

09/08/09  
 26-AUG-2008 09:26  
 \*\*\*\$US\$ENR\$\*\*\*  
 b4525\_rdy\_tsh.dgn  
 CONTRACT: C201974  
 TIP PROJECT: B-4525

See Sheet 1-A For Index of Sheets

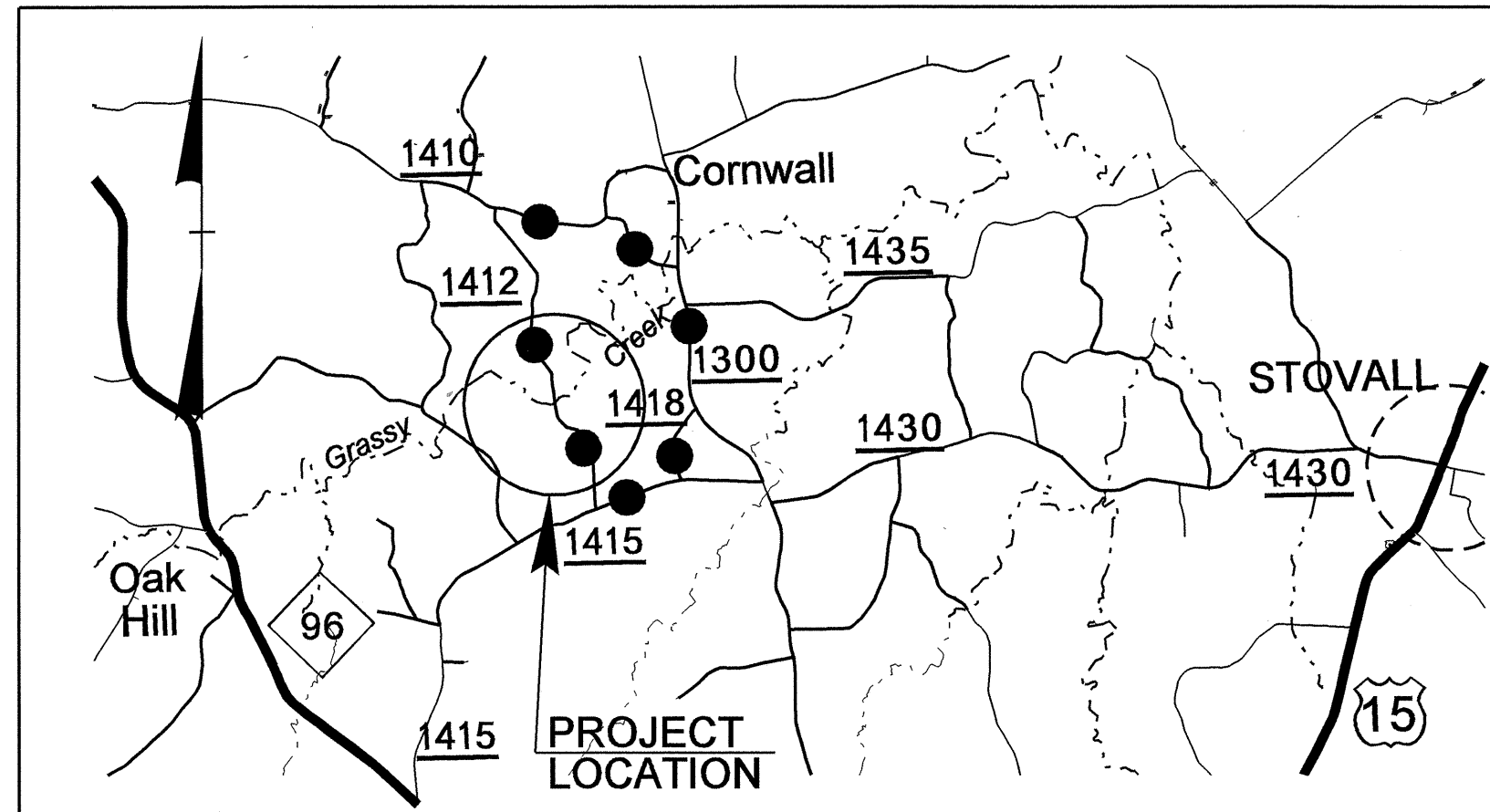
STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

**GRANVILLE COUNTY**

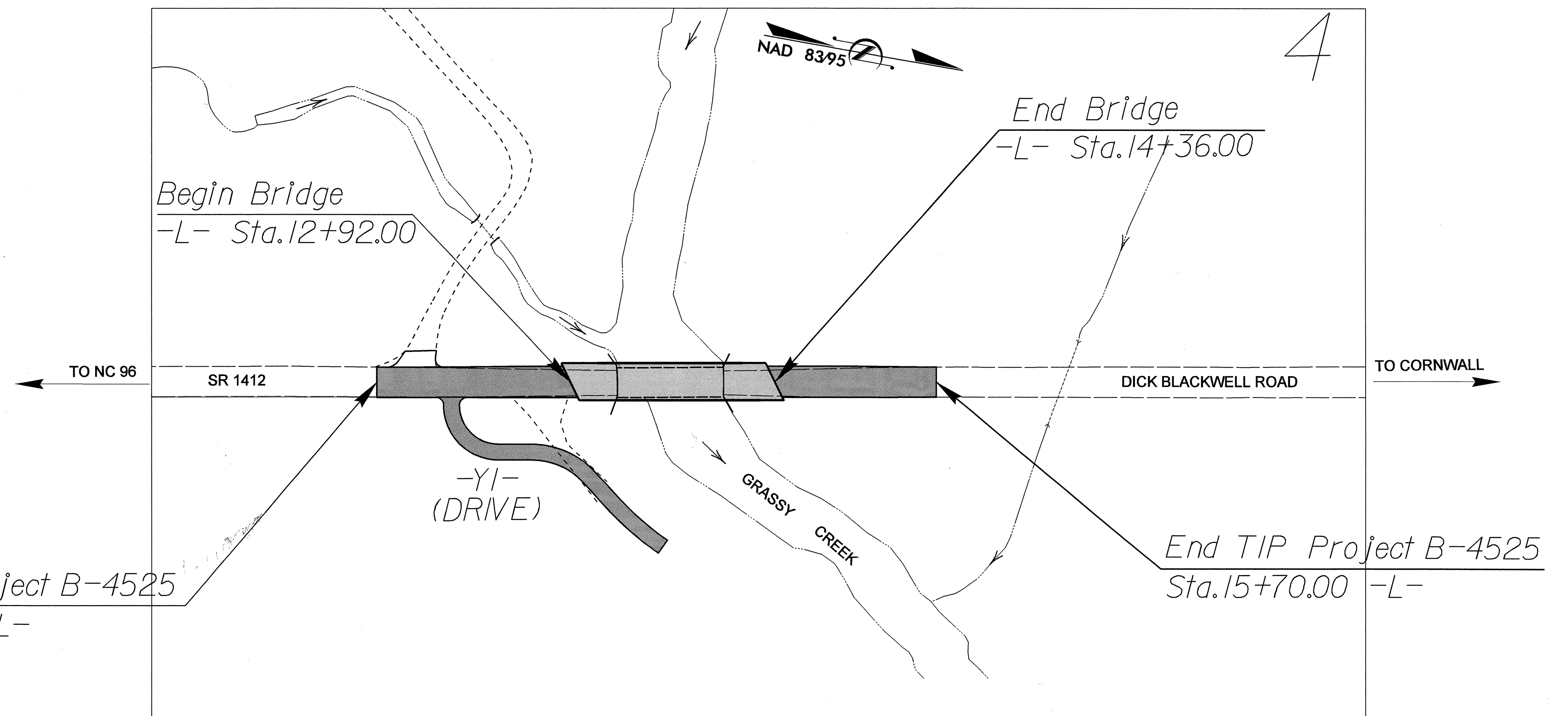
**LOCATION: BRIDGE #133 OVER GRASSY CREEK ON SR 1412 (Dick Blackwell Rd)**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4525	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33749.1.1	BRZ-1412(4)	PE	
33749.2.1	BRZ-1412(4)	RW & Utilities	
33749.3.1	BRZ-1412(4)	Construction	

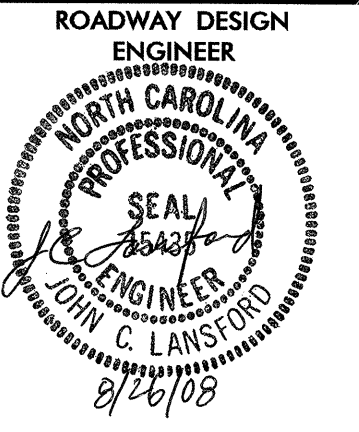


VICINITY MAP



DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE K FACTOR, AND VERTICAL CURVE STOPPING SIGHT DISTANCE.

<p><b>GRAPHIC SCALES</b></p> <p>50 25 0 50 100 PLANS</p> <p>50 25 0 50 100 PROFILE (HORIZONTAL)</p> <p>10 5 0 10 20 PROFILE (VERTICAL)</p>	<p><b>DESIGN DATA</b></p> <p>ADT 2007 = 110 vpd          ADT 2030 = 200 vpd          DHV = 14 %          D = 60 %          T = 3 % *          V = 50 MPH          * TTST 1% * DUAL 2%</p>	<p><b>PROJECT LENGTH</b></p> <p>LENGTH ROADWAY TIP PROJECT B-4525 = 0.047 MILES          LENGTH STRUCTURE TIP PROJECT B-4525 = 0.027 MILES          TOTAL LENGTH TIP PROJECT B-4525 = 0.074 MILES</p>	<p>Prepared In the Office of:  <b>DIVISION OF HIGHWAYS</b>          1000 Birch Ridge Dr., Raleigh NC, 27610</p> <p>2006 STANDARD SPECIFICATIONS</p> <p><b>RIGHT OF WAY DATE:</b> November 1, 2007</p> <p><b>LETTING DATE:</b> November 18, 2008</p> <p><b>JAMES SPEER, PE</b> PROJECT ENGINEER</p> <p><b>JOHN LANSFORD, PE</b> PROJECT DESIGN ENGINEER</p>	<p><b>HYDRAULICS ENGINEER</b></p> <p><b>ROADWAY DESIGN ENGINEER</b></p> <p>SEAL 027434          SIGNATURE: [Signature]          SEAL 15435          SIGNATURE: [Signature]</p>	<p><b>DIVISION OF HIGHWAYS</b>          STATE OF NORTH CAROLINA</p> <p>SEAL          SIGNATURE: [Signature]          STATE HIGHWAY DESIGN ENGINEER</p>
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8/17/09

18-AUG-2008 14:10  
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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
2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2-A	DETAIL OF ANCHORAGE FOR FRAMES
2-B	DETAIL OF BRIDGE APPROACH FILL, SUB REGIONAL TIER
3	SUMMARY OF QUANTITIES
3-A	LIST OF PIPES, ENDWALLS, ETC (FOR PIPES 48" AND UNDER), GUARDRAIL SUMMARY
3-B	EARTHWORK SUMMARY, PAVEMENT REMOVAL SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-3	TRAFFIC CONTROL PLANS
SD-1	SPECIAL SIGN DESIGN SHEET
EC-1 THRU EC-4	EROSION CONTROL PLANS
RF-1 THRU RF-2	REFORESTATION PLANS
UD-1 THRU UD-2	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION SUMMARY
X-2 THRU X-10	CROSS-SECTIONS
S-1 THRU S-22	STRUCTURE PLANS

**GENERAL NOTES:** 2006 SPECIFICATIONS  
 EFFECTIVE: 07-18-06  
 REVISED: 07-30-08

**GRADING AND SURFACING OR RESURFACING AND WIDENING:**  
 THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

**CLEARING:**  
 CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

**SUPERELEVATION:**  
 ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

**SHOULDER CONSTRUCTION:**  
 ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

**SIDE ROADS:**  
 THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

**UNDERDRAINS:**  
 UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

**GUARDRAIL:**  
 THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

**TEMPORARY SHORING:**  
 SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

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

**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.  
 ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

**UTILITIES:**  
 UTILITY OWNERS ON THIS PROJECT ARE SPRINT, PROGRESS ENERGY AND EMBARO  
 ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS

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

2006 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD. NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
816.04	Markers for Drainage Structure and Concrete Pad
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

EFF. 07-18-06  
 REV. 01-02-07

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	○
Property Corner	✕
Property Monument	□
Parcel/Sequence Number	⑫③
Existing Fence Line	-----
Proposed Woven Wire Fence	-----
Proposed Chain Link Fence	-----
Proposed Barbed Wire Fence	-----
Existing Wetland Boundary	-----
Proposed Wetland Boundary	-----
Existing Endangered Animal Boundary	-----
Existing Endangered Plant Boundary	-----

### BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	+
Building	□
School	□
Church	□
Dam	□

### HYDROLOGY:

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

### RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
Switch	□
RR Abandoned	-----
RR Dismantled	-----

### RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite Marker	-----
Existing Control of Access	○
Proposed Control of Access	○
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Utility Easement	-----

### ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Wheel Chair Ramp	-----
Proposed Wheel Chair Ramp Curb Cut	-----
Curb Cut for Future Wheel Chair Ramp	-----
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	-----

### VEGETATION:

Single Tree	○
Single Shrub	○
Hedge	-----
Woods Line	-----
Orchard	-----
Vineyard	-----

### EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	-----
Bridge Wing Wall, Head Wall and End Wall	-----
MINOR:	
Head and End Wall	-----
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	-----
Paved Ditch Gutter	-----
Storm Sewer Manhole	○
Storm Sewer	-----

### UTILITIES:

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	○
Recorded U/G Power Line	-----
Designated U/G Power Line (S.U.E.*)	-----

### TELEPHONE:

Existing Telephone Pole	○
Proposed Telephone Pole	○
Telephone Manhole	○
Telephone Booth	□
Telephone Pedestal	□
Telephone Cell Tower	○
U/G Telephone Cable Hand Hole	□
Recorded U/G Telephone Cable	-----
Designated U/G Telephone Cable (S.U.E.*)	-----
Recorded U/G Telephone Conduit	-----
Designated U/G Telephone Conduit (S.U.E.*)	-----
Recorded U/G Fiber Optics Cable	-----
Designated U/G Fiber Optics Cable (S.U.E.*)	-----

### WATER:

Water Manhole	○
Water Meter	○
Water Valve	○
Water Hydrant	○
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	-----

### TV:

TV Satellite Dish	○
TV Pedestal	□
TV Tower	○
U/G TV Cable Hand Hole	□
Recorded U/G TV Cable	-----
Designated U/G TV Cable (S.U.E.*)	-----
Recorded U/G Fiber Optic Cable	-----
Designated U/G Fiber Optic Cable (S.U.E.*)	-----

### GAS:

Gas Valve	○
Gas Meter	○
Recorded U/G Gas Line	-----
Designated U/G Gas Line (S.U.E.*)	-----
Above Ground Gas Line	-----

### SANITARY SEWER:

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

### MISCELLANEOUS:

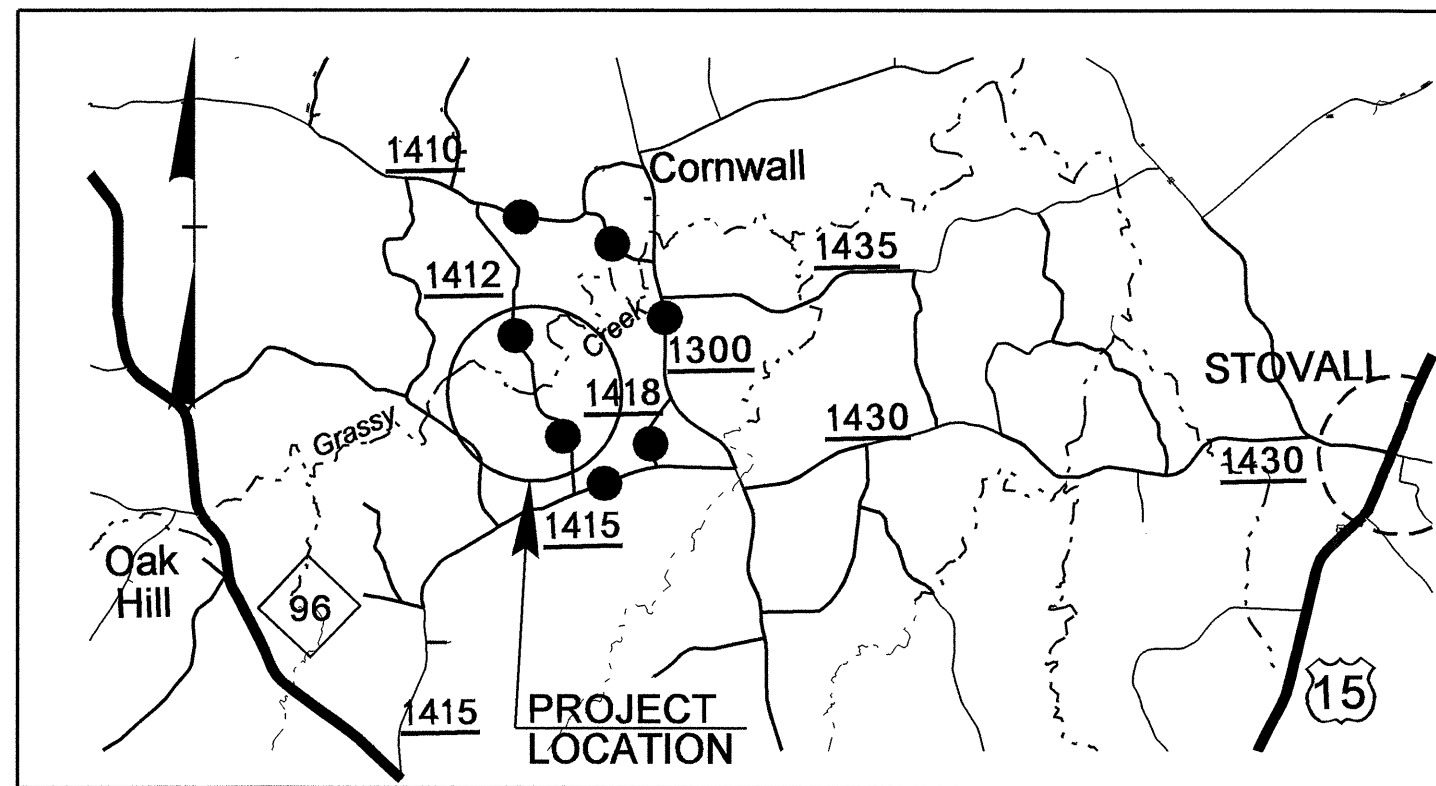
Utility Pole	○
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line	-----
U/G Tank; Water, Gas, Oil	□
A/G Tank; Water, Gas, Oil	□
U/G Test Hole (S.U.E.*)	○
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

# SURVEY CONTROL SHEET B-4525

## GRANVILLE COUNTY

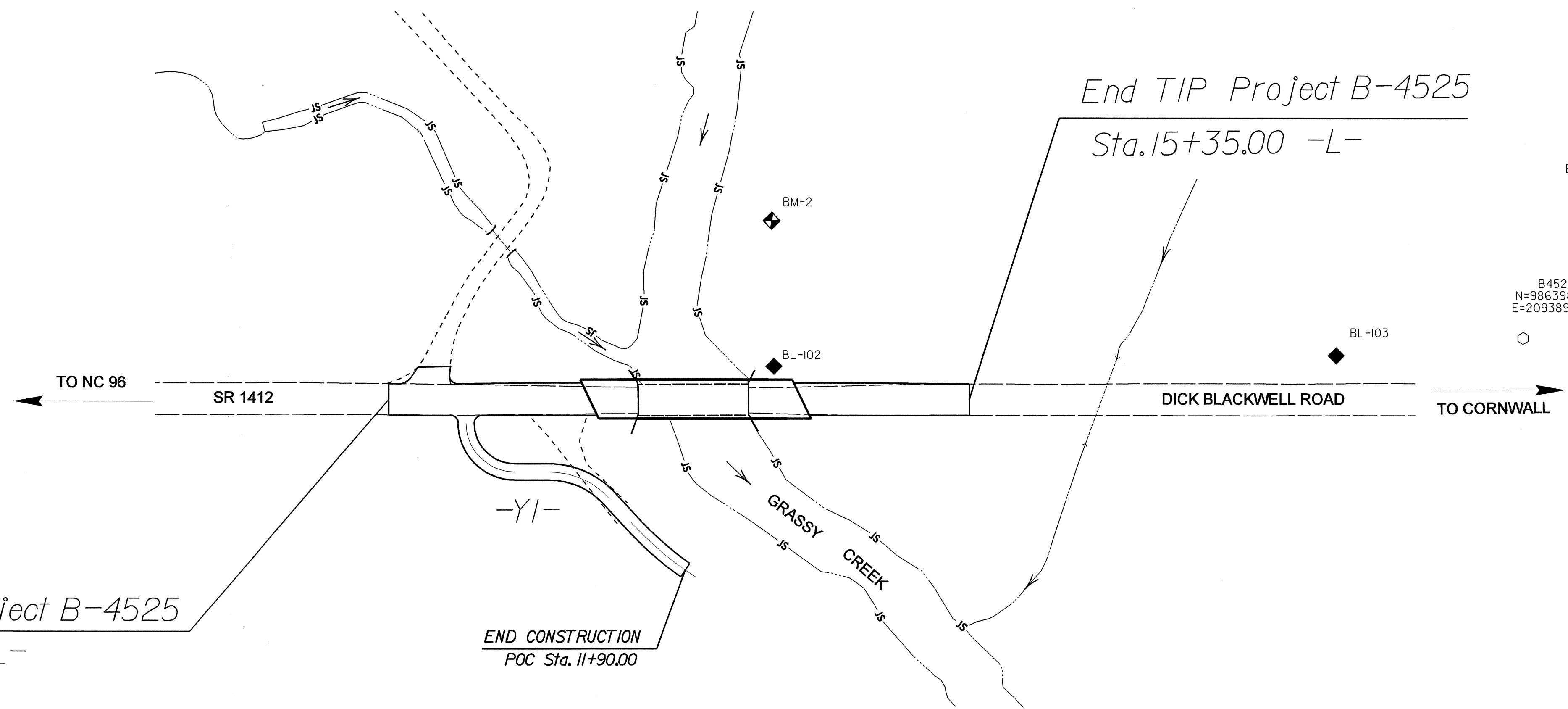
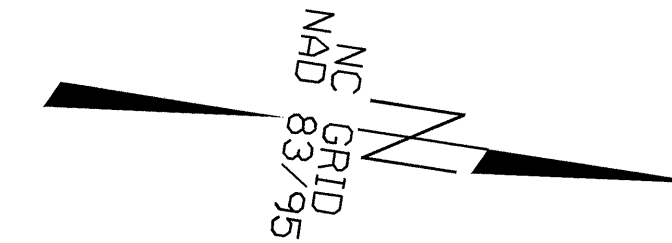
**LOCATION: BRIDGE #133 OVER GRASSY CREEK ON SR 1412  
(DICK BLACKWELL ROAD)**

**B-4525**



VICINITY MAP

OFFSITE DETOUR ROUTE ● ● ● ● ●



B4525-2  
N=987180.4080  
E=2093262.3130

B4525-1  
N=986398.5578  
E=2093895.5326

**BASELINE DATA**

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L. STATION	OFFSET
101	BL-101		984560.9494	2094241.6414	428.67	OUTSIDE PROJECT LIMITS	
102	BL-102		985175.7550	2094104.2664	395.16	14+23.17	13.96 LT
103	BL-103		985939.5780	2093983.8405	411.63	OUTSIDE PROJECT LIMITS	

**BENCHMARK DATA**

\*\*\*\*\*  
 BM1 ELEVATION = 456.44  
 N 984210 E 2094600  
 L STATION 10+00  
 S 37° 13' 13" E DIST 690'  
 RR SPIKE SET IN 8" SOURWOOD  
 \*\*\*\*\*

\*\*\*\*\*  
 BM2 ELEVATION = 391.70  
 N 985151 E 2094011  
 L STATION 14+13 110' LEFT  
 RR SPIKE SET IN 20" OAK  
 \*\*\*\*\*

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4525-2"  
 WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF  
 NORTHING: 987180.4080(ft) EASTING: 2093262.3130(ft)  
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00007893  
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4525-2" TO -L- STATION 11+80.00 IS  
 S 21°42'32" E 2414.0485  
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NAVD 88

**NOTES:**

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.DOHDOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project)

THE FILE TO BE FOUND IS AS FOLLOWS:  
 B4525\_LS\_CONTROL\_060623.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

○ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.  
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.  
 NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)  
 SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

**NOTE: DRAWING NOT TO SCALE**

06/23/06

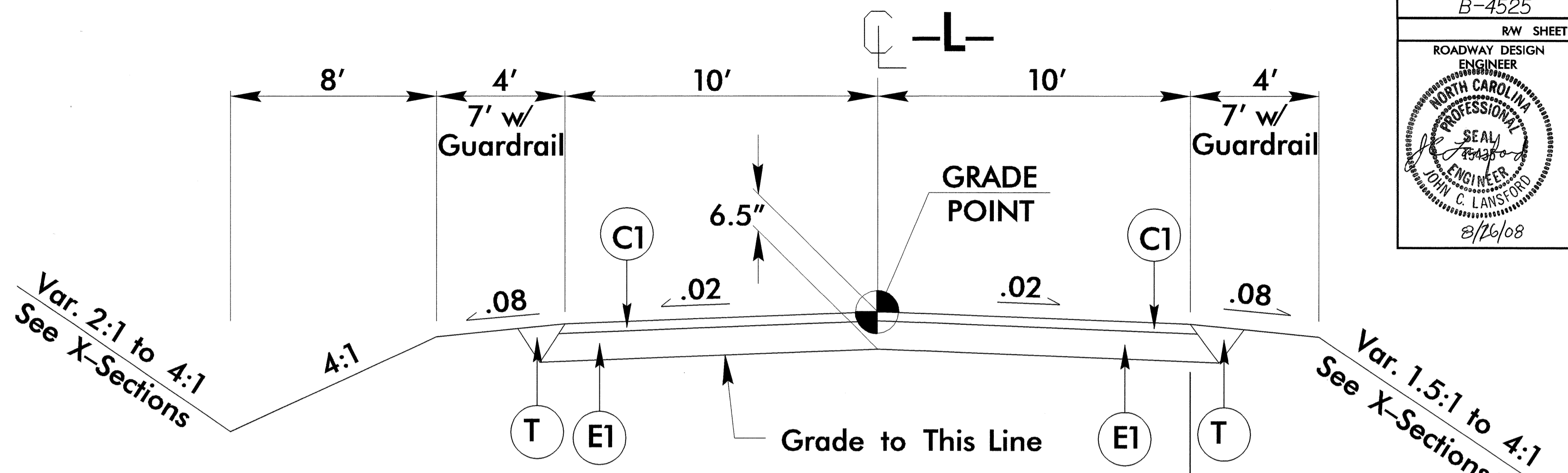
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8/17/09

PROJECT REFERENCE NO. B-4525	SHEET NO. 2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22896 JOHN C. LANSFORD 8/26/08	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22896 CLARK S. MORRISON 8/21/08

### PAVEMENT SCHEDULE

C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
J	PROP. 6" AGGREGATE BASE COURSE.
T	EARTH MATERIAL
U	EXISTING PAVEMENT



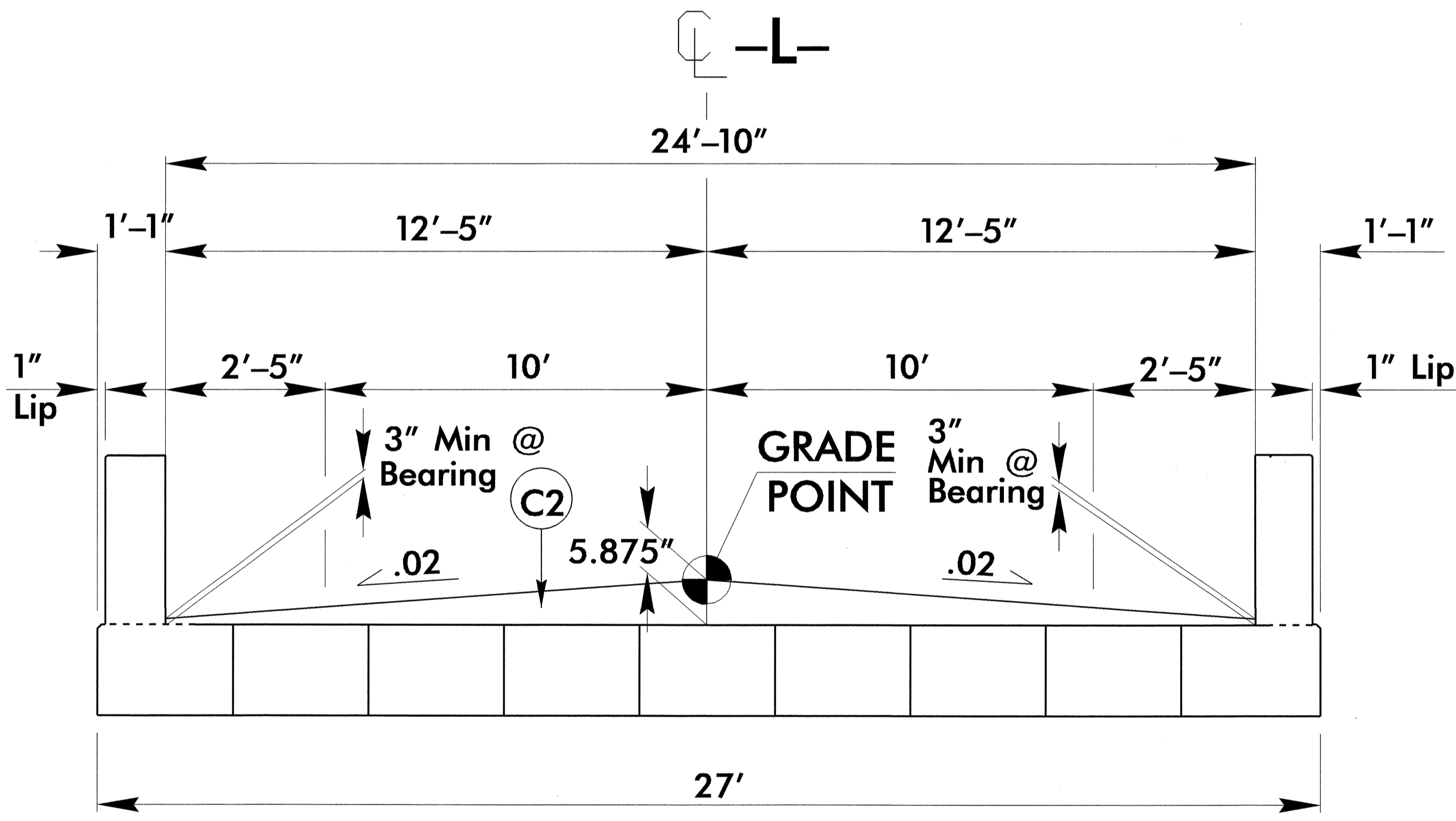
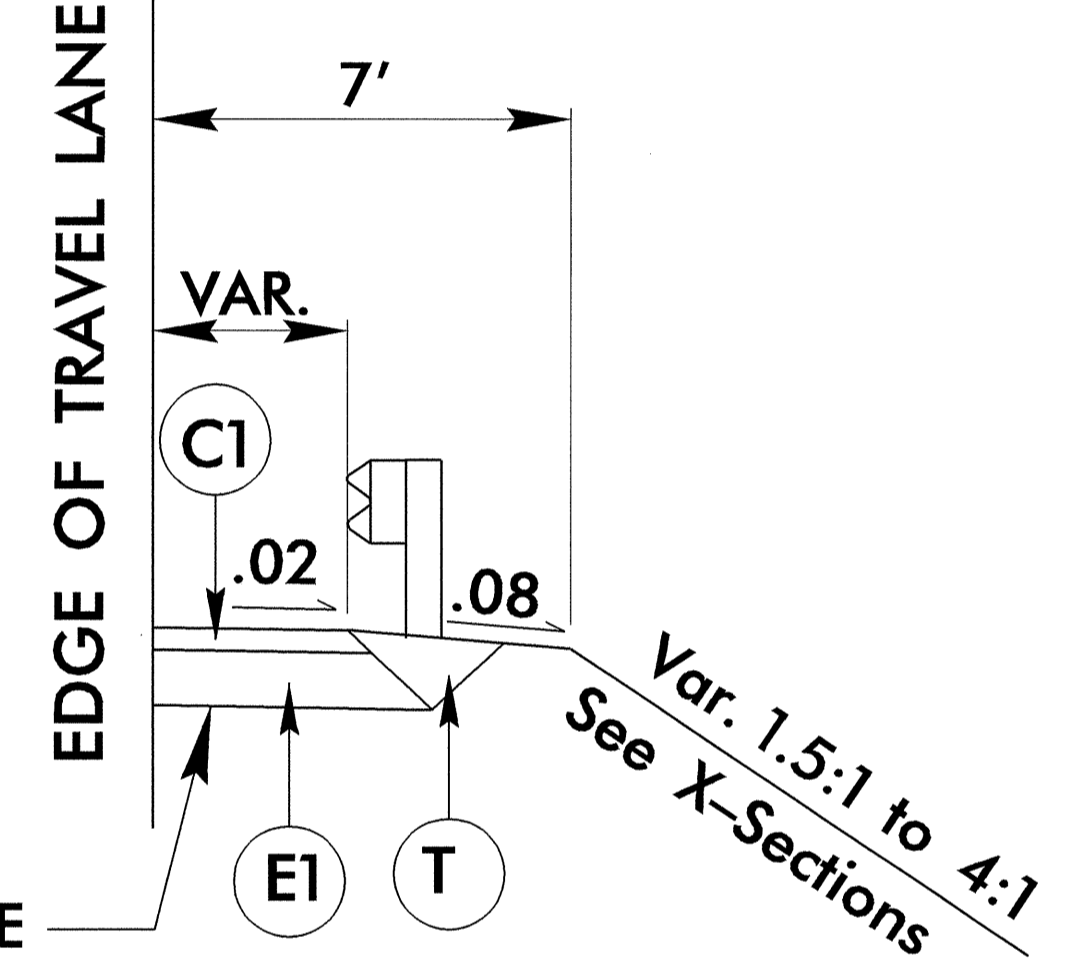
### TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AT THE FOLLOWING LOCATIONS:  
 -L- STA. 11+80.00 TO -L- Begin Bridge 12+92.00  
 -L- End Bridge 14+36.00 TO -L- STA. 15+35.00

Resurface Existing Pavement With 2.5" SF9.5A  
 -L- Sta. 15+35.00 to Sta. 15+70.00

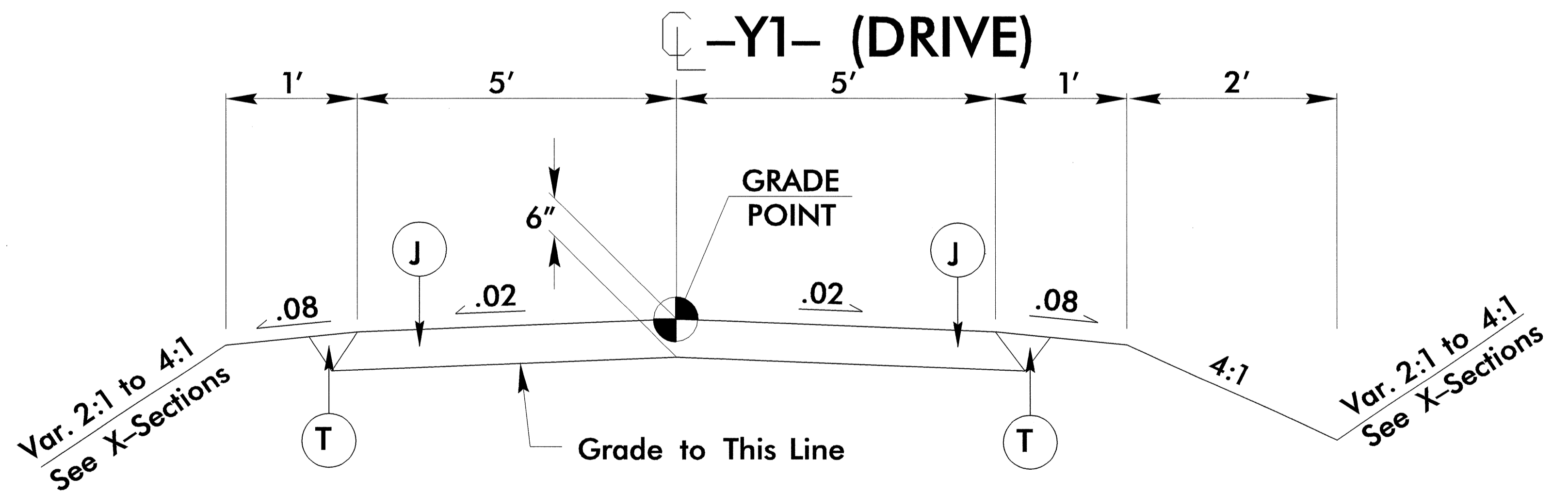
### INSET #1

FULL DEPTH PAVED SHOULDER TO FACE OF GUARDRAIL  
 TO BE USED IN CONJUNCTION WITH T.S. NO. 1 AT GUARDRAIL LOCATIONS



### TYPICAL SECTION ON STRUCTURE (9 CORED SLAB UNITS)

-L- Sta. 12+92.00 to 14+36.00



### TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATIONS:  
 -Y1- STA. 10+10.00 TO -Y1- STA. 11+90.00

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

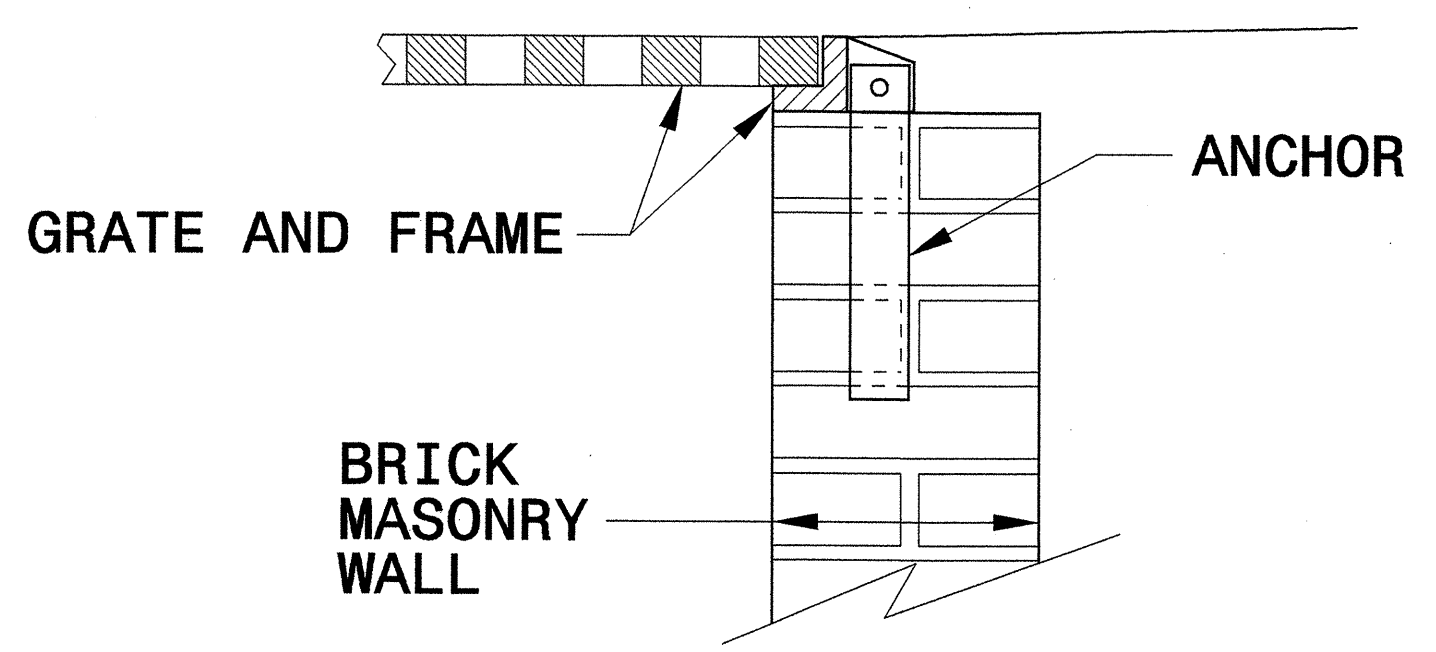
ENGLISH DETAIL DRAWING FOR  
**ANCHORAGE FOR FRAMES**  
 BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1  
**840D25**

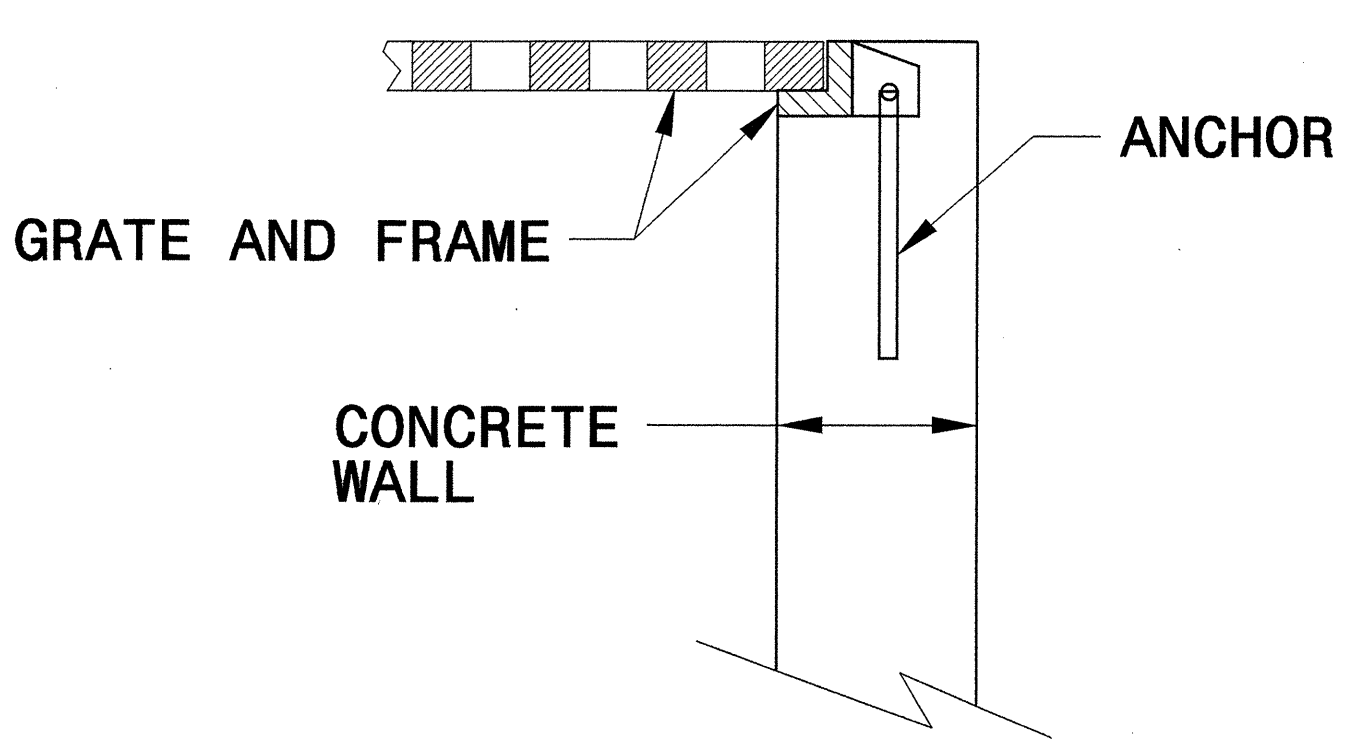
STATE OF NORTH CAROLINA  
 DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**ANCHORAGE FOR FRAMES**  
 BRICK/CONCRETE/PRECAST CONCRETE

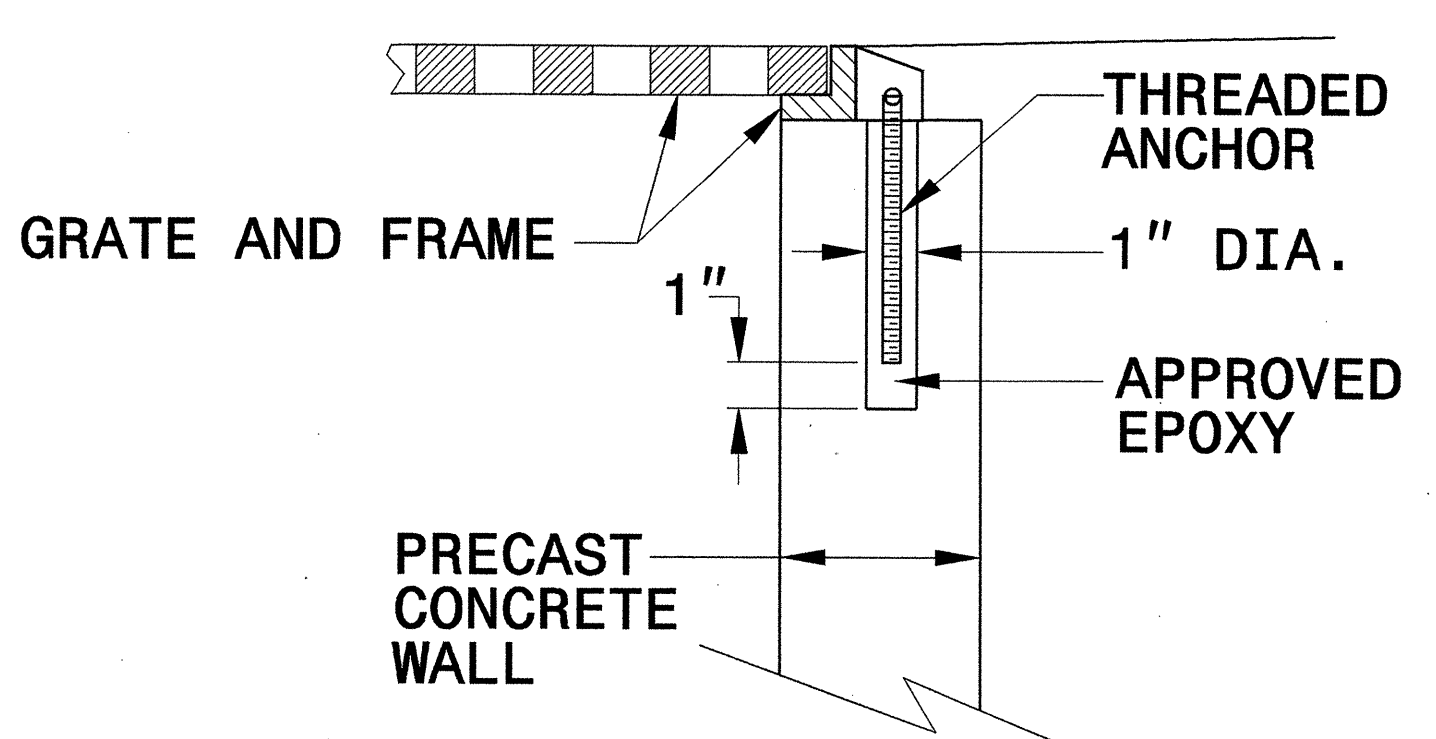
SHEET 1 OF 1  
**840D25**



**BRICK MASONRY CONSTRUCTION**



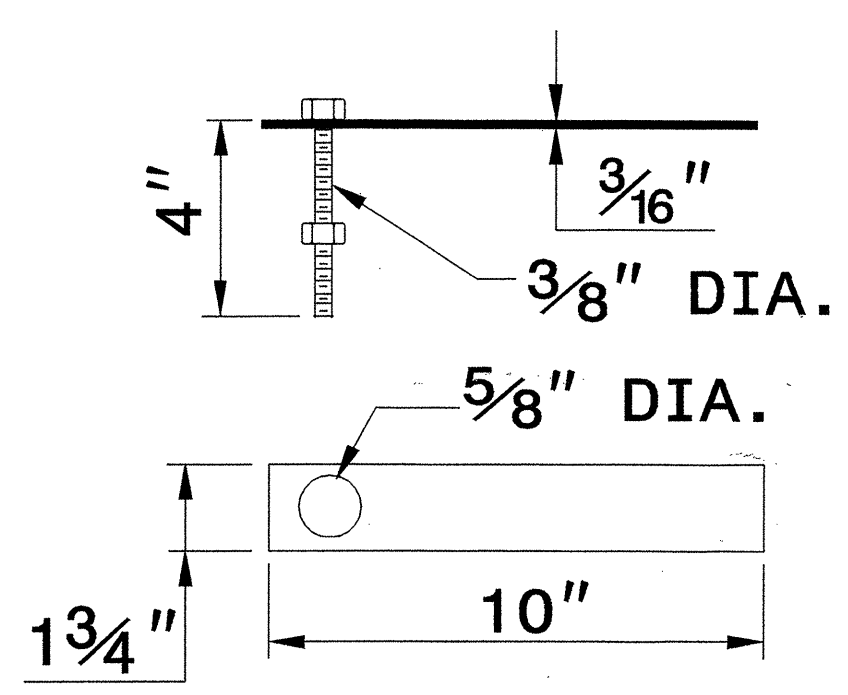
**CONCRETE CONSTRUCTION**



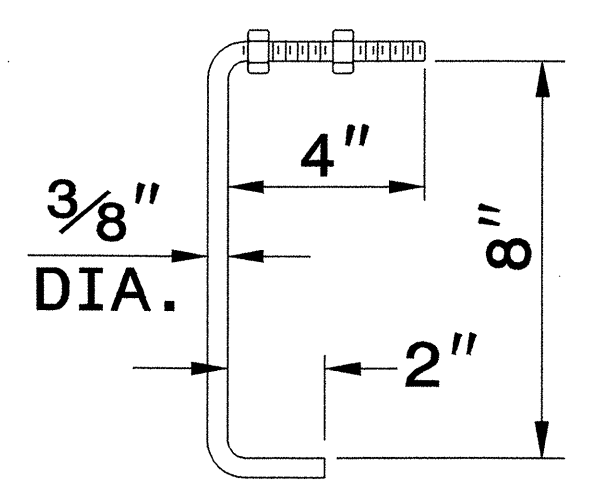
**PRECAST CONCRETE CONSTRUCTION**

**DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET**

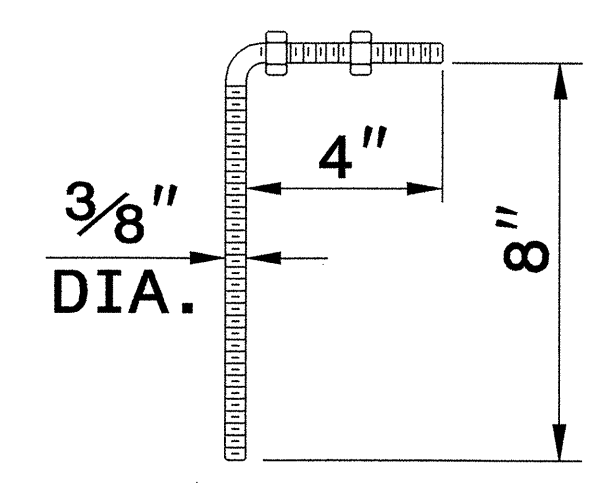
NOTE:  
 CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



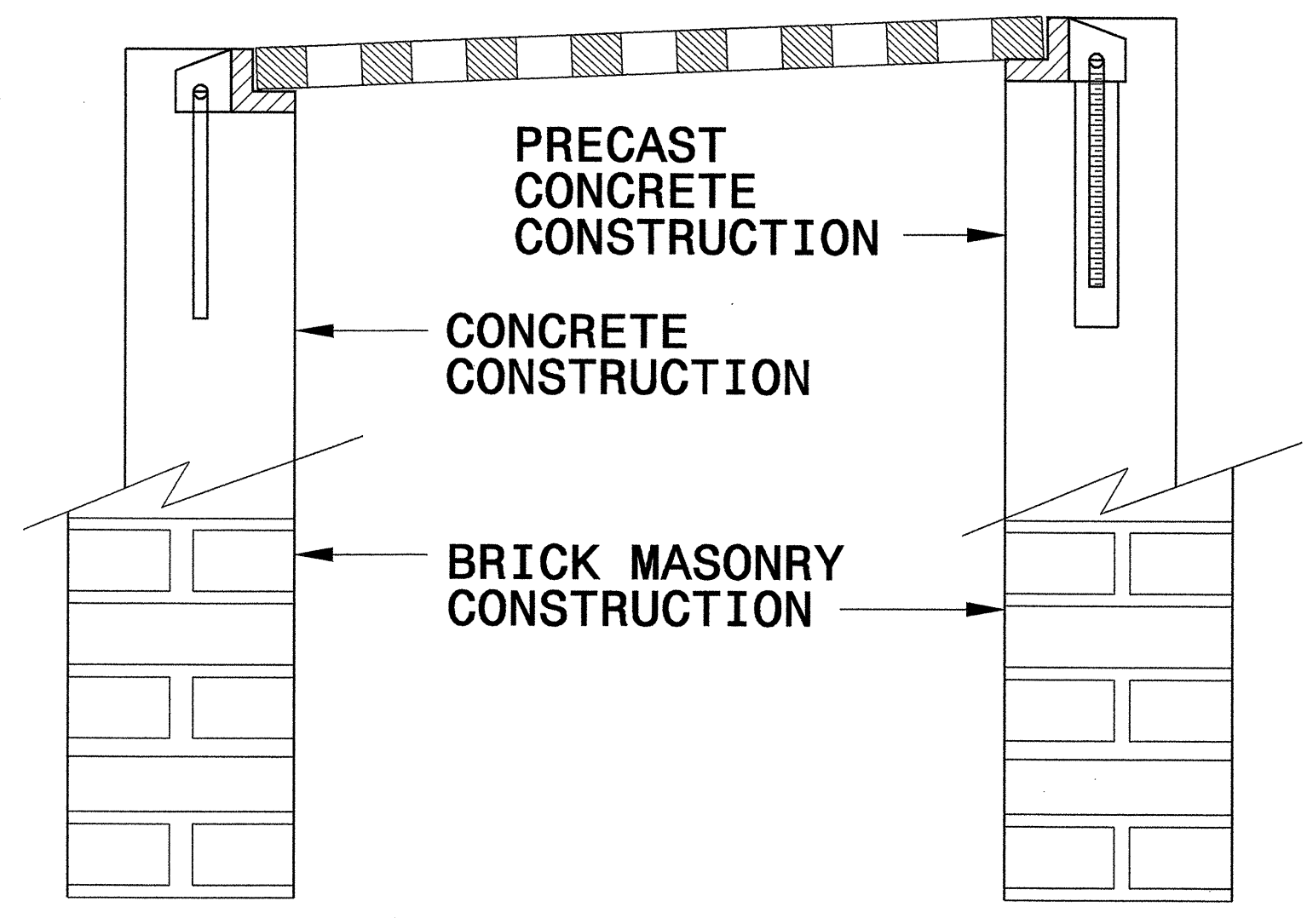
**MASONRY ANCHOR**  
 3/8" DIA. BOLT WITH PLATE



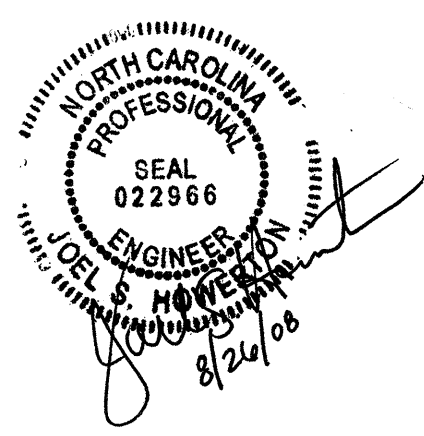
**CONCRETE ANCHOR**  
 3/8" DIA. BENT BAR



**PRECAST CONCRETE ANCHOR**  
 3/8" DIA. BENT BAR



**FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS**

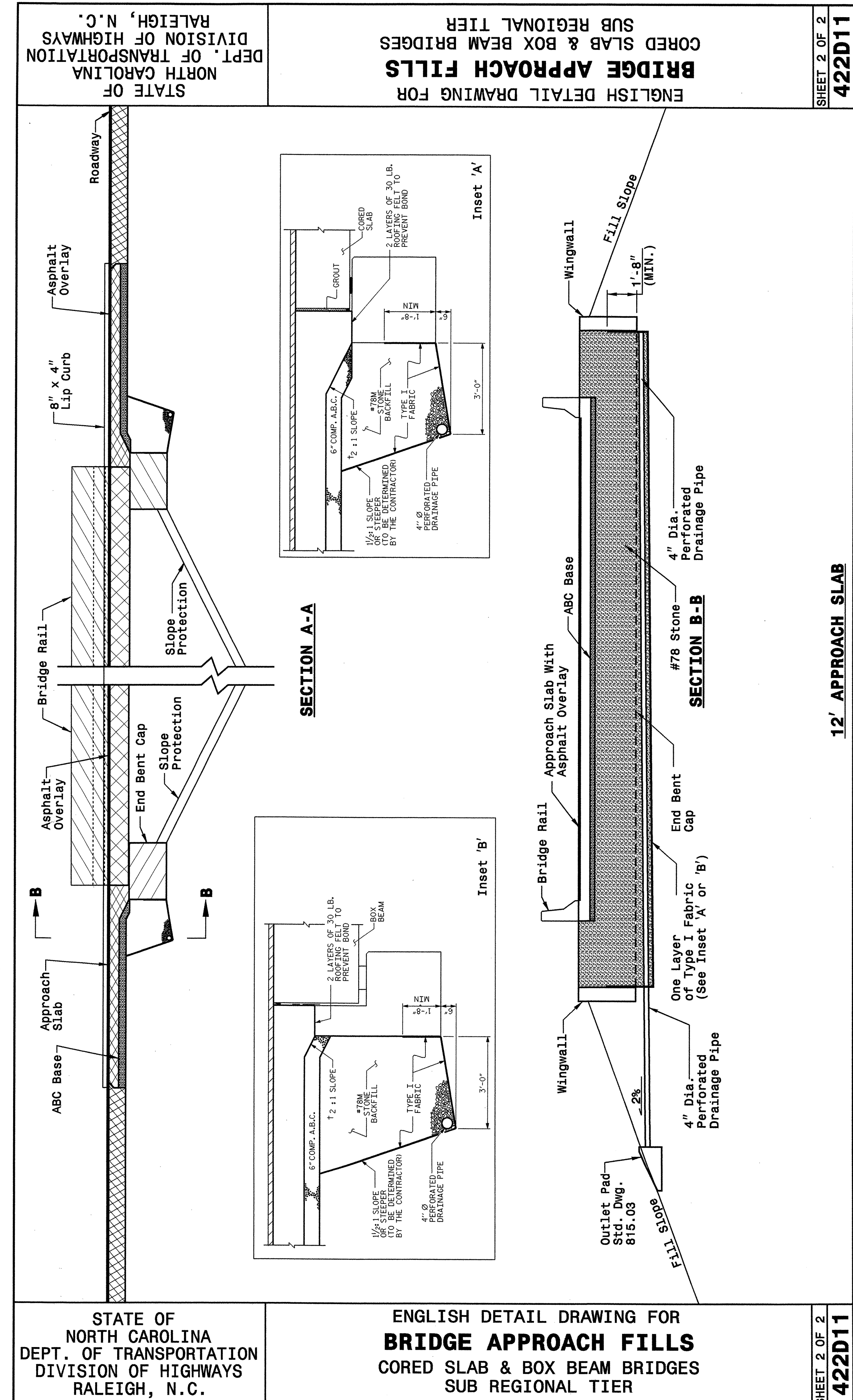
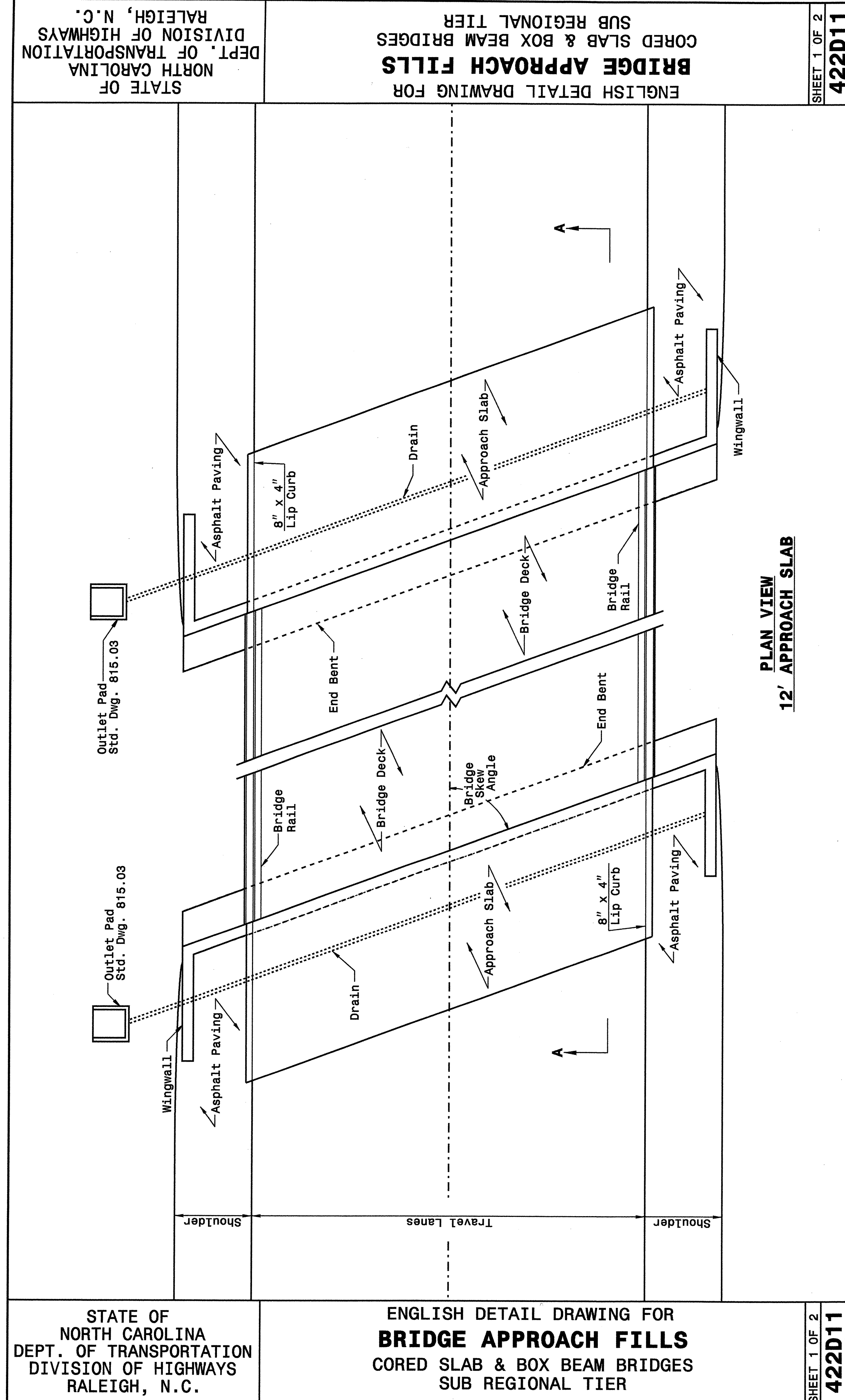


PROJECT SERVICES UNIT  
 STANDARDS AND SPECIAL DESIGN  
 Office 919-250-4128 FAX 919-250-4119

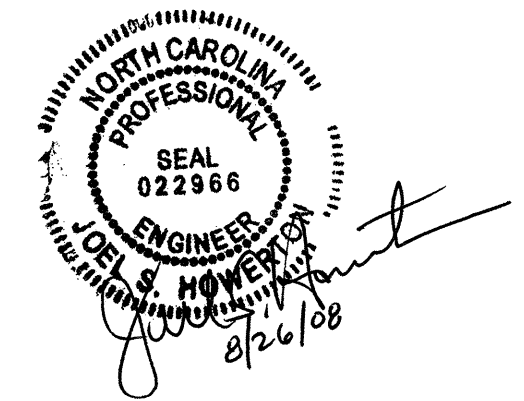
**SEE PLATE FOR TITLE**

ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06  
 MODIFIED BY: E.E. WARD DATE: 9/25/06  
 CHECKED BY: DATE:  
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PROJECT SERVICES UNIT  
 STANDARDS AND SPECIAL DESIGN  
 Office 919-250-4128 FAX 919-250-4119

**BRIDGE APPROACH FILLS**  
 CORED SLAB & BOX BEAM BRIDGES  
 SUB REGIONAL TIER

ORIGINAL BY: K. A. Kempf DATE: 6-10-08  
 MODIFIED BY: *Joe S. Howerton* DATE: *8/26/08*  
 CHECKED BY: *Joe S. Howerton* DATE: *4/27/02*  
 FILE SPEC.: *kkempf\english\bridge\_approach\_fills.dgn*

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201974

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0030000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ***** (13+64.00)
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0057000000-E	226	100	CY	UNDERCUT EXCAVATION
0134000000-E	240	450	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	200	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	200	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	300	10	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0344000000-E	310	56	LF	18" SIDE DRAIN PIPE
0995000000-E	340	24	LF	PIPE REMOVAL
1077000000-E	SP	15	TON	#57 STONE
1121000000-E	520	78	TON	AGGREGATE BASE COURSE
1220000000-E	545	200	TON	INCIDENTAL STONE BASE
1489000000-E	610	118	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1525000000-E	610	150	TON	ASPHALT CONC SURFACE COURSE, TYPE SP9.5A
1560000000-E	620	15	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
2000000000-N	806	4	EA	RIGHT OF WAY MARKERS
2022000000-E	815	45	CY	SUBDRAIN EXCAVATION
2033000000-E	815	34	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	200	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	6	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)
2286000000-N	840	2	EA	MASONRY DRAINAGE STRUCTURES

ItemNumber	Sec #	Quantity	Unit	Description
2367000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29
2556000000-E	846	145	LF	SHOULDER BERM GUTTER
3030000000-E	862	75	LF	STEEL BM GUARDRAIL
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3215000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3575000000-E	SP	350	LF	GENERIC FENCING ITEM TEMPORARY 4 STRAND BARBED WIRE FENCE WITH POSTS
3642000000-E	876	5	TON	RIP RAP, CLASS A
3649000000-E	876	130	TON	RIP RAP, CLASS B
3651000000-E	SP	35	TON	BOULDERS
3656000000-E	876	5,065	SY	FILTER FABRIC FOR DRAINAGE
3659000000-N	SP	1	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
4400000000-E	1110	425	SF	WORK ZONE SIGNS (STATIONARY)
4410000000-E	1110	96	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	8	EA	DRUMS
4445000000-E	1145	72	LF	BARRICADES (TYPE III)
4810000000-E	1205	2,840	LF	PAINT PAVEMENT MARKING LINES (4")
4900000000-N	1251	96	EA	PERMANENT RAISED PAVEMENT MARKERS
6000000000-E	1605	1,550	LF	TEMPORARY SILT FENCE
6006000000-E	1610	500	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	125	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	230	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	2.5	ACR	TEMPORARY MULCHING
6018000000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING

ItemNumber	Sec #	Quantity	Unit	Description
6021000000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING
6029000000-E	SP	475	LF	SAFETY FENCE
6030000000-E	1630	205	CY	SILT EXCAVATION
6036000000-E	1631	3,150	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	100	SY	COIR FIBER MAT
6038000000-E	SP	160	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	40	LF	1/4" HARDWARE CLOTH
6070000000-N	SP	8	EA	SPECIAL STILLING BASINS
6084000000-E	1660	3.5	ACR	SEEDING & MULCHING
6087000000-E	1660	1	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	1.25	TON	FERTILIZER TOPDRESSING
6110000000-E	SP	50	LF	IMPERVIOUS DIKE
6114000000-N	SP	5	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
6126000000-E	SP	0.12	ACR	STREAMBANK REFORESTATION
6138000000-E	SP	55	CY	GENERIC EROSION CONTROL ITEM IMPERVIOUS SELECT MATERIAL

\*\*\*\*\* BEGIN SCHEDULE AA \*\*\*\*\*  
\*\*\*\*\* (3 ALTERNATES) \*\*\*\*\*

0366000000-E AA1	310	36	LF	15" RC PIPE CULVERTS, CLASS III
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\*\*\* OR \*\*\*

0366000000-E AA2	310	24	LF	15" RC PIPE CULVERTS, CLASS III
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0540000000-E AA2	SP	12	LF	**** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (15", 0.064")
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\*\*\* OR \*\*\*

ItemNumber	Sec #	Quantity	Unit	Description
0366000000-E AA3	310	24	LF	15" RC PIPE CULVERTS, CLASS III
0536000000-E AA3	SP	12	LF	**** HDPE PIPE CULVERTS (15")

\*\*\*\*\* END SCHEDULE AA \*\*\*\*\*

5/14/99

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**SUMMARY OF EARTHWORK  
IN CUBIC YARDS**

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
Sta. 11+80.00 to 12+92.00 -L-	137		264	134	7
Sta. 10+10.00 to 12+00.00 -YI-	247		19		228
<b>TOTAL</b>	<b>384</b>		<b>283</b>	<b>134</b>	<b>235</b>
Sta. 14+36.00 to 15+35.00 -L-	29		17		12
<b>TOTAL</b>	<b>29</b>		<b>17</b>		<b>12</b>
<b>PROJECT TOTAL</b>	<b>413</b>		<b>300</b>	<b>134</b>	<b>247</b>
Waste in Lieu of Borrow				-134	-134
<b>GRAND TOTAL</b>	<b>413</b>		<b>300</b>		<b>113</b>
<b>SAY</b>	<b>420</b>				
Contingency Undercut		100			
Drainage Ditch Excavation = 450 CY					

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

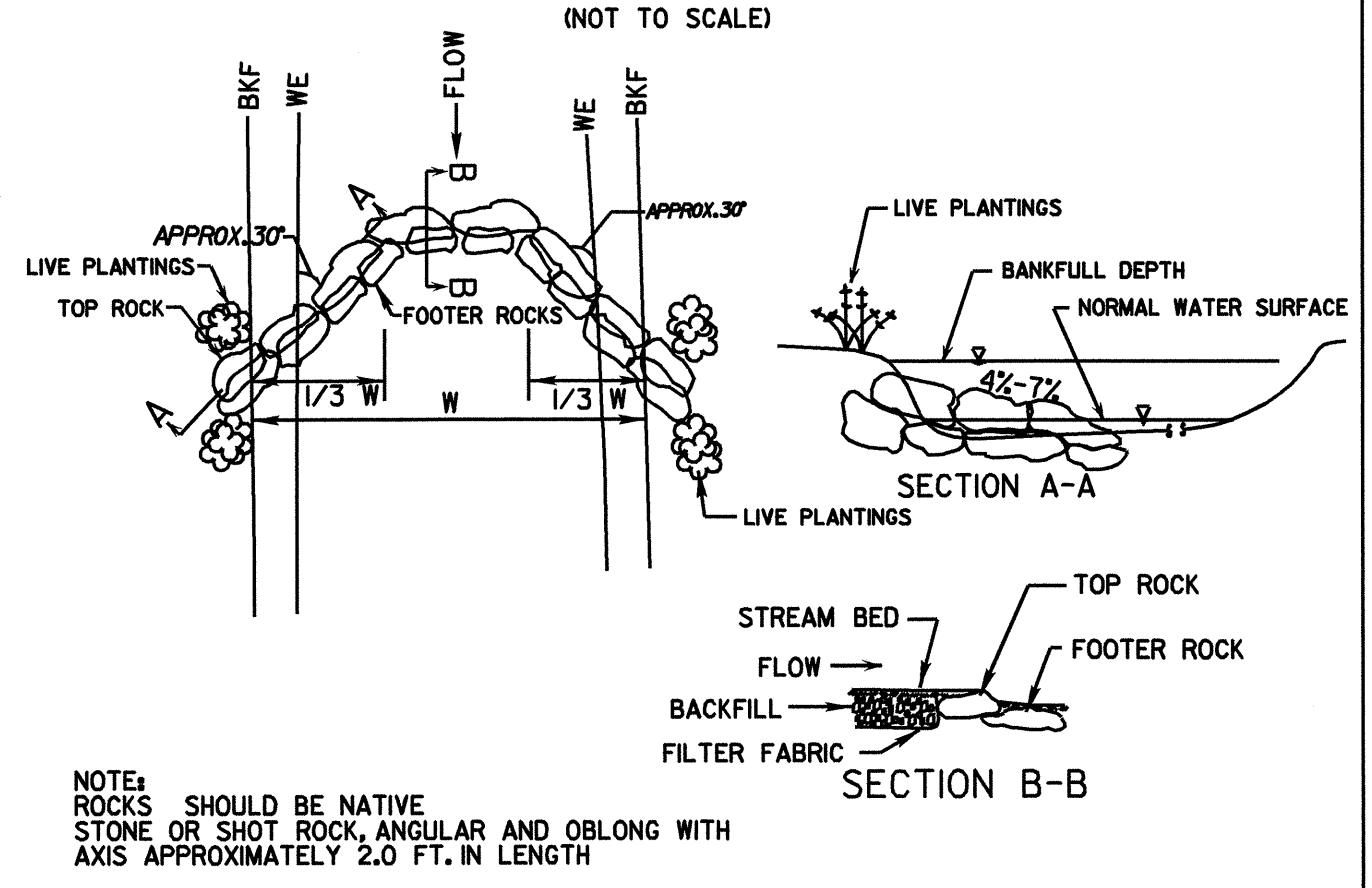
Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

**PAVEMENT REMOVAL SUMMARY  
IN SQUARE YARDS**

LOCATION	ASPH. PAVEMENT REMOVAL	ASPH. PAVEMENT BREAKUP	CONC. PAVEMENT REMOVAL	CONC. PAVEMENT BREAKUP
Sta. 11+80.00 to 13+30.28 -L-	298			
Sta. 13+99.00 to 15+35.00 -L-	349			
<b>TOTAL</b>	<b>647</b>			
<b>SAY</b>	<b>650</b>			

BEGIN TIP PROJECT B-4525  
Sta. 11+80.00 -L-

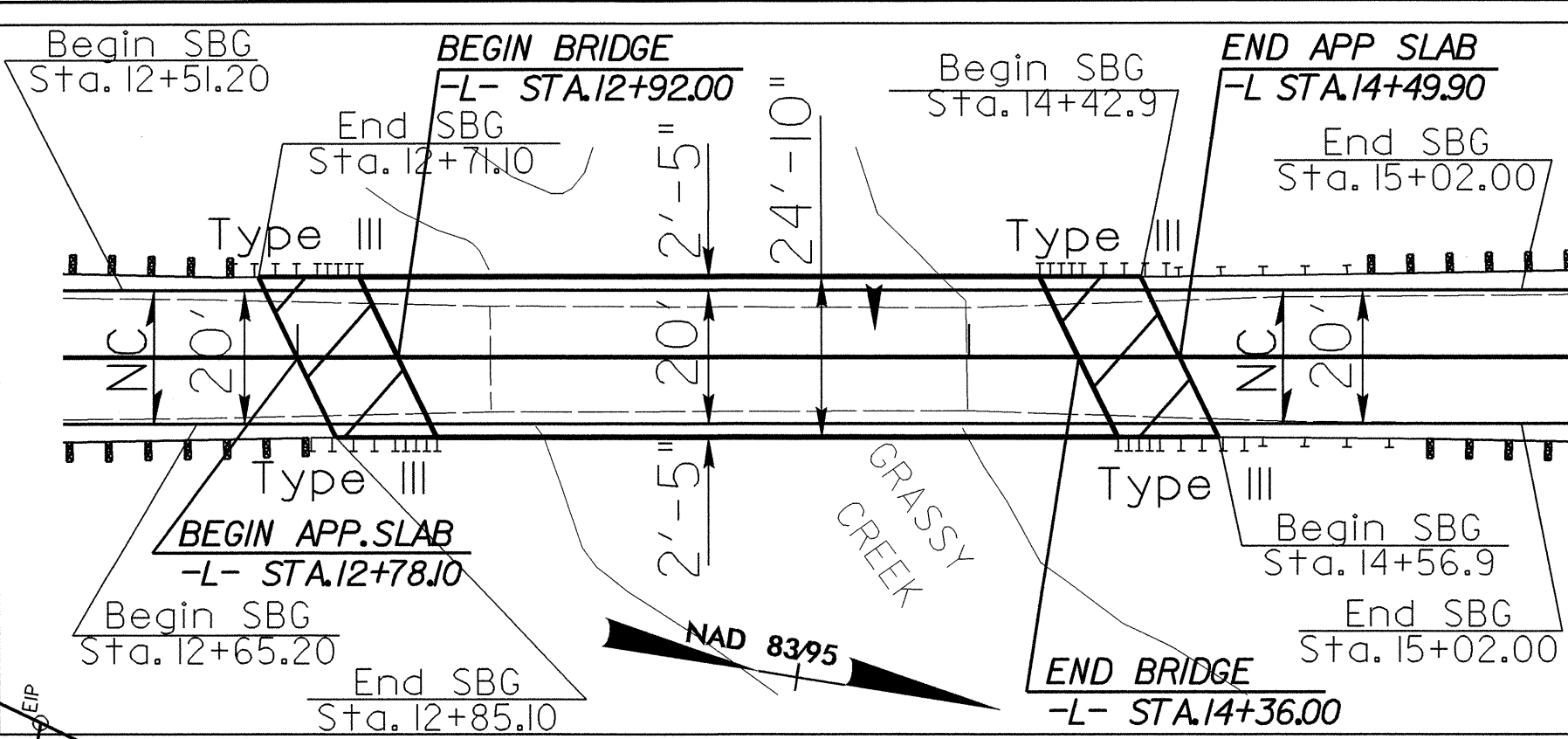
**ROCK CROSS VANE DETAIL G**



NOTES:  
ROCKS SHOULD BE NATIVE STONE OR SHOT ROCK, ANGULAR AND OBLONG WITH AXIS APPROXIMATELY 2.0 FT. IN LENGTH

-L- STA. 12+59 LT  
-L- STA. 13+23 LT

SBG = SHOULDER BERM GUTTER  
STA 12+51.2 TO 12+71.1 LT  
STA 12+65.2 TO 12+85.1 RT  
STA 14+42.9 TO 15+02.0 LT  
STA 14+56.9 TO 15+02.0 RT

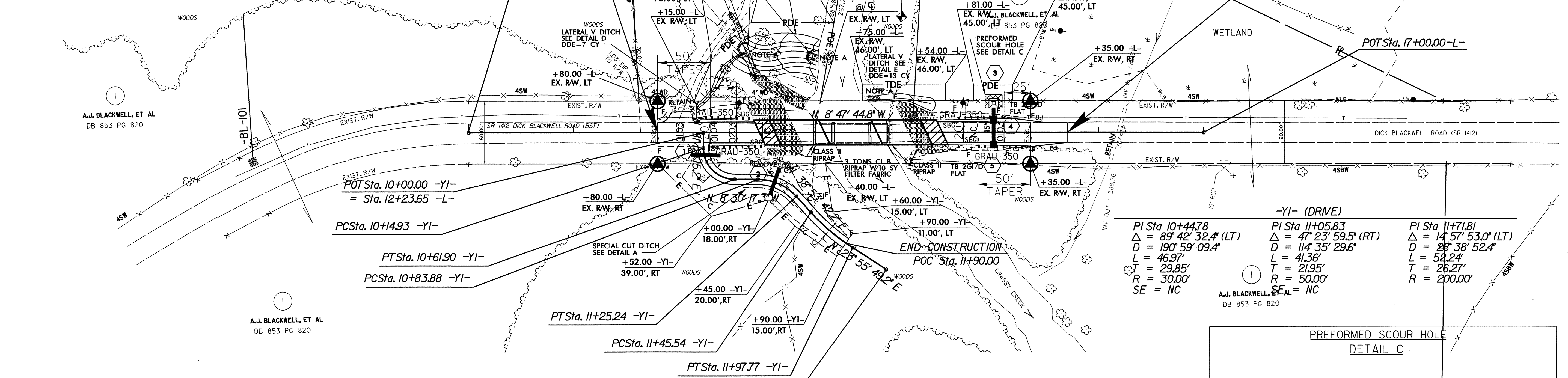


RELATIONSHIP BETWEEN STRUCTURE AND APPROACHES  
(Drawing Not to Scale)

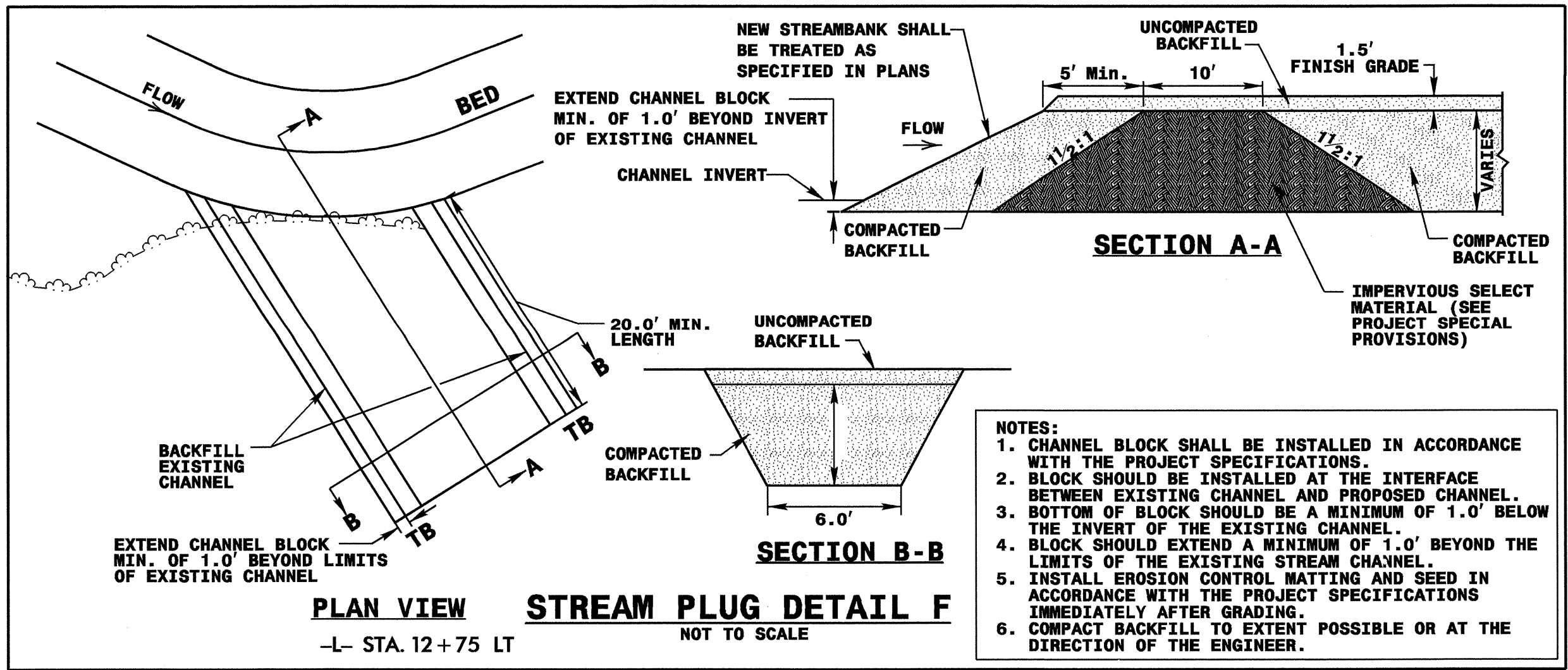
PROPOSED BRIDGE APPROACH SLAB

SBG = Shoulder Berm Gutter

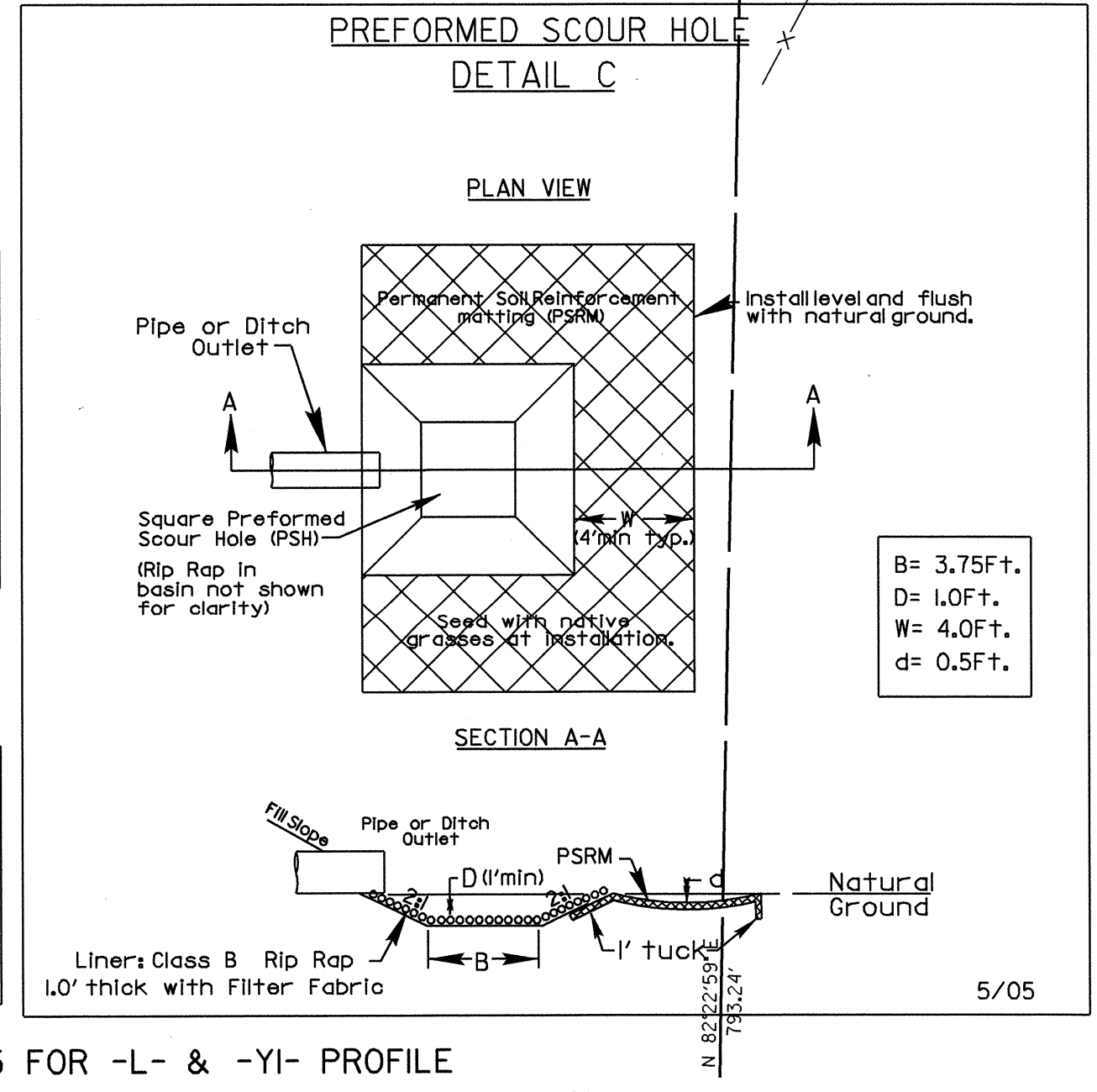
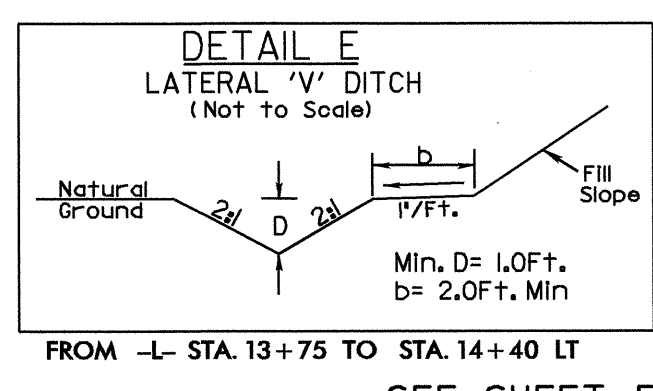
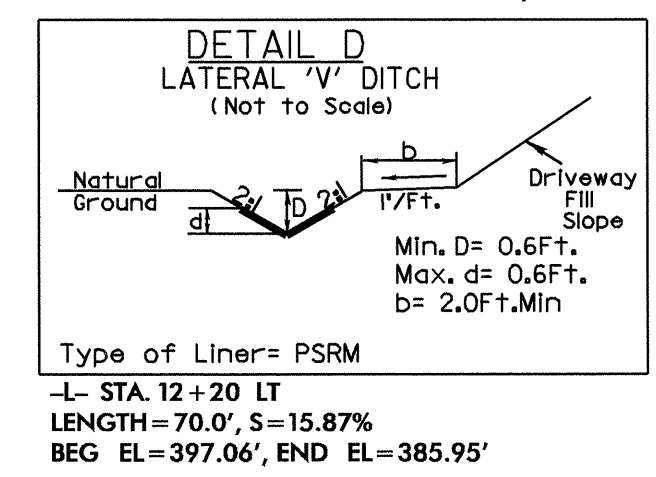
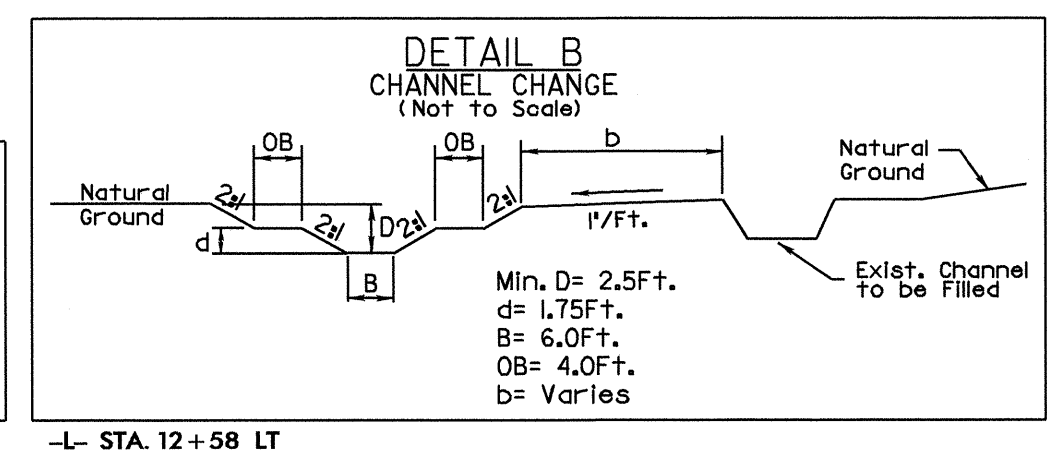
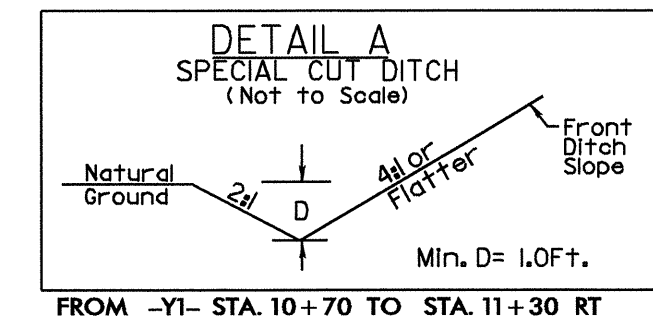
END TIP PROJECT B-4525  
Sta. 15+70.00 -L-



-YI- (DRIVE)		
PI Sta 10+44.78	PI Sta 11+05.83	PI Sta 11+71.81
$\Delta = 89^\circ 42' 32.4''$ (LT)	$\Delta = 47^\circ 23' 59.5''$ (RT)	$\Delta = 14^\circ 57' 53.0''$ (LT)
$D = 190^\circ 59' 09.4''$	$D = 114^\circ 35' 29.6''$	$D = 28^\circ 38' 52.4''$
$L = 46.97'$	$L = 41.36'$	$L = 54.24'$
$T = 29.85'$	$T = 21.95'$	$T = 26.27'$
$R = 30.00'$	$R = 50.00'$	$R = 200.00'$
SE = NC	SE = NC	SE = NC



- NOTES:
- CHANNEL BLOCK SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
  - BLOCK SHOULD BE INSTALLED AT THE INTERFACE BETWEEN EXISTING CHANNEL AND PROPOSED CHANNEL.
  - BOTTOM OF BLOCK SHOULD BE A MINIMUM OF 1.0' BELOW THE INVERT OF THE EXISTING CHANNEL.
  - BLOCK SHOULD EXTEND A MINIMUM OF 1.0' BEYOND THE LIMITS OF THE EXISTING STREAM CHANNEL.
  - INSTALL EROSION CONTROL MATTING AND SEED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS IMMEDIATELY AFTER GRADING.
  - COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.



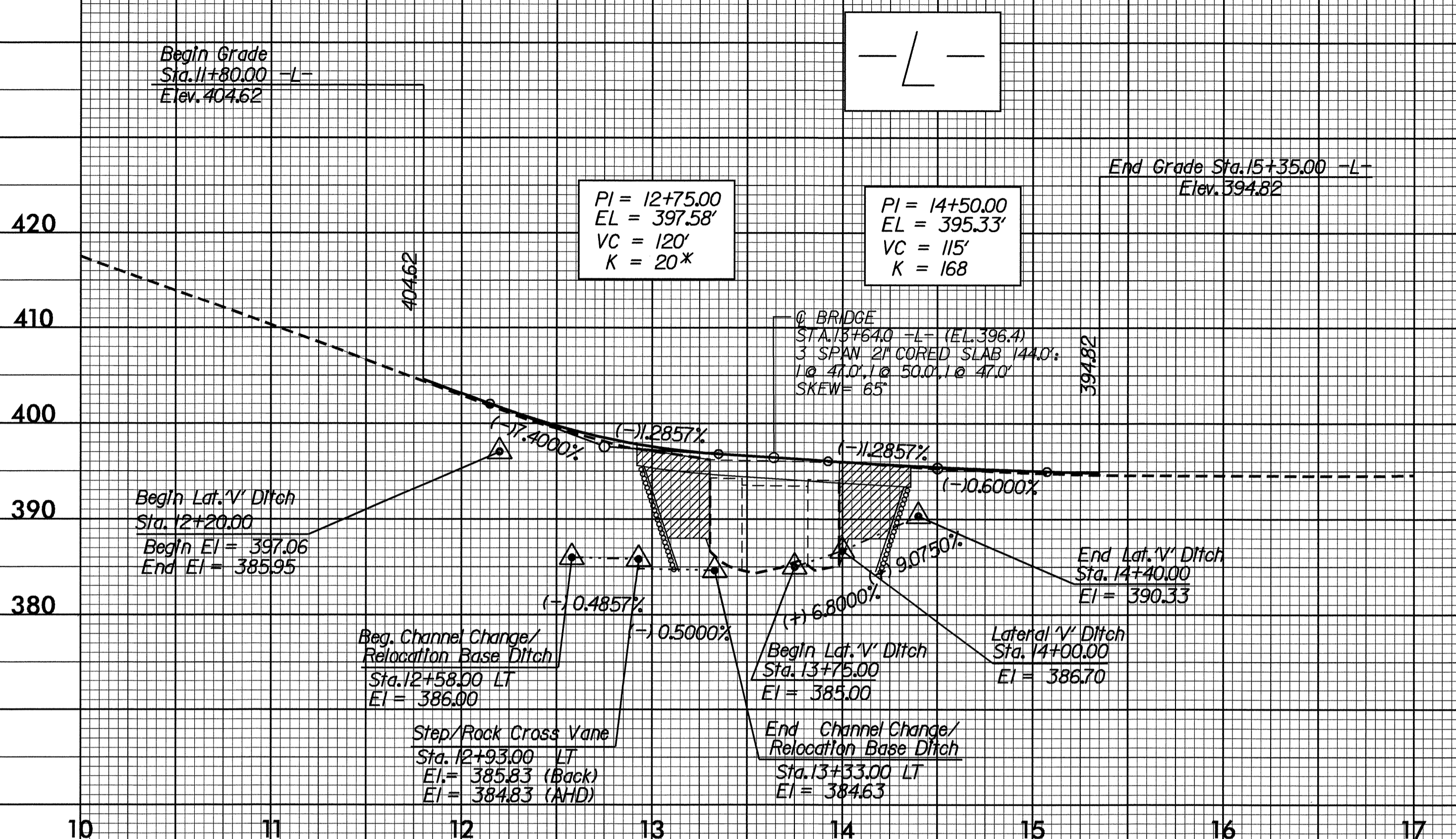
SEE SHEET 5 FOR -L- & -YI- PROFILE  
SEE SHEET S-1 THRU S-22 FOR STRUCTURE PLANS

8/17/09

REVISIONS

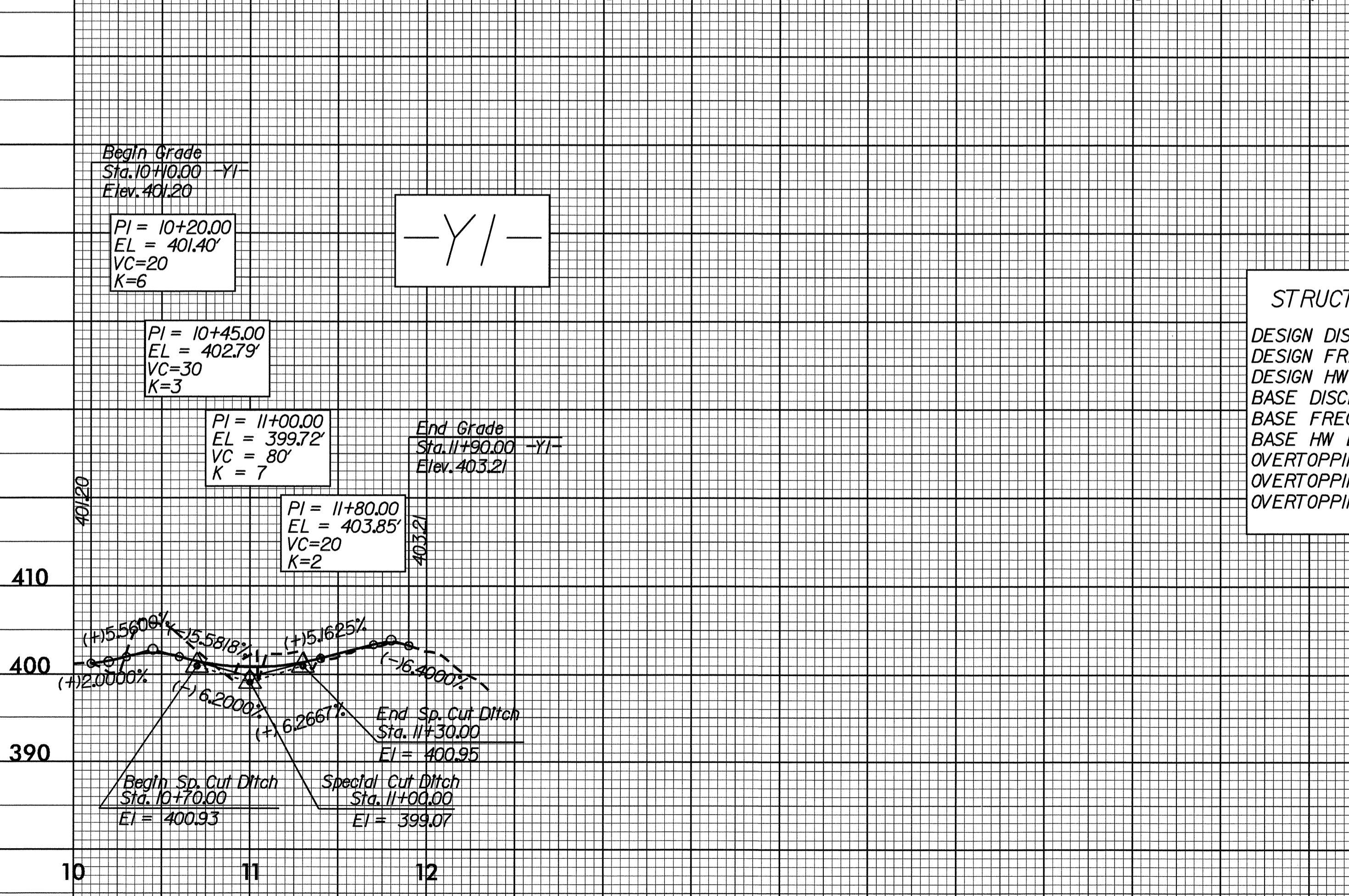
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\* Design Exception Required for Sag Curve K Factor and Vertical Curve Stopping Sight Distance



BMI ELEVATION = 456.44'  
N 984210 E 2094600  
BL STATION 5+00  
S 45° 37' 36.9" E Dist 501.61 =  
-L- STA. 10+00  
S 37° 13' 13" E Dist 690'  
8" RR SPIKE IN 8" SOURWOOD

BM2 ELEVATION = 391.70'  
N 985151 E 2094011  
BL STATION 11+26 97' LEFT  
-L- STA 14+25.6, 110.35' LT  
RR SPIKE IN 20" OAK



STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 3200	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 396.1	FT
BASE DISCHARGE	= 4700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 397.4	FT
OVERTOPPING DISCHARGE	= 3080	CFS
OVERTOPPING FREQUENCY	= 25	YRS
OVERTOPPING ELEVATION	= 395.6	FT

LEFT DITCH -----

RIGHT DITCH -----

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