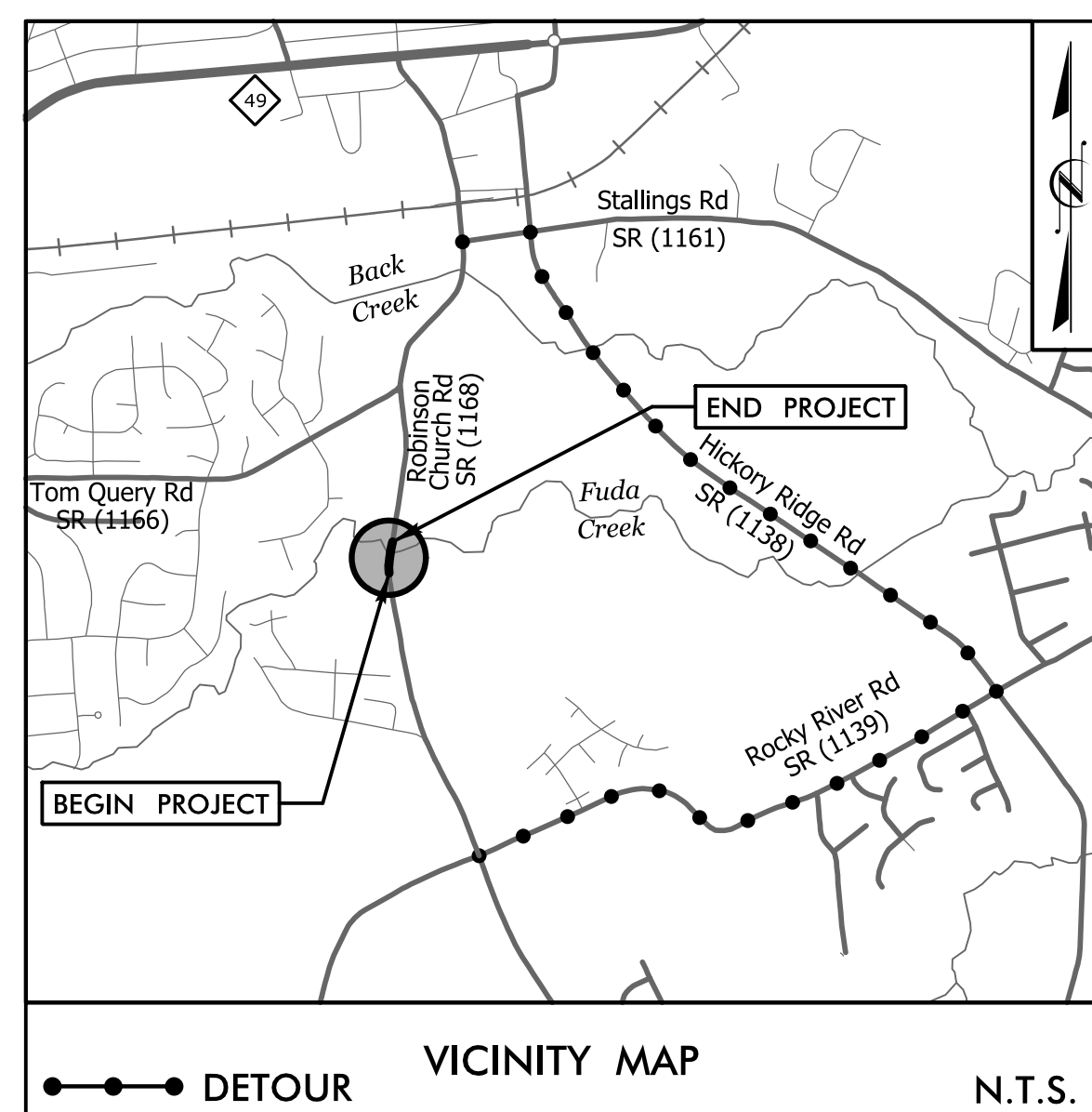


PROJECT WBS: 17BP.10.R.62

CONTRACT: DJ00228

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Standard Symbology Sheet



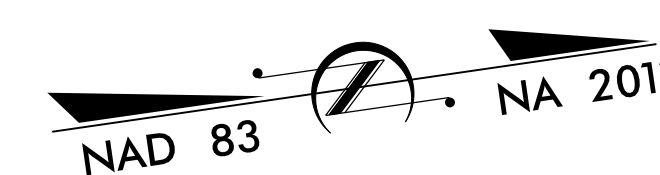
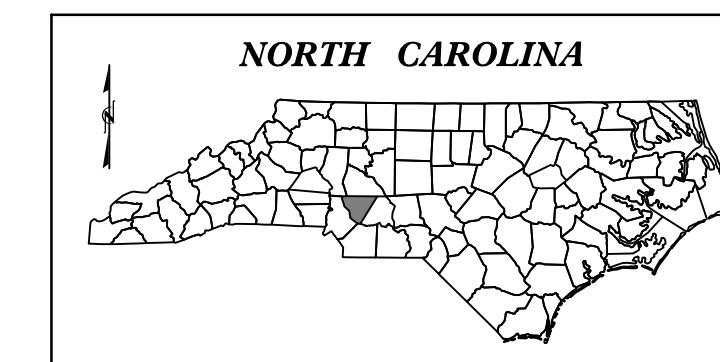
FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
CABARRUS COUNTY

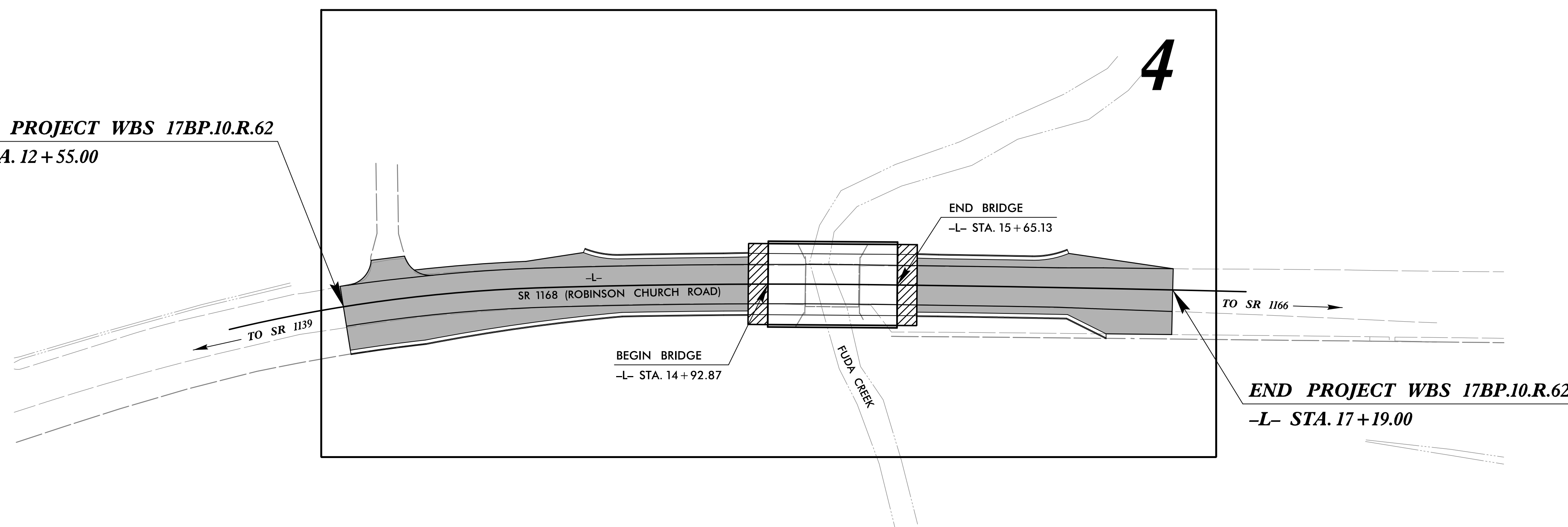
**LOCATION: BRIDGE #171 OVER FUDA CREEK
ON SR 1168 (ROBINSON CHURCH RD.)**

TYPE OF WORK: GRADING, PAVING, DRAINAGE, & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.62	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.10.R.62		P.E.	
17BP.10.R.62		R/W & UTILITIES	
17BP.10.R.62		CONSTRUCTION	



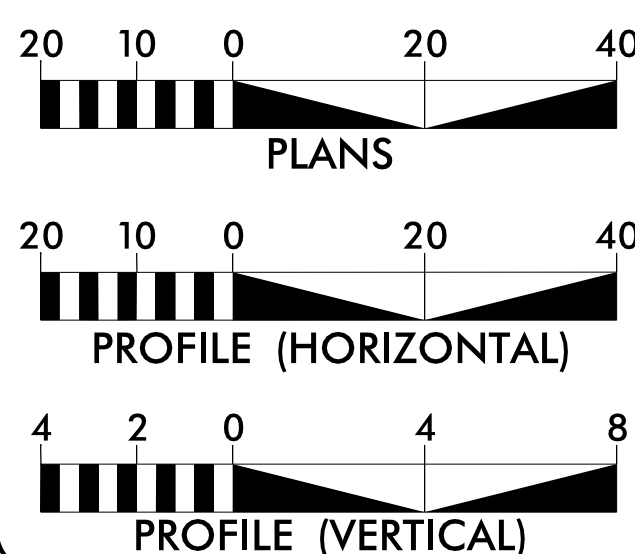
BEGIN PROJECT WBS 17BP.10.R.62
-L- STA. 12 + 55.00



END PROJECT WBS 17BP.10.R.62
-L- STA. 17 + 19.00

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

GRAPHIC SCALES



DESIGN DATA

ADT 2010 = 8400
ADT 2025 = 13200
DHV = N/A
D = N/A
T = 7%
V = 45 MPH
FUNC. CLASSIFICATION:
COLLECTOR

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT WBS 17BP.10.R.62 = 0.074 MILES
LENGTH OF STRUCTURE PROJECT WBS 17BP.10.R.62 = 0.014 MILES
TOTAL LENGTH OF PROJECT WBS 17BP.10.R.62 = 0.088 MILES

NCDOT CONTACT: GARLAND HAYWOOD, PE
Division Bridge Manager

PLANS PREPARED FOR THE NCDOT BY:



2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCTOBER 7, 2014

LETTING DATE:
MARCH 15, 2017

NIKKI T. HONEYCUTT, PE
PROJECT ENGINEER

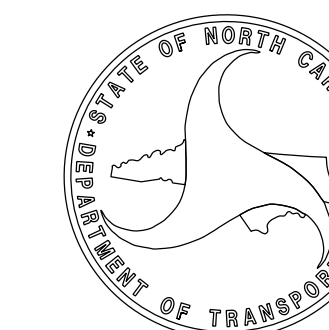
MAAMOON K. ABDELAZIZ
PROJECT DESIGNER


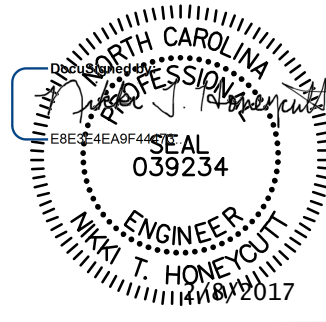
HYDRAULICS ENGINEER

DocuSigned by:
Edward J. Vance
SIGNATURE: EDWARD J. VANCE, P.E.
10/8/2017

ROADWAY DESIGN ENGINEER

DocuSigned by:
Nikki T. Honeycutt
SIGNATURE: NIKKI T. HONEYCUTT, P.E.
10/8/2017



PROJECT REFERENCE NO. <i>17BPJ0.R.62</i>	SHEET NO. <i>1-A</i>
 STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	
	ROADWAY DESIGN ENGINEER 
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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
3	SUMMARIES AND TYPICAL SECTION SHEET
4	PLAN AND PROFILE SHEET
TMP-1	TRAFFIC MANAGEMENT PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
UD-1 THRU UD-2	UTILITIES BY OTHERS PLANS
X-1 THRU X-3	CROSS-SECTIONS

GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS EFFECTIVE: 01-01-2012

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.

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.

END BENTS:
THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

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

STANDARD DRAWINGS

2012 ROADWAY ENGLISH STANDARD DRAWINGS EFF. January, 2012

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 Superlevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.11	Bridge Approach Fills - Sub Regional Tier
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet
846.01	Concrete Curb, Gutter and Curb & Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
876.02	Guide for Rip Rap at Pipe Outlets
DIVISION 11 - WORK ZONE TRAFFIC CONTROL	
1110.01	Stationary Work Zone Signs - Mounting Height & Lateral Clearance
1145.01	Barricades - Type III
DIVISION 16 - EROSION CONTROL AND ROADSIDE DEVELOPMENT	
1605.01	Temporary Silt Fence
1607.01	Gravel Construction Entrance
1630.04	Stilling Basin For Pumped Effluent
1630.06	Special Stilling Basin
1631.01	Matting Installation
1632.03	Rock Inlet Sediment Trap Type C
1633.01	Temporary Rock Silt Check Type A
1645.01	Temporary Stream Crossing

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

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	○ EP
Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	②③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	---WLB---
Proposed Wetland Boundary	WLB
Existing Endangered Animal Boundary	---EAB---
Existing Endangered Plant Boundary	---EPB---
Existing Historic Property Boundary	---HPB---
Known Contamination Area: Soil	☒ S ☒
Potential Contamination Area: Soil	☒ S ☒
Known Contamination Area: Water	☒ W ☒
Potential Contamination Area: Water	☒ W ☒
Contaminated Site: Known or Potential	☠ ?

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	○ 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 R/W Marker	▲ R W
Proposed Control of Access Line with Concrete C/A Marker	▲ C A
Existing Control of Access	○ C A
Proposed Control of Access	○ C A
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
Existing Metal Guardrail	---T---
Proposed Guardrail	---T---
Existing Cable Guiderail	---P---
Proposed Cable Guiderail	---P---
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	⊕
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	○
H-Frame Pole	●
U/G Power Line LOS B (S.U.E.*)	---P---
U/G Power Line LOS C (S.U.E.*)	---P---
U/G Power Line LOS D (S.U.E.*)	---P---

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.*)	---T---
U/G Telephone Cable LOS C (S.U.E.*)	---T---
U/G Telephone Cable LOS D (S.U.E.*)	---T---
U/G Telephone Conduit LOS B (S.U.E.*)	---TC---
U/G Telephone Conduit LOS C (S.U.E.*)	---TC---
U/G Telephone Conduit LOS D (S.U.E.*)	---TC---
U/G Fiber Optics Cable LOS B (S.U.E.*)	---T FO---
U/G Fiber Optics Cable LOS C (S.U.E.*)	---T FO---
U/G Fiber Optics Cable LOS D (S.U.E.*)	---T FO---

WATER:

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

TV:

TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	○
U/G TV Cable LOS B (S.U.E.*)	---TV---
U/G TV Cable LOS C (S.U.E.*)	---TV---
U/G TV Cable LOS D (S.U.E.*)	---TV---
U/G Fiber Optic Cable LOS B (S.U.E.*)	---TV FO---
U/G Fiber Optic Cable LOS C (S.U.E.*)	---TV FO---
U/G Fiber Optic Cable LOS D (S.U.E.*)	---TV FO---

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line LOS B (S.U.E.*)	---TUL---
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
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.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

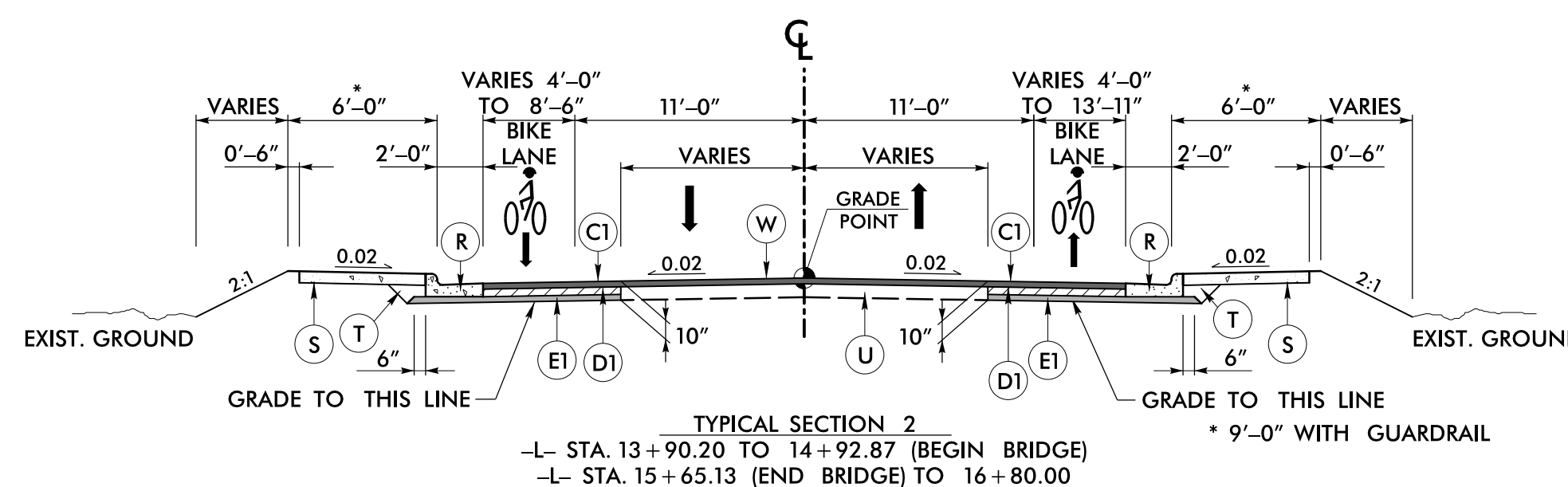
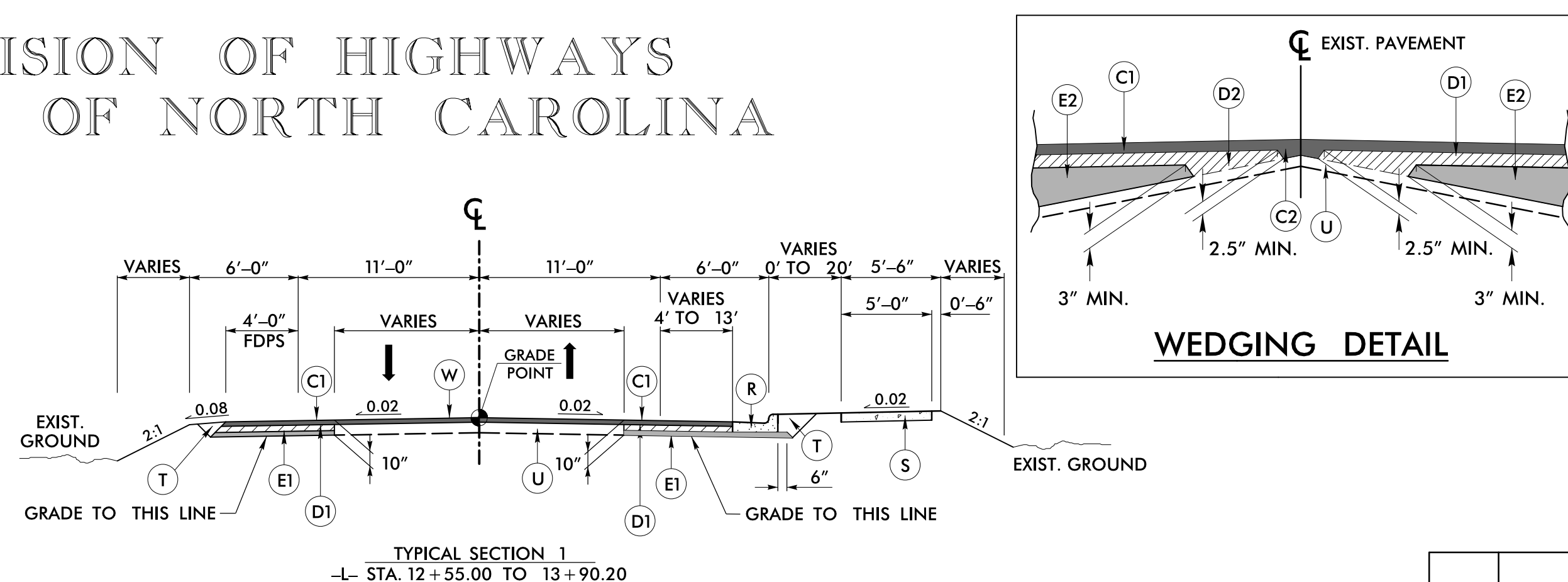
STV 100 Years STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991
ROADWAY DESIGN ENGINEER PAVEMENT DESIGN ENGINEER
PAVEMENT DESIGN PROVIDED BY NCDOT
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

EARTHWORK SUMMARY
(IN CUBIC YARDS)

Table with columns: CHAIN, FROM STATION, TO STATION, SIDE, UNCL. EXCAVATION, UNDERCUT, EMBT + %, BORROW, WASTE. Includes sub-totals for LOSS DUE TO CLEARING AND GRUBBING, WASTE IN LIEU OF BORROW, PROJECT TOTAL, ESTIMATE 5% FOR TOPSOIL ON BORROW PITS, GRAND TOTAL, and SAY.

NOTE: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

Approximate quantities only. Unclassified Excavation, Borrow Excavation, 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."



PAVEMENT SCHEDULE table with layers C1 through E2 and R through W, describing materials and rates. Includes 'ALL PAVEMENT SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.'

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

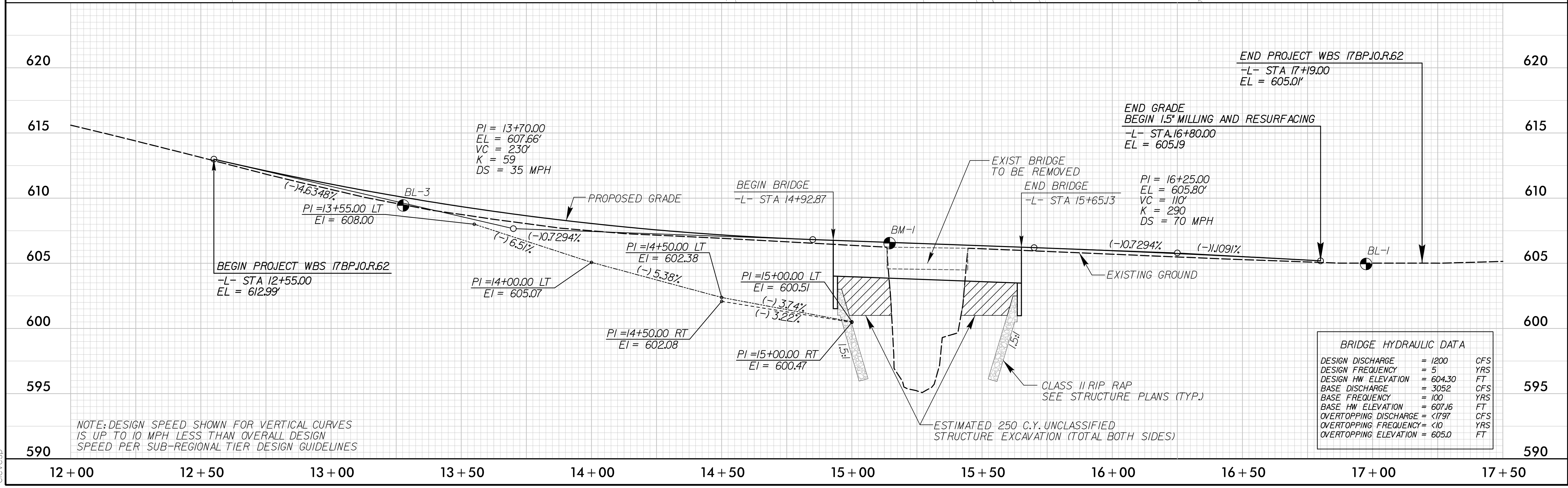
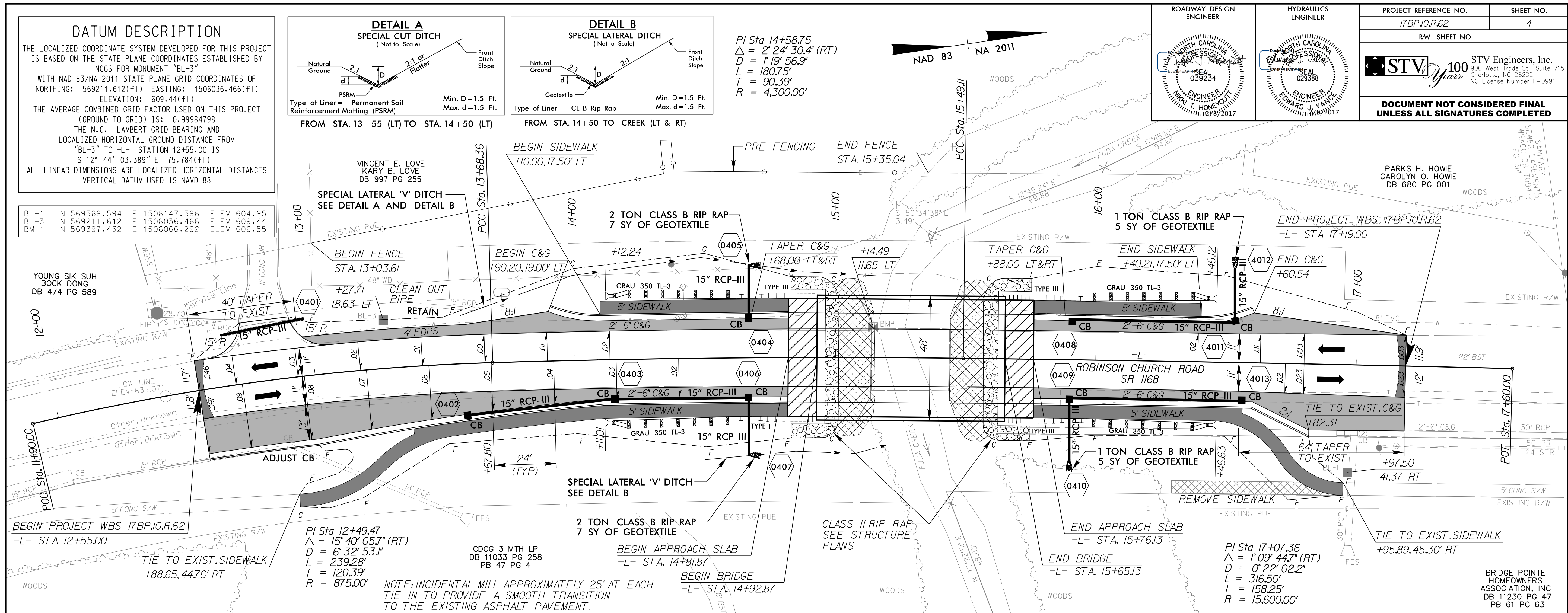
Large table listing pipe and endwall details. Columns include Station, Location, Structure No., Pipe Size, Material (Class III R.C. Pipe, Bituminous Coated C.S. Pipe, etc.), Endwalls, and Grates. Includes abbreviations for C.B., N.D.I., D.I., G.D.I., etc.

* W MEASURED FROM "N" AT THE BEGINNING OF THE ANCHOR TO "N" AT THE END OF THE ANCHOR.
"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

Guardrail Summary table with columns for Survey Line, Beg. Sta., End Sta., Location, Length (Straight, Shop Curved, Double Faced), Warrant Point, 'N' Dist. from E.O.L., Total Shoul. Width, Flare Length, W, Anchors (XI MOD, B-77, GRAU 350, M-350, Type III, CAT-1, VI MOD, BIC, AT-1), Impact Attenuator Type 350, Single Faced Guardrail, Remove Existing Guardrail, and Remove and Stockpile Existing Guardrail.

2/8/2017
F:\Roadway\Proj\SH1110R62_rdy_psh03.dgn
clevesp



2/8/2017
 F:\Roadway\Proj\17BPJ0R62_rdy_psh04.dgn
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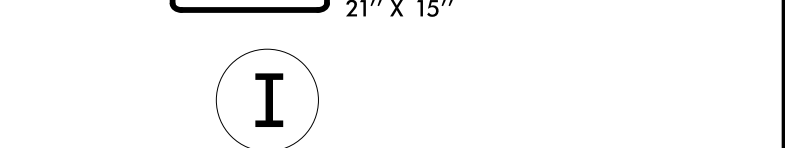
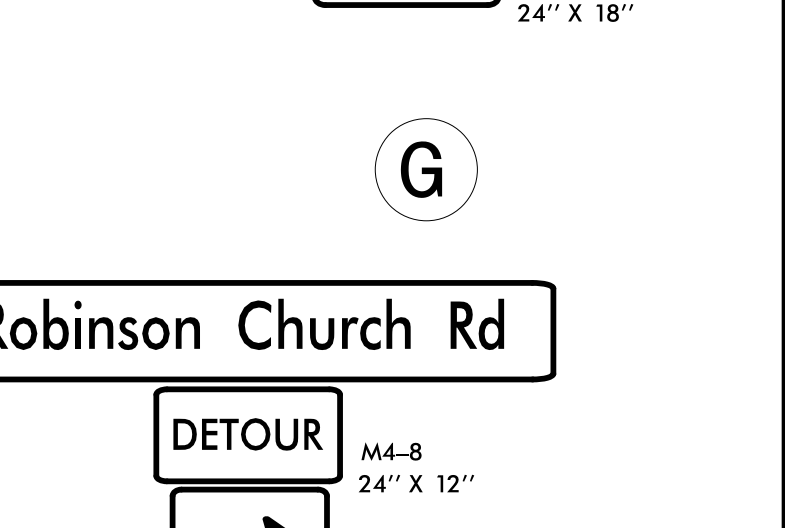
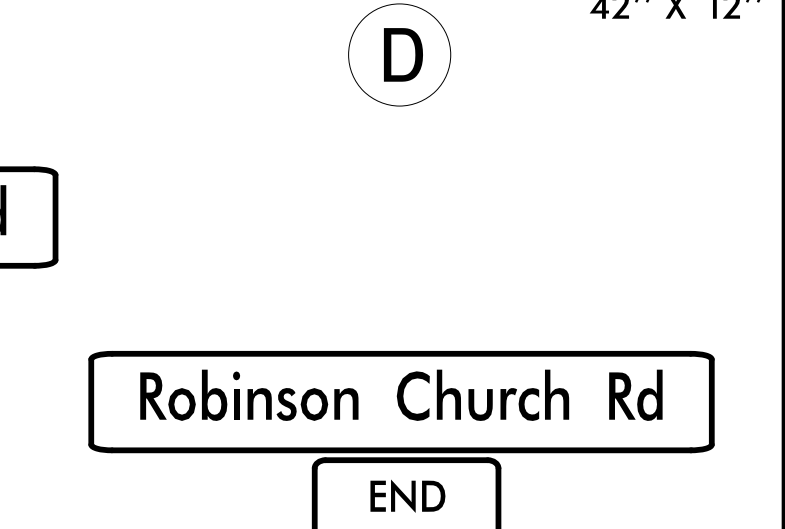
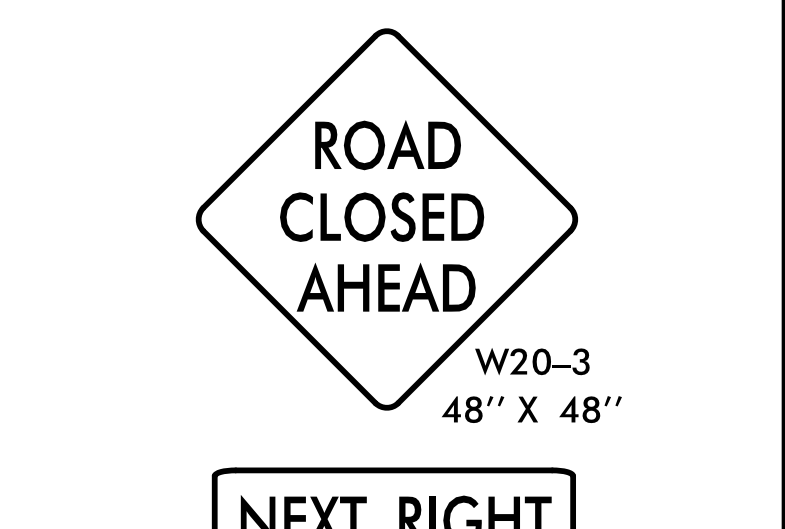
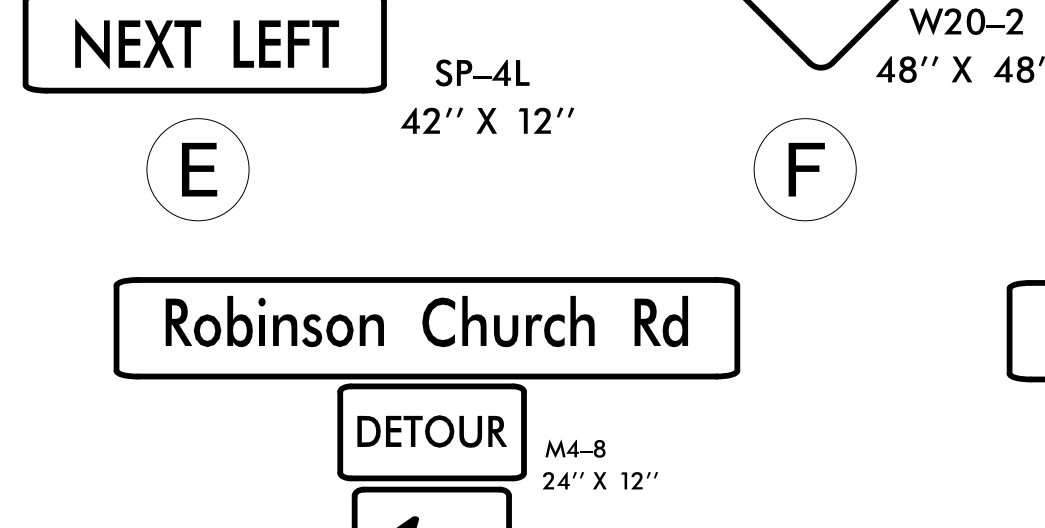
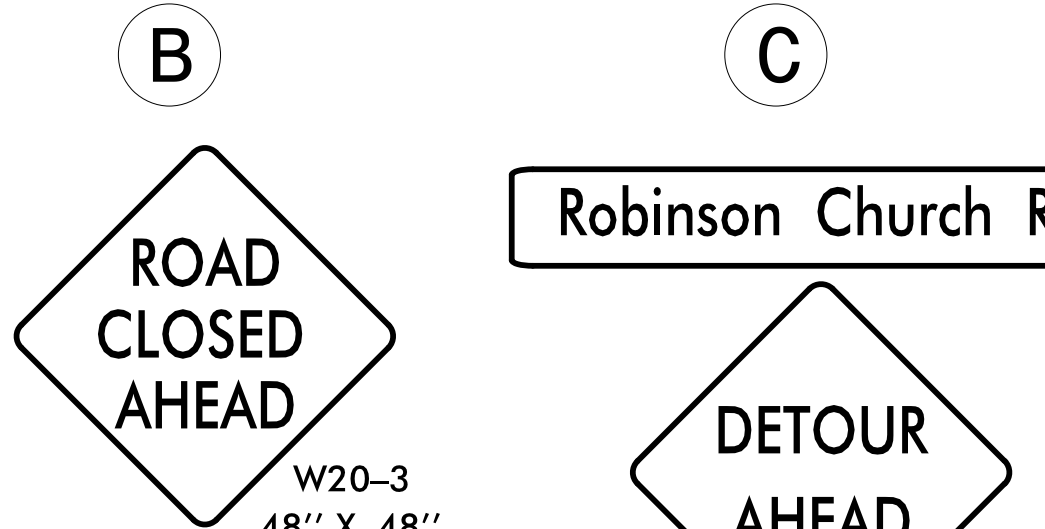
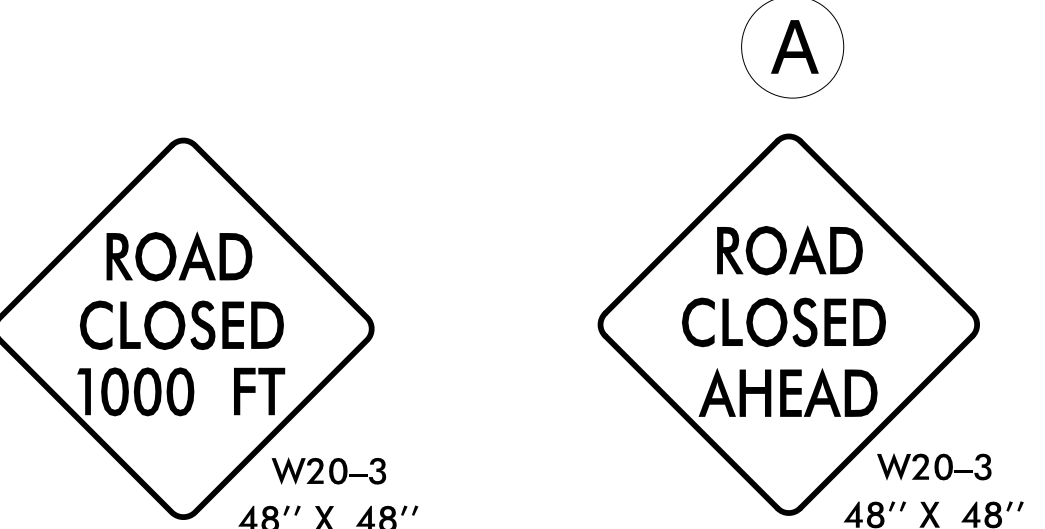
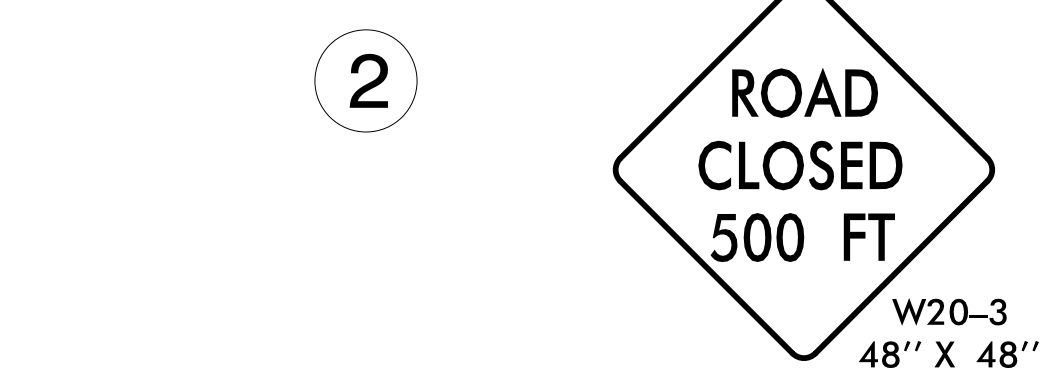
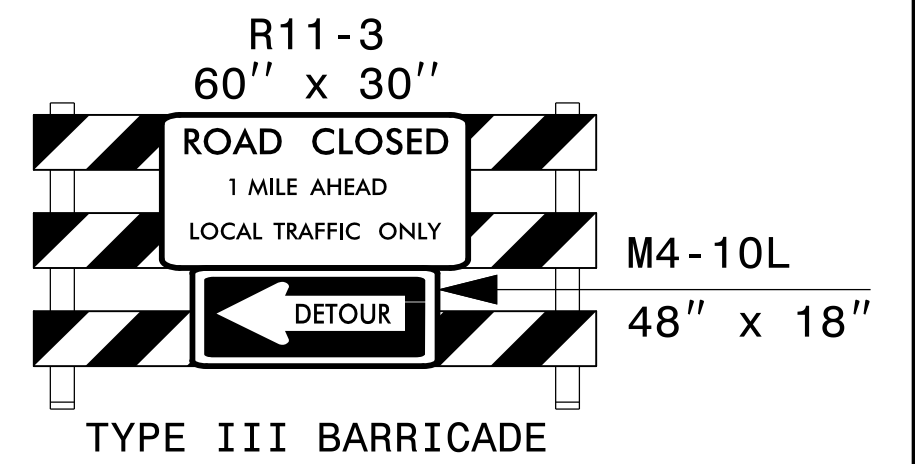
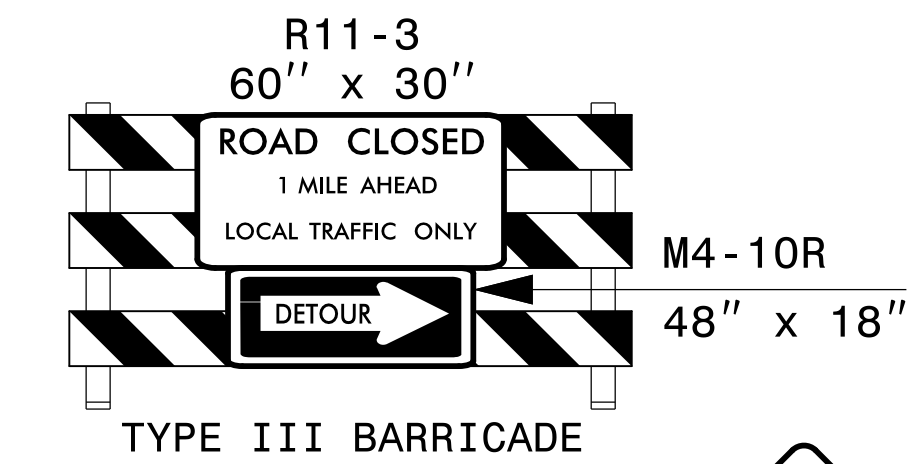
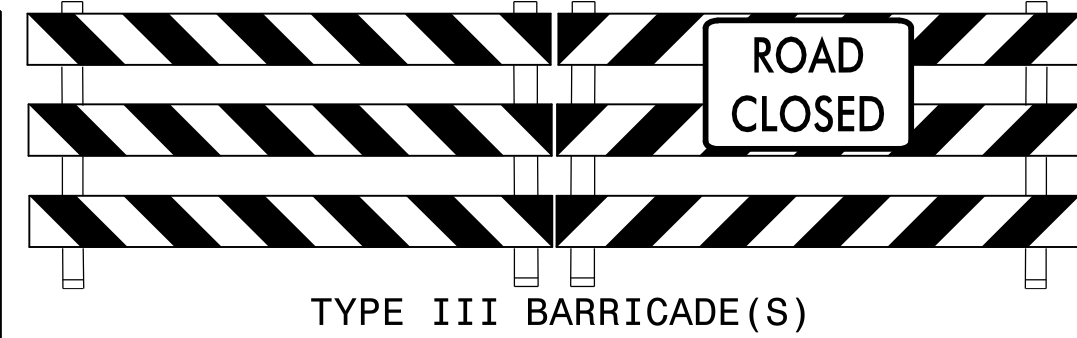
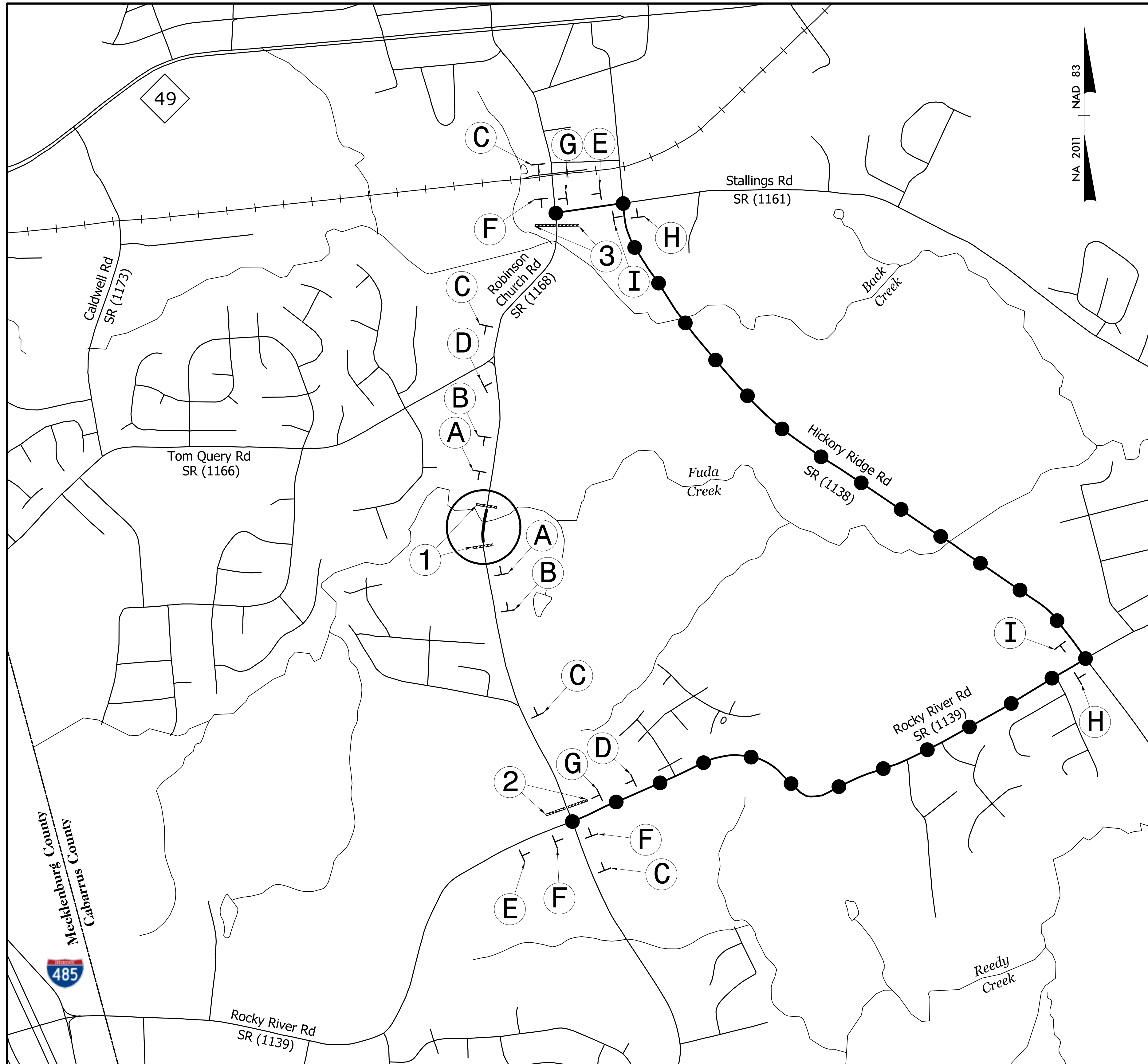
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PROJECT REFERENCE NO. 17BPJ0.R.62	SHEET NO. TMP-1
RW SHEET NO.	

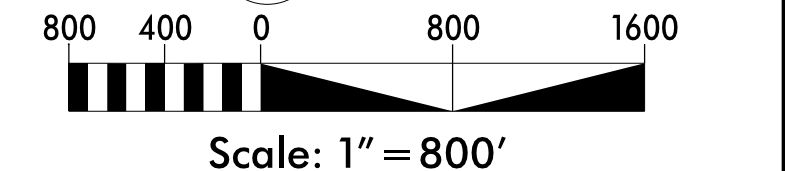
STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

ROADWAY DESIGN ENGINEER

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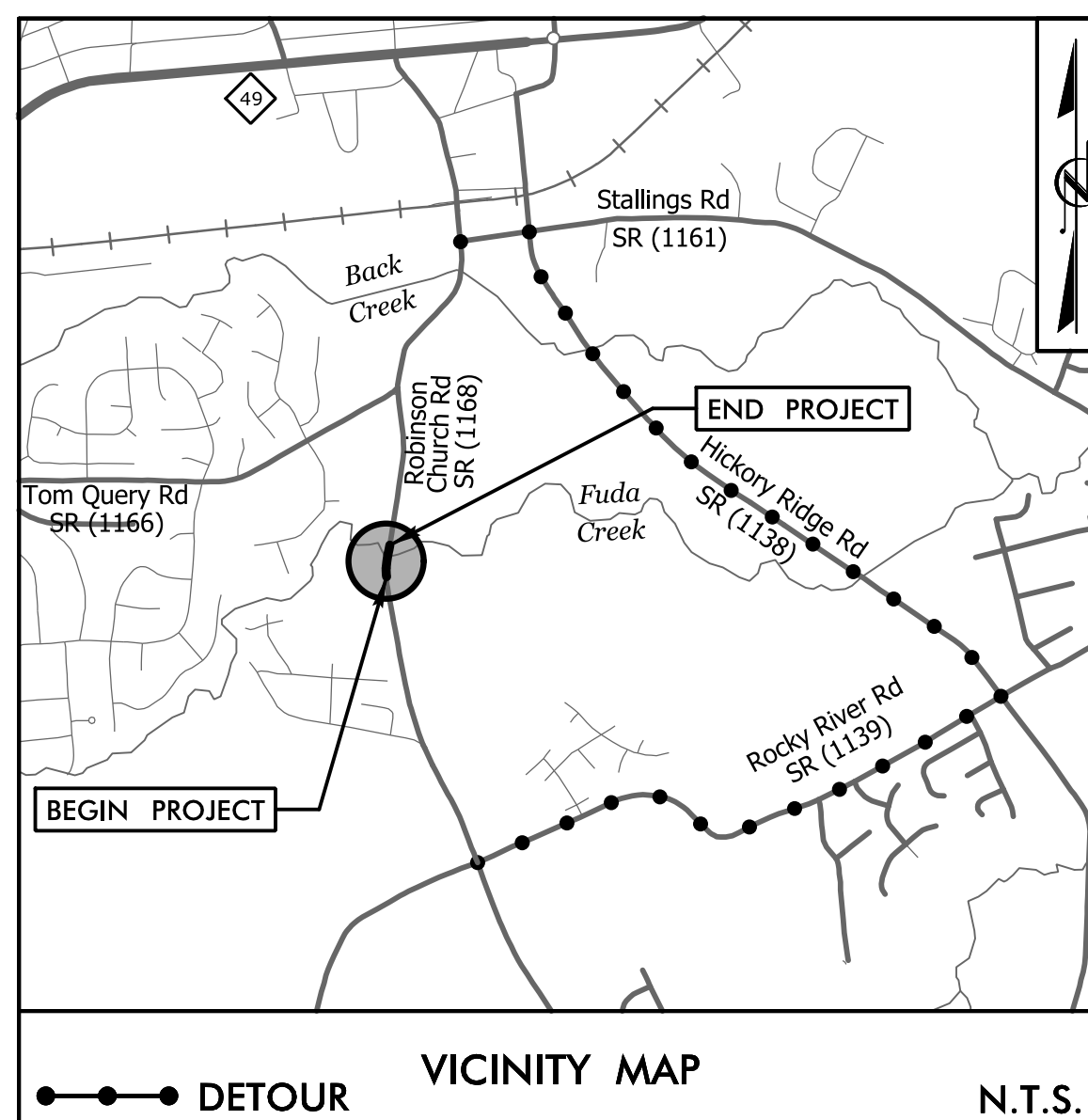


SEE ROADWAY STD DWG 1101.03, SHEET 1 OF 9 FOR
ADVANCE WARNING AND BARRICADE PLACEMENT.



2/8/2017
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clevesp

PROJECT WBS: 17BP.10.R.62



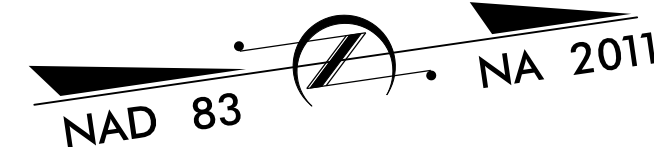
EROSION CONTROL PLANS

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

CABARRUS COUNTY

**LOCATION: BRIDGE #120171 OVER FUDA CREEK
ON SR 1168 (ROBINSON CHURCH RD.)**

TYPE OF WORK: GRADING, PAVING, DRAINAGE, & STRUCTURE



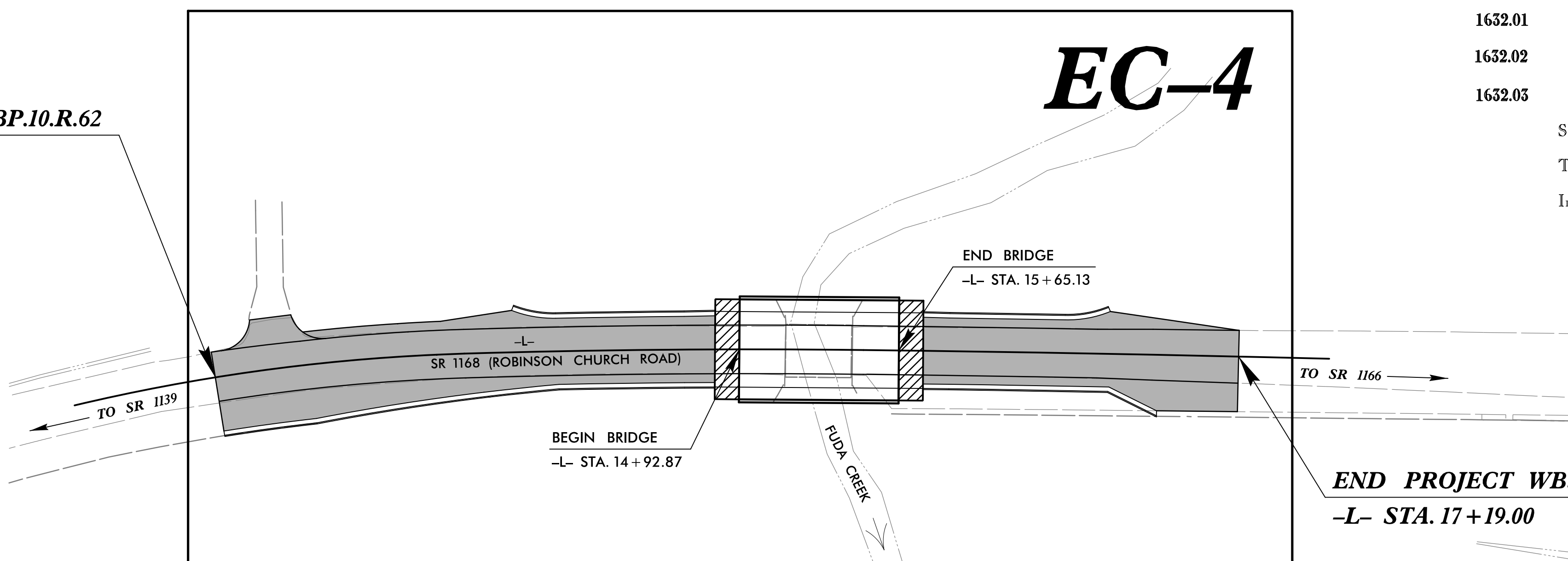
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.62	EC-1	8
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.10.R.62		P.E.	
17BP.10.R.62		R/W & UTILITIES	
17BP.10.R.62		CONSTRUCTION	

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
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	W
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	W
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	▭

BEGIN PROJECT WBS 17BP.10.R.62
-L- STA. 12 + 55.00

EC-4



THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

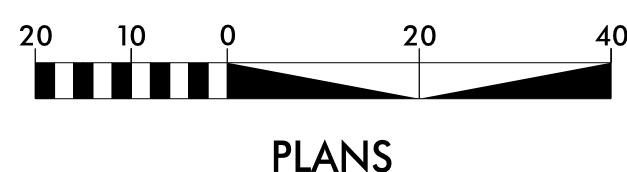
ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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

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

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

GRAPHIC SCALE



ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Level III Designer #161
Edward Vance, PE

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:



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.

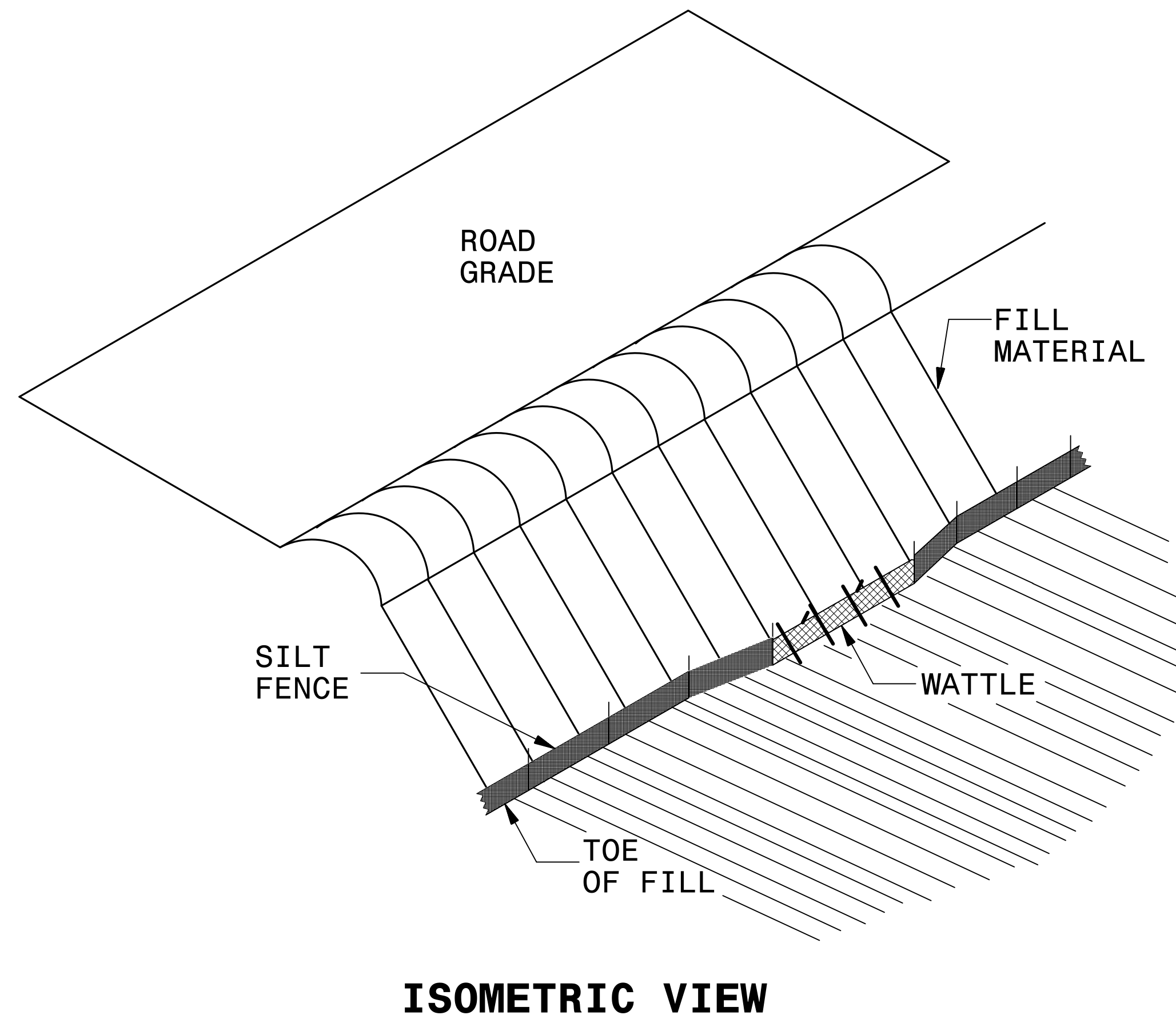
1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type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

EROSION CONTROL PLANS
10/07/2014

CONTRACT:

SILT FENCE WATTLE BREAK DETAIL

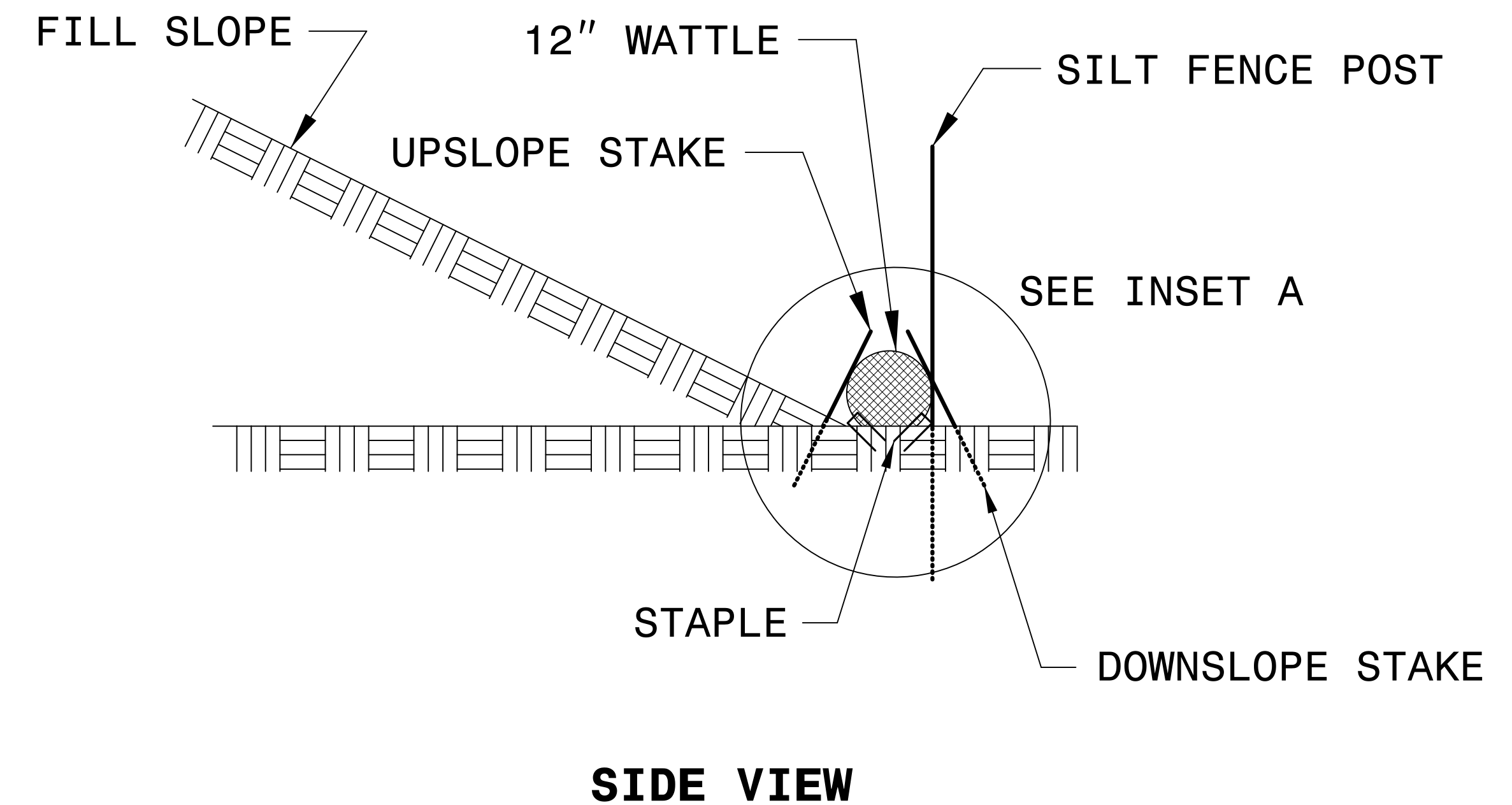
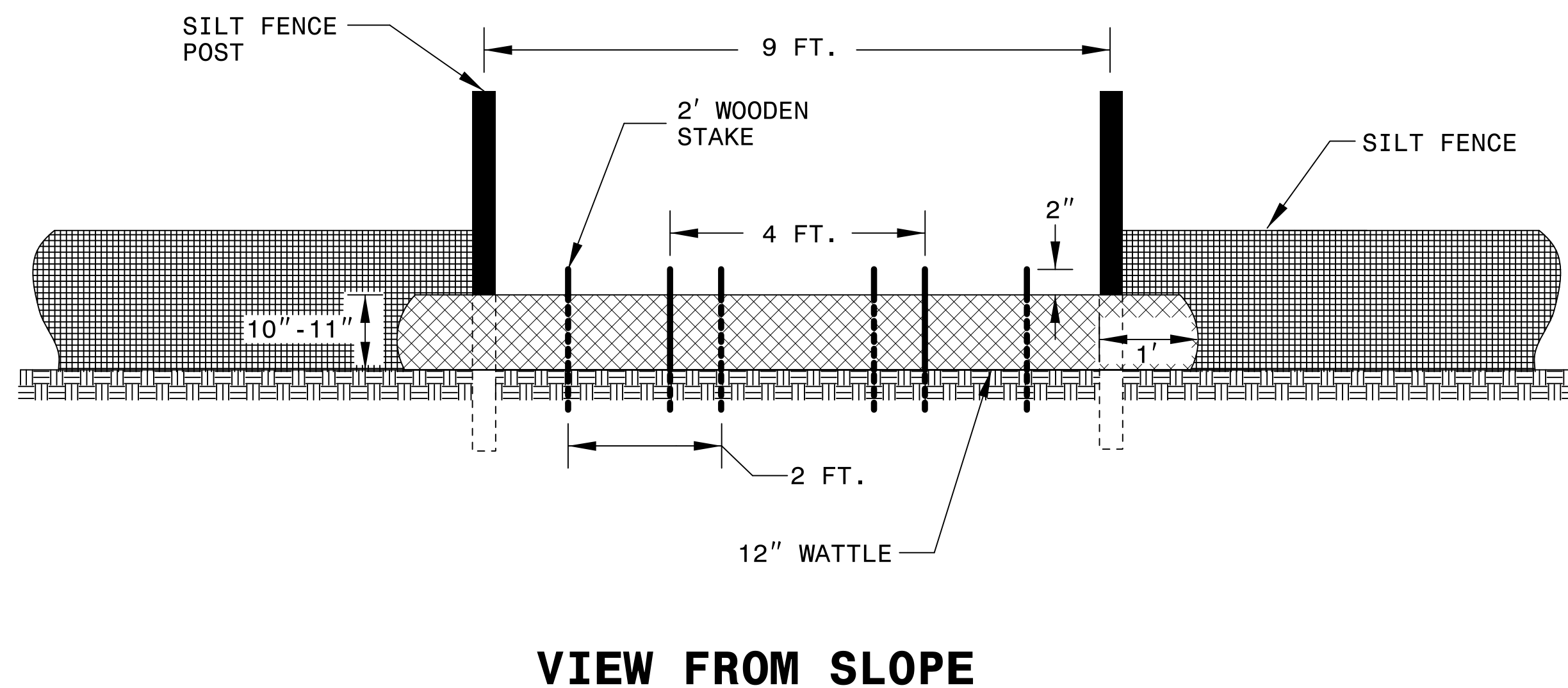
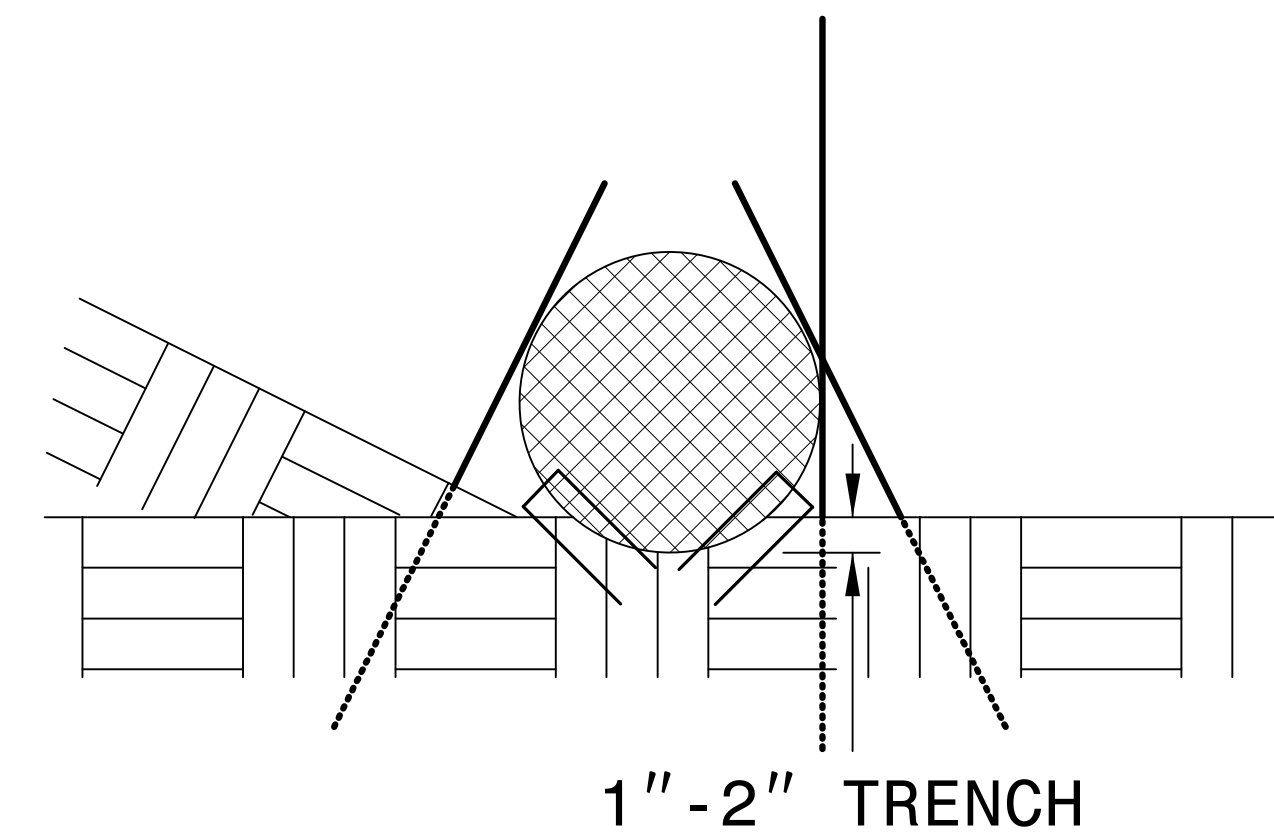
PROJECT REFERENCE NO. 17BPJ0.R.62	SHEET NO. EC-2
RW SHEET NO.	
 STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	




NOTES:

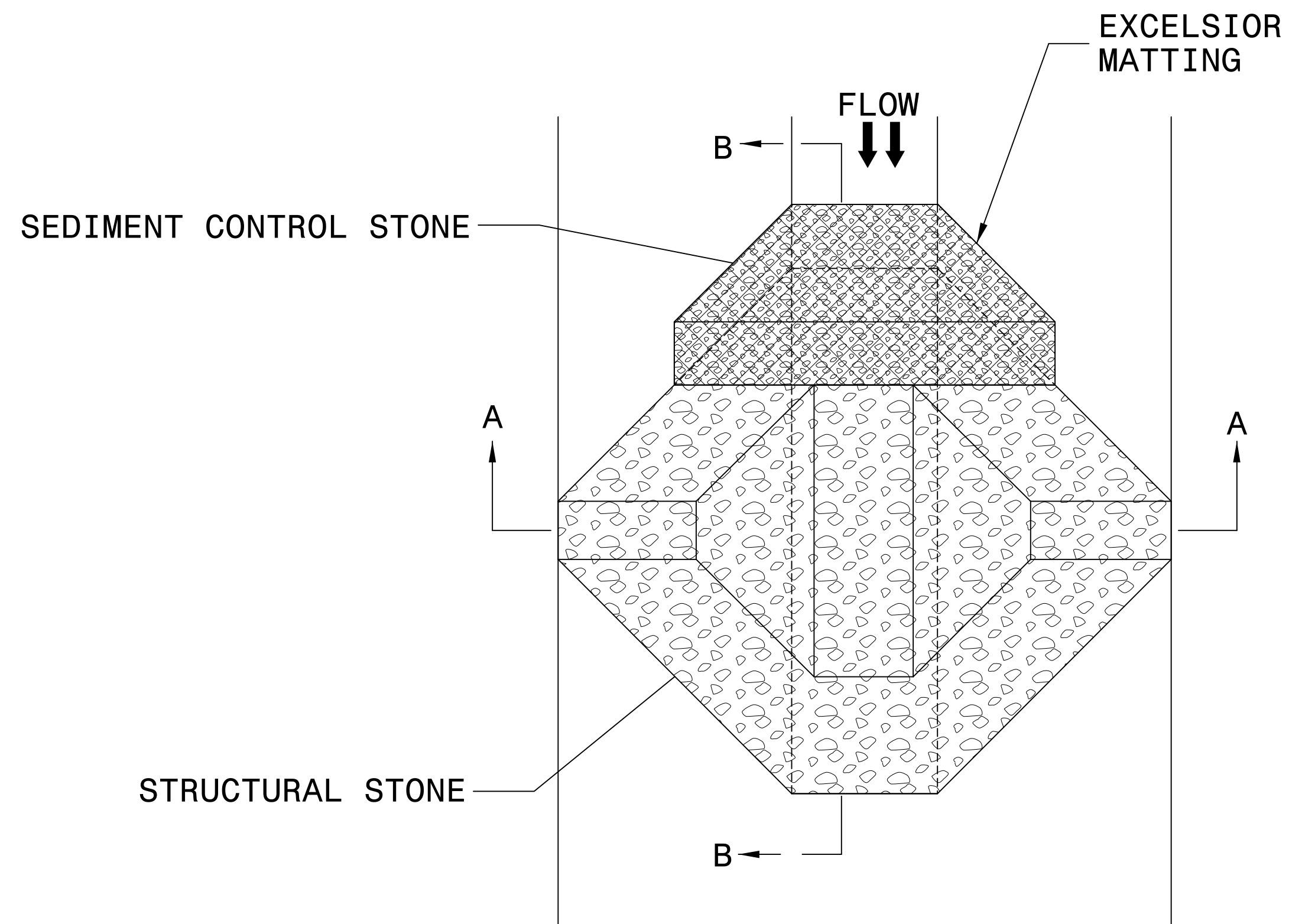
- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLE ON TOE OF SLOPE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.
- 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.
- WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.
- INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A



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

PROJECT REFERENCE NO. 17BP10.R.62	SHEET NO. EC-2A
RW SHEET NO.	
 STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	



PLAN

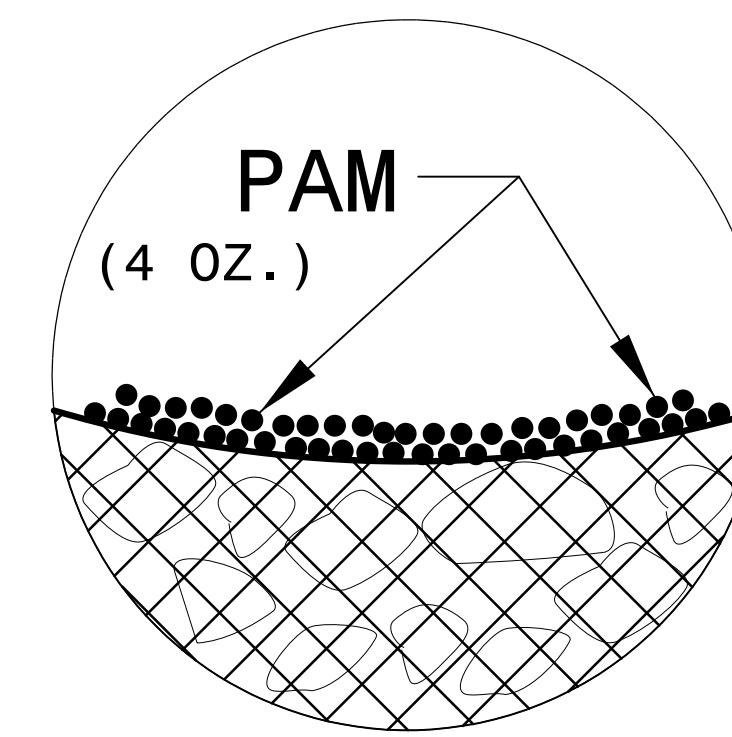
NOTES

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

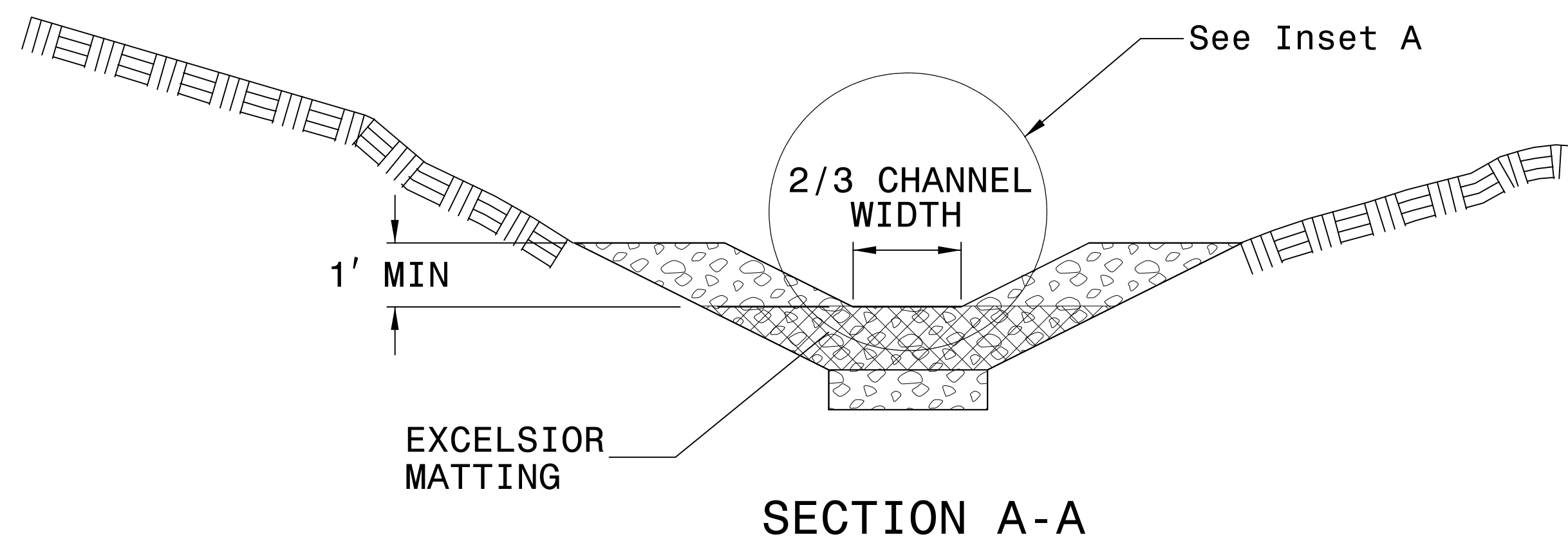
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

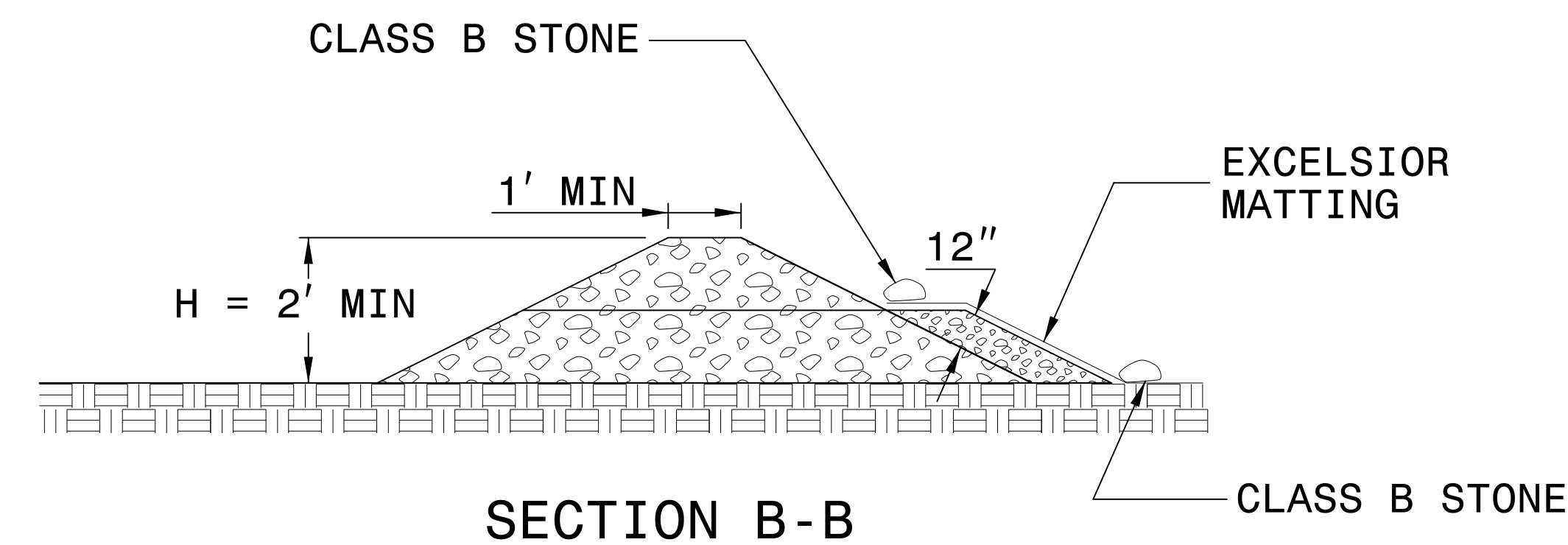
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
17BPJ0.R.62	EC-3
RW SHEET NO.	
<div style="display: inline-block; font-size: 8px; vertical-align: middle;"> STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991 </div>	

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL (FOR SLOPE STABILIZATION)


CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
			SUBTOTAL		1,126
	MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER				113
				TOTAL	1,239
				SAY	1,240

PERMANENT SOIL REINFORCEMENT MATTING (FOR DITCH STABILIZATION)

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	GEO FOR DRAINAGE ESTIMATE (SY)
4	-L- V-DITCH	13+55	14+50	LT	71
			SUBTOTAL		71
	MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER				20
				TOTAL	91
				SAY	100

RIP RAP LINING (FOR DITCH STABILIZATION)

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	RIP RAP FOR DRAINAGE ESTIMATE (TN)
4	-L- BASE-DITCH	14+50	15+15	LT/RT	68
			SUBTOTAL		68
	MISCELLANEOUS RIP RAP TO BE INSTALLED AS DIRECTED BY THE ENGINEER				7
				TOTAL	75
				SAY	75

PROJECT REFERENCE NO.	SHEET NO.
17BP10.R.62	EC-3A
RW SHEET NO.	
 STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	

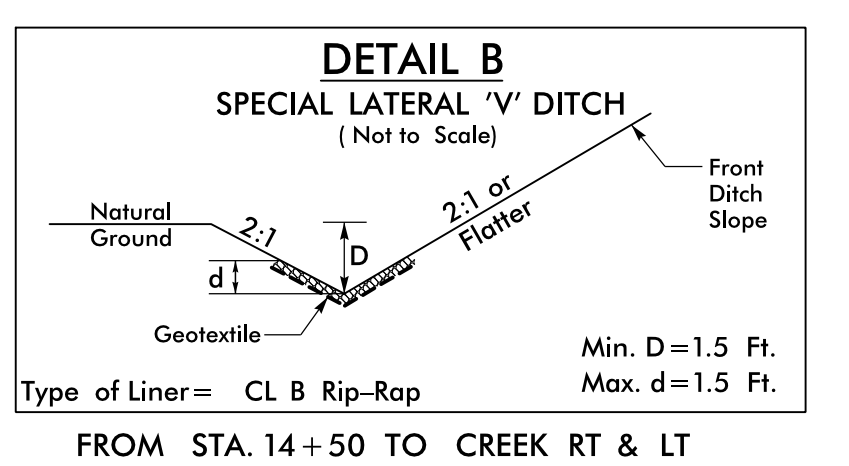
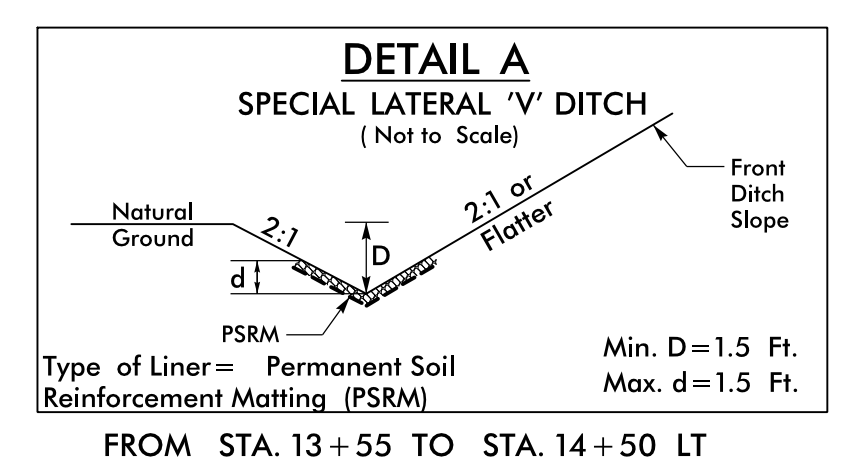
SOIL STABILIZATION REQUIREMENTS

Stabilization for this project shall comply with the time frame guidelines as specified 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. Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land-disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity. Temporary and permanent ground cover stabilization shall be achieved in accordance with the provisions in this contract and as directed.

<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.

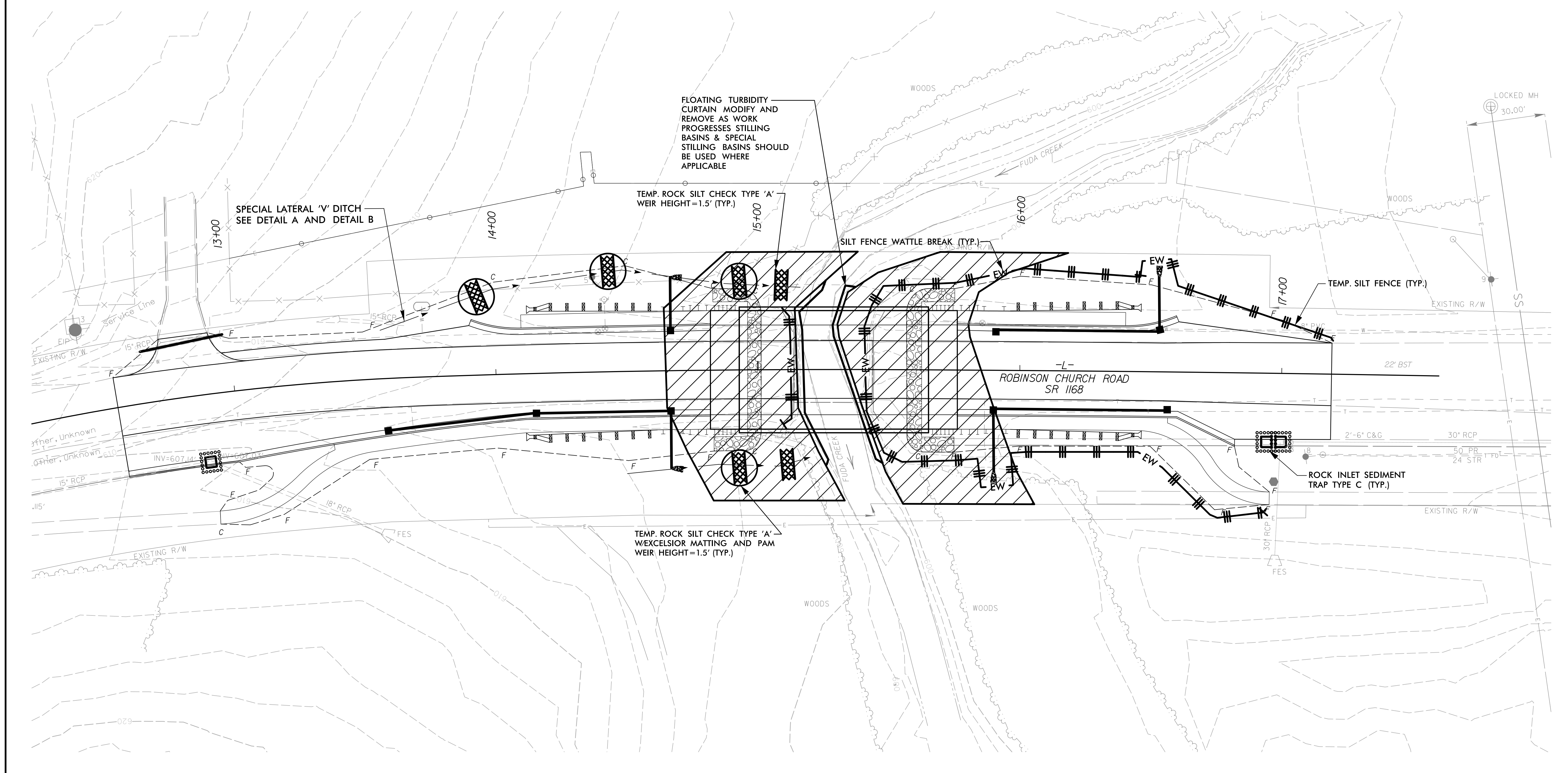
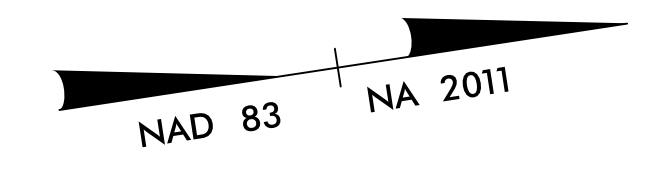
BRIDGE #12071
 SCALE: 1"=20'

CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 4



FROM STA. 13+55 TO STA. 14+50 LT

FROM STA. 14+50 TO CREEK RT & LT



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.



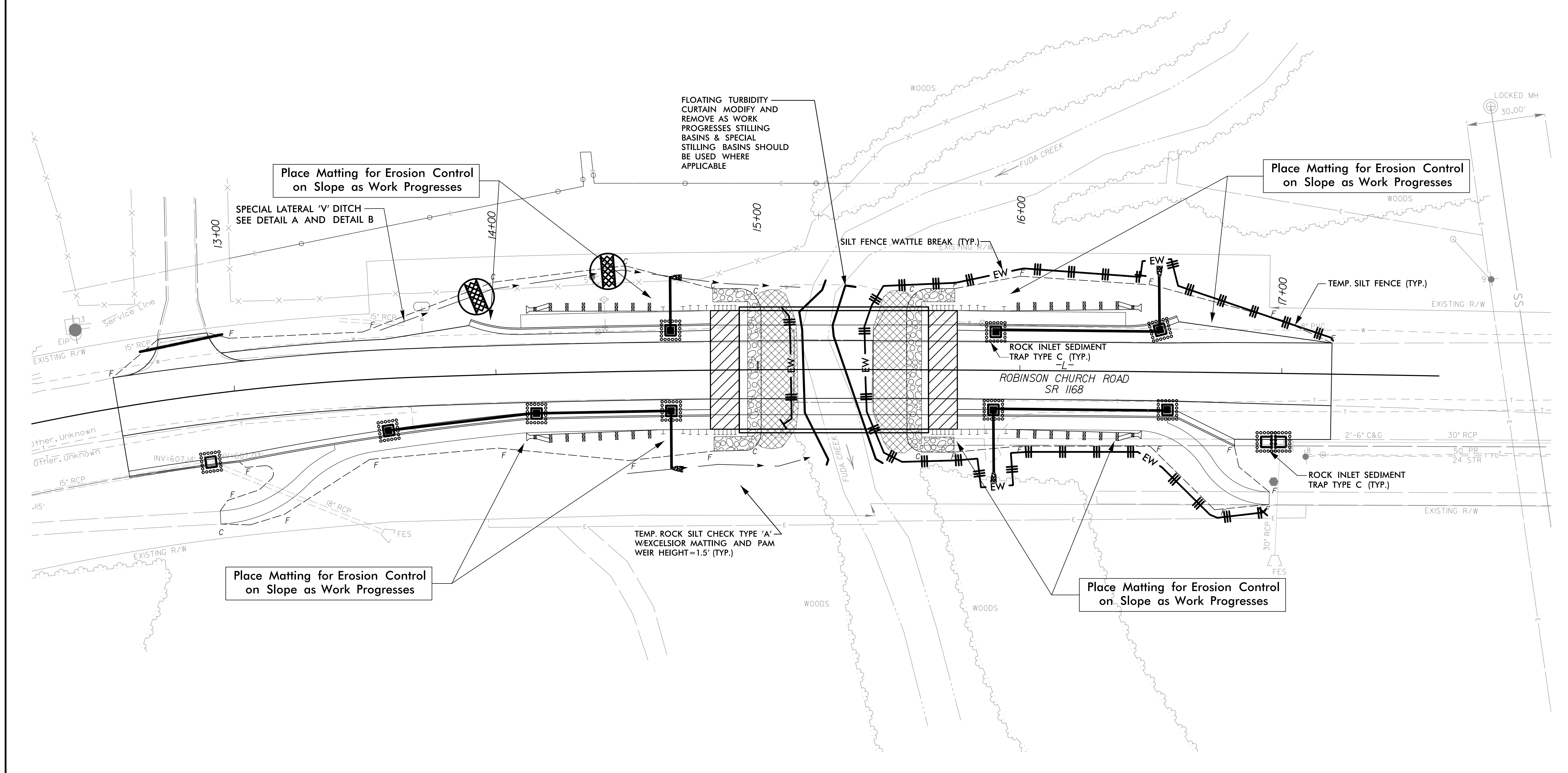
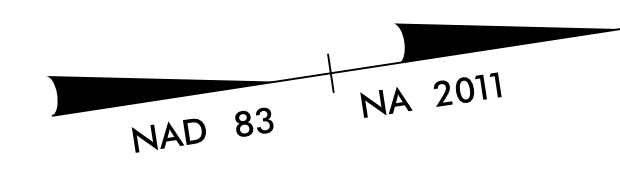
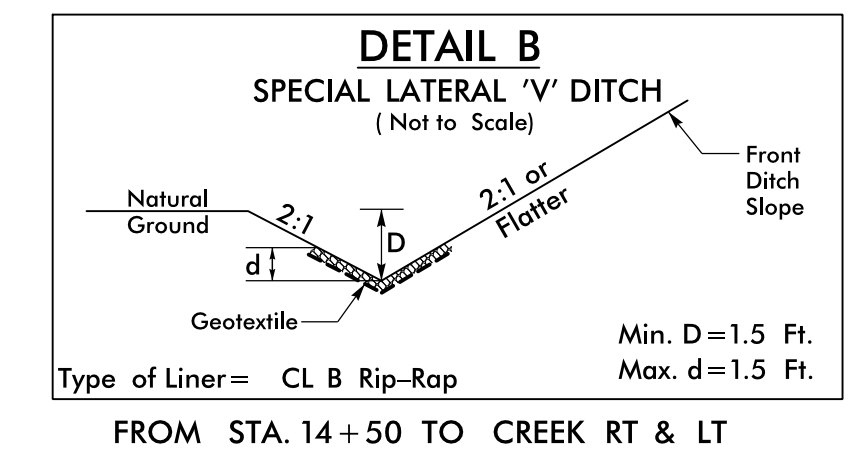
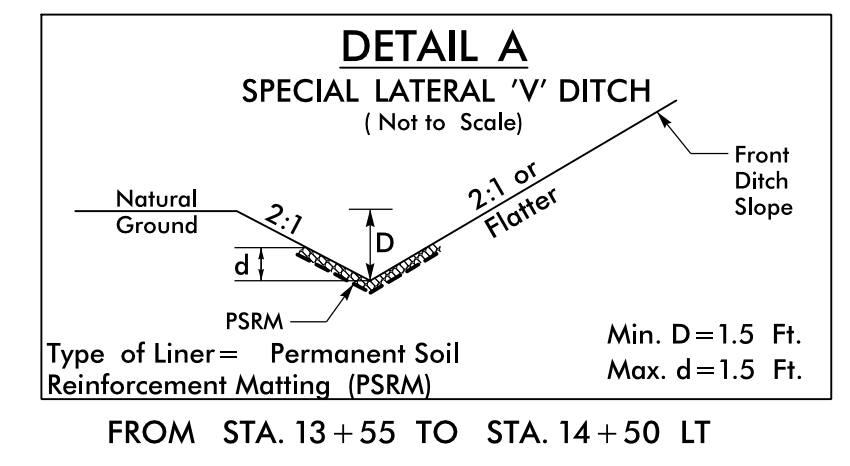
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE-B AND TEMPORARY ROCK SILT CHECKS TYPE-A AT DRAINAGE OUTLETS

NOTE: UTILIZE SPECIAL STILLING BASIN AS STILLING BASIN WHERE APPLICABLE

NOTE: INSTALL FLOATING TURBIDITY CURTAIN AS DIRECTED

INSTALL PERMANENT DITCHES DURING C&G PHASE

2/8/2017 F:\Roadway\proj\17ec10R62_rdy_psh_EC04.dgn clevesp



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.

NOTE: UTILIZE SPECIAL STILLING BASIN AS STILLING BASIN WHERE APPLICABLE

NOTE: INSTALL FLOATING TURBIDITY CURTAIN AS DIRECTED

2/8/2017
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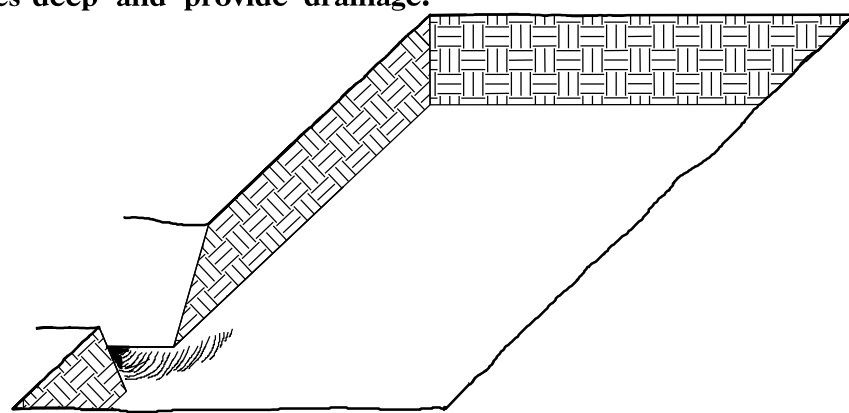
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.62	RF-1	1
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.10.R.62		P.E.	
17BP.10.R.62		R/W & UTILITIES	
17BP.10.R.62		CONSTRUCTION	

PLANTING DETAILS

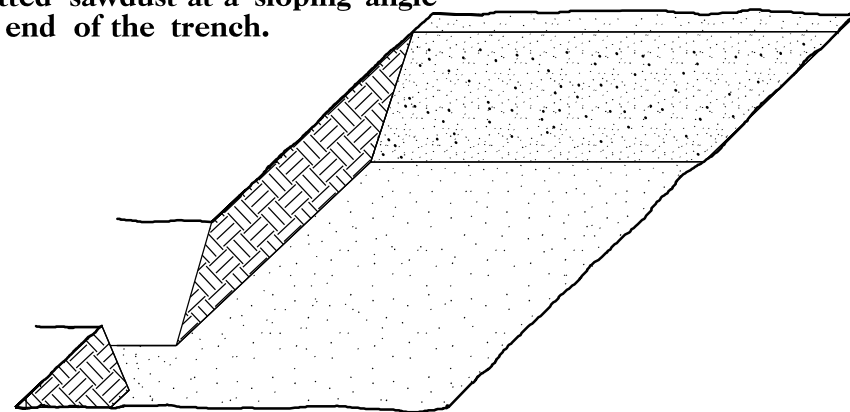
SEEDLING / LINER BARERoot PLANTING DETAIL

HEALING IN

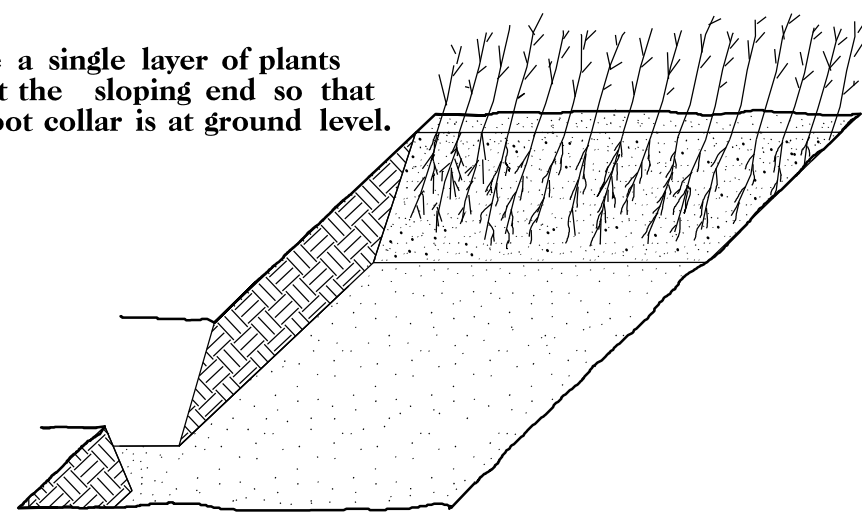
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



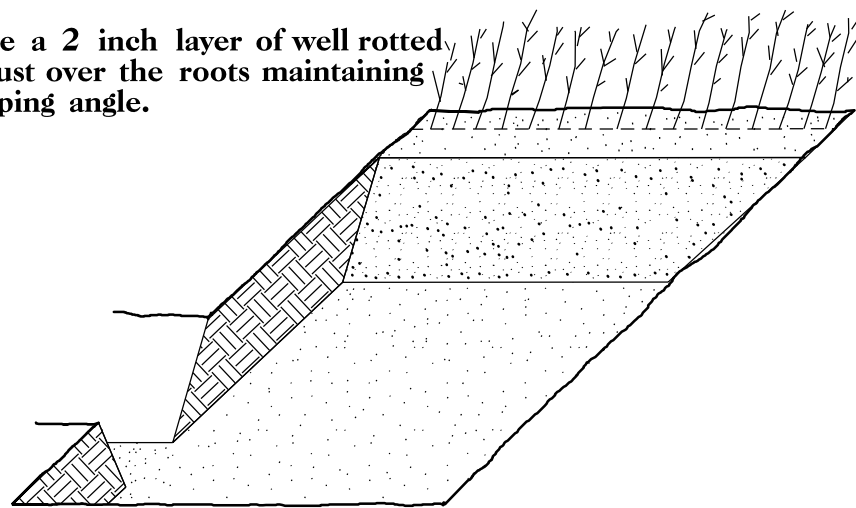
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

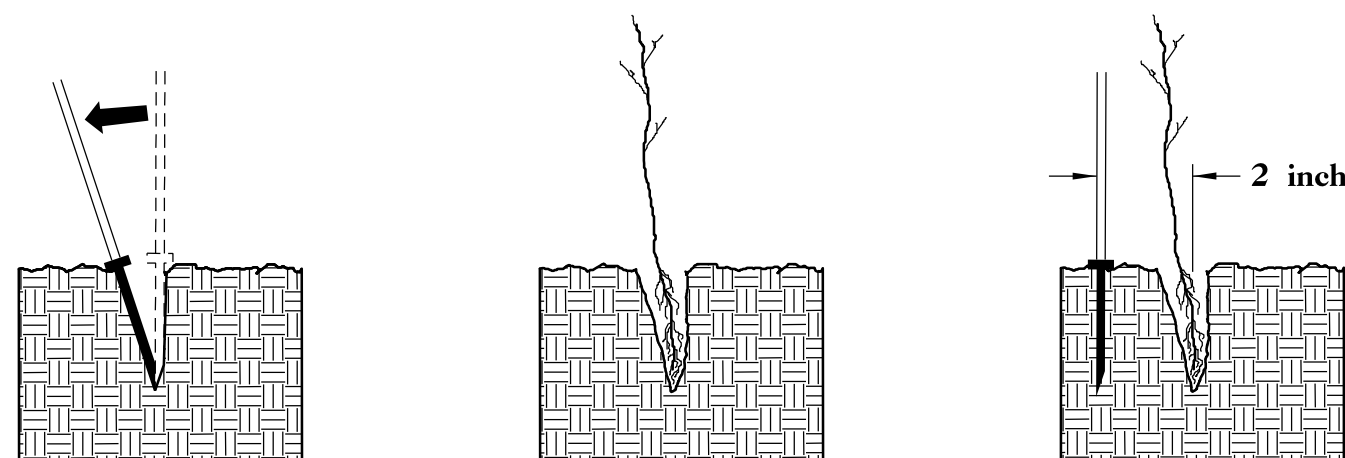


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

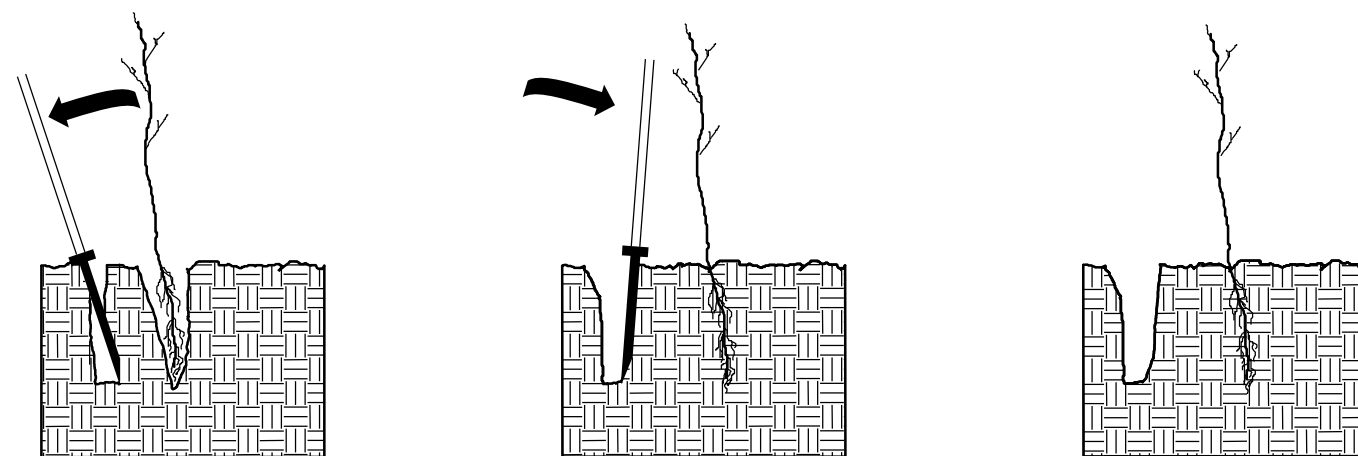


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



1. Insert planting bar as shown and pull handle toward planter.
2. Remove planting bar and place seedling at correct depth.
3. Insert planting bar 2 inches toward planter from seedling.



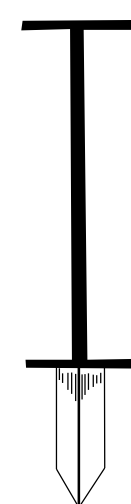
4. Pull handle of bar toward planter, firming soil at bottom.
5. Push handle forward firming soil at top.
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

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



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



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

REFORESTATION

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

REFORESTATION

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

25 0	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
25 0	PLATANUS OCCIDENTALIS	SYCAMORE	12 in - 18 in BR
25 0	FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in BR
25 0	BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

REFORESTATION DETAIL SHEET

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

PROJECT WBS: 17BP.10.R.62

CONTRACT:

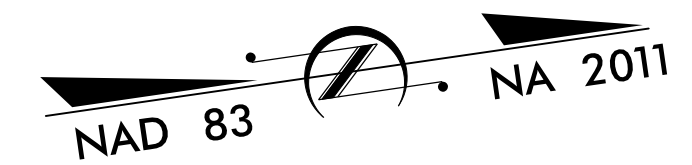
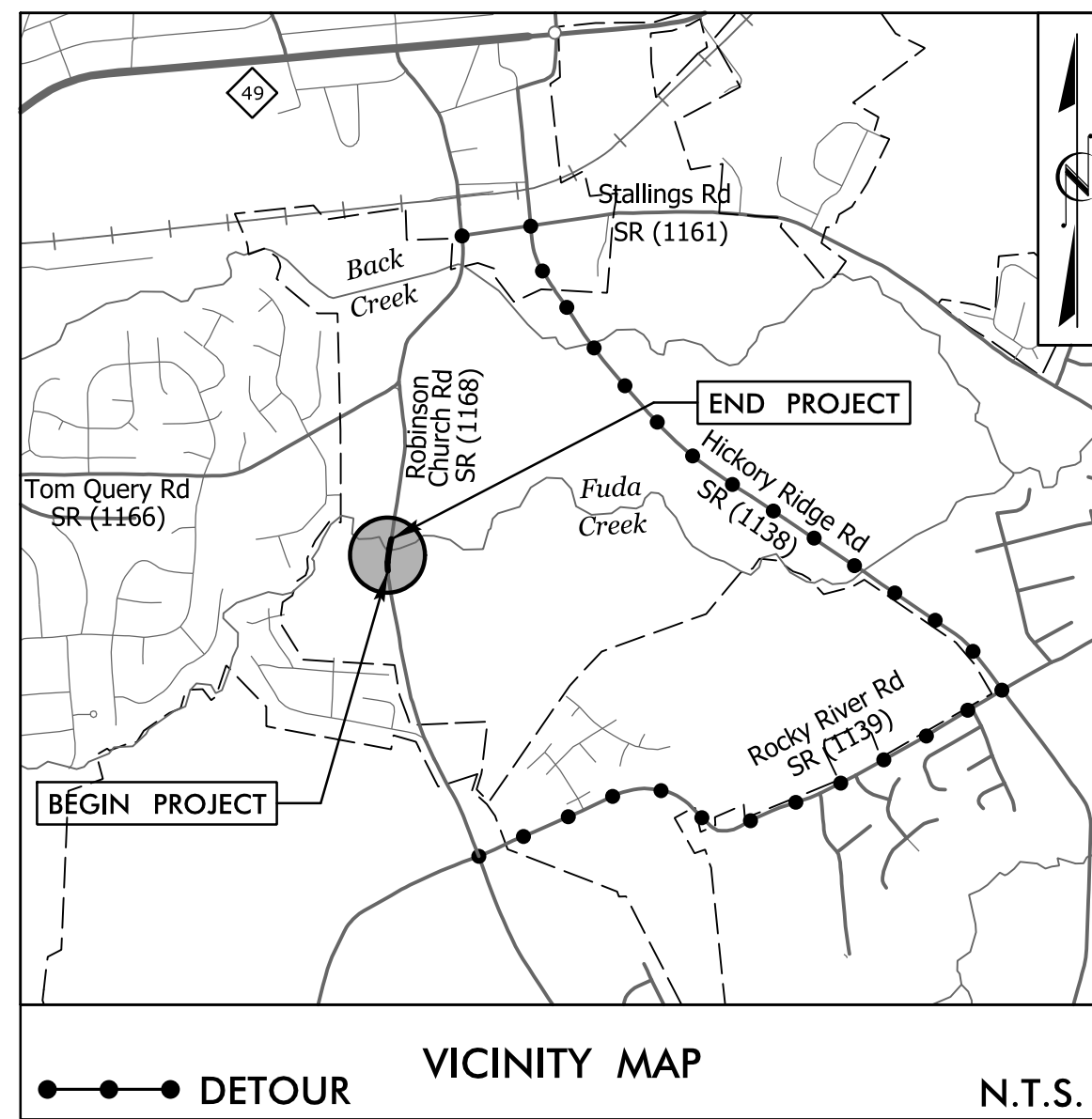
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
17BP.10.R.62	UO-1

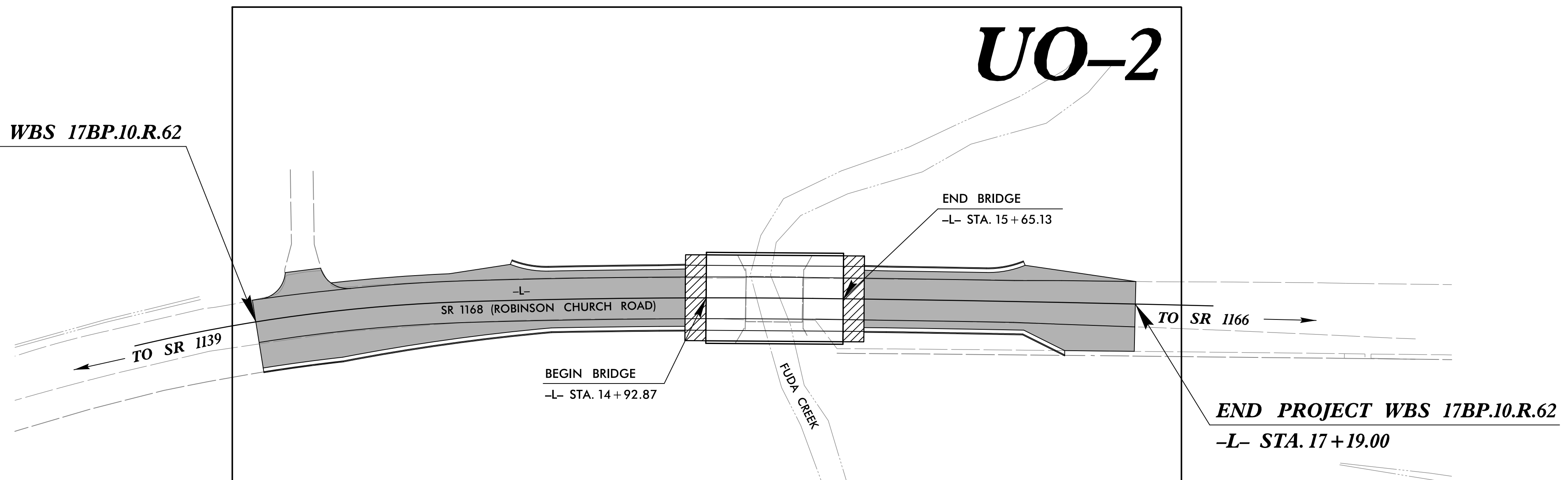
UTILITIES BY OTHERS PLANS CABARRUS COUNTY

**LOCATION: BRIDGE #171 OVER FUDA CREEK
ON SR 1168 (ROBINSON CHURCH RD.)**

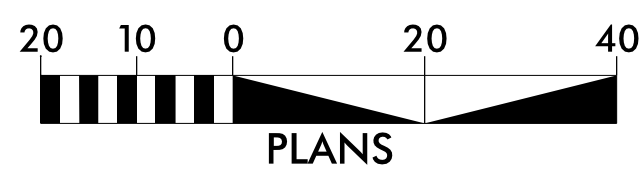
**TYPE OF WORK: AERIAL AND UNDERGROUND TELEPHONE,
CABLE, WATER, AND POWER**



BEGIN PROJECT WBS 17BP.10.R.62
-L- STA. 12 + 55.00



GRAPHIC SCALES

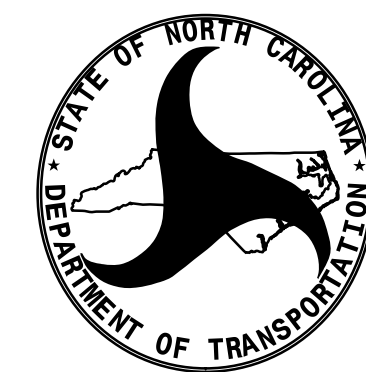


INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITIES BY OTHERS PLANS

UTILITY OWNERS ON PROJECT

- (1) POWER - DUKE ENERGY
- (2) TELEPHONE - WINDSTREAM
- (3) CABLE - TIME WARNER CABLE
- (4) WATER - TOWN OF HARRISBURG



PREPARED FOR THE OFFICE OF:
**DIVISION OF HIGHWAYS
UTILITIES ENGINEERING
SECTION**

1591 MAIL SERVICES CENTER
RALEIGH, NC 27699-1591
PHONE (919) 250-4128
FAX (919) 250-4119

Reece Schuler, PE
UTILITIES SECTION ENGINEER
UTILITIES SQUAD LEADER PROJECT ENGINEER
UTILITIES PROJECT DESIGNER

UTILITIES BY OTHERS

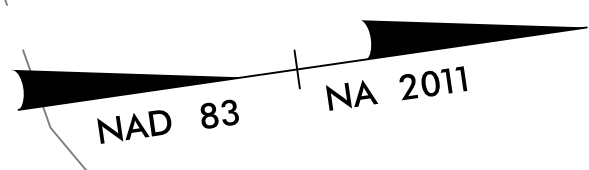
NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS



Asheville, North Carolina 828-253-2796
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

Charlotte, North Carolina
704-357-0488

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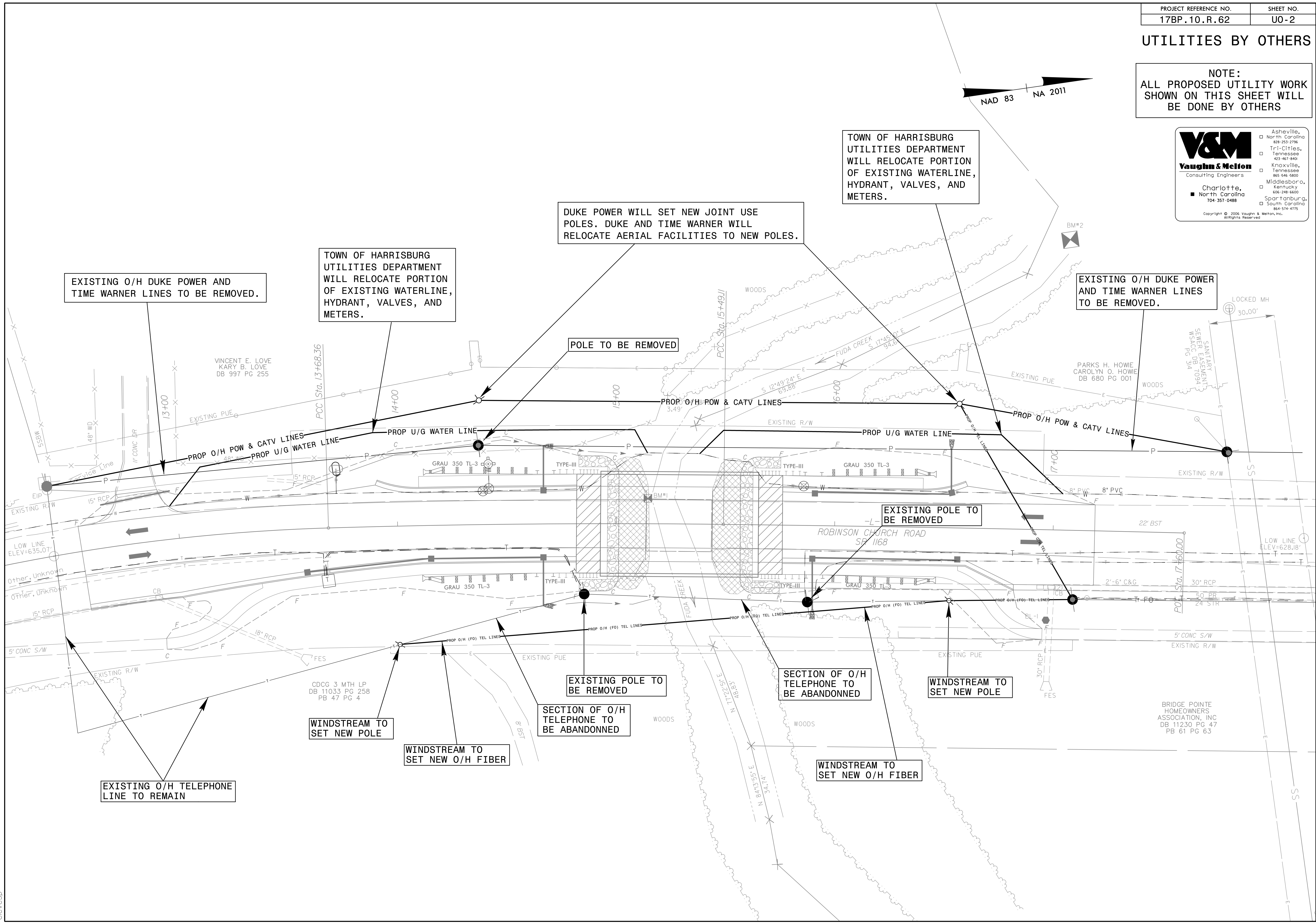
TOWN OF HARRISBURG UTILITIES DEPARTMENT WILL RELOCATE PORTION OF EXISTING WATERLINE, HYDRANT, VALVES, AND METERS.

DUKE POWER WILL SET NEW JOINT USE POLES. DUKE AND TIME WARNER WILL RELOCATE AERIAL FACILITIES TO NEW POLES.

TOWN OF HARRISBURG UTILITIES DEPARTMENT WILL RELOCATE PORTION OF EXISTING WATERLINE, HYDRANT, VALVES, AND METERS.

EXISTING O/H DUKE POWER AND TIME WARNER LINES TO BE REMOVED.

EXISTING O/H DUKE POWER AND TIME WARNER LINES TO BE REMOVED.



POLE TO BE REMOVED

EXISTING POLE TO BE REMOVED

EXISTING POLE TO BE REMOVED

SECTION OF O/H TELEPHONE TO BE ABANDONED

WINDSTREAM TO SET NEW POLE

WINDSTREAM TO SET NEW POLE

SECTION OF O/H TELEPHONE TO BE ABANDONED

WINDSTREAM TO SET NEW O/H FIBER

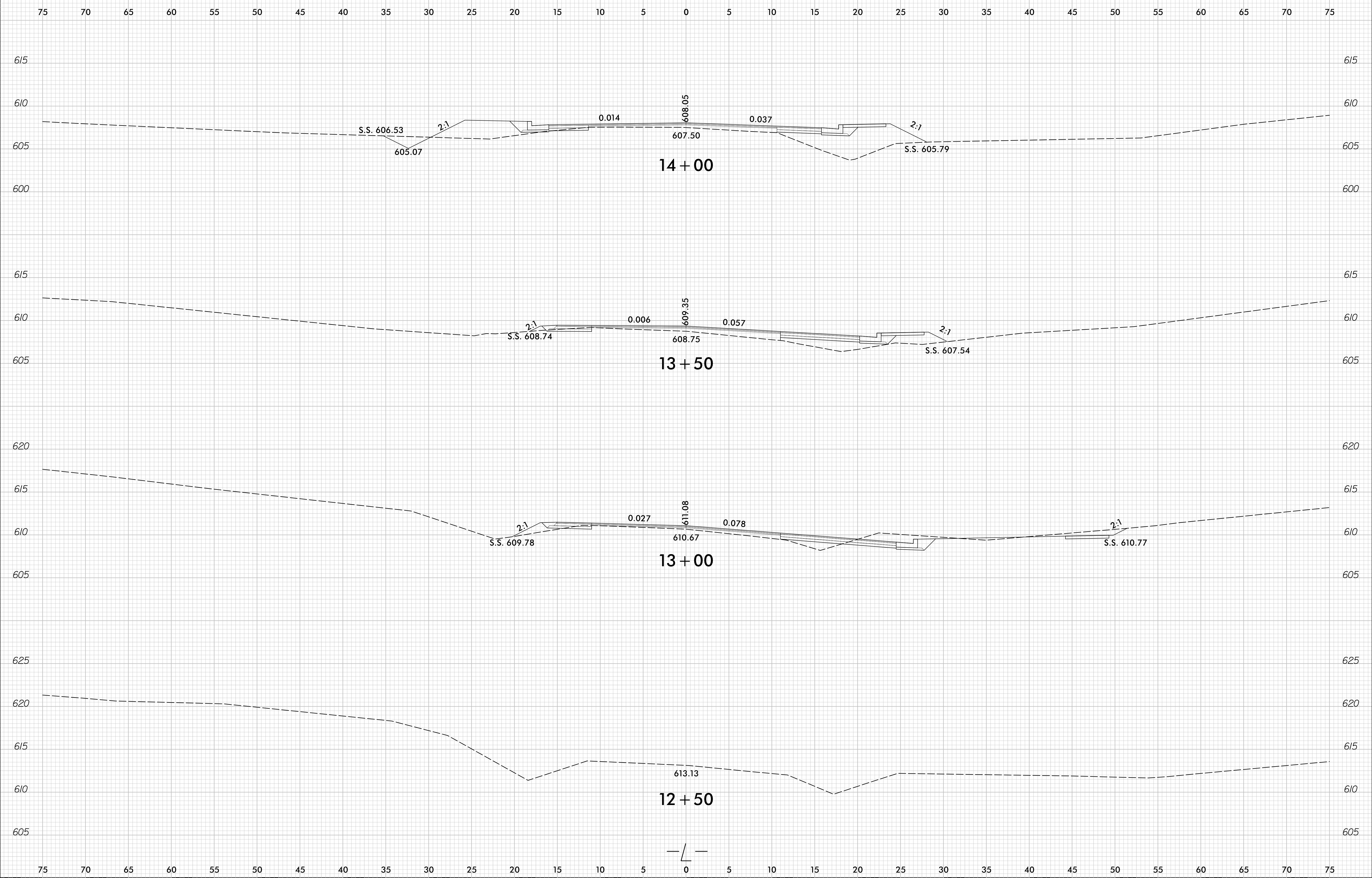
WINDSTREAM TO SET NEW O/H FIBER

EXISTING O/H TELEPHONE LINE TO REMAIN

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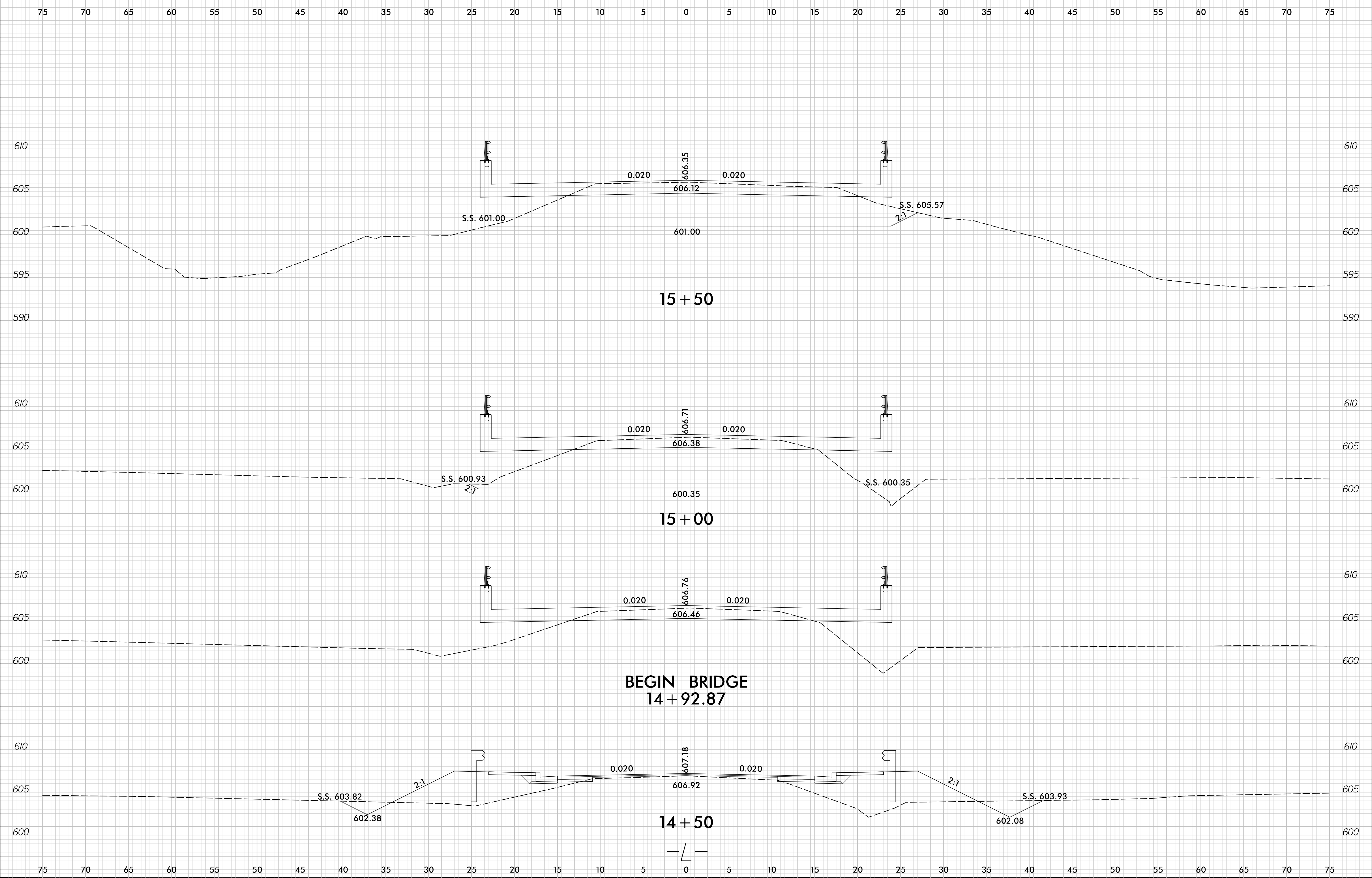
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.10.R.62	X-1



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8/23/99

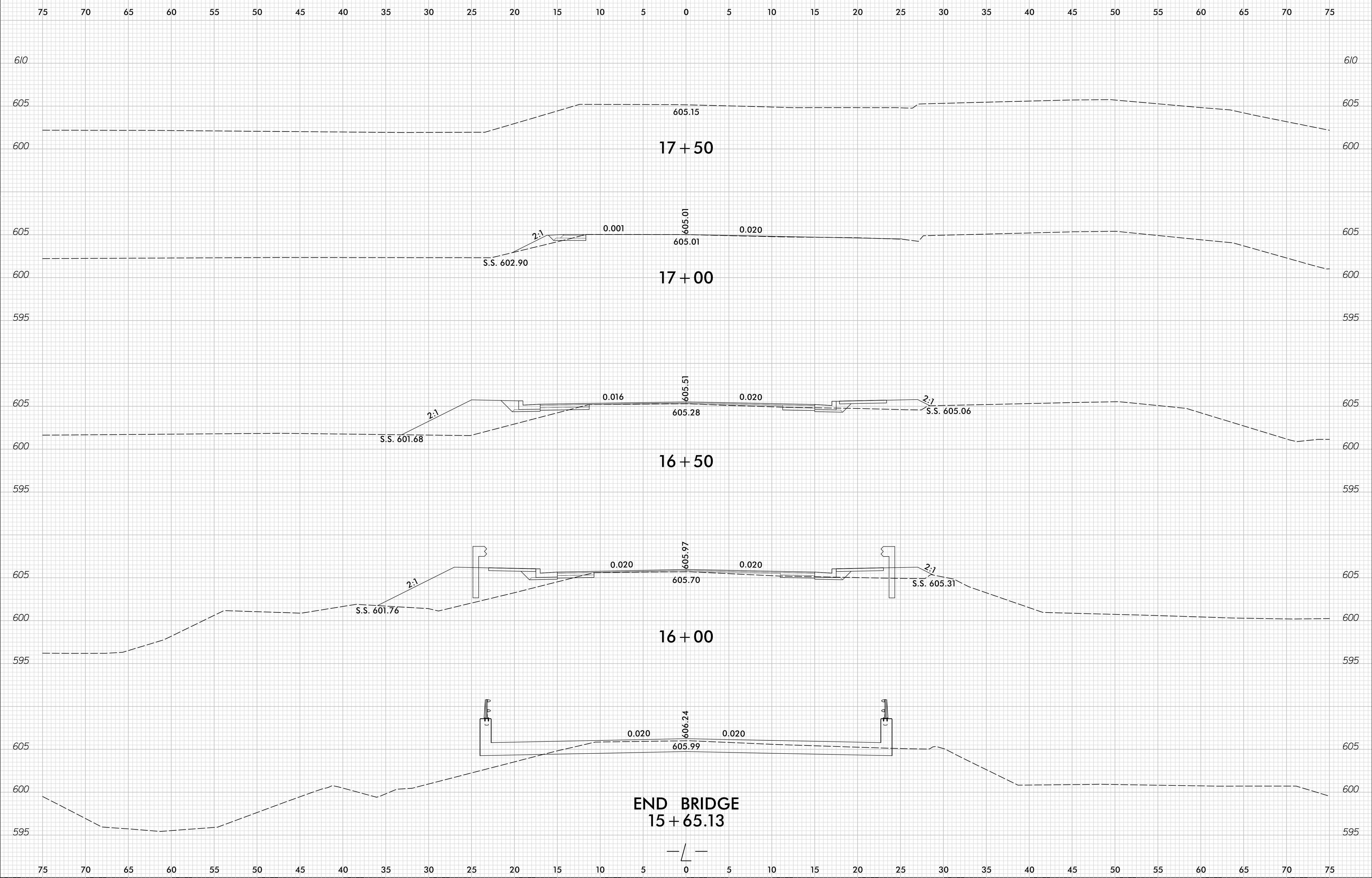
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.10.R.62	X-2



2/8/2017
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glevssp

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.10.R.62	X-3



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2/8/2017
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