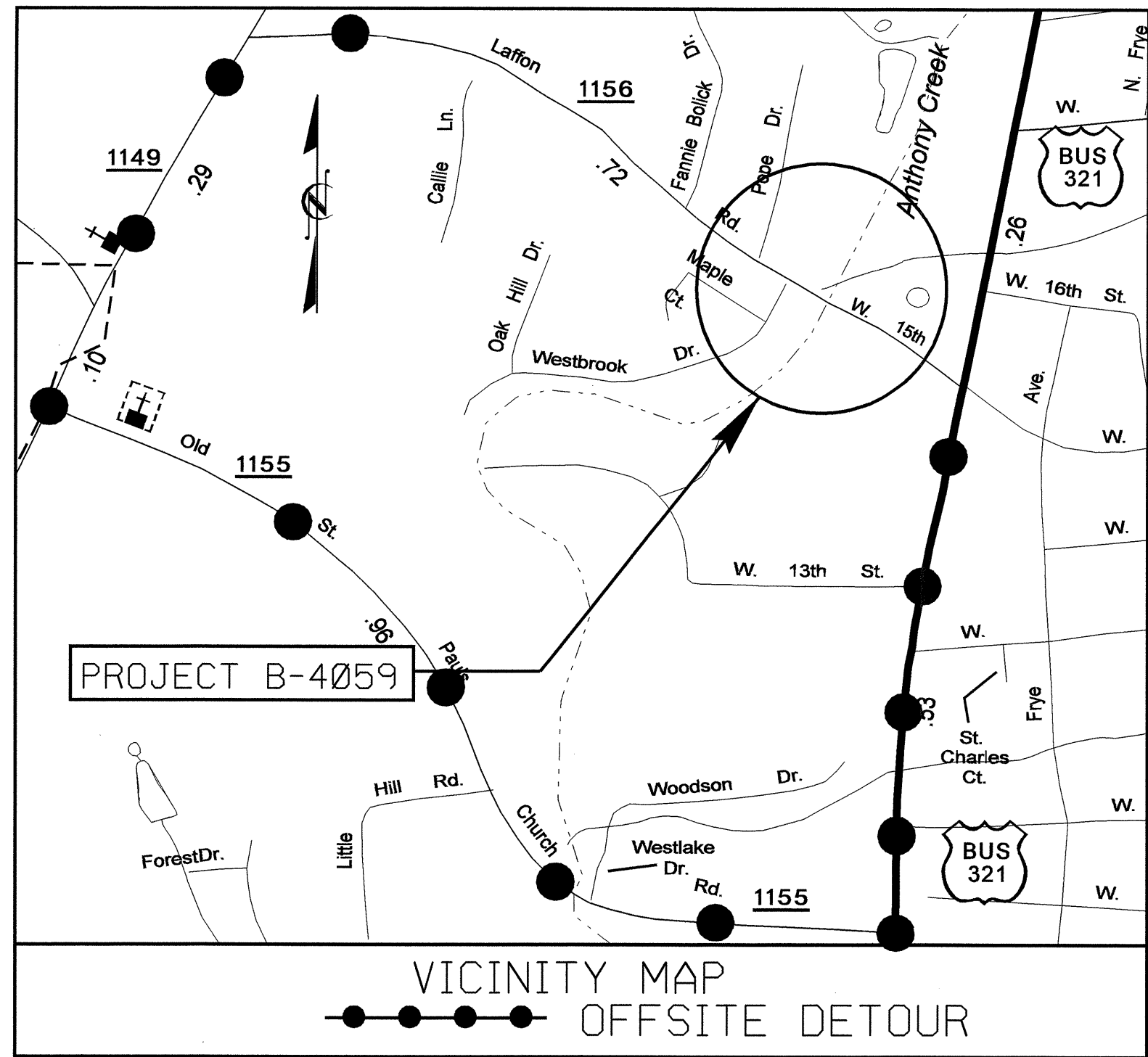


**TIP PROJECT: B-4059**

**CONTRACT: C201836**

See Sheet 1-A For Index of Sheets



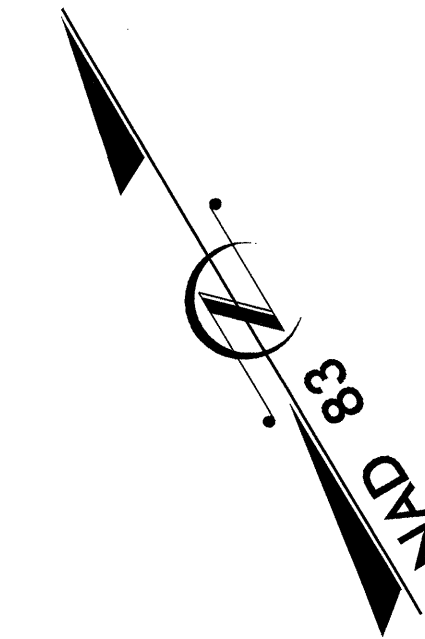
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CATAWBA COUNTY

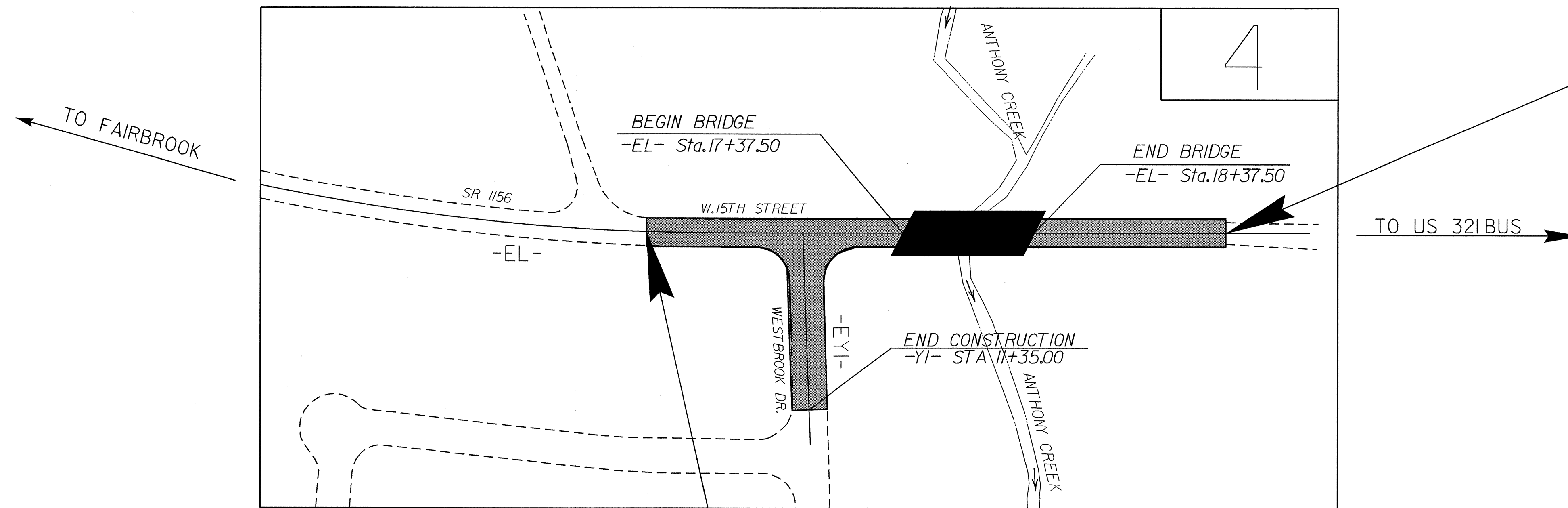
LOCATION: BRIDGE NO. 79 OVER HILDEBRAN CREEK  
ON SR 1156 IN NEWTON

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4059	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33423.1.1	BRZ-1156(2)	PE	
33423.2.1	BRZ-1156(2)	RW & UTIL	
33423.3.1	BRZ-1156(2)	CONSTRUCTION	

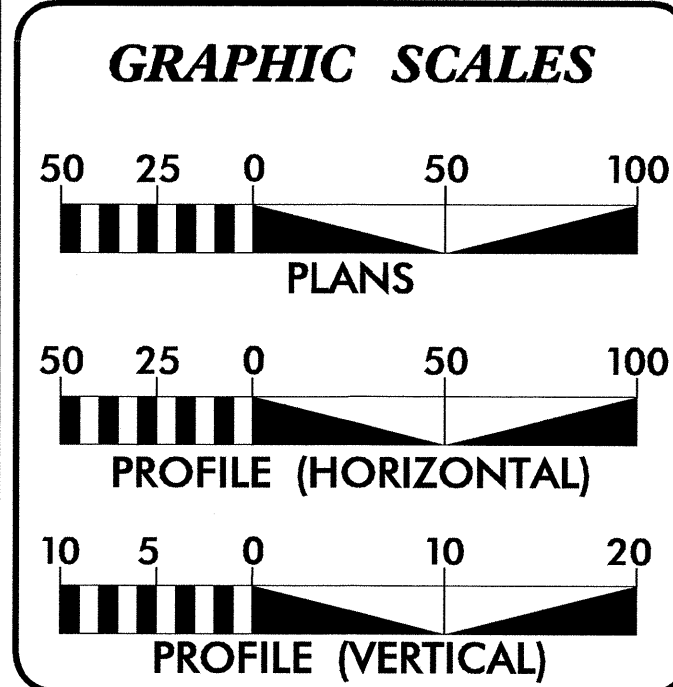


STA.21+00.00 -EL- END TIP PROJECT B-4059



STA.14+70.00 -EL- BEGIN TIP PROJECT B-4059

\*\* DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVES



**DESIGN DATA**

ADT 2006 =	2700
ADT 2025 =	3800
DHV =	12 %
D =	60 %
T =	4 % *
V =	40 MPH
* TTST 1%	DUAL 3%

**PROJECT LENGTH**

LENGTH OF ROADWAY TIP PROJECT B-4059 =	0.100 MILES
LENGTH OF STRUCTURES TIP PROJECT B-4059 =	0.019 MILES
TOTAL LENGTH OF TIP PROJECT B-4059 =	0.119 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 22, 2007

LETTING DATE: AUGUST 19, 2008

TED S. WALLS  
PROJECT ENGINEER

ALLISON K. WHITE  
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

STACEY H. BAILEY  
ENGINEER

SIGNATURE: *[Signature]* 5-27-08 P.E.

**ROADWAY DESIGN ENGINEER**

DEVONNE L. SYKES  
ENGINEER

SIGNATURE: *[Signature]* 5/29/08

**DIVISION OF HIGHWAYS**  
STATE OF NORTH CAROLINA

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



STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS INDEX OF SHEETS

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

Table with 2 columns: SHEET NUMBER and SHEET. Lists sheets 1 through S-1 with their respective titles.

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... 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... 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... DRIVEWAYS: DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.03 AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER. STREET TURNOUT: STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADIUS NOTED ON PLANS. GUARDRAIL: THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER... 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... 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 CITY OF NEWTON, DUKE ENERGY, AT&T SOUTHEAST, CHARTER CABLE, PIEDMONT NATURAL GAS... RIGHT-OF-WAY MARKERS: ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS. WHEELCHAIR RAMPS: WHEELCHAIR RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. THE CONSTRUCTION OF ALL WHEELCHAIR RAMPS SHALL BE IN ACCORDANCE WITH DETAILS IN 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 Superlevation - Two Lane Pavement 225.06 Method of Grading Sight Distance at Intersections 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 840.01 Brick Catch Basin - 12" thru 54" Pipe 840.02 Concrete Catch Basin - 12" thru 54" Pipe 840.03 Frame, Grates and Hood - for Use on Standard Catch Basin 840.14 Concrete Drop Inlet - 12" thru 30" Pipe 840.15 Brick Drop Inlet - 12" thru 30" Pipe 840.16 Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15 840.31 Concrete Junction Box - 12" thru 66" Pipe 840.32 Brick Junction Box - 12" thru 66" Pipe 840.45 Precast Drainage Structure 840.54 Manhole Frame and Cover 840.66 Drainage Structure Steps 840.71 Concrete and Brick Pipe Plug 846.01 Concrete Curb, Gutter and Curb & Gutter 848.01 Concrete Sidewalk 848.03 Driveway Turnout - Drop Curb Type 848.04 Street Turnout 848.05 Wheelchair Ramp - Curb Cut 862.01 Guardrail Placement 862.02 Guardrail Installation 862.03 Structure Anchor Units 866.02 Woven Wire Fence - with Wood Post 876.01 Rip Rap in Channels 876.02 Guide for Rip Rap at Pipe Outlets 876.04 Drainage Ditches with Class 'B' Rip Rap

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	○ EIP
Property Corner	-----
Property Monument	□ EDM
Parcel/Sequence Number	①23
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-w.l.b.-
Proposed Wetland Boundary	-w.l.b.-
Existing Endangered Animal Boundary	-e.a.b.-
Existing Endangered Plant Boundary	-e.p.b.-

**BUILDINGS AND OTHER CULTURE:**

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

**HYDROLOGY:**

Stream or Body of Water	-----
Hydro, Pool or Reservoir	▭
Jurisdictional Stream	-j.s.-
Buffer Zone 1	-b.z.1-
Buffer Zone 2	-b.z.2-
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	▽
Proposed Lateral, Tail, Head Ditch	→
False Sump	▽

**RAILROADS:**

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

**RIGHT OF WAY:**

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

**ROADS AND RELATED FEATURES:**

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

**VEGETATION:**

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

**EXISTING STRUCTURES:**

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

**UTILITIES:**

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	○
Power Line Tower	▭
Power Transformer	▭
U/G Power Cable Hand Hole	▭
H-Frame Pole	●
Recorded U/G Power Line	-----
Designated U/G Power Line (S.U.E.*)	-----

**TELEPHONE:**

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

**WATER:**

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

**TV:**

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

**GAS:**

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

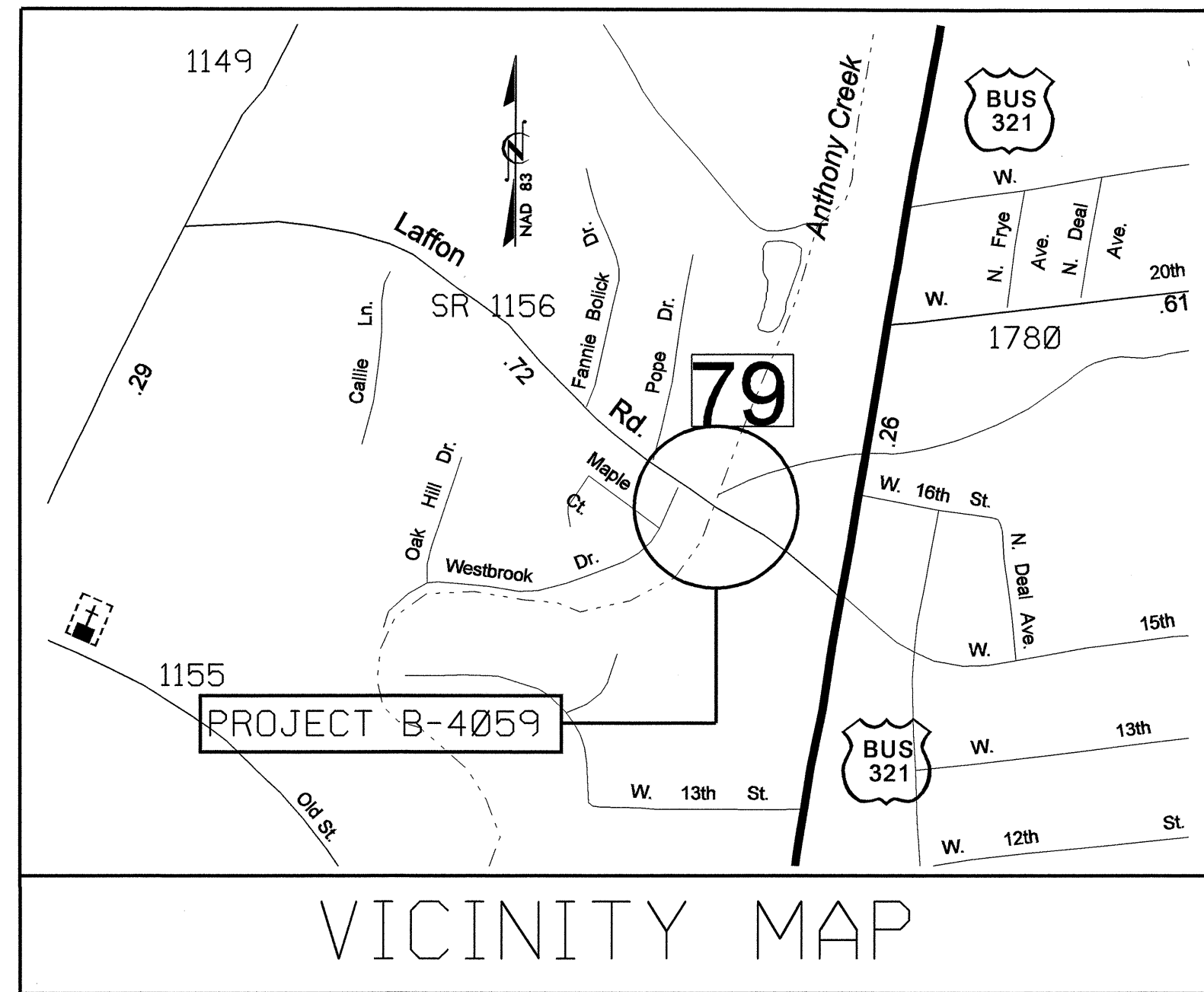
**SANITARY SEWER:**

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

**MISCELLANEOUS:**

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

# SURVEY CONTROL SHEET B-4059



VICINITY MAP

BL POINT	DESC.	NORTH	EAST	ELEVATION	EL STATION	OFFSET
1	GPS B4059-1	709963.1185	1336538.1921	961.22'	10+24.89	20.64' RT
3	BL-3	709683.4427	1336887.3525	933.08'	14+69.38	17.50' RT
5	BL-5	709570.9539	1337042.2334	921.25'	16+59.13	26.58' RT
7	BL-7	709503.5027	1337186.3725	916.79'	18+17.47	10.60' RT
8	BL-8	709314.6959	1337465.2843	937.90'	21+57.32	17.73' RT
2	GPS B4059-2	709176.3560	1337684.5360	945.42'	24+13.83	20.96' LT

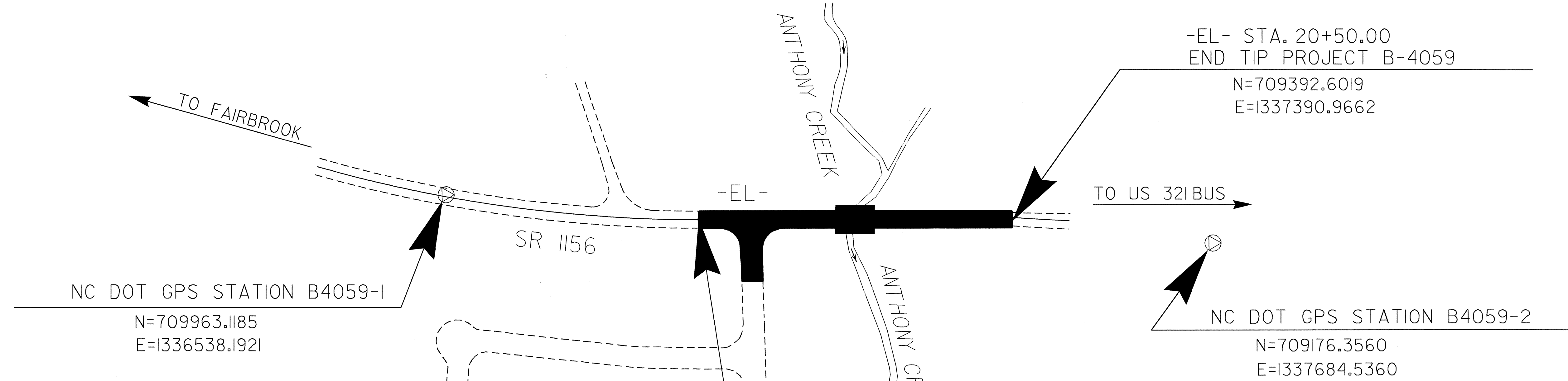
BY POINT	DESC.	NORTH	EAST	ELEVATION	EY STATION	OFFSET
4	BY-4	709933.0352	1336949.2560	937.47'	OUTSIDE PROJECT LIMITS	
24	BL-3	709683.4427	1336887.3525	933.08'	OUTSIDE PROJECT LIMITS	

BY1 POINT	DESC.	NORTH	EAST	ELEVATION	EY1 STATION	OFFSET
25	BL-5	709570.9539	1337042.2334	921.25'	10+27.35	22.81' LT
6	BY1-6	709418.1179	1336905.9514	922.18'	OUTSIDE PROJECT LIMITS	

\*\*\*\*\*

<p>BM *1 ELEVATION = 960.39' N 709888. E 1336521. -EL- STATION 10+68 85' RIGHT RAILROAD SPIKE SET IN THE BASE OF A 30" PECAN TREE, LOCATED SOUTH OF THE SOUTHERN EDGE OF WEST 15TH STREET</p>	<p>BM * 2 ELEVATION = 912.79' N 709583. E 1337198. -EL- STATION 17+87 64' LEFT RAILROAD SPIKE SET IN THE BASE OF A 24" SYCAMORE TREE, LOCATED NORTH OF WEST 15TH STREET AND WEST OF ANTHONY CREEK</p>	<p>BM * 3 ELEVATION = 946.86' N 709194. E 1337570. -EL- STATION 23+15 41' RIGHT RAILROAD SPIKE SET IN THE BASE OF A 24" OAK LOCATED SOUTH OF THE SOUTHERN EDGE OF WEST 15TH STREET</p>
---	---	--

\*\*\*\*\*



**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4059-1"

WITH NAD 1983 STATE PLANE GRID COORDINATES OF  
NORTHING: 709963.1185(±) EASTING: 1336538.1921(±)  
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT  
(GROUND TO GRID) IS: 0.99985985

THE N.C. LAMBERT GRID BEARING AND  
LOCALIZED HORIZONTAL GROUND DISTANCE FROM  
"B4059-1" TO - EL- STATION 14+82.41 IS  
S 53°36'16" E 459.43'

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

- NOTES:**
1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.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:  
b4059\_LS\_CONTROL\_060000.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 EXISTING HARN MONUMENTATION

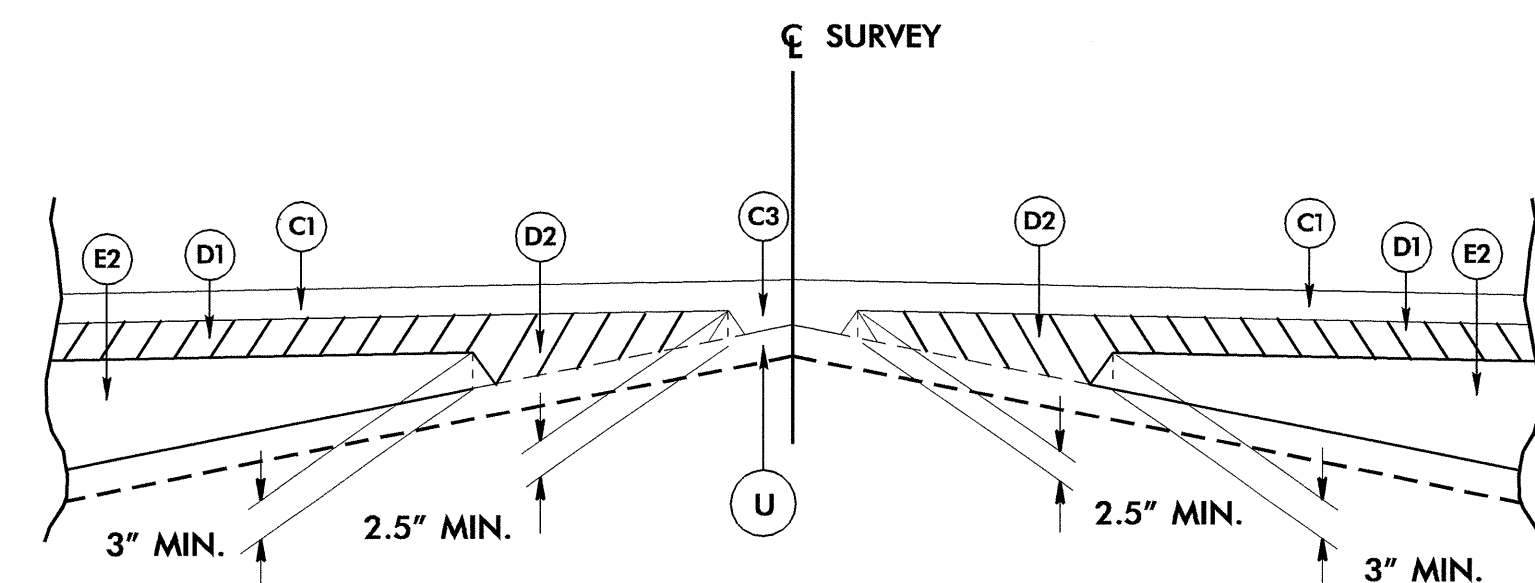
NOTE: DRAWING NOT TO SCALE

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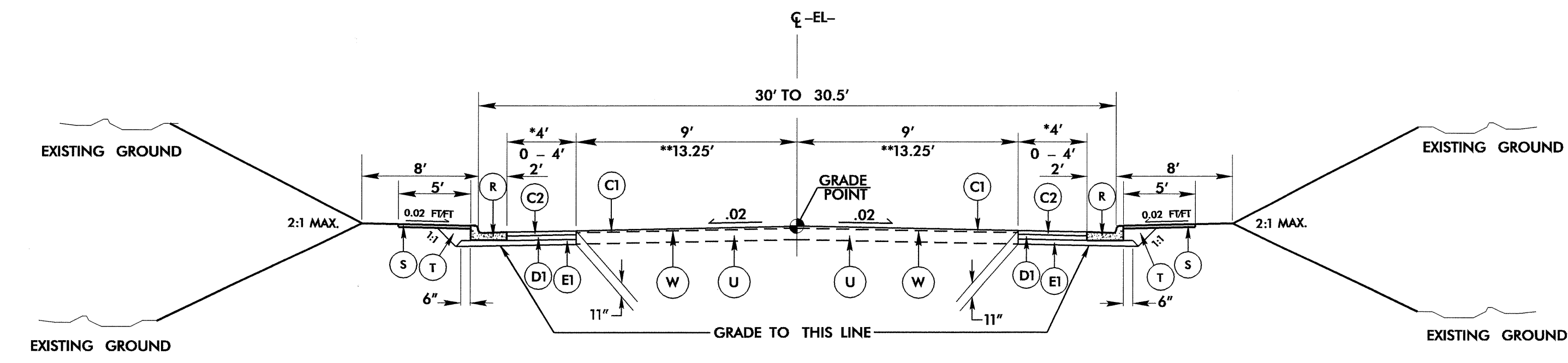
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 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 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 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.
R	2'-6" CONCRETE CURB AND GUTTER.
S	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING

PROJECT REFERENCE NO. B-4059	SHEET NO. 2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15892 DEWAYNE L. STILES	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22896 CLAYTON S. MORRISON



Detail Showing Method of Wedging

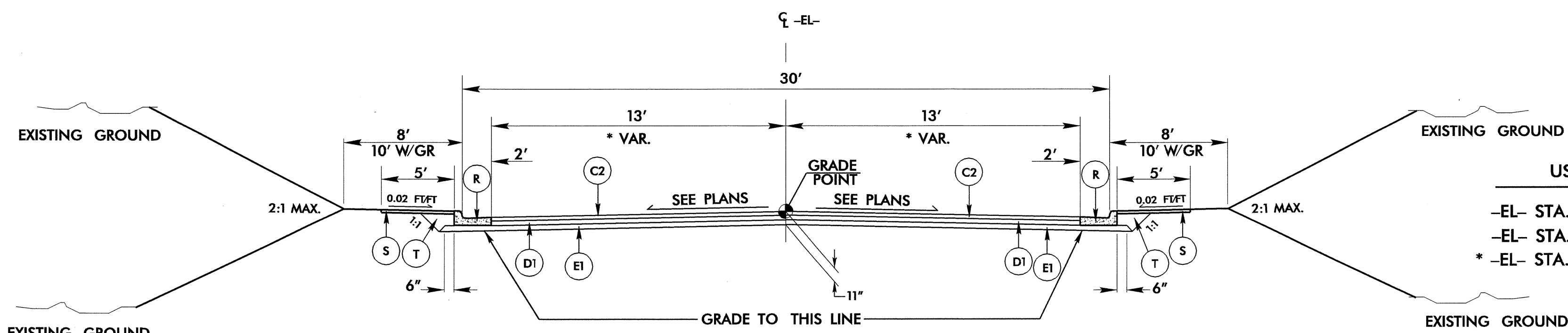


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS

- EL- STA. 14+70.00 TO STA 15+20.00
- \* -EL- STA. 15+20.00 TO STA 16+50.00
- EL- STA. 19+50.00 TO STA 19+74.00
- \*\* -EL- STA. 19+74.00 TO STA 21+00.00

SEE PLANS FOR LOCATIONS OF NEW AND EXISTING CURB

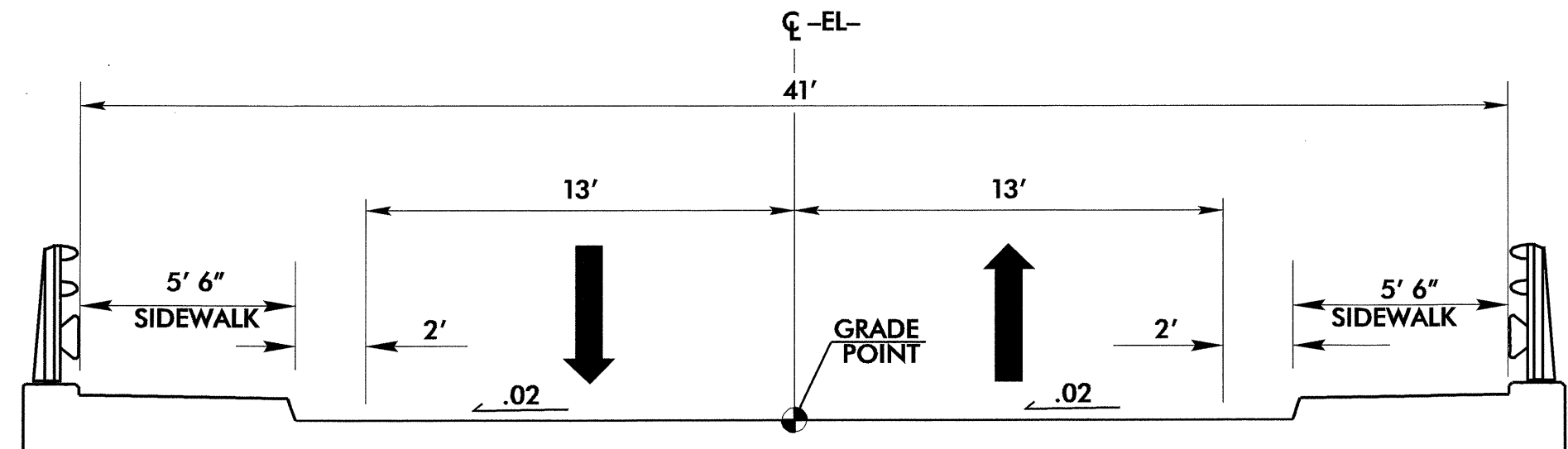


TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS

- EL- STA. 16+50.00 TO STA 17+37.50 (BEGIN BRIDGE)
- EL- STA. 18+37.50 (END BRIDGE) TO STA 19+24.00
- \* -EL- STA. 19+24 TO STA 19+50.00

SEE PLANS FOR SIDEWALK LOCATIONS



TYPICAL SECTION ON STRUCTURE  
-EL- STA. 17+37.50 TO 18+37.50

REVISIONS

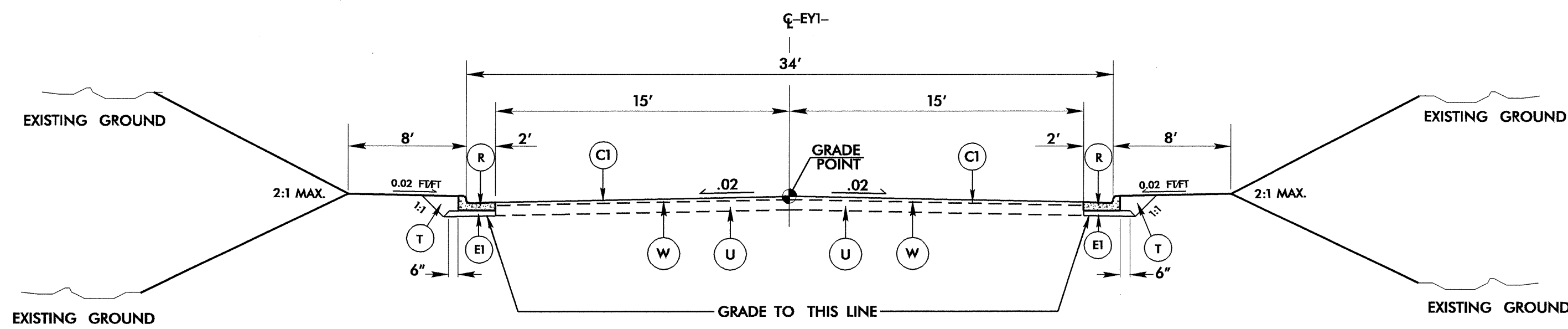
8/17/99

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 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 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
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R	2'-6" CONCRETE CURB AND GUTTER.
S	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING

REVISIONS

PROJECT REFERENCE NO. B-4059	SHEET NO. 2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 15892 DEWAYNE L. STAPLES	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 22896 CLARK S. MORRISON



TYPICAL SECTION NO. 3

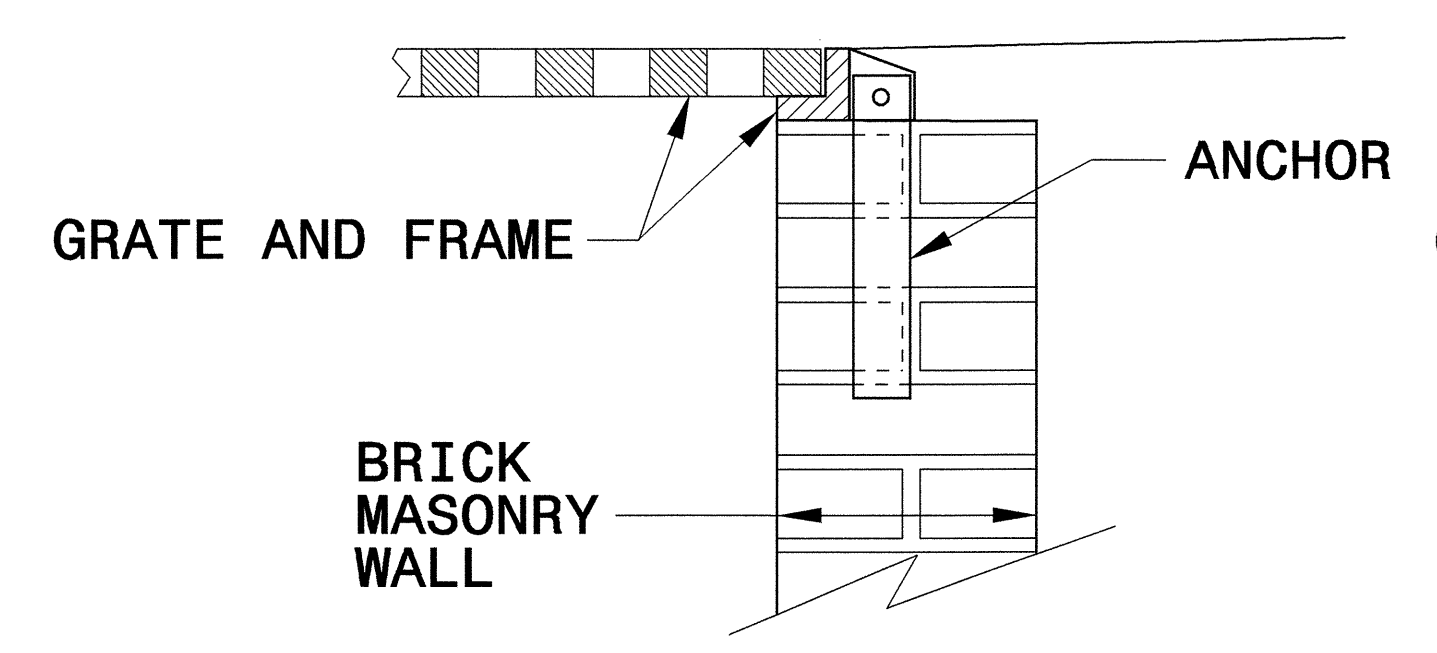
USE TYPICAL SECTION NO. 3 AS FOLLOWS  
 -EY1- STA. 10+13.00 TO STA 11+35.00  
 SEE PLANS FOR SIDEWALK LOCATIONS

08-MAY-2008 08:03  
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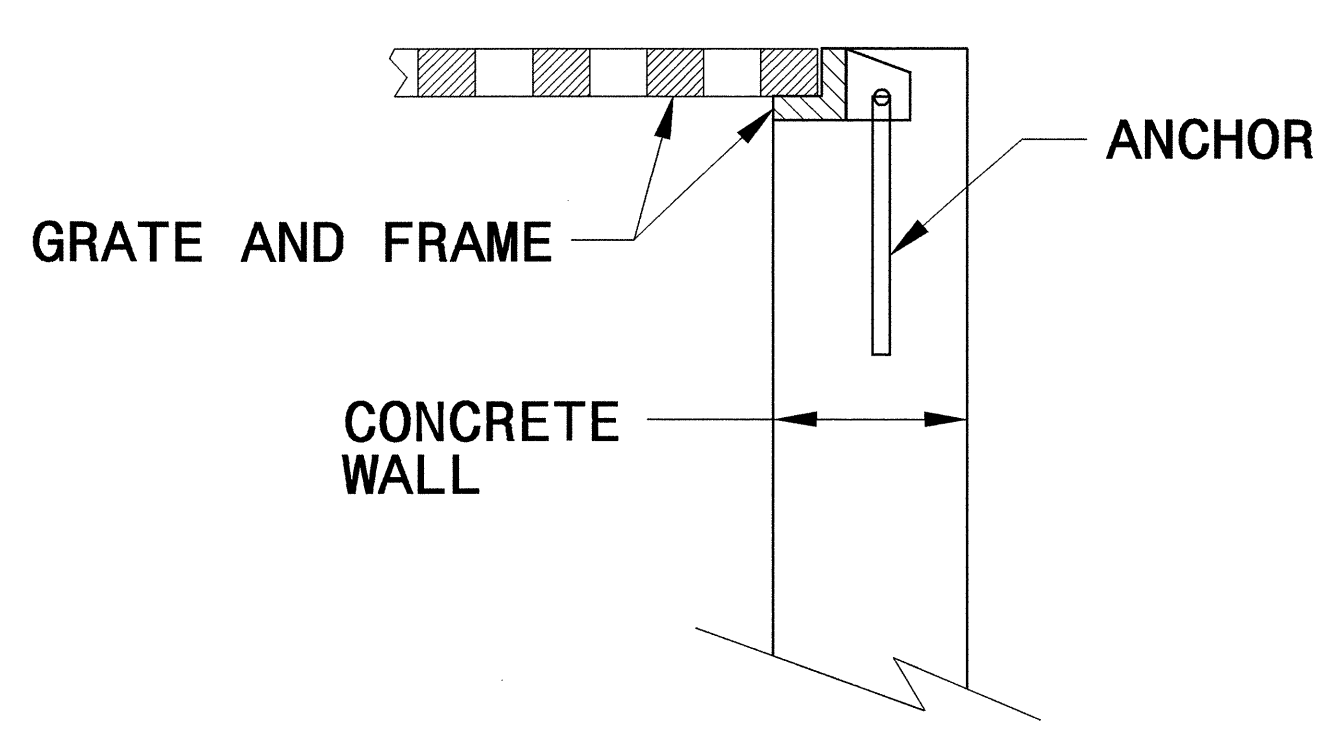
STATE OF  
NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

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

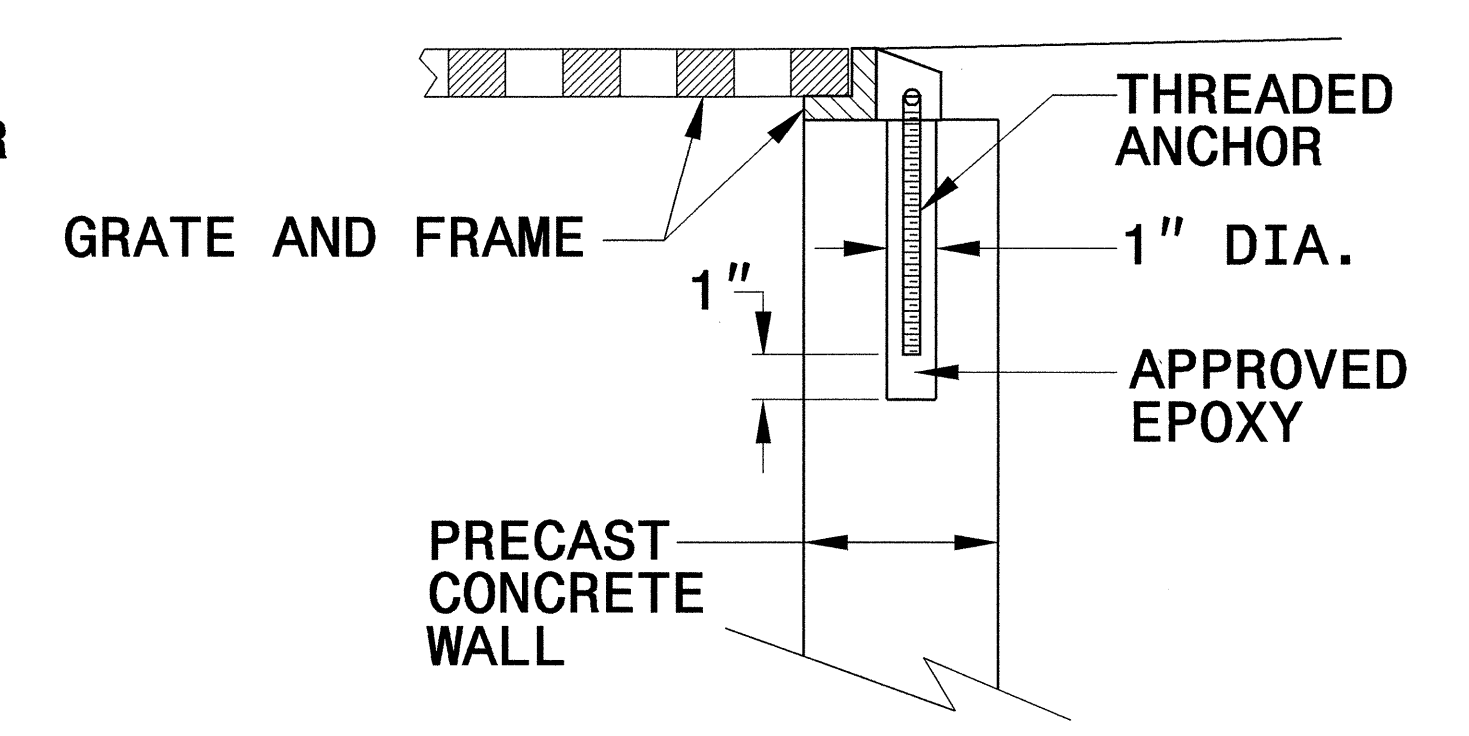
SHEET 1 OF 1  
**840D25**



**BRICK MASONRY  
CONSTRUCTION**



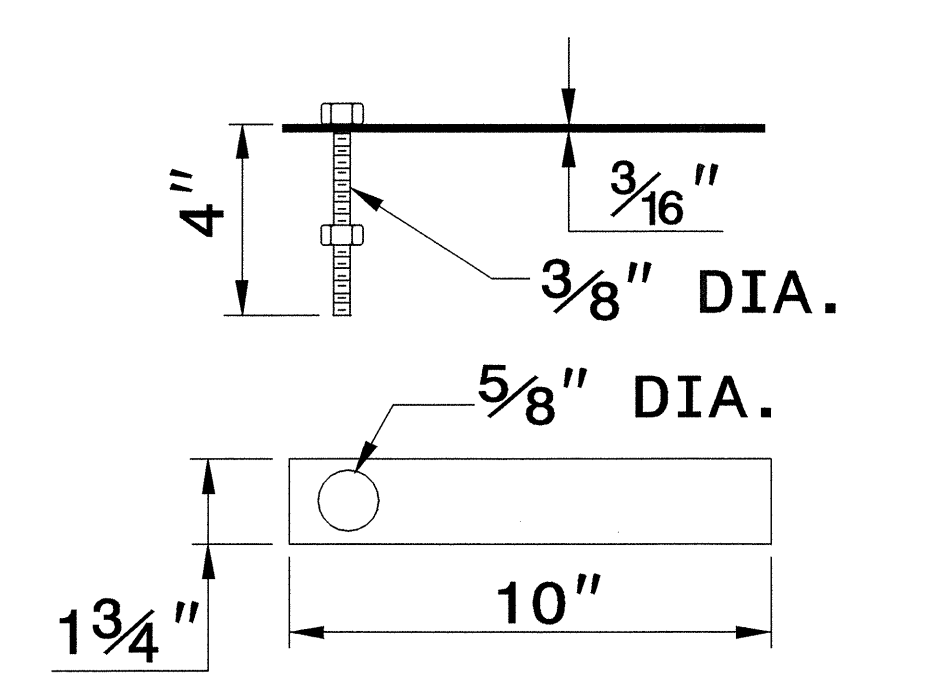
**CONCRETE  
CONSTRUCTION**



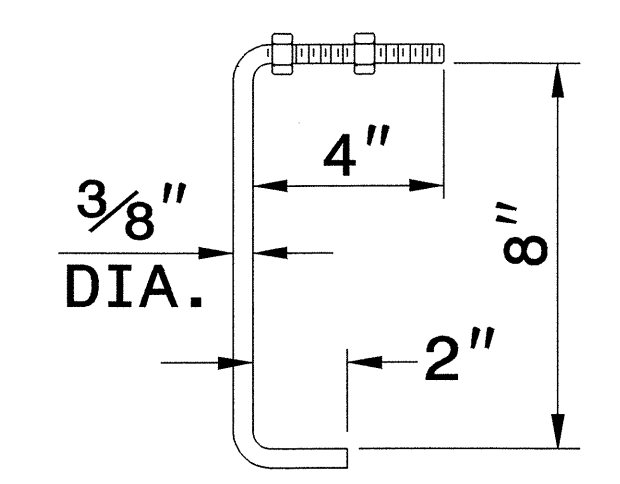
**PRECAST CONCRETE  
CONSTRUCTION**

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

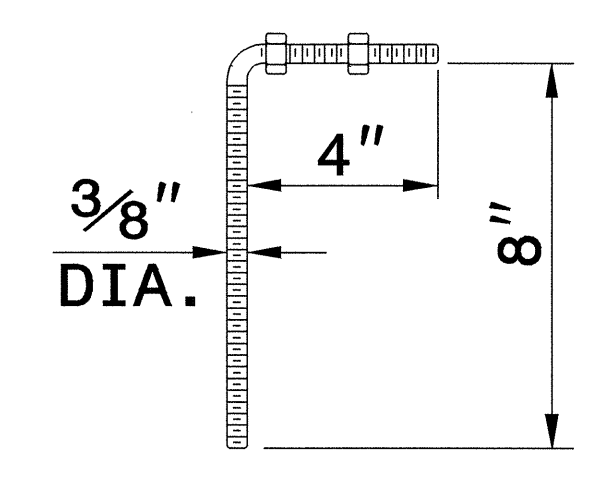
NOTE:  
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL  
OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



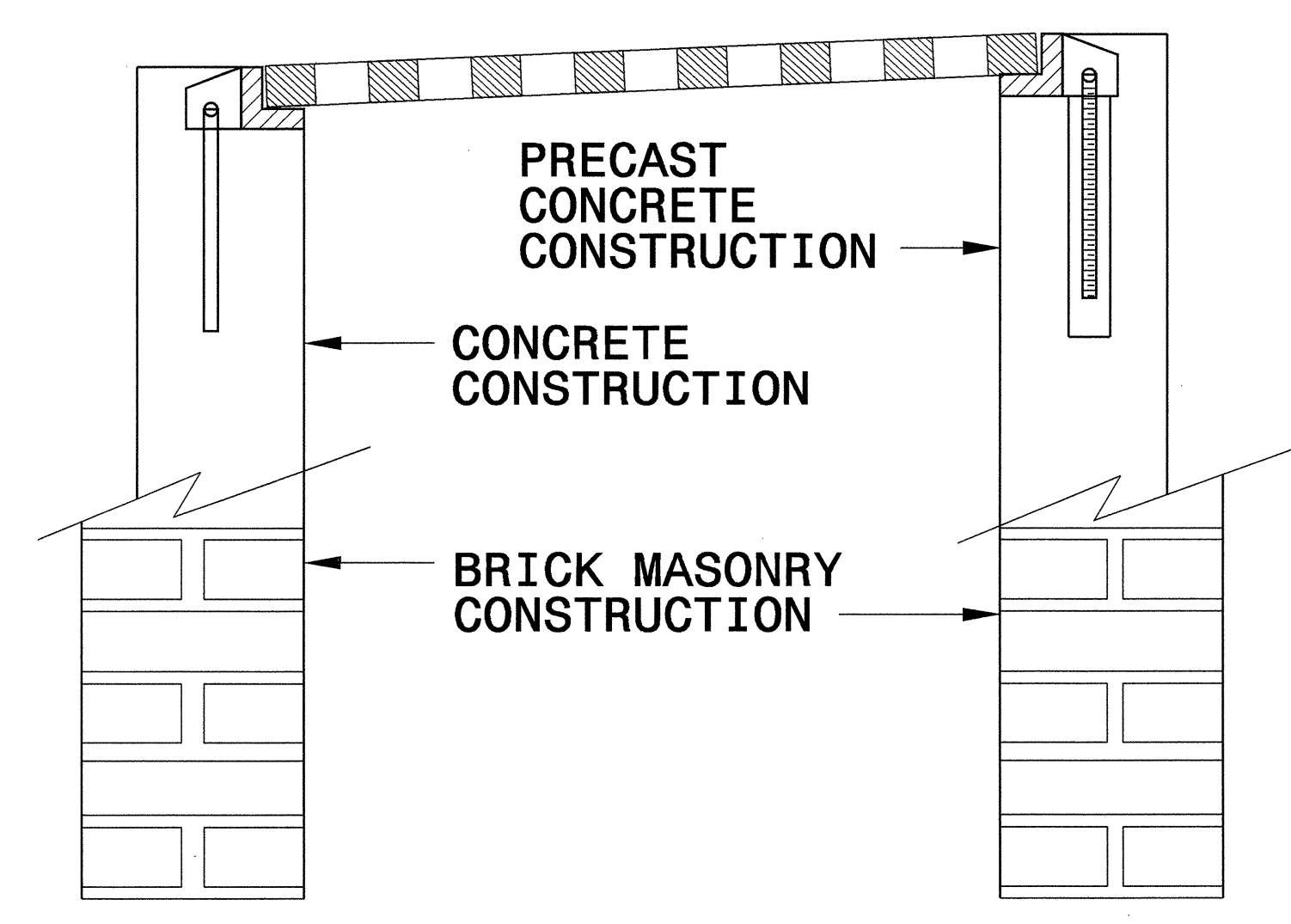
**MASONRY ANCHOR**  
3/8" DIA. BOLT WITH PLATE



**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**



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  
 CONSULTING  
 ENGINEERS  
 P.C.  
 1000  
 W. HARRIS  
 BLVD.  
 RALEIGH, NC 27601  
 919-871-9000  
 WWW.SCEPCON.COM

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201836				
Item Number	Sec #	Quantity	Unit	Description
000010000-N	800	Lump Sum		MOBILIZATION
000040000-N	801	Lump Sum		CONSTRUCTION SURVEYING
002900000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (17+87.50)
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB- BING
005700000-E	226	300	CY	UNDERCUT EXCAVATION
006300000-N	SP	Lump Sum		GRADING
010600000-E	230	2,700	CY	BORROW EXCAVATION
013400000-E	240	182	CY	DRAINAGE DITCH EXCAVATION
019500000-E	265	250	CY	SELECT GRANULAR MATERIAL
019600000-E	270	250	SY	FABRIC FOR SOIL STABILIZATION
031800000-E	300	166	TON	FOUNDATION CONDITIONING MATE- RIAL, MINOR STRS
036600000-E	310	400	LF	15" RC PIPE CULVERTS, CLASS III
037200000-E	310	296	LF	18" RC PIPE CULVERTS, CLASS III
037800000-E	310	108	LF	24" RC PIPE CULVERTS, CLASS III
070800000-E	310	44	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
072000000-E	310	44	LF	24" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
099500000-E	340	62	LF	PIPE REMOVAL
122000000-E	545	500	TON	INCIDENTAL STONE BASE
148900000-E	610	500	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
149800000-E	610	350	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE 119.0B
152500000-E	610	350	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
156000000-E	620	65	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
169300000-E	654	150	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
226400000-E	840	0.13	CY	PIPE PLUGS
228600000-N	840	15	EA	MASONRY DRAINAGE STRUCTURES
230800000-E	840	0.2	LF	MASONRY DRAINAGE STRUCTURES
236400000-N	840	4	EA	FRAME WITH TWO GRATES, STD 840.16
237400000-N	840	3	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)
237400000-N	840	3	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)
237400000-N	840	4	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)
239600000-N	840	1	EA	FRAME WITH COVER, STD 840.54
254900000-E	846	1,000	LF	2'-6" CONCRETE CURB & GUTTER
259100000-E	848	605	SY	4" CONCRETE SIDEWALK
260500000-N	848	3	EA	CONCRETE WHEELCHAIR RAMPS
261200000-E	848	60	SY	6" CONCRETE DRIVEWAY
303000000-E	862	112.5	LF	STEEL BM GUARDRAIL
304500000-E	862	62.5	LF	STEEL BM GUARDRAIL, SHOP CURVED
315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
319500000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
321500000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
327000000-N	SP	3	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
356600000-E	867	200	LF	WOVEN WIRE FENCE RESET
362800000-E	876	85	TON	RIP RAP, CLASS I
364900000-E	876	80	TON	RIP RAP, CLASS B
365600000-E	876	475	SY	FILTER FABRIC FOR DRAINAGE
402500000-E	901	15.25	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (E)
407200000-E	903	46	LF	SUPPORTS, 3-LB STEEL U-CHANNEL

Item Number	Sec #	Quantity	Unit	Description
410200000-N	904	2	EA	SIGN ERECTION, TYPE E
411610000-N	904	3	EA	SIGN ERECTION, RELOCATE, TYPE *** (GROUND MOUNTED) (E)
415500000-N	907	8	EA	DISPOSAL OF SIGN SYSTEM, U- CHANNEL
419200000-N	907	1	EA	DISPOSAL OF SUPPORT, U-CHANNEL
440000000-E	1110	279	SF	WORK ZONE SIGNS (STATIONARY)
440500000-E	1110	64	SF	WORK ZONE SIGNS (PORTABLE)
441000000-E	1110	94	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
443000000-N	1130	15	EA	DRUMS
443500000-N	1135	15	EA	CONES
444500000-E	1145	64	LF	BARRICADES (TYPE III)
445000000-N	1150	240	HR	FLAGGER
481000000-E	1205	4,700	LF	PAINT PAVEMENT MARKING LINES (4")
483500000-E	1205	26	LF	PAINT PAVEMENT MARKING LINES (24")
485000000-E	1205	100	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
532620000-E	1510	665	LF	12" WATER LINE
555800000-E	1515	2	EA	12" VALVE
564800000-N	1515	3	EA	RELOCATE WATER METER
569170000-E	1520	118	LF	18" SANITARY GRAVITY SEWER
580400000-E	1530	600	LF	ABANDON 12" UTILITY PIPE
600000000-E	1605	480	LF	TEMPORARY SILT FENCE
600600000-E	1610	105	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	75	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	115	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 SEED- ING
602400000-E	1622	90	LF	TEMPORARY SLOPE DRAINS
602700000-N	1622	2	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
602900000-E	SP	320	LF	SAFETY FENCE
603000000-E	1630	330	CY	SILT EXCAVATION
603600000-E	1631	1,120	SY	MATTING FOR EROSION CONTROL
603700000-E	SP	25	SY	COIR FIBER MAT
604200000-E	1632	300	LF	1/4" HARDWARE CLOTH
607103000-E	SP	115	LF	COIR FIBER BAFFLES
607105000-E	SP	4	EA	*** SKIMMER (1-1/2")
608400000-E	1660	1.5	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	0.75	TON	FERTILIZER TOPDRESSING
611400000-N	SP	2	HR	SPECIALIZED HAND MOWING
611700000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL

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### SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
-EL- 14+70.00 TO 17+37.50(BEGIN BRIDGE)	7		1074	1067	
-EL- 18+37.50(END BRIDGE) TO 21+00.00	6		1391	1385	
-EY1- 10+13.00 TO 11+35.00	14		90	76	
TOTAL	27		2555	2528	
EST. 5% TO REPLACE TOPSOIL ON BORROW PITS				126	
GRANDTOTAL	27			2654	
SAY	30			2700	
Contingency Undercut=300 cy DDE = 182 CY					

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

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, BREAKING OF EXISTING PAVEMENT AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING". BORROW EXCAVATION WILL BE PAID FOR SEPERATELY

### SUMMARY OF HYDRAULIC RIP RAP & DDE QUANTITIES

CHAIN	STATION	STATION	LOC	RIP RAP CLASS			FF (SY)	DDE (CY)	DETAIL	COMMENT
				I	A	B				
-EL-	16+83	17+71	RT			49	134	60	C	PROP.LATERAL BASE DITCH
-EL-	17+43	18+00	LT	70			122	56	D	PROP.LATERAL BASE DITCH
-EL-	17+71	17+81	RT	6					B	
-EL-	18+00	18+08	LT	3					B	
-EL-	18+27	18+50	LT			27	38	66	A	PROP.LATERAL BASE DITCH
TOTAL				79		76	294	182		
SAY				85		80	300	182		

### REMOVAL OF ASPHALT PAVEMENT

CHAIN	STATION	STATION	SQUARE YARD
-EL-	19+00.00	19+50.00	166.67
TOTAL			166.67
SAY			170

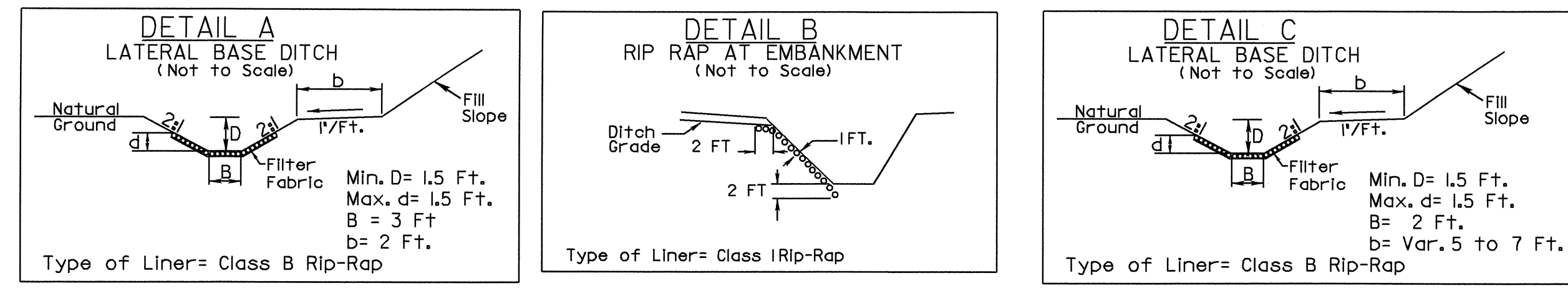
### BREAKING OF EXISTING ASPHALT PAVEMENT

CHAIN	STATION	STATION	SQUARE YARD
-EL-	16+50.00	17+37.50	245.92
-EL-	18+37.50	19+00.00	191.15
TOTAL			437.07
SAY			440

### GUARDRAIL SUMMARY

"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

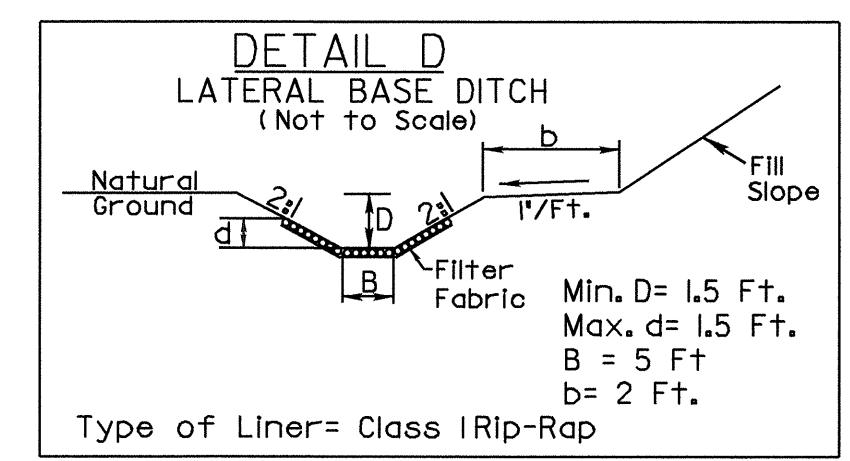
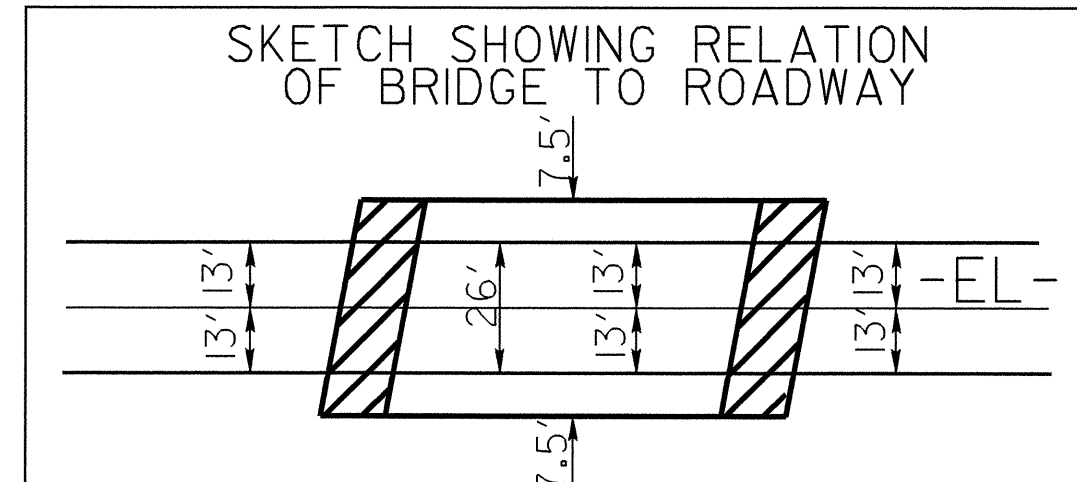
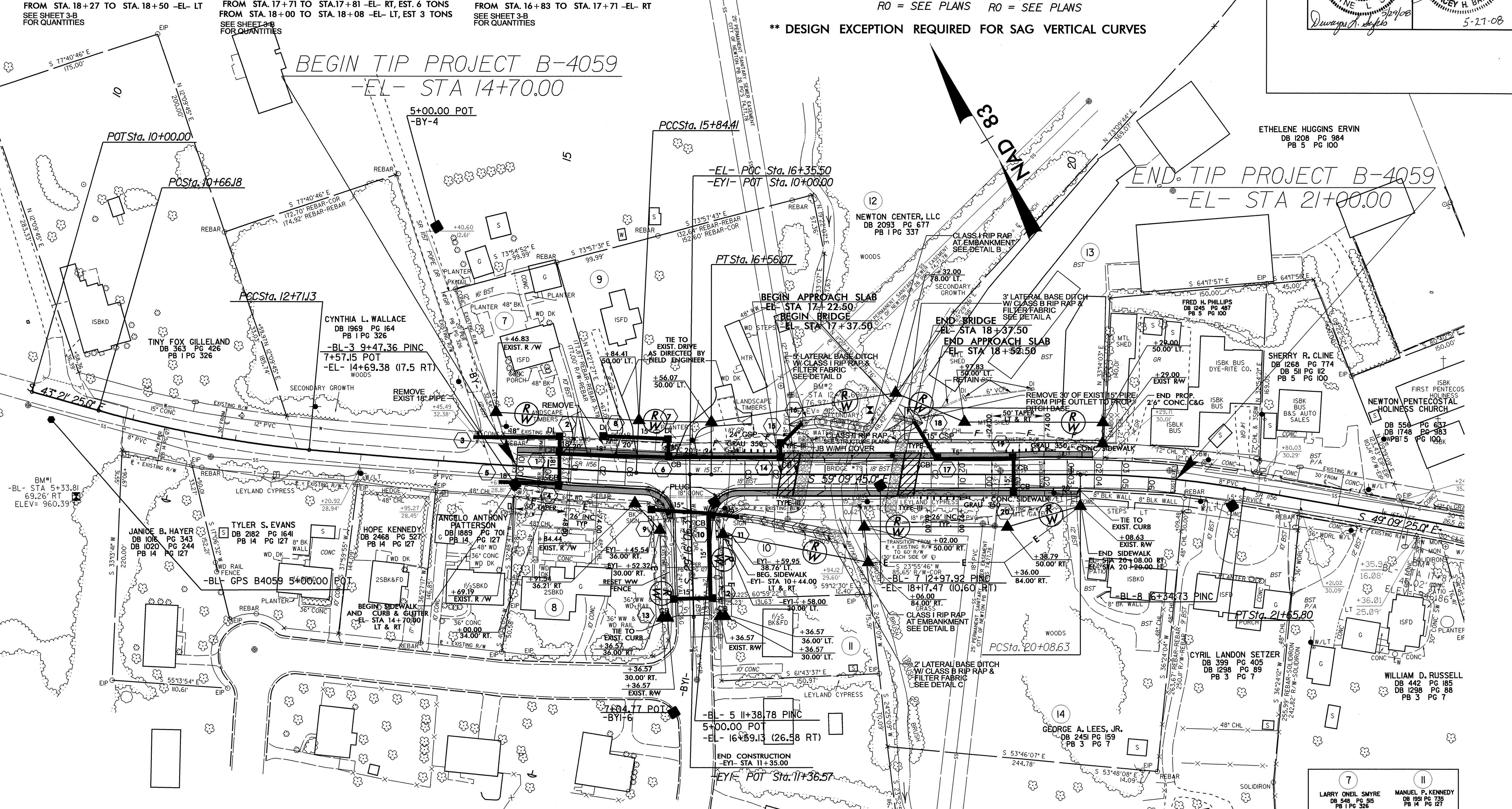
SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS						IMPACT ATTENUATOR TYPE 350			REMARKS															
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GRAU 350	TYPE III	AT-1									PERMITTED NO.	G	NG											
-EL-	16+58.88	17+33.88	RT.	100.00	50'		17+33.88		8'	10'	0'		0'									1																	
-EL-	18+33.89	19+02.64	RT.	68.75'				18+33.89	8'	10'	0'		0'									1		1															
-EL-	16+72.36	17+41.11	LT.	68.75'				17+41.11	8'	10'	0'		0'									1		1															
-EL-	18+41.11	19+84.86	LT.	143.75'			18+41.11		8'	10'	0'		0'									1		1															
			SUBTOTAL	381.25'					8'	10'	0'		0'									3		4		1													
			LESS SHOP CURVED	-50'																		3		4		1													
			LESS ANCHOR UNIT DEDUCTIONS																																				
			GRAU-350 3@50	-150'																																			
			TYPE III 4@18.75	-75'																																			
			AT-1 1@6.25	-6.25																																			
			PROJECT TOTAL	100'	50'																	3		4		1													
			SAY	112.50'	62.5'																																		
			ADDITIONAL GUARDRAIL POSTS = 5																																				



-EL-

PI Sta 11+68.95 Δ = 10° 40' 31.0" (LT) D = 5' 12' 31.3" L = 204.95' T = 102.77' R = 1,000.00'	PI Sta 14+27.79 Δ = 2° 23' 36.0" (LT) D = 0' 45' 50.2" L = 313.29' T = 156.67' R = 7,500.00'	PI Sta 16+20.25 Δ = 2° 44' 13.0" (LT) D = 3' 49' 11.0" L = 71.65' T = 35.83' R = 1,500.00'	PI Sta 20+87.42 Δ = 10° 00' 20.0" (RT) D = 6' 21' 58.3" L = 157.77' T = 78.78' R = 900.00'
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\*\* DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVES



PLACE DECK DRAINS ON LEFT SIDE OF BRIDGE AT 10' CENTERS FROM STA. 17+41 TO 17+82-L- AND FROM STA. 18+05 TO STA. 18+41-L-

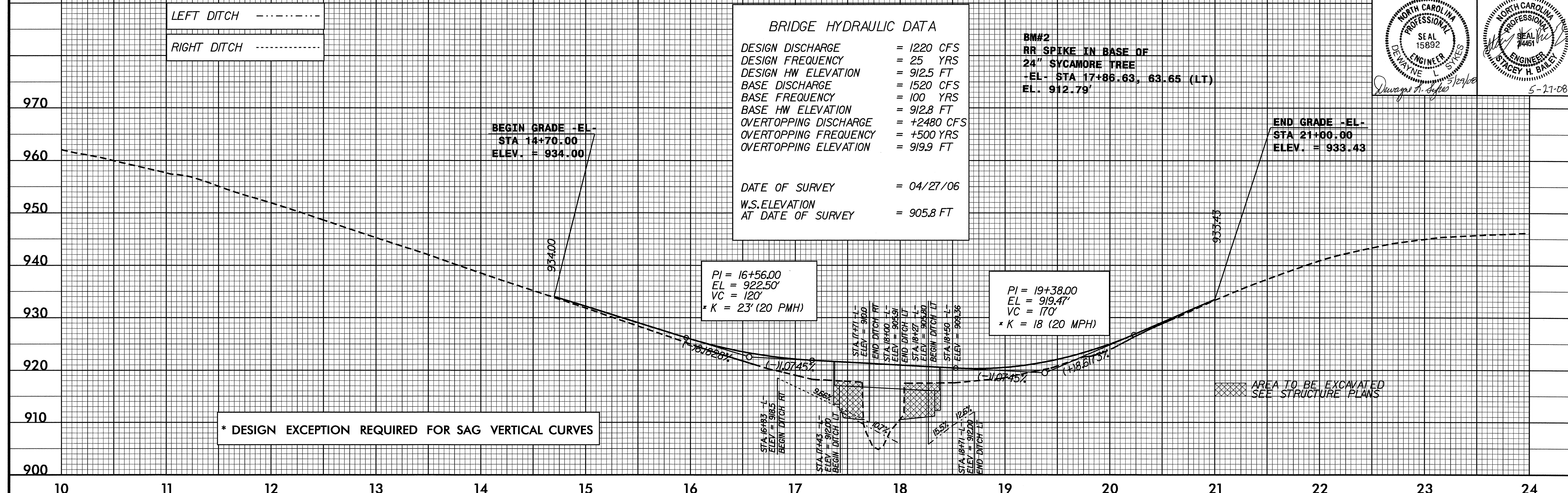
SEE SHEET 5 FOR -EL- AND -EYI- PROFILE  
SEE SHEETS S1 THRU S26 FOR STRUCTURE PLANS

7 LARRY ONEIL SMYRE DB 548 PG 95 PB 1 PG 326	11 MANUEL P. KENNEDY DB 1991 PG 735 PB 14 PG 127
8 SCOTT D. JOHNSON DB 1888 PG 225 PB 14 PG 127	13 ETHELENE HUGGINS ERVIN DB 1208 PG 984 PB 5 PG 100
9 IMOGENE S. MATHESON DELLINGER DB 1655 PG 666 DB 1870 PG 174 PB 27 PG 58 PB 1 PG 326	
10 ONEAL BUILDING AND REAL ESTATE, INC. DB 116 PG 350 PB 14 PG 127	

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# -EL-

SEE PLAN SHEET 4 FOR PLAN VIEW



# -EY1-

