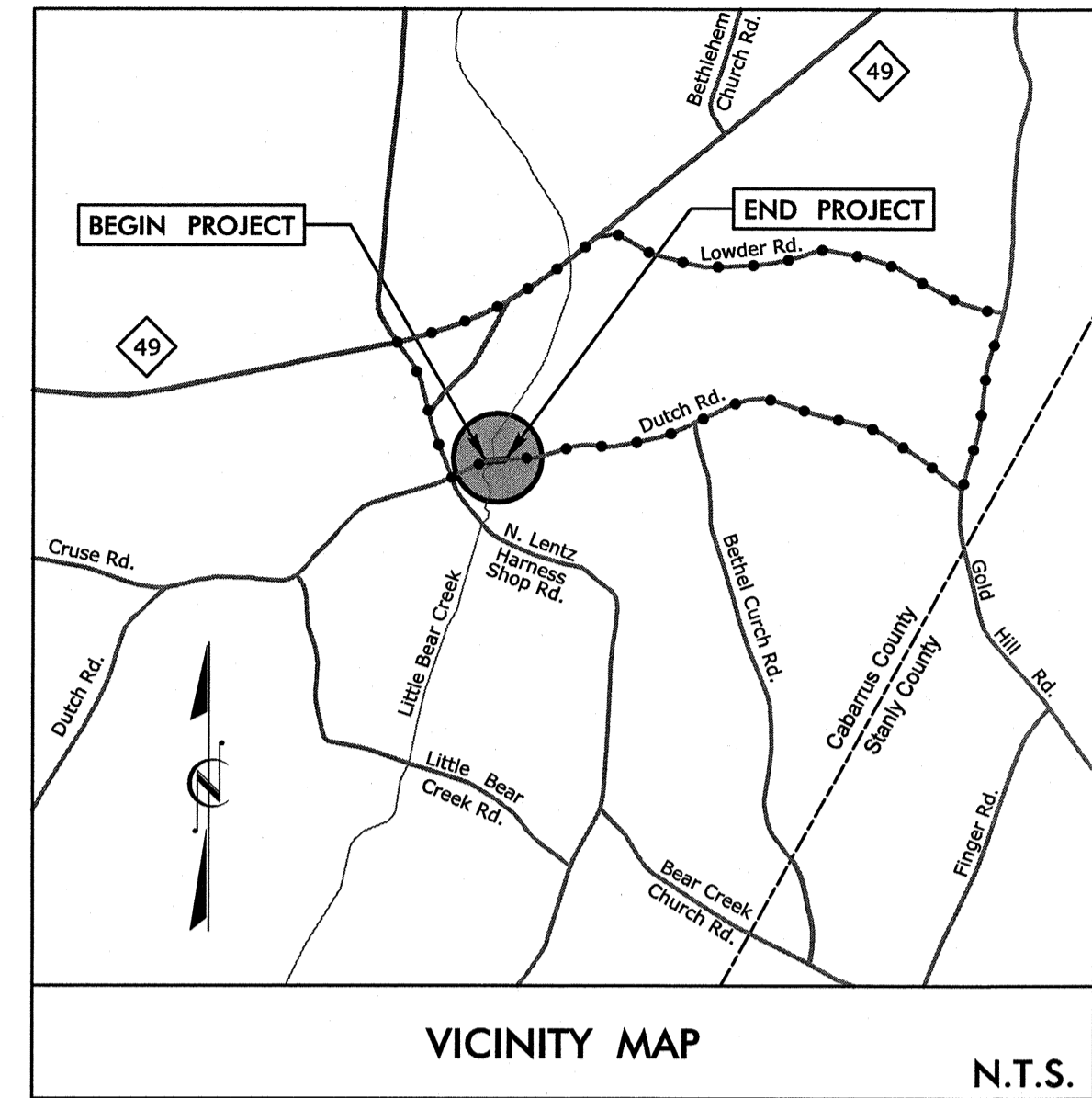


PROJECT: WBS 17BP.10.R.24

CONTRACT:

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

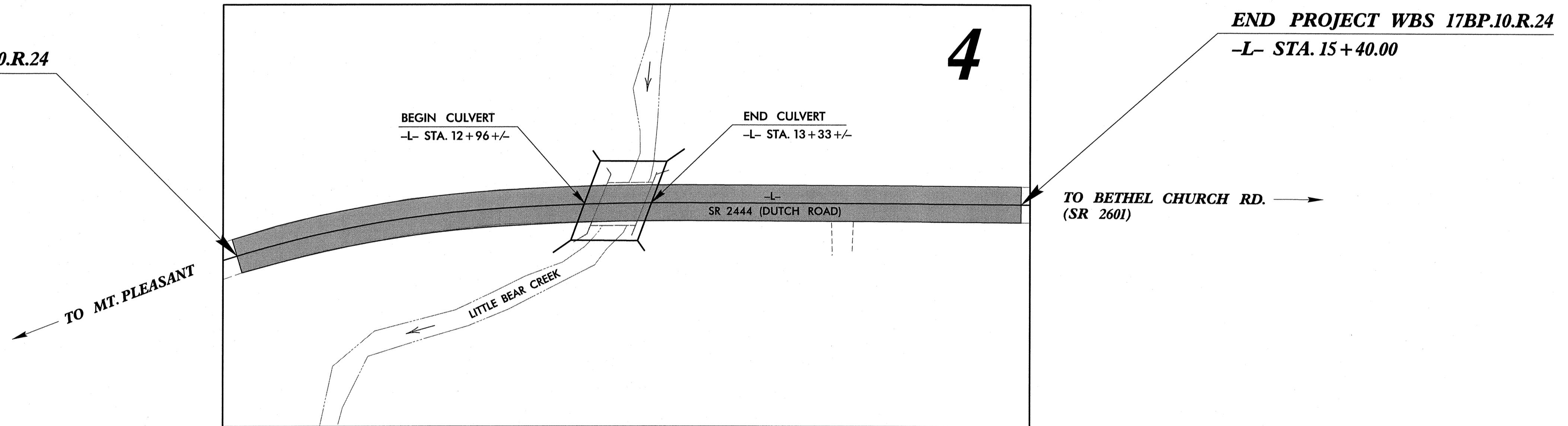
**LOCATION: CULVERT #106 OVER LITTLE BEAR CREEK
ON SR 2444 (DUTCH ROAD)**

TYPE OF WORK: GRADING, PAVING, DRAINAGE & STRUCTURE

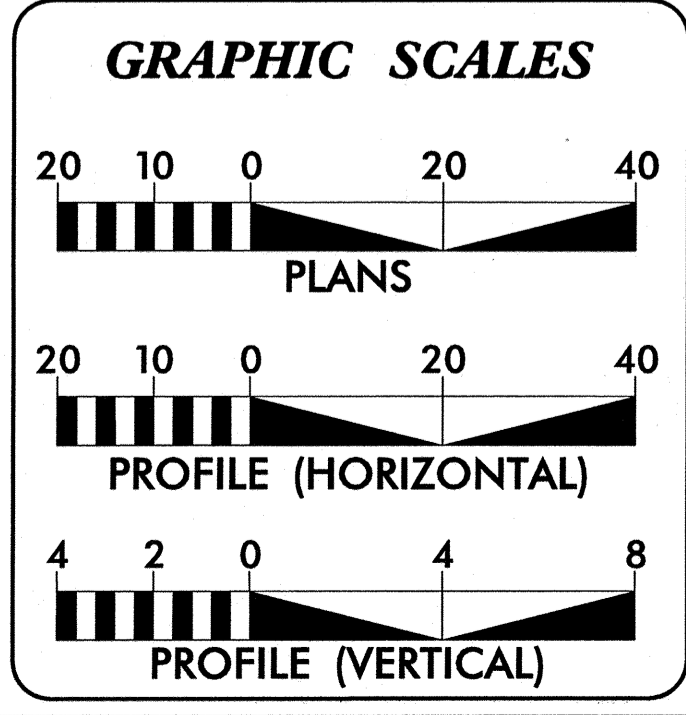
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.24	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
17BP.10.R.24		P.E.	
17BP.10.R.24		R/W & UTILITIES	
17BP.10.R.24		CONST.	



BEGIN PROJECT WBS 17BP.10.R.24
-L- STA. 11+00.00



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



DESIGN DATA

ADT 2012 =	306
ADT 2035 =	685
DHV =	N/A
D =	N/A
T =	6%
V =	45 MPH
FUNC. CLASSIFICATION:	LOCAL

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT WBS 17BP.10.R.24 = 0.076 MILES
LENGTH OF STRUCTURE PROJECT WBS 17BP.10.R.24 = 0.007 MILES
TOTAL LENGTH OF PROJECT WBS 17BP.10.R.24 = 0.083 MILES

NCDOT CONTACT: GARLAND HAYWOOD, PE
Division Bridge Program Manager

PLANS PREPARED FOR THE NCDOT BY:
STV/RALPH WHITEHEAD ASSOCIATES, INC.
1000 West Morehead St., Ste. 200, Charlotte NC, 28208
NC License Number F-0991

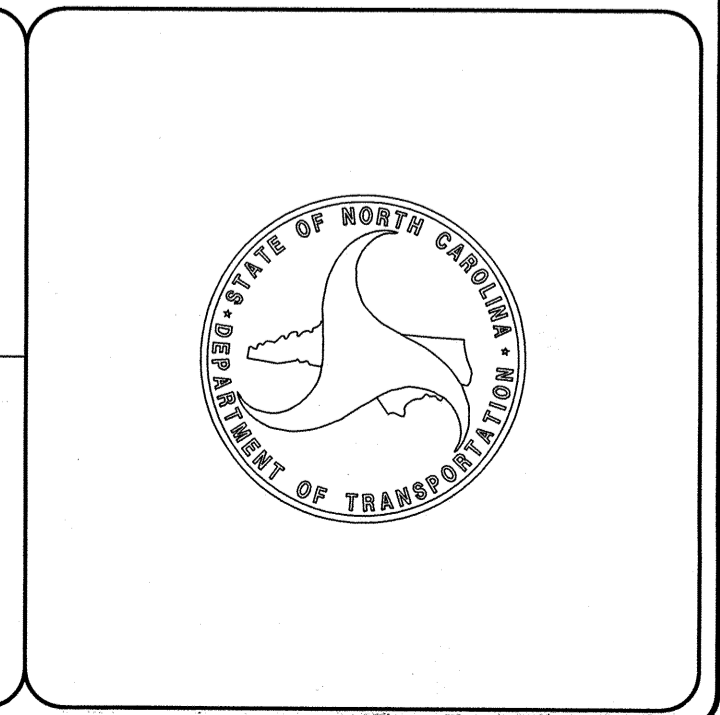
2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: MAY 21, 2012	NIKKI T. HONEYCUTT, PE PROJECT ENGINEER
LETTING DATE: DECEMBER 19, 2012	ALLISON DRAKE, EI PROJECT DESIGNER

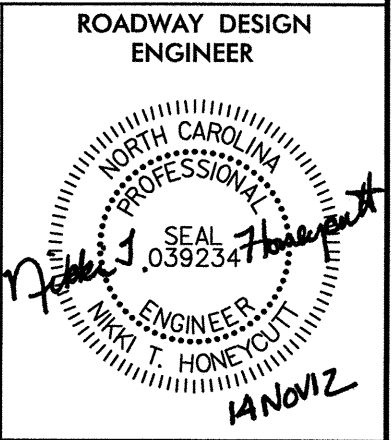
HYDRAULICS ENGINEER

SIGNATURE: *Davin Morrison* 11/14/12 P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: *Nikki T. Honeycutt* 2 NOV 12 P.E.





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
1-C	SURVEY CONTROL SHEET
3	SUMMARIES AND TYPICALS
4	PLAN AND PROFILE SHEET
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
TCP-1 THRU TCP-2	TRAFFIC CONTROL PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
X-1 THRU X-2	CROSS-SECTIONS
C-1 THRU C-4	CULVERT PLANS

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.

RIGHT-OF-WAY MARKERS:

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

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 Superelevation - Two Lane Pavement
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
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
1606.01	Special Sediment Control Fence
1607.01	Gravel Construction Entrance
1622.01	Guide for Temporary Berms and Slope Drains
1630.06	Special Stilling Basin

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	⊙ EIP
Property Corner	-----x
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	⊙
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	-----FLOW
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	-----RW
Proposed Right of Way Line with Iron Pin and Cap Marker	-----RW ⊠
Proposed Right of Way Line with Concrete or Granite Marker	-----RW ⊠
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

ROADS AND RELATED FEATURES:

Proposed Permanent Easement with Iron Pin and Cap Marker	◆
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	⊠
Single Tree	⊙
Single Shrub	⊙
Hedge	-----
Woods Line	-----

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	⊠
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	⊙
Recorded U/G Water Line	-----W
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	⊠
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	⊙
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	-----2UTL
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.

SURVEY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.24	1-C
Location and Surveys	

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1		UN87-1	441789.6980	1567667.4330	573.06	OUTSIDE PROJECT LIMITS	
3		BL-3	441685.5050	1568297.3020	554.33	1+191.55	12.30 RT
2		UN87-2	441622.8830	1568762.9710	559.16	OUTSIDE PROJECT LIMITS	

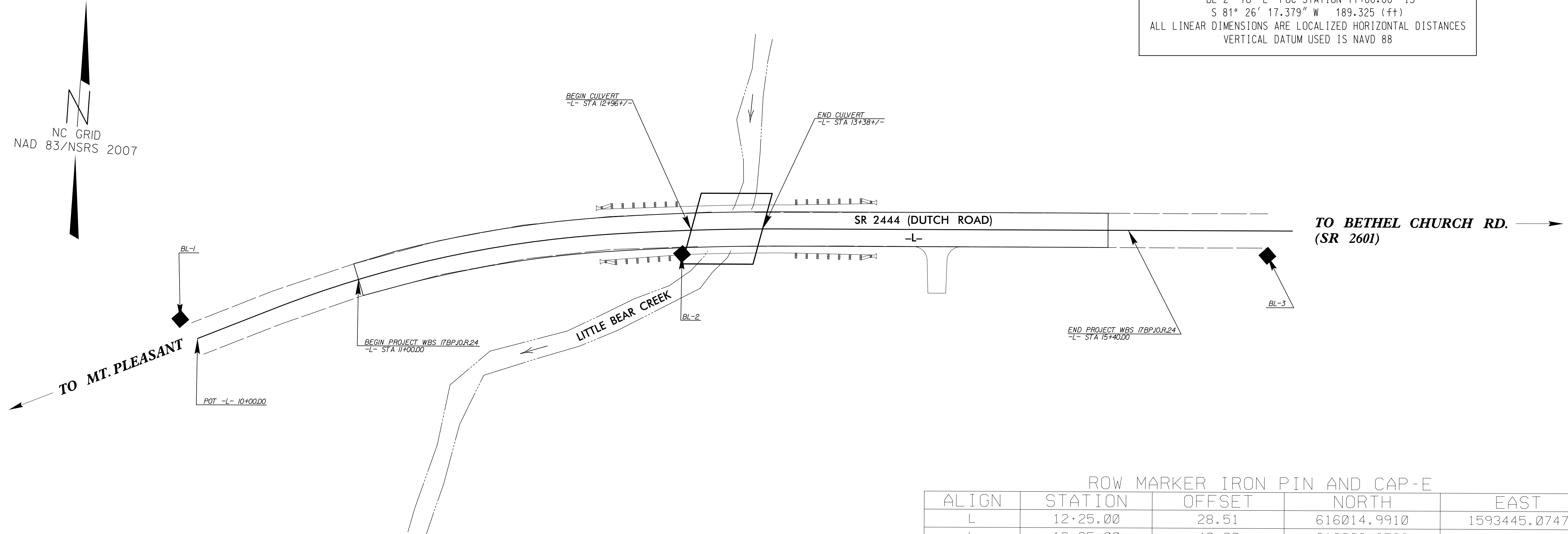
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BL2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 616038.286(ft) EASTING: 1593507.045(ft) ELEVATION: 599.57(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999854

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-2" TO -L- POC STATION 11+00.00 IS S 81° 26' 17.379" W 189.325 (ft)

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88



ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+25.00	28.51	616014.9910	1593445.0747
L	12+25.00	40.00	616003.6700	1593447.0381
L	12+47.89	40.00	616006.9702	1593468.2717
L	13+51.47	40.00	616017.1968	1593568.5084
L	14+56.00	30.02	616034.1230	1593672.1420
L	14+56.00	40.00	616024.1618	1593672.8072

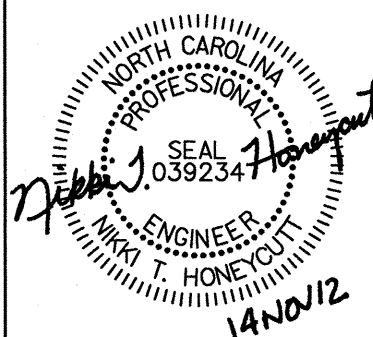
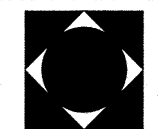
PERMANENT EASEMENT-E

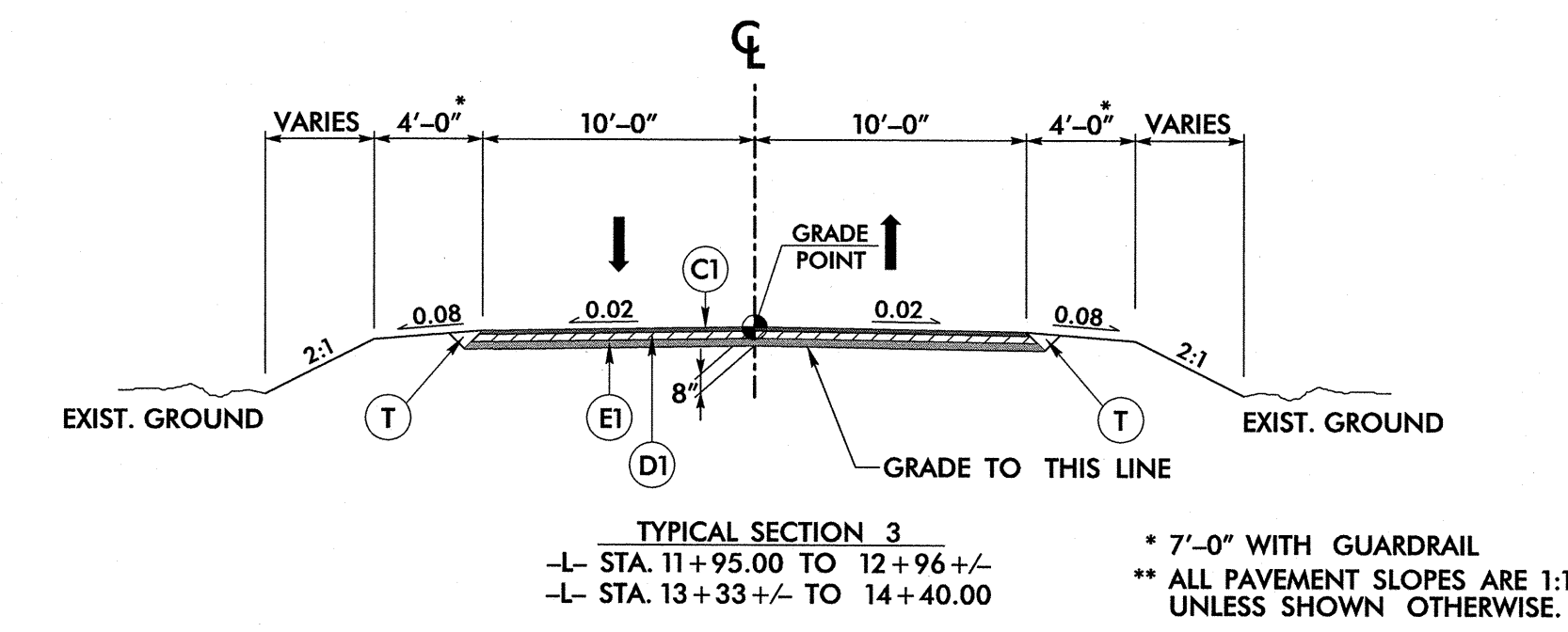
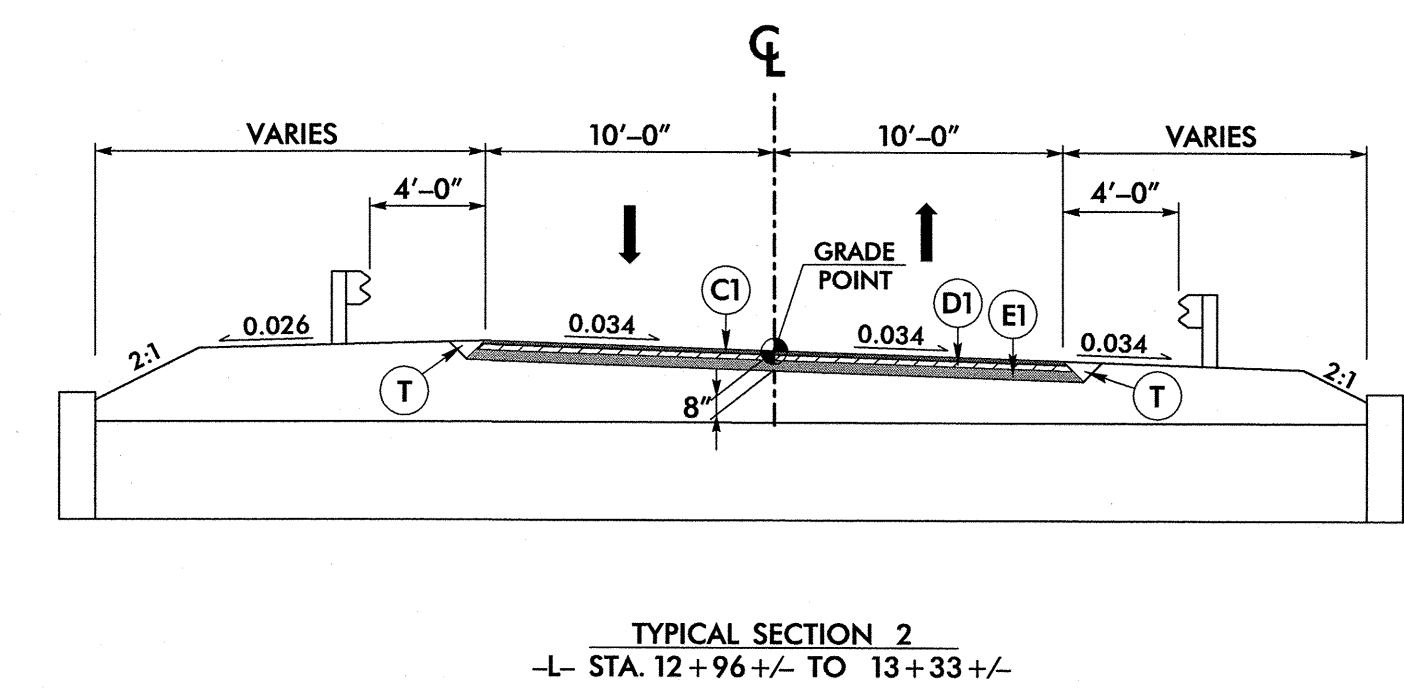
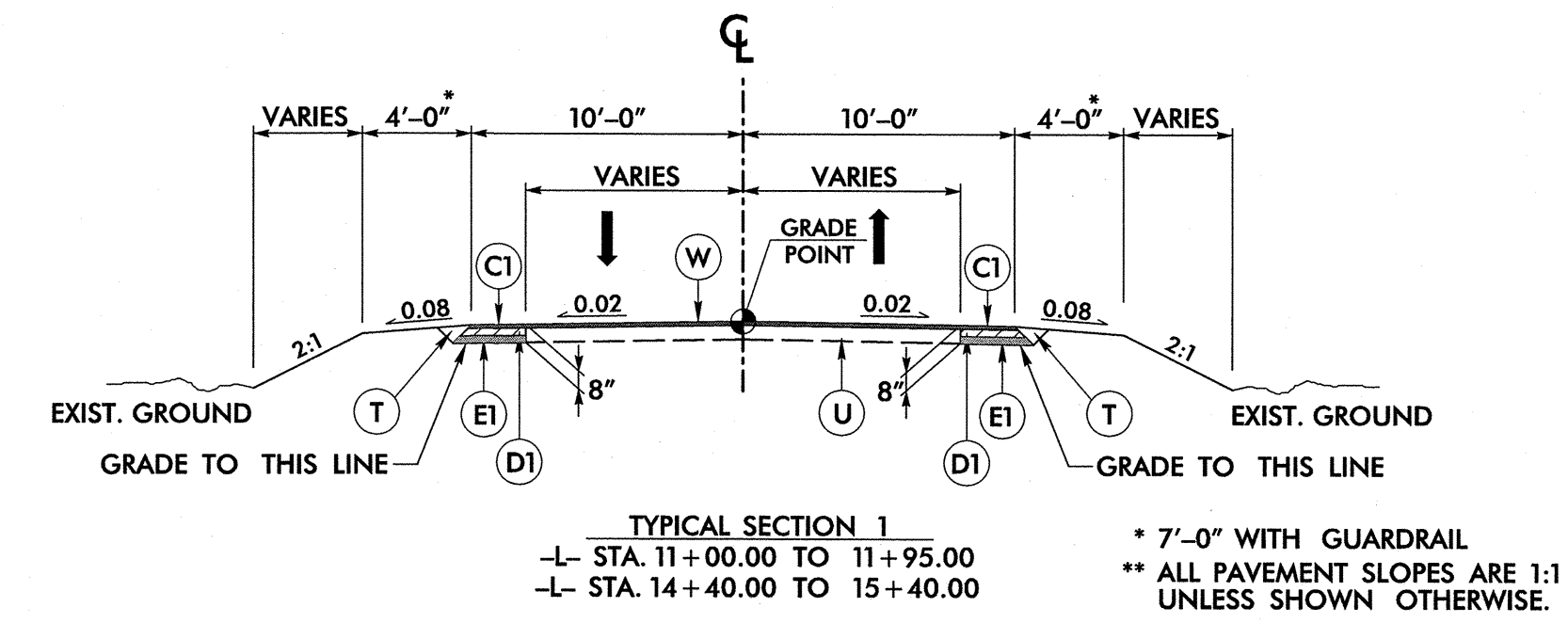
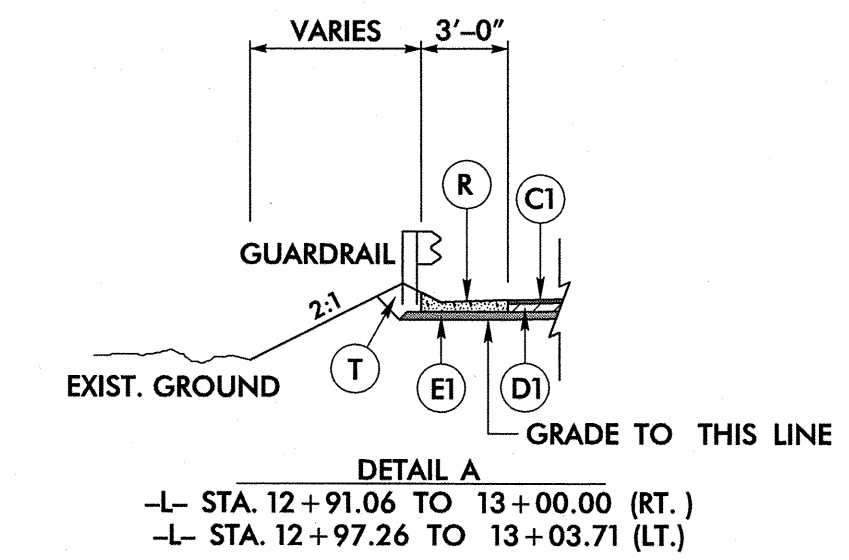
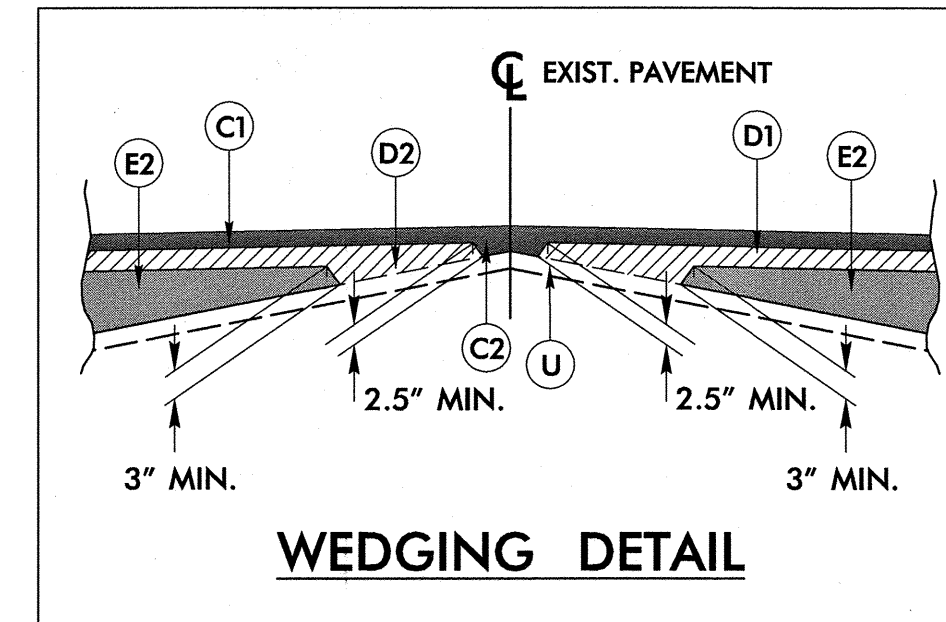
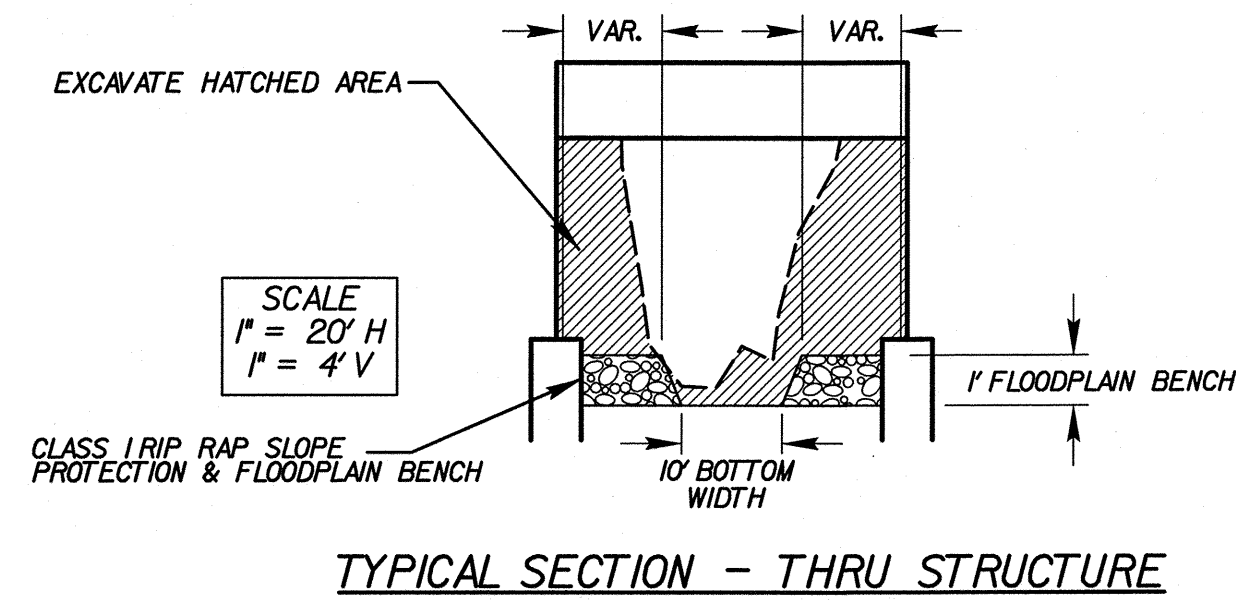
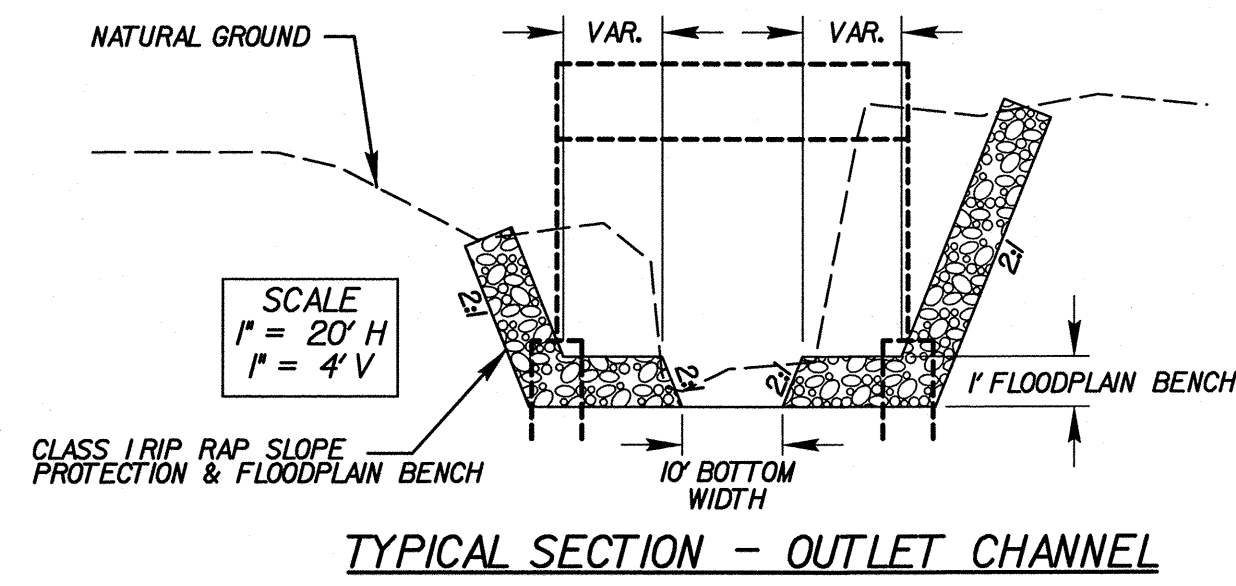
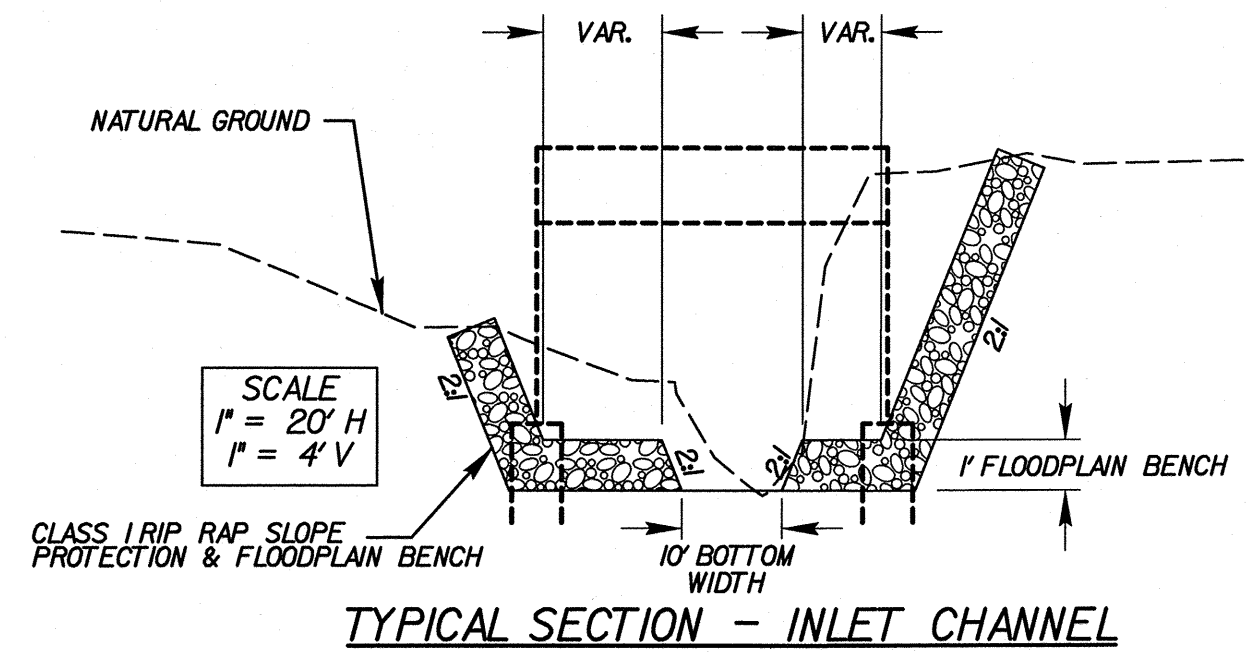
ALIGN	STATION	OFFSET	NORTH	EAST
L	11+45.00	-30.86	616054.1594	1593353.4626
L	11+78.00	-53.34	616085.1554	1593381.3526
L	11+80.00	-46.27	616078.8079	1593385.1377
L	11+80.00	-54.00	616086.3152	1593383.2955
L	11+82.00	-47.00	616080.0246	1593387.0467
L	15+12.00	-145.95	616213.4313	1593716.2928
L	15+20.00	-116.65	616184.7285	1593726.2274
L	15+22.00	-117.55	616185.7614	1593728.1629
L	15+23.00	-110.33	616178.6219	1593729.6417
L	15+25.00	-111.23	616179.6532	1593731.5773

	L	NORTH	EAST
TYPE	STATION		
POT	10+00.00	615969.1410	1593228.6403
PC	10+47.89	615989.6676	1593271.9104
PCC	12+47.89	616046.5973	1593462.8222
PT	13+51.47	616057.1079	1593565.8431
POT	16+47.56	616076.8367	1593861.2766

NOTE: DRAWING NOT TO SCALE

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

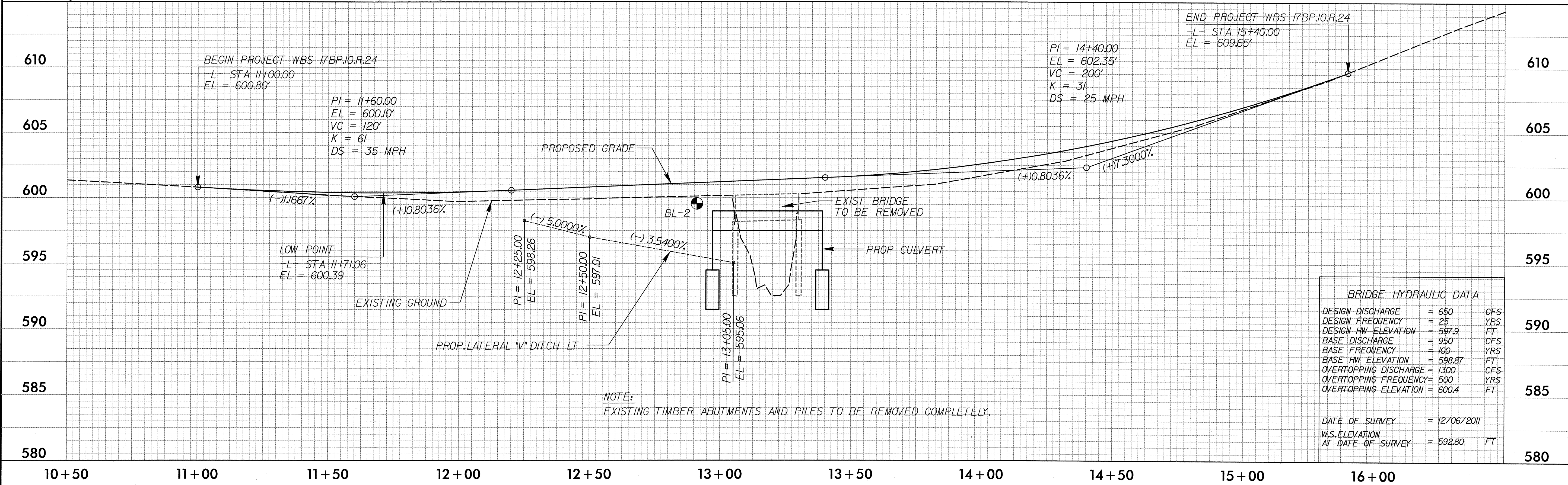
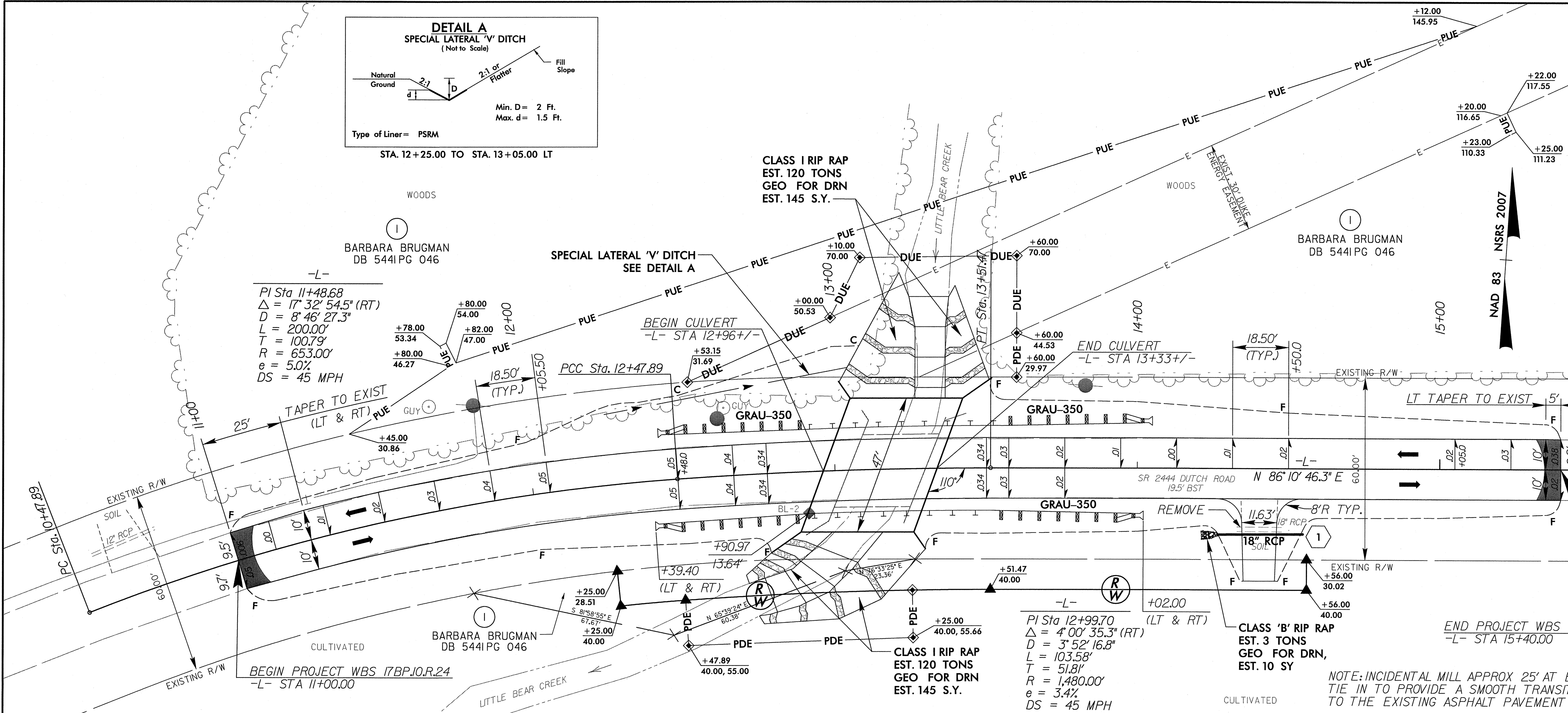
PROJECT REFERENCE NO. 17BPJQR.24	SHEET NO. 3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
	
PAVEMENT DESIGN PROVIDED BY NCDOT	
 STV / Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	



PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD., PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2.0" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD., PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD., PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3.0" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	PAVEMENT WEDGING

R:\Roadway\Proj\NDR24_Ldy_psd03.dgn

11/14/2012



BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 650	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 597.9	FT
BASE DISCHARGE	= 950	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 598.87	FT
OVERTOPPING DISCHARGE	= 1300	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 600.4	FT

DATE OF SURVEY	= 12/06/2011
W.S. ELEVATION	= 592.80 FT
AT DATE OF SURVEY	

11/5/2012 r:\roadway\pro\10R24_rdy_pst04.dgn

PROJECT: WBS 17BP.10.R.24

CONTRACT:

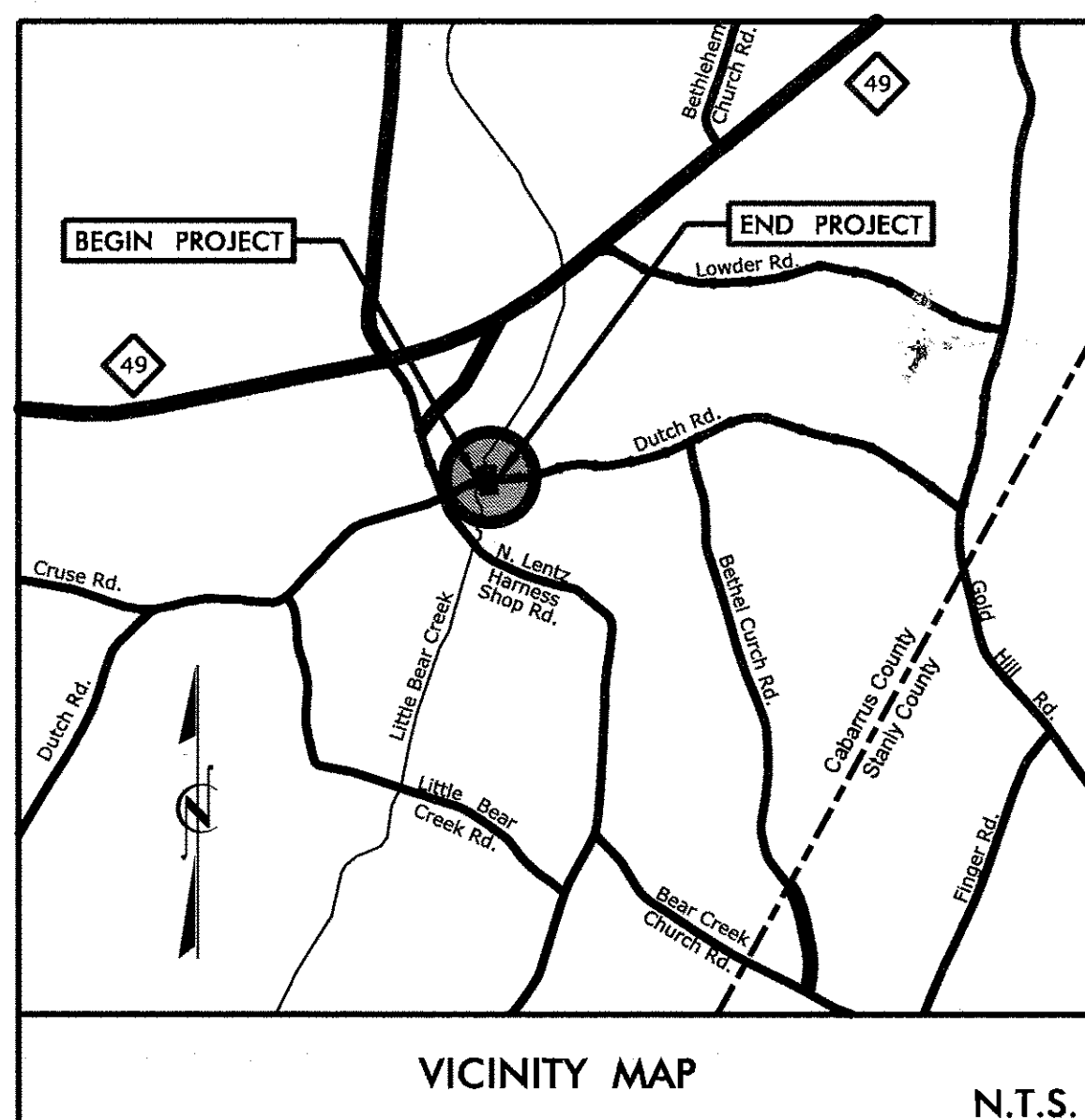
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
17BP.10.R.24	UO-1

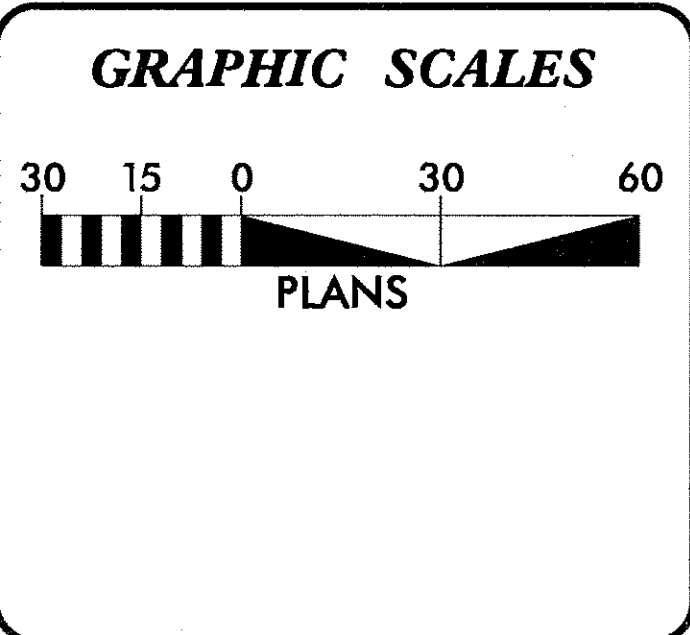
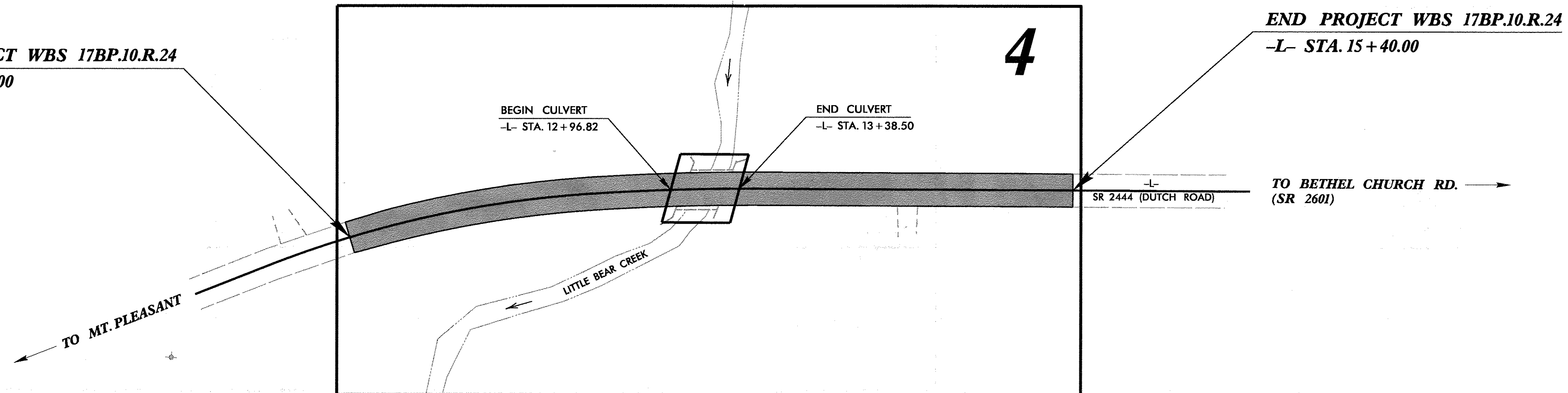
UTILITIES BY OTHERS PLANS CABARRUS COUNTY

LOCATION: BRIDGE #106 OVER LITTLE BEAR CREEK
ON SR 2444 (DUTCH ROAD)

TYPE OF WORK: TELEPHONE & POWER



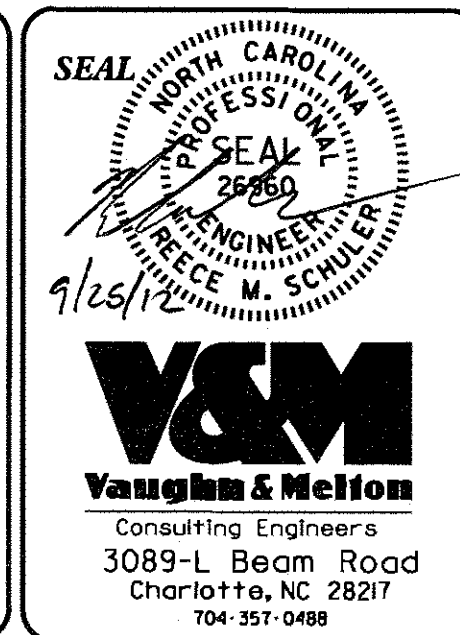
BEGIN PROJECT WBS 17BP.10.R.24
-L- STA. 11 + 00.00



SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITY BY OTHERS PLAN SHEETS

UTILITY OWNERS ON PROJECT

(1) TELEPHONE - WINDSTREAM
(2) POWER DISTRIBUTION - DUKE ENERGY



PREPARED IN 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

Roger Worthington, P.E. UTILITIES SECTION ENGINEER
Xxxxx Xxxxx, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER
Reece Schuler, PE UTILITIES PROJECT DESIGNER

PRELIMINARY PLANS
DATES

UTILITIES BY OTHERS

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

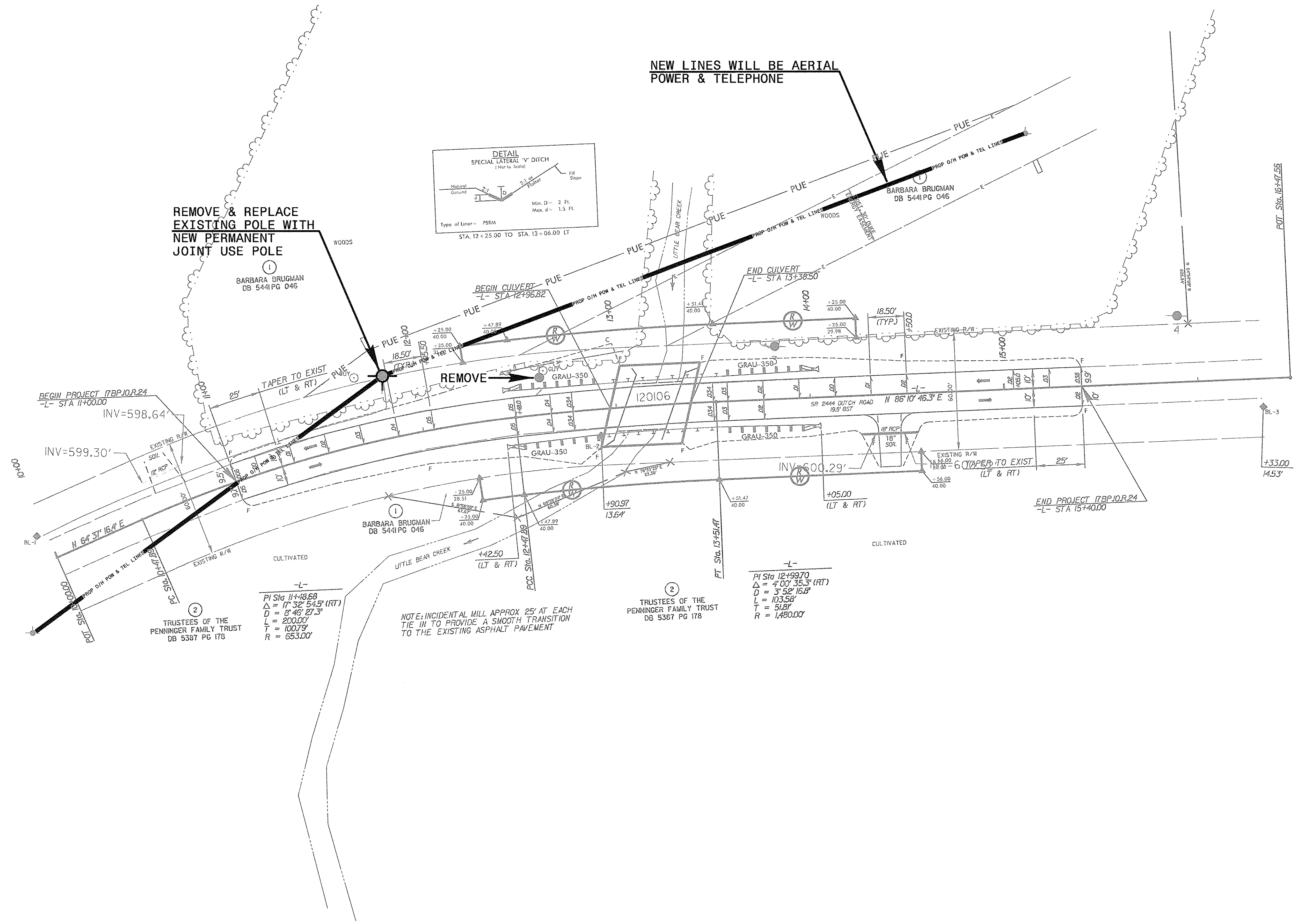
V&M
Vaughn & Melton
Consulting Engineers

Charlotte, North Carolina
704-357-0488

Asheville, North Carolina 828-253-2796
Tri-Cities, Tennessee 423-467-6401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

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REVISIONS



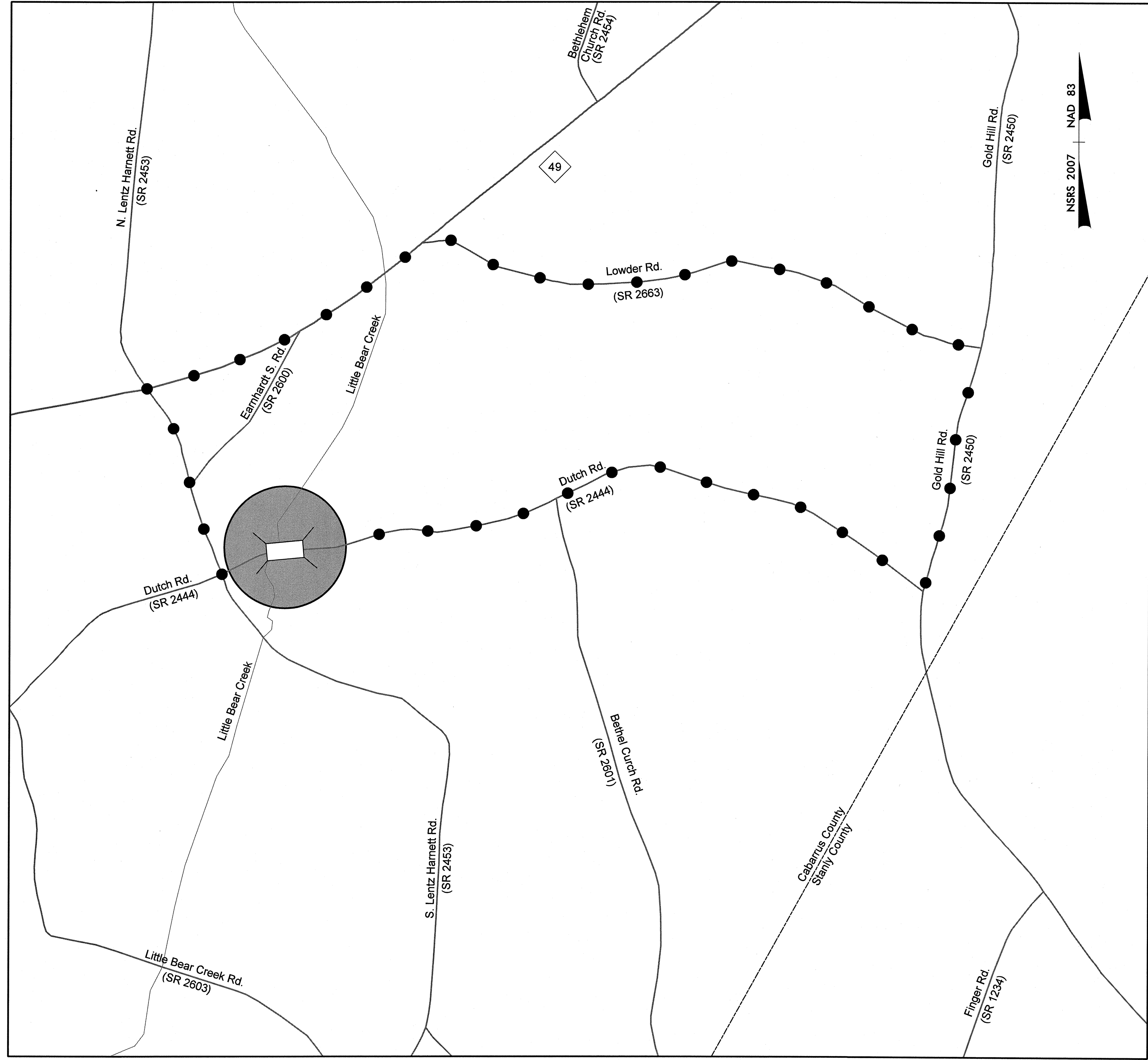
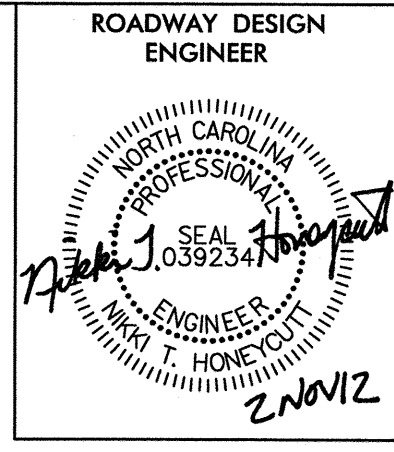
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DETOUR ROUTE

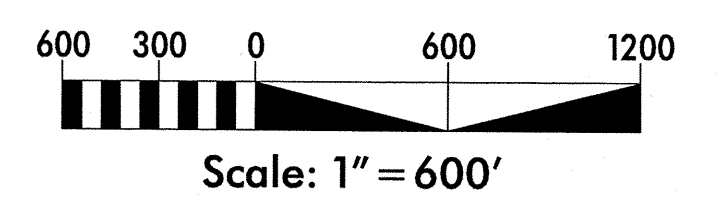
PROJECT REFERENCE NO.	SHEET NO.
17BP10.R.24	TCP-1
RW SHEET NO.	



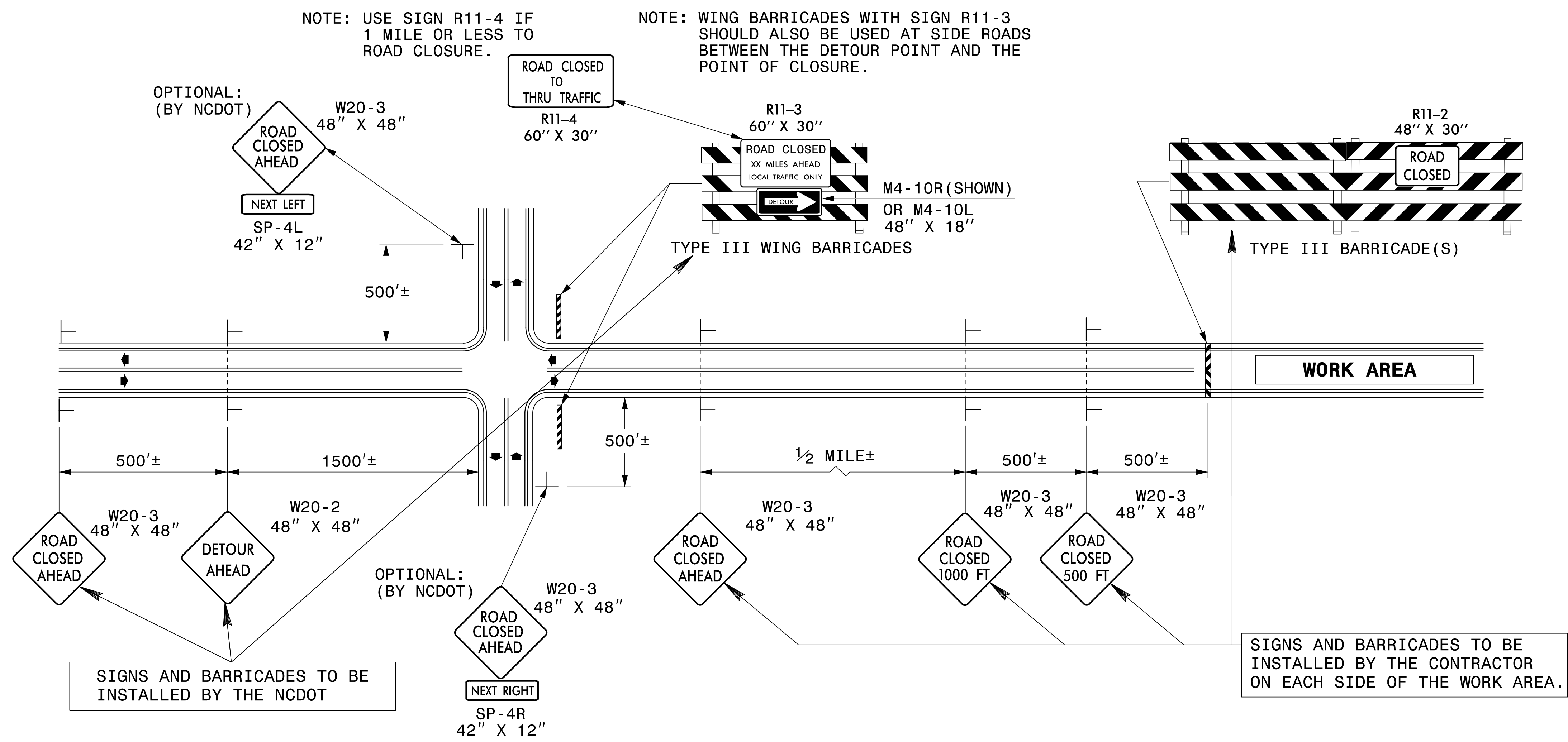
STV/Ralph Whitehead Associates, Inc.
 1000 West Morehead St., Ste. 200
 Charlotte, NC 28208
 NC License Number F-0991



NSRS 2007 NAD 83



TEMPORARY ROAD CLOSURE CLOSURE BEYOND DETOUR POINT



GENERAL NOTES

- 1- IF NECESSARY USE THIS STD. FOR TWO-LANE, TWO-WAY, AND MULTILANE DIVIDED AND UNDIVIDED ROADWAYS.
- 2- INSTALLATION OF DETOUR ROUTING PANELS, TEMPORARY ROUTE MARKERS, DESTINATION SIGNS, AND ANY NECESSARY MODIFICATIONS TO EXISTING OR PROPOSED REGULATORY OR WARNING SIGNS WILL BE MADE BY NCDOT FORCES UNLESS OTHERWISE DESIGNATED IN THE PLANS. PROVIDE A MINIMUM 21 CALENDAR DAY NOTICE TO STATE FORCES BEFORE A ROADWAY IS CLOSED TO TRAFFIC SUCH THAT THE NECESSARY PROVISIONS CAN BE MADE TO INSTALL DETOUR ROUTE SIGNS, INFORM LOCAL EMERGENCY AND LAW ENFORCEMENT PERSONNEL, SCHOOLS, OR ANY OTHER PARTIES AFFECTED BY THE ROAD CLOSURE.
- 3- INSTALL SIGNS BEFORE THE BARRICADES WHEN CLOSING THE ROADWAY TO TRAFFIC. REMOVE BARRICADES BEFORE SIGNS WHEN OPENING THE ROADWAY TO TRAFFIC. INSTALL/REMOVE SIGNS AND BARRICADES WITHIN THE SAME CALENDAR DAY.
- 4- USE ADDITIONAL TYPE III BARRICADES IN STAGGERED LOCATIONS SUPPLEMENTED WITH SIGN R11-4 "ROAD CLOSED TO THRU TRAFFIC" IN THE EVENT THAT TRAFFIC MUST BE MAINTAINED BEYOND THE DETOUR POINT.
- 5- DO NOT DISPLAY FRACTIONS OR DECIMALS ON SIGN R11-3 "ROAD CLOSED XX MILES AHEAD".
- 6- POSITION WING BARRICADES ON THE SHOULDERS AND SLOPE THE STRIPES DOWNWARD IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN IN DETOURING.
- 7- USE PORTABLE SIGNS IF ROAD CLOSURE IS TO BE IMPLEMENTED FOR LESS THAN ONE DAY OR FOR EMERGENCIES.

LEGEND

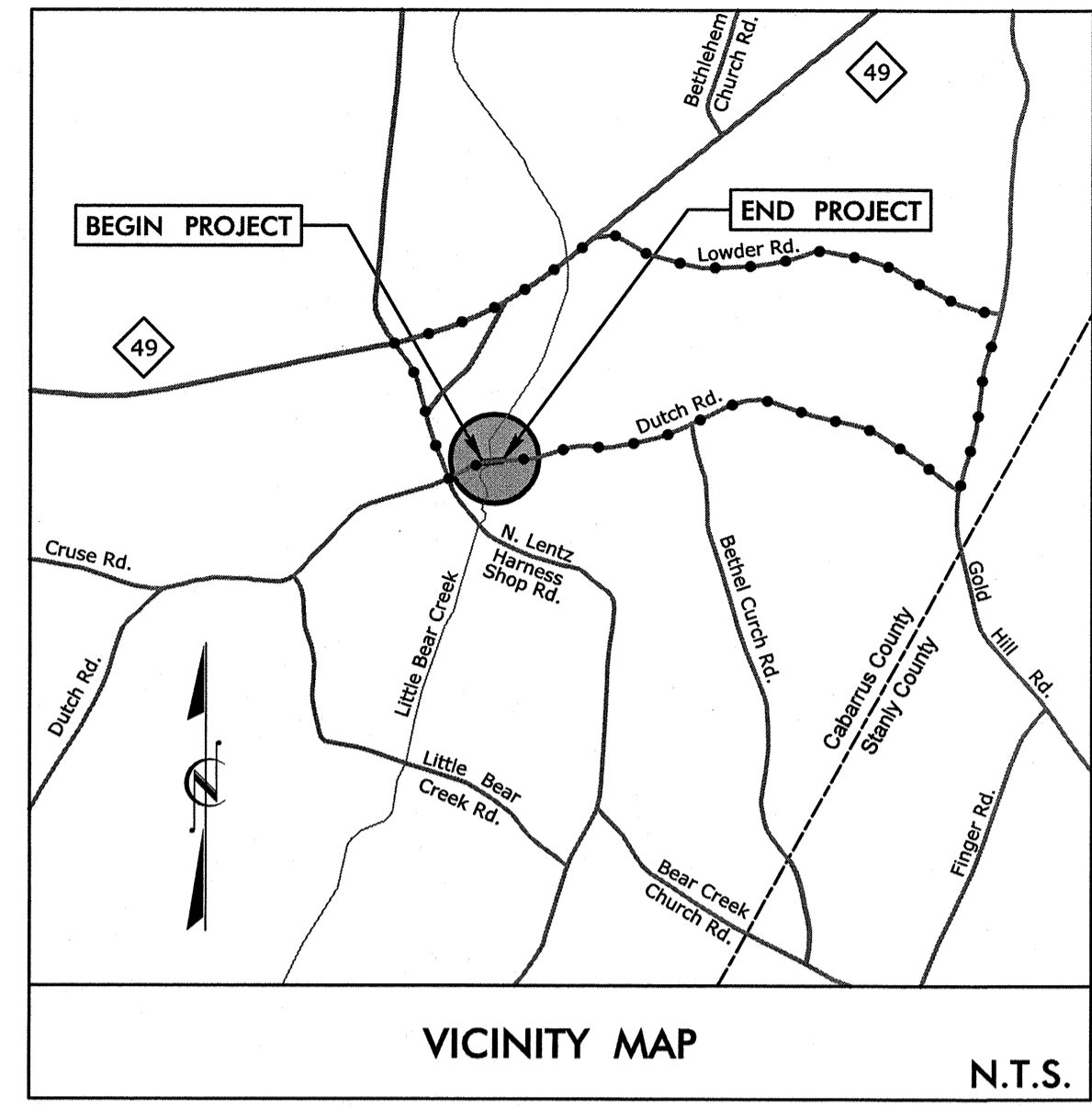
STATIONARY SIGN
 DIRECTION OF TRAFFIC FLOW

r:\Traffic\TrafficControl\CP10R24_rdy_top02.dgn
11/14/2012

PROJECT: WBS 17BP.10.R.24

CONTRACT:

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



EROSION CONTROL PLANS

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

**LOCATION: BRIDGE #106 OVER LITTLE BEAR CREEK
ON SR 2444 (DUTCH ROAD)**

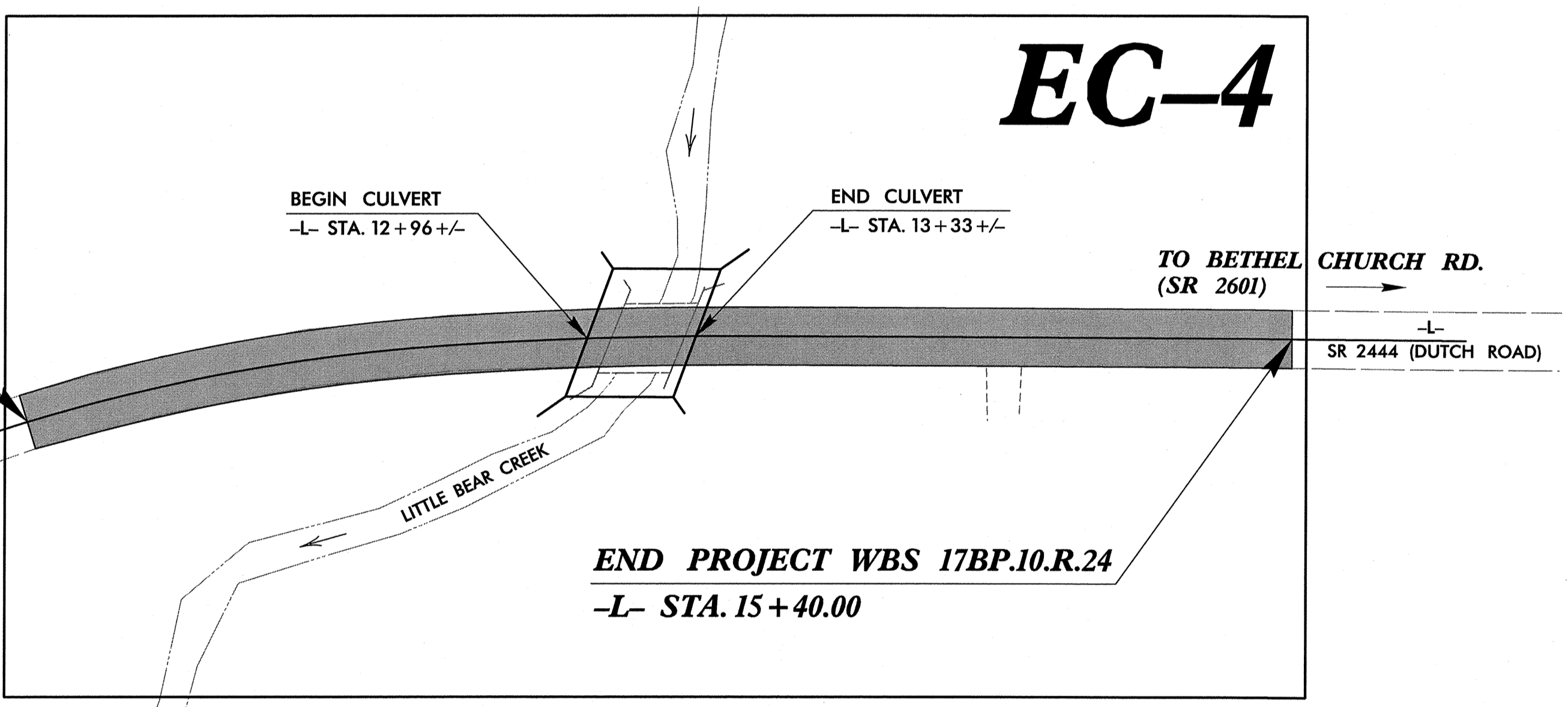
NAD 83 - NSRS 2007

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.24	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
17BP.10.R.24		P.E.	
17BP.10.R.24		R /W & UTILITIES	
17BP.10.R.24		CONST.	

EROSION AND SEDIMENT CONTROL MEASURES
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.

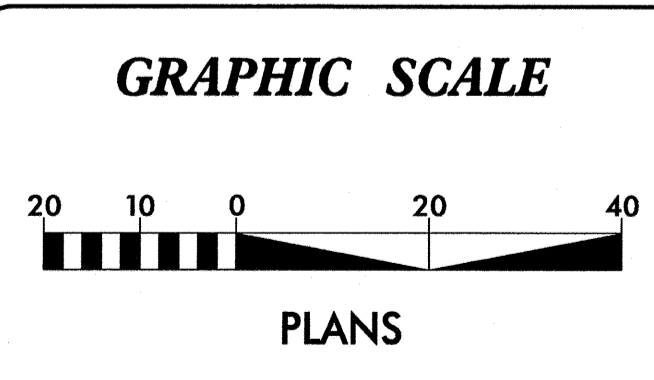
Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	XXXXXXXXXX
1607.01	Gravel Construction Entrance	
1622.01	Temporary Berms and Slope Drains	← →
1630.01	Riser Basin	⊙
1630.03	Temporary Silt Ditch	TD
1630.04	Stilling Basin	▭
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	▭
1632.01	Rock Inlet Sediment Trap Type A	A
1632.02	Rock Inlet Sediment Trap Type B	B
1632.03	Rock Inlet Sediment Trap Type C	C
1633.01	Temporary Rock Silt Check Type-A	▨
1633.02	Temporary Rock Silt Check Type-B	▶
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	⊙
SP	Silt Basin Type B	▨
SP	Skimmer Basin	▭
SP	Tiered Skimmer Basin	▭
SP	Infiltration Basin	▭
SP	Wattle	⊙
SP	Wattle w/ Polyacrylamide (PAM)	⊙
SP	Coir Fiber Matting	▨

BEGIN PROJECT WBS 17BP.10.R.24
-L- STA. 11+00.00



These Erosion and Sediment Control Plans comply with the regulations set forth by the NCG010000 general construction permit effective August 3, 2011 issued by the North Carolina Department of Environment and Natural Resources Division of Water Quality.

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



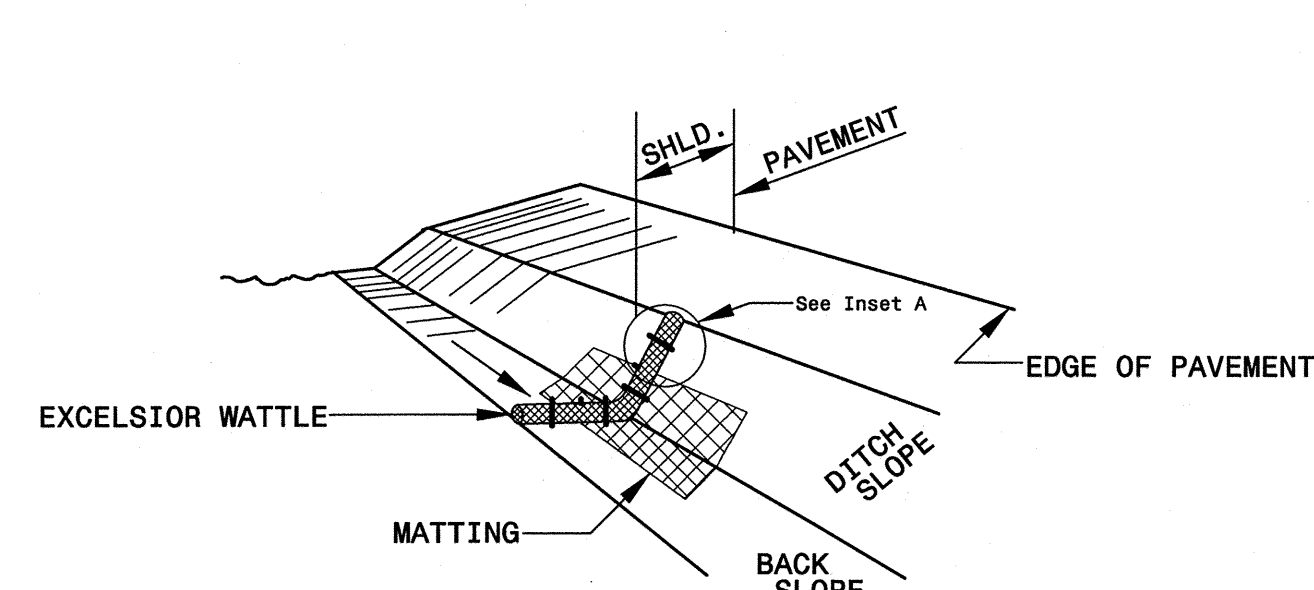
ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Level III Designer
Davin Morrison, PE #3126

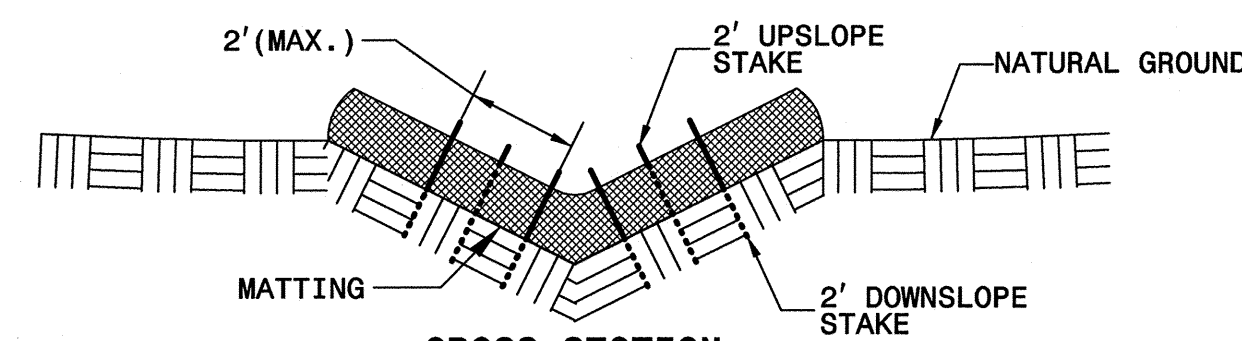
Prepared in the Office of:
STV/RALPH WHITEHEAD ASSOCIATES, INC.
1000 West Morehead St., Ste. 200, Charlotte NC, 28208
NC License Number F-9991
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

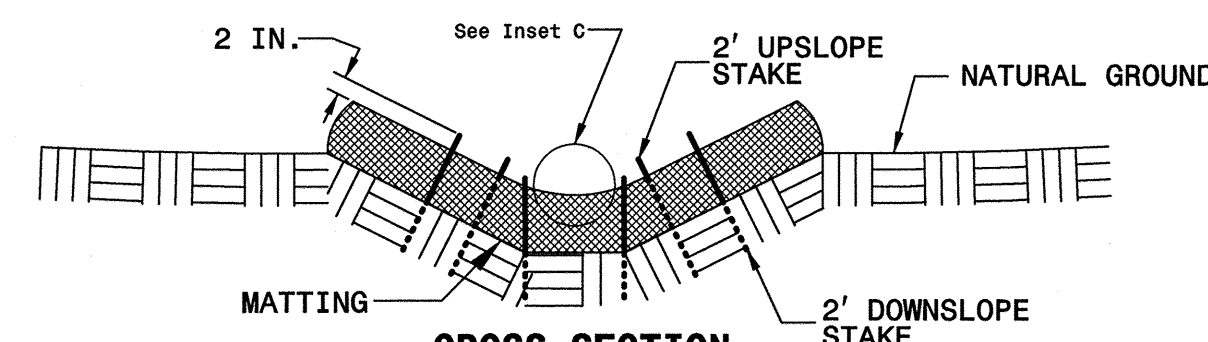
WATTLE WITH POLYACRYLAMIDE DETAIL



ISOMETRIC VIEW



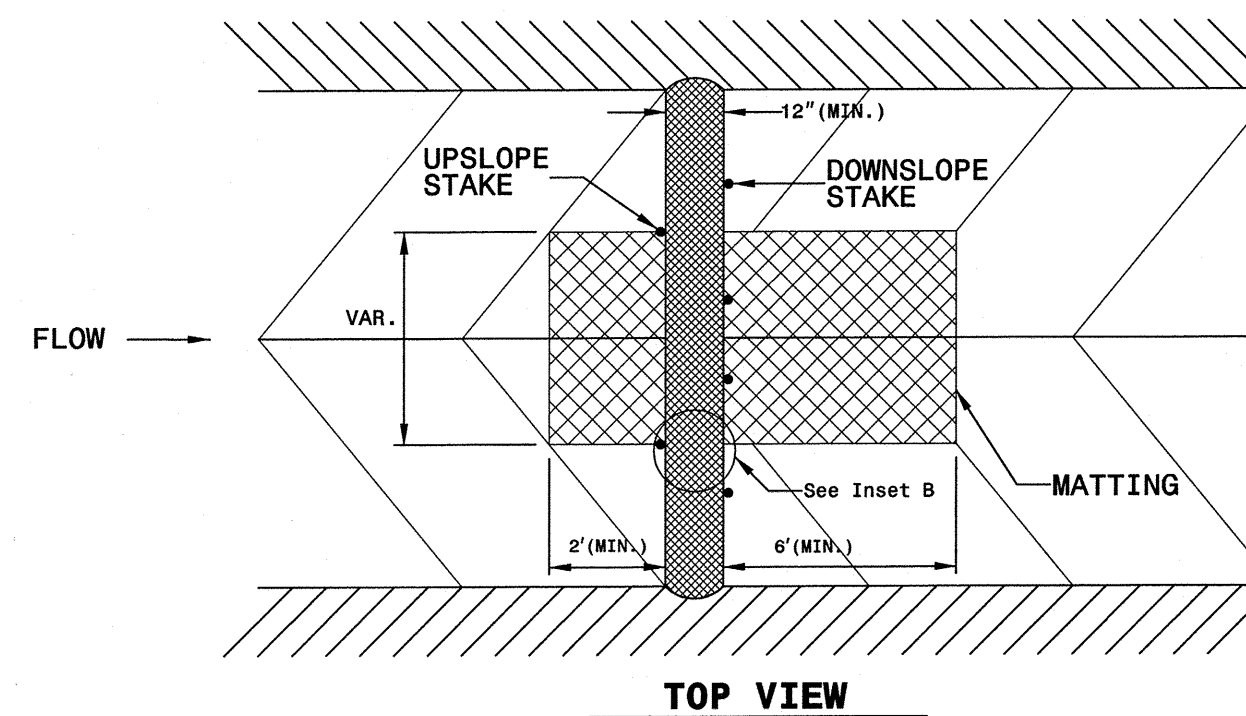
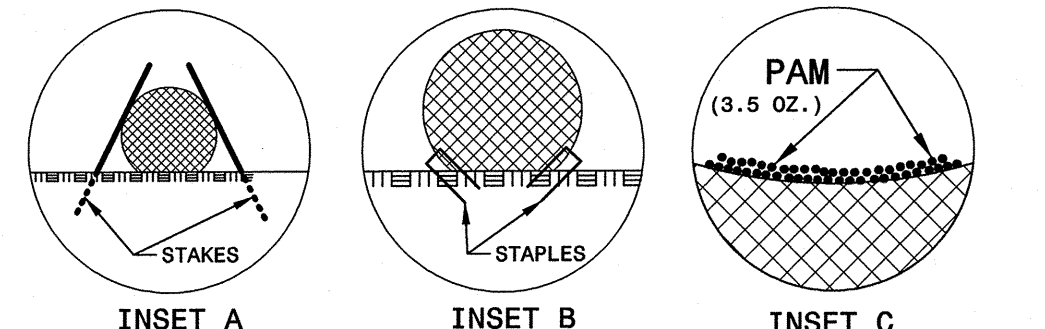
CROSS SECTION
VEE DITCH



CROSS SECTION
TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.
 USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. CROSS SECTION.
 ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.
 INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
 PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
 INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
 INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.
 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 WATTLE.
 INITIALLY APPLY 3.5 OUNCES OF ANIONIC OR NEUTRALLY CHARGED POLYACRYLAMIDE (PAM) OVER WATTLE WHERE WATER WILL FLOW AND AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



TOP VIEW

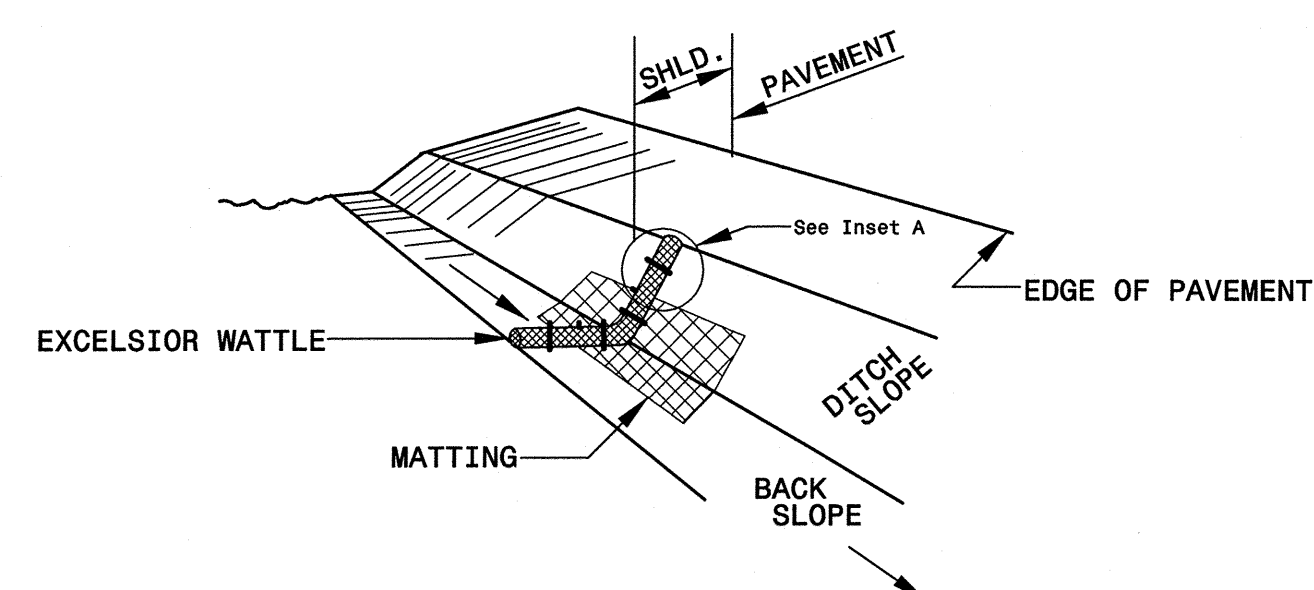
STABILIZATION REQUIREMENTS

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:

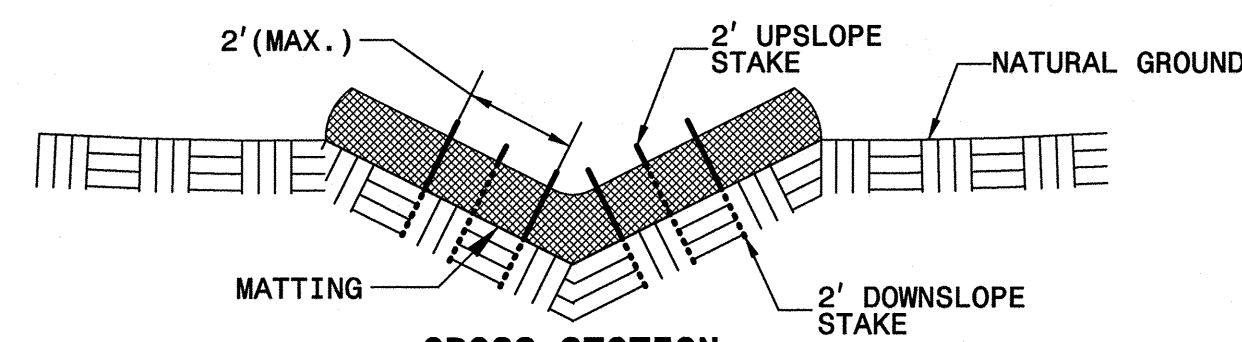
- Slopes between 2:1 and 3:1, with a slope length of 10 ft. or less
- Slopes 3:1 or flatter, with a slope of length of 50 ft. or less
- Slopes 4:1 or flatter

The stabilization timeframe for High Quality Water (HQW) Zones shall be 7 calendar days with no exceptions for slope grades or lengths. High Quality Water Zones (HQW) Zones are defined by North Carolina Administrative Code 15A NCAC 04A.0105 (25). Temporary and permanent ground cover stabilization shall be achieved in accordance with the provisions in this contract and as directed.

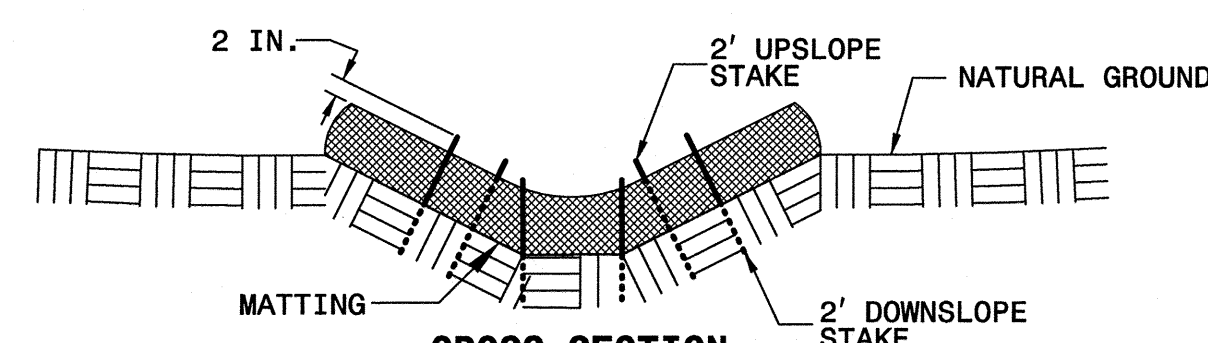
WATTLE DETAIL



ISOMETRIC VIEW



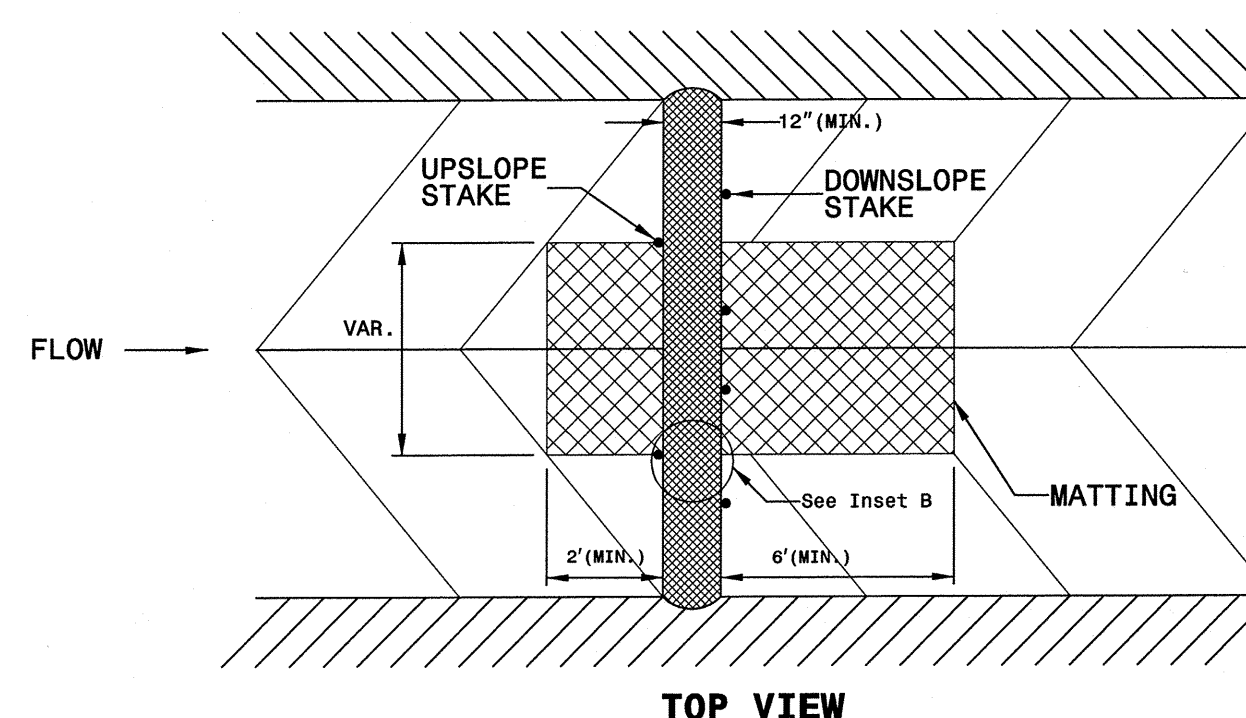
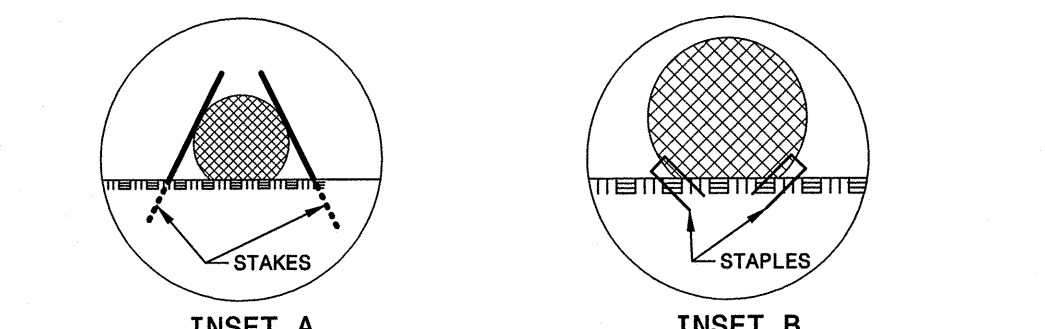
CROSS SECTION
VEE DITCH



CROSS SECTION
TRAPEZOIDAL DITCH

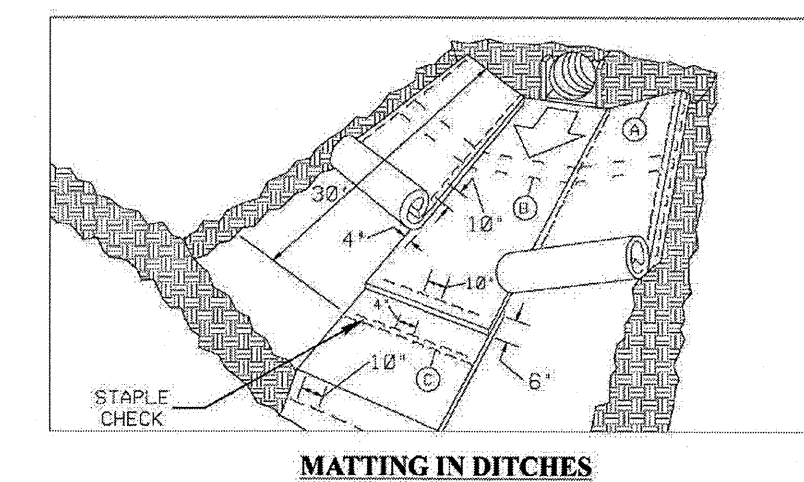
NOTES:

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

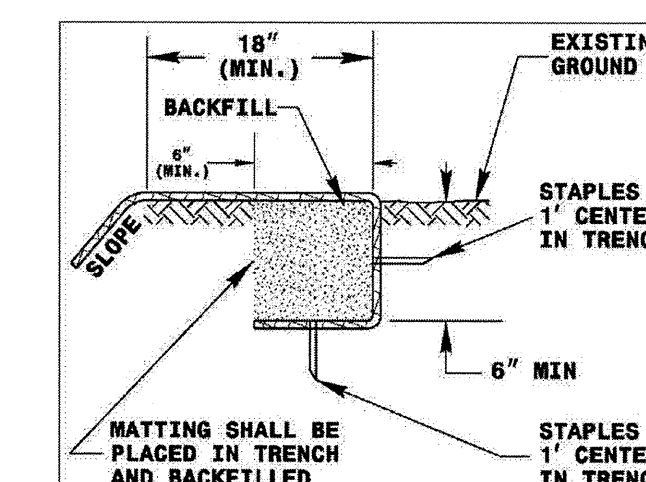


TOP VIEW

MATTING INSTALLATION DETAIL



MATTING IN DITCHES



MATTING ON SLOPES

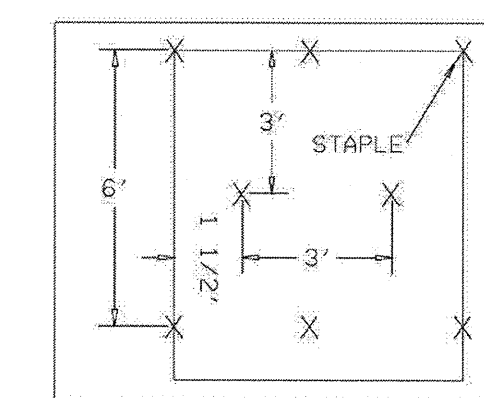


DIAGRAM (B)

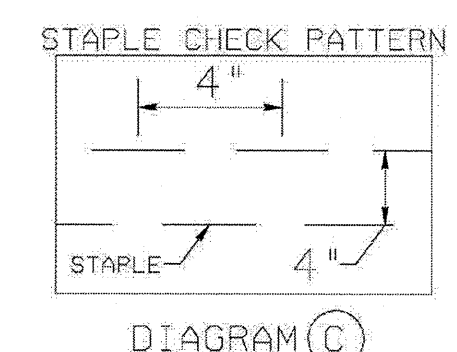



DIAGRAM (C)

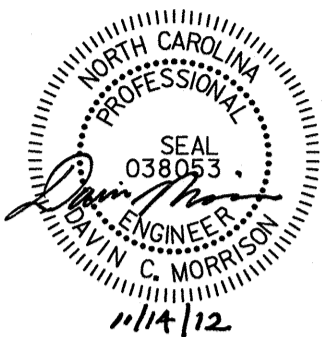
NOTES:

THIS DETAIL APPLIES TO STRAW, EXCELSIOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION. STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 1 INCH AND NOT LESS THAN 6 INCHES IN LENGTH.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
17BP10.R.24	EC-3
RW SHEET NO.	
 STV/Ralph Whitehead Associates, Inc. <small>1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991</small>	

**HYDRAULICS
ENGINEER**



WILLIAM C. MORRISON
11/12

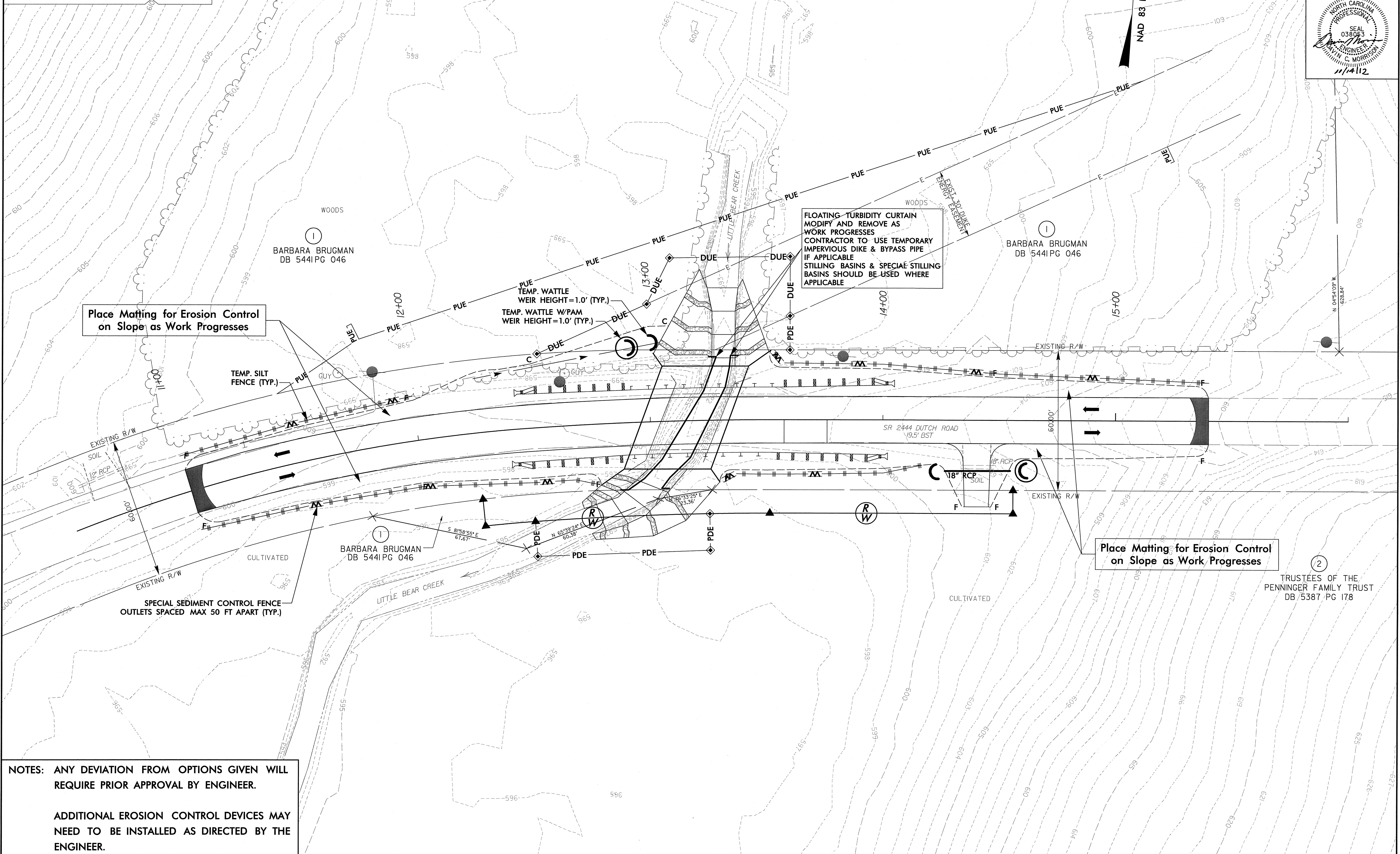
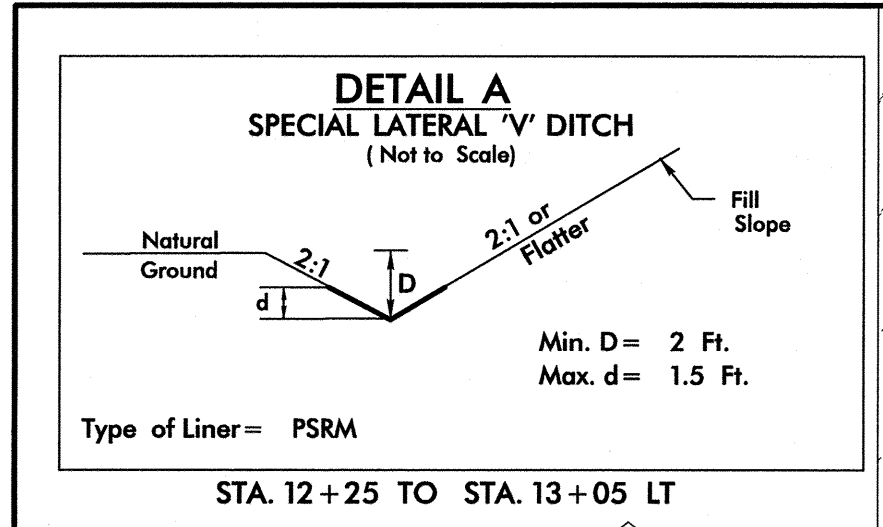
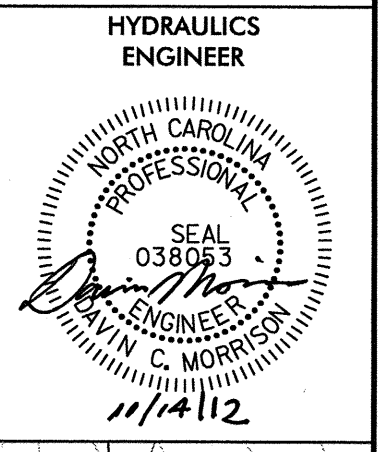
SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL (FOR SLOPE STABILIZATION)

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
				SUBTOTAL	740
	MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER				75
				TOTAL	815
				SAY	815

PERMANENT SOIL REINFORCEMENT MATTING (FOR DITCH STABILIZATION)

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L- V-DITCH	12+25	13+05	LT	55
				SUBTOTAL	55
	MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER				10
				TOTAL	65
				SAY	65



Place Matting for Erosion Control on Slope as Work Progresses

FLOATING TURBIDITY CURTAIN MODIFY AND REMOVE AS WORK PROGRESSES
CONTRACTOR TO USE TEMPORARY IMPERVIOUS DIKE & BYPASS PIPE IF APPLICABLE
STILLING BASINS & SPECIAL STILLING BASINS SHOULD BE USED WHERE APPLICABLE

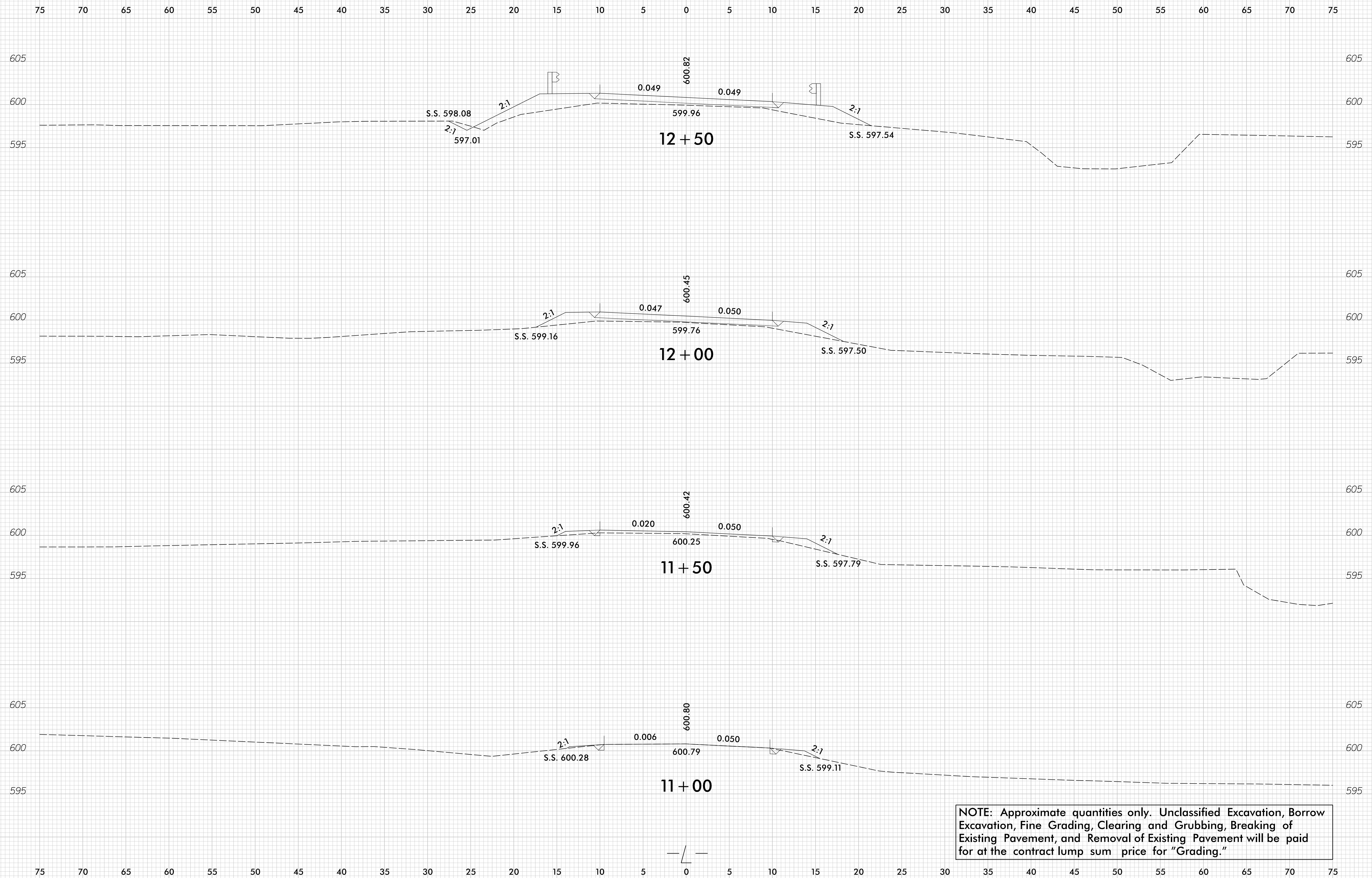
Place Matting for Erosion Control on Slope as Work Progresses

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

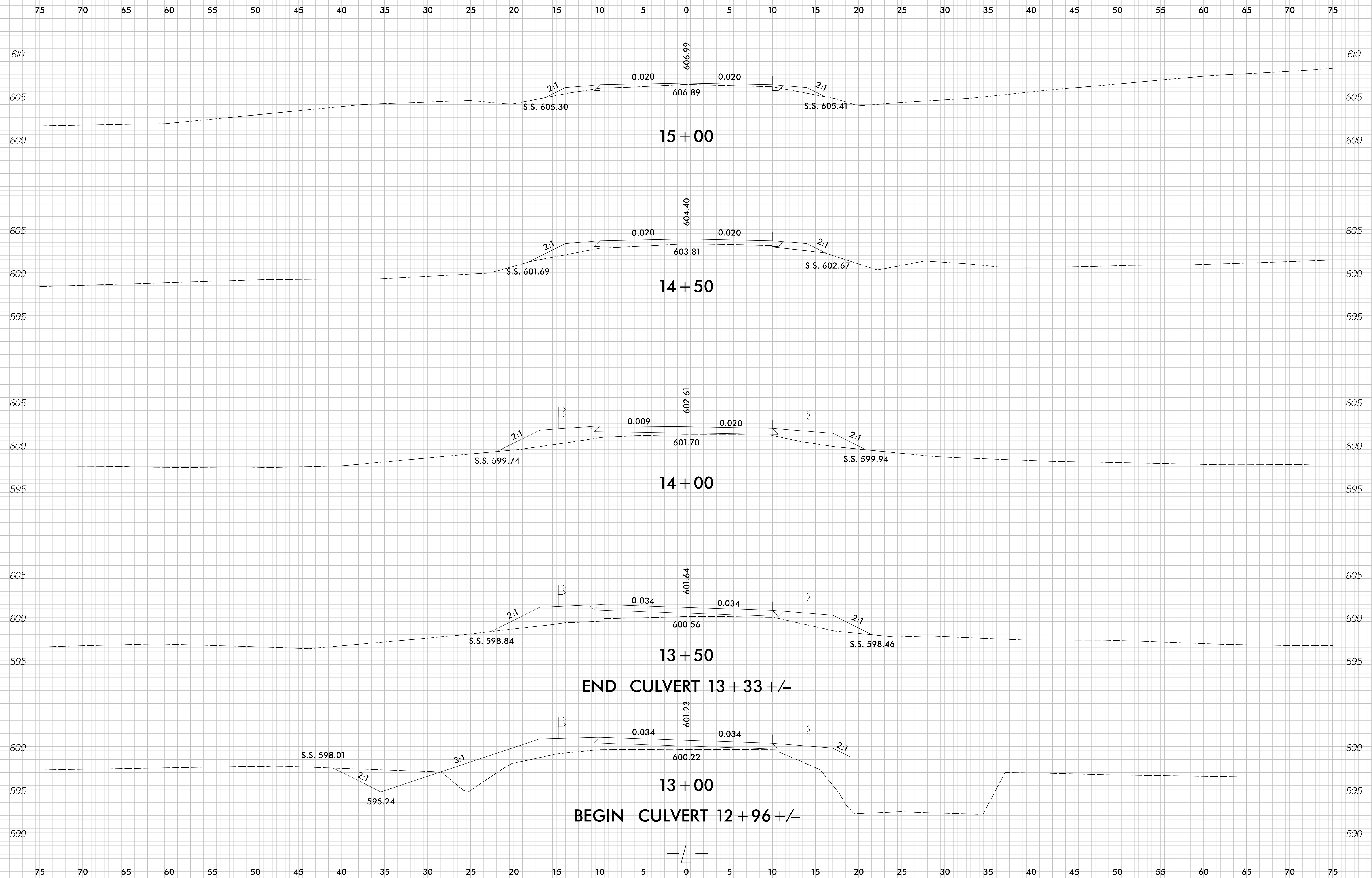
ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

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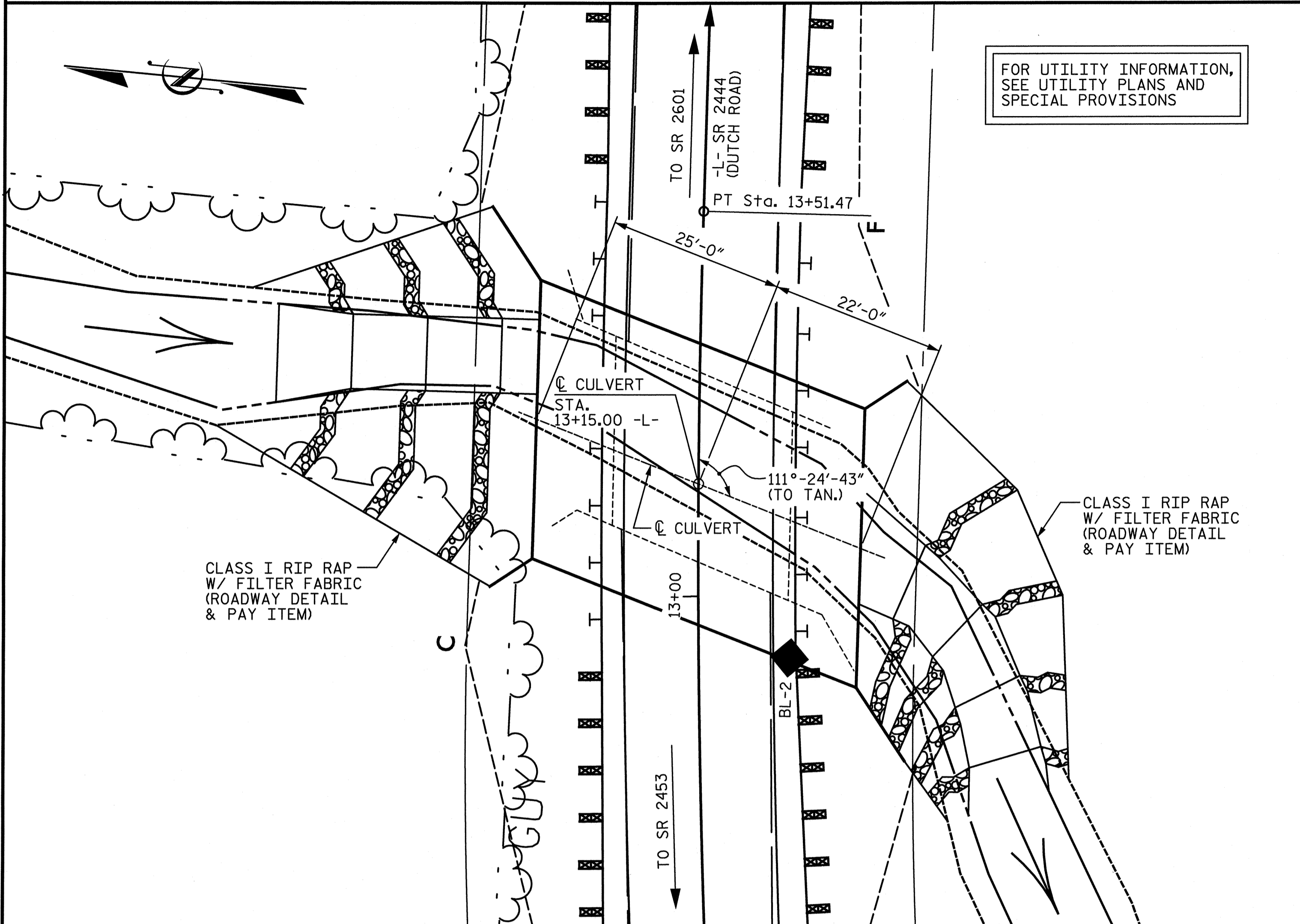
11/5/2012



NOTE: 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."



BENCHMARK BL-2: 13.64' RT STA. 12+90.97 -L-, N 616038.286, E 1593507.045, ELEV. 599.57



LOCATION SKETCH

NOTES

- ASSUMED LIVE LOAD -----HL-93 OR ALTERNATE LOADING.
- MAXIMUM DESIGN FILL----- 5.2'
- MINIMUM DESIGN FILL----- 3.5'
- THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18 "EVALUATING SCOUR AT BRIDGES", MAY 2001
- THE EXISTING STRUCTURE, CONSISTING OF 1-SPAN AT 25'-9" STEEL PLANK DECK ON I-BEAMS WITH A 15.9' CLEAR ROADWAY WIDTH AND SUPPORTED ON A SUBSTRUCTURE OF TIMBER CAPS AND PILES AND LOCATED AT THE EXISTING STRUCTURE, SHALL BE REMOVED. THE EXISTING STRUCTURE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.
- REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATION.
- FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.
- FOR PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT, SEE SPECIAL PROVISIONS.
- A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

- THE PRECAST CULVERT SECTIONS AND WINGS SHALL BE DESIGNED TO HANDLE FULL DEPTH HYDROSTATIC PRESSURE IF WEEP HOLES ARE NOT UTILIZED. IF PROVIDED, WEEP HOLES SHALL BE LOCATED A MINIMUM HEIGHT OF 6 INCHES ABOVE THE NORMAL FLOW LINE AND HAVE A MAXIMUM SPACING OF 10 FEET.
- INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COST RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE."
- THE REQUIRED BEARING CAPACITY OF THE SPREAD FOOTINGS IS 4 TSF. THE REQUIRED BEARING CAPACITY SHALL BE VERIFIED.
- FOOTINGS SHALL BE KEYED A MINIMUM OF 12 INCHES INTO ROCK WITH A MINIMUM THICKNESS AS SHOWN ON THE PLANS.
- TO PROVIDE PROTECTION FROM POSSIBLE SCOUR, THE FOOTING SHALL NOT BE CONSTRUCTED AT AN ELEVATION HIGHER THAN SHOWN ON THE PLANS.
- SCOUR PROTECTION SHALL BE REQUIRED. RIP RAP NOT TO BE PLACED ABOVE THE STREAMBED.
- THE SCOUR CRITICAL ELEVATION IS THE AS BUILT BOTTOM OF FOOTING ELEVATION. THE SCOUR CRITICAL ELEVATIONS ARE FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
- FOR BLASTING ADJACENT TO HIGHWAY STRUCTURES, SEE STANDARD SPECIFICATIONS ARTICLE 410-9.
- THE BOTTOM OF FOOTING ELEVATION MAY BE LOWERED IN ORDER TO SATISFY BEARING CAPACITY AND MINIMUM ROCK EMBEDMENT REQUIREMENTS.

HYDRAULIC DATA

DESIGN DISCHARGE:----- 650 CFS
 FREQUENCY OF DESIGN FLOOD:----- 25 YRS.
 DESIGN HIGH WATER ELEVATION:----- 597.9
 DRAINAGE AREA:----- 1.4 SQ. MI.
 BASIC DISCHARGE (Q100):----- 950 CFS
 BASIC HIGH WATER ELEVATION:----- 598.9

OVERTOPPING FLOOD DATA

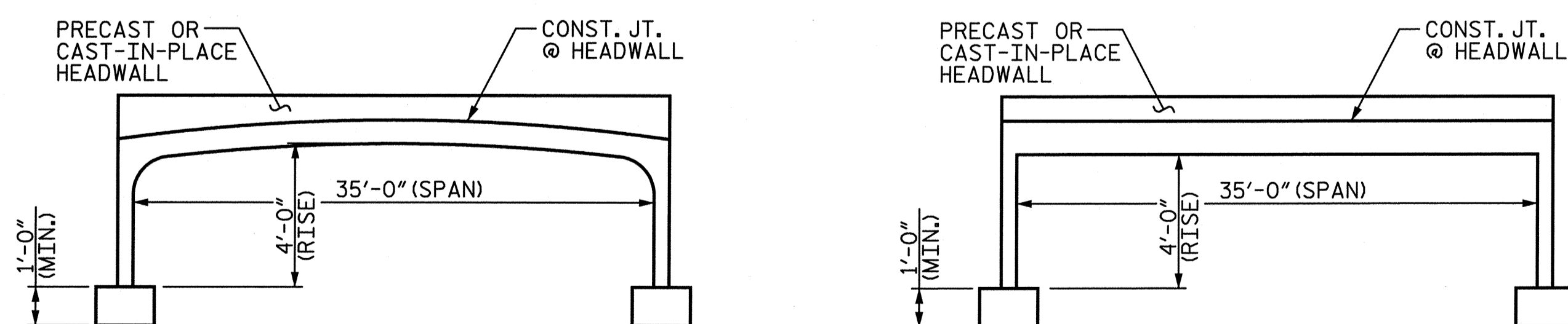
OVERTOPPING DISCHARGE:----- 1300 CFS
 FREQUENCY OF OVERTOPPING FLOOD:----- 500 YRS.
 OVERTOPPING FLOOD ELEVATION:----- 600.4

GRADE DATA

GRADE POINT ELEVATION @
 STA. 13+15.00 -L- ----- 601.35
 BED ELEVATION @
 STA. 13+15.00 -L- ----- 591.01
 ROADWAY FILL SLOPES ----- 2:1

TOTAL STRUCTURE QUANTITIES

REMOVAL OF EXISTING STRUCTURE @ STA. 13+15.00 -L-	LUMP SUM
PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT @ STA. 13+15.00 -L-	LUMP SUM
CLASS A CONCRETE	21.0 CU. YDS.



ARCH ALTERNATE

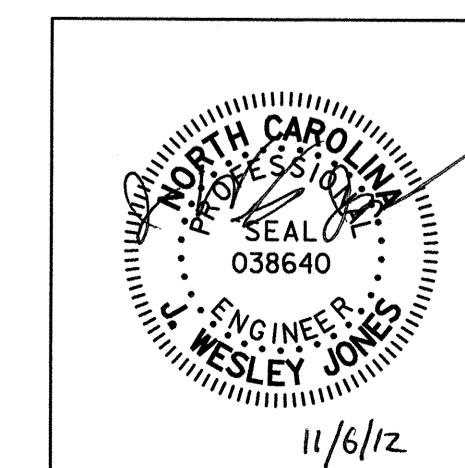
FLAT TOPPED ALTERNATE

RIGHT ANGLE SECTION OF PRECAST CONCRETE THREE-SIDED CULVERT

MIN. LOW CHORD EL. = 597.5 @ CULVERT

PROJECT NO. 17BP.10.R.24
 CABARRUS COUNTY
 STATION: 13+15.00 -L-

SHEET 1 OF 4 REPLACES BRIDGE NO. 106

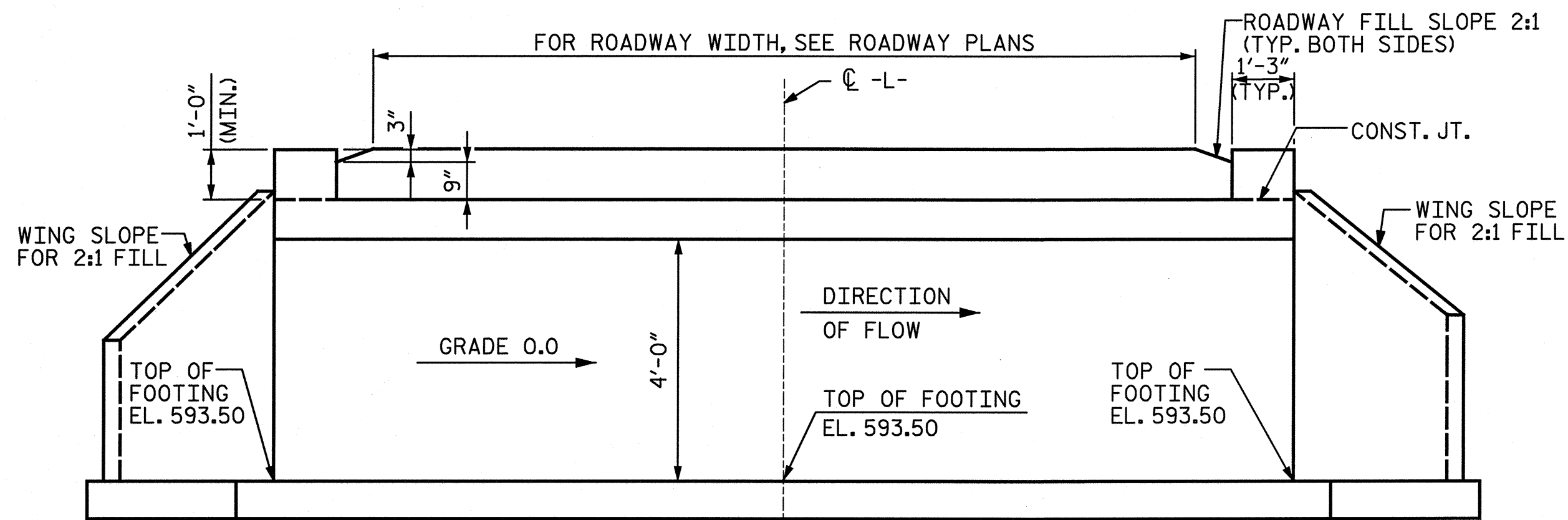


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT
 110° SKEW

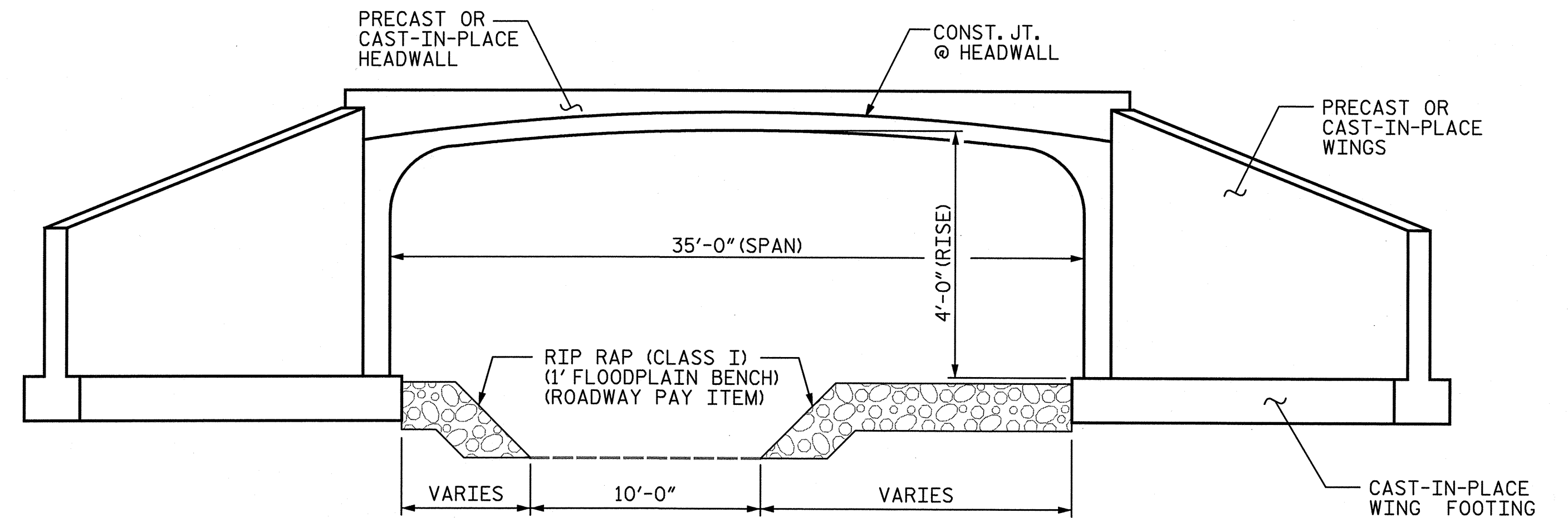
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-1
1			3			TOTAL SHEETS
2			4			4

STV/Ralph Whitehead Associates, Inc.
 1000 West Morehead St. Ste. 200
 Charlotte, NC 28208
 NC License No. F-0991

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 11/6/2012
 Jones

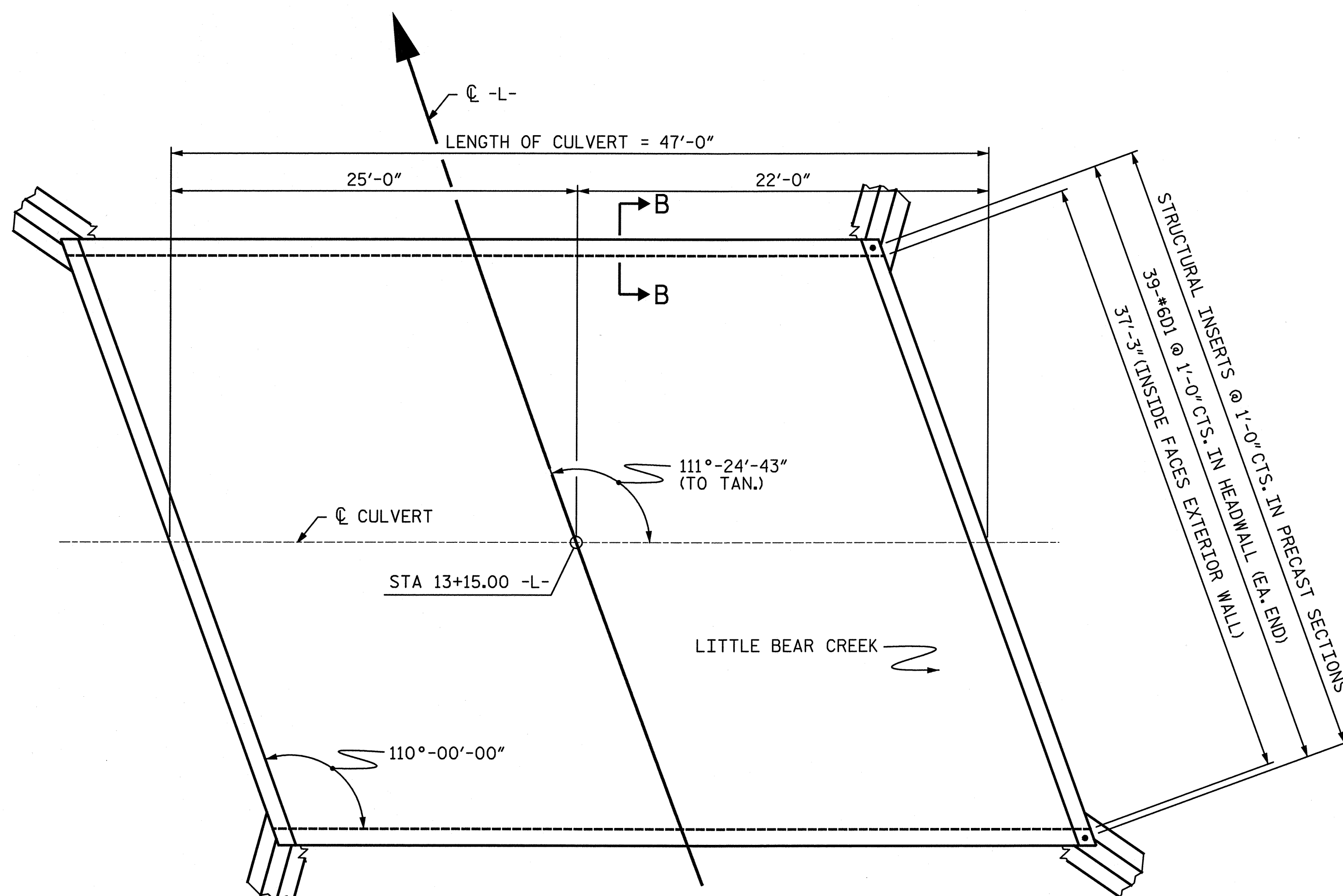


CULVERT SECTION NORMAL TO ROADWAY



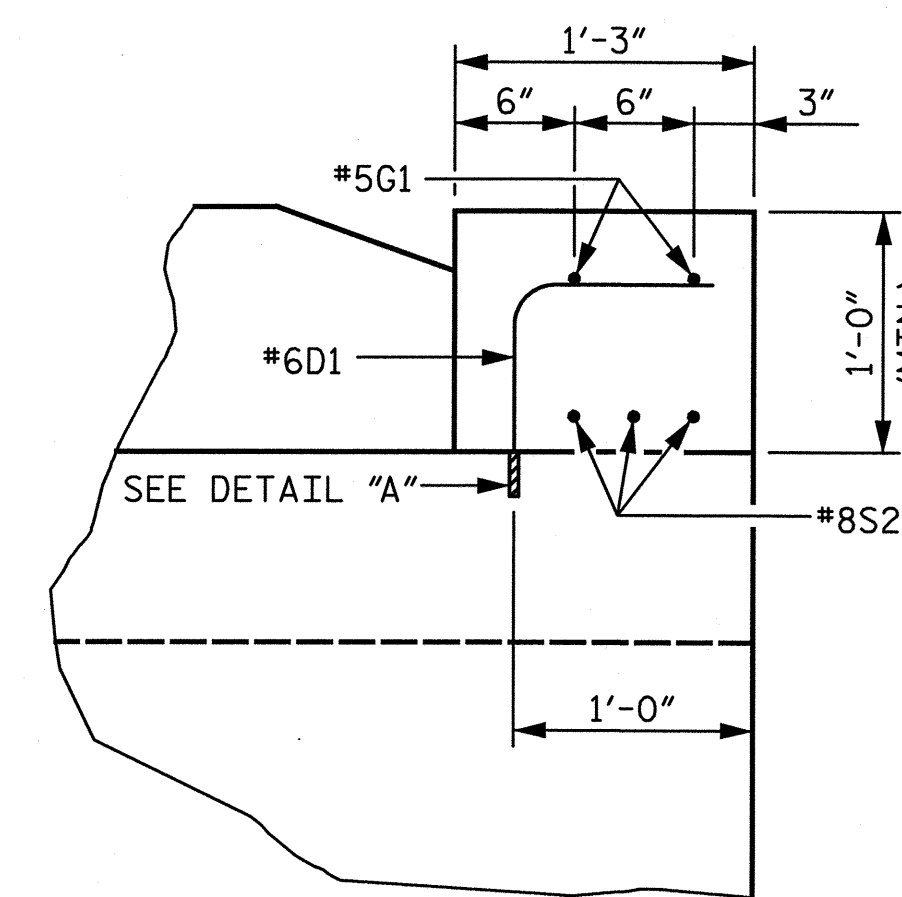
END ELEVATION NORMAL TO SKEW

(INLET CHANNEL SHOWN, OUTLET CHANNEL AND SECTION THRU CULVERT SIMILAR)

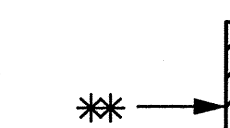


LENGTH FOR PRECAST THREE-SIDED CULVERT

(SEE SHEET 3 OF 4 FOR SECTION B-B)



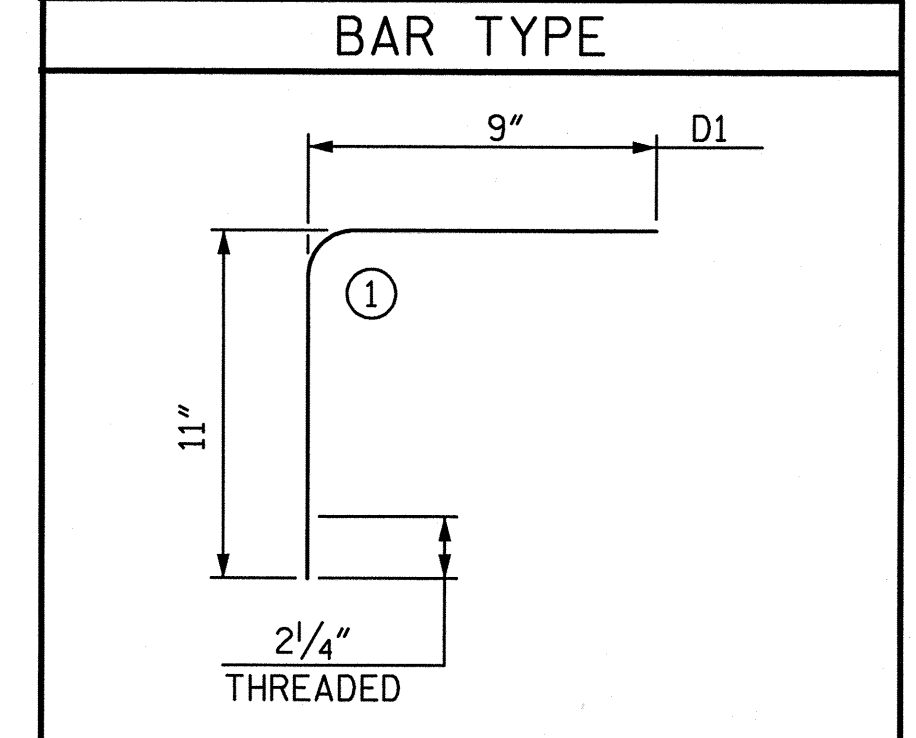
SECTION THRU HEADWALL



DETAIL "A"

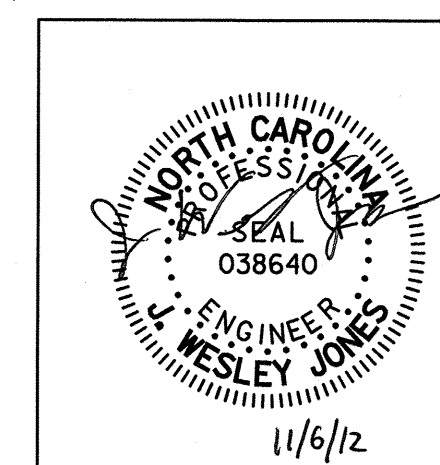
** APPROVED GALVANIZED CONCRETE INSERTS HAVING A MINIMUM WORKING LOAD TENSION CAPACITY OF 2.5 KIPS. DIA. = 1/4", NO. REQUIRED 78

BAR SCHEDULE					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
D1	78	#6	(1)	1'-8"	195
G1	4	#5	STR	38'-11"	162
S2	6	#8	STR	38'-11"	623
TOTAL					LBS 980



PROJECT NO. 17BP.10.R.24
 CABARRUS COUNTY
 STATION: 13+15.00 -L-

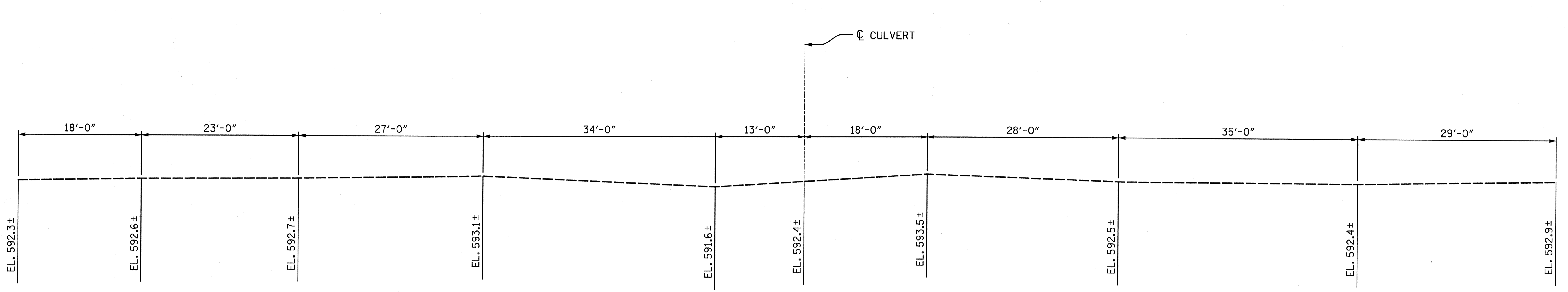
SHEET 2 OF 4



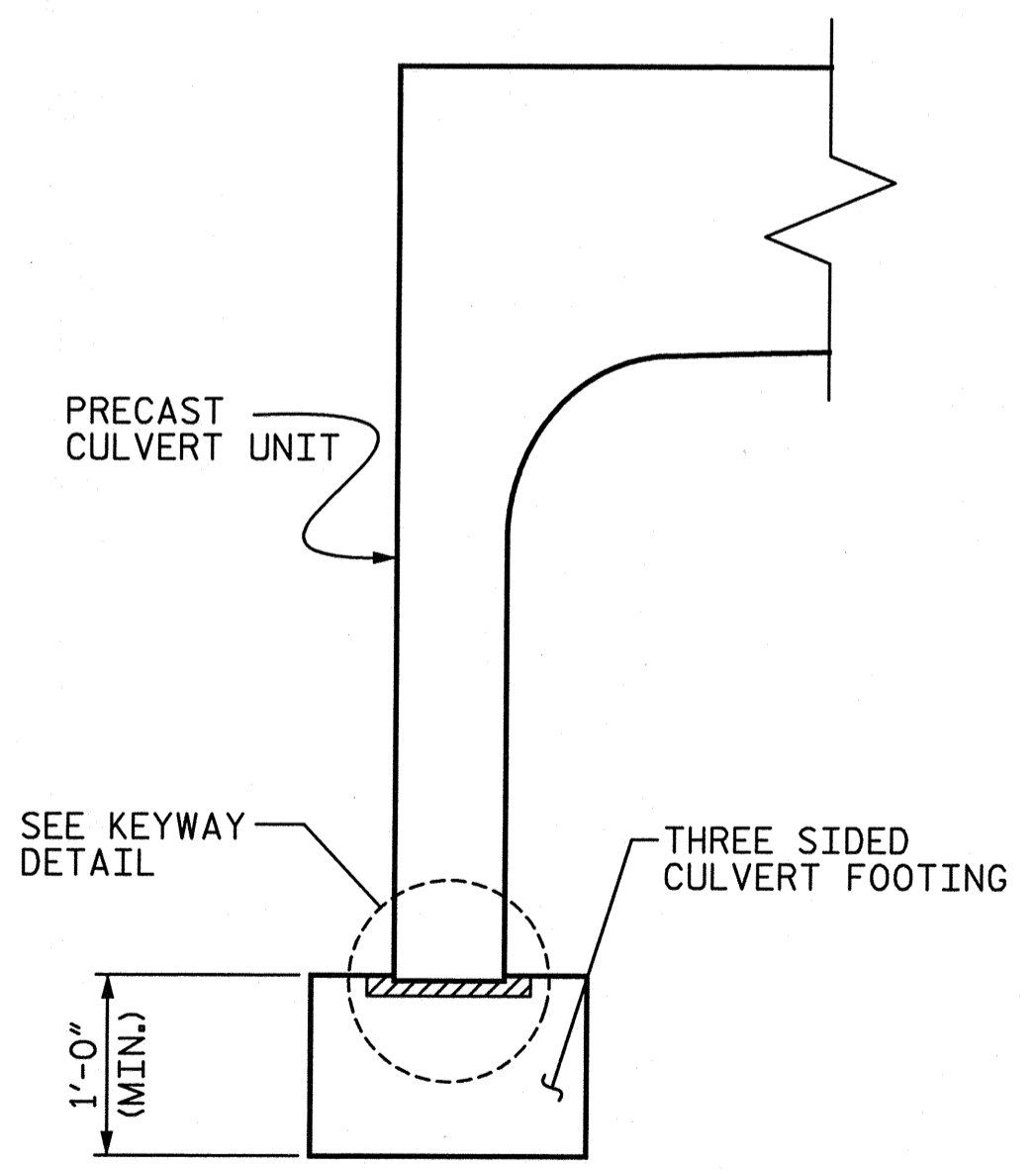
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PRECAST REINFORCED
 CONCRETE THREE-SIDED
 CULVERT
 110° SKEW

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

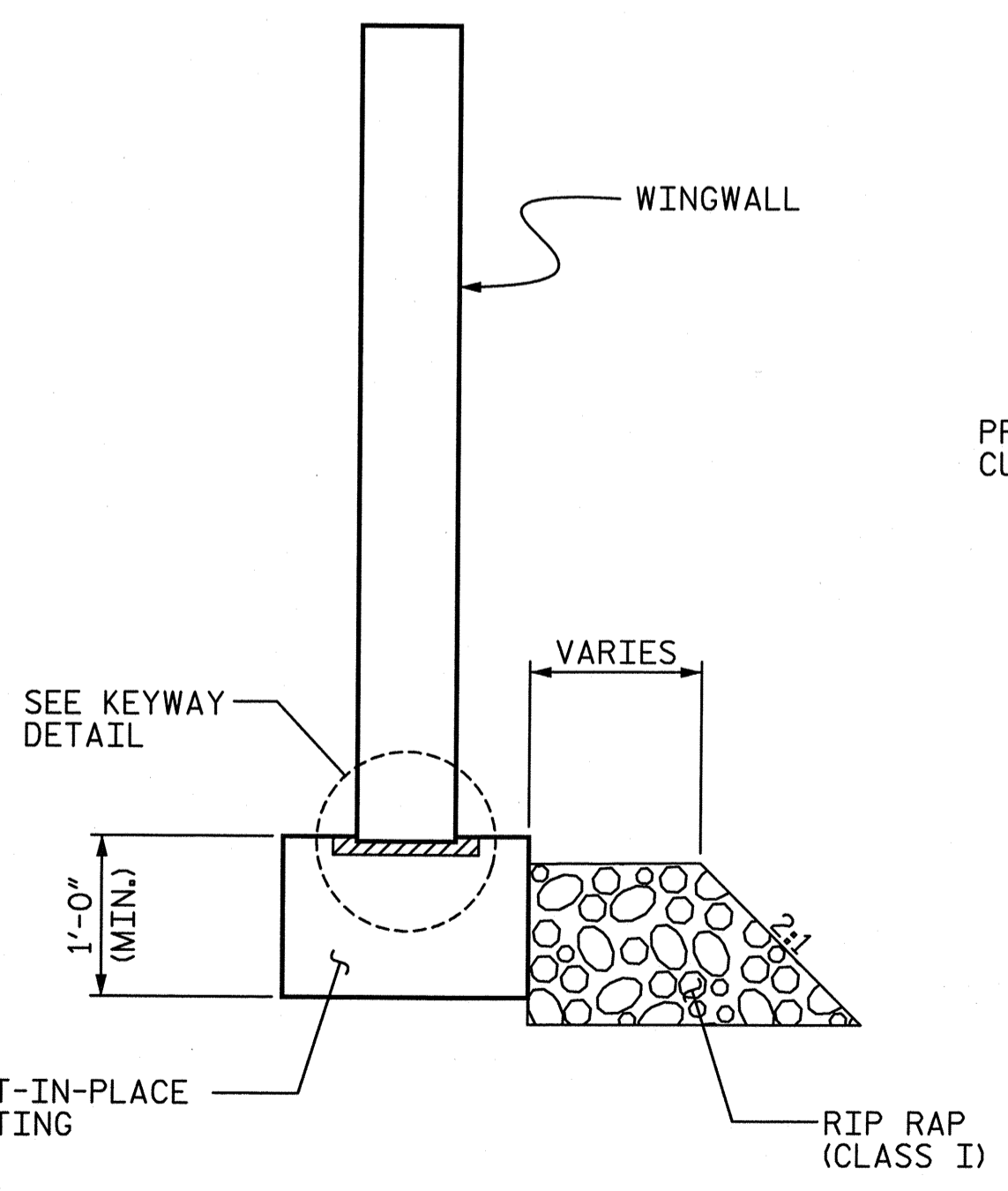
STV/ Ralph Whitehead Associates, Inc.
 1000 West Morehead St., Ste. 200
 Charlotte, NC 28208
 NC License No. F-0991



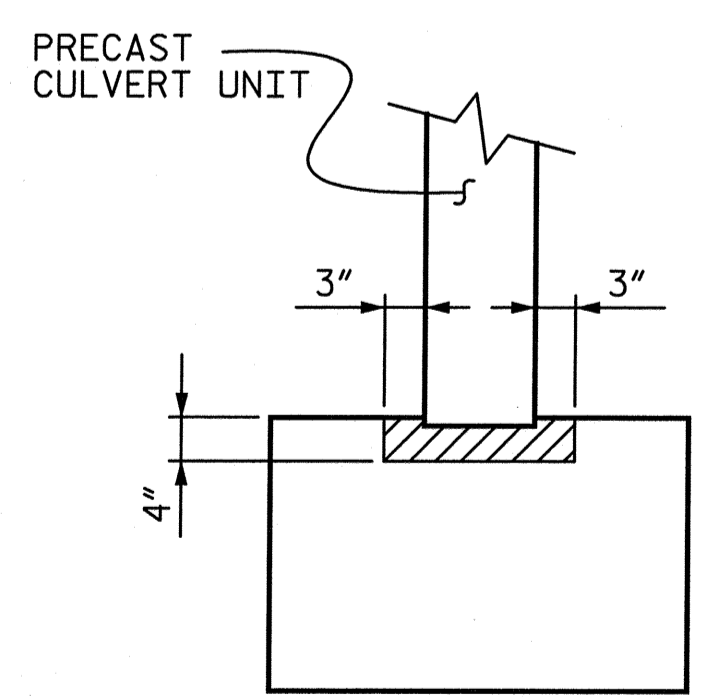
PROFILE ALONG C CULVERT



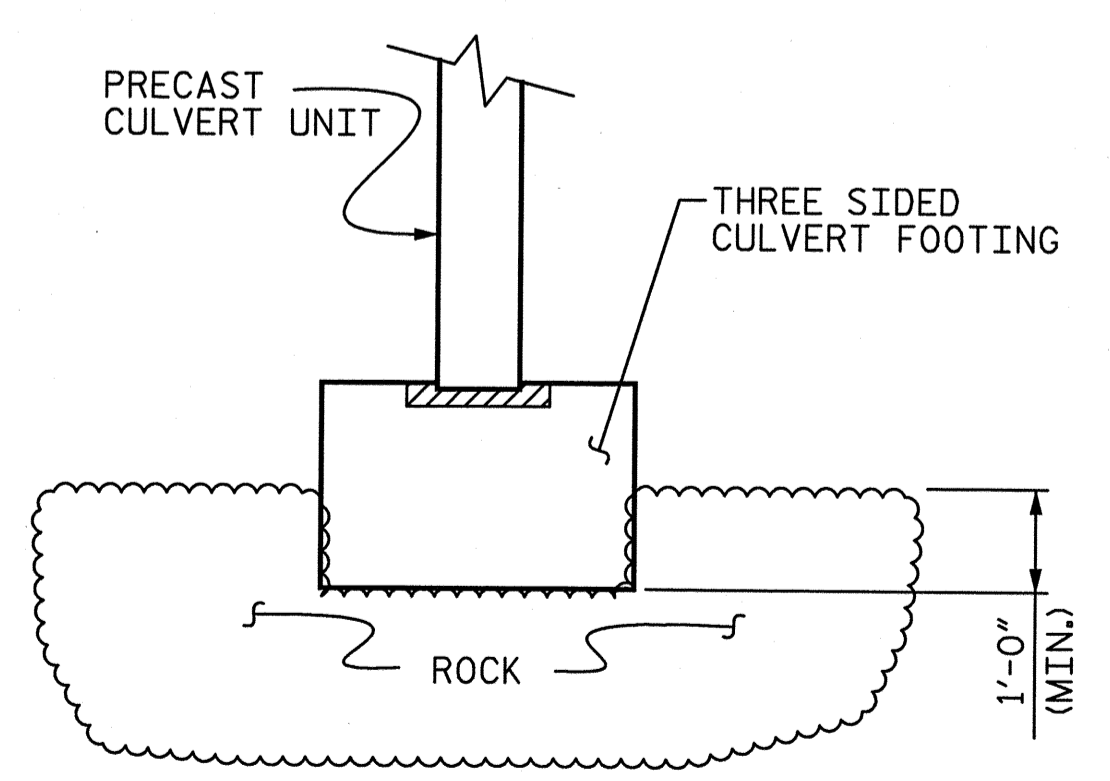
SECTION B-B



SECTION THRU WINGWALL



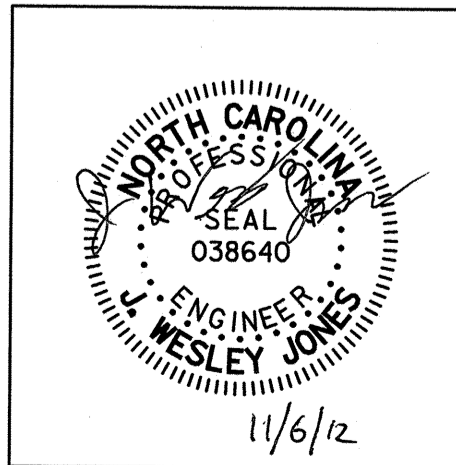
KEYWAY DETAIL



KEYED FOOTING DETAIL

SIDES OF FOOTING SHALL BE IN CONTACT WITH UNDISTURBED MATERIAL FOR MINIMUM DIMENSION SHOWN.

PROJECT NO. 17BP.10.R.24
 CABARRUS COUNTY
 STATION: 13+15.00 -L-
 SHEET 3 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PRECAST REINFORCED
 CONCRETE THREE-SIDED
 CULVERT
 110° SKEW

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

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 1000 West Morehead St., Ste. 200
 Charlotte, NC 28206
 NC License No. F-0991

11/6/2012 10:05:33 AM R:\Structures\Findis\NR24 - (03) Section and Details.dgn

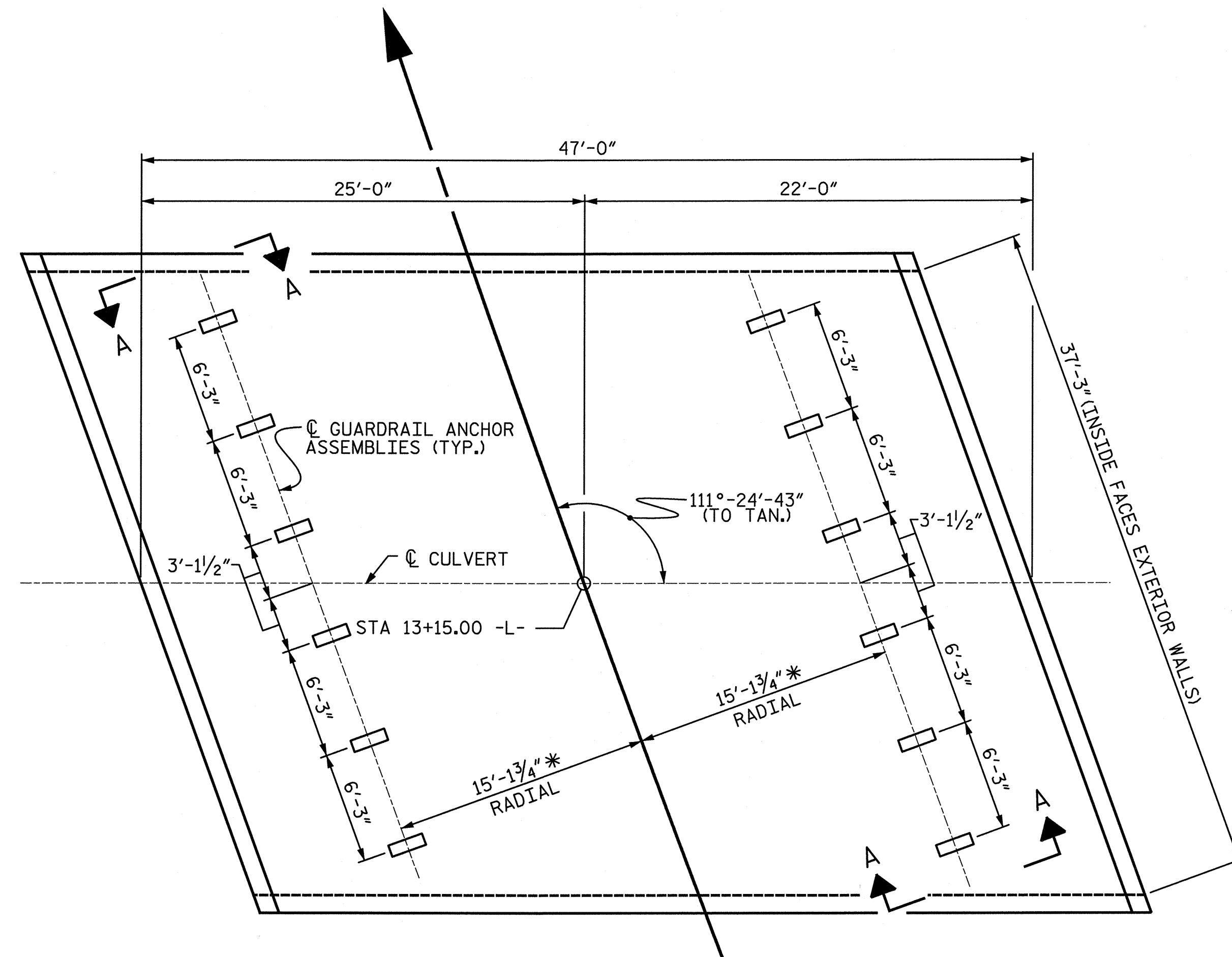
DRAWN BY: JDE DATE: 6-12
 CHECKED BY: JWJ DATE: 7-12

NOTES

ALL GUARDRAIL ATTACHMENTS SHALL BE MADE USING ADHESIVELY ANCHORED ANCHOR BOLTS. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 1" Ø BOLT IS 21.8 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE 1" Ø AND MEET THE REQUIREMENTS OF ASTM A325. BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED.

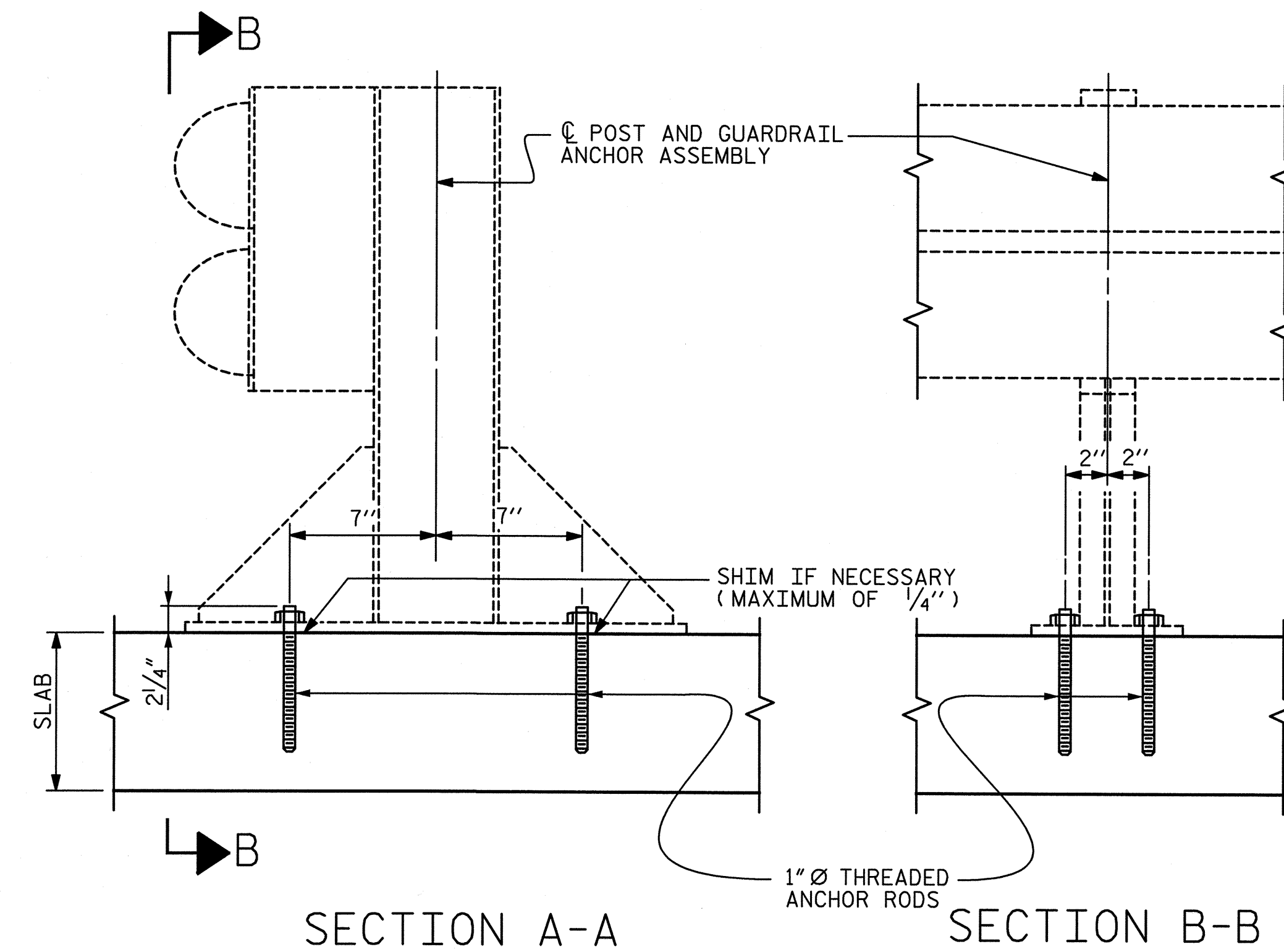
PAYMENT FOR GUARDRAIL, POSTS, AND POST BASE PLATES IS INCLUDED IN ROADWAY PAY ITEMS.



PLAN OF PRECAST CULVERT
GUARDRAIL POST SPACING

*THIS DIMENSION TO BE CONFIRMED BY THE ENGINEER IN THE FIELD.

NOTE: GUARDRAIL POSTS PLACEMENT AS SHOWN. GUARDRAIL POSTS AND THREADED ANCHOR RODS MUST CLEAR ALL JOINTS OF PRECAST CULVERT UNITS.

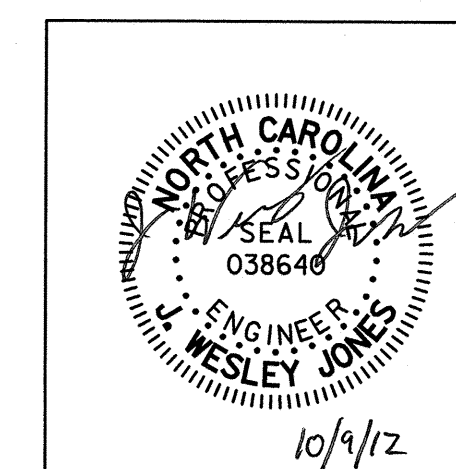


SECTION A-A

SECTION B-B

PROJECT NO. 17BP.10.R.24
CABARRUS COUNTY
STATION: 13+15.00 -L-

SHEET 4 OF 4



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

REVISIONS

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

SHEET NO.
C-4
TOTAL SHEETS
4

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1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License No. F-0991

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER. DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS. WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0". EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED. WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB. METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990