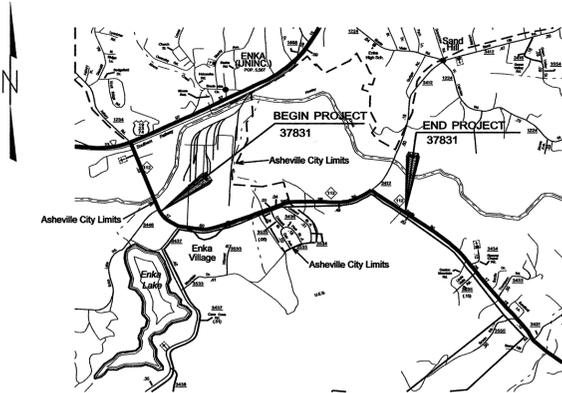


WBS 37831

PROJECT: MAI3028R

04-JAN-2008 10:40
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 \$\$\$SERNAME\$\$\$

See Sheet 1-A For Index of Sheets



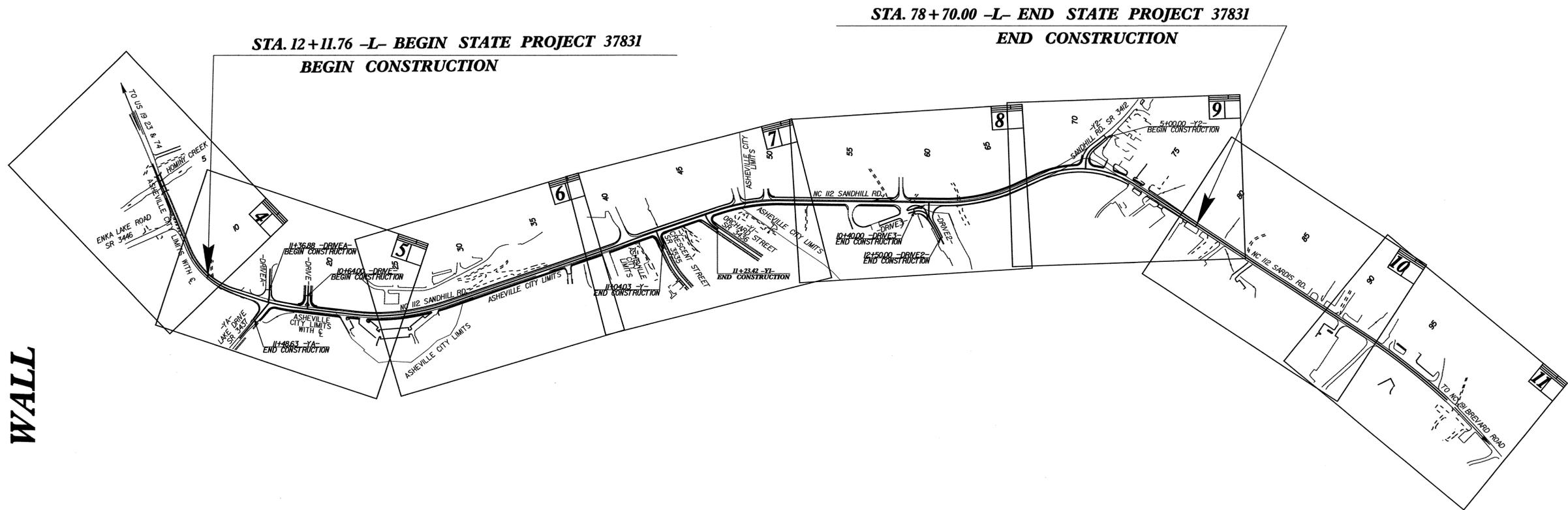
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

BUNCOMBE

LOCATION: NC 112 SAND HILL ROAD AND SARDIS ROAD FROM WEST OF SR 3437 LAKE DRIVE TO 850' EAST OF INTERSECTION OF SAND HILL RD. SR 3412 WITH SARDIS RD NC 112
TYPE OF WORK: GRADING, DRAINAGE, WIDENING, CURB AND GUTTER, PAVING AND THERMOPLASTIC PAVEMENT MARKINGS

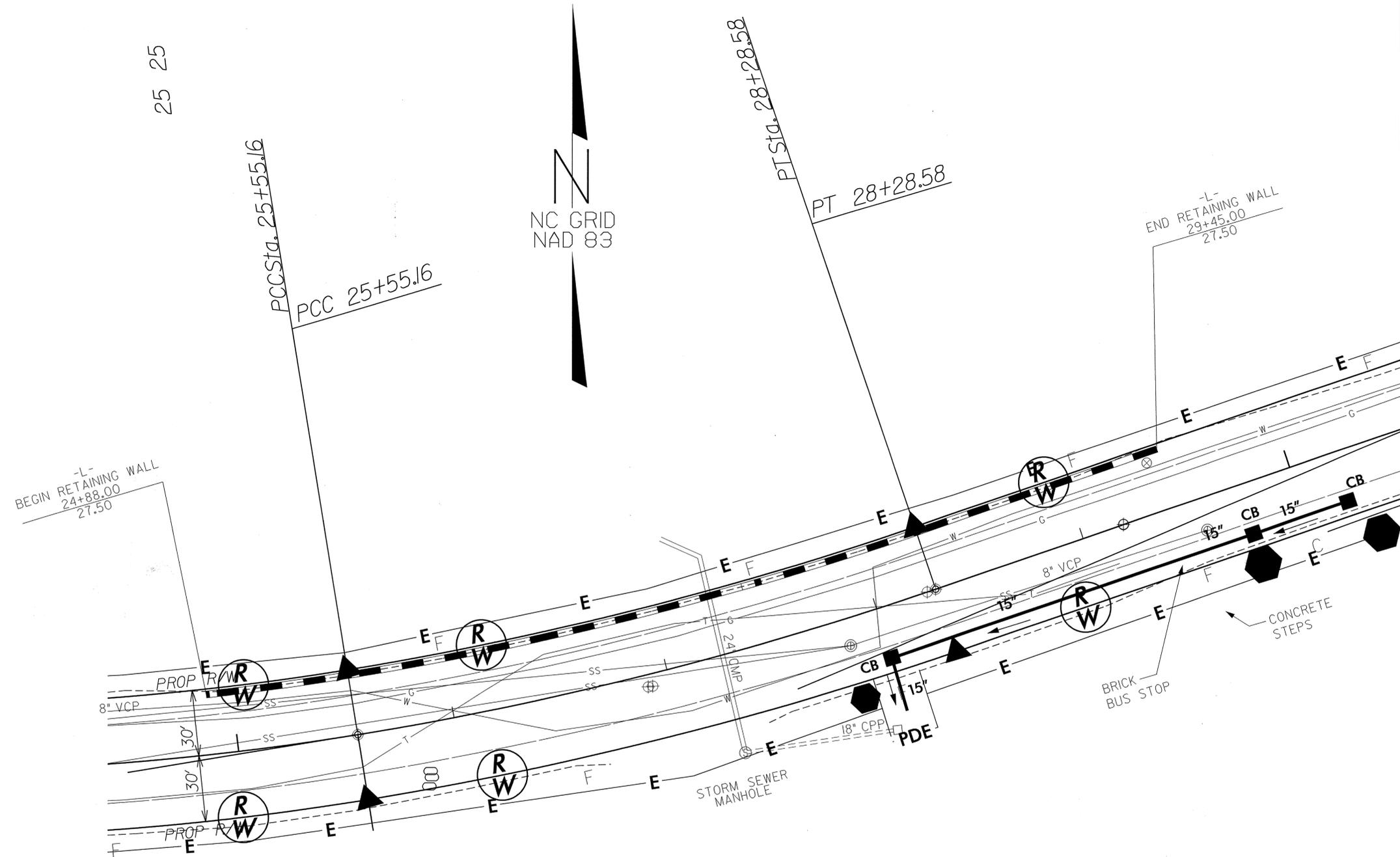
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	37831	W-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

PART OF JOB INSIDE ASHEVILLE CITY LIMITS



WALL

<p>GRAPHIC SCALES</p> <p>50 25 0 50 100 PLANS</p> <p>50 25 0 50 100 PROFILE (HORIZONTAL)</p> <p>10 5 0 10 20 PROFILE (VERTICAL)</p>	<p>DESIGN DATA</p> <p>ADT 2002 = 12,000 ADT 2022 = 18,000 DHV = 10 % D = 10 % T = 5 % * V = 35 & 45 MPH * TTST 2 DUAL 3</p>	<p>PROJECT LENGTH</p> <p>TOTAL LENGTH OF STATE PROJECT 37831 = 1.261 MILES</p>	<p>Prepared In the Office of: DIVISION OF HIGHWAYS 55 Orange Street, Asheville, N.C. 28802</p> <hr/> <p>2006 STANDARD SPECIFICATIONS</p> <hr/> <p>K. A. WILSON, PE OPERATIONS ENGINEER</p> <hr/> <p>M. K. PENLAND DIVISION DESIGN ENGINEER</p>	<p>GEOTECHNICAL ENGINEER</p> <div style="text-align: center;"> </div> <p>_____ P.E. SIGNATURE: <i>Shane C. Clark</i></p>	<p>DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA</p> <hr/> <p>_____ P.E. STATE DESIGN ENGINEER</p> <p>DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION</p> <hr/> <p>APPROVED _____ DIVISION ADMINISTRATOR</p> <p style="text-align: right;">DATE _____</p>
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LOCATION SKETCH

SHOWING LIMITS OF GRAVITY WALL
27.5' LEFT OF -L-

Concrete Gravity Wall

ON NC 112 STA. 24+88 -L- to 29+45 -L-

GEOTECHNICAL ENGINEERING UNIT

EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE

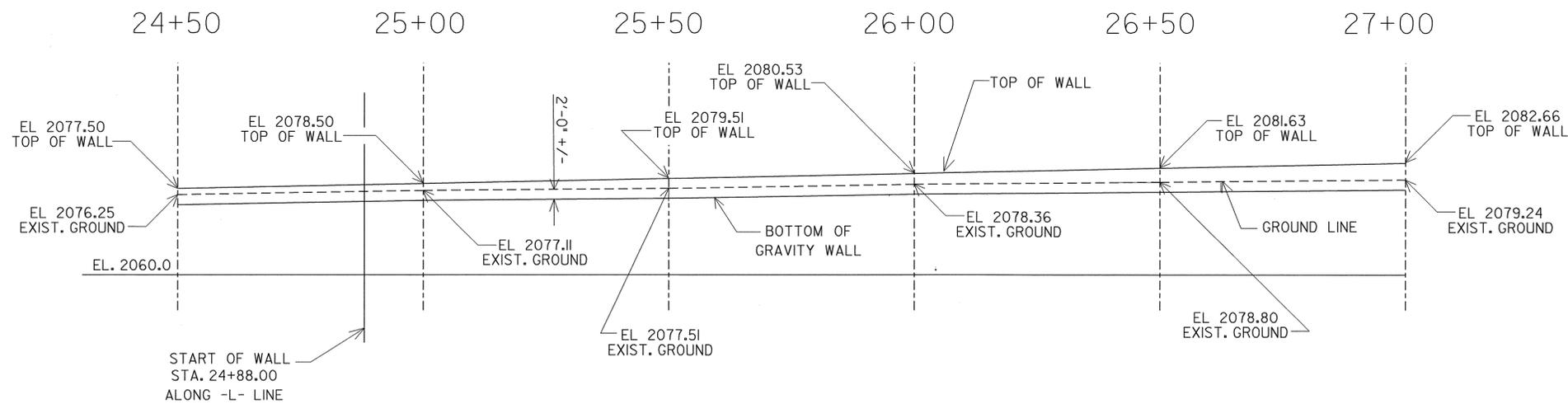
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GRAVITY WALL BUNCOMBE COUNTY					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
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2			4		

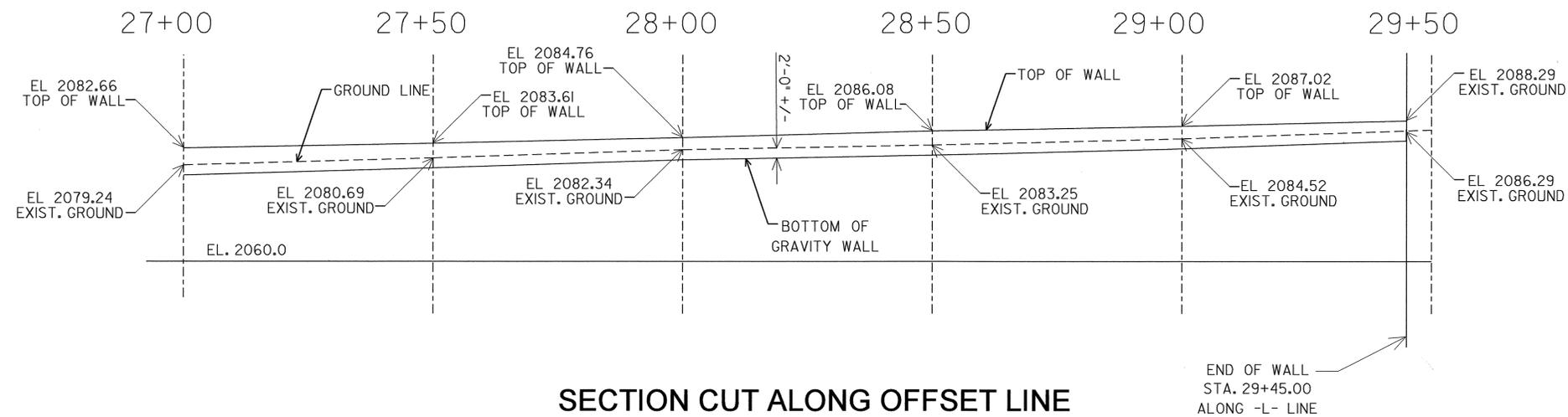


Shane C. Clark 1/8/05
SIGNATURE DATE

SIGNATURE DATE

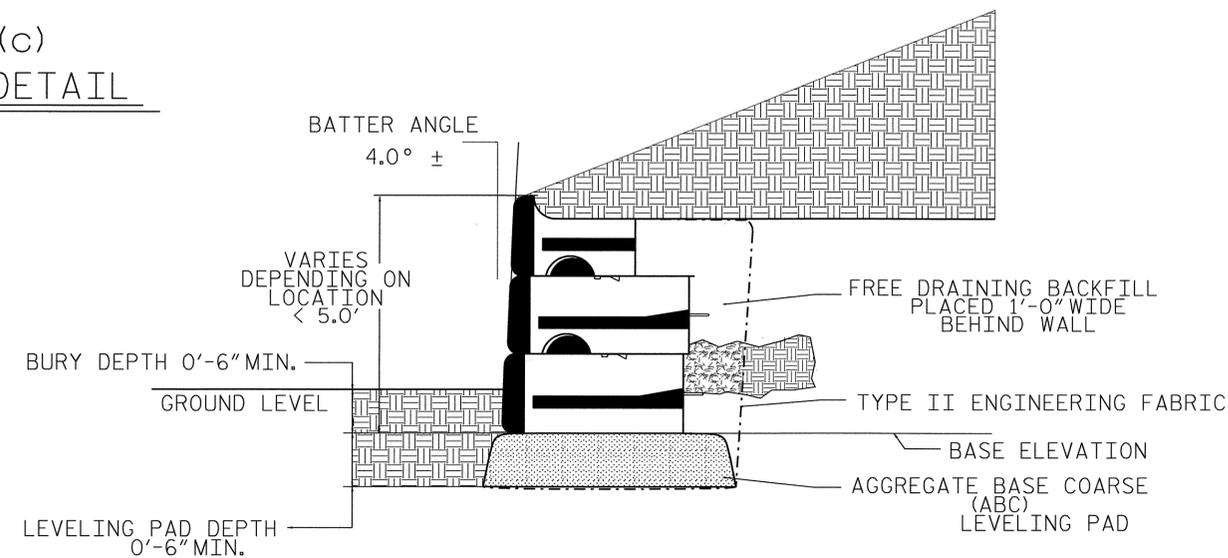


SECTION CUT ALONG OFFSET LINE
27.5' LEFT OF -L- LINE



SECTION CUT ALONG OFFSET LINE
27.5' LEFT OF -L- LINE

REDI-ROCK (c)
TYPICAL WALL DETAIL
NTS



ON NC 112 STA. 24+88 -L- to 29+45 -L-

GEOTECHNICAL ENGINEERING UNIT

- EASTERN REGIONAL OFFICE
- WESTERN REGIONAL OFFICE



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**GRAVITY WALL
BUNCOMBE COUNTY**

REVISIONS

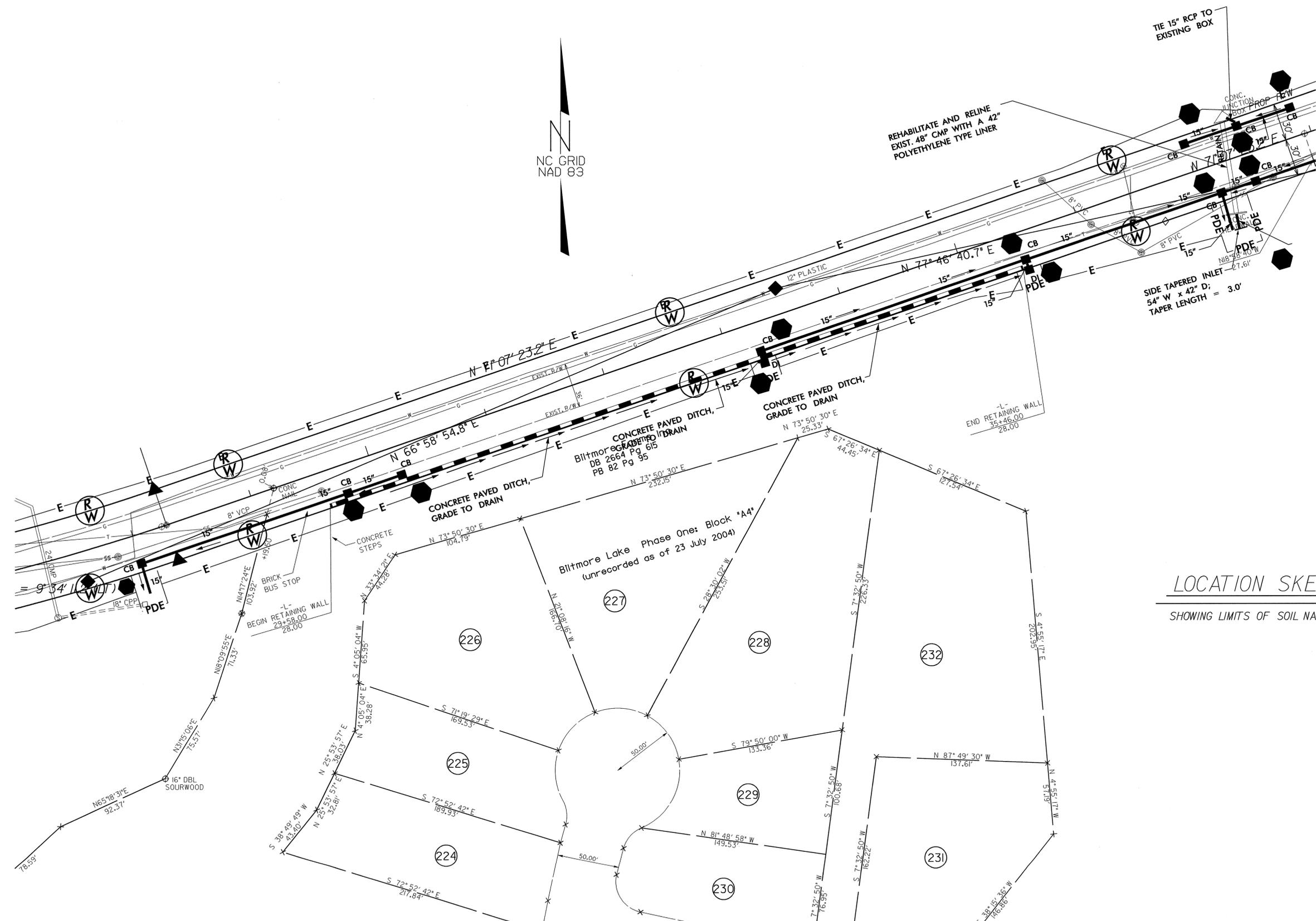
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PREPARED BY: E.J. SALVO	DATE: 08/05
REVIEWED BY: S.C. CLARK	DATE: 01/08



S. C. Clark 1/18/08
SIGNATURE DATE

SIGNATURE DATE



LOCATION SKETCH

SHOWING LIMITS OF SOIL NAIL WALL

ON NC 112 STA. 29+58 -L- to 35+46 -L-

GEOTECHNICAL ENGINEERING UNIT

EASTERN REGIONAL OFFICE

WESTERN REGIONAL OFFICE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SOIL NAIL WALL
BUNCOMBE COUNTY**

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

PREPARED BY: E.J. SALVO	DATE: 08/05
REVIEWED BY: S.C. CLARK	DATE: 01/08

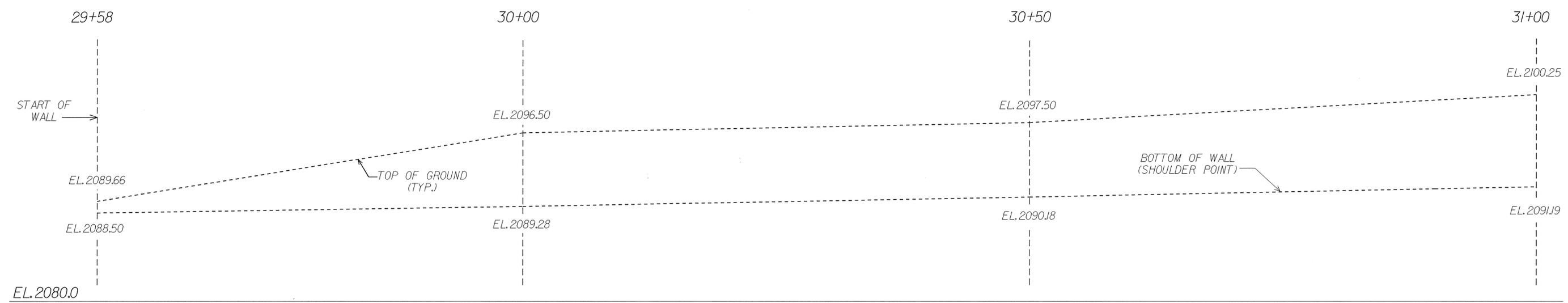
GEOTECHNICAL ENGINEER

ROADWAY DESIGN ENGINEER

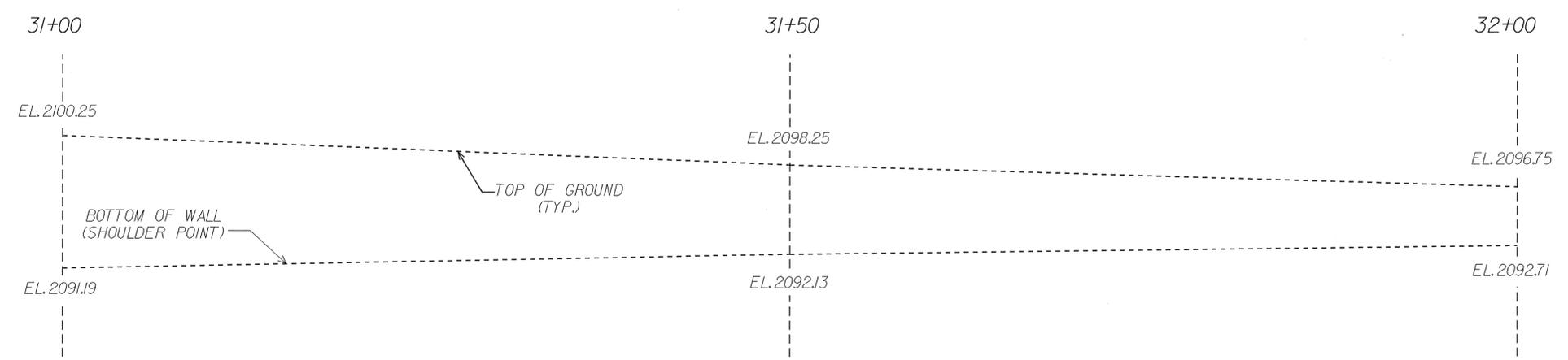


S. Clark 1/8/08
SIGNATURE DATE

SIGNATURE DATE



ELEVATION OF WALL
STA. 29+58 TO STA. 31+00
28' RIGHT OF -L- LINE



ELEVATION OF WALL
STA. 31+00 TO STA. 32+00
28' RIGHT OF -L- LINE

ON NC 112 STA. 29+58 -L- to 35+46 -L-

GEOTECHNICAL ENGINEERING UNIT

EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SOIL NAIL WALL
BUNCOMBE COUNTY**

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

PREPARED BY: E.J. SALVO	DATE: 08/05
REVIEWED BY: S.C. CLARK	DATE: 01/08



S. C. Clark 1/6/08
SIGNATURE DATE

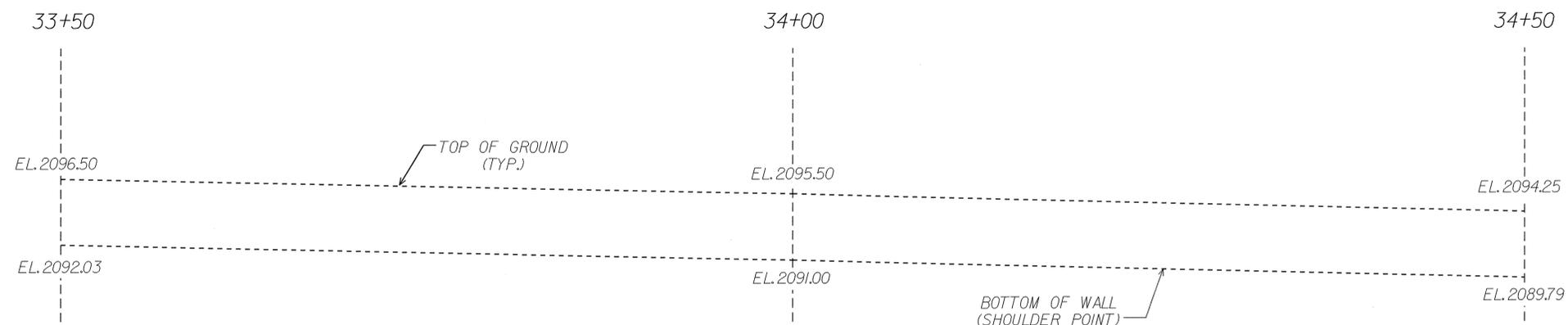
SIGNATURE DATE



EL. 2080.0

ELEVATION OF WALL

STA. 32+00 TO STA. 33+50
28' RIGHT OF -L- LINE



EL. 2080.0

ELEVATION OF WALL

STA. 33+50 TO STA. 34+50
28' RIGHT OF -L- LINE

ON NC 112 STA. 29+58 -L- to 35+46 -L-

GEOTECHNICAL ENGINEERING UNIT
 EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SOIL NAIL WALL
BUNCOMBE COUNTY**

REVISIONS

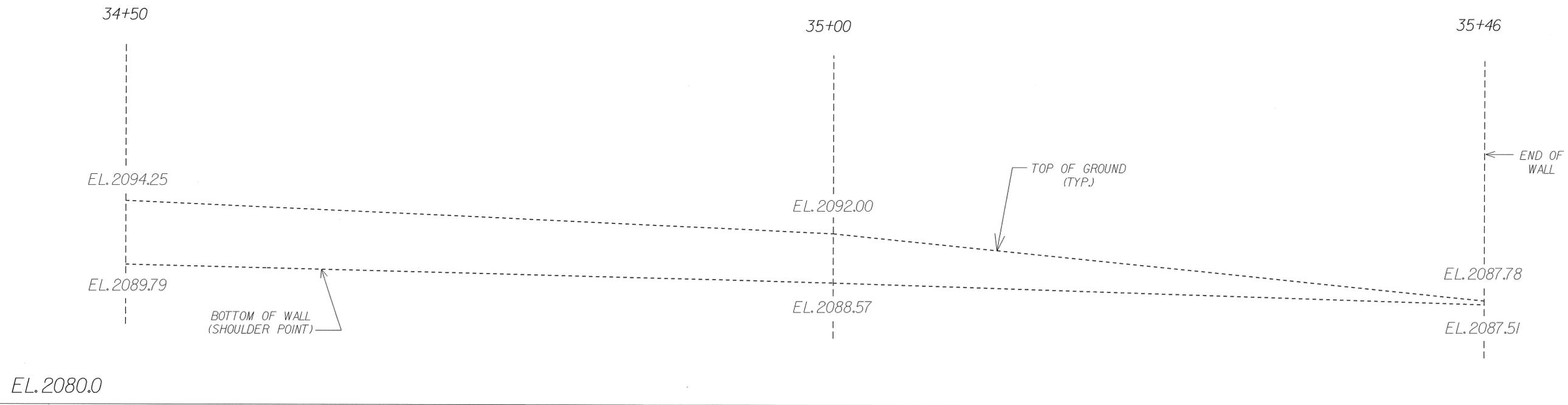
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PREPARED BY: E.J. SALVO	DATE: 08/05
REVIEWED BY: S.C. CLARK	DATE: 01/08



Signature: *shc* Date: *1/08*

Signature: _____ Date: _____



ELEVATION OF WALL

STA. 34+50 TO STA. 35+46
28' RIGHT OF -L- LINE

ON NC 112 STA. 29+58 -L- to 35+46 -L-

GEOTECHNICAL ENGINEERING UNIT

EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SOIL NAIL WALL
BUNCOMBE COUNTY**

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

PREPARED BY: E.J. SALVO	DATE: 08/05
REVIEWED BY: S.C. CLARK	DATE: 01/08

TOTAL BILL OF MATERIAL	
SOIL NAIL RETAINING WALL AT STA. 29+58-L- TO 35+46-L- 2,886 SQ. FT.	LUMP SUM



NOTES

BEFORE BEGINNING RETAINING WALL DESIGN, SURVEY ALL EXISTING GROUND ELEVATIONS SHOWN ON THE PLANS AND SUBMIT A REVISED WALL ENVELOPE FOR REVIEW. DO NOT BEGIN WALL DESIGN OR CONSTRUCTION UNTIL THIS ENVELOPE HAS BEEN APPROVED.

IN ELEVATION VIEW, SHOW THE TOP OF WALL (SOLID LINE), THE EXISTING GROUND LINE (LARGE DASHED LINE), AND THE BOTTOM OF WALL (SOLID LINE). SHOW ELEVATIONS FOR THE TOP OF WALL AT VERTICAL BREAK POINTS, AND AT NO GREATER THAN 50 FOOT INTERVALS. LABEL WHETHER THE ELEVATION VIEW IS FRONT FACE OR BACK FACE.

FINAL PLANS MUST BE ON REPRODUCIBLE SHEETS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN NORTH CAROLINA.

PROVIDE A CAST-IN-PLACE CONCRETE FACE WITH AN ASHLAR STONE PATTERN FINISH ON THE FACE OF THE WALL. SEE SPECIAL PROVISIONS.

NOTE ON CONTRACTOR'S WORKING DRAWINGS: VERIFY BEARING CAPACITY OF THE WALL FOUNDATION SOILS IN THE FIELD.

THE RESIDENT ENGINEER WILL SCHEDULE A PRECONSTRUCTION CONFERENCE WITH REPRESENTATIVES FROM THE CONTRACTOR, THE RETAINING WALL SYSTEM SUPPLIER, AND THE GEOTECHNICAL ENGINEERING UNIT TO DISCUSS DETAILS AND INSPECTION OF THE RETAINING WALL PRIOR TO ANY WORK BEING PERFORMED AT THE SITE.

SEE ROADWAY PLANS FOR CROSS SECTIONS AND TYPICAL SECTIONS.

FOR DESIGN CRITERIA AND DETAILS, SEE SPECIAL PROVISIONS.

PLANS, WORKING DRAWINGS, SOIL REINFORCEMENT, AND DESIGN CALCULATIONS SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR REVIEW AND APPROVAL. SEE SPECIAL PROVISIONS.

ALL NAIL BARS FOR THE SOIL NAIL RETAINING WALLS SHALL BE EPOXY COATED AND GROUTED IN PLACE FOR CORROSION PROTECTION.

CONCRETE LEVELING PADS FOR THE CAST-IN-PLACE WALL FACING AND THE DRAINAGE DITCHES BEHIND THE WALLS WILL BE CONSIDERED INCIDENTAL TO THE COST OF THE WALLS.

THE WALLS SHALL BE DESIGNED TO MEET THE LATEST FHWA REPORT NO. SA-96-069 AND THE LATEST AASHTO DESIGN CRITERIA AND ITS INTERIM, SEE THE SPECIAL PROVISIONS, AND THE PLANS.

PLANS SUBMITTED FOR REVIEW SHALL INCLUDE THE FOLLOWING: PLAN VIEW, ELEVATION VIEW, TYPICAL SECTIONS, CAST-IN-PLACE FACING, OBSTRUCTION DETAILS AND DRAINAGE DETAILS.

BLASTING WILL NOT BE ALLOWED TO INSTALL THE NAIL BARS OF THE PROPOSED SOIL NAIL RETAINING WALLS.

THE SOIL NAIL RETAINING WALLS SHALL BE DESIGNED WITH THE FOLLOWING SOIL PARAMETERS:

FRICTION ANGLE $\phi = 30^\circ$ COHESION $c = 0.0$ PSF
 UNIT WEIGHT OF SOIL ABOVE WATER TABLE, $\gamma = 120$ PCF
 UNIT WEIGHT OF SOIL BELOW WATER TABLE, $\gamma = 60$ PCF

THE OFFSET FOR WALL LAYOUT TO FRONT FACE OR BACK FACE OF WALL NEEDS TO BE GIVEN WITH STATIONING INCREASING FROM LEFT TO RIGHT ON PLAN SHEETS.

FOR POTENTIAL CONFLICTS WITH WATER SUPPLY PIPES, DRAINAGE STRUCTURES, OR UTILITIES, SEE ROADWAY PLANS.

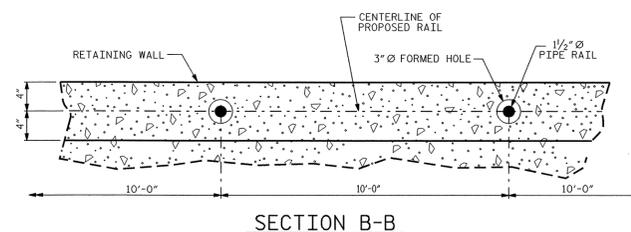
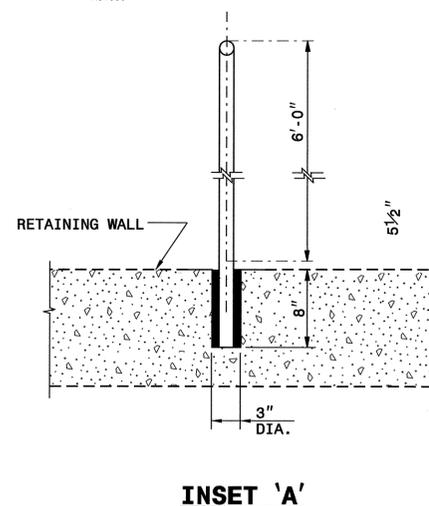
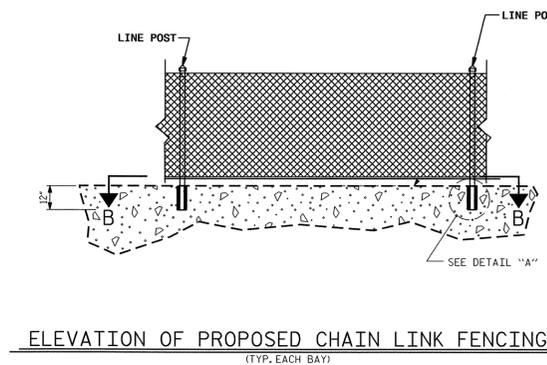
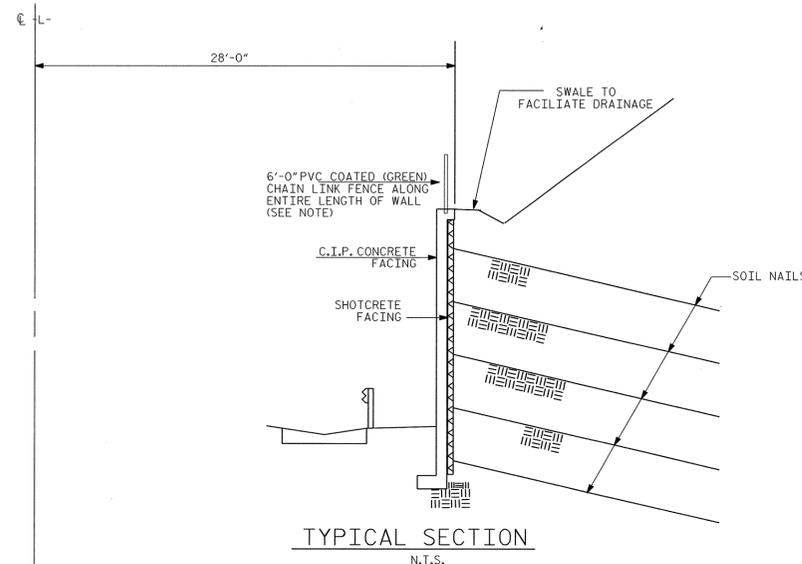
PROVIDE PAVED DRAINAGE DITCH ON TOP OF THE WALLS.

BOTTOM OF WALL ELEVATIONS ARE FINISHED GRADE ELEVATIONS AND THESE ELEVATIONS DO NOT INCLUDE EMBEDMENT FOR THE SOIL NAIL WALLS.

ALL STRUCTURE EXCAVATION AND BACKFILL NECESSARY FOR THE CONSTRUCTION OF THE PERMANENT SOIL NAIL RETAINING WALLS WILL BE CONSIDERED INCIDENTAL TO THE COST OF THE WALLS.

SEE SOIL NAIL WALL SPECIAL PROVISION FOR ADDITIONAL INFORMATION.

CONTRACTOR RESPONSIBLE FOR SUBMITTING A WALL REINFORCEMENT DETAIL SHOWING PROPOSED REINFORCEMENT, SLEEVES AND ANY ADDITIONAL CONNECTIONS, AS NEEDED. SEE ROADWAY STANDARD 866.01 FOR INFORMATION ON THE CHAIN LINK FENCING REQUIREMENTS.



ON NC 112 STA. 29+58 -L- to 35+46 -L-

<p>GEOTECHNICAL ENGINEERING UNIT <input type="checkbox"/> EASTERN REGIONAL OFFICE <input checked="" type="checkbox"/> WESTERN REGIONAL OFFICE</p>	<p>STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH</p>		<p>SOIL NAIL WALL BUNCOMBE COUNTY</p>																		
	<p>REVISIONS</p> <table border="1"> <thead> <tr> <th>NO.</th> <th>BY</th> <th>DATE</th> <th>NO.</th> <th>BY</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td>3</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td>4</td> <td></td> <td></td> </tr> </tbody> </table>				NO.	BY	DATE	NO.	BY	DATE	1			3			2			4	
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PREPARED BY: E.J. SALVO	DATE: 08/06
REVIEWED BY: S.C. CLARK	DATE: 01/08