

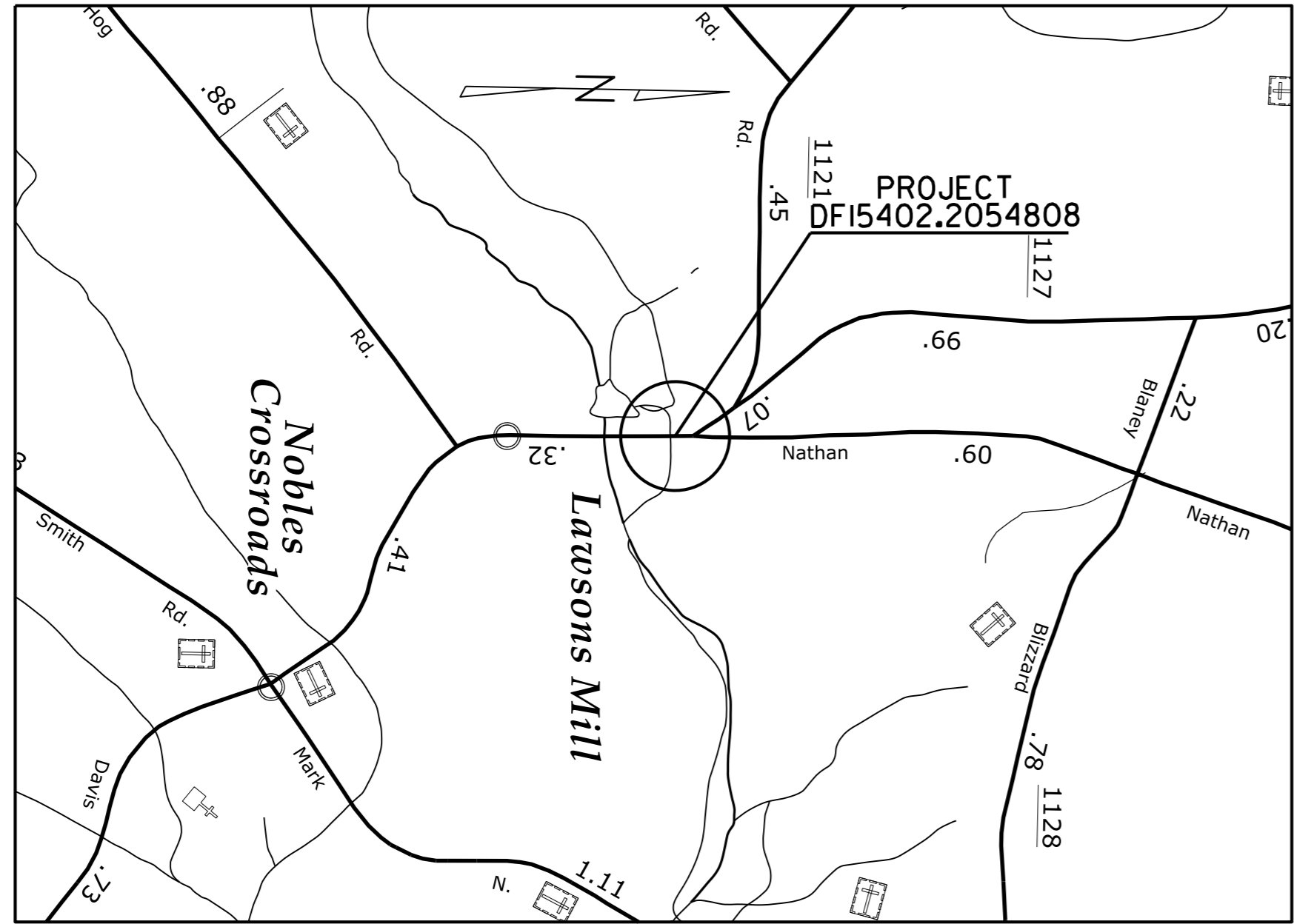
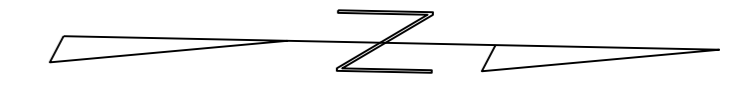
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	DF15402.2054808	1	27

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

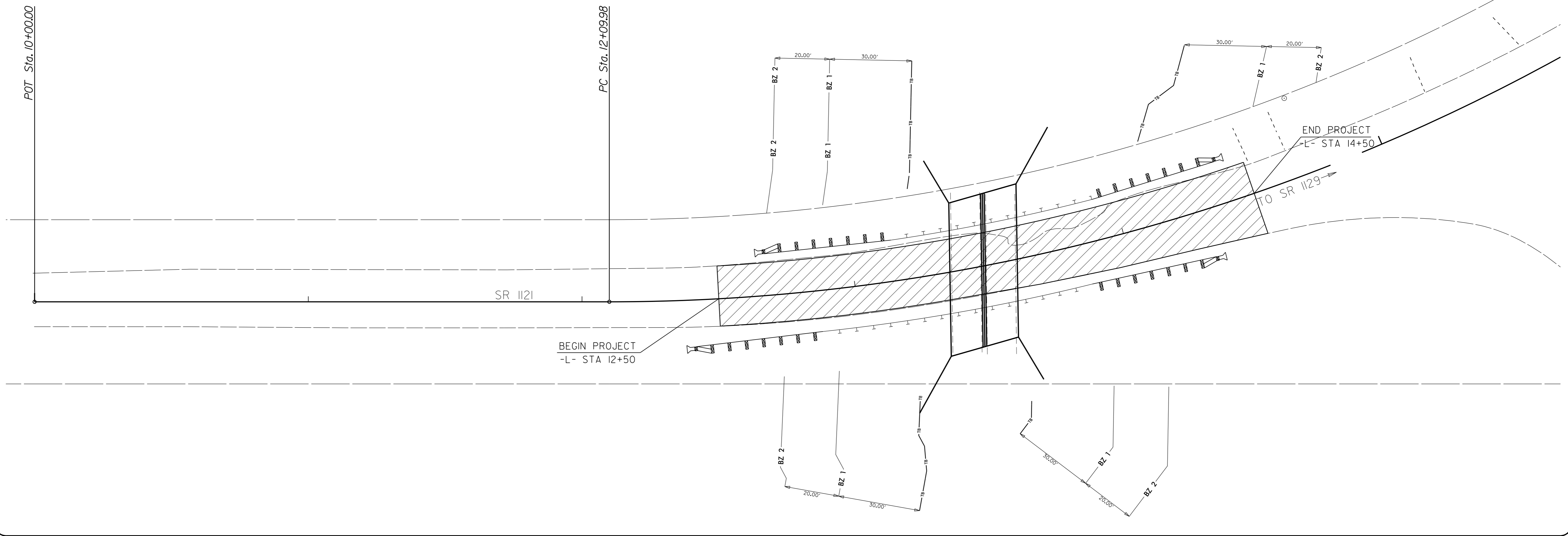
# LENOIR COUNTY

**LOCATION: SR 1121 (DAVIS MILL RD) 200' SOUTH OF  
JUNCTION WITH SR 1129 (NATHAN HILL RD)  
NEW STRUCTURE #530223**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURES  
DAMAGE DUE TO EFFECTS OF  
HURRICANE FLORENCE**

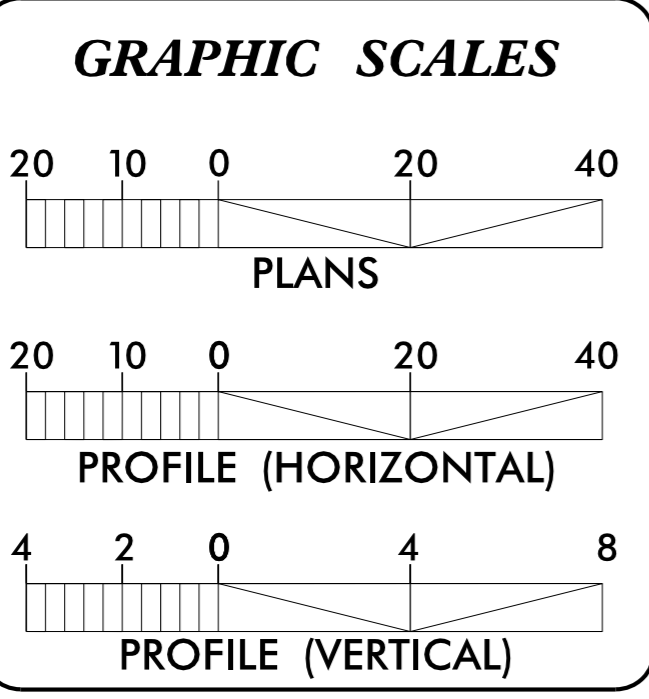


See Sheet 1A For Index of Sheets



**PROJECT: DF15402.2054808**

**CONTRACT: DB00487**



**PROJECT LENGTH**

**LENGTH PROJECT DF15402.2054808 = 0.038 MILES**

Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
1037 W. H. Smith Blvd., Greenville NC, 27858

2018 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE: NOVEMBER 2018**

**LETTING DATE: OCTOBER 2020**

**JEFFREY D. CABANISS, P.E.**  
PROJECT ENGINEER

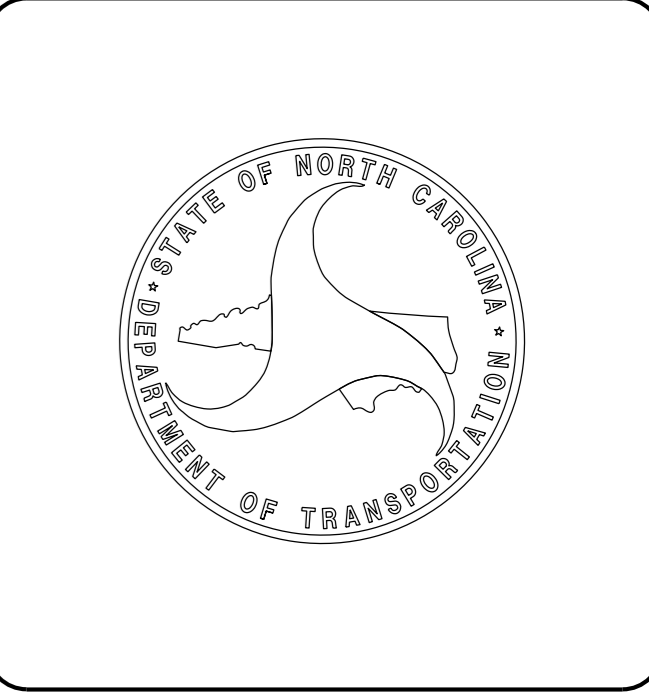
**LANG JONES**  
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

DocuSigned by:  
*Jeffrey D. Cabaniss*  
PROFESSIONAL SEAL  
JEFFREY D. CABANISS  
ENGINEER  
034398  
P.E. 9/18/2020

**ROADWAY DESIGN ENGINEER**

DocuSigned by:  
*Jeffrey D. Cabaniss*  
PROFESSIONAL SEAL  
JEFFREY D. CABANISS  
ENGINEER  
034398  
P.E. 9/18/2020



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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

8/17/99

REVISIONS

INDEX OF SHEETS:

1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES & STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2	TYPICAL SECTIONS
3	SUMMARY OF QUANTITIES
3A	SUMMARY OF EARTHWORK, GUARDRAIL & PAVEMENT REMOVAL
4-5	PLAN SHEET
TMP1-TMP2	TRANSPORTATION MANAGEMENT PLANS
UC1-UC4	UTILITY CONSTRUCTION PLANS
EC1-EC3	EROSION CONTROL
X1A	CROSS SECTION SUMMARY
X1	CROSS SECTION SHEET
C1-C7	STRUCTURE PLANS

GENERAL NOTES:

2018 SPECIFICATIONS  
EFFECTIVE: 01-16-2018  
REVISED:

EFF. 01-16-2018  
REV.

GRADE LINE:  
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED 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 11.

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

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.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

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

RIGHT-OF-WAY MARKERS:

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

UTILITIES:

ALL UTILITIES WILL BE RELOCATED BY OTHERS, EXCEPT AS SHOWN ON PLANS  
OWNERS:  
CENTURY LINK  
DEEP RUN WATER CORPORATION  
DUKE POWER

2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD. NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method 11
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superlevation - Two Lane Pavement
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method 1
DIVISION 8 - INCIDENTALS	
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units

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# STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

## BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ <sub>EP</sub>
Computed Property Corner	→
Property Monument	□ <sub>EDM</sub>
Parcel/Sequence Number	(123)
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	----- <sub>MLB</sub>
Proposed Wetland Boundary	----- <sub>MLB</sub>
Existing Endangered Animal Boundary	----- <sub>EAB</sub>
Existing Endangered Plant Boundary	----- <sub>EPB</sub>
Existing Historic Property Boundary	----- <sub>HPB</sub>
Known Contamination Area: Soil	---S---S---
Potential Contamination Area: Soil	---S---S---
Known Contamination Area: Water	---W---W---
Potential Contamination Area: Water	---W---W---
Contaminated Site: Known or Potential	☠ ?

## BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ <sub>S</sub>
Well	○ <sub>W</sub>
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	□ <sub>+</sub>
Building	□
School	□ <sub>↑</sub>
Church	□ <sub>+</sub>
Dam	▬

## HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	▭
Jurisdictional Stream	----- <sub>JS</sub>
Buffer Zone 1	----- <sub>BZ 1</sub>
Buffer Zone 2	----- <sub>BZ 2</sub>
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	▽
Proposed Lateral, Tail, Head Ditch	▬
False Sump	▽

## RAILROADS:

Standard Gauge	----- <sub>CSX TRANSPORTATION</sub>
RR Signal Milepost	○ <sub>MILEPOST 35</sub>
Switch	□ <sub>SWITCH</sub>
RR Abandoned	-----
RR Dismantled	-----

Note: Not to Scale

\*S.U.E. = Subsurface Utility Engineering

## RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	◆
Exist Permanent Easement Pin and Cap	◇
New Permanent Easement Pin and Cap	◆
Vertical Benchmark	⊠
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	----- <sub>R/W</sub>
New Right of Way Line with Pin and Cap	----- <sub>R/W</sub> ◆
New Right of Way Line with Concrete or Granite R/W Marker	----- <sub>R/W</sub> ▲
New Control of Access Line with Concrete C/A Marker	----- <sub>C/A</sub> ▲
Existing Control of Access	----- <sub>C/A</sub>
New Control of Access	----- <sub>C/A</sub>
Existing Easement Line	----- <sub>E</sub>
New Temporary Construction Easement	----- <sub>E</sub>
New Temporary Drainage Easement	----- <sub>TDE</sub>
New Permanent Drainage Easement	----- <sub>PDE</sub>
New Permanent Drainage / Utility Easement	----- <sub>DUE</sub>
New Permanent Utility Easement	----- <sub>PUE</sub>
New Temporary Utility Easement	----- <sub>TUE</sub>
New Aerial Utility Easement	----- <sub>AUE</sub>

## ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	----- <sub>C</sub>
Proposed Slope Stakes Fill	----- <sub>F</sub>
Proposed Curb Ramp	----- <sub>CR</sub>
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	▭ <sub>Vineyard</sub>

## EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	▭ <sub>CONC</sub>
Bridge Wing Wall, Head Wall and End Wall	▭ <sub>CONC WW</sub>
MINOR:	
Head and End Wall	▭ <sub>CONC HW</sub>
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ <sub>CB</sub>
Paved Ditch Gutter	-----
Storm Sewer Manhole	○ <sub>S</sub>
Storm Sewer	----- <sub>S</sub>

## UTILITIES:

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 LOS B (S.U.E.*)	----- <sub>P</sub>
U/G Power Line LOS C (S.U.E.*)	----- <sub>P</sub>
U/G Power Line LOS D (S.U.E.*)	----- <sub>P</sub>

## TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Pedestal	⊠
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	●
U/G Telephone Cable LOS B (S.U.E.*)	----- <sub>T</sub>
U/G Telephone Cable LOS C (S.U.E.*)	----- <sub>T</sub>
U/G Telephone Cable LOS D (S.U.E.*)	----- <sub>T</sub>
U/G Telephone Conduit LOS B (S.U.E.*)	----- <sub>TC</sub>
U/G Telephone Conduit LOS C (S.U.E.*)	----- <sub>TC</sub>
U/G Telephone Conduit LOS D (S.U.E.*)	----- <sub>TC</sub>
U/G Fiber Optics Cable LOS B (S.U.E.*)	----- <sub>T FO</sub>
U/G Fiber Optics Cable LOS C (S.U.E.*)	----- <sub>T FO</sub>
U/G Fiber Optics Cable LOS D (S.U.E.*)	----- <sub>T FO</sub>

## WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	----- <sub>W</sub>
U/G Water Line LOS C (S.U.E.*)	----- <sub>W</sub>
U/G Water Line LOS D (S.U.E.*)	----- <sub>W</sub>
Above Ground Water Line	----- <sub>A/G Water</sub>

## TV:

TV Pedestal	⊠
TV Tower	⊗
U/G TV Cable Hand Hole	●
U/G TV Cable LOS B (S.U.E.*)	----- <sub>TV</sub>
U/G TV Cable LOS C (S.U.E.*)	----- <sub>TV</sub>
U/G TV Cable LOS D (S.U.E.*)	----- <sub>TV</sub>
U/G Fiber Optic Cable LOS B (S.U.E.*)	----- <sub>TV FO</sub>
U/G Fiber Optic Cable LOS C (S.U.E.*)	----- <sub>TV FO</sub>
U/G Fiber Optic Cable LOS D (S.U.E.*)	----- <sub>TV FO</sub>

## GAS:

Gas Valve	◇
Gas Meter	◇
U/G Gas Line LOS B (S.U.E.*)	----- <sub>G</sub>
U/G Gas Line LOS C (S.U.E.*)	----- <sub>G</sub>
U/G Gas Line LOS D (S.U.E.*)	----- <sub>G</sub>
Above Ground Gas Line	----- <sub>A/G Gas</sub>

## SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	----- <sub>SS</sub>
Above Ground Sanitary Sewer	----- <sub>A/G Sanitary Sewer</sub>
SS Forced Main Line LOS B (S.U.E.*)	----- <sub>FSS</sub>
SS Forced Main Line LOS C (S.U.E.*)	----- <sub>FSS</sub>
SS Forced Main Line LOS D (S.U.E.*)	----- <sub>FSS</sub>

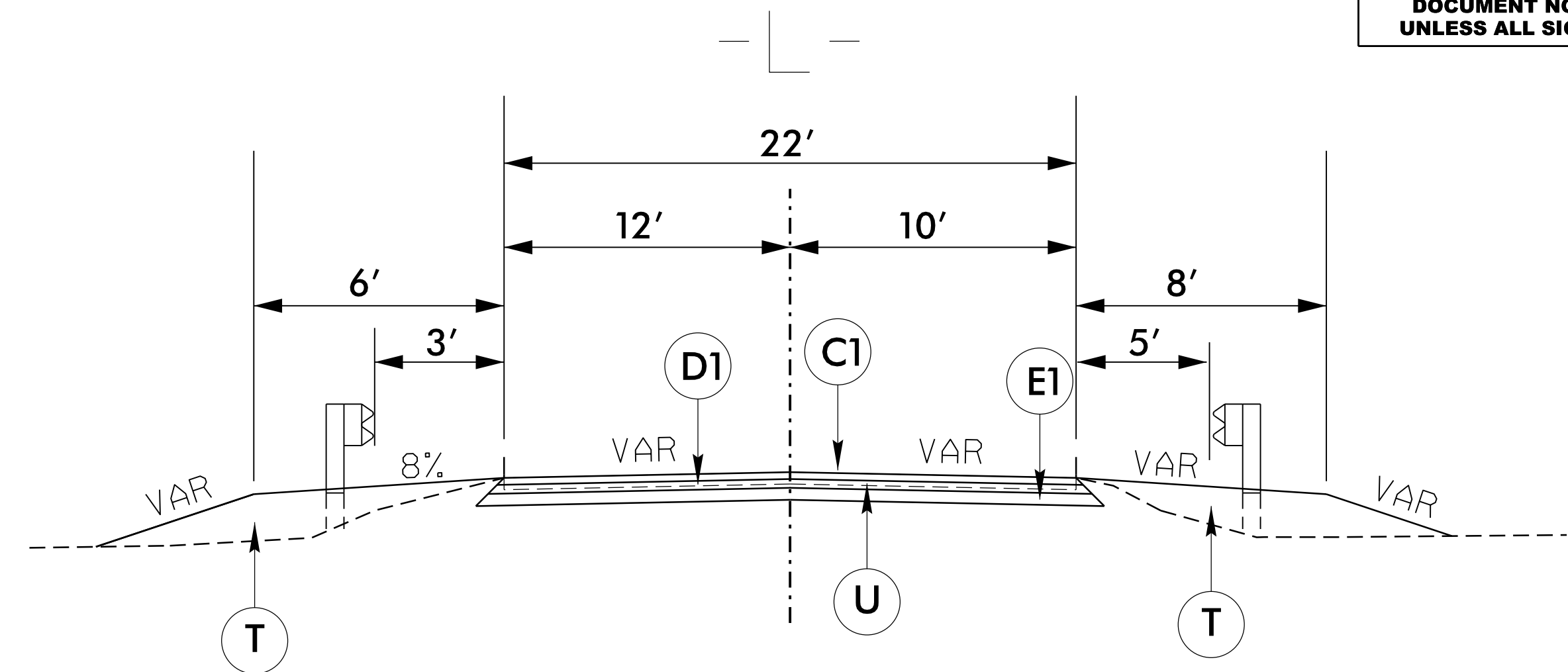
## MISCELLANEOUS:

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

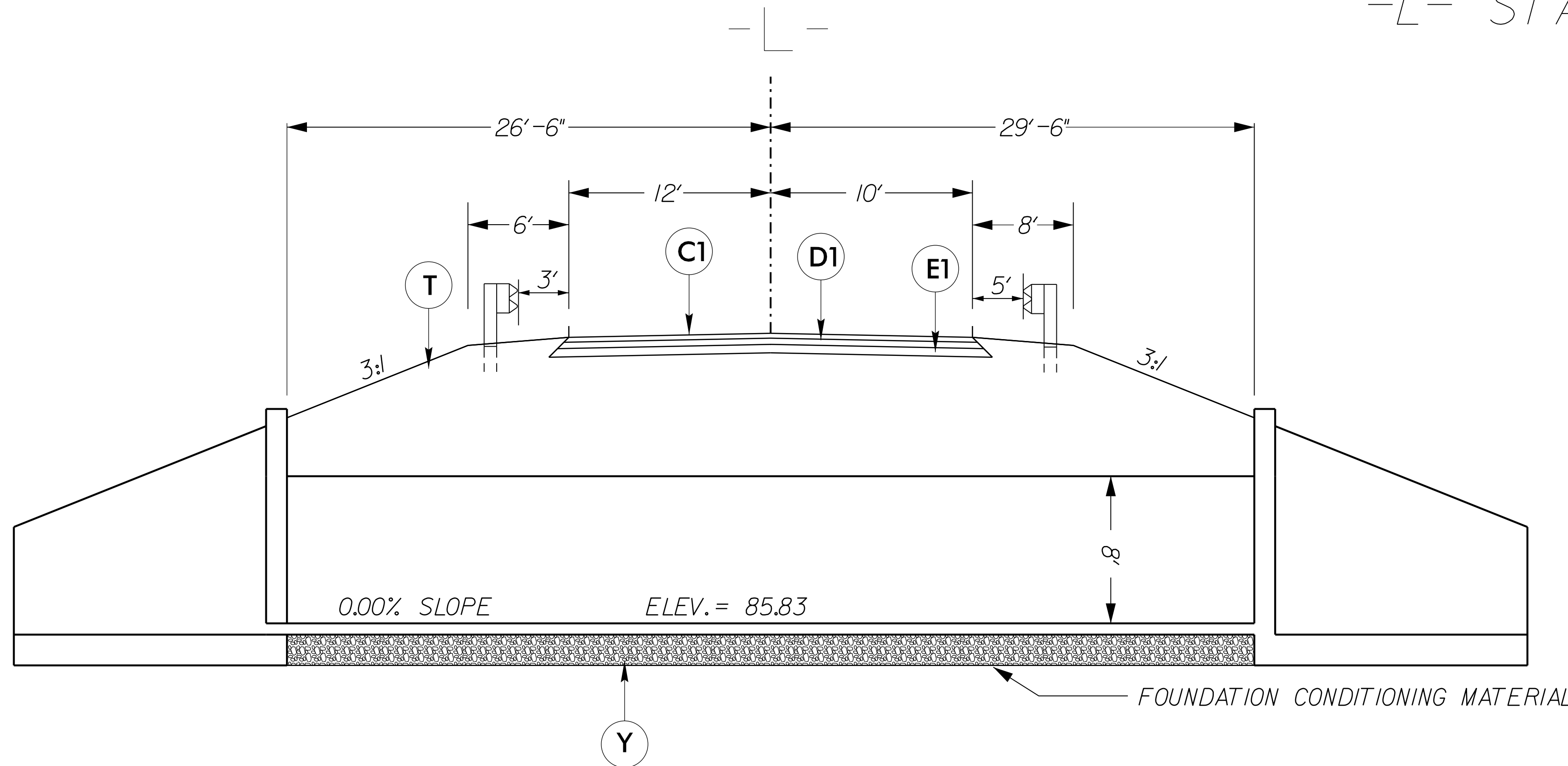


<b>C1</b>	PROP. APPROX. 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ.YD.
<b>D1</b>	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
<b>E1</b>	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
<b>T</b>	EARTH MATERIAL.
<b>U</b>	EXISTING PAVEMENT.
<b>Y</b>	FOUNDATION CONDITIONING MATERIAL

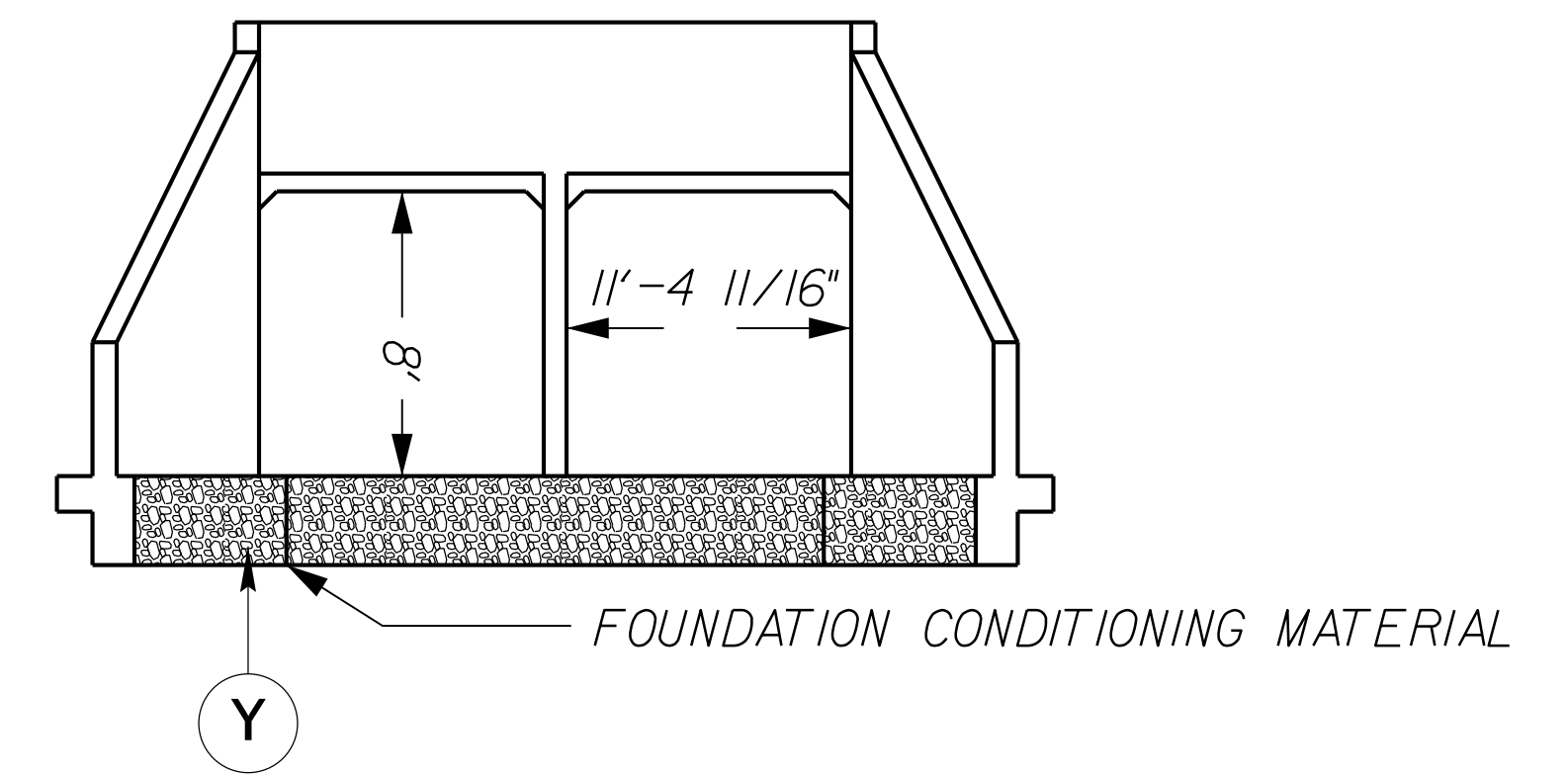
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION #1 (NTS)  
-L- STATION 12+50.00 - 14+50.00



TYPICAL BOX CULVERT SECTION #2 (NTS)  
-L- STATION 13+47.55



END VIEW BOX CULVERT SECTION #3 (NTS)  
-L- STATION 13+47.55

REVISIONS

8/17/99

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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**SUMMARY OF QUANTITIES**

ITEM NUMBER	SECT	DESCRIPTION	QTY	UNIT
0000100000-N	800	MOBILIZATION	1	LS
0000400000-N	801	CONSTRUCTION SURVEYING	1	LS
0043000000-N	226	GRADING	1	LS
1330000000-E	607	INCIDENTAL MILLING	250	SY
1491000000-E	610	ASP CONC BASE CRS B25.0C	60	TON
1503000000-E	610	ASP CONC INTR CRS I19.0C	60	TON
1519000000-E	610	ASP CONC SURF CRS S9.5B	50	TON
1575000000-E	620	ASP FOR PLANT MIX	10	TON
3030000000-E	862	STEEL BEAM GUARDRAIL	175	LF
3180000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	4	EA
4810000000-E	1205	PAINT PVMT MARKINGS 4"	600	LF
5912000000-N	SP	RELOCATE EXISTING WATER LINE	1	LS
6000000000-E	1605	TEMPORARY SILT FENCE	400	LF
6029000000-E	SP	SAFETY FENCE	200	LF
6037000000-E	SP	COIR FIBER MAT	100	SY
6071012000-E	SP	COIR FIBER WATTLE	50	LF
6084000000-E	1660	SEEDING AND MULCHING	0.5	ACR
6090000000-E	1661	SEED FOR REPAIR SEEDING	50	LB
6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	0.2	TON
6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	50	LB
6111000000-E	SP	IMPERVIOUS DIKE	200	LF
6117000000-N	SP	RESPONSE FOR EROSION CONTROL	3	EA
6117500000-N	SP	CONCRETE WASHOUT STRUCTURE	1	EA
8021000000-N	402	REM OF EXIST STR STA 13+47.55	1	LS
8133000000-E	414	FOUNDATION CONDITIONING MATERIAL	110	TON
8196000000-E	420	CLASS A CONCRETE (CULVERT)	191.1	CY
8245000000-E	425	REINFORCING STEEL (CULVERT)	22920	LB
8860000000-N	SP	DEWATERING	1	LS

REVISIONS

8/17/99

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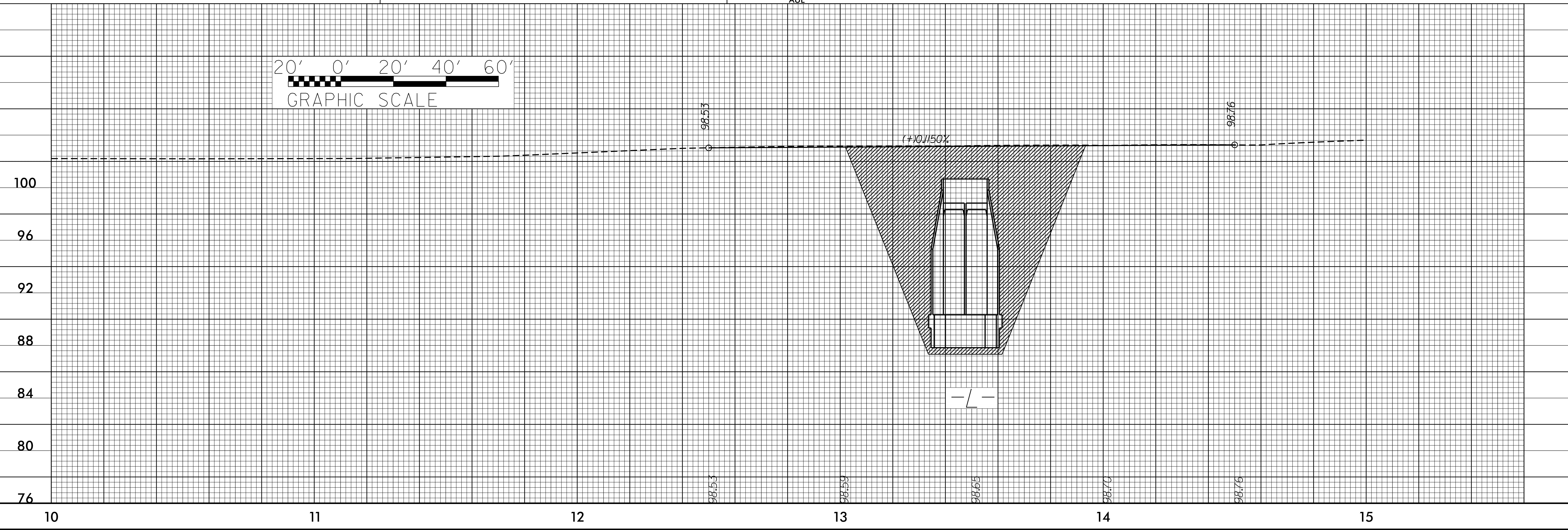
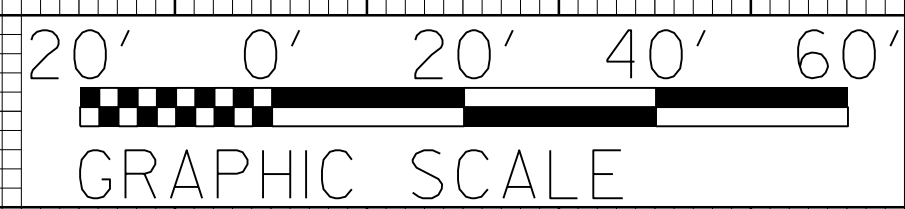
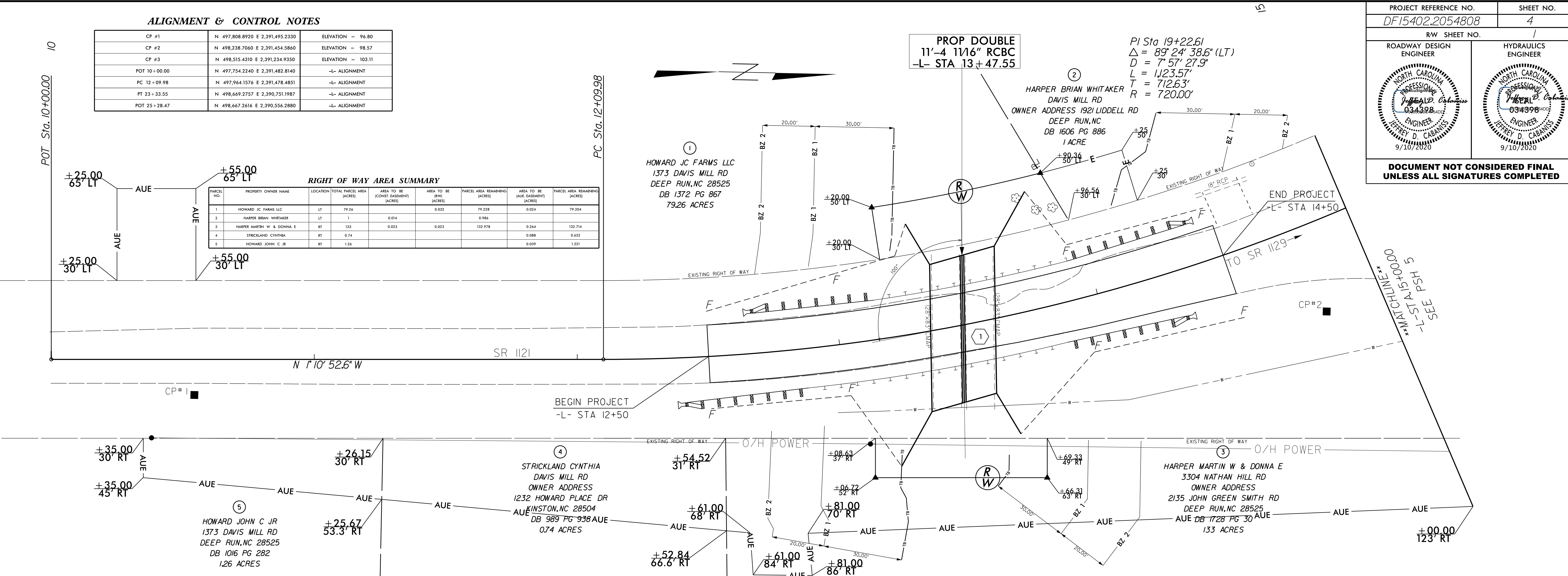


**ALIGNMENT & CONTROL NOTES**

CP #1	N 497,808.8920 E 2,391,495.2330	ELEVATION = 96.80
CP #2	N 498,238.7060 E 2,391,454.5860	ELEVATION = 98.57
CP #3	N 498,515.4310 E 2,391,234.9350	ELEVATION = 103.11
POT 10+00.00	N 497,754.2240 E 2,391,482.8140	-L- ALIGNMENT
PC 12+09.98	N 497,964.1576 E 2,391,478.4851	-L- ALIGNMENT
PT 23+33.55	N 498,669.2757 E 2,390,751.1987	-L- ALIGNMENT
POT 25+28.47	N 498,667.2616 E 2,390,556.7880	-L- ALIGNMENT

**RIGHT OF WAY AREA SUMMARY**

PARCEL NO.	PROPERTY OWNER NAME	LOCATION	TOTAL PARCEL AREA (ACRES)	AREA TO BE ACQUIRED (ACRES)	AREA TO BE REMOVED (ACRES)	PARCEL AREA REMAINING (ACRES)	AREA TO BE ACQUIRED (ACRES)	PARCEL AREA REMAINING (ACRES)
1	HOWARD JC FARMS LLC	LT	79.24	0.022	0.004	79.228	0.024	79.204
2	HARPER BRIAN WHITAKER	LT	1	0.014	0.003	0.986	0.014	0.972
3	HARPER MARTIN W & DONNA E	RT	133	0.023	0.003	132.978	0.264	132.714
4	STRICKLAND CYNTHIA	RT	0.74	0.000	0.000	0.740	0.088	0.652
5	HOWARD JOHN C JR	RT	1.26	0.000	0.000	1.260	0.009	1.251



REVISIONS

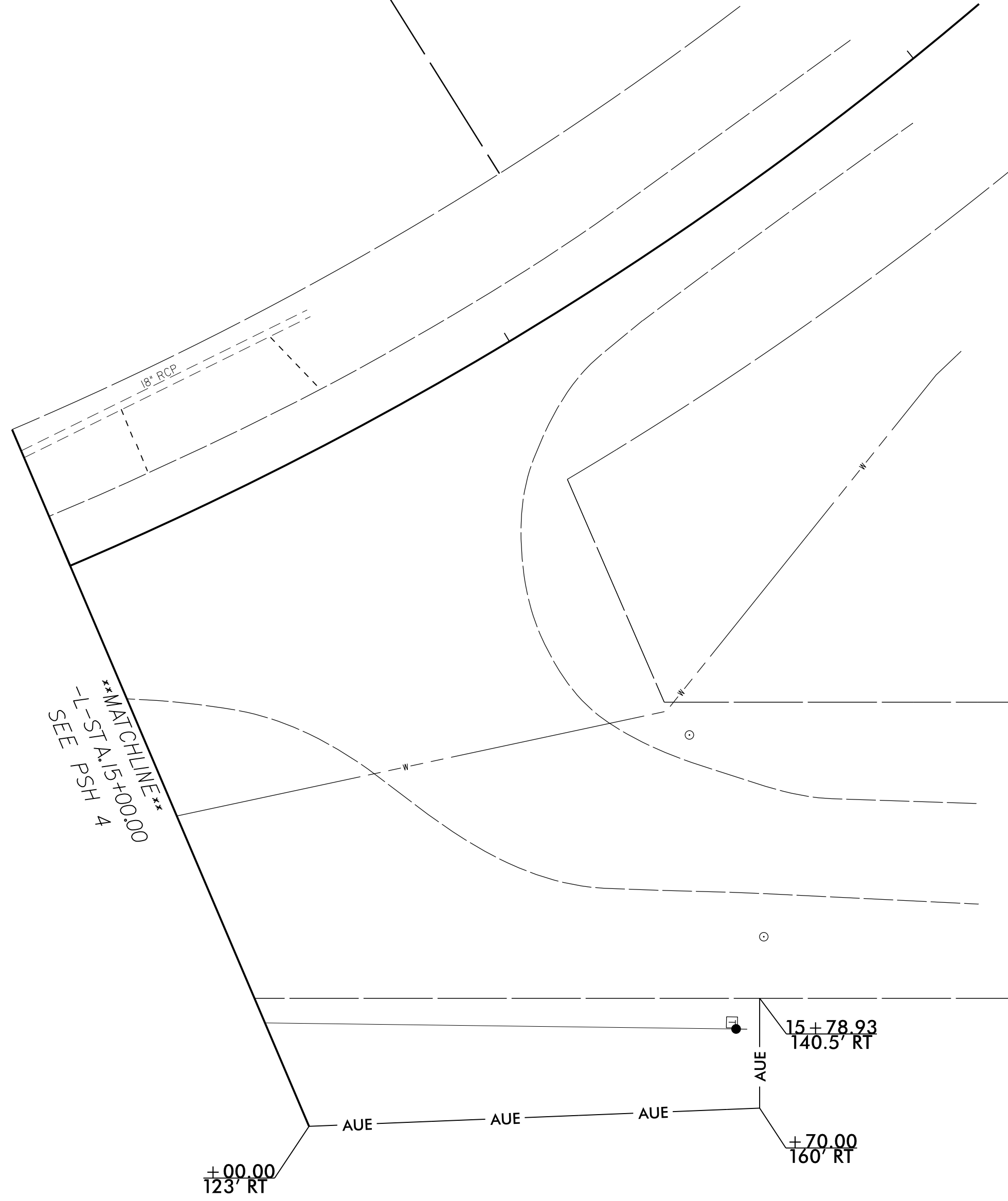
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REVISIONS

15



PROJECT REFERENCE NO. DF15402.2054808	SHEET NO. 5
RW SHEET NO. 2	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

**LENOIR COUNTY**



**INDEX OF SHEETS**

SHEET NO.	TITLE
TMP-1	TITLE SHEET WITH VICINITY MAP & INDEX OF SHEETS, LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND.
TMP-2	PROJECT NOTES, DETOUR AND PLANS.

**ROADWAY STANDARD DRAWINGS**

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

STD. NO.	TITLE
1101.03 (SHT. 1 OF 9)	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES (TYPE III)

**LEGEND**

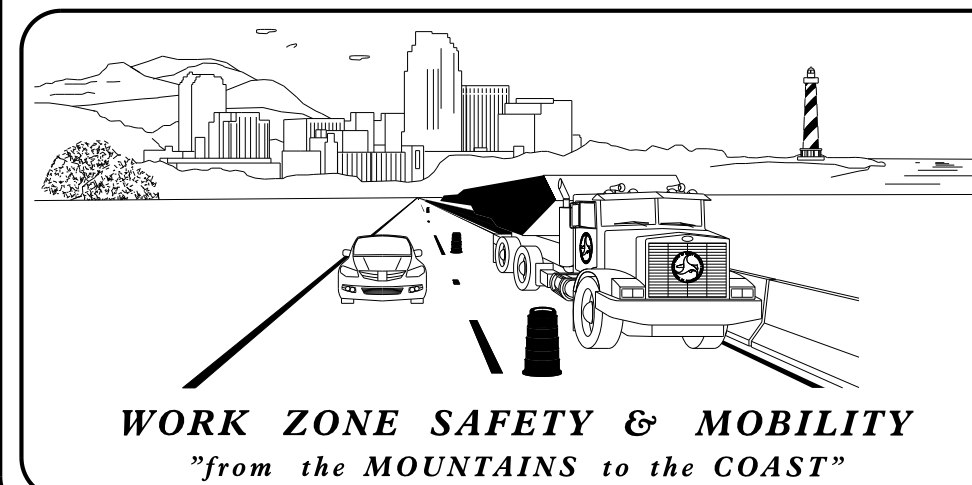
**GENERAL**

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- NORTH ARROW
- PROPOSED PVMT.
- EXIST. PVMT.
- WORK AREA

**TRAFFIC CONTROL DEVICES**

- BARRICADE (TYPE III)

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**N.C.D.O.T. WORK ZONE TRAFFIC CONTROL**  
1037 WH SMITH BLVD, GREENVILLE, NC 27834  
PHONE: (252) 439-2840 FAX: (252) 830-3352

JEFFREY D. CABANISS, PE **TRAFFIC ENGINEER**

JEFFREY D. CABANISS, PE **TRAFFIC CONTROL PROJECT ENGINEER**

LANG JONES **TRAFFIC CONTROL PROJECT DESIGN ENGINEER**

LANG JONES **TRAFFIC CONTROL DESIGN ENGINEER**



APPROVED: *Jeffrey D. Cabaniss*  
DATE: 9/10/2020

SEAL

SHEET NO. TMP-1  
**DF15402.2054808**  
**STATE PROJECT:**

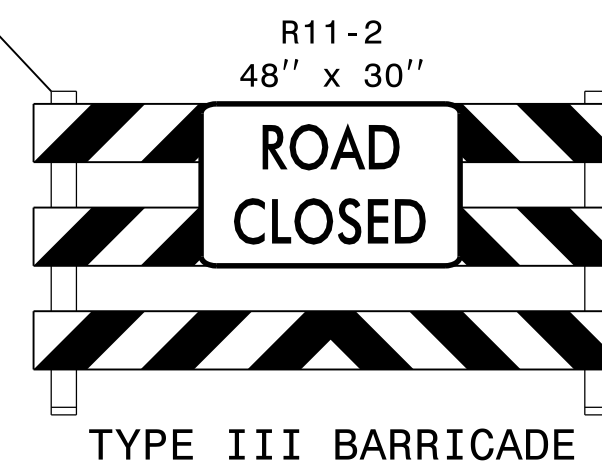
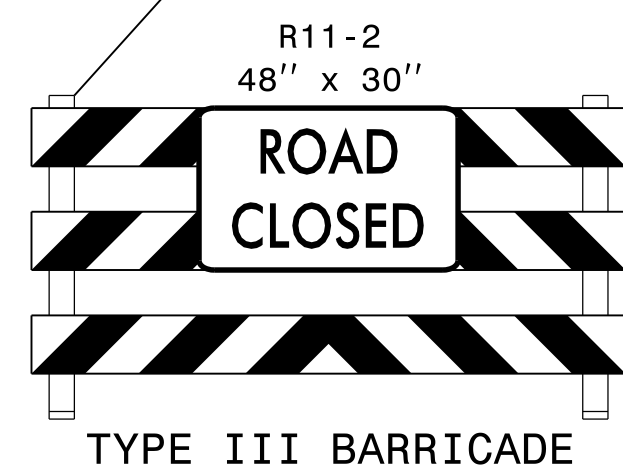
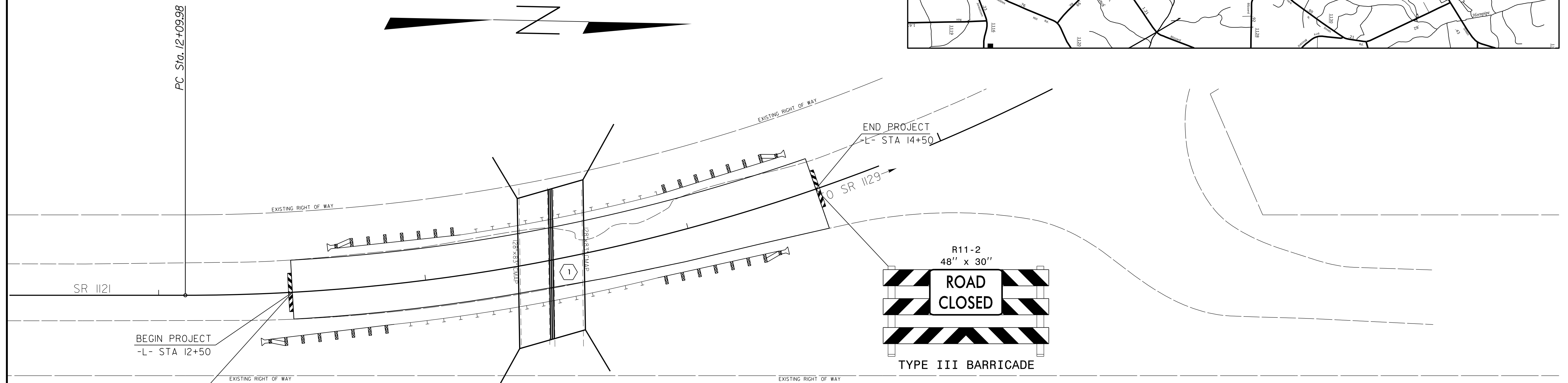
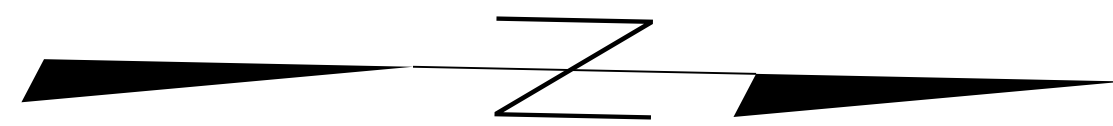
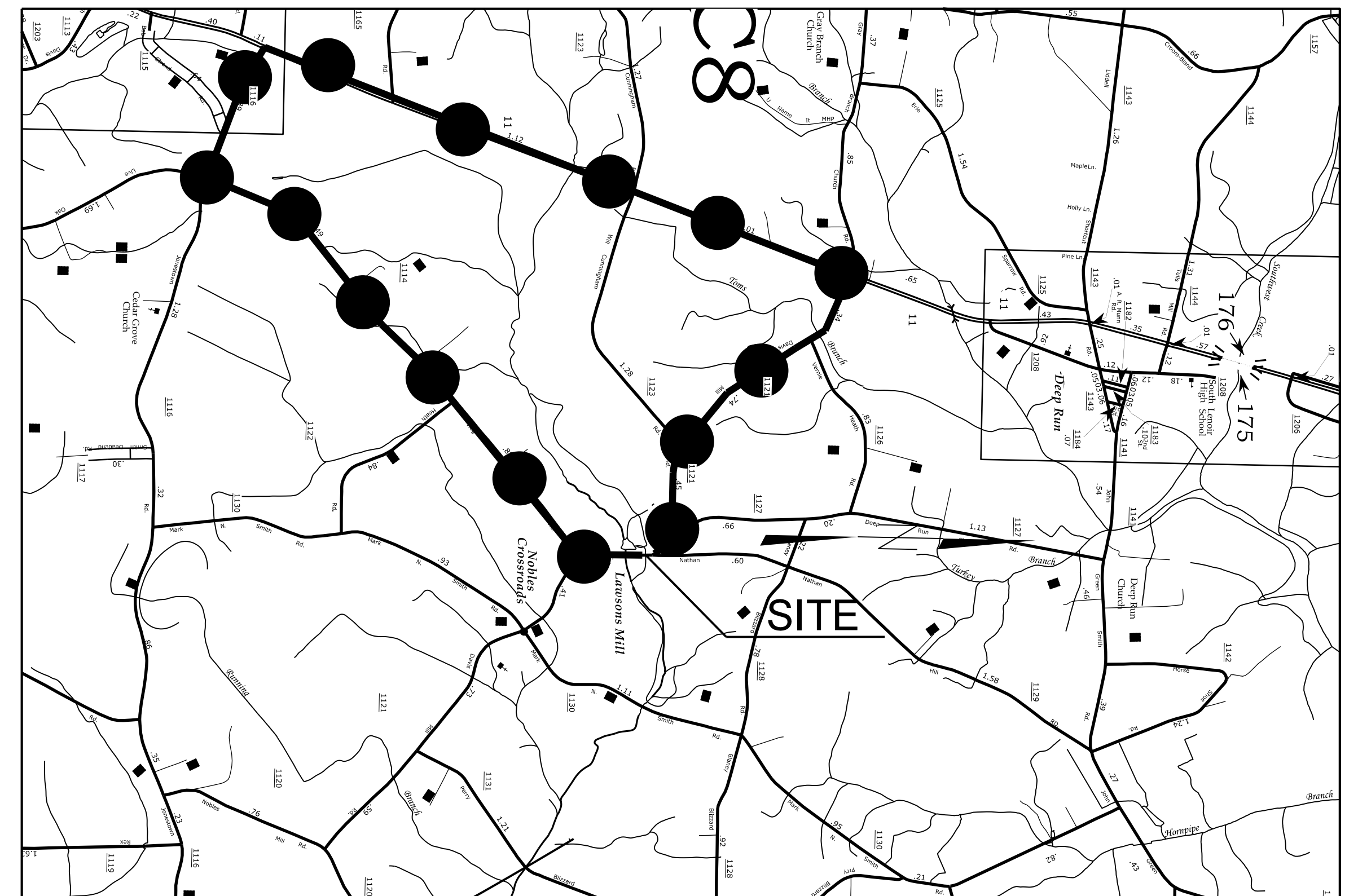


# GENERAL NOTES

IMPLEMENT TRAFFIC CONTROL IN ACCORDANCE WITH THE ROADWAY STANDARD DRAWINGS LISTED ON TMP-1.

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS, OR RESULT IN DUPLICATE, OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING OR REMOVAL OF DEVICES, AS DIRECTED BY THE ENGINEER.

STATE FORCES WILL INSTALL AND MAINTAIN THE PROJECT DETOUR AND THE TYPE III BARRICADES AT THE PROJECT LIMITS. STATE FORCES WILL INSTALL PAVEMENT MARKERS ON THE FINISHED PROJECT. CALL JEFFREY DUNNING AT 252-439-2950 FOR COORDINATION. PROVIDE A MINIMUM 2 WEEK NOTICE.



10-SEP-2020 10:33  
 G:\PROJECTS\LENDIR\SR 1121 Davis Mill Rd\DAVISMILL\tmp2.dgn  
 \$\$\$USERNAME\$\$\$

APPROVED: *Jeffrey D. Cabanis*  
FO3888BC4F54DD  
 DATE: 9/10/2020

SEAL

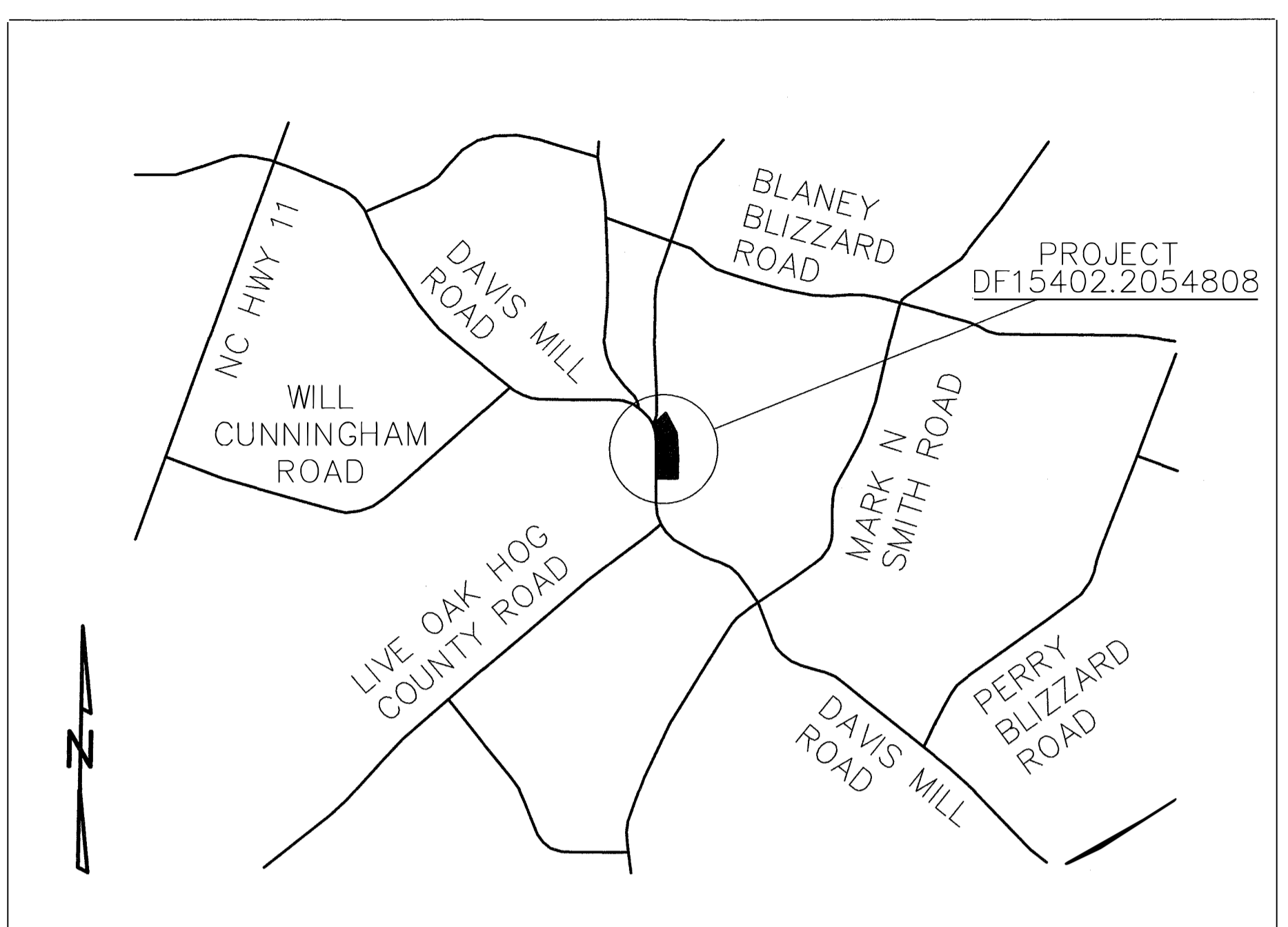
**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

TRANSPORTATION  
OPERATIONS  
PLAN



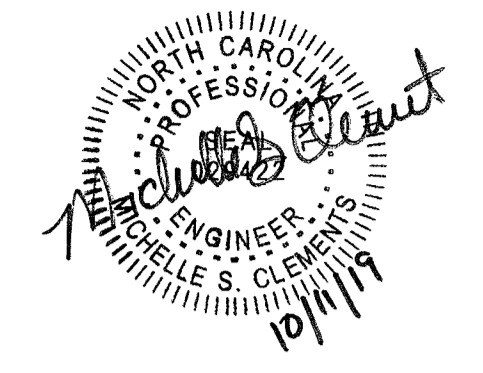
PROJECT: DF15402.2054808

CONTRACT:



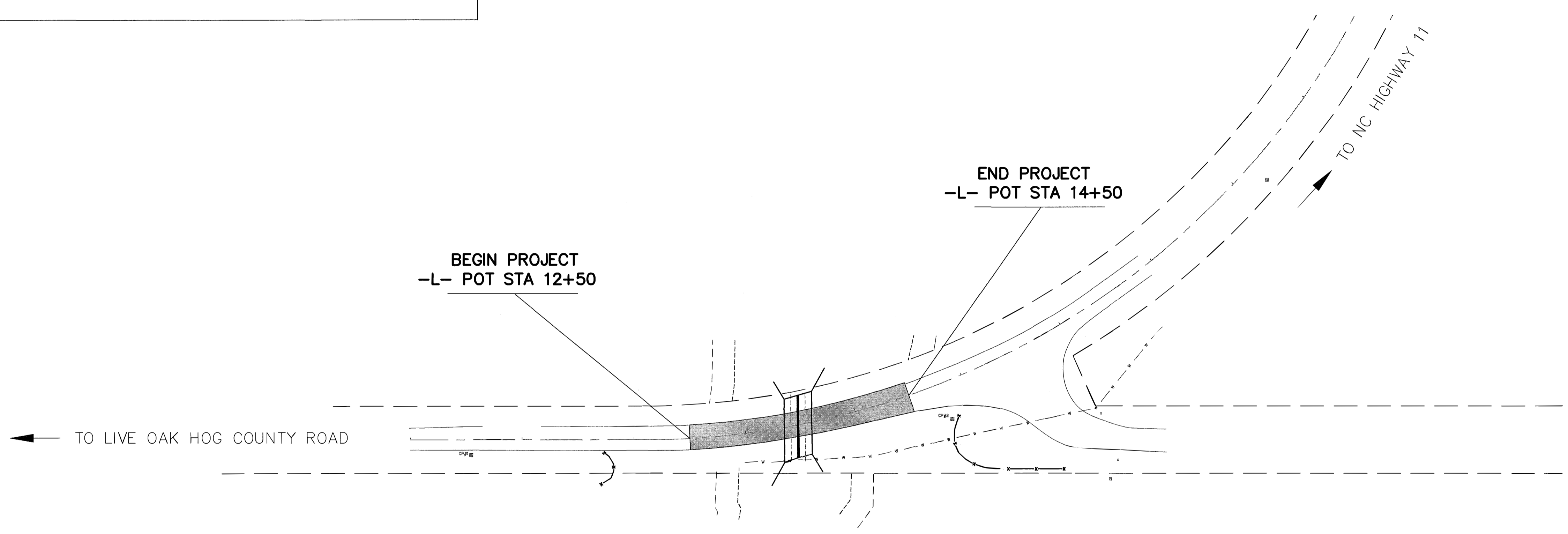
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

T.I.P. NO. DF15402.2054808	SHEET NO. UC-1
-------------------------------	-------------------

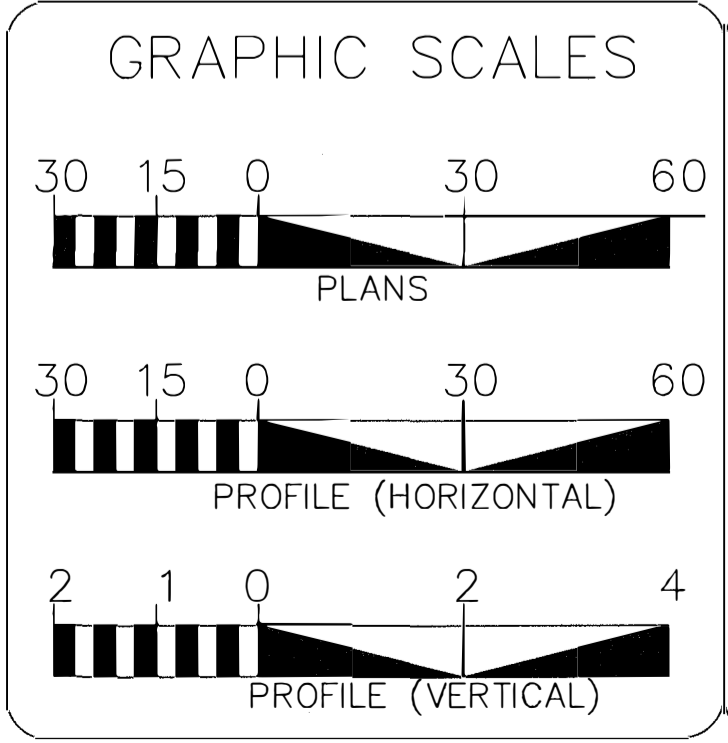


## UTILITY CONSTRUCTION PLANS LENOIR COUNTY

LOCATION: SR 1121 (DAVIS MILL RD) 200' SOUTH OF  
JUNCTION WITH SR 1129 (NATHAN HILL RD)  
NEW STRUCTURE #530223  
TYPE OF WORK: WATER MAIN CONSTRUCTION



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	SUMMARY OF QUANTITIES
UC-3	UBO PLAN & PROFILE SHEET
UC-4	DETAIL SHEET

UTILITY OWNERS WITH CONFLICTS

(A) WATER – DEEP RUN WATER CORPORATION  
(B) POWER –  
(C) COMMUNICATIONS –

PREPARED BY: TEG PROJECT NO. 20190086

**THE EAST GROUP, P.A.**

Engineering • Architecture • Surveying • Technology  
324 Evans St., Greenville, NC 27838 (252) 758-3746 (252) 830-3954 (Fax)  
4325 Lake Boone Trail, Suite 311, Raleigh, NC 27607 (919) 784-9330 (919) 784-9331 (Fax)  
NC Engineering License No. C-0206 NC Architectural License No. 50213

N.C.D.O.T. PROJECT ENGINEER:  
PREPARED FOR N.C.D.O.T. BRIDGE PROGRAM DIVISION



UTILITY CONSTRUCTION  
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
SUMMARY OF QUANTITIES

<u>QUANTITY</u>	<u>UNIT</u>	<u>ITEM DESCRIPTION</u>
80	LF	6" DIP RESTRAINED JOINT
360	LF	8" HDPE BY DIRECTIONAL DRILL
2	EA	6" GATE VALVE & VALVE BOX
2	EA	6" DIP TO 8" HDPE ADAPTER
4	EA	6" 45° BEND RESTRAINED JOINT
150	LF	TEMPORARY SILT FENCE

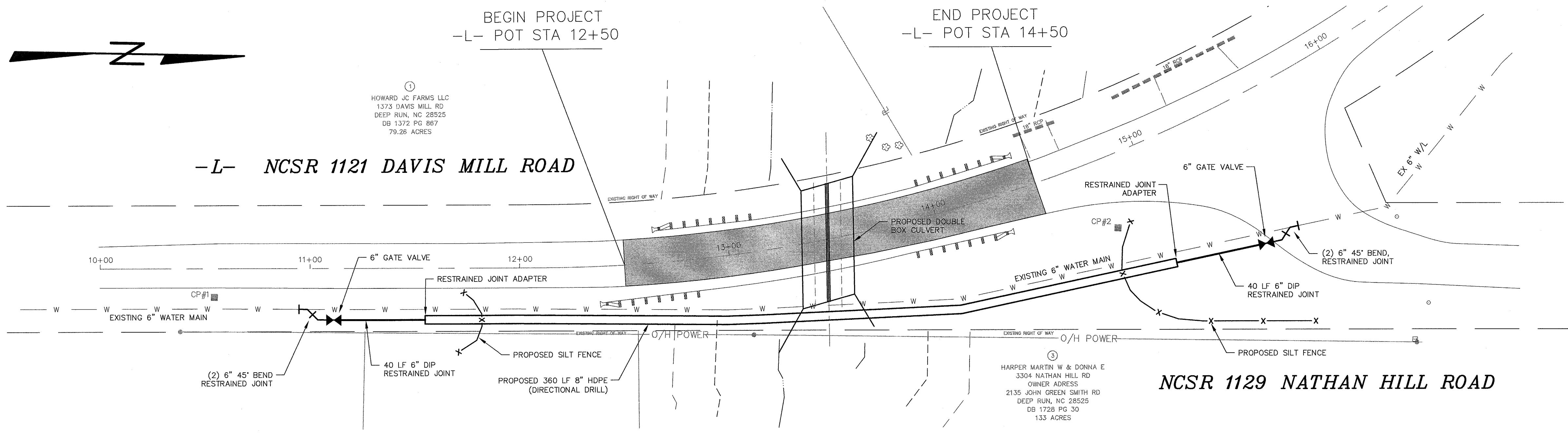


BEGIN PROJECT  
-L- POT STA 12+50

END PROJECT  
-L- POT STA 14+50

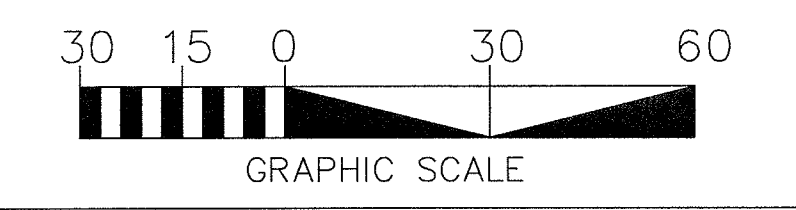
HOWARD JC FARMS LLC  
1373 DAVIS MILL RD  
DEEP RUN, NC 28525  
DB 1372 PG 867  
79.26 ACRES

-L- NCSR 1121 DAVIS MILL ROAD



T.I.P. NO. DF15402.2054808	SHEET NO. UC-3
TEG PROJECT NO. 20190086 Engineering • Architecture • Surveying • Technology 324 Evans St., Greenville, NC 27838 (252) 758-3746 (252) 820-3854 (Fax) 4325 Leno Stone Trk., Suite 311, Raleigh, NC 27607 (919) 784-9332 (919) 784-9333 (Fax) NC Engineering License No. C-0206 • NC Architectural License No. 50213	

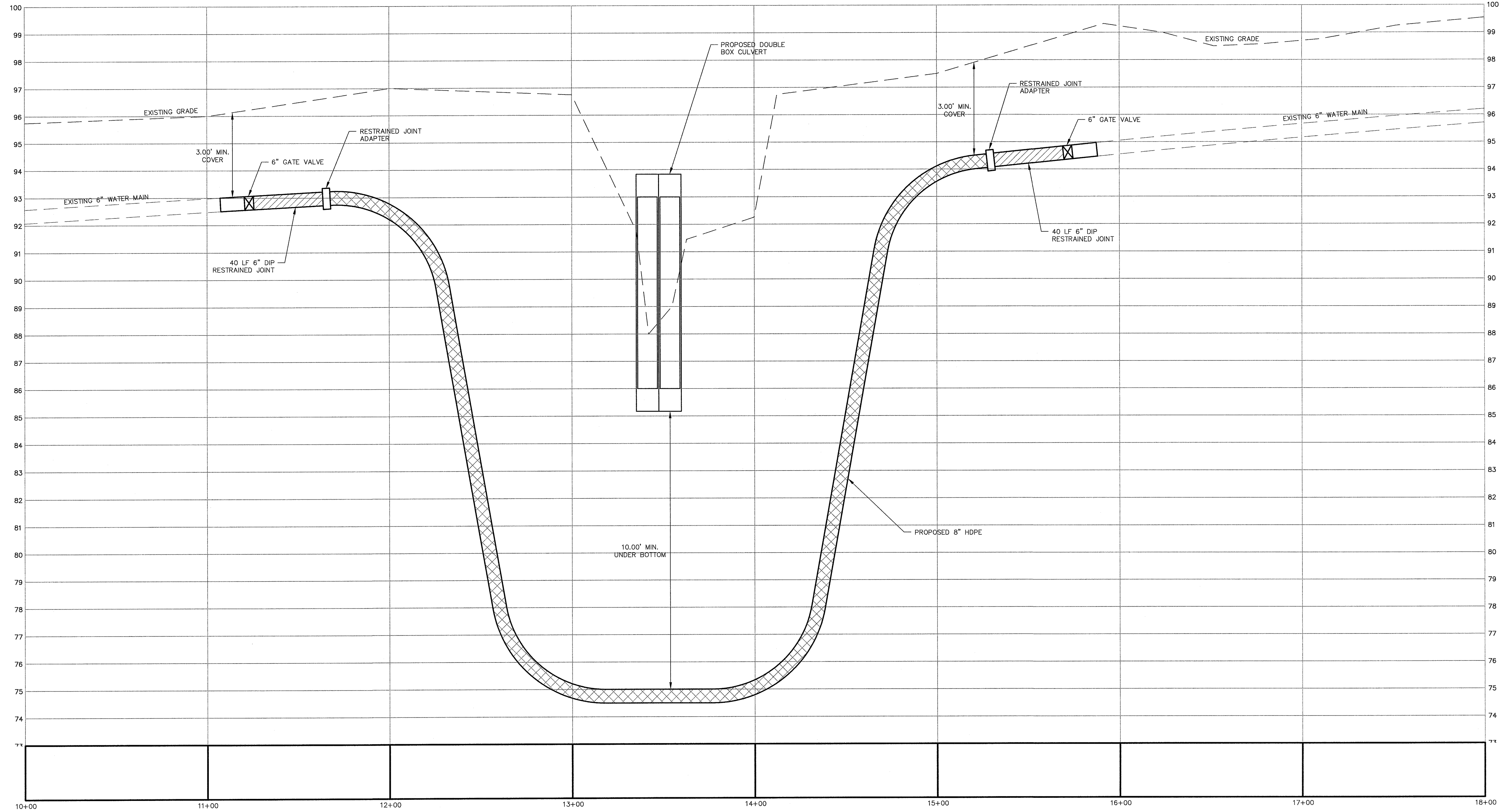
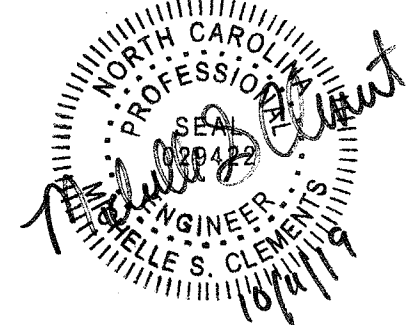
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



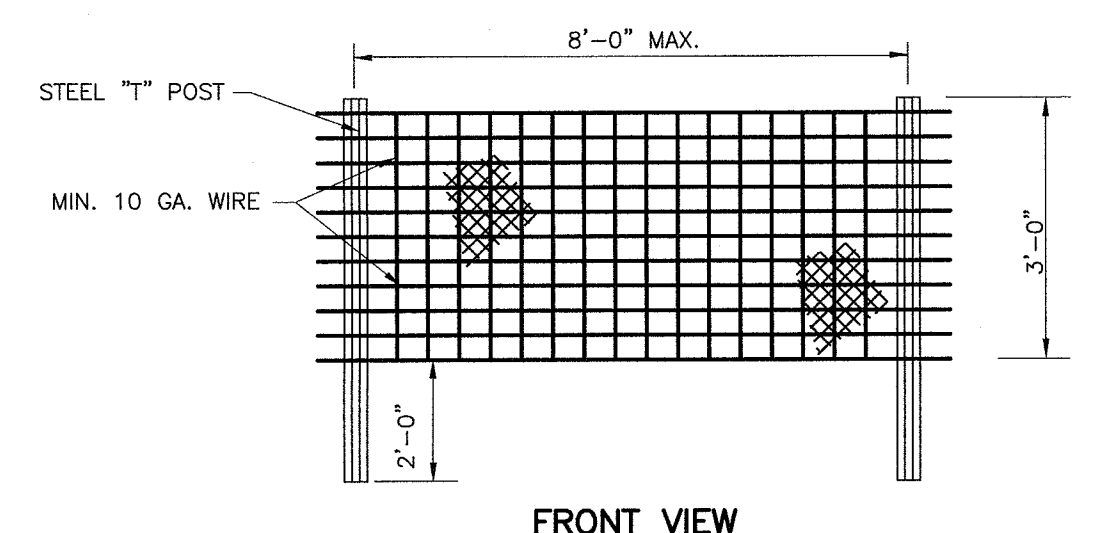
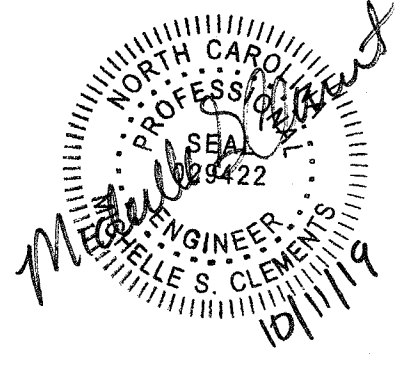
NOTE:  
ALL PROPOSED UTILITY WORK  
SHOWN ON THIS SHEET WILL  
BE DONE BY OTHERS

HARPER MARTIN W & DONNA E  
3304 NATHAN HILL RD  
OWNER ADDRESS  
2135 JOHN GREEN SMITH RD  
DEEP RUN, NC 28525  
DB 1728 PG 30  
133 ACRES

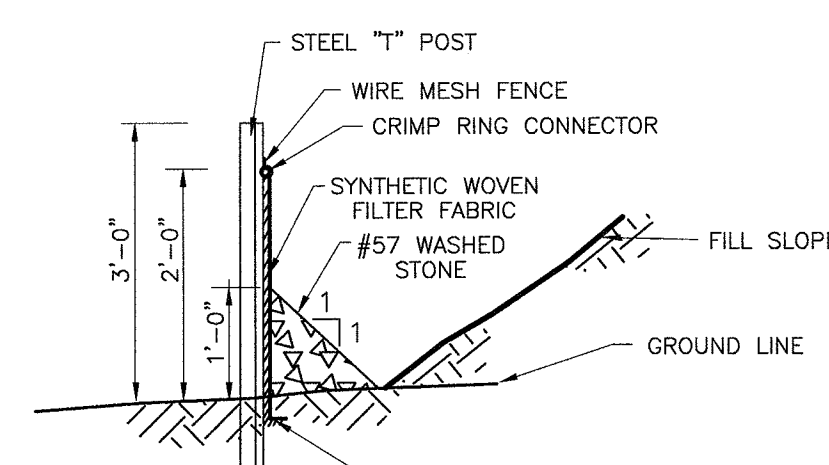
NCSR 1129 NATHAN HILL ROAD





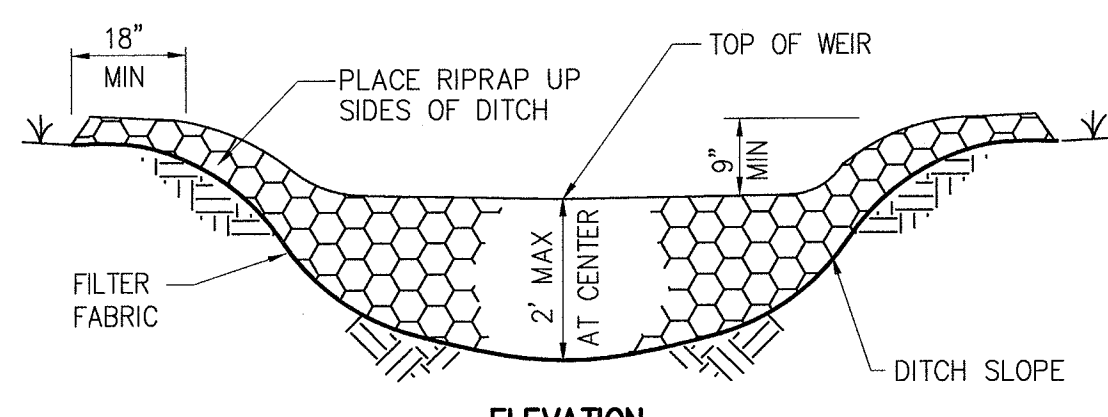


FRONT VIEW

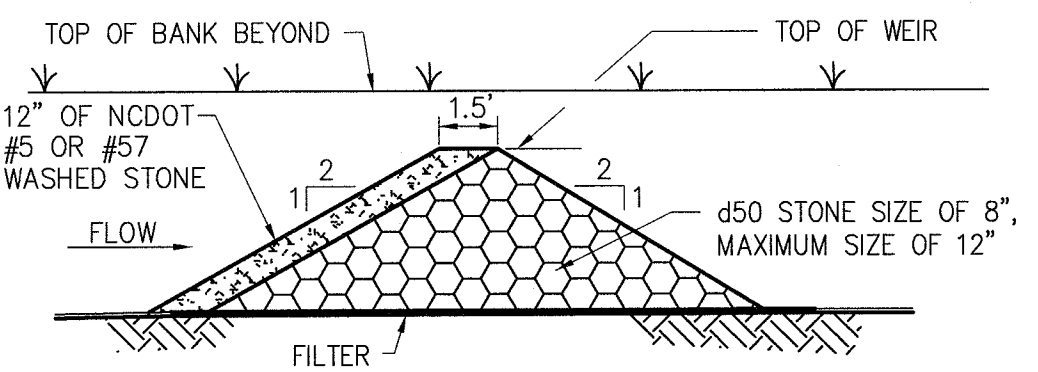


SIDE VIEW

SILT FENCE DETAIL  
N.T.S.

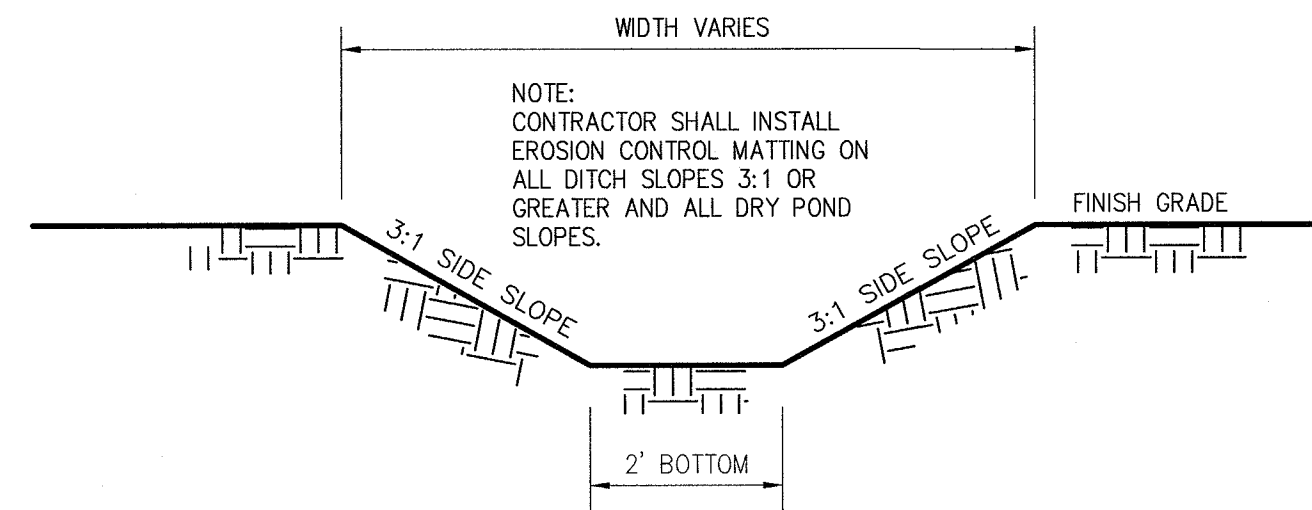


ELEVATION

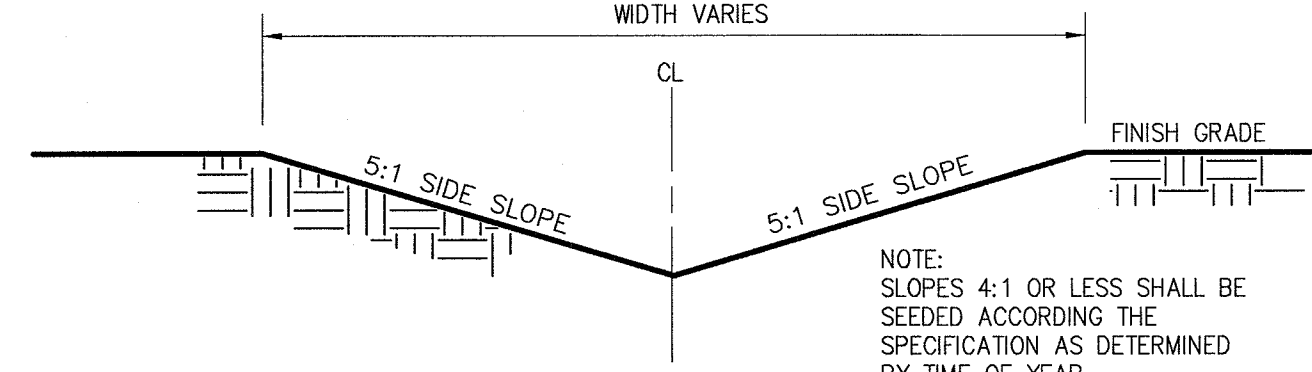


SECTION

ROCK SILT CHECK DAM  
N.T.S.

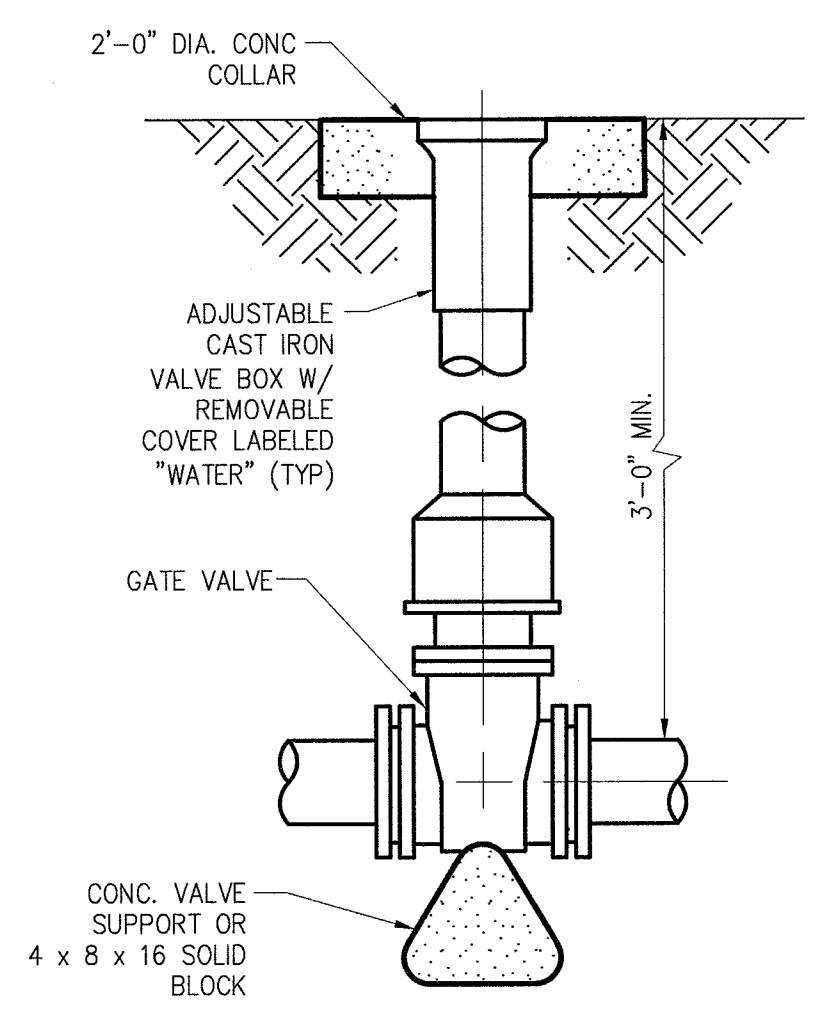


DITCH SECTION

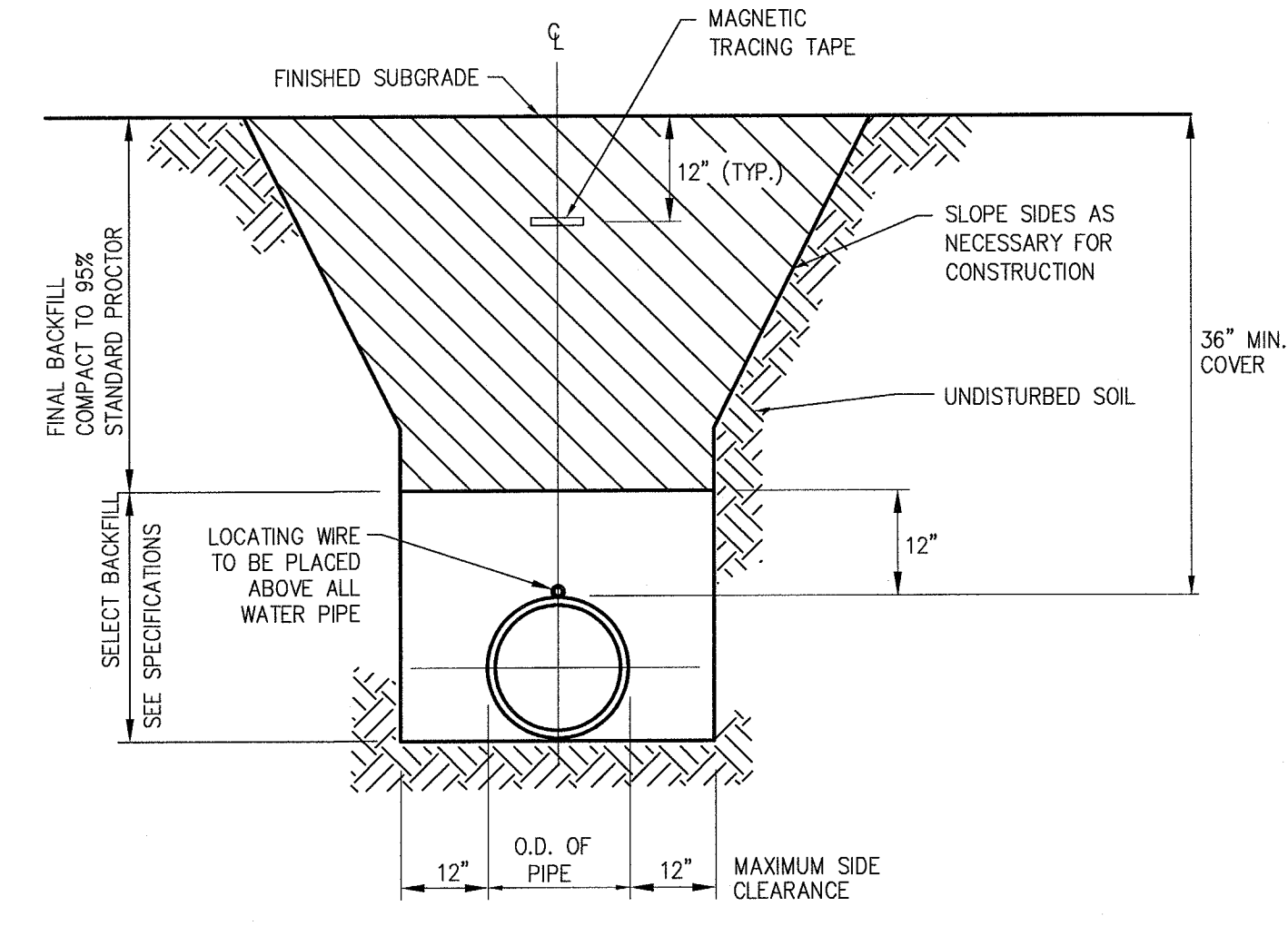


SWALE SECTION

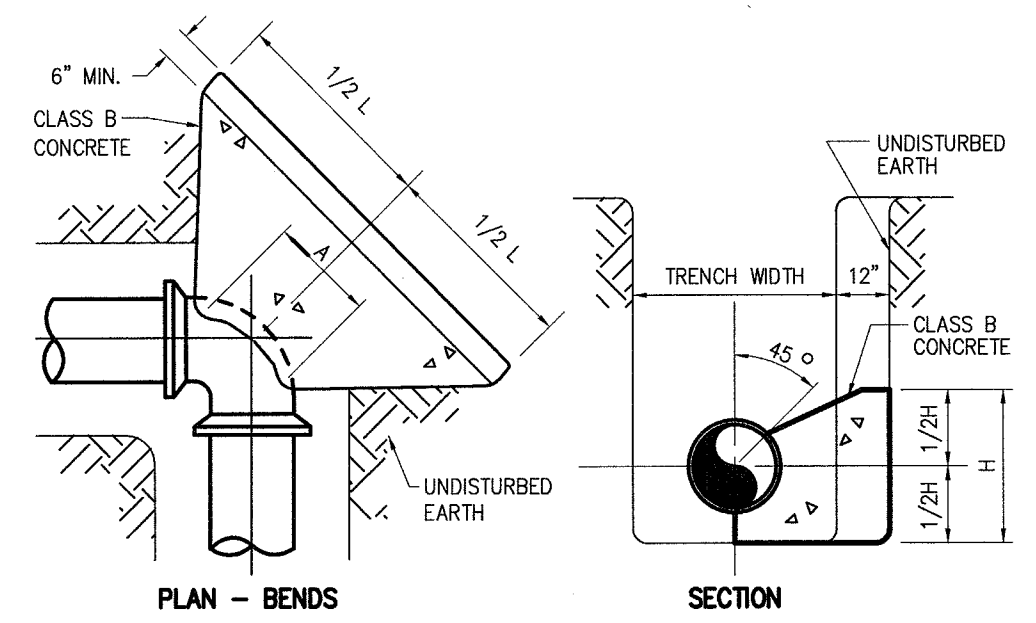
TYPICAL DITCH/SWALE SECTIONS  
N.T.S.



GATE VALVE DETAIL  
N.T.S.

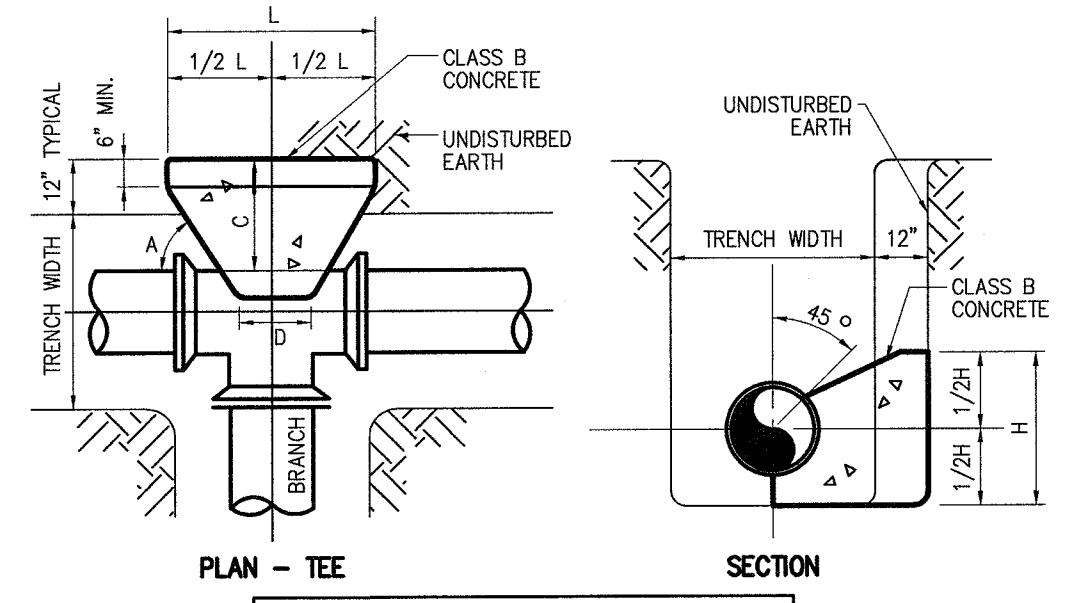


WATER PIPE TRENCH DETAIL  
N.T.S.



PIPE SIZE	22 1/2 BENDS				45 BENDS				90 BENDS			
	L	H	L	H	L	H	L	H	L	H	L	H
<4"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
4"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"
6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"
8"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	3'-0"	3'-0"	3'-0"	3'-0"	3'-0"	3'-0"
12"	2'-0"	2'-0"	3'-0"	3'-0"	2'-6"	4'-6"	3'-0"					

- NOTES:  
 1. DIMENSION "A" SHOULD BE AS LARGE AS POSSIBLE WITHOUT INTERFERING WITH THE MECH. JOINT BOLTS.  
 2. THE SHAPE OF THE BACK OF THE BUTTRESS MAY VARY AS LONG AS THE CONCRETE IS AGAINST FIRM, UNDISTURBED EARTH.  
 3. BUTTRESS DIMENSIONS ARE BASED UPON A SOIL RESISTANCE OF 2000 LBS. PER SQ. FT. AND A WATER PRESSURE OF 150 P.S.I.



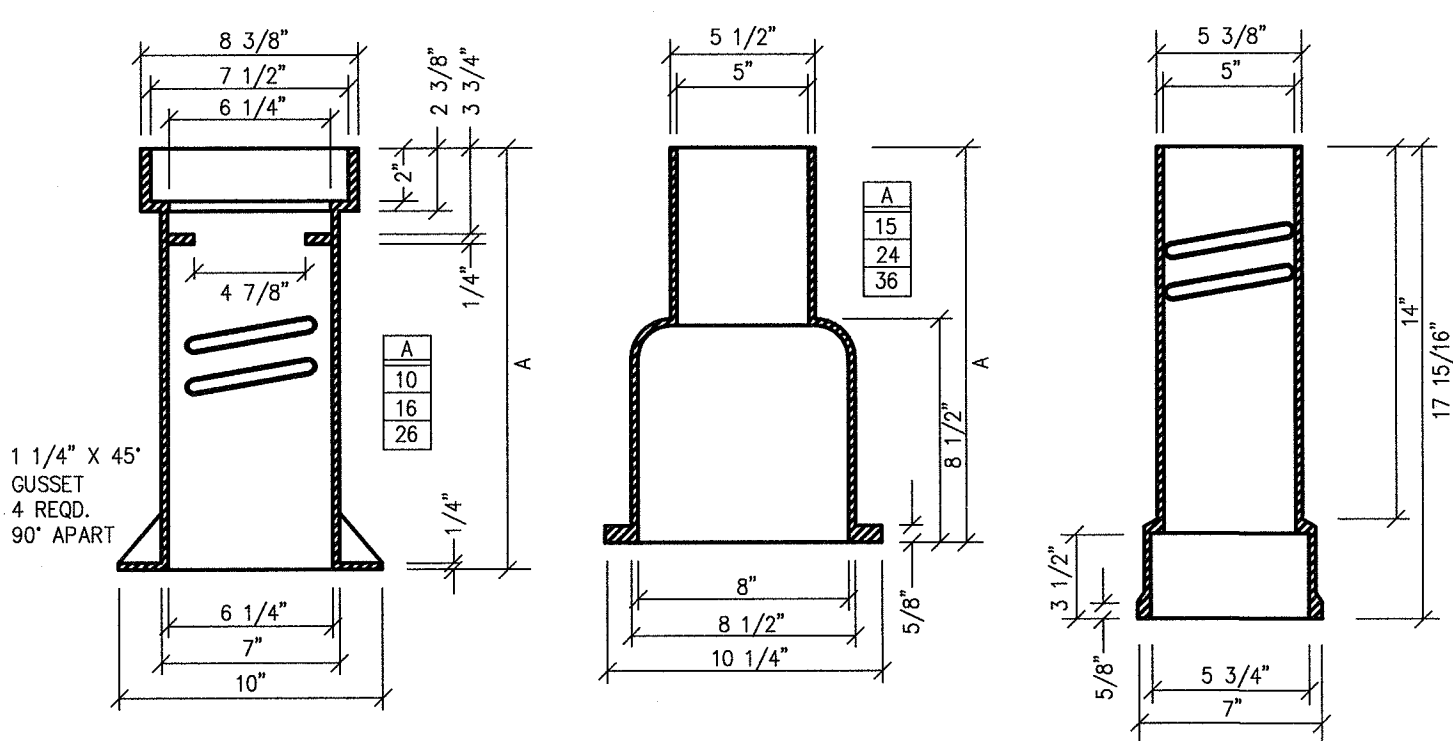
B. D.	L		H	C	D
	L	H	H		
<4"	1'-0"	1'-0"	1'-0"		
4"	1'-6"	1'-6"	1'-6"		
6"	2'-0"	2'-0"	2'-0"	SEE NOTE NO. 1	SEE NOTE NO. 2
8"	3'-0"	2'-0"	2'-0"		
12"	4'-6"	3'-0"	3'-0"		

- NOTES:  
 1. DIMENSION "C" SHOULD BE LARGE ENOUGH TO MAKE ANGLE "A" EQUAL TO OR GREATER THAN 45°.  
 2. DIMENSION "D" SHOULD BE AS LARGE AS POSSIBLE WITHOUT INTERFERING WITH THE MECHANICAL JOINTS.  
 3. BUTTRESS DIMENSIONS ARE BASED UPON A SOIL RESISTANCE OF 2000 LBS. PER SQ. FT. AND A WATER PRESSURE OF 150 P.S.I.

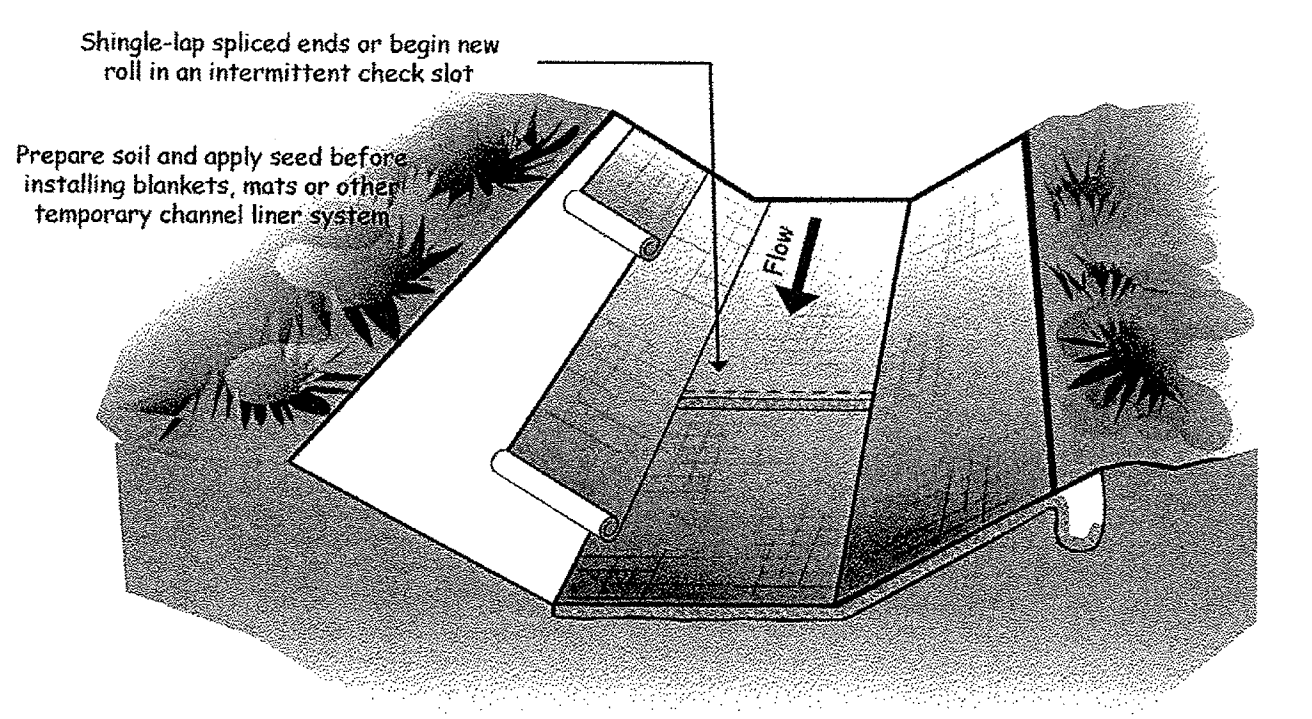
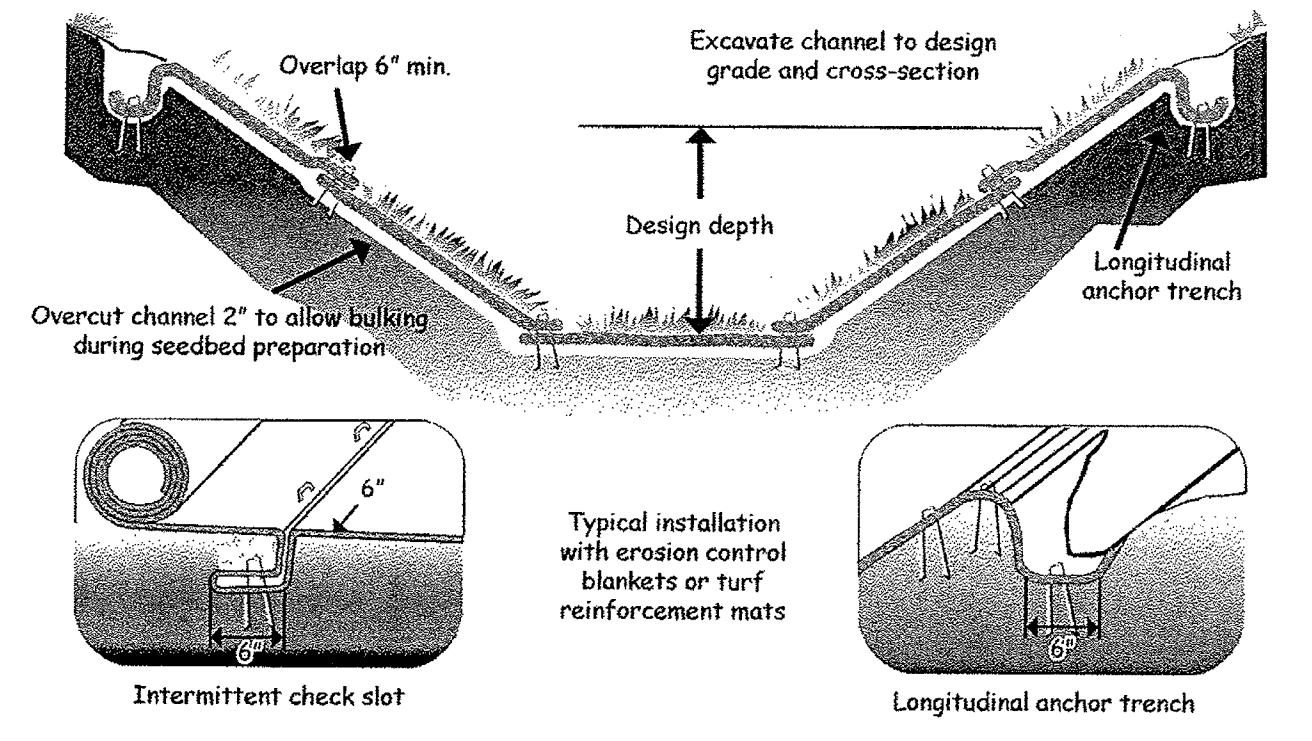
THRUST BLOCKING  
N.T.S.

SLIP TYPE	EXTENSION INCHES	COMPLETE		TOP & COVER		BOTTOM	
		LBS. WT.	INS. LGTH.	LBS. WT.	INS. LGTH.	LBS. WT.	INS. LGTH.
461-A	18-24	60	10	35	15	25	
562-A	24-36	90	16	45	24	35	
564-A	36-48	92	16	47	36	45	
664-A	39-60	106	26	63	36	45	

NOTE:  
 VALVE BOX SHALL BE CHARLOTTE UTL-274. VALVE BOX EXTENSION SHALL BE CHARLOTTE UTL-281 SCREW TYPE.



VALVE BOX DETAIL  
N.T.S.

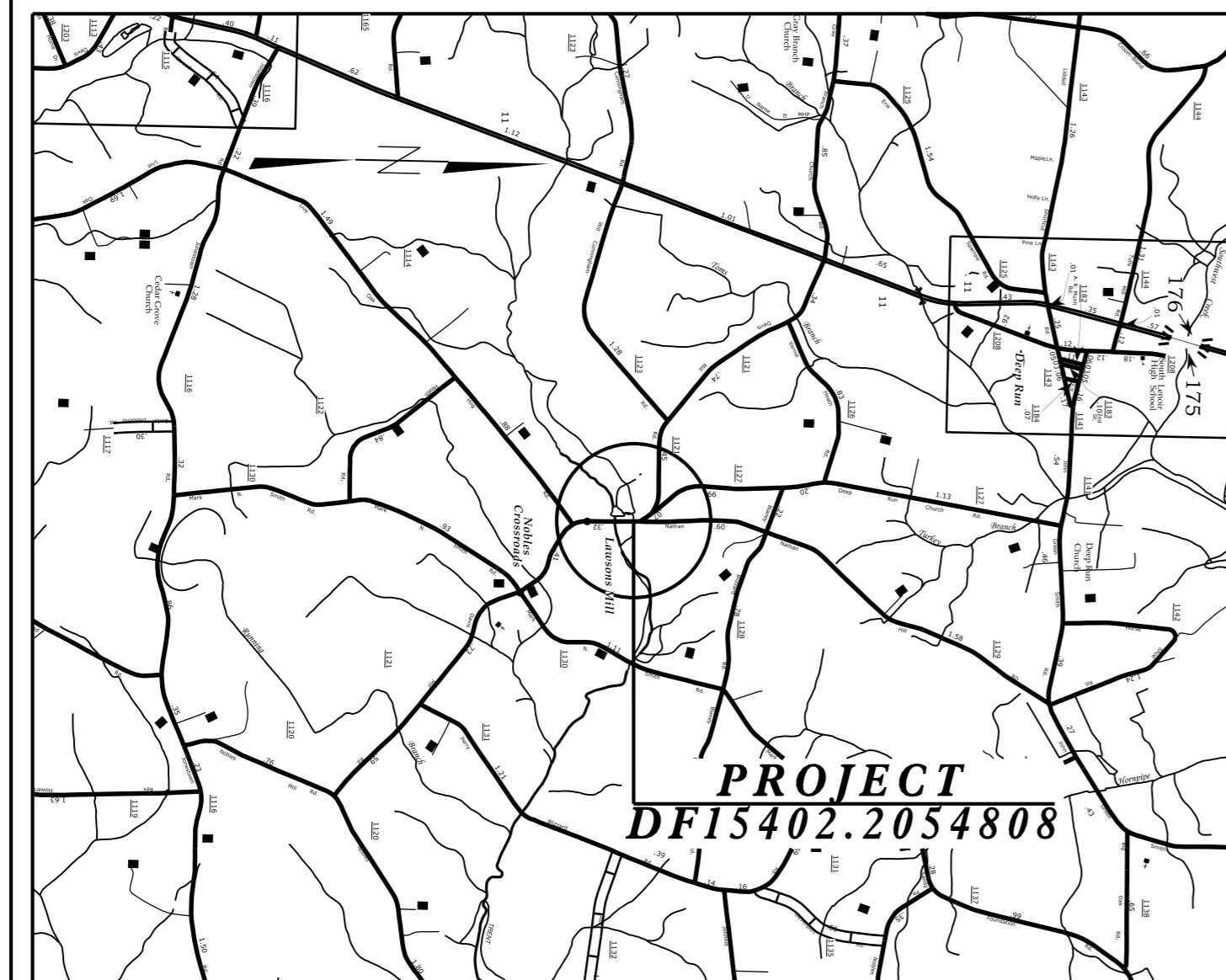


- NOTES:  
 1. Design velocities exceeding 2 ft/sec require temporary blankets, mats or similar liners to protect seed and soil until vegetation becomes established.  
 2. Grass-lined channels with design velocities exceeding 6 ft/sec should include turf reinforcement mats

EROSION CONTROL BLANKET DETAIL  
N.T.S.

09/08/99

PROJECT: DF15402.2054808



VICINITY MAP (NOT TO SCALE)

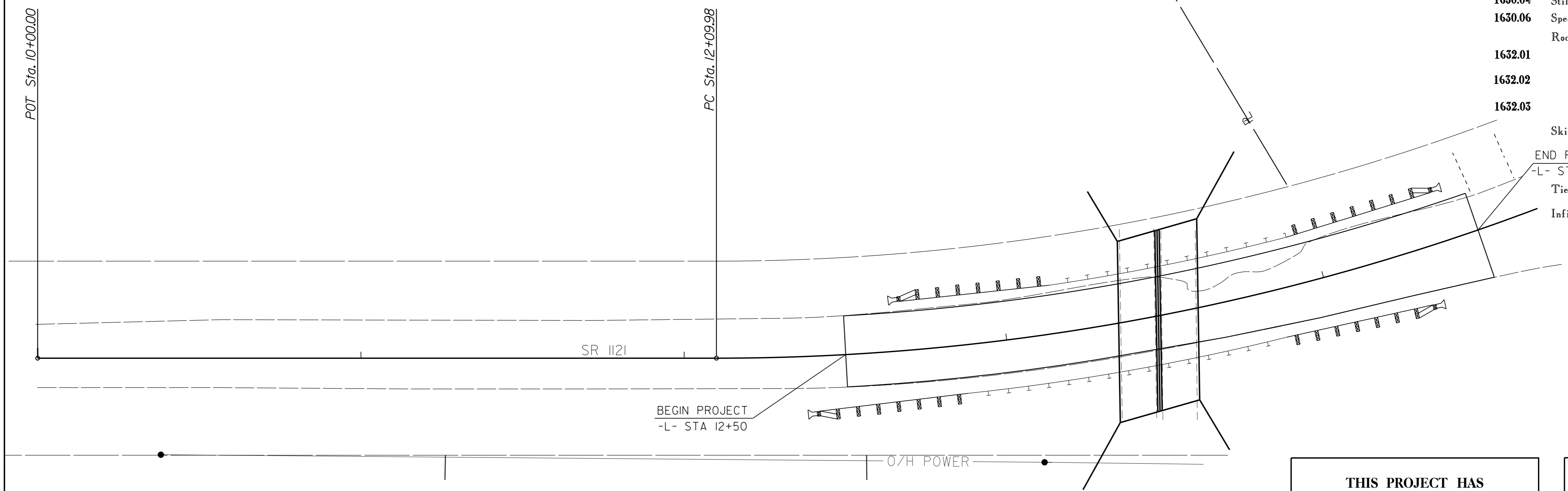
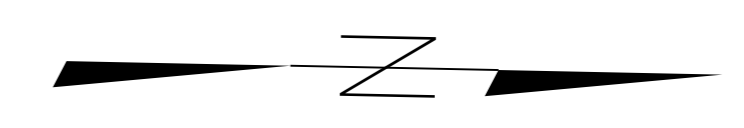
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED  
HIGHWAY EROSION CONTROL

**LENOIR COUNTY**

LOCATION: SR 1121 (DAVIS MILL RD) 200' SOUTH OF  
JUNCTION WITH SR 1129 (NATHAN HILL RD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURES  
DAMAGE DUE TO EFFECTS OF HUURICANE FLORENCE



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	DF15402.2054808	1	3
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

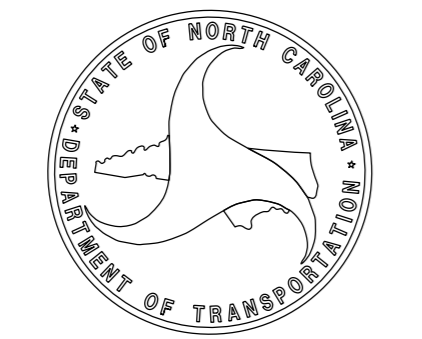
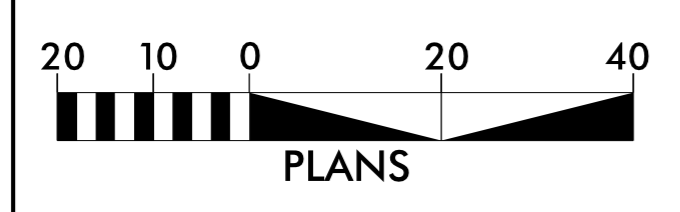
EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1650.05	Temporary Silt Ditch	TD
1650.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	III III III
1622.01	Temporary Berms and Slope Drains	—
1650.02	Silt Basin Type B	▧
1653.01	Temporary Rock Silt Check Type-A	▧
1653.02	Temporary Rock Silt Check Type-B	▧
1653.02	Wattle / Coir Fiber Wattle	—
1653.02	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	—
1654.01	Temporary Rock Sediment Dam Type-A	▧
1654.02	Temporary Rock Sediment Dam Type-B	▧
1655.01	Rock Pipe Inlet Sediment Trap Type-A	⊓
1655.02	Rock Pipe Inlet Sediment Trap Type-B	⊓
1650.04	Stilling Basin	▭
1650.06	Special Stilling Basin	▭
1652.01	Rock Inlet Sediment Trap Type A	A
1652.02	Type B	B
1652.05	Type C	C
	Skimmer Basin	▭
	Tiered Skimmer Basin	▭
	Infiltration Basin	▭

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

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

GRAPHIC SCALES



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

2018 STANDARD SPECIFICATIONS

Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
1037 WH SMITH BLVD  
GREENVILLE, NC 27834

Timothy Pinkham  
Level III  
Certification #3510

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type J
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type J
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type J	1634.02 Temporary Rock Sediment Dam Type J
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type J
1630.05 Temporary Diversion	1640.01 Coir Fiber Wattle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

10-SEP-2020 10:34 G:\PROJECTS\LENOIR\SR 1121\Davis Mill Rd\DAVISMILL.eci.dgn \$\$\$USERNAME\$\$\$

### SOIL STABILIZATION TIMEFRAMES

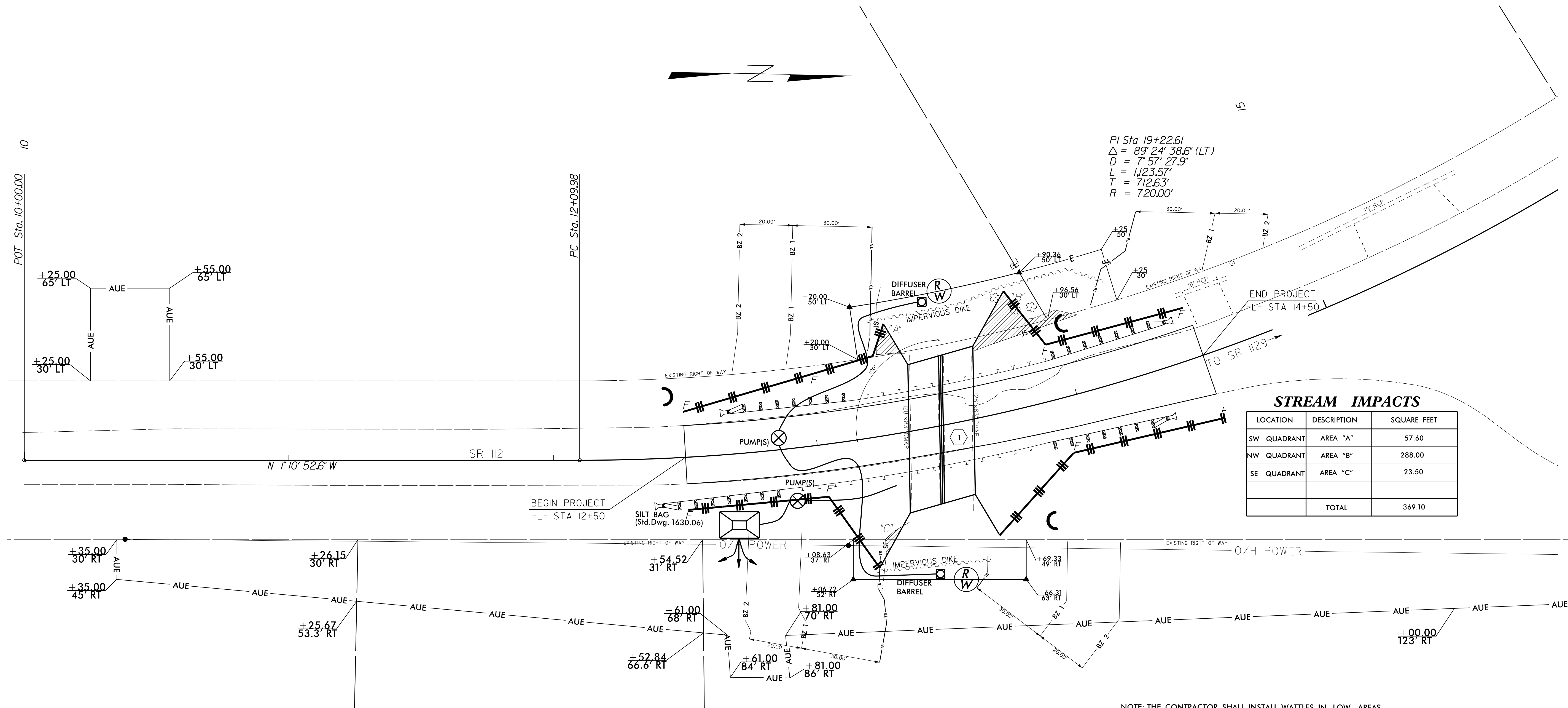
SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HOW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS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

### Pipe Installation Schedule

1. Install erosion control devices per plans, including impervious dikes, silt bag and turbidity curtain (if needed).
2. Remove material (asphalt, debris, and waste) and existing pipe while limiting, as much as possible, material and sediment from entering the stream and/or escaping from the project. Stockpile any material that can be reused (contained within silt fence).
3. Prepare pipe foundation. The new grade should be one foot below the existing streambed. Bedding material will be cleaned/washed stone.
4. Place new pipe and compact fill. Install slope protection on inlet and outlet as permit allows.
5. Complete installation of erosion control measures (wattles, silt fences, etc.) and perform maintenance as needed on existing measures.
6. Matting with nylon mesh cannot be used within 25' of the top of the stream bank.
7. Establishment permanent vegetation as soon as possible. The disturbed areas will be seeded, mulched, crimped, and tacked. Once vegetation has been established and approval given, EC devices will be removed.

\*\*\*Perform weekly NPDES inspections and document using the most recent NPDES inspection form. Inspections are also required within 24 hours of a 1 inch rainfall event that occurs within 24 hours.

REVISIONS  
 10 SEP 2020 10:24 AM TR\SR 1121 Davis Mill Rd\DAVIS\MILL.ec2.dgn  
 8/17/99



### STREAM IMPACTS

LOCATION	DESCRIPTION	SQUARE FEET
SW QUADRANT	AREA "A"	57.60
NW QUADRANT	AREA "B"	288.00
SE QUADRANT	AREA "C"	23.50
	TOTAL	369.10

**NOTE: COIR FIBER MATTING,  
PLACED AS DIRECTED BY ENGINEER**

**PERMIT: NWP3**

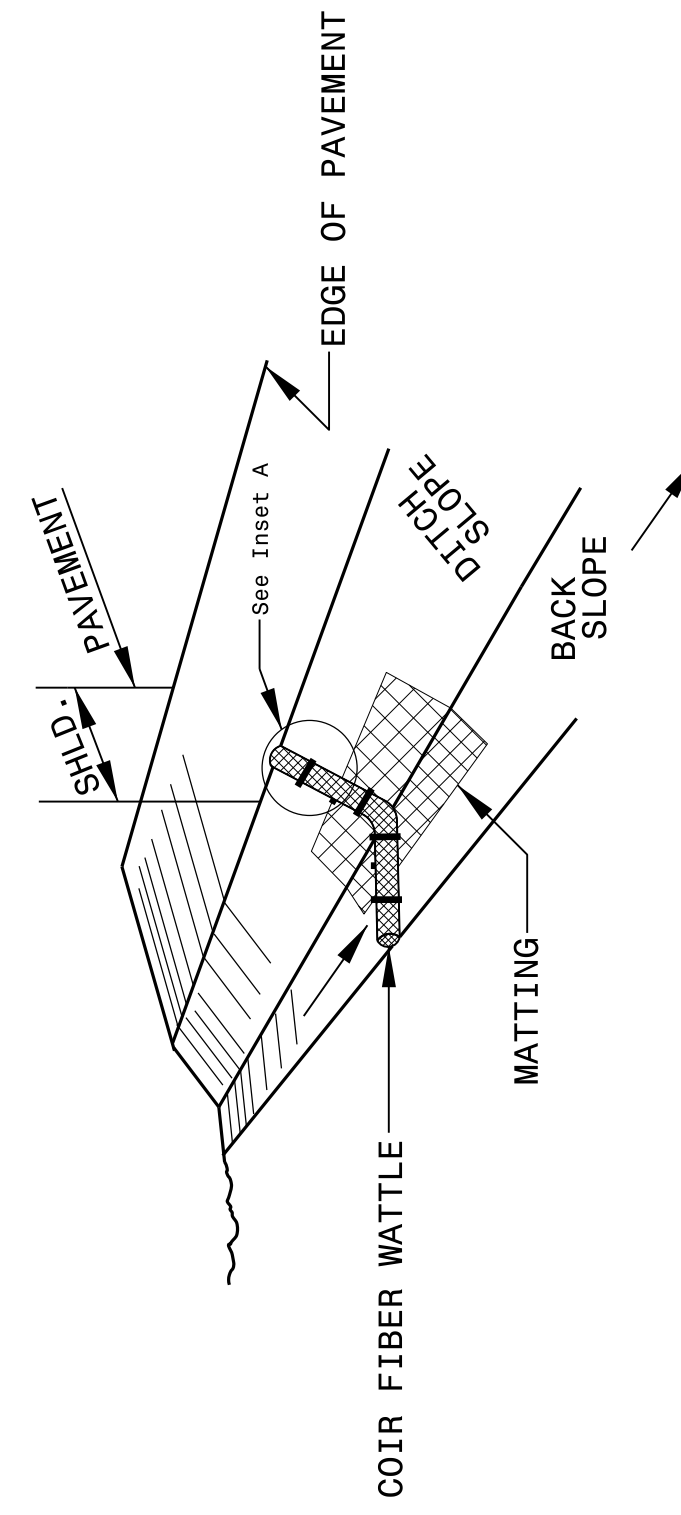
NOTE: THE CONTRACTOR SHALL INSTALL WATTLES IN LOW AREAS OF SILT FENCE AS NEEDED OR AS DIRECTED BY THE ENGINEER.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.  
 ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.  
 CONTRACTOR SHALL INSTALL SPECIAL SEDIMENT CONTROL FENCE OR WATTLES IN LOW AREAS OF SILT FENCE AS NEEDED OR DIRECTED BY THE ENGINEER.

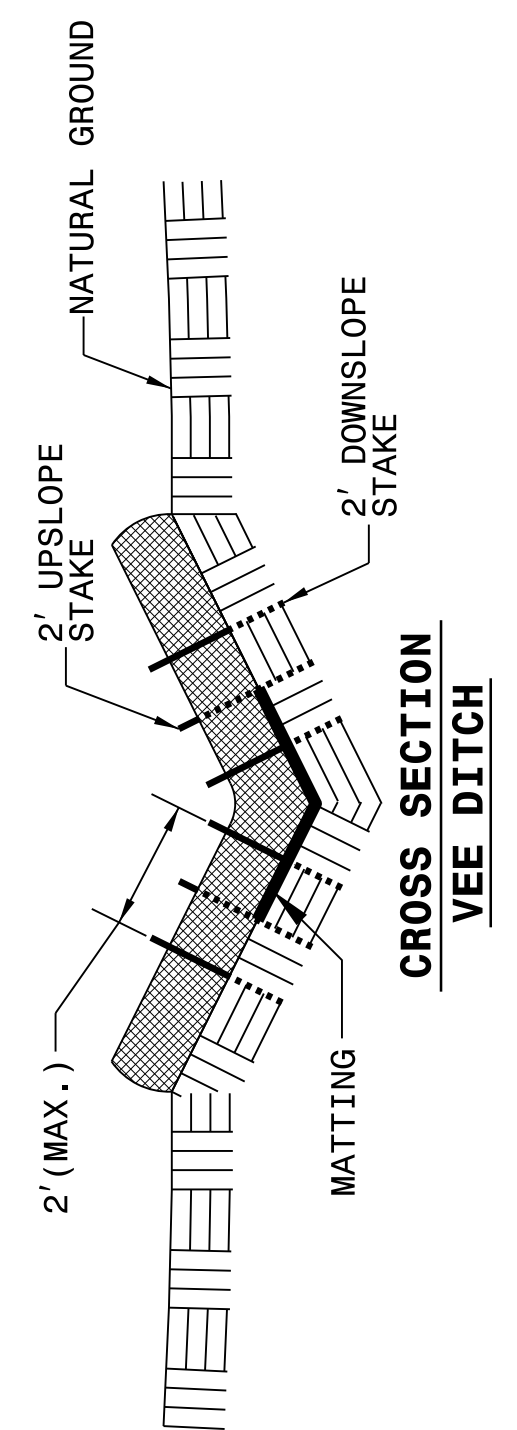


# COIR FIBER WATTLE DETAIL

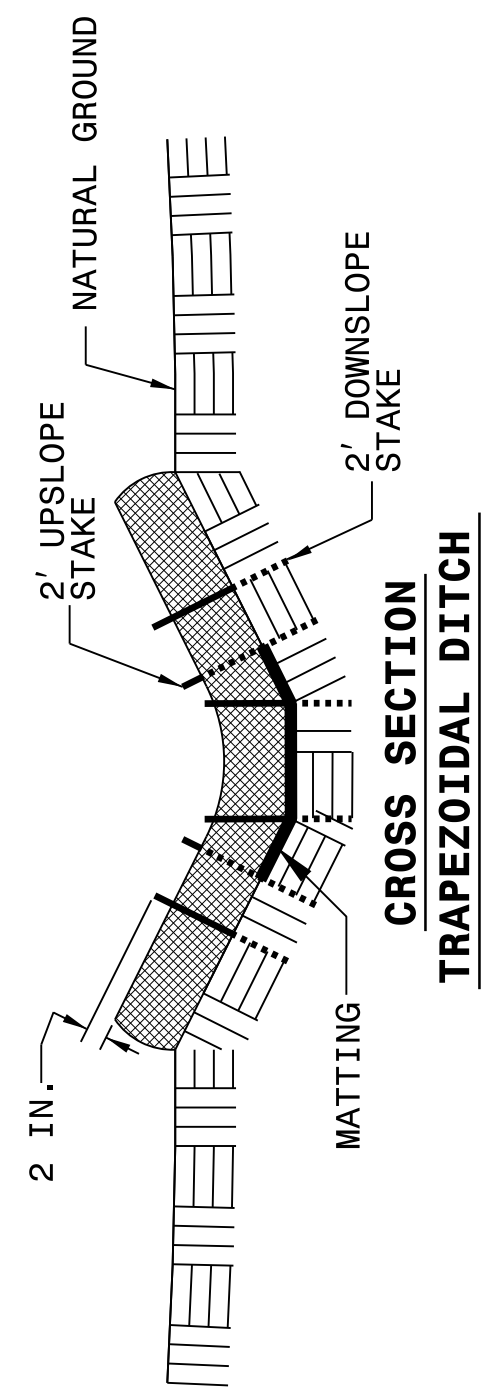
NOTES:  
 USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.  
 USE 3 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.  
 ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.  
 INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.  
 PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.  
 INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.  
 INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



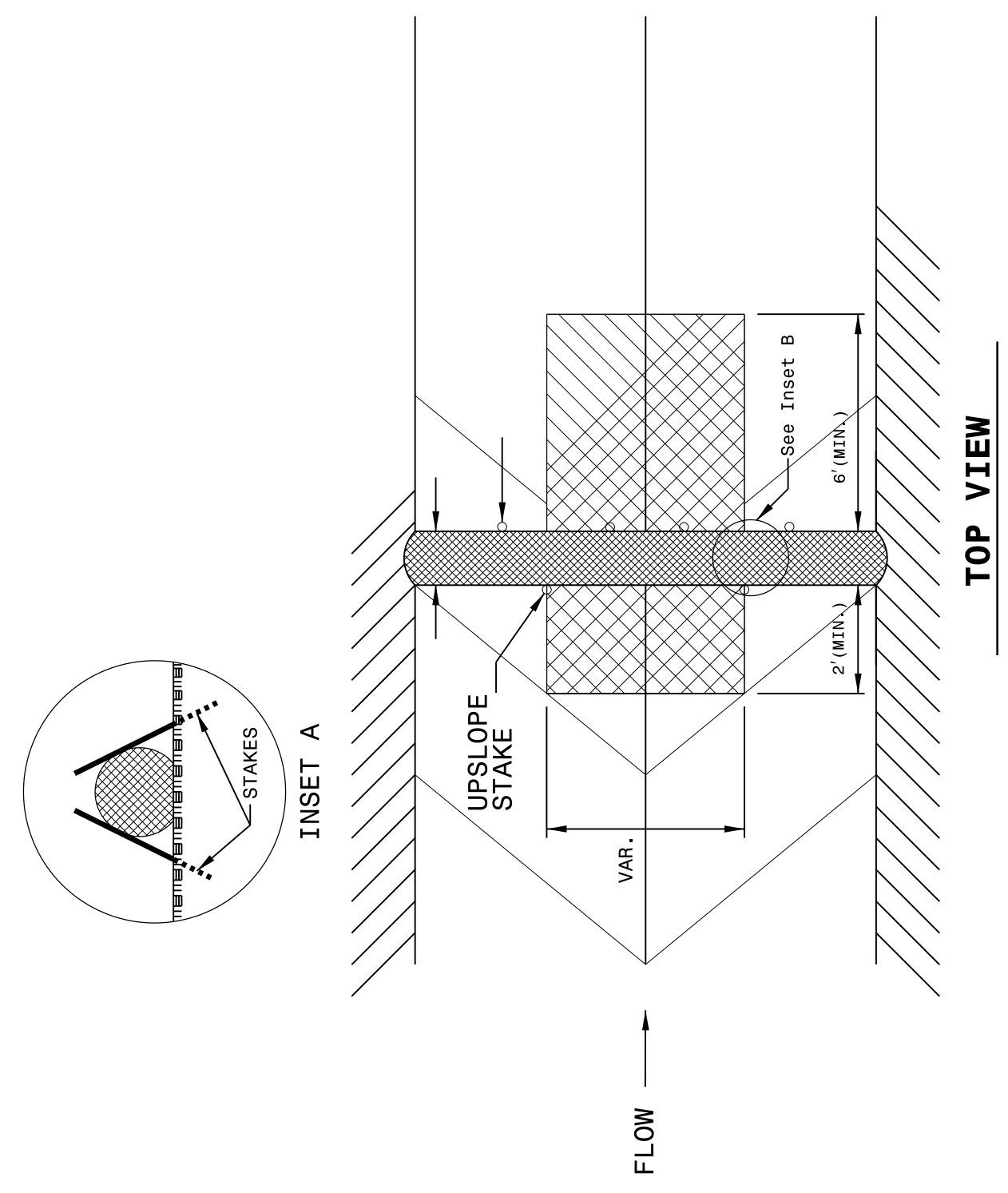
ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH



TOP VIEW

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

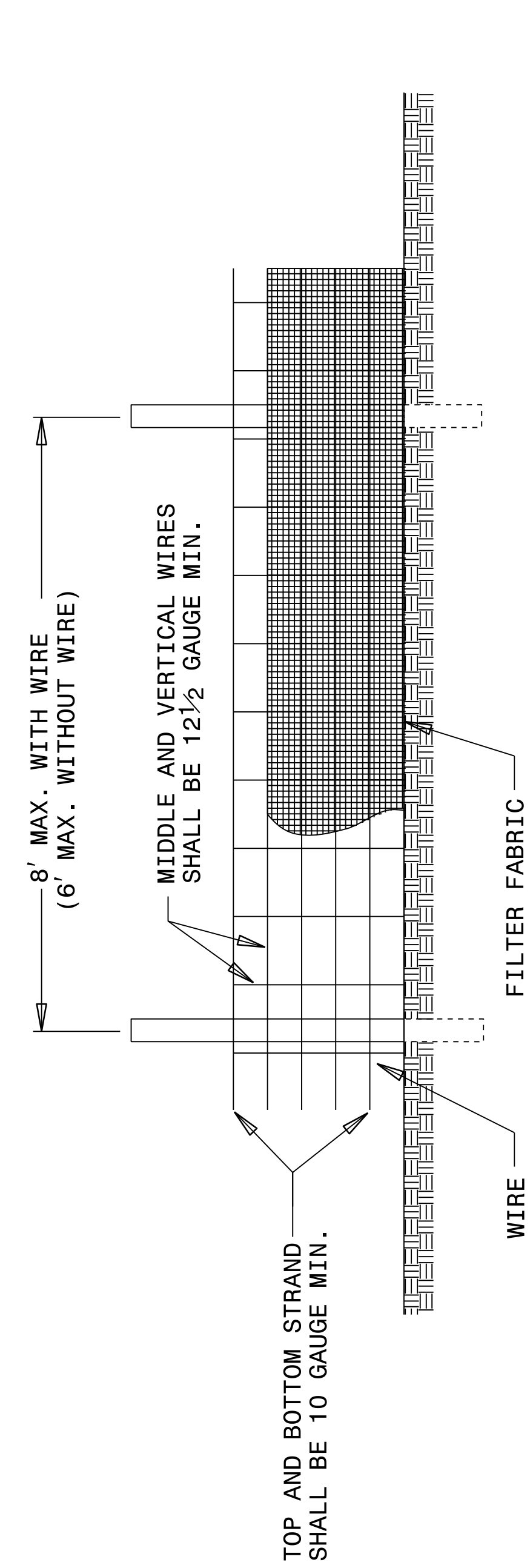
ENGLISH STANDARD DRAWING FOR  
**TEMPORARY SILT FENCE**

SHEET 1 OF 1  
**1605.01**

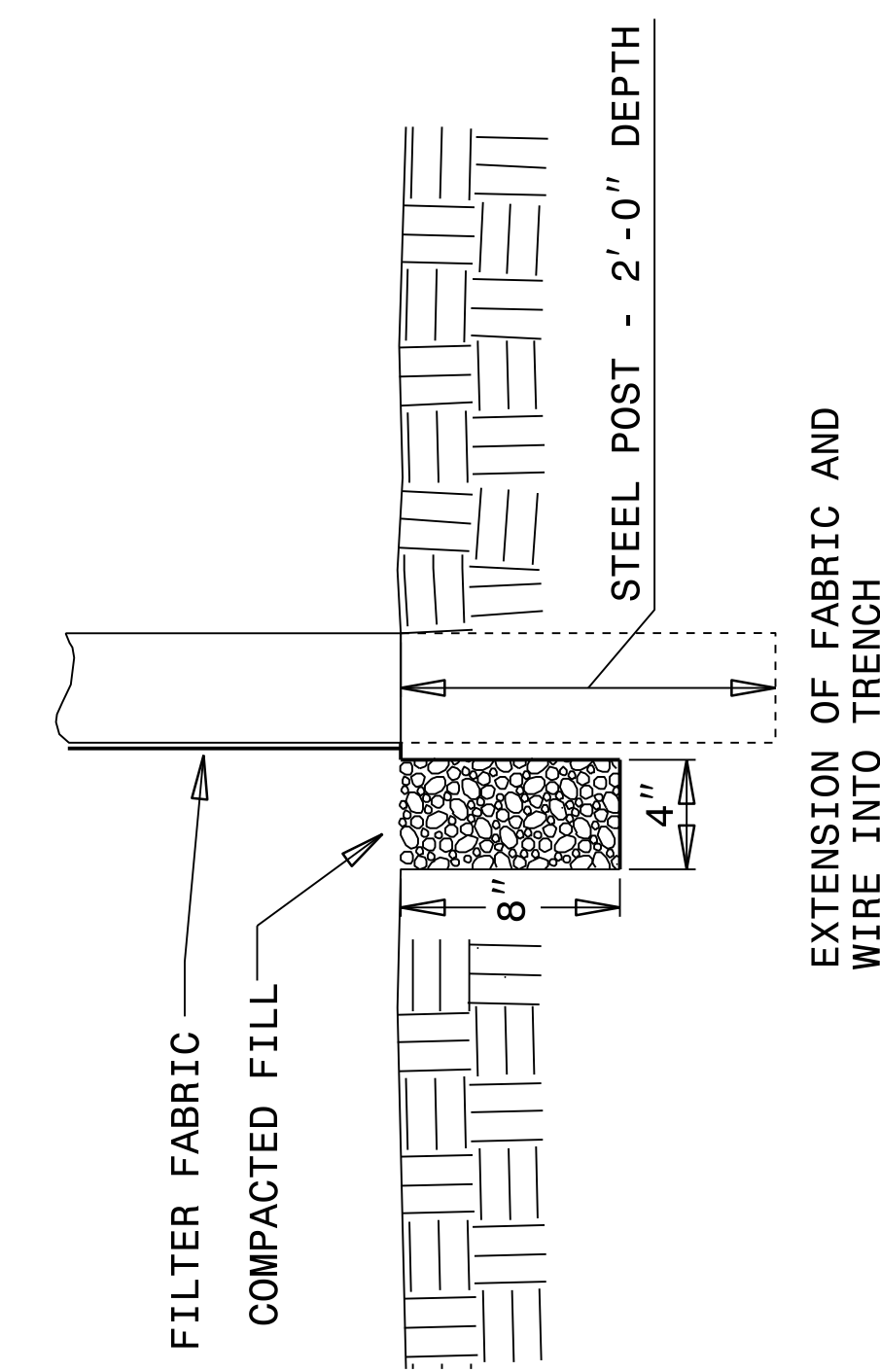
STATE OF NORTH CAROLINA  
 DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR  
**TEMPORARY SILT FENCE**

SHEET 1 OF 1  
**1605.01**



NOTES  
 USE WIRE A MINIMUM OF 32" IN WIDTH AND WITH A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.  
 USE FILTER FABRIC A MINIMUM OF 36" IN WIDTH AND FASTEN ADEQUATELY TO THE WIRE AS DIRECTED BY THE ENGINEER.  
 PROVIDE 5'-0" STEEL POST OF THE SELF-FASTENER ANGLE STEEL TYPE.



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**CROSS-SECTION SUMMARY**  
IN CUBIC YARDS

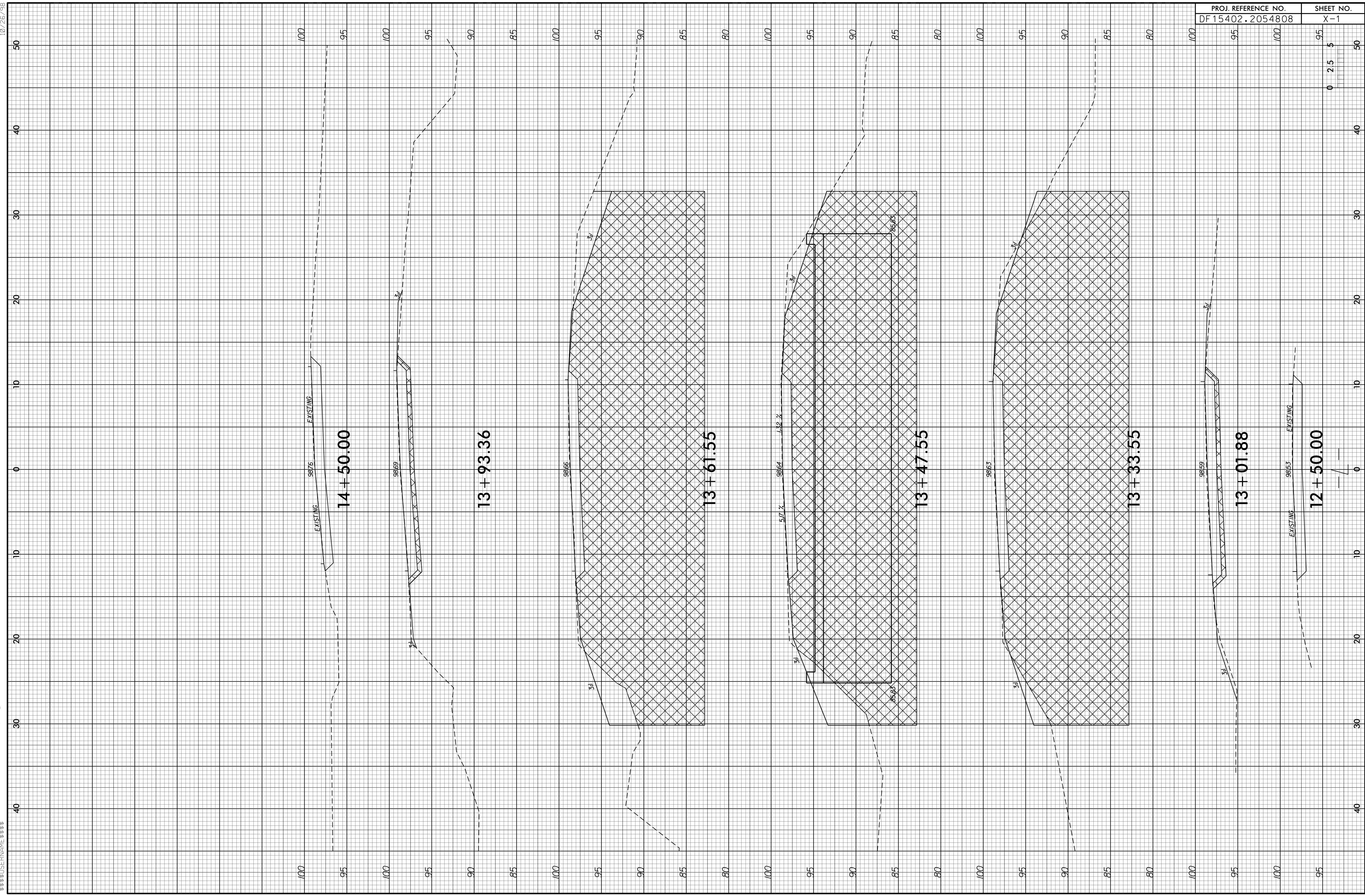
LOCATION (-L-)	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANKMENT	STRUCTURE EXCAVATION
<b>12 + 50.00</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>13 + 01.88</b>	<b>52</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>13 + 33.55</b>	<b>35</b>	<b>0</b>	<b>9</b>	<b>524</b>
<b>13 + 47.55</b>	<b>19</b>	<b>0</b>	<b>12</b>	<b>450</b>
<b>13 + 61.55</b>	<b>24</b>	<b>0</b>	<b>15</b>	<b>449</b>
<b>13 + 93.36</b>	<b>46</b>	<b>0</b>	<b>15</b>	<b>523</b>
<b>14 + 50.00</b>	<b>58</b>	<b>0</b>	<b>0</b>	<b>0</b>

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT.

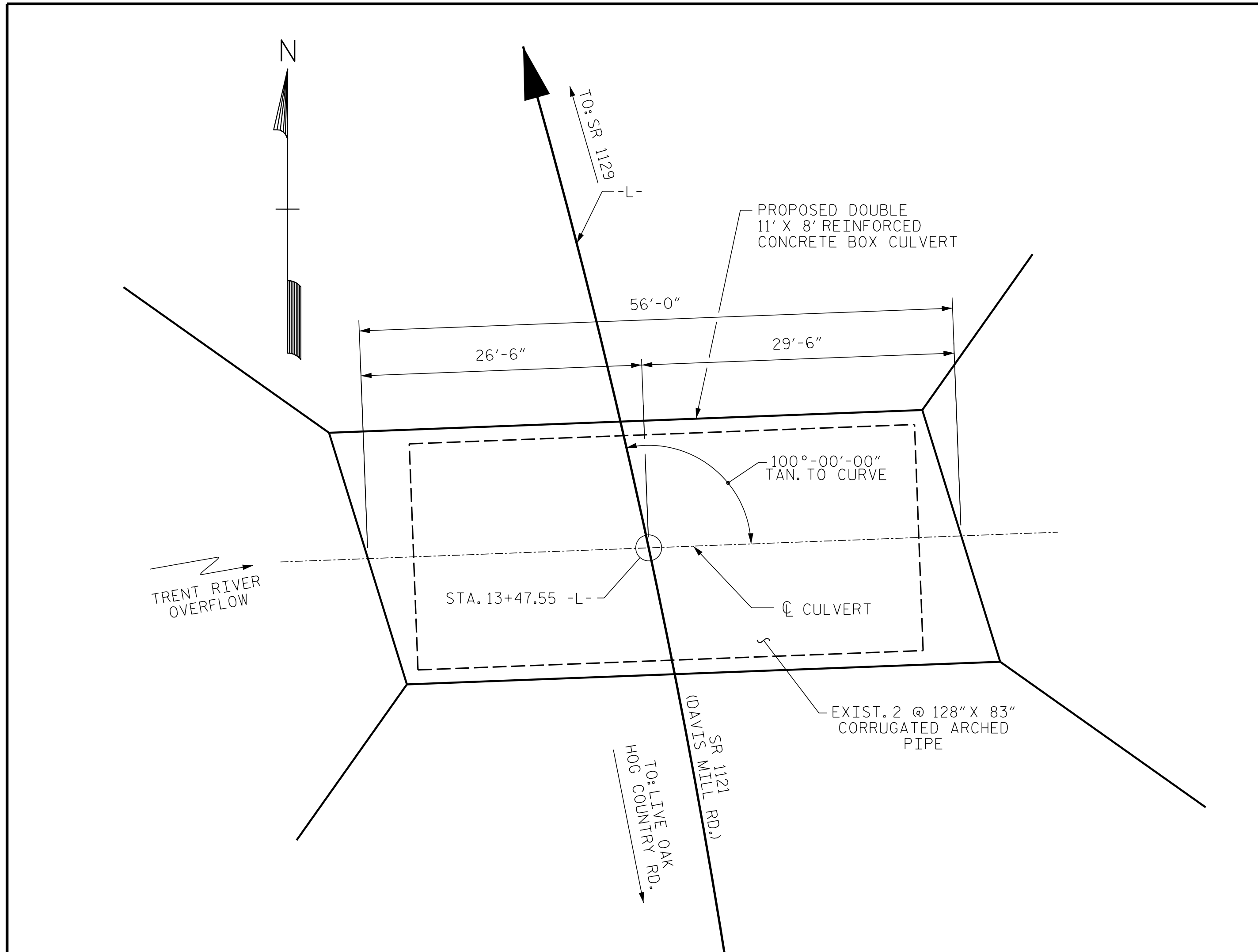
NOTE:  
APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION,  
STRUCTURE EXCAVATION, BORROW EXCAVATION, FINE GRADING,  
CLEARING AND GRUBBING AND REMOVAL OF EXISTING PAVEMENT,  
WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR  
GRADING

REVISIONS

8/17/99  
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LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD -----HL-93 OR ALTERNATE LOADING.  
 DESIGN FILL TO BOTTOM OF TOP SLAB = 5.0' MAX., 3.7' MIN.  
 FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.  
 3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.  
 CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

THIS BARREL STANDARD TO BE USED ONLY ON CULVERTS ON 105° SKEW AND TO BE USED WITH STANDARD WING SHEET WITH THE SAME SKEW AND VERTICAL CLEARANCE.

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.

STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

THE EXISTING STRUCTURE CONSISTS OF 2 @ 128" X 83" CORRUGATED METAL ARCHED PIPES. THE EXISTING STRUCTURE SHALL BE REMOVED.

NO HYDRAULIC ANALYSIS WAS PROVIDED IN THE DESIGN OF THIS REINFORCED CONCRETE BOX CULVERT. SIZE OF CULVERT WAS SPECIFIED BY NCDOT DIVISION 2. WETHERILL ENGINEERING ASSUMES NO RESPONSIBILITY FOR THE HYDRAULIC AFFECTS OF THIS CULVERT.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

TOTAL STRUCTURE QUANTITIES			
CLASS A CONCRETE			
BARREL @	2.67	CY/FT	149.5 C.Y.
WINGS			36.6 C.Y.
HEADWALLS			2.3 C.Y.
END CURTAIN WALLS			2.7 C.Y.
TOTAL			191.1 C.Y.
REINFORCING STEEL			
BARREL			20,284 LBS.
WINGS			2,636 LBS.
TOTAL			22,920 LBS.
REMOVAL OF EXISTING STRUCTURE		LUMP SUM	
CULVERT EXCAVATION		LUMP SUM	
FOUNDATION CONDITIONING MATERIAL			110 TONS

PROJECT NO. DF15402.2054808

LENOIR COUNTY

STATION: 13+47.55 -L-

SHEET 1 OF 7

ENGINEER OF RECORD:  
*End Charles Hunt*  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 SEAL 14091  
 HUNT, CHARLES  
 10/25/2018  
 WETHERILL ENGINEERING  
 1223 Jones Franklin Rd.  
 Raleigh, N.C. 27606  
 Bus: 919 851 8077  
 Fax: 919 851 8107  
 LICENSE NO. F-0377

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 DOUBLE  
 11 FT. X 8 FT.  
 CONCRETE BOX CULVERT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C1-1
1			3			TOTAL SHEETS
2			4			7

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : B.C. HUNT DATE : 10-2018  
 CHECKED BY : J.A. DILWORTH DATE : 10-2018

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## LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE								COMMENT NUMBER		
						LIVE-LOAD FACTORS (γ <sub>L1</sub> )	MOMENT				SHEAR					
							RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (FT)	RATING FACTOR	BOX NO.	ELEMENT TYPE		DISTANCE FROM LEFT END OF ELEMENT (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.32	--	1.75	1.34	1	TOP SLAB	5.00	1.32	1	TOP SLAB	10.65		
	HL-93 (OPERATING)	N/A		1.71	--	1.35	1.74	1	TOP SLAB	5.00	1.71	1	TOP SLAB	10.65		
	HS-20 (INVENTORY)	36,000	②	1.49	53.64	1.75	1.49	1	TOP SLAB	5.00	1.73	1	BOTTOM SLAB	10.95		
	HS-20 (OPERATING)	36,000		1.93	69.48	1.35	1.93	1	TOP SLAB	5.00	2.24	1	BOTTOM SLAB	10.95		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13,500		2.70	36.45	1.40	2.70	1	TOP SLAB	5.00	3.27	1	TOP SLAB	10.65	
		SNGARBS2	20,000		2.53	50.60	1.40	2.53	1	TOP SLAB	5.00	3.03	1	TOP SLAB	10.65	
		SNAGRIS2	22,000		2.70	59.40	1.40	2.70	1	TOP SLAB	5.00	2.89	1	BOTTOM SLAB	10.95	
		SNCOTTS3	27,250		1.74	47.42	1.40	1.76	1	TOP SLAB	5.00	1.74	1	TOP SLAB	10.65	
		SNAGGRS4	34,925		1.94	67.75	1.40	2.12	1	TOP SLAB	5.00	1.94	1	BOTTOM SLAB	10.95	
		SNS5A	35,550		1.80	63.99	1.40	2.07	1	TOP SLAB	5.00	1.80	1	BOTTOM SLAB	10.95	
		SNS6A	39,950		1.79	71.51	1.40	2.04	1	TOP SLAB	5.00	1.79	1	BOTTOM SLAB	10.95	
		SNS7B	42,000		1.68	70.56	1.40	1.99	1	BOTTOM SLAB	11.67	1.68	1	BOTTOM SLAB	10.95	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33,000		1.94	64.02	1.40	2.30	1	BOTTOM SLAB	11.67	1.94	1	BOTTOM SLAB	10.95	
		TNT4A	33,075		1.97	65.16	1.40	2.09	1	TOP SLAB	5.00	1.97	1	BOTTOM SLAB	10.95	
		TNT6A	41,600		1.79	74.46	1.40	2.09	1	BOTTOM SLAB	11.67	1.79	1	BOTTOM SLAB	10.95	
		TNT7A	42,000		1.68	70.56	1.40	1.97	1	BOTTOM SLAB	11.67	1.68	1	BOTTOM SLAB	10.95	
		TNT7B	42,000		1.84	77.28	1.40	2.01	1	TOP SLAB	5.00	1.84	1	BOTTOM SLAB	10.95	
		TNAGRIT4	43,000		1.61	69.23	1.40	1.90	1	BOTTOM SLAB	11.67	1.61	1	BOTTOM SLAB	10.95	
TNAGT5A	45,000		1.71	76.95	1.40	1.97	1	TOP SLAB	11.67	1.71	1	BOTTOM SLAB	10.95			
TNAGT5B	45,000		③	1.52	68.40	1.40	1.71	1	TOP SLAB	11.67	1.52	1	BOTTOM SLAB	10.95		

**LOAD FACTORS:**

DESIGN LOAD RATING FACTORS

LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
LS	1.75	--
WA	1.00	--

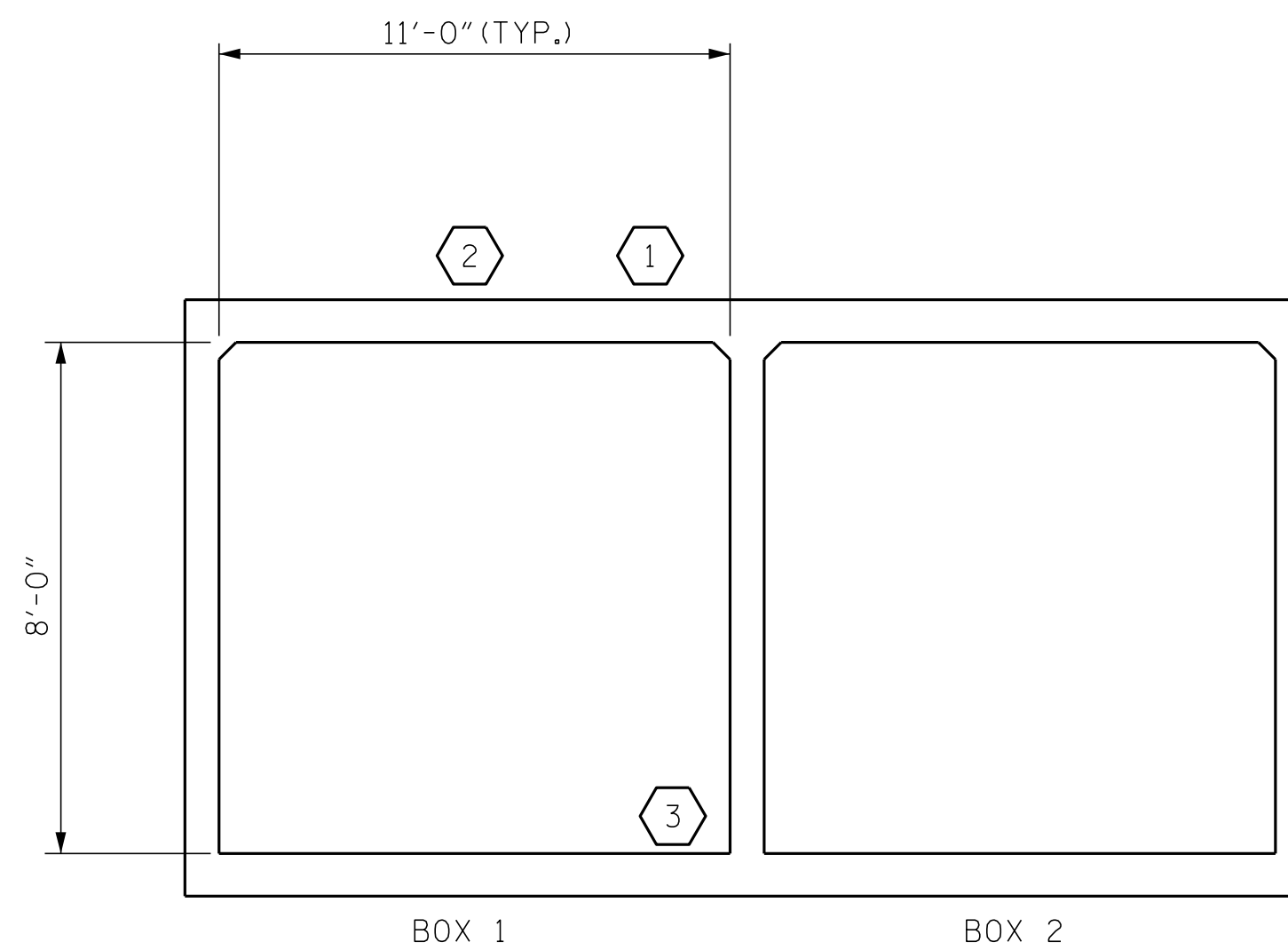
**NOTE:**

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

**COMMENTS:**

- 1.
- 2.
- 3.
- 4.

#	CONTROLLING LOAD RATING
①	DESIGN LOAD RATING (HL-93)
②	DESIGN LOAD RATING (HS-20)
③	LEGAL LOAD RATING **
	** SEE CHART FOR VEHICLE TYPE



**LRFR SUMMARY**

(LOOKING DOWNSTREAM)

PROJECT NO. DF15402.2054808  
LENOIR COUNTY  
 STATION: 13+47.55 -L-

SHEET 2 OF 7

ENGINEER OF RECORD:  
*Developed by*  
*Bob Charles Hunt*  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 SEAL 14091  
 BOB CHARLES HUNT  
 10/25/2018  
  
 1223 Jones Franklin Rd.  
 Raleigh, N.C. 27606  
 Bus: 919 851 8077  
 Fax: 919 851 8107  
 LICENSE NO. F-0377

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 LRFR SUMMARY FOR  
 REINFORCED CONCRETE  
 BOX CULVERTS  
 (NON-INTERSTATE TRAFFIC)

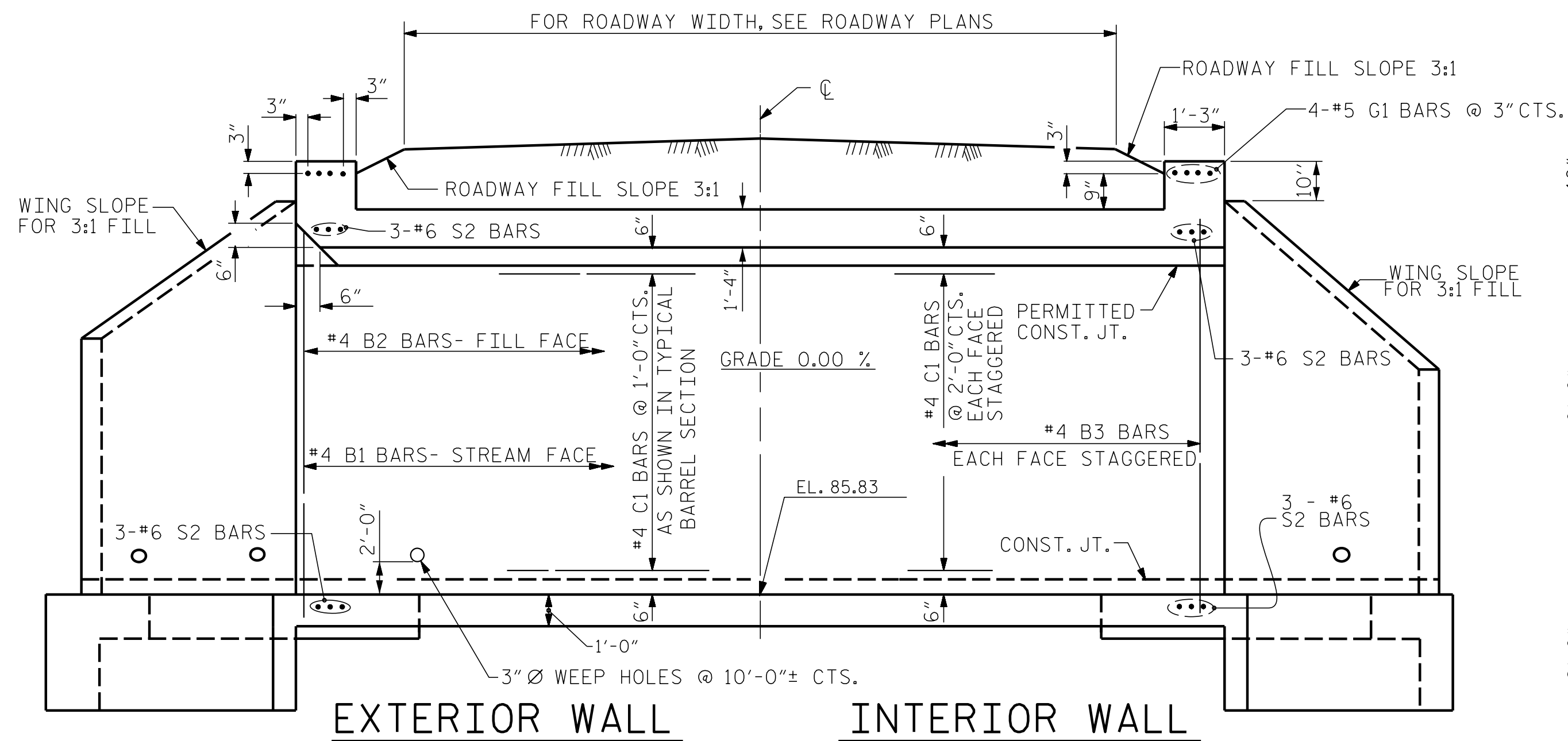
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NO.	BY:	DATE:	NO.	BY:	DATE:	C1-2
1			3			TOTAL SHEETS 7
2			4			

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

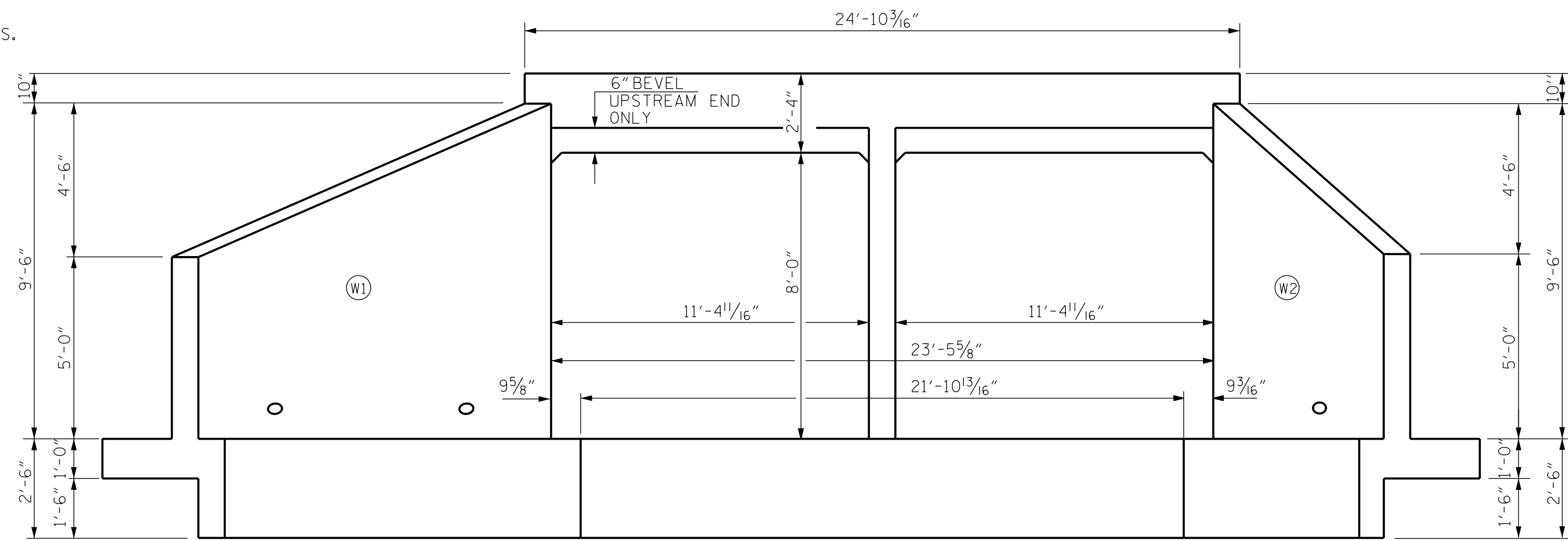
STD. NO. LRFR5

ASSEMBLED BY : B.C. HUNT	DATE : 10-2018
CHECKED BY : J.A. DILWORTH	DATE : 10-2018
DRAWN BY : WMC 7/11	REV. 10/1/11 MAA/GM
CHECKED BY : GM 7/11	REV. 12/17 MAA/THC

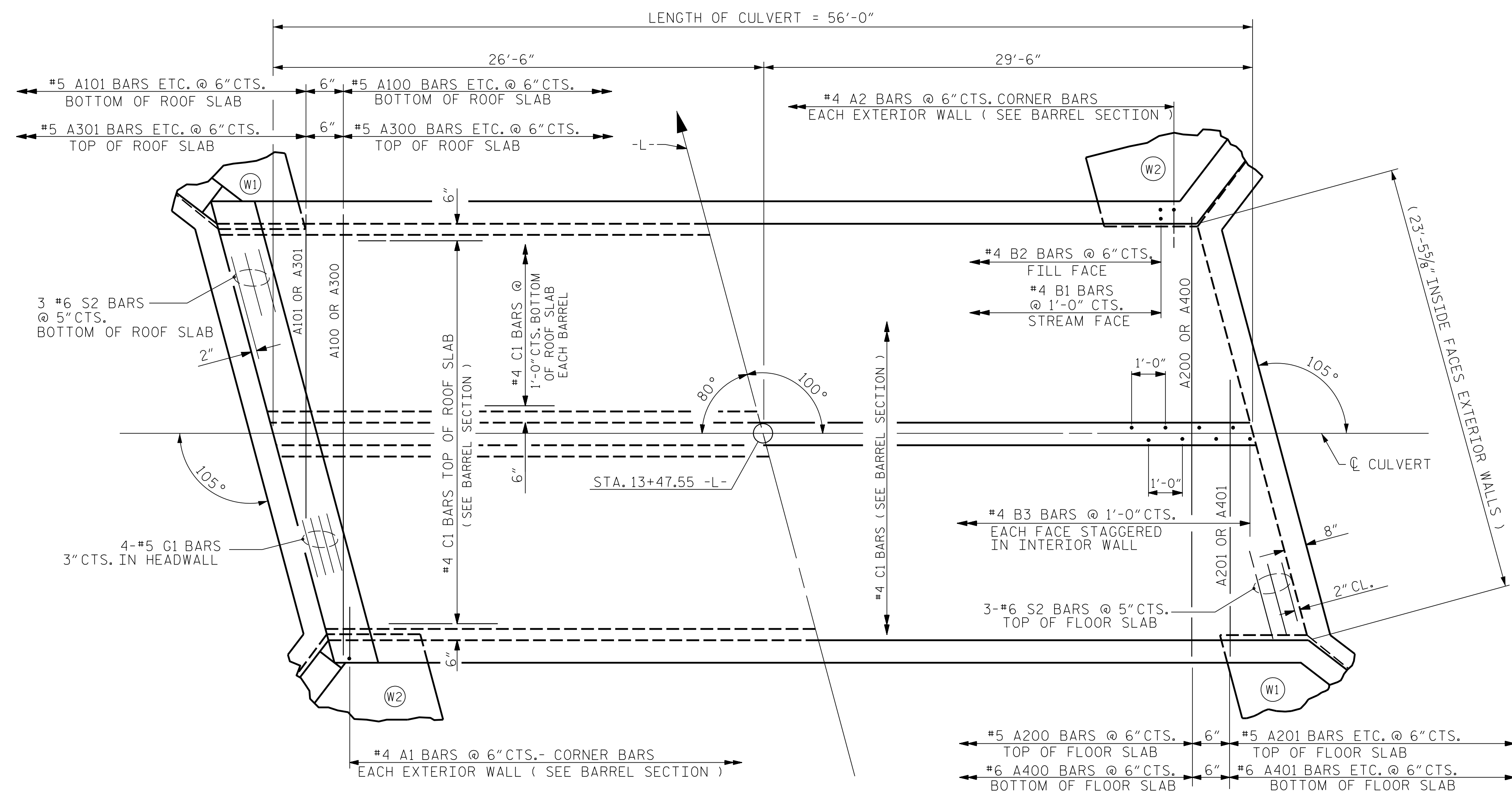




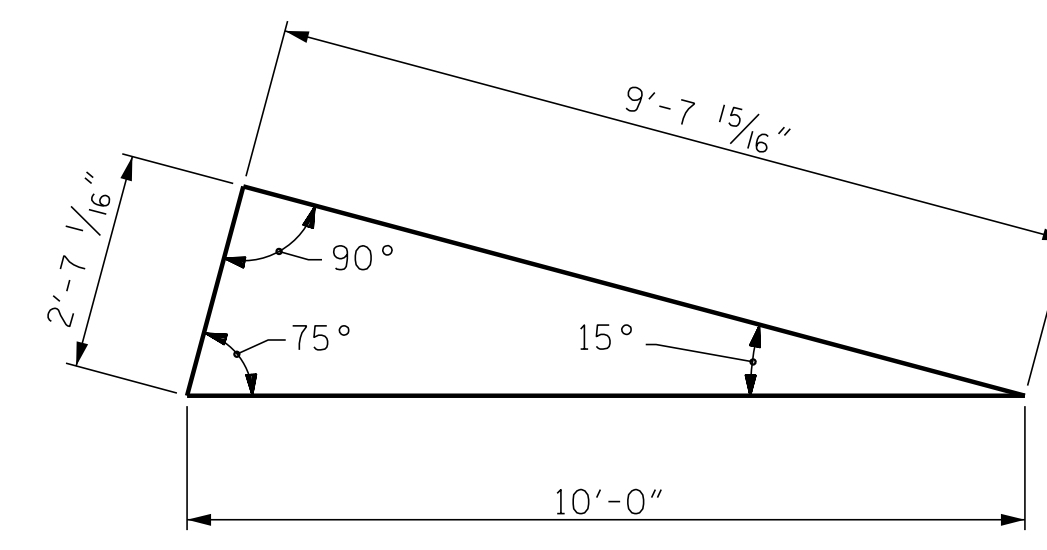
EXTERIOR WALL INTERIOR WALL  
CULVERT SECTION NORMAL TO ROADWAY



END ELEVATION NORMAL TO SKEW

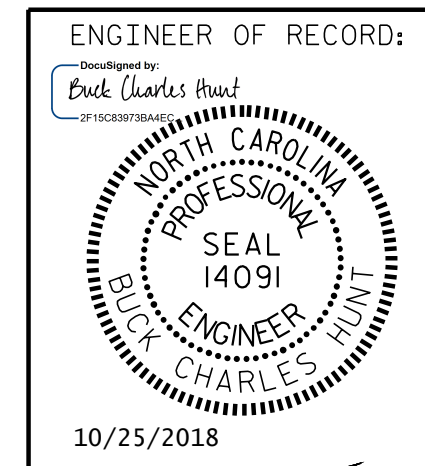


PART PLAN - ROOF SLAB PART PLAN - FLOOR SLAB



SKEW TRIANGLE

PROJECT NO. DF15402.2054808  
LENOIR COUNTY  
STATION: 13+47.55 -L-  
SHEET 3 OF 7



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
DOUBLE  
11 FT. X 8 FT.  
CONCRETE BOX CULVERT

ASSEMBLED BY: B.C. HUNT	DATE: 10-2018	SPECIAL
CHECKED BY: J.A. DILWORTH	DATE: 10-2018	
DRAWN BY: W. BRYAN STANLEY II	DATE: NOV. 1971	STANDARD
CHECKED BY: JOEL A. JOHNSON	DATE: DEC. 1971	

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UNLESS ALL SIGNATURES COMPLETED

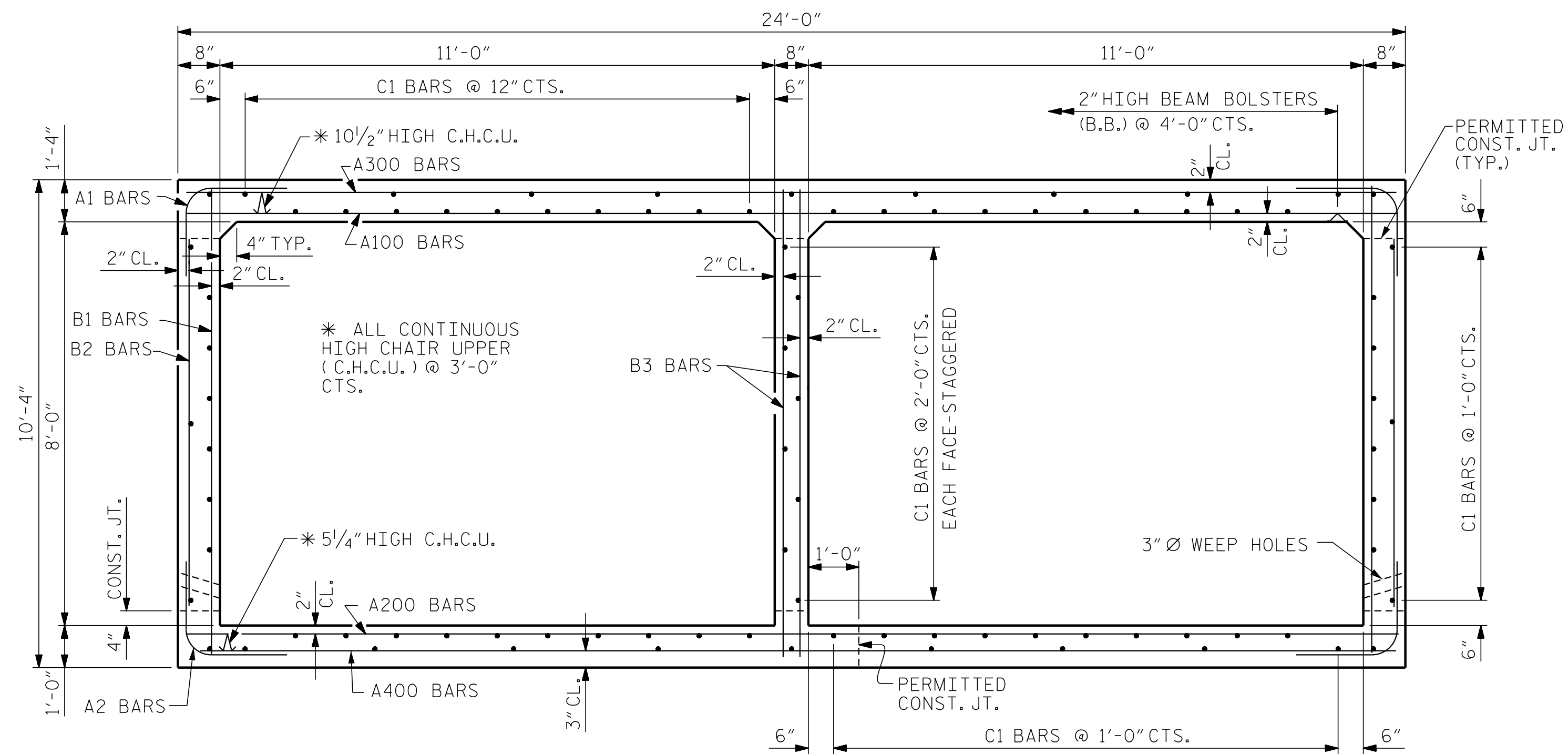
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NO.	BY:	DATE:	NO.	BY:	DATE:	C1-3
1			3			TOTAL SHEETS
2			4			7

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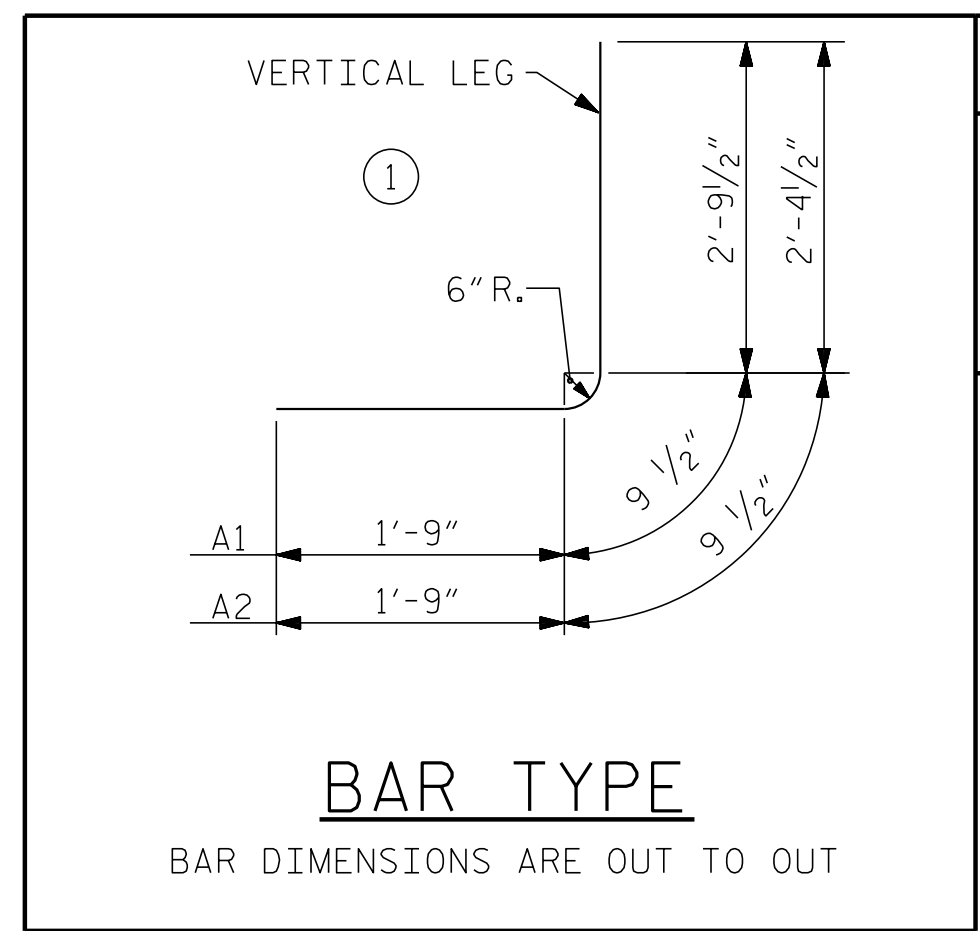
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BARREL REINFORCING STEEL											
BAR	NO	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO	SIZE	TYPE	LENGTH	WEIGHT
A1	220	4	1	5'-4"	784	A300	99	5	STR	23'-8"	2444
A2	220	4	1	4'-11"	723	A301	2	5	STR	22'-4"	47
						A302	2	5	STR	20'-6"	43
A100	99	5	STR	23'-8"	2444	A303	2	5	STR	18'-7"	39
A101	2	5	STR	22'-4"	47	A304	2	5	STR	16'-9"	35
A102	2	5	STR	20'-6"	43	A305	2	5	STR	14'-11"	31
A103	2	5	STR	18'-7"	39	A306	2	5	STR	13'-0"	27
A104	2	5	STR	16'-9"	35	A307	2	5	STR	11'-2"	23
A105	2	5	STR	14'-11"	31	A308	2	5	STR	9'-3"	19
A106	2	5	STR	13'-0"	27	A309	2	5	STR	7'-5"	15
A107	2	5	STR	11'-2"	23	A310	2	5	STR	5'-7"	12
A108	2	5	STR	9'-3"	19	A311	2	5	STR	3'-8"	8
A109	2	5	STR	7'-5"	15						
A110	2	5	STR	5'-7"	12	A400	99	6	STR	23'-8"	3519
A111	2	5	STR	3'-8"	8	A401	2	6	STR	22'-4"	67
						A402	2	6	STR	20'-6"	62
A200	99	5	STR	23'-8"	2444	A403	2	6	STR	18'-7"	56
A201	2	5	STR	22'-4"	47	A404	2	6	STR	16'-9"	50
A202	2	5	STR	20'-6"	43	A405	2	6	STR	14'-11"	45
A203	2	5	STR	18'-7"	39	A406	2	6	STR	13'-0"	39
A204	2	5	STR	16'-9"	35	A407	2	6	STR	11'-2"	34
A205	2	5	STR	14'-11"	31	A408	2	6	STR	9'-3"	28
A206	2	5	STR	13'-0"	27	A409	2	6	STR	7'-5"	22
A207	2	5	STR	11'-2"	23	A410	2	6	STR	5'-7"	17
A208	2	5	STR	9'-3"	19	A411	2	6	STR	3'-8"	11
A209	2	5	STR	7'-5"	15						
A210	2	5	STR	5'-7"	12	B1	112	4	STR	9'-11"	742
A211	2	5	STR	3'-8"	8	B2	220	4	STR	7'-4"	1078
						B3	112	4	STR	9'-11"	742
						C1	176	4	STR	28'-10"	3390
						G1	8	5	STR	24'-6"	204
						S2	12	6	STR	24'-6"	442
REINFORCING STEEL										20,284	LBS



**RIGHT ANGLE SECTION OF BARREL**

THERE ARE 88 "C" BARS IN SECTION OF BARREL.



SPLICE LENGTHS CHART		
BAR	SIZE	SPLICE LENGTH
A200	#5	2'-2"
A400	#6	2'-9"
"B"	#4	1'-9"
"C"	#4	1'-11"

PROJECT NO. DF15402.2054808  
LENOIR COUNTY  
 STATION: 13+47.55 -L-  
 SHEET 4 OF 7

ENGINEER OF RECORD:  
 Designed by  
 Charles Hunt  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 SEAL 14091  
 HUNT, CHARLES  
 10/25/2018  
 WETHERILL ENGINEERING  
 1223 Jones Franklin Rd.  
 Raleigh, N.C. 27606  
 Bus: 919 851 8077  
 Fax: 919 851 8107  
 LICENSE NO. F-0377

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**DOUBLE  
 11 FT. X 8 FT.  
 CONCRETE BOX CULVERT**

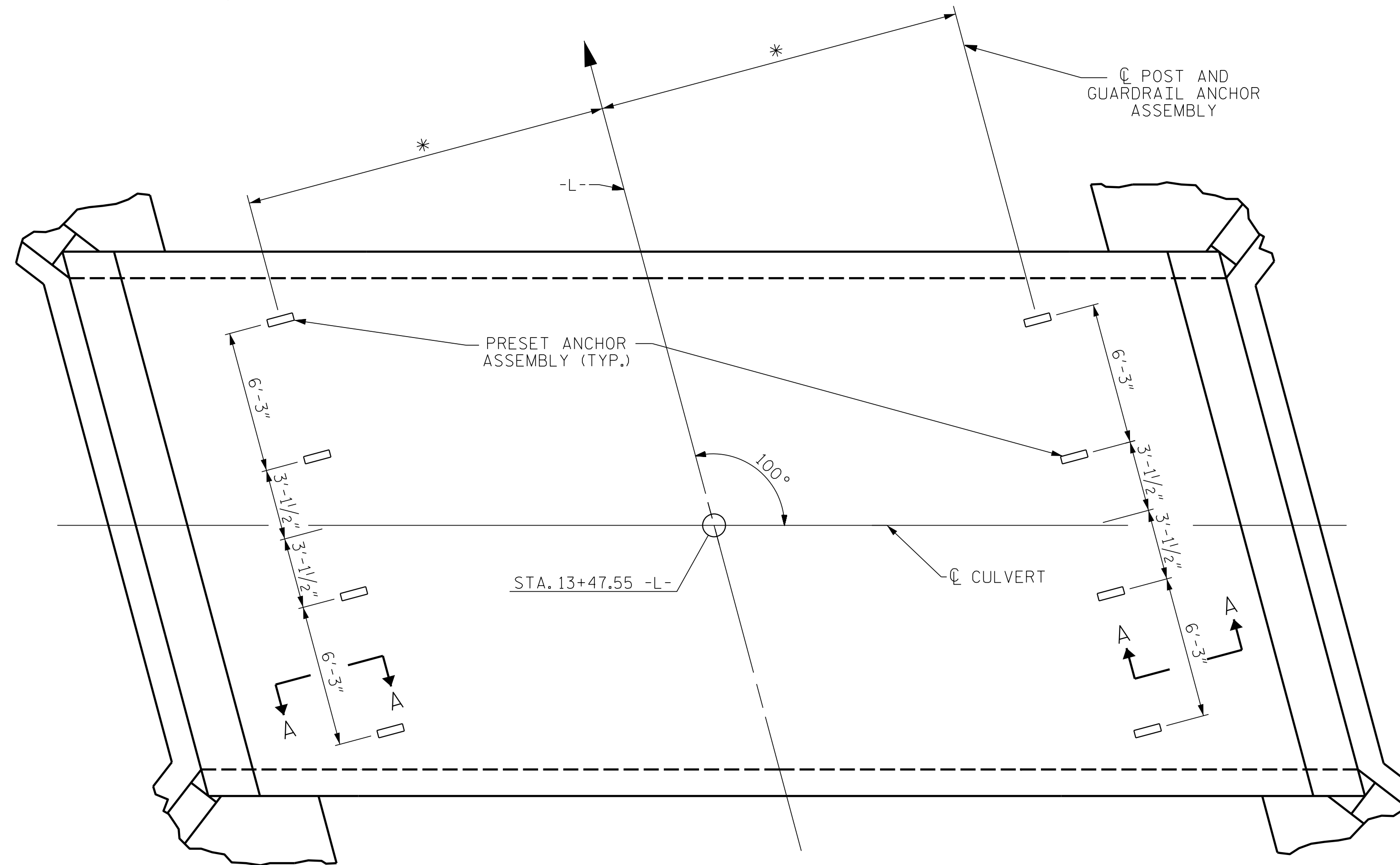
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NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.  
 C1-4  
 TOTAL SHEETS  
 7

DRAWN BY : B.C. HUNT DATE : 10-2018  
 CHECKED BY : J.A. DILWORTH DATE : 10-2018

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

\* THIS DIMENSION TO BE FURNISHED BY THE ENGINEER



PLAN

SHOWING : GUARDRAIL ANCHOR ASSEMBLY SPACING.

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS SHALL CONSIST OF THE FOLLOWING COMPONENTS :

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2 1/2".
- B. 4 - 1" Ø X 2 1/4" BOLTS WITH WASHERS, BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1" Ø X 2 1/4" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUTS SHOWN IN THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS DETAIL ARE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 P.S.I. AS AN OPTION, A 3/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

GUARDRAIL ANCHOR ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CLASS "A" CONCRETE.

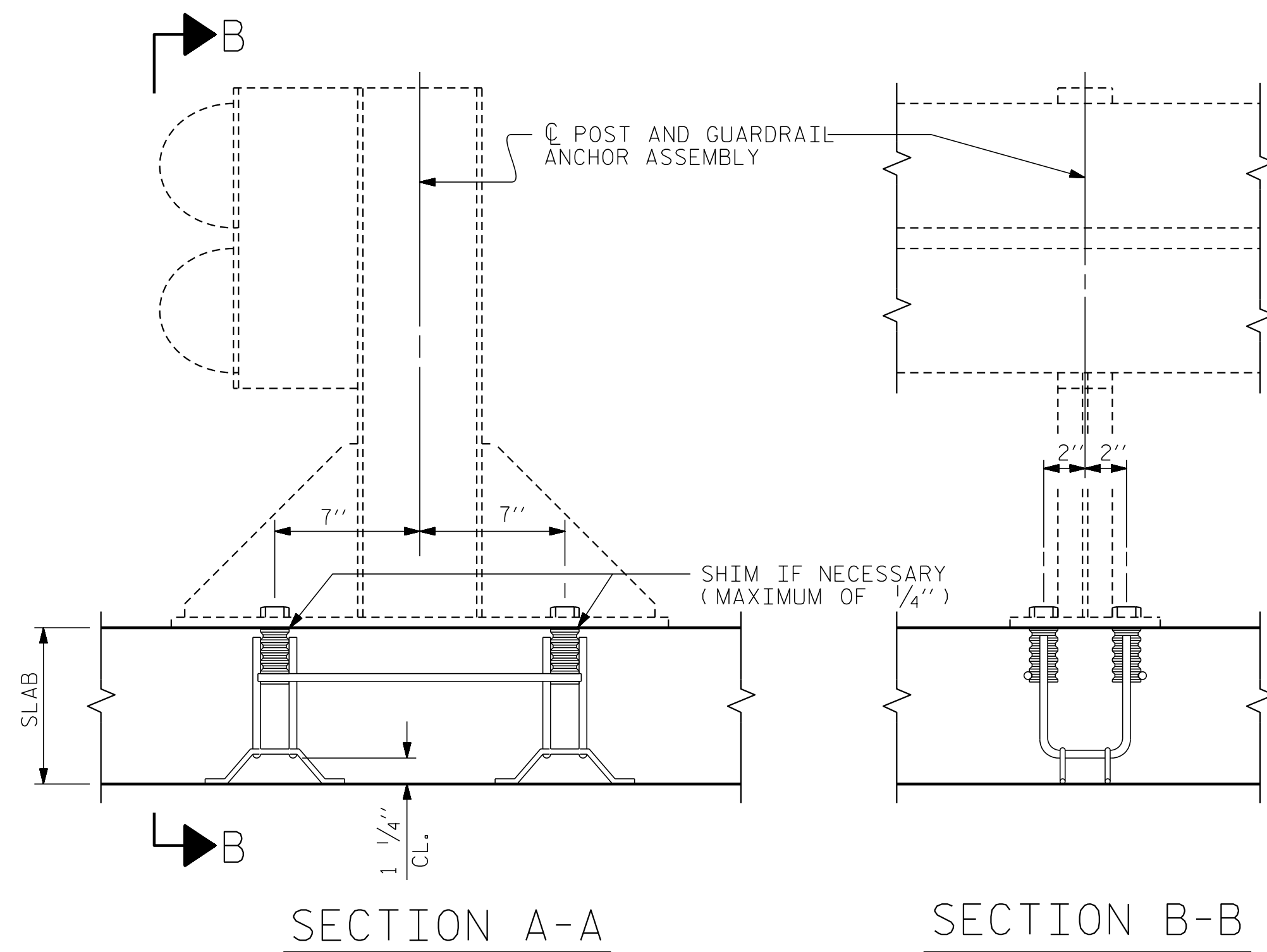
FERRULES TO BE PLUGGED DURING POURING OF SLAB AS RECOMMENDED BY THE MANUFACTURER.

AT THE CONTRACTOR'S OPTION, FERRULES WITH OPEN OR CLOSED ENDS MAY BE USED.

PAYMENT FOR GUARDRAIL, POSTS, AND POST BASE PLATES IS INCLUDED IN ROADWAY PAY ITEMS.

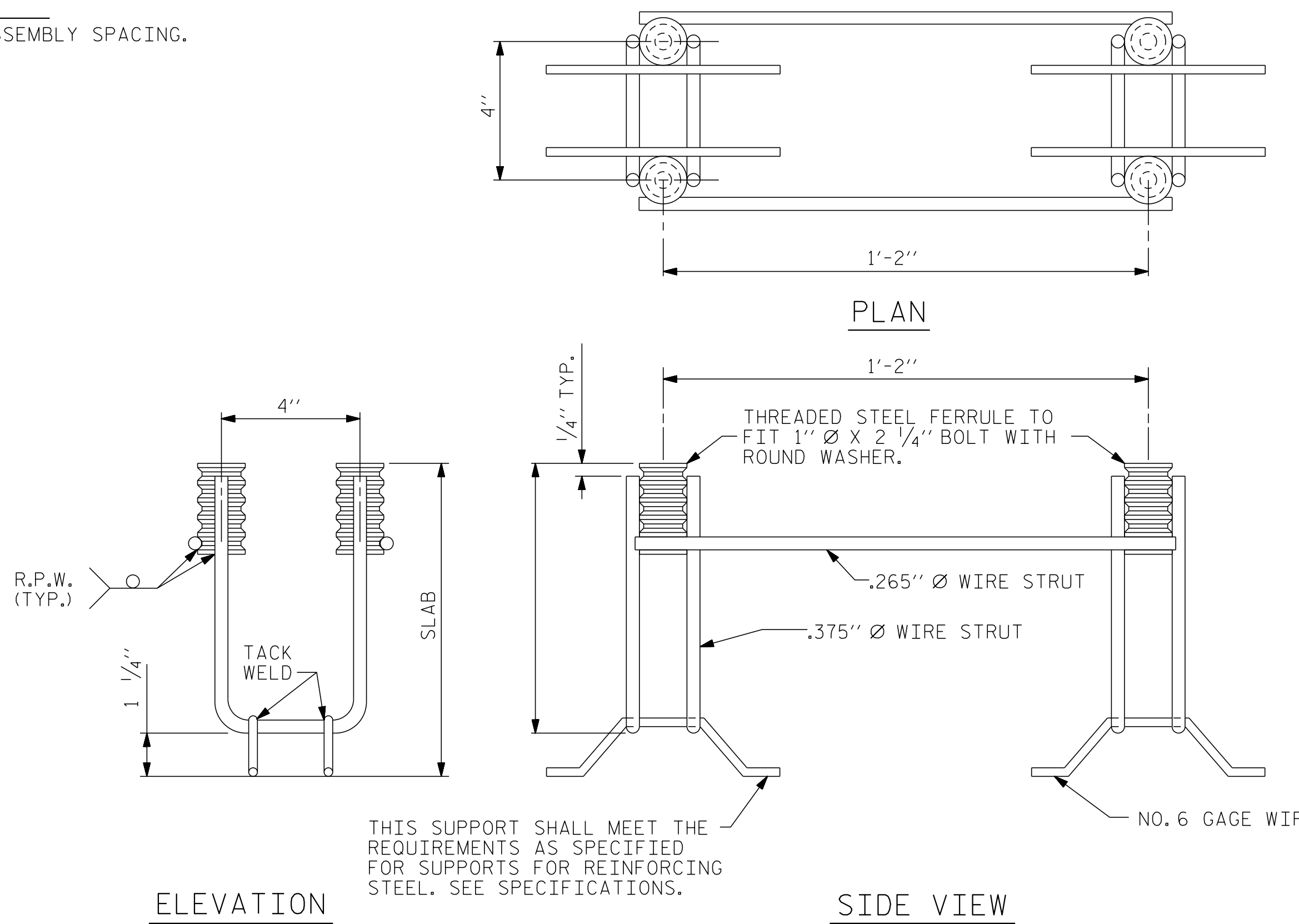
SLAB REINFORCING STEEL MAY BE SHIFTED AS NECESSARY TO CLEAR GUARDRAIL ANCHOR ASSEMBLY. CARE SHOULD BE TAKEN TO KEEP THE SHIFTING OF REINFORCING STEEL TO A MINIMUM.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF GUARDRAIL ANCHOR ASSEMBLY. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 1" Ø BOLT IS 21.8 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.



SECTION A-A

SECTION B-B



ELEVATION

SIDE VIEW

GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS

PROJECT NO. DF15402.2054808  
LENOIR COUNTY  
STATION: 13+47.55 -L-

SHEET 5 OF 7

ENGINEER OF RECORD:  
Ezekiel Charles Hunt  
10/25/2018

1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
Bus: 919 851 8077  
Fax: 919 851 8107  
LICENSE NO. F-0377

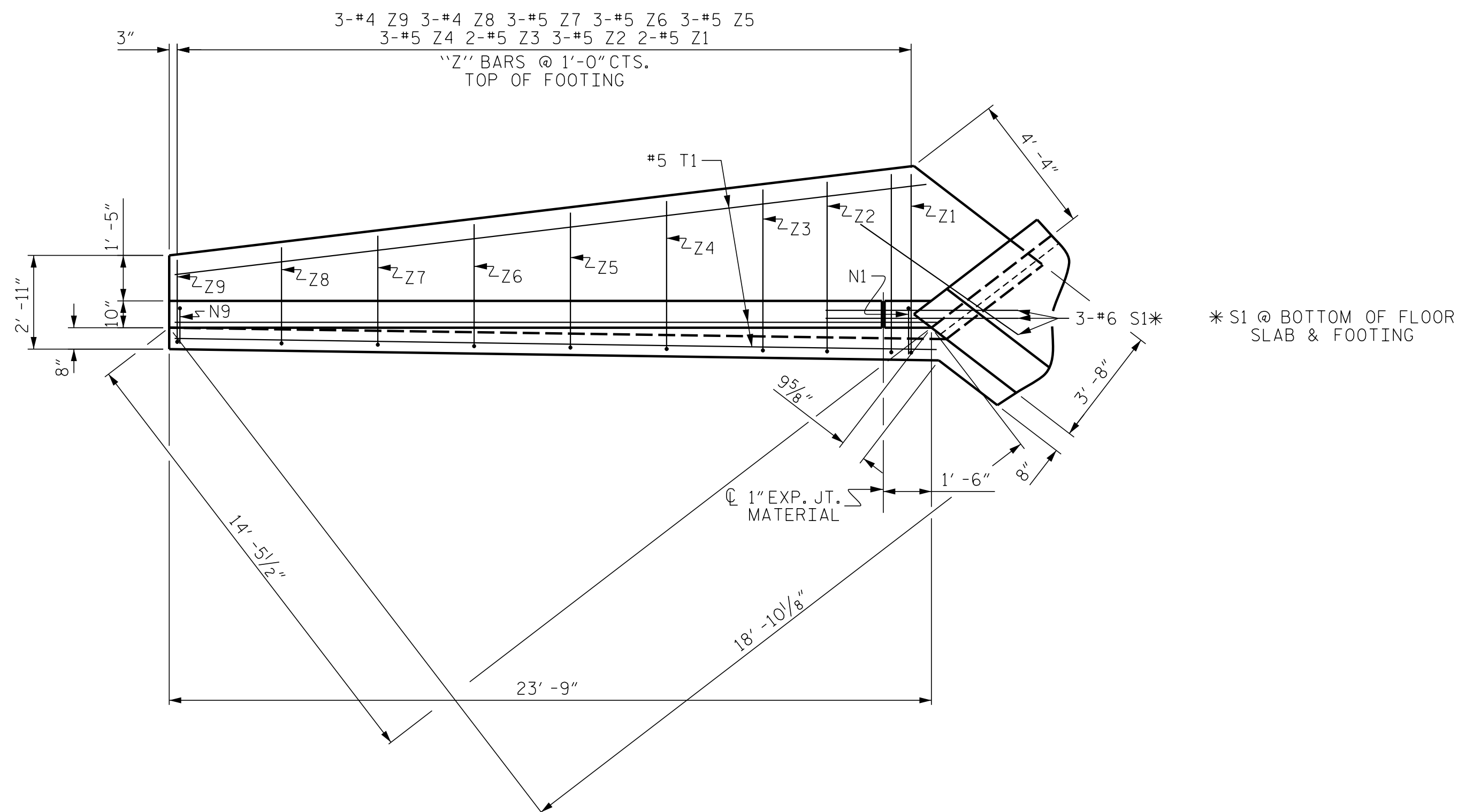
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
ANCHORAGE DETAILS FOR  
GUARDRAIL ANCHOR ASSEMBLY  
FOR CULVERTS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C1-5
1			3			TOTAL SHEETS
2			4			7

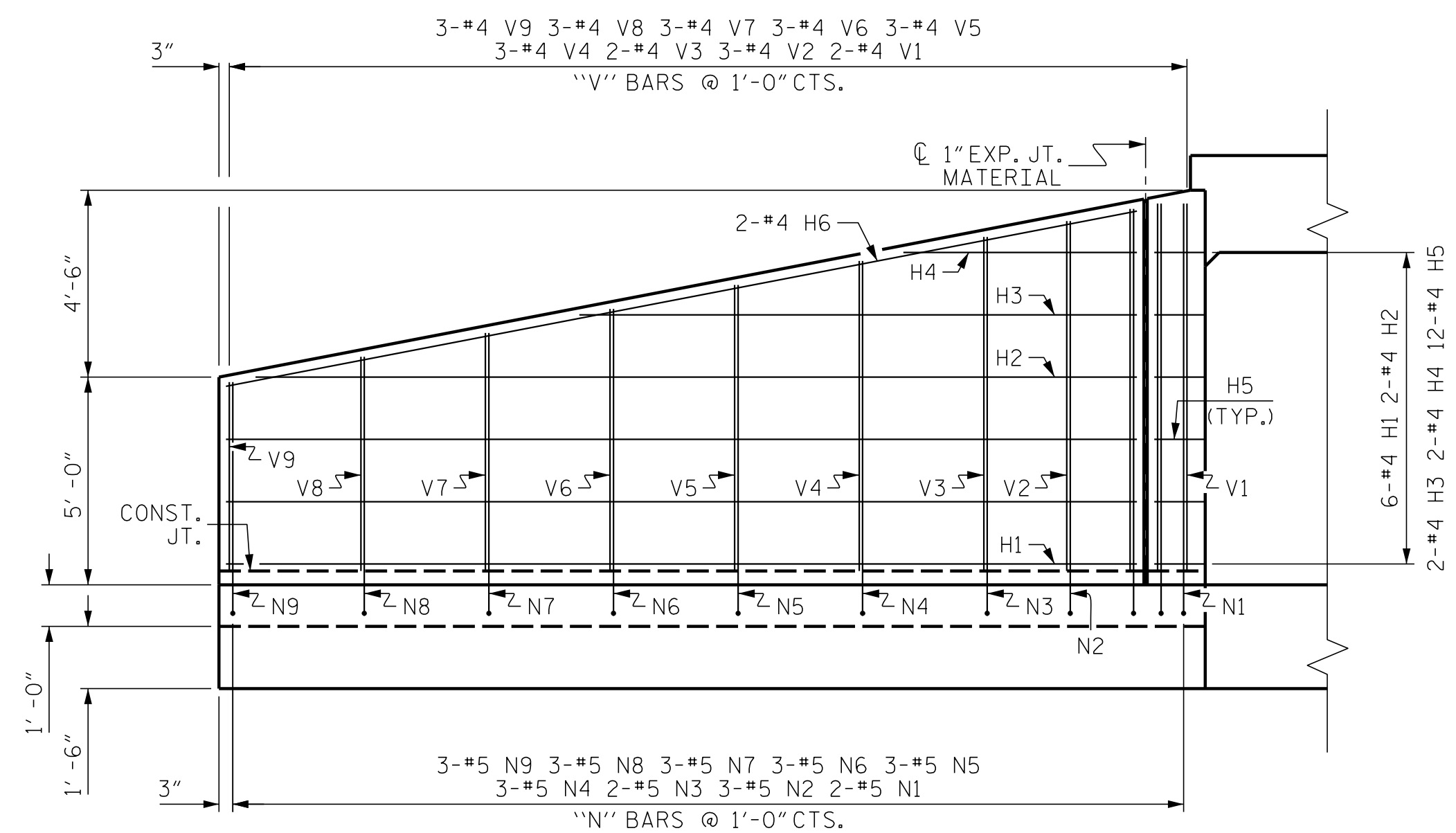
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : B.C. HUNT	DATE : 10-2018
CHECKED BY : J.A. DILWORTH	DATE : 10-2018
DRAWN BY : FCJ 6/88	REV. 5/1/06R KMM/GM
CHECKED BY : ARB 6/88	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

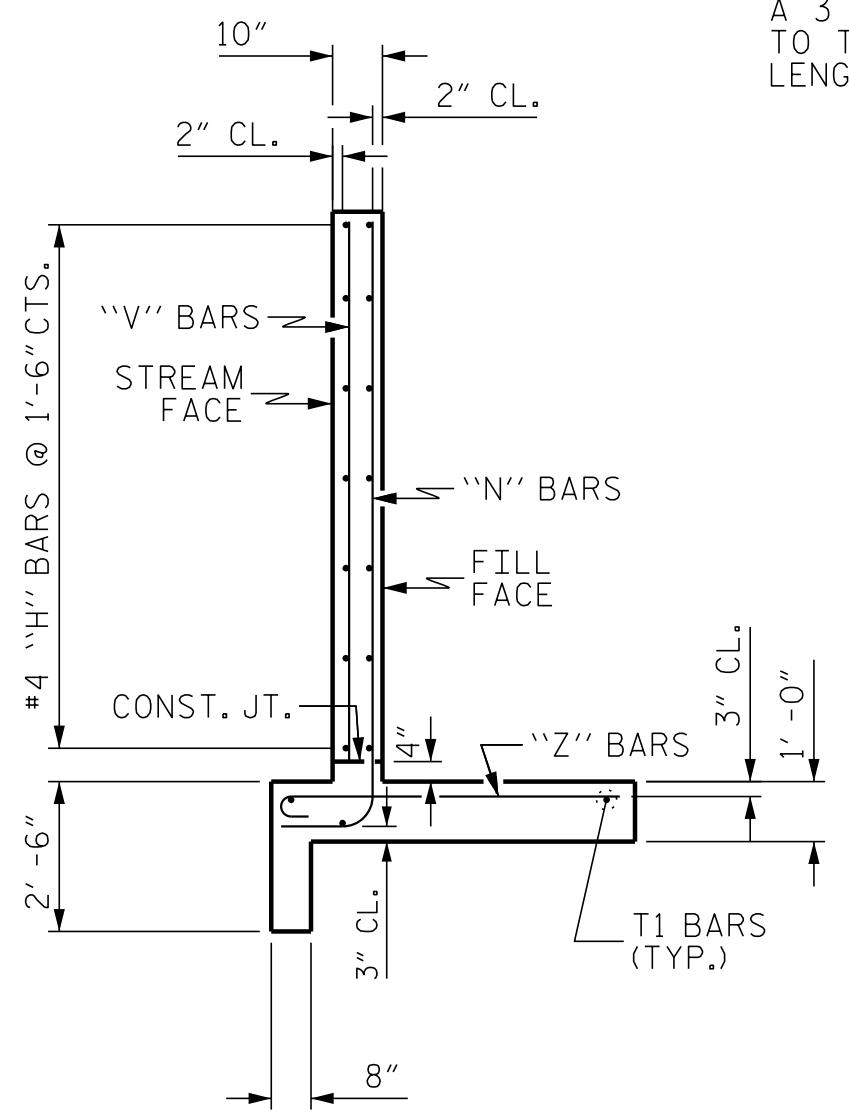




PLAN W1



ELEVATION W1

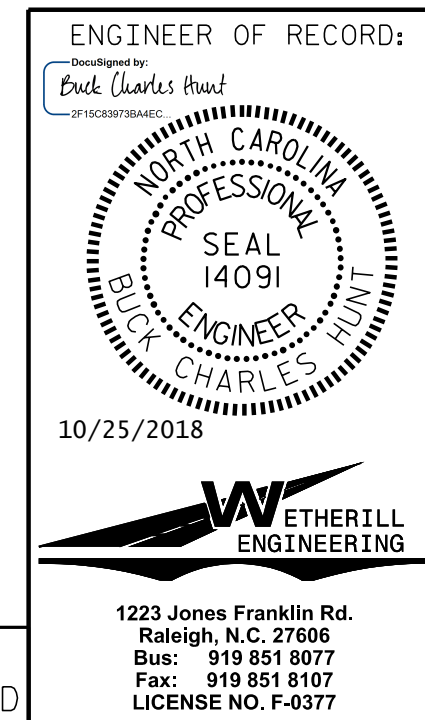


TYPICAL WING SECTION

BAR TYPES		BILL OF MATERIAL				
ALL BAR DIMENSIONS ARE OUT TO OUT.						
1		BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
2						
2		H1	12	#4	STR	21'-10"
3						
3		H2	4	#4	STR	21'-2"
REINFORCING STEEL 1505 LBS FOR 2 WINGS						
CLASS A CONCRETE 2 WINGS 20.9 CY						
TOTAL						20.9 CY

NOTE:  
A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JT.

PROJECT NO. DF15402.2054808  
LENOIR COUNTY  
STATION: 13+47.55 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
W1 WINGS FOR CONCRETE BOX CULVERT H = 8'-0" SLOPE = 3:1 105°SKEW					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					TOTAL SHEETS
C1-6					7

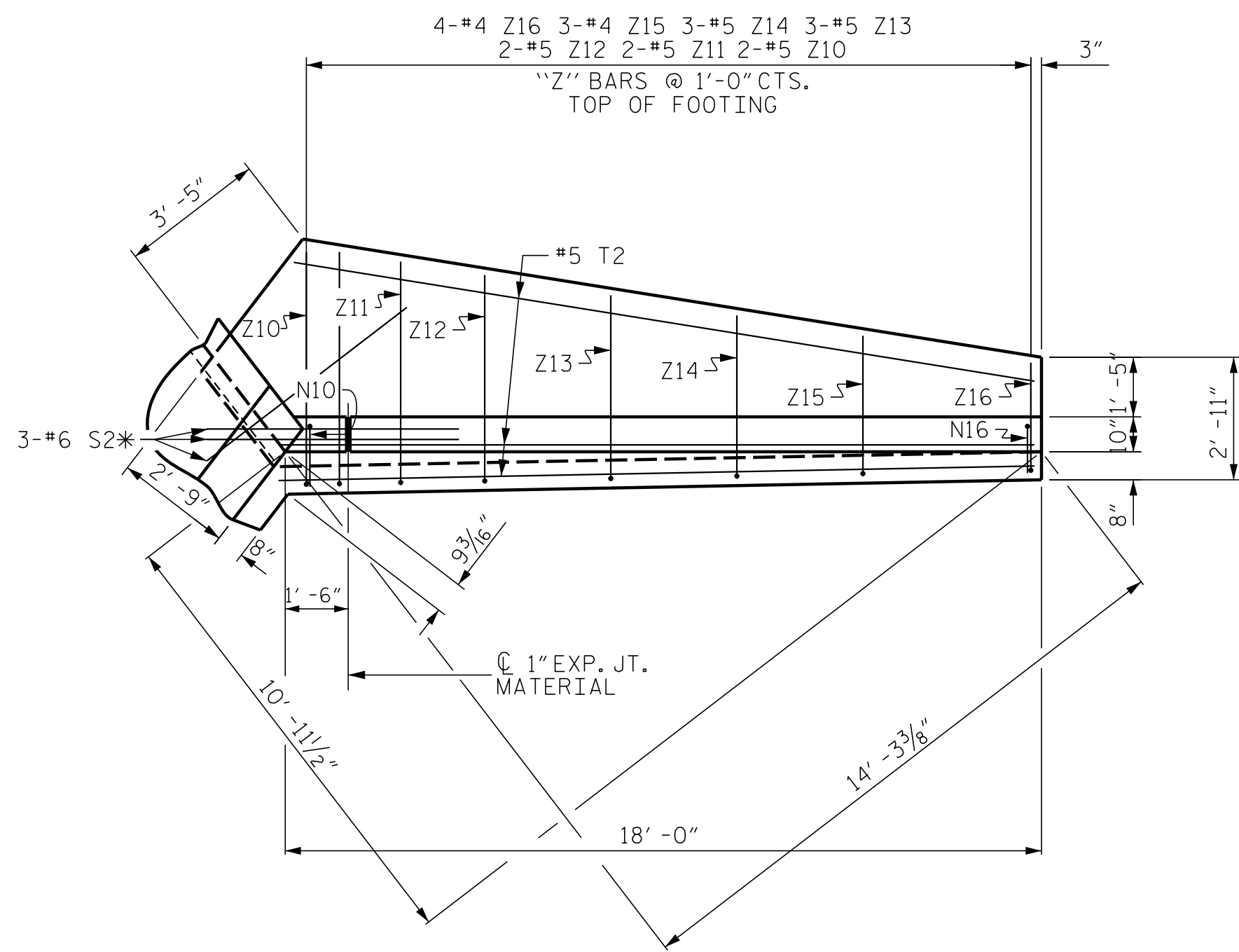
PA-2019-19112-02 Davis Mill Division 2 CulvertStructures.DGN Davis Mill Wing Walls.dgn  
 10/25/2018 7:38:00 AM

DRAWN BY : A.J. KLINK DATE : 10/18  
 CHECKED BY : J.A. DILWORTH DATE : 10/18

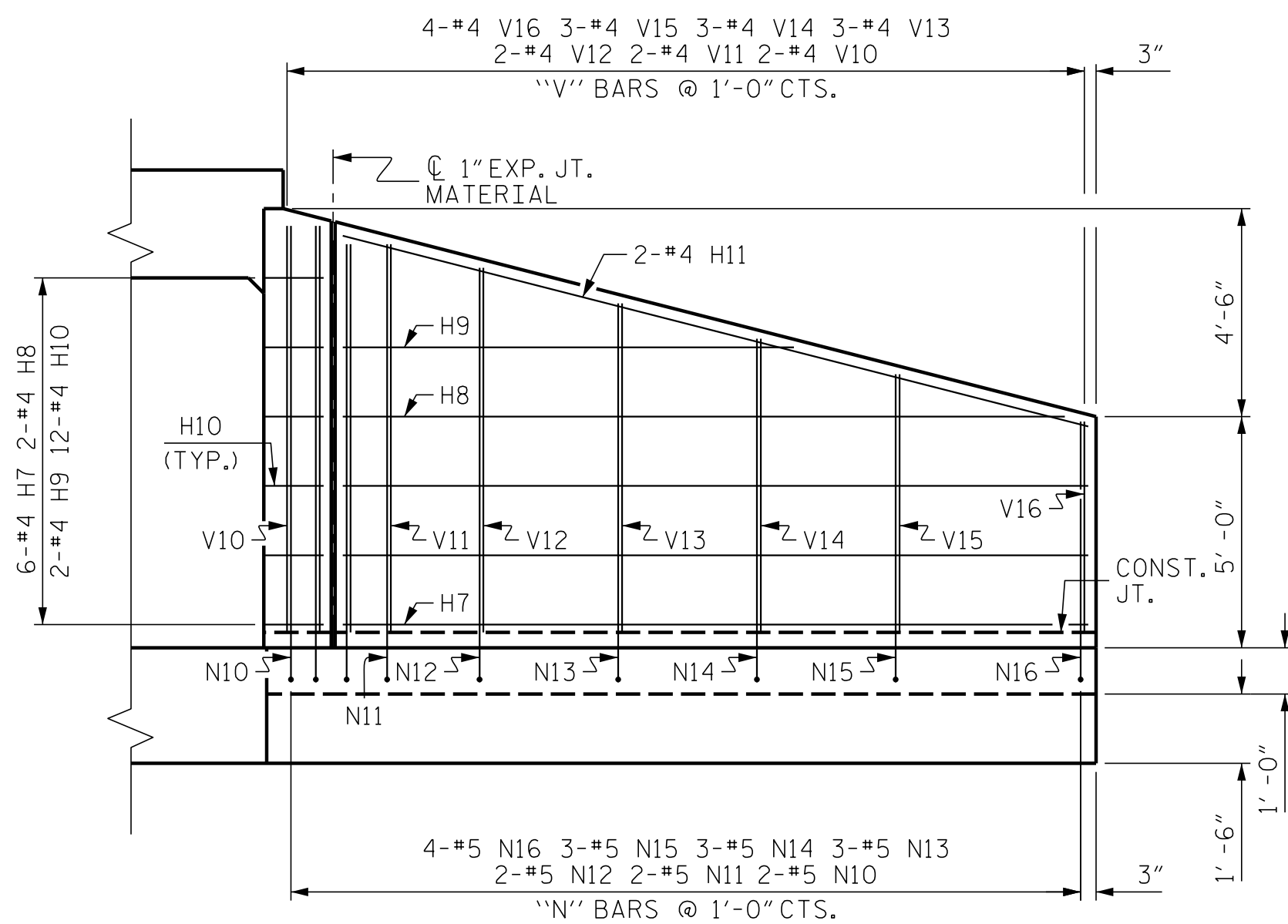
DOCUMENT NOT CONSIDERED FINAL  
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1223 Jones Franklin Rd.  
 Raleigh, N.C. 27606  
 Bus: 919 851 8077  
 Fax: 919 851 8107  
 LICENSE NO. F-0377

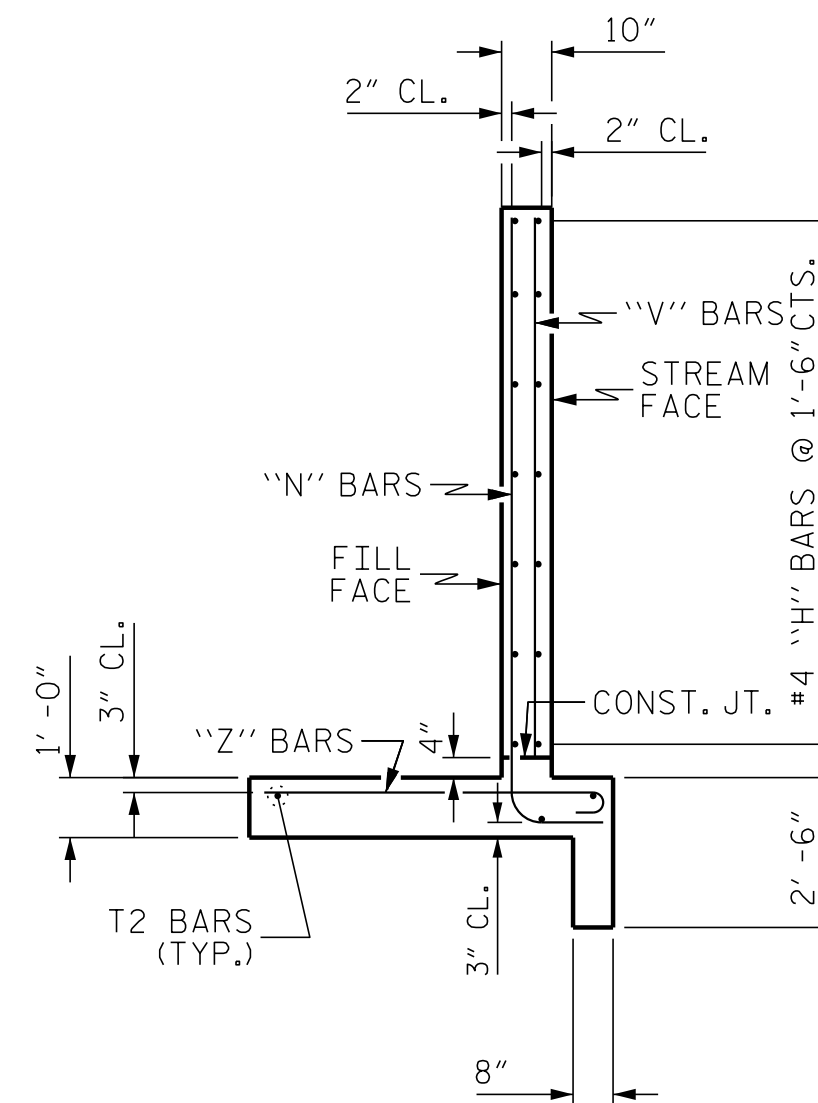




PLAN W2



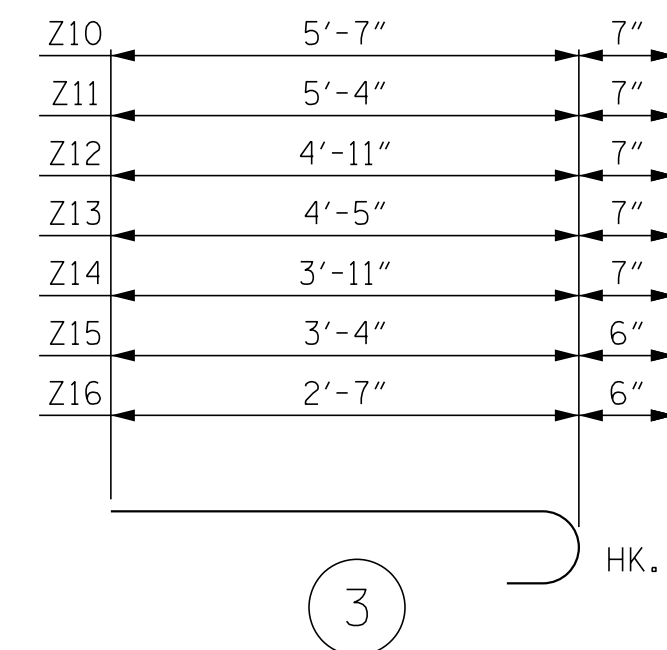
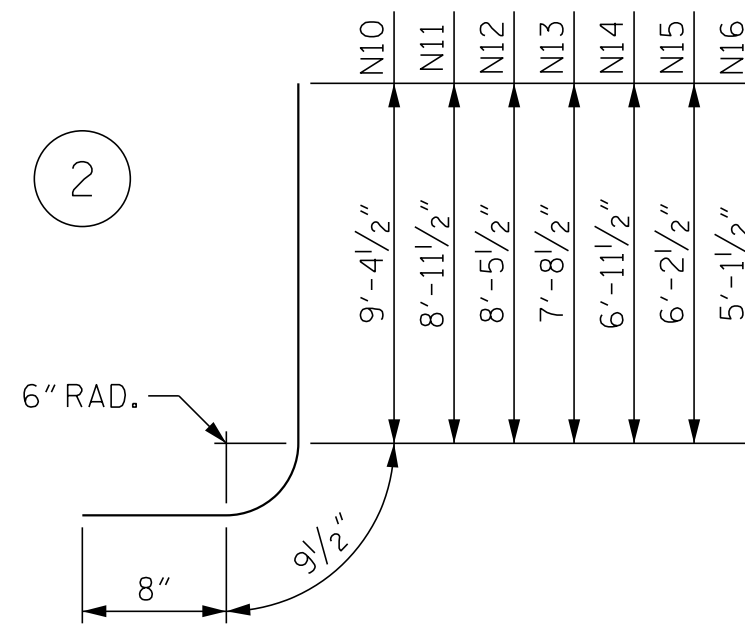
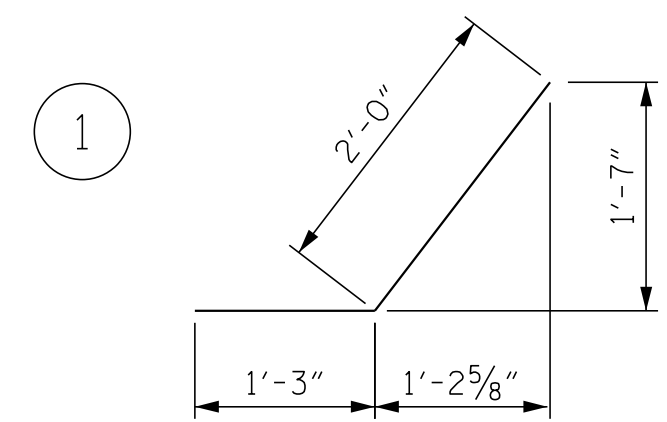
ELEVATION W2



TYPICAL WING SECTION

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.

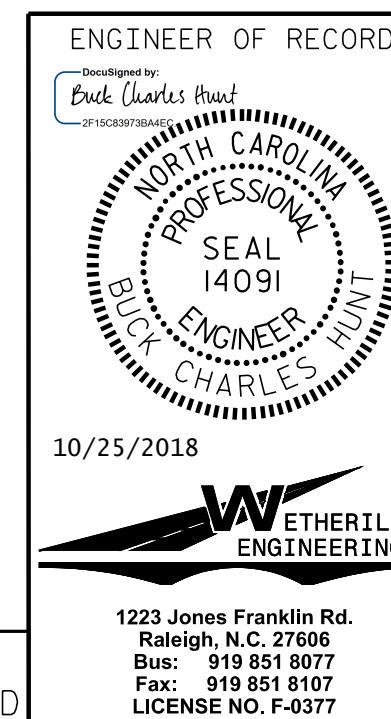


BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H7	12	#4	STR	16'-1"	129
H8	4	#4	STR	15'-7"	42
H9	4	#4	STR	9'-9"	26
H10	24	#4	1	3'-3"	52
H11	4	#4	STR	16'-7"	44
N10	4	#5	2	10'-10"	45
N11	4	#5	2	10'-5"	43
N12	4	#5	2	9'-11"	41
N13	6	#5	2	9'-2"	57
N14	6	#5	2	8'-5"	53
N15	6	#5	2	7'-8"	48
N16	8	#5	2	6'-7"	55
S2	6	#6	STR	6'-0"	54
T2	6	#5	STR	18'-0"	113
V10	4	#4	STR	8'-9"	23
V11	4	#4	STR	8'-4"	22
V12	4	#4	STR	7'-10"	21
V13	6	#4	STR	7'-1"	28
V14	6	#4	STR	6'-4"	25
V15	6	#4	STR	5'-7"	22
V16	8	#4	STR	4'-6"	24
Z10	4	#5	3	6'-2"	26
Z11	4	#5	3	5'-11"	25
Z12	4	#5	3	5'-6"	23
Z13	6	#5	3	5'-0"	31
Z14	6	#5	3	4'-6"	28
Z15	6	#4	3	3'-10"	15
Z16	8	#4	3	3'-1"	16
REINFORCING STEEL FOR 2 WINGS					1,131 LBS
CLASS A CONCRETE 2 WINGS					15.7 CY
TOTAL					15.7 CY

NOTE:  
A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JT.

PROJECT NO. DF15402.2054808  
LENOIR COUNTY  
STATION: 13+47.55 -L-



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
W2 WINGS  
FOR  
CONCRETE BOX CULVERT  
H = 8'-0" SLOPE = 3:1  
105° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C1-7
1			3			TOTAL SHEETS
2			4			7

DOCUMENT NOT CONSIDERED FINAL  
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## STANDARD NOTES

### DESIGN DATA:

SPECIFICATIONS	- - - - -	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	- - - - -	SEE PLANS
IMPACT ALLOWANCE	- - - - -	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	- -	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	- -	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	- -	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	- - -	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	- - - - -	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	- - - - -	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	- - -	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	- - - - -	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	- - - - -	30 LBS. PER CU. FT. (MINIMUM)

### MATERIAL AND WORKMANSHIP:

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

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

### CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

### CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED  $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO  $1\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A  $\frac{1}{4}$ " FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A  $\frac{1}{4}$ " RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

### DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

### ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

### REINFORCING STEEL:

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

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

### STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE  $\frac{7}{8}$ "  $\emptyset$  SHEAR STUDS FOR THE  $\frac{3}{4}$ "  $\emptyset$  STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 -  $\frac{7}{8}$ "  $\emptyset$  STUDS FOR 4 -  $\frac{3}{4}$ "  $\emptyset$  STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF  $\frac{7}{8}$ "  $\emptyset$  STUDS ALONG THE BEAM AS SHOWN FOR  $\frac{3}{4}$ "  $\emptyset$  STUDS BASED ON THE RATIO OF 3 -  $\frac{7}{8}$ "  $\emptyset$  STUDS FOR 4 -  $\frac{3}{4}$ "  $\emptyset$  STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST  $\frac{3}{16}$ " IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY  $\frac{1}{16}$ " INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

### HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

### SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

# ENGLISH

JANUARY, 1990

STD. NO. SN