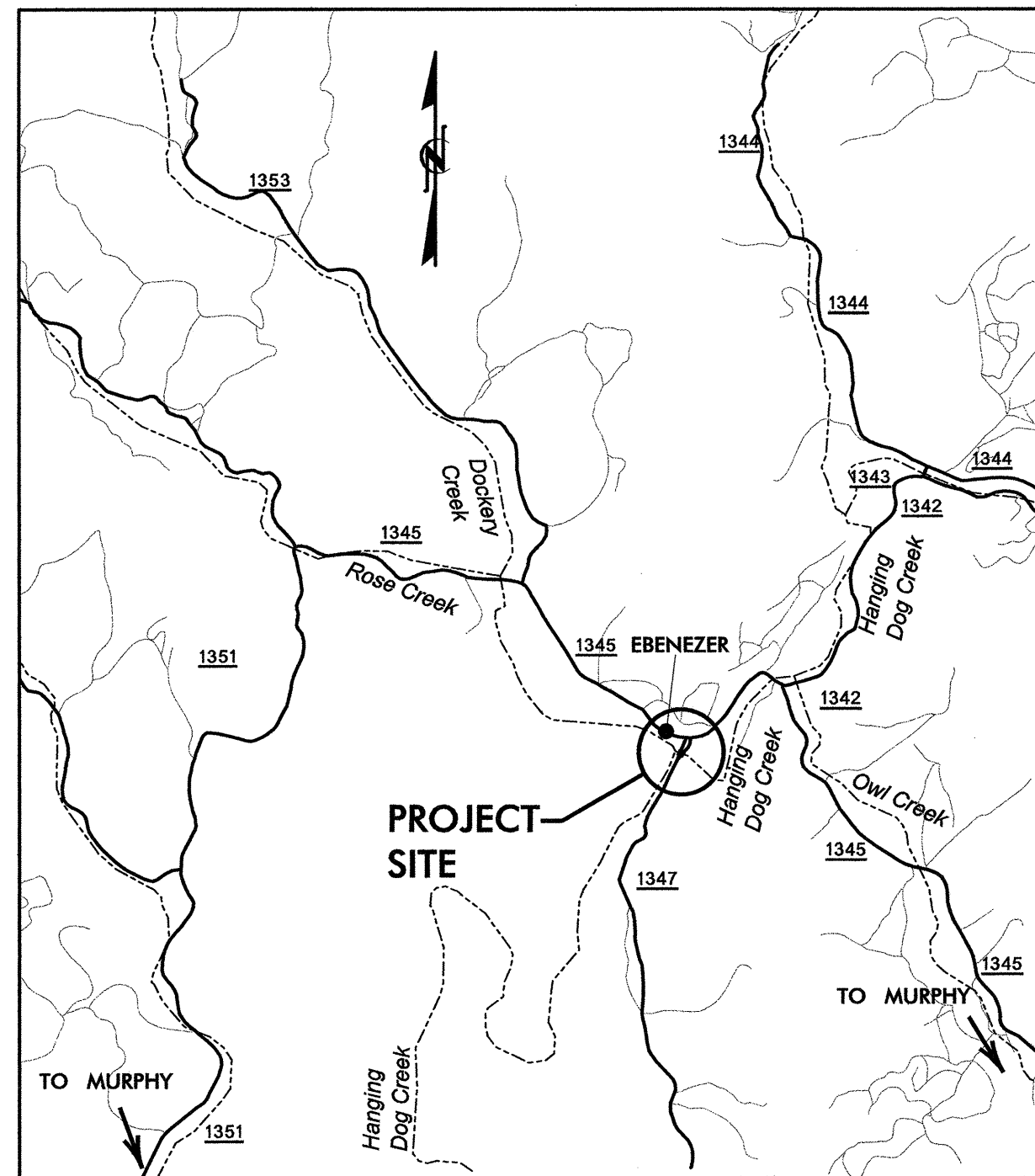


07/02/08/999

See Sheet 1-A For Index of Sheets



VICINITY MAP

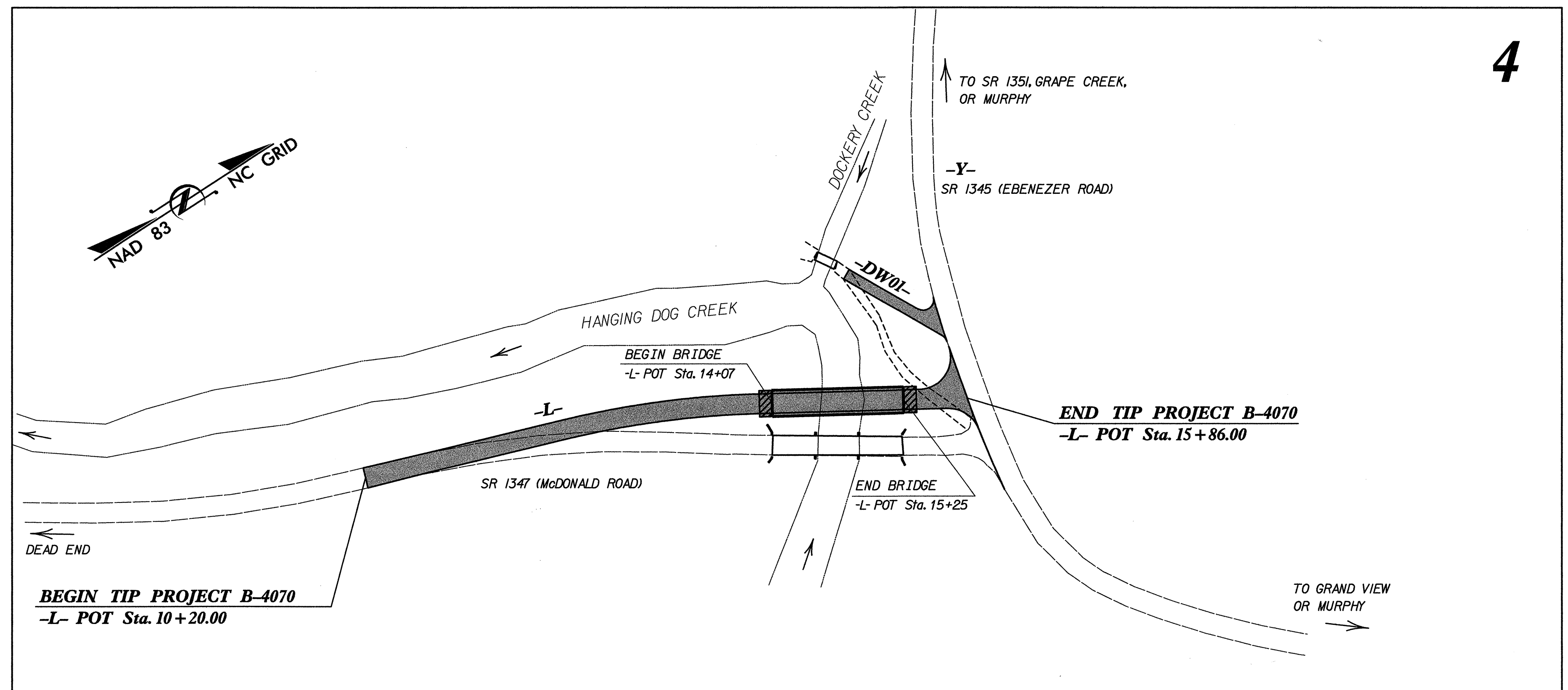
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CHEROKEE COUNTY

**LOCATION: BRIDGE #112 OVER HANGING DOG CREEK
ON SR 1347 (McDONALD ROAD) AND APPROACHES**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4070	1	
PROJ. WBS. NO.	F.A. PROJ. NO.	DESCRIPTION	
33433.1.1	BRZ-1347 (2)	PE	
33433.2.1	BRZ-1347 (2)	RW, UTILITIES	
33433.3.1	BRZ-1347 (2)	CONSTRUCTION	

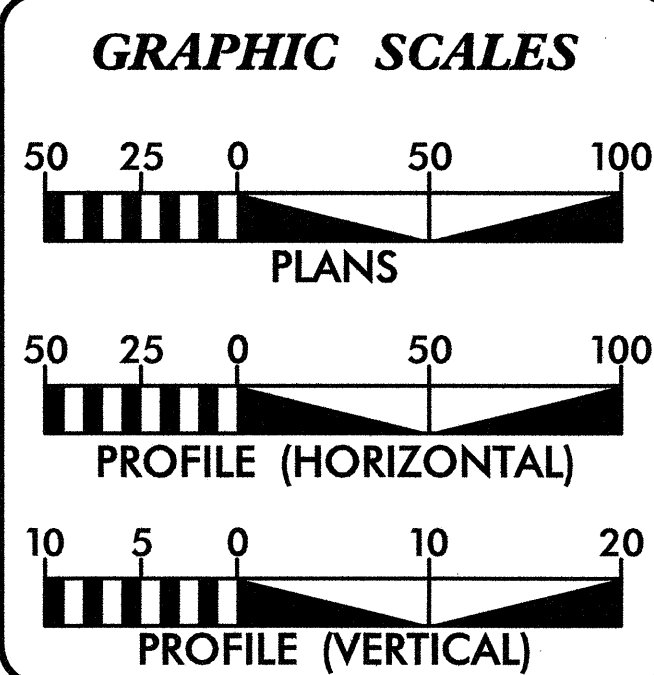


4

TIP PROJECT: B-4070

CONTRACT: C201835

NC DOT CONTACT:
MR. DOUG TAYLOR, PE
ENGINEERING COORDINATION SECTION ENGINEER
ROADWAY DESIGN UNIT



DESIGN DATA

ADT 2008 =	160
ADT 2028 =	325
DHV =	10 %
D =	60 %
T =	3 % *
V =	40 MPH
* (TTST 1% + DUAL 2%)	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4070	=	0.085 mile
LENGTH STRUCTURE TIP PROJECT B-4070	=	0.022 mile
TOTAL LENGTH OF TIP PROJECT B-4070	=	0.107 mile

Prepared For:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh, NC 27610

By:
MA ENGINEERING CONSULTANTS, INC.
598 E. CHATHAM STREET, SUITE 137
CARY, NORTH CAROLINA 27513
TEL.: (919) 297-0220

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 11, 2006

LETTING DATE:
MAY 20, 2008

R. W. PORTER, JR., PE
PROJECT ENGINEER

K. S. HUTCHENS
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

Robert S. Weardon 2/26/08
SIGNATURE: *Robert S. Weardon*

ROADWAY DESIGN ENGINEER

Robert W. Porter Jr.
SIGNATURE: *Robert W. Porter Jr.*

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

Robert W. Porter Jr.
SIGNATURE: *Robert W. Porter Jr.*

STATE HIGHWAY DESIGN ENGINEER

02/26/2008 R:\Projects\B4070\rdy_tsh.dgn

PROJECT REFERENCE NO. B-4070	SHEET NO. 1-A
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 19814 ENGINEER ROBERT M. PROTEK, JR. 2-26-2008	
MA Engineering CONSULTANTS, INC. 598 East Chatham Street Suite 137 Cary, NC 27511 Phone: 919.297.0220 Fax: 919.297.0221	

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

2006 ROADWAY ENGLISH STANDARD DRAWINGS EFF. 07-18-06
REV. 01-02-07

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.

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:

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

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

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.

DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'

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

DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills

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.

DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I

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

DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

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:
Power - Blue Ridge Mountain Electric Membership Corporation
Telephone - Verizon
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.

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	DETAIL OF ANCHORAGE FOR FRAMES - BRICK OR CONCRETE
3	SUMMARY OF QUANTITIES
3-A	SUMMARIES OF EARTHWORK, PAVEMENT REMOVAL, DRAINAGE, AND GUARDRAIL
4	PLAN AND PROFILE SHEET
TCP-1 THRU TCP-5	TRAFFIC CONTROL PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION SUMMARY
X-2 THRU X-8	CROSS-SECTIONS
S-1 THRU S-23	STRUCTURE PLANS

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	□ EOM
Parcel/Sequence Number	②③
Existing Fence Line	-x-x-x-
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	-----
Buffer Zone 2	-----
Flow Arrow	←
Disappearing Stream	-----
Spring	○
Swamp Marsh	→
Proposed Lateral, Tail, Head Ditch	-----
False Sump	▽

RAILROADS:

Standard Gauge	-----
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	CCFR
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	XXXX

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	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	□
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	□
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	-W-
Designated U/G Water Line (S.U.E.*)	-W-
Above Ground Water Line	-A/G Water-

TV:

TV Satellite Dish	⊕
TV Pedestal	⊕
TV Tower	⊗
U/G TV Cable Hand Hole	□
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	-ZUL-
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.

7/22/2008

PROJECT REFERENCE NO.	SHEET NO.
B-4070	1-C
Location and Surveys	

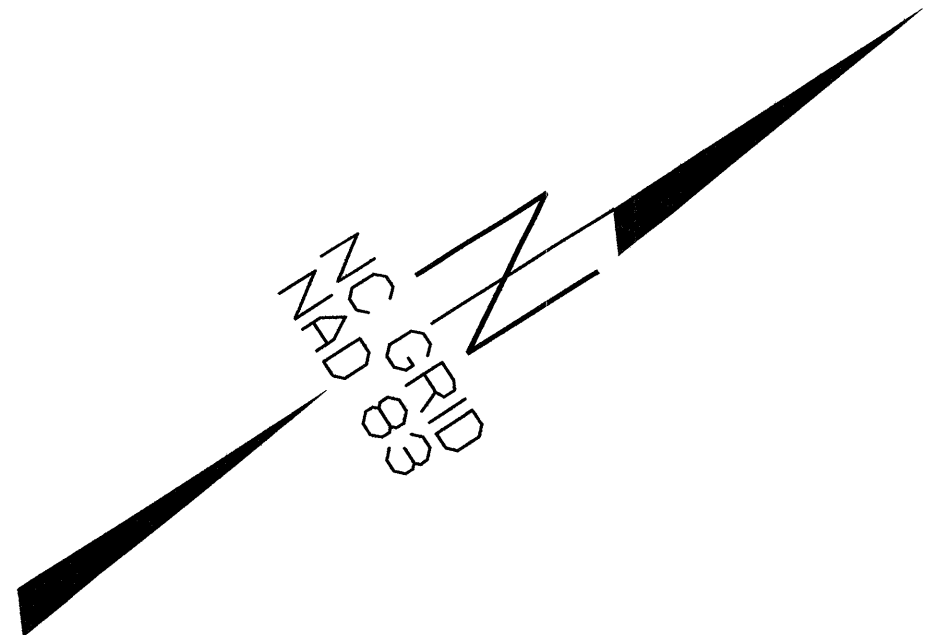
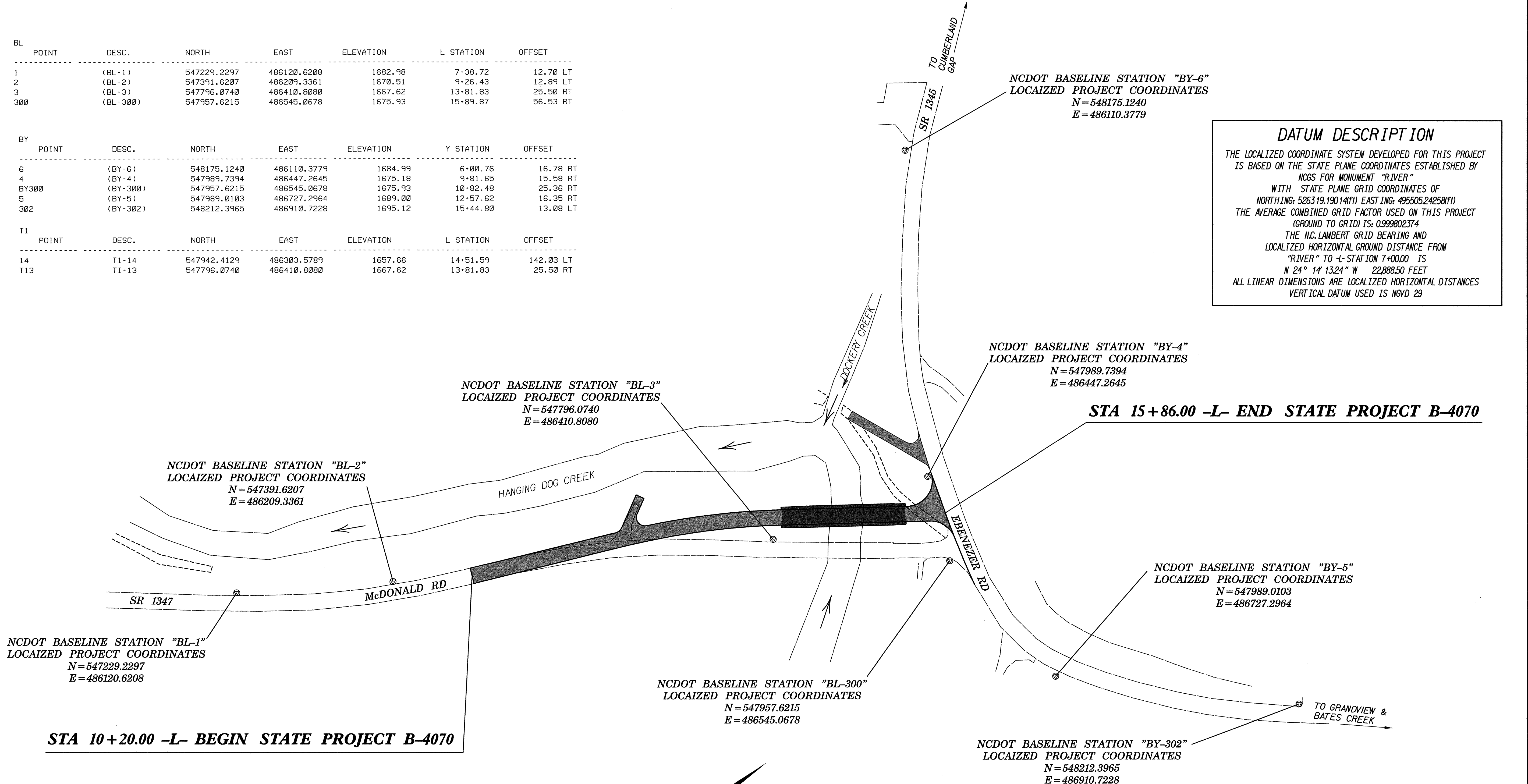
SURVEY CONTROL SHEET B-4070

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	(BL-1)	547229.2297	486120.6208	1682.98	7+38.72	12.70 LT
2	(BL-2)	547391.6207	486209.3361	1670.51	9+26.43	12.89 LT
3	(BL-3)	547796.0740	486410.8080	1667.62	13+81.83	25.50 RT
300	(BL-300)	547957.6215	486545.0678	1675.93	15+89.87	56.53 RT

BY POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
6	(BY-6)	548175.1240	486110.3779	1684.99	6+00.76	16.78 RT
4	(BY-4)	547989.7394	486447.2645	1675.18	9+81.65	15.58 RT
BY300	(BY-300)	547957.6215	486545.0678	1675.93	10+82.48	25.36 RT
5	(BY-5)	547989.0103	486727.2964	1689.00	12+57.62	16.35 RT
302	(BY-302)	548212.3965	486910.7228	1695.12	15+44.80	13.08 LT

T1 POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
14	T1-14	547942.4129	486303.5789	1657.66	14+51.59	142.03 LT
T13	T1-13	547796.0740	486410.8080	1667.62	13+81.83	25.50 RT

DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "RIVER" WITH STATE PLANE GRID COORDINATES OF NORTHING: 526319.19014(ft) EASTING: 495505.24258(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999802374 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "RIVER" TO L-STATION 7+00.00 IS N 24° 14' 13.24" W 22888.50 FEET ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29



NOTES:

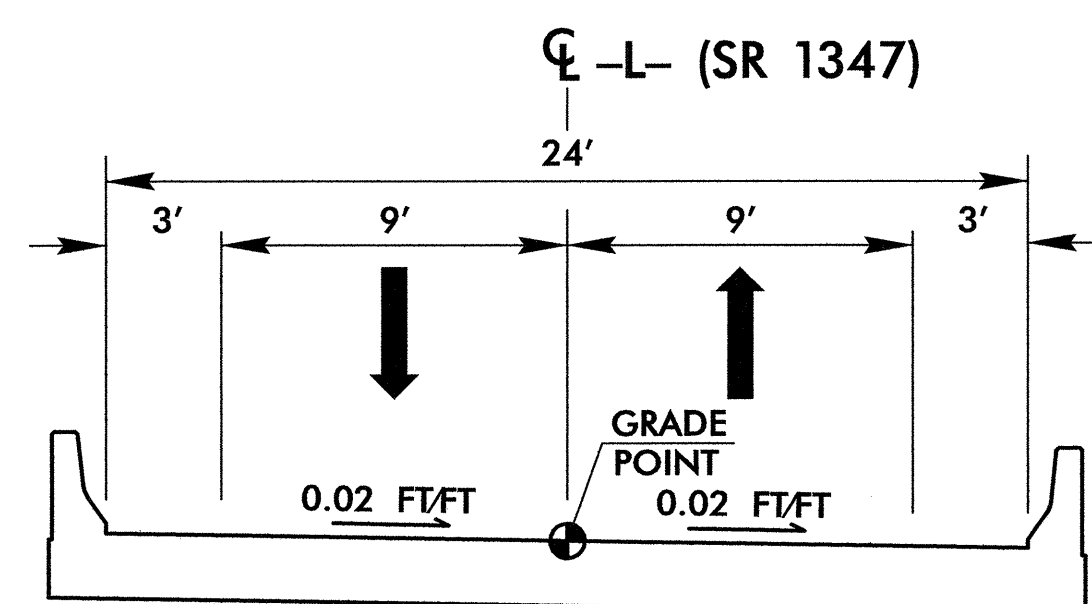
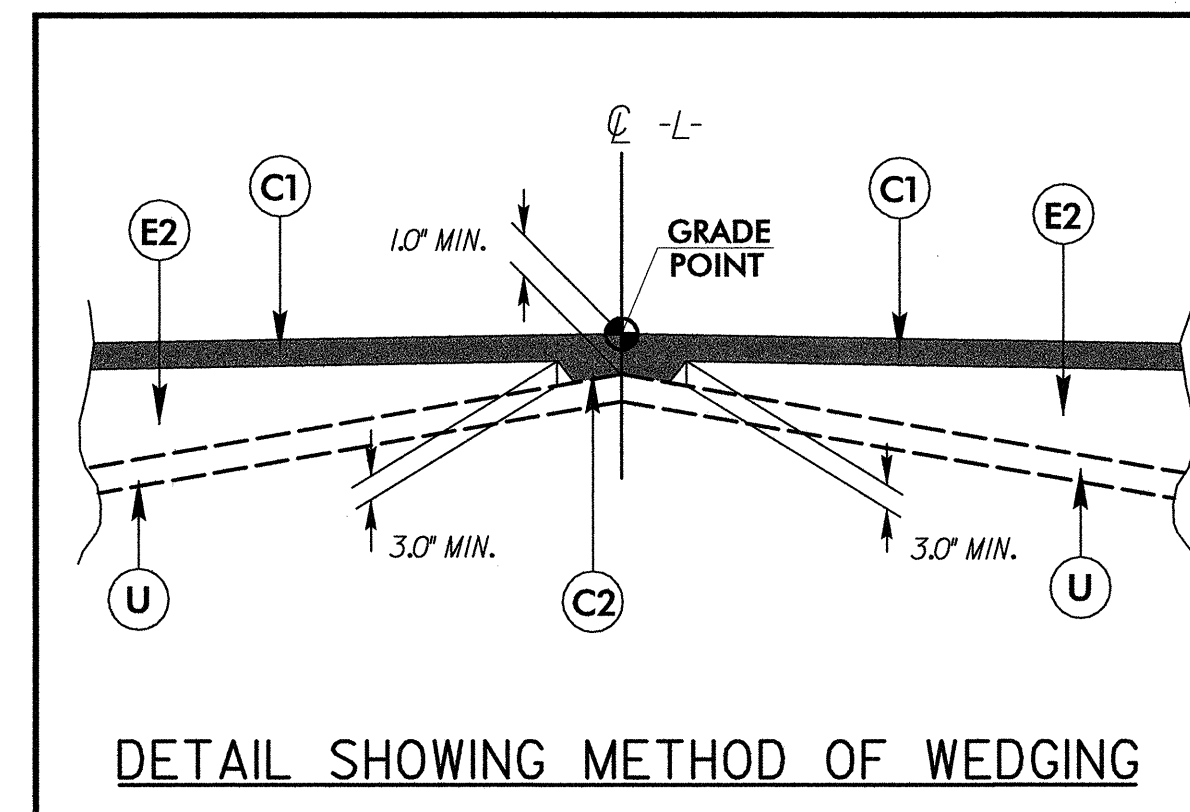
THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATIONPROJECT](http://www.doh.dot.state.nc.us/preconstruct/highway/locationproject)
 FILE NAME: B4070_ls_c1_050509.txt
 SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
 ⊙ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
 NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING USER SERVICE (OPUS)
 SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.
NOTE: DRAWING NOT TO SCALE

02/26/2008
 02:53:27 PM
 C:\Users\j\B4070_1s_1c_050509.dgn

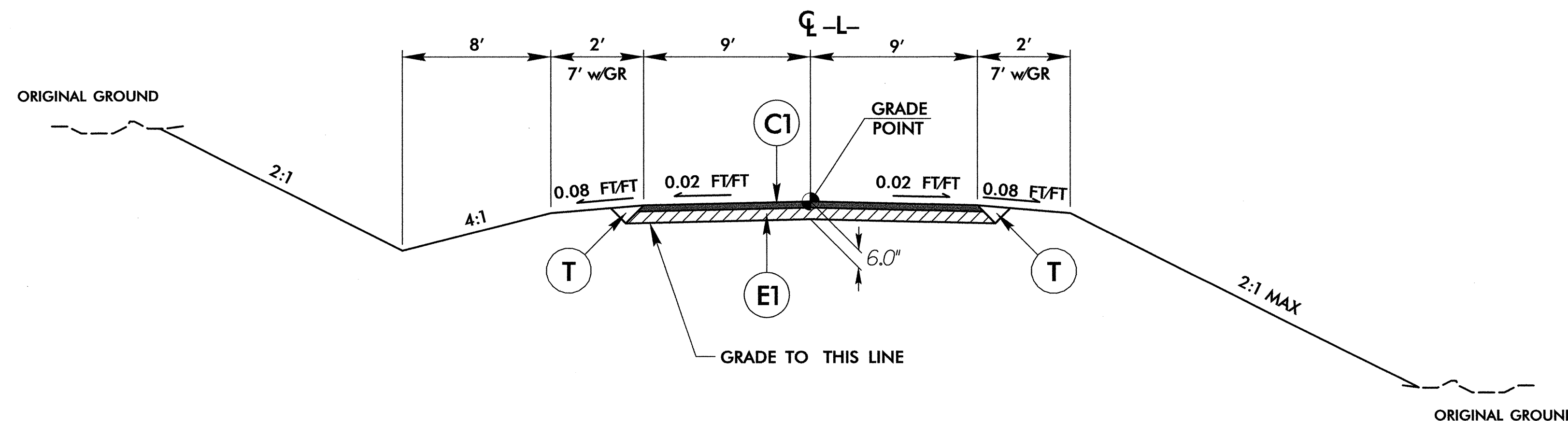
PROJECT REFERENCE NO. B-4070	SHEET NO. 2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19814 ROBERT W. PORTER 2-26-2008	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22896 CLAYTON S. MORRISON 2/29/08
MA Engineering CONSULTANTS, INC. 598 East Chatham Street Suite 137 Cary, NC 27511 Phone: 919.297.0220 Fax: 919.297.0221	

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2.0" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS PER SQUARE YARD IN EACH OF TWO LAYERS.
C2	PROP. VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS PER SQUARE YARD PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1.0" 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 SQUARE YARD.
E2	PROP. VARIABLE DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS PER SQUARE YARD PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3.0" OR GREATER THAN 5.5" IN DEPTH.
J	PROP 8" AGGREGATE BASE COURSE
P	PRIME COAT (AT A RATE OF 0.35 GAL PER SY)
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET)

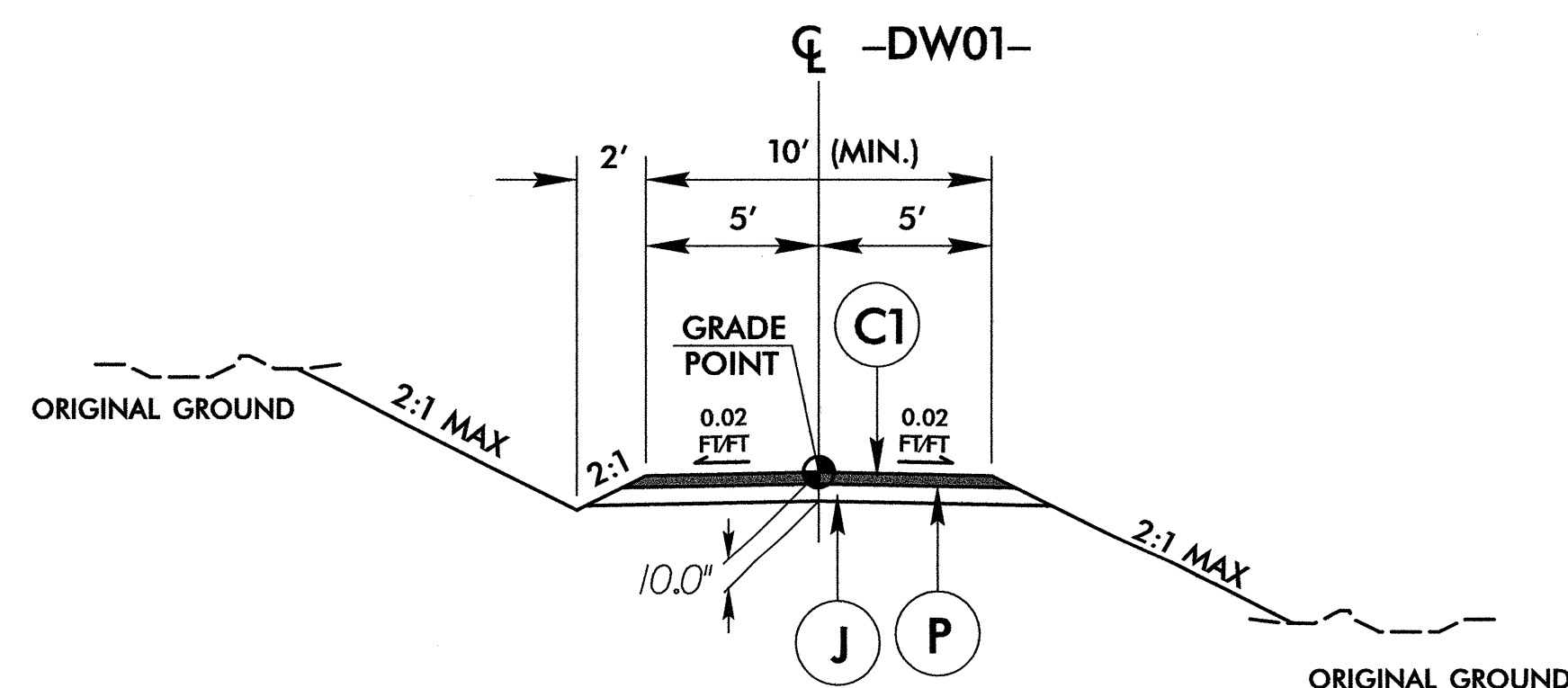
PAVEMENT EDGE SLOPES AND TRENCH SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



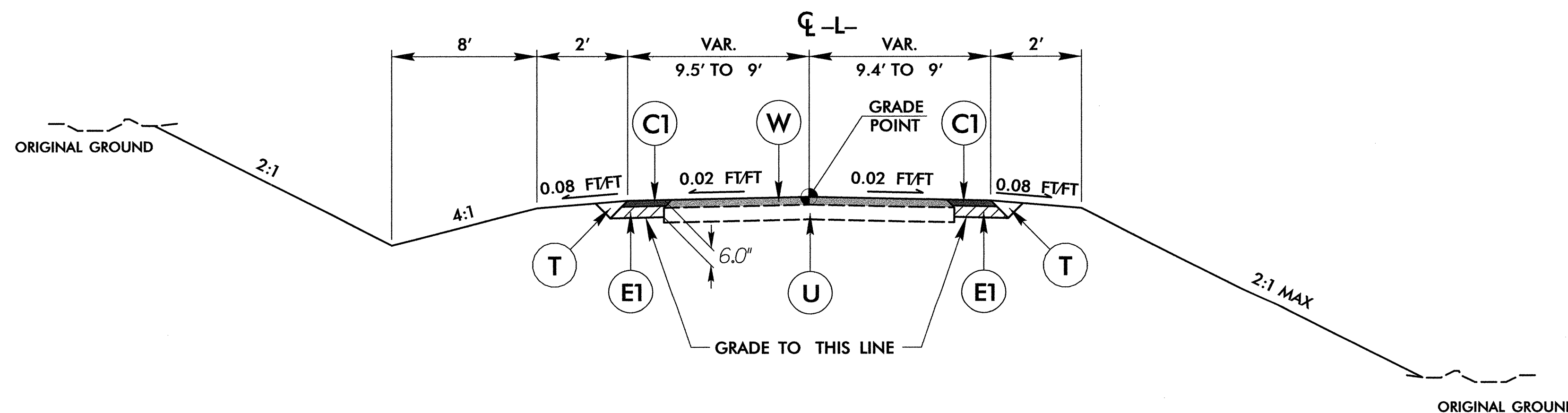
TYPICAL SECTION ON STRUCTURE
-L- STA 14+07 (BEGIN BRIDGE) TO 15+25 (END BRIDGE)



TYPICAL SECTION NO. 1
FROM -L- STA. 11+60.00 TO STA. 14+07 (BEGIN BRIDGE)
FROM -L- STA. 15+25 (END BRIDGE) TO STA. 15+86.00



TYPICAL SECTION NO. 3
FROM -DW01- STA. 10+00 TO STA. 11+03.44



TYPICAL SECTION NO. 2
FROM -L- STA. 10+20.00 TO STA. 11+60.00

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

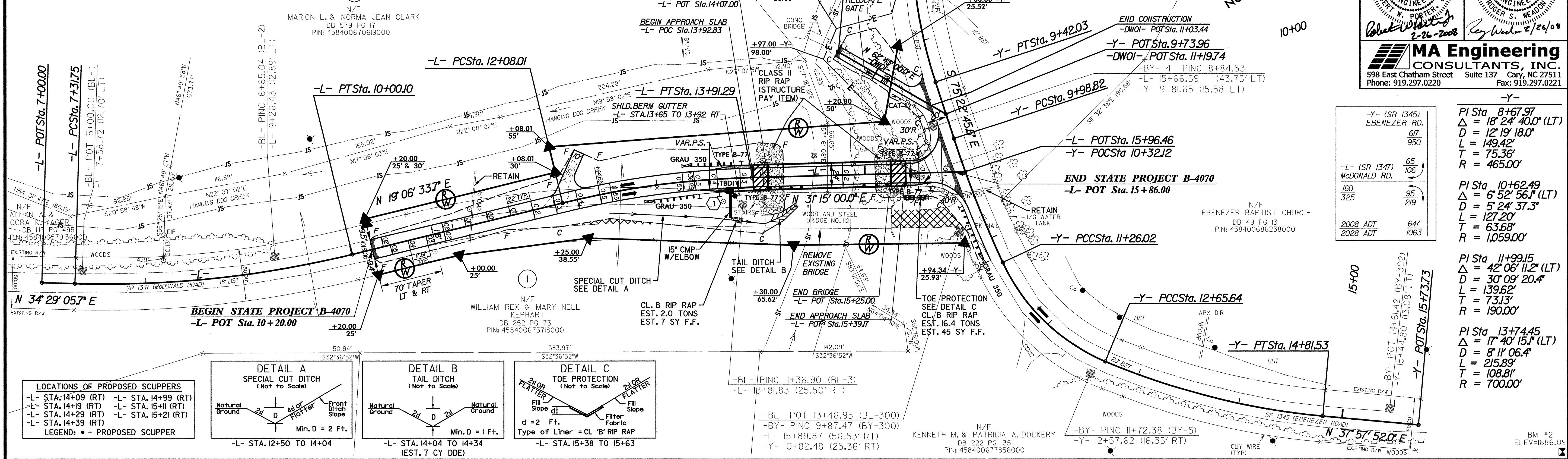
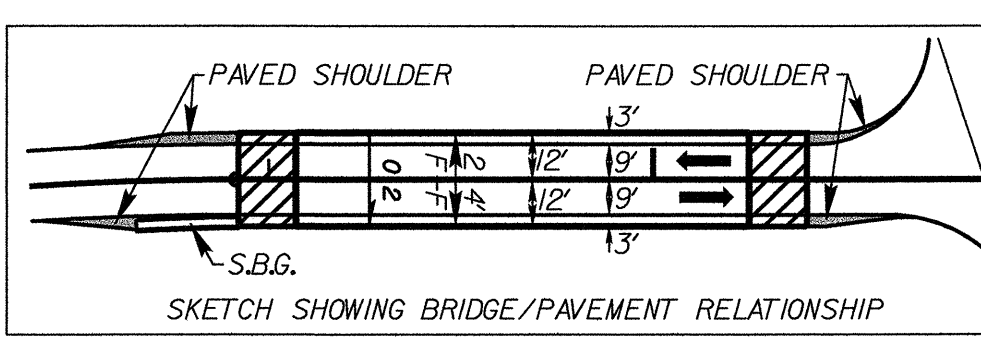
SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201835														
ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION	2286000000-N	840	1	EA	MASONRY DRAINAGE STRUCTURES	6012000000-E	1610	50	TON	SEDIMENT CONTROL STONE
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (14+66.00)	2367000000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.29	6015000000-E	1615	1.5	ACR	TEMPORARY MULCHING
0043000000-N	226	Lump Sum		GRADING	2556000000-E	846	28	LF	SHOULDER BERM GUTTER	6018000000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB- BING	3030000000-E	862	100	LF	STEEL BM GUARDRAIL	6021000000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEED- ING
0057000000-E	226	100	CY	UNDERCUT EXCAVATION	3045000000-E	862	112.5	LF	STEEL BM GUARDRAIL, SHOP CURVED	6029000000-E	SP	325	LF	SAFETY FENCE
0080000000-E	SP	500	TON	CLASS IV SUBGRADE STABILIZA- TION	3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS	6036000000-E	1631	750	SY	MATTING FOR EROSION CONTROL
0134000000-E	240	7	CY	DRAINAGE DITCH EXCAVATION	3210000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1	6037000000-E	SP	25	SY	COIR FIBER MAT
0195000000-E	265	500	CY	SELECT GRANULAR MATERIAL	3270000000-N	SP	3	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	6038000000-E	SP	105	SY	PERMANENT SOIL REINFORCEMENT MAT
0196000000-E	270	500	SY	FABRIC FOR SOIL STABILIZATION	3317000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77	6042000000-E	1632	20	LF	1/4" HARDWARE CLOTH
0318000000-E	300	10	TON	FOUNDATION CONDITIONING MATE- RIAL, MINOR STRS	3578000000-N	SP	1	EA	GENERIC FENCING ITEM RESET EXISTING GATE	6071030000-E	SP	100	LF	COIR FIBER BAFFLES
0708000000-E	310	30	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK	3649000000-E	876	20	TON	RIP RAP, CLASS B	6071050000-E	SP	4	EA	*** SKIMMER (1-1/2")
0806000000-E	310	2	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK	3656000000-E	876	230	SY	FILTER FABRIC FOR DRAINAGE	6084000000-E	1660	1.5	ACR	SEEDING & MULCHING
1121000000-E	520	76	TON	AGGREGATE BASE COURSE	4400000000-E	1110	104	SF	WORK ZONE SIGNS (STATIONARY)	6087000000-E	1660	1	ACR	MOWING
1220000000-E	545	300	TON	INCIDENTAL STONE BASE	4405000000-E	1110	192	SF	WORK ZONE SIGNS (PORTABLE)	6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
1275000000-E	600	50	GAL	PRIME COAT	4410000000-E	1110	20	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
1489000000-E	610	192	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	4410000000-E	1110	20	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
1525000000-E	610	125	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	4430000000-N	1130	44	EA	DRUMS	6108000000-E	1665	1.25	TON	FERTILIZER TOPDRESSING
1560000000-E	620	20	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	4435000000-N	1135	25	EA	CONES	6114000000-N	SP	2	HR	SPECIALIZED HAND MOWING
2022000000-E	815	224	CY	SUBDRAIN EXCAVATION	4445000000-E	1145	48	LF	BARRICADES (TYPE III)	6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
2033000000-E	815	168	CY	SUBDRAIN FINE AGGREGATE	4455000000-N	1150	40	MD	FLAGGER	6144000000-E	SP	27	LB	GENERIC EROSION CONTROL ITEM POLYACRYLAMIDE (PAM)
2044000000-E	815	1,000	LF	6" PERFORATED SUBDRAIN PIPE	4480000000-N	1165	1	EA	TMIA	6147000000-E	SP	75	LF	GENERIC EROSION CONTROL ITEM WATTLE
2055000000-E	815	30	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS	4810000000-E	1205	7,419	LF	PAINT PAVEMENT MARKING LINES (4")					
2066000000-N	815	2	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET	4850000000-E	1205	300	LF	REMOVAL OF PAVEMENT MARKING LINES (4")					
2077000000-E	815	12	LF	6" OUTLET PIPE (SUBDRAINS)	6000000000-E	1605	650	LF	TEMPORARY SILT FENCE					
					6006000000-E	1610	90	TON	STONE FOR EROSION CONTROL, CLASS A					
					6009000000-E	1610	170	TON	STONE FOR EROSION CONTROL, CLASS B					

7/27/08
 02/26/2008
 C:\projects\pesh\pesh04.dgn
 10/24/08

-L-
 PI Sta 8+66.73
 $\Delta = 15' 22'' 32.0''$ (LT)
 $D = 5' 43'' 46.5''$
 $L = 268.35'$
 $T = 134.99'$
 $R = 1,000.00'$
 $SE = EX.$

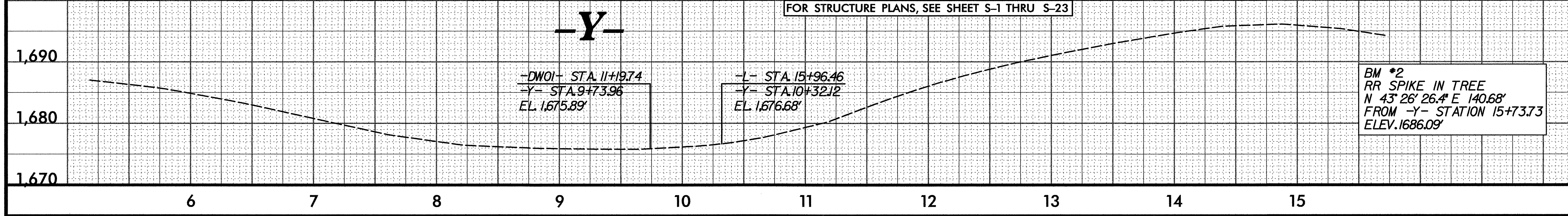
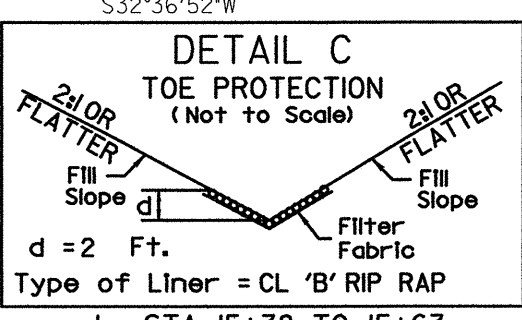
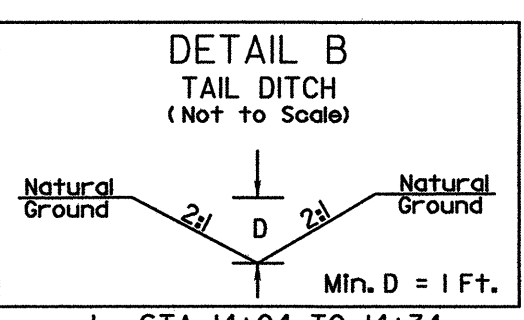
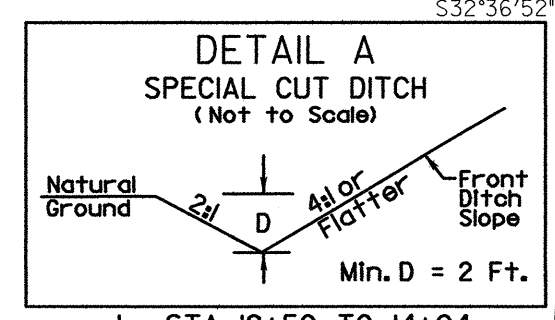
-L-
 PI Sta 12+99.99
 $\Delta = 12' 08'' 26.3''$ (RT)
 $D = 6' 37'' 25.6''$
 $L = 183.29'$
 $T = 91.99'$
 $R = 865.00'$
 $SE = 0.055$ ft/ft
 $RO = 12'$
 $DS = 40$ MPH



LOCATIONS OF PROPOSED SCUPPERS

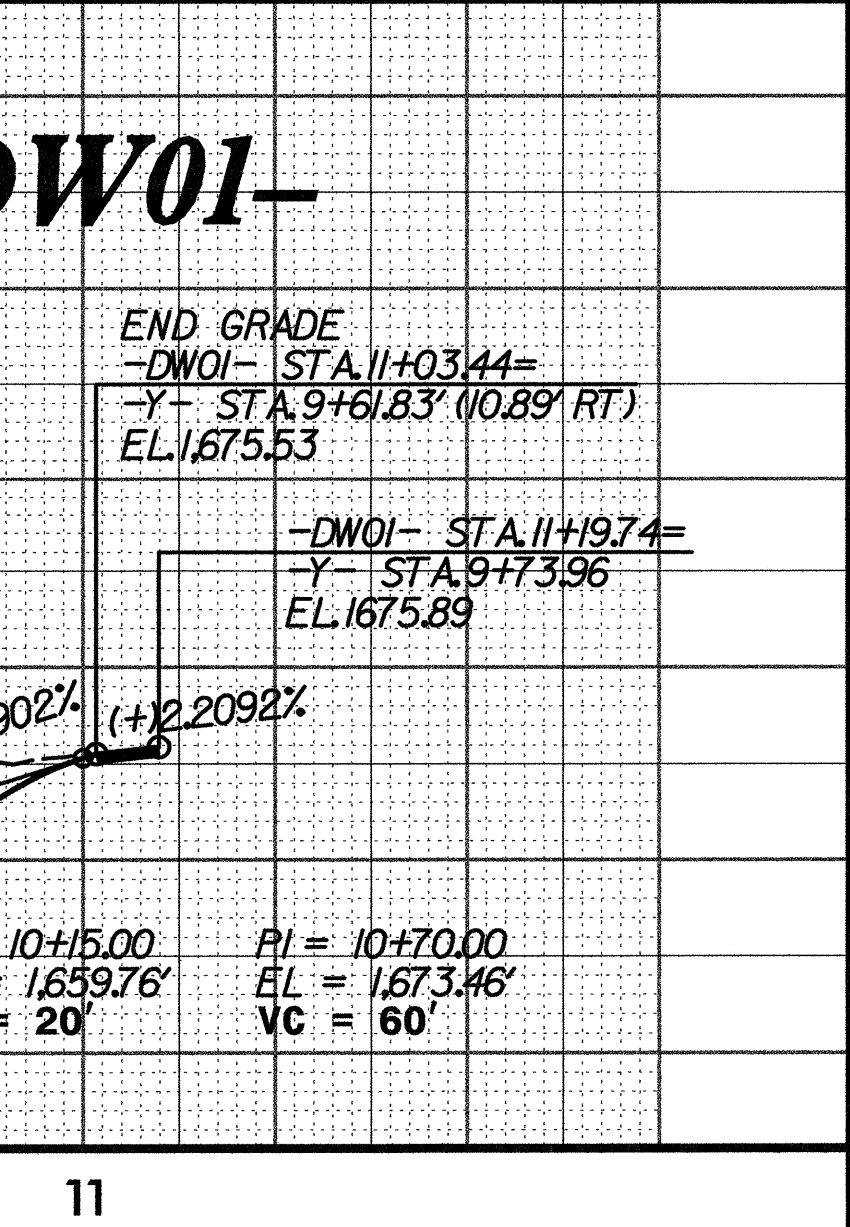
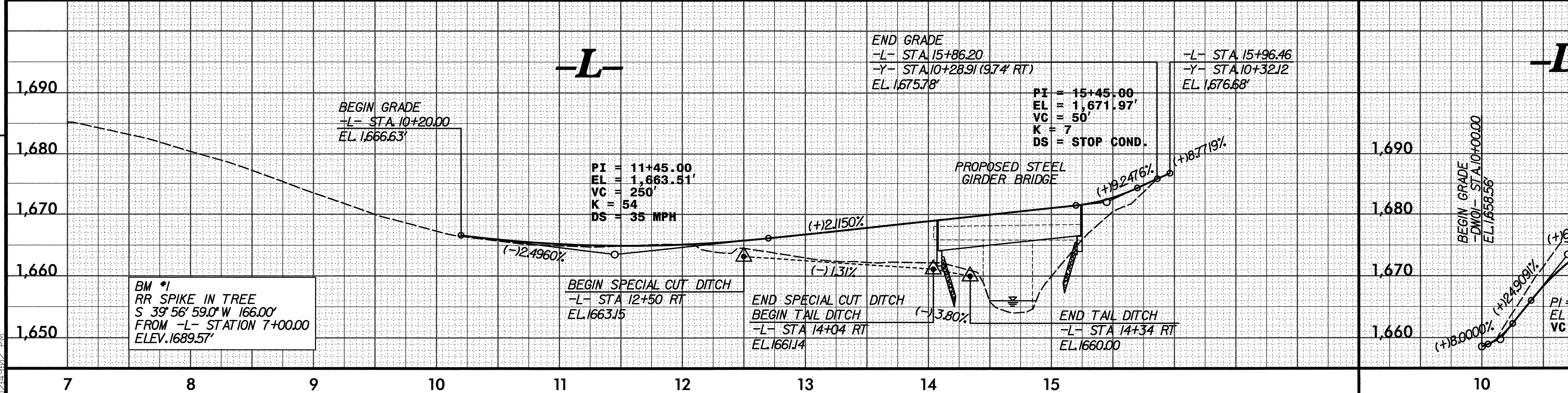
-L- STA. 14+09 (RT)	-L- STA. 14+99 (RT)
-L- STA. 14+19 (RT)	-L- STA. 15+11 (RT)
-L- STA. 14+29 (RT)	-L- STA. 15+21 (RT)
-L- STA. 14+39 (RT)	

LEGEND: ● - PROPOSED SCUPPER



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 5200 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 1665.4FT
BASE DISCHARGE	= 6300 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 1667.5FT
OVERTOPPING DISCHARGE	= 3900 CFS
OVERTOPPING FREQUENCY	= 25 YRS
OVERTOPPING ELEVATION	= 1664.9FT
DATE OF SURVEY	= JULY 04
W.S. ELEVATION AT DATE OF SURVEY	= 1657.1 FT



PROJECT REFERENCE NO. **B-4070** SHEET NO. **4**

RW SHEET NO.

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19814

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 21656

MA Engineering CONSULTANTS, INC.
 598 East Chatham Street, Suite 137, Cary, NC 27511
 Phone: 919.297.0220 Fax: 919.297.0221

-Y- (SR 1345) EBENEZER RD.

617	950
-----	-----

-L- (SR 1347) McDONALD RD.

65	106
160	95
325	219

2008 ADT: 647
 2028 ADT: 1063

-Y- (SR 1345) EBENEZER RD.

PI Sta 8+67.97	$\Delta = 18' 24'' 40.0''$ (LT)
$D = 12' 19'' 18.0''$	$L = 149.42'$
$T = 75.36'$	$R = 465.00'$

-L- (SR 1347) McDONALD RD.

PI Sta 10+62.49	$\Delta = 6' 52'' 56.1''$ (LT)
$D = 5' 24'' 37.3''$	$L = 127.20'$
$T = 63.68'$	$R = 1,059.00'$

-Y- (SR 1345) EBENEZER RD.

PI Sta 11+99.15	$\Delta = 42' 06'' 11.2''$ (LT)
$D = 30' 09'' 20.4''$	$L = 139.62'$
$T = 73.13'$	$R = 190.00'$

-L- (SR 1347) McDONALD RD.

PI Sta 13+74.45	$\Delta = 17' 40'' 15.1''$ (LT)
$D = 8' 11'' 06.4''$	$L = 215.89'$
$T = 108.81'$	$R = 700.00'$

BM #2 ELEV. 1686.09'