

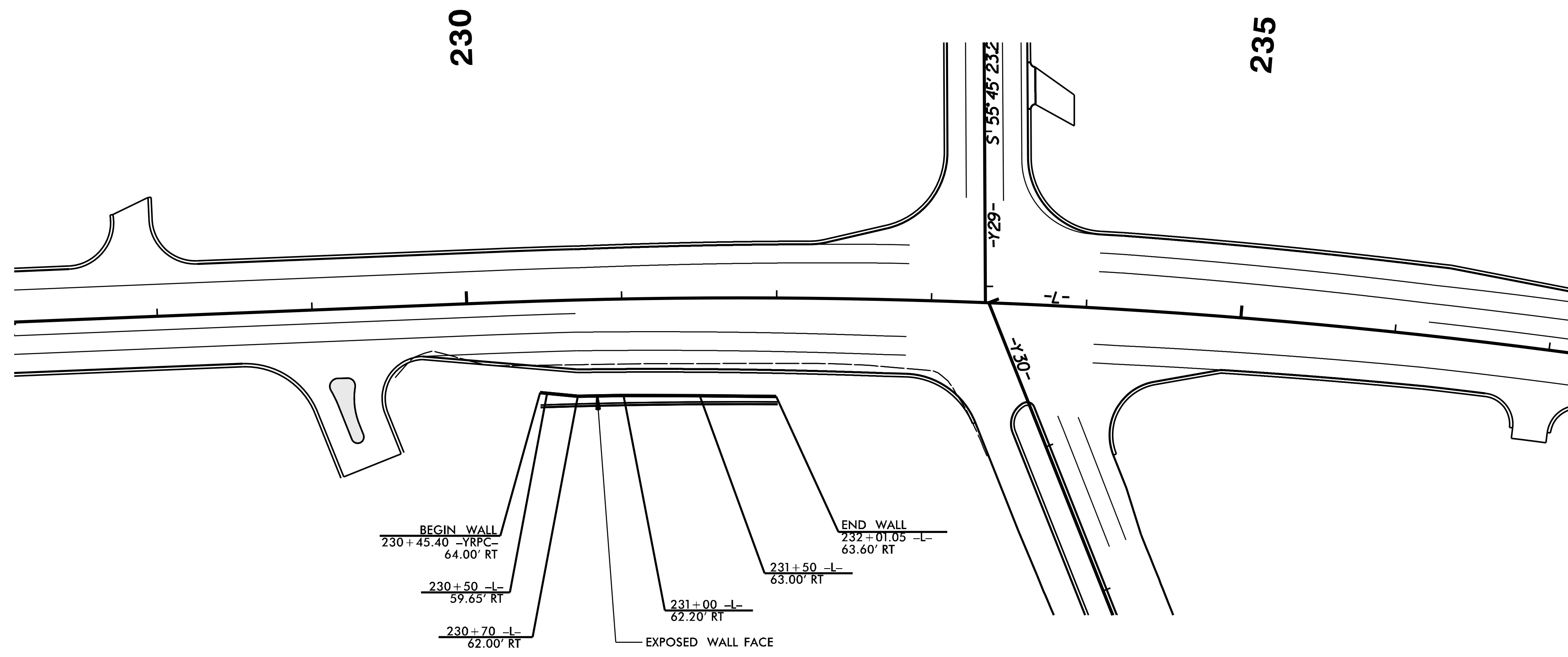
GEOTECHNICAL ENGINEER

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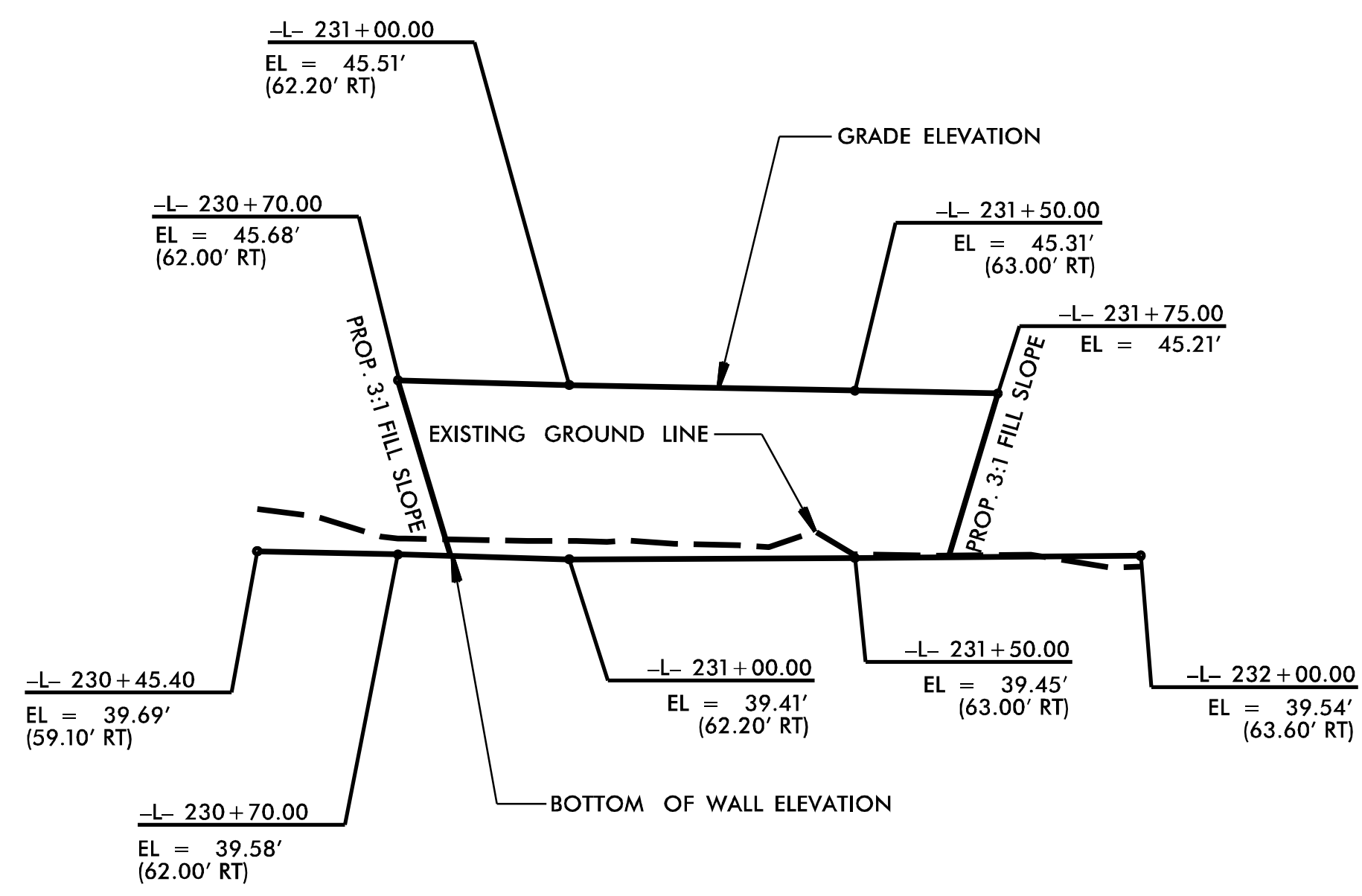
DocuSigned by:  
Joshua M. Norris  
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8/21/2018

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UNLESS ALL SIGNATURES COMPLETED**



**RETAINING WALL NO. 1 PLAN VIEW**  
NOT TO SCALE



**RETAINING WALL NO. 1 WALL ENVELOPE**  
NOT TO SCALE

ESTIMATED MSE WALL QUANTITY (SQUARE FEET)	
MSE RETAINING WALL NO. 1	775 SF

PROJECT NO.: U-4902D  
NEW HANOVER COUNTY  
STATION: 230+45.40 -L-  
SHEET 1 OF 2

PREPARED BY: J. NORRIS, P.E. DATE: 08/14/18  
REVIEWED BY: B. LACKEY, P.E. DATE: 08/14/18

Prepared in the Office of:

**CATLIN**  
Engineers and Scientists  
Wilmington, North Carolina

NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

**GEOTECHNICAL  
ENGINEERING UNIT**

**RETAINING WALL NO. 1  
PLAN AND WALL ENVELOPE**

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W-1
2			4			

GEOTECHNICAL ENGINEER

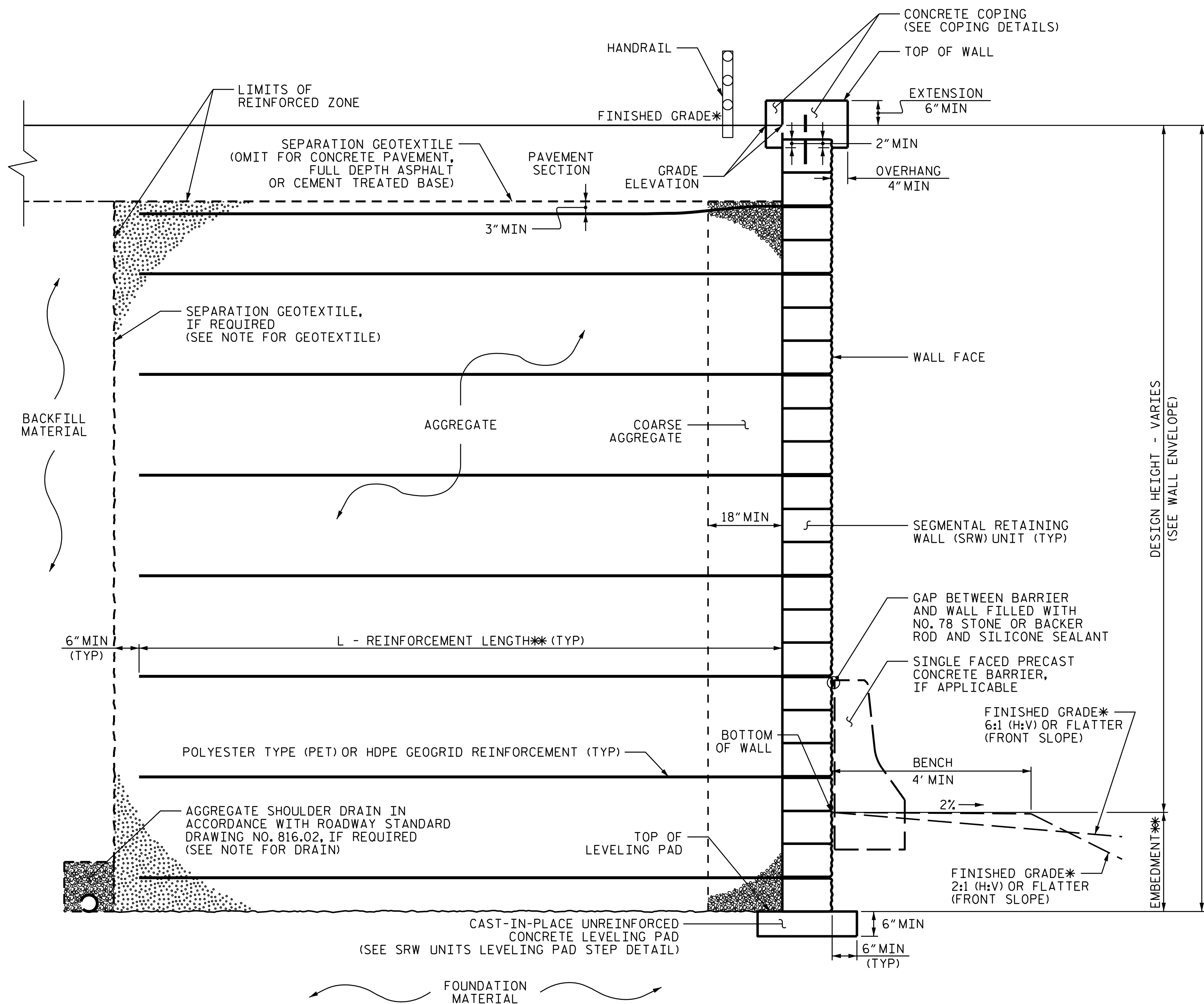
ENGINEER

SEAL 045898

Josiah M. Norris

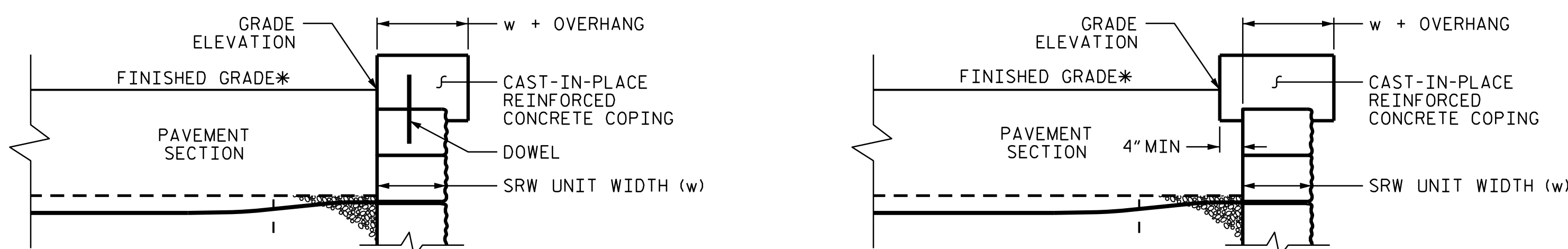
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**MSE WALL WITH SRW UNITS - TYPICAL SECTION**

\*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.  
 \*\*SEE MSE RETAINING WALLS PROVISION AND IF APPLICABLE, MSE WALL NOTES FOR EMBEDMENT AND REINFORCEMENT LENGTH REQUIREMENTS.



**COPING DETAILS**

AT THE CONTRACTOR'S OPTION, CONNECT COPING TO SRW UNITS WITH DOWELS OR EXTEND COPING DOWN BACK OF SRW UNITS.  
 \*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

**NOTES:**

- FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS, SEE MECHANICALLY STABILIZED EARTH RETAINING WALLS PROVISION.
- AT THE CONTRACTOR'S OPTION, USE AN MSE WALL SYSTEM WITH SEGMENTAL RETAINING WALL (SRW) UNITS THAT MEET ARTICLE 1040-4 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALL NO. 1.
- USE AN MSE WALL SYSTEM WITH SEGMENTAL RETAINING WALL UNITS (SRW) UNITS THAT MEET ARTICLE 1040-4 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALL NO. 1.
- WHEN USING AN MSE WALL SYSTEM WITH SRW UNITS FOR RETAINING WALL NO. 1, FREEZE-THAW DURABLE SRW UNITS THAT MEET ARTICLE 1040-4 OF THE STANDARD SPECIFICATIONS ARE REQUIRED.
- AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALL NO. 1.
- CIP REINFORCED CONCRETE COPING IS REQUIRED FOR RETAINING WALL NO. 1.
- USE SRW UNITS WITH A CONCRETE GRAY COLOR FOR RETAINING WALL NO. 1.
- USE SRW UNITS WITH A TEXTURED FACE FOR RETAINING WALL NO. 1.
- A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NO. 1.
- A DRAIN IS REQUIRED FOR RETAINING WALL NO. 1.

DESIGN RETAINING WALL NO. FOR THE FOLLOWING:

- 1) H = DESIGN HEIGHT + EMBEDMENT
- 2) DESIGN LIFE = 75 YEARS
- 3) REINFORCED ZONE AGGREGATE PARAMETERS:

AGGREGATE TYPE*	UNIT WEIGHT (γ) PCF	FRICTION ANGLE (φ) DEGREES	COHESION (c) PSF
COARSE	110	38	0
FINE	115	34	0

\* SEE MSE RETAINING WALLS PROVISION FOR COARSE AND FINE AGGREGATE MATERIAL REQUIREMENTS.

7) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (γ) PCF	FRICTION ANGLE (φ) DEGREES	COHESION (c) PSF
BACKFILL	120	30	0
FOUNDATION	120	32	0

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO. 1 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

"TEMPORARY SHORING" MAY BE REQUIRED FOR RETAINING WALL NO. 1 IN ACCORDANCE WITH THE TEMPORARY SHORING PROVISION. SEE ROADWAY PLANS.

AT THE CONTRACTOR'S OPTION, "TEMPORARY SHORING FOR WALL CONSTRUCTION" MAY BE USED TO CONSTRUCT RETAINING WALL NO. 1. SEE MSE RETAINING WALLS PROVISION FOR TEMPORARY SHORING FOR WALL CONSTRUCTION.

A HANDRAIL ABOVE MSE WALL 1 REINFORCEMENT ZONE BEHIND THE SRW UNITS IS REQUIRED. FOUNDATIONS FOR HANDRAIL POSTS MAY INTERFERE WITH WALL REINFORCEMENT. SEE ROADWAY PLANS FOR HANDRAIL FOUNDATION LOCATION AND DETAILS.

DESIGN RETAINING WALL NO. 1 FOR A LATERAL LOAD FROM HANDRAIL POST FOUNDATIONS LOCATED BEHIND THE MSE WALL APPLIED TO THE BACK OF THE SRW UNITS

PROJECT NO.: U-4902D  
 NEW HANOVER COUNTY  
 STATION: 230+45.40 -L-  
 SHEET 2 OF 2

**RETAINING WALL NO. 1 TYPICAL SECTION AND DETAILS**

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W-2
2			4			

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