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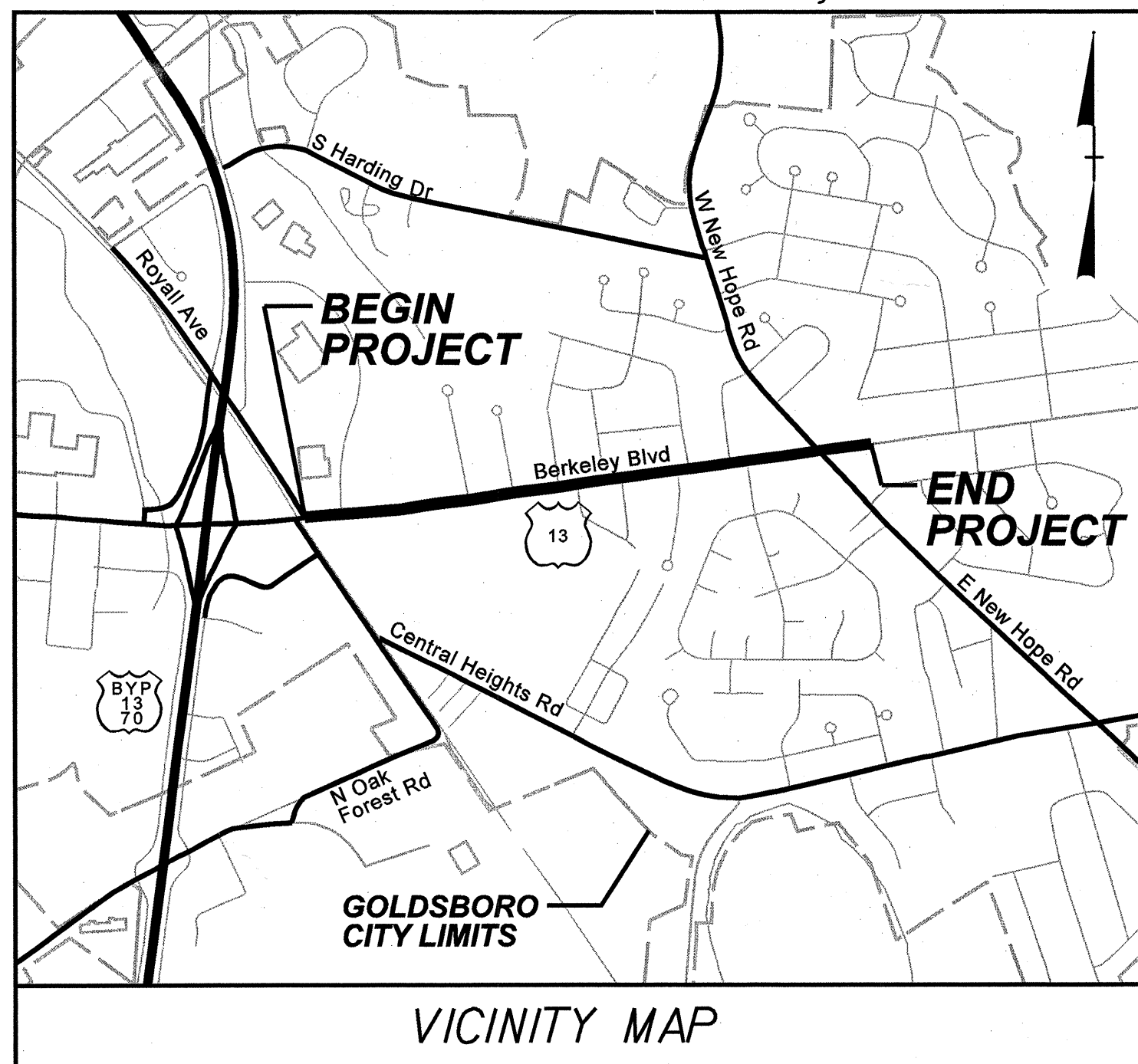
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**TIP PROJECT: U-3609A**

**CONTRACT: C203683**

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



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

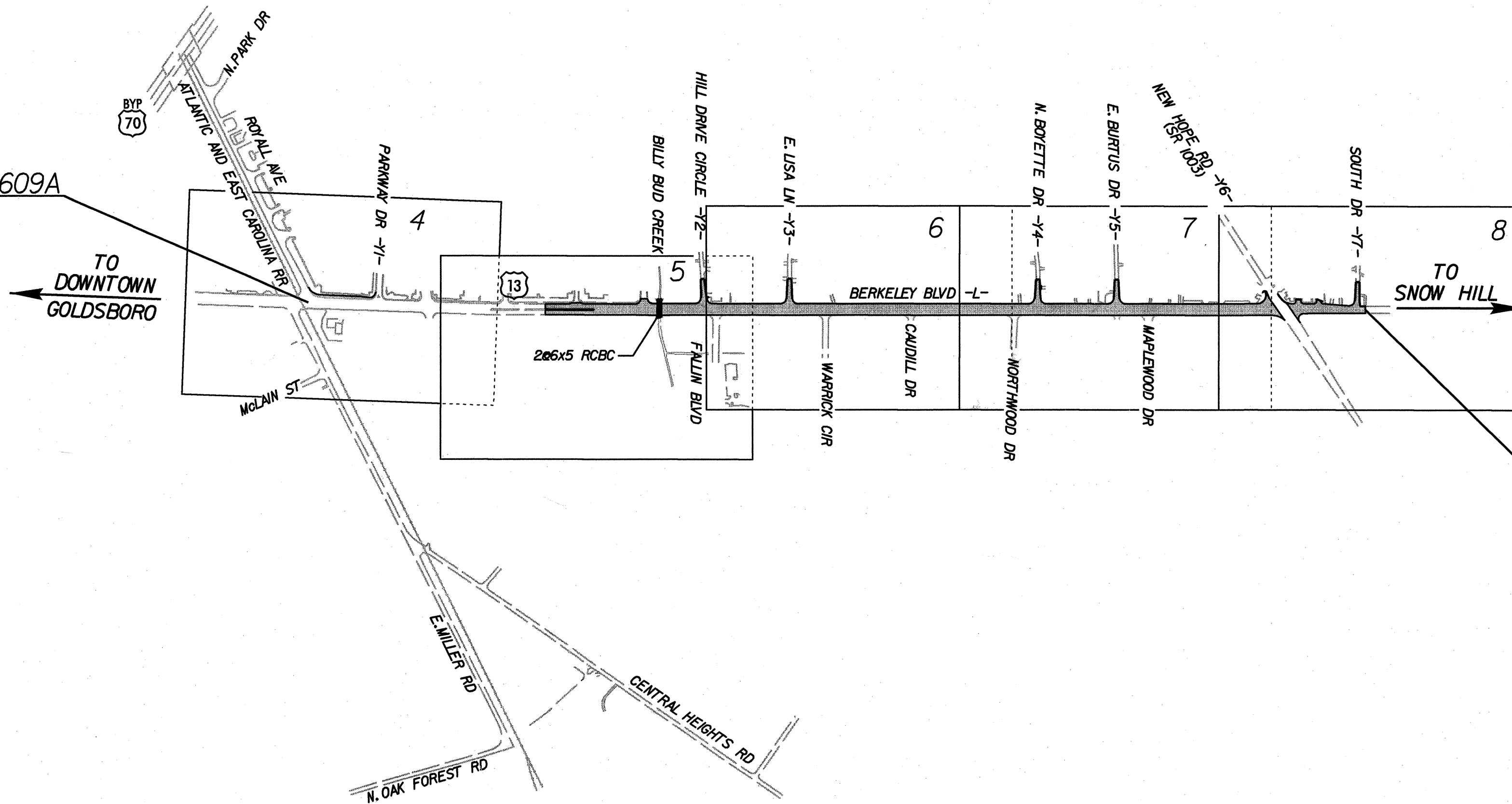
**WAYNE COUNTY**

**LOCATION: US 13 (BERKELEY BOULEVARD) FROM ROYALL AVENUE TO SOUTH DRIVE**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS, AND CULVERT**

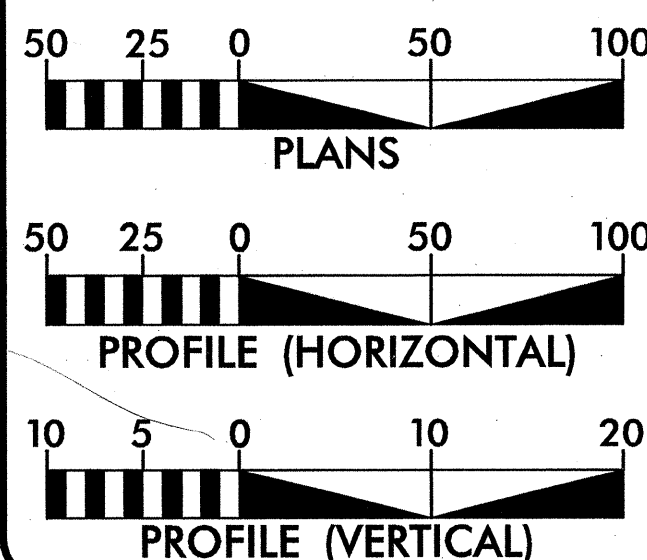
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3609A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
39026.1.1	STP-0013(33)	P.E.	
39026.2.1	STP-0013(33)	R /W	
39026.3.1.FRI	STP-0013(33)	CONST.	

BEGIN TIP PROJECT U-3609A  
-L- STA 14+67.00



END TIP PROJECT U-3609A  
-L- STA 71+75.00

**GRAPHIC SCALES**



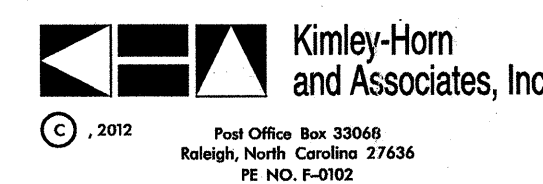
**DESIGN DATA**

BERKELEY BLVD (US 13)  
ADT 2008 = 15,500 VPD  
ADT 2035 = 29,100 VPD  
DESIGN SPEED = 50 mph  
FUNCTIONAL CLASSIFICATION:  
URBAN ARTERIAL

**PROJECT LENGTH**

TOTAL LENGTH TIP PROJECT U-3609A = 1.081 MILES

PLANS PREPARED FOR  
THE NCDOT BY:



2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
MAY 13, 2011

LETTING DATE:  
MAY 19, 2015

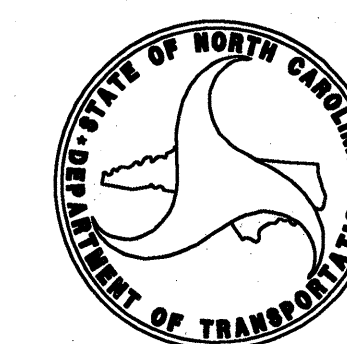
**CHUCK NUCKOLS, P.E.**  
PROJECT ENGINEER

**J. JASON PACE, P.E.**  
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

Professional Engineer Seal for J. Jason Pace, P.E., No. 18151, dated 4/7/14. Signature of J. Jason Pace is present.

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**





39026.3.1 (U-3609A)  
WAYNE COUNTY

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, LIST OF ROADWAY STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2 THRU 2-B	TYPICAL SECTIONS, PAVEMENT SCHEDULE, AND MISCELLANEOUS DETAILS
2-C	MANHOLE AND VALVE BOX ADJUSTMENTS DETAIL
3-A THRU 3-B	SUMMARY OF DRAINAGE QUANTITIES
3-C	SUMMARY OF PAVEMENT REMOVAL AND SUMMARY OF EARTHWORK
3-D	PARCEL INDEX SHEET
4 THRU 8	PLAN SHEETS
9	PROFILE SHEETS
TCP-1 THRU TCP-11	TRAFFIC CONTROL PLANS
PM-1 THRU PM-4	PAVEMENT MARKING AND SIGNING PLANS
EC-1 THRU EC-10	EROSION CONTROL PLANS
SIG-1 THRU SIG-17	SIGNAL PLANS
UC-1 THRU UC-6	UTILITY CONSTRUCTION PLANS
X-1A	CROSS SECTION SUMMARY SHEET
X-1 THRU X-24	CROSS SECTIONS
C-1 THRU C-5	CULVERT PLANS

GENERAL NOTES:

2012 SPECIFICATIONS  
EFFECTIVE: 01-17-12  
REVISED: 11/01/11

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 II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

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.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE PROGRESS ENERGY, CENTURY LINK, TELICS/AT&T, PIEDMONT NATURAL GAS, AND TIME WARNER CABLE

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 CONTRACT.

CURB RAMPS

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL RAMPS IN ACCORDANCE WITH STD. 848.05 AND/OR 848.06.

2012 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 January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superlevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
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	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
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
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
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	Curb Ramp - Proposed Curb & Gutter
848.06	Curb Ramp - Existing Curb & Gutter
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	○ IP
Property Corner	-----x
Property Monument	□ EDM
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-----
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ☠

## 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	○ CSX TRANSPORTATION 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	○ IP
Proposed Right of Way Line with Concrete or Granite RW Marker	○
Proposed Control of Access Line with Concrete C/A 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 Aerial Utility Easement	-----AUE-----
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 Curb Ramp	○ CR
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	-----
Single Tree	○
Single Shrub	○
Hedge	-----

## VEGETATION:

Orchard	-----
Vineyard	□ Vineyard

## EXISTING STRUCTURES:

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

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

## TV:

TV Satellite Dish	⊕
TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	□
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	-----
Designated U/G Gas Line (S.U.E.*)	-----
Above Ground Gas Line	-----A/G Gas-----

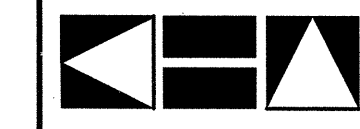
## SANITARY SEWER:

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:

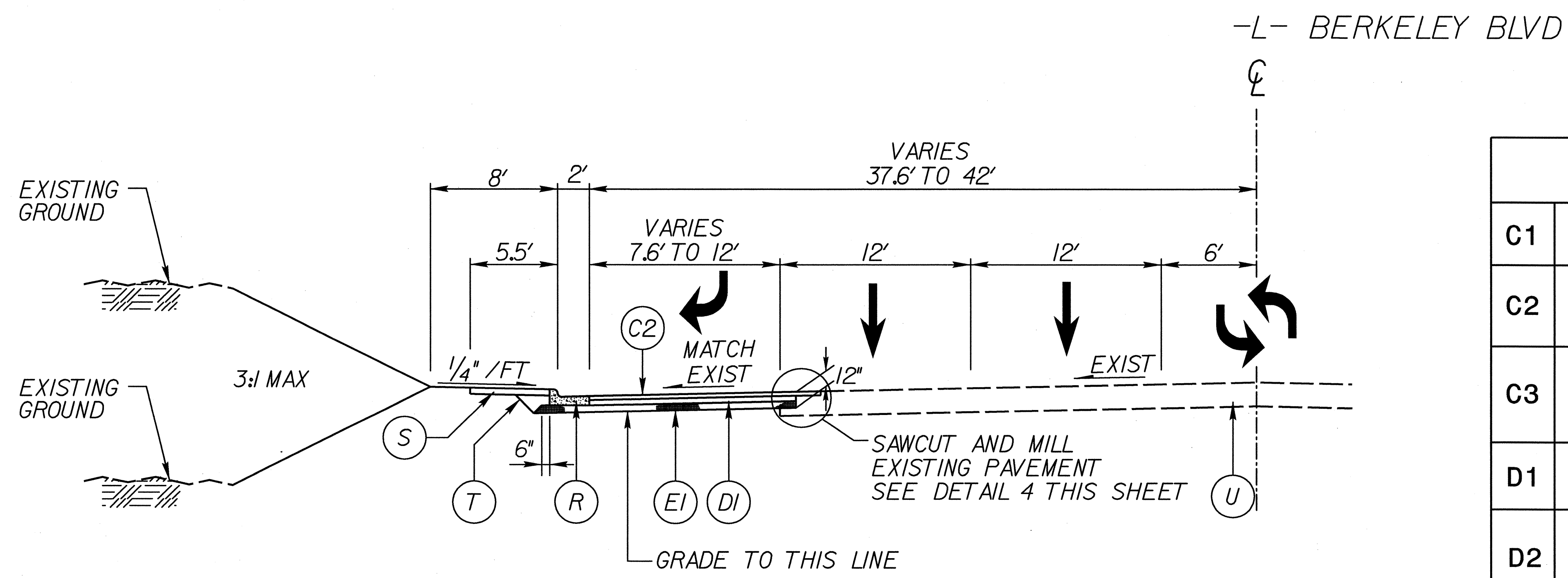
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line	-----UTIL-----
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
U/G Test Hole (S.U.E.*)	○
Abandoned According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





Kimley-Horn  
and Associates, Inc.  
P.O. BOX 33068  
RALEIGH, N.C. 27636-3068

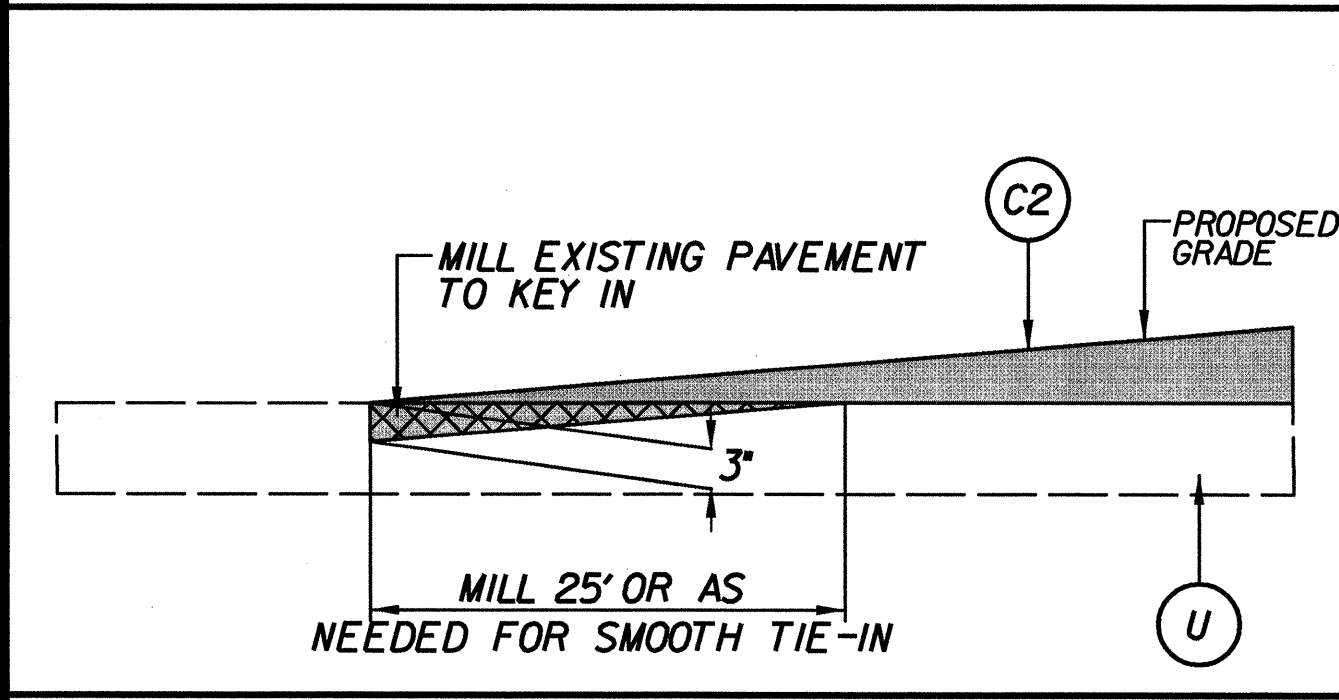
PROJECT REFERENCE NO. U-3609A	SHEET NO. 2
ROADWAY DESIGN ENGINEER CHARLES A. NUCCIOLI 18151 1/21/13	PAVEMENT DESIGN ENGINEER JERRY P. PRICE 18537 3/1/13



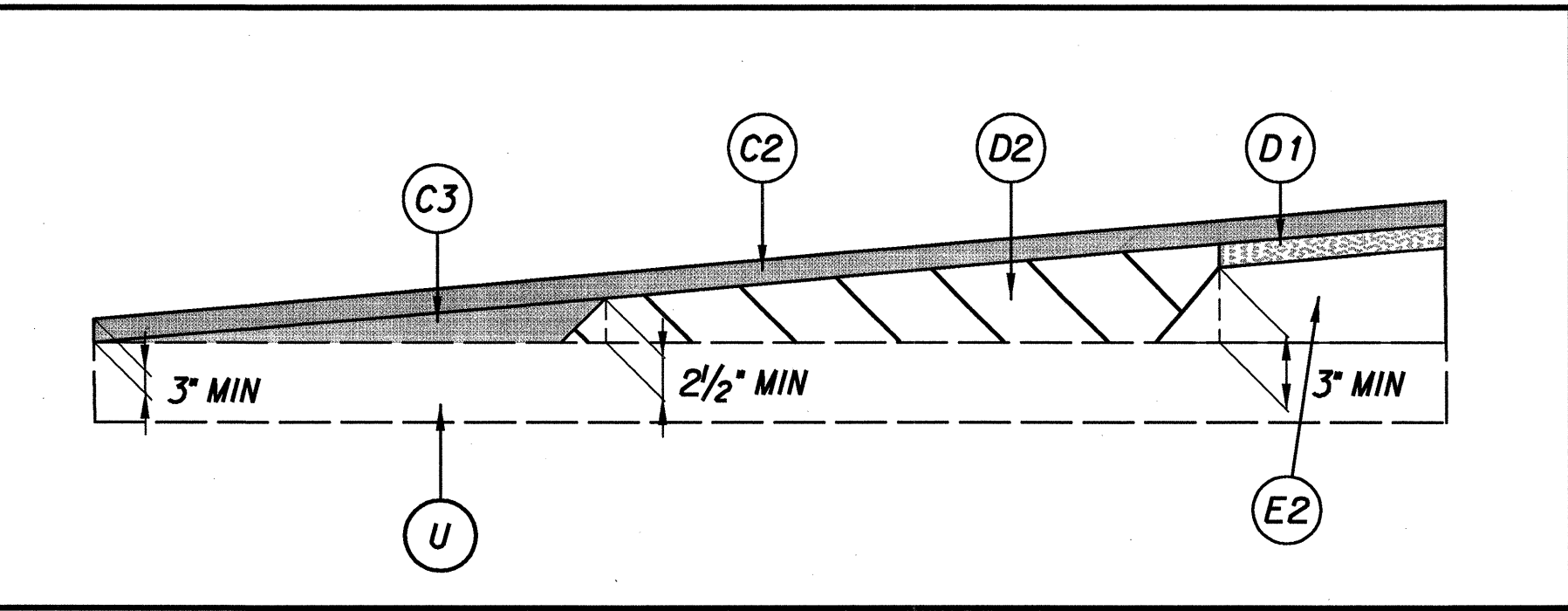
**TYPICAL SECTION NO. 1**  
-L- STA 14+67.00 TO STA 18+33.00 (LT)

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1.5" OR GREATER THAN 2.0" 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 2.5" OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 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" OR GREATER THAN 5.5" IN DEPTH.
J	PROPOSED 6" AGGREGATE BASE COURSE
P	PRIME COAT AT THE RATE OF 0.35 GAL PER SQ. YD.
R	PROPOSED 2'-6" CONCRETE CURB AND GUTTER
S	PROPOSED 4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING ASPHALT PAVEMENT, 1.5" DEPTH
V2	MILLING ASPHALT PAVEMENT, 3" DEPTH
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

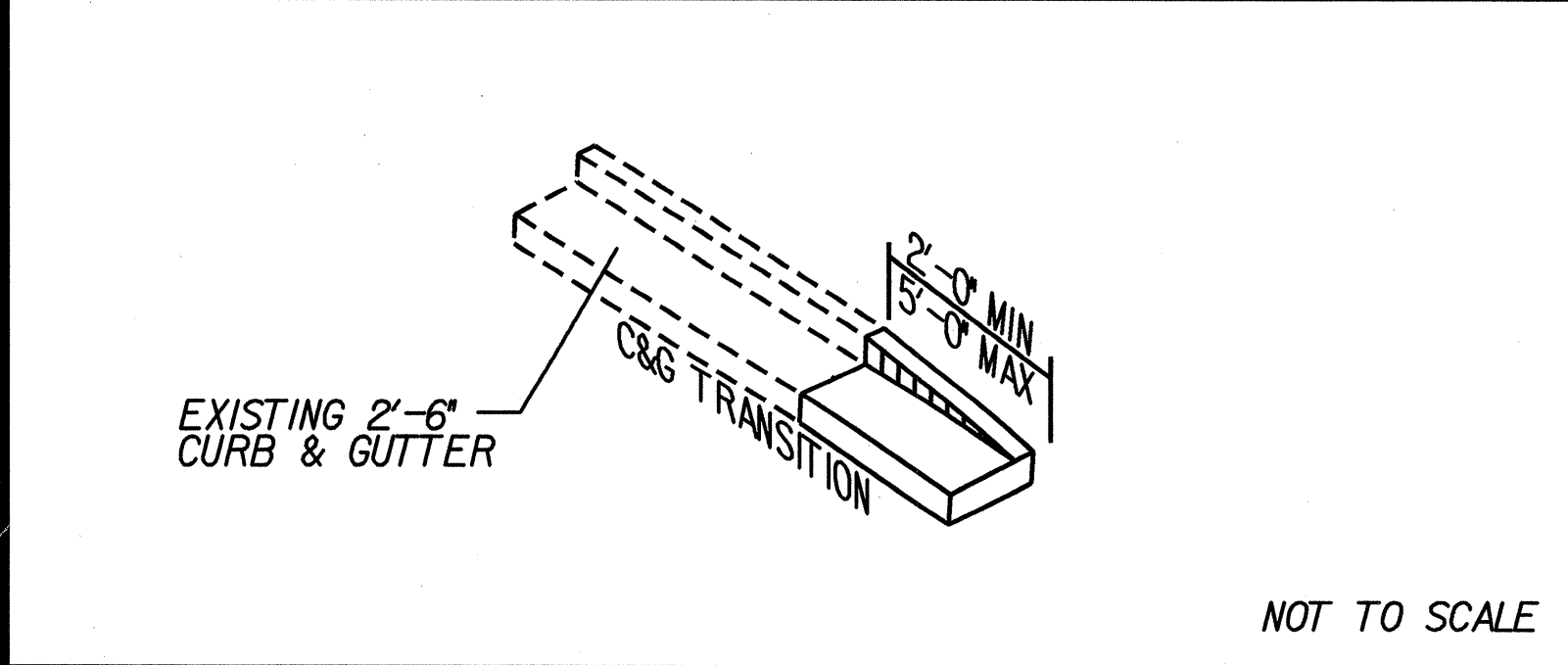
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED



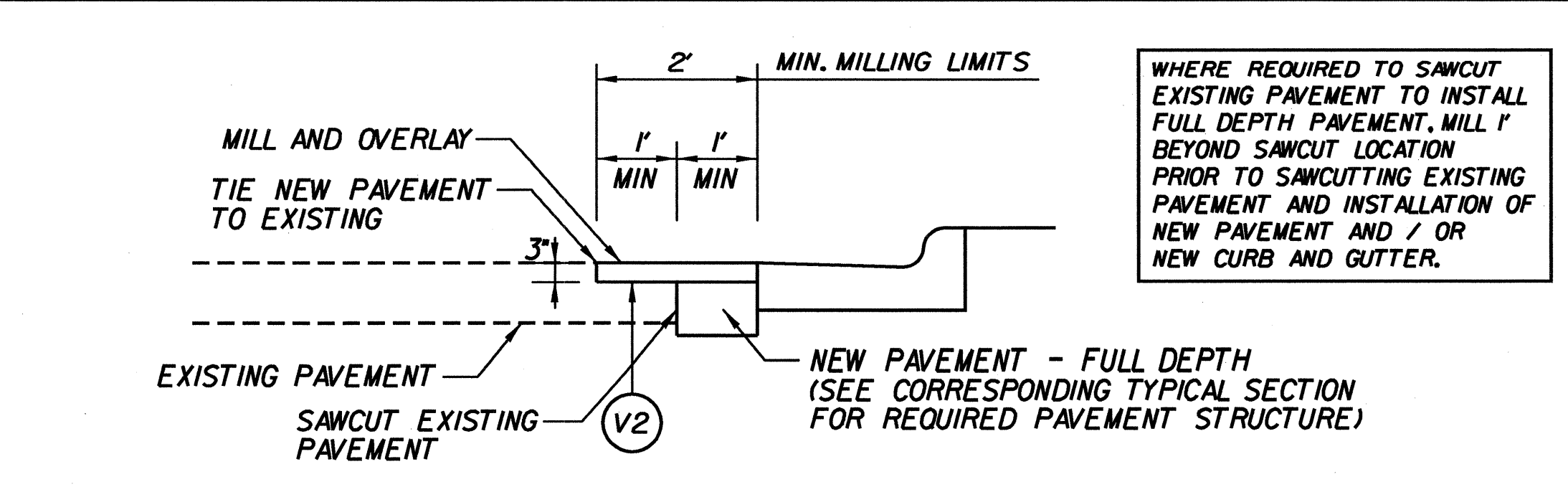
**DETAIL 1 - INCIDENTAL MILLING DETAIL**



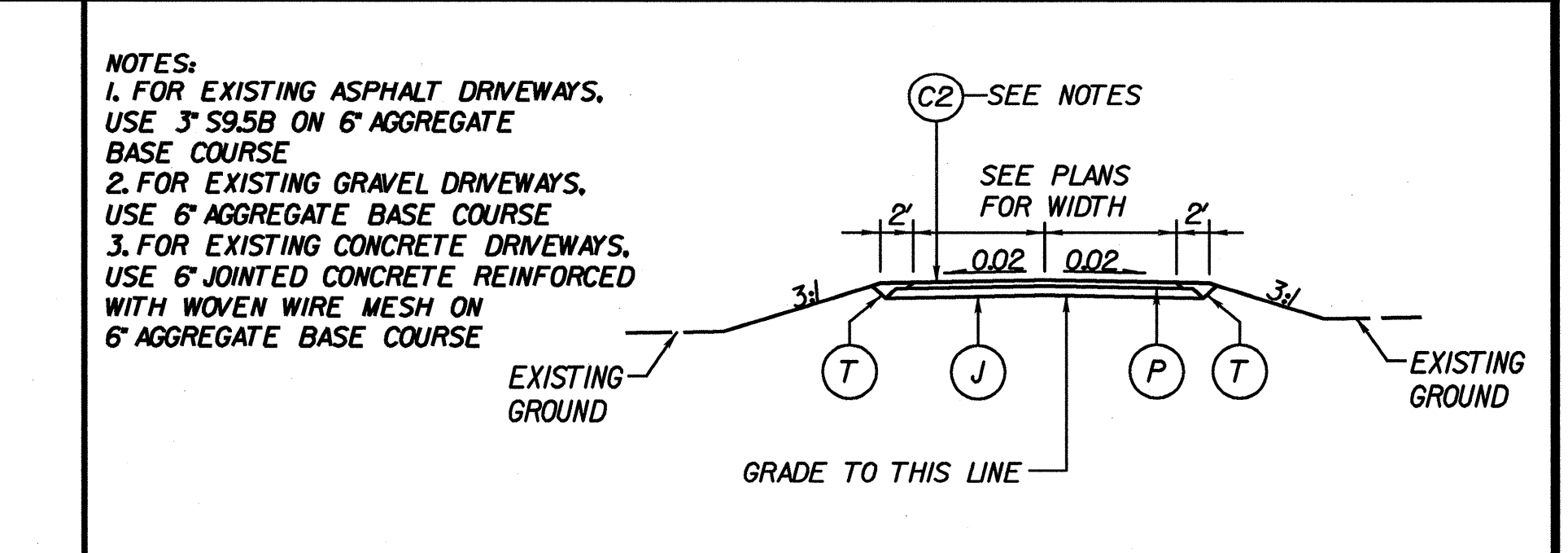
**DETAIL 2 - METHOD OF WEDGING**



**DETAIL 3 - CURB AND GUTTER END TREATMENT**



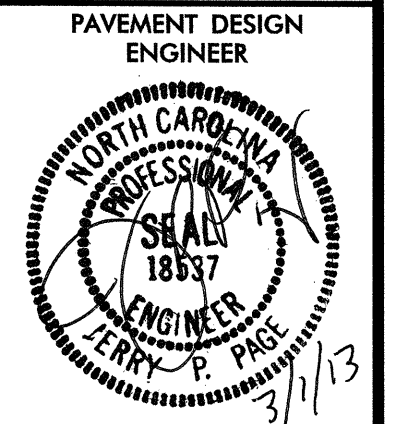
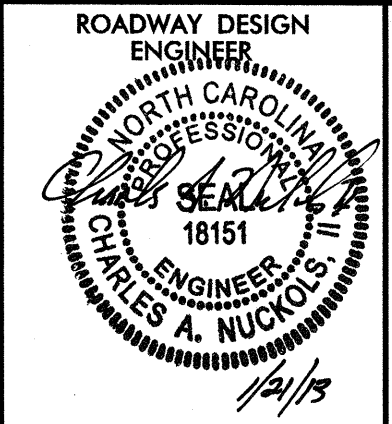
**DETAIL 4 - MILLING AND SAWCUT DIMENSIONS**



**DETAIL 5 - DRIVEWAY DETAIL**

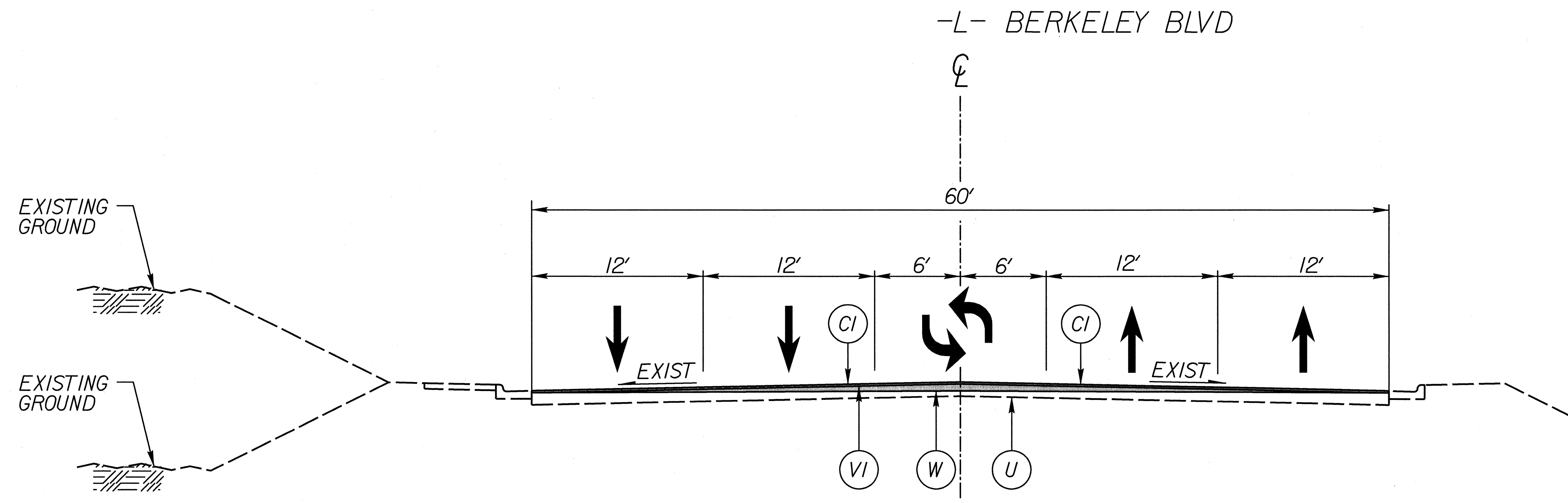
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and Associates, Inc.  
P.O. BOX 33068  
RALEIGH, N.C. 27636-3068

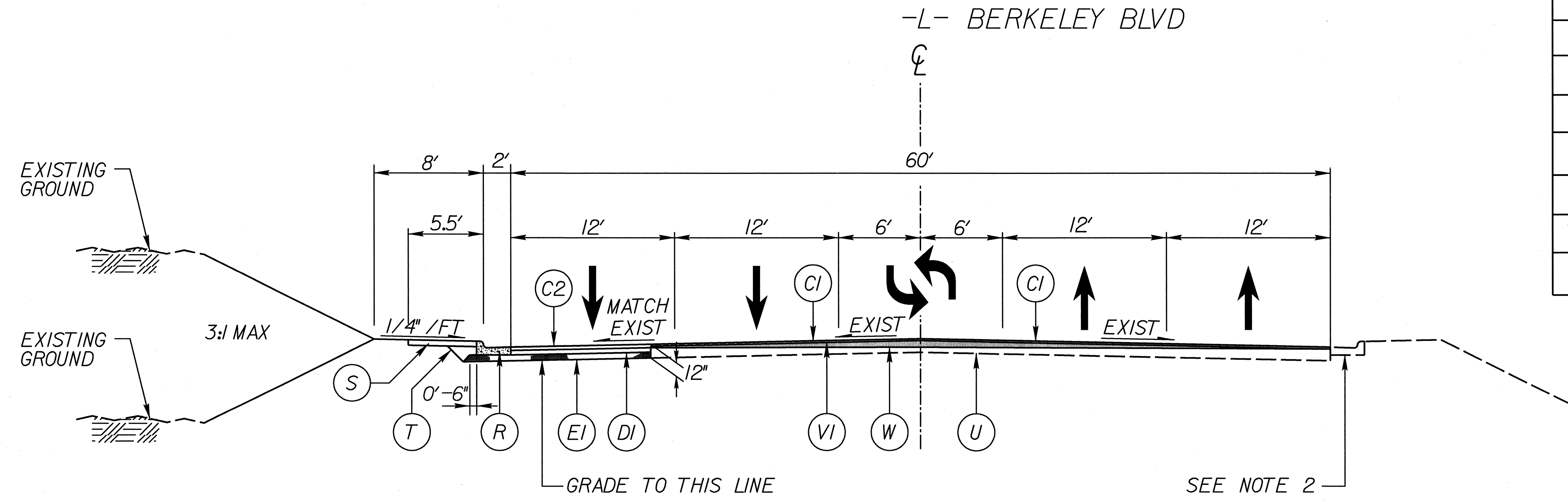


**PAVEMENT SCHEDULE**

C1	1.5" TYPE S9.5B
C2	3" TYPE S9.5B
C3	PROP. VAR. DEPTH TYPE S9.5B,
D1	4" TYPE I19.0B
D2	PROP. VAR. DEPTH TYPE I19.0B
E1	5" TYPE B25.0B
E2	PROP. VAR. DEPTH TYPE B25.0B
J	6" AGGREGATE BASE COURSE
P	PRIME COAT
R	2'-6" CONCRETE CURB AND GUTTER
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING ASPHALT PAVEMENT, 1.5" DEPTH
V2	MILLING ASPHALT PAVEMENT, 3" DEPTH
W	VARIABLE DEPTH ASPHALT PAVEMENT



**TYPICAL SECTION NO. 2**  
-L- STA 27+50.00 TO STA 32+35.00

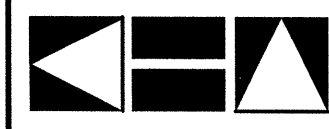
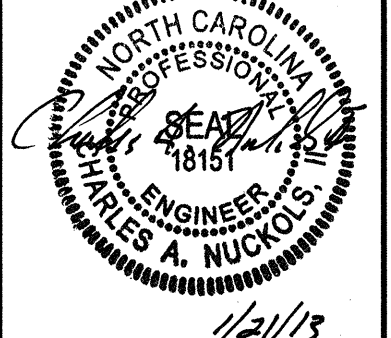



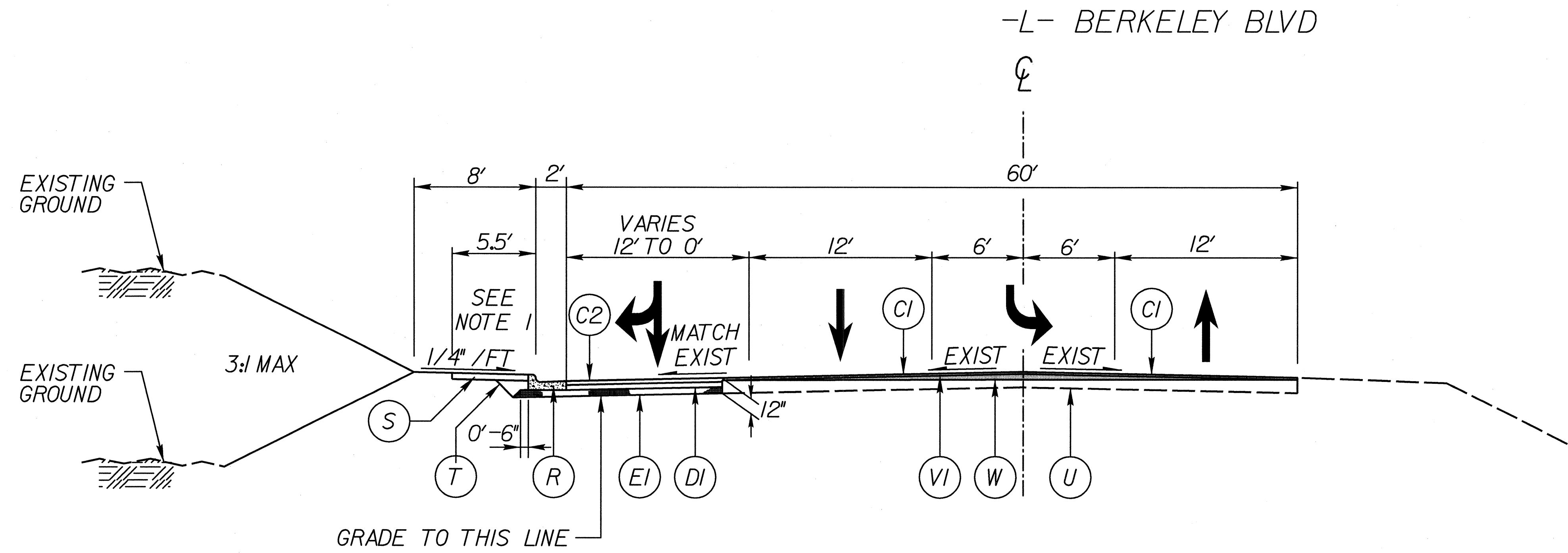
**TYPICAL SECTION NO. 3**  
-L- STA 32+35.00 TO STA 67+33.97 (NEW HOPE RD)

- NOTES:**
- FULL DEPTH PAVEMENT REPAIR WILL BE NEEDED DUE TO CULVERT CONSTRUCTION FROM -L- STA 33+45 +/- TO STA 33+85 +/- (SEE TRAFFIC CONTROL PLANS)
  - REPLACE 2'-6" C&G FROM -L- STA 33+08.00 TO STA 34+22.00 (RT) DUE TO DRAINAGE SYSTEM AND BOX CULVERT INSTALLATION.

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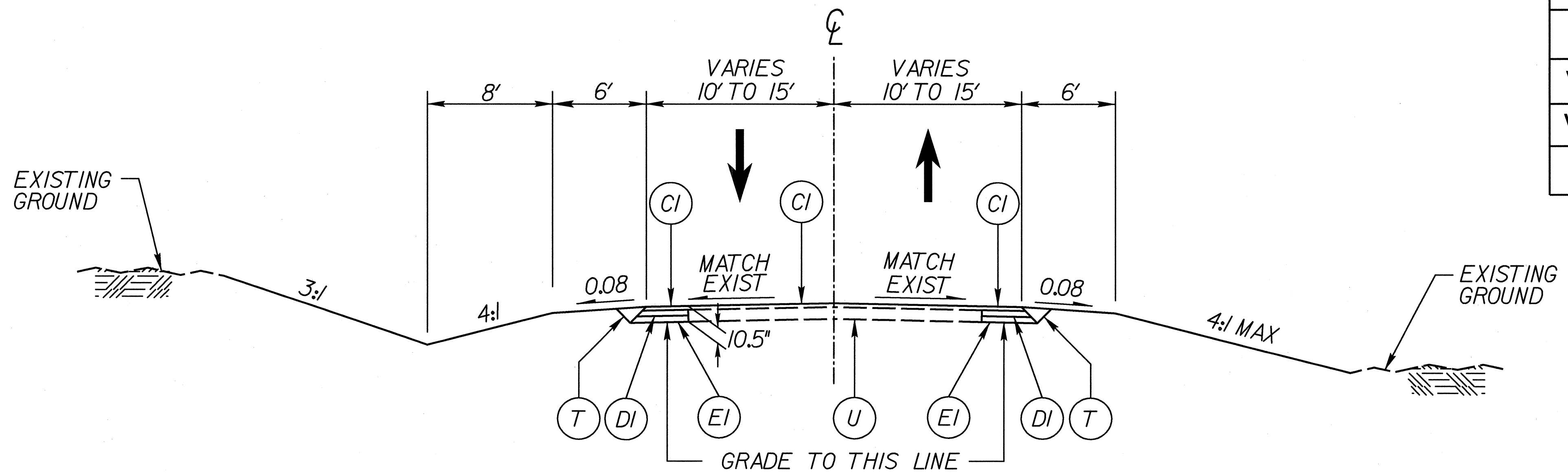


 Kimley-Horn and Associates, Inc. P.O. BOX 33068 RALEIGH, N.C. 27636-3068	PROJECT REFERENCE NO.	SHEET NO.
	U-3609A	2-B
	ROADWAY DESIGN ENGINEER  CHARLES A. NUCKOLS 1/21/13	PAVEMENT DESIGN ENGINEER  HENRY P. PRICE 3/1/13



NOTE:  
 1. NO SIDEWALK FROM -L- 69+10.00 TO STA 71+50.00 (LT)

- Y2- HILL DRIVE CIRCLE
- Y3- E. LISA LANE
- Y4- N. BOYETTE DRIVE
- Y5- E. BURTUS DRIVE
- Y7- SOUTH DRIVE



NOTE: NO GRADE POINT ON OVERLAY SECTIONS

- Y2- STA 11+36.98 TO STA 12+69.94
- Y3- STA 11+35.39 TO STA 12+70.00
- Y4- STA 11+40.00 TO STA 12+70.00
- Y5- STA 11+39.85 TO STA 12+70.00
- Y7- STA 11+51.35 TO STA 12+82.00

PAVEMENT SCHEDULE	
C1	1.5" TYPE S9.5B
C2	3" TYPE S9.5B
C3	PROP. VAR. DEPTH TYPE S9.5B,
D1	4" TYPE I19.0B
D2	PROP. VAR. DEPTH TYPE I19.0B
E1	5" TYPE B25.0B
E2	PROP. VAR. DEPTH TYPE B25.0B
J	6" AGGREGATE BASE COURSE
P	PRIME COAT
R	2'-6" CONCRETE CURB AND GUTTER
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING ASPHALT PAVEMENT, 1.5" DEPTH
V2	MILLING ASPHALT PAVEMENT, 3" DEPTH
W	VARIABLE DEPTH ASPHALT PAVEMENT

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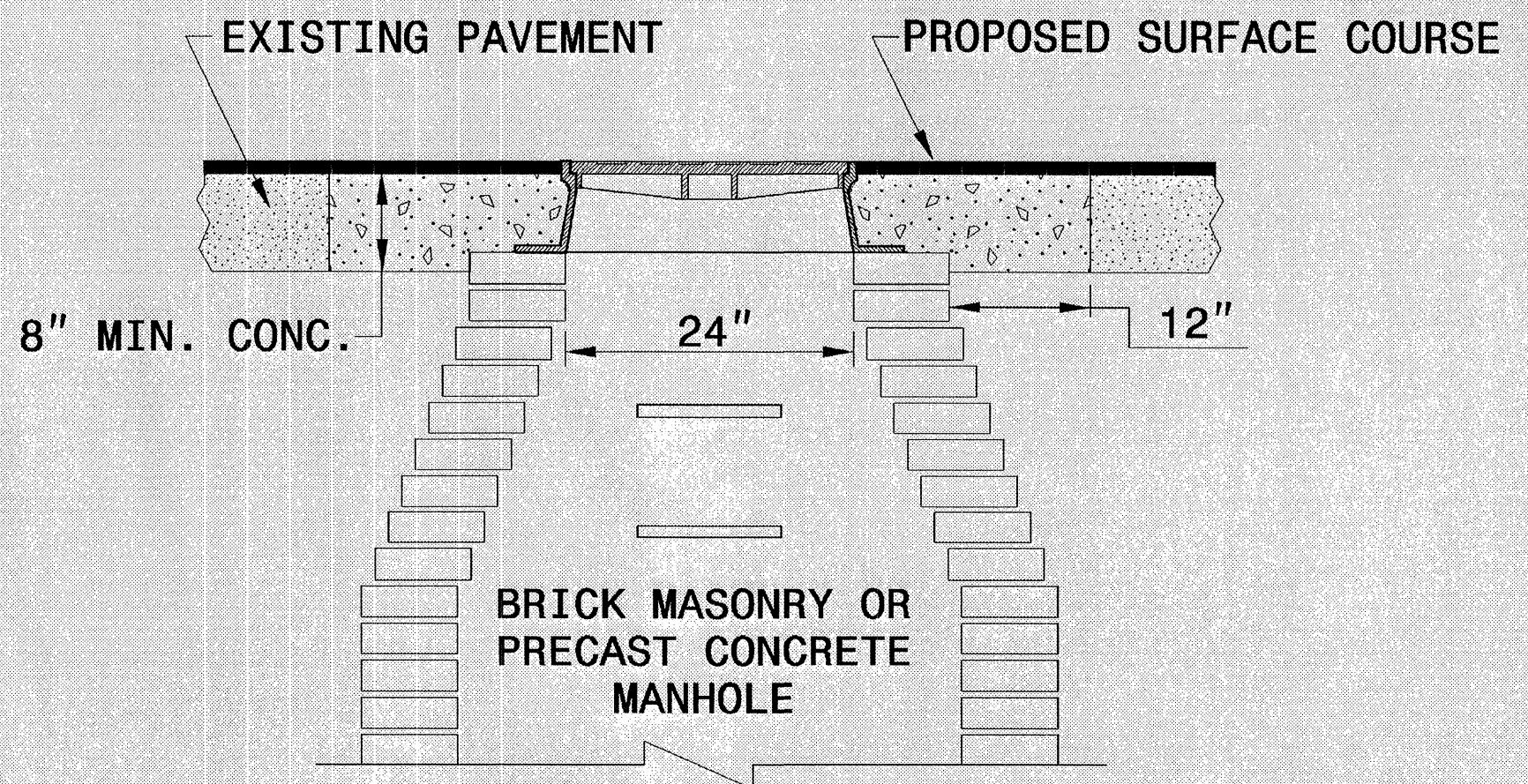


STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

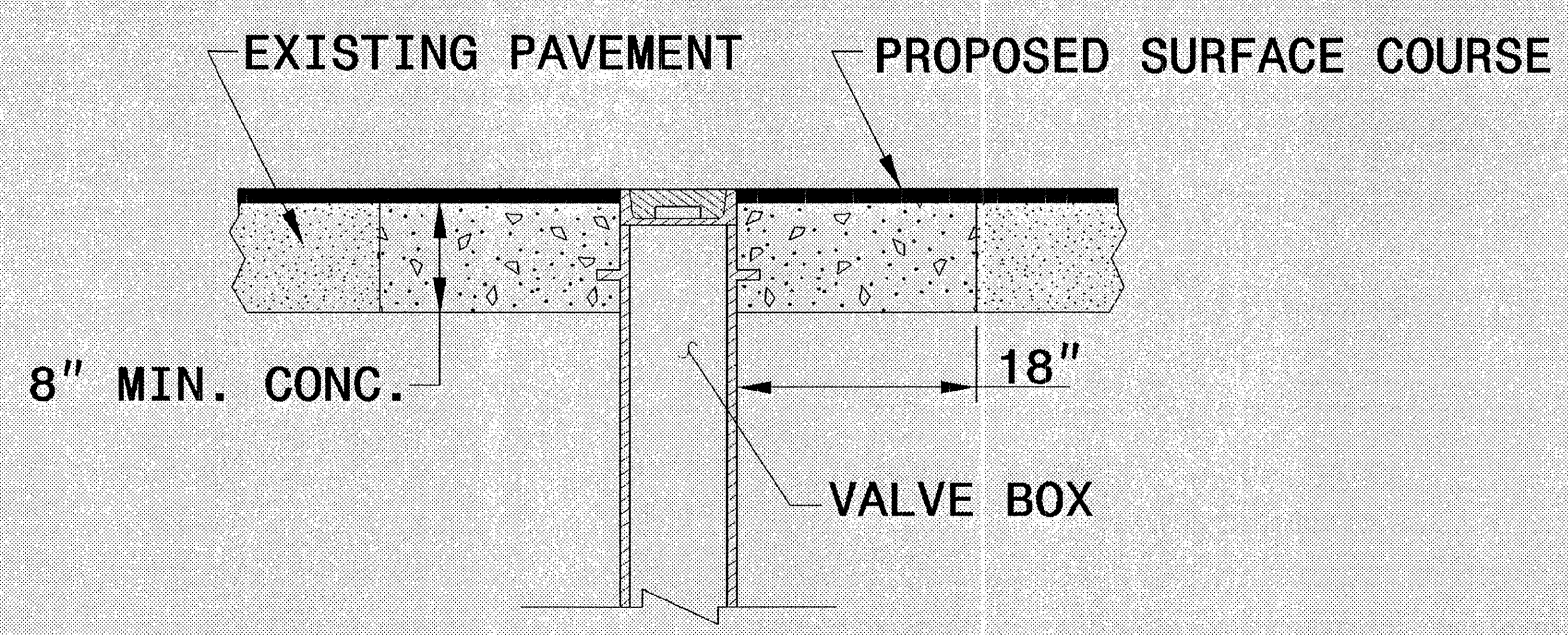
ENGLISH DETAIL DRAWING FOR  
**MANHOLE AND VALVE BOX ADJUSTMENTS**  
SHEET 1 OF 1  
**840D55**

**GENERAL NOTES:**

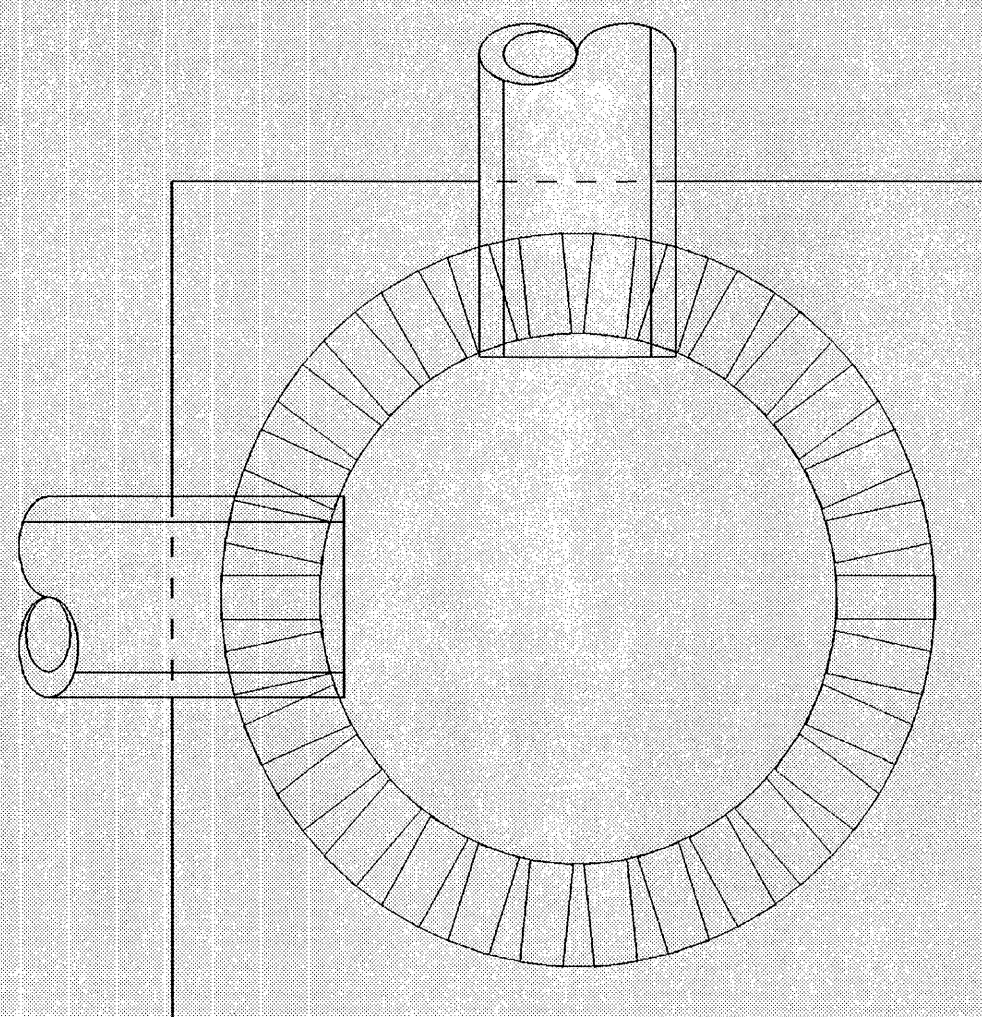
1. USE RAPID SET GROUT, MORTAR, OR CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI.
2. REMOVE ALL FAULTY EXISTING BRICKWORK AND REPLACE WITH NEW BRICK MASONRY.
3. SHEER CUT EXCAVATION FOR THE ADJUSTMENT ON ALL SIDES.
4. FILL AREA BELOW 8" DEPTH WITH 78M OR NO. 57 CLEAN STONE.
5. MIX MORTAR TO NCDOT SPECIFICATIONS.
6. MORTAR JOINTS 1/2" +/- 1/8"



**MANHOLE CONCRETE ENCASEMENT**



**VALVE BOX CONCRETE ENCASEMENT**



**ELEVATION VIEW**

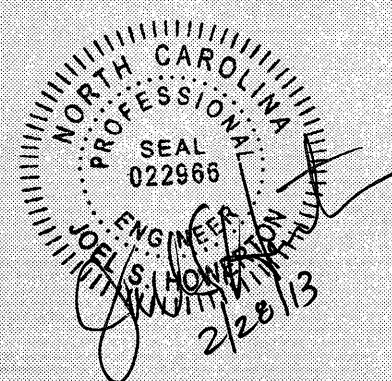
PLACE BRICK ACCORDING TO ELEVATION VIEW

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DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**MANHOLE AND VALVE BOX ADJUSTMENTS**  
SHEET 1 OF 1  
**840D55**

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01-DEC-2005 14:25  
Project: U-3609A  
File: P:\3609A\Standards\stand\840d55.dgn



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

**SEE PLATE FOR TITLE**

ORIGINAL BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 MODIFIED BY: E.E. WARD DATE: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 FILE SPEC.: /usr/details/stand/840d55.dgn

2/26/2013

REV. No.	REVISION	DATE	DRAWN BY	CHECKED BY

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PREPARED IN THE OFFICE OF:

**Kimley-Horn  
and Associates, Inc.**

P.O. BOX 33068 - RALEIGH, NORTH CAROLINA 27636-3068  
 PHONE: (919) 677-2000 FAX: (919) 677-2050 PE NO. F-0102

**MANHOLE AND  
VALVE ADJUSTMENTS  
DETAIL**

PROJECT:  
**BERKELEY BOULEVARD WIDENING**

JOB NUMBER: 011746003 SHEET NUMBER: 2-C











## SUMMARY OF EARTHWORK IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
-L- STA 14+67 TO STA 18+33	243		13		230
-L- STA 33+00 TO STA 71+75	1,298		3,948	2,650	
-Y2- STA 11+36.98 TO STA 12+69.94	94		48		46
-Y3- STA 11+35.39 TO STA 12+70	34		24		10
-Y4- STA 11+40 TO STA 12+70	32		38	6	
-Y5- STA 11+39.85 TO STA 12+70	42		17		25
-Y7- STA 11+51.35 TO STA 12+82	35		16		19
<b>SUB-TOTAL</b>	1,778		4,104	2,656	330
USE WASTE TO REPLACE BORROW				-330	-330
<b>TOTAL</b>	1,778		4,104	2,326	0
SAY	2,000			2,700	
EST. DDE = 630 CY					
EST. CHANNEL EXCAVATION = 390 CY					
EST. CONTINGENCY UNDERCUT = 200 CY					
EST. CONTINGENCY SHALLOW UNDERCUT = 250 CY					
EST. CLASS IV SUBGRADE STABILIZATION = 450 TONS					
EST. SELECT MATERIAL CLASS VI (BACKFILL FOR RCBC AND SEWER INSTALLATION) = 550 CY					

REMOVAL OF EXISTING ASPHALT PAVEMENT			
LINE	STATION TO STATION	LOCATION	SQ. YDS.
-L-	33+45 TO 33+85	LRT	210
<b>TOTAL</b>			210

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

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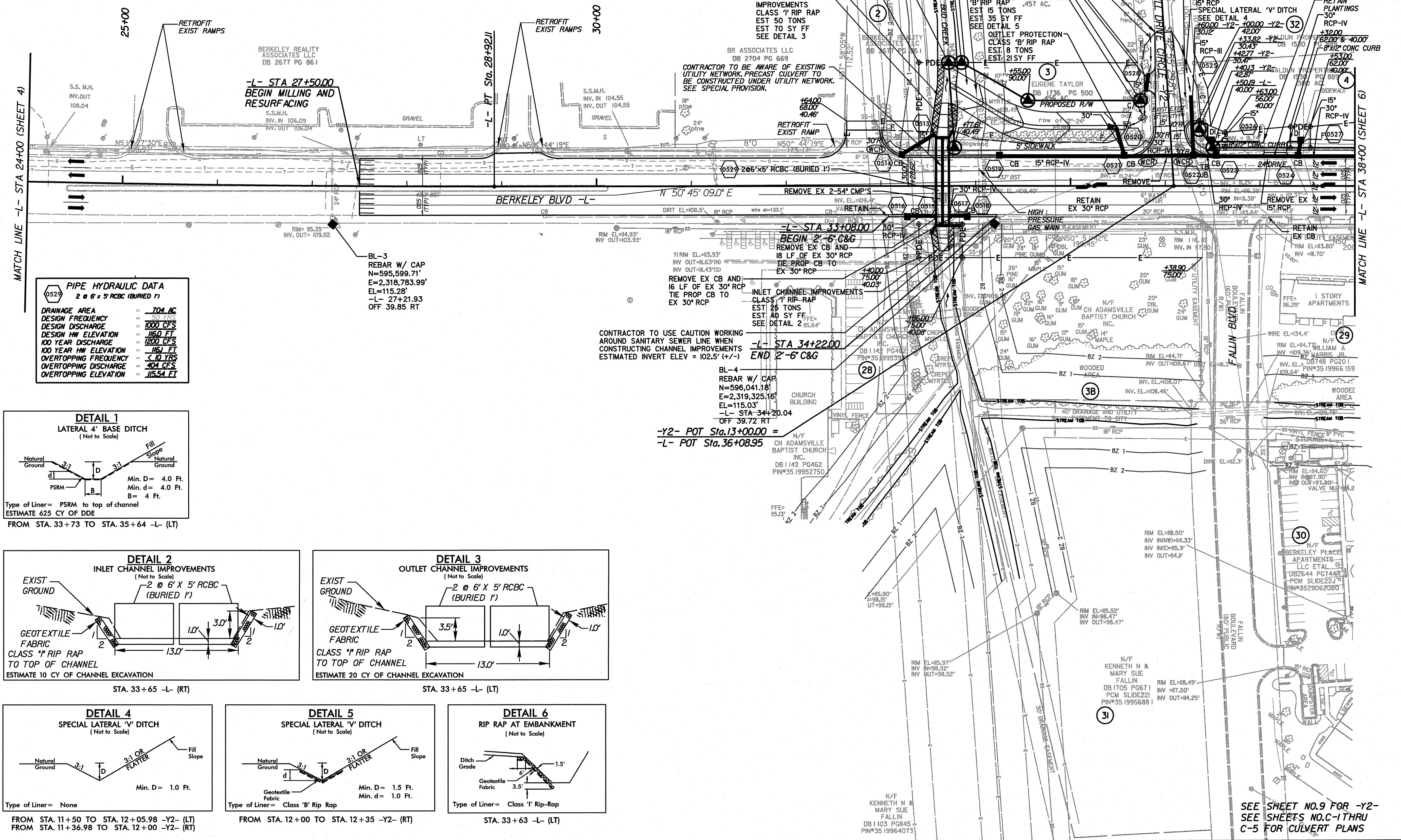
-L-  
 PI Sta 24+76.16  
 $\Delta = 2' 04" 48.0' (LT)$   
 $D = 0' 15" 00.0'$   
 $L = 832.00'$   
 $T = 416.04'$   
 $R = 22918.31'$   
 $DS = 50 MPH$

EXISTING SANITARY SEWER									
SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10
RIM EL=115.16' INV IN=103.36' INV OUT=102.34'	RIM EL=114.82' INV IN=102.92' INV OUT=102.82'	INV. IN 103.31 INV. OUT 103.24	RIM EL=113.81' INV IN=102.96' INV OUT=102.86'	RIM EL=112.96' INV IN=102.76' INV OUT=102.76'	RIM EL=113.66' INV IN=102.36' INV OUT=102.34'	RIM EL=115.47' INV IN=102.22' INV OUT=102.17'	S.S.M.H. RIM EL=113.65 INV IN 95.45 INV OUT=95.35	RIM EL=115.16' INV IN=102.96' INV OUT=102.86'	RIM EL=116.10' INV IN=102.76' INV IN=102.76'

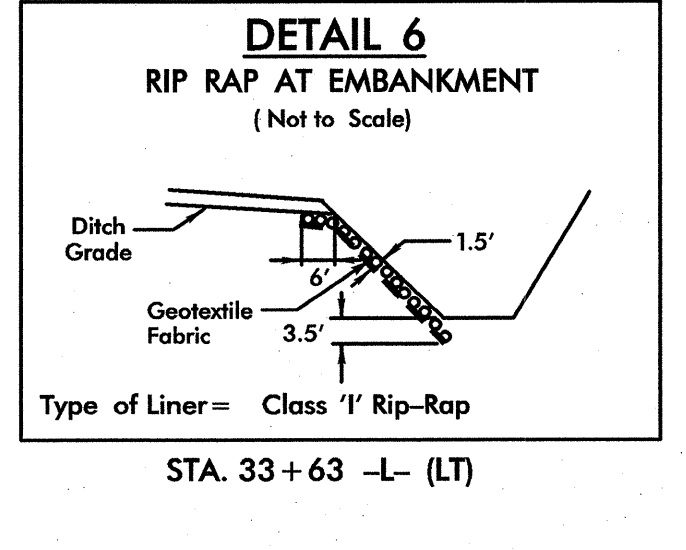
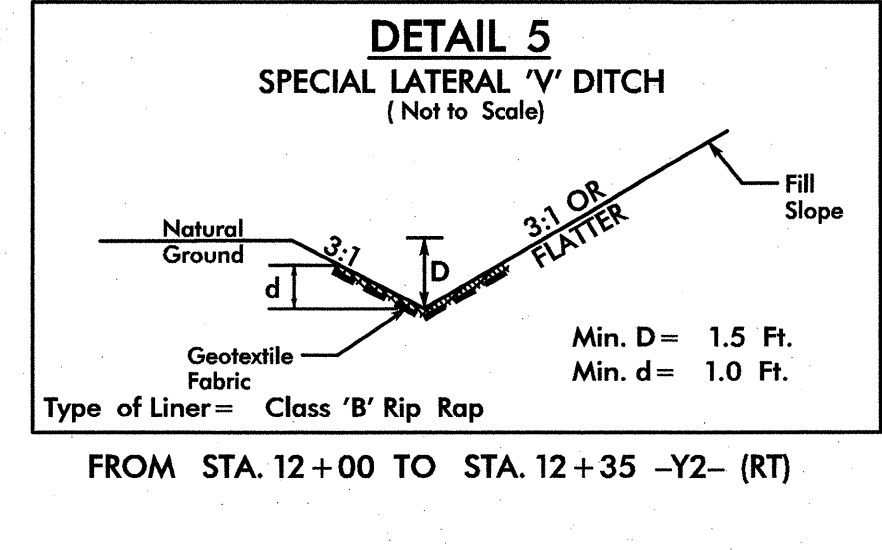
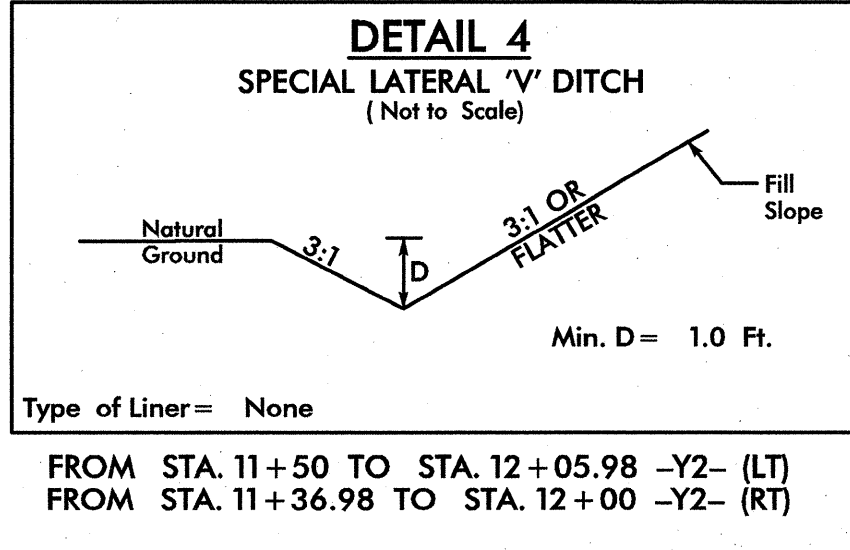
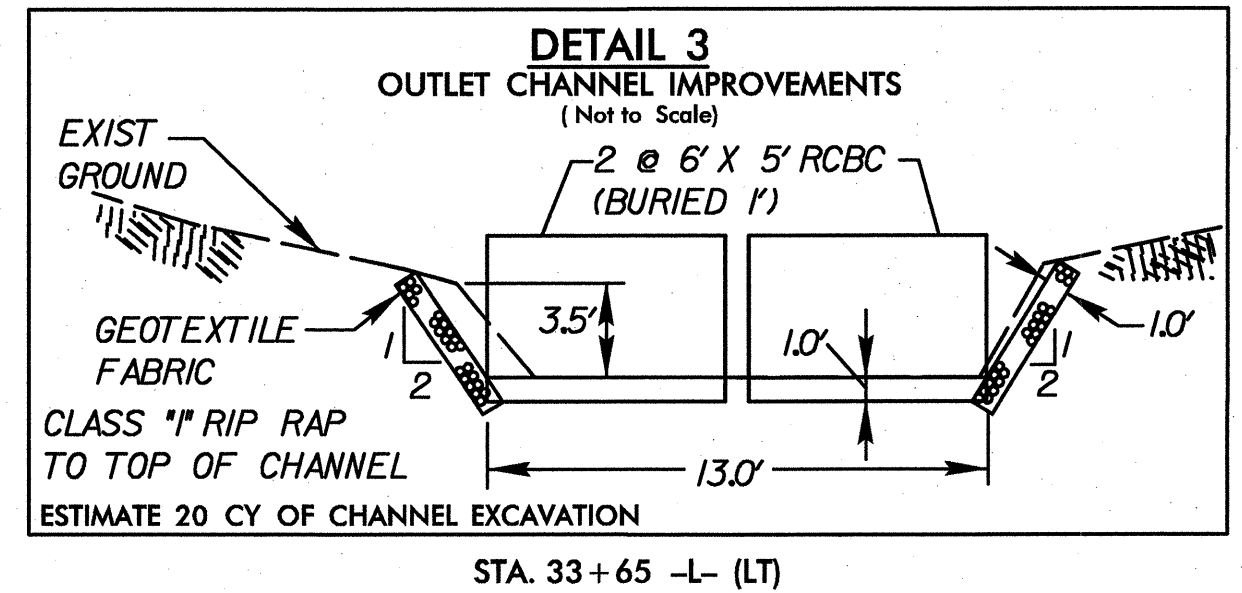
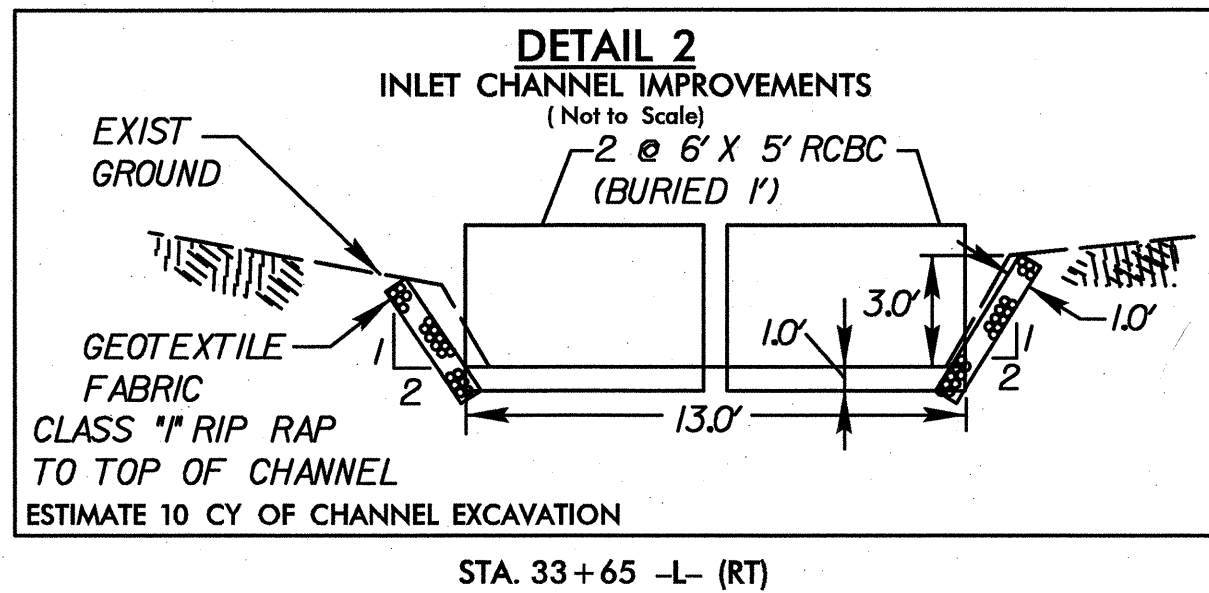
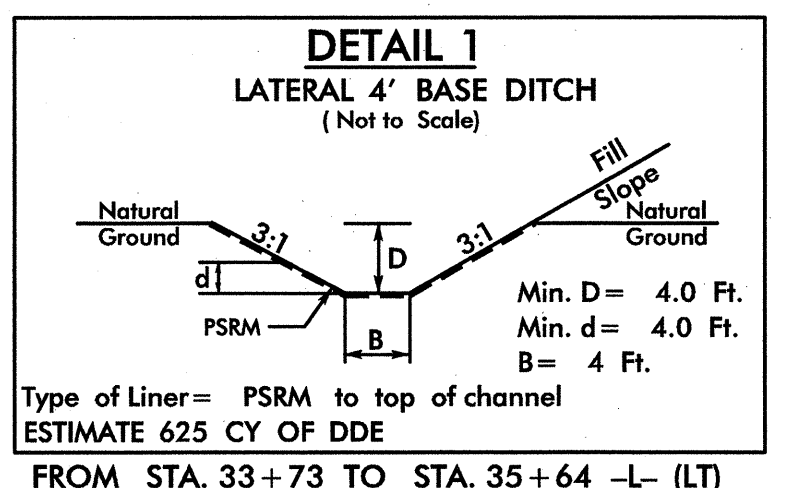
EXISTING STORMDRAIN			
DI-1	CB-1	CB-2	CB-3
RIM EL=113.34' FILLED WITH DIRT	RIM EL=115.23' INV IN=109.53' INV IN(SW)=109.69' INV OUT=109.60'	RIM EL=115.46' INV CL=109.24'	RIM EL=115.47' INV CL=109.26' INV IN=110.40'

PROJECT REFERENCE NO. U-3609A	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Kimley-Horn and Associates, Inc. P.O. BOX 33068 RALEIGH, N.C. 27636-3068	



**PIPE HYDRAULIC DATA**  
 2 @ 6' x 5' RCBC (BURIED 1')

DRAINAGE AREA	= 704 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 1000 CFS
DESIGN HW ELEVATION	= 116.0 FT
100 YEAR DISCHARGE	= 1200 CFS
100 YEAR HW ELEVATION	= 116.1 FT
OVERTOPPING FREQUENCY	= < 10 YRS
OVERTOPPING DISCHARGE	= 404 CFS
OVERTOPPING ELEVATION	= 115.54 FT

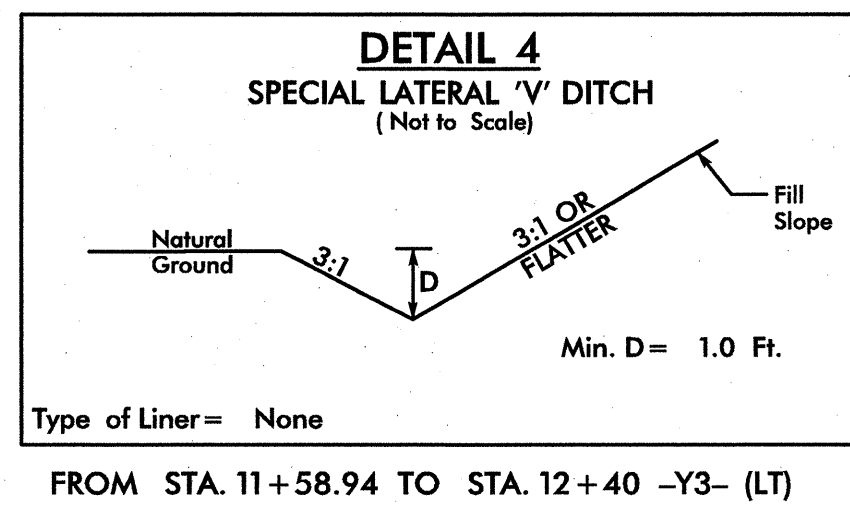
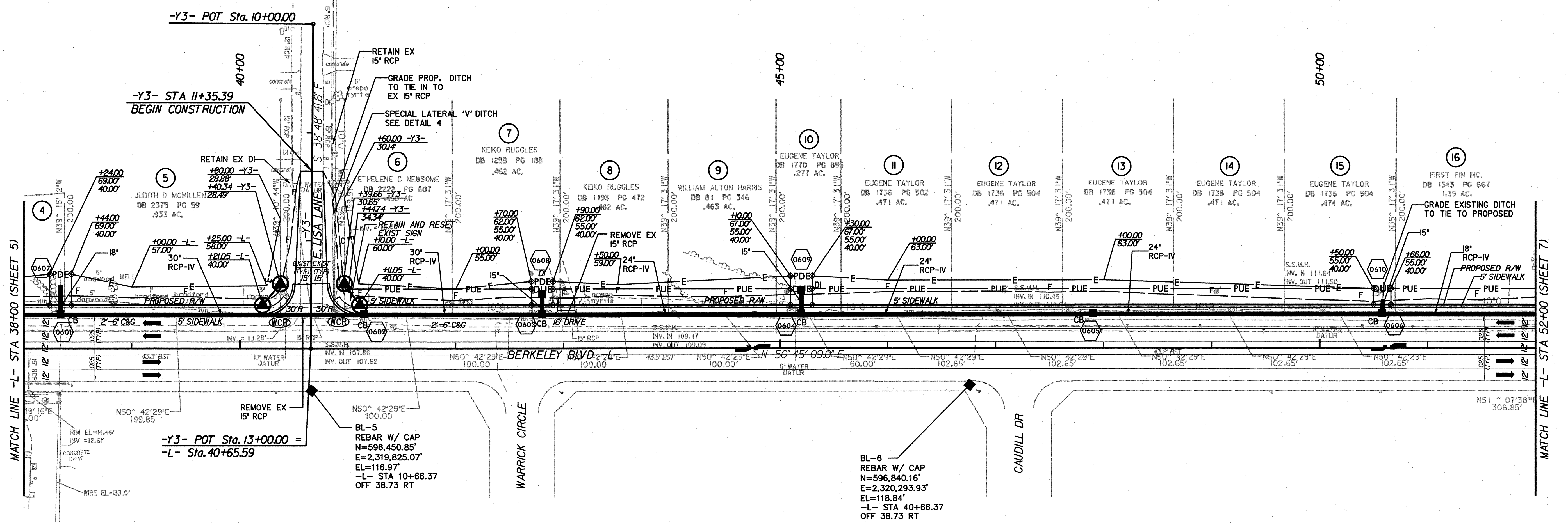


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 1/26/2015

SEE SHEET NO.9 FOR -Y2-  
 SEE SHEETS NO.C-1 THRU  
 C-5 FOR CULVERT PLANS



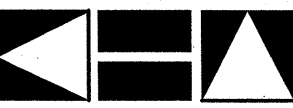
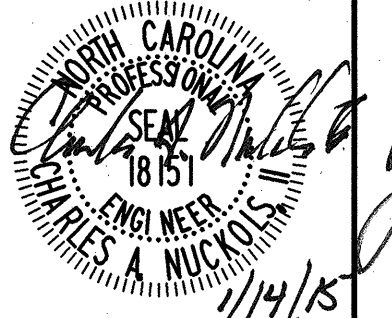
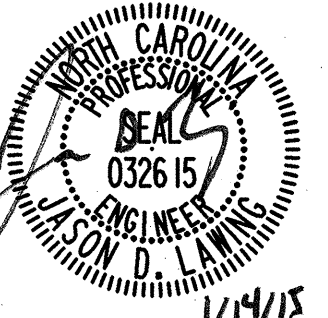
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	U-3609A	6
	R/W SHEET NO.	
Kimley-Horn and Associates, Inc.  P.O. BOX 33068 RALEIGH, N.C. 27636-3068  RIGHT-OF-WAY REV. CONST. REV.	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

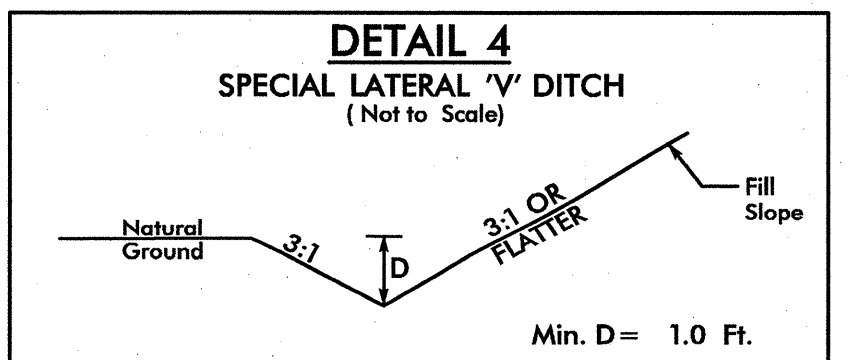
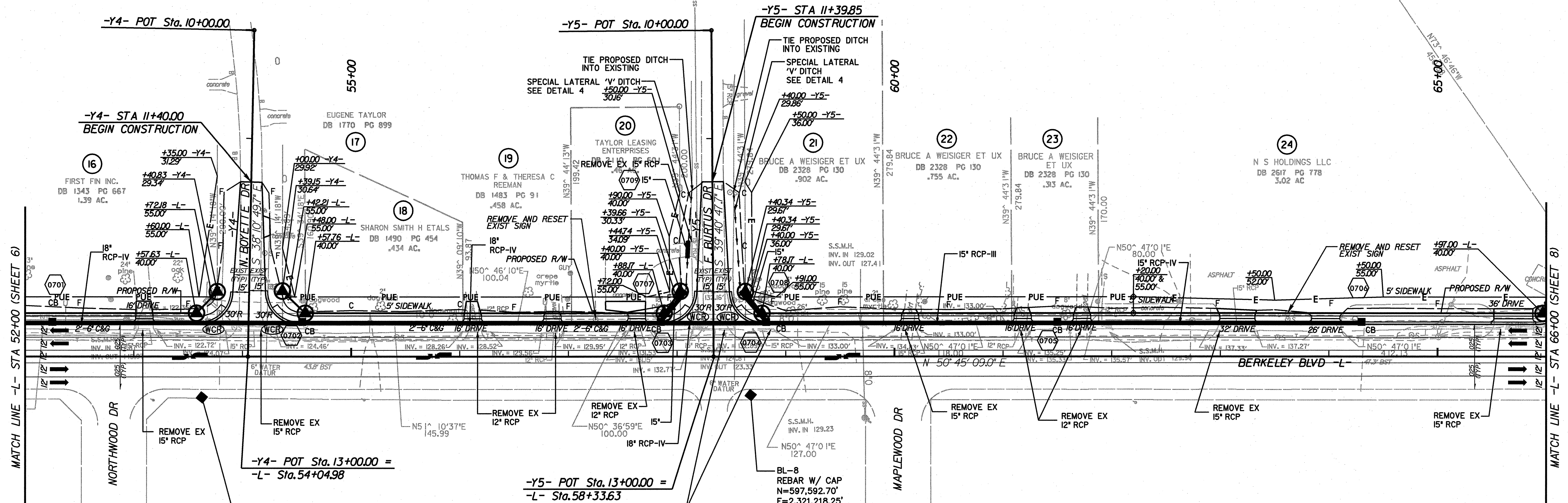


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SEE SHEET NO.9 FOR -Y3- PROFILE



 Kimley-Horn and Associates, Inc. P.O. BOX 33068 RALEIGH, N.C. 27636-3068 RIGHT-OF-WAY REV. CONST. REV.	PROJECT REFERENCE NO. U-3609A	SHEET NO. 7
	ROADWAY DESIGN ENGINEER  1/14/15	HYDRAULICS ENGINEER  1/14/15



FROM STA. 11+39.66 TO STA. 12+39.14 -Y5- (RT)  
 FROM STA. 11+36.66 TO STA. 12+39.85 -Y5- (LT)

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1/14/2015

SEE SHEET NO.9 FOR -Y4- AND -Y5- PROFILES

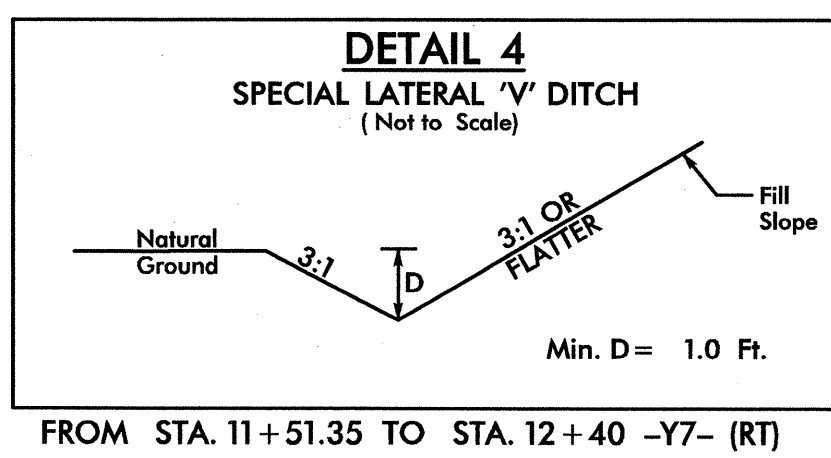
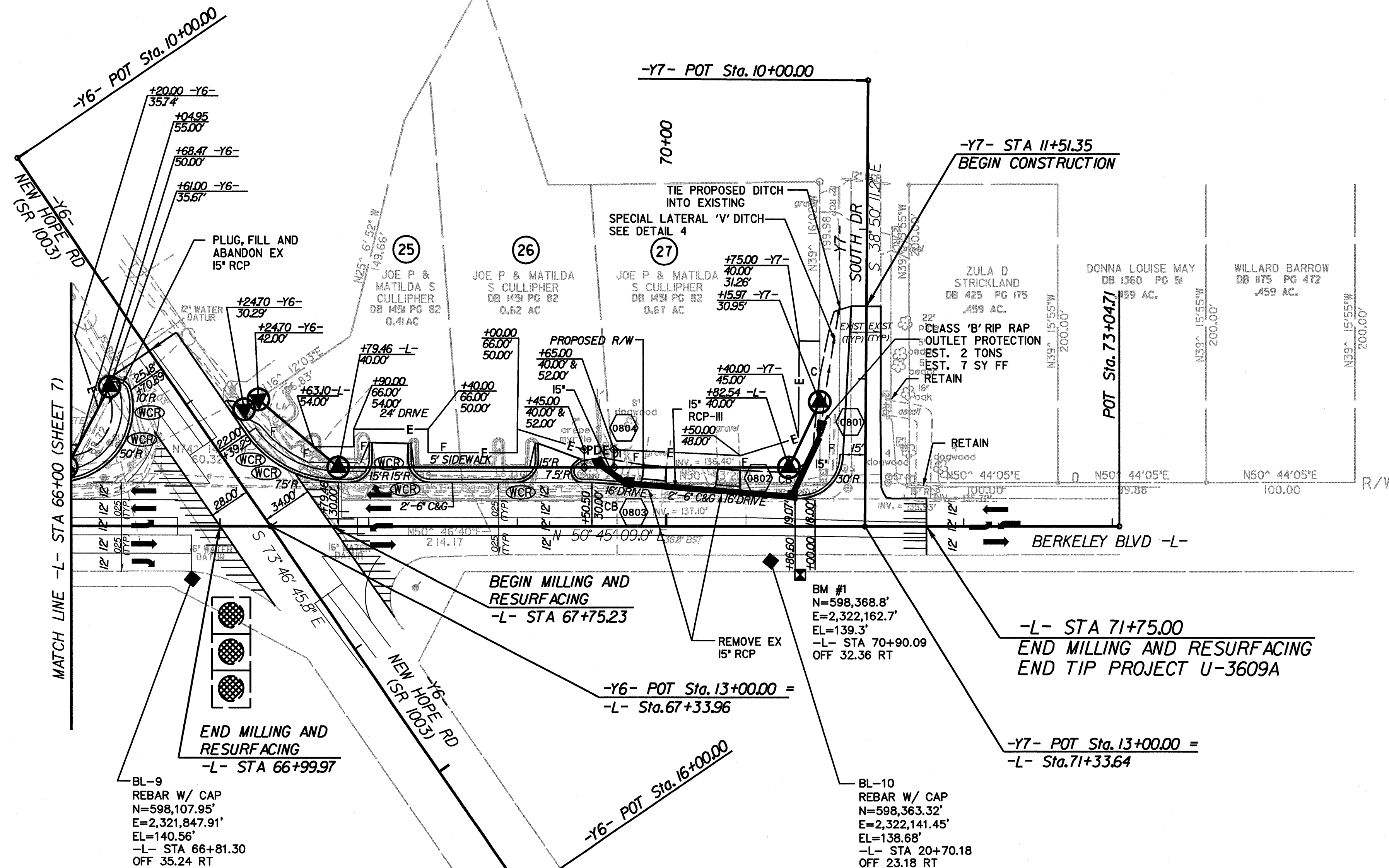


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P.O. BOX 33068  
RALEIGH, N.C. 27636-3068

RIGHT-OF-WAY REV.  
CONST. REV.

PROJECT REFERENCE NO. U-3609A	SHEET NO. 8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



BL-9  
REBAR W/ CAP  
N=598,107.95'  
E=2,321,847.91'  
EL=140.56'  
-L- STA 66+81.30  
OFF 35.24 RT


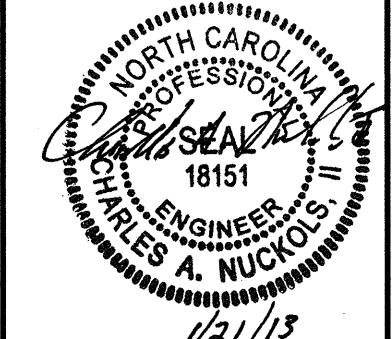

BL-10  
REBAR W/ CAP  
N=598,363.32'  
E=2,322,141.45'  
EL=138.68'  
-L- STA 20+70.18  
OFF 23.18 RT

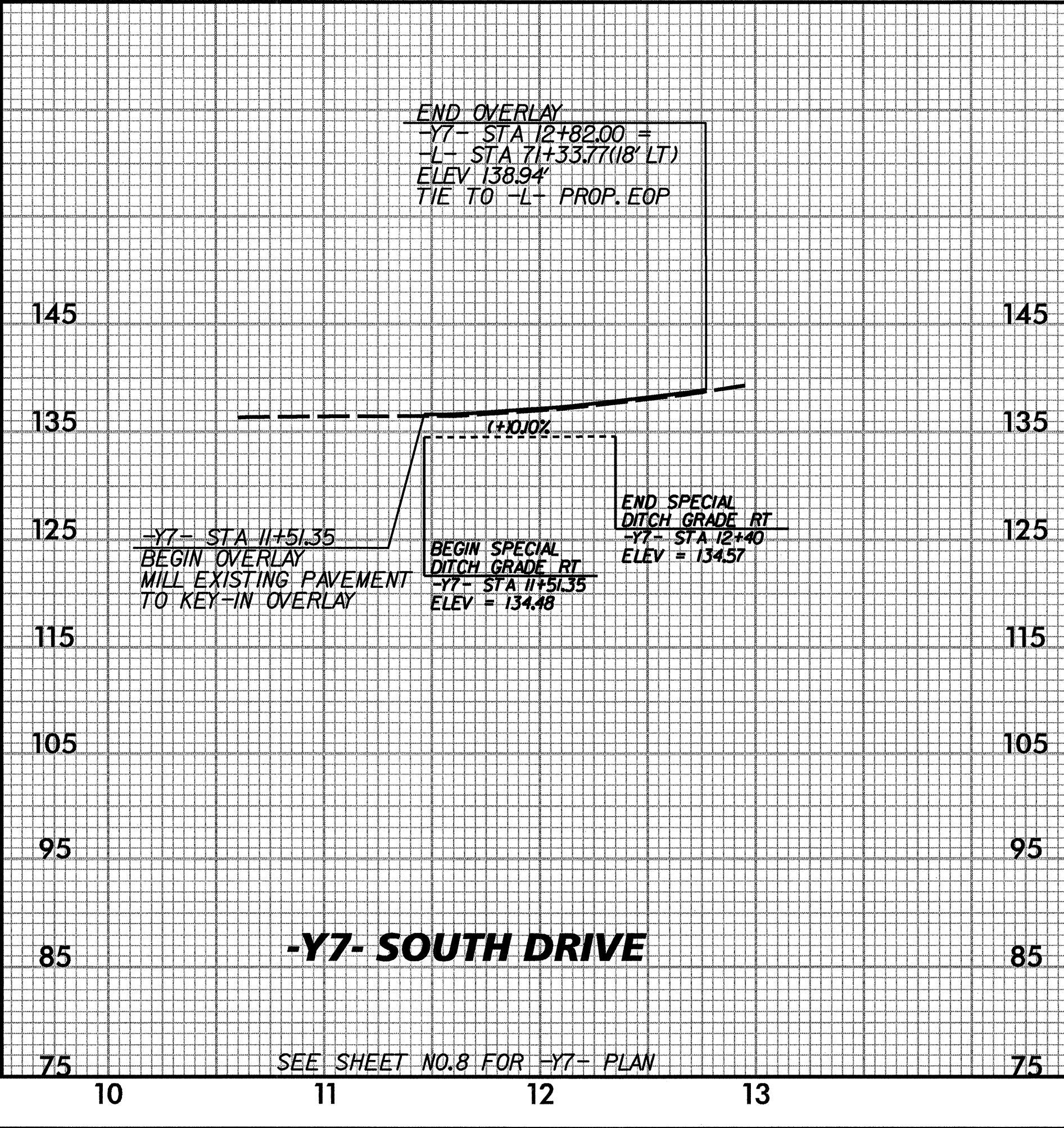
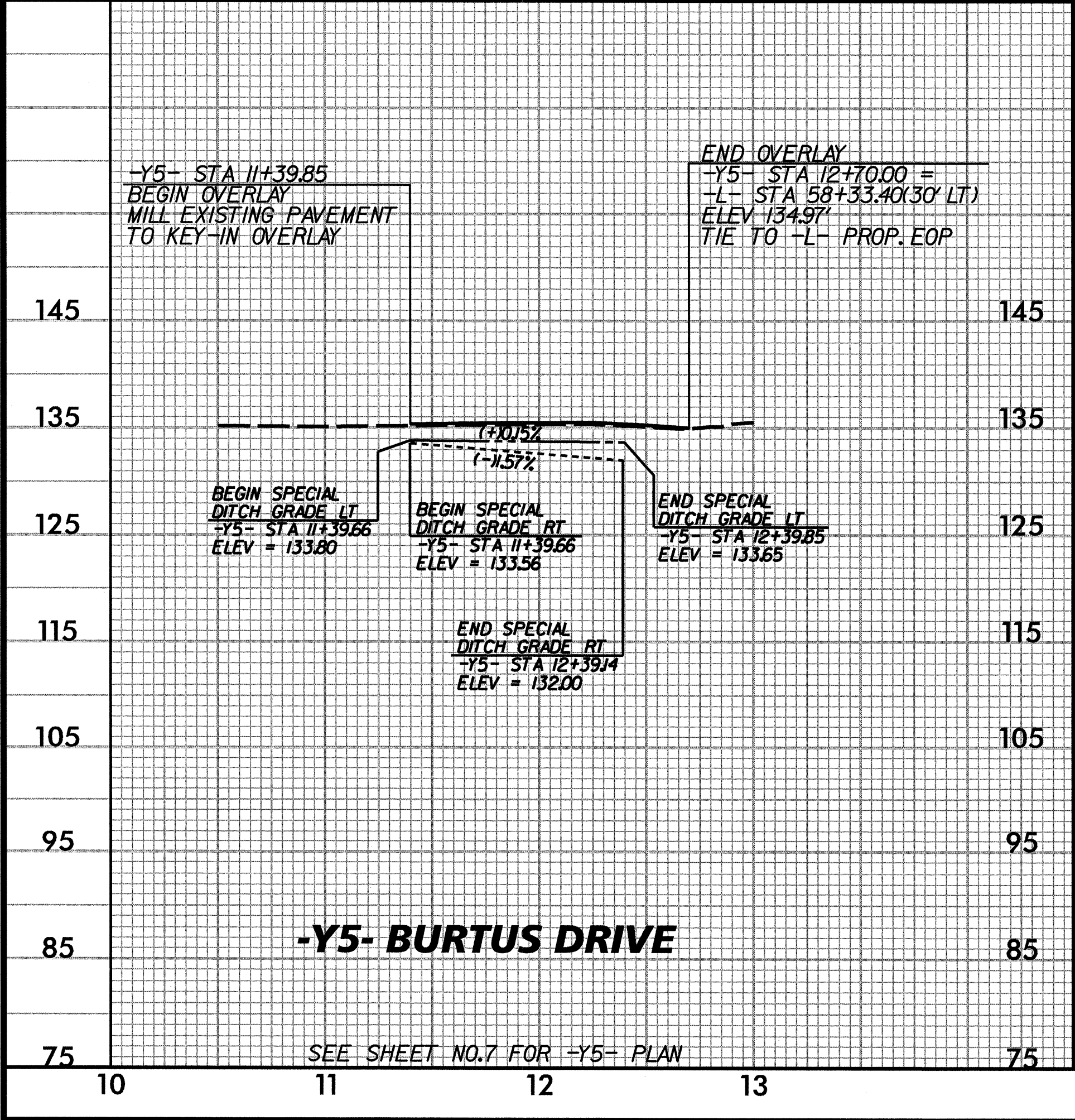
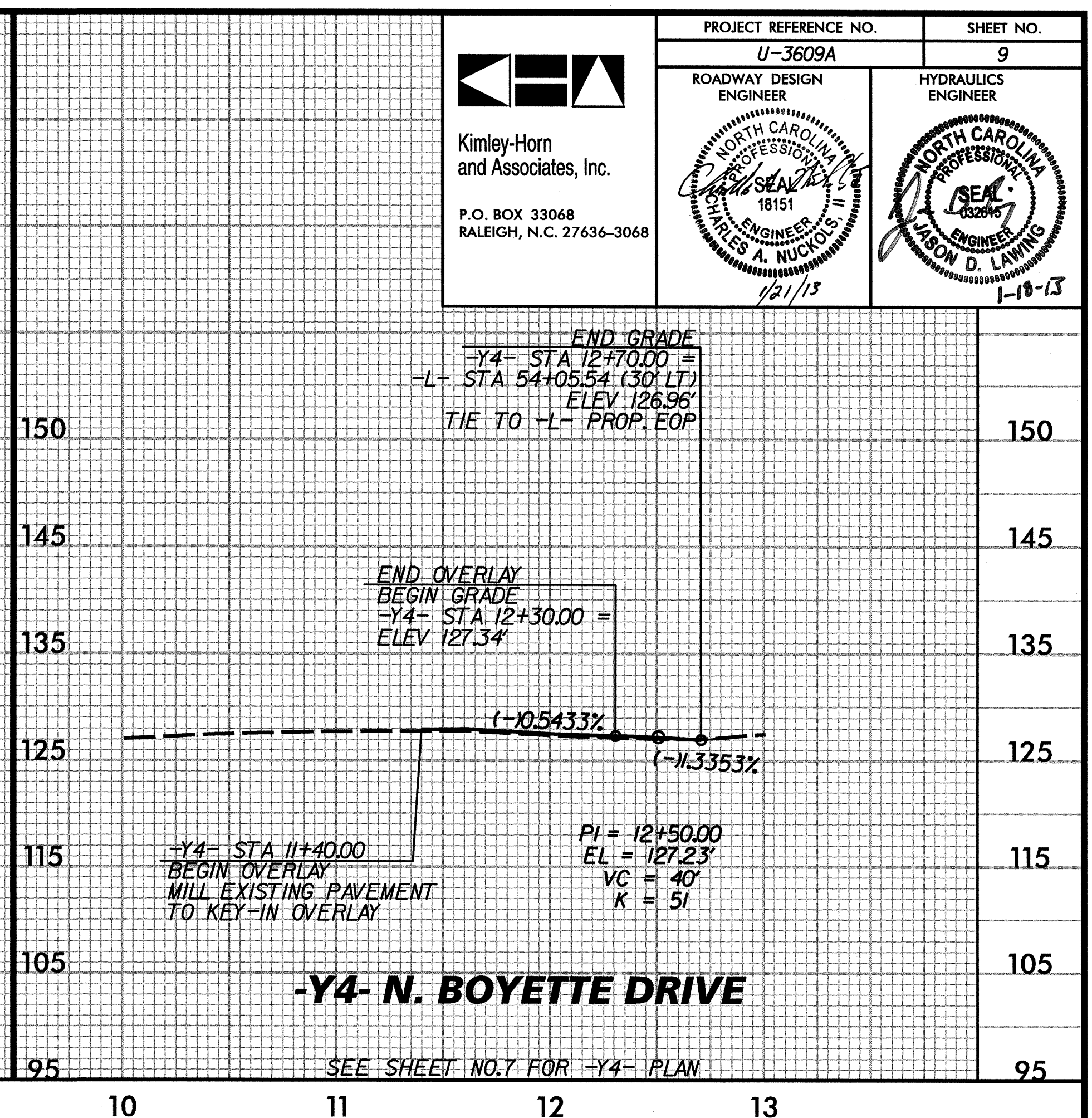
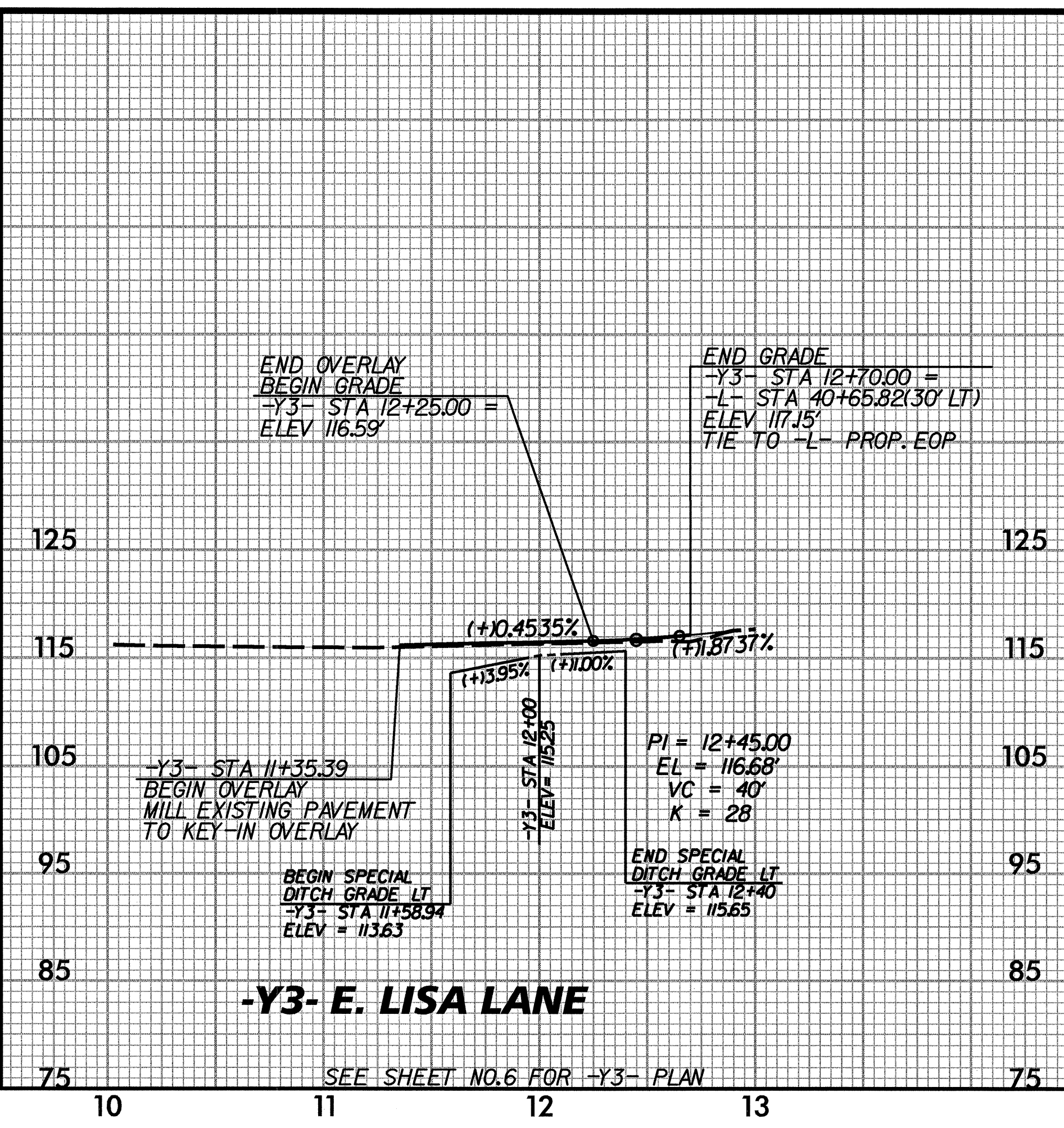
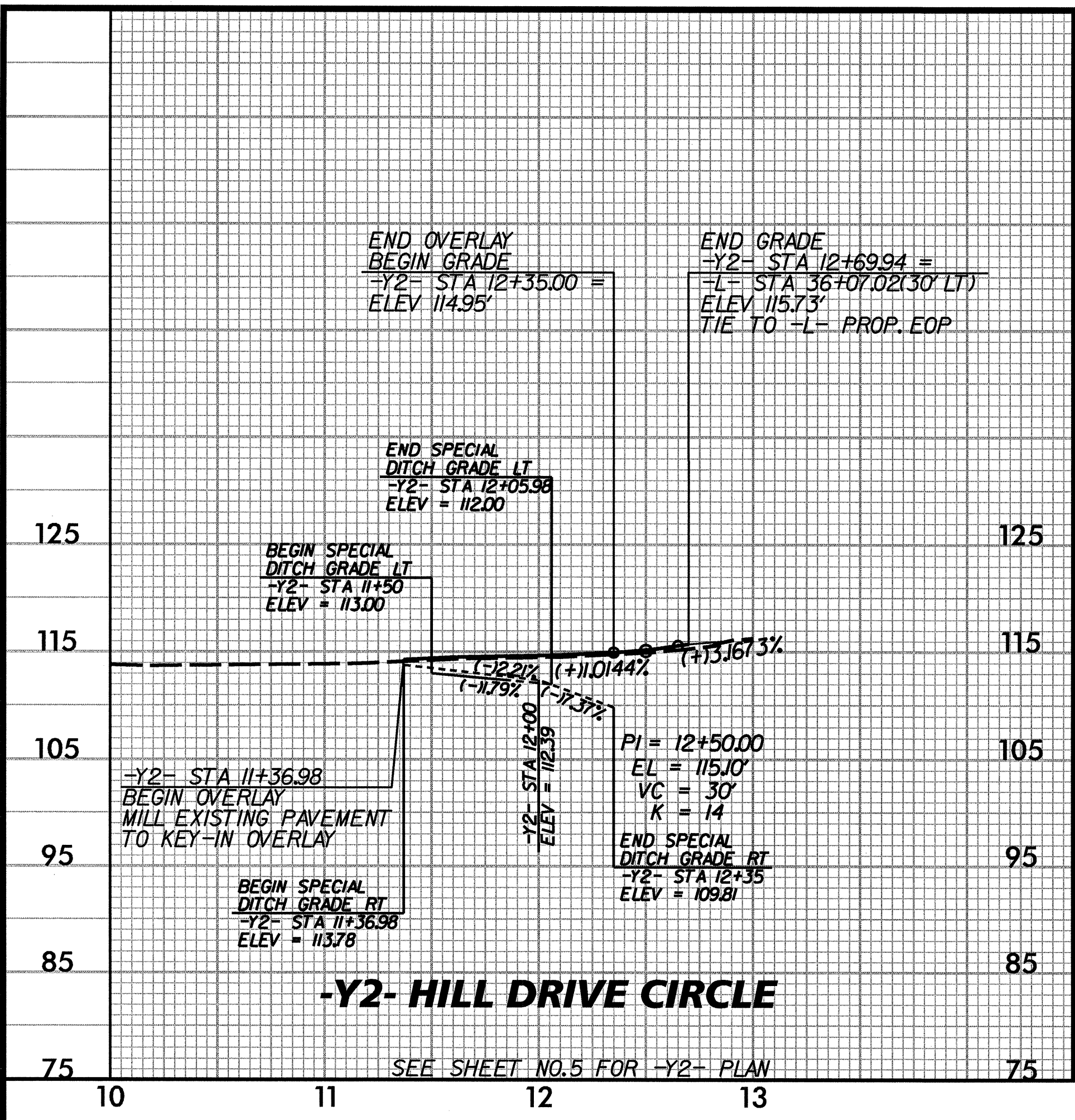
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2/21/2013

SEE SHEET NO.9 FOR -Y7- PROFILE



 Kimley-Horn and Associates, Inc. P.O. BOX 33068 RALEIGH, N.C. 27636-3068	PROJECT REFERENCE NO. U-3609A	SHEET NO. 9
	ROADWAY DESIGN ENGINEER  CHARLES A. NUCROSI 18151 1/21/13	HYDRAULICS ENGINEER  JASON D. LAWING 18151 1-18-13



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 1/17/2013