

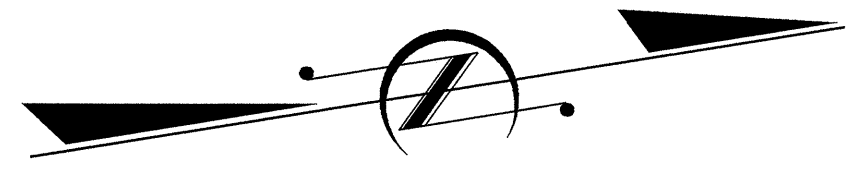
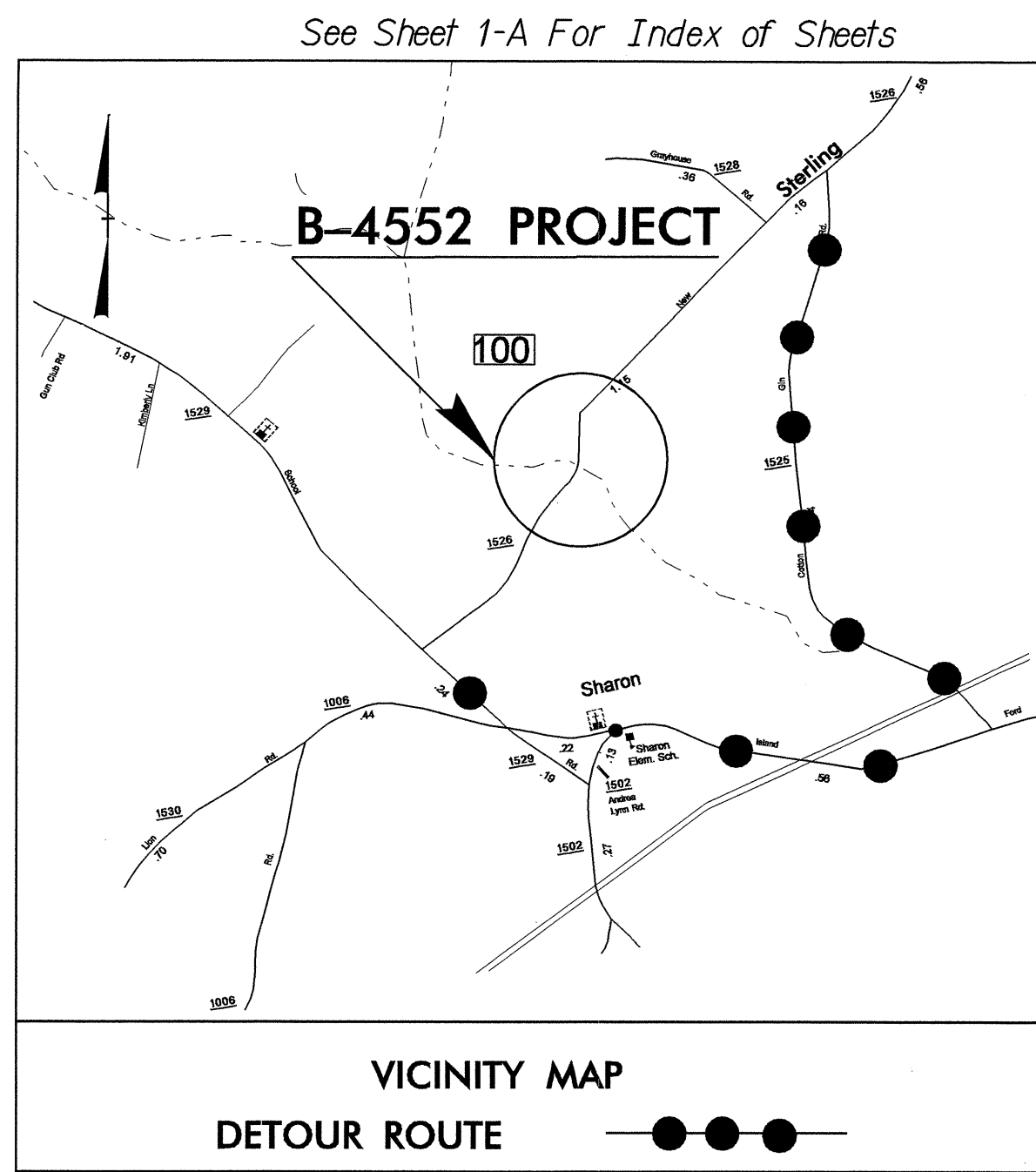
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4552	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33765.1.1	BRZ-1526 (3)	PE	
33765.2.1	BRZ-1526 (3)	ROW & UTIL	
33765.3.1	BRZ-1526 (3)	CONST.	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

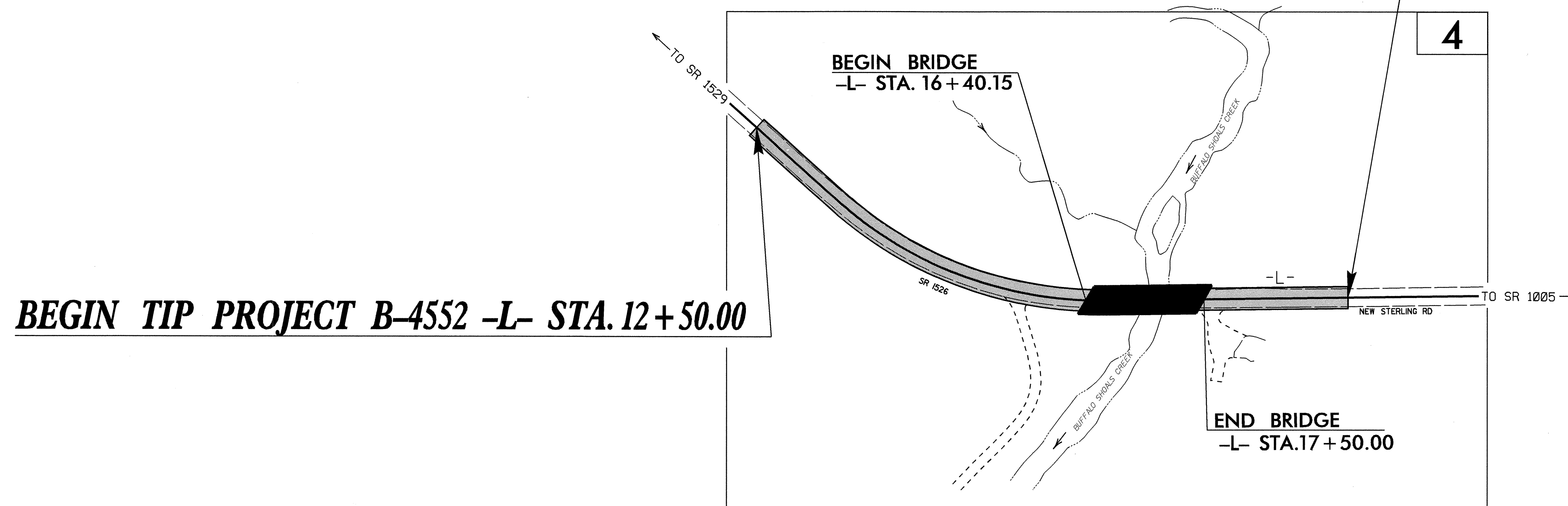
IREDELL COUNTY

LOCATION: BRIDGE 100 OVER A CREEK ON SR 1526 (NEW STERLING RD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURES

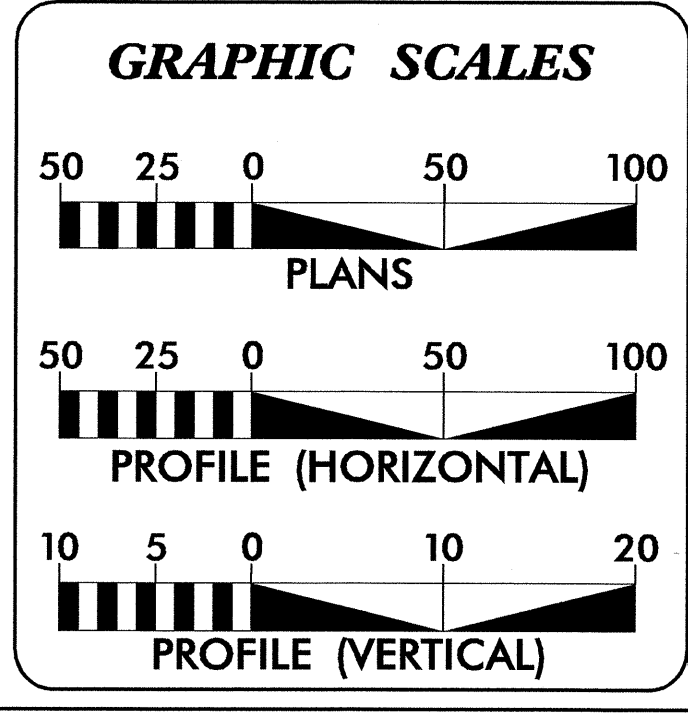


END TIP PROJECT B-4552 -L- STA. 19+00.00



TIP PROJECT: B-4552

CONTRACT: C201899



DESIGN DATA

ADT 2007 =	450
ADT 2030 =	800
DHV =	11 %
D =	60 %
T =	3 % *
** V =	25 MPH
* TTST 1	DUAL 2

** DESIGN EXCEPTION REQUIRED

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4552	=	0.102 MILES
LENGTH OF STRUCTURE TIP PROJECT B-4552	=	0.021 MILES
LENGTH OF STATE TIP PROJECT B-4552	=	0.123 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 17, 2007

LETTING DATE:
AUGUST 19, 2008

TED S. WALLS
PROJECT ENGINEER

ALLISON K. WHITE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *Ted S. Walls*

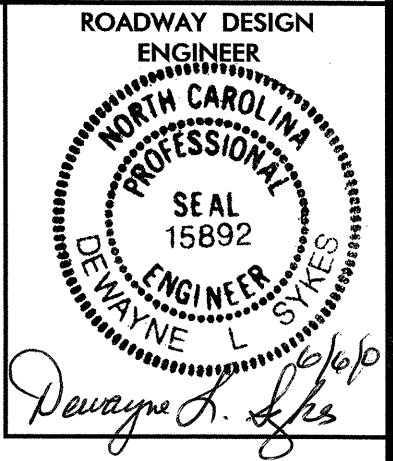
ROADWAY DESIGN ENGINEER

SIGNATURE: *Allison K. White*

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Art O'Millan
STATE HIGHWAY DESIGN ENGINEER

07-MAY-2008 15:01 R:\Roadway\PC01\B-4552-r.dwg-t.sh.dgn \$\$\$USERNAME\$\$\$



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
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 THRU 2-D	DETAIL OF GUARDRAIL ANCHOR UNIT TYPE B-77 SHOP CURVED, DETAIL OF ANCHORAGE FOR FRAME AND DETAIL OF GUARDRAIL BURIED IN CUT
3	SUMMARY OF QUANTITIES
3A	SUMMARY OF DRAINAGE QUANTITIES, SUMMARY OF GUARDRAIL
3B	SUMMARY OF EARTHWORK, SUMMARY OF BREAKING OF EXISTING ASPHALT PAVEMENT, SUMMARY OF REMOVAL OF EXISTING ASPHALT PAVEMENT
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-3	TRAFFIC CONTROL PLANS
SD-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-3	CROSS-SECTIONS
S-1 THRU S-21	STRUCTURE PLANS

GENERAL NOTES: 2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 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
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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

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 Superlevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.13	Concrete Bridge Approach Drop Inlet - 12" thru 24" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
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
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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

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Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	123
Existing Fence Line	-----
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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
Jurisdictional Stream	----- JS
Buffer Zone 1	----- BZ 1
Buffer Zone 2	----- BZ 2
Flow Arrow	-----
Disappearing Stream	-----
Spring	-----
Swamp Marsh	-----
Proposed Lateral, Tail, Head Ditch	-----
False Sump	-----

RAILROADS:

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

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
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	----- E
Proposed Temporary Construction Easement	----- E
Proposed Temporary Drainage Easement	----- TDE
Proposed Permanent Drainage Easement	----- PDE
Proposed Permanent Utility Easement	----- PUE

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

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

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	□ PH
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	⊕
Telephone Booth	□
Telephone Pedestal	□
Telephone Cell Tower	⊗
U/G Telephone Cable Hand Hole	□ PH
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	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	----- A/G Water

TV:

TV Satellite Dish	⊗
TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	□ PH
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	⊕
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:

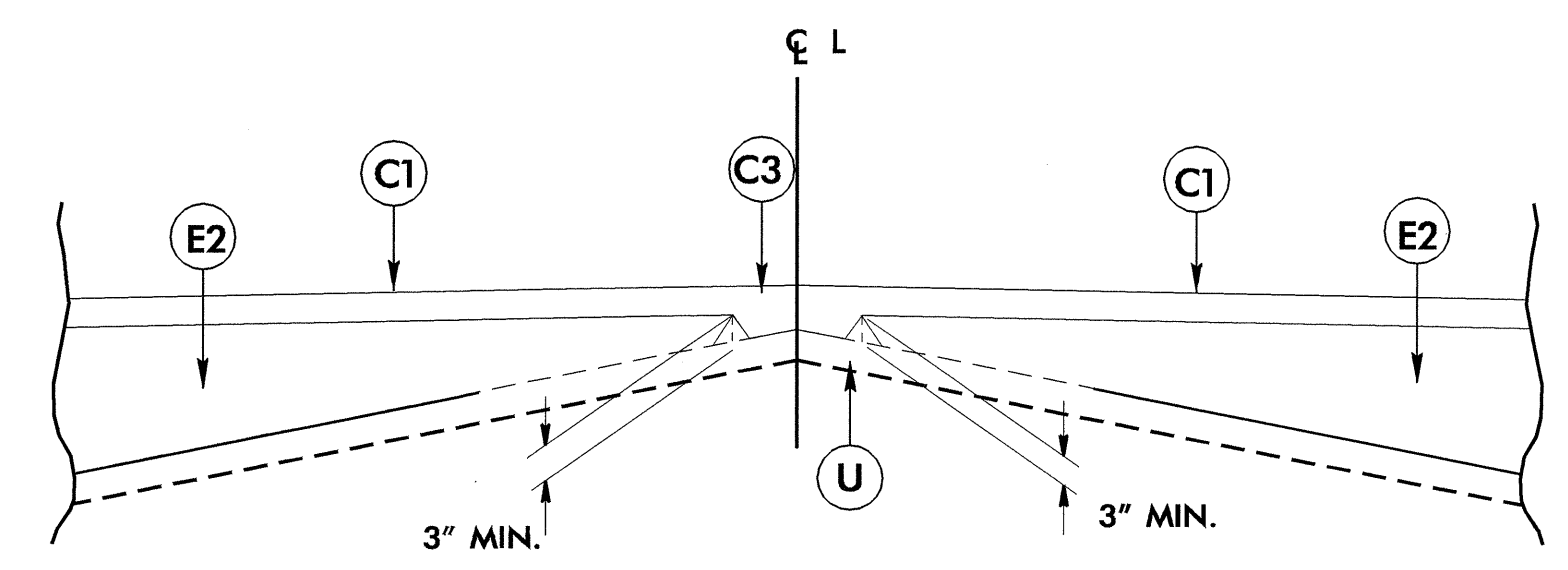
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line	----- TUTL
U/G Tank; Water, Gas, Oil	□
A/G Tank; Water, Gas, Oil	□
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

8/17/99

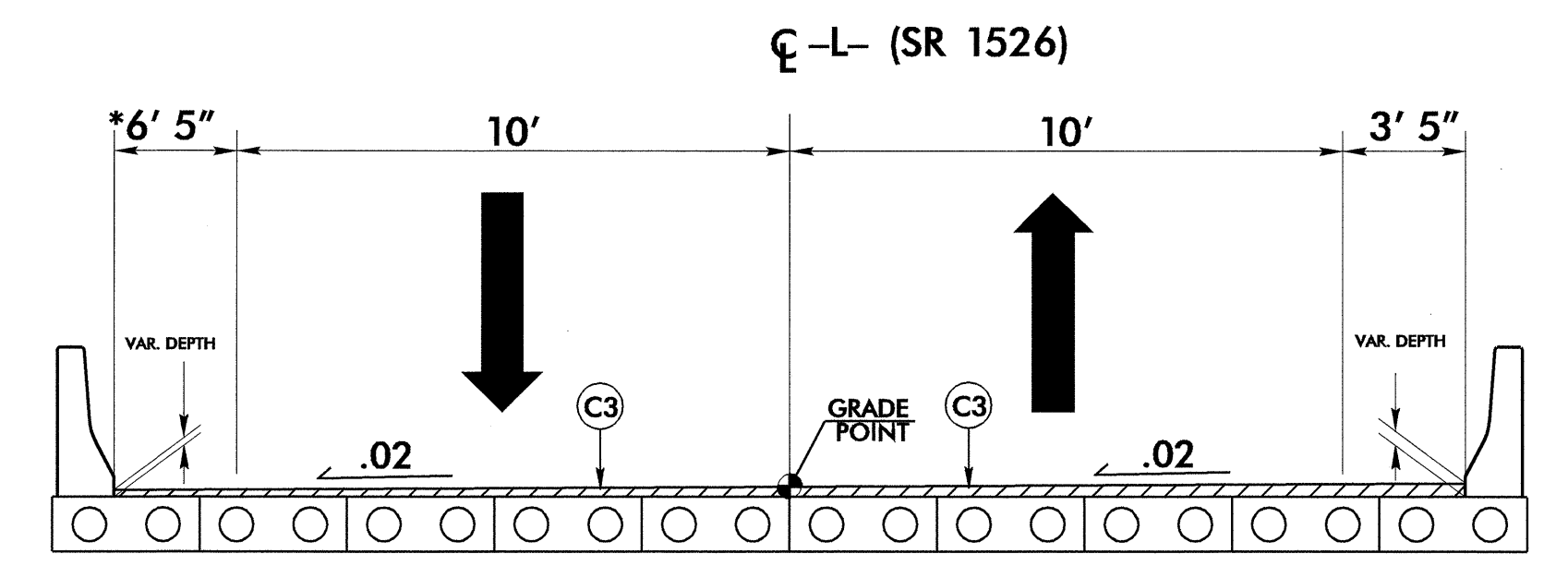
PROJECT REFERENCE NO. B-4552	SHEET NO. 2
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15892 CLAYTON L. STILES	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22886 CLARK S. MORRISON

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	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 1.5" IN DEPTH.
E1	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 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	WEDGING

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

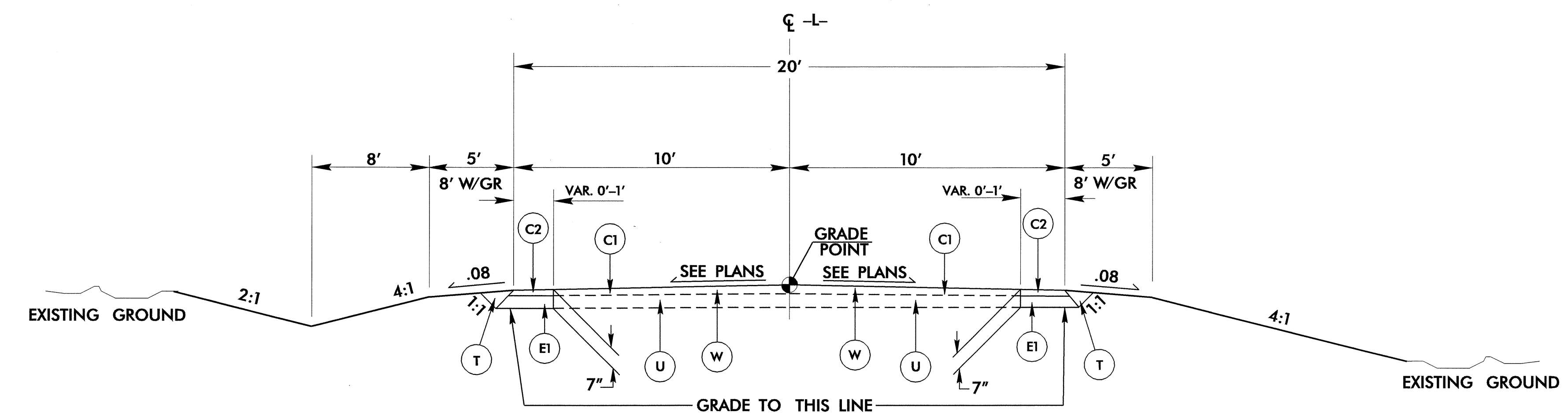


Detail Showing Method of Wedging



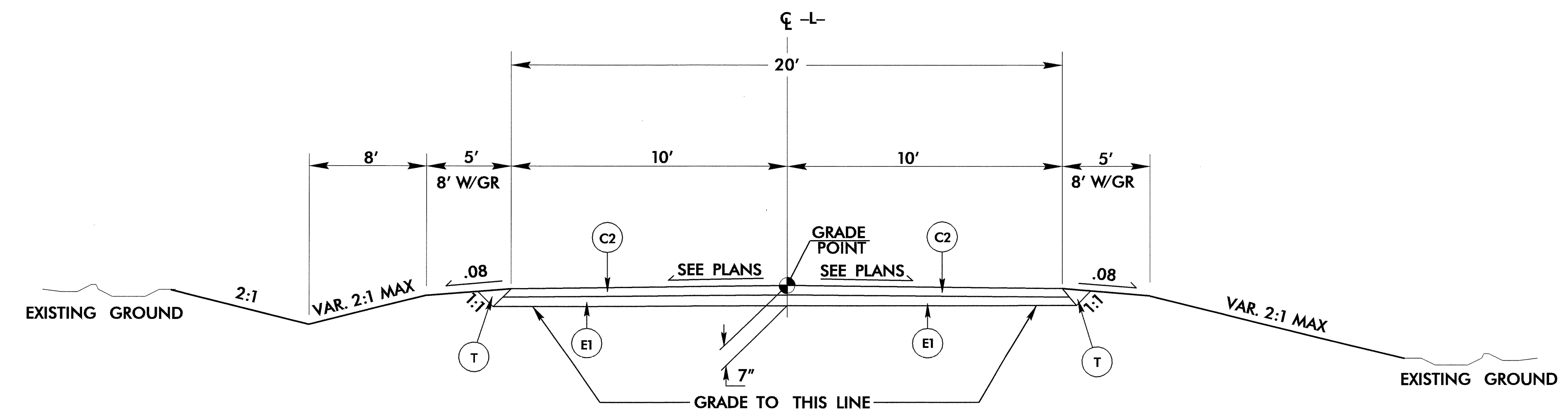
TYPICAL SECTION ON STRUCTURE

* BRIDGE OFFSETS INCREASED DUE TO ALLOWABLE SPREAD
-L- STA. 16+40.15 TO 17+50.00



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS
-L- STA. 12+50.00 TO STA. 13+50.00
-L- STA. 18+00.00 TO STA. 19+00.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS
-L- STA. 13+50.00 TO STA. 16+40.15 (BEGIN BRIDGE)
-L- STA. 17+50.00 (END BRIDGE) TO STA. 18+00.00

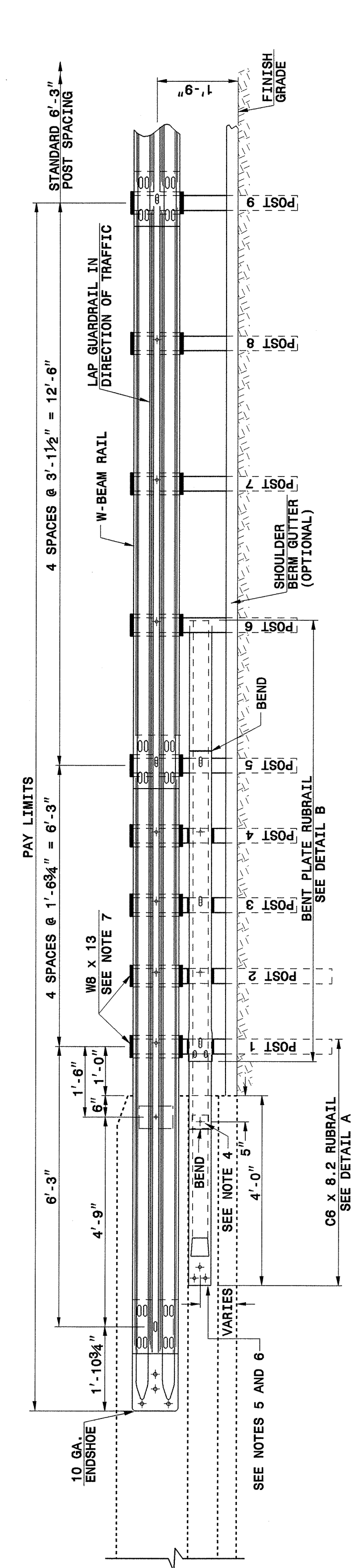
REVISIONS

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

ENGLISH DETAIL DRAWING FOR GUARDRAIL ANCHOR UNIT TYPE B-77 SHOP CURVED

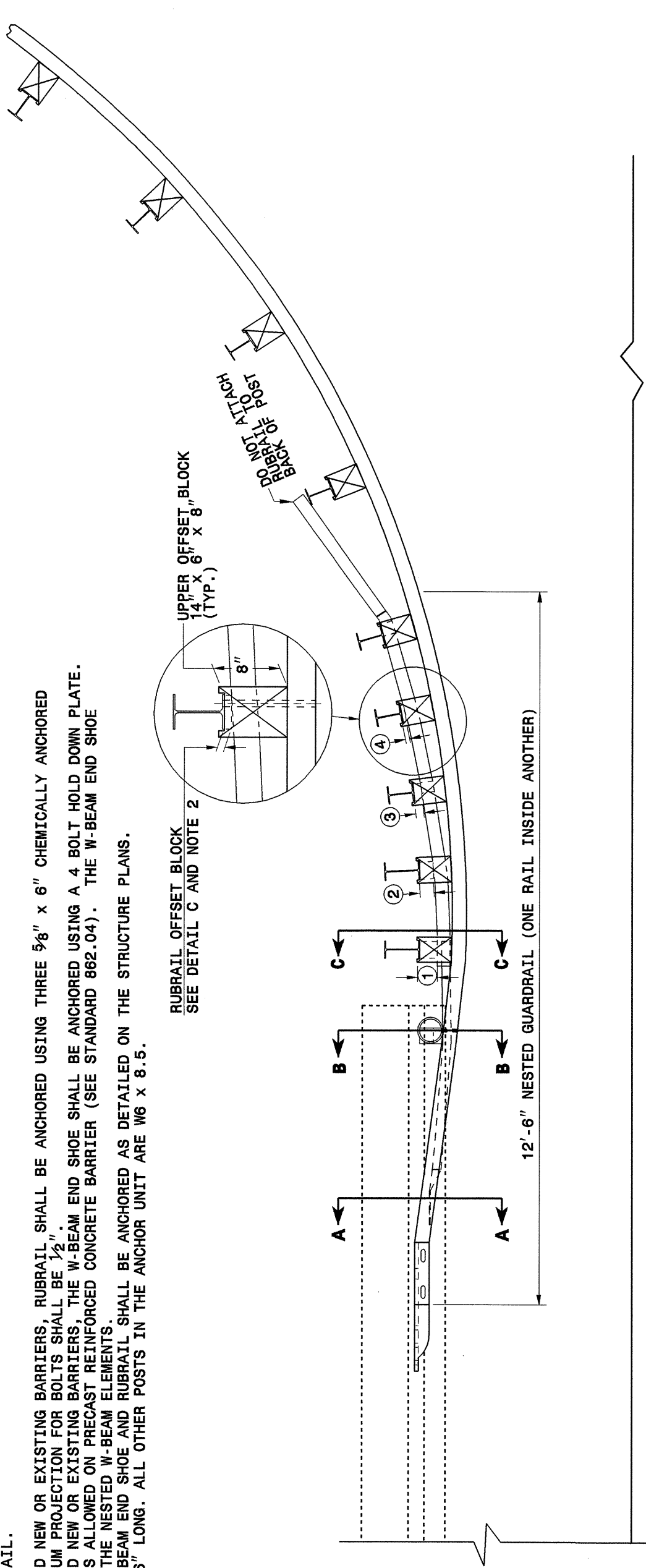
SHEET 1 OF 2 B-77SC



ELEVATION

- GENERAL NOTES:
- POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL. OFFSET BLOCKS SHALL BE DRILLED AND SECURED WITH POSTS AND 3" RUBRAIL IS SECURED TO POST 5 WITH A 5/8" x 4 1/2" BUTTONHEAD BOLT. RUBRAIL IS FLARED TO BACK OF POST 6 AND NOT SECURED.
 - STEEL SPACER TUBE IS A SCHEDULE 40 GALVANIZED PIPE 6" INSIDE DIAMETER x 9" LONG. ATTACH TUBE TO GUARDRAIL ONLY WITH 5/8" x 1 1/4" LONG BUTTONHEAD BOLT AND RECTANGULAR PLATE WASHER.
 - SHOP FABRICATE THE C6 x 8.2 RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE JERSEY SHAPE AND ATTACH FLUSH WITH THE SLOPED END OF THE BARRIER OR BRIDGE RAIL.
 - ANCHORAGE: (a) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, RUBRAIL SHALL BE ANCHORED USING THREE 5/8" x 6" CHEMICALLY ANCHORED A 4 BOLTS HOLD DOWN PLATE. AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, THE W-BEAM END SHOE SHALL BE ANCHORED USING A 4 BOLT HOLD DOWN PLATE. SHALL BE INSTALLED BEHIND THE PRECAST REINFORCED CONCRETE BARRIER (SEE STANDARD 882.04). THE W-BEAM END SHOE (C) AT NEW BRIDGE RAIL, THE W-BEAM END SHOE AND RUBRAIL SHALL BE ANCHORED AS DETAILED ON THE STRUCTURE PLANS.
 - POSTS 1 AND 2 ARE W6 x 13, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W6 x 8.5.

SEE ROADWAY PLANS FOR END TREATMENT



PLAN

GUARDRAIL ANCHOR UNIT TYPE B-77

SHEET 1 OF 2 B-77SC

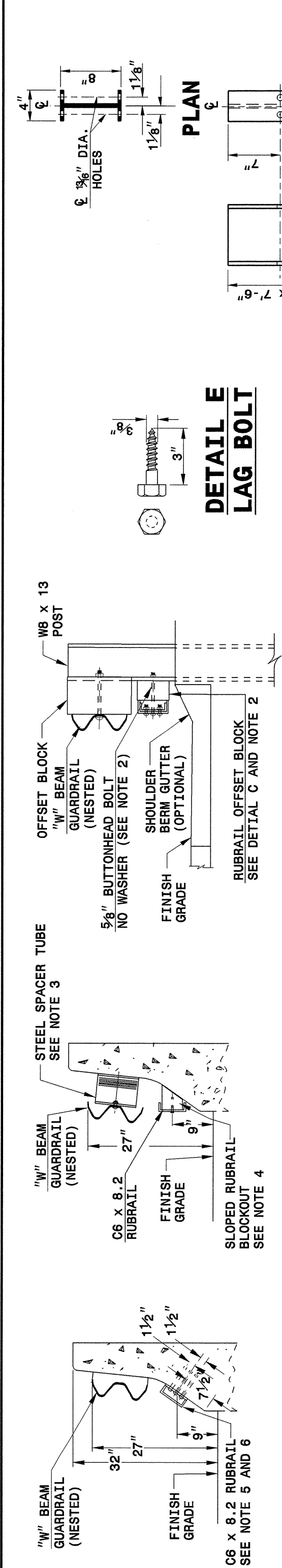
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR GUARDRAIL ANCHOR UNIT TYPE B-77 SHOP CURVED

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

ENGLISH DETAIL DRAWING FOR GUARDRAIL ANCHOR UNIT TYPE B-77 SHOP CURVED

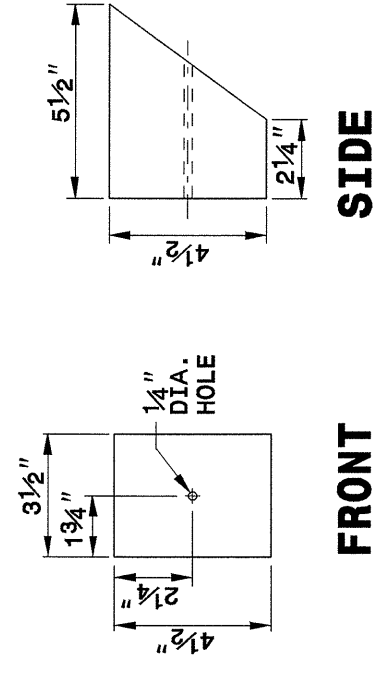
SHEET 2 OF 2 B-77SC



DETAIL E LAG BOLT

DETAIL F STEEL POST W8 X 13 X 7'-6"

SECTION C-C SLOPED RUBRAIL BLOCKOUT

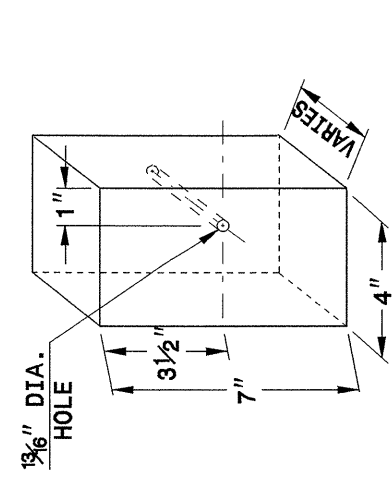


SECTION B-B RUBRAIL BLOCKOUT

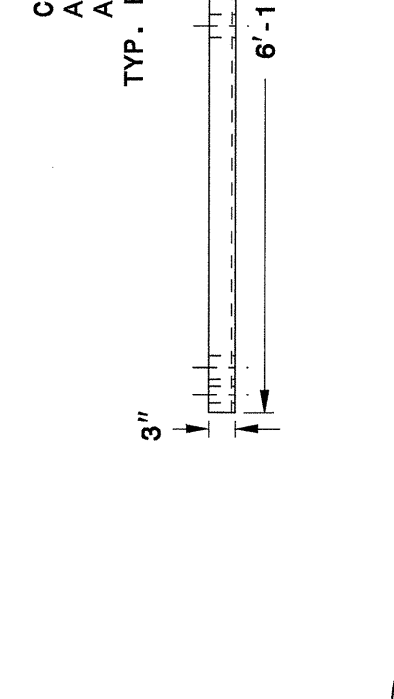
POST	THICKNESS	BOLT LENGTH
1	4 1/4"	9"
2	3 1/4"	5"
3	2"	6"
4	2"	3"

* BOLT END POSTS 1 AND 4 ARE USED TO ATTACH BLOCK TO POST. RUBRAIL NOT ATTACHED TO BLOCK.

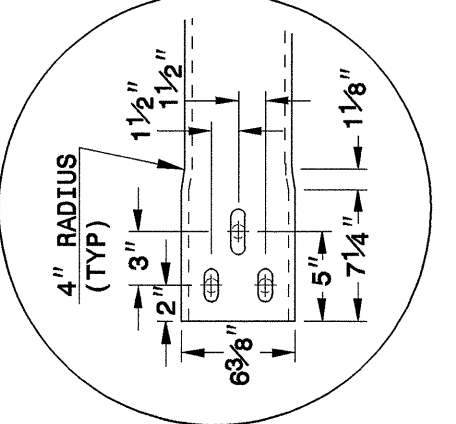
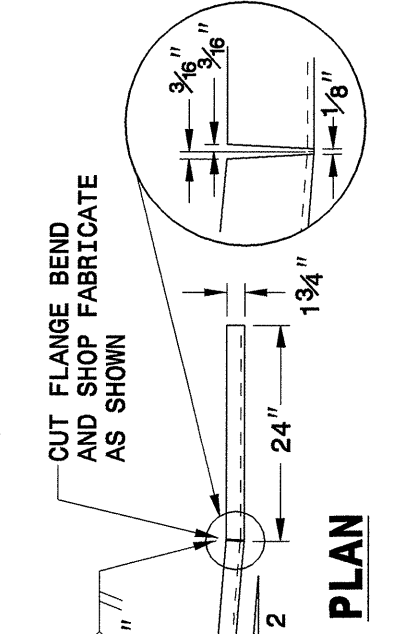
SECTION A-A RUBRAIL BLOCKOUT



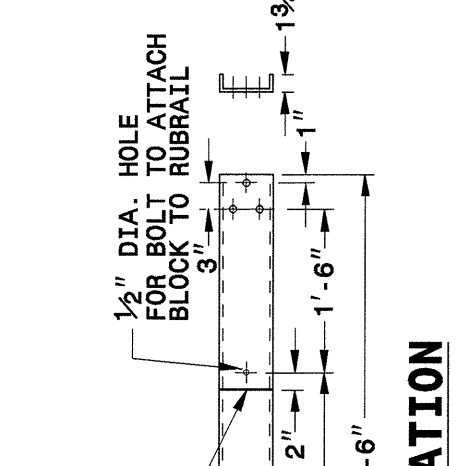
DETAIL D SLOPED RUBRAIL BLOCKOUT



DETAIL C RUBRAIL BLOCKOUT



ELEVATION DETAIL B BENT PLATE RUBRAIL



ELEVATION DETAIL A C6 X 8.2 RUBRAIL

GUARDRAIL ANCHOR UNIT TYPE B-77

SHEET 2 OF 2 B-77SC

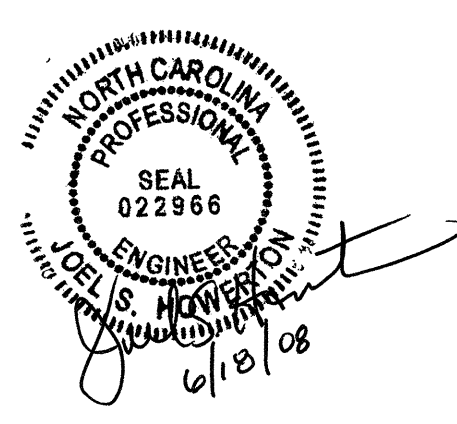
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR GUARDRAIL ANCHOR UNIT TYPE B-77 SHOP CURVED

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

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. WARD DATE: 06-04-04
 MODIFIED BY: [Signature] DATE: 4/24/08
 CHECKED BY: [Signature] DATE: 4/24/08
 FILE SPEC.: m:\scguardrail\NCHRP350approved\B-77.dgn



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

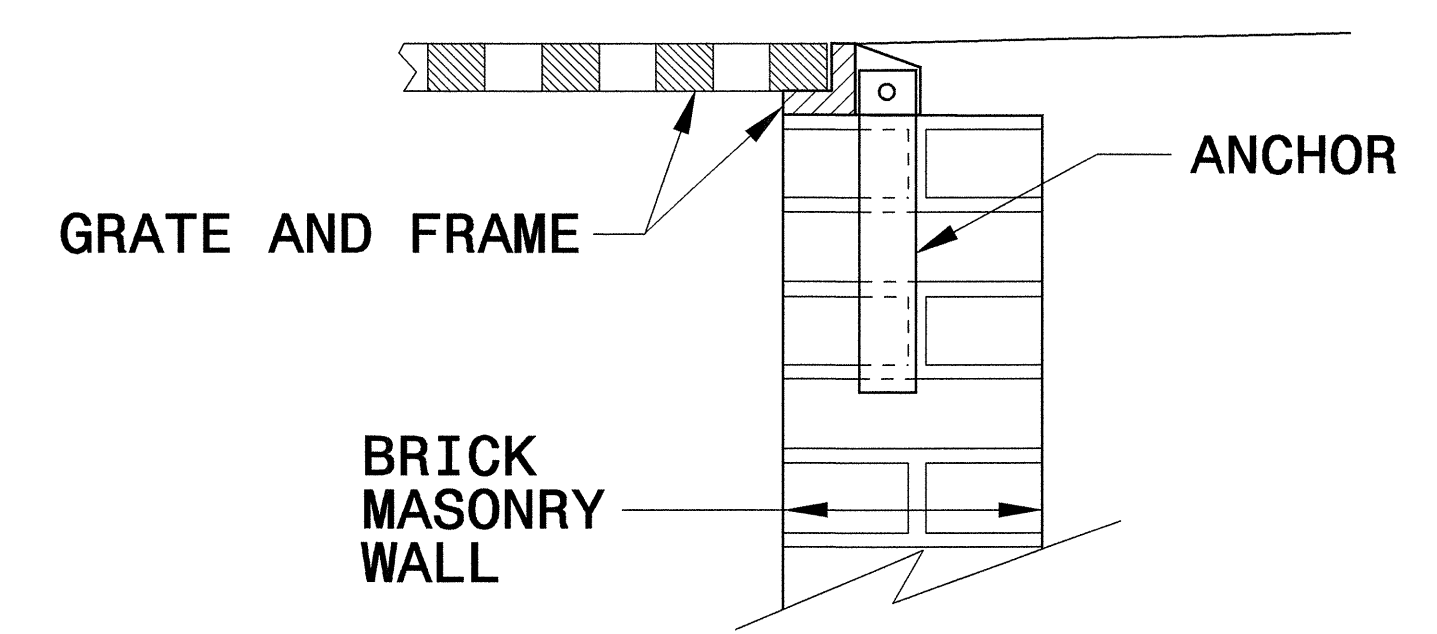
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

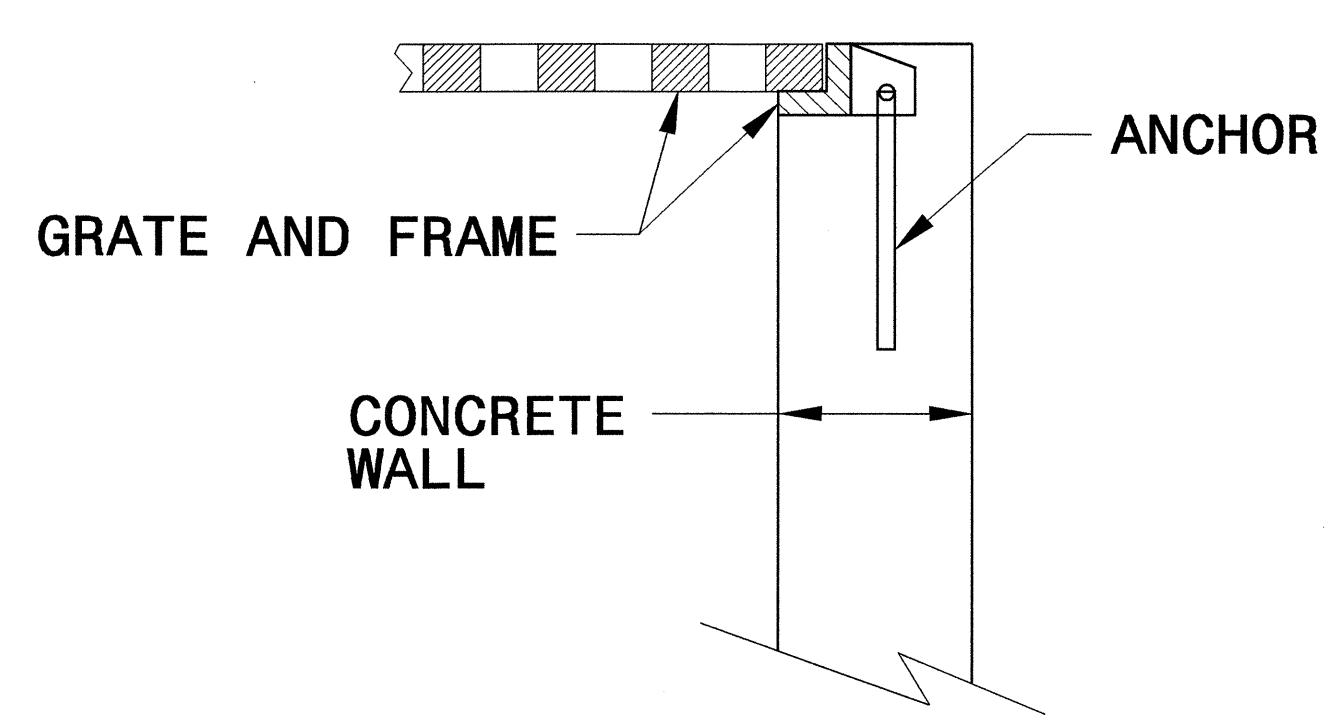
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

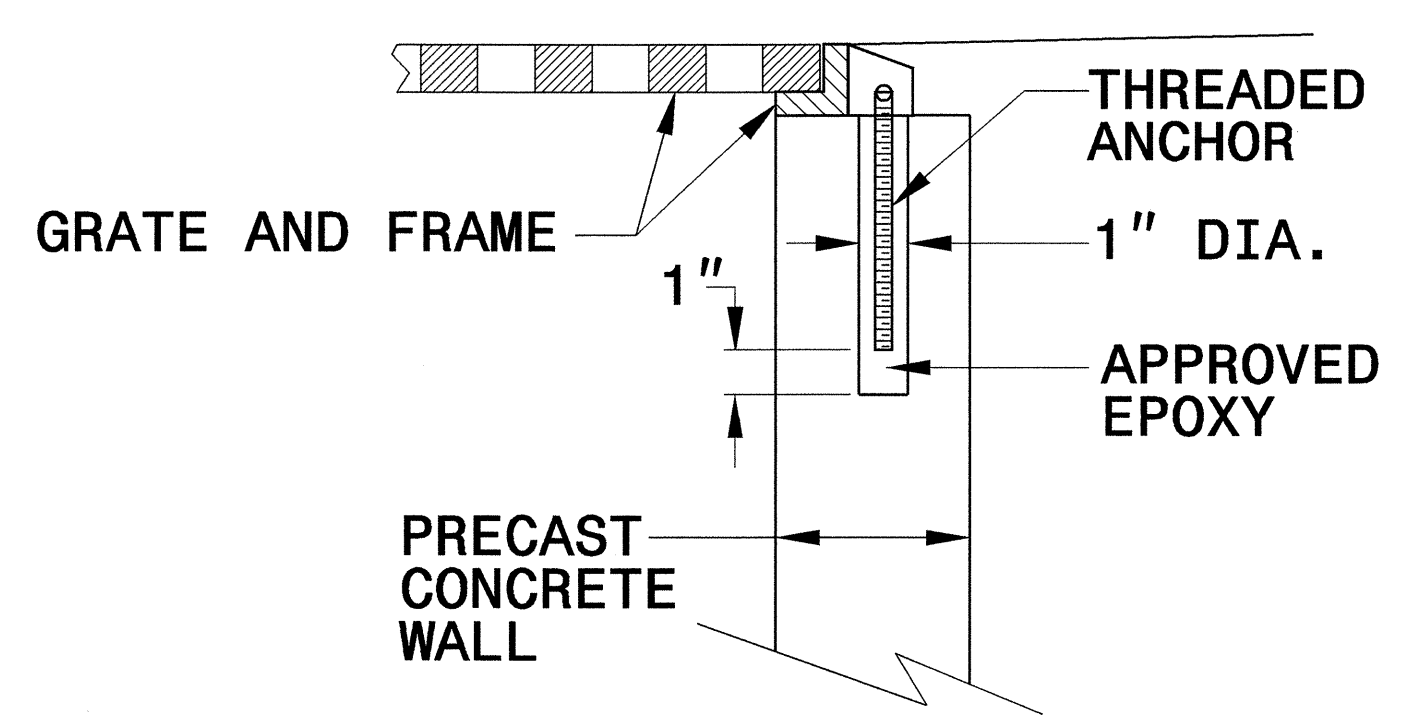
SHEET 1 OF 1
840D25



BRICK MASONRY CONSTRUCTION



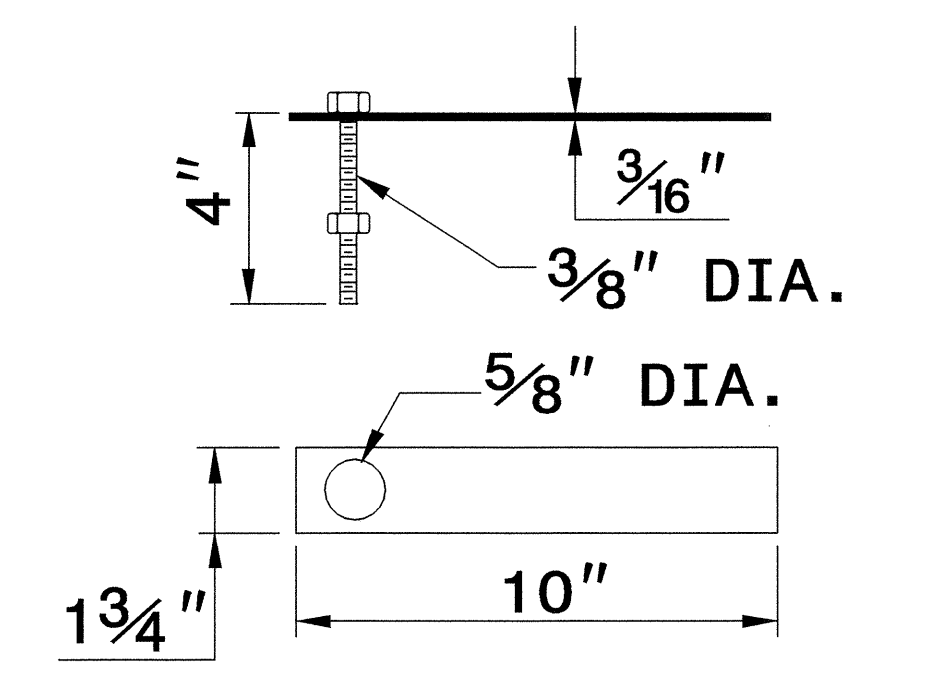
CONCRETE CONSTRUCTION



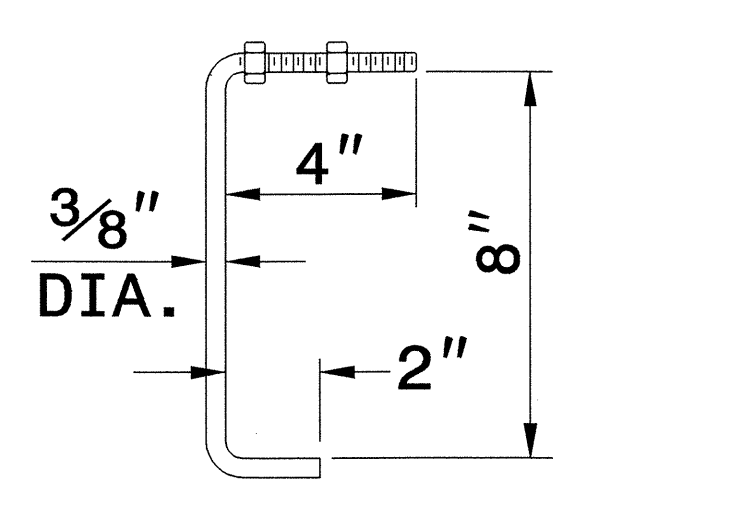
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

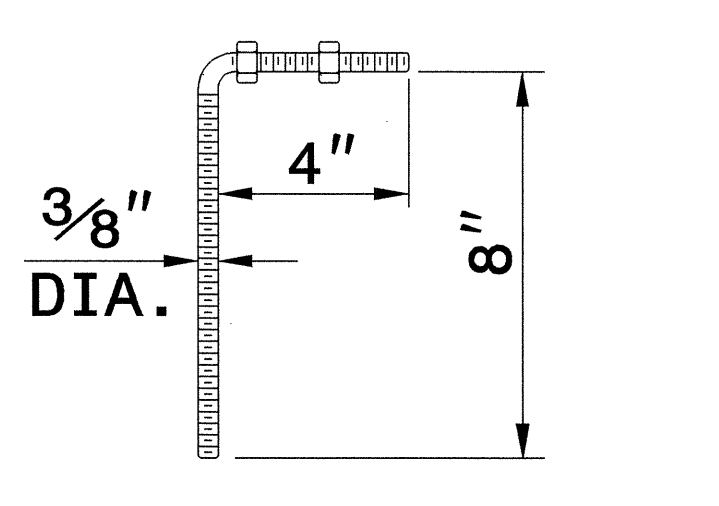
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



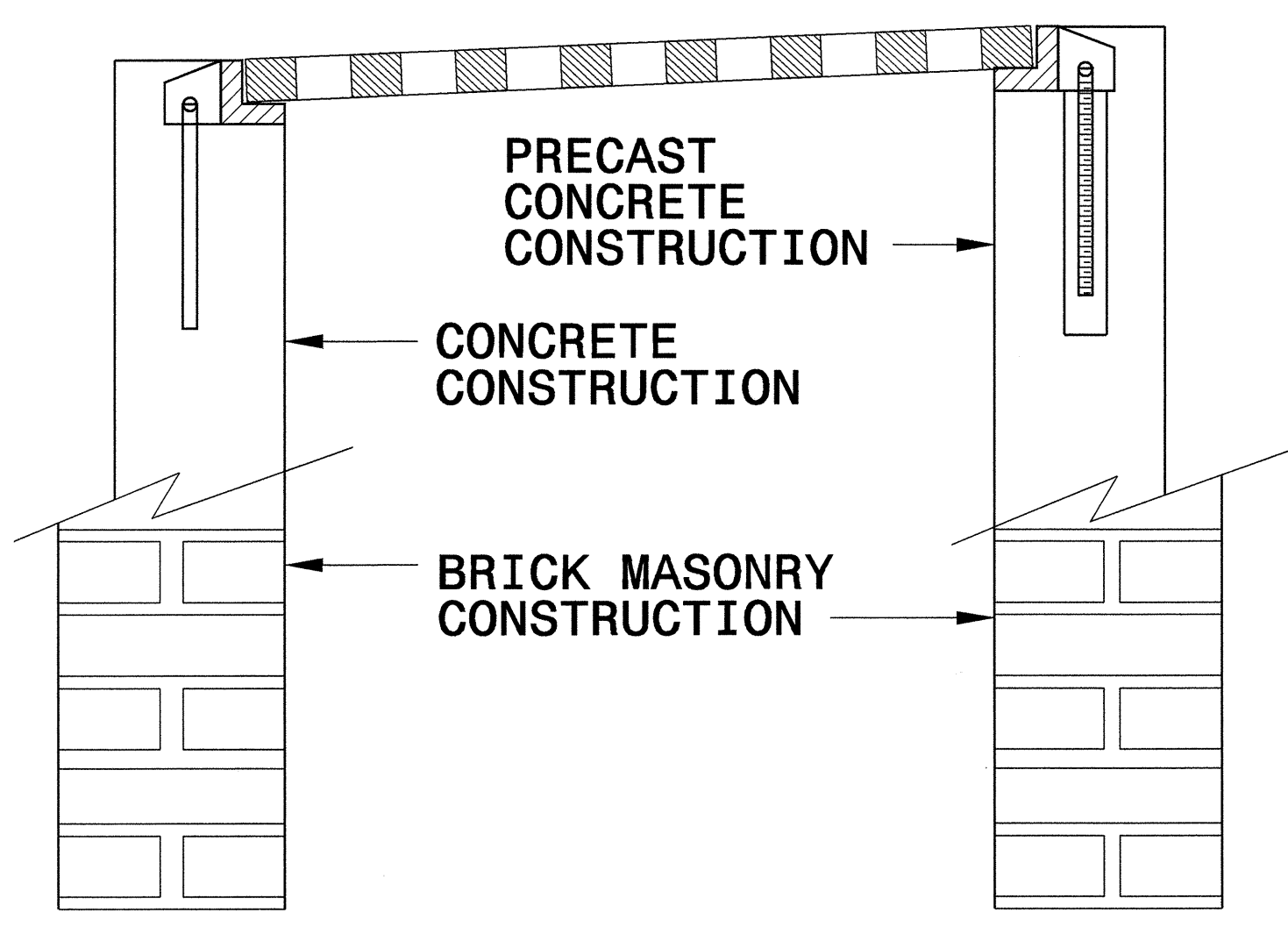
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



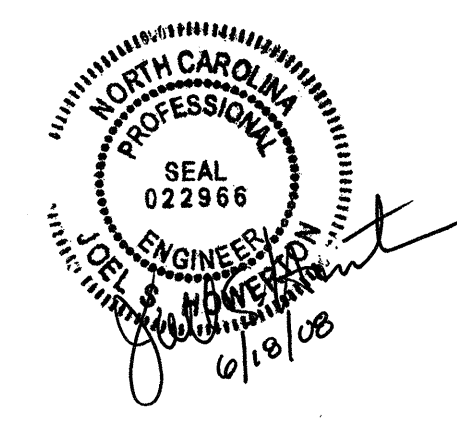
CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

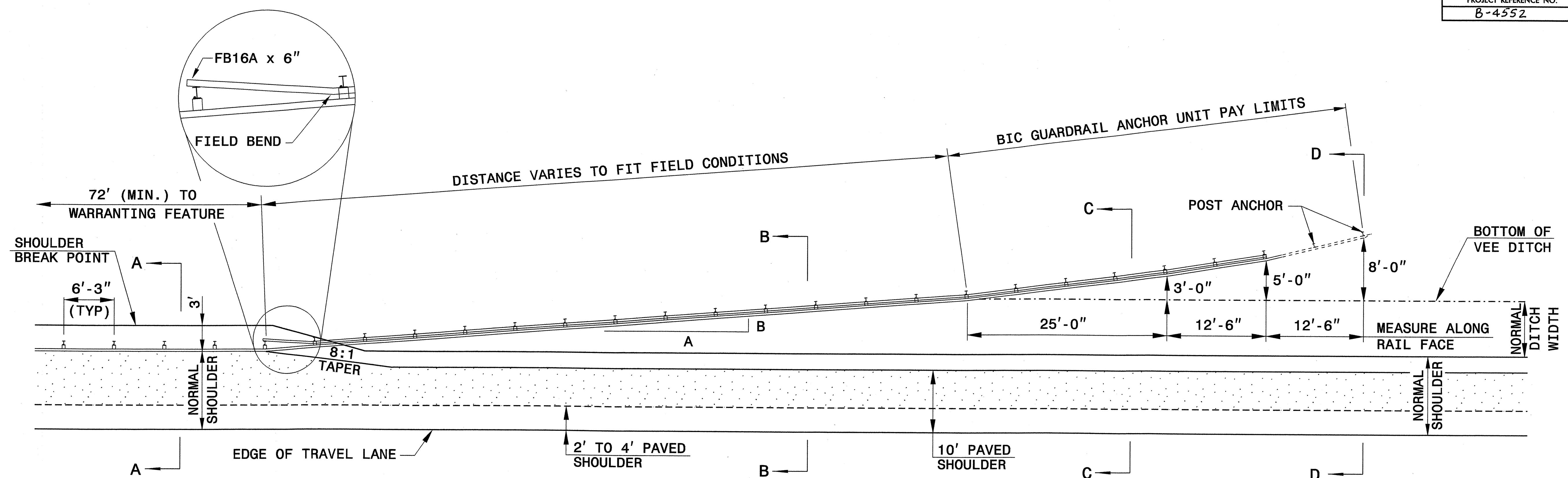


**PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN**
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

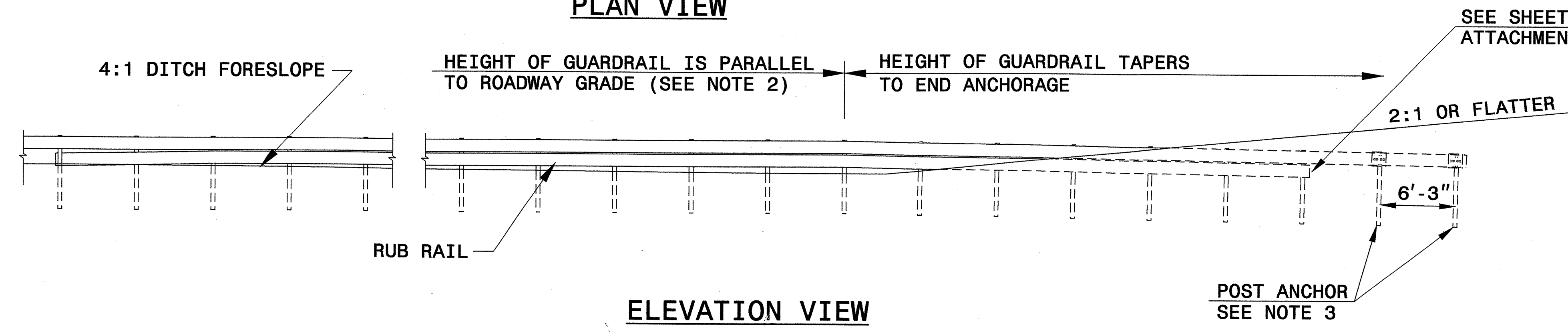
ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06
 MODIFIED BY: E.E. WARD DATE: 9/25/06
 CHECKED BY: DATE:
 FILE SPEC.:

SYSTEMS
DUDERNA

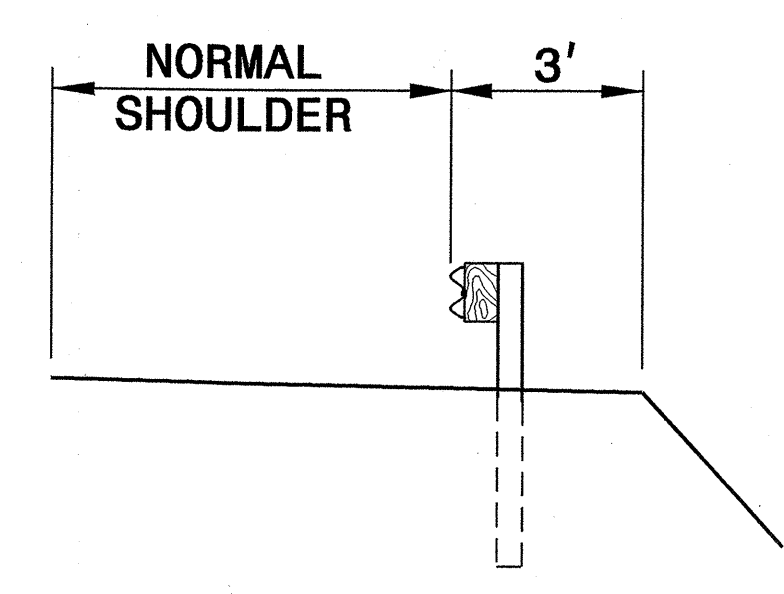


PLAN VIEW

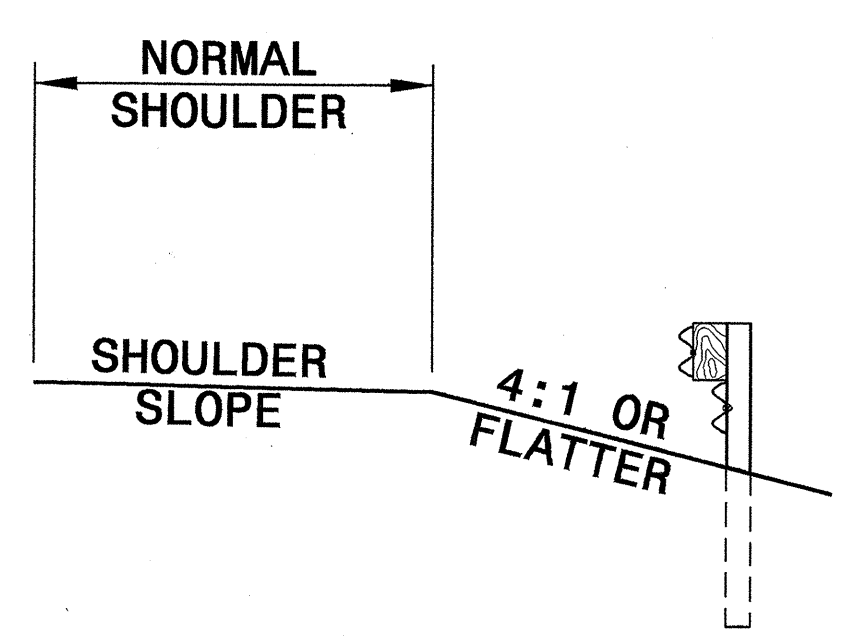
DESIGN SPEED mph	A:B
≥ 60	13:1
55	12:1
50	11:1
45	10:1
40	9:1
30 or less	7:1



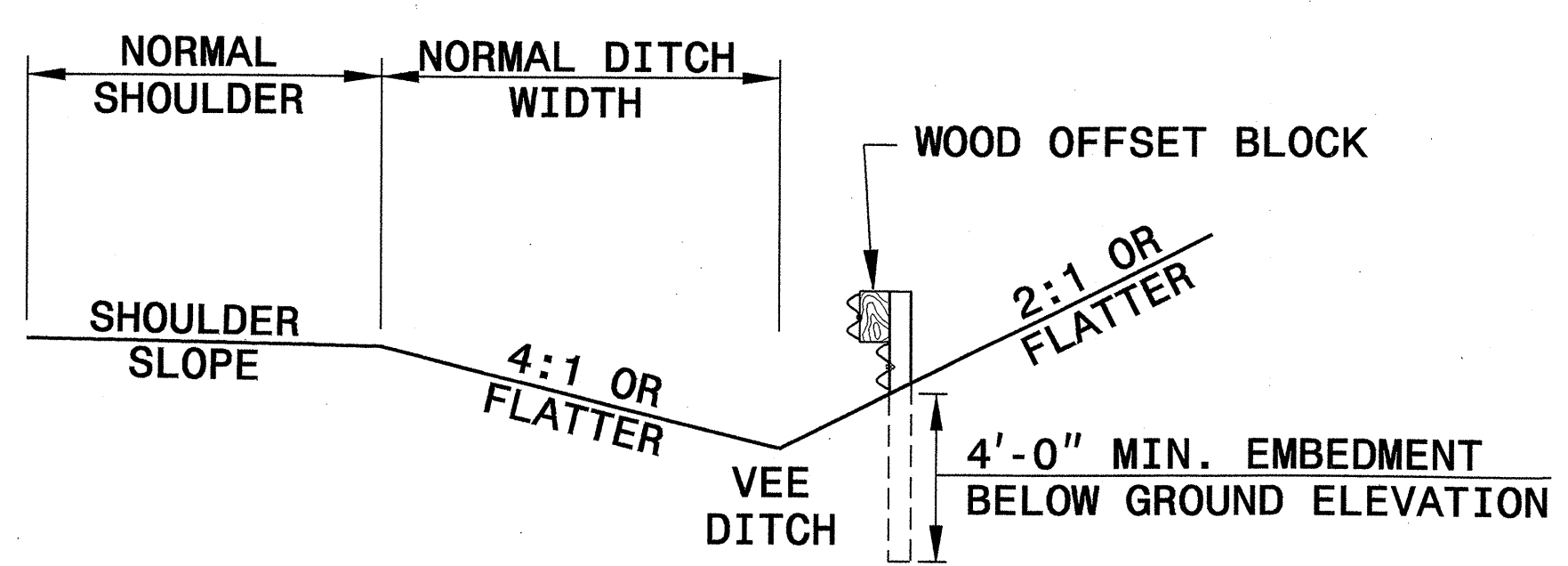
ELEVATION VIEW



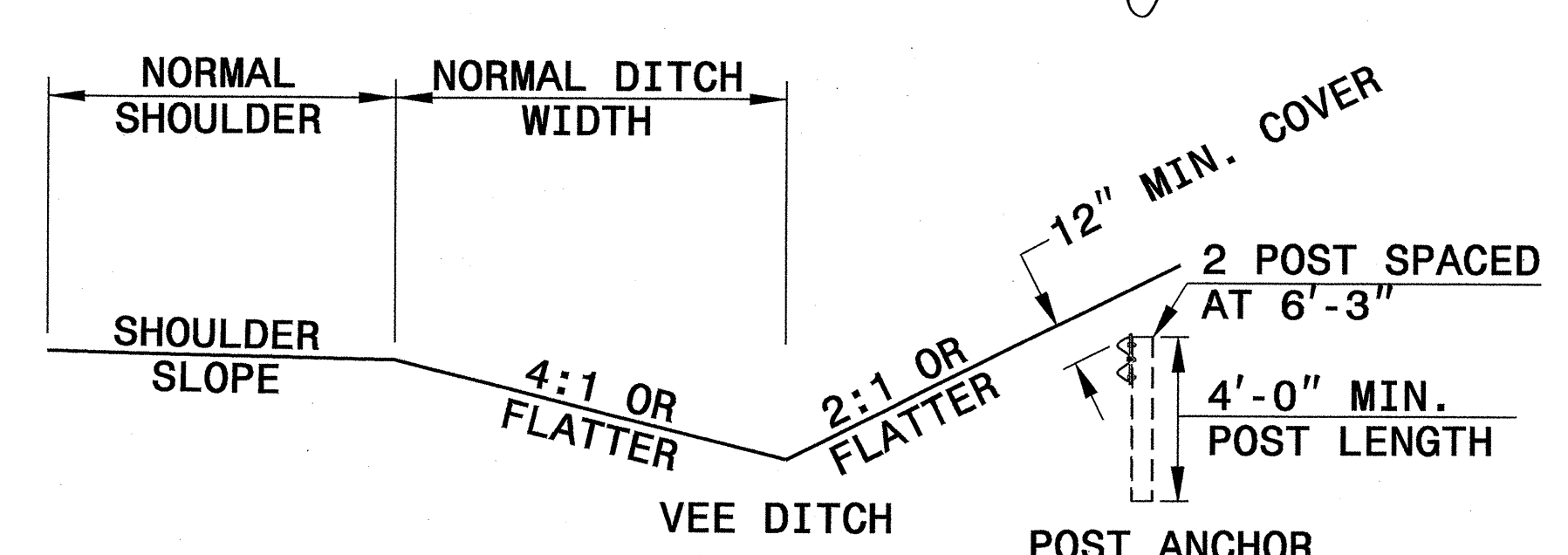
SECTION A-A



SECTION B-B (WITH RUBRAIL)

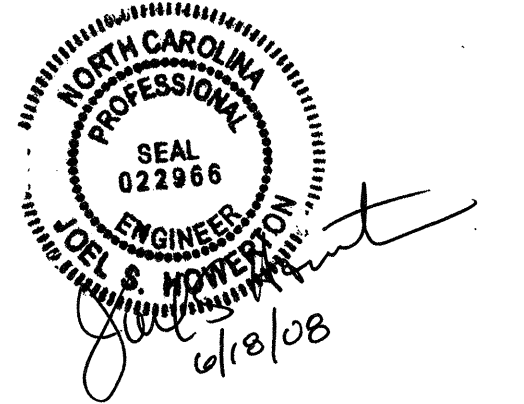


SECTION C-C (WITH RUBRAIL)



SECTION D-D

- NOTES:
- VARIABLE DITCH OFFSETS MAY BE USED TO FIT FIELD CONDITINS.
 - HEIGHT OF GUARDRAIL MAY BE TAPERED DOWN IN ELEVATION TO MAINTAIN 3'-9" MAXIMUM HEIGHT.
 - ALL POSTS ARE 8'-0" IN LENGTH FROM WHERE THE GUARDRAIL FLARES AWAY FROM THE SHOULDER BACK TO THE DITCH FLOW LINE. GUARDRAIL POSTS BEYOND THE DITCH FLOW LINE MAY BE SHORTENED AS LONG AS A MINIMUM OF 4 FT. EMBEDMENT REMAINS BELOW THE EXISTING GROUND LINE. POST FOR POST ANCHOR MAY BE REDUCED TO 4 FT., ALL OF WHICH WILL BE BELOW GROUND.
 - REFER TO NCDOT STANDARD DRAWINGS 862.02 FOR GUARDRAIL INSTALLATION NOT COVERED IN THIS DETAIL.
 - INSTALL GUARDRAIL IN ACCORDANCE NCDOT STANDARD SPECIFICATION 862
 - PAYMENT FOR ANY RUBRAIL INSTALLATION BEYOND BIC GUARDRAIL ANCHOR UNIT PAY LIMITS WILL BE INCIDENTAL TO PAYMENT FOR BIC ANCHOR UNIT.



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

DETAIL OF GUARDRAIL BURIED IN CUT (BIC)

ORIGINAL BY: FHW-G4 SYSTEM DATE: 8-13-98
MODIFIED BY: E.F. WARD DATE: 12-7-01
CHECKED BY: [Signature] DATE: 12-01-01
FILE SPEC: ericward/misc_guardrail/BIC.dgn

18-DEC-2001 08:43 ericward V:\sc_guardrail\BIC\BIC.dgn

5/28/99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201899

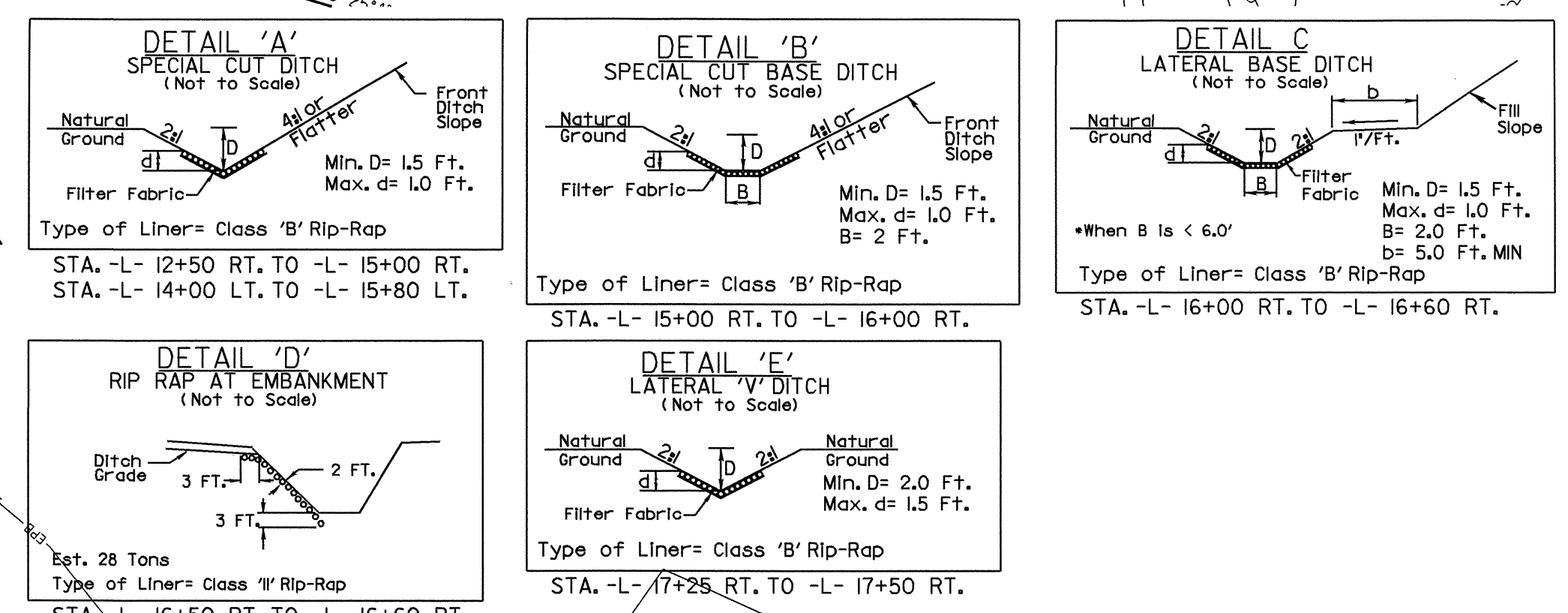
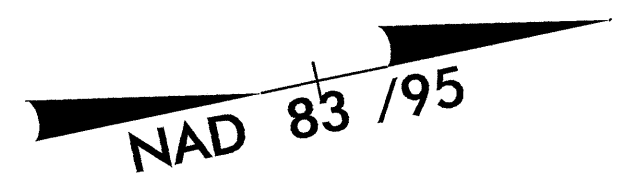
ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION
000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
002900000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (16+95.00)
004300000-N	226	Lump Sum		GRADING
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
005700000-E	226	200	CY	UNDERCUT EXCAVATION
013400000-E	240	128	CY	DRAINAGE DITCH EXCAVATION
019500000-E	265	100	CY	SELECT GRANULAR MATERIAL
019600000-E	270	100	SY	FABRIC FOR SOIL STABILIZATION
031800000-E	300	40	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
036600000-E	310	188	LF	15" RC PIPE CULVERTS, CLASS III
037200000-E	310	108	LF	18" RC PIPE CULVERTS, CLASS III
099500000-E	340	70	LF	PIPE REMOVAL
122000000-E	545	50	TON	INCIDENTAL STONE BASE
148900000-E	610	275	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
152500000-E	610	260	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
156000000-E	620	30	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
169300000-E	654	38	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
228600000-N	840	5	EA	MASONRY DRAINAGE STRUCTURES
236600000-N	840	4	EA	FRAME WITH TWO GRATES, STD 840.24
236700000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.29
303000000-E	862	175	LF	STEEL BM GUARDRAIL
304500000-E	862	50	LF	STEEL BM GUARDRAIL, SHOP CURVED
315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS

ItemNumber	Sec #	Quantity	Unit	Description
318000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** (BIC)
319500000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
327000000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
331700000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
363500000-E	876	30	TON	RIP RAP, CLASS II
364900000-E	876	305	TON	RIP RAP, CLASS B
365600000-E	876	1,010	SY	FILTER FABRIC FOR DRAINAGE
440000000-E	1110	372	SF	WORK ZONE SIGNS (STATIONARY)
441000000-E	1110	94	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
444500000-E	1145	48	LF	BARRICADES (TYPE III)
481000000-E	1205	5,200	LF	PAINT PAVEMENT MARKING LINES (4")
600000000-E	1605	535	LF	TEMPORARY SILT FENCE
600600000-E	1610	150	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	150	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	105	TON	SEDIMENT CONTROL STONE
601500000-E	1615	1	ACR	TEMPORARY MULCHING
601800000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	1.25	TON	FERTILIZER FOR TEMPORARY SEEDING
602900000-E	SP	240	LF	SAFETY FENCE
603000000-E	1630	415	CY	SILT EXCAVATION
603600000-E	1631	750	SY	MATTING FOR EROSION CONTROL
603700000-E	SP	15	SY	COIR FIBER MAT
607103000-E	SP	60	LF	COIR FIBER BAFFLES
607105000-E	SP	2	EA	*** SKIMMER (1-1/2")
608400000-E	1660	1.5	ACR	SEEDING & MULCHING

ItemNumber	Sec #	Quantity	Unit	Description
608700000-E	1660	0.5	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	0.75	TON	FERTILIZER TOPDRESSING
611400000-N	SP	2	HR	SPECIALIZED HAND MOWING
611700000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL

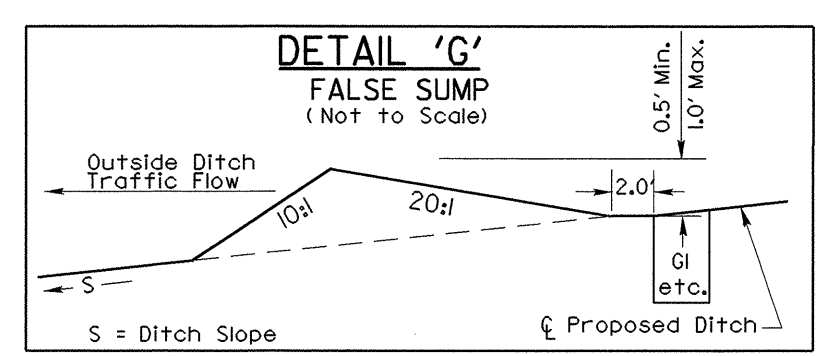
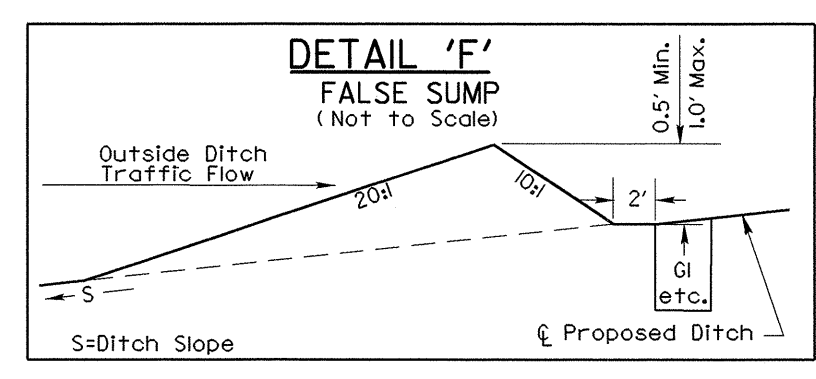
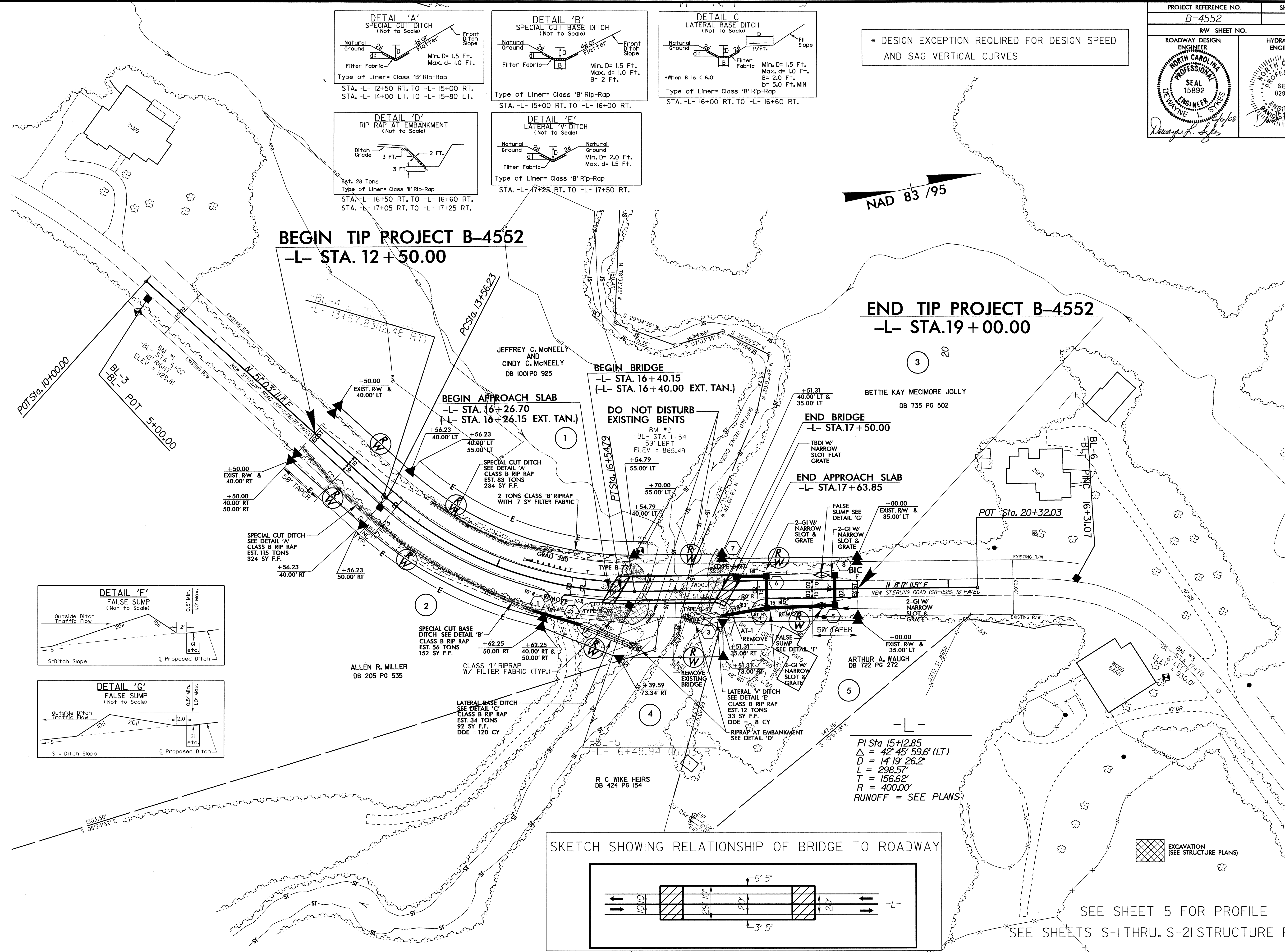
01-APR-2008 15:25
P:\PROJECTS\PCO\B-4552-rdy-sum.dgn
B-4552-ROADWAY SUMMARY

* DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED AND SAG VERTICAL CURVES

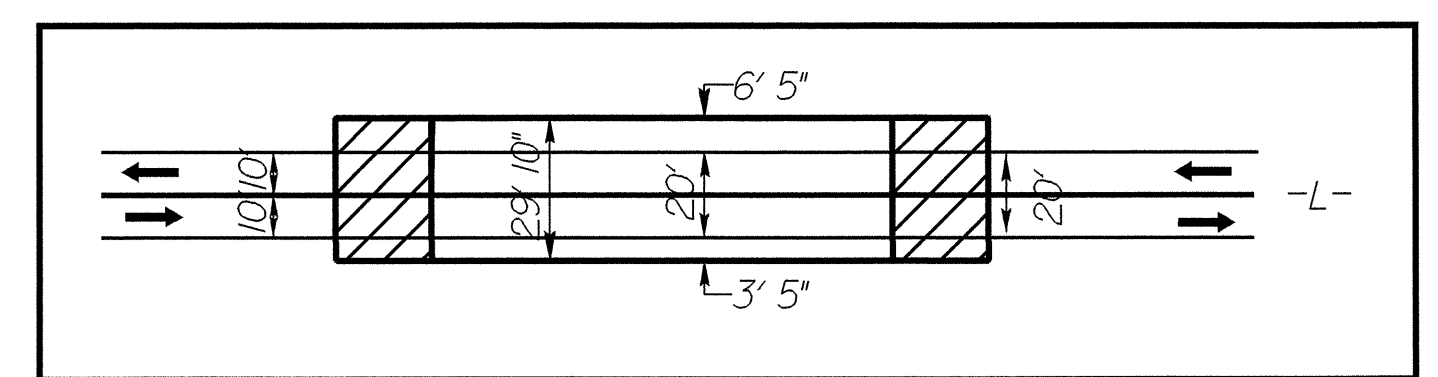


BEGIN TIP PROJECT B-4552
-L- STA. 12 + 50.00

END TIP PROJECT B-4552
-L- STA. 19 + 00.00



SKETCH SHOWING RELATIONSHIP OF BRIDGE TO ROADWAY



SEE SHEET 5 FOR PROFILE
SEE SHEETS S-1 THRU. S-21 STRUCTURE PLANS

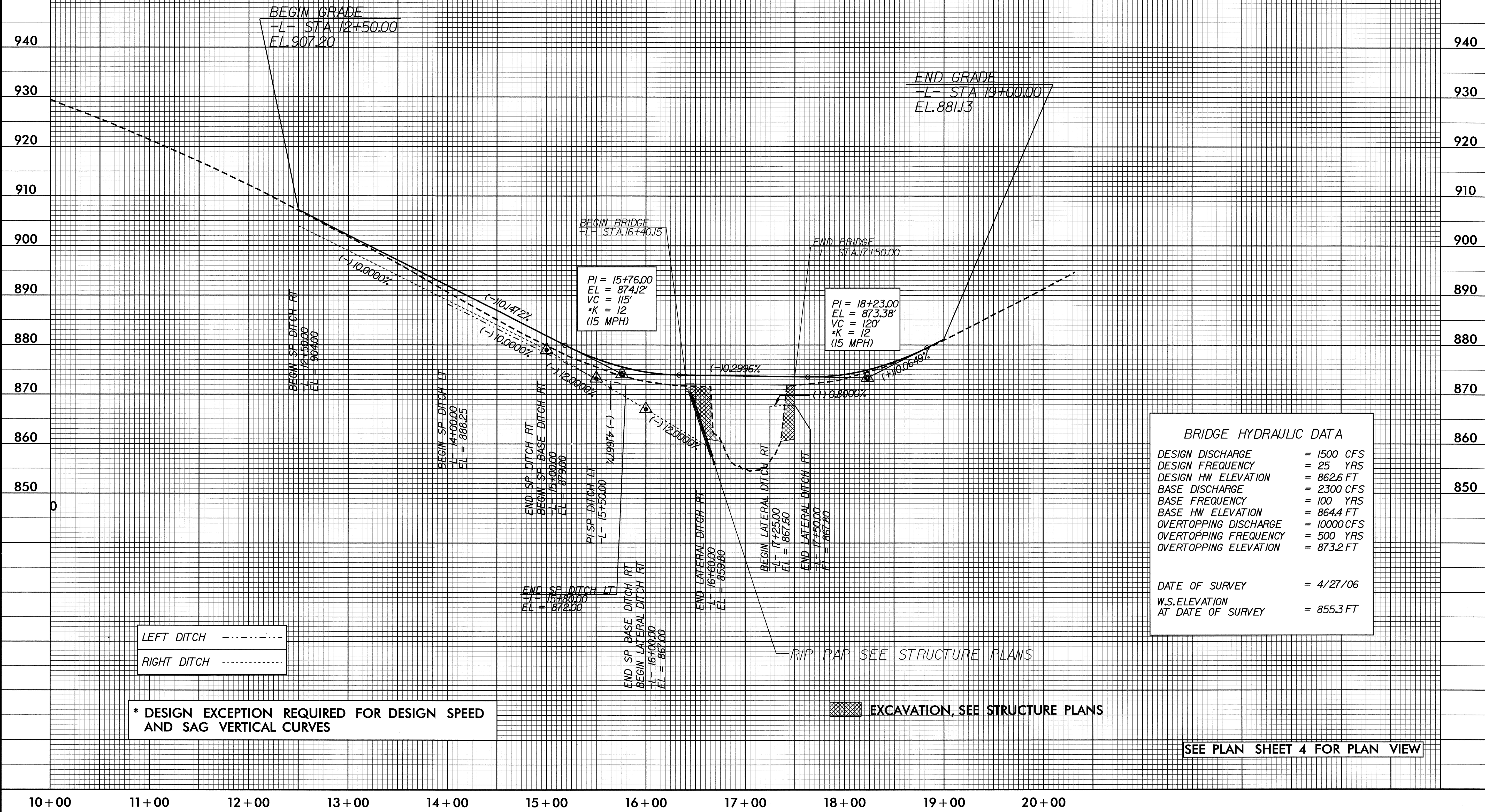
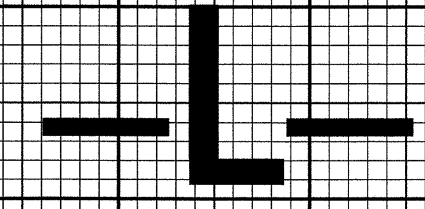
REVISIONS

8/17/99
02-JUN-2008 08:10 R:\Roadway\B-4552_r.dwg_psh.dgn
\$\$\$\$\$SYTIME\$\$\$\$\$

5/14/99

13-MAY-2008 07:39
P:\WORK\4552\B-4552-rdy-p1_shts1.dgn

BM #2:
RR SPIKE IN 12 INCH POPLAR 59 FT
LT OF -L- Sta. 16+61.63 44.34'
ELEV. 865.48'



BEGIN GRADE
-L- STA 12+50.00
EL. 907.20

END GRADE
-L- STA 19+00.00
EL. 881.13

BEGIN BRIDGE
-L- STA 16+40.15

END BRIDGE
-L- STA 17+50.00

PI = 15+76.00
EL = 874.12'
VC = 115'
*K = 12
(15 MPH)

PI = 18+23.00
EL = 873.38'
VC = 120'
*K = 12
(15 MPH)

BRIDGE HYDRAULIC DATA	
DESIGN DISCHARGE	= 1500 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 862.6 FT
BASE DISCHARGE	= 2300 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 864.4 FT
OVERTOPPING DISCHARGE	= 10000 CFS
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING ELEVATION	= 873.2 FT
DATE OF SURVEY	= 4/27/06
W.S. ELEVATION AT DATE OF SURVEY	= 855.3 FT

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

* DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED AND SAG VERTICAL CURVES

EXCAVATION, SEE STRUCTURE PLANS

SEE PLAN SHEET 4 FOR PLAN VIEW

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00