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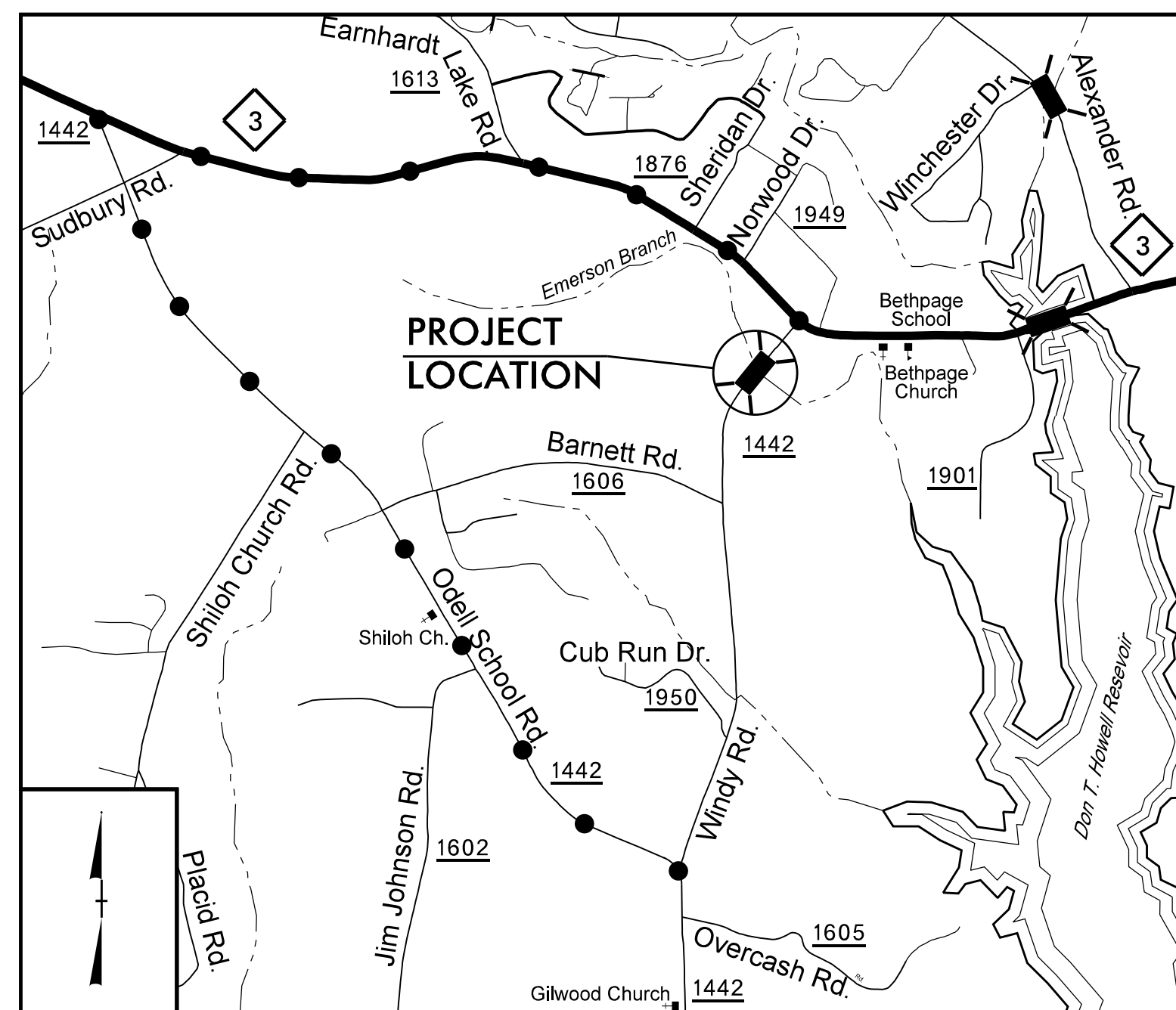
09.08/2016

STATE PROJECT: 17BP.10.R.53

CONTRACT: DJ00194

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See Sheet 1-A For Index of Sheets



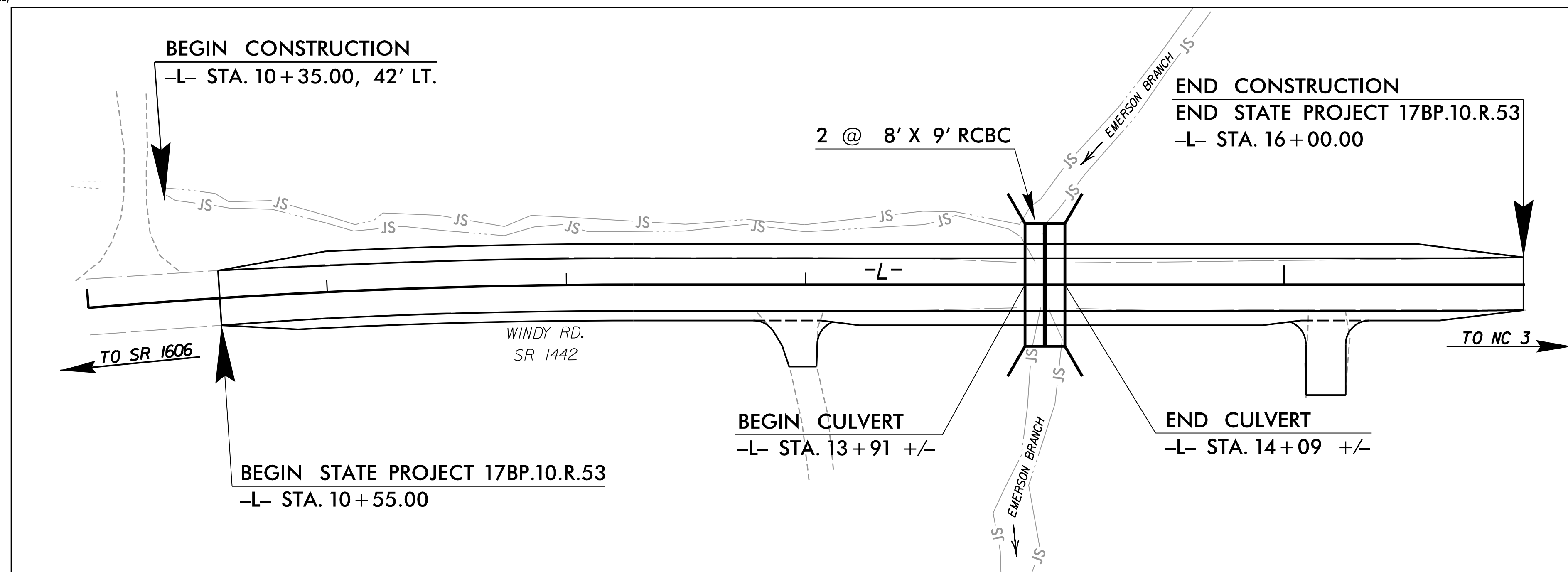
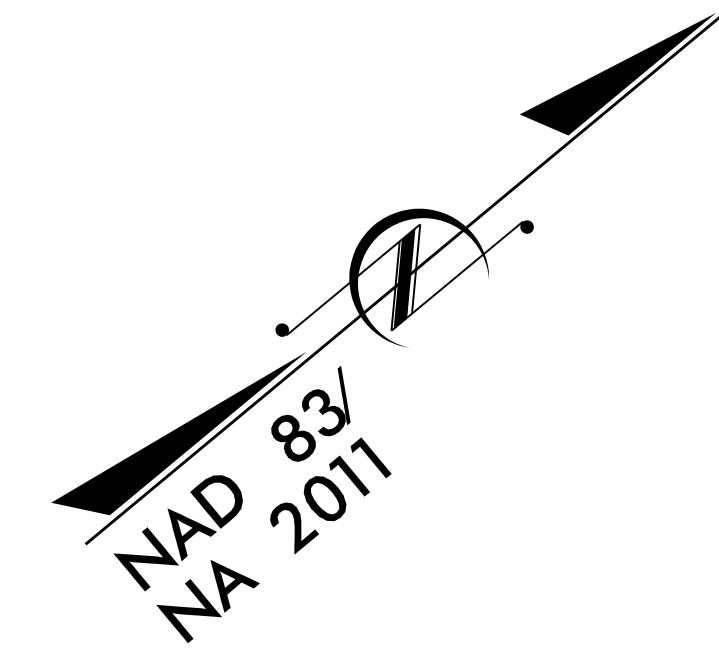
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CABARRUS COUNTY

LOCATION: BRIDGE NO. 12 ON SR 1442 OVER EMERSON BRANCH
BETWEEN NC 3 AND SR 1606

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

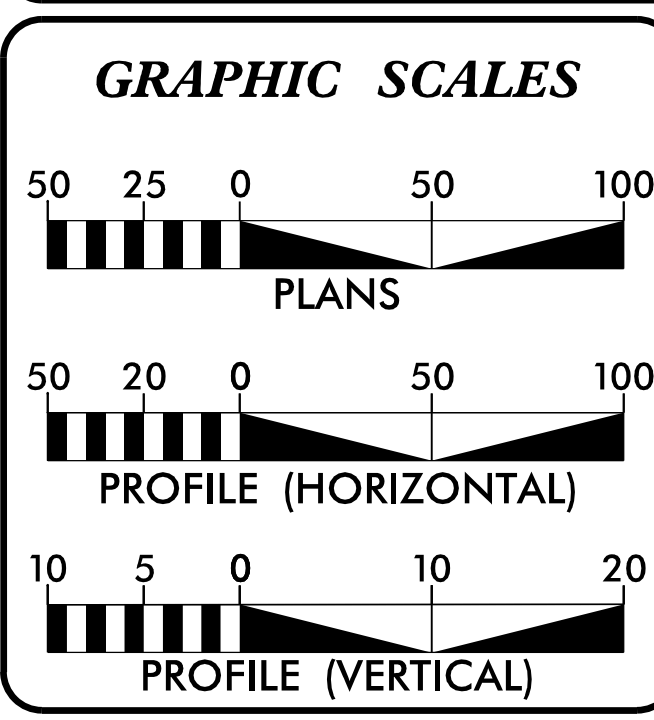
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.53	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.10.R.53		P.E., R/W, CONSTR.	



LOCATION SKETCH

HDR HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2012 = 9,700
ADT 2025 = 19,400
DHV = %
D = %
T = 6 %
V = 45 MPH

FUNC CLASS =
MINOR COLLECTOR
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY STATE PROJECT 17BP.10.R.53 = 0.100 MILES
LENGTH STRUCTURES STATE PROJECT 17BP.10.R.53 = 0.003 MILES
TOTAL LENGTH STATE PROJECT 17BP.10.R.53 = 0.103 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: **DOMINIC M. WAINWRIGHT, P.E.**
OCTOBER 8, 2014
PROJECT ENGINEER

LETTING DATE: **JAMES R. RICE, P.E.**
JUNE 1, 2016
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

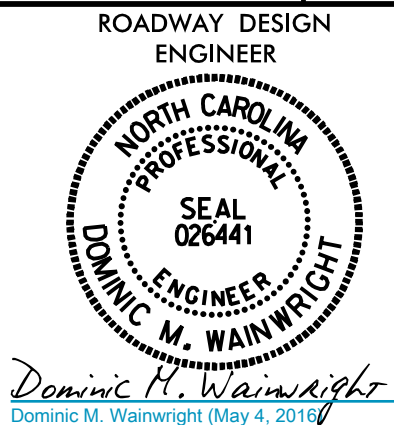

James R. Rice
James R. Rice (May 4, 2016)
SEAL 31986
P.E.

ROADWAY DESIGN ENGINEER

Dominic M. Wainwright
Dominic M. Wainwright (May 4, 2016)
SEAL 026441
P.E.

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

LOUIS MITCHELL P.E.
DIVISION ENGINEER

PROJECT REFERENCE NO. 17BP10R53	SHEET NO. 1-A
	
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	
	

INDEX OF SHEETS	
SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2-A	MULTI-BARREL LOW FLOW CHANNEL AND FLOOD PLAN SILL DETAIL
3	RIGHT-OF-WAY AREA DATA, SUMMARY OF DRAINAGE QUANTITIES, SUMMARY OF GUARDRAIL
4	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-2	TRAFFIC MANAGEMENT PLAN
SD-01	DETOUR SIGN DESIGN
EC-1 THRU EC-6	EROSION CONTROL PLANS
RF-1 THRU RF-3	STREAMBANK REFORESTATION PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1 THRU X-8	CROSS-SECTIONS
S-1 THRU S-5	STRUCTURE PLANS
S-6	STRUCTURE STANDARD NOTES

EFF. 01-17-2012
REV. 10-30-2012

2012 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, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
848.02	Driveway Turnout - Radius Type
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels
876.04	Drainage Ditches with Class 'B' Rip Rap

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 10-31-2014

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 II.

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.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 10' RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS 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.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE WINDSTREAM AND DUKE ENERGY.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ _{EP}
Property Corner	-----
Property Monument	□ _{ECM}
Parcel/Sequence Number	⑫③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	----- _{WLB}
Proposed Wetland Boundary	----- _{WLB}
Existing Endangered Animal Boundary	----- _{EAB}
Existing Endangered Plant Boundary	----- _{EPB}
Known Soil Contamination: Boundary or Site	☠
Potential Soil Contamination: Boundary or Site	?

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ _S
Well	○ _W
Small Mine	✕
Foundation	▭
Area Outline	▭
Cemetery	†
Building	▭
School	▭
Church	▭
Dam	▭

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	▭
Jurisdictional Stream	----- _{JS}
Buffer Zone 1	----- _{BZ 1}
Buffer Zone 2	----- _{BZ 2}
Flow Arrow	←
Disappearing Stream	-----
Spring	○
Wetland	-----
Proposed Lateral, Tail, Head Ditch	-----
False Sump	▽

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ _{CSX TRANSPORTATION} MILEPOST 35
Switch	□ _{SWITCH}
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	----- _{R/W}
Proposed Right of Way Line with Iron Pin and Cap Marker	----- _{R/W}
Proposed Right of Way Line with Concrete or Granite Marker	----- _{R/W}
Existing Control of Access	○ _{CA}
Proposed Control of Access	○ _{CA}
Existing Easement Line	----- _E
Proposed Temporary Construction Easement	----- _E
Proposed Temporary Drainage Easement	----- _{TDE}
Proposed Permanent Drainage Easement	----- _{PDE}
Proposed Permanent Drainage / Utility Easement	----- _{DUE}
Proposed Permanent Utility Easement	----- _{PUE}
Proposed Temporary Utility Easement	----- _{TUE}
Proposed Aerial Utility Easement	----- _{AUE}
Proposed Permanent Easement with Iron Pin and Cap Marker	◆

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	----- _C
Proposed Slope Stakes Fill	----- _F
Proposed Curb Ramp	○ _{CR}
Curb Cut Future Ramp	○ _{CCFR}
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	----- _{Vineyard}

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	----- _{CONC}
Bridge Wing Wall, Head Wall and End Wall	----- _{CONC WW}
MINOR:	
Head and End Wall	----- _{CONC HW}
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ _{CB}
Paved Ditch Gutter	-----
Storm Sewer Manhole	○ _S
Storm Sewer	----- _S

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	○ _P
Power Line Tower	⊠
Power Transformer	⊠
U/G Power Cable Hand Hole	□
H-Frame Pole	●
Recorded U/G Power Line	----- _P
Designated U/G Power Line (S.U.E.*)	----- _P

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	○ _T
Telephone Booth	□
Telephone Pedestal	□
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	□ _T
Recorded U/G Telephone Cable	----- _T
Designated U/G Telephone Cable (S.U.E.*)	----- _T
Recorded U/G Telephone Conduit	----- _{TC}
Designated U/G Telephone Conduit (S.U.E.*)	----- _{TC}
Recorded U/G Fiber Optics Cable	----- _{T FO}
Designated U/G Fiber Optics Cable (S.U.E.*)	----- _{T FO}

WATER:

Water Manhole	○ _W
Water Meter	○
Water Valve	⊗
Water Hydrant	○ _W
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	----- _W
Above Ground Water Line	----- _{A/G Water}

TV:

TV Satellite Dish	☑
TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	□ _{TV}
Recorded U/G TV Cable	----- _{TV}
Designated U/G TV Cable (S.U.E.*)	----- _{TV}
Recorded U/G Fiber Optic Cable	----- _{TV FO}
Designated U/G Fiber Optic Cable (S.U.E.*)	----- _{TV FO}

GAS:

Gas Valve	◇
Gas Meter	○
Recorded U/G Gas Line	----- _G
Designated U/G Gas Line (S.U.E.*)	----- _G
Above Ground Gas Line	----- _{A/G Gas}

SANITARY SEWER:

Sanitary Sewer Manhole	○ _{SS}
Sanitary Sewer Cleanout	○ _{SS}
U/G Sanitary Sewer Line	----- _{SS}
Above Ground Sanitary Sewer	----- _{A/G Sanitary Sewer}
Recorded SS Forced Main Line	----- _{FSS}
Designated SS Forced Main Line (S.U.E.*)	----- _{FSS}

MISCELLANEOUS:

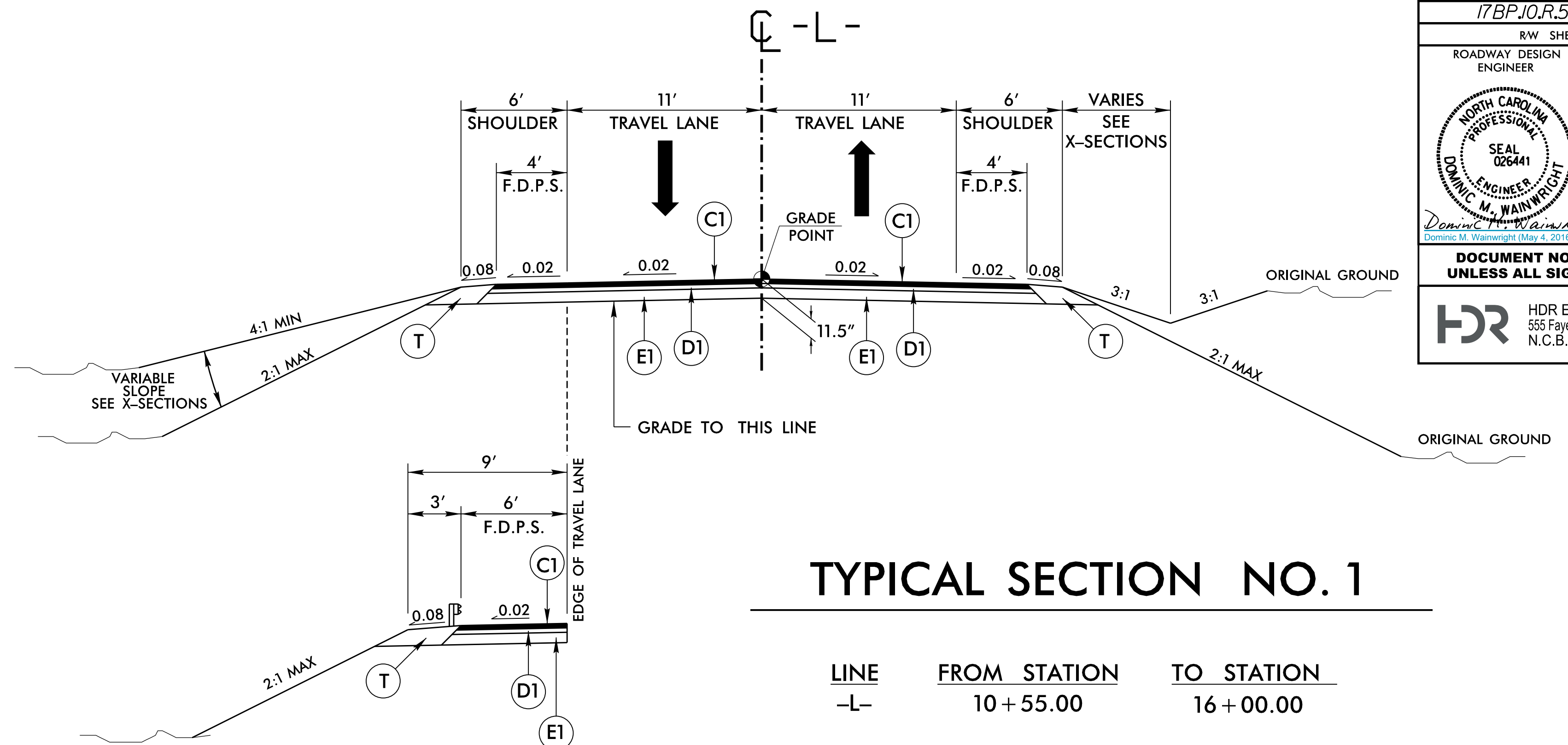
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line	----- _{UTIL}
U/G Tank; Water, Gas, Oil	▭
Underground Storage Tank, Approx. Loc.	⊕ _{UST}
A/G Tank; Water, Gas, Oil	▭
Geoenvironmental Boring	⊕
U/G Test Hole (S.U.E.*)	⊕
Abandoned According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

PAVEMENT SCHEDULE

C1	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS PER SQUARE YARD IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS PER SQUARE YARD.
D1	PROP. APPROX. 3.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 399 LBS PER SQUARE YARD.
E1	PROP. APPROX. 5.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS PER SQUARE YARD.
T	EARTH MATERIAL
V	8" INCIDENTAL STONE BASE

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

PROJECT REFERENCE NO. 17BP.10.R.53	SHEET NO. 2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	
<p>HDR Engineering, Inc. of the Carolinas 555 Fayetteville St. Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116</p>	



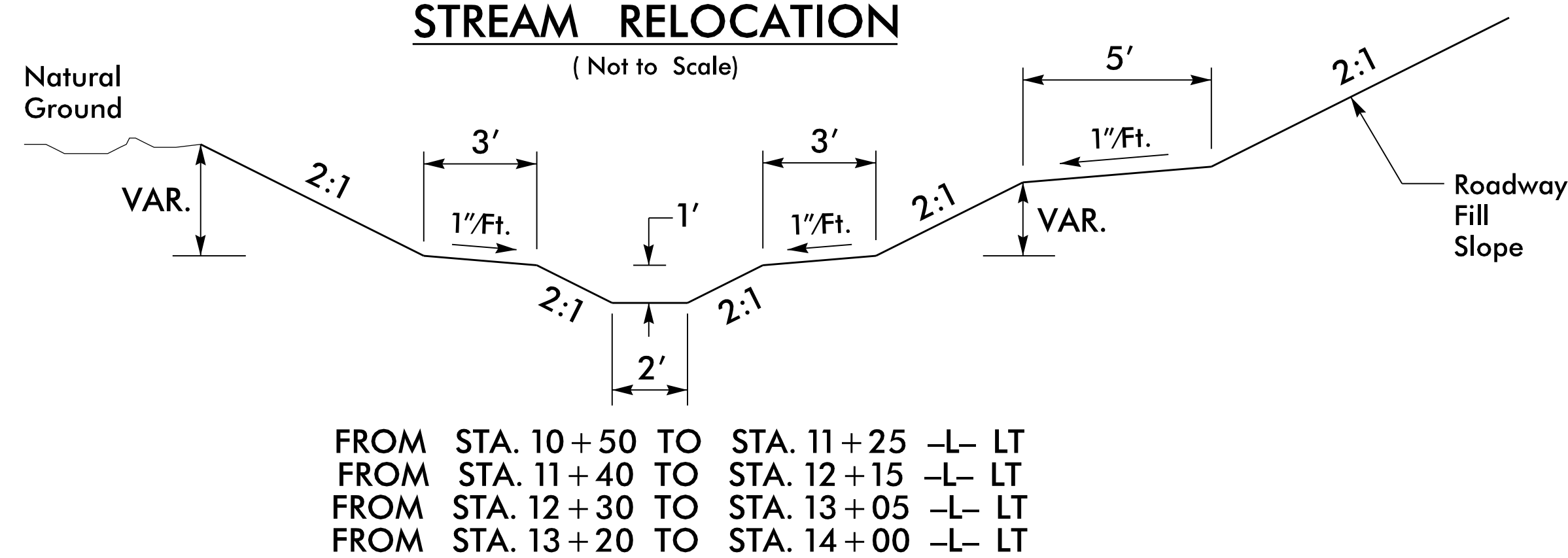
TYPICAL SECTION NO. 1

LINE	FROM STATION	TO STATION
-L-	10+55.00	16+00.00

NOTE: PAVE DRIVEWAYS AT -L- STA. 12+95 RT AND 15+18 RT WITH (V) AND (C2) BEYOND FULL DEPTH PAVED SHOULDER LIMITS.

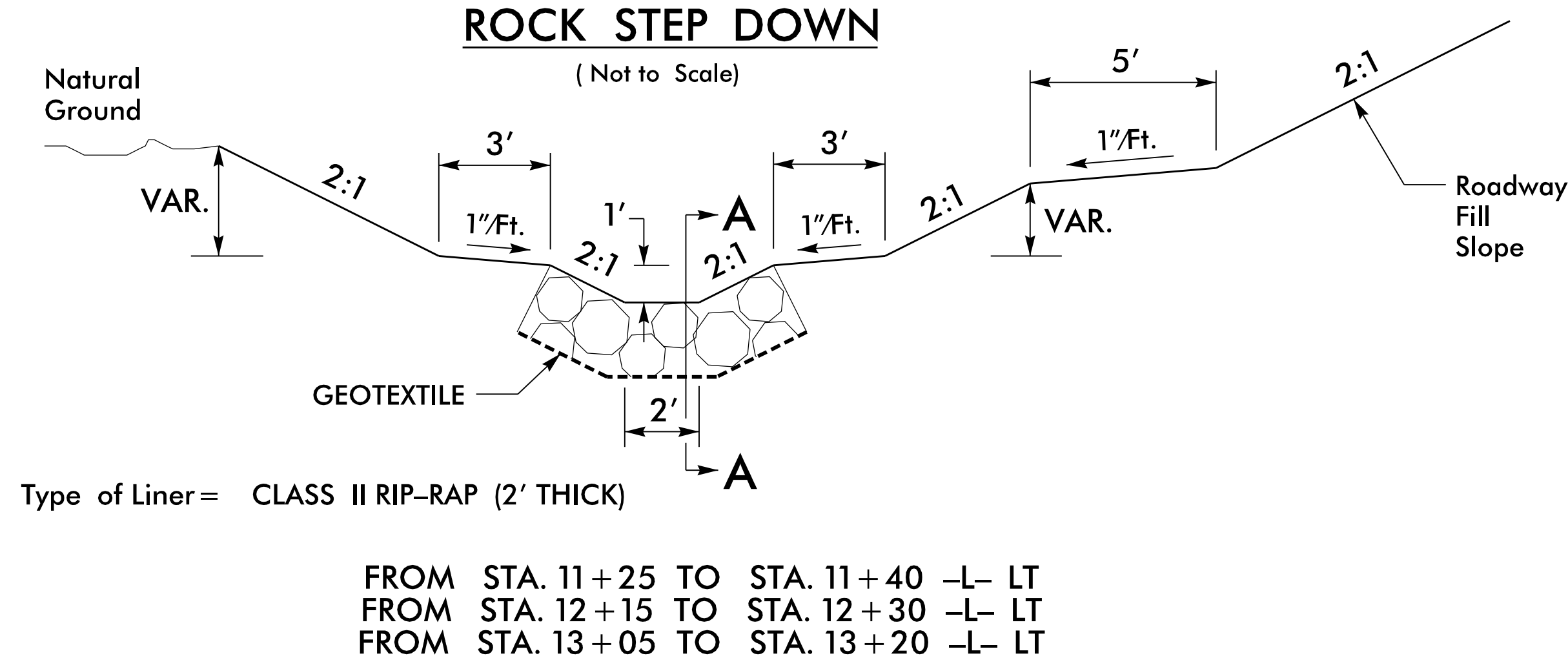
DETAIL A STREAM RELOCATION

(Not to Scale)



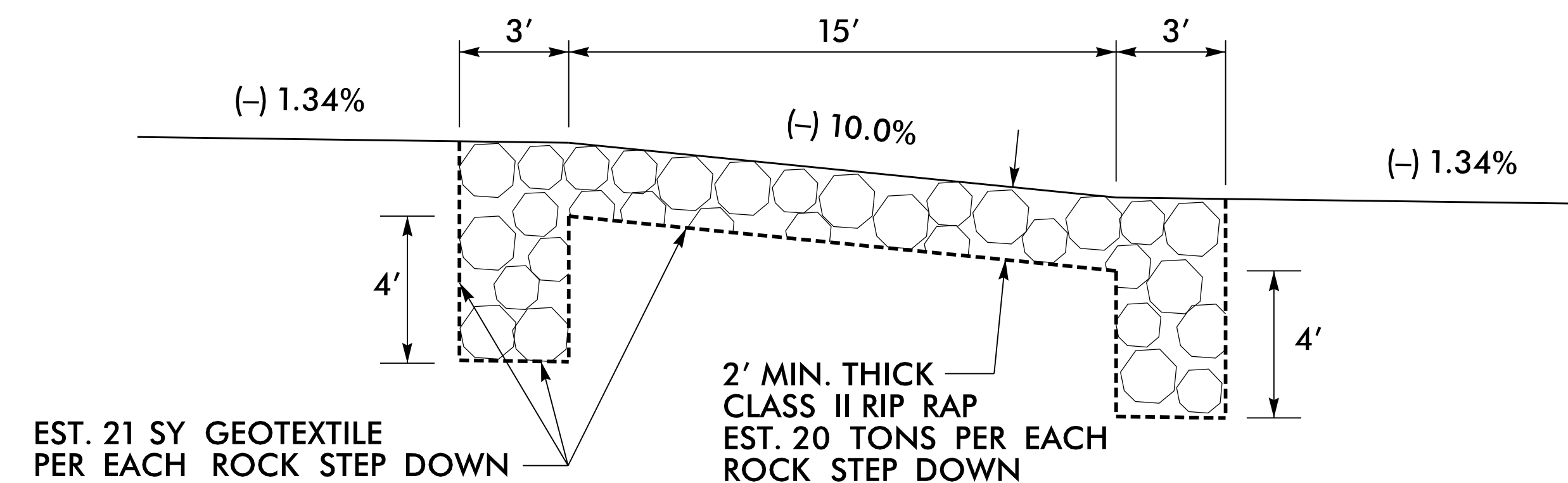
ROCK STEP DOWN

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LONGITUDINAL SECTION A-A

(Not to Scale)



8.17/99

REVISIONS

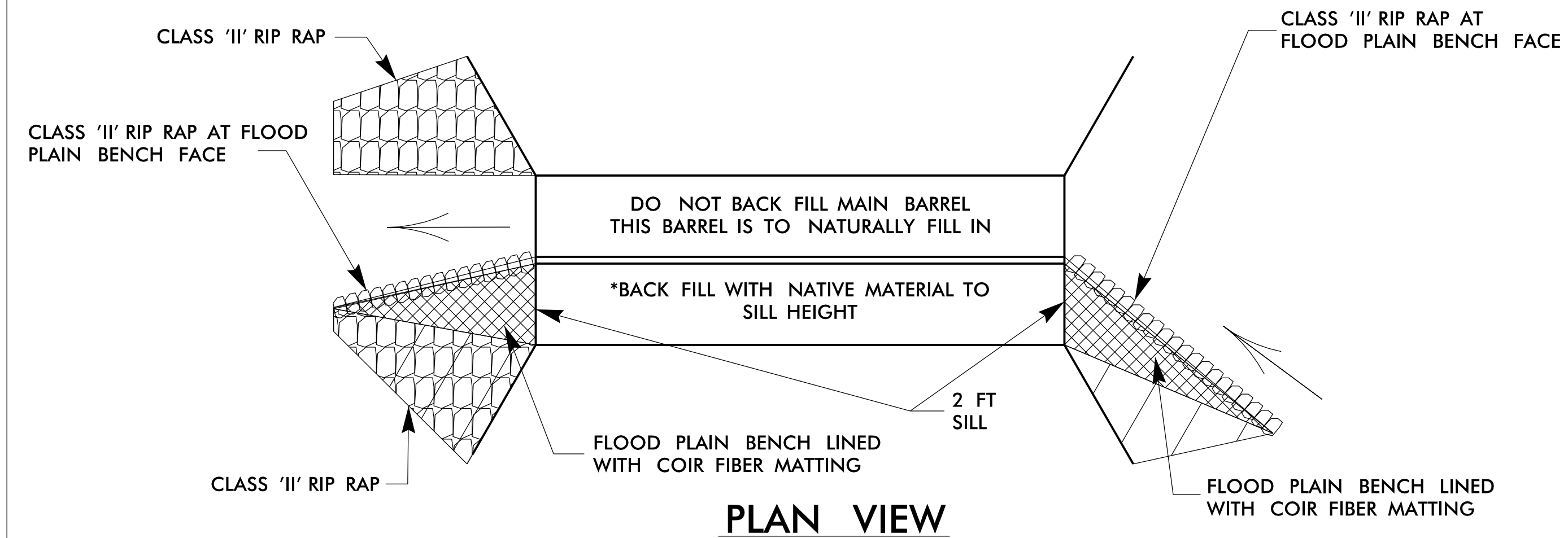
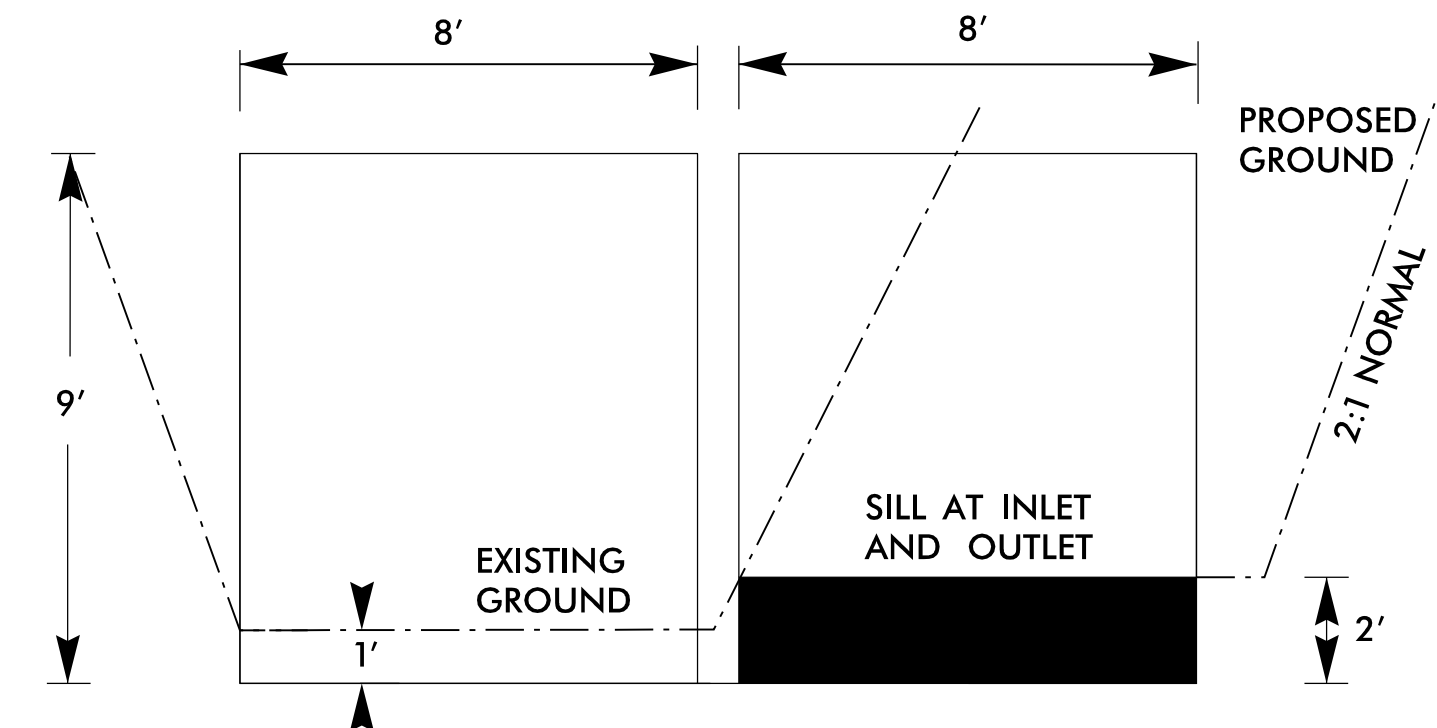
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*NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT INSTALLATION. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

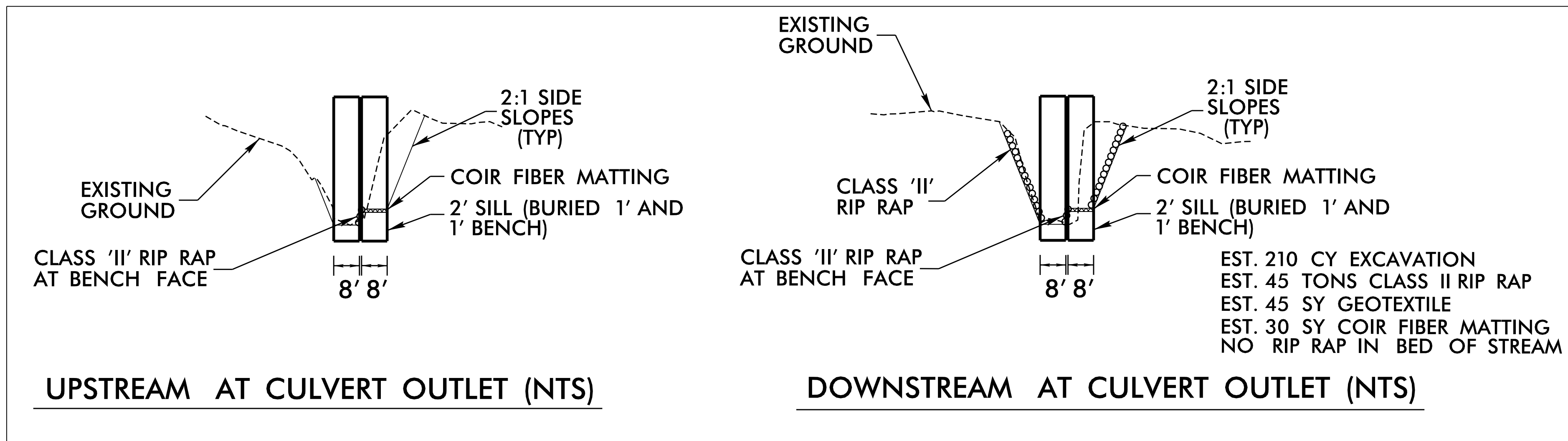
DETAIL
*NOT TO SCALE
**MULTI-BARREL – GENERAL
DETAIL LOW FLOW CHANNEL
AND FLOOD PLAIN SILL**

***NOTES:**

- 1) FLOOD PLAIN BENCH SHOULD BE CONSTRUCTED WITH NATIVE BED MATERIAL. CONSTRUCT BENCH TO THE TOP OF THE SILL AND LINE BENCH WITH COIR FIBER MATTING.
- 2) PLACE CLASS 'II' RIP RAP ON FACE OF FLOOD PLAIN BENCH AND CHANNEL SIDE SLOPES.



PLAN VIEW



REVISIONS

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6/21/00

COMPUTED BY: T.N. BEDENBAUGH DATE: DECEMBER 2013
CHECKED BY: D.M. WAINWRIGHT DATE: JULY 2014

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. 17BPJ0.R.53
SHEET NO. 3

RIGHT OF WAY AREA DATA

Table with columns: PARCEL NO., PROPERTY OWNERS NAMES, TOTAL ACREAGE, AREA TAKEN, AREA REMAINING RT., AREA REMAINING LT., CONST. EASE., PERM. DRAIN. EASE., TEMP. DRAIN. EASE., PERM. UTILITY EASE., PERM. DRAINAGE / UTILITY EASE. Rows include parcels 1, 2A, 2B, 3.

SUMMARY OF PAVEMENT REMOVAL

Table with columns: LOCATION, ASPHALT REMOVAL, ASPHALT BREAK UP, CONCRETE REMOVAL, CONCRETE BREAK UP. Rows include STA. 10+55.00 TO EXIST. BRIDGE, EXIST. BRIDGE TO -L- STA. 16+00.00, PROJECT TOTALS.

SUMMARY OF EARTHWORK

Table with columns: LOCATION, UNCLASSIFIED EXCAVATION, UNDERCUT, EMBT+20%, BORROW, WASTE. Rows include -L- STA. 10+55.00 TO 16+00.00, PROJECT TOTALS SAY, DRAINAGE DITCH EXCAVATION, -L- STA. 10+50.00 TO 14+00.00, PROJECT TOTALS SAY.

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

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

Large data table for pipes and endwalls with columns for station, location, structure no., invert elevations, pipe size, thickness, materials, and remarks. Includes abbreviations like C.B., N.D.I., D.I., G.D.I., J.B., M.H., T.B.D.I., T.B.J.B.

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

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

Table summarizing guardrail data with columns: SURVEY LINE, BEG. STA., END STA., LOCATION, LENGTH, WARRANT POINT, FLARE LENGTH, W, ANCHORS, IMPACT ATTENUATOR, SINGLE FACED GUARDRAIL, REMOVE AND STOCKPILE EXISTING GUARDRAIL, REMOVE AND STOCKPILE EXISTING GUARDRAIL, REMARKS.

REVISIONS

4/15/2016 10R53.RDY.SUM.dgn

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BL-1" WITH NAD 83 (2011) STATE PLANE GRID COORDINATES OF NORTHING: 633585.2107 (ft) EASTING: 1484974.8330 (ft) ELEVATION: 700.22 (ft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99985182
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-1" TO -L- STATION 10+55.00 IS S 74°12'07.82" E 21.17'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

TRANSMISSION LINE LOWEST WIRE LOCATIONS:
 N - 633903.10 E - 1485234.82 ELEV. - 736.76
 N - 633918.89 E - 1485244.68 ELEV. - 737.79

NOTE:
 INCIDENTAL MILL APPROXIMATELY 25' AT EACH TIE IN AT BEGIN AND END PROJECT LIMITS TO PROVIDE A SMOOTH TRANSITION TO THE EXISTING ASPHALT PAVEMENT.

PROJECT REFERENCE NO. **17BP10R.53** SHEET NO. **4**

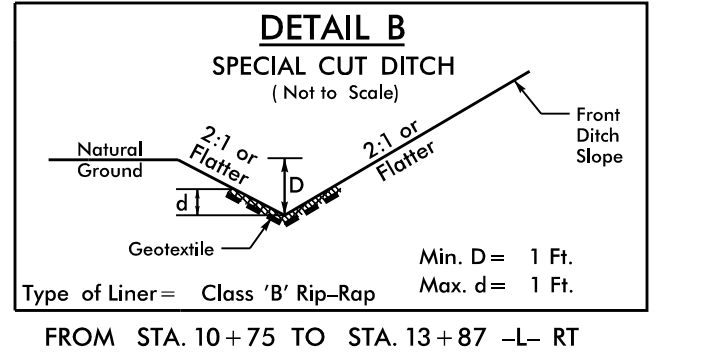
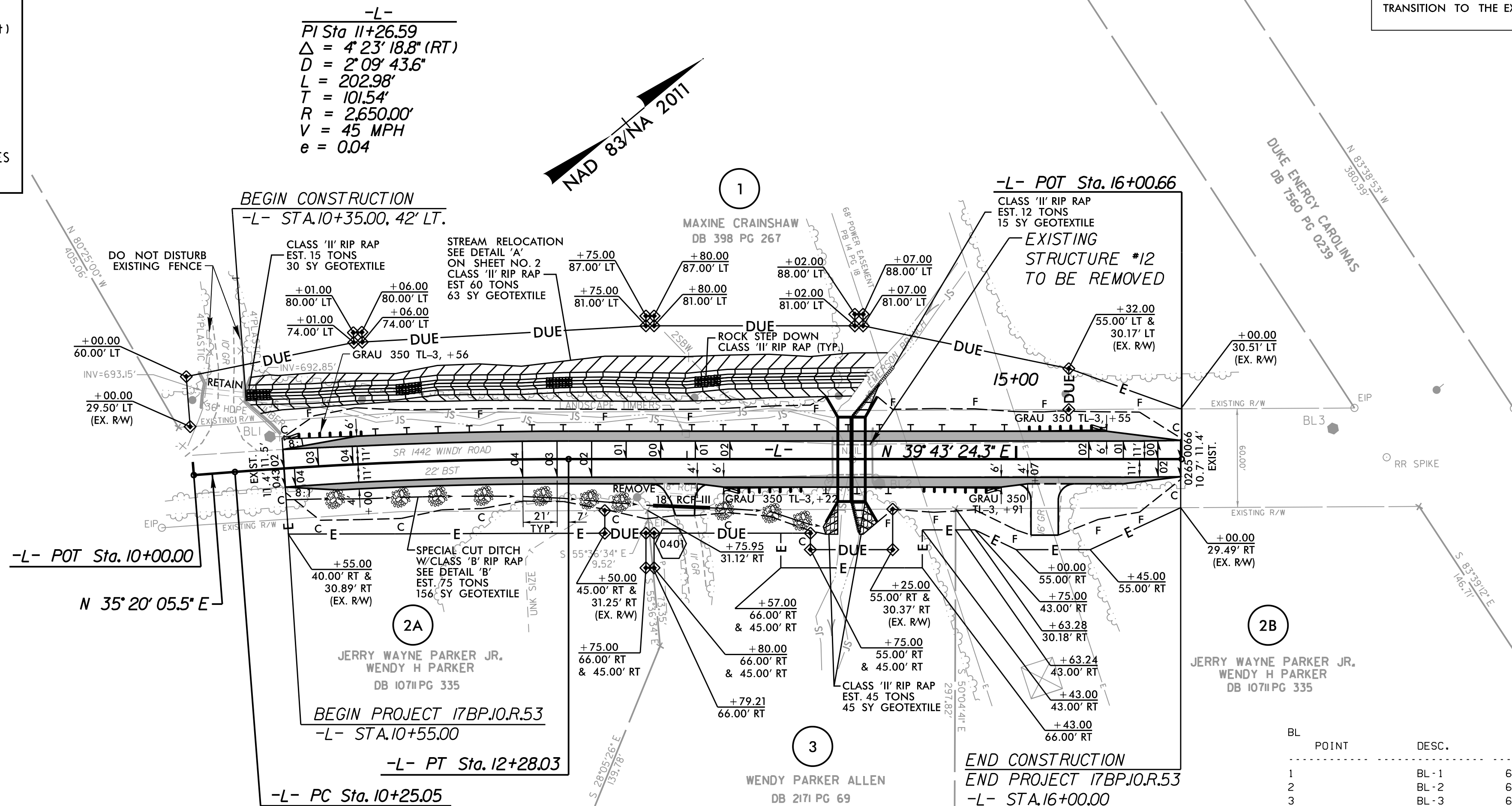
R/W SHEET NO.

ROADWAY DESIGN ENGINEER
 DOMINIC M. WAINWRIGHT
 SEAL 026441
 NORTH CAROLINA PROFESSIONAL ENGINEER

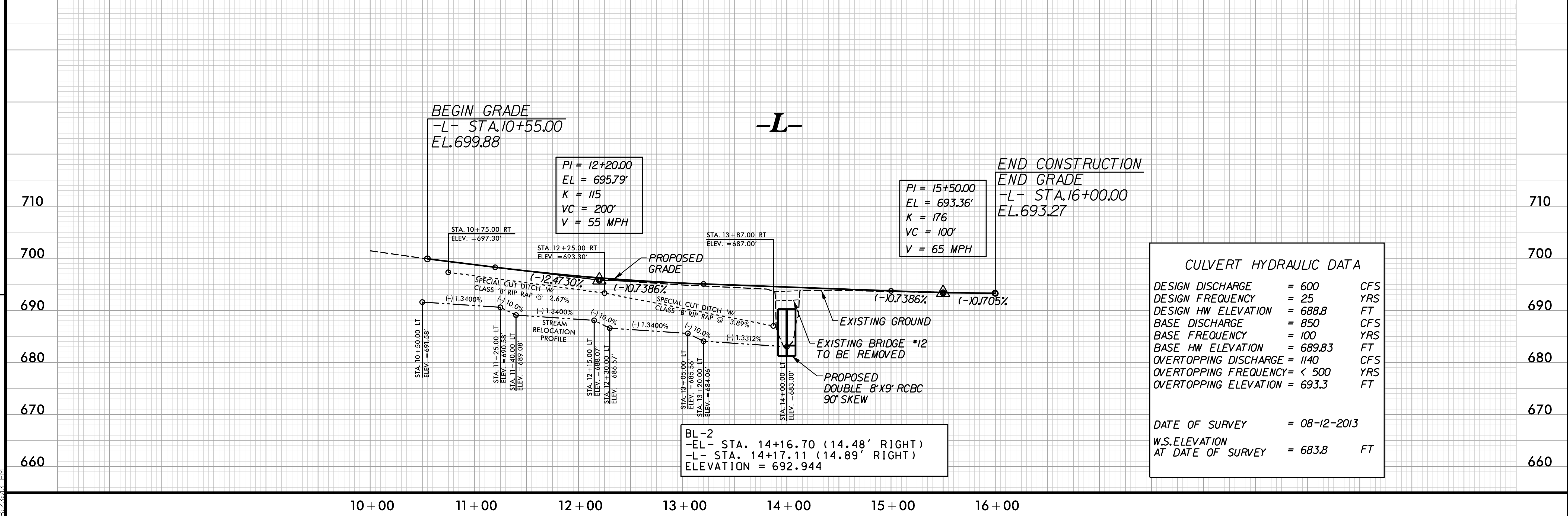
HYDRAULICS ENGINEER
 JAMES R. RICE
 SEAL 31986
 NORTH CAROLINA PROFESSIONAL ENGINEER

HDR Engineering, Inc. of the Carolinas
 555 Fayetteville St. Suite 900 Raleigh, N.C. 27601
 N.C.B.E.L.S. License Number: F-0116

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BL POINT	DESC.	NORTH	EAST	ELEVATION	EL STATION	OFFSET
1	BL-1	633585.2107	1484974.8330	700.222	10+47.41	20.77 LT
2	BL-2	633851.9560	1485233.6500	692.944	14+16.70	14.48 RT
3	BL-3	634085.2166	1485383.9460	690.634	16+92.32	17.61 LT



CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 600	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 688.8	FT
BASE DISCHARGE	= 850	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 689.83	FT
OVERTOPPING DISCHARGE	= 1140	CFS
OVERTOPPING FREQUENCY	= < 500	YRS
OVERTOPPING ELEVATION	= 693.3	FT

DATE OF SURVEY = 08-12-2013
 W.S. ELEVATION AT DATE OF SURVEY = 683.8 FT

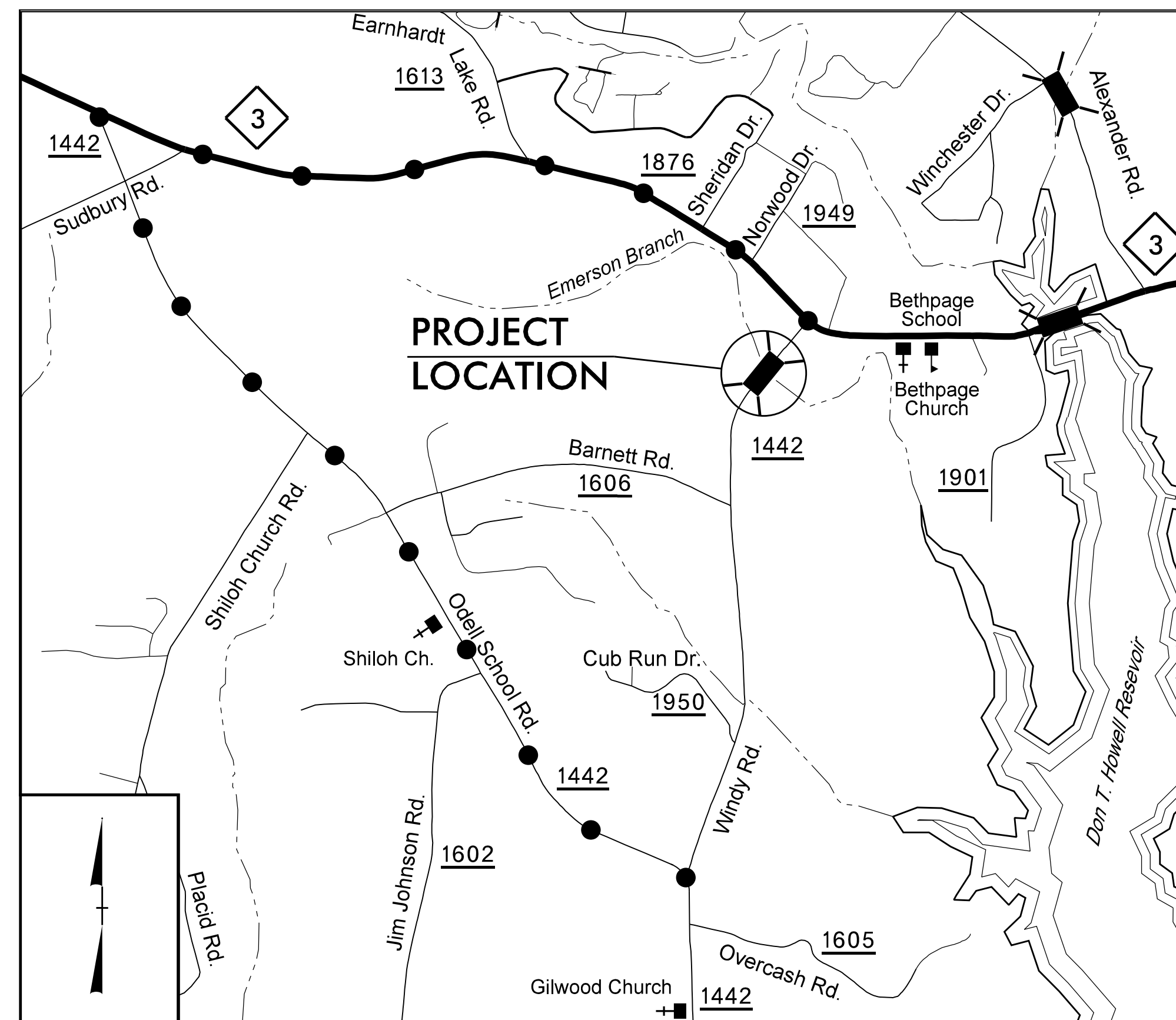
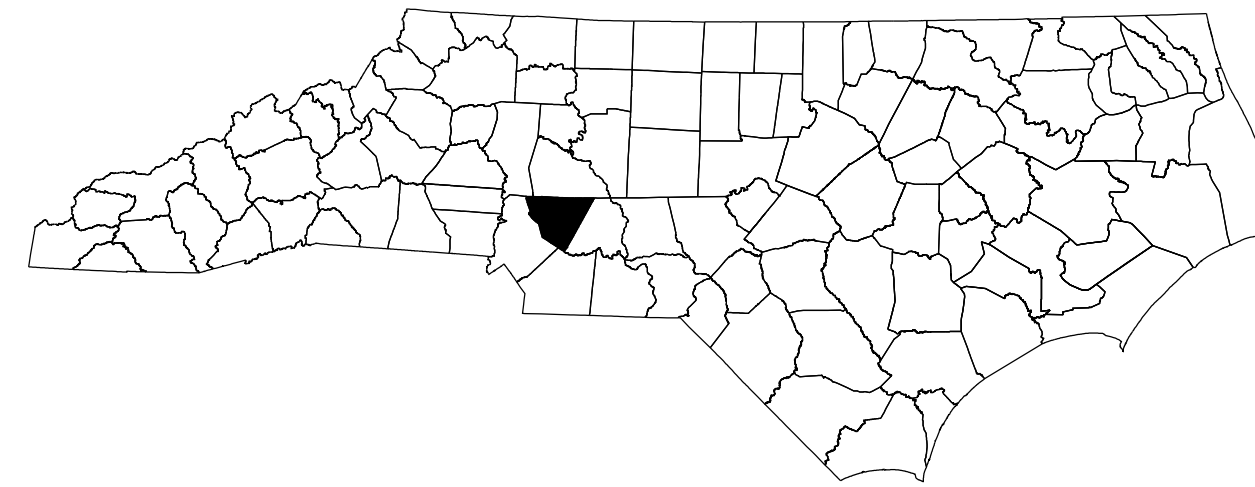
REVISIONS

4/15/2016 7:53:23 PM 7BP-10R53.RDY_PSH4.DGN

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

CABARRUS COUNTY



● — ●
DETOUR ROUTE

VICINITY MAP
(NOT TO SCALE)

INDEX OF SHEETS

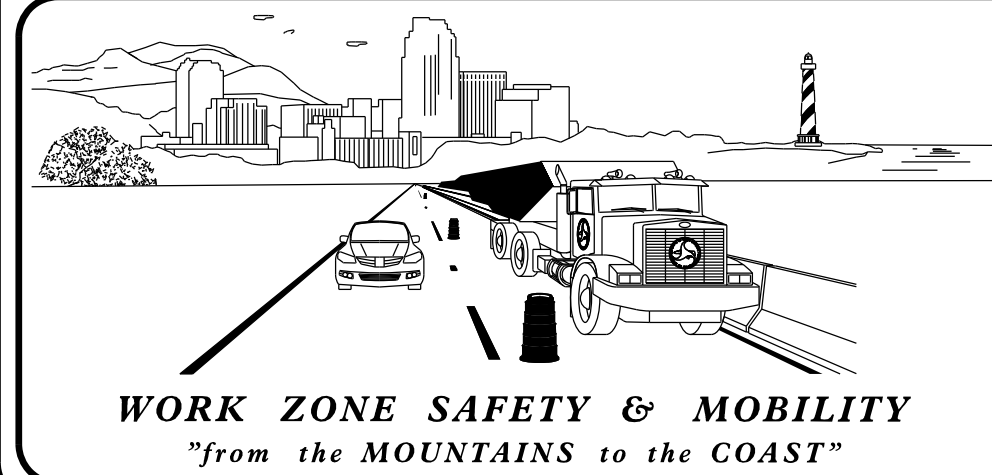
SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-1B	GENERAL NOTES AND PHASING
TMP-2	OFFSITE DETOUR PLAN - WINDY ROAD (SR 1442)
SD-01	SIGN DESIGN - WINDY ROAD

SHEET NO.
TMP-1

STATE PROJECT: 17BP.10.R.53

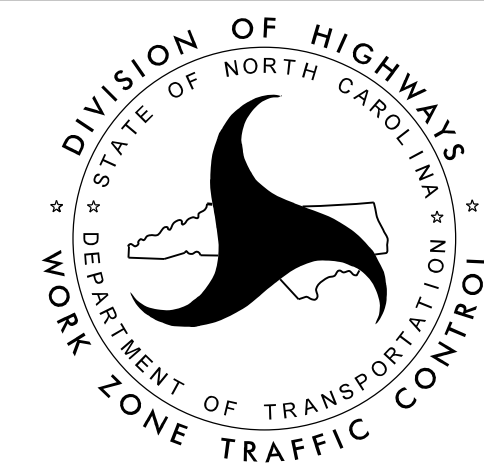
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 DATE: 4/18/2016
 TIME: 9:22:16 AM



N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
 1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
 750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
 PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. STATE TRAFFIC MANAGEMENT ENGINEER
 DOMINIC WAINWRIGHT, P.E. ROADWAY PROJECT ENGINEER
 MICHELLE WARD, P.E. TRAFFIC CONTROL PROJECT DESIGN ENGINEER
 T. N. BEDENBAUGH, E.I. TRAFFIC CONTROL DESIGN ENGINEER



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

PLAN PREPARED BY:
 HDR Engineering, Inc. of the Carolinas
 555 Fayetteville St, Suite 900, Raleigh, N.C. 27601
 N.C.B.E.L.S. License Number: F-0116

APPROVED:
 DATE: May 4, 2016

SEAL




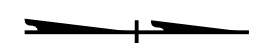



ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:





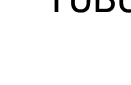
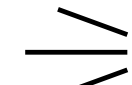


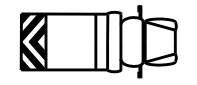


<u>STD. NO.</u>	<u>TITLE</u>
1101.01	WORK ZONE WARNING SIGNS
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

LEGEND


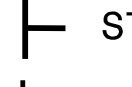

GENERAL

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

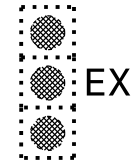

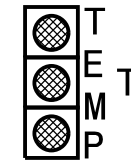
TRAFFIC CONTROL DEVICES

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

TEMPORARY SIGNING

-  PORTABLE SIGN
-  STATIONARY SIGN
-  STATIONARY OR PORTABLE SIGN

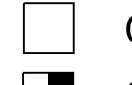


SIGNALS

-  EXISTING
-  PROPOSED
-  TEMPORARY

PAVEMENT MARKINGS

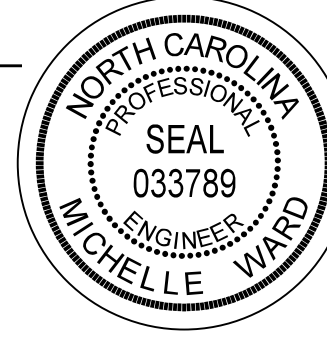
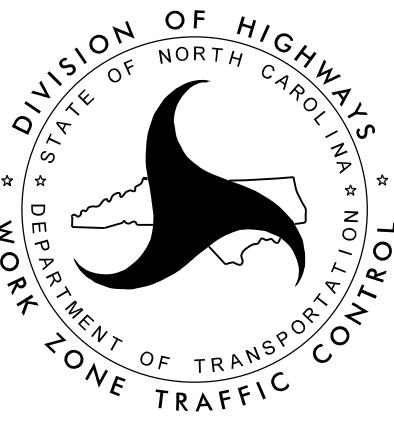
-  EXISTING LINES
-  TEMPORARY LINES

PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

-  PAVEMENT MARKING SYMBOLS

APPROVED: <i>Michelle Ward</i> <small>Michelle Ward (May 4, 2016)</small> DATE: May 4, 2016			ROADWAY STANDARD DRAWINGS & LEGEND
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

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GENERAL NOTES

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 OR DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES, AS DIRECTED BY THE ENGINEER.

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.

TRAFFIC PATTERN ALTERATIONS

- A) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- B) 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.

- C) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFFSITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

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

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFFSITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

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

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

- G) STATE FORCES WILL INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE.

PHASING NOTES

TRAFFIC CONTROL PHASING

NOTE: COORDINATE WITH THE ENGINEER FOR INSTALLATION AND REMOVAL OF ALL SIGNING AND TRAFFIC CONTROL DEVICES.


NOTE: MAINTAIN ACCESS TO DRIVEWAYS WITHIN PROJECT LIMITS AT ALL TIMES.

STEP 1: USING RSD 1101.01, SHEET 3 OF 3, INSTALL ADVANCE WORK ZONE WARNING SIGNS ON WINDY ROAD (SR 1442).



STEP 2: USING RSD 1101.03, SHEET 1 OF 9 AND SHEET TMP-2, INSTALL DETOUR SIGNS AND BARRICADES AND CLOSE WINDY ROAD (SR 1442).

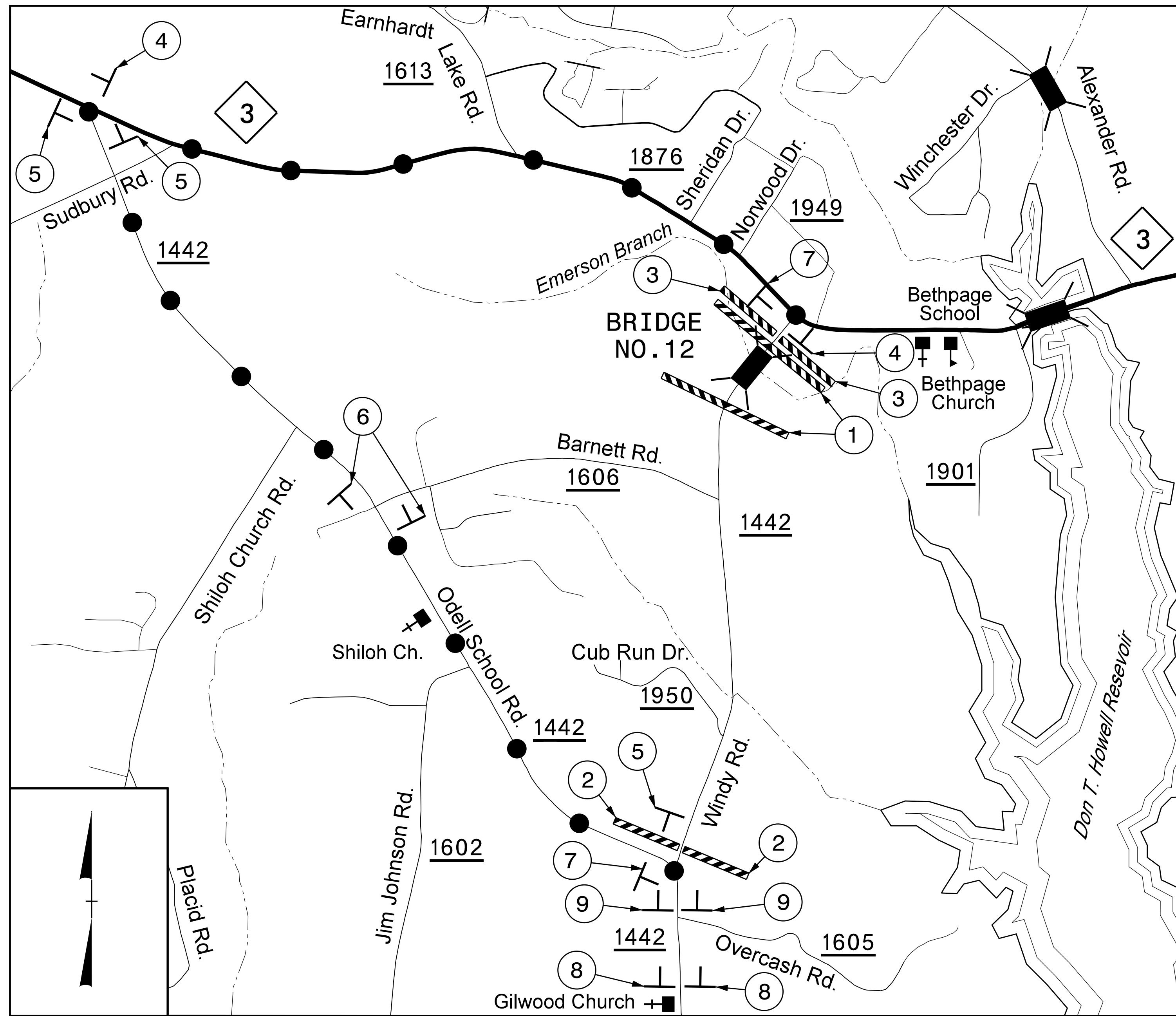
STEP 3: REMOVE EXISTING BRIDGE NO. 12 AND CONSTRUCT PROPOSED BOX CULVERT AND ROADWAY, UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE. (NOTE: COORDINATE WITH STATE FORCES TO INSTALL FINAL PAVEMENT MARKINGS AND MARKERS ONCE CONSTRUCTION IS COMPLETE.)

STEP 4: REMOVE ALL ADVANCE WORK ZONE DETOUR SIGNS, AND TRAFFIC CONTROL DEVICES AND OPEN WINDY ROAD (SR 1442) TO TRAFFIC.

PROJ. REFERENCE NO.	SHEET NO.
17BP.10.R.53	TMP-1B
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St. Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

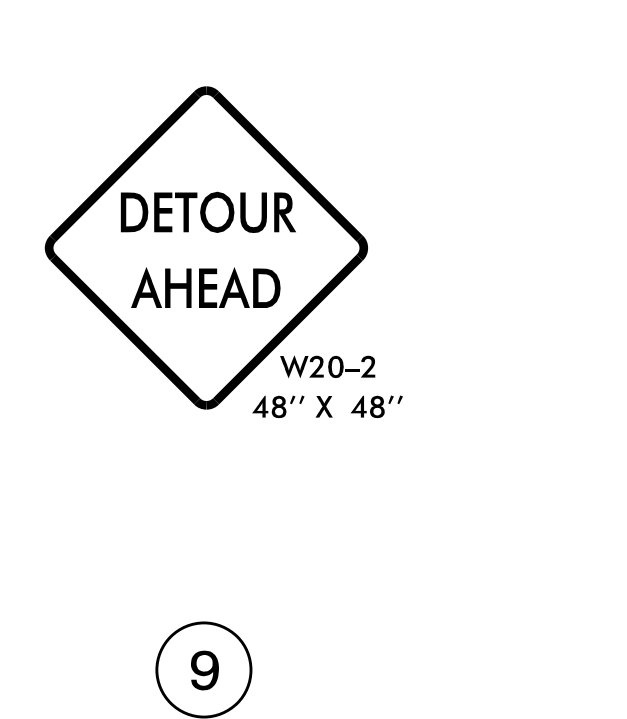
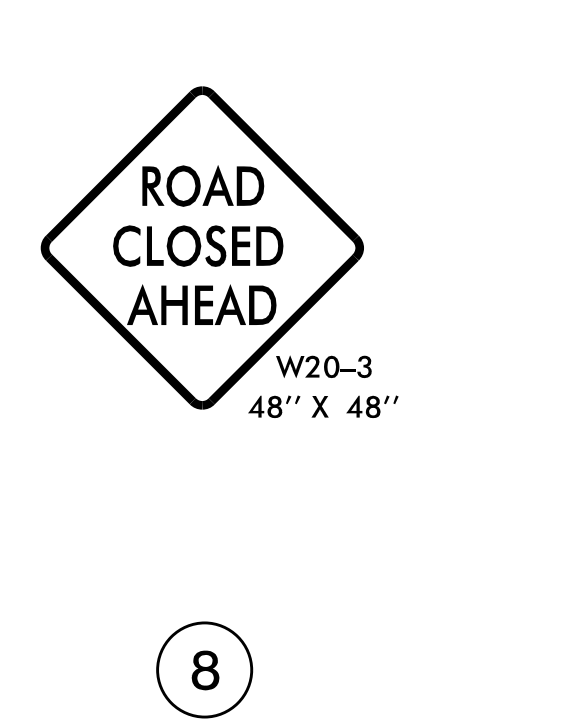
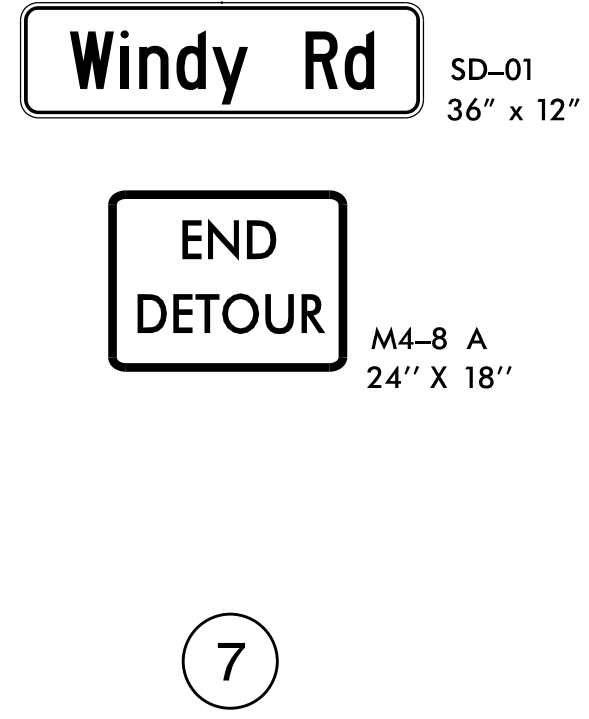
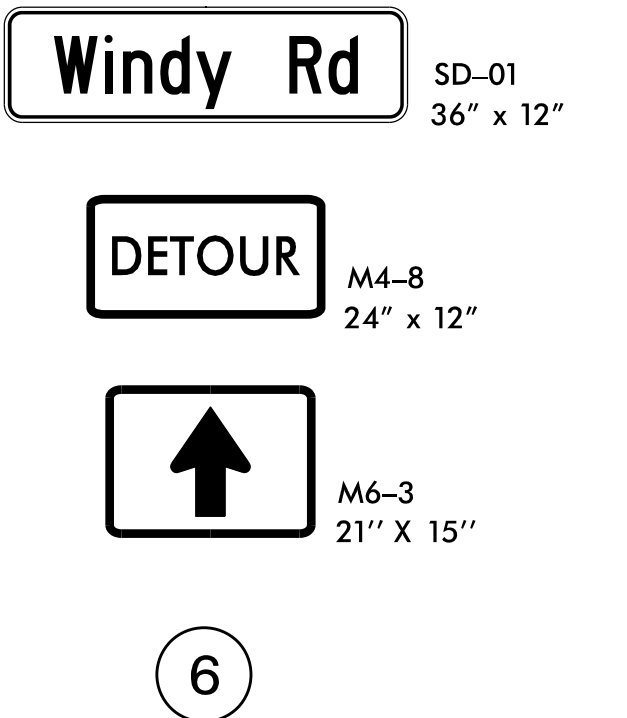
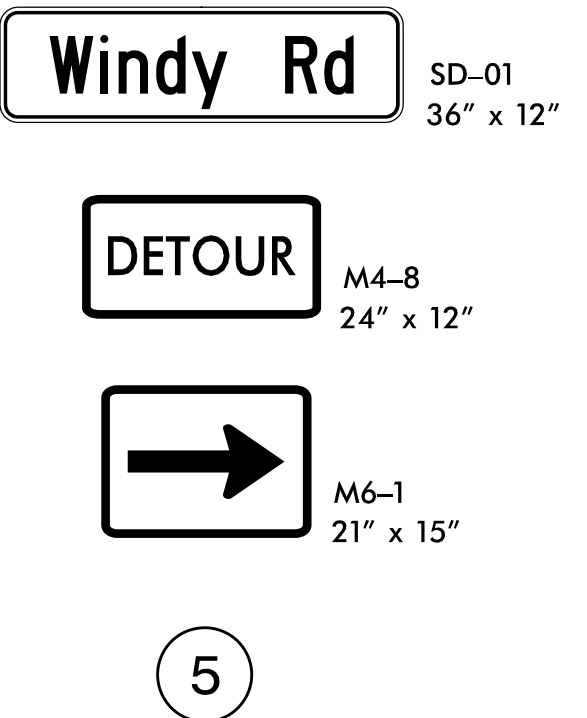
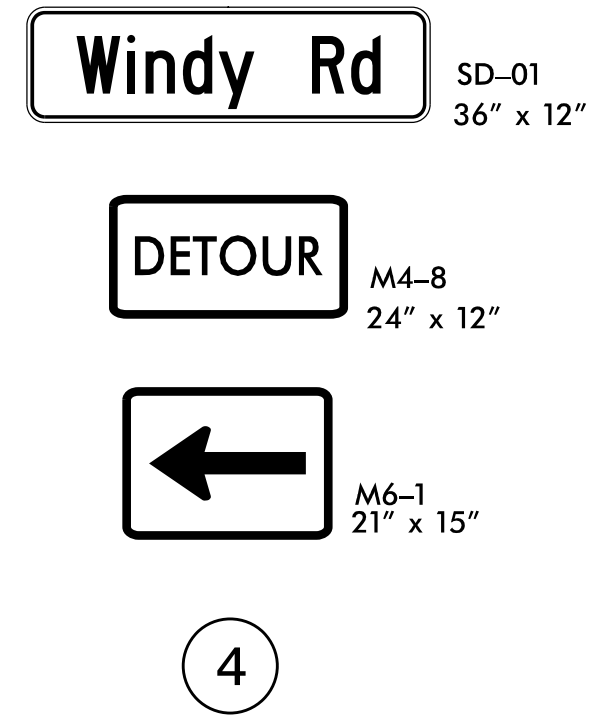
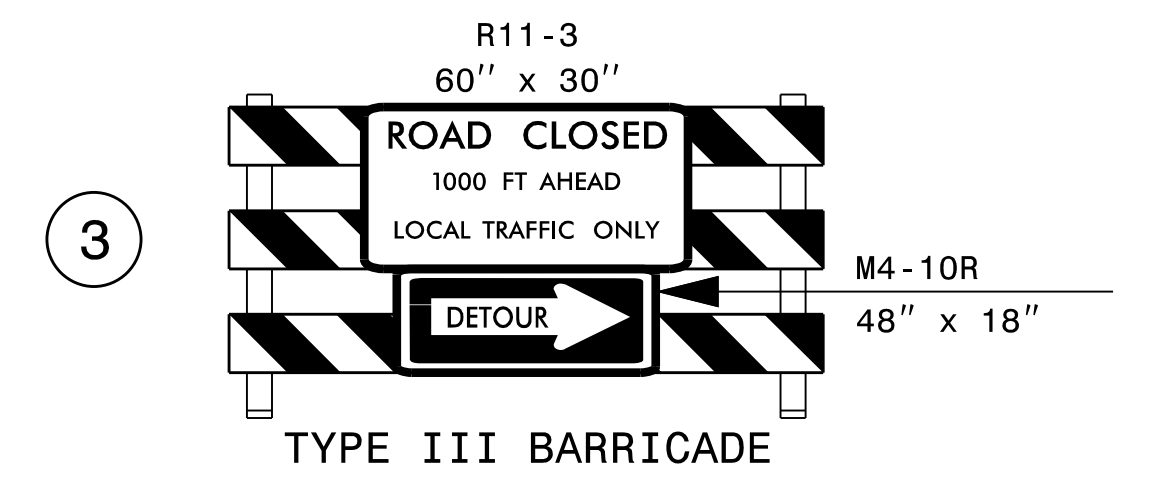
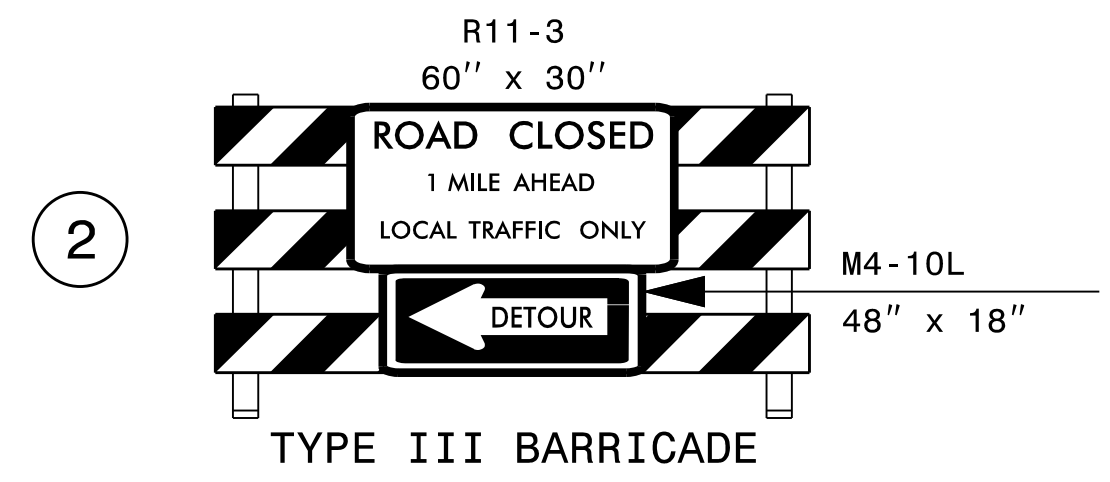
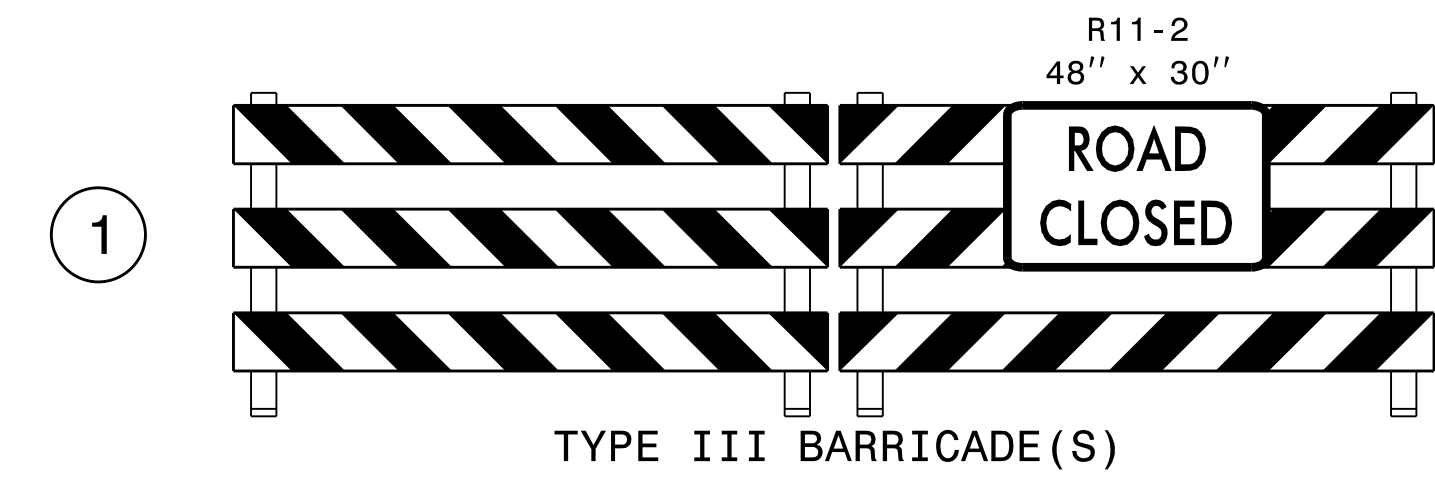
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APPROVED: <i>Michelle Ward</i> <small>Michelle Ward (May 4, 2016)</small> DATE: May 4, 2016 SEAL			GENERAL NOTES AND PHASING
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



● — ●
DETOUR ROUTE

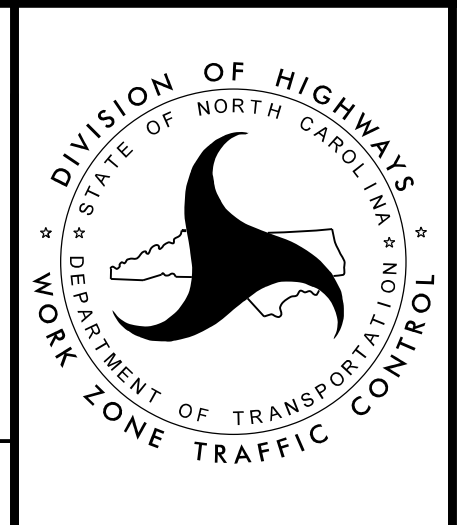
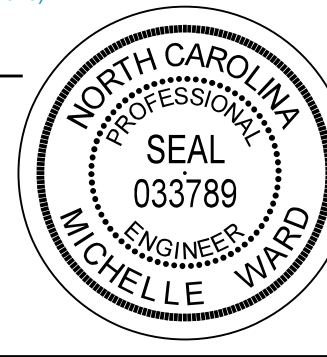
REFER TO RSD 1101.03 SHEET 1 OF 9 FOR
ADDITIONAL SIGN AND BARRICADE PLACEMENT



SEE SHEET SD-01 FOR SPECIAL SIGN DESIGN DETAIL

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APPROVED: *Michelle Ward*
Michelle Ward (May 4, 2016)
 DATE: May 4, 2016
 SEAL



OFFSITE DETOUR PLAN
 WINDY ROAD
 (SR 1442)

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

STATE PROJECT: 17BP.10.R.53

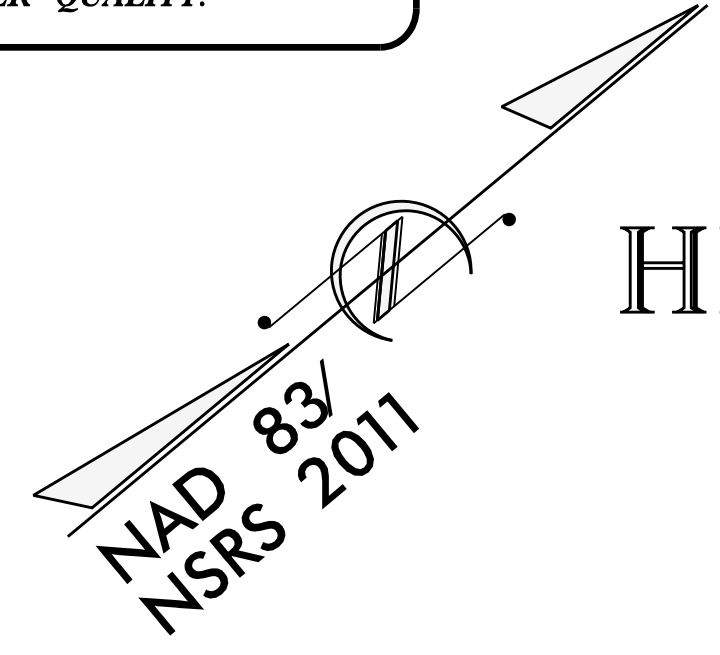
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

HIGH QUALITY WATER(S) EXIST ON THIS PROJECT
High Quality Water Zone(s) Exist
From Sta. 13+90 -L-
to Sta. 14+10 -L-
Refer To E. C. Special Provisions for Special Considerations.

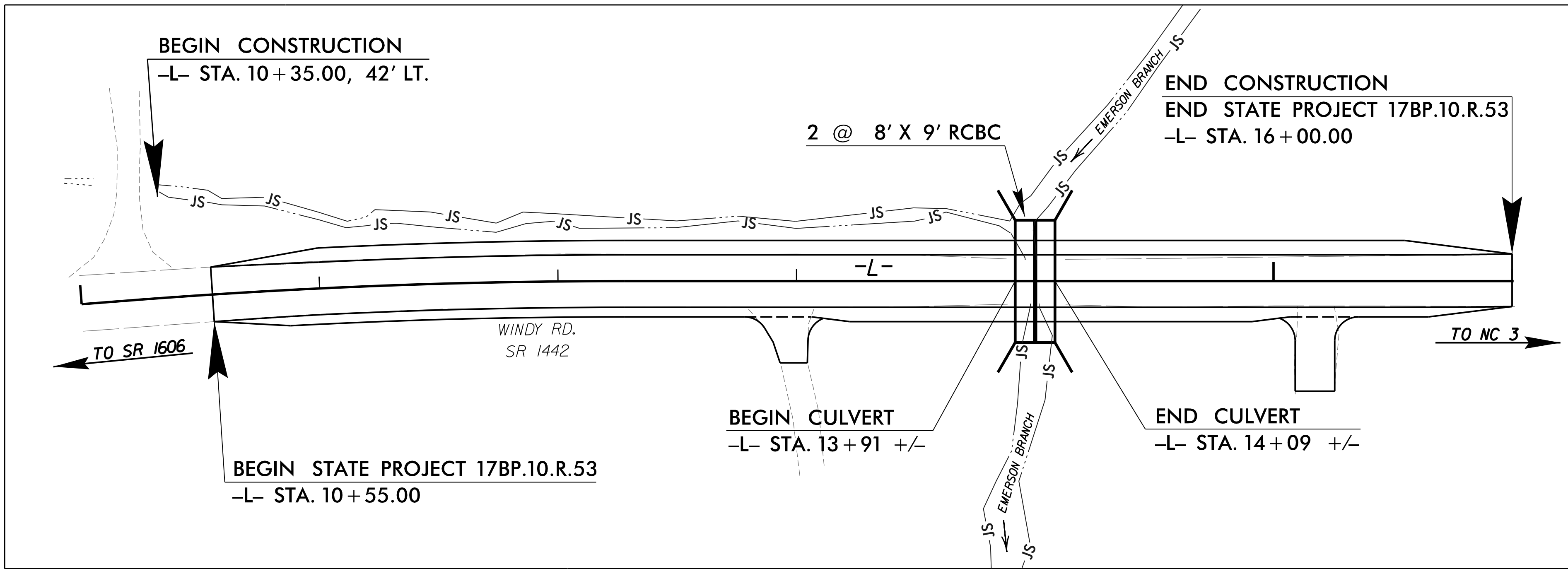
JOSHUA MASSROCK
LEVEL III NAME
3573
LEVEL III CERTIFICATION NO.



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

LOCATION: BRIDGE NO. 12 ON SR 1442 OVER EMERSON BRANCH
BETWEEN NC 3 AND SR 1606

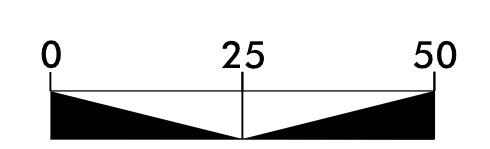
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



LOCATION SKETCH

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

GRAPHIC SCALE



PLANS

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared in the Office of:
ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611
2012 STANDARD SPECIFICATIONS

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 2012 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 Jaffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

EROSION AND SEDIMENT CONTROL MEASURES

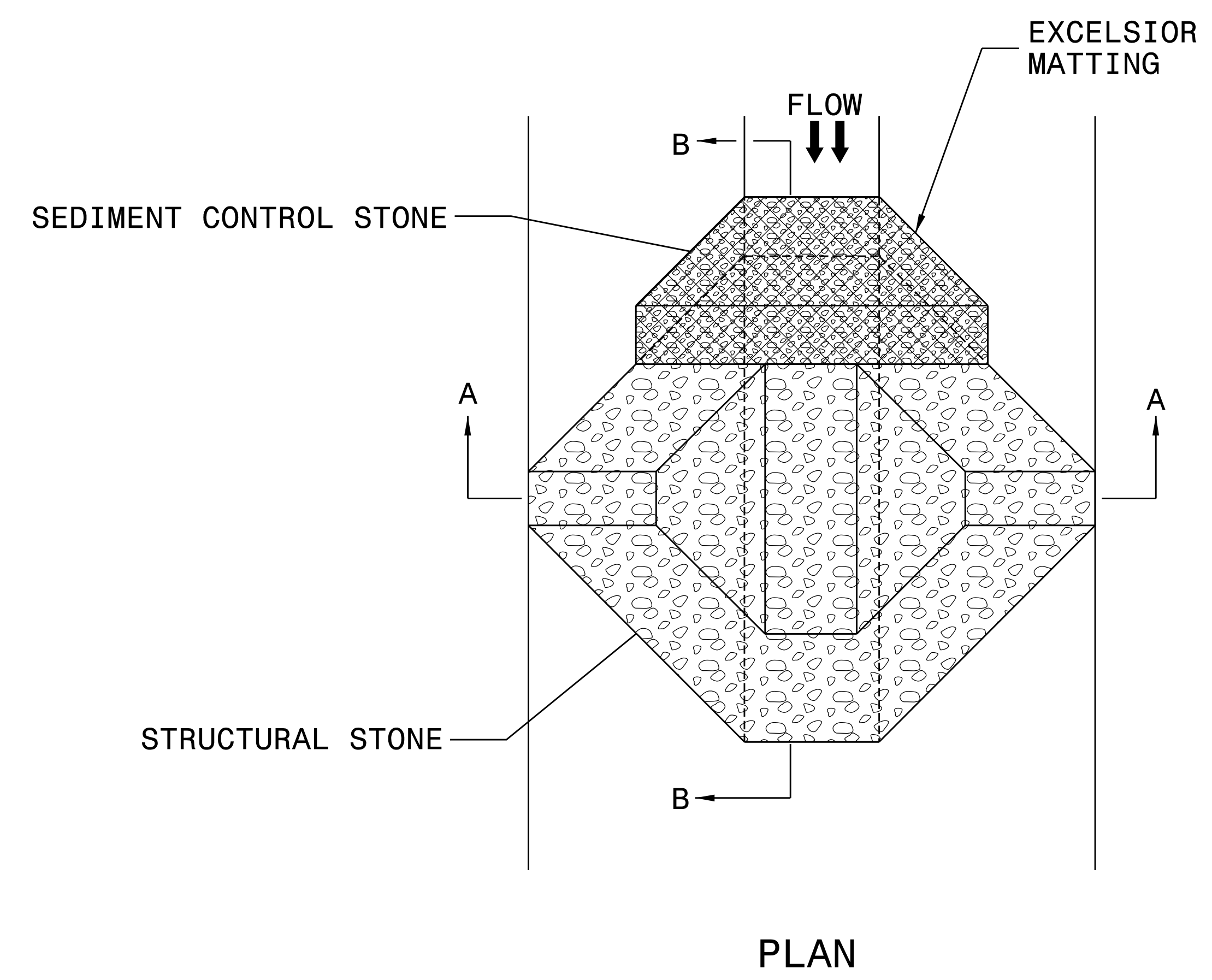
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1630.05	Temporary Silt Ditch	---
1630.05	Temporary Diversion	---
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	---/---/---
1622.01	Temporary Berms and Slope Drains	---
1630.02	Silt Basin Type B	---
1633.01	Temporary Rock Silt Check Type-A	---
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	---
1633.02	Temporary Rock Silt Check Type-B	---
	Wattle / Coir Fiber Wattle	---
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	---
1634.01	Temporary Rock Sediment Dam Type-A	---
1634.02	Temporary Rock Sediment Dam Type-B	---
1635.01	Rock Pipe Inlet Sediment Trap Type-A	---
1635.02	Rock Pipe Inlet Sediment Trap Type-B	---
1630.04	Stilling Basin	---
1630.06	Special Stilling Basin	---
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	---
	Tiered Skimmer Basin	---
	Infiltration Basin	---

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT
Refer To E. C. Special Provisions for Special Considerations.
THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

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.

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM) DETAIL

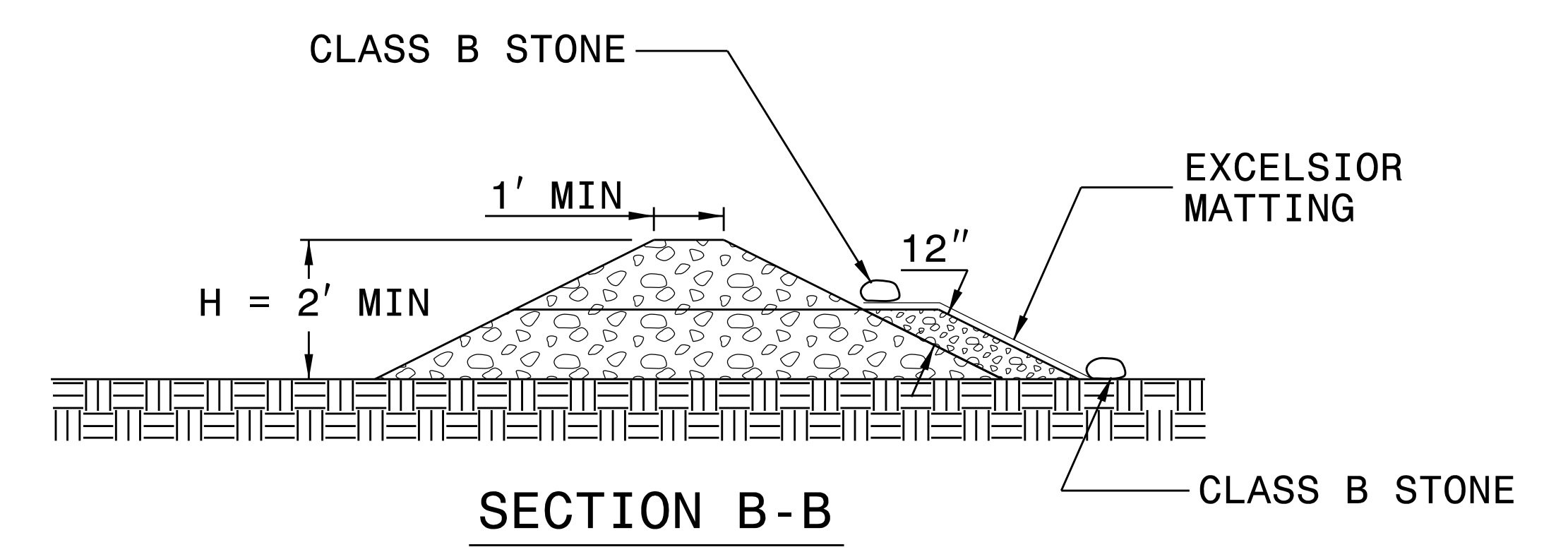
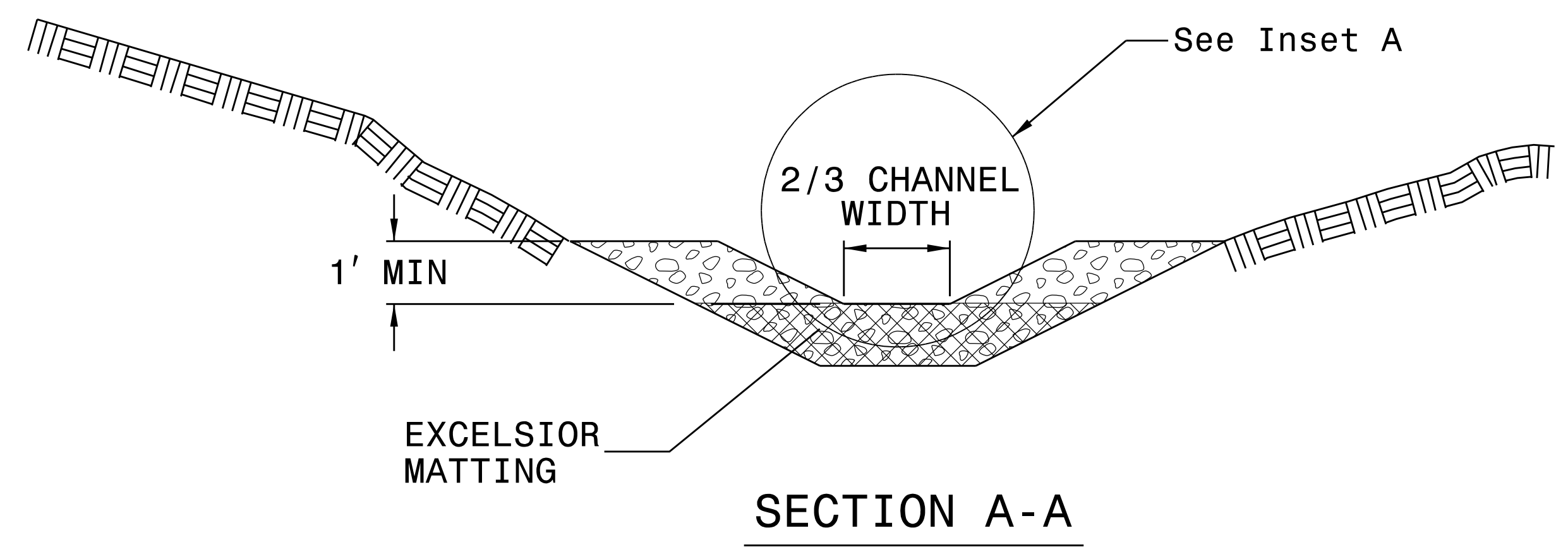
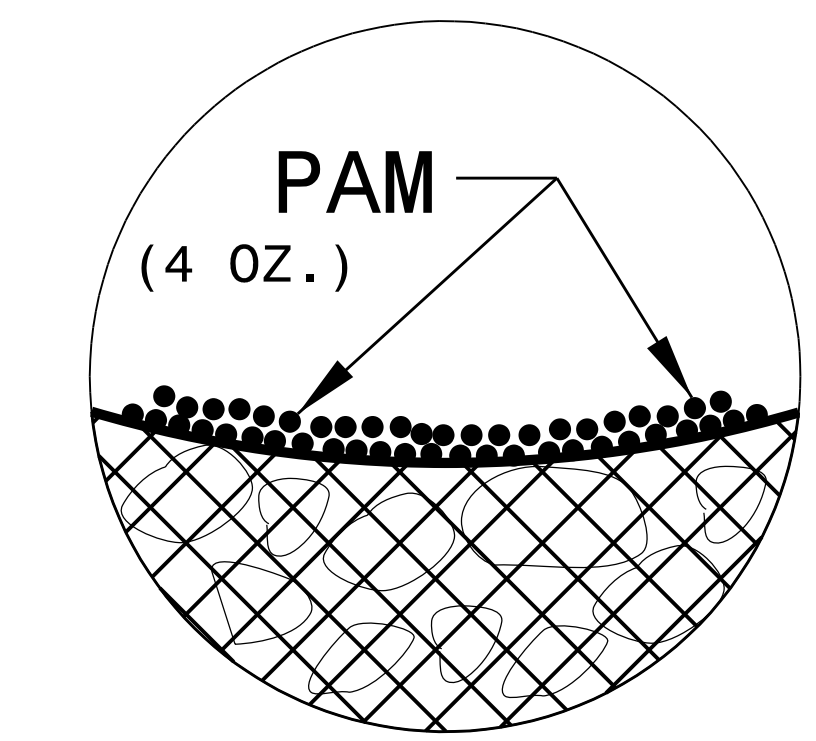


NOTES

USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
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 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 HQW ZONES.

 ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

Excavate Proposed Ditch
according to Detail A from
Sta. 10+50 to Sta. 14+00

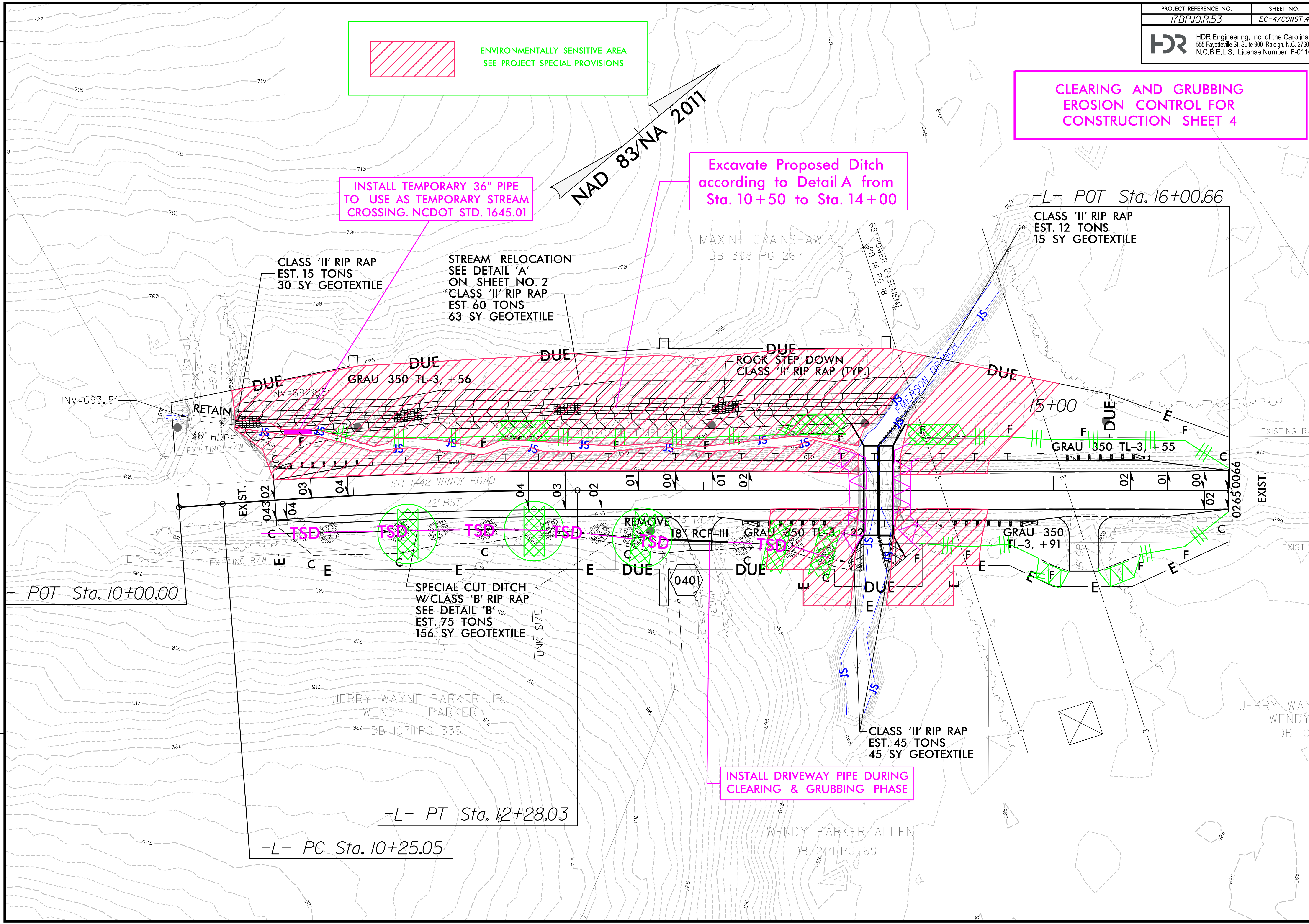
INSTALL TEMPORARY 36" PIPE
TO USE AS TEMPORARY STREAM
CROSSING. NCDOT STD. 1645.01

-L- POT Sta. 16+00.66
CLASS 'II' RIP RAP
EST. 12 TONS
15 SY GEOTEXTILE

CLASS 'II' RIP RAP
EST. 15 TONS
30 SY GEOTEXTILE

STREAM RELOCATION
SEE DETAIL 'A'
ON SHEET NO. 2
CLASS 'II' RIP RAP
EST 60 TONS
63 SY GEOTEXTILE

ROCK STEP DOWN
CLASS 'II' RIP RAP (TYP.)



RETAIN
36" HDPE
EXISTING R/W
INV=693.15'
POT Sta. 10+00.00

SR 1442 WINDY ROAD
22' BST
GRAU 350 TL-3, +56
GRAU 350 TL-3, +55
GRAU 350 TL-3, +22
GRAU 350 TL-3, +91

SPECIAL CUT DITCH
W/CLASS 'B' RIP RAP
SEE DETAIL 'B'
EST. 75 TONS
156 SY GEOTEXTILE

CLASS 'II' RIP RAP
EST. 45 TONS
45 SY GEOTEXTILE

INSTALL DRIVEWAY PIPE DURING
CLEARING & GRUBBING PHASE

-L- PT Sta. 12+28.03

-L- PC Sta. 10+25.05

DOUBLE 8' X 9' RCBC CULVERT CONSTRUCTION SEQUENCE

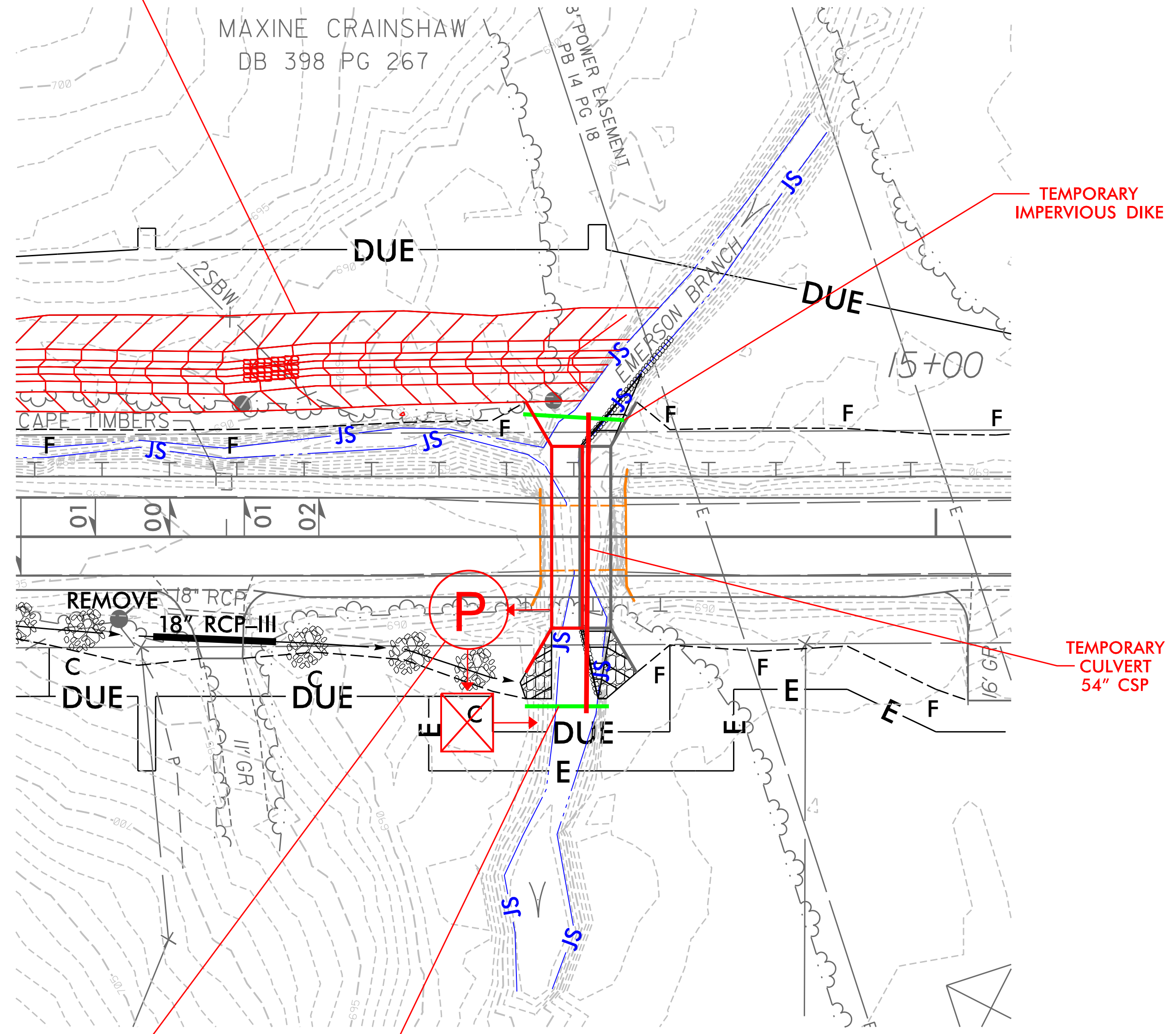
PHASE I

1. RELOCATE THE EXISTING TRIBUTARY ACCORDING TO DETAIL 'A' AND STABILIZE WITH RIP RAP.
2. INSTALL IMPERVIOUS DIKES UPSTREAM AND DOWNSTREAM OF THE PROPOSED CULVERT.
3. INSTALL 54" CSP TO CARRY CLEAN WATER THROUGH THE WORK AREA AND ALLOW THE LOW FLOW BARREL (BARREL 1) TO BE CONSTRUCTED.
4. PROVIDE PUMP AND STILLING BASIN FOR DEWATERING THE WORK ZONE.
5. CONSTRUCT BARREL 1 INCLUDING WINGWALLS ATTACHED TO BARREL 1. PLACE INLET AND OUTLET STABILIZATION ASSOCIATED WITH BARREL 1.

PHASE II

1. REMOVE TEMP. 54" CSP AND INSTALL TEMPORARY IMPERVIOUS DIKES AS SHOWN TO DIVERT STREAM INTO THE CONSTRUCTED LOW FLOW BARREL.
2. PROVIDE PUMP AND STILLING BASIN FOR DEWATERING THE WORK ZONE FOR THE CONSTRUCTION OF BARREL 2.
3. CONSTRUCT BARREL 2 INCLUDING WINGWALLS ATTACHED TO BARREL 2 AND OUTLET STABILIZATION ASSOCIATED WITH BARREL 2.
4. CONSTRUCT FLOODPLAIN BENCH WITH NATIVE BED MATERIAL AND STABILIZE BENCH FACE WITH CLASS 'II' RIP RAP.
5. REMOVE IMPERVIOUS DIKES AND DEWATERING STATION.
6. REMOVE EROSION CONTROL DEVICES AND BEGIN ROADWAY IMPROVEMENTS.

STREAM RELOCATION
SEE DETAIL 'A'
ROADWAY PLANSHEET 2

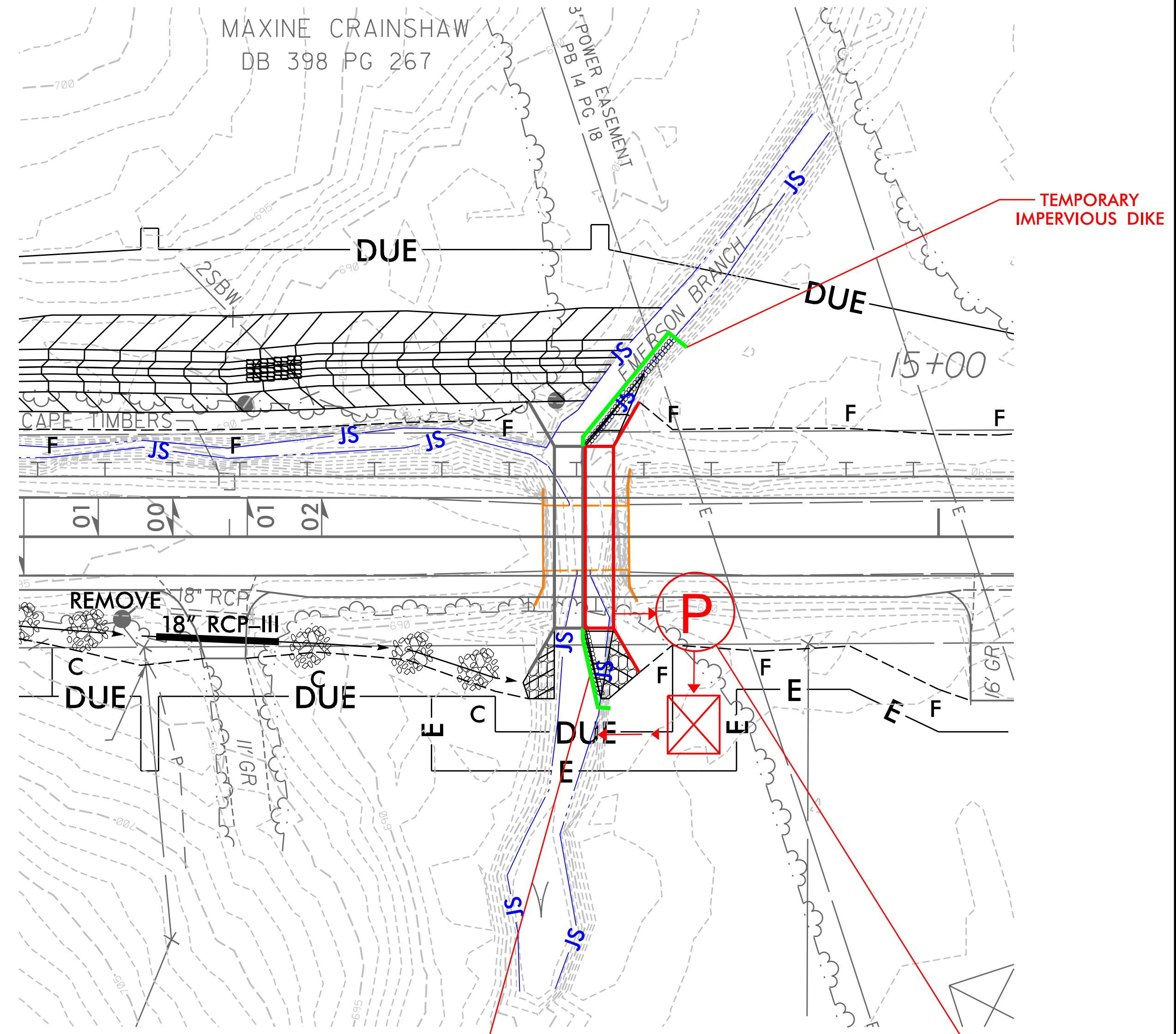


DE-WATERING STATION

TEMPORARY IMPERVIOUS DIKE

TEMPORARY IMPERVIOUS DIKE

TEMPORARY CULVERT 54" CSP



TEMPORARY IMPERVIOUS DIKE

DE-WATERING STATION

NAD 83/NA 2011

-L- POT Sta. 16+00.66

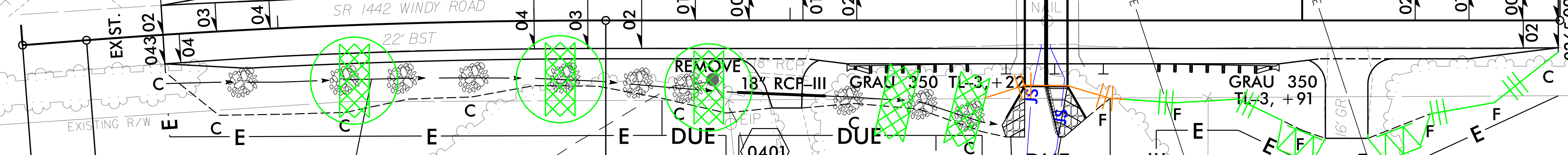
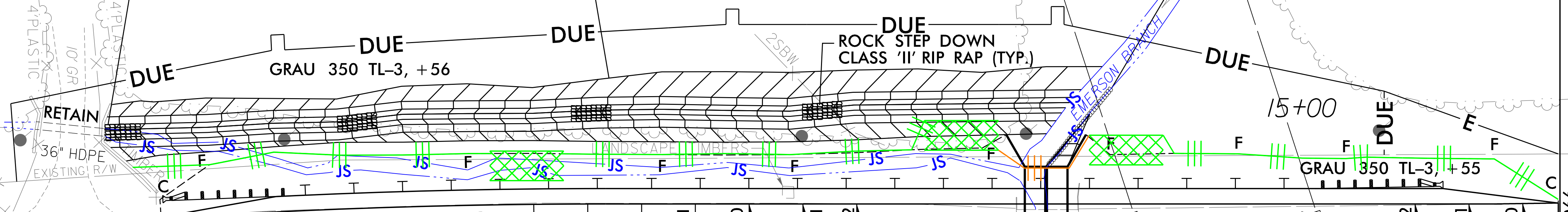
CLASS 'II' RIP RAP
EST. 12 TONS
15 SY GEOTEXTILE

CLASS 'II' RIP RAP
EST. 15 TONS
30 SY GEOTEXTILE

STREAM RELOCATION
SEE DETAIL 'A'
ON SHEET NO. 2
CLASS 'II' RIP RAP
EST. 60 TONS
63 SY GEOTEXTILE

MAXINE CRAINSHAW
DB 398 PG 267

68' POWER EASEMENT
FB 14 PG 18



-L- POT Sta. 10+00.00

SPECIAL CUT DITCH
W/CLASS 'B' RIP RAP
SEE DETAIL 'B'
EST. 75 TONS
156 SY GEOTEXTILE

JERRY WAYNE PARKER JR.
WENDY H PARKER
DB 1071 PG 335

CLASS 'II' RIP RAP
EST. 45 TONS
45 SY GEOTEXTILE

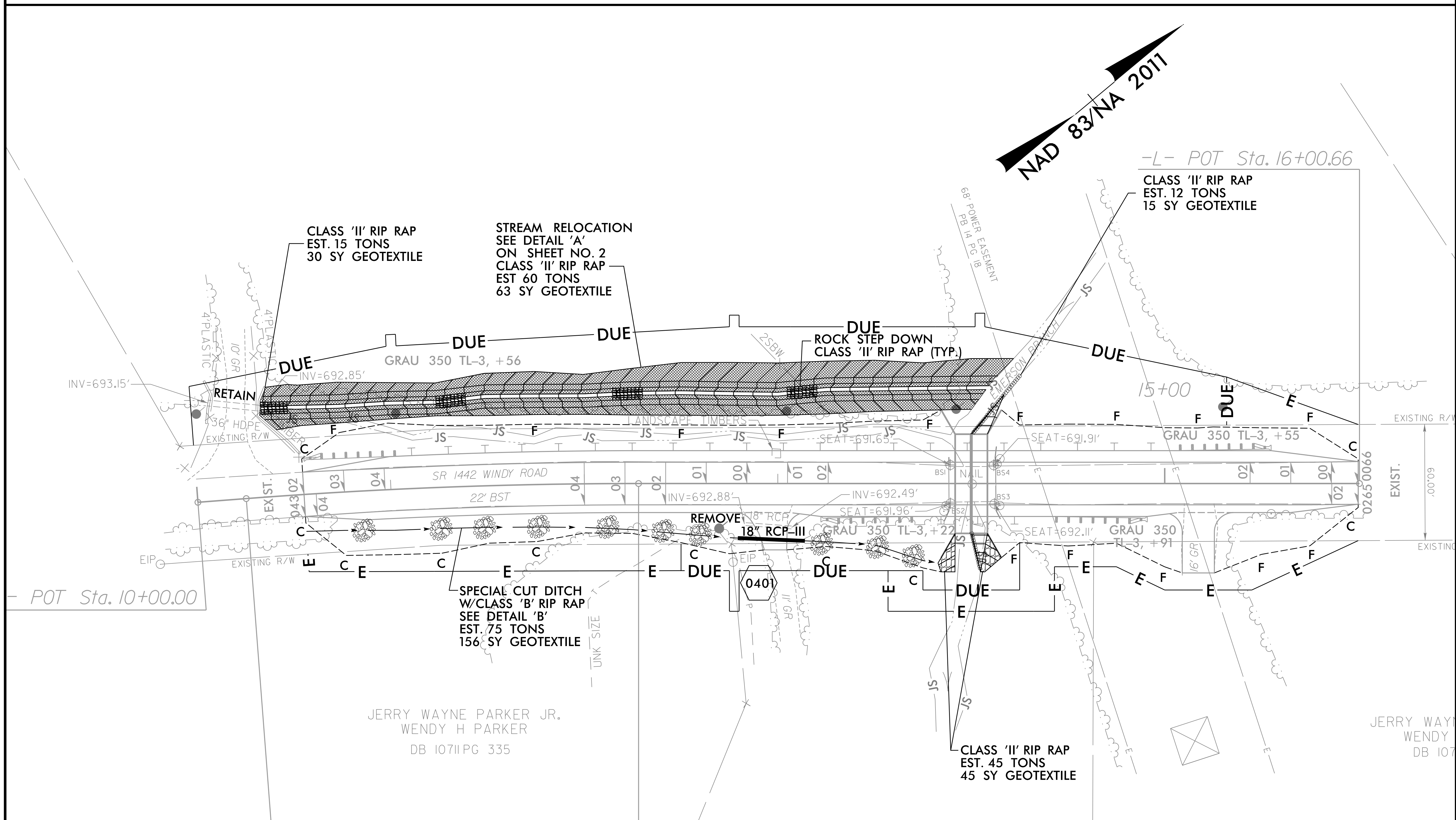
-L- PT Sta. 12+28.03

-L- PC Sta. 10+25.05

WENDY PARKER ALLEN
DB 2171 PG 69

JERRY WAYNE
WENDY H
DB 1071

0.19 ACRE STREAMBANK REFORESTATION



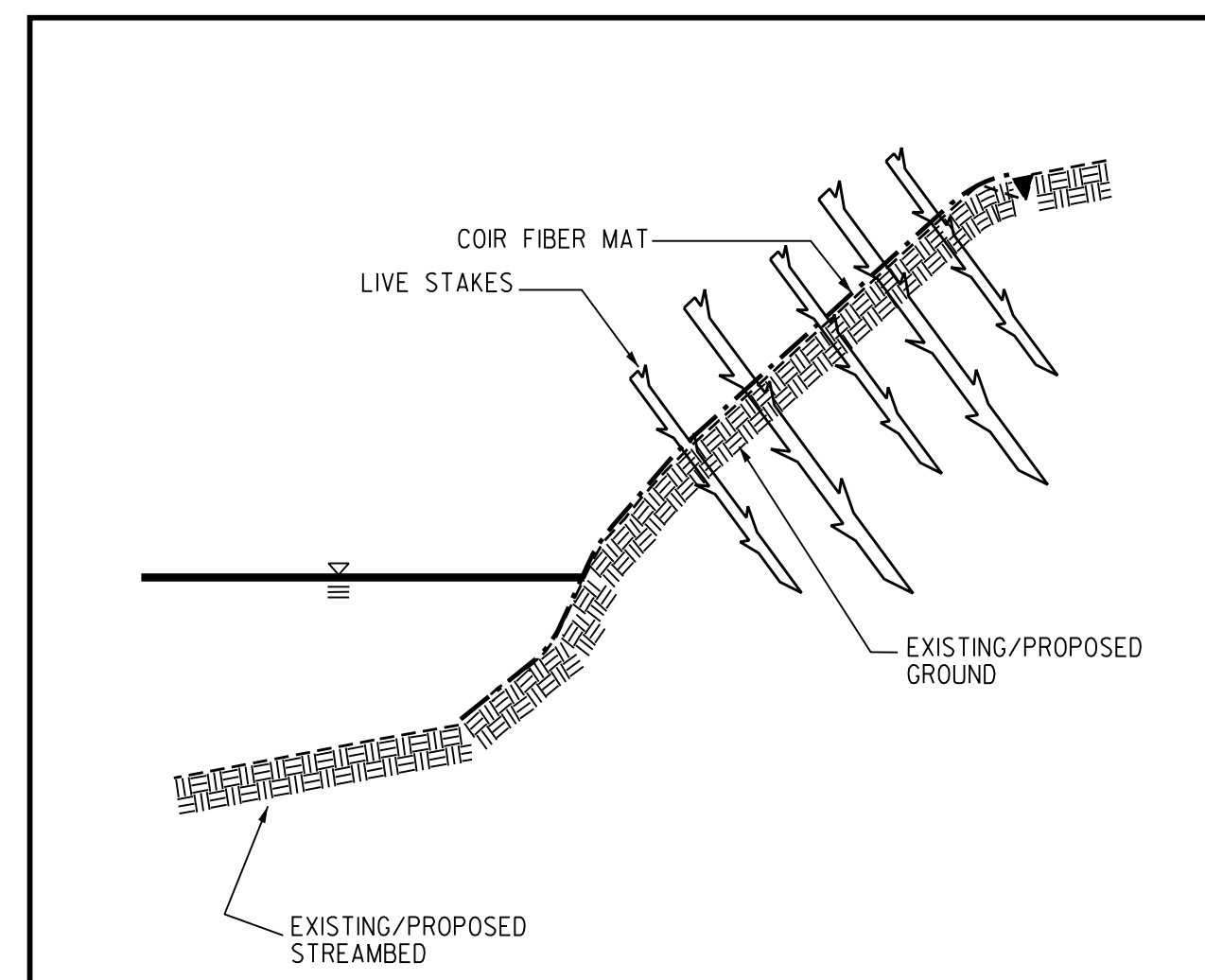
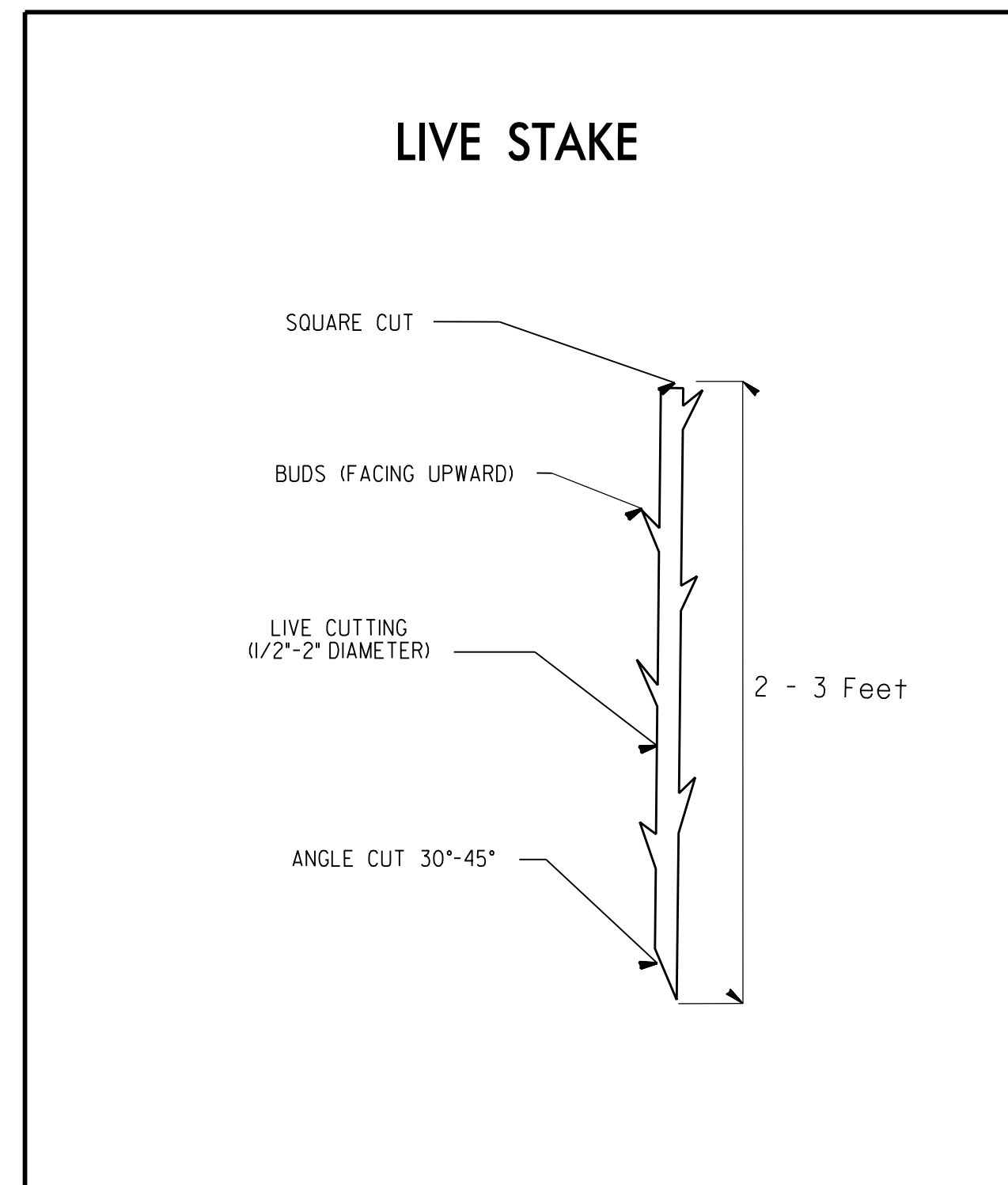
SEE RF-2, RF-3 AND PROJECT SPECIAL PROVISIONS

JERRY WAYNE PARKER JR.
WENDY H PARKER
DB 10711 PG 335

JERRY WAYNE
WENDY H
DB 10711 PG 335

PLANTING DETAILS

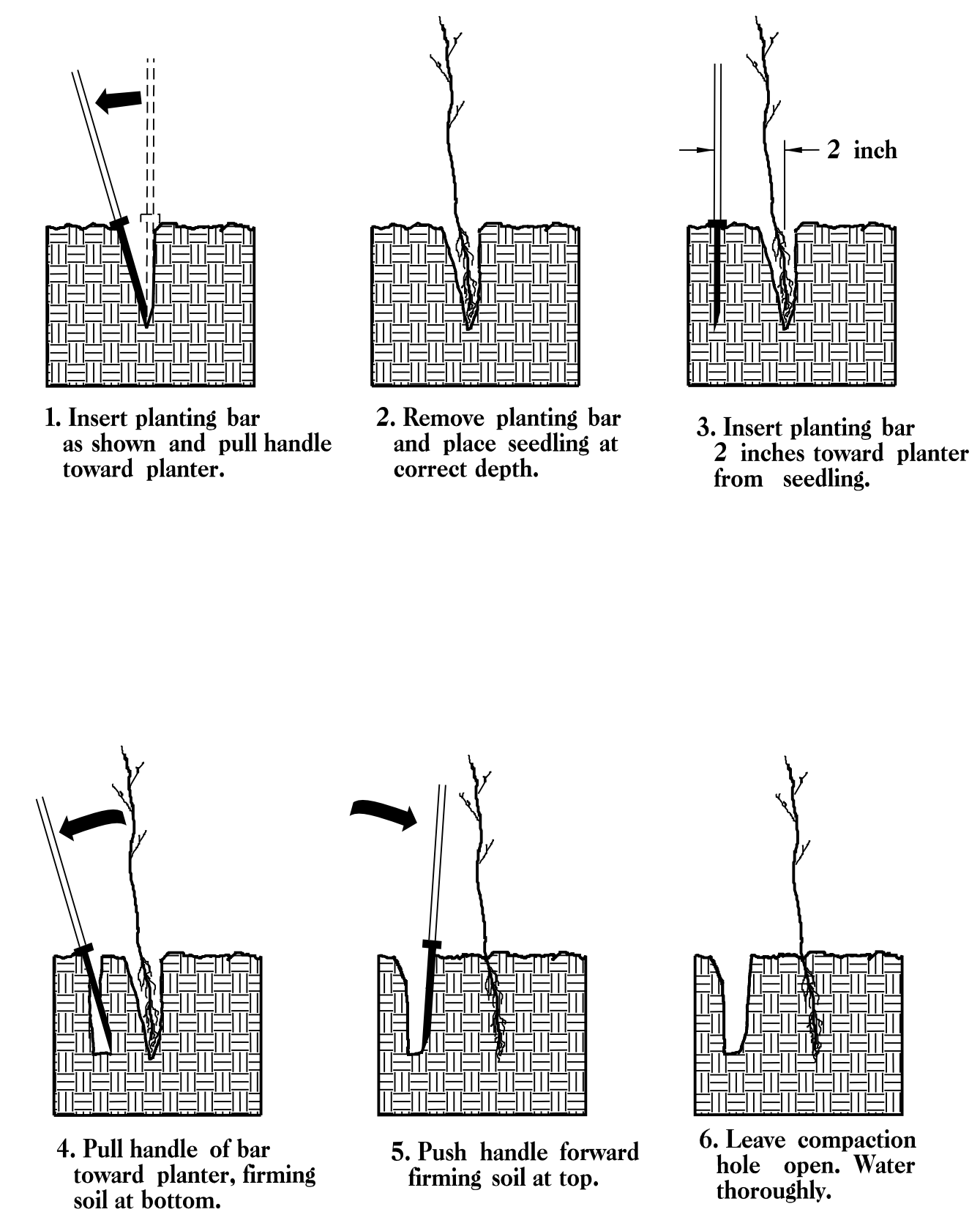
LIVE STAKES PLANTING DETAIL



BANK STABILIZATION WITH LIVE STAKES

NOTE:
LIVE STAKES SHALL BE SPACED APPROXIMATELY 4 FEET ON CENTER
LIVE STAKES SHALL BE DRIVEN UNTIL APPROXIMATELY 3/4 OF LIVE STAKE IS WITHIN GROUND

BAREROOT PLANTING DETAIL DOUBLE PLANTING METHOD USING THE K3C PLANTING BAR

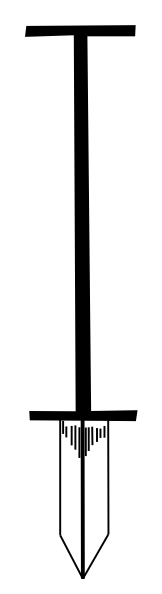


PLANTING NOTES:

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

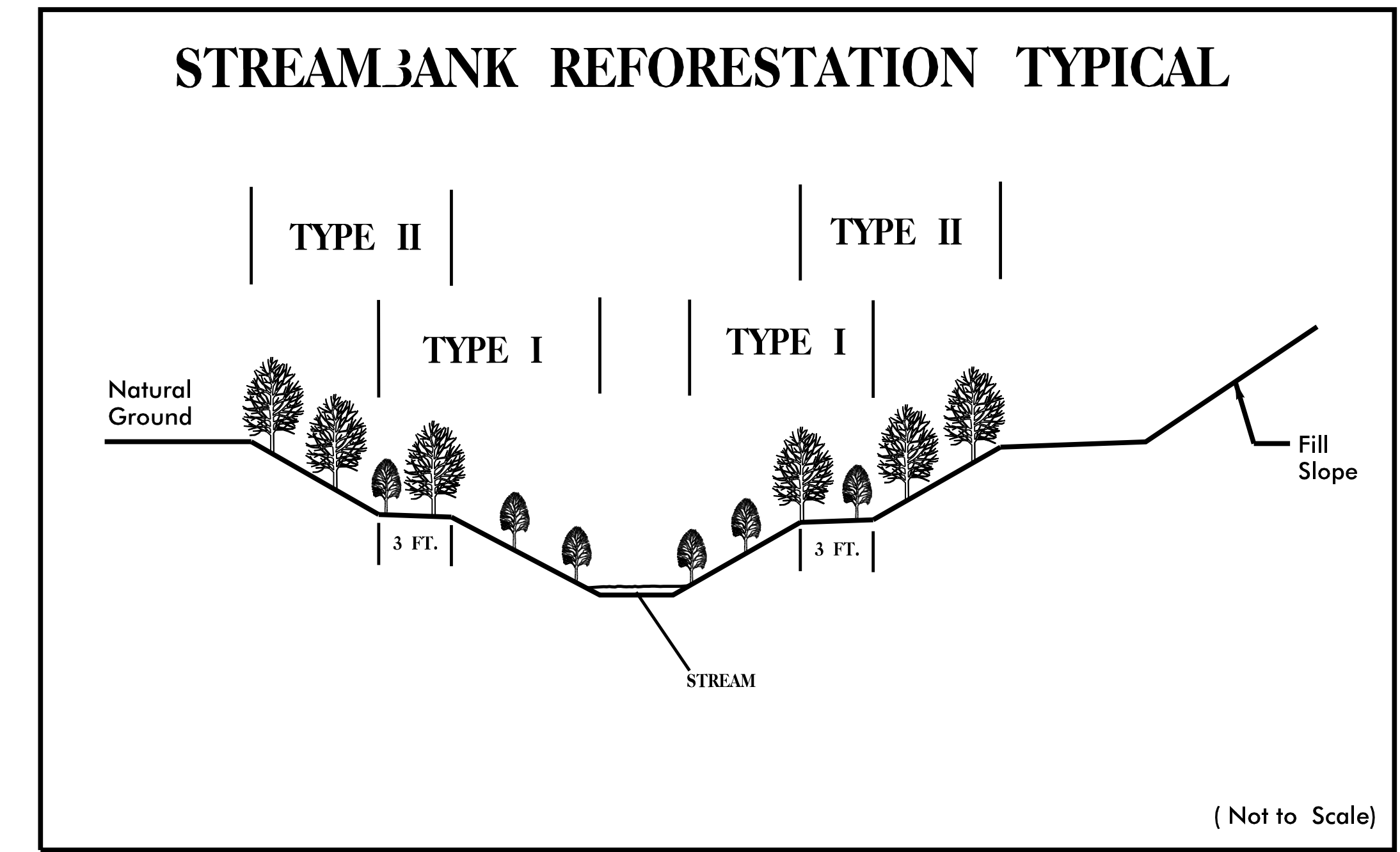


K3C PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



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

- TYPE 1 STREAMBANK REFORESTATION SHALL BE PLANTED 3 FT. TO 5 FT. ON CENTER, RANDOM SPACING, AVERAGING 4 FT. ON CENTER, APPROXIMATELY 2724 PLANTS PER ACRE.
- TYPE 2 STREAMBANK REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.
- NOTE: TYPE 1 AND TYPE 2 STREAMBANK REFORESTATION SHALL BE PAID FOR AS "STREAMBANK REFORESTATION"



STREAMBANK REFORESTATION

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

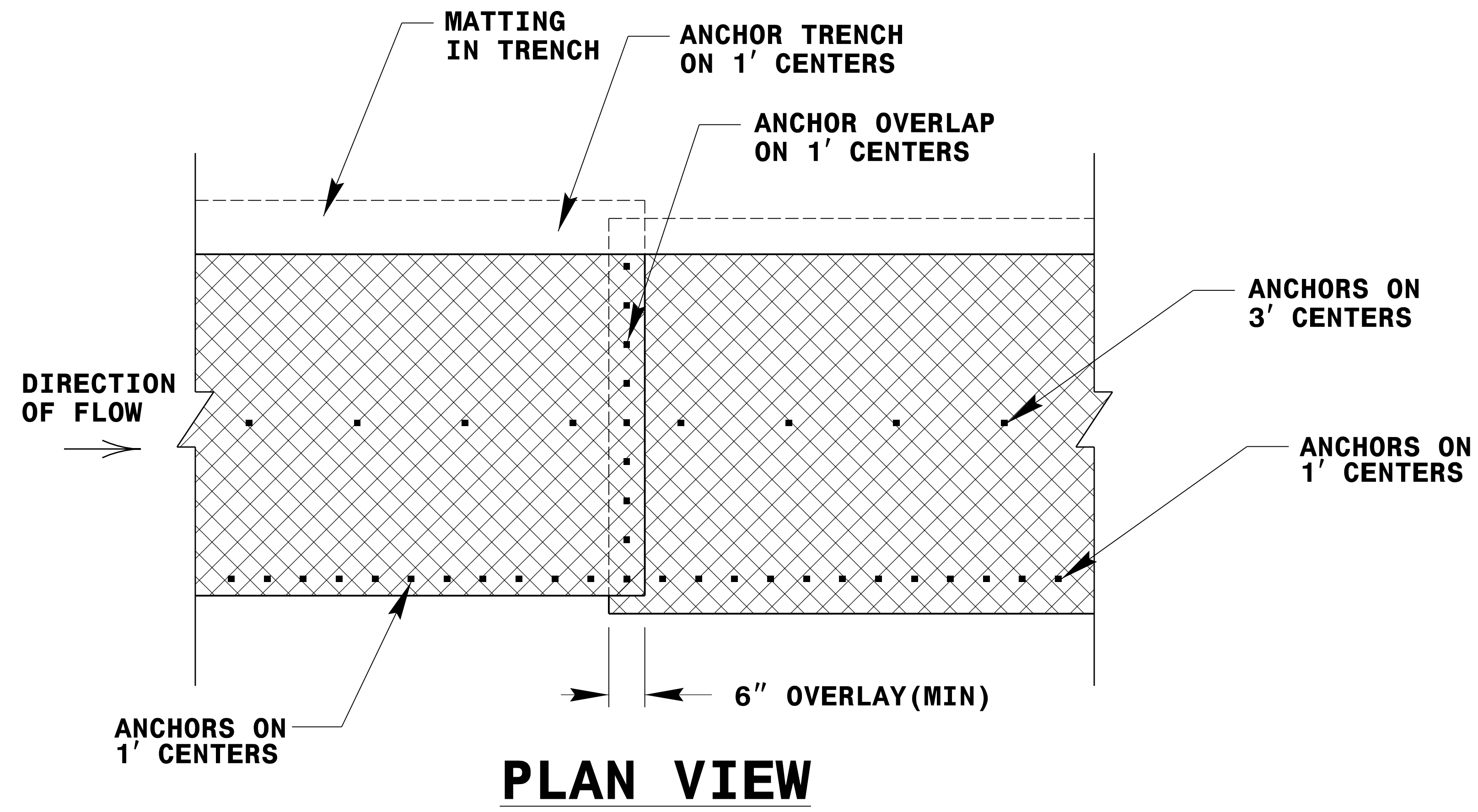
TYPE 1		
50% SALIX NIGRA	BLACK WILLOW	2 ft - 3 ft LIVE STAKES
50% CORNUS AMOMUM	SILKY DOGWOOD	2 ft - 3 ft LIVE STAKES
TYPE 2		
25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in 3R
25% PLATANUS OCCIDENTALIS	SYCAMORE	12 in - 18 in 3R
25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in 3R
25% BETULA NIGRA	RIVER BIRCH	12 in - 18 in 3R

SEE PLAN SHEETS FOR AREAS TO BE PLANTED

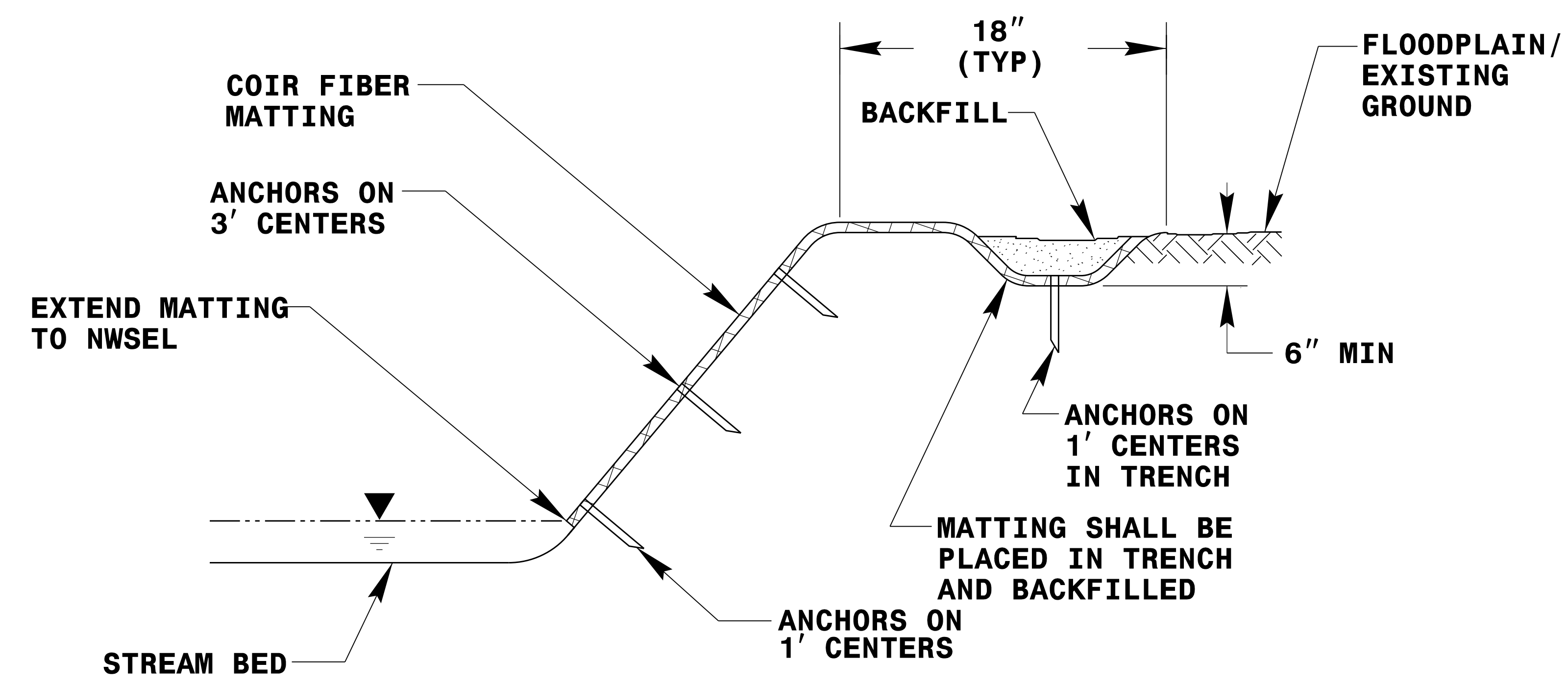
STREAMBANK REFORESTATION

DETAIL SHEET 1 OF 2

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



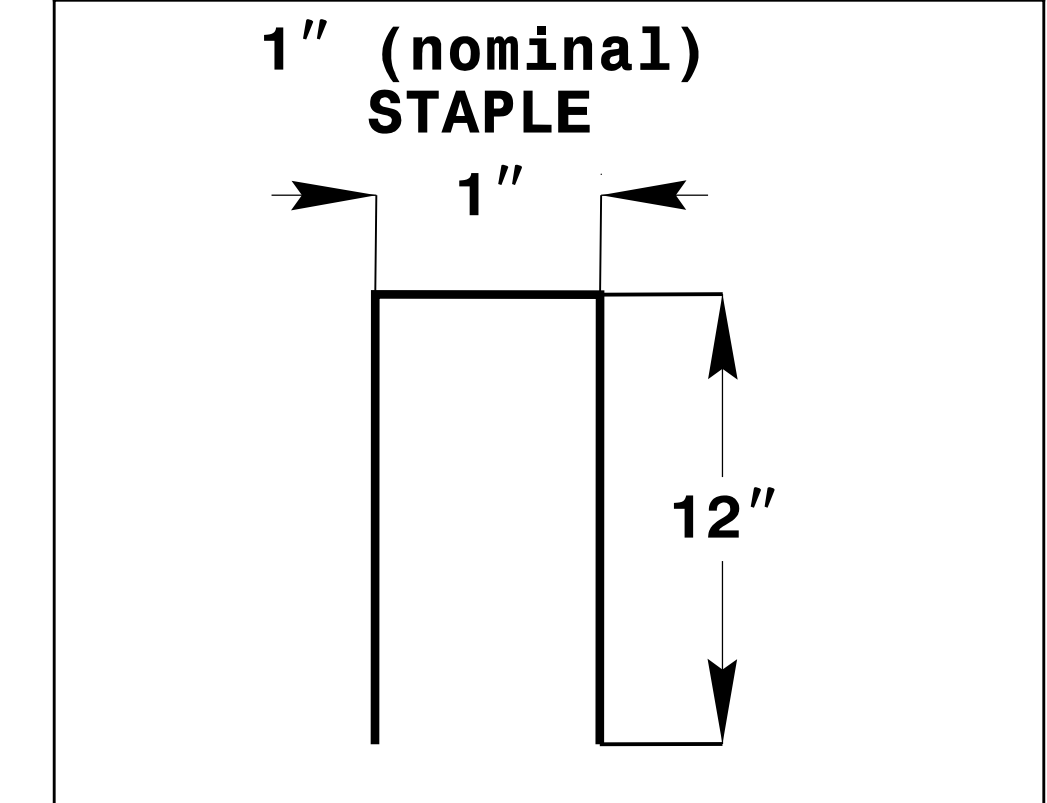
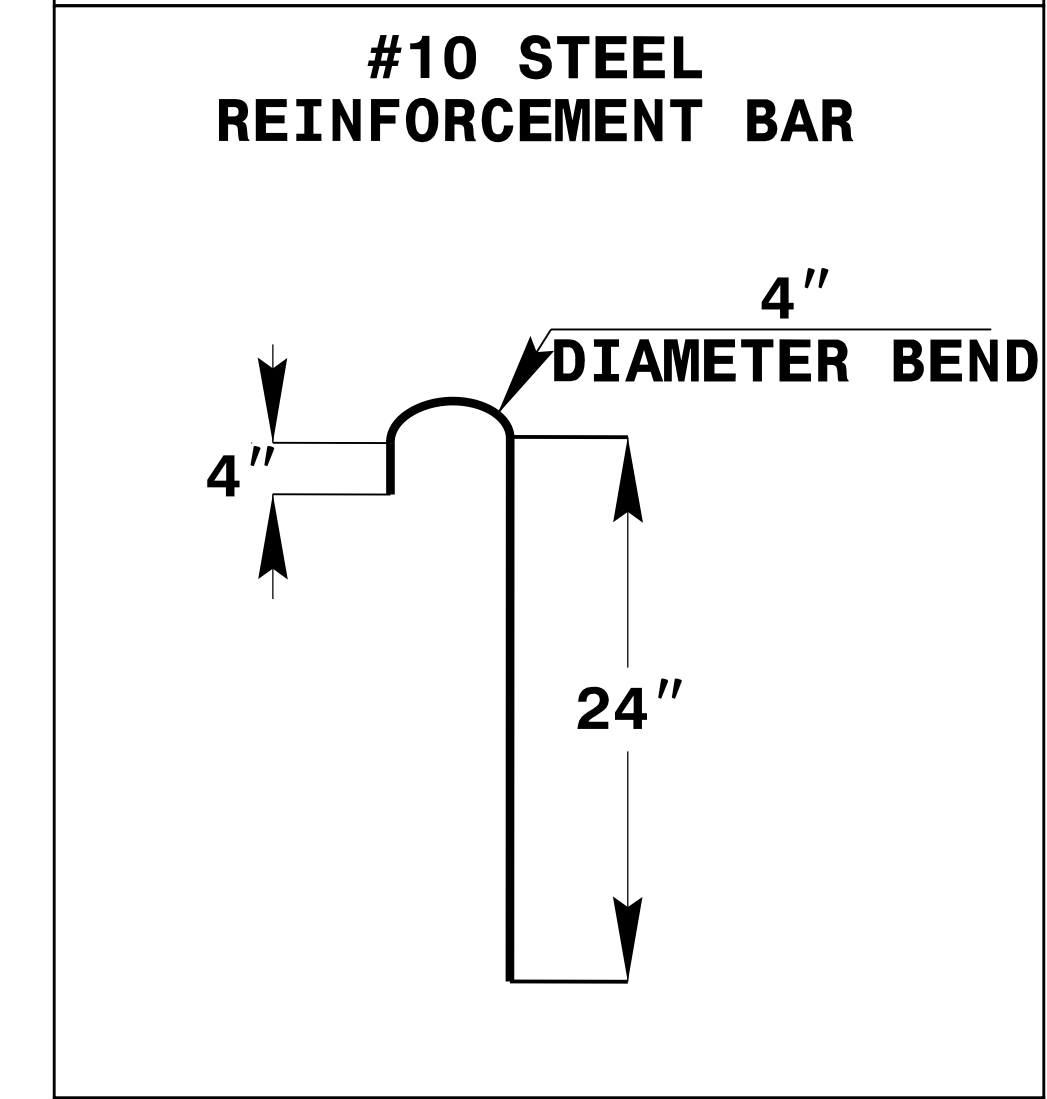
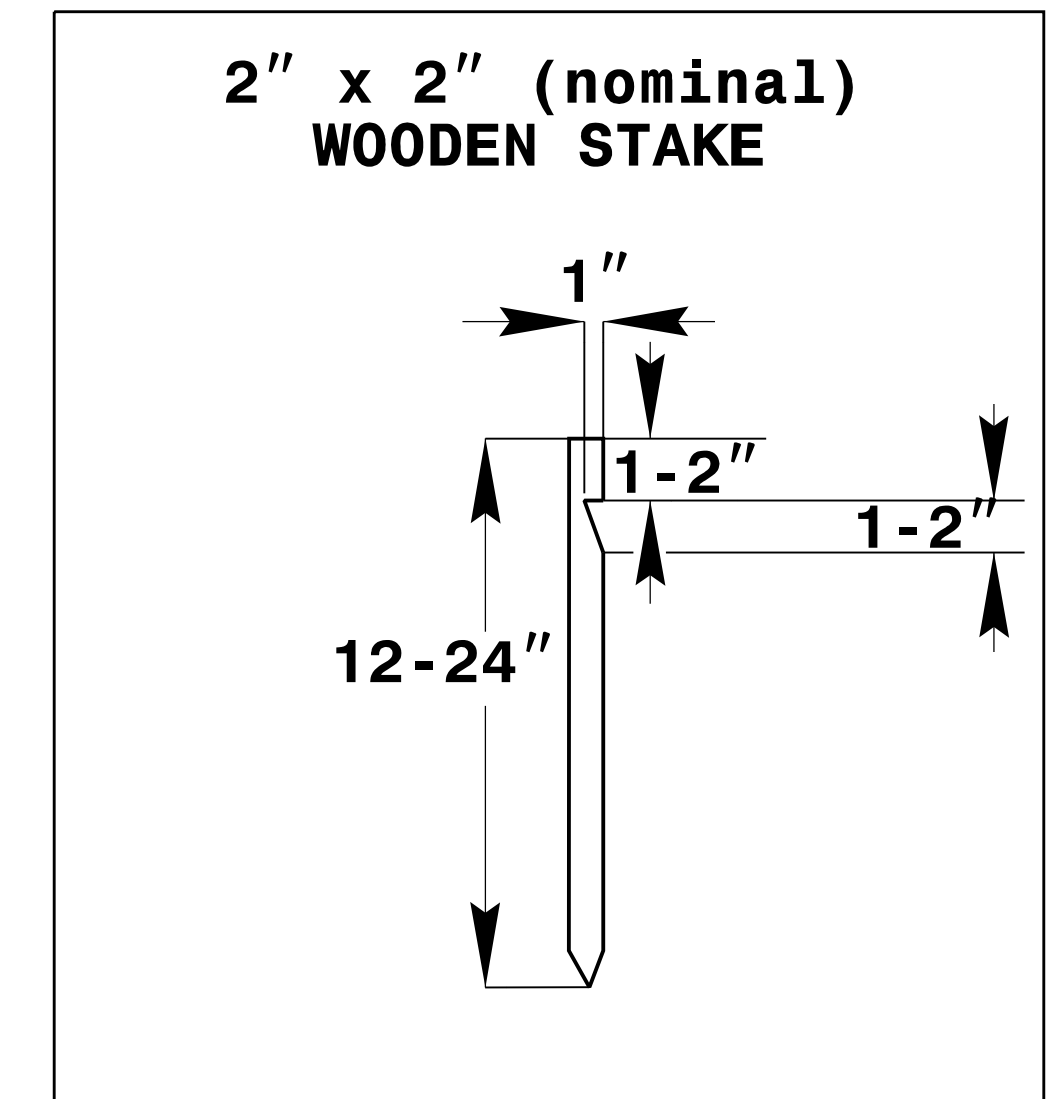
PLAN VIEW



TYPICAL CROSS SECTION

COIR FIBER MATTING DETAIL

NOT TO SCALE



ANCHOR OPTIONS

09.08/19

STATE PROJECT: 17BP.10.R.53

CONTRACT: -

SYSTEMS
DOWN
SERVICES

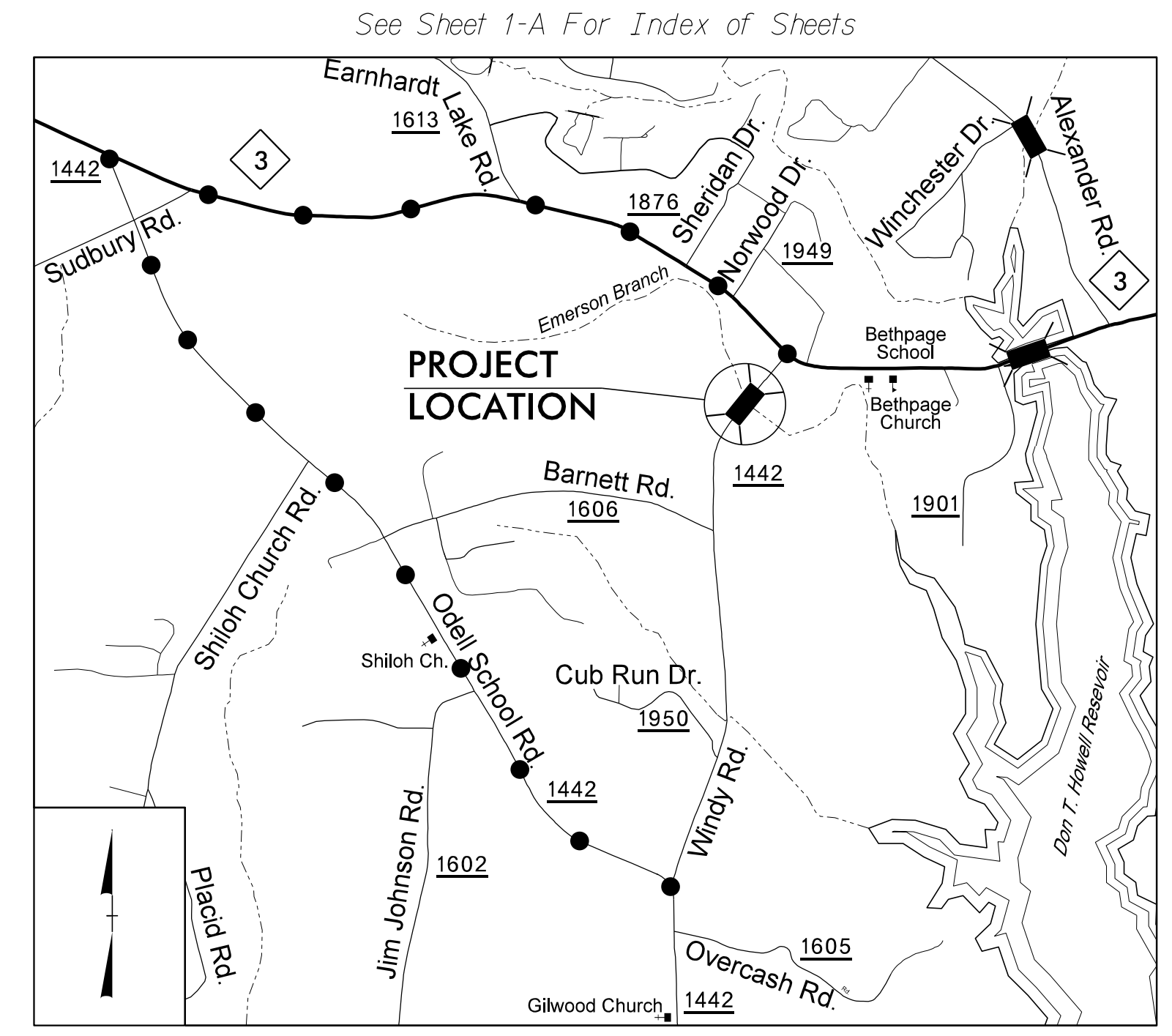
WBS NO.	SHEET NO.
17BP.10.R.53	UO-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

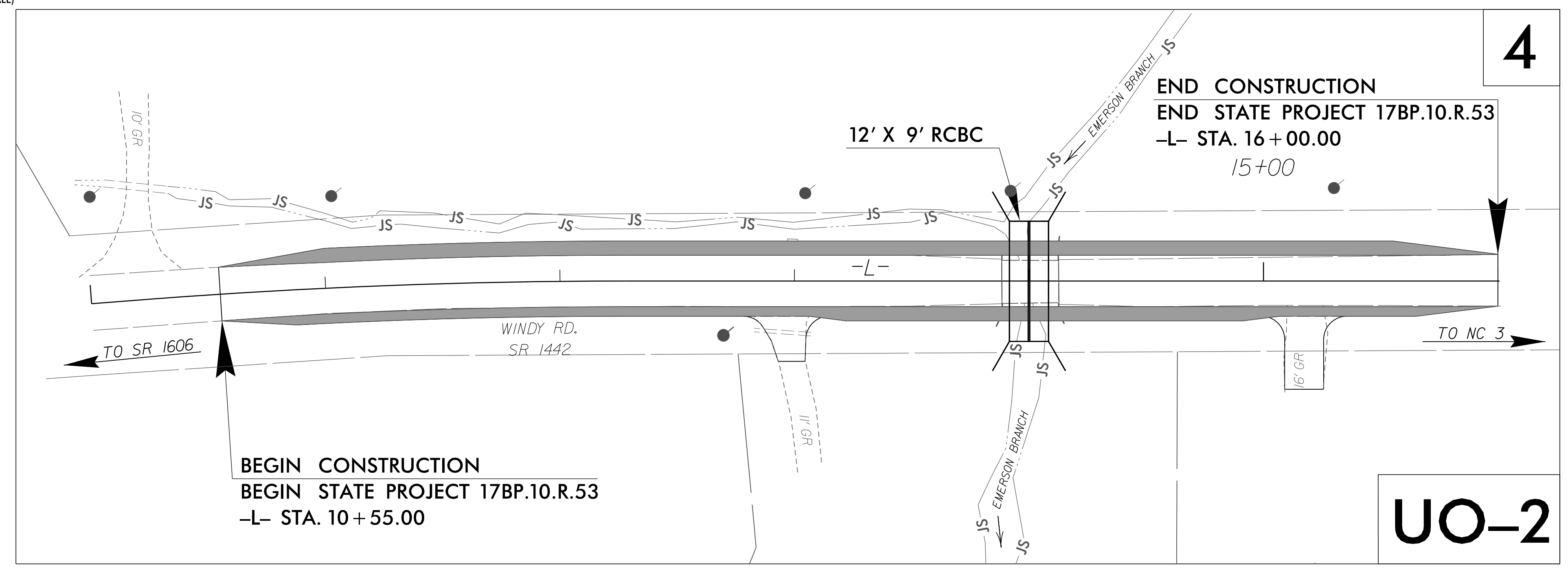
**UTILITIES BY OTHERS
CABARRUS COUNTY**

LOCATION: BRIDGE NO. 12 ON SR 1442 OVER EMERSON BRANCH
BETWEEN NC 3 AND SR 1606

TYPE OF WORK: UTILITY RELOCATION



DETOUR ROUTE
VICINITY MAP
(NOT TO SCALE)

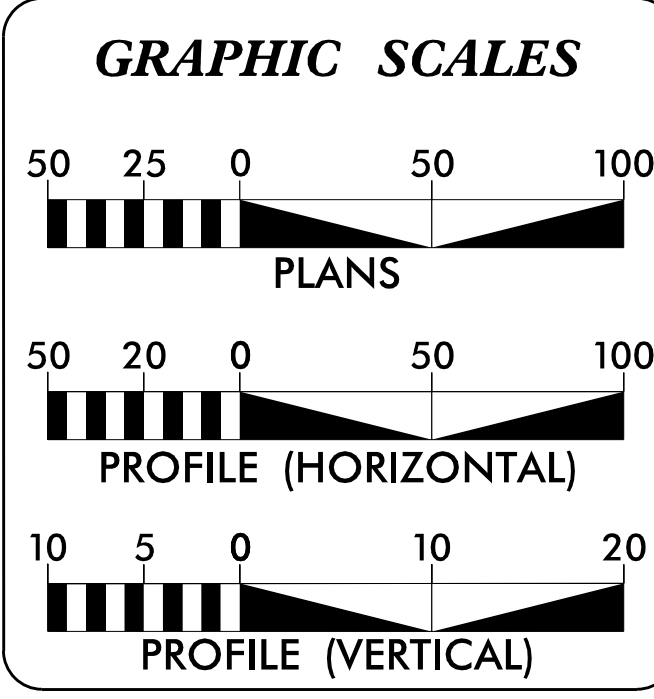


LOCATION SKETCH

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

HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

RELEASE FOR
CONSTRUCTION
DATE: 04/18/2016



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

- UTILITY OWNERS ON PROJECT
- (A) WINDSTREAM (TELEPHONE)
 - (B) DUKE ENERGY (POWER - DISTRIBUTION)
 - (C) DUKE ENERGY (POWER - TRANSMISSION)

Prepared for HDR Engineering, Inc.
in the Office of:
ETHERILL ENGINEERING
559 JONES FRANKLIN ROAD
SUITE 164
RALEIGH, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8037

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: _____

LETTING DATE:
JUNE 1, 2016

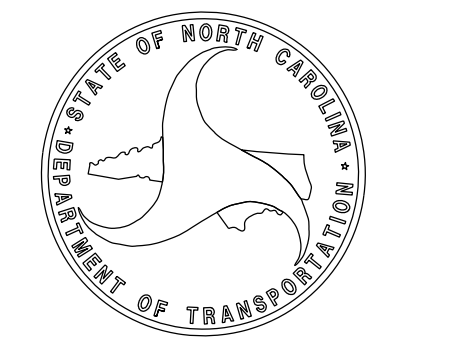
NCDOT CONTACT: _____

DOMINIC M. WAINWRIGHT, P.E.
PROJECT ENGINEER

JAMES R. RICE, P.E.
PROJECT DESIGN ENGINEER

JOHN D. SCHRINER, PLS
UTILITY COORDINATOR

ROADWAY DESIGN SPECIAL DESIGN SECTION

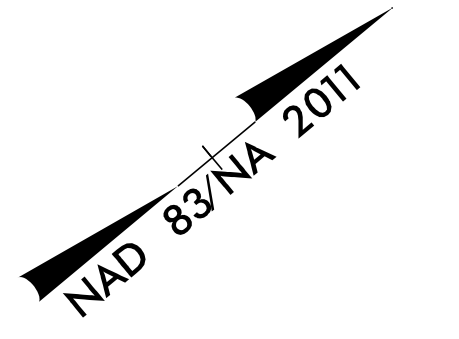


UTILITIES BY OTHERS

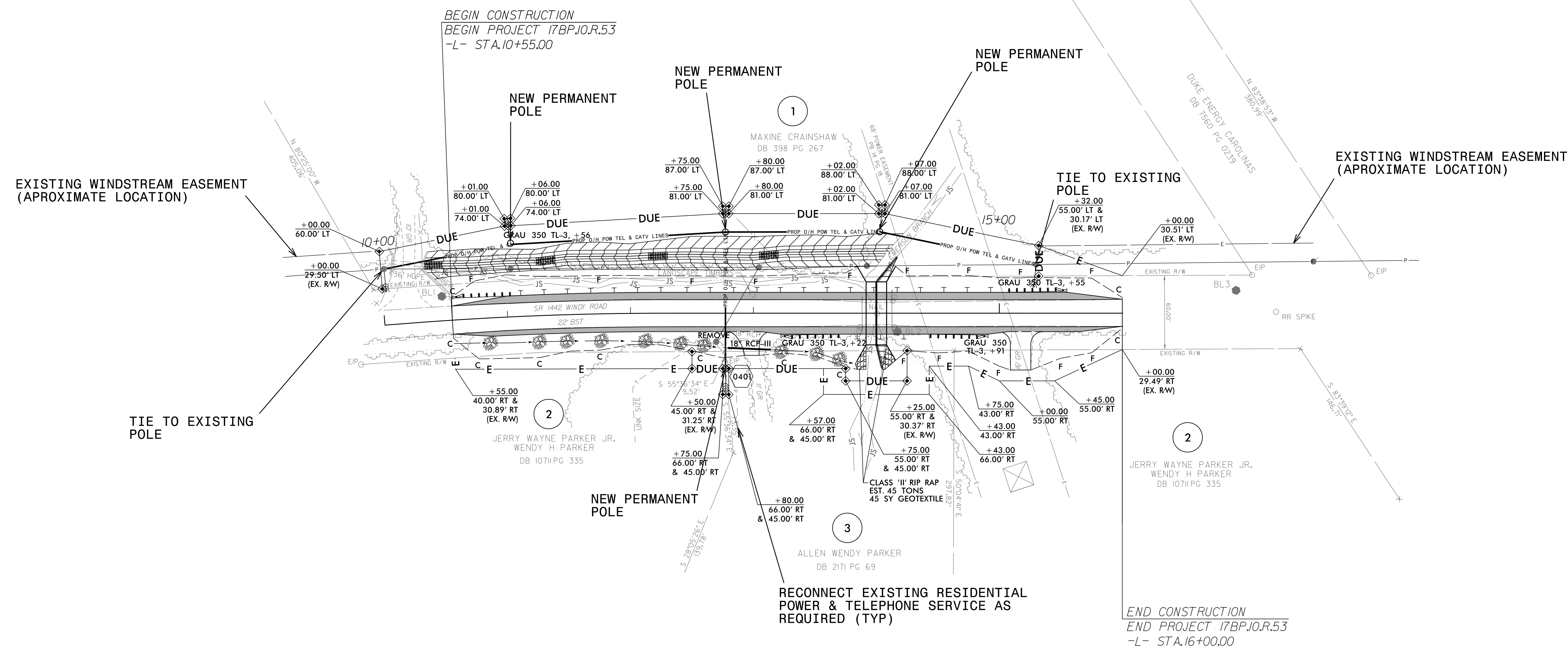
NOTE:
 ALL PROPOSED UTILITY WORK
 SHOWN ON THIS SHEET WILL
 BE DONE BY OTHERS

HDR HDR Engineering, Inc. of the Carolinas
 3733 National Drive, Suite 207 Raleigh, N.C. 27612
 N.C.B.E.L.S. License Number: F-0116

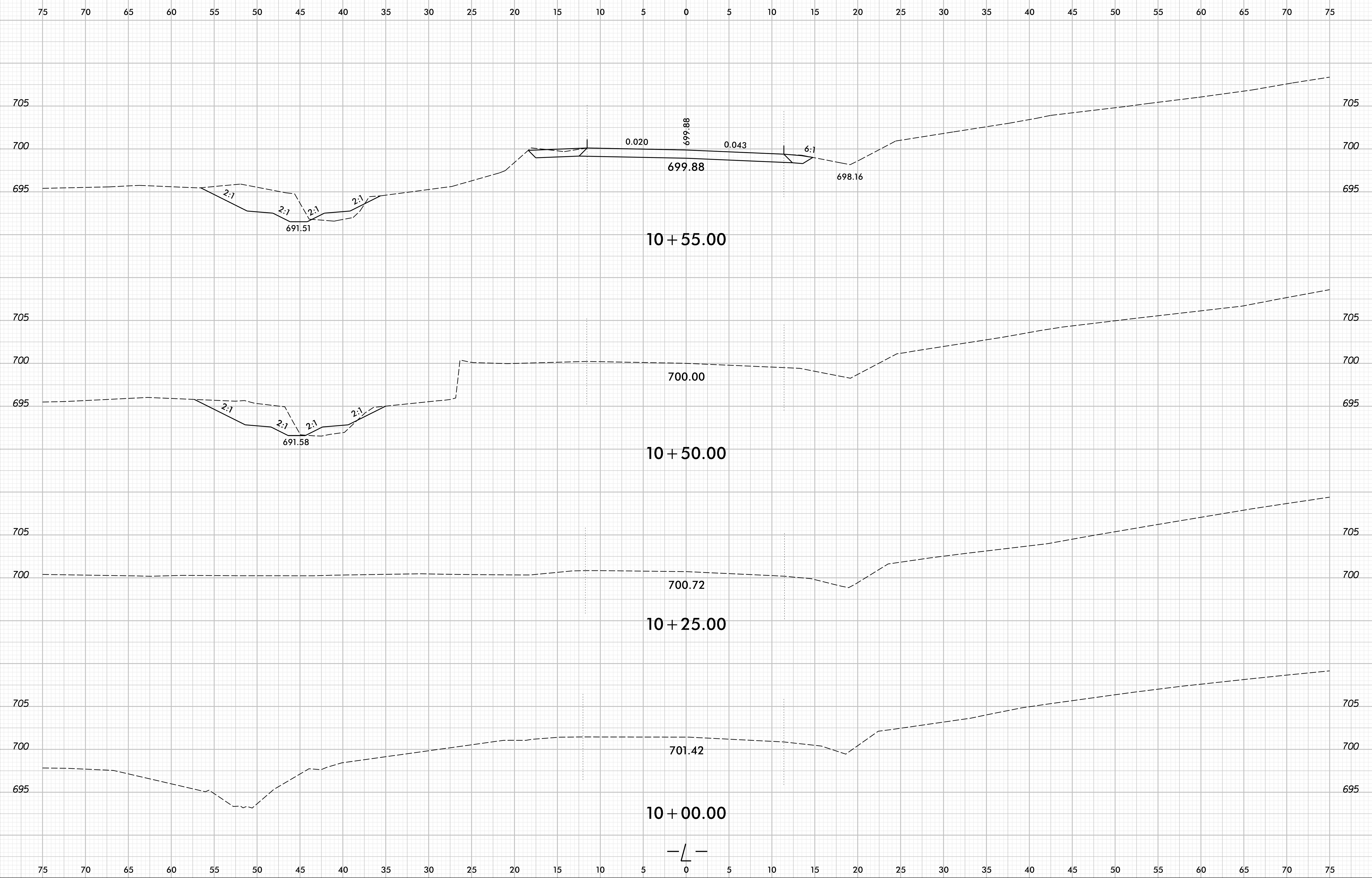
RELEASE FOR
 CONSTRUCTION
 DATE: 04/18/2016



TRANSMISSION LINE LOWEST WIRE LOCATIONS:
 N - 633903.10 E - 1485234.82 ELEV. + 736.76
 N - 633918.89 E - 1485244.68 ELEV. + 737.79



8/23/99



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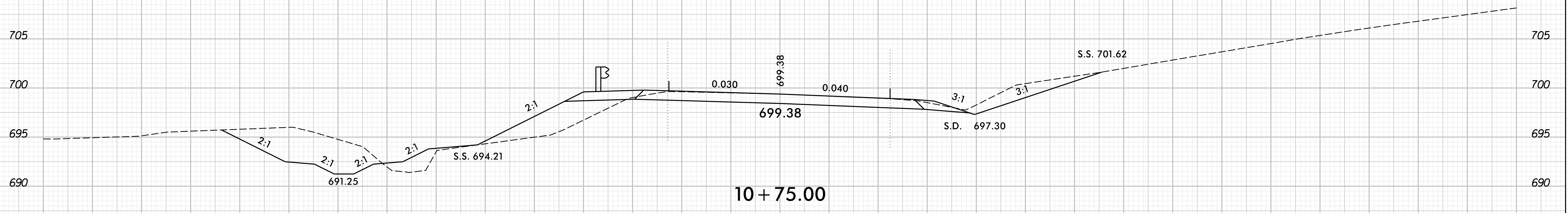
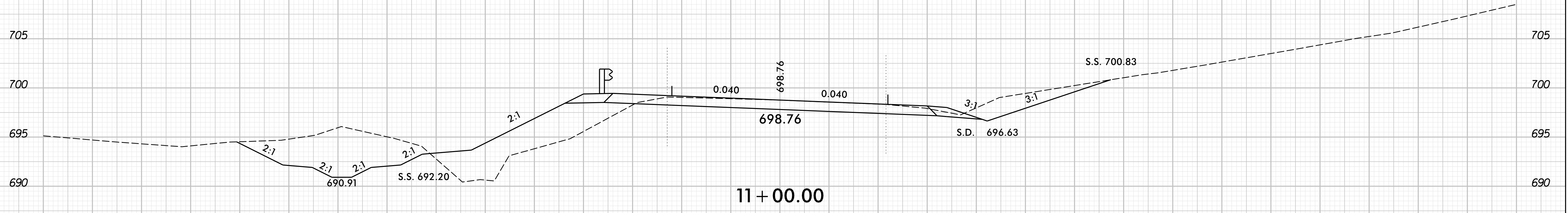
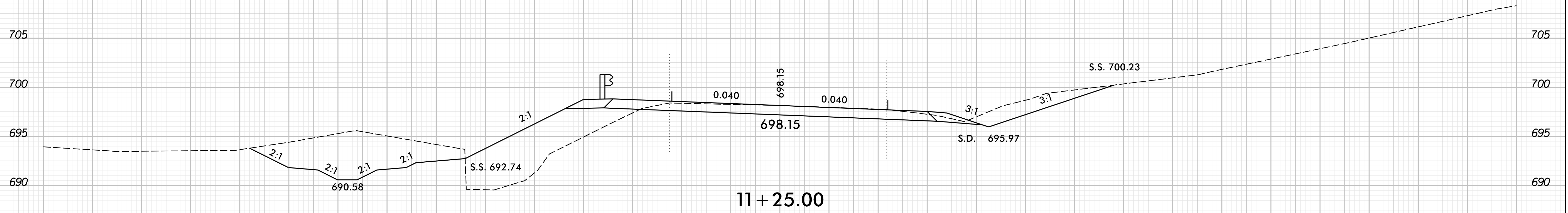
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PROJ. REFERENCE NO.
17BP.10.R.53

SHEET NO.
X-2

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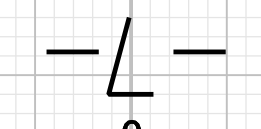
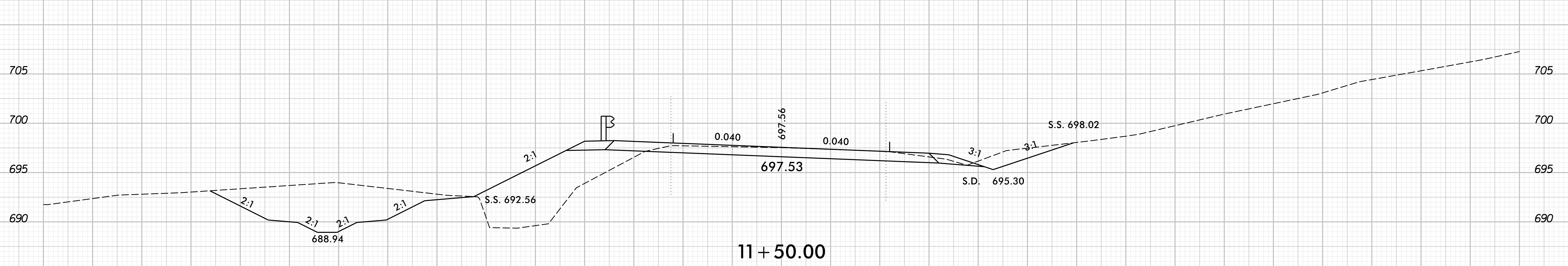
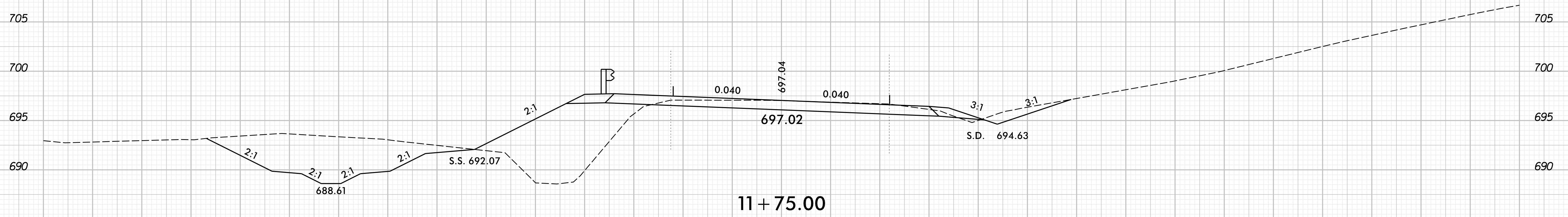
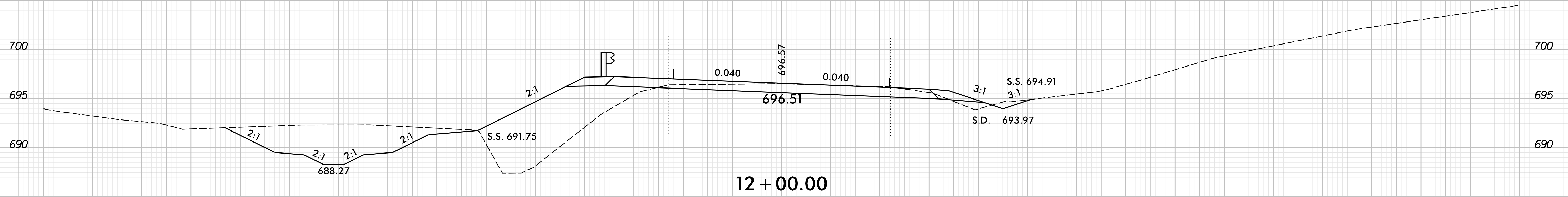
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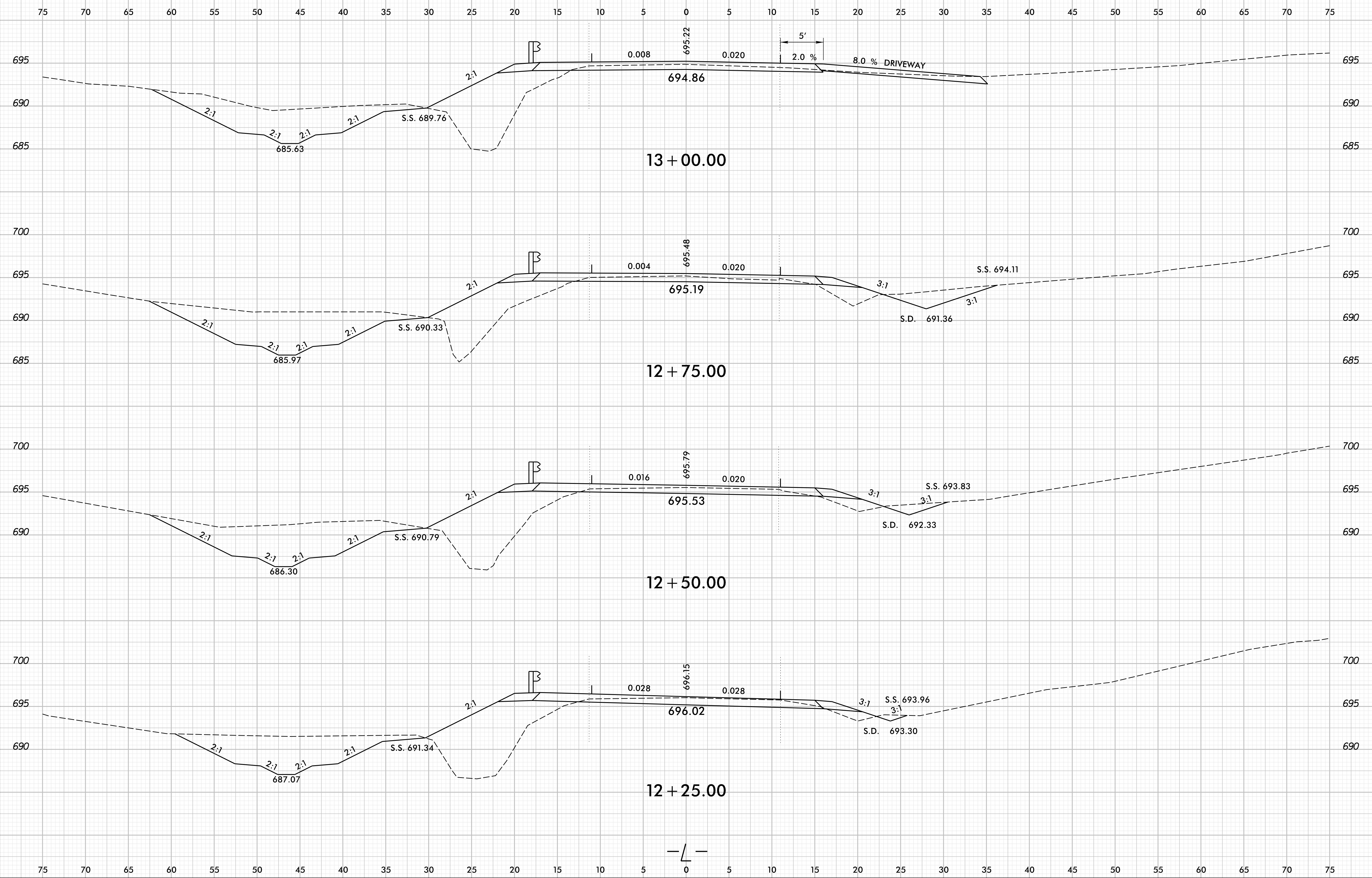
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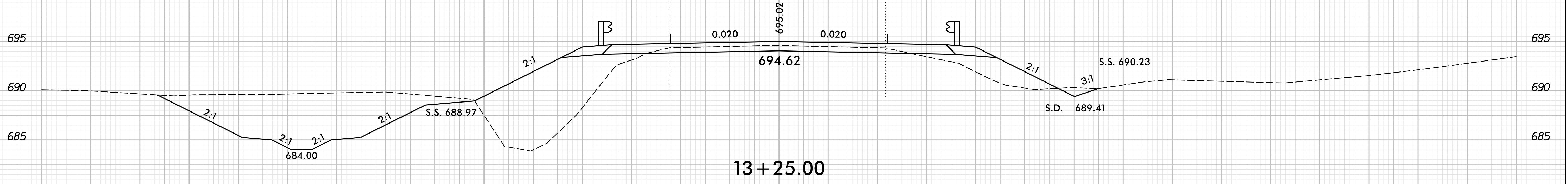
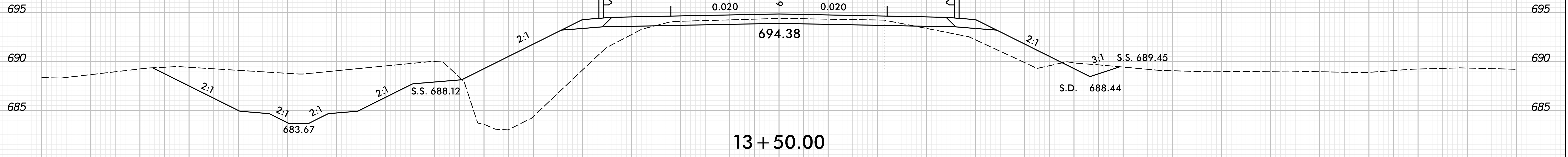
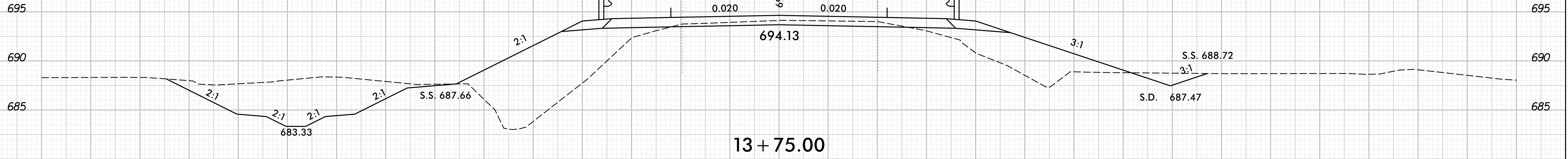
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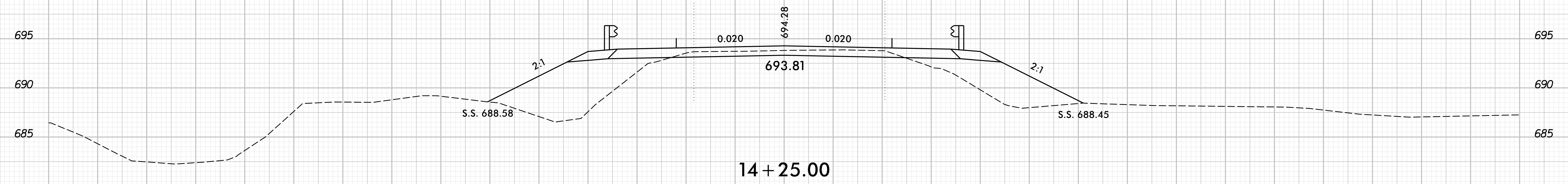
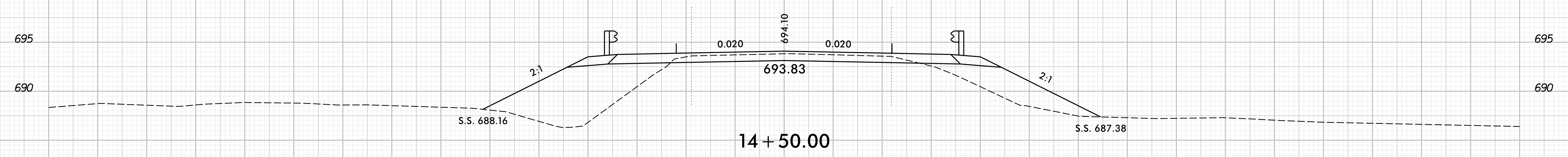
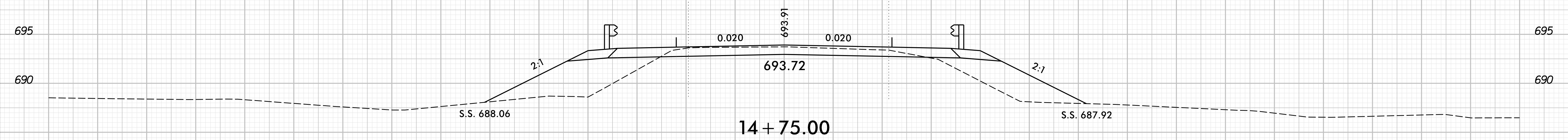
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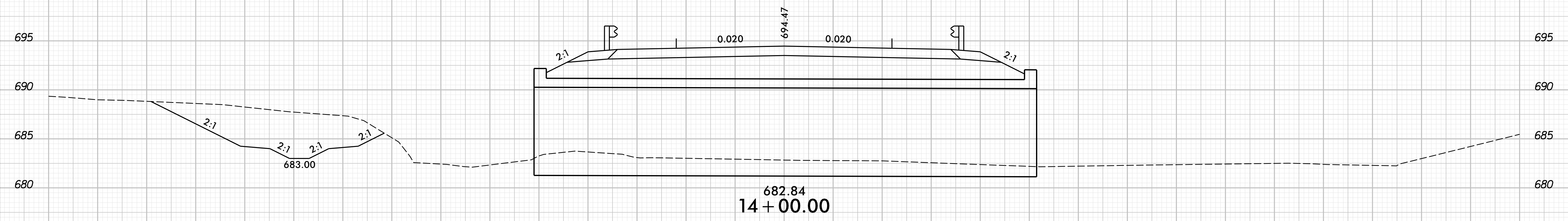
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END CULVERT STA. 14 + 09 +/-



BEGIN CULVERT STA. 13 + 91 +/-

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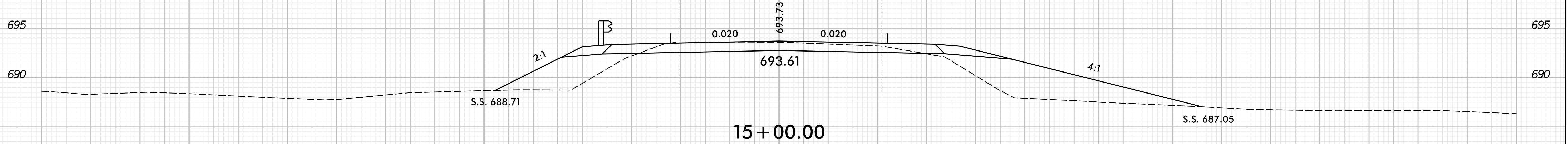
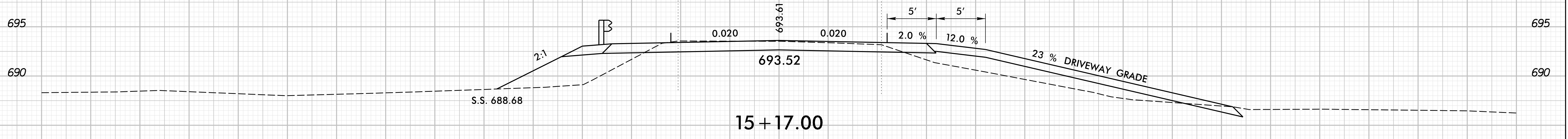
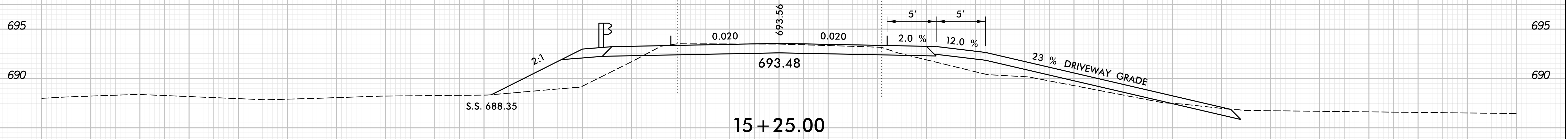
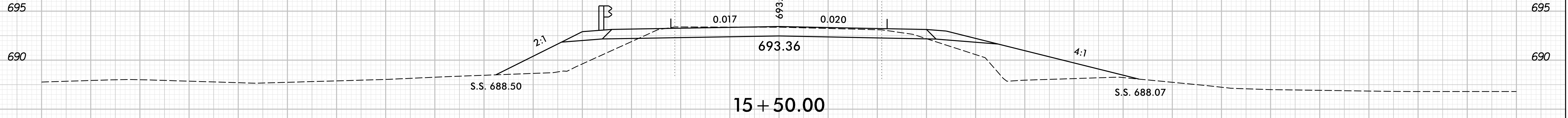
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X-7

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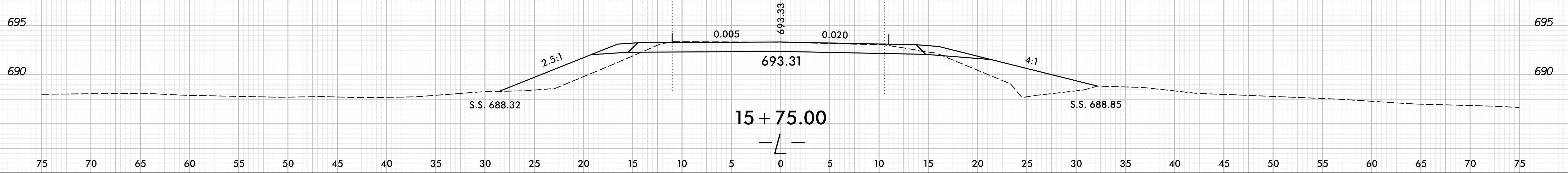
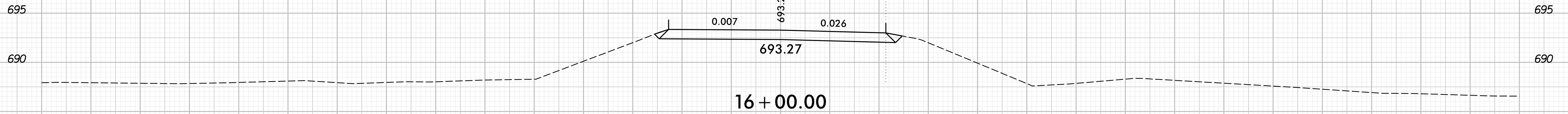


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