

09/08/09

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

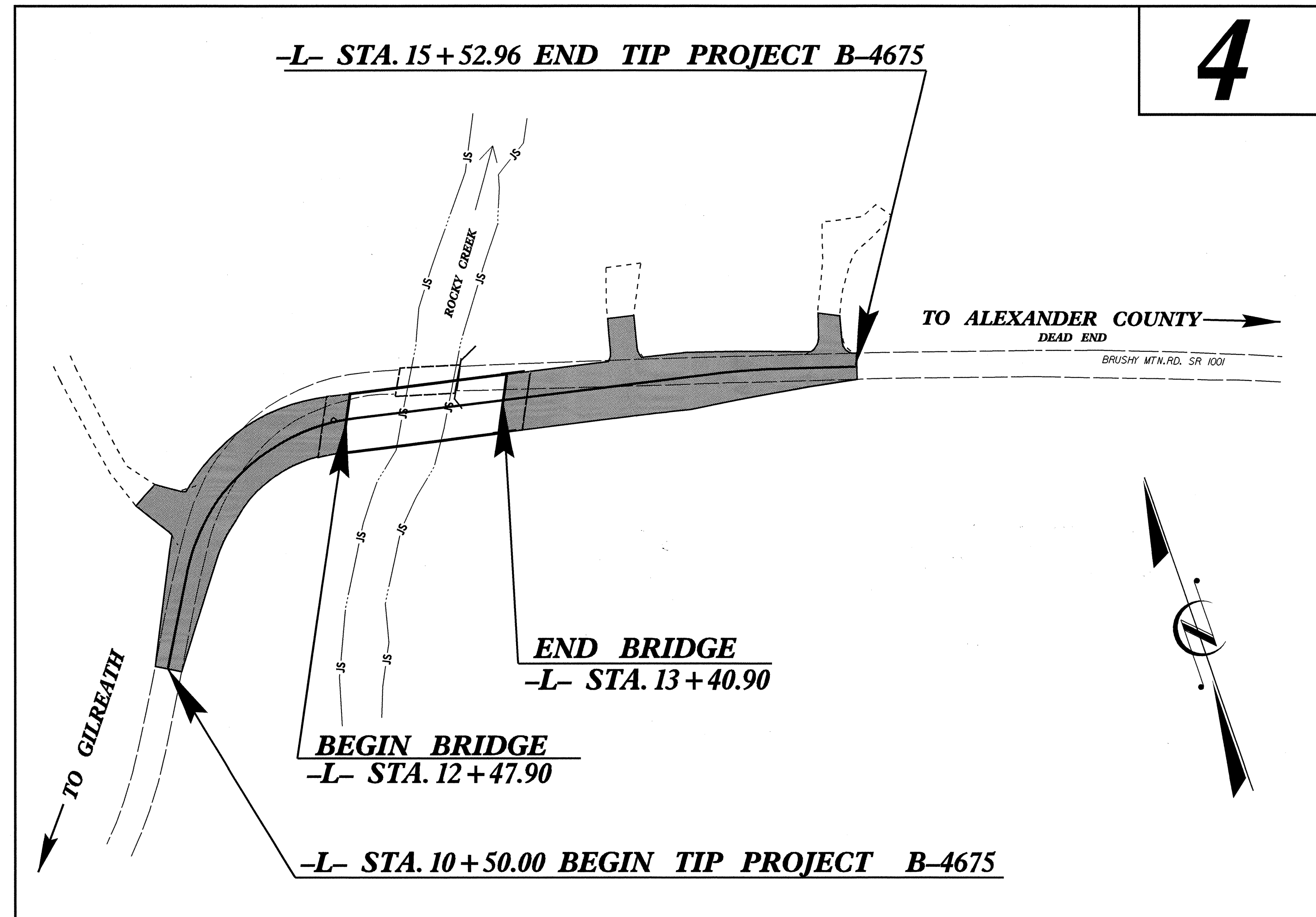
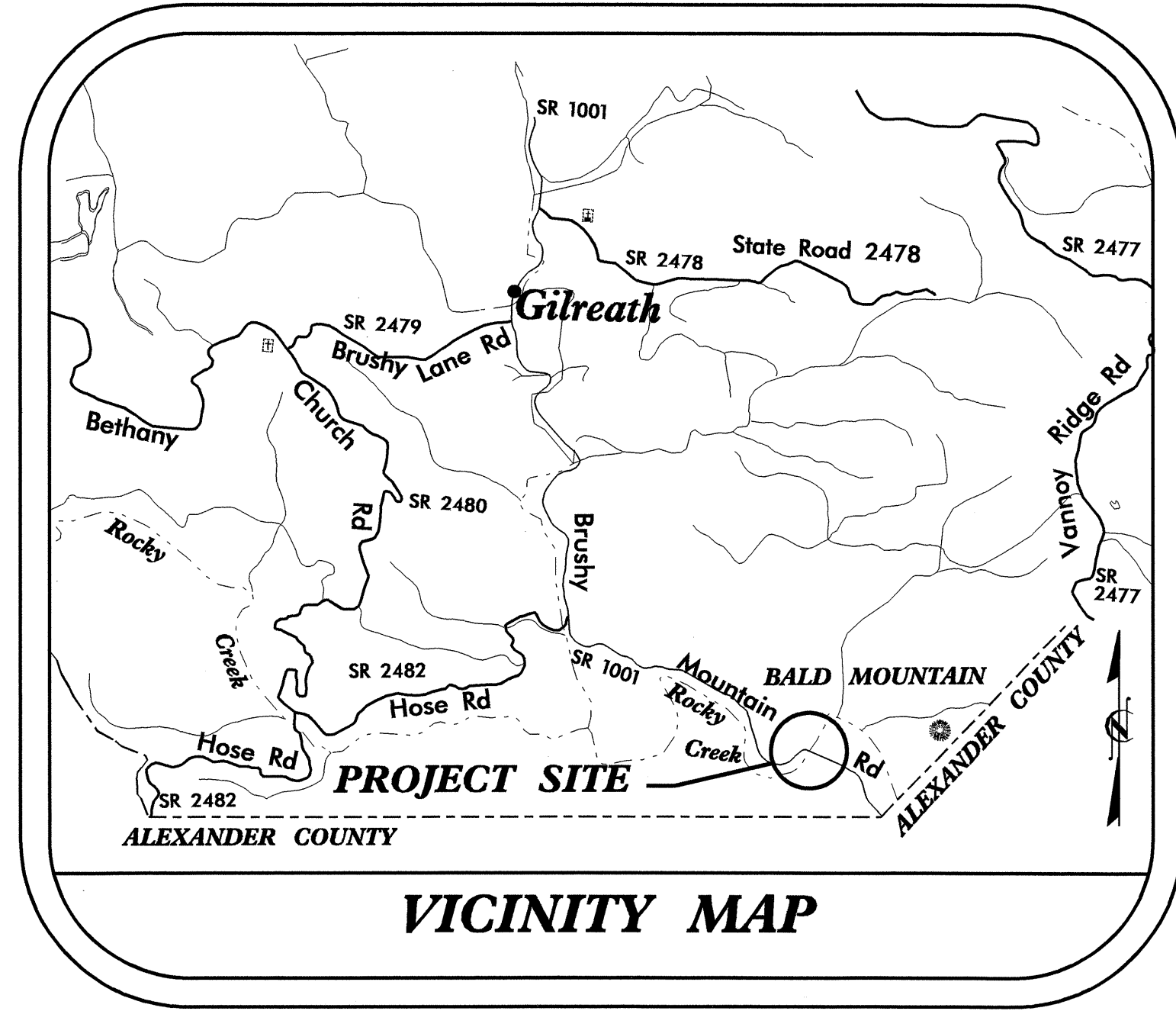
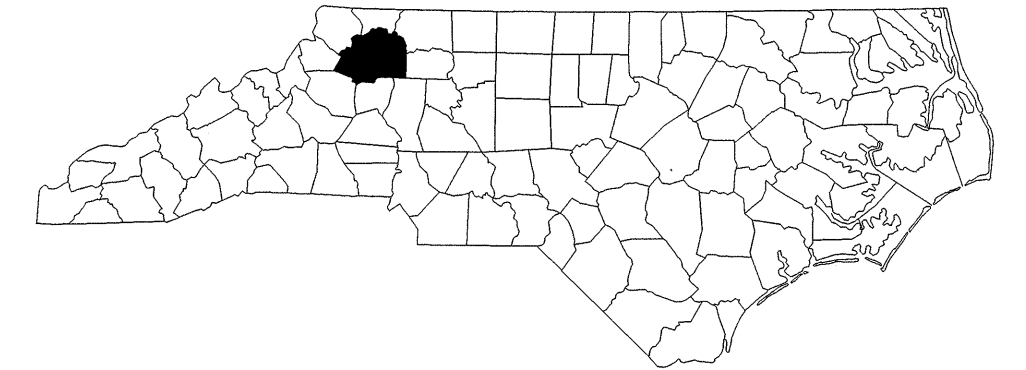
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WILKES COUNTY

**LOCATION: BRIDGE NO. 34 OVER ROCKY CREEK AND APPROACHES
ON SR 1001 (BRUSHY MOUNTAIN RD)**

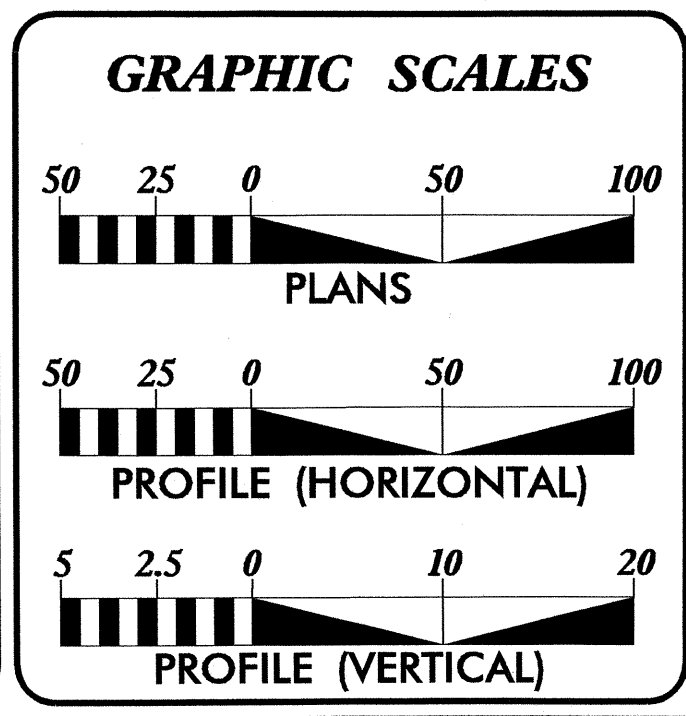
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4675	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33830.1.1	BRZ-1001 (28)	P.E.	
33830.2.1	BRZ-1001 (28)	RW & UTIL.	
33830.3.1	BRZ-1001 (28)	CONST.	



** DESIGN EXCEPTION REQUIRED TO REDUCE DESIGN SPEED FROM 60 MPH TO LESS THAN 20 MPH

CONTRACT: C201817 TIP PROJECT: B-4675



DESIGN DATA

ADT 2008 =	460
ADT 2030 =	800
DHV =	11 %
D =	55 %
T =	6 % *
** V <	20 MPH
(* TTST 2% + DUAL 4%)	
FUNC CLASS =	RURAL LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4675 =	0.077 MI
LENGTH STRUCTURE TIP PROJECT B-4675 =	0.018 MI
TOTAL LENGTH OF TIP PROJECT B-4675 =	0.095 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:	September 29, 2006
LETTING DATE:	April 15, 2008

GLENN W. MUMFORD, PE
PROJECT ENGINEER

SUSAN C. LANCASTER, PE
PROJECT DESIGN ENGINEER

HYDRAULIC ENGINEER

SIGNATURE: *Joseph W. Mumford* 1/25/08

ROADWAY DESIGN ENGINEER

SIGNATURE: *Susan C. Lancaster* 1/23/08

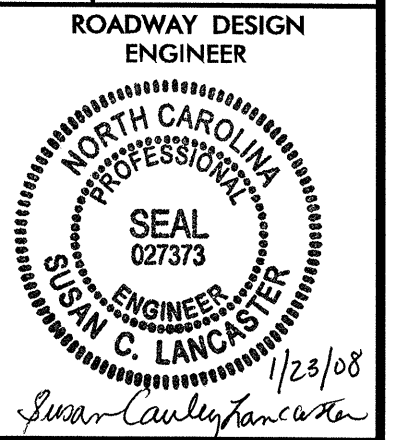
**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

Susan C. Lancaster P.E.
STATE HIGHWAY DESIGN ENGINEER

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5/28/09

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS



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

GENERAL NOTES: 2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-18-06

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET - B-4675
1-A	INDEX OF SHEETS, GENERAL NOTES & LIST OF STANDARDS (2006 SPECIFICATIONS)
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 STANDARD TEMPORARY SHORING
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF DRAINAGE QUANTITIES, GUARDRAIL SUMMARY, SUMMARY OF PAVEMENT REMOVAL AND EARTHWORK SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THROUGH TCP-7	TRAFFIC CONTROL PLANS
EC-1 THROUGH EC-5	EROSION CONTROL PLANS
SIGN-1 THROUGH SIGN-3	SIGNING PLANS
U0-1 THROUGH U0-2	UTILITIES BY OTHERS PLANS
X-A	CROSS-SECTION SUMMARY SHEET
X-1 THROUGH X-5	CROSS-SECTIONS
S-1 THROUGH S-30	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:

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 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 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
840.13	Concrete Bridge Approach Drop Inlet - 12" thru 24" Pipe
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
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
850.01	Concrete Paved Ditches
850.10	Guide for Berm Drainage Outlet - 15" and 18" Pipe
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD 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 NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING" OR "TEMPORARY SHORING-BARRIER SUPPORTED" DEPENDING UPON THE LOCATION OF THE SHORING.

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:

THE UTILITY OWNER ON THIS PROJECT IS WILKES TELEPHONE

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.

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\$\$\$\$\$ICERNAME\$\$\$\$\$

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, Swamp Marsh, 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:

Table listing symbols for 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.

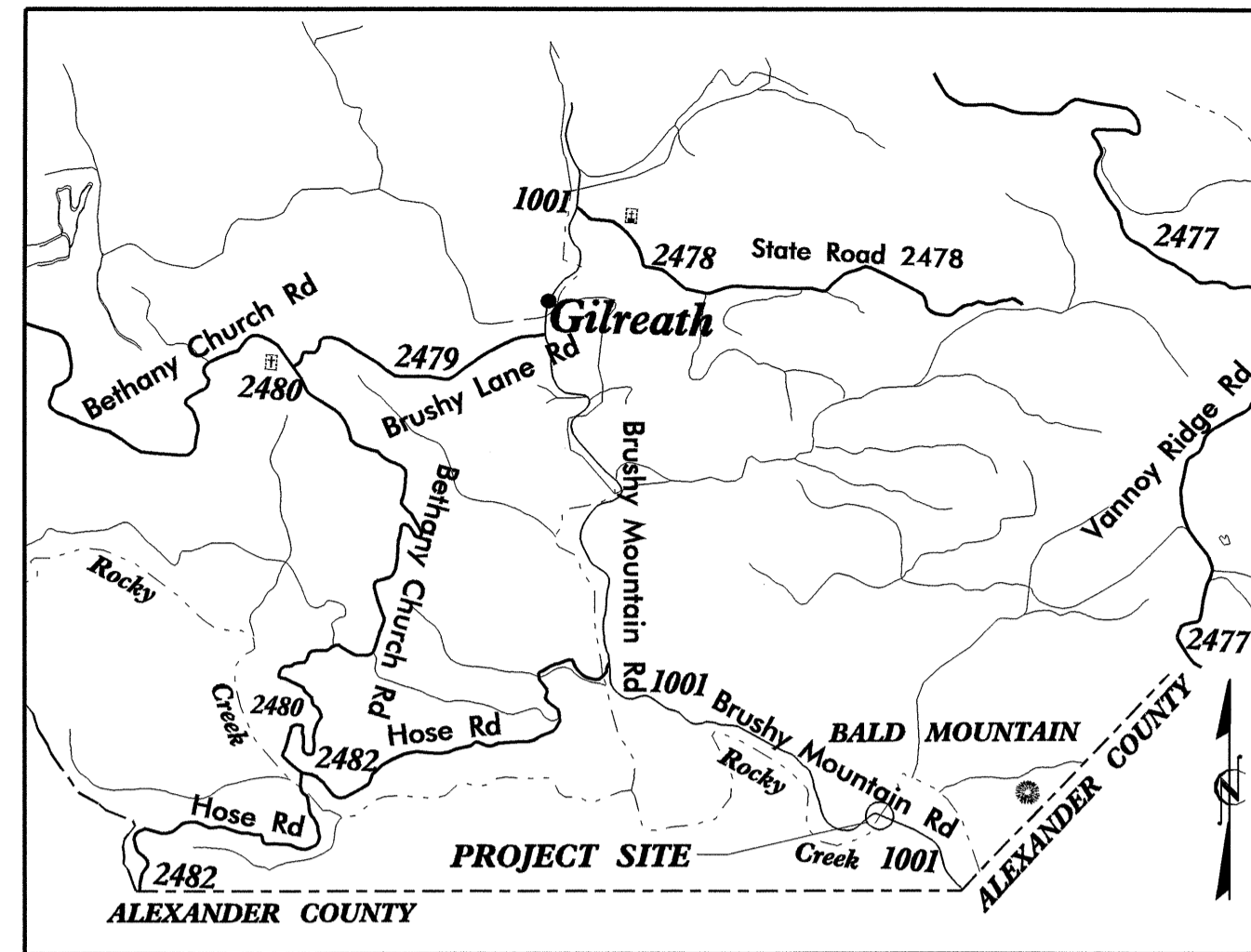
SANITARY SEWER:

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.

SURVEY CONTROL SHEET B-4675



VICINITY MAP

**NC DOT GPS STATION B4675-2
LOCALIZED COORDINATES**

**N = 837258.616
E = 1391289.360**

**NC DOT GPS STATION B4675-1
LOCALIZED COORDINATES**

**N = 836680.892
E = 1391539.274**

NC GRID
NAD 83

END TIP PROJECT B-4675

**-L- STA. 15 + 52.96
N = 837619.7058
E = 1390606.7228**

BEGIN TIP PROJECT B-4675

-L- STA. 10 + 50.00

**N = 837584.3261
E = 1390164.5864**

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BL3	BL-3	837410.8397	1389787.2314	1244.04'	OUTSIDE PROJECT LIMITS	
BL4	BL-4	837423.1165	1390004.6209	1230.99'	OUTSIDE PROJECT LIMITS	
BL5	BL-5	837718.6770	1390321.5673	1210.86'	12+53.21	30.99' LT
BL6	BL-6	837567.1062	1390794.8993	1231.82'	OUTSIDE PROJECT LIMITS	

.....
 BM*1 ELEVATION = 1228.50' BM*2 ELEVATION = 1210.85'
 N 837334 E 1389809 N 837838 E 1390246
 OUTSIDE PROJECT LIMITS L STATION 12+06 147' LEFT
 8" SPIKE IN BASE OF 12" POPLAR 8" SPIKE IN BASE OF 12" POPLAR

NOTES:

1. 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:
 B4675_LS_CONTROL_060317.HTML

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 EXISTING HARN MONUMENTATION

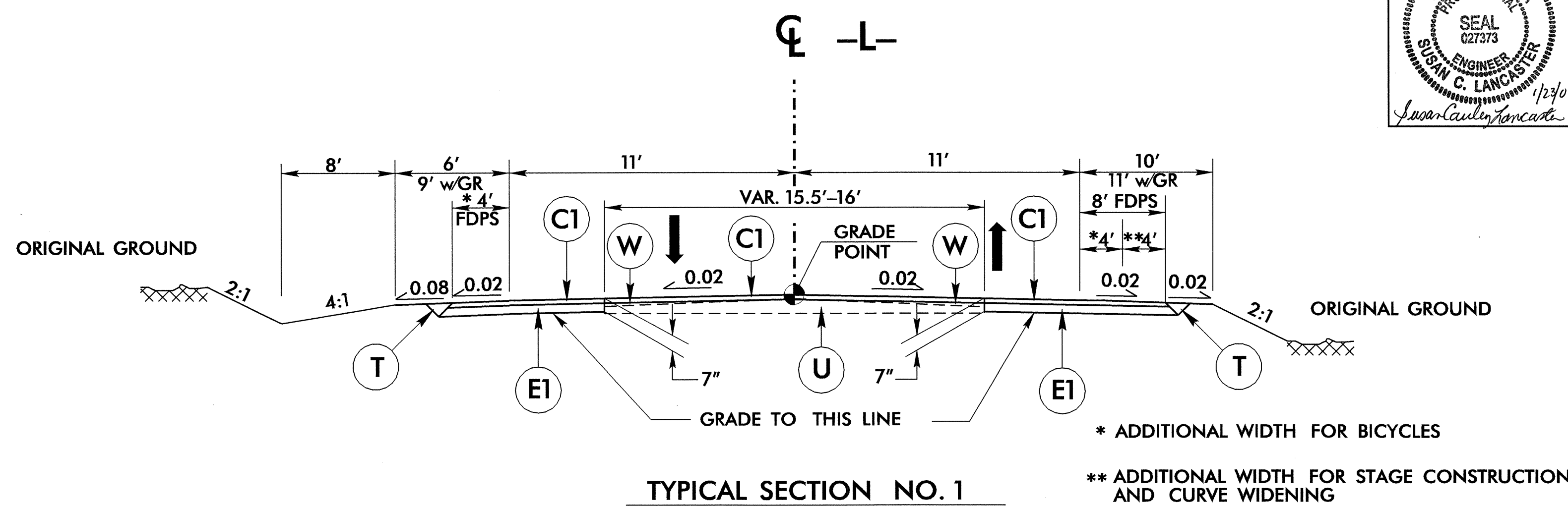
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-4675-1"
 WITH NAD 83 STATE PLANE GRID COORDINATES OF
 NORTHING: 836680.892(ft) EASTING: 1391539.274(ft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00008752
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-4675-1" TO -L- STATION 10+50.00 IS
 N 56°41'15" W 1644.98'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

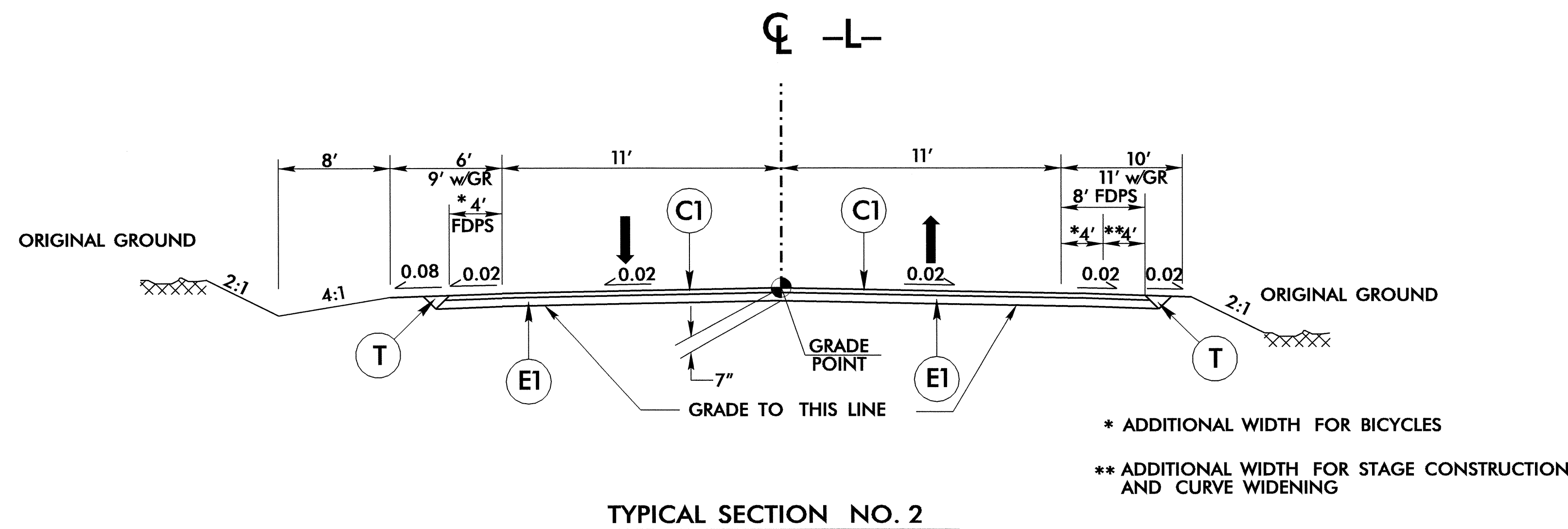
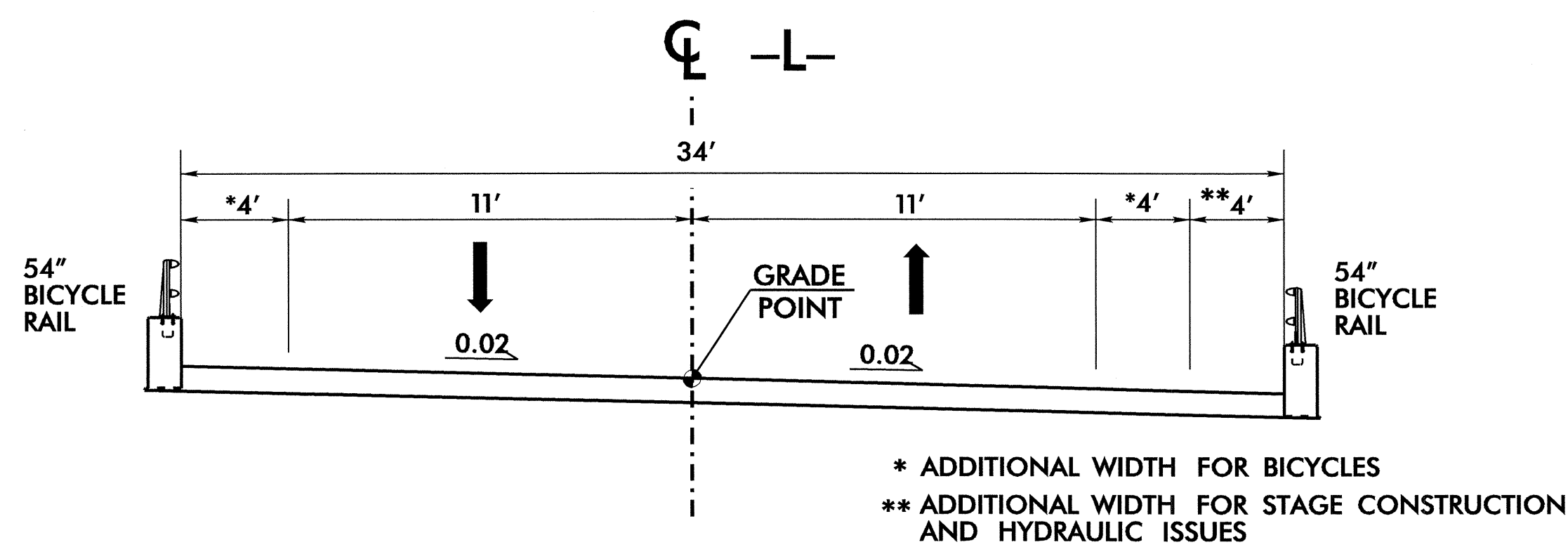
NOTE: DRAWING NOT TO SCALE

FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 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 LESS THAN 1" IN DEPTH OR GREATER THAN 1.5" IN DEPTH
E1	PROP. APPROX. 4.0" 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 5.5" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL SHOWING METHOD OF WEDGING)



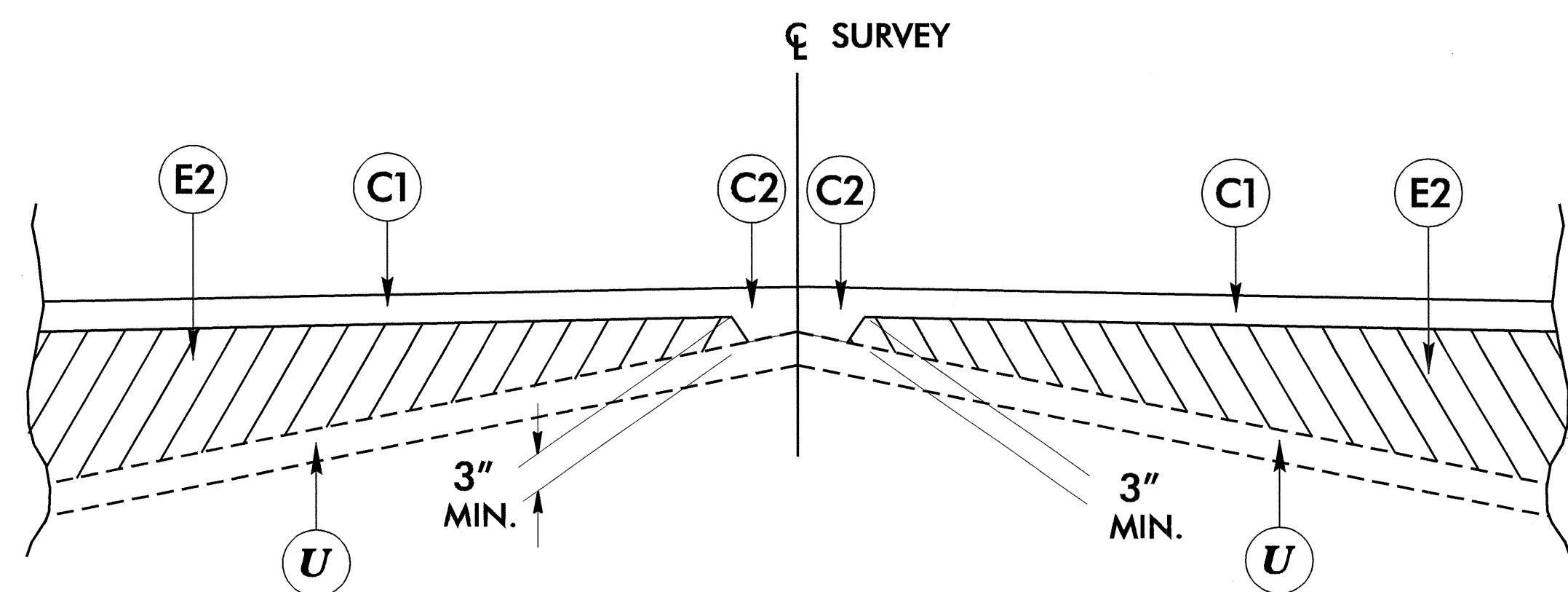
USE TYPICAL SECTION NO. 1 AS FOLLOWS:

- L- STA. 11+50.00 TO -L- STA. 11+75.00
- L- STA. 14+00.00 TO -L- STA. 14+52.96
- TRANSITION FROM EXISTING @ -L- STA. 10+50.00 TO TYPICAL NO. 1 @ -L- STA. 11+50.00
- TRANSITION FROM TYPICAL NO. 1 @ -L- STA. 14+52.96 TO EXISTING @ -L- STA. 15+52.96



USE TYPICAL SECTION NO. 2 AS FOLLOWS:

- L- STA. 11+75.00 TO STA. 12+47.90 (BEGIN BRIDGE NO. 34)
- L- STA. 13+40.90 (END BRIDGE NO. 34) TO -L- STA. 14+00.00



REVISIONS

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

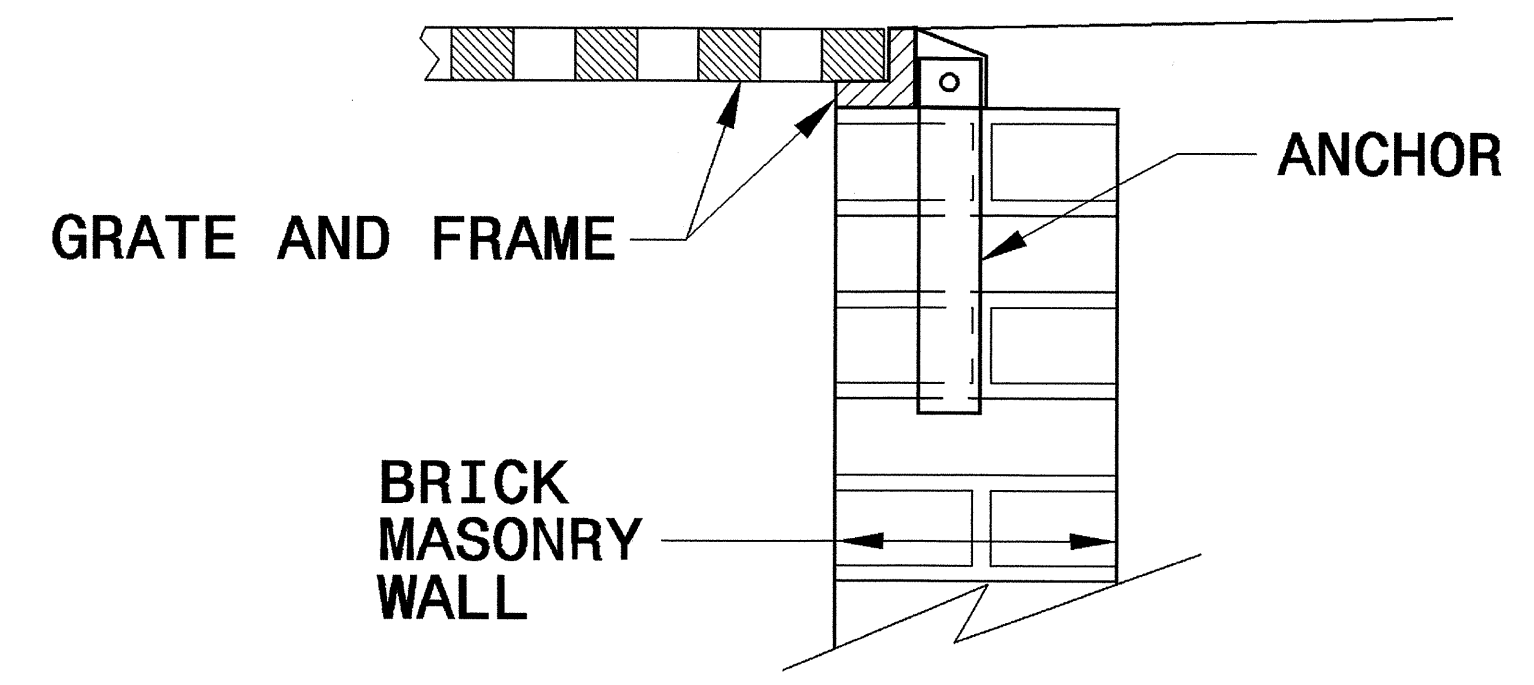
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

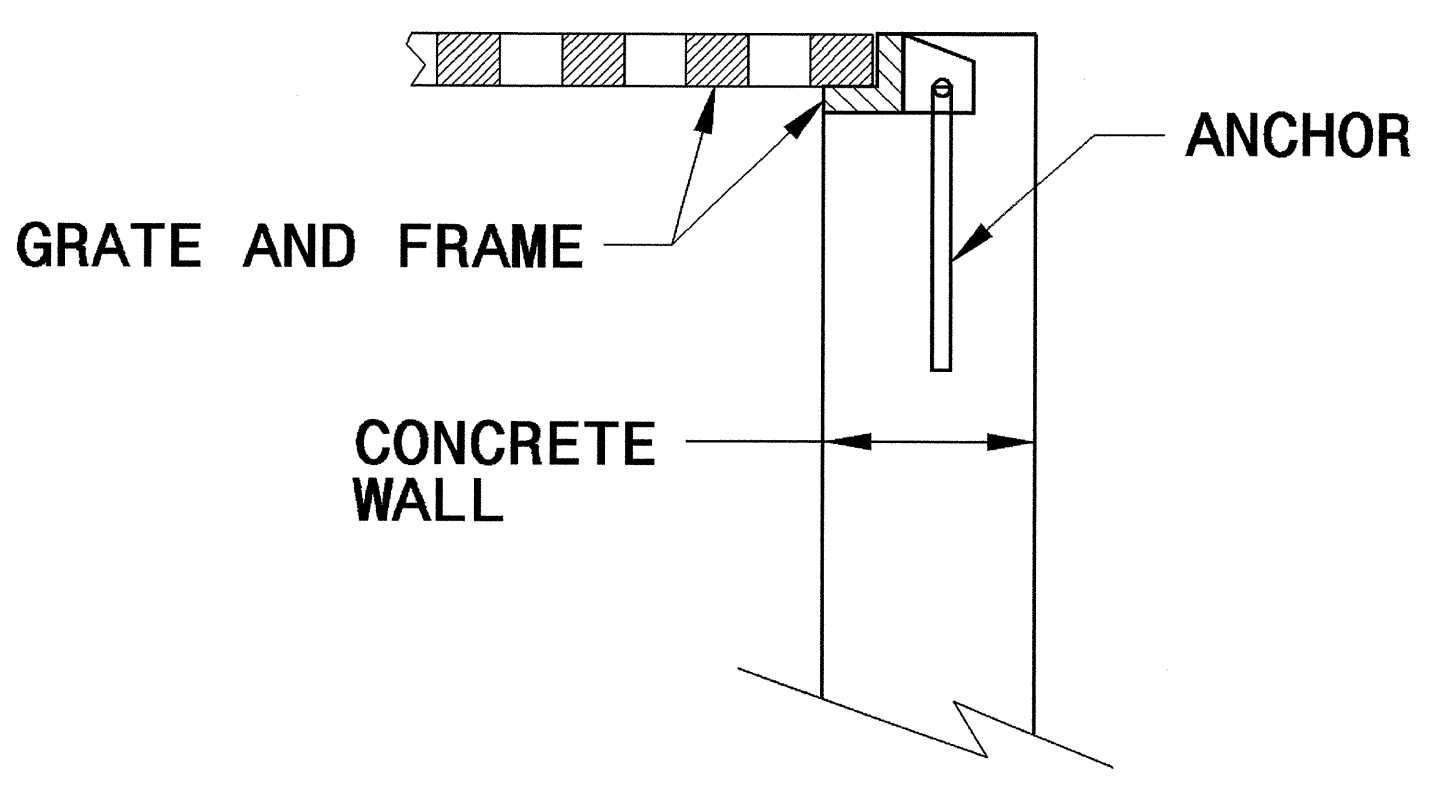
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

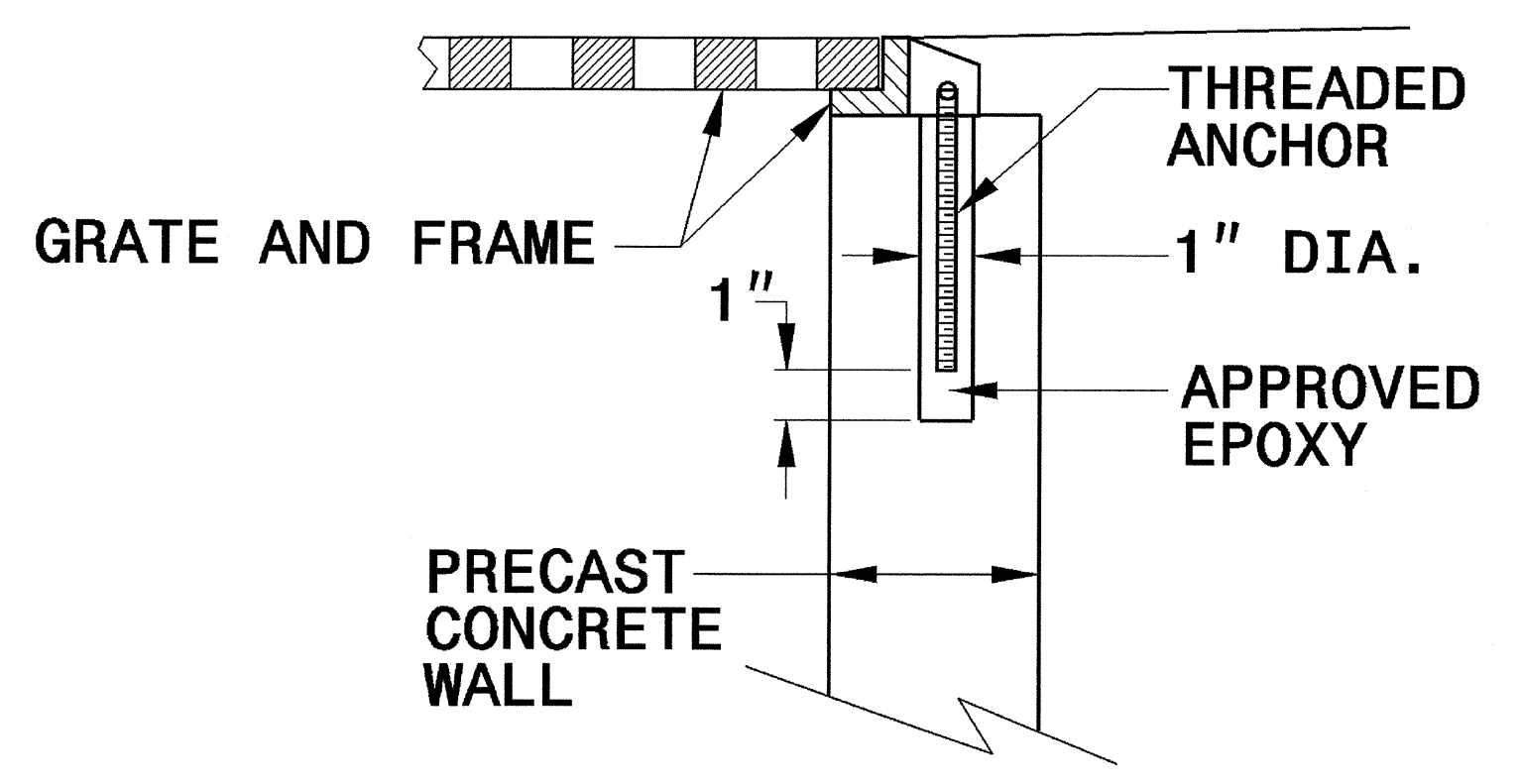
SHEET 1 OF 1
840D25



BRICK MASONRY CONSTRUCTION



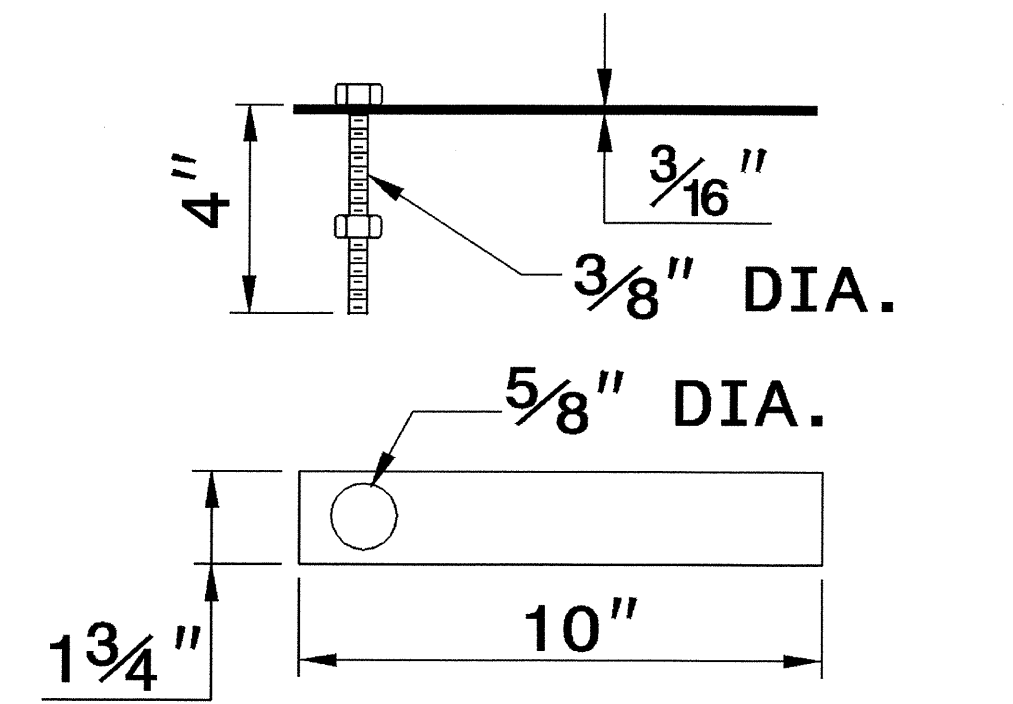
CONCRETE CONSTRUCTION



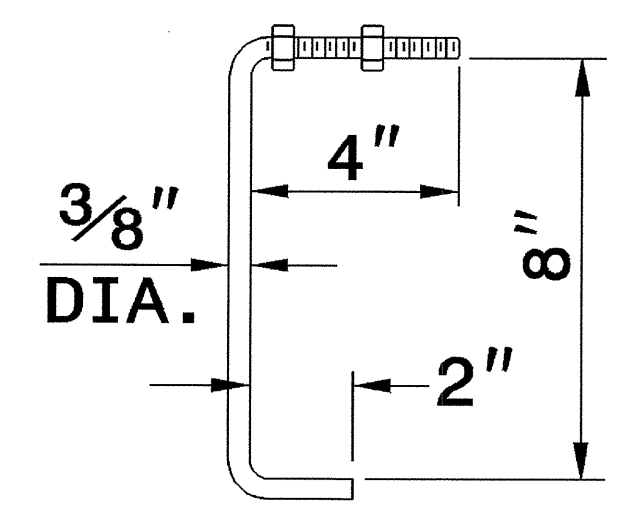
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

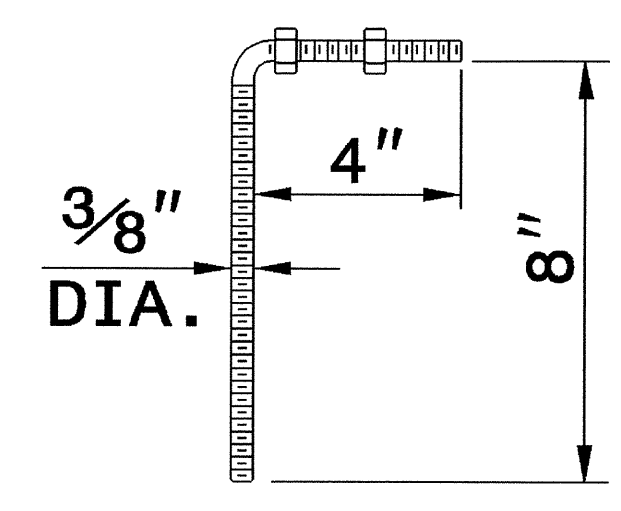
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



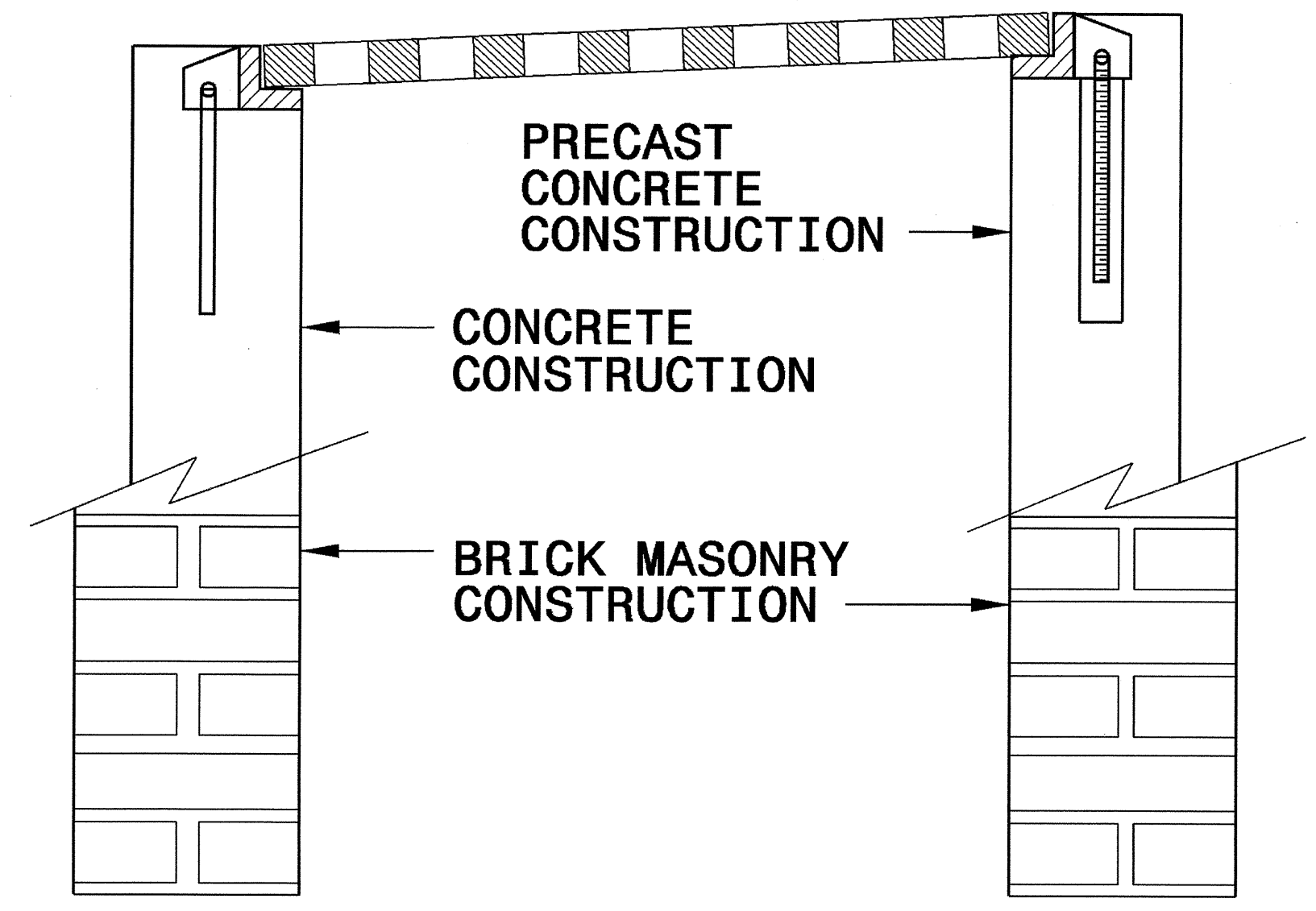
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



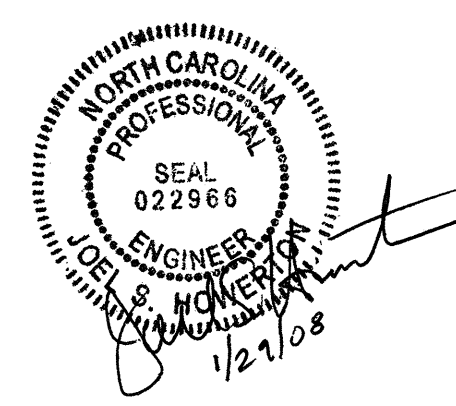
CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



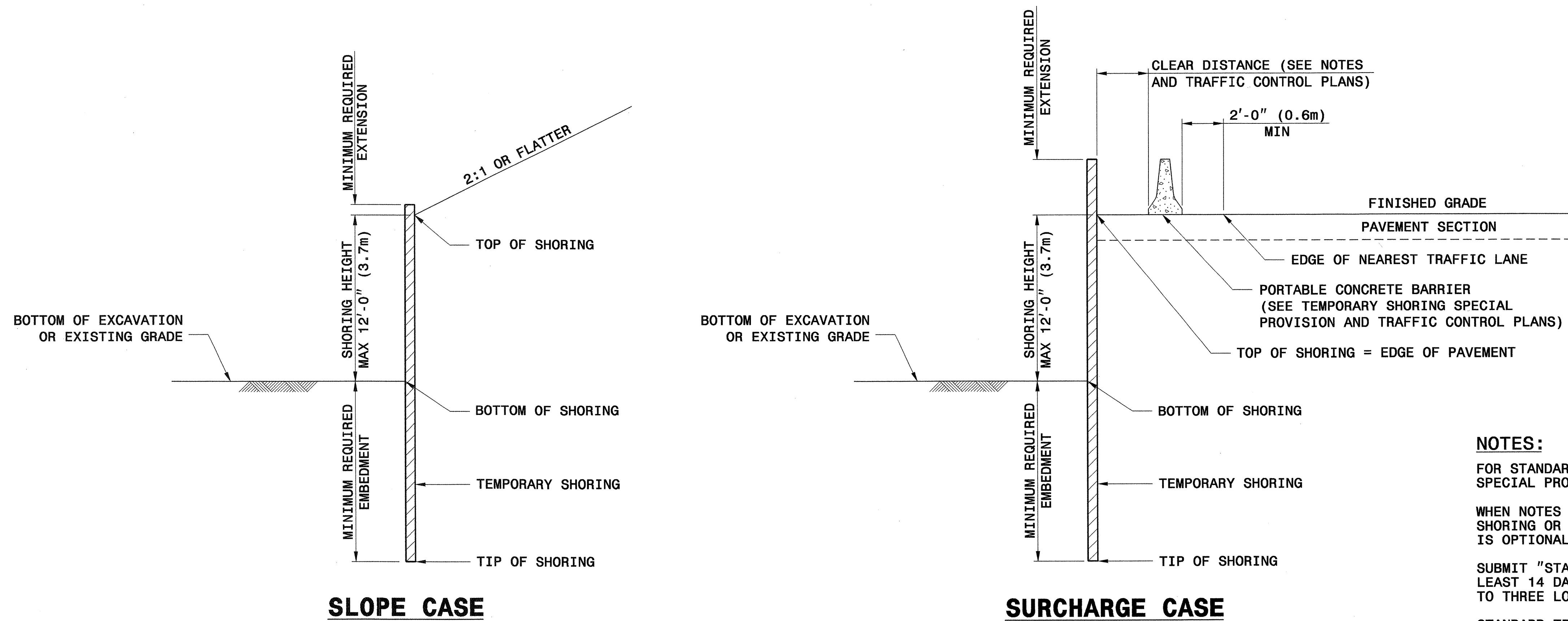
FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS



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:
FILE SPEC:



NOTES:
 FOR STANDARD TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.
 WHEN NOTES ON PLANS DO NOT PROHIBIT STANDARD TEMPORARY SHORING OR STANDARD SHORING, STANDARD TEMPORARY SHORING IS OPTIONAL.
 SUBMIT "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 14 DAYS BEFORE BEGINNING SHORING CONSTRUCTION. UP TO THREE LOCATIONS MAY BE INCLUDED ON EACH SELECTION FORM.

STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING CONDITIONS:
 1) MAXIMUM SHORING HEIGHT IS 12'-0" (3.7m).
 2) TRAFFIC SURCHARGE IS 240 PSF (11.5 KPA) MAXIMUM OR BACKSLOPE IS 2:1 (H:V) OR FLATTER.
 3) BOTTOM OF EXCAVATION OR EXISTING GRADE IN FRONT OF SHORING IS 6:1 (H:V) SLOPE OR FLATTER.
 4) H PILE SPACING IS 6'-0" (1.8m).
 5) H PILE EMBEDMENT DEPTHS ARE FOR DRIVEN PILES.
 6) TIMBER LAGGING IS A MINIMUM OF 3" (75mm) THICK.

STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
 TOTAL UNIT WEIGHT = 120 PCF (18.8 KN/M³)
 FRICTION ANGLE = 30 DEGREES
 COHESION = 0 PSF (0 KPA)
 GROUNDWATER IS ASSUMED TO BE BELOW BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN THE ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER IS ABOVE THE BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS PRESENT WITHIN THE EMBEDMENT DEPTH.

VERIFY GROUNDWATER ELEVATION BEFORE BEGINNING SHORING CONSTRUCTION.

IF THE CLEAR DISTANCE AVAILABLE IS LESS THAN THE MINIMUM REQUIRED IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS, SET THE BARRIER AGAINST THE TRAFFIC SIDE OF THE SHORING AND USE THE "SURCHARGE CASE WITH TRAFFIC IMPACT".

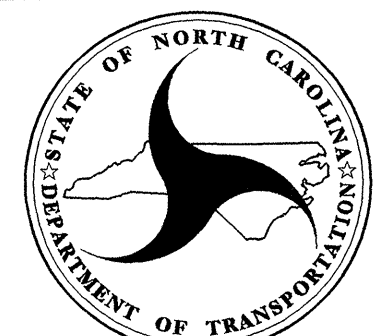
AT THE CONTRACTOR'S OPTION, H PILE EMBEDMENT DEPTHS FOR PILES SET IN DRILLED HOLES MAY BE REDUCED BY 25%. FOR PILE EXCAVATION, SEE TEMPORARY SHORING SPECIAL PROVISION.

CONTROL DRAINAGE DURING CONSTRUCTION IN THE VICINITY OF THE SHORING. COLLECT AND DIRECT RUNOFF AWAY FROM SHORING.

CONTACT THE ENGINEER IF MINIMUM REQUIRED EMBEDMENT IS NOT ACHIEVED.

GROUNDWATER CONDITION	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT						SURCHARGE CASE WITH TRAFFIC IMPACT					
	SHORING HEIGHT FT (m)	SHEET PILES		H PILES WITH TIMBER LAGGING			MINIMUM REQUIRED EMBEDMENT FT (m)	SHEET PILES		H PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT FT (m)	MINIMUM REQUIRED SECTION MODULUS IN ³ /FT (cm ³ /m)	MINIMUM REQUIRED EMBEDMENT FT (m)				MINIMUM REQUIRED SECTION MODULUS IN ³ /FT (cm ³ /m)	MINIMUM REQUIRED EMBEDMENT FT (m)			
				HP 10x42 (HP 250x62)	HP 12x53 (HP 310x79)	HP 14x73 (HP 360x108)			HP 10x42 (HP 250x62)	HP 12x53 (HP 310x79)	HP 14x73 (HP 360x108)	
GROUNDWATER ELEVATION BELOW TIP OF SHORING	< 6 (1.8)	7.5 (2.3)	3.0 (161)	8.0 (2.4)	8.0 (2.4)	8.0 (2.4)	11.0 (3.4)	10.0 (538)	9.5 (2.9)	9.5 (2.9)	9.5 (2.9)	
	7 (2.1)	8.5 (2.6)	4.5 (242)	9.5 (2.9)	9.5 (2.9)	9.5 (2.9)	12.0 (3.7)	12.0 (645)	10.5 (3.2)	10.5 (3.2)	10.5 (3.2)	
	8 (2.4)	10.0 (3.0)	6.5 (349)	10.5 (3.2)	10.5 (3.2)	10.5 (3.2)	12.5 (3.8)	14.0 (753)	11.5 (3.5)	11.5 (3.5)	11.5 (3.5)	
	9 (2.7)	11.0 (3.4)	9.5 (511)	--	12.0 (3.7)	12.0 (3.7)	13.5 (4.1)	16.5 (887)	--	12.5 (3.8)	12.5 (3.8)	
	10 (3.0)	12.5 (3.8)	13.0 (699)	--	--	13.5 (4.1)	14.0 (4.3)	19.5 (1048)	--	13.5 (4.1)	13.5 (4.1)	
	11 (3.4)	13.5 (4.1)	17.0 (914)	--	--	14.5 (4.4)	15.0 (4.6)	22.5 (1210)	--	--	14.5 (4.4)	
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND TIP OF SHORING	< 6 (1.8)	11.5 (3.5)	4.5 (242)	11.5 (3.5)	11.5 (3.5)	11.5 (3.5)	16.0 (4.9)	12.0 (645)	13.0 (4.0)	13.0 (4.0)	13.0 (4.0)	
	7 (2.1)	13.0 (4.0)	7.0 (376)	13.0 (4.0)	13.0 (4.0)	13.0 (4.0)	17.0 (5.2)	14.5 (780)	14.5 (4.4)	14.5 (4.4)	14.5 (4.4)	
	8 (2.4)	15.0 (4.6)	10.0 (538)	--	15.0 (4.6)	15.0 (4.6)	18.0 (5.5)	17.0 (914)	--	15.5 (4.7)	15.5 (4.7)	
	9 (2.7)	17.0 (5.2)	14.0 (753)	--	17.0 (5.2)	17.0 (5.2)	19.0 (5.8)	20.0 (1075)	--	17.0 (5.2)	17.0 (5.2)	
	10 (3.0)	18.5 (5.6)	19.5 (1048)	--	--	18.5 (5.6)	20.0 (6.1)	23.5 (1263)	--	--	18.5 (5.6)	
	11 (3.4)	20.5 (6.3)	26.0 (1398)	--	--	--	21.0 (6.4)	28.0 (1505)	--	--	20.0 (6.1)	
	12 (3.7)	22.5 (6.9)	33.0 (1774)	--	--	--	22.0 (6.7)	33.0 (1774)	--	--	21.5 (6.6)	

NOTE: MINIMUM REQUIRED EXTENSION IS 6" (150mm) FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" (800 mm) FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".



GEOTECHNICAL ENGINEERING UNIT
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD DRAWING NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 2-20-07

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201817

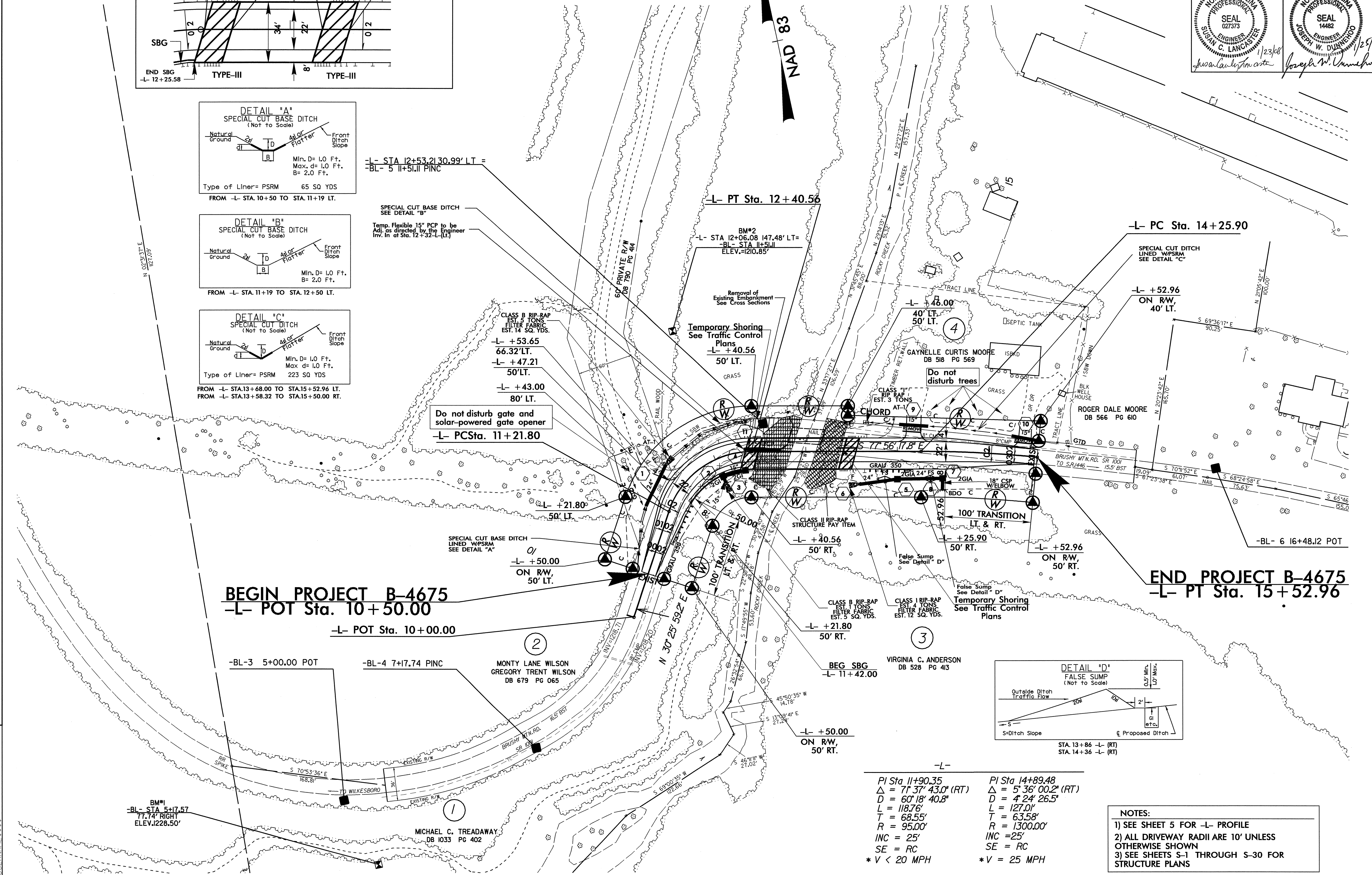
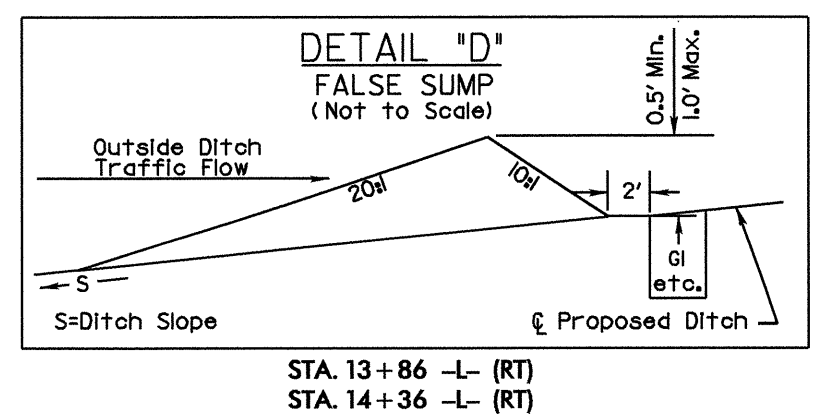
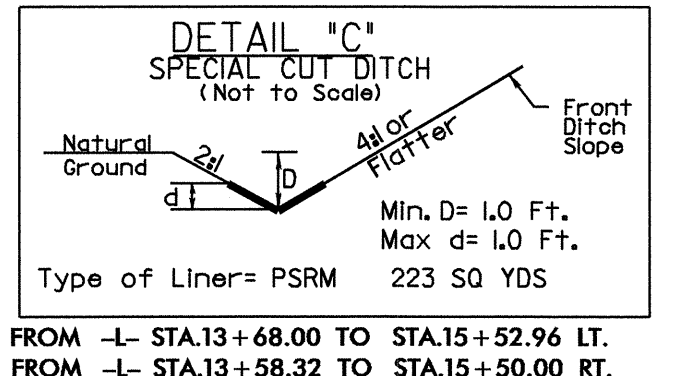
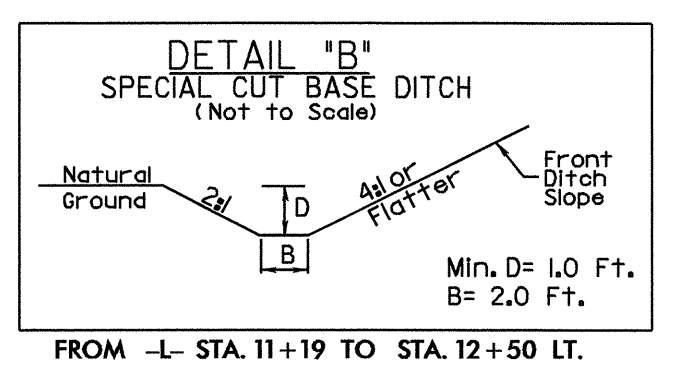
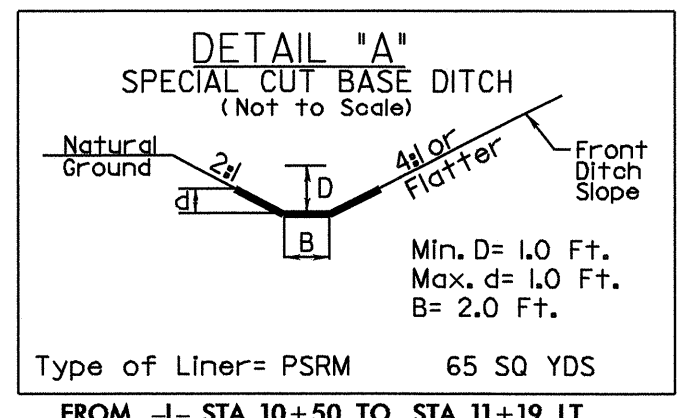
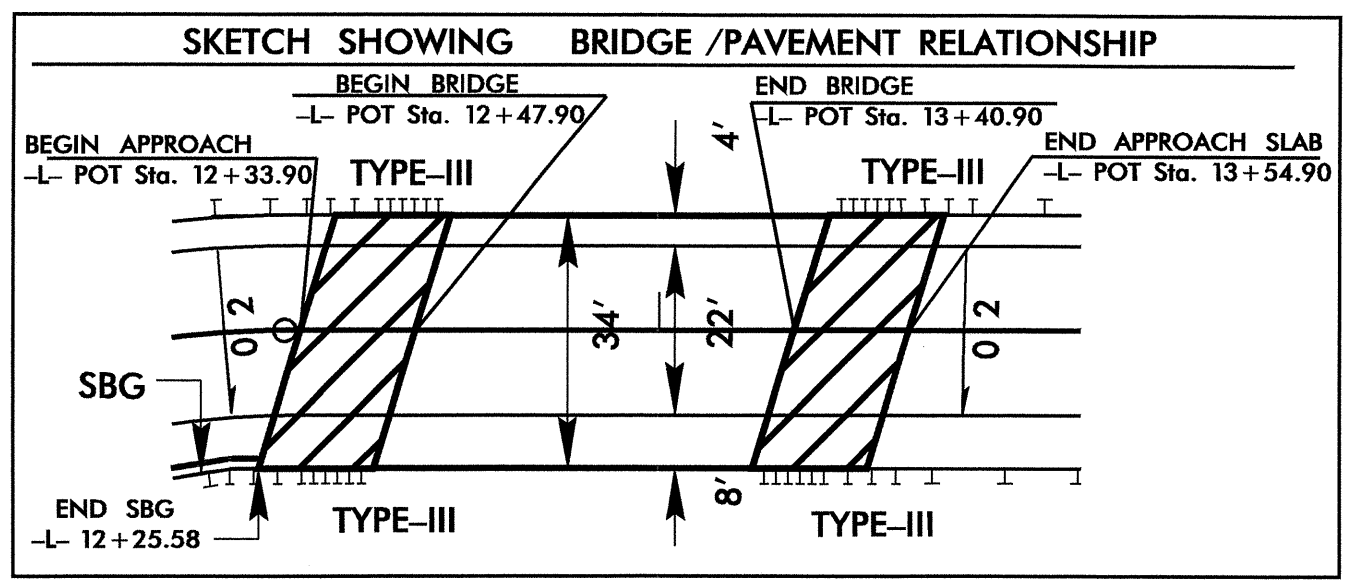
ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION
002900000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (12+94.40)
004300000-N	226	Lump Sum		GRADING
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
005700000-E	226	100	CY	UNDERCUT EXCAVATION
008000000-E	SP	50	TON	CLASS IV SUBGRADE STABILIZATION
019500000-E	265	50	CY	SELECT GRANULAR MATERIAL
019600000-E	270	50	SY	FABRIC FOR SOIL STABILIZATION
019900000-E	SP	345	SF	TEMPORARY SHORING
031800000-E	300	30	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
034300000-E	310	64	LF	15" SIDE DRAIN PIPE
034500000-E	310	52	LF	24" SIDE DRAIN PIPE
071400000-E	310	16	LF	18" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
080700000-E	310	1	EA	18" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
099500000-E	340	42	LF	PIPE REMOVAL
122000000-E	545	50	TON	INCIDENTAL STONE BASE
148900000-E	610	220	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
152500000-E	610	220	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
156000000-E	620	24	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
200000000-N	806	15	EA	RIGHT OF WAY MARKERS
202200000-E	815	224	CY	SUBDRAIN EXCAVATION
203300000-E	815	168	CY	SUBDRAIN FINE AGGREGATE
204400000-E	815	1,000	LF	6" PERFORATED SUBDRAIN PIPE
205500000-E	815	30	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
206600000-N	815	2	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
207700000-E	815	12	LF	6" OUTLET PIPE (SUBDRAINS)
228600000-N	840	4	EA	MASONRY DRAINAGE STRUCTURES
235420000-N	840	2	EA	FRAME WITH GRATE, STD 840.24
235500000-N	840	2	EA	FRAME WITH GRATE, STD 840.29
255600000-E	846	85	LF	SHOULDER BERM GUTTER
261900000-E	850	11	SY	4" CONCRETE PAVED DITCH
303000000-E	862	50	LF	STEEL BM GUARDRAIL
304500000-E	862	225	LF	STEEL BM GUARDRAIL, SHOP CURVED
315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
319500000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
321500000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
327000000-N	SP	2	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
338700000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** TEMPORARY (RETROFIT)
362800000-E	876	8	TON	RIP RAP, CLASS I
364900000-E	876	7	TON	RIP RAP, CLASS B
365600000-E	876	203	SY	FILTER FABRIC FOR DRAINAGE
402500000-E	901	36.5	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (E)
407200000-E	903	78	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
410200000-N	904	10	EA	SIGN ERECTION, TYPE E
415800000-N	907	9	EA	DISPOSAL OF SIGN SYSTEM, WOOD
440000000-E	1110	80	SF	WORK ZONE SIGNS (STATIONARY)
440500000-E	1110	96	SF	WORK ZONE SIGNS (PORTABLE)
441000000-E	1110	36	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
443000000-N	1130	15	EA	DRUMS

ItemNumber	Sec #	Quantity	Unit	Description
444500000-E	1145	32	LF	BARRICADES (TYPE III)
445500000-N	1150	540	MD	FLAGGER
446500000-N	1160	2	EA	TEMPORARY CRASH CUSHIONS
447000000-N	1160	2	EA	RESET TEMPORARY CRASH CUSHIONS
448500000-E	1170	90	LF	PORTABLE CONCRETE BARRIER
449000000-E	1170	100	LF	PORTABLE CONCRETE BARRIER (ANCHORED)
481000000-E	1205	5,018	LF	PAINT PAVEMENT MARKING LINES (4")
485000000-E	1205	856	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
600000000-E	1605	590	LF	TEMPORARY SILT FENCE
600600000-E	1610	110	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	170	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	80	TON	SEDIMENT CONTROL STONE
601500000-E	1615	1	ACR	TEMPORARY MULCHING
601800000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING
602900000-E	SP	250	LF	SAFETY FENCE
603000000-E	1630	480	CY	SILT EXCAVATION
603600000-E	1631	430	SY	MATTING FOR EROSION CONTROL
603700000-E	SP	10	SY	COIR FIBER MAT
603800000-E	SP	290	SY	PERMANENT SOIL REINFORCEMENT MAT
604200000-E	1632	100	LF	1/4" HARDWARE CLOTH
604500000-E	SP	45	LF	*** TEMPORARY PIPE (15")
607103000-E	SP	130	LF	COIR FIBER BAFFLES
607105000-E	SP	1	EA	*** SKIMMER (1-1/2")
608400000-E	1660	1	ACR	SEEDING & MULCHING
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	0.5	TON	FERTILIZER TOPDRESSING
611400000-N	SP	2	HR	SPECIALIZED HAND MOWING
611700000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL

***** BEGIN SCHEDULE AA *****				
***** (3 ALTERNATES) *****				
036600000-E	310	36	LF	15" RC PIPE CULVERTS, CLASS III
AA1				
037800000-E	310	96	LF	24" RC PIPE CULVERTS, CLASS III
AA1				
*** OR ***				
053600000-E	SP	36	LF	*** HDPE PIPE CULVERTS (15")
AA2				
053600000-E	SP	96	LF	*** HDPE PIPE CULVERTS (24")
AA2				
*** OR ***				
054000000-E	SP	36	LF	*** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (15", 0.064")
AA3				
054000000-E	SP	96	LF	*** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (24", 0.064")
AA3				
***** END SCHEDULE AA *****				

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*** DESIGN EXCEPTION REQUIRED TO REDUCE DESIGN SPEED FROM 60 MPH TO LESS THAN 20 MPH**



BEGIN PROJECT B-4675
 -L- POT Sta. 10 + 50.00

END PROJECT B-4675
 -L- PT Sta. 15 + 52.96

PI Sta 11+90.35 $\Delta = 71^{\circ} 37' 43.0''$ (RT) $D = 60' 18' 40.8''$ $L = 118.76'$ $T = 68.55'$ $R = 95.00'$ $INC = 25'$ $SE = RC$ $* V < 20$ MPH	PI Sta 14+89.48 $\Delta = 5^{\circ} 36' 00.2''$ (RT) $D = 4^{\circ} 24' 26.5''$ $L = 127.0'$ $T = 63.58'$ $R = 1300.00'$ $INC = 25'$ $SE = RC$ $* V = 25$ MPH
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- NOTES:**
- 1) SEE SHEET 5 FOR -L- PROFILE
 - 2) ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE SHOWN
 - 3) SEE SHEETS S-1 THROUGH S-30 FOR STRUCTURE PLANS

REVISIONS

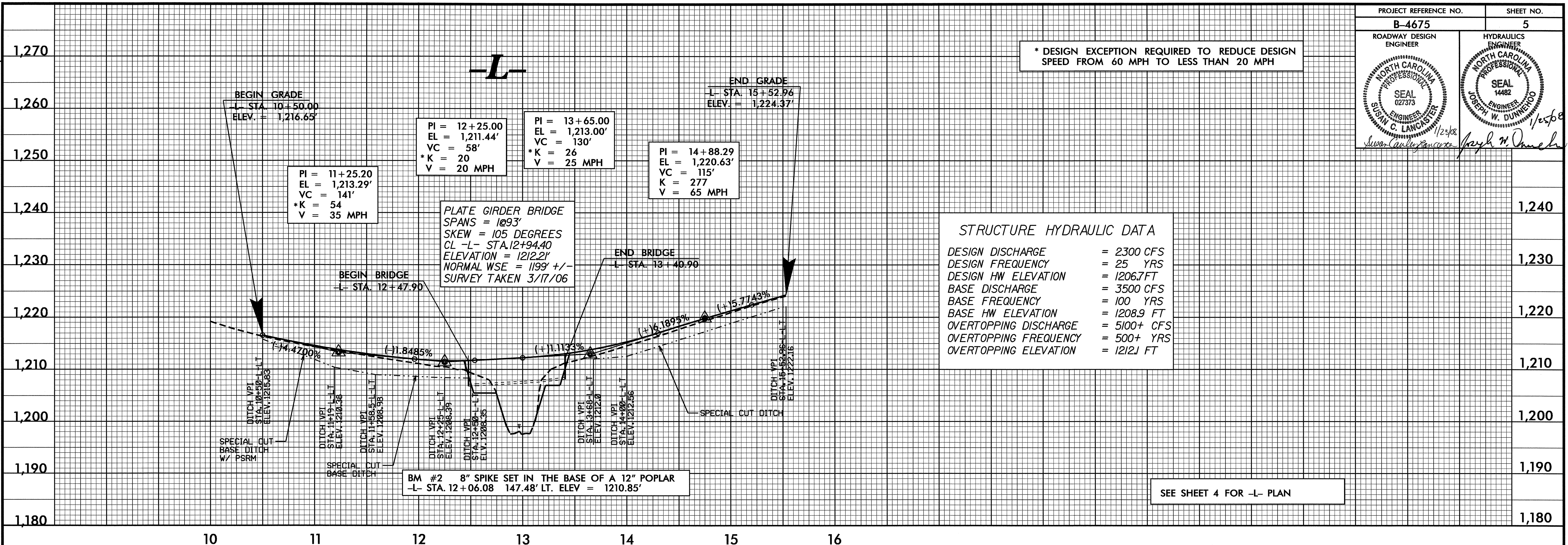
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5/28/99

ROADWAY DESIGN ENGINEER
 NORTH CAROLINA PROFESSIONAL SEAL 027373
 SUSAN C. LANCASTER 1/23/08

HYDRAULICS ENGINEER
 NORTH CAROLINA PROFESSIONAL SEAL 14482
 JOSEPH W. DUNNELO 1/25/08

* DESIGN EXCEPTION REQUIRED TO REDUCE DESIGN SPEED FROM 60 MPH TO LESS THAN 20 MPH



REVISIONS

SEE SHEET 4 FOR -L- PLAN