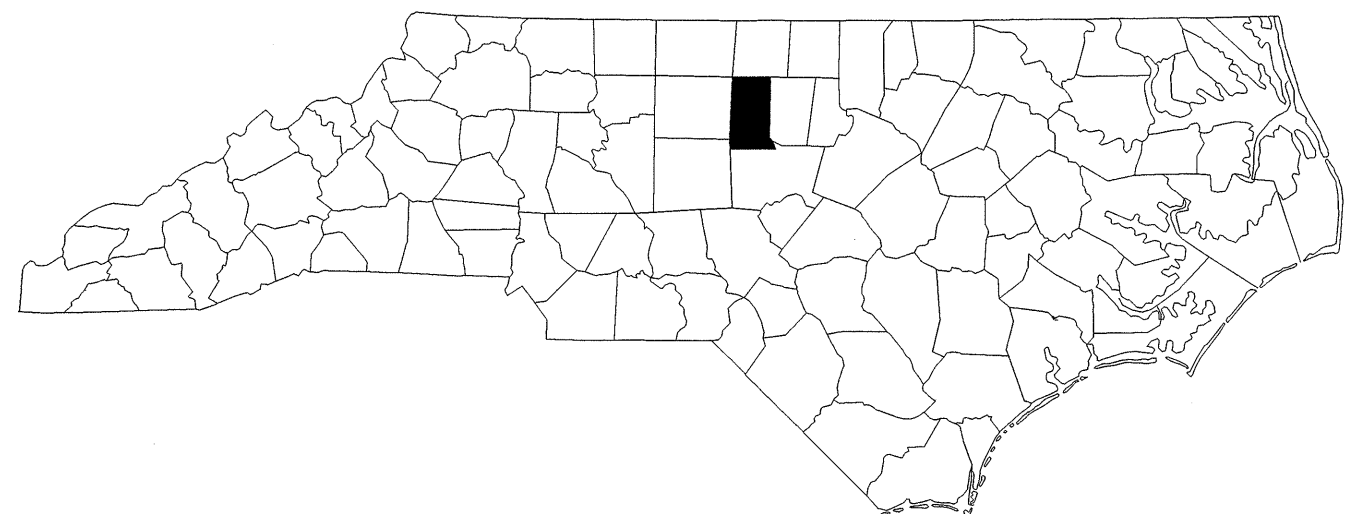
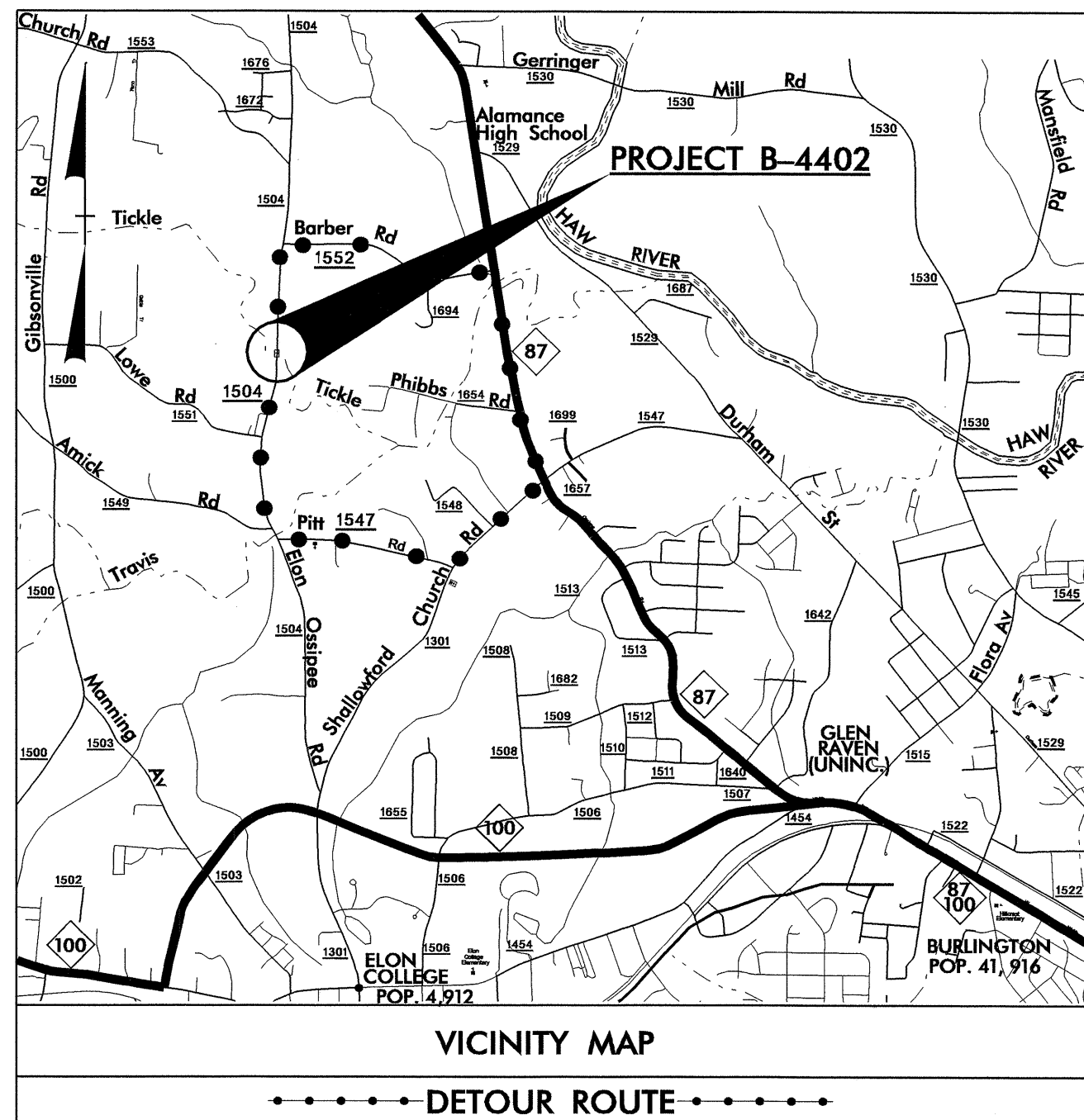


09/08/09

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# ALAMANCE COUNTY

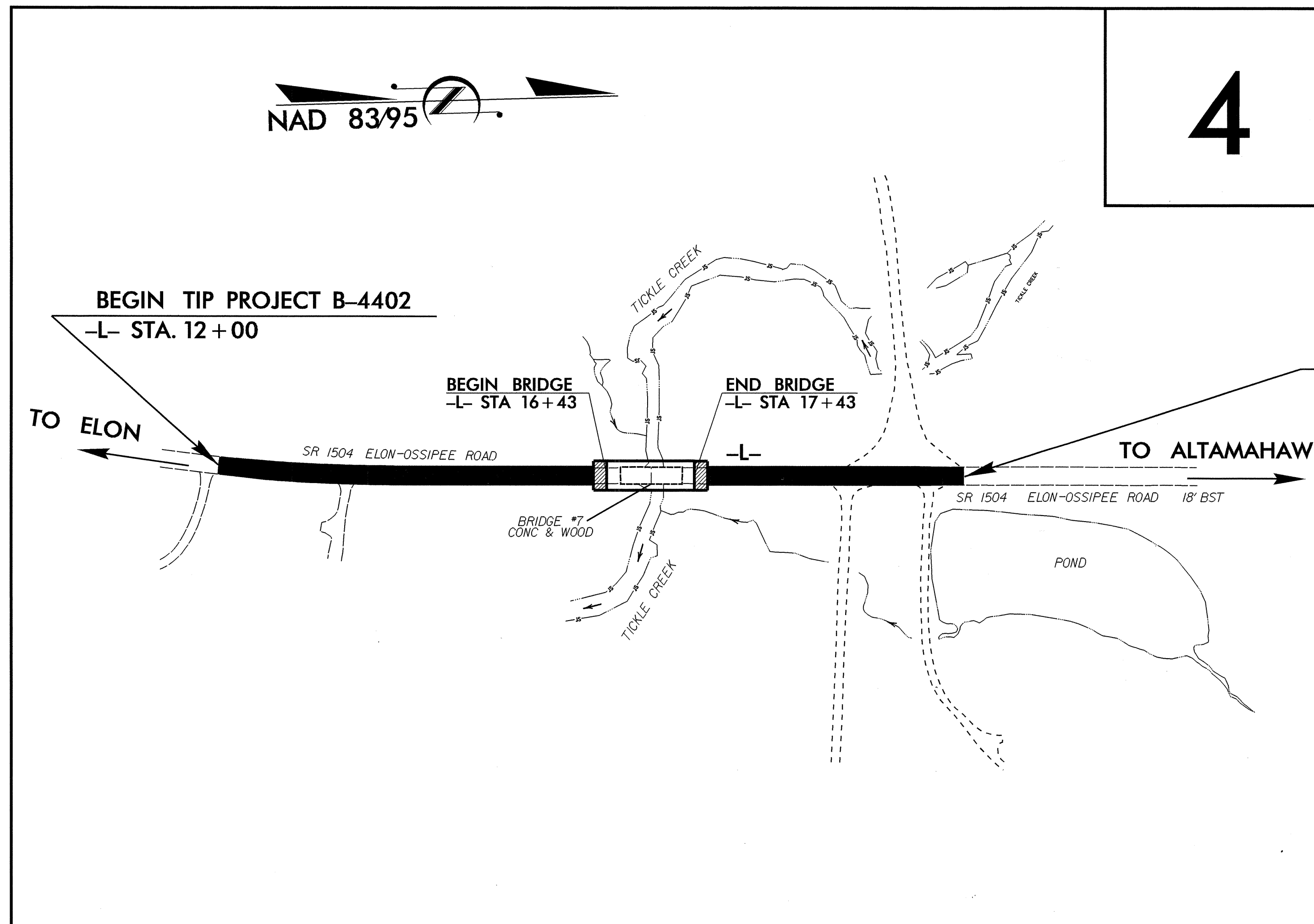
LOCATION: BRIDGE #7 OVER TICKLE CREEK ON SR 1504

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

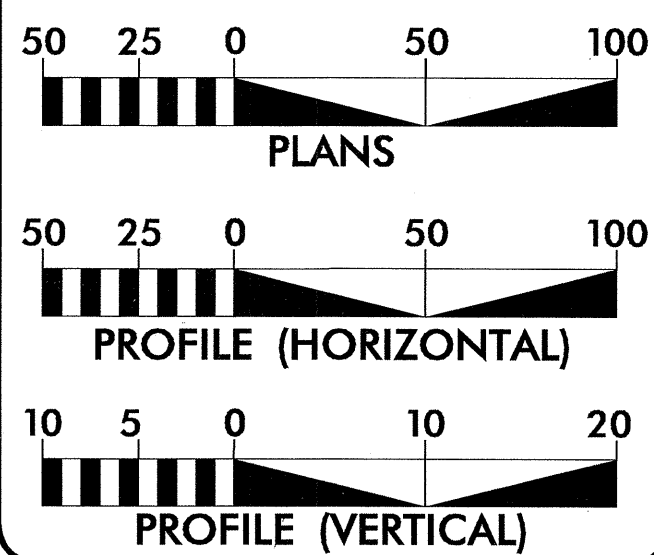
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4402	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33682.1.1	BRZ-1504(9)	P.E.	
33682.2.1	BRZ-1504(9)	RW, UTIL	
33682.3.1	BRZ-1504(9)	CONST.	

TIP PROJECT: B-4402

CONTRACT: C202048



**GRAPHIC SCALES**



**DESIGN DATA**

ADT 2008 = 2,470  
 ADT 2030 = 4,500  
 DHV = 13 %  
 D = 60 %  
 T = 3 % \*  
 V = 50 MPH  
 \* TTST 1% DUAL 2%  
 FUNC. CLASS = LOCAL

**PROJECT LENGTH**

LENGTH OF ROADWAY STATE PROJECT B-4402 = 0.142 MI.  
 LENGTH OF STRUCTURE STATE PROJECT B-4402 = 0.019 MI.  
 TOTAL LENGTH OF STATE PROJECT B-4402 = 0.161 MI.

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

2006 STANDARD SPECIFICATIONS

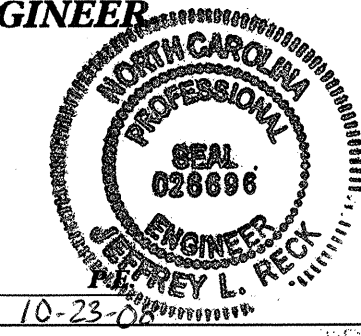
RIGHT OF WAY DATE:  
 JANUARY 18, 2008

LETTING DATE:  
 JANUARY 20, 2009

JIMMY GOODNIGHT, PE  
 PROJECT ENGINEER

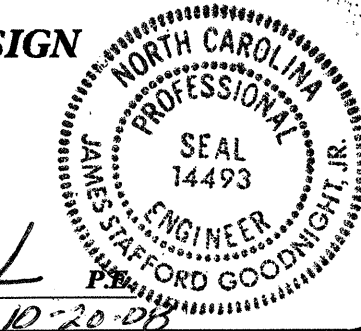
MARK HUSSEY  
 PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER



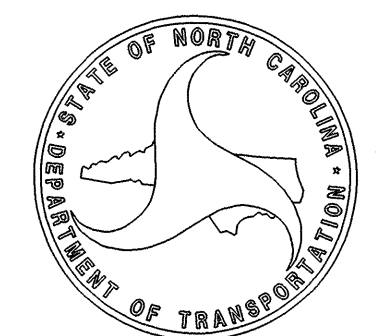
Signature: *Jeffrey L. Reay*  
 10-23-08

ROADWAY DESIGN ENGINEER



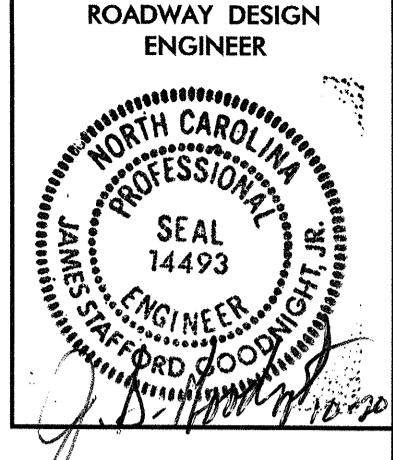
Signature: *James Stanford Goodnight, Jr.*  
 10-20-08

DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA



*Art McMillan*  
 STATE HIGHWAY DESIGN ENGINEER P.E.

14-OCT-2008 09:41  
 r:\roadway\prow\140402\_rdy\_tsh.dgn  
 \$\$\$USERNAME\$\$\$



# 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
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-A	ROCK PLATING DETAIL NO. 2
2-B	ANCHORAGE FOR FRAMES DETAIL
2-C	BRIDGE APPROACH FILLS
3	SUMMARY OF QUANTITIES
3A	SUMMARY OF DRAINAGE QUANTITIES
	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-3	TRAFFIC CONTROL PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-3	SIGNING PLANS
SD-1	SPECIAL SIGN DESIGN
UO-1 THRU UO-2	UTILITIES PLANS BY OTHERS
X-1	CROSS-SECTION SUMMARY
X-2 THRU X-11	CROSS-SECTIONS
S-1 THRU S-18	STRUCTURE PLANS

## 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:

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

STD.NO.	TITLE
<b>DIVISION 2 - EARTHWORK</b>	
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
<b>DIVISION 3 - PIPE CULVERTS</b>	
300.01	Method of Pipe Installation - Method 'A'
310.10	Driveway Pipe Construction
<b>DIVISION 5 - SUBGRADE, BASES AND SHOULDERS</b>	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
<b>DIVISION 8 - INCIDENTALS</b>	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
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
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.01	Rip Rap in Channels

## GENERAL NOTES: 2006 SPECIFICATIONS

REVISED: 07-30-08  
EFFECTIVE: 07-18-06

### 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.

### 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.

### UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE POWER, BELLSOUTH, AT&T 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.

Note: Not to Scale

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

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

Table listing symbols for 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, 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:

Table listing symbols for 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:

Table listing symbols for 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:

Table listing symbols for railroads: Standard Gauge, RR Signal Milepost, Switch, RR Abandoned, RR Dismantled.

RIGHT OF WAY:

Table listing symbols for 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:

Table listing symbols for 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:

Table listing symbols for vegetation: Single Tree, Single Shrub, Hedge, Woods Line, Orchard, Vineyard.

EXISTING STRUCTURES:

Table listing symbols for 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:

Table listing symbols for 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:

Table listing symbols for 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:

Table listing symbols for 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:

Table listing symbols for gas: Gas Valve, Gas Meter, Recorded U/G Gas Line, Designated U/G Gas Line (S.U.E.\*), Above Ground Gas Line.

SANITARY SEWER:

Table listing symbols for 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.\*).

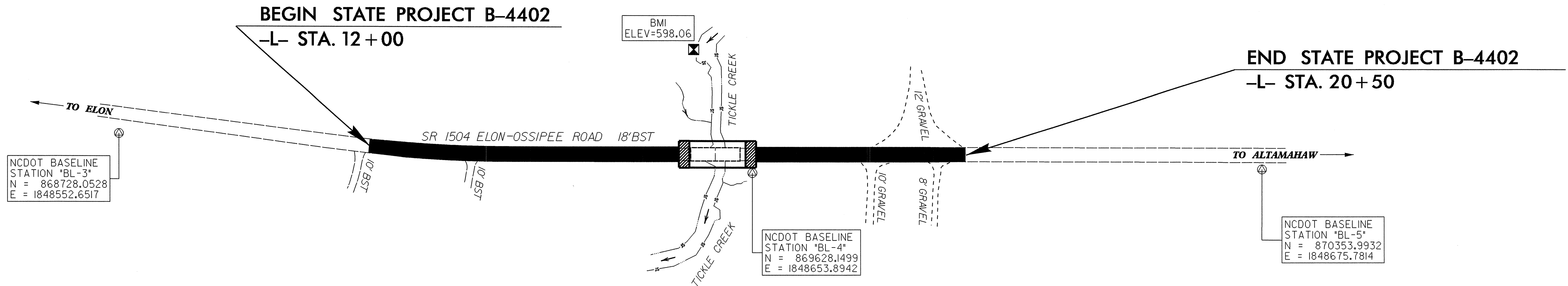
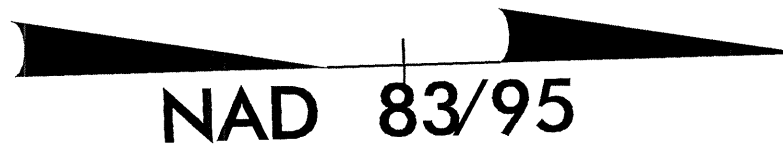
MISCELLANEOUS:

Table listing symbols for 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, End of Information.

12/01/2005

# B-4402 SURVEY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
B-4402	1-C
Location and Surveys	



### BASELINE DATA

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3		868728.0528	1848552.6517	637.78	OUTSIDE PROJECT LIMITS	
4		869628.1499	1848653.8942	604.74	17+46.68	15.45 RT
5		870353.9932	1848675.7814	622.74	OUTSIDE PROJECT LIMITS	

### NOTES

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)  
 THE FILES TO BE FOUND ARE AS FOLLOWS:  
 b4402\_ls\_control\_070309.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)

**DATUM DESCRIPTION**  
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3801-2"  
 WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF  
 NORTHING: 867918.389(ft) EASTING: 1848326.324(ft)  
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99996525  
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3801-2" TO -L- STATION 12+00 IS  
 N 13°42'35" E 1198.80'  
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NAVD 88

### BENCHMARK DATA

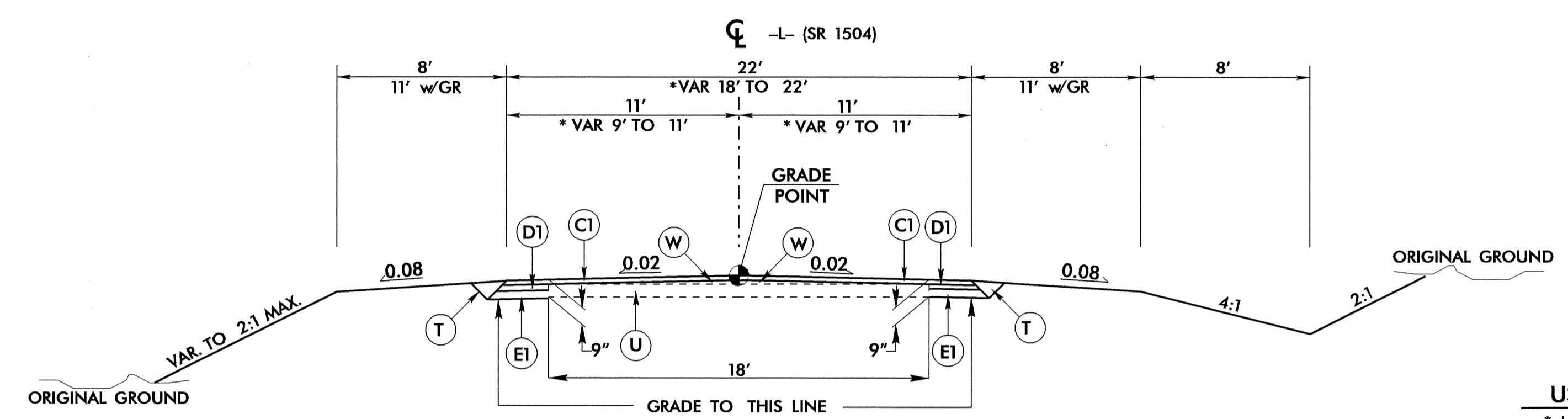
\*\*\*\*\*  
 BM1 ELEVATION = 598.06  
 N 869549 E 1848486  
 L STATION 16+63 150 LEFT  
 RR SPIKE IN 12 INCH SILVER MAPLE  
 \*\*\*\*\*

NOTE: DRAWING NOT TO SCALE

14-OCT-2008 09:11  
 f:\ar\osch\work\12\154402-1s-1c-070309.dgn  
 12/01/2005 11:53:33

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.50 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 1 1/2" IN DEPTH.
D1	PROP. APPROX. 2-1/2" 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 1/2" 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" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

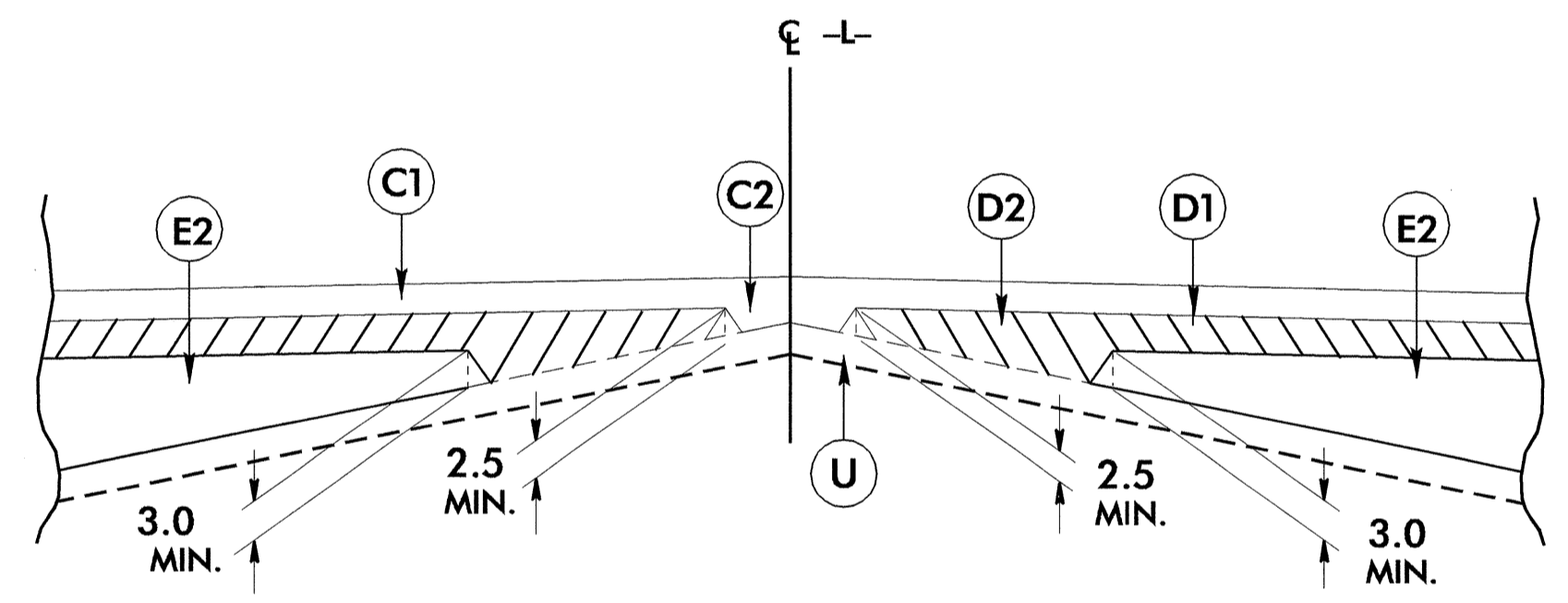
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



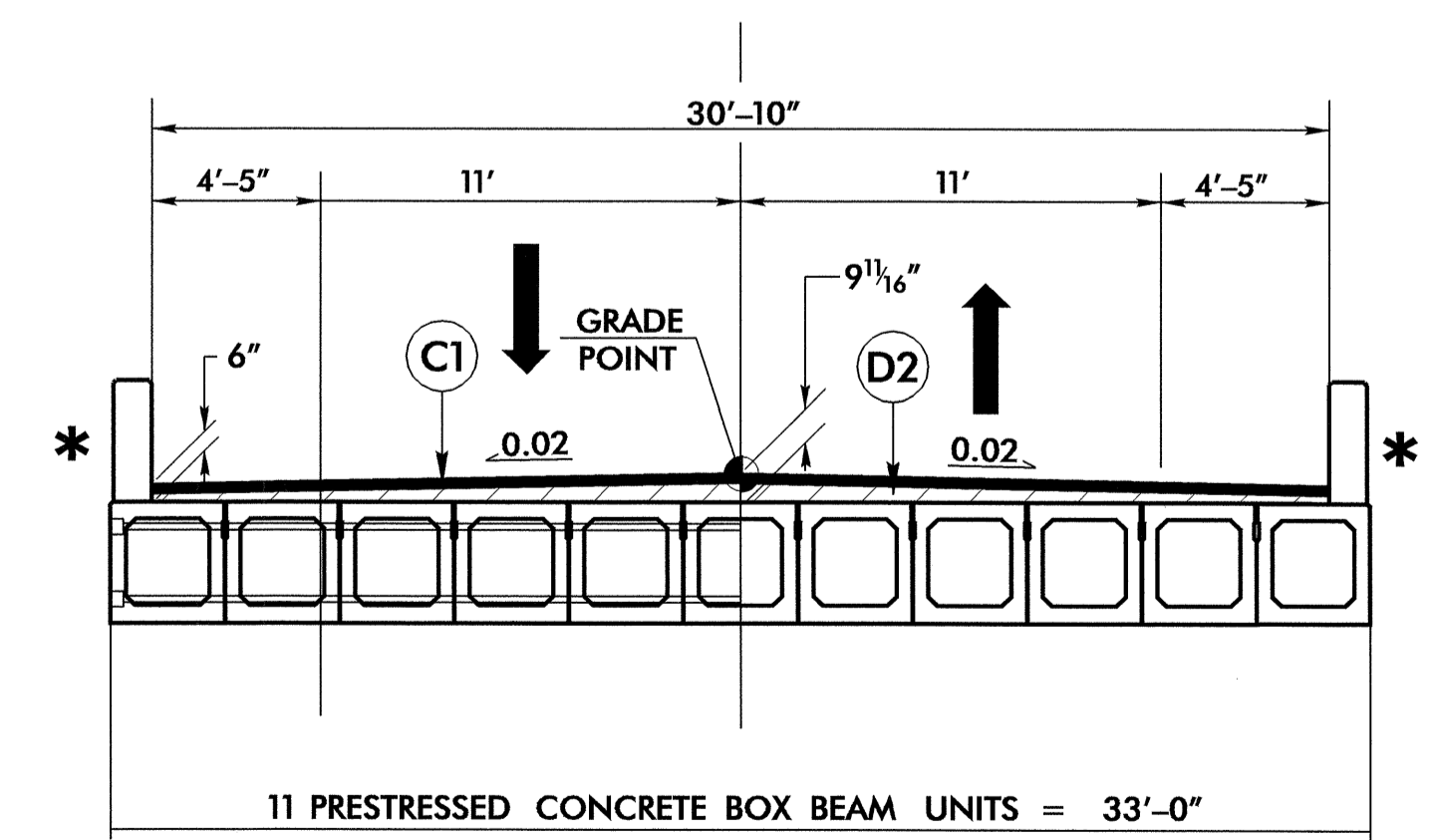
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

- \*-L- STA. 12+00 TO -L- STA. 12+50
- \*-L- STA. 20+00 TO -L- STA. 20+50
- L- STA. 12+50 TO -L- STA. 15+00
- L- STA. 18+00 TO -L- STA. 20+50

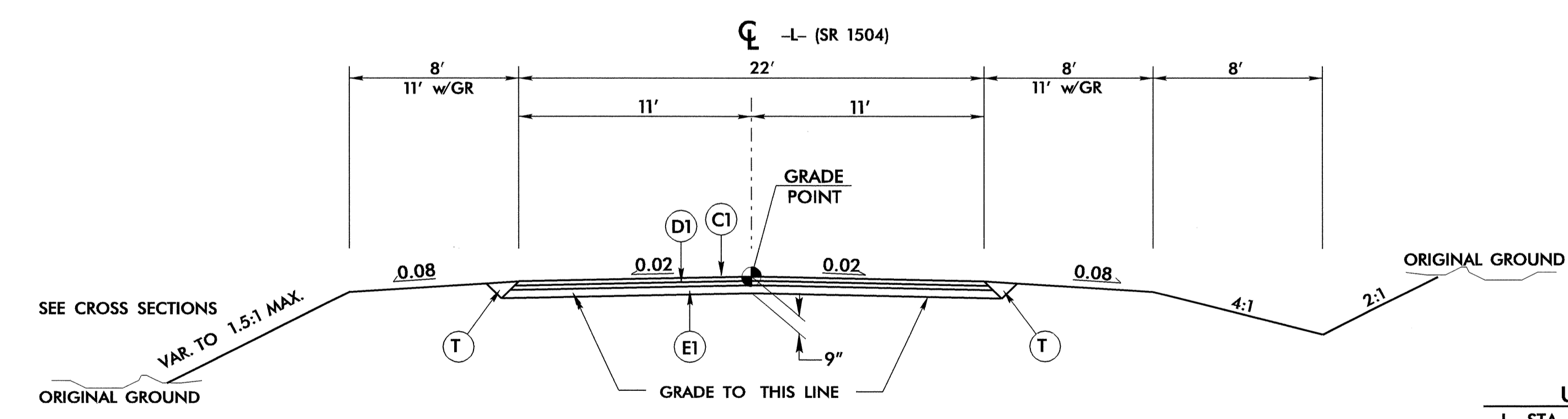


Detail Showing Method of Wedging



BRIDGE TYPICAL SECTION

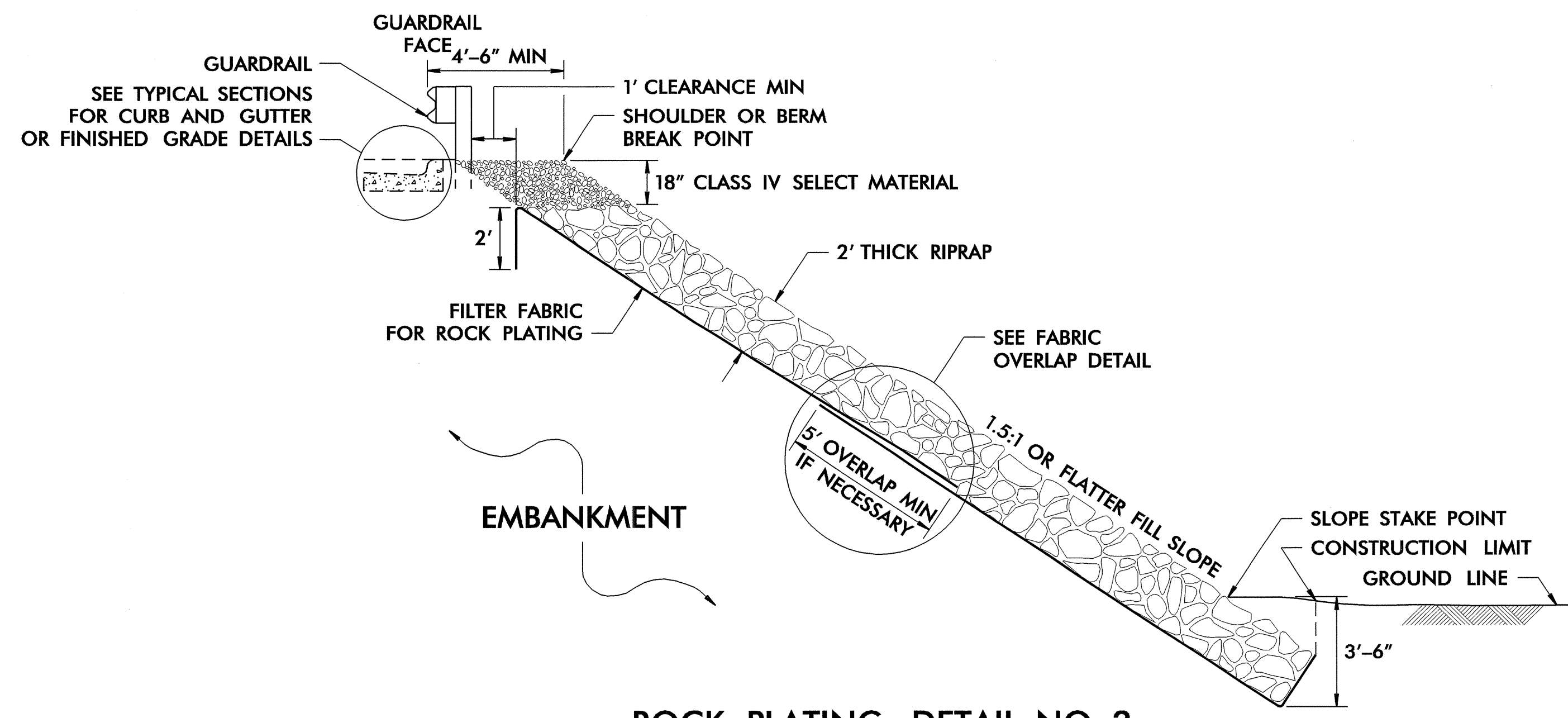
\*BRIDGE RAIL TO BE DETERMINED BY THE STRUCTURE DESIGN UNIT



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

- L- STA. 15+00.00 TO -L- 16+43.00 (BEG. BRIDGE)
- L- STA. 17+43.00 (END BRIDGE) TO -L- STA. 18+00.00



**ROCK PLATING DETAIL NO. 2**

USE ROCK PLATING DETAIL NO. 2  
AT THE FOLLOWING LOCATIONS:

-L- STA 17+57 RT. + TO -L- STA 18+25 RT. +  
EXTEND ROCK PLATING LIMITS TO 3:1 SLOPES.

ROCK PLATING DETAIL AND LOCATIONS WERE PROVIDED THROUGH A SEALED DOCUMENT FROM THE GEOTECHNICAL ENGINEERING UNIT.  
THE DOCUMENT WAS SUBMITTED TO THE ROADWAY DESIGN UNIT ON FEBRUARY 26, 2008  
AND SEALED BY A PROFESSIONAL ENGINEER, CHARLES A. GOVE, PE, LICENSE # 029413.

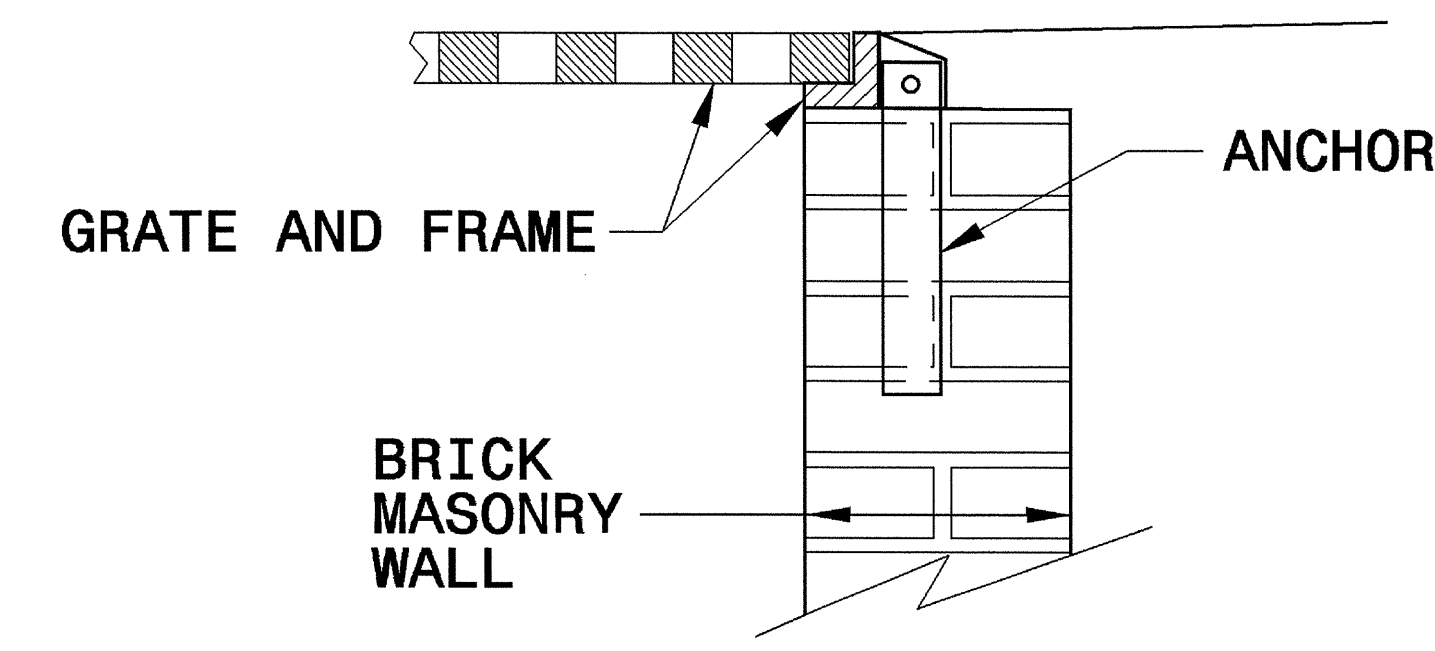
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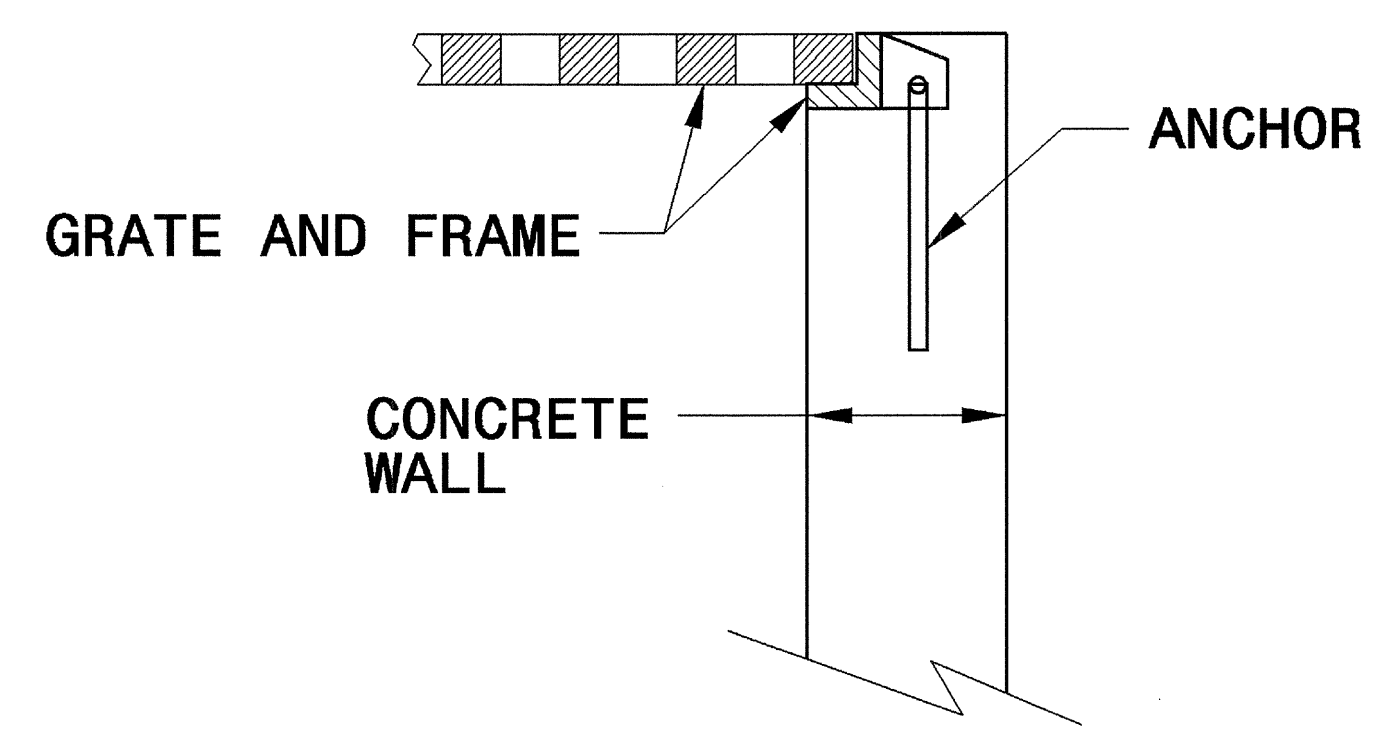
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

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

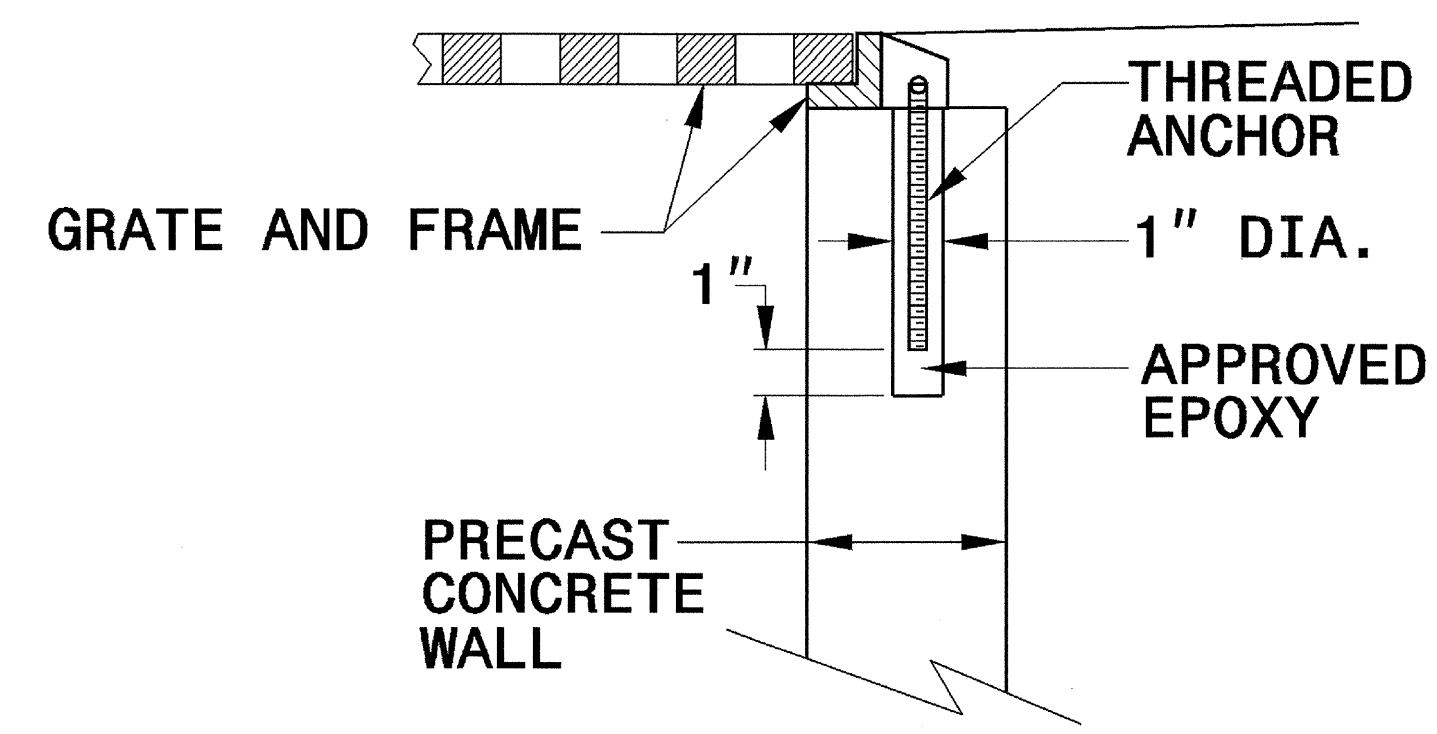
SHEET 1 OF 1  
**840D25**



**BRICK MASONRY CONSTRUCTION**



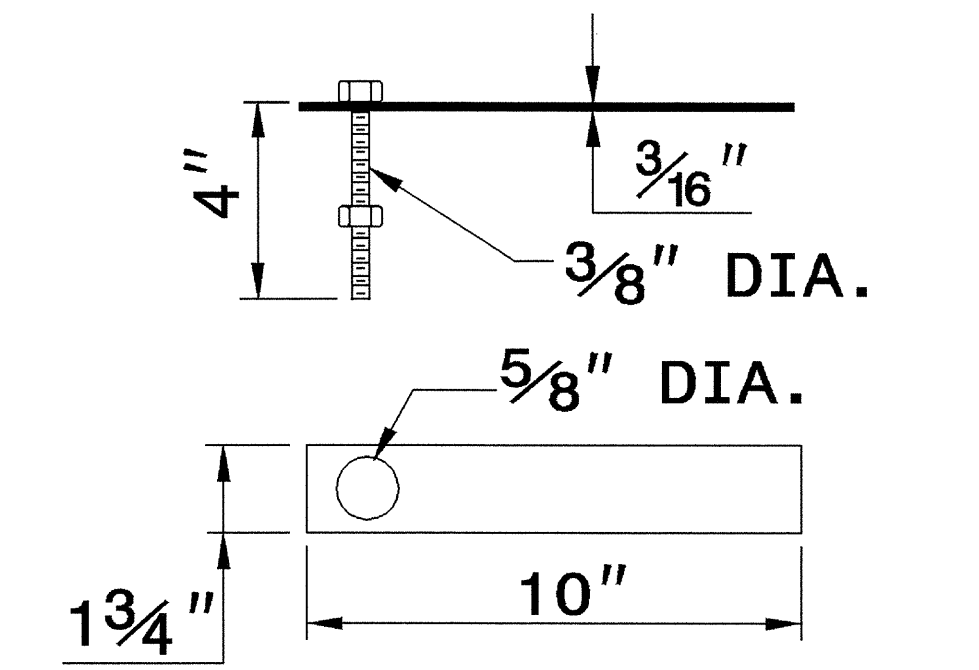
**CONCRETE CONSTRUCTION**



**PRECAST CONCRETE CONSTRUCTION**

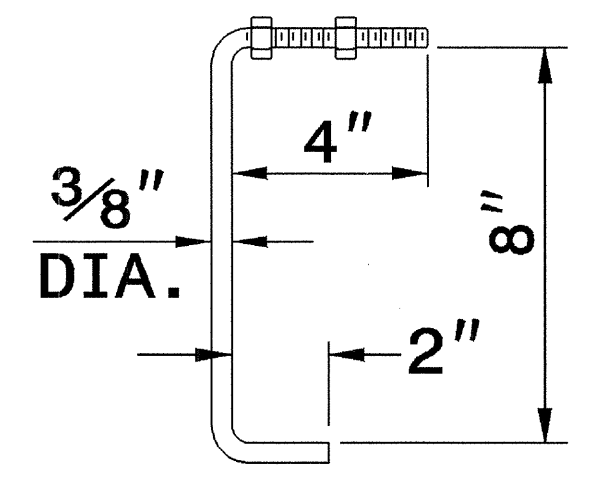
**DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET**

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



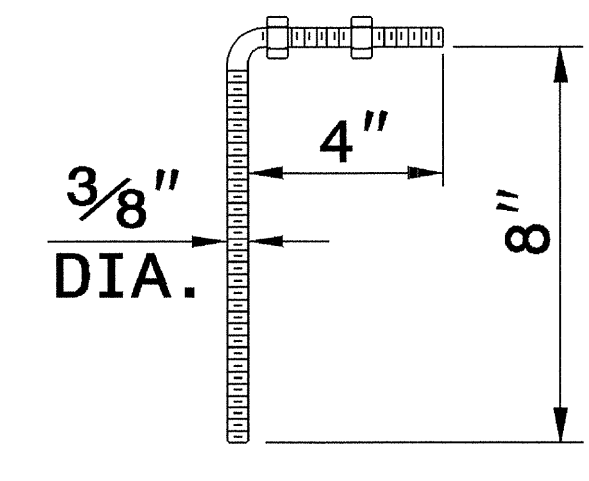
**MASONRY ANCHOR**

3/8" DIA. BOLT WITH PLATE



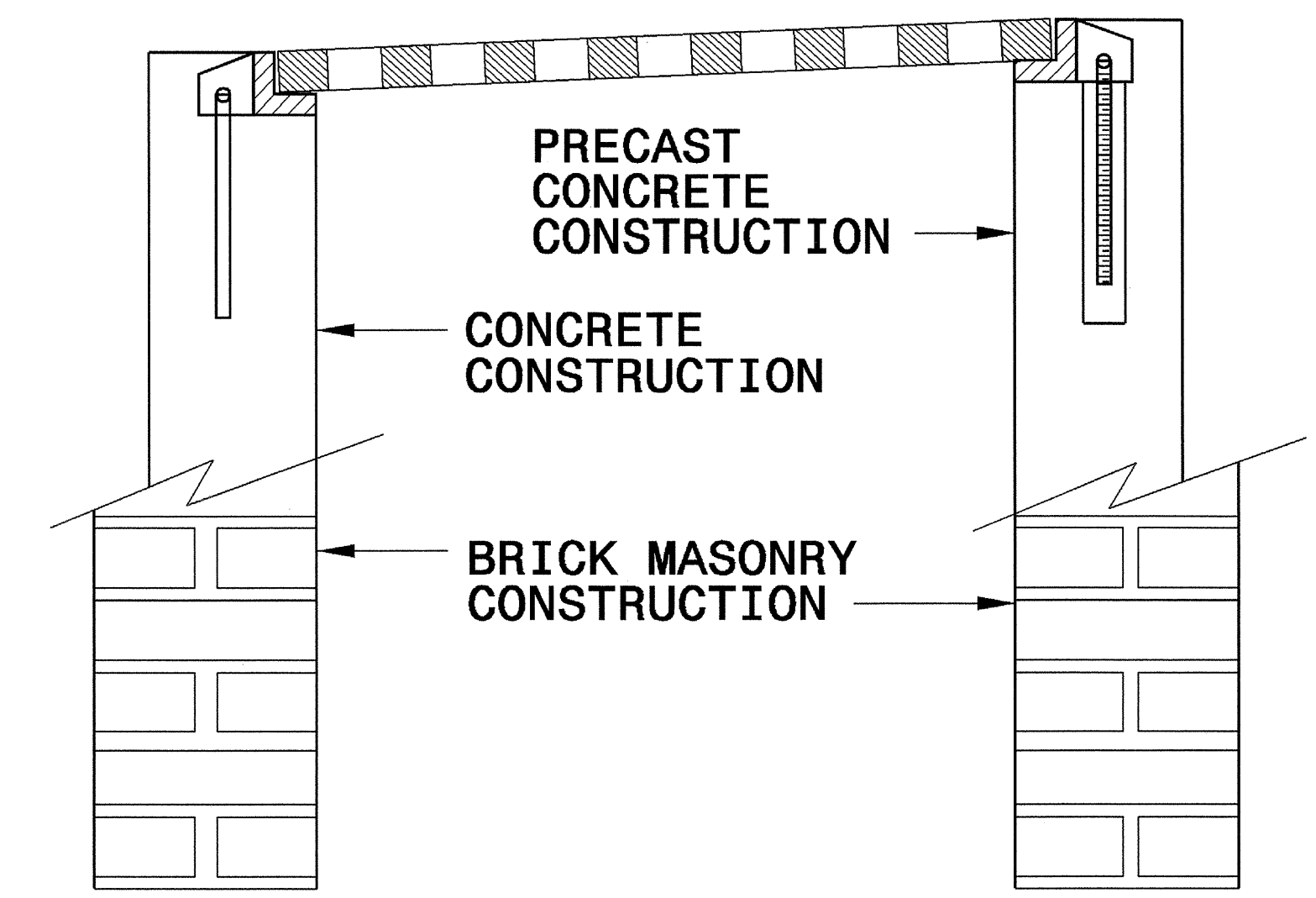
**CONCRETE ANCHOR**

3/8" DIA. BENT BAR



**PRECAST CONCRETE ANCHOR**

3/8" DIA. BENT BAR



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

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**

27-SEP-2006 08:59  
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**PROJECT SERVICES UNIT  
STANDARDS AND SPECIAL DESIGN**  
Office 919-250-4128 FAX 919-250-4119

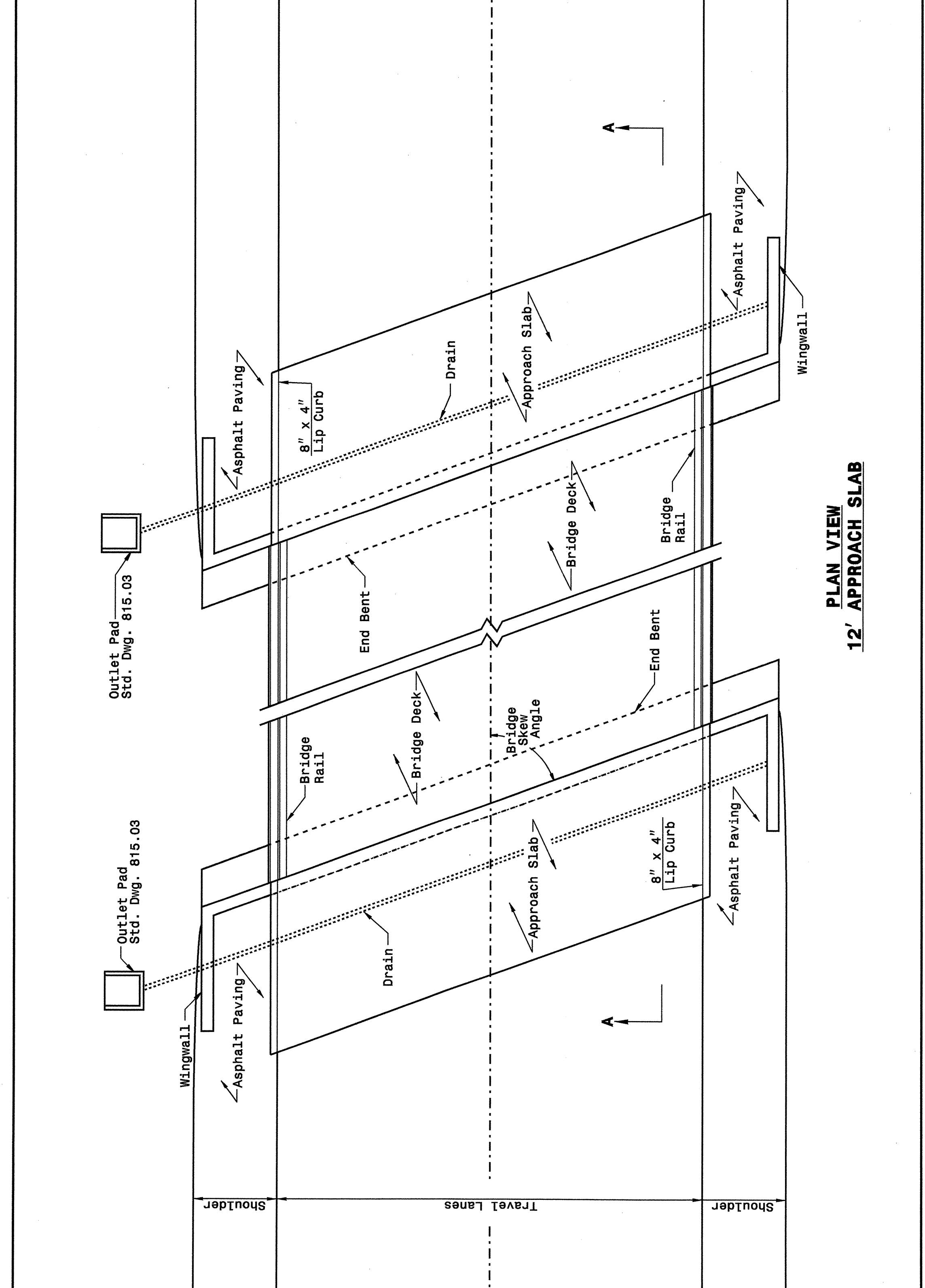
**SEE PLATE FOR TITLE**

ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06  
MODIFIED BY: E.E. WARD DATE: 9/25/06  
CHECKED BY: DATE:  
FILE SPEC.:

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

ENGLISH DETAIL DRAWING FOR  
**BRIDGE APPROACH FILLS**  
CORED SLAB & BOX BEAM BRIDGES  
SUB REGIONAL TIER

SHEET 1 OF 2  
**422D11**



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

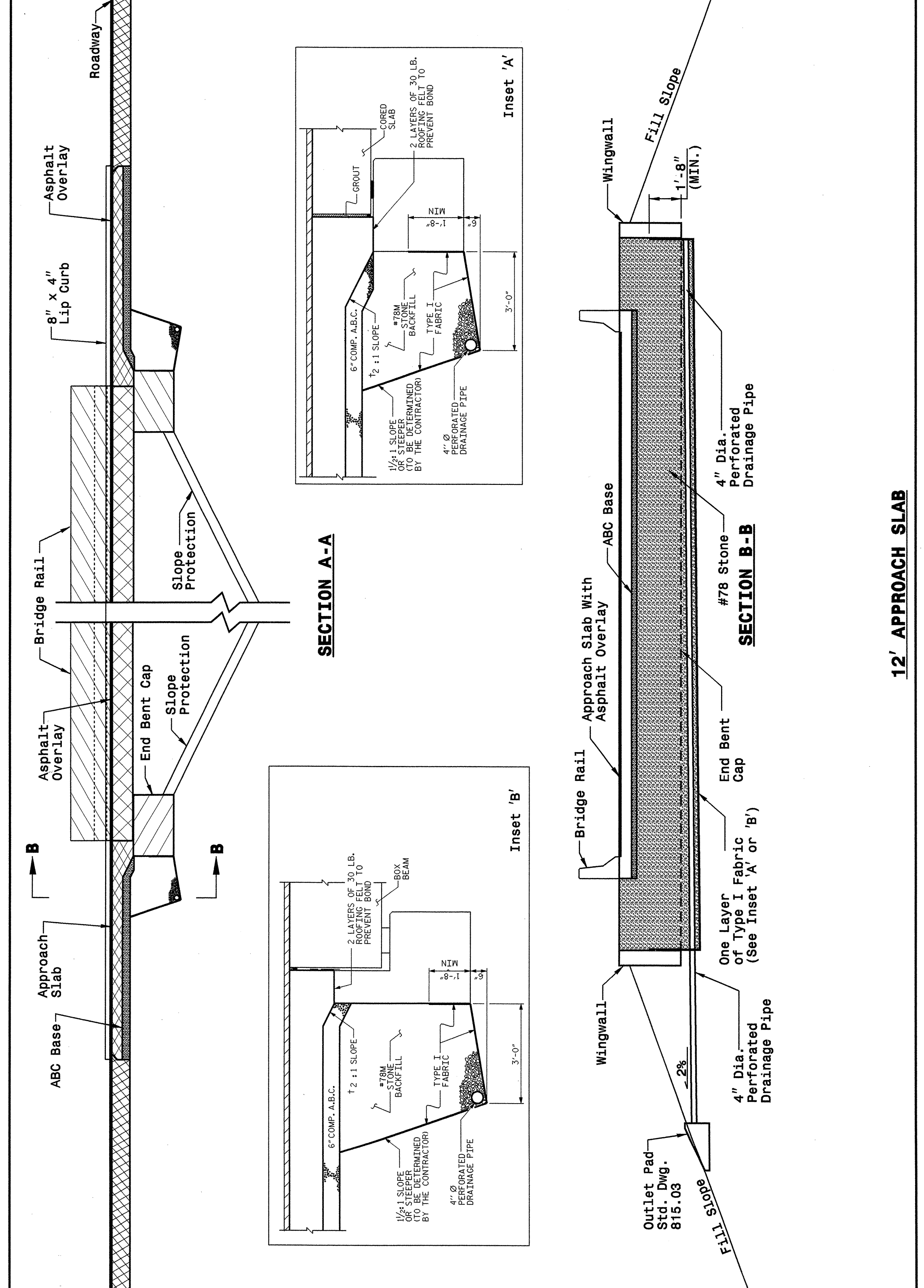
ENGLISH DETAIL DRAWING FOR  
**BRIDGE APPROACH FILLS**  
CORED SLAB & BOX BEAM BRIDGES  
SUB REGIONAL TIER

SHEET 1 OF 2  
**422D11**

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

ENGLISH DETAIL DRAWING FOR  
**BRIDGE APPROACH FILLS**  
CORED SLAB & BOX BEAM BRIDGES  
SUB REGIONAL TIER

SHEET 2 OF 2  
**422D11**

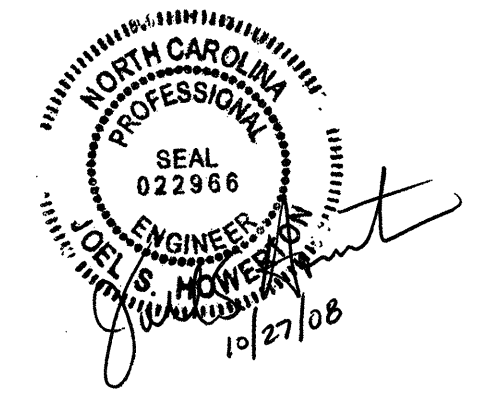


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SHEET 2 OF 2  
**422D11**

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kkempf At P5237489



**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: *[Signature]* DATE: *[Blank]*  
CHECKED BY: *[Signature]* DATE: 6/27/08  
FILE SPEC.: *[Signature]* english\bridge approach fills.dgn



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**SUMMARY OF QUANTITIES**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202048

ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION
001500000-N	205	1	EA	SEALING ABANDONED WELLS
003000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ***** (16+93)
004300000-N	226	Lump Sum		GRADING
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
005700000-E	226	200	CY	UNDERCUT EXCAVATION
013400000-E	240	45	CY	DRAINAGE DITCH EXCAVATION
019500000-E	265	200	CY	SELECT GRANULAR MATERIAL
019600000-E	270	200	SY	FABRIC FOR SOIL STABILIZATION
024100000-E	SP	145	SY	GENERIC GRADING ITEM ROCK PLATING
031800000-E	300	10	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
034300000-E	310	24	LF	15" SIDE DRAIN PIPE
099500000-E	340	22	LF	PIPE REMOVAL
122000000-E	545	250	TON	INCIDENTAL STONE BASE
148900000-E	610	320	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
149800000-E	610	340	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I119.0B
152500000-E	610	340	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
156000000-E	620	52	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
200000000-N	806	11	EA	RIGHT OF WAY MARKERS
228600000-N	840	2	EA	MASONRY DRAINAGE STRUCTURES
230800000-E	840	0.22	LF	MASONRY DRAINAGE STRUCTURES
236700000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29
255600000-E	846	65	LF	SHOULDER BERM GUTTER
303000000-E	862	375	LF	STEEL BM GUARDRAIL
315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS

ItemNumber	Sec #	Quantity	Unit	Description
327000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
331700000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
362800000-E	876	50	TON	RIP RAP, CLASS I
363500000-E	876	280	TON	RIP RAP, CLASS II
365600000-E	876	605	SY	FILTER FABRIC FOR DRAINAGE
407200000-E	903	13	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
410200000-N	904	1	EA	SIGN ERECTION, TYPE E
415500000-N	907	9	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
440000000-E	1110	422	SF	WORK ZONE SIGNS (STATIONARY)
440500000-E	1110	96	SF	WORK ZONE SIGNS (PORTABLE)
441000000-E	1110	94	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
443000000-N	1130	25	EA	DRUMS
443500000-N	1135	25	EA	CONES
444500000-E	1145	96	LF	BARRICADES (TYPE III)
445500000-N	1150	12	MD	FLAGGER
600000000-E	1605	600	LF	TEMPORARY SILT FENCE
600600000-E	1610	120	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	210	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	125	TON	SEDIMENT CONTROL STONE
601500000-E	1615	2.5	ACR	TEMPORARY MULCHING
601800000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	1.25	TON	FERTILIZER FOR TEMPORARY SEEDING
602400000-E	1622	30	LF	TEMPORARY SLOPE DRAINS
602700000-N	1622	1	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
602900000-E	SP	250	LF	SAFETY FENCE
603000000-E	1630	430	CY	SILT EXCAVATION

ItemNumber	Sec #	Quantity	Unit	Description
603600000-E	1631	1,600	SY	MATTING FOR EROSION CONTROL
603700000-E	SP	20	SY	COIR FIBER MAT
603800000-E	SP	550	SY	PERMANENT SOIL REINFORCEMENT MAT
604200000-E	1632	300	LF	1/4" HARDWARE CLOTH
607103000-E	SP	130	LF	COIR FIBER BAFFLES
607105000-E	SP	3	EA	*** SKIMMER (1-1/2")
608400000-E	1660	12	ACR	SEEDING & MULCHING
608700000-E	1660	1	ACR	MOWING
609000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	1.25	TON	FERTILIZER TOPDRESSING
611400000-N	SP	5	HR	SPECIALIZED HAND MOWING
611700000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL

***** BEGIN SCHEDULE AA *****				
***** (3 ALTERNATES) *****				
036600000-E	310	52	LF	15" RC PIPE CULVERTS, CLASS III
AA1				
*** OR ***				
036600000-E	310	28	LF	15" RC PIPE CULVERTS, CLASS III
AA2				
054000000-E	SP	24	LF	**** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (15", 0.064")
AA2				
*** OR ***				
036600000-E	310	28	LF	15" RC PIPE CULVERTS, CLASS III
AA3				
053600000-E	SP	24	LF	**** HDPE PIPE CULVERTS (15")
AA3				
***** END SCHEDULE AA *****				

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

STATION	LOCATION (L, RT, OR CL)	STRUCTURE NO.	TOP ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE)												BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE)				CLASS III R.C. PIPE OR ALLUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D				ENDWALLS		QUANTITIES FOR DRAINAGE STRUCTURES	* TOTAL L.E. FOR RAY QUANTITY SHALL BE COL. 'A' + (.13 X COL. 'B')	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN. FT.	REMARKS										
						12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"								42"	48"	STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE)	CU. YDS.	R.C.P.	C.S.P.	A	B		
13+47.00	RT	1																																										
17+86.00	RT	2	606.61	603.44																					1																			
	CL	3		603.44	601.39		28																																					
17+86.00	LT	3	606.61																					1	.22																			
	LT	4		601.39	599.63																																							
TOTALS							28																	2	.22																			

"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**

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS					IMPACT ATTENUATOR TYPE 350			REMARKS																
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TYPE 350	TYPE B-77				PERMITTED																			
-L-	14+24.25	16+43.00	RT	218.75				16+43.00	4.417	8	129		2.58								1	1																	
-L-	15+55.50	16+43.00	LT	87.5					4.417	8		68.75		1.375							1	1																	
-L-	17+43.00	19+18.00	RT	175				18+00.00	4.417	8		156.25		3.125							1	1																	
-L-	17+43.00	19+05.50	LT	162.5				17+43.00	4.417	8	143.75		2.875								1	1																	
<b>TOTALS</b>				643.75																	4	4																	
ANCHOR DEDUCTIONS:																																							
				4 B-77 @ 18.75' ea. =	75																																		
				4 GRAU 350's @ 50' ea. =	200																																		
<b>GRAND TOTAL</b>				368.75																																			
<b>SAY</b>				375.00				ADDITIONAL GUARDRAIL POSTS =	5													4	4																

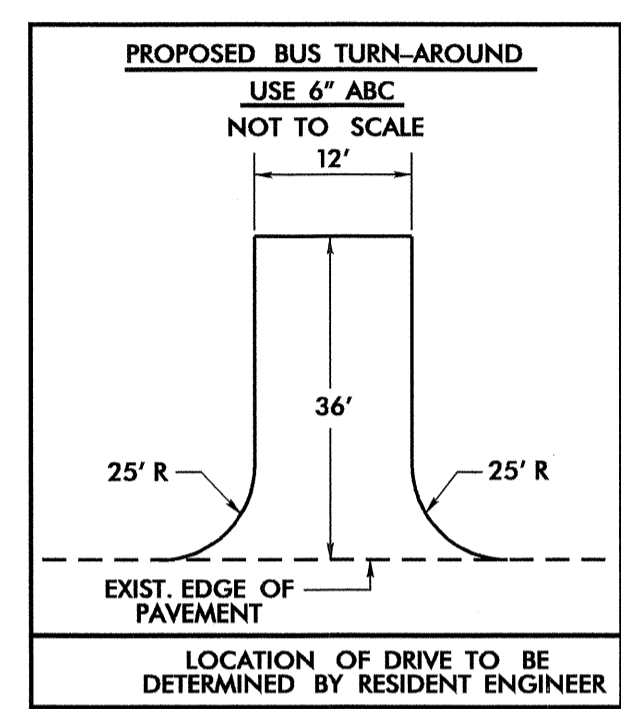
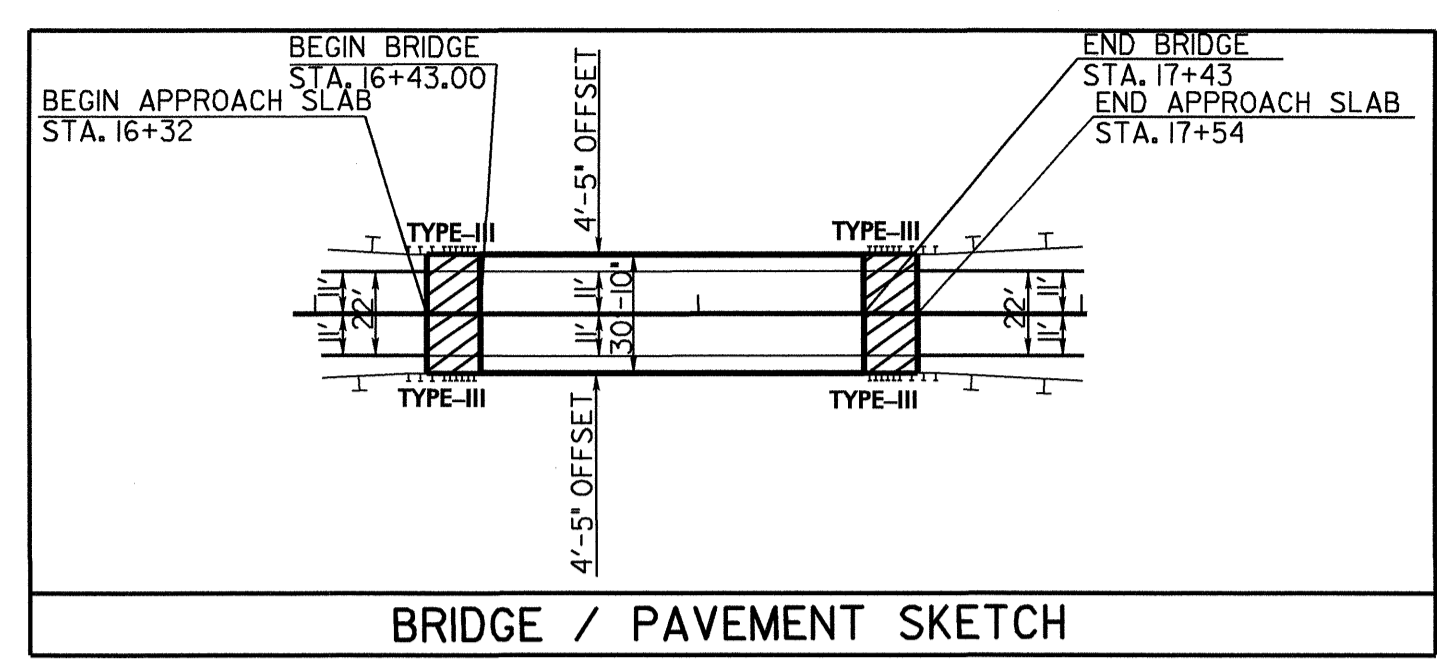
**SUMMARY OF PAVEMENT REMOVAL/BREAKING IN SQUARE YARDS**

STATION TO STATION	PAVEMENT REMOVAL			PAVEMENT BREAKING		
	LENGTH	WIDTH	SQUARE YARDS	LENGTH	WIDTH	SQUARE YARDS
-L- STA 15+00.00 TO 16+58.78	158.67'	18.00'	317.34 SY			
-L- STA 17+29.15 TO 18+00.00	70.88'	18.00'	141.76 SY			
<b>TOTAL</b>			459.10 SY			
<b>SAY</b>			460.00 SY			

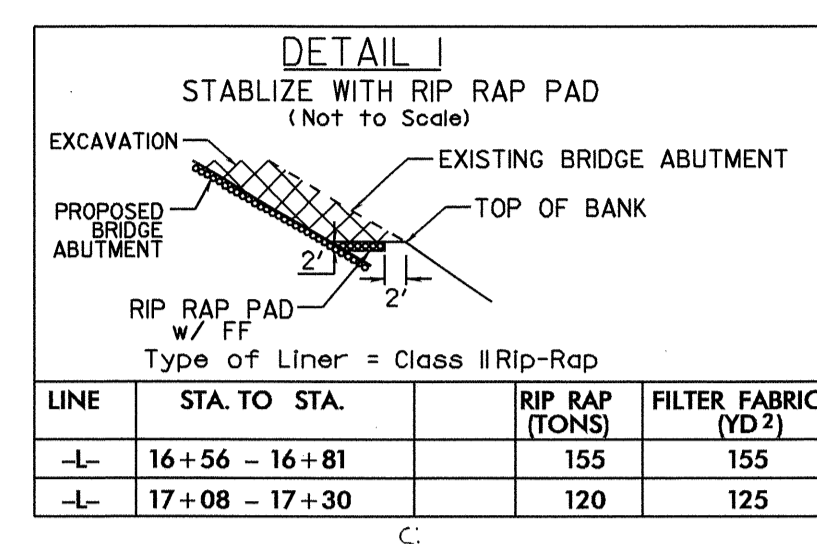
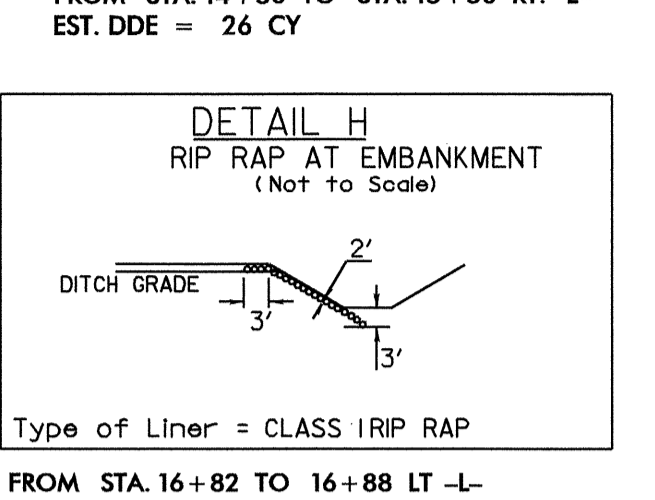
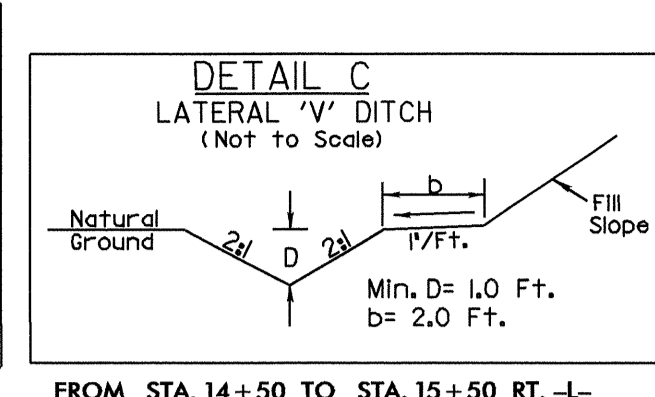
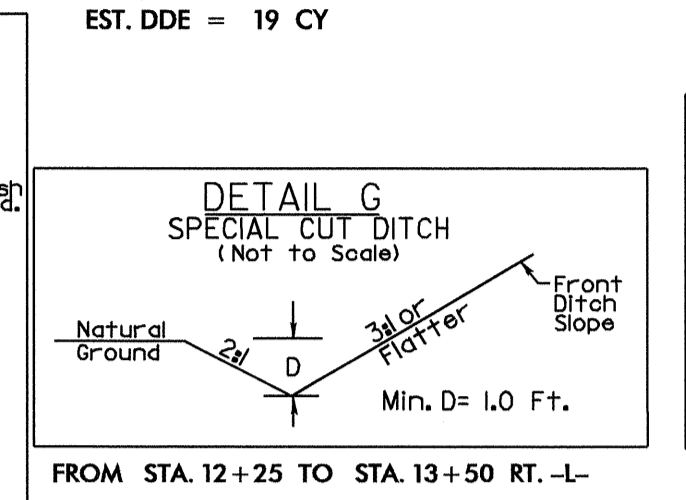
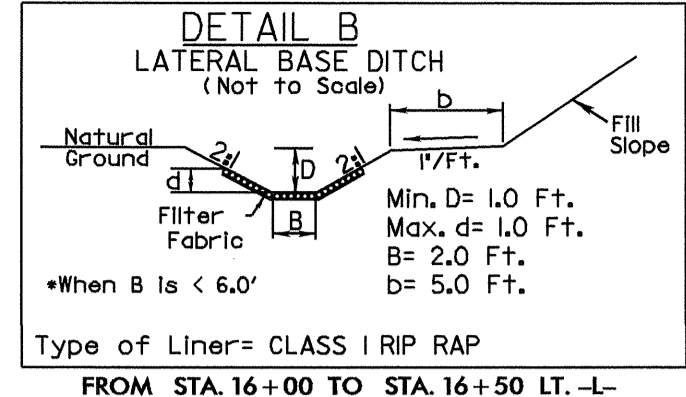
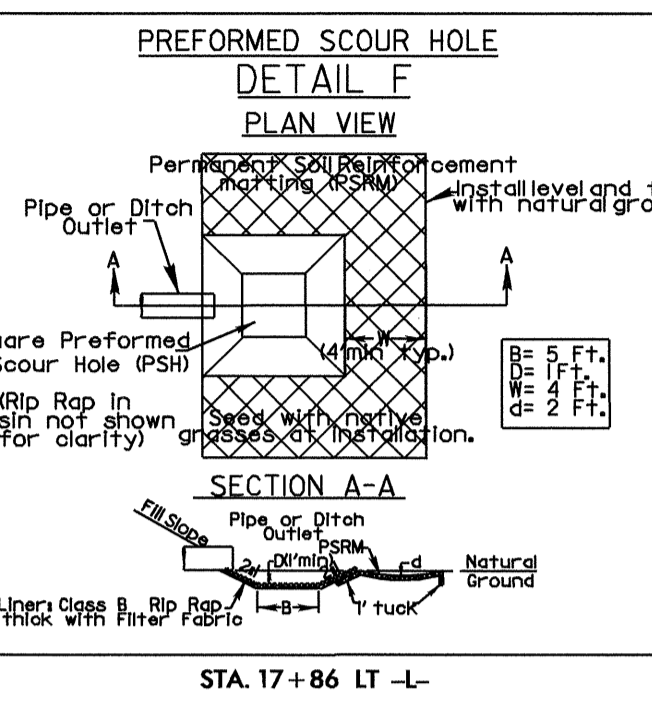
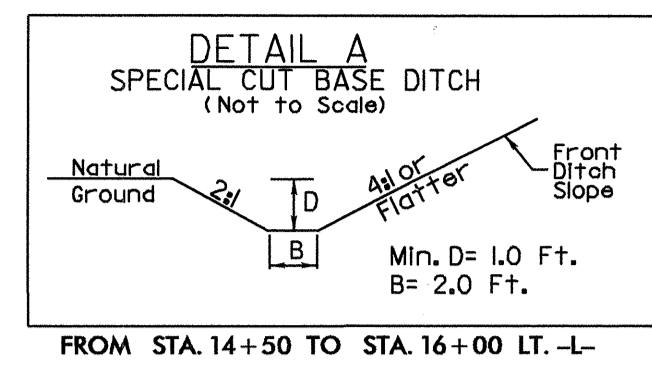
**SUMMARY OF EARTHWORK IN CUBIC YARDS**

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
-L- STA 12+00 TO STA 16+43	465		1205	763	23
-L- STA 17+43 TO STA 20+50	9		648	640	1
<b>SUBTOTAL</b>	474		1853	1403	24
Est. loss due to Clearing & Grubbing	-75			75	
<b>TOTAL</b>	399			1478	24
Est. 5% Borrow for Topsoil Replacement on Pit				74	
<b>SAY</b>	405.00 CY			1552	
EST DDE =	45 CY				
<b>GEOTECH REC'S</b>	"Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Unit".				
FABRIC for SOIL STABILIZATION =	200 SY				
UNDERCUT =	100 CY				
SUBGRADE UNDERCUT =	100 CY				
SELECT GRANULAR MATERIAL, CLASS II or III =	200 CY				
Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."					

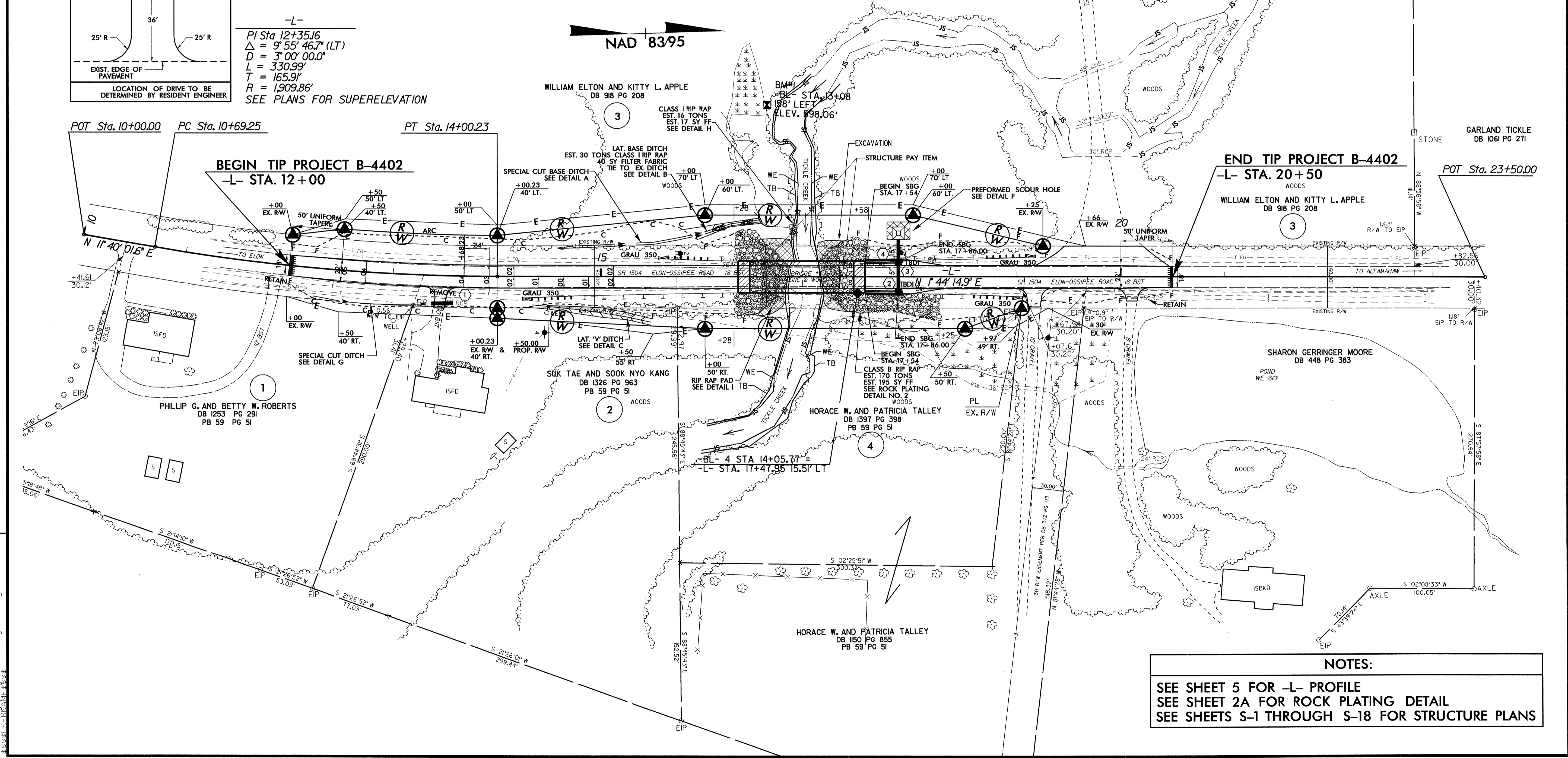
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-L-  
 PI Sta. 12+35.16  
 $\Delta = 9^{\circ}55'46.7\" (LT)$   
 $D = 3^{\circ}00'00.0\"$   
 $L = 330.99'$   
 $T = 165.91'$   
 $R = 1,909.86'$   
 SEE PLANS FOR SUPERELEVATION



LINE	STA. TO STA.	RIIP RAP (TONS)	FILTER FABRIC (YD <sup>2</sup> )
-L-	16+56 - 16+81	155	155
-L-	17+08 - 17+30	120	125



NOTES:  
 SEE SHEET 5 FOR -L- PROFILE  
 SEE SHEET 2A FOR ROCK PLATING DETAIL  
 SEE SHEETS S-1 THROUGH S-18 FOR STRUCTURE PLANS

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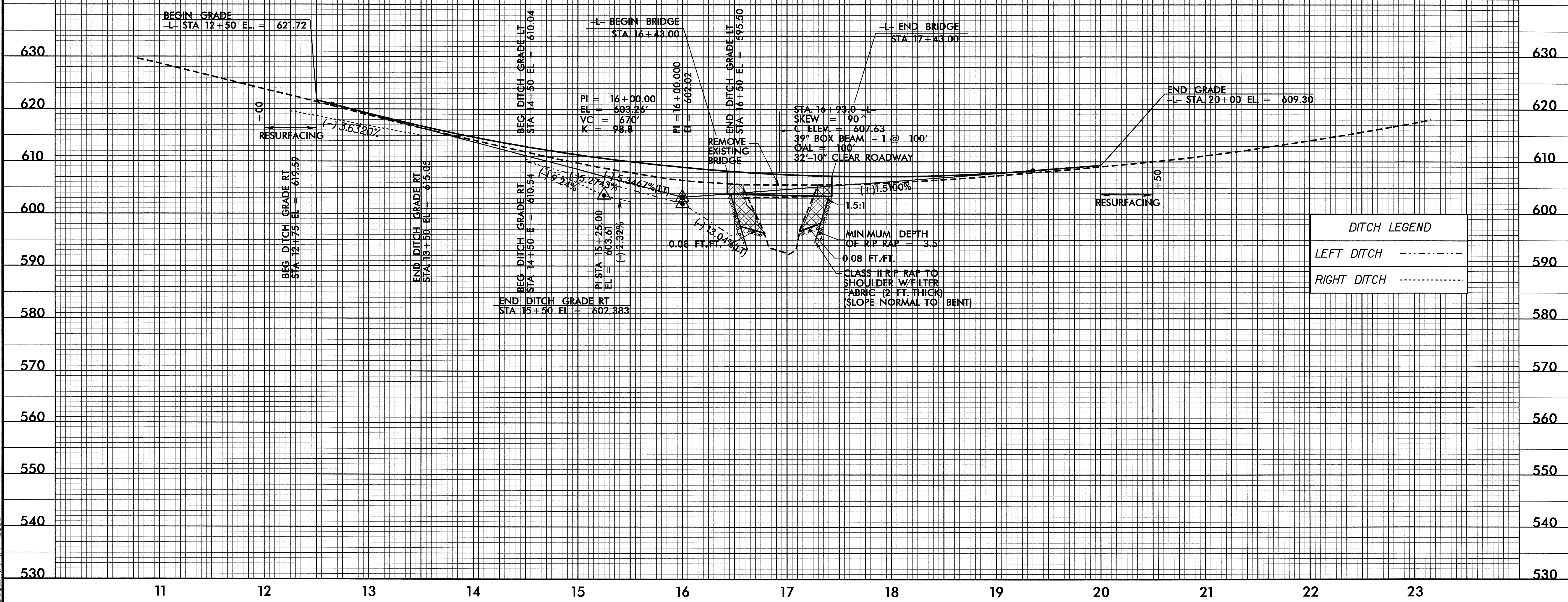
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PROJECT REFERENCE NO. B-4402	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<i>James Stafford Goodwin</i>	<i>Jeffrey L. Beck</i>

**STRUCTURE HYDRAULIC DATA**

DESIGN DISCHARGE	= 1310	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 601.0	FT
BASE DISCHARGE	= 210	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 602.2	FT
OVERTOPPING DISCHARGE	= 7000	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 607.2	FT

BM # 1 RR SPIKE IN BASE OF 12" SILVER MAPLE  
BL STATION 13+08 158" LEFT  
EL = 598.06  
N 869549 E 1848486



**DITCH LEGEND**

LEFT DITCH	-----
RIGHT DITCH	-----

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