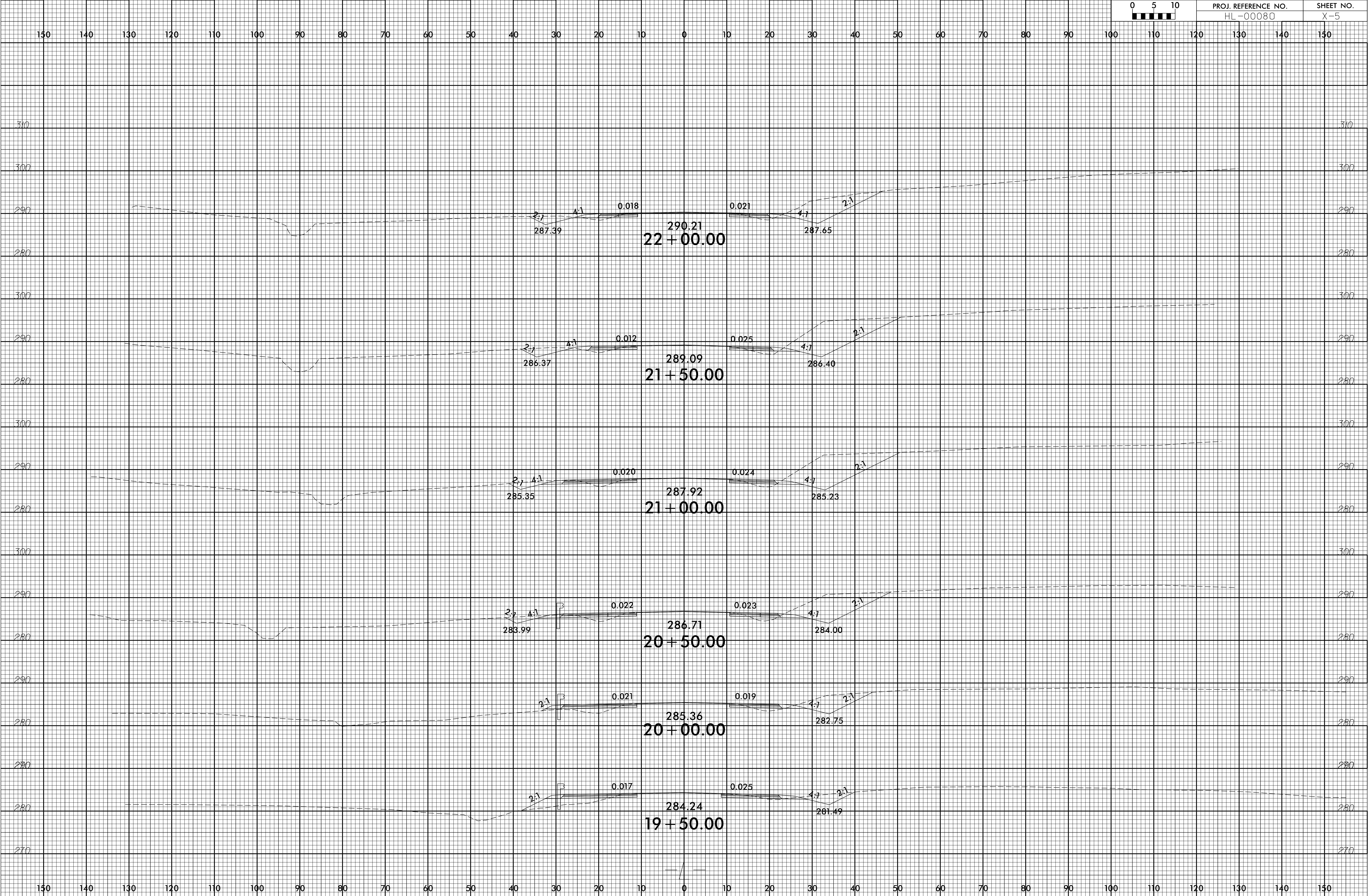


6/23/16



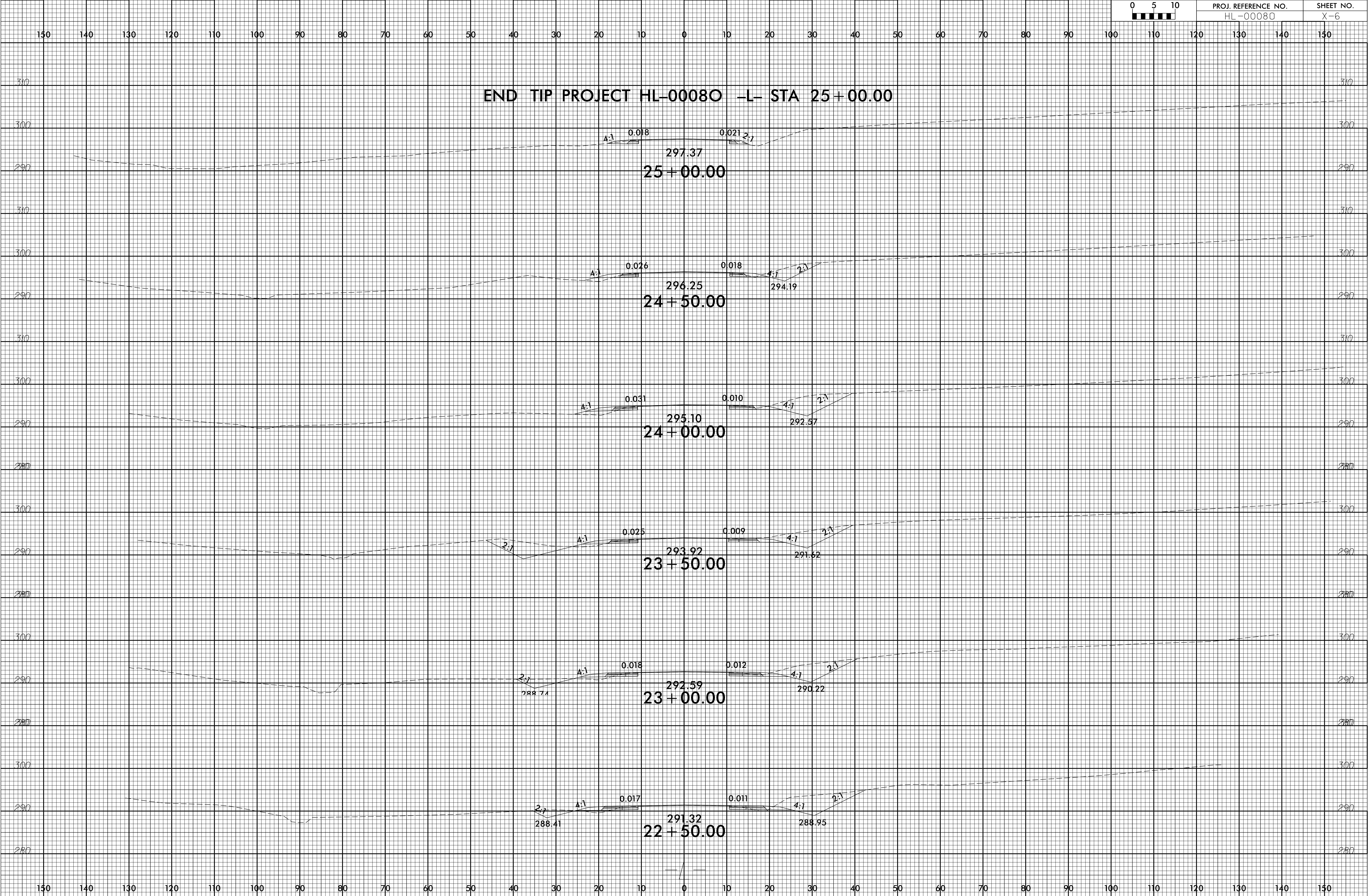
PROJ. REFERENCE NO.
HL-00080

SHEET NO.
X-5



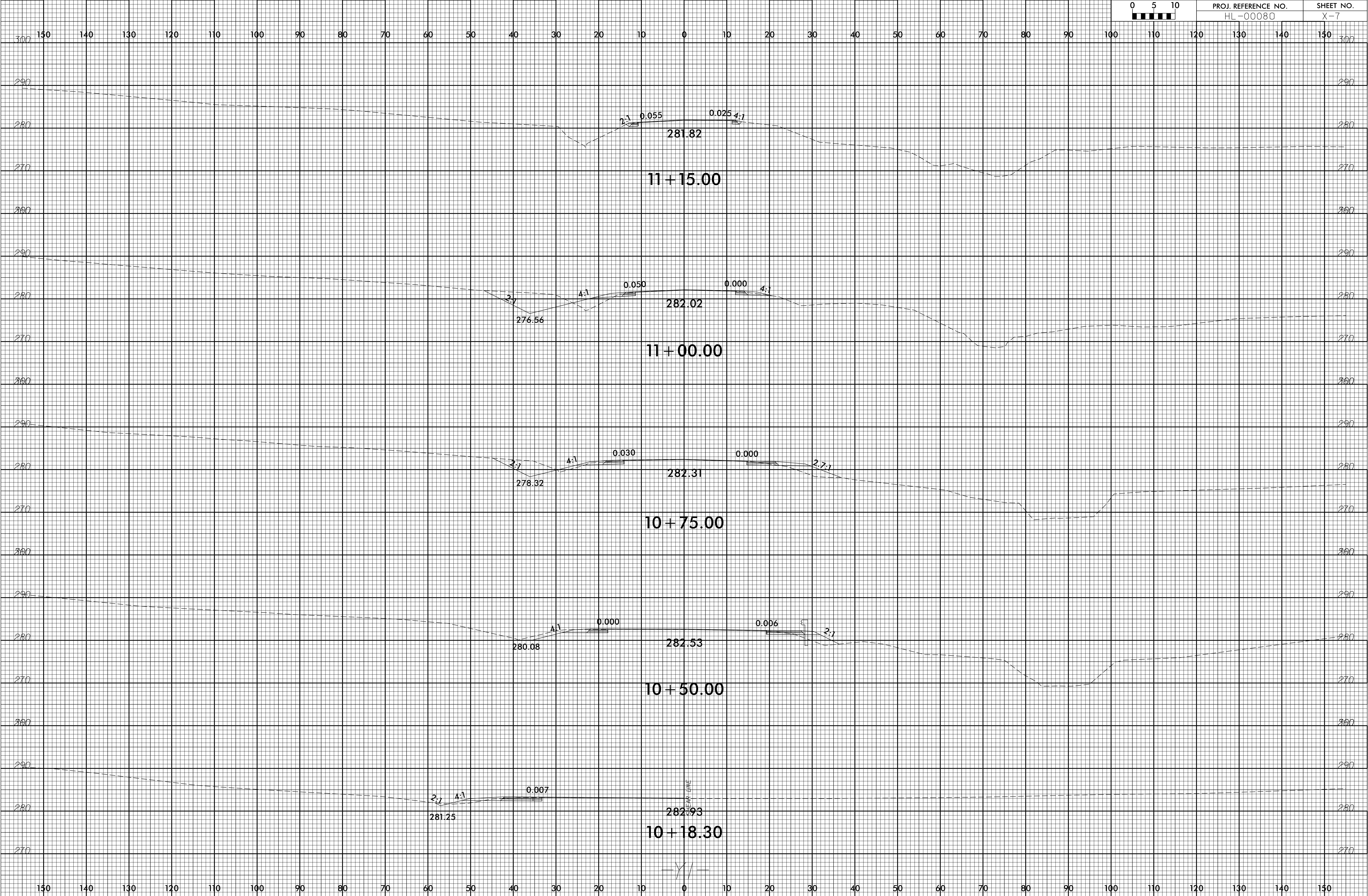
6/23/16

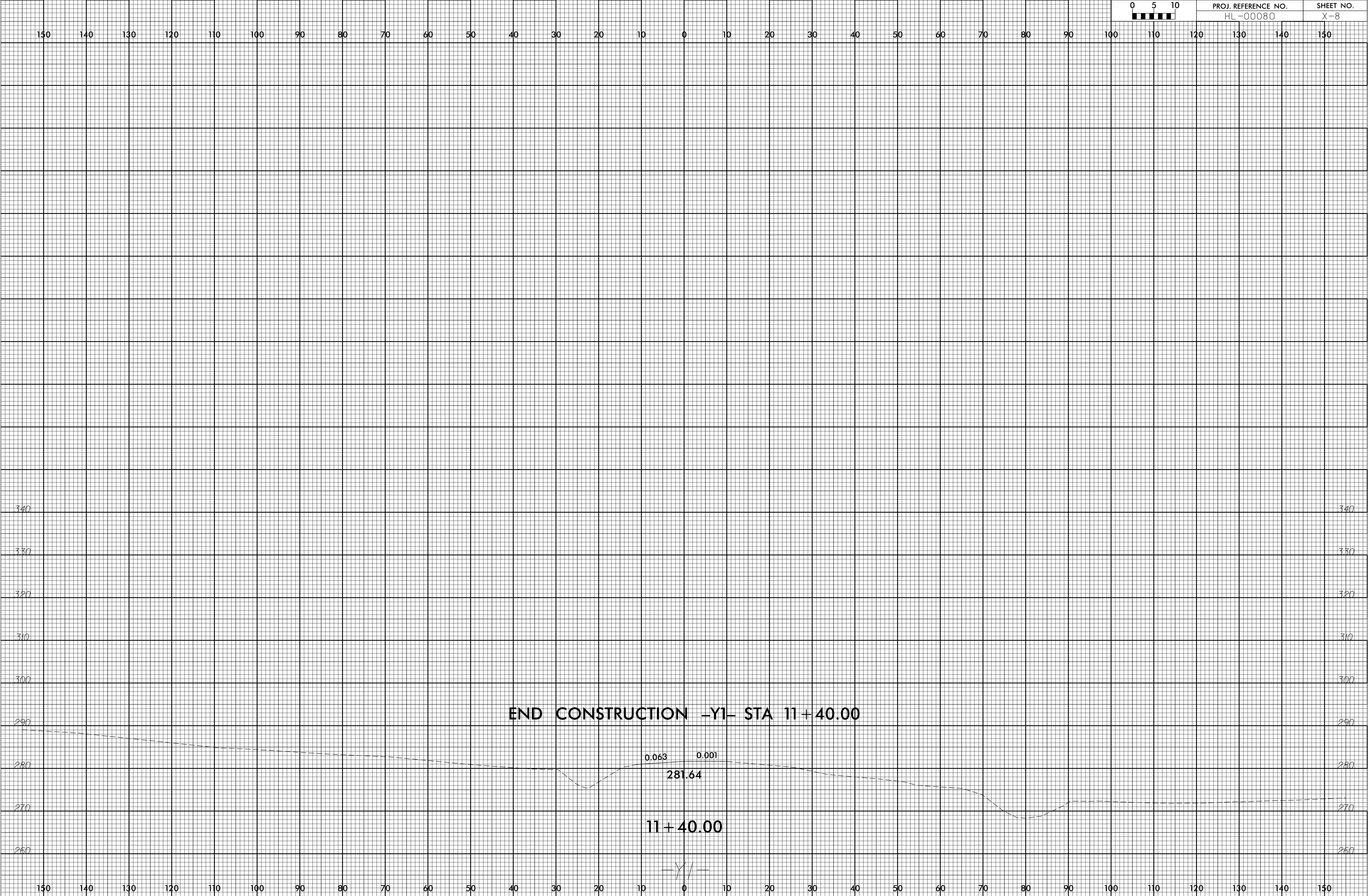
2/8/2024
C:\Projects\NCDOT\Div 5 HL-00080\Roadway\CorridorModeling\h00080_rdy_xpl.L.dgn
User: mlowery



6/23/16

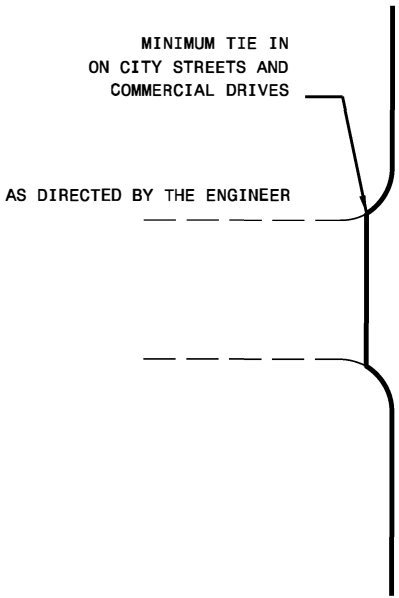
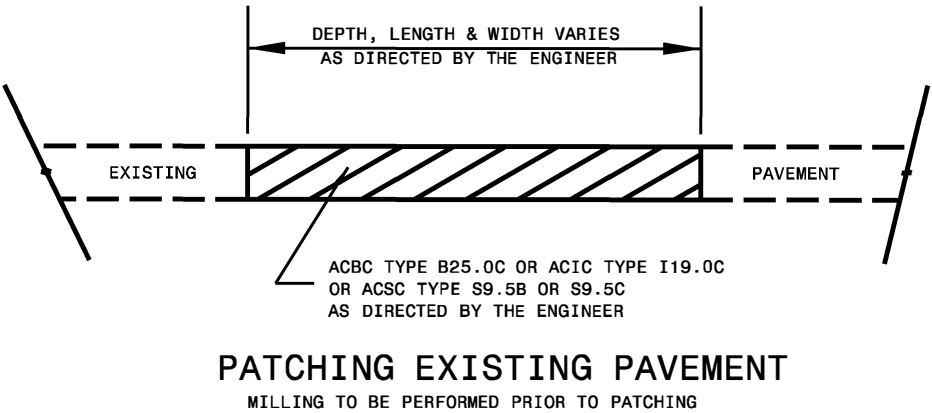
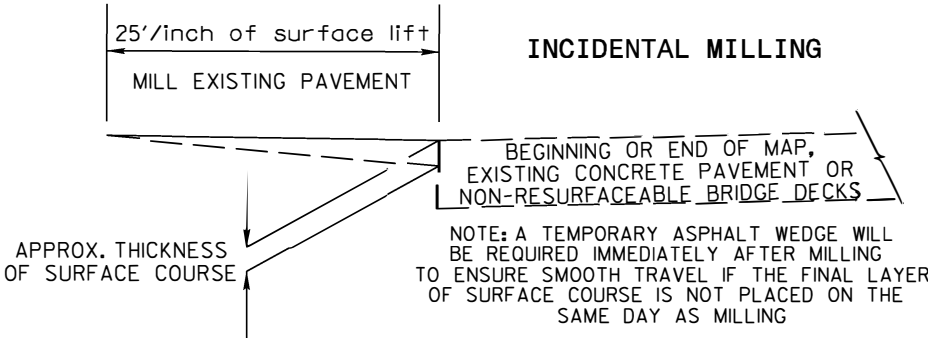
2/8/2024
C:\Projects\NCDOT\Div 5 HL-00080\Roadway\CorridorModeling\h00080_rdu_xpl_Y1.dgn
User: mlowery



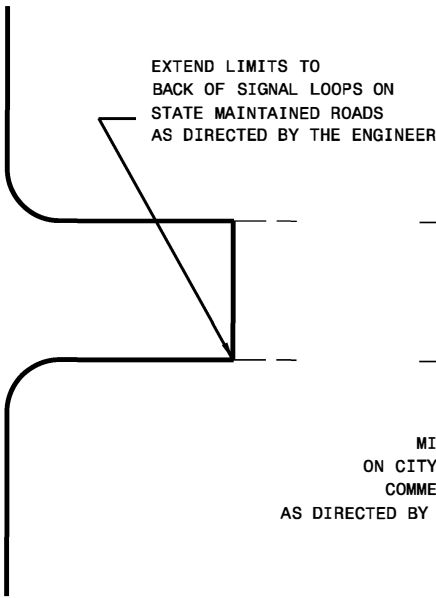


NOTES

ALL UNPAVED S.R. ROADS TO BE RESURFACED 50' FROM EDGE OF PAVEMENT OF MAIN PROJECT
ALL PAVED S.R. ROADS TO BE RESURFACED TO THE ENDS OF THE RADII, OR AS DIRECTED BY THE ENGINEER.
EDGES, PAVEMENT WIDENING, INTERSECTIONS AND BRIDGE FLARES ARE INCLUDED IN THE TABLE OF QUANTITIES.
BRIDGES TO BE RESURFACED AT LOCATIONS AND TO DEPTH AS DIRECTED BY THE ENGINEER.

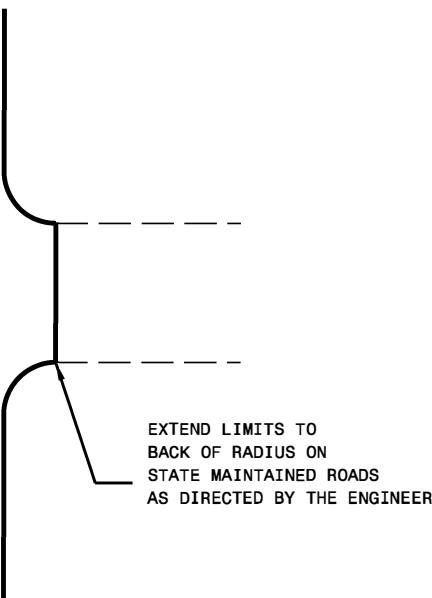


DETAIL OF PROJECT LIMITS AT
SIGNALIZED Y LINES



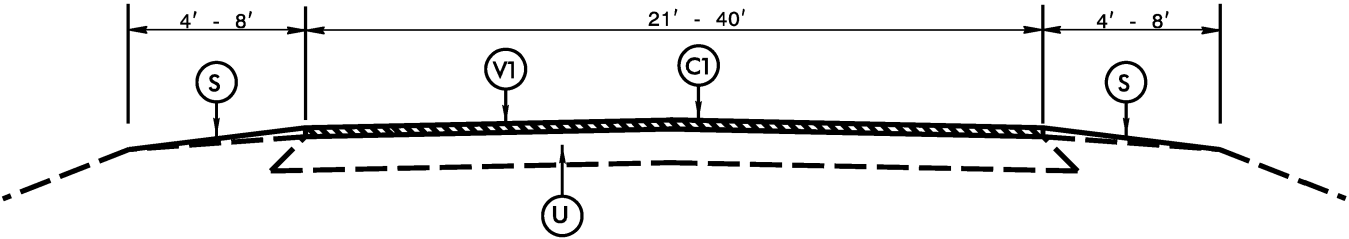
MINIMUM TIE IN
ON CITY STREETS AND
COMMERCIAL DRIVES
AS DIRECTED BY THE ENGINEER

DETAIL OF PROJECT LIMITS AT
UNSIGNALIZED Y LINES



PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	S	SHOULDER RECONSTRUCTION, ASB REQUIRED
V1	MILL ASPHALT PAVEMENT, 1½" DEPTH	U	EXISTING PAVEMENT



TYPICAL SECTION NO. 2
FULL DEPTH PATCHING 1.5" S9.5C MILL /FILL

PROJECT NO.	SHEET NO.
2027CPT.05.01.10921	

SUMMARY OF QUANTITIES

												1220000000-E	1245000000-E	1260000000-E	1297000000-E	1330000000-E	1523000000-E	1575000000-E	1704000000-E	7444000000-E
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	BEGIN MP	END MP	INCIDENTAL STONE BASE	SHOULDER RECONSTRUCTI ON	AGGREGATE SHOULDER BORROW	1½" MILLING	INCIDENTAL MILLING	SURFACE COURSE, S9.5C	ASPHALT BINDER FOR PLANT MIX	PATCHING EXISTING PAVEMENT	INDUCTIVE LOOP SAWCUT
								MI	FT			TONS	SMI	TON	SY	SY	TONS	TON	TONS	LF
2027CPT.05.01.10921	Wake	1	NC-42 E / NC 42 HWY EXT	FROM MIDDLE CREEK BRIDGE TO JOHNSTON CO	1	2	2WU	2.310	24	12.400	14.710	83	3.30	305	14,714	1,472	2,994	179	50	792
TOTAL FOR PROJ NO. 2027CPT.05.01.10921								2.310				83	3.30	305	14,714	1,472	2,994	179	50	792
GRAND TOTAL								2.310				83	3.30	305	14,714	1,472	2,994	179	50	792

PROJECT NO.	SHEET NO.
2027CPT.05.01.10921	

THERMOPLASTIC AND PAINT QUANTITIES

												4413000000-E	4457000000-N	4688000000-E		4700000000-E	4709000000-E	4725000000-E		4895000000-N
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	BEGIN MP	END MP	WORK ZONE ADVANCE/GENERAL WARNING SIGNING	TEMPORARY TRAFFIC CONTROL	6" X 90 M WHITE THERMO	6" X 90 M YELLOW THERMO	12" X 90 M YELLOW THERMO	24" X 90 M WHITE THERMO	THERMO LT ARROW 90 M	THERMO STR & RT ARROW 90 M	POLYCARBON ATE H-SHAPED PAVEMENT MARKERS
								MI	FT					SF	LS	LF	LF	LF	LF	
2027CPT.05.01.10921	Wake	1	NC-42 E / NC 42 HWY EXT	FROM MIDDLE CREEK BRIDGE TO JOHNSTON CO	1	2	2WU	2.31	24	12.4	14.71	117	0.085	29,342	29,273	1,127	104	15	2	118
TOTAL FOR PROJ NO. 2027CPT.05.01.10921								2.31				117	0.085	29,342	29,273	1,127	104	15	2	118
																58,615			17	
GRAND TOTAL								2.31				117	0.085	29,342	29,273	1,127	104	15	2	118
															58,615			17		