

09/08/09

See Sheet 1-A For Index of Sheets

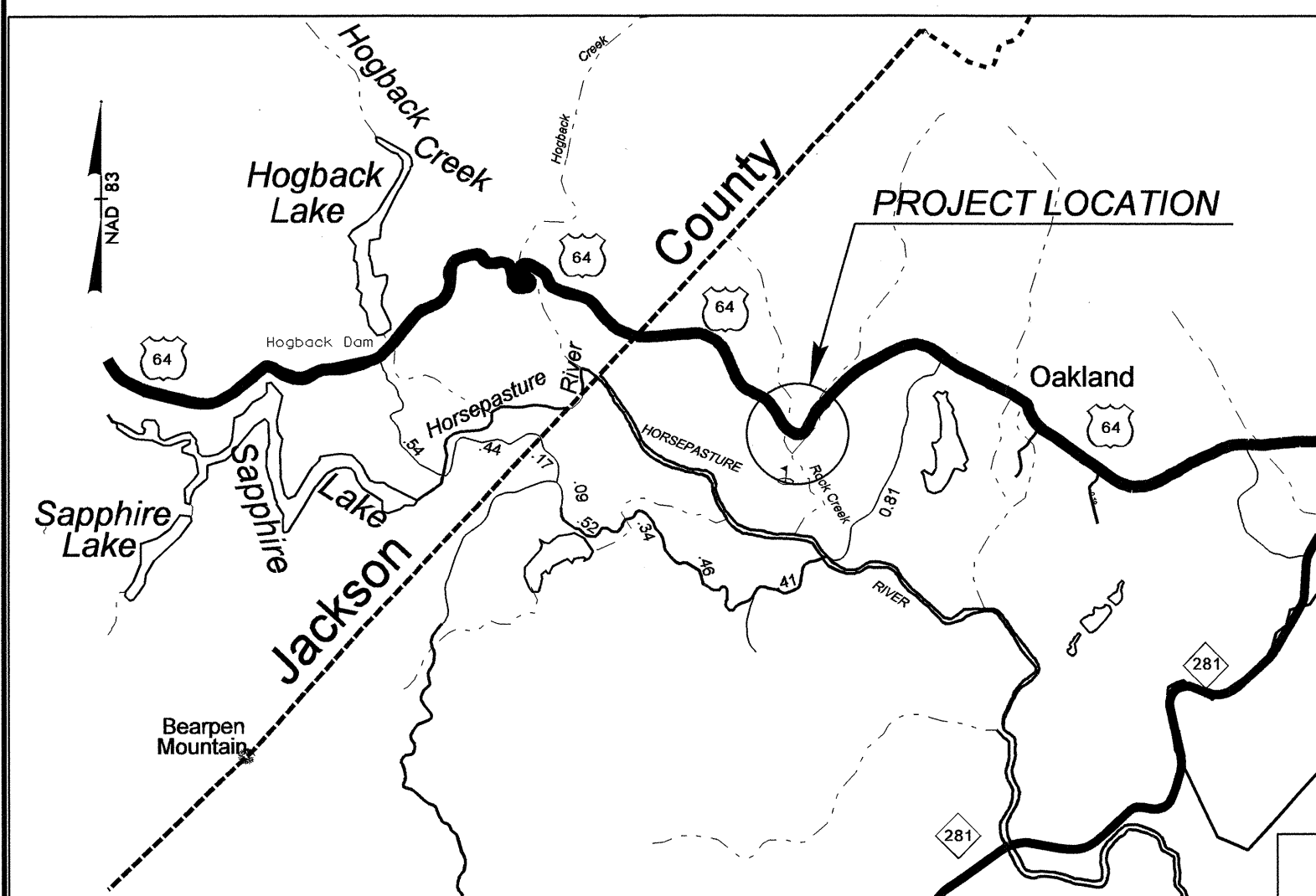
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSYLVANIA COUNTY

LOCATION: BRIDGE NO. 27 ON US 64 OVER ROCKY CREEK

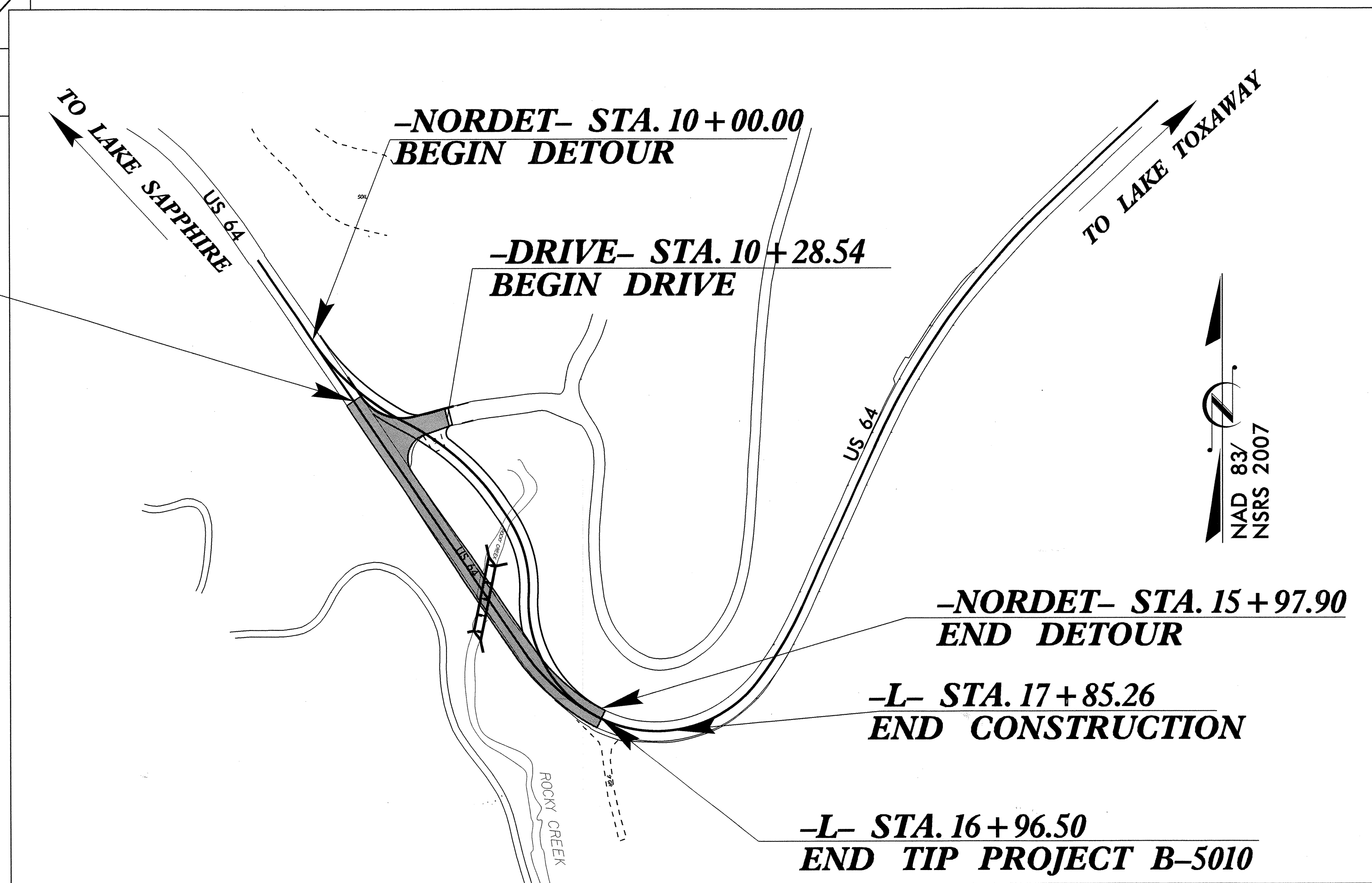
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND
CULVERT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5010	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
41536.1.1	BRSTP-0064(99)	P.E.	
41536.2.1	BRSTP-0064(99)	RW & UTIL	
41536.3.1	BRSTP-0064(99)	CONST.	



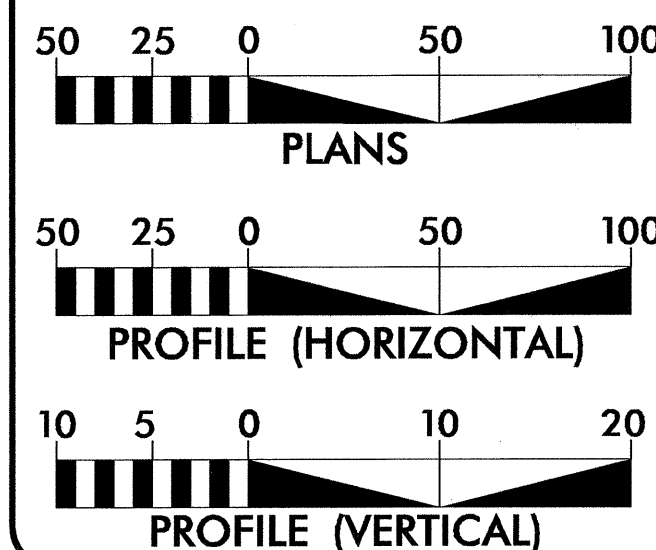
VICINITY MAP

**-L- STA. 12+06.44
BEGIN TIP PROJECT B-5010**



THIS IS NOT A CONTROL OF ACCESS PROJECT.

GRAPHIC SCALES



DESIGN DATA

ADT 2011 = 5435
ADT 2035 = 8600
DHV = 11 %
D = 65 %
T = 26 % *
V = 25 MPH
* TTST 3 DUAL 23
STATEWIDE TIER
FUNC. CLASS = RURAL MINOR ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5010 = 0.093 MILE
TOTAL LENGTH TIP PROJECT B-5010 = 0.093 MILE

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 16, 2012

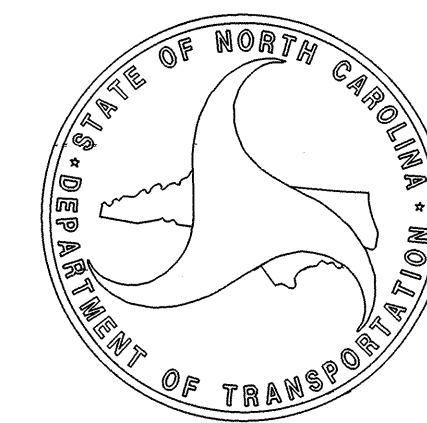
JIMMY GOODNIGHT, PE
PROJECT ENGINEER

LETTING DATE:
APRIL 16, 2013

NATHAN N. ADIMA, PE
ASST. PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

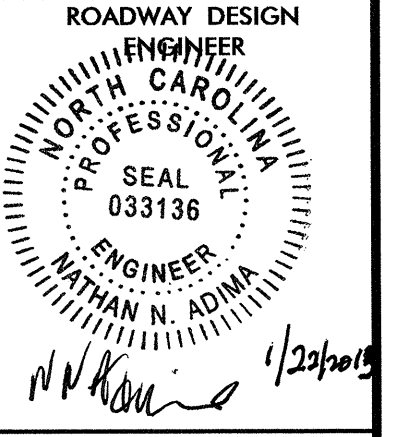
Signature: [Signature] 2/12/2013
ROADWAY DESIGN ENGINEER
Signature: [Signature] 1/22/2013



18-JAN-2013 14:12
R:\Roadway\Proj\1\B5010_rdy_tsh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

TIP PROJECT: B-5010

CONTRACT: C203092



STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

SHEET NUMBER	INDEX OF SHEETS 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 - 2A	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2-B	DETOUR
2-C	CHAIN LINK FENCE ON RETAINING WALL
2D - 2F	STANDARD OF TEMPORARY WALL
2-G	DETAIL OF REINFORCED SANDBAG HEADWALL
3	SUMMARY OF QUANTITIES
3A - 3C	SUMMARY OF DRAINAGE QUANTITIES SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-5	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-8	EROSION CONTROL PLANS
RF-1 THRU RF-2	REFORESTATION PLANS
SIGN-1 THRU SIGN-2	SIGNING PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTIONS SUMMARY SHEETS
X-2 THRU X-13	CROSS-SECTIONS
W-1 THRU W-2	WALL DETAILS
C-1 THRU C-6	CULVERT

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 07/30/12

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.

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

GUARDRAIL:
THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

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

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
COMPTORIUM-Telephone and Cable Television
HAYWOOD EMC-Power
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.

ROCK:
ROCK IS ANTICIPATED IN THE PROPOSED DITCH LINES OF -L- ALIGNMENT AND NEAR GRADE OF -NORDET- ALIGNMENT REQUIRED FOR EXCAVATION ON THE PROJECT. SEE SECTION 220 OF THE STANDARD SPECIFICATIONS AND IF APPLICABLE, ROCK BLASTING PROVISION.

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 Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
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	
815.03	Pipe Underdrain and Blind Drain
838.39	Reinforced Concrete Endwall - for Single 72" Pipe 90 Skew
838.69	Reinforced Brick Endwall - for Single 72" Pipe 90 Skew
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
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
840.25	Anchorage for Frames - Brick or Concrete or Precast
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
850.01	Concrete Paved Ditches
857.01	Precast Reinforced Concrete Barrier - 41" Single Faced
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
866.01	Chain Link Fence - 4', 5' and 6' High Fence
876.02	Guide for Rip Rap at Pipe Outlets

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

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	◻ ECM
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-
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	○ 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	-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	○ 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 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	▨

VEGETATION:

Single Tree	☼
Single Shrub	☼
Hedge	▬
Woods Line	▬

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	-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:

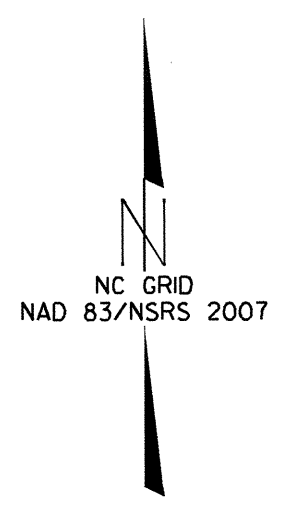
Utility Pole	●
Utility Pole with Base	◻
Utility Located Object	○
Utility Traffic Signal Box	⊙
Utility Unknown U/G Line	-UTIL-
U/G Tank; Water, Gas, Oil	◻
Underground Storage Tank, Approx. Loc.	⊙
A/G Tank; Water, Gas, Oil	◻
Geoenvironmental Boring	⊙
U/G Test Hole (S.U.E.*)	⊙
Abandoned According to Utility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

6/2/09

SURVEY CONTROL SHEET B-5010

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1		520220.3460	806674.5670	3004.96	OUT OF CHAIN	
2	BL-2		519990.8960	806838.7980	2989.15	12+33.08	17.52 RT
3	BL-3		519747.0640	807008.6400	2986.37	15+30.21	13.97 RT
4	BL-4		519607.4540	807131.6530	2997.81	17+04.13	31.86 RT
5	BL-5		519633.0890	807302.5600	3003.05	18+57.52	21.58 RT
6	BL-6		519911.2050	807424.4160	2993.11	21+54.73	16.73 LT
7	BL-7		520172.3500	807569.2080	2996.08	24+49.36	21.63 LT

**NCDOT GPS MONUMENT B-5010 GPS-101
LOCALIZED PROJECT COORDINATES**
 N = 520791.0590
 E = 806,445.9200
 ELEV. = 3,088.68'



**NCDOT BASELINE MONUMENT B-5010 BL-1
LOCALIZED PROJECT COORDINATES**
 N = 520,220.3460
 E = 806,674.5670
 ELEV. = 3,004.96'

**NCDOT BASELINE MONUMENT B-5010 BL-2
LOCALIZED PROJECT COORDINATES**
 N = 519,990.8960
 E = 806,838.7980
 ELEV. = 2,989.15'

**NCDOT BASELINE MONUMENT B-5010 BL-3
LOCALIZED PROJECT COORDINATES**
 N = 519,747.0640
 E = 807,008.6400
 ELEV. = 2,986.37'

BM1 ELEVATION = 3005.93
 N 520226 E 806653
 -BL- STA 5+00.00
 N 74°34'44.84" W 22.25'
 8" SPIKE IN ROOT OF 28' POPLAR TREE

BM2 ELEVATION = 2997.59
 N 519605 E 807122
 L STATION 16+98.00 38 RIGHT
 8" SPIKE IN ROOT OF 8" POPLAR TREE

BM3 ELEVATION = 2996.39
 N 520130 E 807534
 L STATION 23+96.00 24 LEFT
 8" SPIKE IN ROOT OF 32' WHITE OAK TREE

ROW MARKER IRON PIN AND CAP - E

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+15.00	-30.00	519949.8101	806924.1269
L	14+00.00	-30.00	519879.4870	806971.8726
L	14+00.00	-120.00	519930.0413	807046.3324
L	14+60.00	-120.00	519880.4014	807080.0353
L	16+20.00	-30.00	519705.4678	807095.6482
L	16+90.48	-30.00	519669.1800	807145.6992
L	18+00.00	-30.00	519557.7056	807231.4279
L	18+00.00	12.00	519640.1403	807235.3598
L	17+25.00	12.00	519618.4580	807160.6007
L	17+25.00	40.00	519591.4256	807153.3035
L	17+00.00	54.00	519589.2755	807117.9500
L	16+90.48	30.00	519616.1378	807117.6556
L	15+66.48	30.00	519706.3916	807016.8729
L	12+90.00	30.00	519436.7905	806850.4442
L	12+90.00	12.00	519946.9014	806875.3361
L	12+00.00	-12.00	520034.8423	806844.6378
L	12+00.00	-20.00	520039.3361	806851.2564

ROW MARKER IRON PIN AND CAP - E

ALIGN	STATION	OFFSET	NORTH	EAST
DRIVE	11+00.00	-10.00	520013.6789	806907.4780
DRIVE	11+50.00	-10.00	520025.9417	806956.6179
DRIVE	11+50.00	30.00	519987.1847	806965.5122
DRIVE	11+25.00	30.00	519981.0008	806941.2891

ROW MARKER PERMANENT EASEMENT - E

ALIGN	STATION	OFFSET	NORTH	EAST
L	14+90.00	30.00	519771.3249	806972.7880
L	15+30.00	80.00	519710.1459	806953.8900
L	15+60.00	50.00	519702.1774	806995.5614
L	15+40.00	30.00	519729.9593	807000.8737

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	520193.5680	806722.3669
PC	15+68.48	519723.2431	807041.6329
PCC	16+90.48	519642.6593	807131.6774
L	19+07.15	519684.7424	807326.6408
PT	20+12.15	519774.4568	807380.7371
PC	22+23.54	519966.9575	807468.0786
PT	25+73.61	520249.9901	807670.3198
PT	27+68.57	520383.7224	807812.1868

DRIVE

TYPE	STATION	NORTH	EAST
POT	10+00.00	520052.3408	806831.0196
PC	10+28.54	520028.7472	806847.0723
PT	11+01.94	520004.3633	806911.5285
POT	11+51.24	520016.5603	806959.2974

NORDET

TYPE	STATION	NORTH	EAST
PC	10+00.00	520096.2414	806789.4466
PRC	11+51.61	519997.1467	806901.0531
PT	13+03.22	519898.0520	807013.6997
PC	13+19.61	519884.4901	807022.8675
PRC	14+20.93	519788.5557	807049.3773
PT	15+97.90	519642.6593	807131.6774

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-5010 GPS-101" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 520791.0590(±) EASTING: 806445.9200(±) ELEVATION: 3,088.68(±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99973064

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-5010 GPS-101" TO -L- STATION 12+06.44 IS S 27°03'21.61 E 862.70'

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

STA. 16+96.50 -L- END TIP PROJECT B-5010

**NCDOT BASELINE MONUMENT B-5010 BL-4
LOCALIZED PROJECT COORDINATES**
 N = 519,607.4540
 E = 807,131.6530
 ELEV. = 2,997.81'

**NCDOT BASELINE MONUMENT B-5010 BL-5
LOCALIZED PROJECT COORDINATES**
 N = 519,633.0890
 E = 807,302.5600
 ELEV. = 3,003.05'

**NCDOT BASELINE MONUMENT B-5010 BL-6
LOCALIZED PROJECT COORDINATES**
 N = 519,911.2050
 E = 807,424.4160
 ELEV. = 2,993.11'

NOTES:

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/)
 THE FILES TO BE FOUND ARE AS FOLLOWS:
 B-5010_LS_CONTROL.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 ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
 NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

GEOID: GEOID03
NOTE: DRAWING NOT TO SCALE

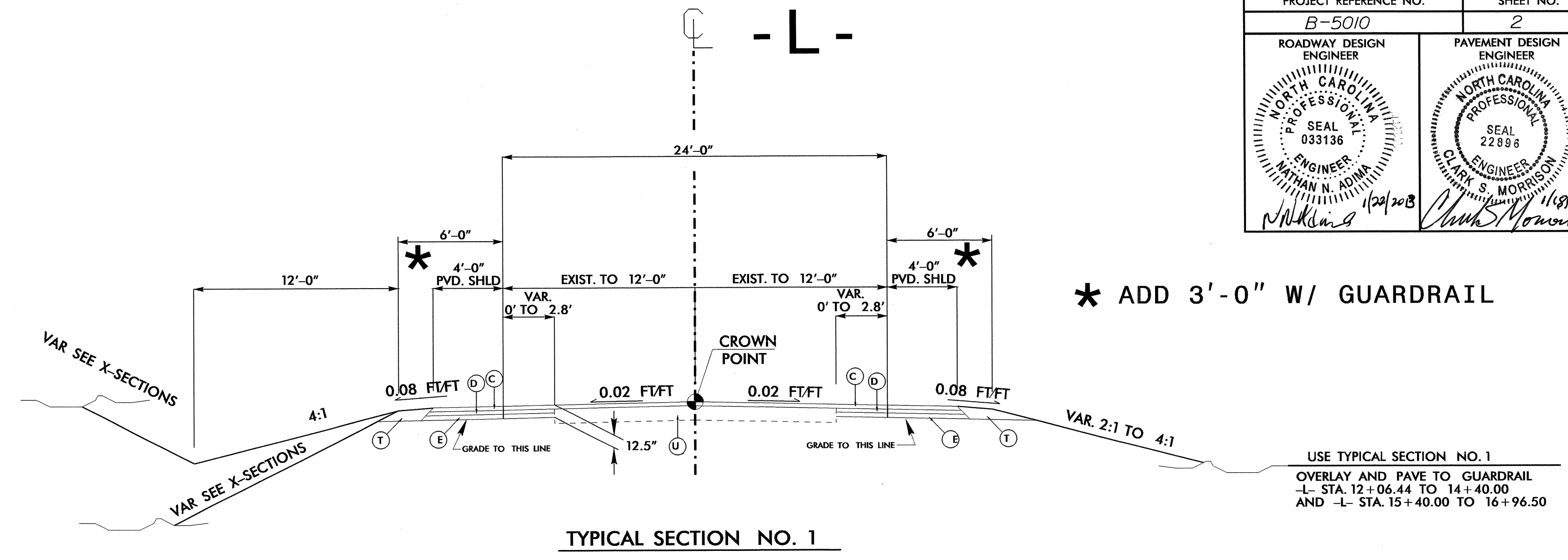
18-JAN-2013 14:15
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6/2/99

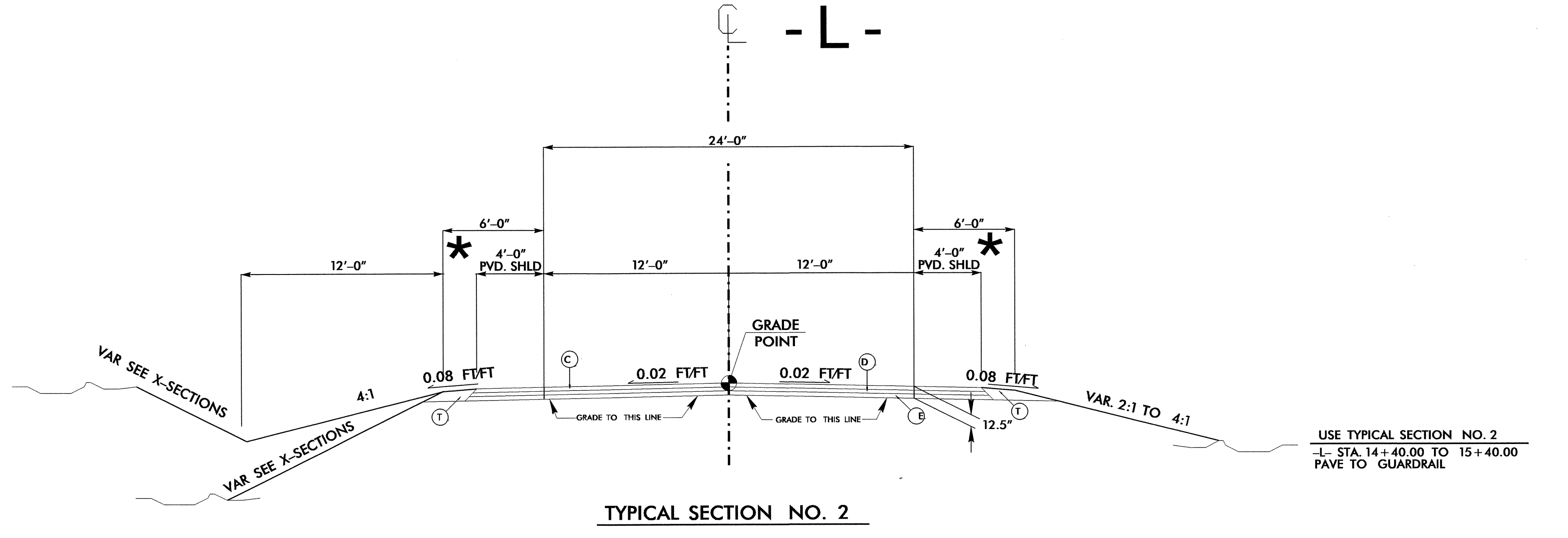
PROJECT REFERENCE NO. B-5010	SHEET NO. 2
ROADWAY DESIGN ENGINEER NATHAN N. ADAMS SEAL 033136 1/20/2013	PAVEMENT DESIGN ENGINEER CLARK S. MORRISON SEAL 22898 1/18/13

PAVEMENT SCHEDULE	
C	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.
D	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
J1	10" AGGREGATE BASE COURSE
P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
R1	PROPOSED SINGLE FACED CONC. BARRIER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.

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

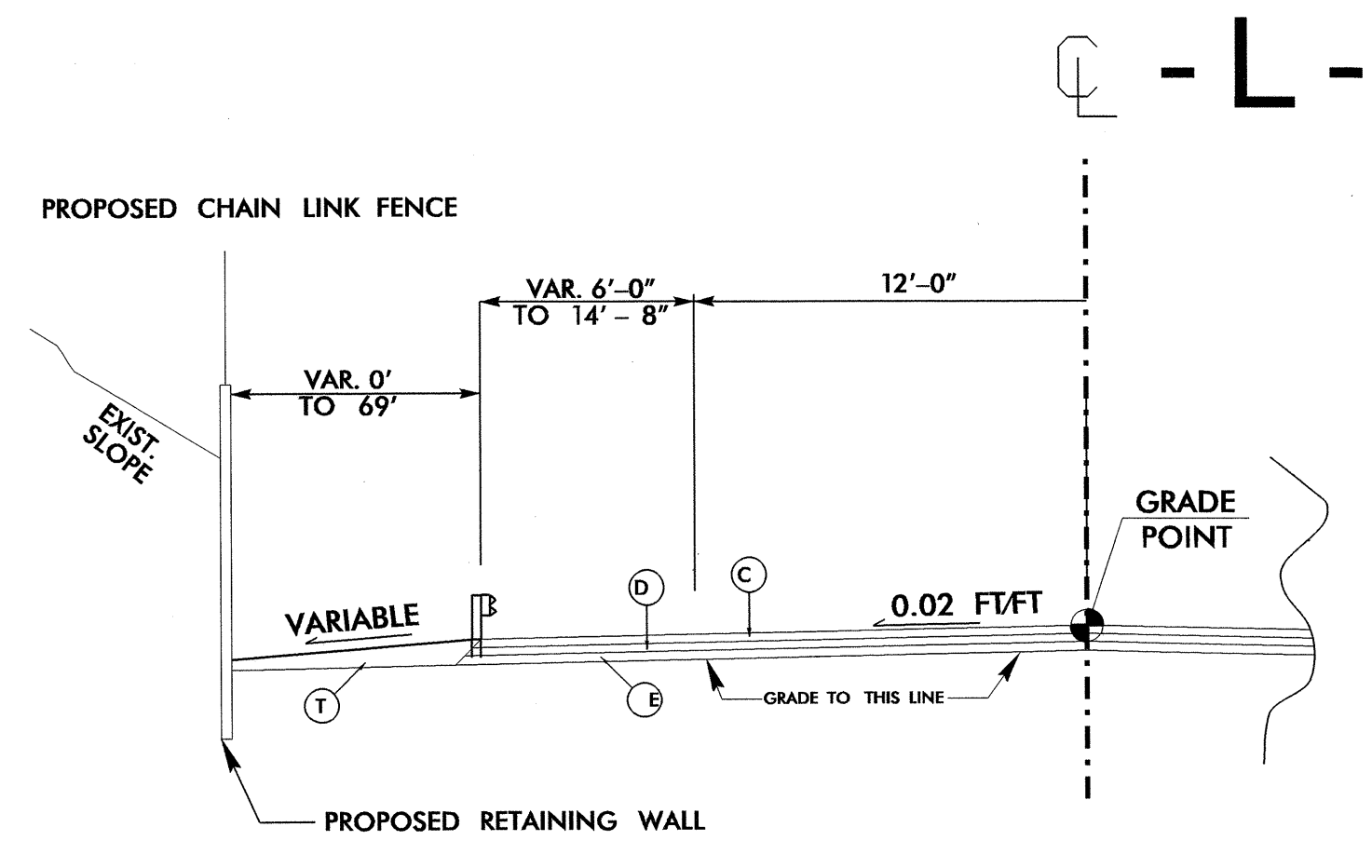


TYPICAL SECTION NO. 1



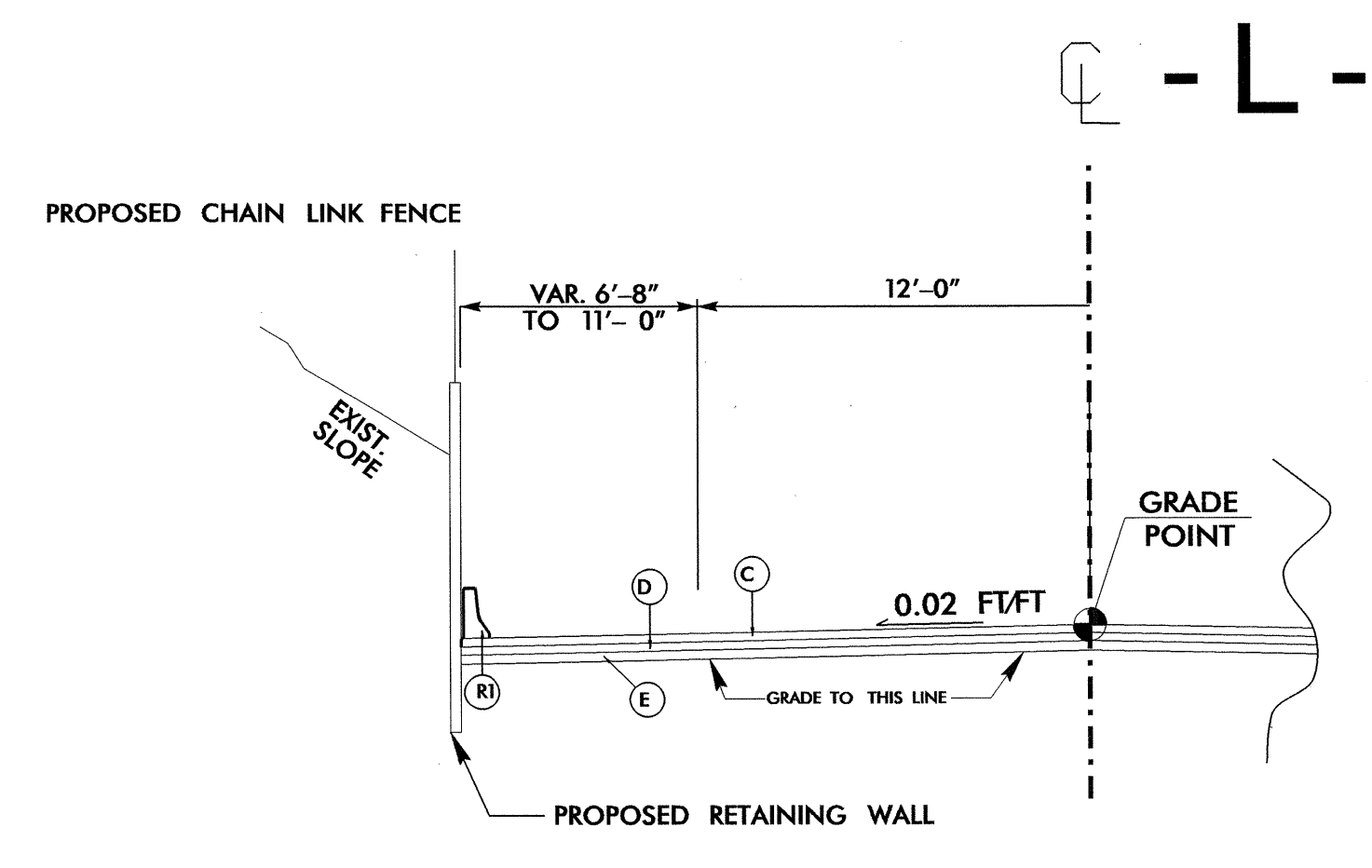
TYPICAL SECTION NO. 2

* ADD 3'-0" W/ GUARDRAIL



DETAIL NO. 1

USE DETAIL NO. 1 IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1 AND NO. 2
-L- STA. 14+69 TO 16+20



DETAIL NO. 1A

USE DETAIL NO. 1A IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1 AND NO. 2
-L- STA. 16+20 TO 16+80

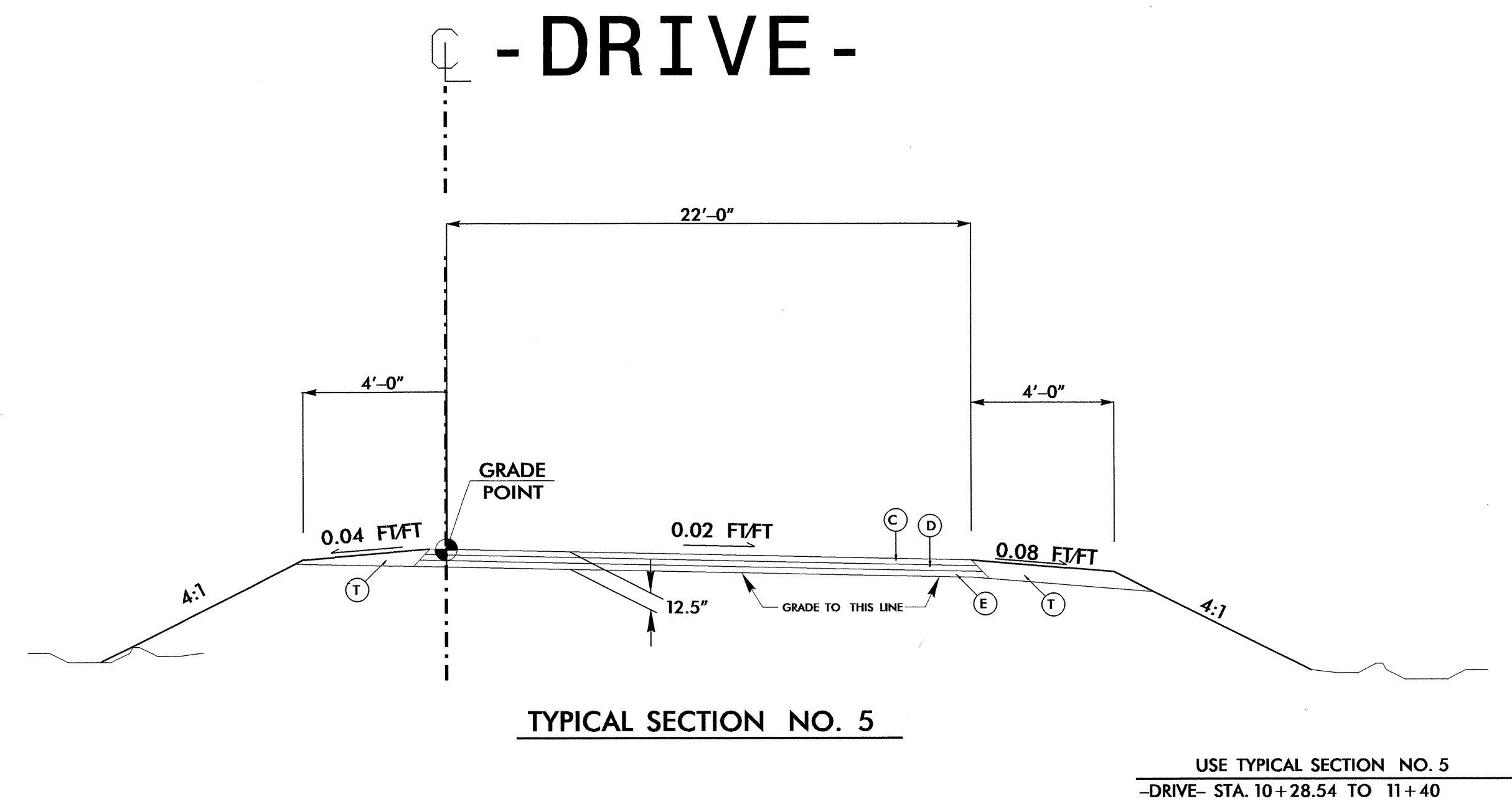
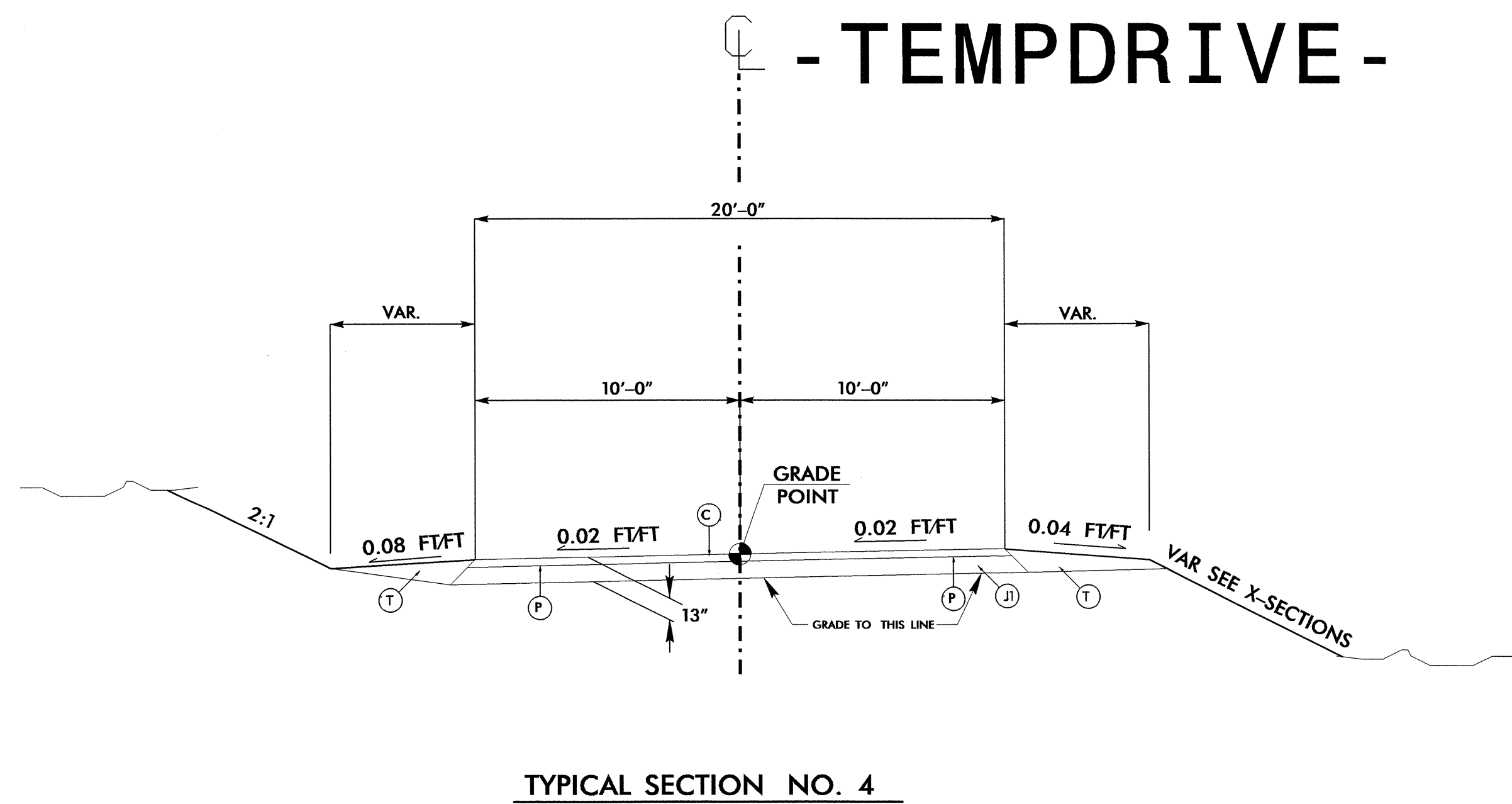
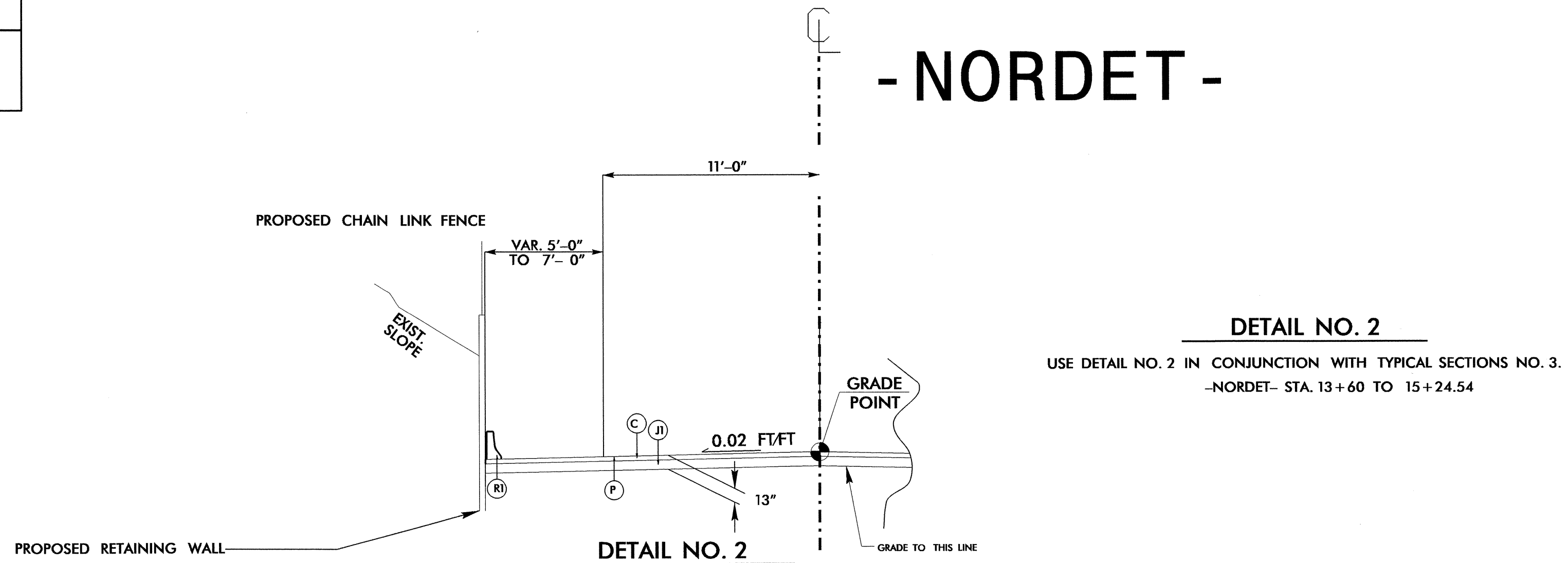
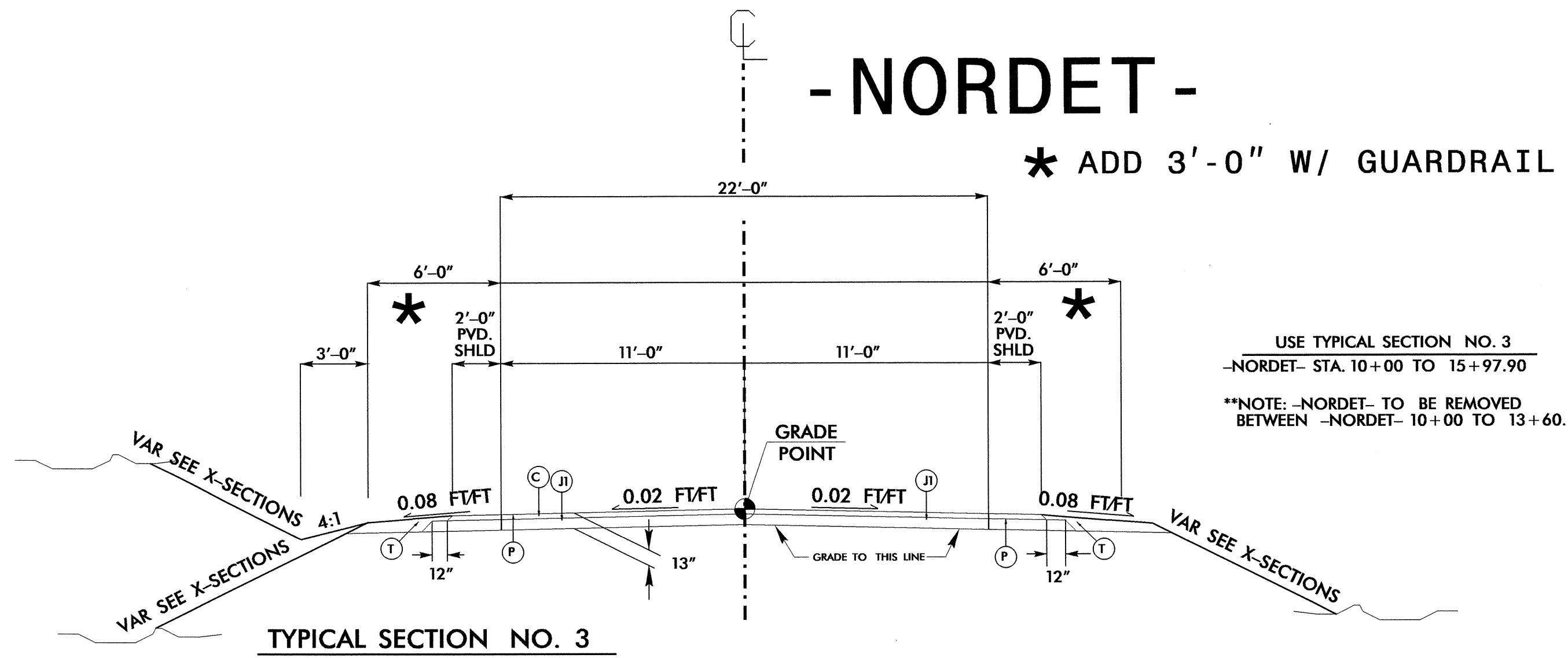
18 JAN 2013 13:53 \\s0101.rdy_tup.dgn

6/2/99

PAVEMENT SCHEDULE	
C	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.
D	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
J1	10" AGGREGATE BASE COURSE
P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
R1	PROPOSED SINGLE FACED CONC. BARRIER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.

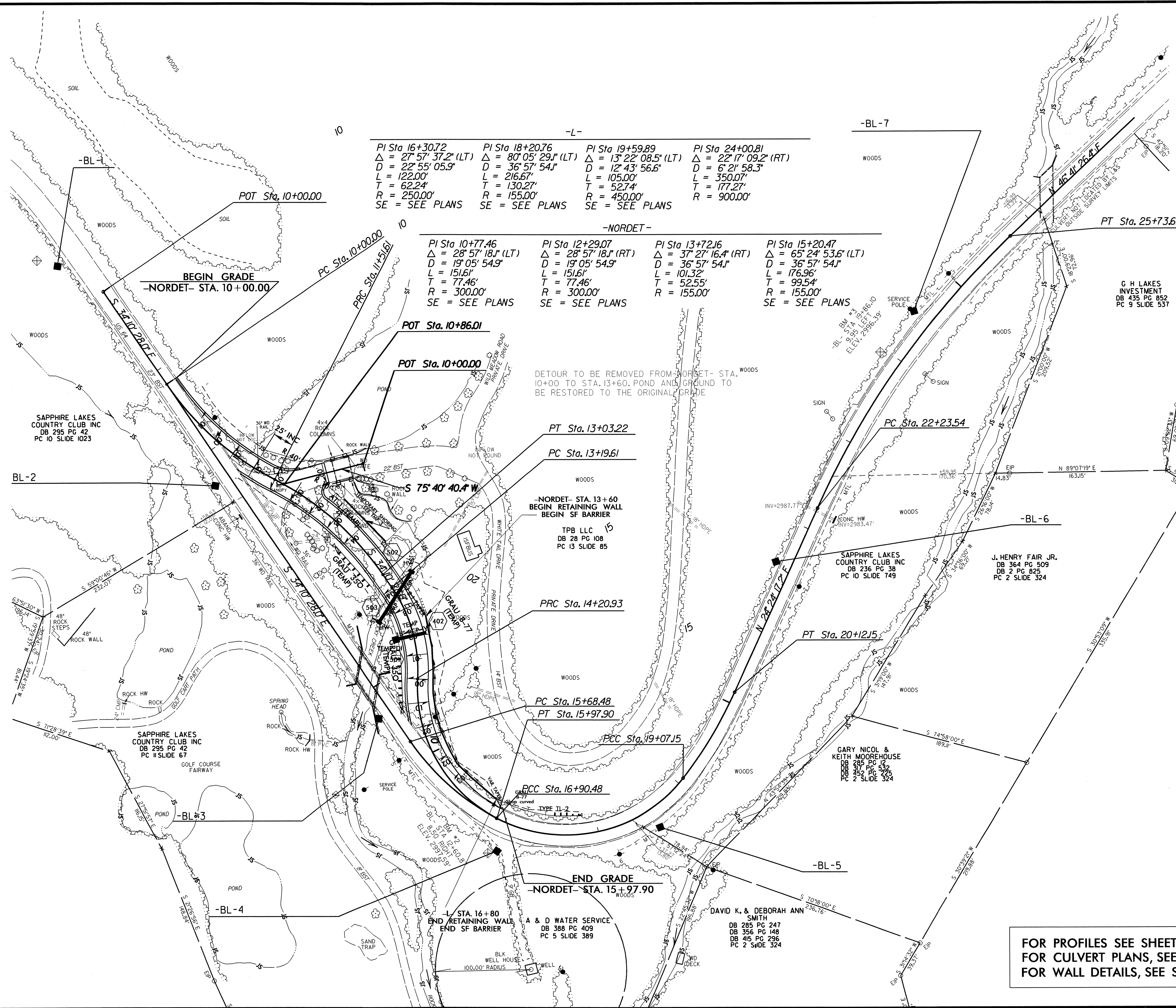
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PROJECT REFERENCE NO. B-5010	SHEET NO. 2-A
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 033136 NATHAN N. ADAMS	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 22888 CLARK S. MORRISON
<i>N Adams</i> 1/27/13	<i>C Morrison</i> 1/18/13



18-JAN-2013 14:12
R:\Roadway\Projects\B5010_r-cj-tyr-tp.dgn

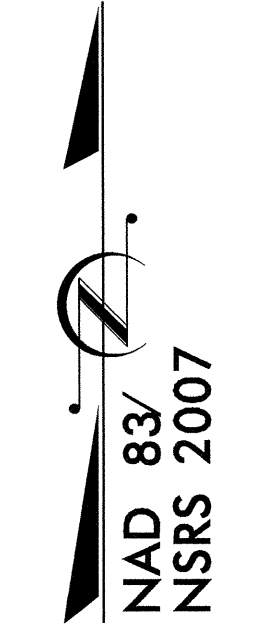
8/17/09
 23 JAN 2013 14:14 B-5010.Rdy_psh_nor-det.dwg
 1:33:50 PM
 REVISIONS



PI Sta 16+30.72 Δ = 27° 57' 37.2" (LT) D = 22° 55' 05.9" L = 122.00' T = 62.24' R = 250.00' SE = SEE PLANS	PI Sta 18+20.76 Δ = 80° 05' 29.1" (LT) D = 36° 57' 54.1" L = 216.67' T = 130.27' R = 155.00' SE = SEE PLANS	PI Sta 19+59.89 Δ = 13° 22' 08.5" (LT) D = 12° 43' 56.6" L = 105.00' T = 52.74' R = 450.00' SE = SEE PLANS	PI Sta 24+00.81 Δ = 22° 17' 09.2" (RT) D = 6° 21' 58.3" L = 350.07' T = 177.27' R = 900.00'
------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------

PI Sta 10+77.46 Δ = 28° 57' 18.1" (LT) D = 19° 05' 54.9" L = 151.61' T = 77.46' R = 300.00' SE = SEE PLANS	PI Sta 12+29.07 Δ = 28° 57' 18.1" (RT) D = 19° 05' 54.9" L = 151.61' T = 77.46' R = 300.00' SE = SEE PLANS	PI Sta 13+72.16 Δ = 37° 27' 16.4" (RT) D = 36° 57' 54.1" L = 101.32' T = 52.55' R = 155.00'	PI Sta 15+20.47 Δ = 65° 24' 53.6" (LT) D = 36° 57' 54.1" L = 176.96' T = 99.54' R = 155.00' SE = SEE PLANS
------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------

FOR PROFILES SEE SHEET 6
 FOR CULVERT PLANS, SEE SHEETS C-1 THRU C-6
 FOR WALL DETAILS, SEE SHEETS W-1 THRU W-2

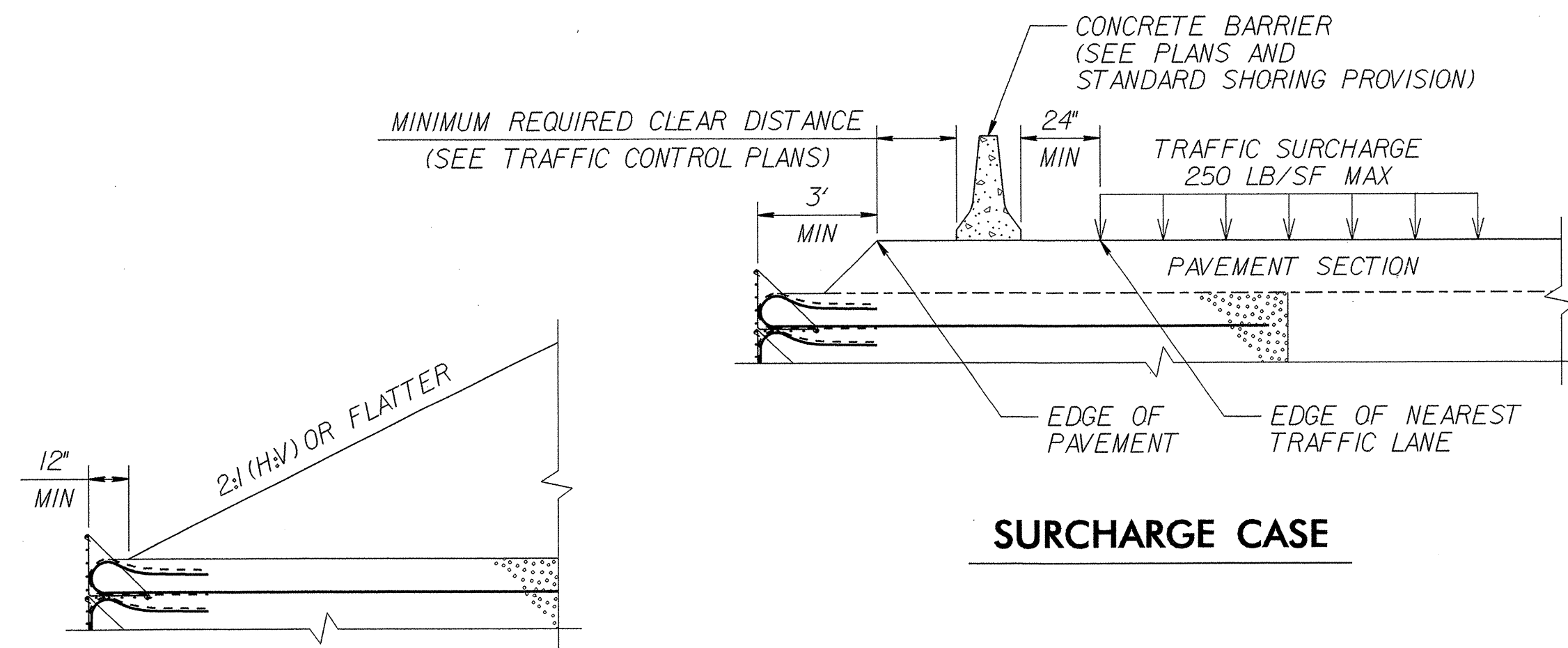


GEOTECHNICAL ENGINEER

ENGINEER

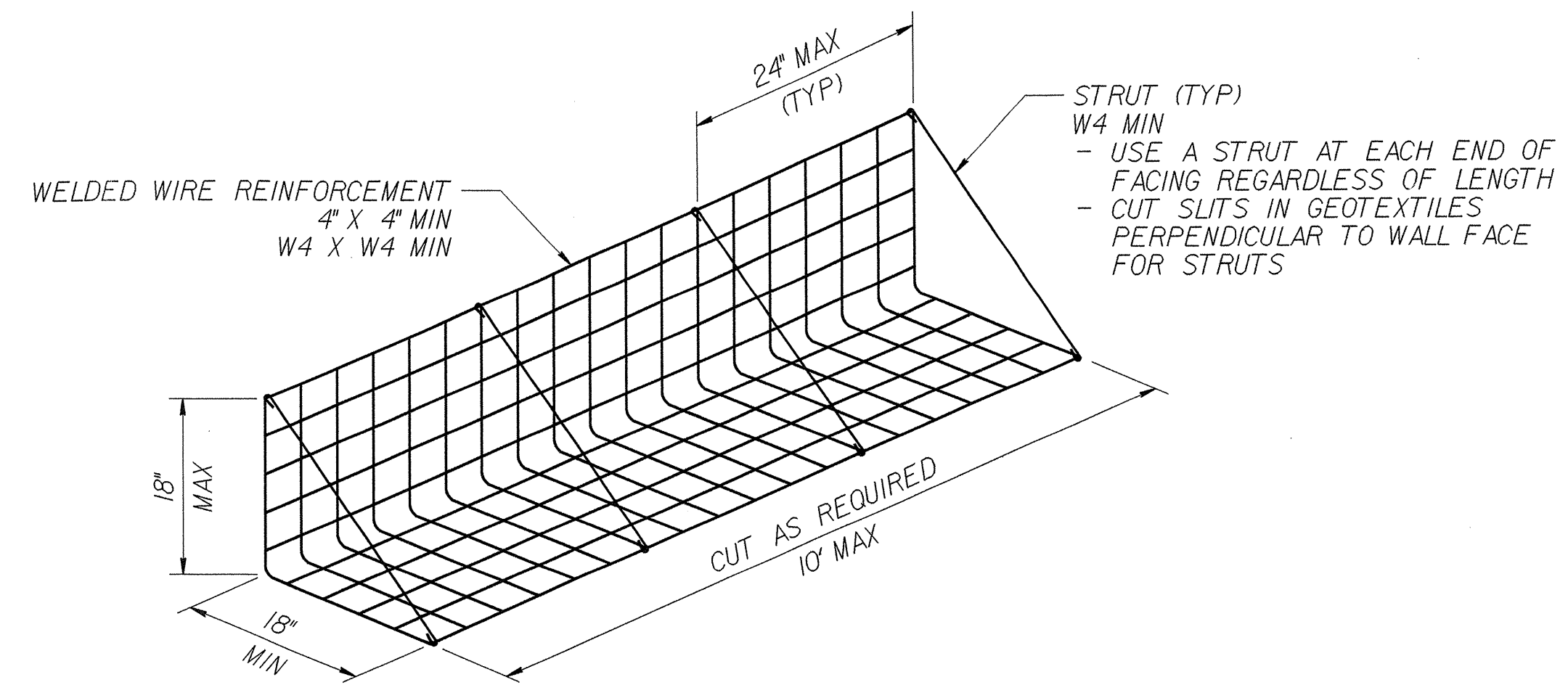


Scott A. Hadden 8/10/12
SIGNATURE DATE

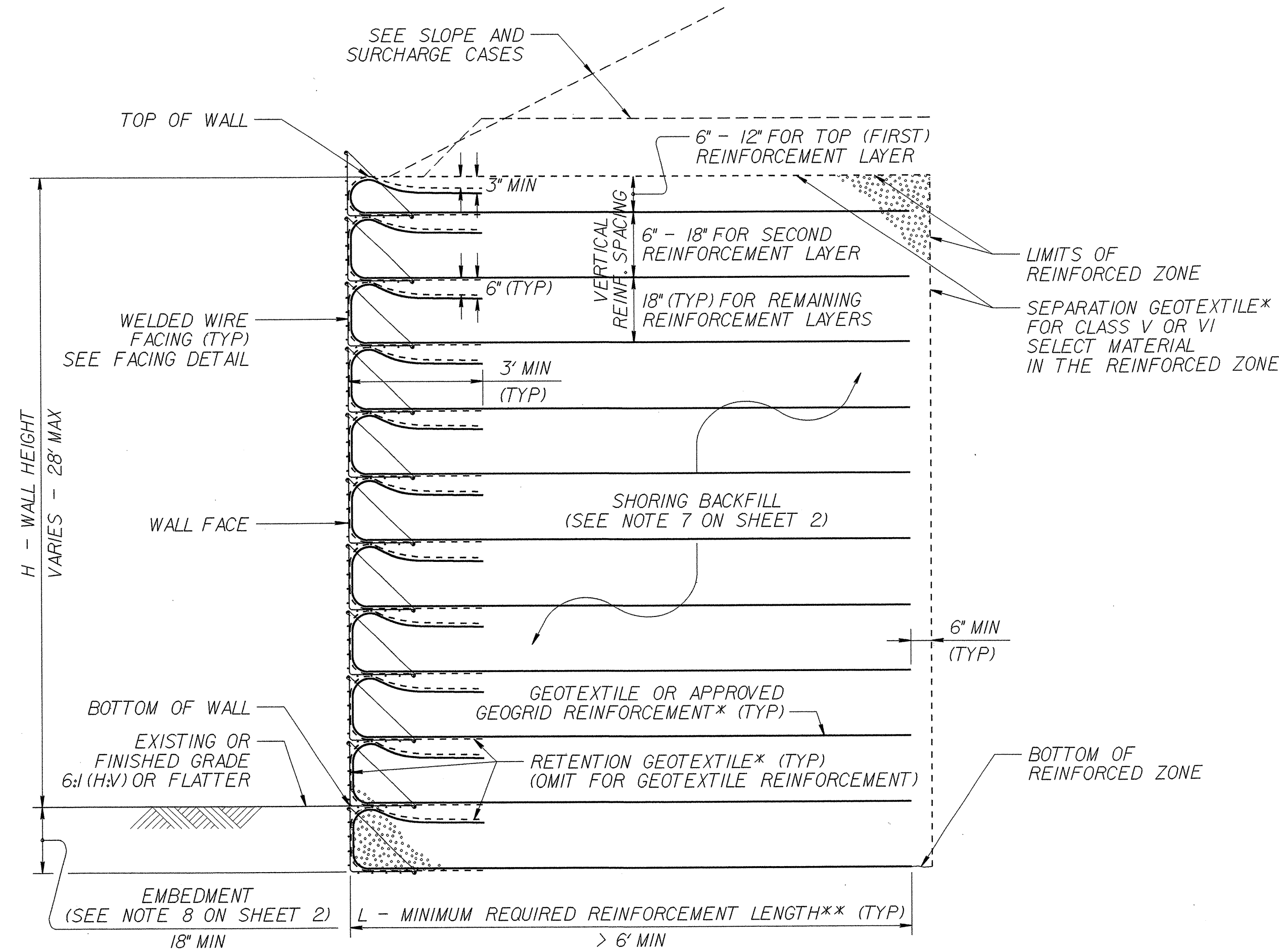


SLOPE CASE

SURCHARGE CASE



FACING DETAIL

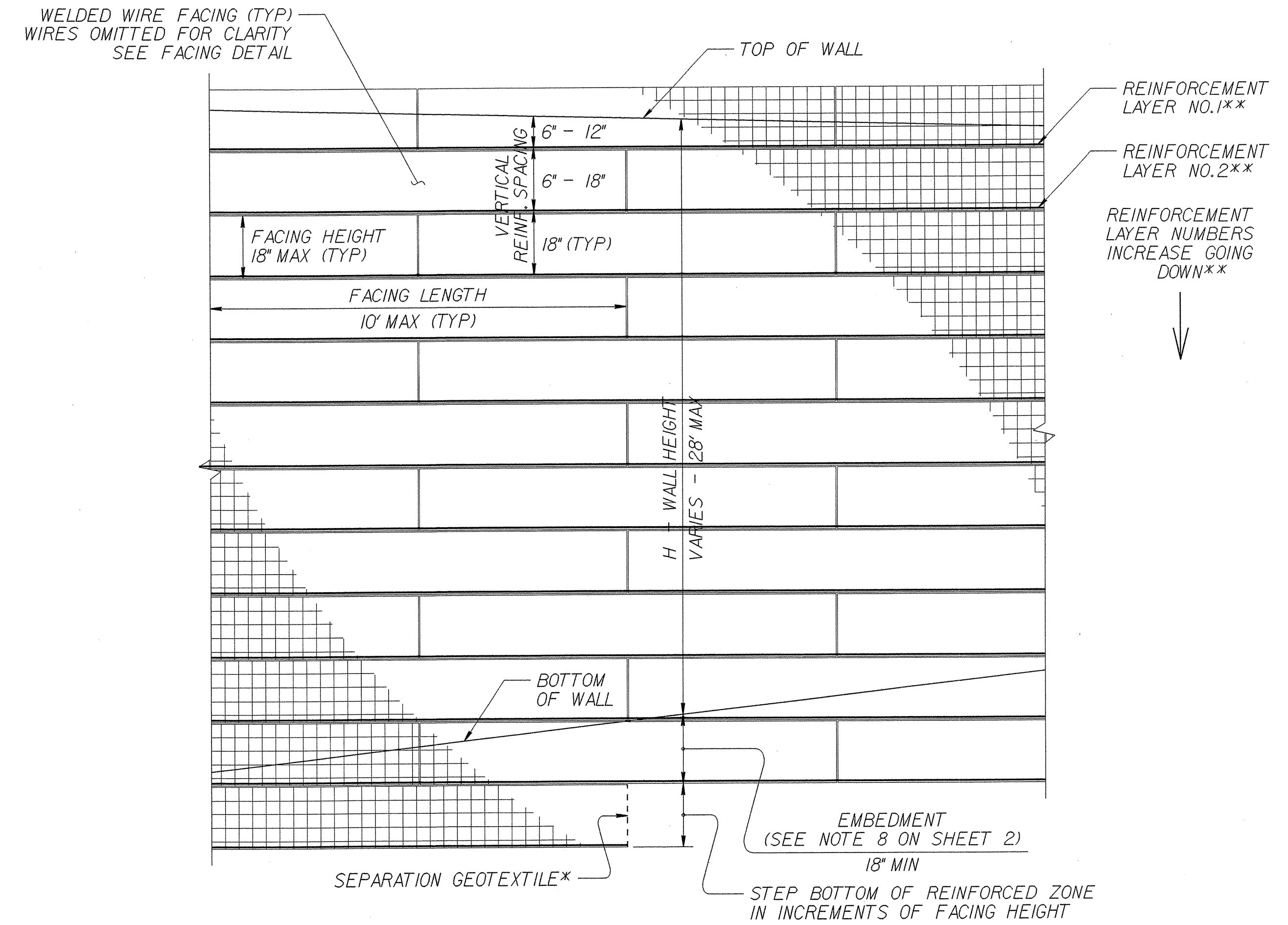


STANDARD TEMPORARY WALL

(FOR STANDARD TEMPORARY WALLS ON STRUCTURES, SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)

*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.

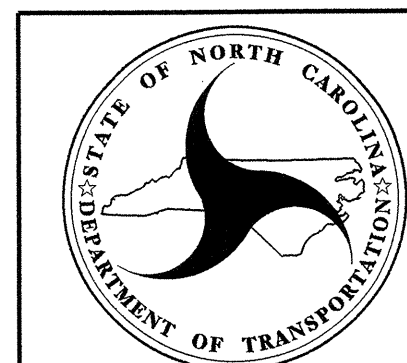
**SEE REINFORCEMENT TABLES ON SHEET 3.



STANDARD TEMPORARY WALL - PARTIAL ELEVATION

*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.

**SEE REINFORCEMENT TABLES ON SHEET 3.



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RALEIGH

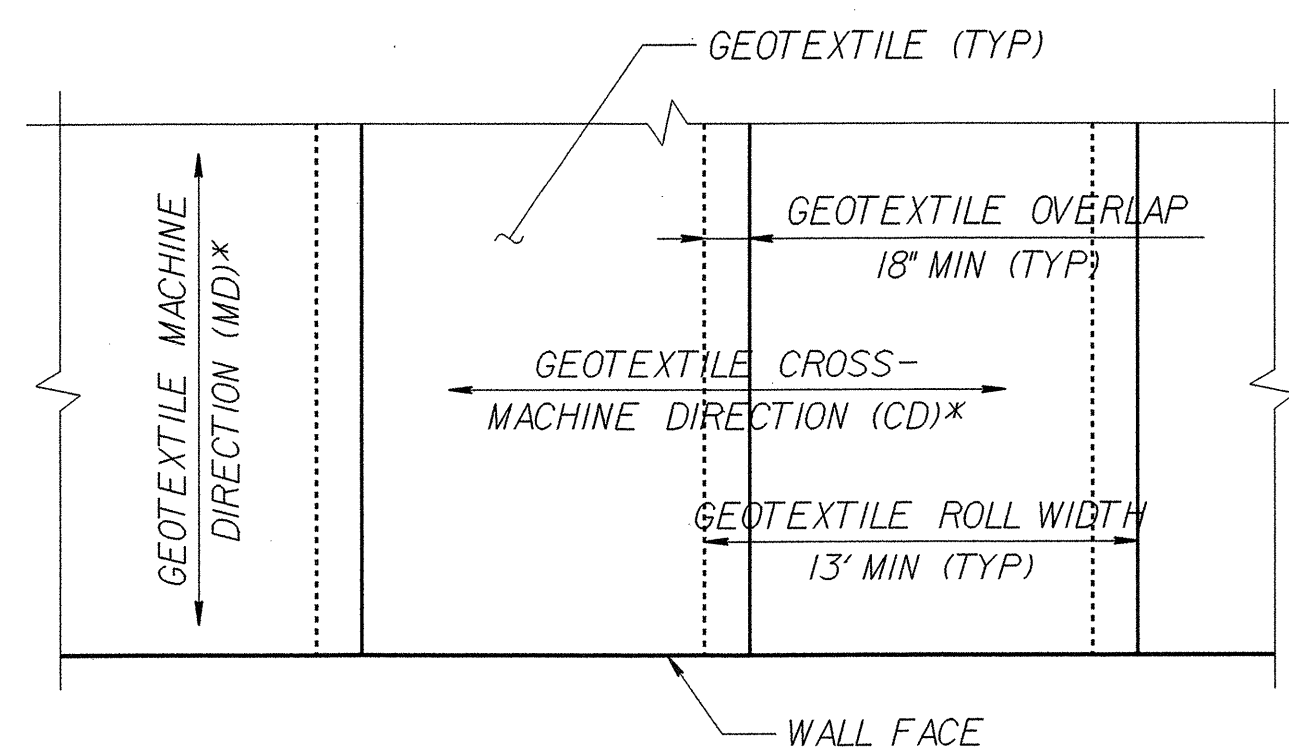
STANDARD DRAWING NO. 1801.02

STANDARD TEMPORARY WALL
Sheet 1 of 3

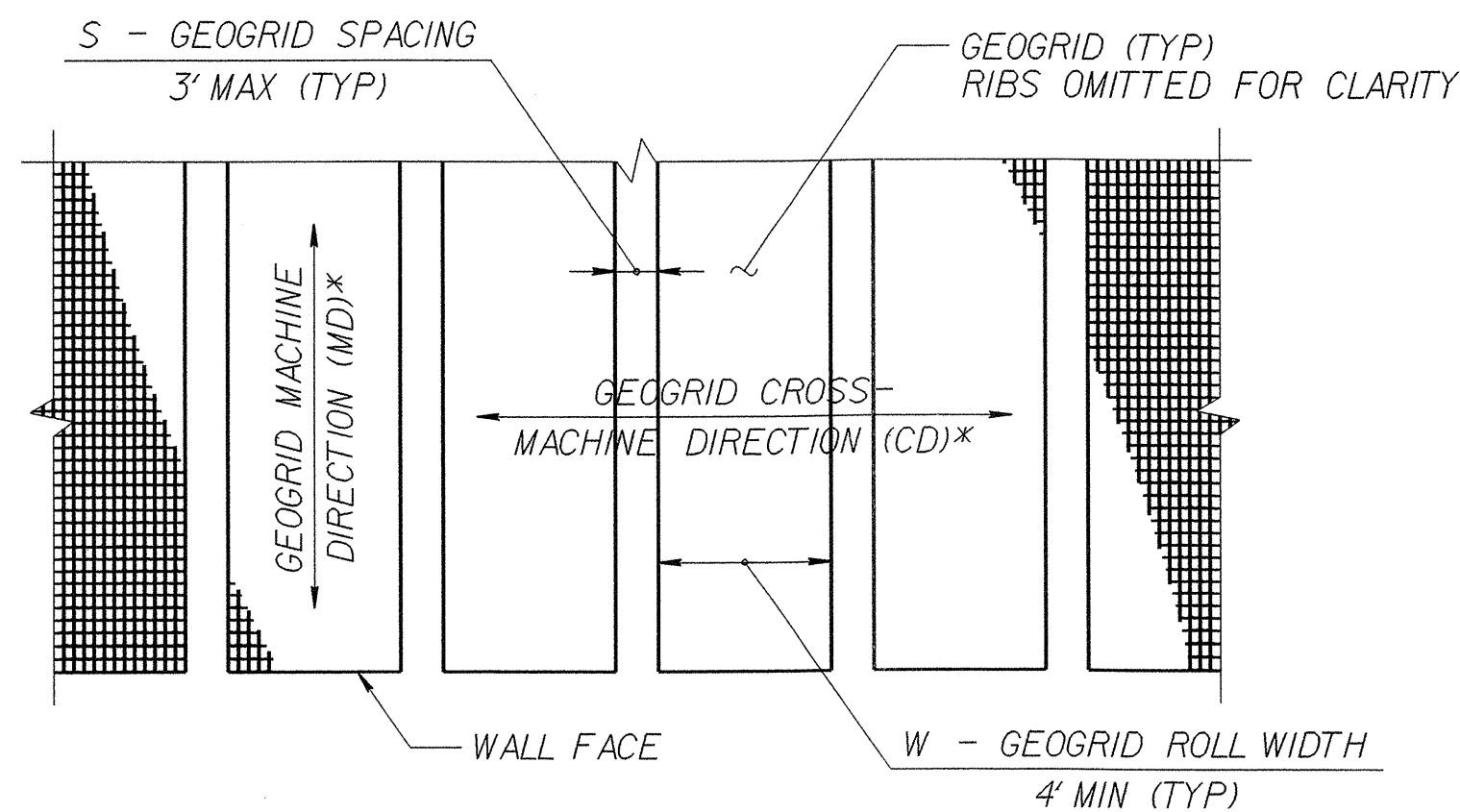
DATE: 11-20-12



Signature: Scott A. Hadden
Date: 8/10/12

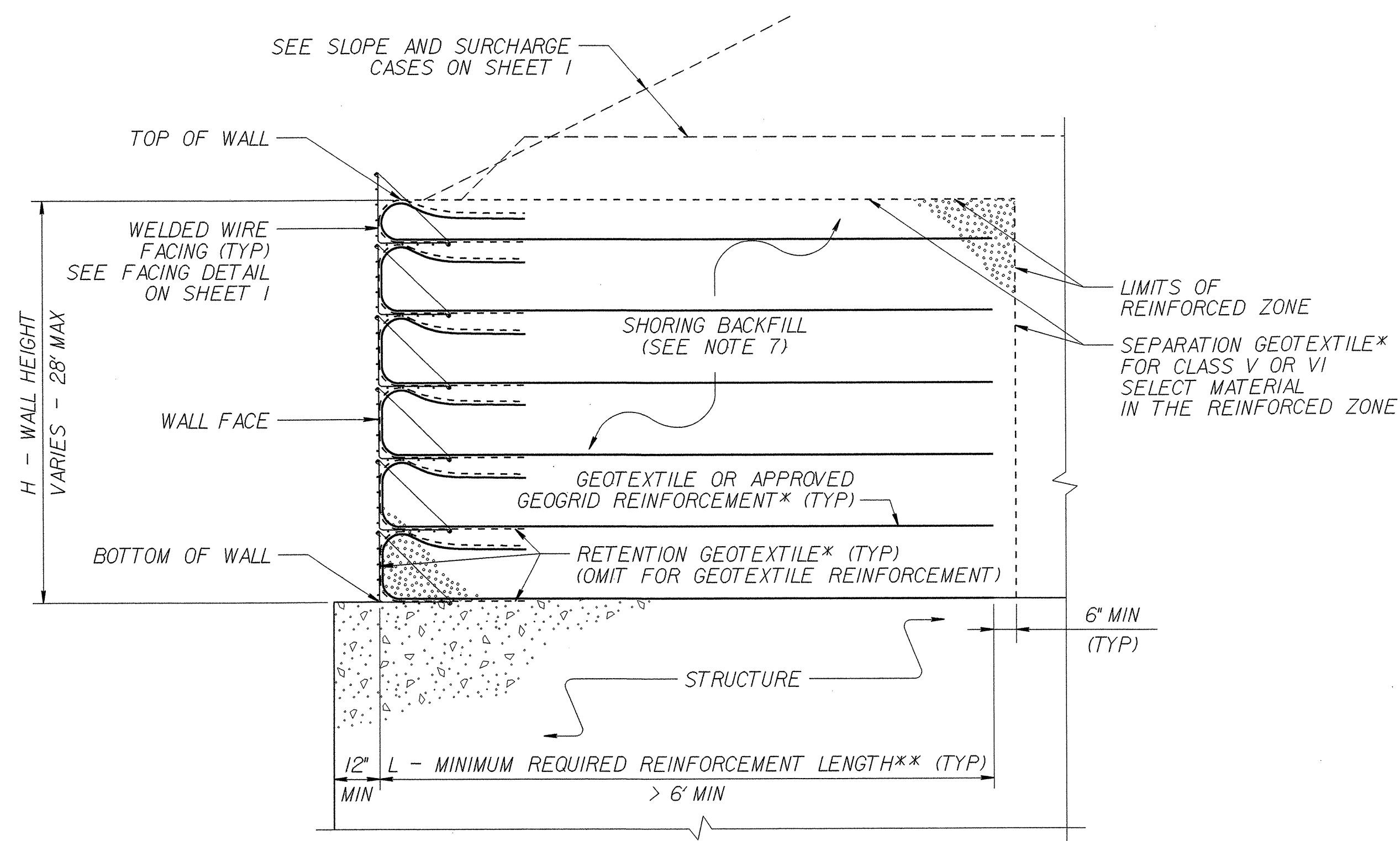


GEOTEXTILE PLACEMENT
(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)



GEOGRID PLACEMENT
(80% COVERAGE MIN FOR GEOGRID REINFORCEMENT - $\frac{W}{W+S} \times 100 \geq 80\%$, SEE NOTE 11)

GEOSYNTHETIC PLACEMENT DETAILS
(PLAN VIEW)
*SEE NOTE 12.



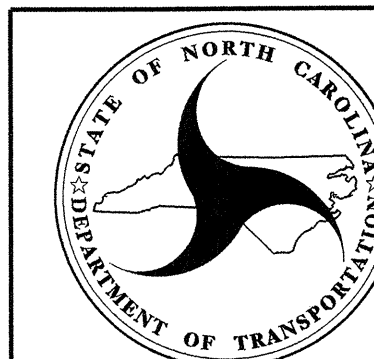
TEMPORARY WALL ON STRUCTURE DETAIL
*SEE GEOSYNTHETIC PLACEMENT DETAILS.
**SEE REINFORCEMENT TABLES ON SHEET 3.

NOTES:

- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, $\gamma = 120$ LB/CF
FRICTION ANGLE, $\phi = 30$ DEGREES
COHESION, $c = 0$ LB/SF
- DO NOT USE STANDARD TEMPORARY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER IS ABOVE BOTTOM OF REINFORCED ZONE.
- DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
- EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
- DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
- GEOGRIDS ARE APPROVED FOR SHORT-TERM DESIGN STRENGTHS FOR A 3-YEAR DESIGN LIFE IN THE MACHINE DIRECTION (MD) AND CROSS-MACHINE DIRECTION (CD) BASED ON MATERIAL TYPE. FOR DETAILS OF APPROVED GEOGRIDS AND SHORT-TERM DESIGN STRENGTHS, SEE www.ncdot.org/doh/operations/materials/soils/gep.html DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE I OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

- FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
- AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH THE FOLLOWING CONDITIONS OCCUR:
- W (REINFORCEMENT ROLL WIDTH) $\geq L$ (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND
- REINFORCEMENT STRENGTH IN CD \geq MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
- SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION.
- DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
- FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
- DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
- CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
- FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
- FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.




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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 1801.02

STANDARD TEMPORARY WALL
Sheet 2 of 3

DATE: 11-20-12

GEOTECHNICAL ENGINEER ENGINEER



Scott A. Hadden 8/10/12
SIGNATURE DATE

SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																									
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
SLOPE CASE	> 0	CLASS II, TYPE I, CLASS III, CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27	
SURCHARGE CASE	> 0 TO 7 FOR H < 20' > 0 TO 10 FOR H ≥ 20'	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22	
		A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21	
		CLASS II, TYPE I OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20	
	> 7 FOR H < 20' > 10 FOR H ≥ 20'	CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19	

L - MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)
(FOR ALL REINFORCEMENT TYPES)

WALL HEIGHT (H) + EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

*BASED ON VERTICAL REINFORCEMENT SPACING SHOWN ON SHEET 1.

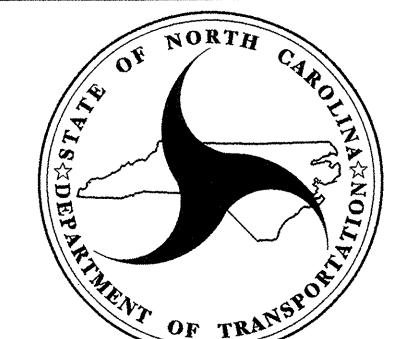
REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

GEOTEXTILE REINFORCEMENT ULTIMATE TENSILE STRENGTH (LB/FT)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

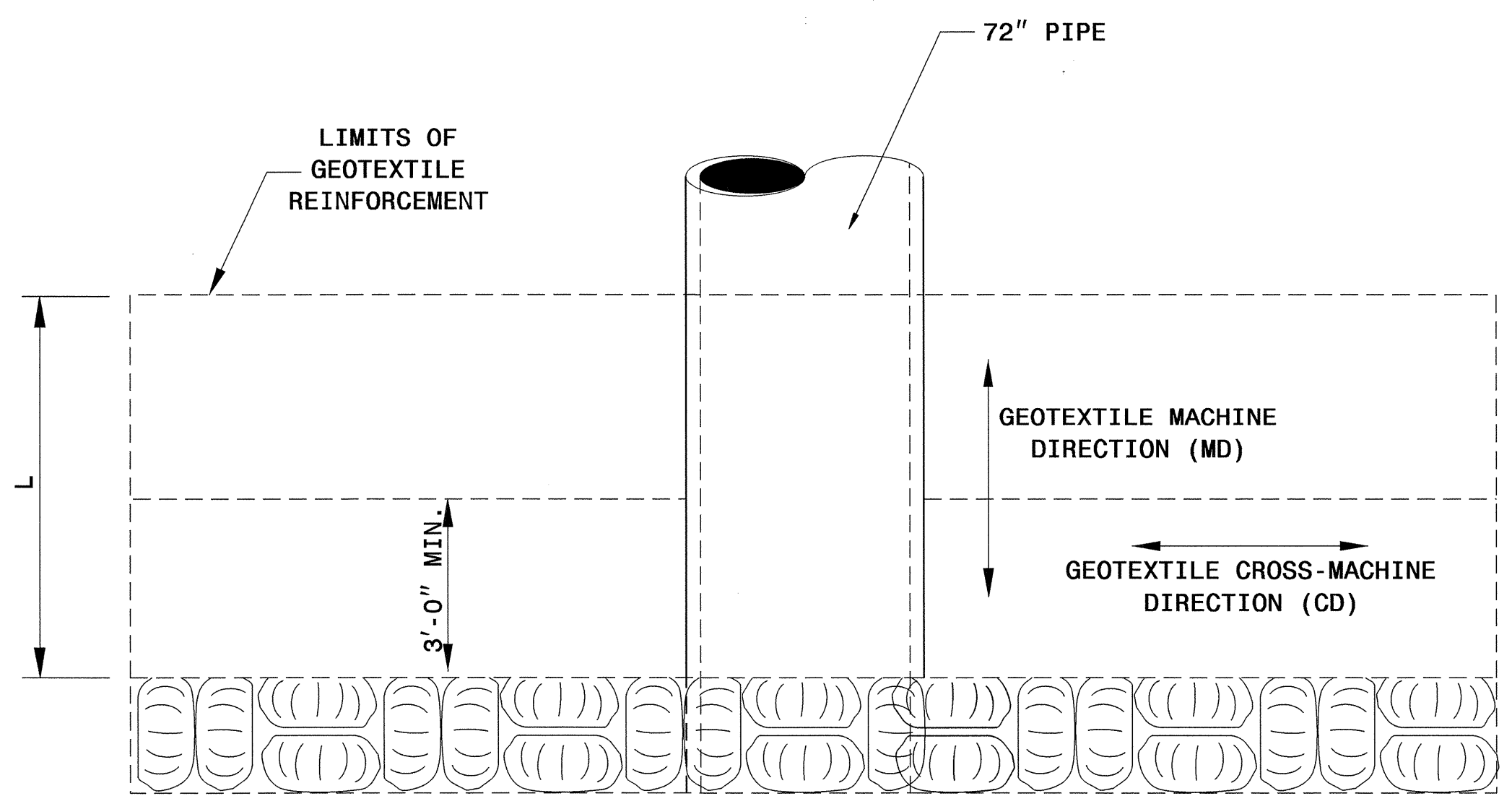
GEOGRID REINFORCEMENT SHORT-TERM DESIGN STRENGTH (LB/FT)
(SEE NOTE 10 ON SHEET 2.)

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD
(SEE NOTE 9 ON SHEET 2.)
*SEE PARTIAL ELEVATION ON SHEET 1 FOR REINFORCEMENT LAYER NUMBERING.

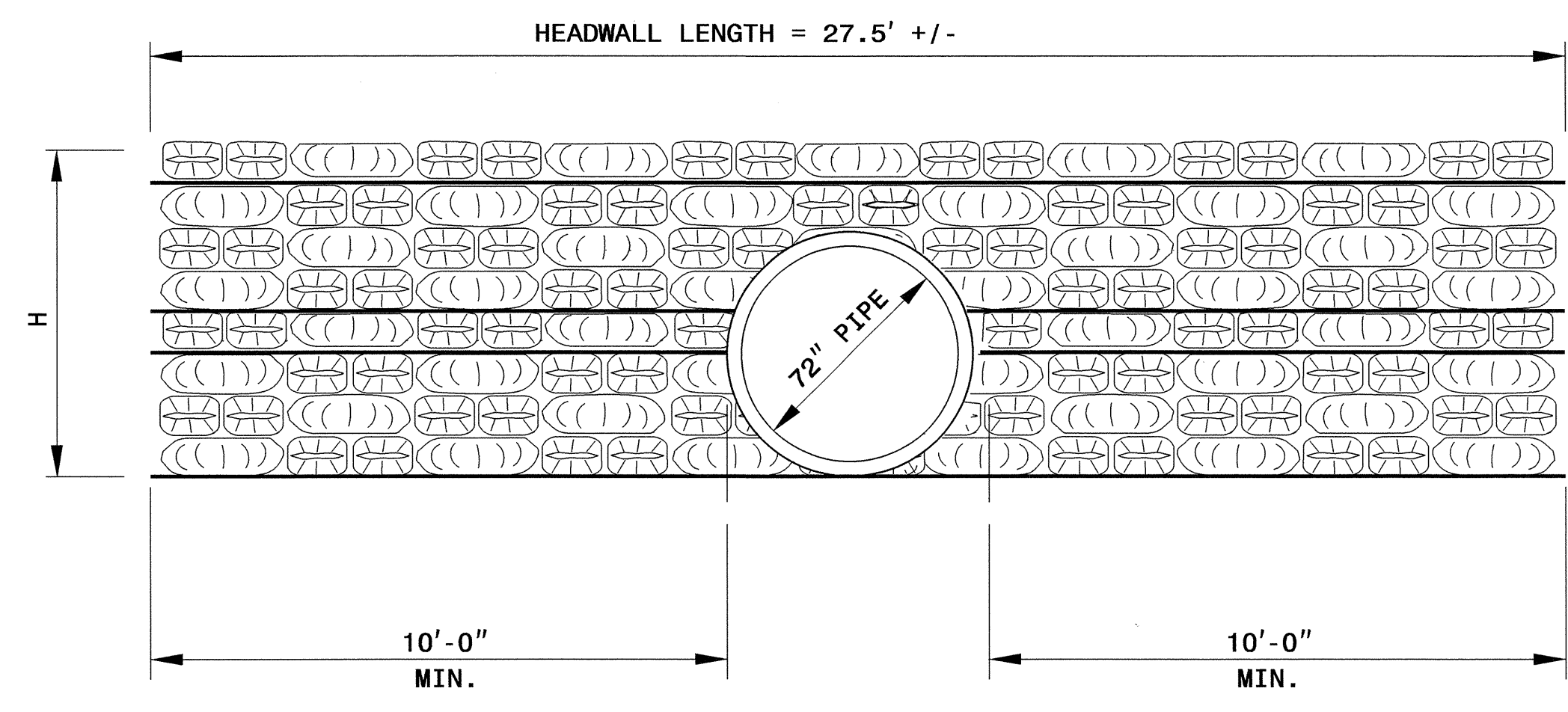


GEOTECHNICAL ENGINEERING UNIT
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 1801.02
STANDARD TEMPORARY WALL
Sheet 3 of 3
DATE: 11-20-12



PLAN



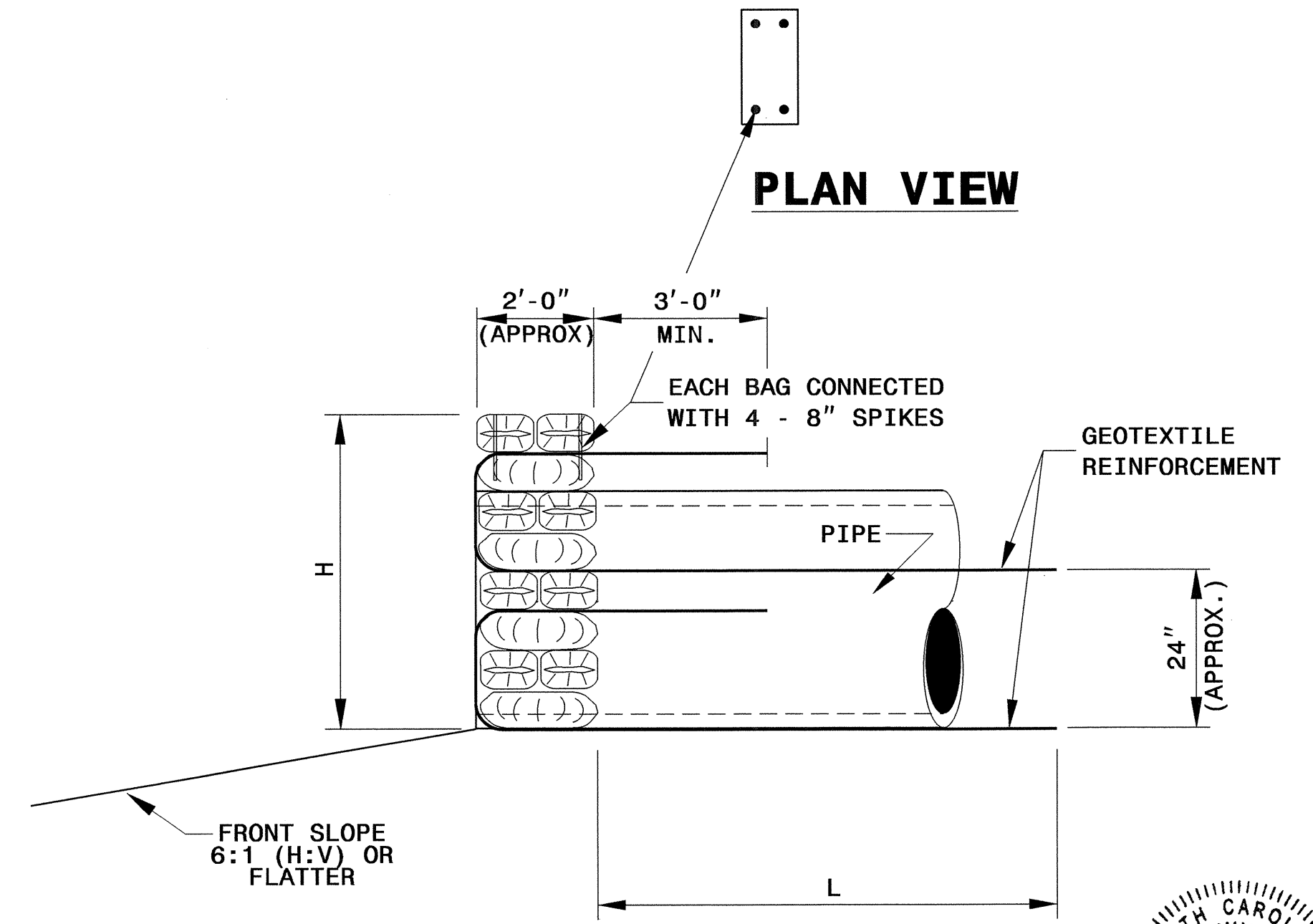
FRONT ELEVATION

GEOTEXTILE REINFORCEMENT (TYPE 5 GEOTEXTILE)

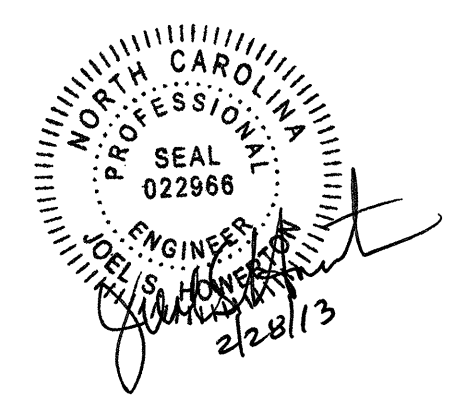
WALL HEIGHT H (ft)	REINF. LENGTH L (ft)	WIDE WIDTH TENSILE STRENGTH @ ULTIMATE (MD) (lb/ft)
< 4	6	2400
4 TO 6	6	3400
6 TO 8	= H	4300
8 TO 10	= H	5200

TOTAL AREA SANDBAG HEADWALLS = 262 S.F.

- GENERAL NOTES:**
- FOR REINFORCED SANDBAG HEADWALLS, SEE SANDBAG HEADWALLS PROVISION.
 - REINFORCED SANDBAG HEADWALLS ARE BASED ON A TRAFFIC SURCHARGE OF 250 LB/SF OR LESS AND A BACK SLOPE OF 2:1(H:V) OR FLATTER.
 - REINFORCED SANDBAG HEADWALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
 UNIT WEIGHT, $\gamma = 120$ LB/CF
 FRICTION ANGLE, $\phi = 30$ DEGREES
 COHESION, $c = 0$ LB/SF
 - DO NOT USE REINFORCED SANDBAG HEADWALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
 - DO NOT USE REINFORCED SANDBAG HEADWALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW SANDBAGS OR PIPES.
 - DO NOT PLACE GEOTEXTILE REINFORCEMENT OR SANDBAGS UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
 - 24" LONG #4 REINFORCING STEEL BARS MAY BE SUBSTITUTED FOR 8" LONG STEEL SPIKES. DRIVE #4 BAR THROUGH NO MORE THAN 5 SANDBAGS.
 - DO NOT SPLICE OR OVERLAP GEOTEXTILE REINFORCEMENT SO SEAMS ARE PARALLEL TO THE HEADWALL FACE.
 - HEADWALL DIMENSIONS MAY BE ADJUSTED FOR ONE OR MORE PIPES AS SHOWN IN THE PLANS.



SIDE ELEVATION



CONTRACT STANDARDS AND DEVELOPMENT UNIT
 PLANS AND STANDARDS SECTION
 Office 919-707-6950 FAX 919-250-4119

DETAIL OF REINFORCED SANDBAG HEADWALL

ORIGINAL BY: rnbritt DATE: 11-19-09
 MODIFIED BY: kakempf DATE: 2-27-12
 CHECKED BY: [Signature] DATE: 1/11/13
 FILE SPEC.: details/jhowerton/standards/reinforced_sandbagheadwall.dgn

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203092

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0057000000-E	226	100	CY	UNDERCUT EXCAVATION
0195000000-E	265	100	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	464	SY	GEOTEXTILE FOR SOIL STABILIZATION
0199000000-E	SP	547	SP	TEMPORARY SHORING
0318000000-E	300	30	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
0320000000-E	300	90	SY	FOUNDATION CONDITIONING GEOTEXTILE
0343000000-E	310	52	LF	15" SIDE DRAIN PIPE
0345000000-E	310	96	LF	24" SIDE DRAIN PIPE
0448200000-E	310	128	LF	15" RC PIPE CULVERTS, CLASS IV
0576000000-E	310	64	LF	*** CS PIPE CULVERTS, ***** THICK (72", 0.168")
0995000000-E	340	235	LF	PIPE REMOVAL
1099500000-E	505	82	CY	SHALLOW UNDERCUT
1099700000-E	505	155	TON	CLASS IV SUBGRADE STABILIZATION
1121000000-E	520	856	TON	AGGREGATE BASE COURSE
1220000000-E	545	150	TON	INCIDENTAL STONE BASE
1275000000-E	600	477	GAL	PRIME COAT
1489000000-E	610	300	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	220	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1519000000-E	610	560	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1575000000-E	620	60	TON	ASPHALT BINDER FOR PLANT MIX
2022000000-E	815	56	CY	SUBDRAIN EXCAVATION
2033000000-E	815	42	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	250	LF	6" PERFORATED SUBDRAIN PIPE
2070000000-N	815	1	EA	SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE
2199000000-E	SP	262	SP	SANDBAG HEADWALLS
2286000000-N	840	3	EA	MASONRY DRAINAGE STRUCTURES
2364000000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.16
2367000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29
2619000000-E	850	110	SY	4" CONCRETE PAVED DITCH
2724000000-E	857	215	LF	PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED
3030000000-E	862	600	LF	STEEL BM GUARDRAIL
3045000000-E	862	80	LF	STEEL BM GUARDRAIL, SHOP CURVED
3150000000-N	862	10	EA	ADDITIONAL GUARDRAIL POSTS
3165000000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** (350 TL-2)
3180000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** (B-77 SHOP CURVED)
3195000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3270000000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3317000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3360000000-E	863	390	LF	REMOVE EXISTING GUARDRAIL
3380000000-E	862	50	LF	TEMPORARY STEEL BM GUARDRAIL
3382000000-E	862	77	LF	TEMPORARY STEEL BM GUARDRAIL (SHOP CURVED)
3387000000-N	862	1	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ***** (AT-1)
3387000000-N	862	1	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ***** (B-77)

ItemNumber	Sec #	Quantity	Unit	Description
3389100000-N	SP	2	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE 350
3536000000-E	866	215	LF	CHAIN LINK FENCE, 48" FABRIC
3542000000-E	866	21	EA	METAL LINE POSTS FOR 48" CHAIN LINK FENCE
3548000000-E	866	17	EA	METAL TERMINAL POSTS FOR 48" CHAIN LINK FENCE
3649000000-E	876	1	TON	RIP RAP, CLASS B
3656000000-E	876	485	SY	GEOTEXTILE FOR DRAINAGE
4072000000-E	903	51	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4102000000-N	904	4	EA	SIGN ERECTION, TYPE E
4155000000-N	907	8	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4400000000-E	1110	154	SP	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	149	SP	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	36	SP	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	25	EA	DRUMS
4435000000-N	1135	25	EA	CONES
4445000000-E	1145	48	LF	BARRICADES (TYPE III)
4450000000-N	1150	1,920	HR	FLAGGER
4480000000-N	1165	2	EA	TMA
4516000000-N	1180	37	EA	SKINNY DRUM
4650000000-N	1251	65	EA	TEMPORARY RAISED PAVEMENT MARKERS
4685000000-E	1205	490	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	1,961	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4810000000-E	1205	9,400	LF	PAINT PAVEMENT MARKING LINES (4")
4850000000-E	1205	3,200	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4905000000-N	1253	6	EA	SNOWPLOWABLE PAVEMENT MARKERS
6000000000-E	1605	8,030	LF	TEMPORARY SILT FENCE

ItemNumber	Sec #	Quantity	Unit	Description
6006000000-E	1610	295	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	215	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	285	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	1.25	ACR	TEMPORARY MULCHING
6018000000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	1.25	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	200	LF	TEMPORARY SLOPE DRAINS
6029000000-E	SP	300	LF	SAFETY FENCE
6030000000-E	1630	380	CY	SILT EXCAVATION
6036000000-E	1631	3,500	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	100	SY	COIR FIBER MAT
6038000000-E	SP	150	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	460	LF	1/4" HARDWARE CLOTH
6045000000-E	SP	235	LF	*** TEMPORARY PIPE (18")
6048000000-E	SP	240	SY	FLOATING TURBIDITY CURTAIN
6070000000-N	1639	6	EA	SPECIAL STILLING BASINS
6071012000-E	SP	660	LF	COIR FIBER WATTLE
6071020000-E	SP	45	LB	POLYACRYLAMIDE (PAM)
6071030000-E	1640	100	LF	COIR FIBER BAFFLE
6071050000-E	SP	2	EA	*** SKIMMER (1-1/2")
6084000000-E	1660	1.5	ACR	SEEDING & MULCHING
6087000000-E	1660	0.75	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	0.75	TON	FERTILIZER TOPDRESSING
6111000000-E	SP	200	LF	IMPERVIOUS DIKE
6114500000-N	1667	10	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	25	EA	RESPONSE FOR EROSION CONTROL
6126000000-E	SP	0.17	ACR	STREAMBANK REFORESTATION

5/28/99

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COMPUTED BY: NNA DATE: 10/9/2012
 CHECKED BY: EM DATE: 10/17/2012

PROJECT NO. B-5010 SHEET NO. 3-C

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS**

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
 See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54" & OVER)

STATION	LOCATION (L.T., RT., OR CL.)	STRUCTURE NO.	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE)					C.S. PIPE				STRUCTURAL PLATE PIPE			REINFORCED ENDWALLS		FRAMES, GRATES & HOOD STANDARD 840.03	CONCRETE TRANSITIONAL SECTION		REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "E" C.Y. STD. 840.72	REINFORCED SANDBAG HEADWALL S.F.	PIPE REMOVAL LIN. FT.	REMARKS				
							54"	60"	66"	72"	78"	84"	54"	60"	66"	72"	60"	66"	72"	WITH R.C. - C.Y.		WITH C.S. - C.Y.	MASONRY DRAINAGE STRUCTURES CUBIC YARDS								C.B. STD. 840.01 OR 840.02	E	F	G
THICKNESS OR GAUGE	FROM	TO					.109	.138	.168	.138	.168	.138	.168	.138	.168	.139	.168	12	10	12	10	12	10											
NORDET-13+28.85	CL	502	503	2977.33	2975.21											64																64	(TEMP. CSP FOR DETOUR WITH HEAD WALL	
NORDET-13+47.78	RT	503																																
NORDET-13+17.37	LT	502																														262	SEE DETAIL SHEET 2-G	
SHEET TOTALS																64																262	64	

RD261891

-NORDET-

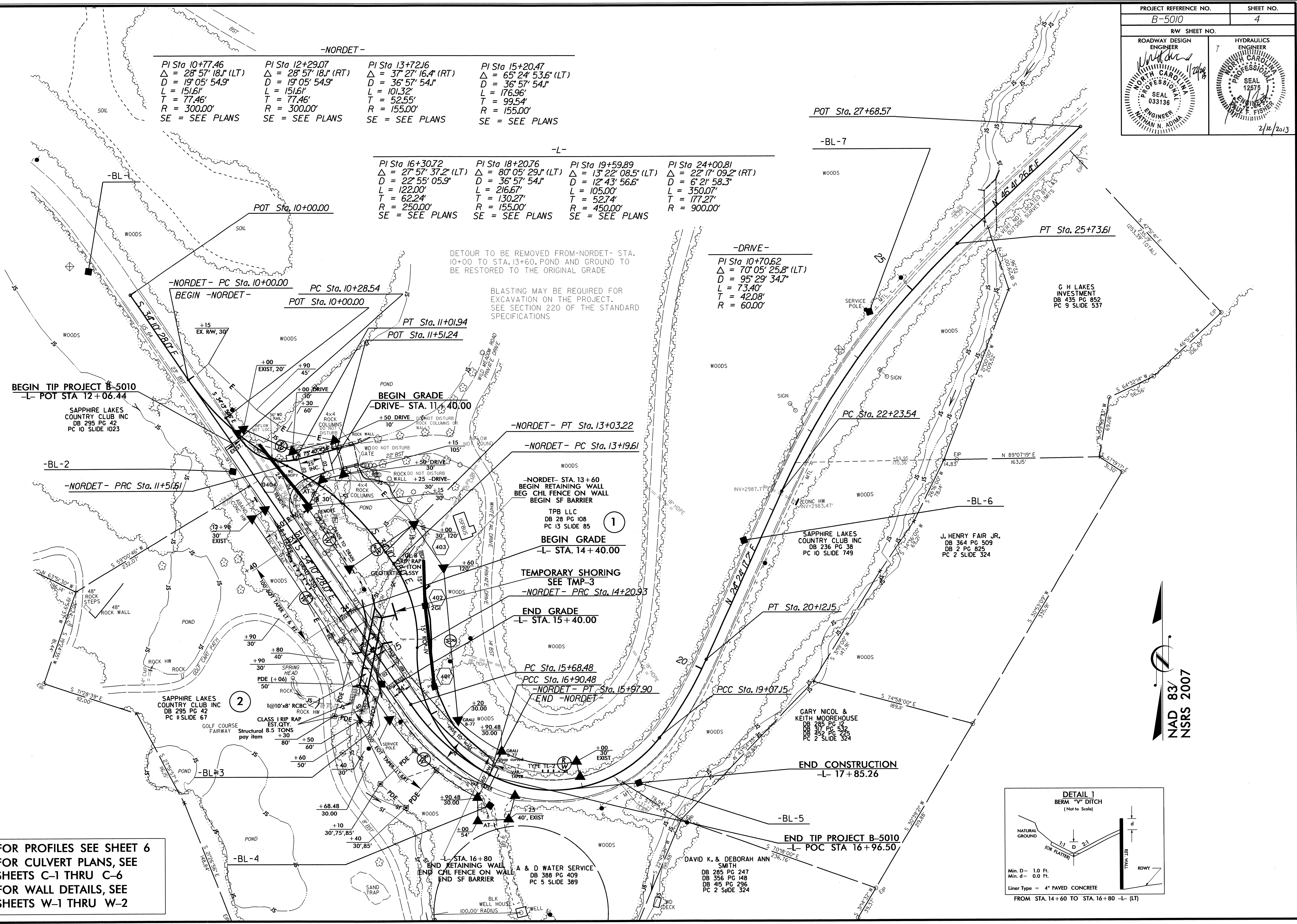
PI Sta 10+77.46 Δ = 28° 57' 18.1" (LT) D = 19' 05' 54.9" L = 151.61' T = 77.46' R = 300.00' SE = SEE PLANS	PI Sta 12+29.07 Δ = 28° 57' 18.1" (RT) D = 19' 05' 54.9" L = 151.61' T = 77.46' R = 300.00' SE = SEE PLANS	PI Sta 13+72.16 Δ = 37° 27' 16.4" (RT) D = 36' 57' 54.1" L = 101.32' T = 52.55' R = 155.00' SE = SEE PLANS	PI Sta 15+20.47 Δ = 65° 24' 53.6" (LT) D = 36' 57' 54.1" L = 176.96' T = 99.54' R = 155.00' SE = SEE PLANS
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-L-

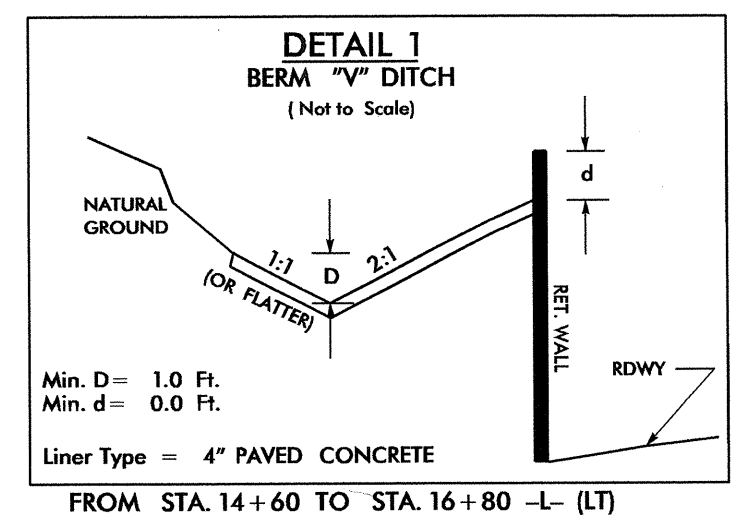
PI Sta 16+30.72 Δ = 27° 57' 37.2" (LT) D = 22' 55' 05.9" L = 122.00' T = 62.24' R = 250.00' SE = SEE PLANS	PI Sta 18+20.76 Δ = 80° 05' 29.1" (LT) D = 36' 57' 54.1" L = 216.67' T = 130.27' R = 155.00' SE = SEE PLANS	PI Sta 19+59.89 Δ = 13° 22' 08.5" (LT) D = 12' 43' 56.6" L = 105.00' T = 52.74' R = 450.00' SE = SEE PLANS	PI Sta 24+00.81 Δ = 22° 17' 09.2" (RT) D = 6' 21' 58.3" L = 350.07' T = 177.27' R = 900.00'
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-DRIVE-

PI Sta 10+70.62 Δ = 70° 05' 25.8" (LT) D = 95' 29' 34.7" L = 73.40' T = 42.08' R = 60.00'



FOR PROFILES SEE SHEET 6
FOR CULVERT PLANS, SEE SHEETS C-1 THRU C-6
FOR WALL DETAILS, SEE SHEETS W-1 THRU W-2



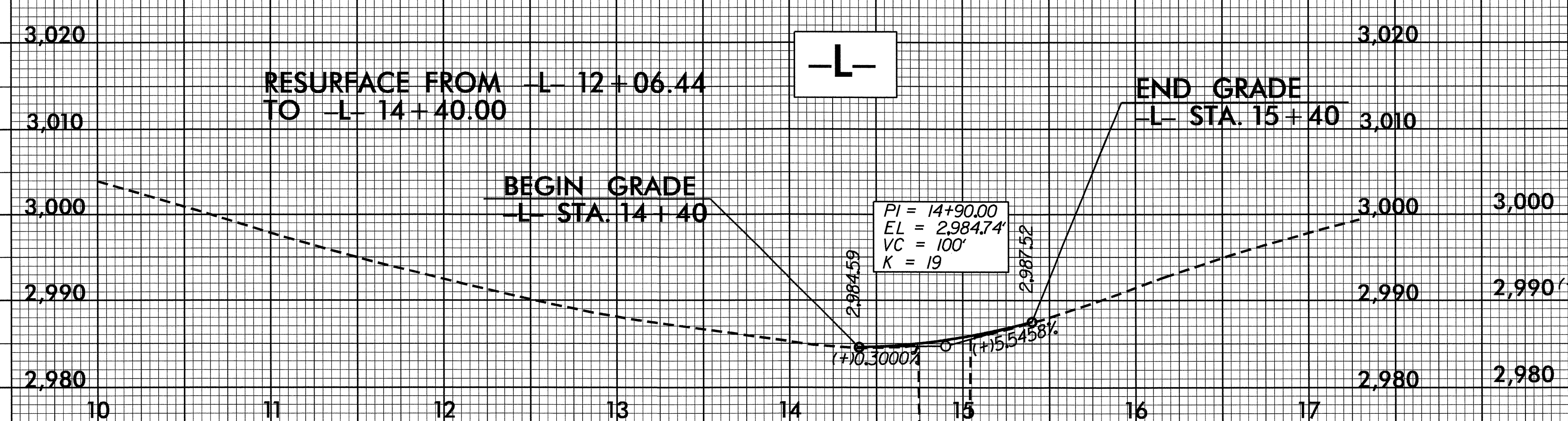
8/17/99
 REVISIONS
 23 JAN 2013 JHS 1455010_r.dwg_psh.dgn

5/14/99

PROJECT REFERENCE NO. B-5010	SHEET NO. 5
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 033136 NATHAN N. ADAMS 2/21/2013	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 12578 PAUL F. FISHER 2/12/2013

RESURFACE FROM -L- 15+40.00 TO -L- 16+95.50

-DRIVE-



PI = 10+40.00
EL = 2991.63'
VC = 20'
K = 4

PI = 11+00.00
EL = 2992.40'
VC = 20'
K = 8

PI = 11+30.00
EL = 2992.00'
VC = 20'
K = 5

BEGIN GRADE
-DRIVE- STA. 10+28.54
ELEV. = 2992.04'

END GRADE
-DRIVE- STA. 11+40
ELEV. = 2992.30'

RESURFACE FROM -L- 12+06.44 TO -L- 14+40.00

-L-

BEGIN GRADE
-L- STA. 14+40

END GRADE
-L- STA. 15+40

PI = 14+90.00
EL = 2984.74'
VC = 100'
K = 19

PI = 14+20.00
EL = 2983.88'
VC = 150'
K = 14

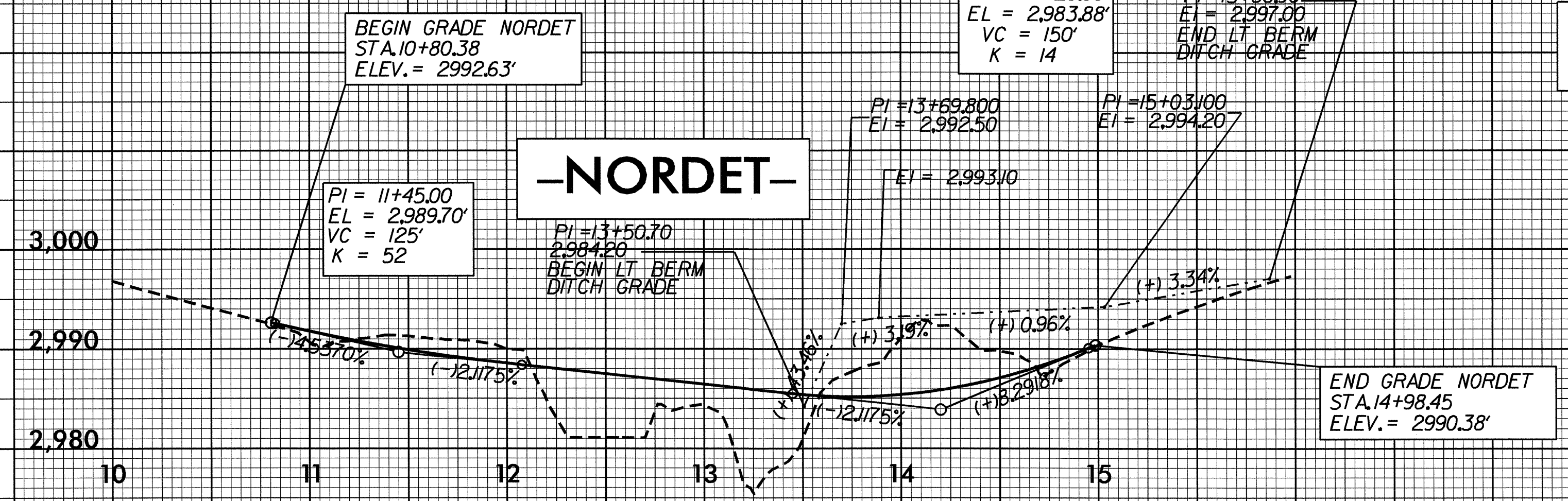
PI = 15+86.90
EL = 2997.00'
VC = 150'
K = 14

SEE SHEET 2-B FOR -NORDET- DESIGN
SEE SHEET 4 FOR PLAN
SEE SHEETS C-1 THRU C-6 FOR CULVERT PLANS
SEE SHEETS W-1 THRU W-2 FOR WALL DETAILS

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE = 410 CFS
 DESIGN FREQUENCY = 25 YRS
 DESIGN ELEVATION = 2980.2 FT
 BASE FLOOD DISCHARGE = 500 CFS
 BASE FLOOD FREQUENCY = 100 YRS
 BASE FLOOD ELEVATION = 2981.1 FT
 OVERTOPPING DISCHARGE = 895 CFS
 OVERTOPPING FREQUENCY = 500 YRS
 OVERTOPPING ELEVATION = 2984.6 FT

-NORDET-



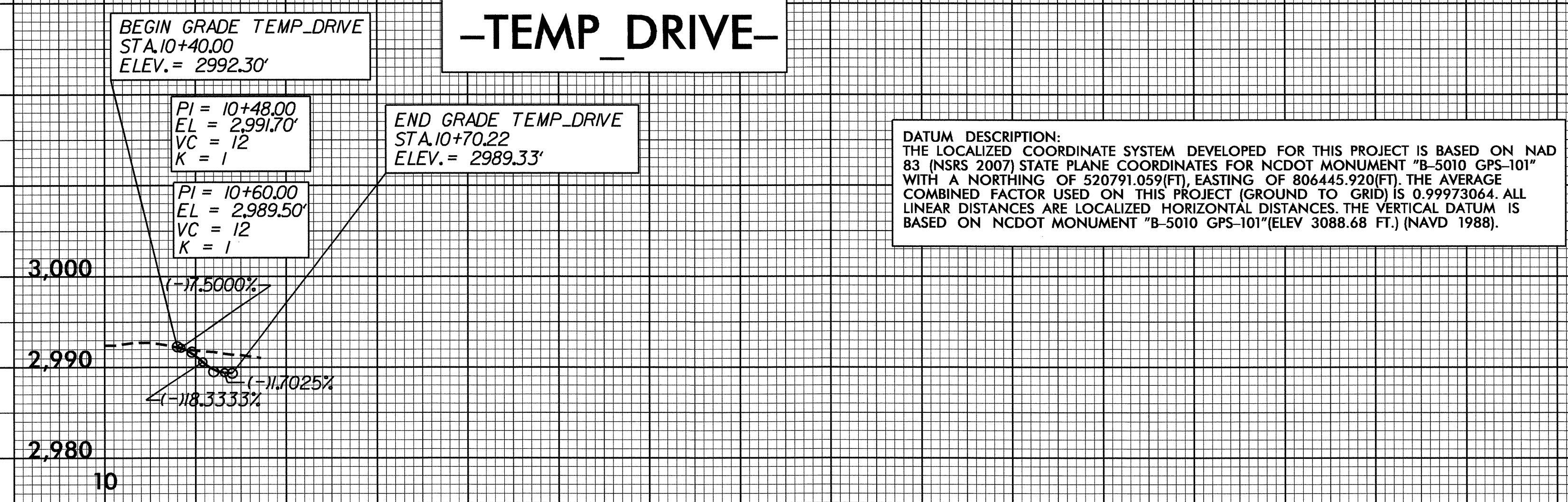
PI = 11+45.00
EL = 2989.70'
VC = 125'
K = 52

PI = 13+50.70
EL = 2984.20'
VC = 125'
K = 52

PI = 15+86.90
EL = 2997.00'
VC = 150'
K = 14

END GRADE NORDET
STA. 14+98.45
ELEV. = 2990.38'

-TEMP_DRIVE-



BEGIN GRADE TEMP_DRIVE
STA. 10+40.00
ELEV. = 2992.30'

PI = 10+48.00
EL = 2991.70'
VC = 12'
K = 1

PI = 10+60.00
EL = 2989.50'
VC = 12'
K = 1

END GRADE TEMP_DRIVE
STA. 10+70.22
ELEV. = 2989.33'

DATUM DESCRIPTION:
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON NAD 83 (NSRS 2007) STATE PLANE COORDINATES FOR NCDOT MONUMENT "B-5010 GPS-101" WITH A NORTING OF 520791.059(FEET) EASTING OF 806445.920(FEET). THE AVERAGE COMBINED FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS 0.99973064. ALL LINEAR DISTANCES ARE LOCALIZED HORIZONTAL DISTANCES. THE VERTICAL DATUM IS BASED ON NCDOT MONUMENT "B-5010 GPS-101"(ELEV 3088.68 FT.) (NAVD 1988).

BM1 ELEVATION = 3005.93
 N 520226 E 806653
 BL1 STATION 5+00
 N 74° 34' 45" W Dist 22.25
 8 INCH SPIKE SET IN ROOT OF 28 INCH POPLAR TREE

 BM2 ELEVATION = 2997.59
 N 519605 E 807122
 BL STATION 12+61 8' RIGHT
 8 INCH SPIKE SET IN ROOT OF 8 INCH POPLAR TREE
 -L- STATION 16+98 38' RIGHT

 BM3 ELEVATION = 2996.39
 N 520130 E 807534
 BL STATION 19+86 10' LEFT
 8 INCH SPIKE SET IN ROOT OF 32 INCH WHITE OAK TREE
 -L- STATION 23+96 24' LEFT

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