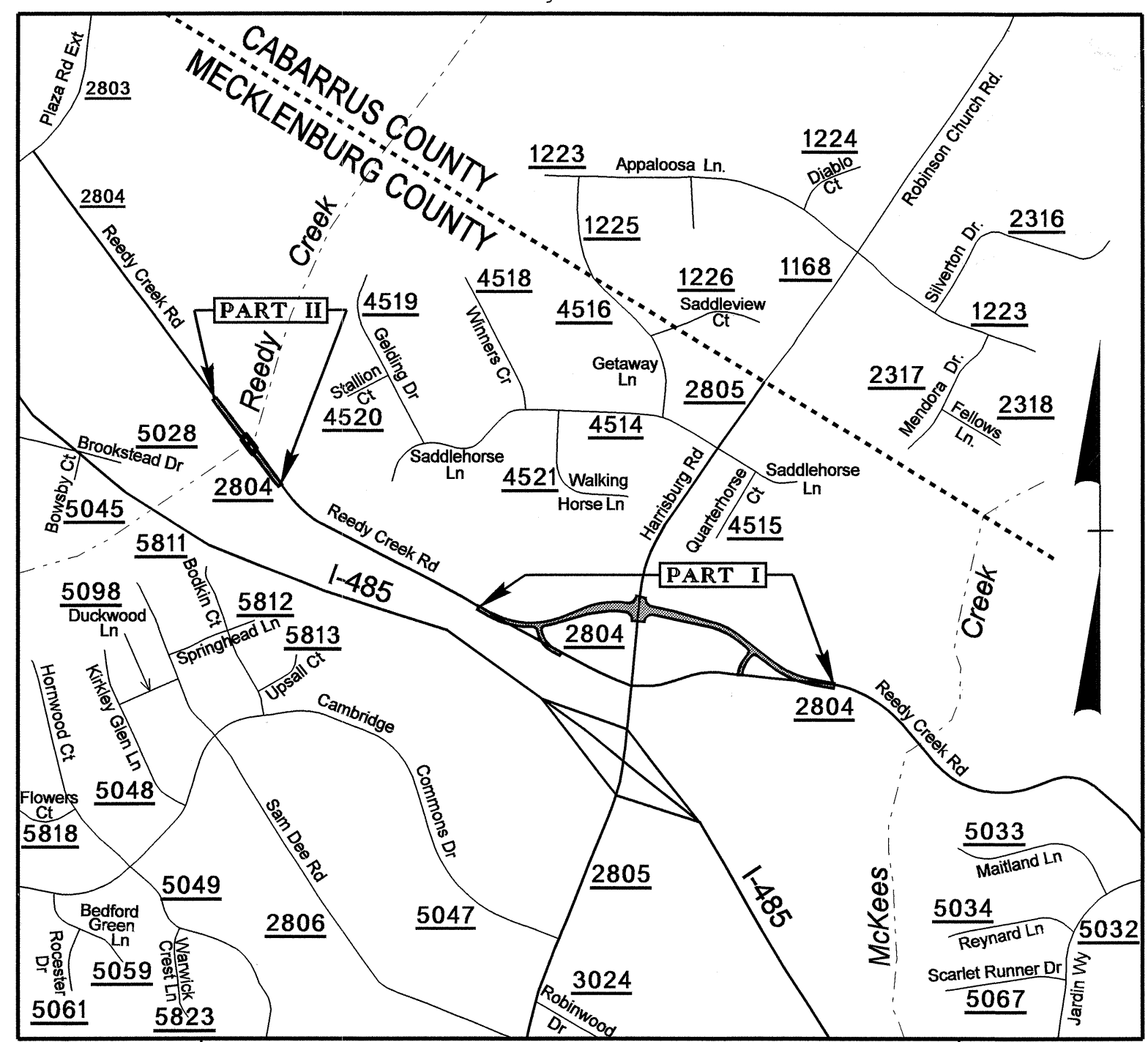


CONTRACT: C202471 TIP PROJECTS: U-4401 / B-4580

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



VICINITY MAP

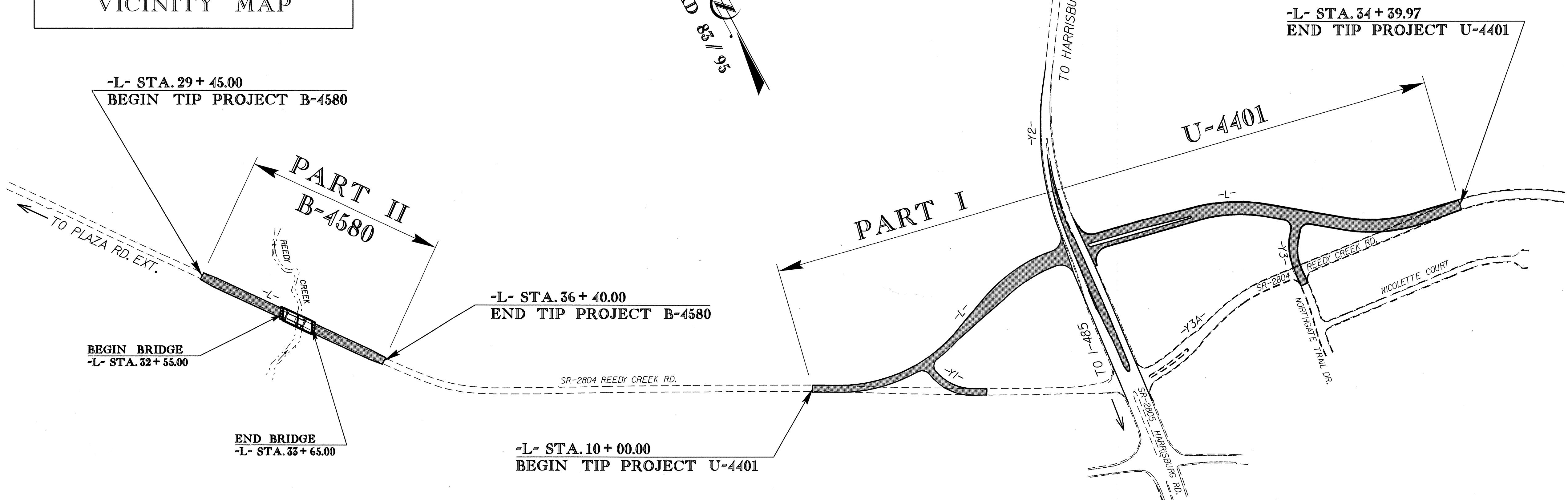
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG COUNTY

**LOCATION: SR 2804 (REEDY CREEK RD.) AND
SR 2805 (HARRISBURG RD.);
BRIDGE 177 OVER REEDY CREEK ON SR 2804**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4401/B-4580	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
36774.1.2		U-4401 (P.E.)	
33782.1.1	BRZ-2804(2)	B-4580 (P.E.)	
36774.2.1		U-4401 (R/W, UTIL.)	
33782.2.1	BRZ-2804(2)	B-4580 (R/W, UTIL.)	
36774.3.1		U-4401/B-4580 (CONST.)	
33782.3.1	BRZ-2804(2)	B-4580 (CONST.)	



PROJECT LENGTH

LENGTH ROADWAY TIP PROJECTS U-4401 / B-4580	=	0.573 MI.
LENGTH STRUCTURE TIP PROJECTS U-4401 / B-4580	=	0.021 MI.
TOTAL LENGTH OF TIP PROJECTS U-4401 / B-4580	=	0.594 MI.

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr.
Raleigh, NC 27610
2006 STANDARD SPECIFICATIONS

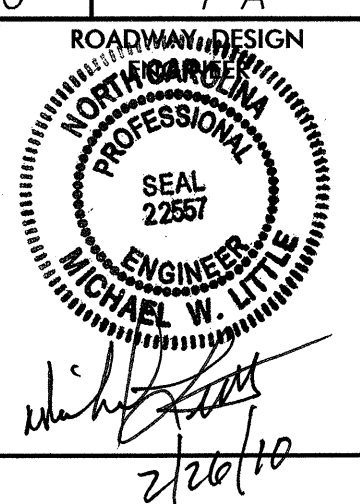
RIGHT OF WAY DATE: U-4401: JULY 18, 2007
RIGHT OF WAY DATE: B-4580: APRIL 17, 2009

LETTING DATE: APRIL 20, 2010

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

cat miller P.E.
STATE HIGHWAY DESIGN ENGINEER

22-JAN-2010 09:07
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SHEET NUMBER	SHEET
1	TITLE SHEET (U-4401 / B-4580)
1-A	INDEX OF SHEETS, GENERAL NOTES AND LIST OF STANDARDS
1-B	CONVENTIONAL SYMBOLS
3 (2 SHEETS)	SUMMARY OF QUANTITIES
PART I	
1	TITLE SHEET (U-4401)
1-C THRU 1-E	SURVEY CONTROL SHEETS
2 THRU 2-A	TYPICAL SECTIONS
2-B THRU 2-C	DETAIL FOR METHOD OF PIPE INSTALLATION
2-D	DETAIL FOR ANCHORAGE FOR FRAMES
3-A	LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)
3-B	GUARDRAIL SUMMARY SUMMARY OF EARTHWORK SUMMARY OF PAVEMENT REMOVAL SUMMARY OF 2'- 6" CONCRETE CURB AND GUTTER SUMMARY OF 1'- 6" CONCRETE CURB AND GUTTER
3-C	PARCEL INDEX SHEET
4 THRU 6	PLAN SHEETS
7 THRU 8	PROFILE SHEETS
TCP-1 THRU TCP-10	TRAFFIC CONTROL PLANS
PMP-1 THRU PMP-5	PAVEMENT MARKING PLANS
EC-1 THRU EC-9	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-5	SIGNING PLANS
SIG-1 THRU SIG-7	SIGNAL PLANS
UC-1 THRU UC-2	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-3	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-20	CROSS-SECTIONS
PART II	
1	TITLE SHEET (B-4580)
1-C THRU 1-D	SURVEY CONTROL SHEETS
2	TYPICAL SECTIONS
2-A	DETAIL FOR ANCHORAGE FOR FRAMES
2-B THRU 2-C	DETAIL FOR METHOD OF PIPE INSTALLATION
2-D	DETAIL FOR BRIDGE APPROACH FILLS
3-A	LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER) SUMMARIES OF EARTHWORK, GUARDRAIL, PAVEMENT REMOVAL, AND WOVEN WIRE FENCE
4	PLAN AND PROFILE SHEET
TCP-1	TRAFFIC CONTROL PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION SUMMARY SHEET
X-2 THRU X-4	CROSS-SECTIONS
S-1 THRU S-25	STRUCTURE PLANS

GENERAL NOTES:

2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-30-08

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 OR 560.02.

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.

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 RADII NOTED ON PLANS.

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 *:

SUBSURFACE PLANS ARE AVAILABLE FOR PART I (U-4401). NO SUBSURFACE PLANS ARE AVAILABLE FOR PART II (B-4580) - 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 PEIDMONT NATURAL GAS, AT&T, TIME WARNER, DUKE ENERGY, AND UTILITIES INC.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

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 STD. NO. 848.05.

2006 ROADWAY ENGLISH STANDARD DRAWINGS

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

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	
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
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
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.22	Frames and Wide 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
840.71	Concrete and Brick Pipe Plug
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.01	Concrete Sidewalk
848.03	Driveway Turnout - Drop Curb Type
848.04	Street Turnout
848.05	Wheelchair Ramp - Curb Cut
852.01	Concrete Islands
852.05	Median Curb for Catch Basin - for Use with 1'-6" Curb and Gutter
852.06	Method for Placement of Drop Inlets in Concrete Islands
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	○
Property Corner	⊕
Property Monument	⊞
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	-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	⊙
Well	⊙
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	⊙
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	-TDE-
Proposed Permanent Drainage Easement	-PDE-
Proposed Permanent Drainage / Utility Easement	-DUE-
Proposed Permanent Utility Easement	-PUE-
Proposed Temporary Utility Easement	-TUE-
Proposed Permanent Easement with Iron Pin and Cap Marker	◆

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 Curb Cut Future 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.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202471

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0030000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ***** (33+10.00)
0036000000-E	225	650	CY	UNDERCUT EXCAVATION
0038000000-E	SP	275	CY	SHALLOW UNDERCUT
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0063000000-N	SP	Lump Sum		GRADING
0080000000-E	SP	400	TON	CLASS IV SUBGRADE STABILIZATION
0106000000-E	230	42,000	CY	BORROW EXCAVATION
0134000000-E	240	600	CY	DRAINAGE DITCH EXCAVATION
0196000000-E	270	1,500	SY	FABRIC FOR SOIL STABILIZATION
0234000000-E	SP	1,000	CY	GENERIC GRADING ITEM SELECT GRANULAR MATERIAL
0320000000-E	SP	510	SY	FOUNDATION CONDITIONING FABRIC
0330000000-E	SP	182	TON	GENERIC DRAINAGE ITEM FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0335200000-E	SP	24	LF	15" DRAINAGE PIPE
0448200000-E	SP	572	LF	15" RC PIPE CULVERTS, CLASS IV
0448400000-E	SP	56	LF	24" RC PIPE CULVERTS, CLASS IV
0986000000-E	SP	80	LF	GENERIC PIPE ITEM 15" CS PIPE CULVERTS, 0.064" THICK
0986000000-E	SP	332	LF	GENERIC PIPE ITEM 15" RC PIPE CULVERTS, CLASS III
0986000000-E	SP	40	LF	GENERIC PIPE ITEM 15" SIDE DRAIN PIPE
0986000000-E	SP	44	LF	GENERIC PIPE ITEM 18" SIDE DRAIN PIPE
0986000000-E	SP	184	LF	GENERIC PIPE ITEM 24" RC PIPE CULVERTS, CLASS III
0986000000-E	SP	148	LF	GENERIC PIPE ITEM 36" RC PIPE CULVERTS, CLASS III
0992000000-E	SP	4	EA	GENERIC PIPE ITEM 15" CS PIPE ELBOWS, 0.064" THICK
0995000000-E	340	415	LF	PIPE REMOVAL
1110000000-E	510	100	TON	STABILIZER AGGREGATE
1121000000-E	520	5,100	TON	AGGREGATE BASE COURSE
1220000000-E	545	650	TON	INCIDENTAL STONE BASE
1275000000-E	600	30	GAL	PRIME COAT
1308000000-E	607	1,170	SY	MILLING ASPHALT PAVEMENT, **** TO ***** DEPTH (0" TO 1-1/2")
1489000000-E	610	910	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	3,490	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1519000000-E	610	3,530	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1560000000-E	620	420	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1693000000-E	654	30	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2022000000-E	815	246.4	CY	SUBDRAIN EXCAVATION
2033000000-E	815	184.8	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	1,100	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	33	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	3	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	18	LF	6" OUTLET PIPE (SUBDRAINS)
2209000000-E	838	5.7	CY	ENDWALLS
2264000000-E	840	0.09	CY	PIPE PLUGS
2286000000-N	840	16	EA	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	1.1	LF	MASONRY DRAINAGE STRUCTURES

ItemNumber	Sec #	Quantity	Unit	Description
2364000000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.16
2365000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.22
2367000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29
2374000000-N	840	4	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)
2374000000-N	840	7	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)
2440000000-N	852	1	EA	CONCRETE TRANSITIONAL SECTION FOR CATCH BASIN
2451000000-N	852	1	EA	CONCRETE TRANSITIONAL SECTION FOR DROP INLETS
2542000000-E	846	380	LF	1'-6" CONCRETE CURB & GUTTER
2549000000-E	846	3,010	LF	2'-6" CONCRETE CURB & GUTTER
2556000000-E	846	70	LF	SHOULDER BERM GUTTER
2591000000-E	848	950	SY	4" CONCRETE SIDEWALK
2605000000-N	848	5	EA	CONCRETE WHEELCHAIR RAMPS
2612000000-E	848	25	SY	6" CONCRETE DRIVEWAY
2655000000-E	852	650	SY	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)
3030000000-E	862	762.5	LF	STEEL BM GUARDRAIL
3045000000-E	862	50	LF	STEEL BM GUARDRAIL, SHOP CURVED
3105000000-N	862	2	EA	STEEL BM GUARDRAIL TERMINAL SECTIONS
3150000000-N	862	10	EA	ADDITIONAL GUARDRAIL POSTS
3195000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3210000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1
3215000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3503000000-E	866	1,360	LF	WOVEN WIRE FENCE, 47" FABRIC

ItemNumber	Sec #	Quantity	Unit	Description
3509000000-E	866	90	EA	4" TIMBER FENCE POSTS, 7'-6" LONG
3515000000-E	866	30	EA	5" TIMBER FENCE POSTS, 8'-0" LONG
3574000000-E	867	340	LF	GENERIC FENCING ITEM 3 STRAND ELECTRIC FENCE RESET
3628000000-E	876	66	TON	RIP RAP, CLASS I
3649000000-E	876	211	TON	RIP RAP, CLASS B
3656000000-E	876	2,835	SY	FILTER FABRIC FOR DRAINAGE
4072000000-E	903	590	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4102000000-N	904	34	EA	SIGN ERECTION, TYPE E
4108000000-N	904	3	EA	SIGN ERECTION, TYPE F
4116100000-N	904	1	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (D)
4116100000-N	904	1	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (F)
4152000000-N	907	1	EA	DISPOSAL OF SIGN SYSTEM, STEEL BEAM
4155000000-N	907	19	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4192000000-N	907	2	EA	DISPOSAL OF SUPPORT, U-CHANNEL
4400000000-E	1110	592	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	192	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	220	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	137	EA	DRUMS
4435000000-N	1135	53	EA	CONES
4445000000-E	1145	280	LF	BARRICADES (TYPE III)
4455000000-N	1150	960	MD	FLAGGER
4650000000-N	1251	321	EA	TEMPORARY RAISED PAVEMENT MARKERS
4685000000-E	1205	8,883	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	9,673	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4695000000-E	1205	1,828	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
4697000000-E	1205	150	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 120 MILS)
4710000000-E	1205	224	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
4721000000-E	1205	5	EA	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)
4725000000-E	1205	31	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
4770000000-E	1205	440	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") III
4810000000-E	1205	22,540	LF	PAINT PAVEMENT MARKING LINES (4")
4820000000-E	1205	551	LF	PAINT PAVEMENT MARKING LINES (8")
4835000000-E	1205	218	LF	PAINT PAVEMENT MARKING LINES (24")
4840000000-N	1205	20	EA	PAINT PAVEMENT MARKING CHARACTER
4845000000-N	1205	46	EA	PAINT PAVEMENT MARKING SYMBOL
4850000000-E	1205	67	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4860000000-E	1205	400	LF	REMOVAL OF PAVEMENT MARKING LINES (8")
4870000000-E	1205	80	LF	REMOVAL OF PAVEMENT MARKING LINES (24")
4900000000-N	1251	154	EA	PERMANENT RAISED PAVEMENT MARKERS
4915000000-E	1264	3	EA	7' U-CHANNEL POSTS
4955000000-N	1264	3	EA	OBJECT MARKERS (END OF ROAD)
5326600000-E	1510	102	LF	16" WATER LINE
5606000000-E	1515	1	EA	2" BLOW OFF
5810000000-E	1530	125	LF	ABANDON 16" UTILITY PIPE
6000000000-E	1605	8,350	LF	TEMPORARY SILT FENCE
6006000000-E	1610	770	TON	STONE FOR EROSION CONTROL, CLASS A

5/9/06

22-JAN-2010 09:07
I:\projects\2010\4401\rdj-tsh-combined-project.dgn

STATE OF NORTH CAROLINA
SUMMARY OF QUANTITIES

PROJECT REFERENCE No.	SHEET No.
U-4401 / B-4580	3 (2 of 2)

ItemNumber	Sec #	Quantity	Unit	Description
600900000-E	1610	910	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	710	TON	SEDIMENT CONTROL STONE
601500000-E	1615	17.5	ACR	TEMPORARY MULCHING
601800000-E	1620	500	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	3.75	TON	FERTILIZER FOR TEMPORARY SEEDING
602400000-E	1622	550	LF	TEMPORARY SLOPE DRAINS
602700000-N	1622	8	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
602900000-E	SP	825	LF	SAFETY FENCE
603000000-E	1630	2,700	CY	SILT EXCAVATION
603600000-E	1631	16,800	SY	MATTING FOR EROSION CONTROL
603700000-E	SP	90	SY	COIR FIBER MAT
603800000-E	SP	800	SY	PERMANENT SOIL REINFORCEMENT MAT
604200000-E	1632	1,225	LF	1/4" HARDWARE CLOTH
607000000-N	SP	6	EA	SPECIAL STILLING BASINS
607101000-E	SP	550	LF	WATTLE
607102000-E	SP	131	LB	POLYACRYLAMIDE (PAM)
607103000-E	SP	1,750	LF	COIR FIBER BAFFLES
607105000-E	SP	7	EA	*** SKIMMER (1-1/2")
607105000-E	SP	1	EA	*** SKIMMER (2")
608400000-E	1660	23	ACR	SEEDING & MULCHING
608700000-E	1660	10	ACR	MOWING
609000000-E	1661	200	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.5	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	375	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	10	TON	FERTILIZER TOPDRESSING
611450000-N	SP	22	MHR	SPECIALIZED HAND MOWING

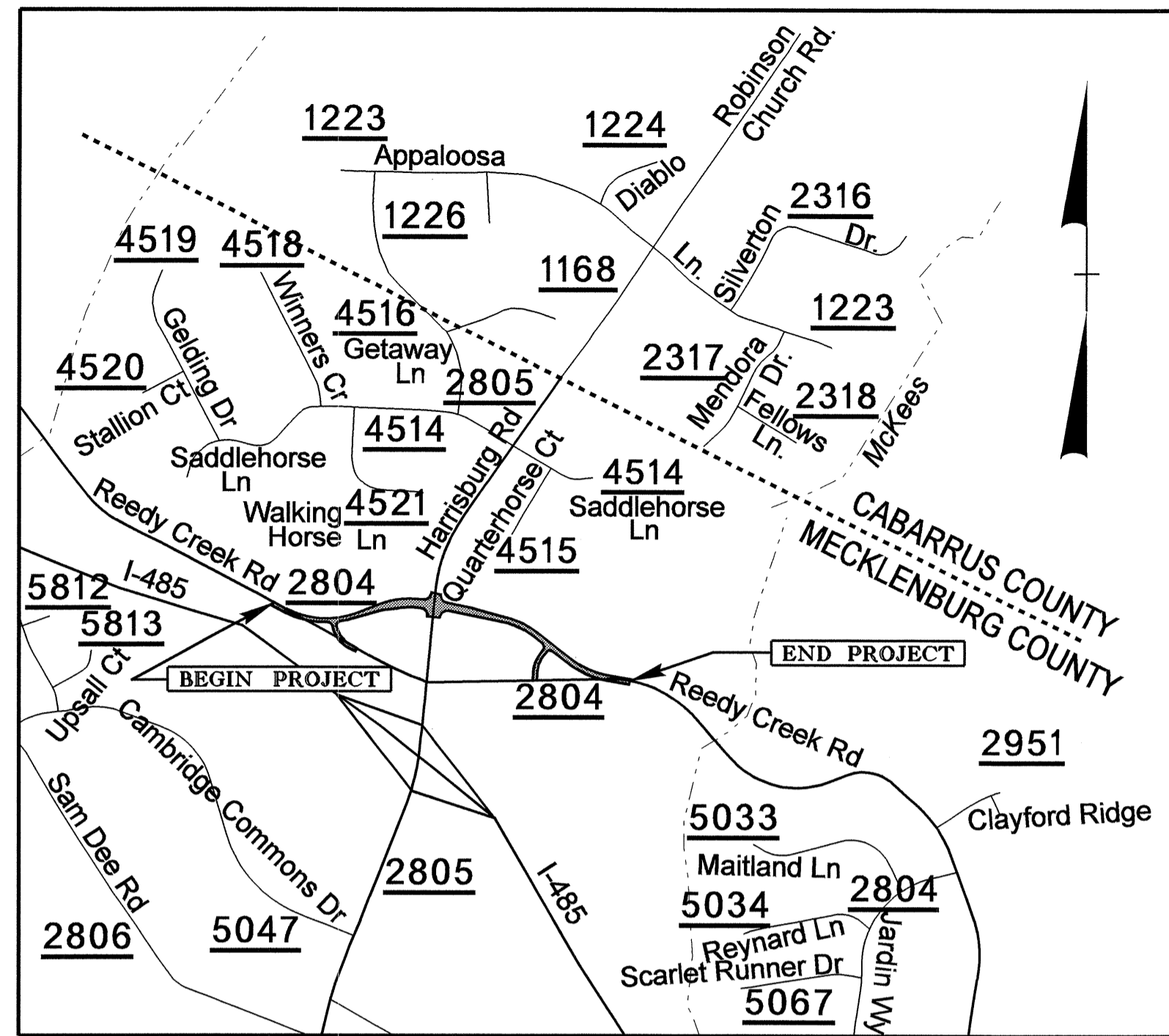
ItemNumber	Sec #	Quantity	Unit	Description
611700000-N	SP	24	EA	RESPONSE FOR EROSION CONTROL
706000000-E	1705	800	LF	SIGNAL CABLE
712000000-E	1705	9	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
713200000-E	1705	1	EA	VEHICLE SIGNAL HEAD (12", 4 SECTION)
714400000-E	1705	1	EA	VEHICLE SIGNAL HEAD (12", 5 SECTION)
726400000-E	1710	500	LF	MESSENGER CABLE (3/8")
730000000-E	1715	1,250	LF	UNPAVED TRENCHING (***** (1, 2"))
732400000-N	1716	8	EA	JUNCTION BOX (STANDARD SIZE)
736000000-N	1720	4	EA	WOOD POLE
737200000-N	1721	8	EA	GUY ASSEMBLY
740800000-E	1722	1	EA	1" RISER WITH WEATHERHEAD
742000000-E	1722	5	EA	2" RISER WITH WEATHERHEAD
743200000-E	1722	1	EA	2" RISER WITH HEAT SHRINK TUBING
744400000-E	1725	1,020	LF	INDUCTIVE LOOP SAWCUT
745600000-E	1726	3,300	LF	LEAD-IN CABLE (***** (18-2))
7575142000-N	SP	1	EA	900MHZ WIRELESS RADIO SYSTEM
768400000-N	1750	1	EA	SIGNAL CABINET FOUNDATION
775600000-N	1751	1	EA	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)
778000000-N	1751	6	EA	DETECTOR CARD (TYPE 2070L)
790100000-N	1753	1	EA	CABINET BASE EXTENDER
794800000-N	SP	1	EA	TRAFFIC SIGNAL REMOVAL
798000000-N	SP	1	EA	GENERIC SIGNAL ITEM FURNISH WIRELESS LIGHTNING ARRESTORS
798000000-N	SP	1	EA	GENERIC SIGNAL ITEM FURNISH WIRELESS RADIO MODEMS

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4401	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
36774.1.2		P.E.	
36774.2.1		RW, UTIL.	
36774.3.1		CONST.	

CONTRACT: TIP PROJECT: U-4401



VICINITY MAP

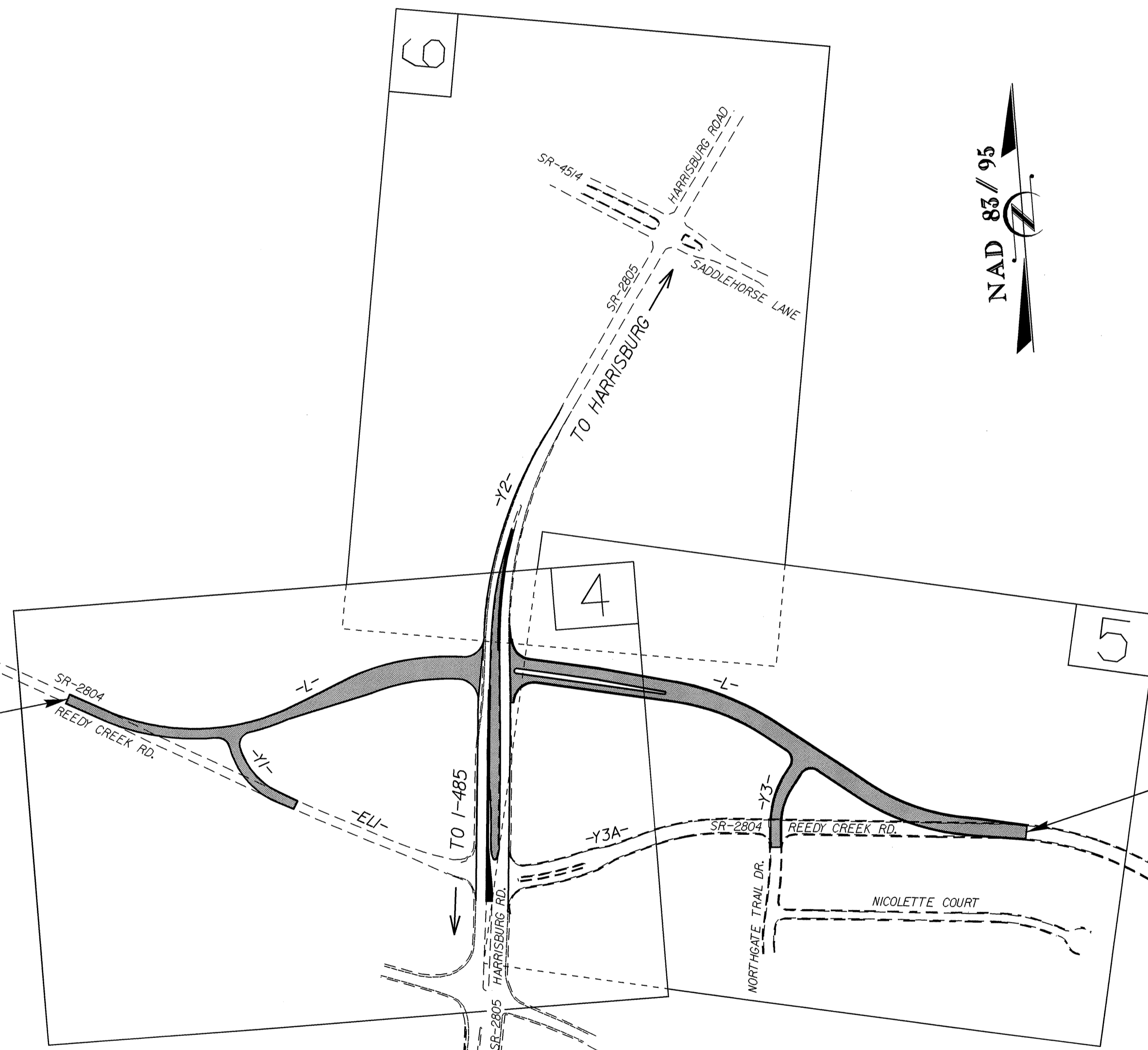
MECKLENBURG COUNTY

**LOCATION: SR 2804 (REEDY CREEK RD.) AND
SR 2805 (HARRISBURG RD.); INTERSECTION
REALIGNMENT**

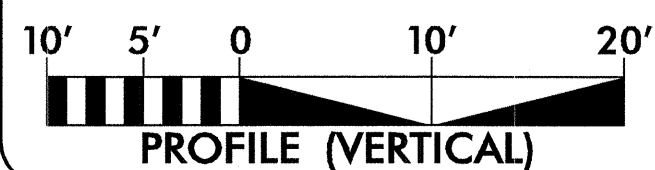
TYPE OF WORK: GRADING, PAVING, DRAINAGE AND SIGNAL

-L- STA. 10 + 00.00
BEGIN TIP PROJECT U-4401

-L- STA. 34 + 39.97
END TIP PROJECT U-4401



GRAPHIC SCALES



DESIGN DATA

ADT 2010 = 13,600
ADT 2030 = 21,400
DHV = 12 %
D = 55 %
T = 3 % *
V = 40 MPH
FUNC. CLASS. = LOCAL
* TTST 1% DUAL 2%
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-4401 = 0.462 MI.
TOTAL LENGTH OF TIP PROJECT U-4401 = 0.462 MI.

Prepared in the Office of:
DIVISION OF HIGHWAYS

1000 Birch Ridge Dr.
Raleigh, NC 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JULY 18, 2007

TENTATIVE LET DATE:
APRIL 20, 2010

ROGER D. THOMAS, P.E.
PROJECT ENGINEER

MICHAEL W. LITTLE, P.E.
PROJECT DESIGN ENGINEER

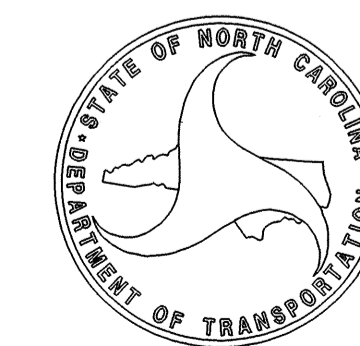
HYDRAULICS ENGINEER

1/28/10
Signature: *Andrew...*
Professional Engineer Seal 18533

ROADWAY DESIGN ENGINEER

Signature: *Michael W. Little*
Professional Engineer Seal 2257

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**



Carl W. Millan
P.E.
STATE HIGHWAY DESIGN ENGINEER

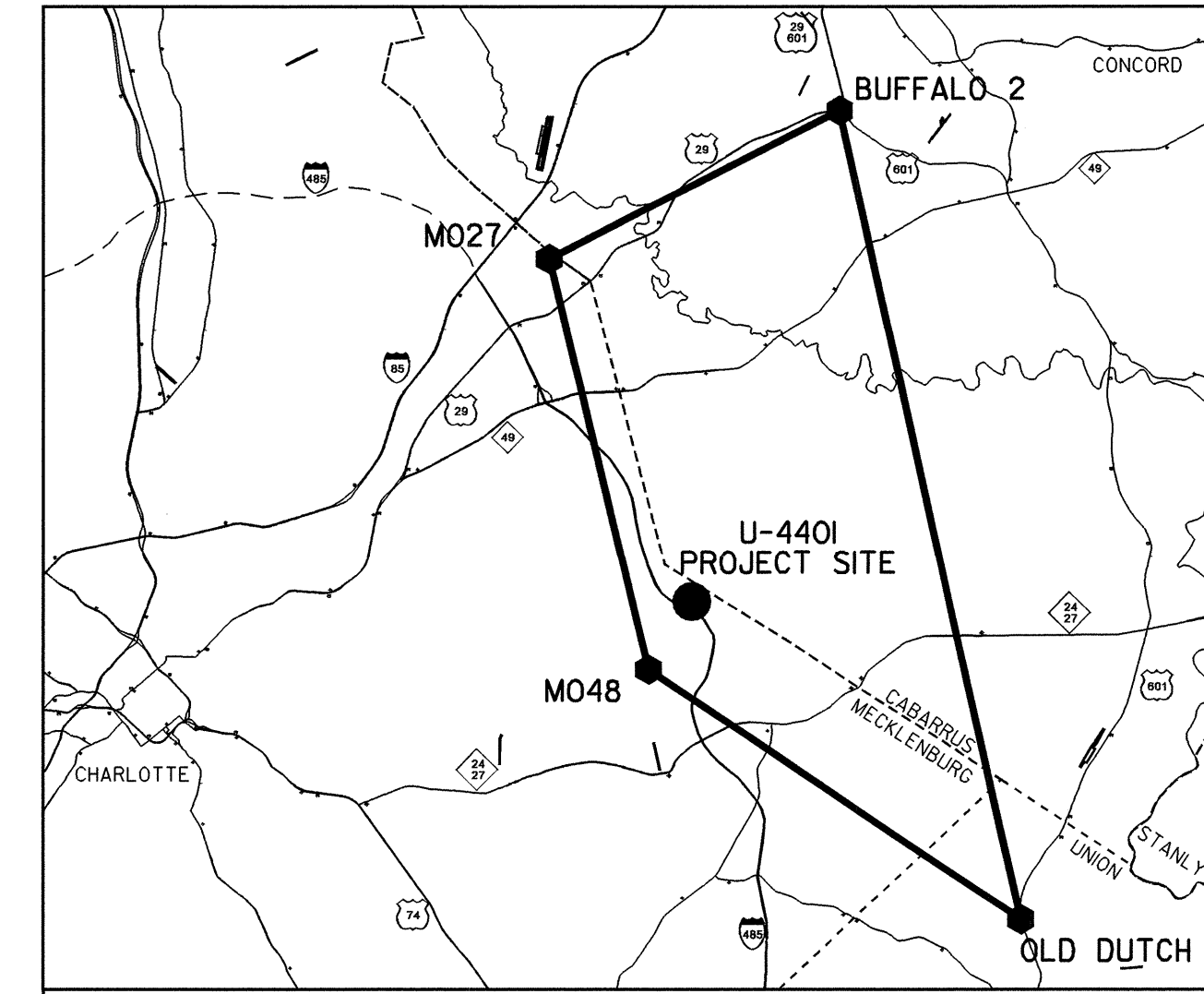
11/10/09

DATUM DESCRIPTION

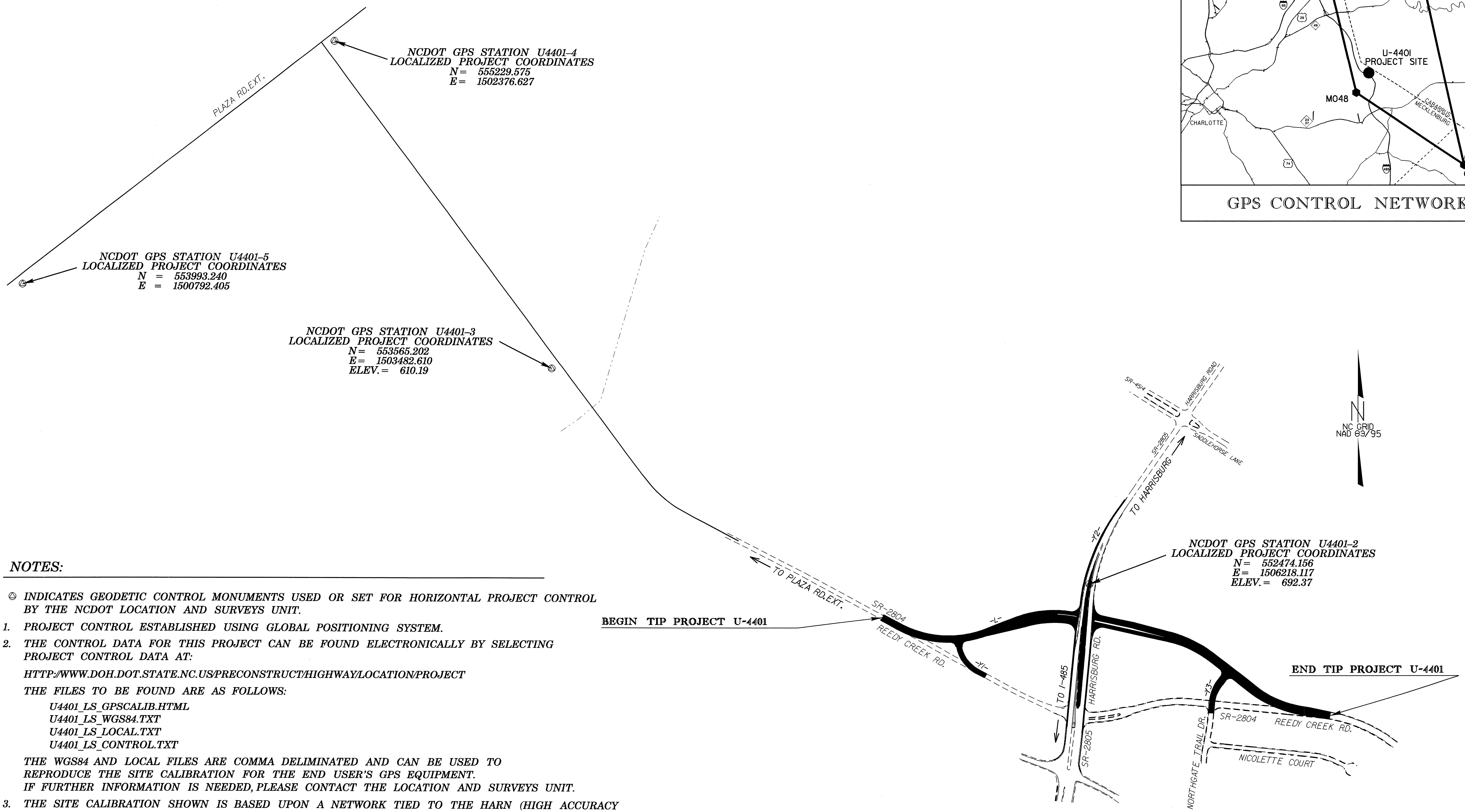
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 WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF
 NORTHING: 553565.202(E) EASTING: 1503482.610(E)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998450
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U4401-3" TO -L- STATION 10+00.00 IS
 S53°09'47.59"E 2099.818'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

SURVEY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
U-4401	1-C
Location and Surveys	



GPS CONTROL NETWORK



NOTES:

- ② INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
- 1. PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
- 2. 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:
 U4401_LS_GPSCALIB.HTML
 U4401_LS_WGS84.TXT
 U4401_LS_LOCAL.TXT
 U4401_LS_CONTROL.TXT
 THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- 3. THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/95 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.
- 4. SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

BEGIN TIP PROJECT U-4401

END TIP PROJECT U-4401

NOTE: DRAWING NOT TO SCALE

20-Nov-2009 15:23
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SURVEY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
U-4401	1-D
Location and Surveys	

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
LS3	U4401-3	553565.2020	1503482.6100	610.19	OUTSIDE PROJECT LIMITS	
LS13	BY-13	552699.3270	1504374.9720	646.02	OUTSIDE PROJECT LIMITS	
LS12	BY-12	552356.2500	1505105.0060	687.65	OUTSIDE PROJECT LIMITS	
LS19	BL-19	552217.6440	1505540.8430	682.28	14+01.14	19.49 LT
LS20	BL-20	552299.5500	1505913.1880	685.18	17+87.19	5.52 RT
LS21	BL-21	552291.9730	1506193.6040	692.89	20+73.28	6.65 RT
LS22	BL-22	552209.1500	1506612.1290	667.96	24+99.83	1.89 LT
LS23	BL-23	552123.6870	1506817.0460	654.50	27+22.47	2.67 LT
LS24	BL-24	551975.2770	1507002.0750	643.37	29+59.50	1.99 RT
LS25	BL-25	551902.0650	1507122.6130	647.02	31+01.06	9.43 LT
LS14	BY-14	551850.2400	1507211.2690	646.03	32+04.29	0.33 RT
LS15	BY-15	551673.8270	1507785.7160	609.63	OUTSIDE PROJECT LIMITS	

BY1 POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
LSEQ12	BY-12	552356.2500	1505105.0060	687.65	OUTSIDE PROJECT LIMITS	
LS10	BY-10	551982.6450	1505712.7910	690.69	12+82.89	13.65 RT
LSEQ06	BL-6	551789.2620	1506234.8670	688.06	OUTSIDE PROJECT LIMITS	
LSEQ11	BY-11	551893.8980	1506846.6970	657.35	OUTSIDE PROJECT LIMITS	
LSEQ14	BY-14	551850.2400	1507211.2690	646.03	OUTSIDE PROJECT LIMITS	

BY2 POINT	DESC.	NORTH	EAST	ELEVATION	Y2 STATION	OFFSET
LS1	U4401-1	551267.1150	1506233.5460	692.61	16+55.64	159.87 RT
LS6	BL-6	551789.2620	1506234.8670	688.06	21+58.09	85.93 RT
LSEQ21	BL-21	552291.9730	1506193.6040	692.89	26+54.84	1.59 LT
LS2	U4401-2	552474.1560	1506218.1170	692.37	28+38.69	0.48 LT
LS7	BL-7	552864.8240	1506364.8430	680.95	32+54.24	20.15 LT
LS8	BL-8	553290.0700	1506651.6320	678.56	OUTSIDE PROJECT LIMITS	
LS9	BL-9	553486.1410	1506788.8790	680.64	OUTSIDE PROJECT LIMITS	

BY3 POINT	DESC.	NORTH	EAST	ELEVATION	Y3 STATION	OFFSET
LS11	BY-11	551893.8980	1506846.6970	657.35	11+65.59	2.60 LT
LS18	BY2-18	551636.3150	1506827.0540	656.87	OUTSIDE PROJECT LIMITS	

BY4 POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
LS16	BY1-16	553458.5520	1506527.2150	668.81	21+49.84	1204.27 LT
LSEQ8	BL-8	553290.0700	1506651.6320	678.56	23+07.39	1066.28 LT
LS17	BY1-17	553206.2600	1506902.0380	682.26	25+31.19	1039.03 LT

 BM1 ELEVATION = 691.15
 N 551280 E 1506119
 Y2 STATION 16+44 46 RIGHT
 RR SPIKE IN PAVEMENT NEAR NE WING WALL

 BM2 ELEVATION = 692.85
 N 551793 E 1506035
 Y2 STATION 21+43 113 LEFT
 RR SPIKE IN POWER POLE

 BM3 ELEVATION = 688.10
 N 552750 E 1506257
 Y2 STATION 31+06 54 LEFT
 RR SPIKE IN POWER POLE

 BM4 ELEVATION = 679.13
 N 553329 E 1506677
 Y2 STATION 33+04
 N 31' 37' 48.9" E DIST 510.45
 RR SPIKE IN PAVEMENT

 BM5 ELEVATION = 648.57
 N 552664 E 1504419
 L STATION 10+00
 N 64' 21' 40.6" W DIST 825.65
 RR SPIKE IN POWER POLE

 BM6 ELEVATION = 688.34
 N 552334 E 1505179
 L STATION 10+00 32 LEFT
 RR SPIKE IN POWER POLE

 BM7 ELEVATION = 669.70
 N 551819 E 1506682
 Y3 STATION 12+52 154 RIGHT
 RR SPIKE IN POWER POLE NO.1998

 BM8 ELEVATION = 607.39
 N 551594 E 1507750
 L STATION 34+40
 S 56' 03' 47.3" E DIST 371.88
 RR SPIKE IN BASE OF 8IN SCALEYBARK

NOTES:

- PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
- 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)
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 U4401_LS_WGS84.TXT
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 U4401_LS_CONTROL.TXT
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- 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 "U4401-3"
 WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF
 NORTHING: 553565.202(11) EASTING: 1503482.610(11)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998450
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U4401-3" TO L- STATION 10+00.00 IS
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 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

SURVEY CONTROL SHEET

GPS CALIBRATION REPORT

/*

PROJECT : U4401 Z CS

*/

TIP NUMBER U-4401 & B-4580
 USER NAME JJEFFREYS *DATE & TIME* 9:45:45 AM 3/28/2005
 COORDINATE SYSTEM US STATE PLANE 1983(AT GROUND) *ZONE* NORTH CAROLINA 3200
 HORIZONTAL DATUM NAD 1983 (CONUS) **
 VERTICAL DATUM NAVD 88 *GEOID MODEL* GEOID99 (CONUS)
 COORDINATE UNITS US SURVEY FEET **
 DISTANCE UNITS US SURVEY FEET **
 HEIGHT UNITS US SURVEY FEET **

LOCAL SITE INFORMATION

LOCALIZED AROUND U4401-3
 LATITUDE 35°15'34.53454"N
 LONGITUDE 80°39'48.14327"W
 SITE SCALE FACTOR 1.0001550240
 HEIGHT ?

DATUM TRANSFORMATION PARAMETERS

METHOD THREE PARAMETER
 TRANSLATION ALONG X AXIS 13.183SFT
 TRANSLATION ALONG Y AXIS -80.257SFT
 TRANSLATION ALONG Z AXIS 57.505SFT

UPDATED DEFAULT PROJECTION (TRANSVERSE MERCATOR) DEFINITION

UPDATED DEFAULT PROJECTION NOT REQUESTED

HORIZONTAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ROTATION CENTER 553305.857SFT
 EASTING COORDINATE OF ROTATION CENTER 1503820.661SFT
 ROTATION ABOUT THE CENTER POINT 0°00'00"
 TRANSLATION NORTH 0.000SFT
 TRANSLATION EAST 0.000SFT
 SCALE FACTOR 1.00000443

VERTICAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ORIGIN POINT 553565.202SFT
 EASTING COORDINATE OF ORIGIN POINT 1503482.610SFT
 VERTICAL SEPARATION AT ORIGIN 0.024SFT
 SLOPE NORTH 0.317PPM
 SLOPE EAST 15.145PPM

GEOID MODEL DEFINITION

GEOID99 (CONUS)

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NC DOT FOR MONUMENT "U4401-3" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 553565.202(11) EASTING: 1503482.610(11) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998450 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U4401-3" TO "L" STATION 10+00.00 IS S53°09'47.59"E 2099.818' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

RESIDUAL DIFFERENCES BETWEEN GPS (WGS84) AND LOCAL COORDINATES

SUMMARY

	MAXIMUM ERROR	ROOT MEAN SQUARE ERROR	POINT
HORIZONTAL	0.002SFT	0.001	U4401-4 GPS <*U4401-4 GPS>
VERTICAL	0.002SFT	0.000	U4401-4 GPS <*U4401-4 GPS>
THREE-DIMENSIONAL	0.003SFT	0.001	U4401-4 GPS <*U4401-4 GPS>

POINT RESIDUALS

WGS84 COORDINATES FOR DISPLAY ONLY
 CALCULATED POINT LOCAL COORDINATES

POINT U4401-3 GPS
 LATITUDE 35°15'34.53449"N
 LONGITUDE 80°39'48.14311"W
 HEIGHT 510.593SFT

NORTHING 553565.202SFT
 EASTING 1503482.610SFT
 ELEVATION 610.199SFT
 HORZ ERROR 0.000SFT
 VERT ERROR 0.000SFT
 3D ERROR 0.000SFT

*POINT *U4401-3
 NORTHING

553565.202SFT

EASTING

1503482.610SFT

ELEVATION

610.199SFT

UTILIZED

HORZ AND VERT

QUALITY

ADJUSTED QUALITY

POINT U4401-4 GPS
 LATITUDE 35°15'50.80934"N
 LONGITUDE 80°40'01.81404"W
 HEIGHT 577.978SFT

NORTHING 555229.571SFT
 EASTING 1502376.627SFT
 ELEVATION 677.590SFT
 HORZ ERROR 0.002SFT
 VERT ERROR 0.002SFT
 3D ERROR 0.003SFT

POINT U4401-4

NORTHING 555229.574SFT
 EASTING 1502376.627SFT
 ELEVATION 677.588SFT
 UTILIZED HORZ AND VERT
 QUALITY ADJUSTED QUALITY

POINT U4401-1 GPS

LATITUDE 35°15'12.26411"N
 LONGITUDE 80°39'14.51564"W
 HEIGHT 592.995SFT

NORTHING 551267.117SFT
 EASTING 1506233.545SFT
 ELEVATION 692.608SFT
 HORZ ERROR 0.002SFT
 VERT ERROR 0.001SFT
 3D ERROR 0.002SFT

*POINT *U4401-1

NORTHING

551267.115SFT

EASTING

1506233.545SFT

ELEVATION

692.609SFT

UTILIZED

HORZ AND VERT

QUALITY

ADJUSTED QUALITY

POINT U4401-2 GPS
 LATITUDE 35°15'24.19754"N
 LONGITUDE 80°39'14.94410"W
 HEIGHT 592.721SFT

NORTHING 552474.153SFT
 EASTING 1506218.118SFT
 ELEVATION 692.346SFT
 HORZ ERROR 0.002SFT
 VERT ERROR 0.001SFT
 3D ERROR 0.002SFT

*POINT *U4401-2

NORTHING

552474.154SFT

EASTING

1506218.117SFT

ELEVATION

692.346SFT

UTILIZED

HORZ AND VERT

QUALITY

ADJUSTED QUALITY

POINT OLD DUTCH GPS

LATITUDE 35°10'08.92695"N
 LONGITUDE 80°32'34.08587"W
 HEIGHT 447.519SFT

NORTHING 520065.297SFT
 EASTING 1538964.135SFT
 ELEVATION 547.653SFT
 HORZ ERROR ?
 VERT ERROR 0.000SFT
 3D ERROR 0.000SFT

*POINT *OLD DUTCH

NORTHING

?

EASTING

?

ELEVATION

547.652SFT

UTILIZED

VERTICAL

QUALITY

CONTROL QUALITY

NOTES:

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[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:

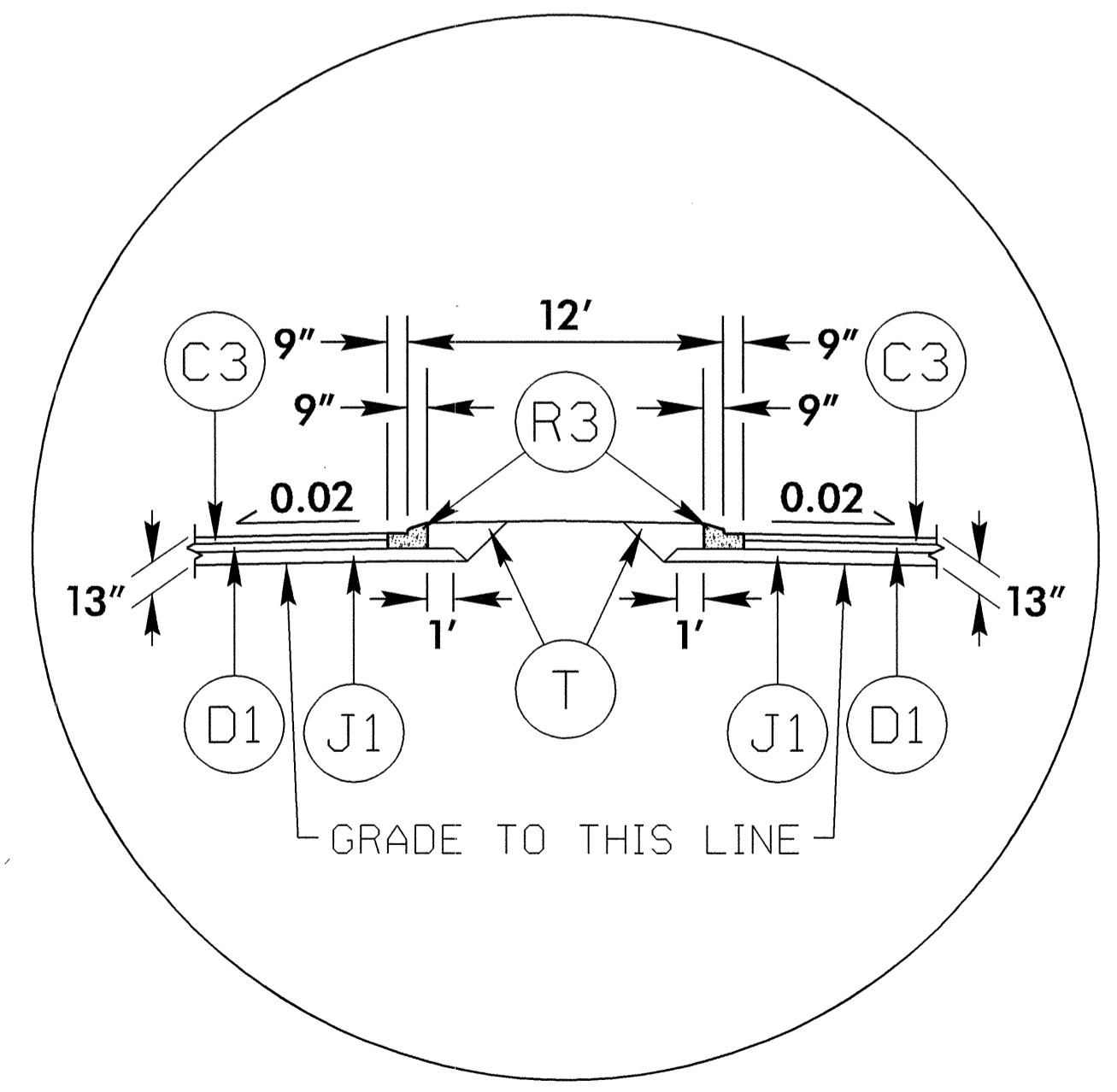
- U4401_LS_GPSCALIB.HTML
- U4401_LS_WGS84.TXT
- U4401_LS_LOCAL.TXT
- U4401_LS_CONTROL.TXT

THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

- THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/95 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.

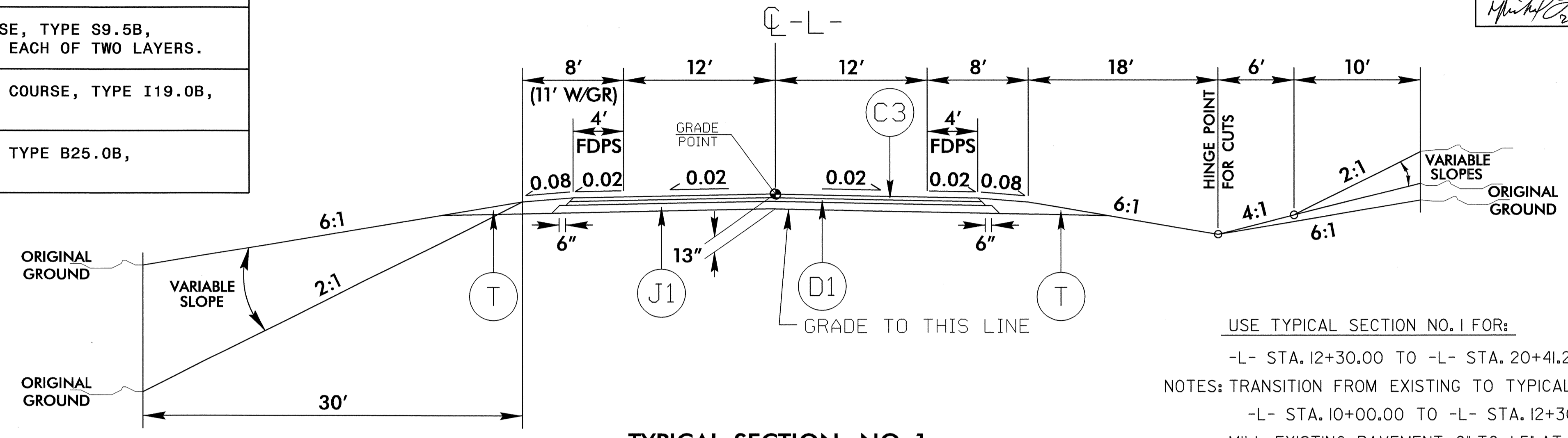
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD.
C2	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YARD.
C3	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.
J1	PROP. 6" AGGREGATE BASE COURSE
J2	PROP. 8" AGGREGATE BASE COURSE
P	PRIME COAT
R1	2'-6" CONCRETE CURB AND GUTTER
R2	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
R3	1'-6" CONCRETE CURB AND GUTTER
S	CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT

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



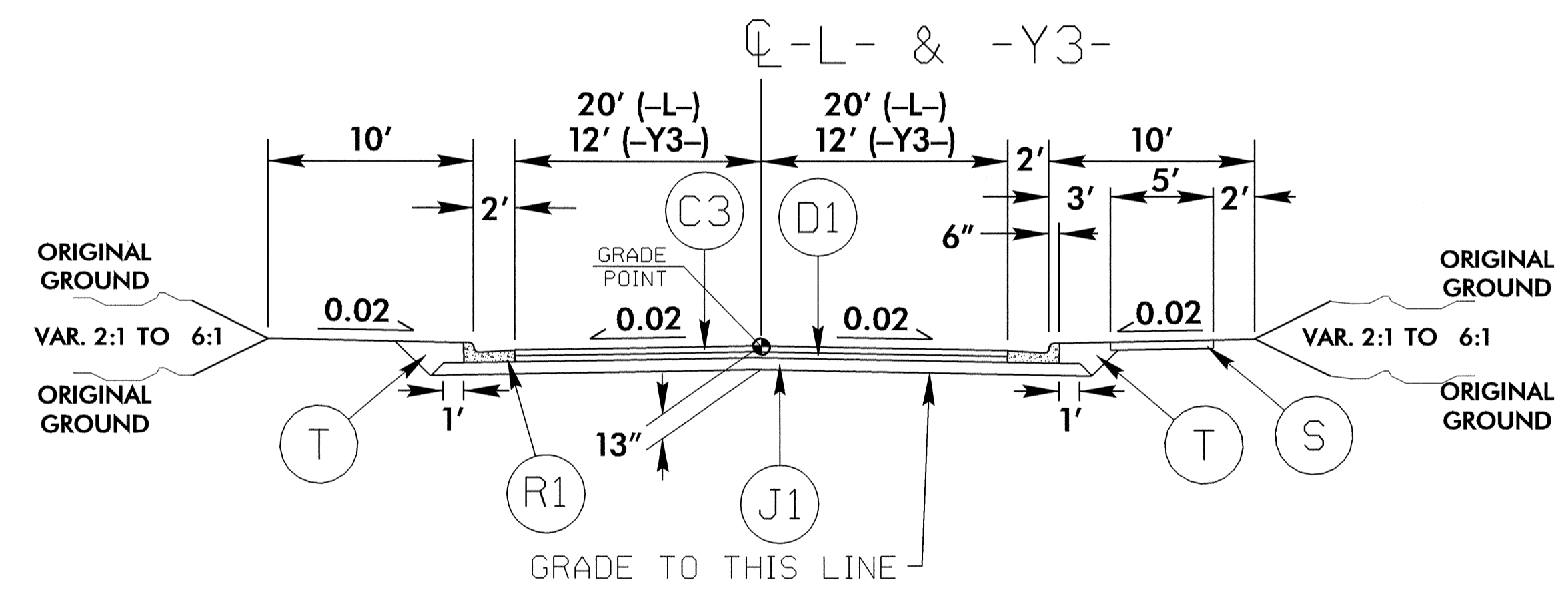
INSET NO. 1

USE INSET NO. 1 WITH TYPICAL SECTION NO. 2
-L- STA. 21+43.00 TO -L- STA. 23+27.00



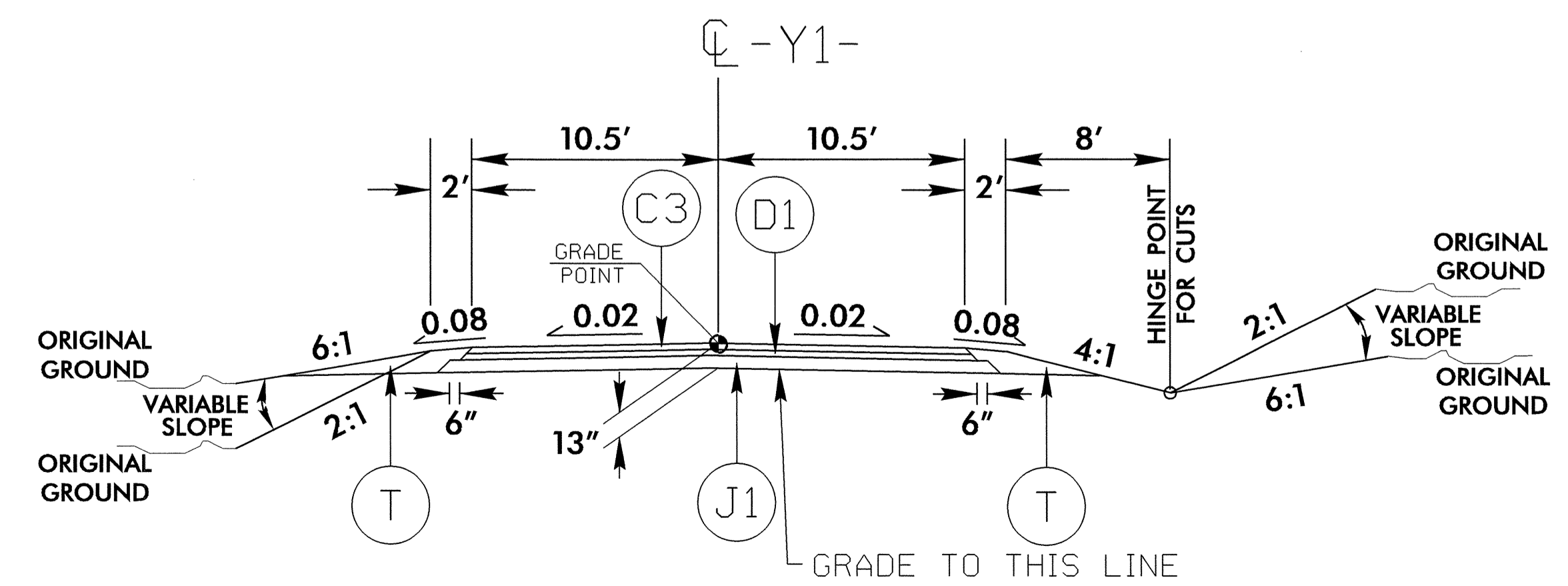
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 FOR:
-L- STA. 12+30.00 TO -L- STA. 20+41.24
NOTES: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1
-L- STA. 10+00.00 TO -L- STA. 12+30.00
MILL EXISTING PAVEMENT 0" TO 1.5" AT TIE-IN
-L- STA. 10+00.00 TO -L- STA. 10+50.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 FOR:
-L- STA. 21+09.50 TO -L- STA. 31+65.00
-Y3- STA. 10+20.00 TO -Y3- STA. 12+00.00
NOTE: TRANSITION FROM TYPICAL SECTION NO. 2 TO EXISTING
-L- STA. 31+65.00 TO -L- STA. 34+39.97
-Y3- STA. 12+00.00 TO -Y3- STA. 12+46.43
MILL EXISTING PAVEMENT 0" TO 1.5" AT TIE-IN
-L- STA. 33+90.00 TO -L- STA. 34+39.97
-Y3- STA. 12+00.00 TO -Y3- STA. 12+46.43



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 FOR:
-Y1- STA. 10+12.00 TO -Y1- STA. 11+30.00
NOTE: TRANSITION FROM TYPICAL SECTION NO. 3 TO EXISTING
-Y1- STA. 11+30.00 TO -Y1- STA. 12+50.00
MILL EXISTING PAVEMENT 0" TO 1.5" AT TIE-IN
-Y1- STA. 12+00.00 TO -Y1- STA. 12+50.00

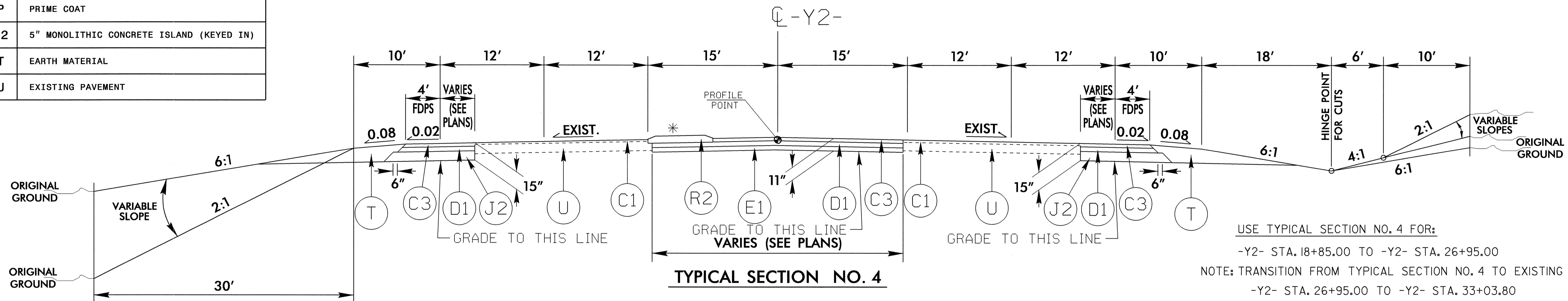
PAVEMENT SCHEDULE	
C1	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B
C2	2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B
C3	3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B
D1	4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B
E1	4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B
J1	PROP. 6" AGGREGATE BASE COURSE
J2	PROP. 8" AGGREGATE BASE COURSE
P	PRIME COAT
R2	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
T	EARTH MATERIAL
U	EXISTING PAVEMENT

NOTE: USE 6" ABC FOR ALL DRIVES NOT SHOWN ON TYPICAL SECTIONS

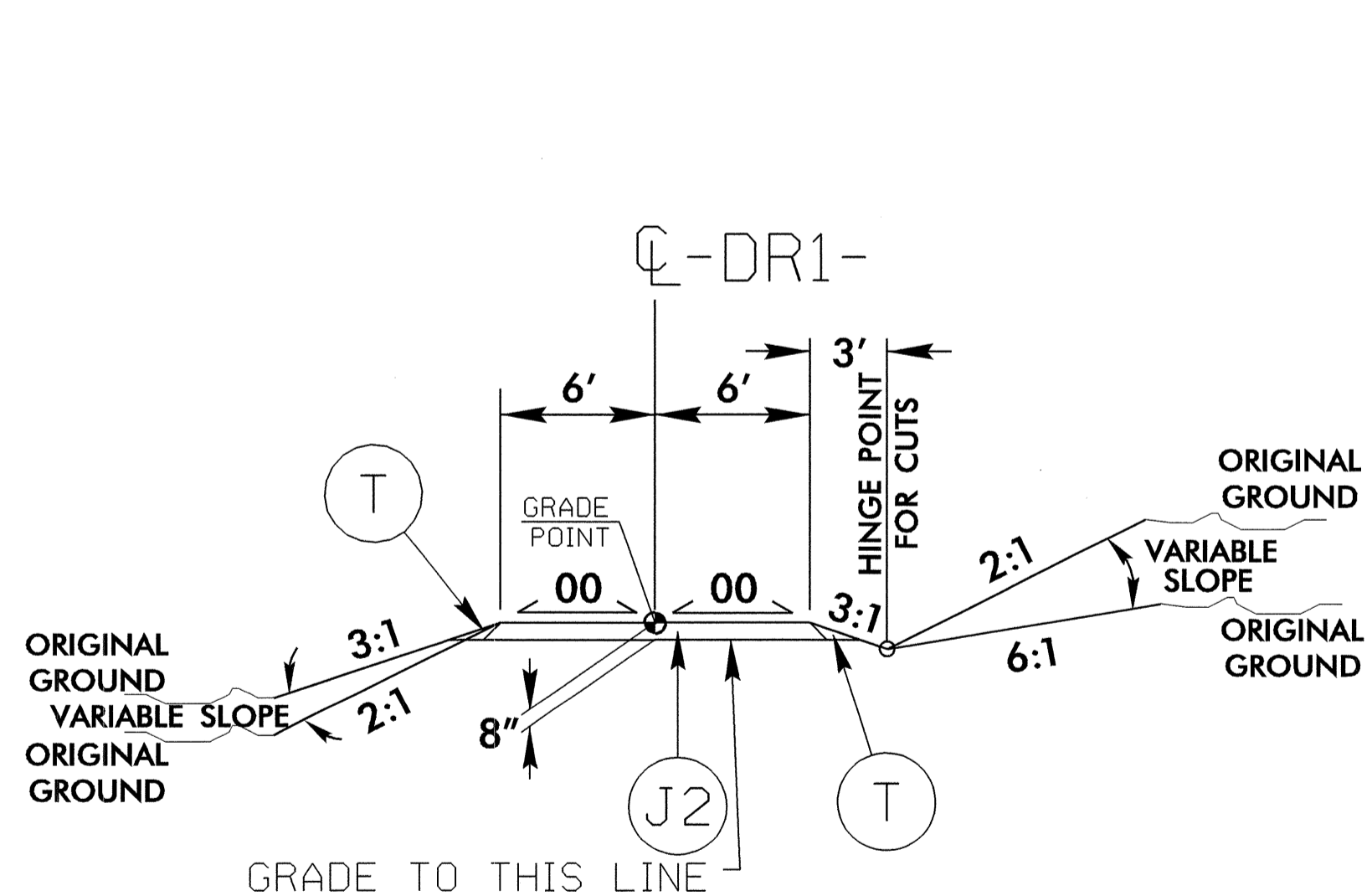
PROJECT REFERENCE NO.	SHEET NO.
U-4401	2-A

ROADWAY DESIGN ENGINEER
MICHAEL W. LITTLE
1/24/10

PAVEMENT DESIGN ENGINEER
CLARK S. MORRISON
1/29/10

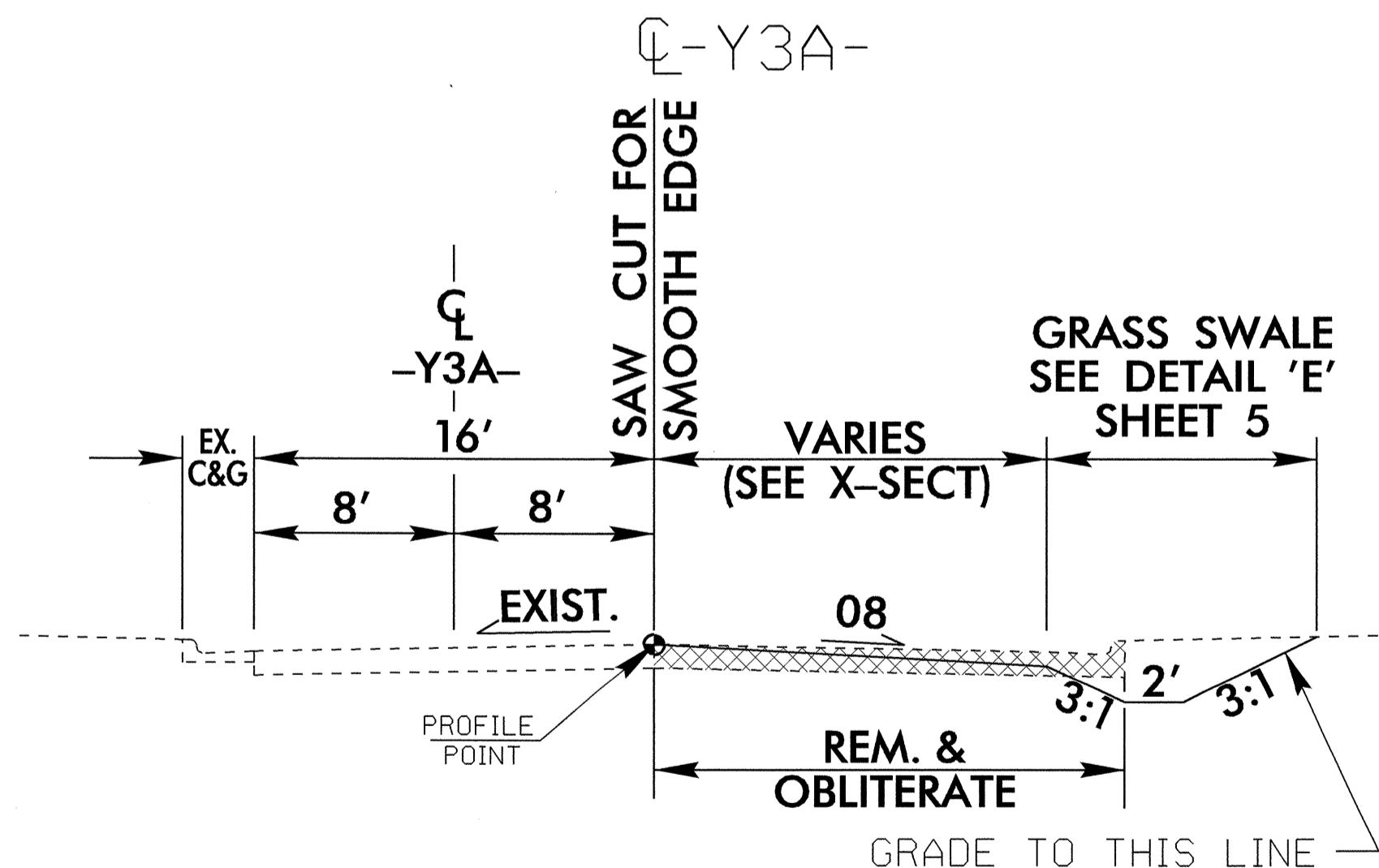


USE TYPICAL SECTION NO. 4 FOR:
 -Y2- STA. 18+85.00 TO -Y2- STA. 26+95.00
 NOTE: TRANSITION FROM TYPICAL SECTION NO. 4 TO EXISTING
 -Y2- STA. 26+95.00 TO -Y2- STA. 33+03.80
 MILL EXISTING PAVEMENT 0" TO 1.5" AT TIE-IN
 -Y2- STA. 18+85.00 TO -Y2- STA. 19+35.00
 -Y2- STA. 32+54.00 TO -Y2- STA. 33+03.80
 * ISLAND VARIES SEE PLANS



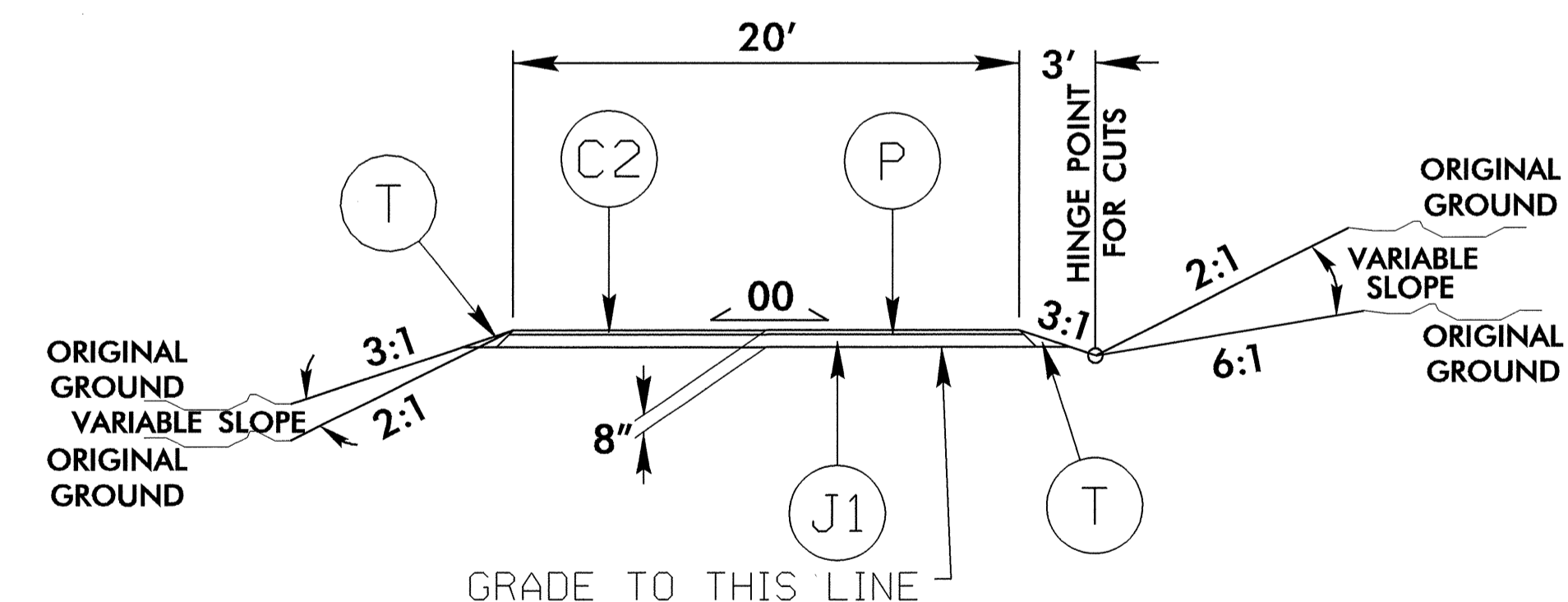
TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 FOR:
 -DRI- STA. 10+15.97 TO -DRI- STA. 11+12.15



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 FOR:
 -Y3A- STA. 10+00.00 TO -Y3A- STA. 13+51.89



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7 FOR:
 DRIVE LOCATED AT -L- STA. 12+50 RT.

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
 FLEXIBLE PIPE

300D01
 SHEET 1 OF 3

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

■ TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
 ■ LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

--- SPRINGLINE OF PIPE
 ▨ SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.
 ▩ APPROVED SUITABLE LOCAL MATERIAL.
 ▧ UNDISTURBED EARTH MATERIAL
 ▦ SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
 RIGID PIPE

300D01
 SHEET 2 OF 3

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

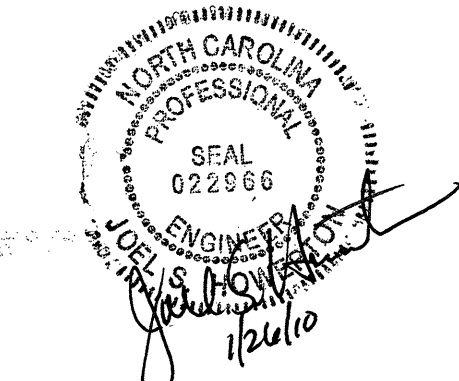
■ TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
 ■ LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

--- SPRINGLINE OF PIPE
 ▨ SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 BELOW SPRINGLINE.
 ▩ APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.
 ▧ UNDISTURBED EARTH MATERIAL
 ▦ SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

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

SEE PLATE FOR TITLE

ORIGINAL BY: K Kempf DATE: 5-15-09
 MODIFIED BY: J.S.H DATE: 7/20/09
 CHECKED BY: J.S.H DATE: 7/20/09
 FILE SPEC:\eric\stds\stdstodetails\30001\03000d01.dgn



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 jhower-ton

5/14/99

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

FLEXIBLE PIPE

Round Corrugated Steel Pipe 2 2/3 x 1/2 corrugation **				
Diameter (Inches)	Minimum cover (Inches)	(Ga) 16	Maximum Height of Cover (feet)	10
12	12	204	256	10
15	12	162	204	9
18	12	135	169	8
21	12	115	145	7
24	12	100	126	6
30	12	79	100	5
36	12	65	83	4
42	12	55	70	3
48	12	48	61	2
54	12	42	54	1
60	12	37	48	0
66	12	32	42	0
72	12	27	37	0
78	12	22	32	0
84	12	17	27	0

Round Corrugated Aluminum Pipe 2 2/3 x 1/2 corrugation **				
Diameter (Inches)	Minimum cover (Inches)	(Ga) 16	Maximum Height of Cover (feet)	10
12	12	123	155	10
15	12	98	123	9
18	12	81	102	8
21	12	69	87	7
24	12	60	76	6
27	12	53	67	5
30	12	47	60	4
36	12	38	50	3
42	12	32	44	2
48	12	27	38	1
54	12	23	33	0
60	12	19	29	0
66	12	16	25	0
72	12	13	21	0

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

- CSP - AASHTO M36
- CAAP - AASHTO M196
- HDPE - AASHTO M294
- PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

RIGID PIPE

- RCP - * (Minimum fill) 1' for Class IV & CLASS V
2' for Class III & Class II
- * (Maximum fill) 10' - Class II pipe
20' - Class III pipe
30' - Class IV pipe
40' - Class V pipe

(For fills > 40' & < 80' use LRFD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

- RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

STATE OF
NORTH CAROLINA
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RALEIGH, N.C.

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

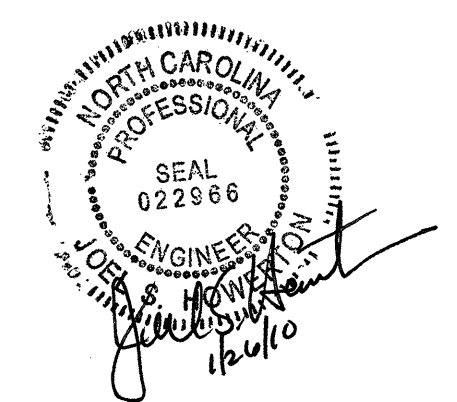
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

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

SEE PLATE FOR TITLE

ORIGINAL BY: K Kempf DATE: 5-15-09
 MODIFIED BY: *[Signature]* DATE: *[Blank]*
 CHECKED BY: *[Signature]* DATE: 7/30/09
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DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

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

BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM EOL (Feet)	SHOULDER WIDTH (Feet)	FLARE LENGTH		W		ANCHORS					REMARKS								
			STRAIGHT (Feet)	SHOP CURVED (Feet)	DBL. FACED (Feet)	APPROACH END	TRAILING END			APPROACH END (Ft.)	TRAILING END (Ft.)	APPROACH END (Ft.)	TRAILING END (Ft.)	CAT-1	GRAU-350	TES	TYPE III	AT-1									
-L- 27+40.00	-L- 31+46.25	LT.	406.25 Ft.					12	NA	50			1		1	1											
-Y1- 16+22.00			37.50 Ft.														2									GUARDRAIL PLACED AT TERMINAL OF EXISTING ROAD	
SUBTOTAL			443.75 Ft.																								
LESS ANCHOR DEDUCTIONS													U-4401 TOTALS					1	1	2							
CAT-1 1 @ 6.25 Ft.			6.25 Ft.																								
GRAU-350 1 @ 50.00 Ft.			50.00 Ft.																								
SUBTOTAL			-56.25 Ft.																								
U-4401 TOTALS			387.50 Ft.																								
U-4401 SAY			400.00 Ft.																								5 EA.
B-4580 SAY			362.50 Ft.	50.00 Ft.																							5 EA.
GRAND TOTALS			762.50 Ft.	50.00 Ft.																							10 EA.

LOCATION	STRAIGHT (Feet)	SHOP CURVED (Feet)	DBL. FACED (Feet)	WARRANT POINT	"N" DIST. FROM EOL (Feet)	SHOULDER WIDTH (Feet)	FLARE LENGTH	W	ANCHORS	REMARKS
U-4401 TOTALS	387.50 Ft.									
U-4401 SAY	400.00 Ft.									5 EA.
B-4580 SAY	362.50 Ft.	50.00 Ft.								5 EA.
GRAND TOTALS	762.50 Ft.	50.00 Ft.								10 EA.

**SUMMARY OF EARTHWORK
 IN CUBIC YARDS**

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
-L- STA. 10+00.00 TO -L- STA. 20+41.24	2,221		9,342	7,121	
-Y1- STA. 10+12.00 TO -Y1- STA. 12+50.00	146		31		115
-Y2- STA. 19+60.00 TO -Y2- STA. 33+03.80	3,376		28		3,348
SUBTOTAL 1	5,743		9,401	7,121	3,463
-L- STA. 21+09.50 TO -L- STA. 34+39.97	899		32,656	31,757	
-Y3- STA. 10+20.00 TO -Y3- STA. 12+46.43	125		1,430	1,305	
-DR1- STA. 10+15.97 TO -DR1- STA. 11+12.15	169				169
SUBTOTAL 2	1,193		34,086	33,062	169
PROJECT U-4401 SUBTOTAL	6,936		43,487	40,183	3,632
-L- STA. 29+45.00 TO -L- STA. 32+55.00 (BEGIN BRIDGE)	197		421	224	
SUBTOTAL 1	197		421	224	
-L- STA. 33+65.00 (END BRIDGE) TO -L- STA. 36+40.00	328		523	195	
SUBTOTAL 2	328		523	195	
PROJECT B-4580 SUBTOTAL	525		944	419	
COMBINED PROJECTS U-4401 / B-4580 SUBTOTAL	7,461		44,431	40,602	3,632
LOSS DUE TO CLEARING AND GRUBBING	-1,275			1,275	
SHOULDER CONSTRUCTION			1,440	1,440	
WASTE IN LIEU OF BORROW				-3,632	-3,632
COMBINED PROJECTS U-4401 / B-4580 TOTAL	6,186		45,871	39,685	
EST 5% TO REPLACE TOPSOIL ON BORROW PIT				1,984	
GRAND TOTAL	6,186		45,871	41,669	
SAY	6,200			42,000	

EST. DDE = 600 CY
 EST. UNDERCUT = 650 CY
 EST. SHALLOW UNDERCUT = 275 CY
 PAVEMENT STRUCTURE VOLUME (U-4401; -L-, -Y2-) = 630 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.

NOTE: Approximate quantities only. Unclassified Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading".

**SUMMARY OF PAVEMENT REMOVAL
 IN SQUARE YARDS**

LOCATION	ASPHALT REMOVAL
-L- STA. 11+54 TO -Y1- STA. 11+86 (RT.)	556.89
-Y1- STA. 16+14 TO -Y1- STA. 17+31	524.22
-Y2- STA. 21+06 TO -Y2- STA. 22+05 (RT.)	703.11
-Y3A- STA. 8+50 TO -Y3A- STA. 13+53	1,299.22
-Y3- STA. 11+81 TO -Y3- STA. 12+46	455.11
-L- STA. 30+00 TO -L- STA. 33+89 (RT.)	990.44
U-4401 TOTAL	4,528.99
U-4401 SAY	4,600.00
B-4580 SAY	1,460.00
GRAND TOTAL	6,060.00

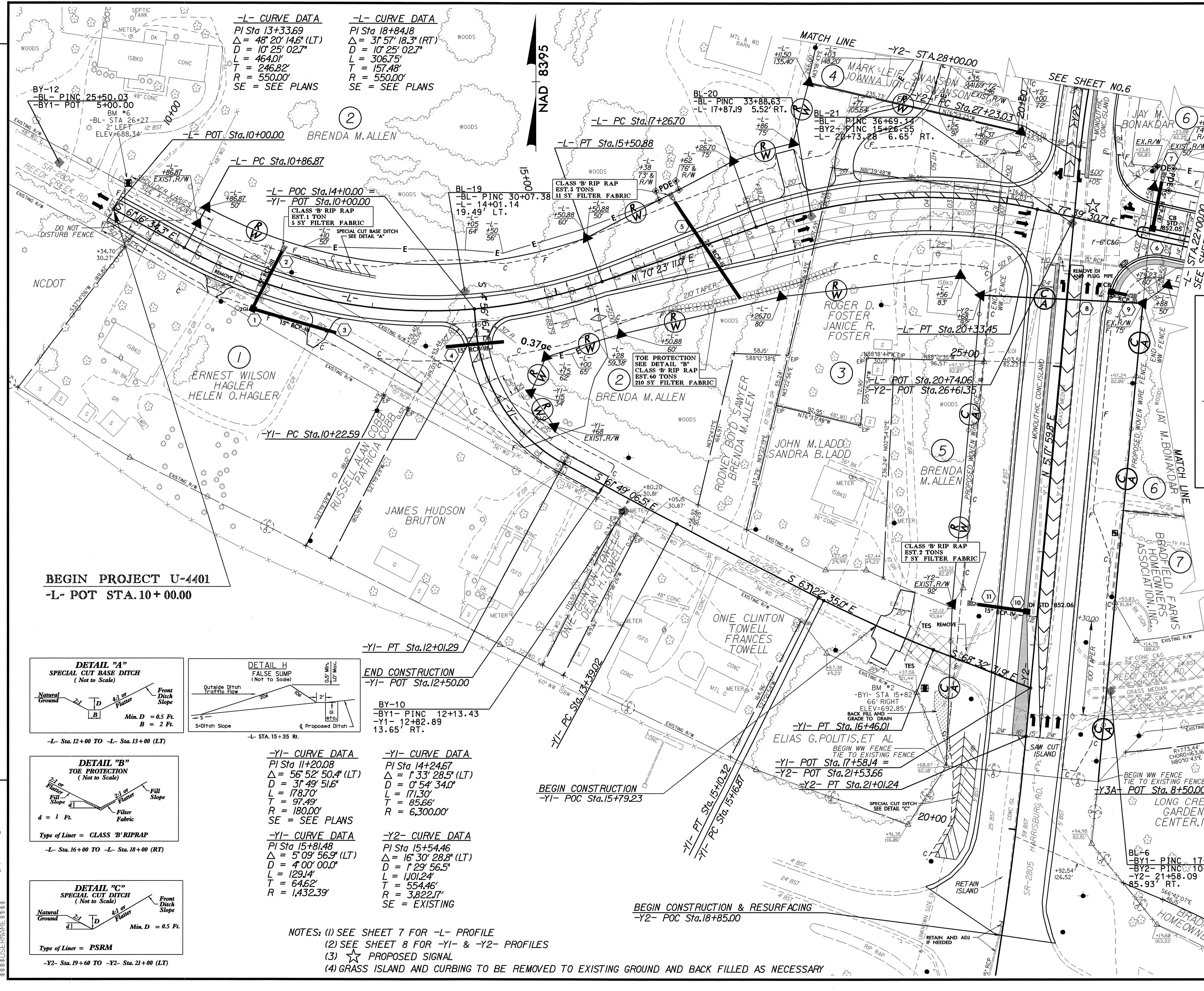
**SUMMARY OF 2'-6" CURB & GUTTER
 IN FEET**

BEGINNING STATION	ENDING STATION	LOCATION	LENGTH
-L- STA. 21+04.00	-L- STA. 34+40.00	LT.	1,358.41
-L- STA. 21+28.00	-L- STA. 28+20.00	RT.	710.92
-L- STA. 29+10.00	-L- STA. 34+40.00	RT.	530.00
-Y3- STA. 10+20.00	-Y3- STA. 11+79.00	RT.	160.77
-Y3- STA. 11+99.00	-Y3- STA. 12+46.43	RT.	32.10
-Y3- STA. 10+20.00	-Y3- STA. 12+46.43	LT.	212.89
TOTAL			3,005.09
SAY			3,010.00

**SUMMARY OF 1'-6" CURB & GUTTER
 IN FEET**

BEGINNING STATION	ENDING STATION	LOCATION	LENGTH
-L- STA. 21+43.00	-L- STA. 23+27.00	LT.	187.00
-L- STA. 21+43.00	-L- STA. 23+27.00	RT.	187.00
TOTAL			374.00
SAY			380.00

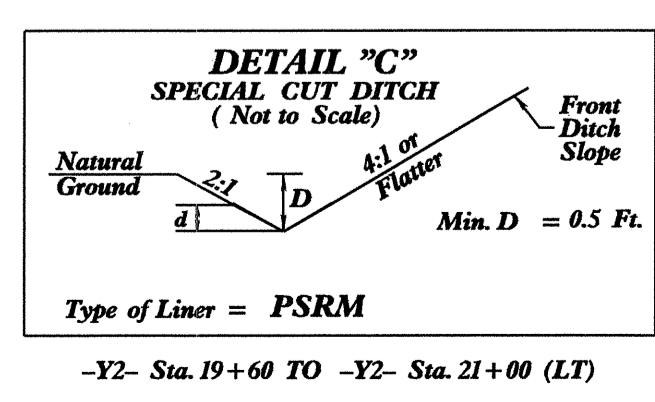
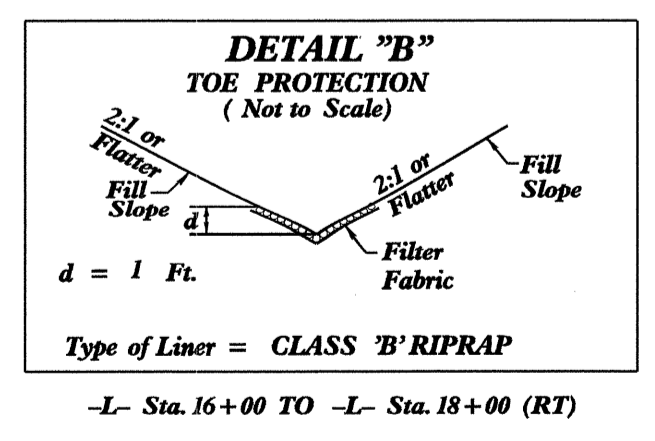
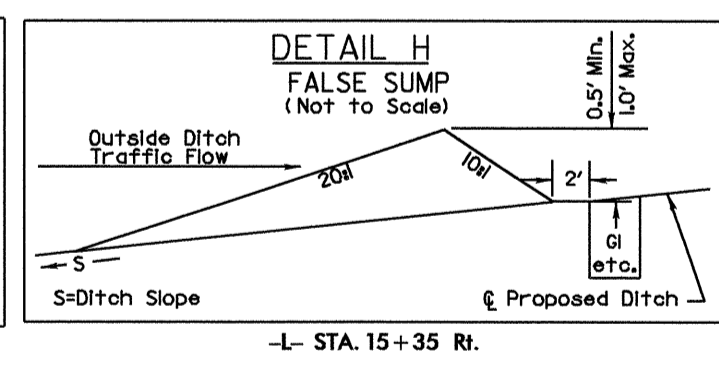
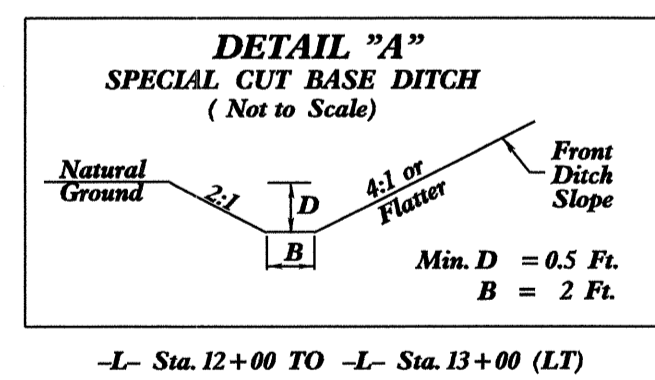
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-L- CURVE DATA
 PI Sta 13+33.69
 $\Delta = 48^\circ 20' 14.6"$ (LT)
 $D = 10' 25' 02.7"$
 $L = 464.0'$
 $T = 246.82'$
 $R = 550.00'$
 SE = SEE PLANS

-L- CURVE DATA
 PI Sta 18+84.8
 $\Delta = 31^\circ 57' 18.3"$ (RT)
 $D = 10' 25' 02.7"$
 $L = 306.75'$
 $T = 157.48'$
 $R = 550.00'$
 SE = SEE PLANS

BEGIN PROJECT U-4401
-L- POT STA. 10+00.00



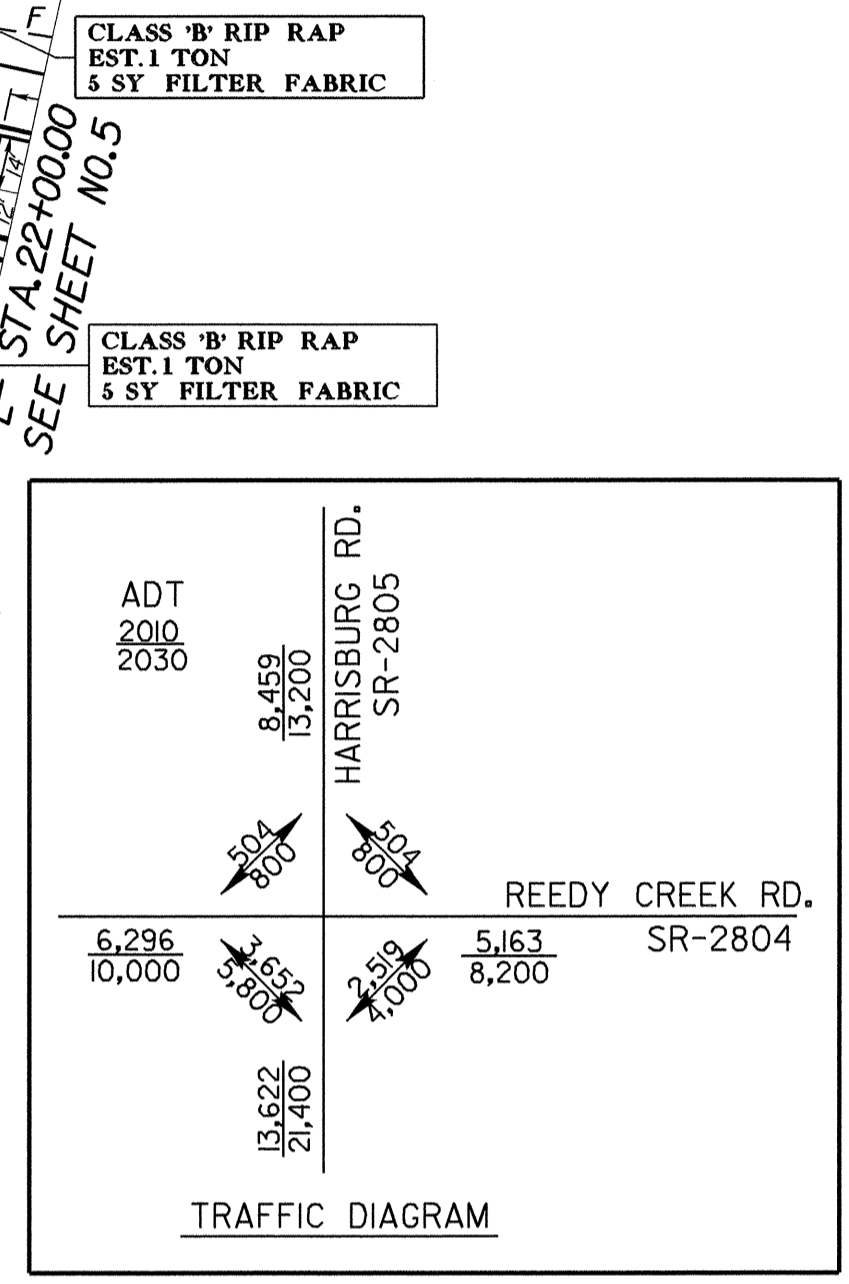
-YI- CURVE DATA
 PI Sta 11+20.08
 $\Delta = 56^\circ 52' 50.4"$ (LT)
 $D = 31' 49' 51.6"$
 $L = 178.70'$
 $T = 97.49'$
 $R = 180.00'$
 SE = SEE PLANS

-YI- CURVE DATA
 PI Sta 14+24.67
 $\Delta = 1^\circ 33' 28.5"$ (LT)
 $D = 0' 54' 34.0"$
 $L = 171.30'$
 $T = 85.66'$
 $R = 6,300.00'$

-YI- CURVE DATA
 PI Sta 15+81.48
 $\Delta = 5^\circ 09' 56.9"$ (LT)
 $D = 4' 00' 00.0"$
 $L = 129.14'$
 $T = 64.62'$
 $R = 1,432.39'$

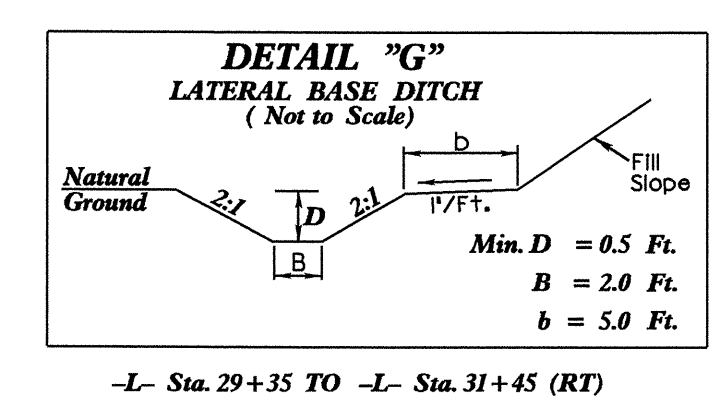
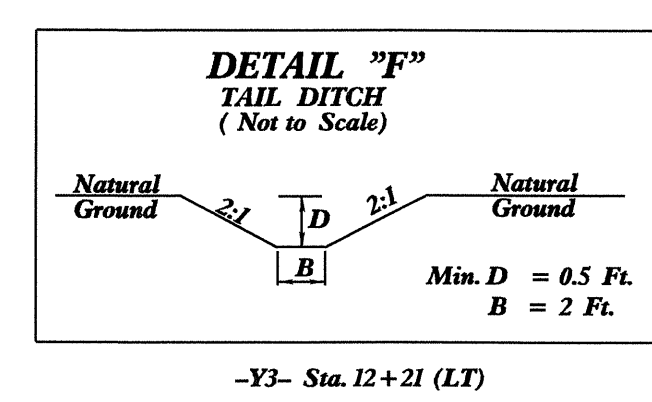
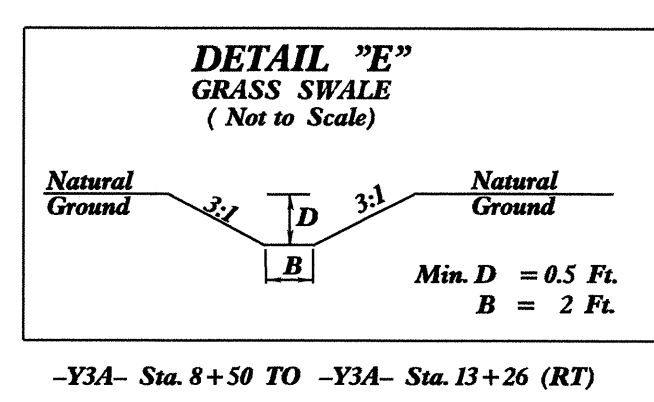
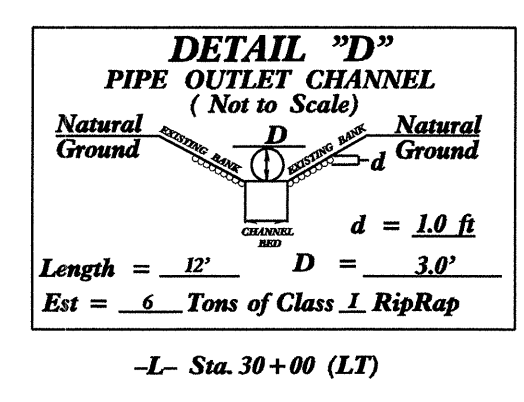
-Y2- CURVE DATA
 PI Sta 15+54.46
 $\Delta = 16^\circ 30' 28.8"$ (LT)
 $D = 1' 29' 56.5"$
 $L = 1,101.24'$
 $T = 554.46'$
 $R = 3,822.17'$
 SE = EXISTING

NOTES: (1) SEE SHEET 7 FOR -L- PROFILE
 (2) SEE SHEET 8 FOR -YI- & -Y2- PROFILES
 (3) ★ PROPOSED SIGNAL
 (4) GRASS ISLAND AND CURBING TO BE REMOVED TO EXISTING GROUND AND BACK FILLED AS NECESSARY



REVISIONS

22-JAN-2010 09:07 U:\4401\rdy\psh-4.dgn
 \$\$\$\$\$\$USER\$

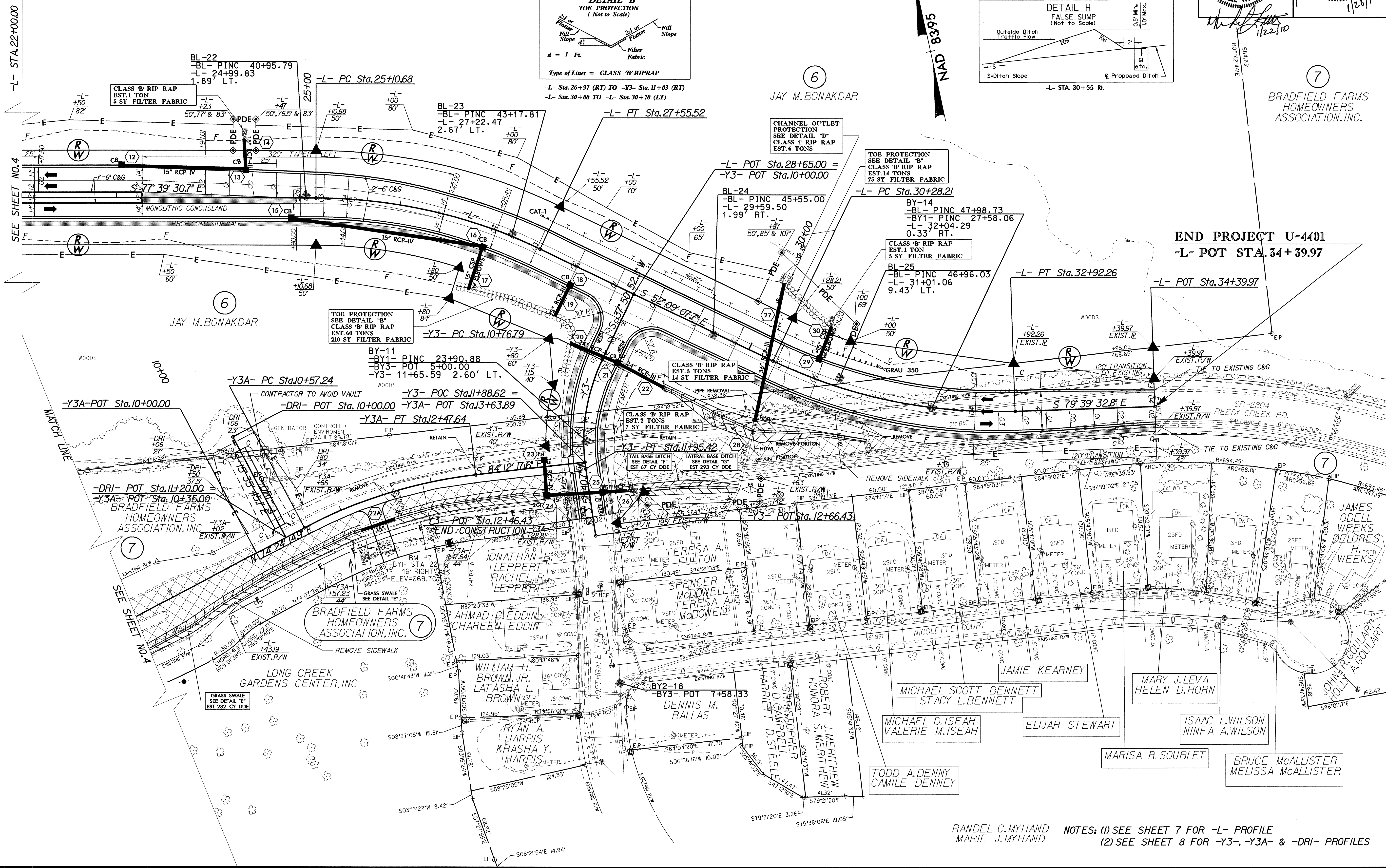
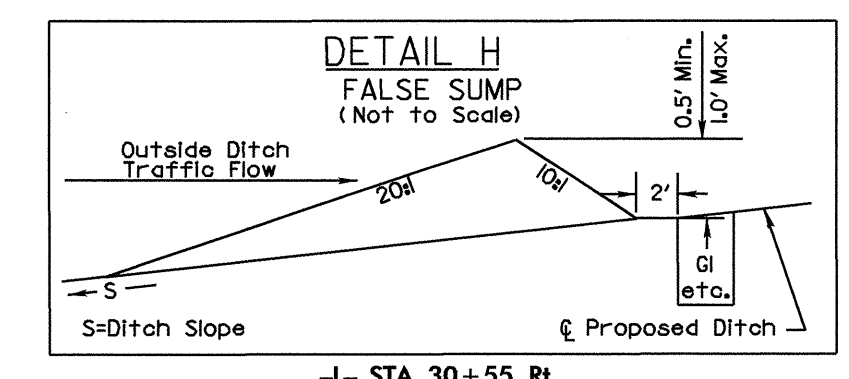
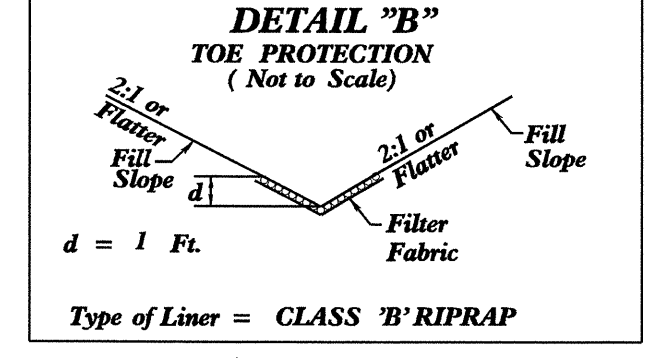


-L- CURVE DATA
PI Sta 26+35J6
 $\Delta = 25^\circ 30' 23.0''$ (RT)
D = 10' 25' 02.7"
L = 244.84'
T = 124.48'
R = 550.00'
SE = SEE PLANS

-L- CURVE DATA
PI Sta 31+62.83
 $\Delta = 27^\circ 30' 25.1''$ (LT)
D = 10' 25' 02.7"
L = 264.05'
T = 134.62'
R = 550.00'
SE = SEE PLANS

-Y3- CURVE DATA
PI Sta 11+37.91
 $\Delta = 33^\circ 59' 11.7''$ (LT)
D = 28' 38' 52.4"
L = 118.64'
T = 61.12'
R = 200.00'
SE = SEE PLANS

-Y3A- CURVE DATA
PI Sta 11+53.56
 $\Delta = 2^\circ 23' 27.6''$ (RT)
D = 11' 14' 04.1"
L = 190.41'
T = 96.32'
R = 510.00'
SE = EXISTING



NAD 83 95

JAY M. BONAKDAR

BRADFIELD FARMS HOMEOWNERS ASSOCIATION, INC.

END PROJECT U-4401
-L- POT STA. 34+39.97

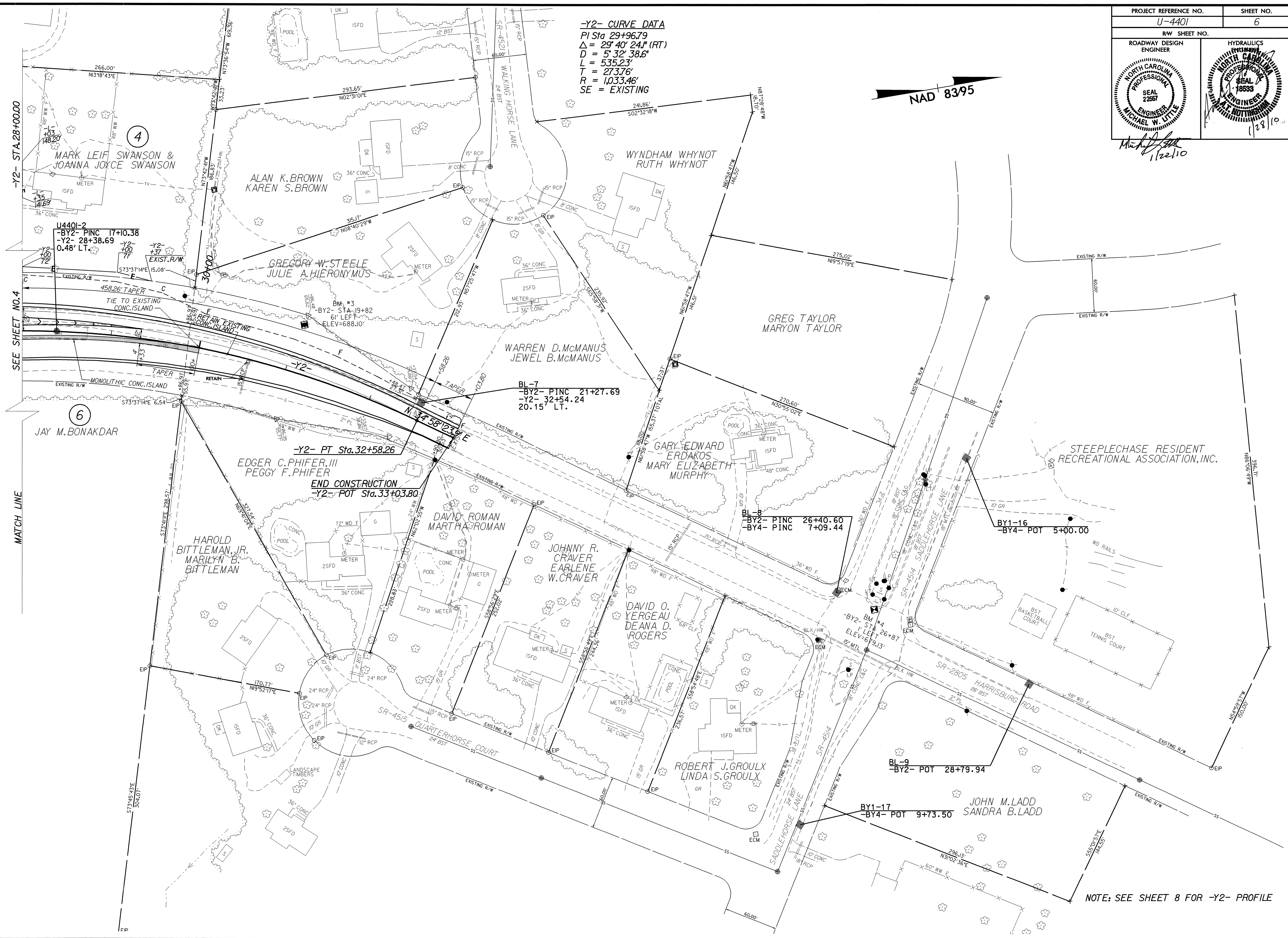
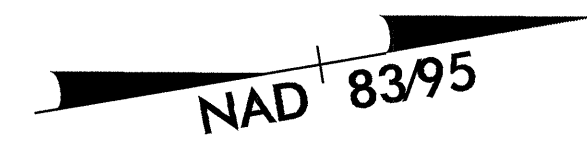
REVISIONS

SEE SHEET NO. 4

SEE SHEET NO. 4

NOTES: (1) SEE SHEET 7 FOR -L- PROFILE
(2) SEE SHEET 8 FOR -Y3-, -Y3A- & -DRI- PROFILES

-Y2- CURVE DATA
 PI Sta 29+96.79
 $\Delta = 29^{\circ} 40' 24.1''$ (RT)
 $D = 5^{\circ} 32' 38.6''$
 $L = 535.23'$
 $T = 273.76'$
 $R = 1,033.46'$
 SE = EXISTING



SEE SHEET NO. 4

MATCH LINE

NOTE: SEE SHEET 8 FOR -Y2- PROFILE

REVISIONS

22-JAN-2010_09:06_u4401_rdy_psh_6.dgn
 \$\$\$\$SERVING THE STATE\$\$\$\$

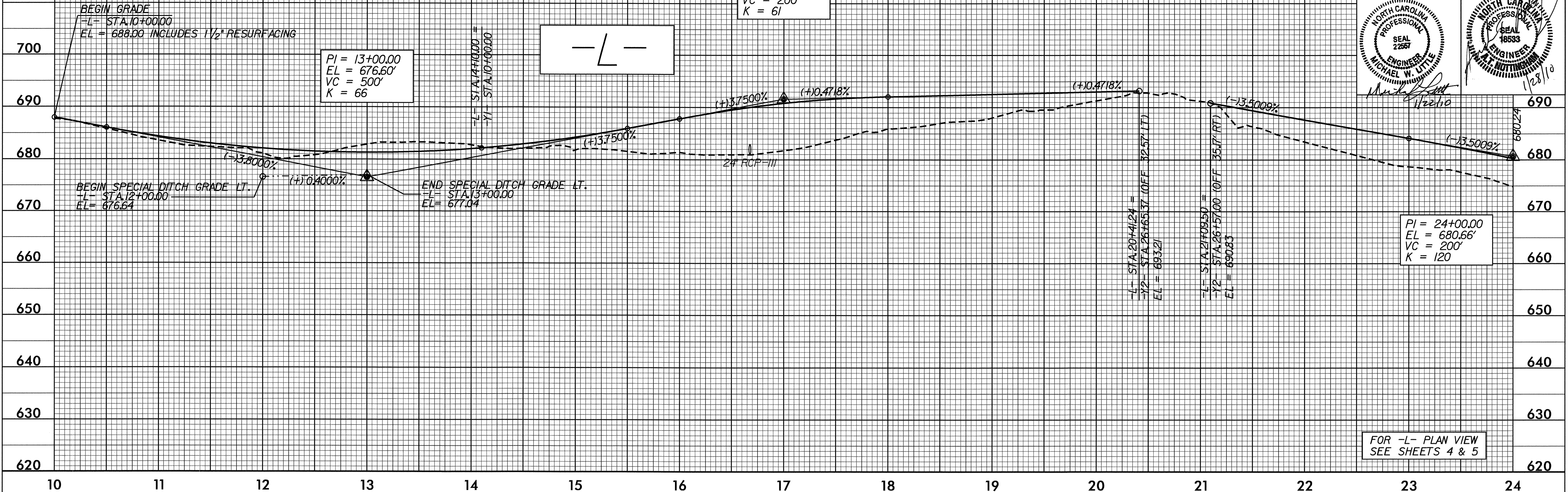
5/28/99

BM #6 EL 688.34
RR SPIKE SET IN POWER POLE
-L- STA. 26+42.12 (L)
-L- STA. 10+00.34 (32' LT)

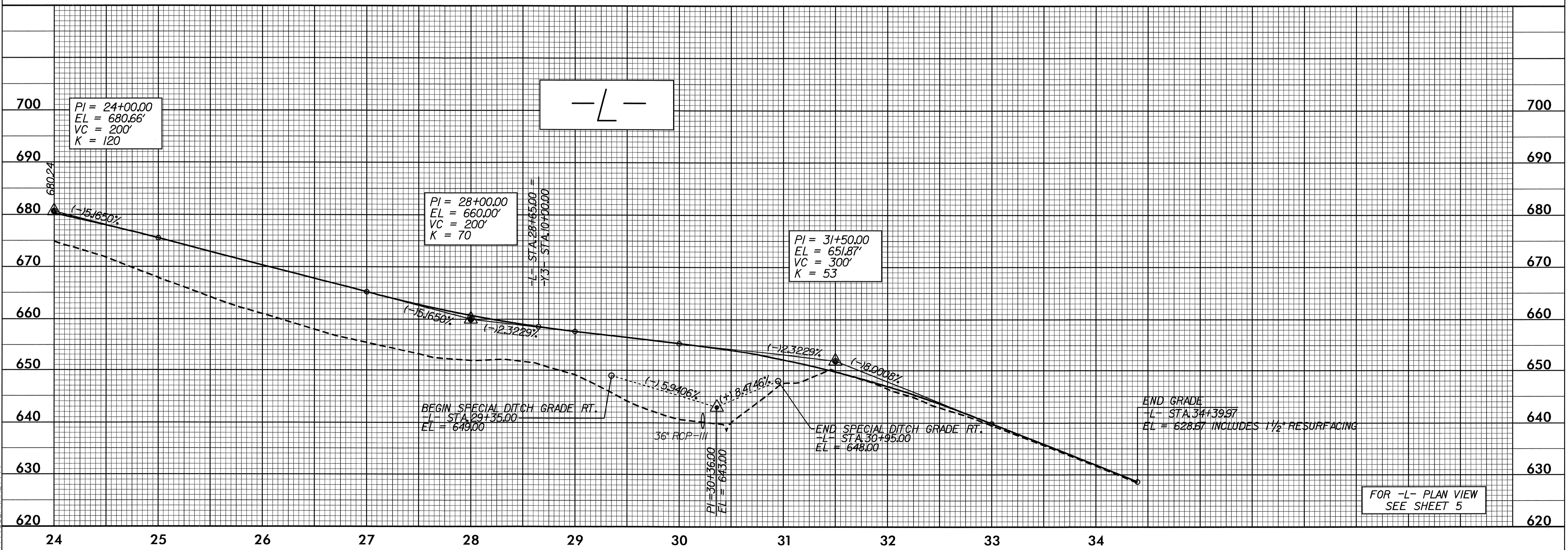
PI = 17+00.00
EL = 691.60'
VC = 200'
K = 61

PI = 13+00.00
EL = 676.60'
VC = 500'
K = 66

PROJECT REFERENCE NO. U-4401	SHEET NO. 7
ROADWAY DESIGN ENGINEER MICHAEL W. LITTLE SEAL 2287 1/22/10	HYDRAULICS ENGINEER SEAL 18533 1/28/10



FOR -L- PLAN VIEW
SEE SHEETS 4 & 5



FOR -L- PLAN VIEW
SEE SHEET 5

22-JAN-2010 09:06 u4401.rdy.plt.dgn

5/28/99

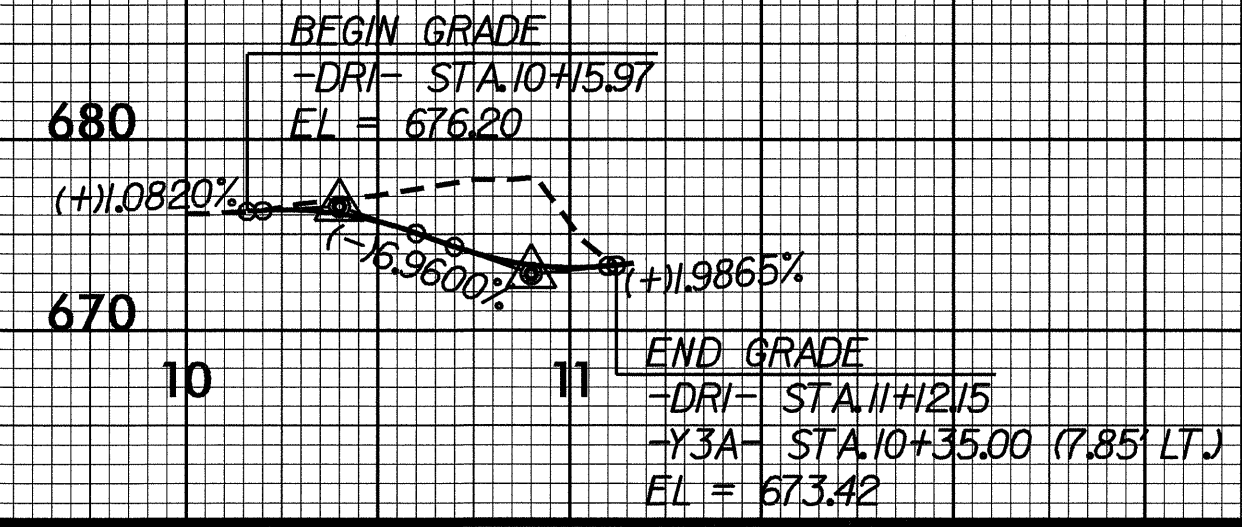
PROJECT REFERENCE NO. U-4401	SHEET NO. 8
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 22557 MICHAEL W. LITTLE	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 15535 P.T. MOTTINGHAM

-DRI-

BM *7 EL 669.70
RR SPIKE SET IN POWER POLE NO.1998
-B71- STA.22+16 (46' RT.)
-Y3A- STA.12+06.20 (66.99' RT.)

PI = 10+40.00 EL = 676.46'
VC = 40' K = 5

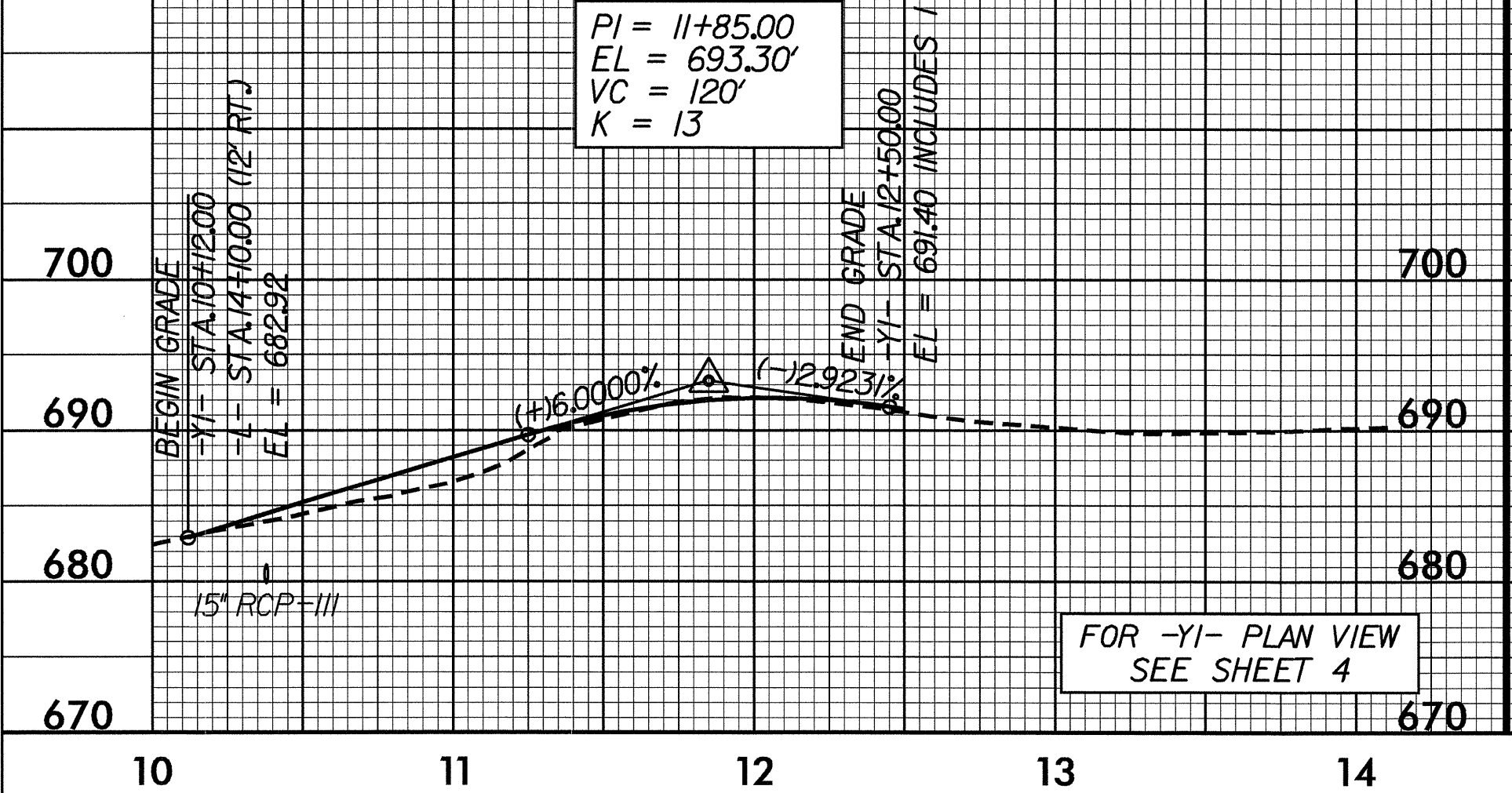
PI = 10+90.00 EL = 672.98'
VC = 40' K = 5



FOR -DRI- PLAN VIEW SEE SHEET 5

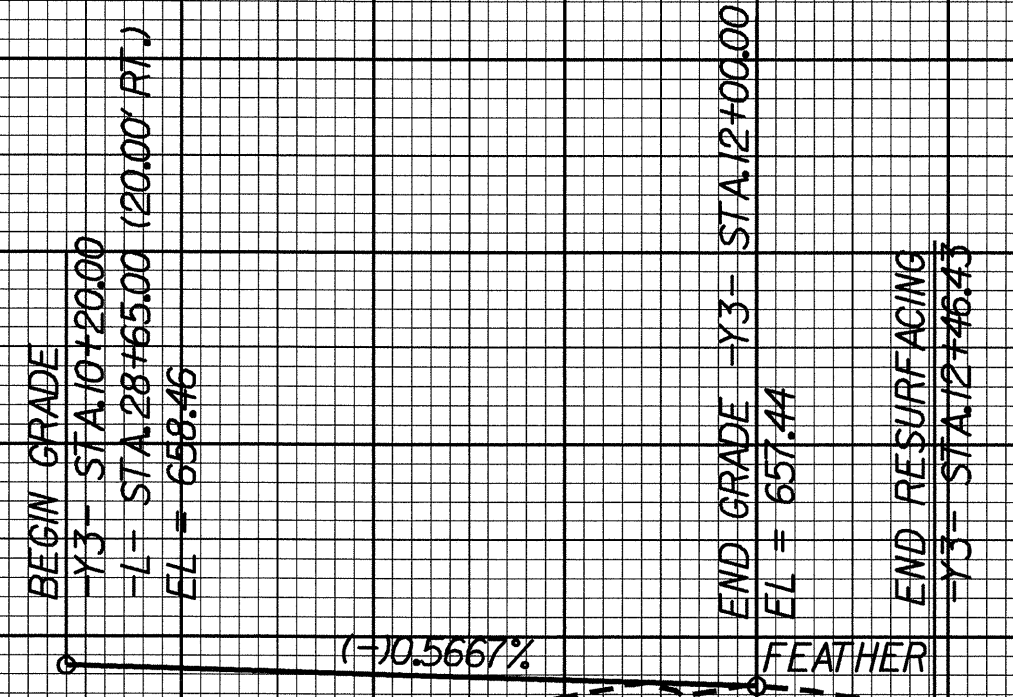
-Y1-

PI = 11+85.00 EL = 693.30'
VC = 120' K = 13



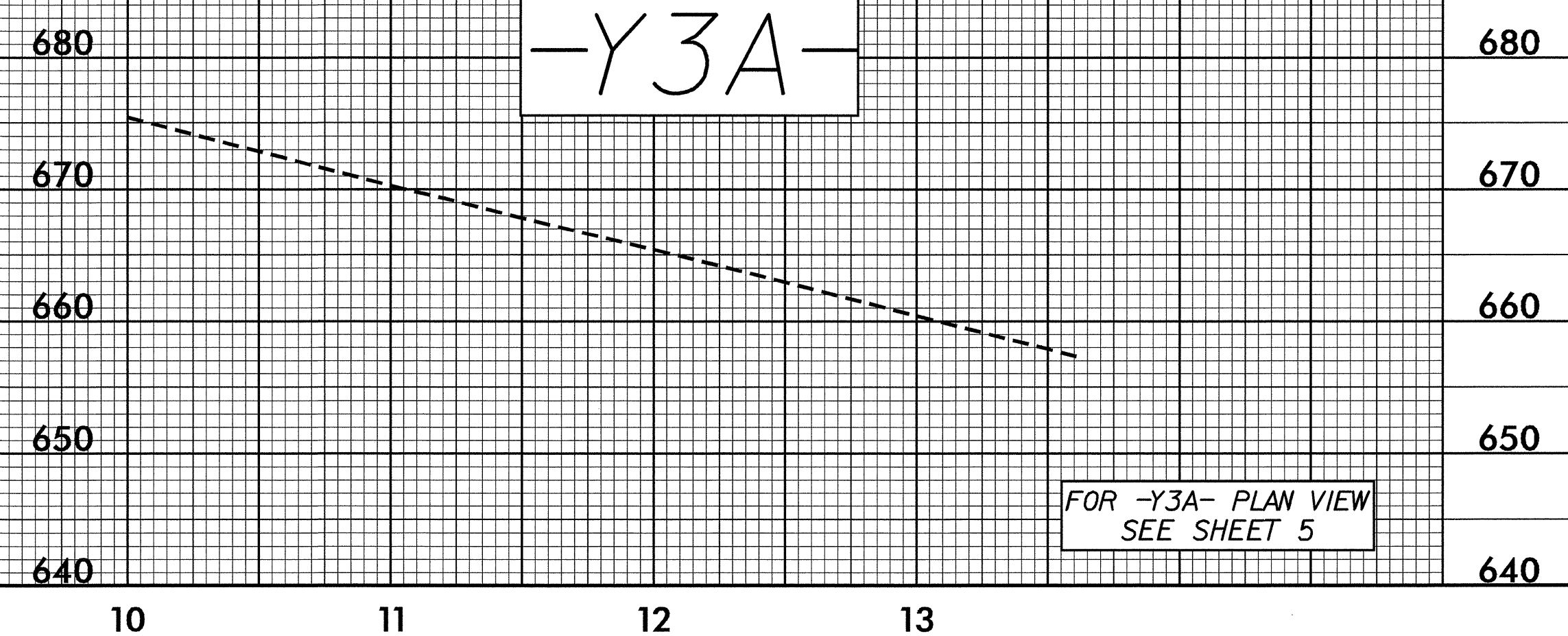
FOR -Y1- PLAN VIEW SEE SHEET 4

-Y3-



FOR -Y3- PLAN VIEW SEE SHEET 5

-Y3A-

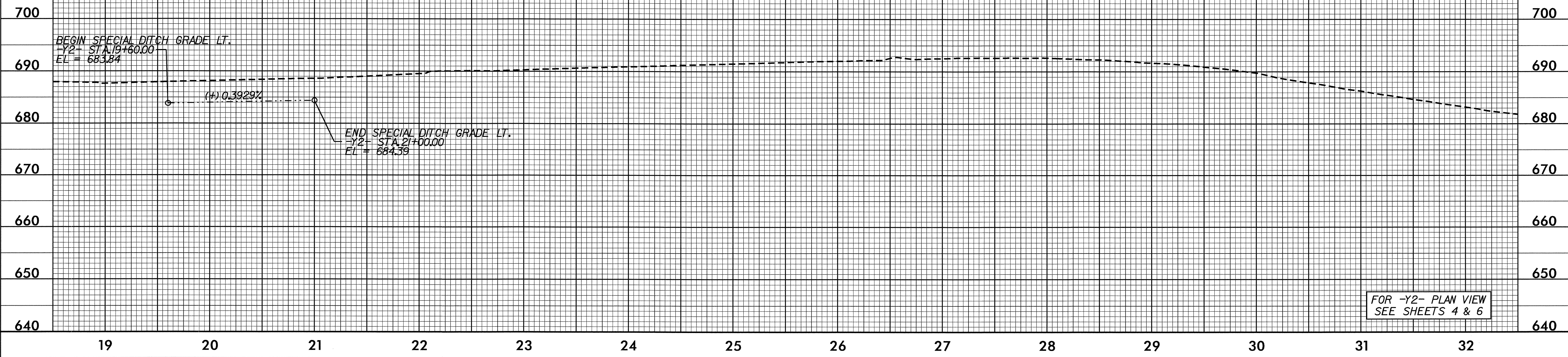


FOR -Y3A- PLAN VIEW SEE SHEET 5

BM *2 EL 692.85
RR SPIKE SET IN POWER POLE
-B71- STA.15+82 (68' RT.)
-Y2- STA.21+42.98 (113.20' LT.)

BM *3 EL 688.10
RR SPIKE SET IN POWER POLE
-B72- STA.19+82 (61' LT.)
-Y2- STA.31+05.59 (54.44' LT.)

-Y2-



FOR -Y2- PLAN VIEW SEE SHEETS 4 & 6

22-JAN-2010 09:06
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