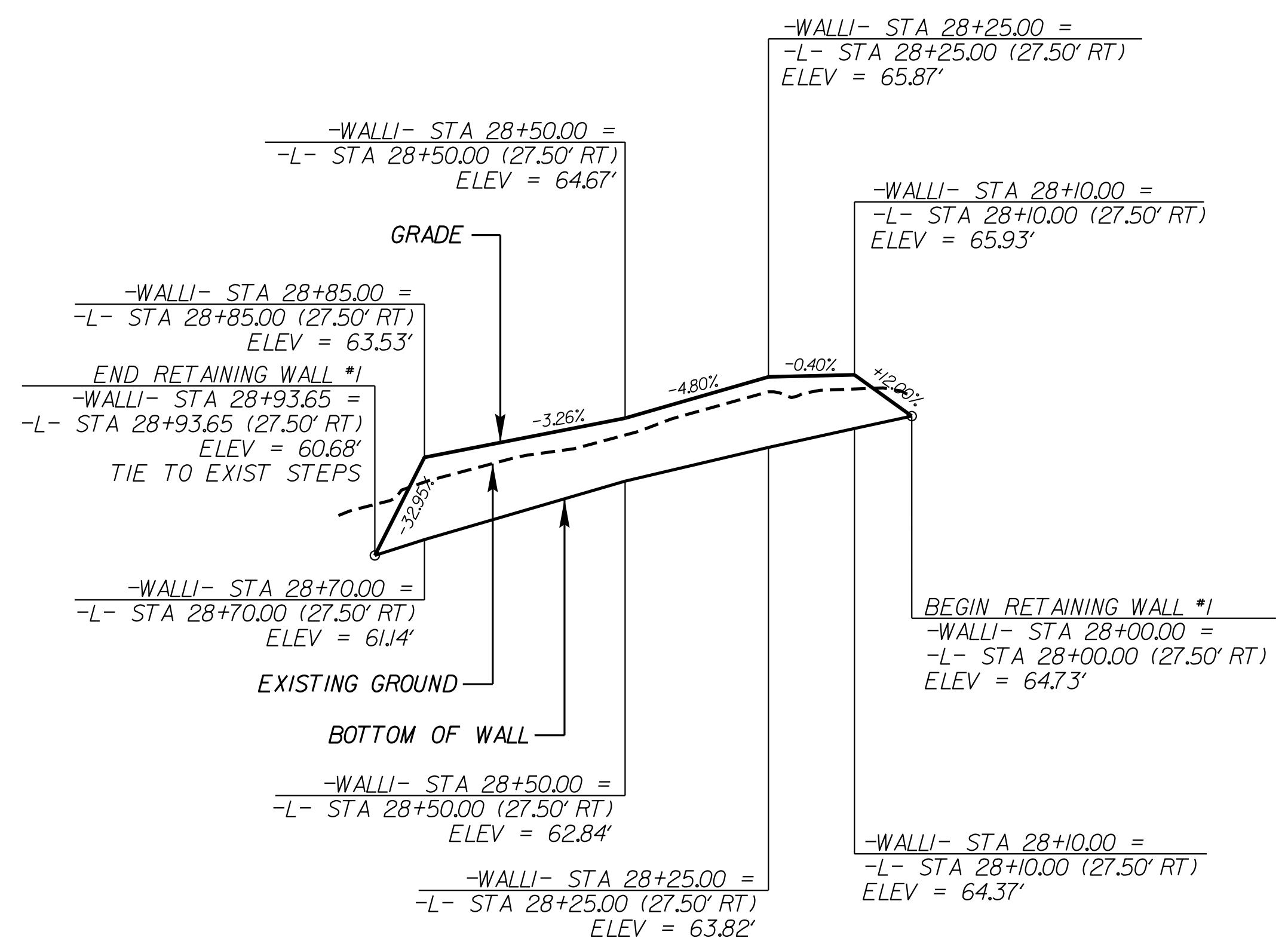
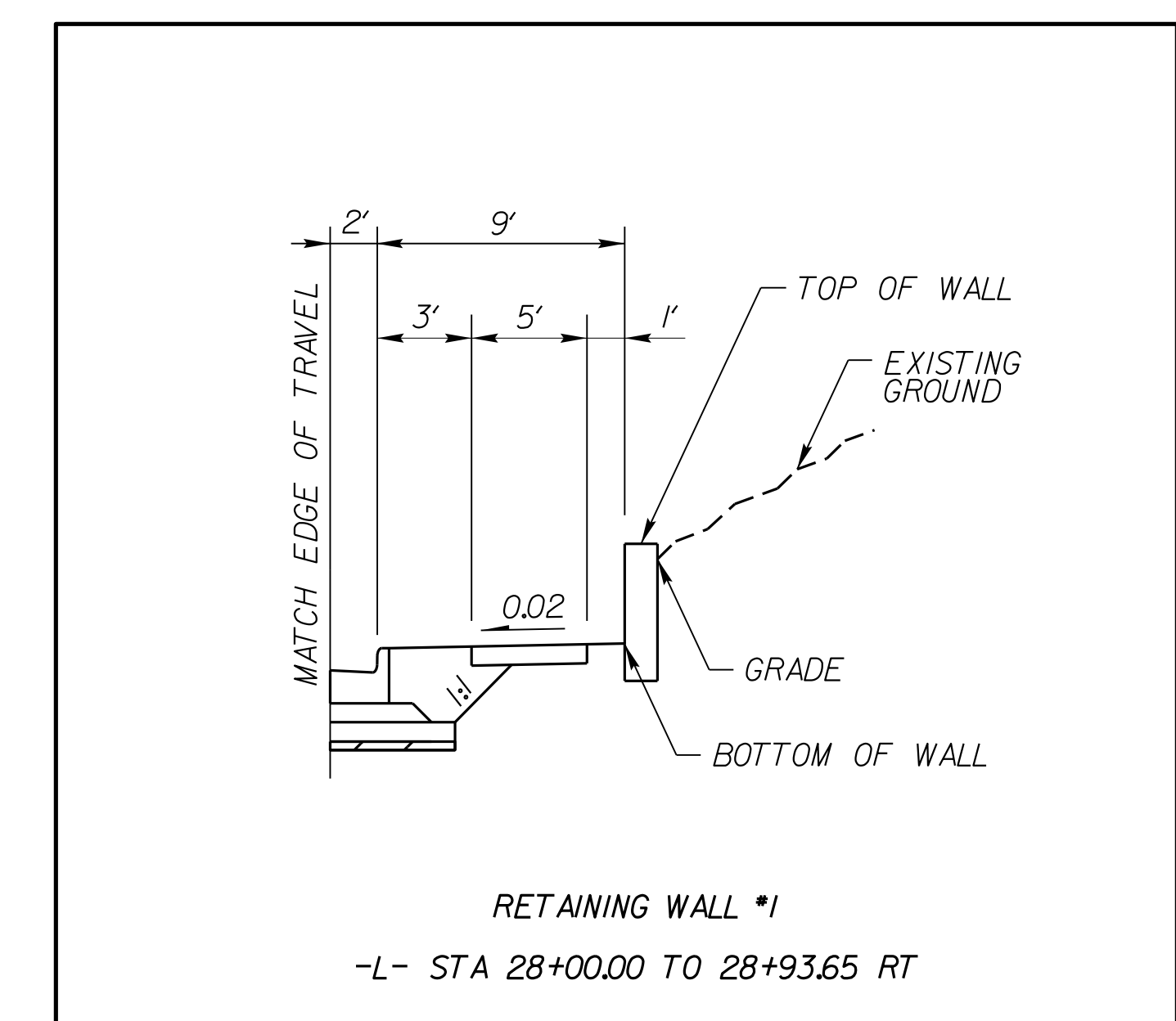


PLAN VIEW FOR RETAINING WALL NO. 1



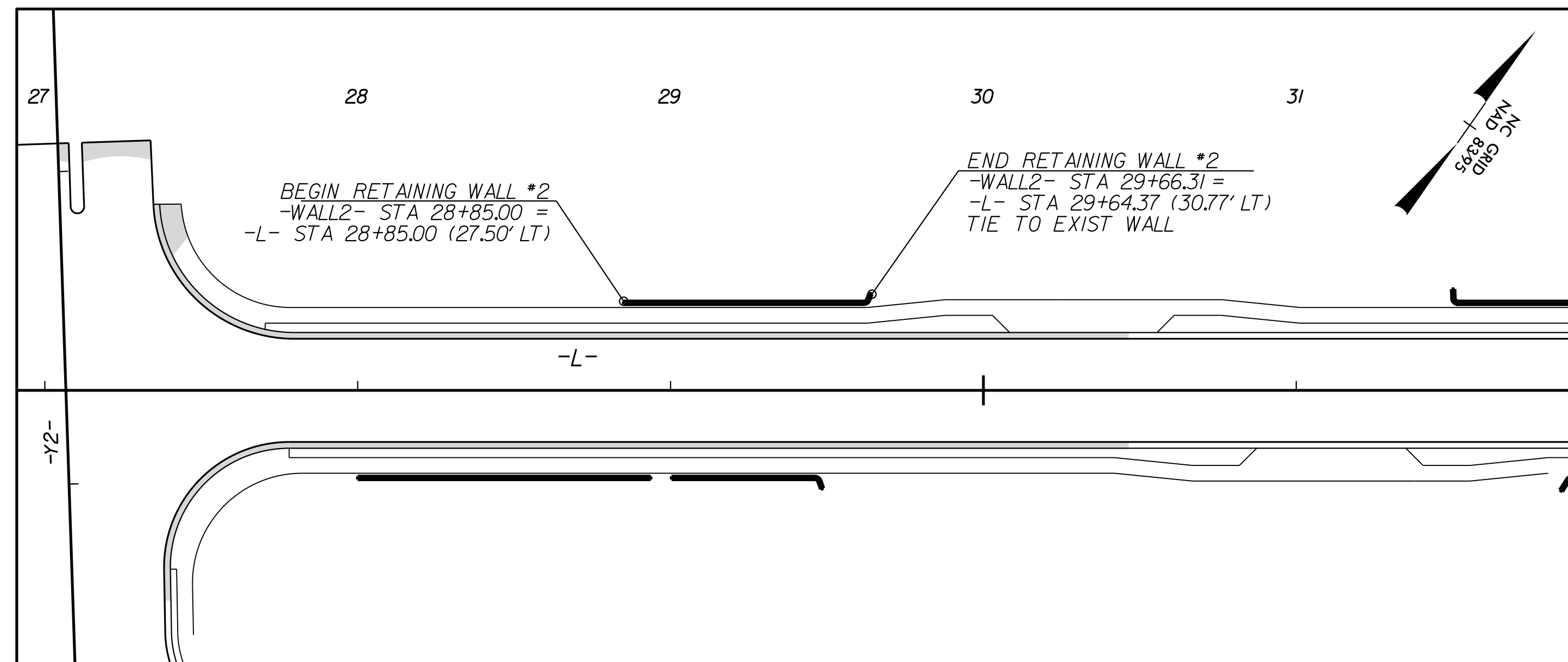
WALL ENVELOPE FOR RETAINING WALL NO. 1

EXPOSED WALL FACE VIEW, N.T.S.
THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL

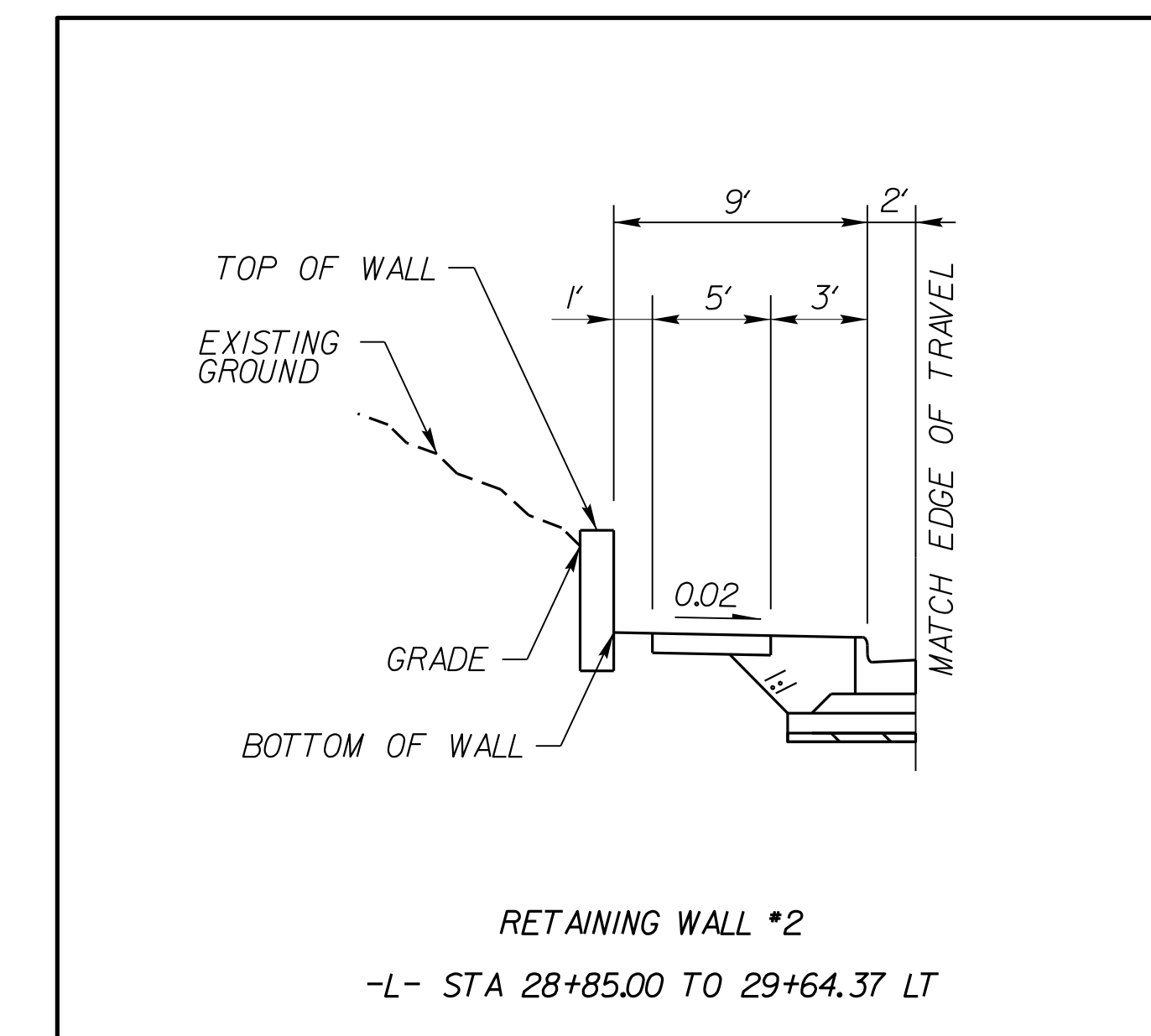


TYPICAL SECTION NO. 1

ESTIMATED SEGMENTAL GRAVITY RETAINING WALL NO. 1 QUANTITY	
SEGMENTAL GRAVITY RETAINING WALLS	300 SF

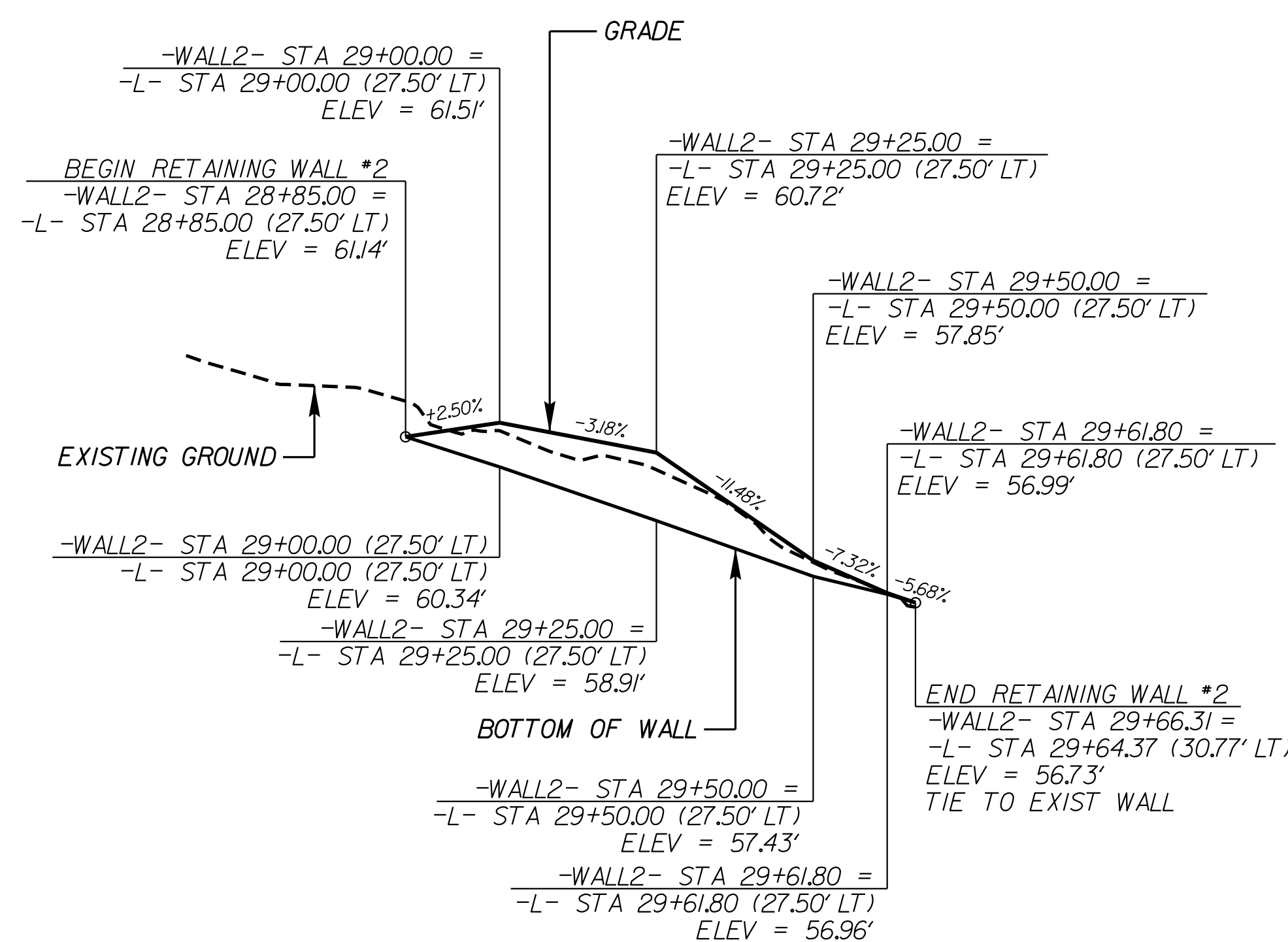


PLAN VIEW FOR RETAINING WALL NO. 2



TYPICAL SECTION NO. 2

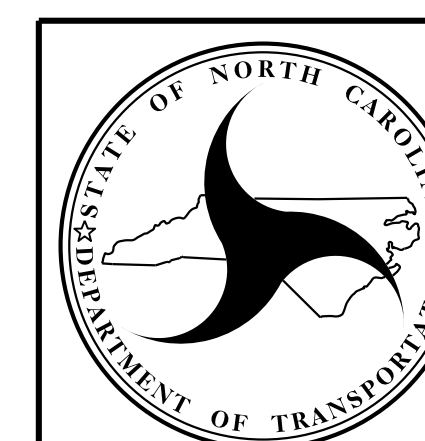
ESTIMATED SEGMENTAL GRAVITY RETAINING WALL NO. 2 QUANTITY	
SEGMENTAL GRAVITY RETAINING WALLS	190 SF



WALL ENVELOPE FOR RETAINING WALL NO. 2

EXPOSED WALL FACE VIEW, N.T.S.
THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL

PREPARED BY: J. PARK	DATE: 02 / 2018
REVIEWED BY: J. BATTS	DATE: 02 / 2018

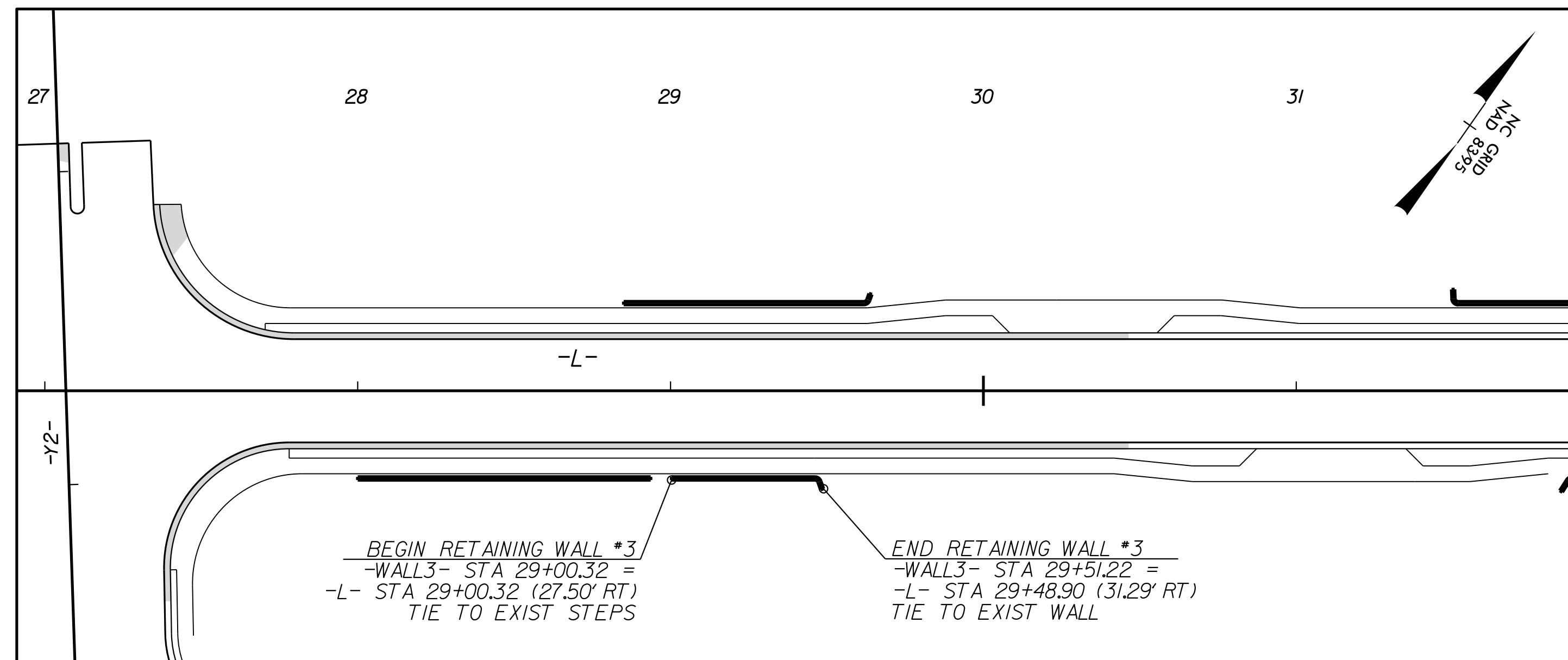


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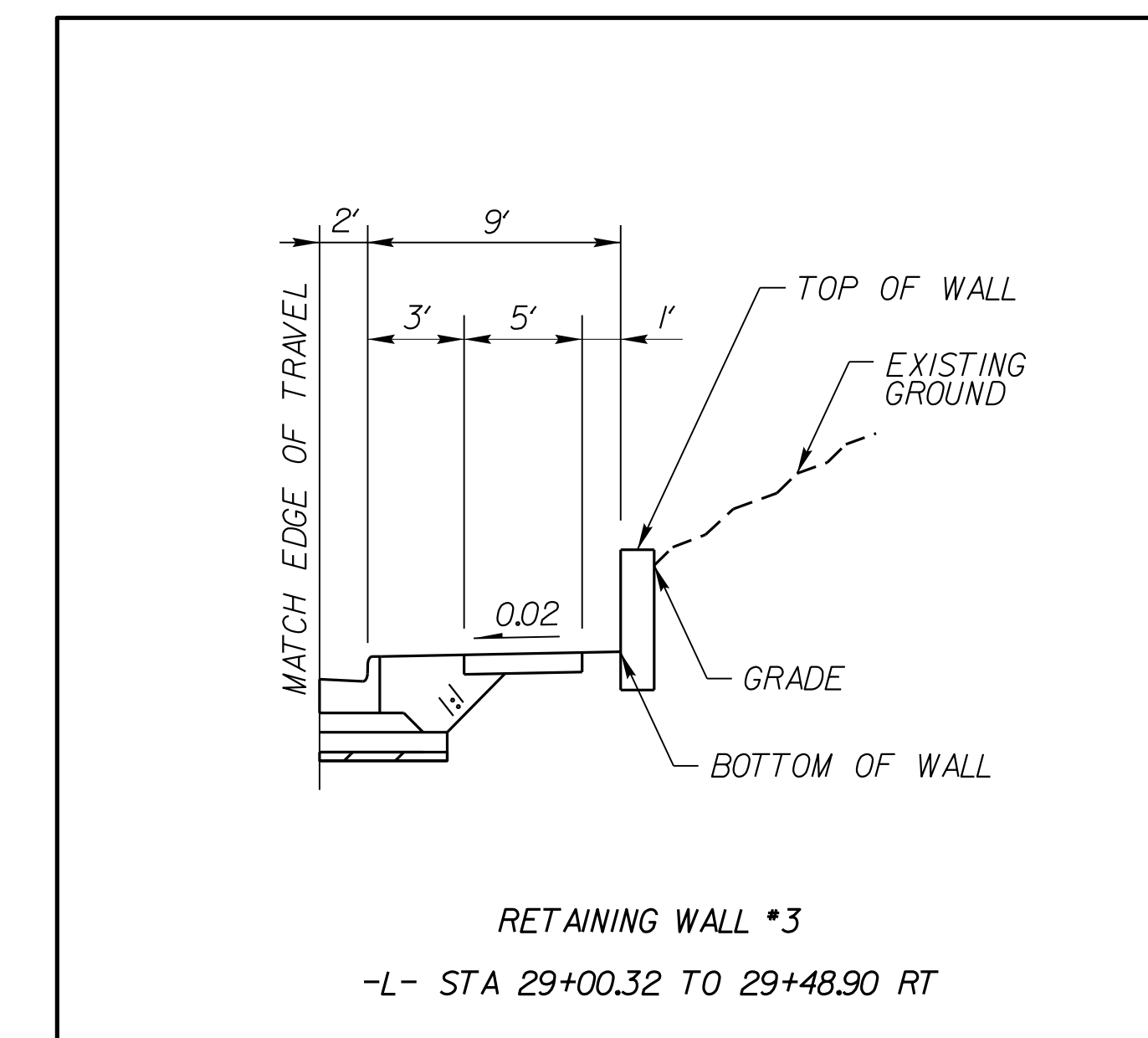
**GEOTECHNICAL
ENGINEERING UNIT**

**RETAINING WALL NO. 2
PLAN VIEW AND
WALL ENVELOPE**

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

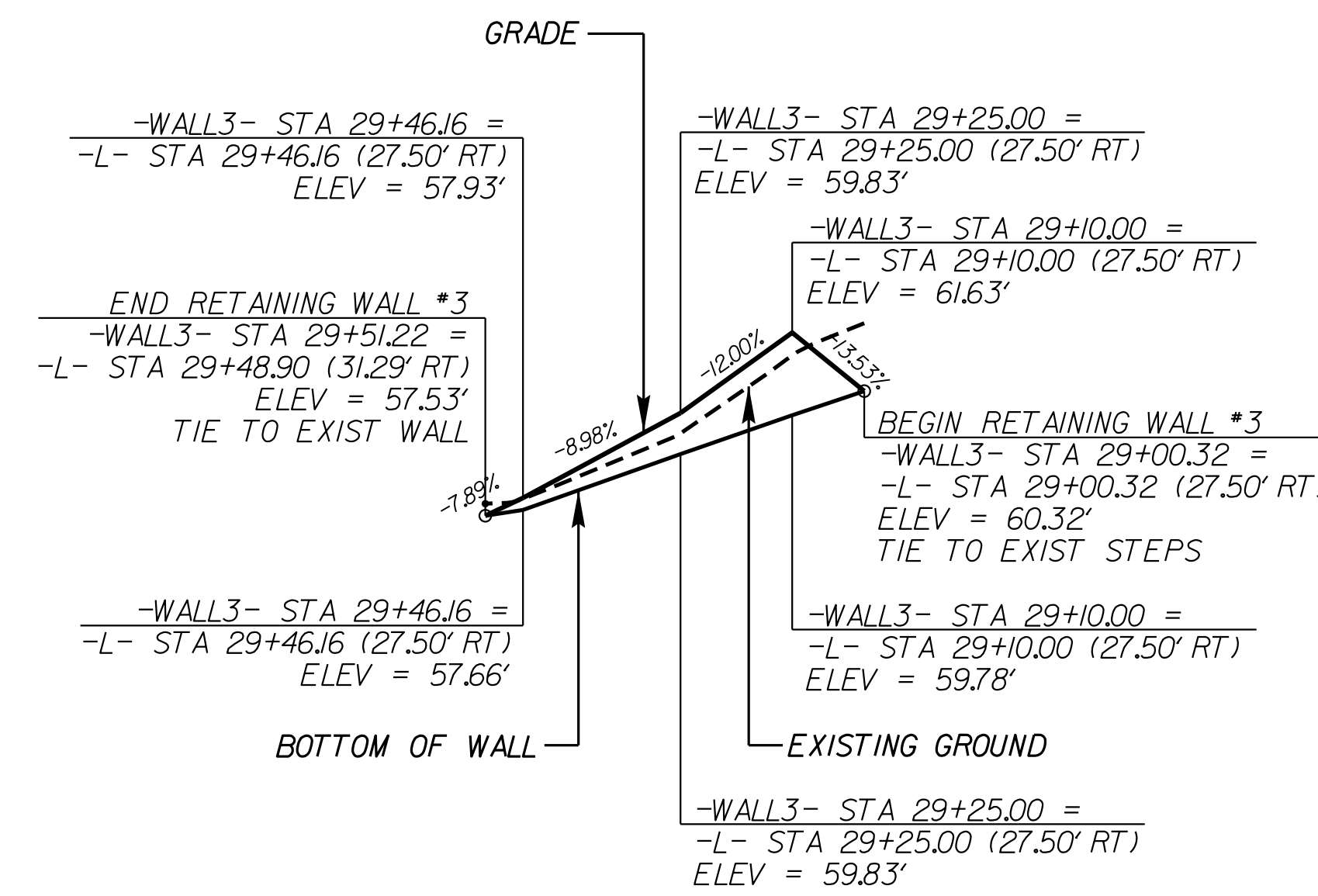


PLAN VIEW FOR RETAINING WALL NO. 3



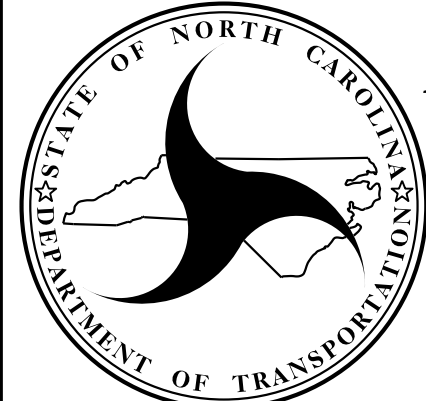
TYPICAL SECTION NO. 3

ESTIMATED SEGMENTAL GRAVITY RETAINING WALL NO. 3 QUANTITY	
SEGMENTAL GRAVITY RETAINING WALLS	120 SF



WALL ENVELOPE FOR RETAINING WALL NO. 3

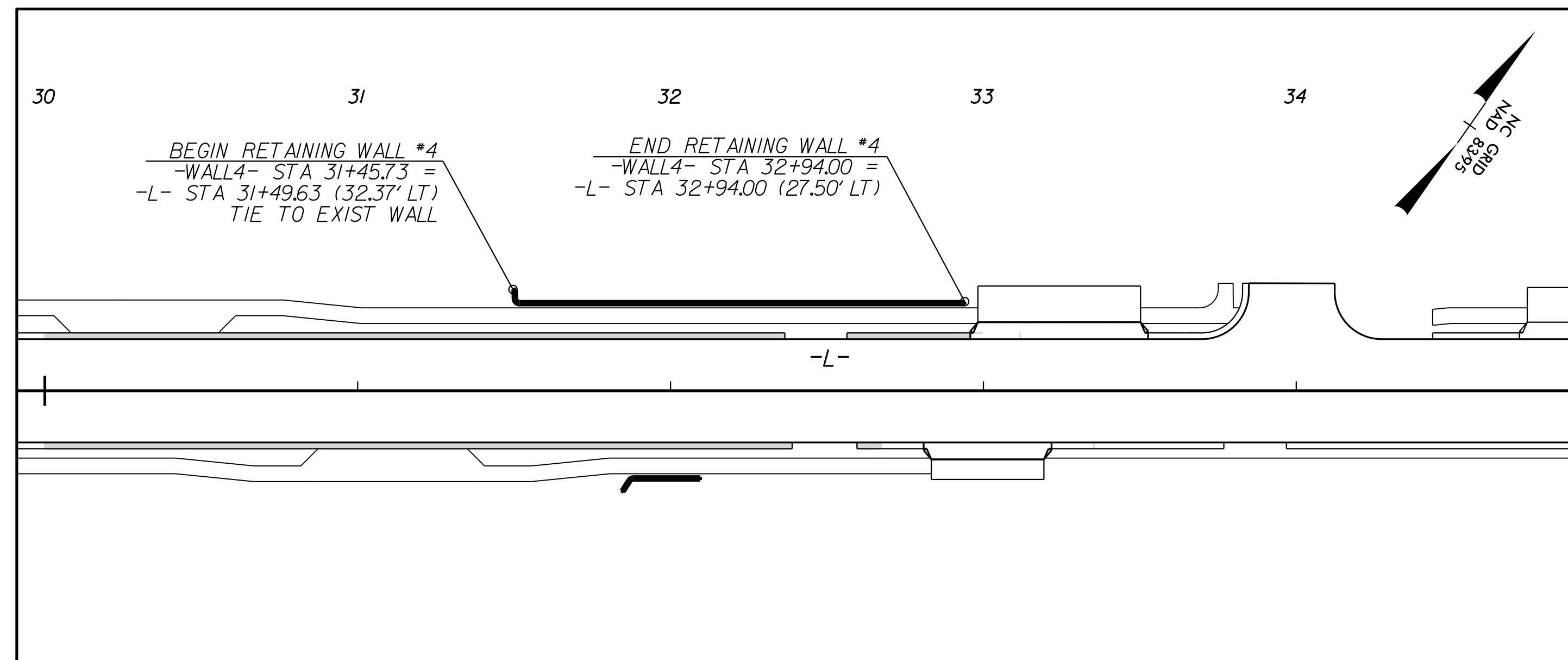
EXPOSED WALL FACE VIEW, N.T.S.
THE WALL ENVELOPE DOES NOT ACCURATELY
DEPICT THE ACTUAL FACE OF THE WALL



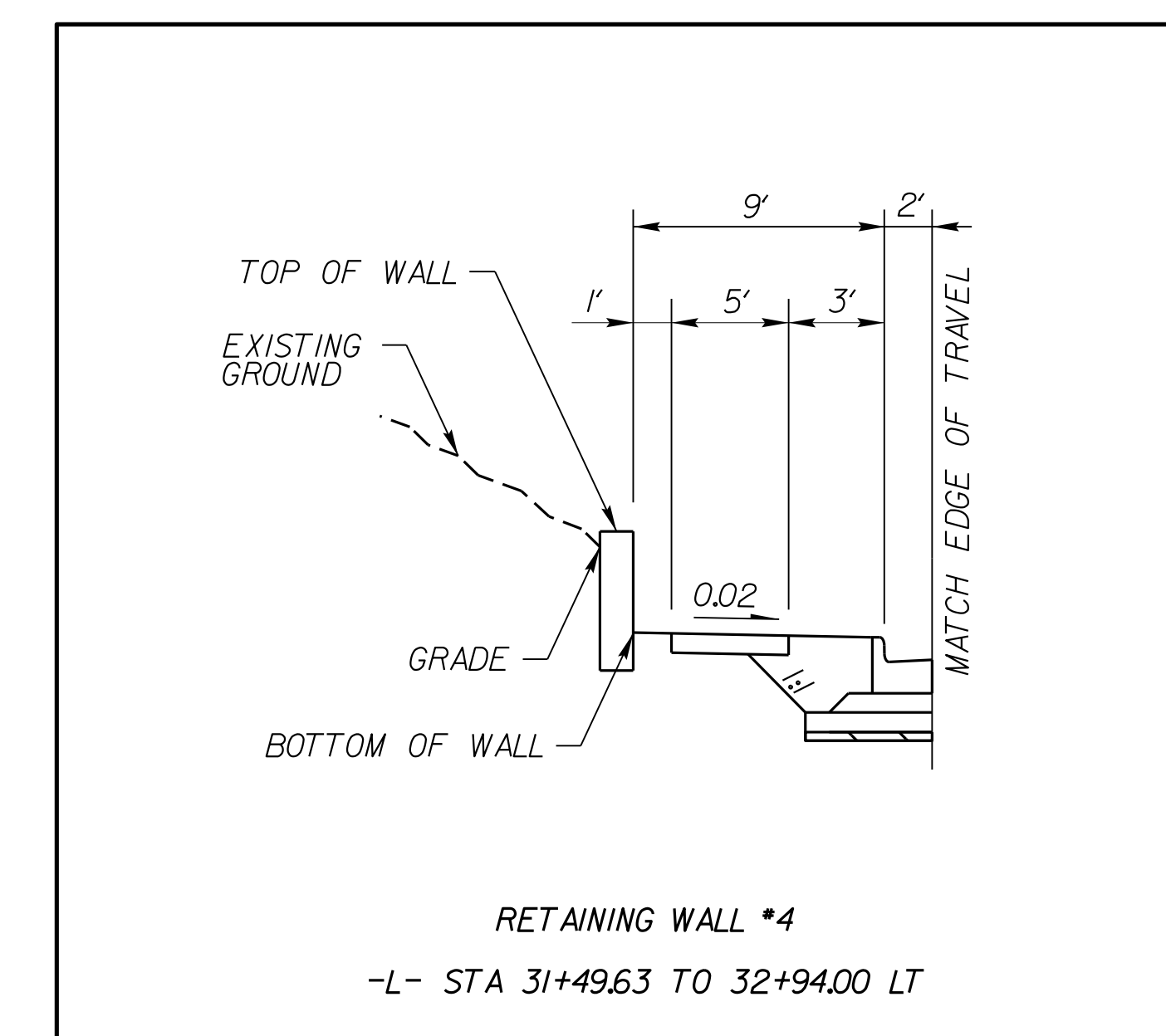
NORTH CAROLINA
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NO.	BY	DATE	NO.	BY	DATE
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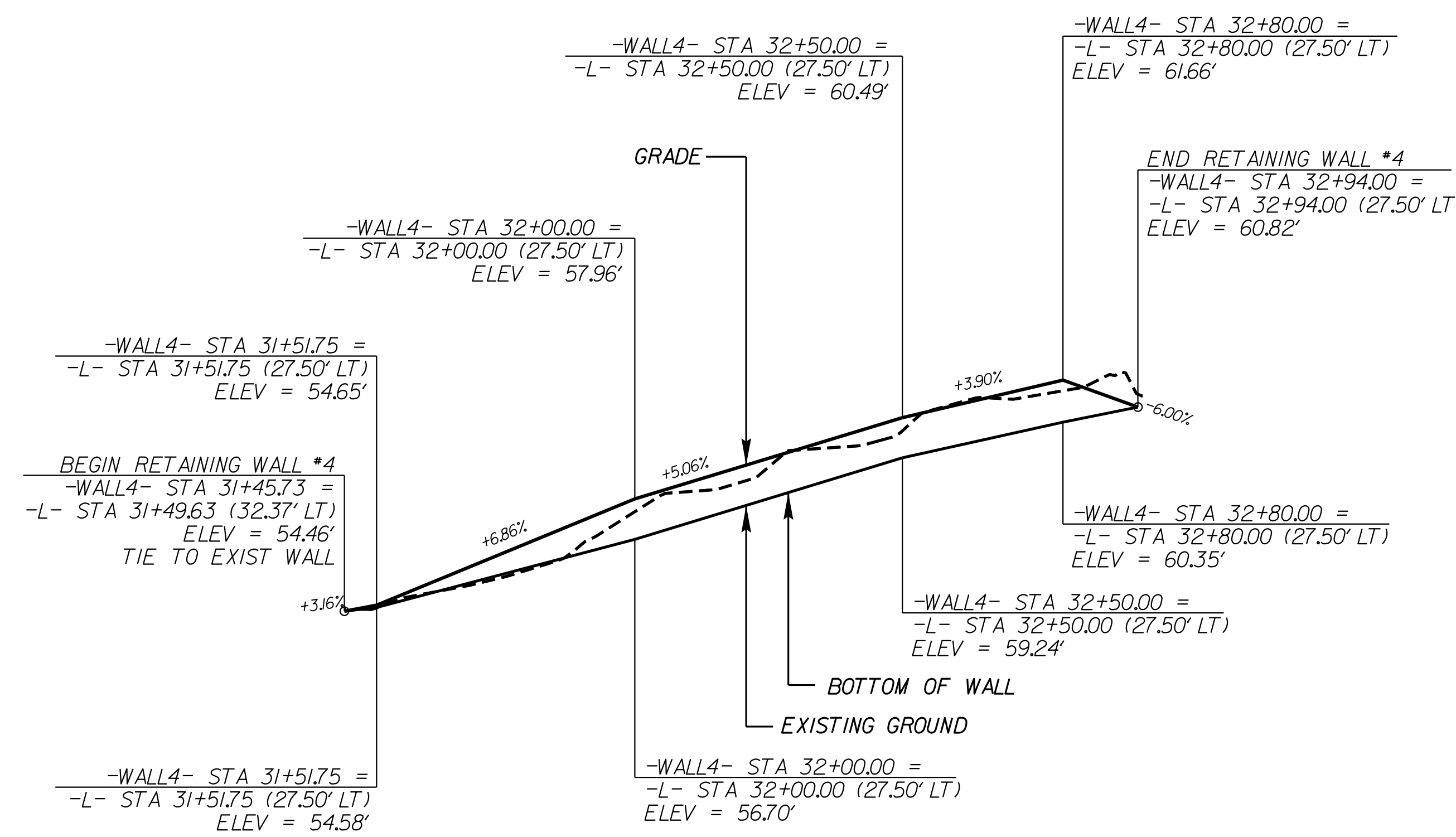


PLAN VIEW FOR RETAINING WALL NO. 4



TYPICAL SECTION NO. 4

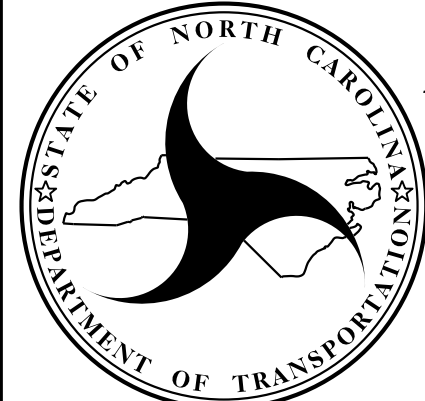
ESTIMATED SEGMENTAL GRAVITY RETAINING WALL NO. 4 QUANTITY	
SEGMENTAL GRAVITY RETAINING WALLS	350 SF



WALL ENVELOPE FOR RETAINING WALL NO. 4

EXPOSED WALL FACE VIEW, N.T.S.
 THE WALL ENVELOPE DOES NOT ACCURATELY
 DEPICT THE ACTUAL FACE OF THE WALL

PREPARED BY: J. PARK DATE: 02/2018
 REVIEWED BY: J. BATTS DATE: 02/2018

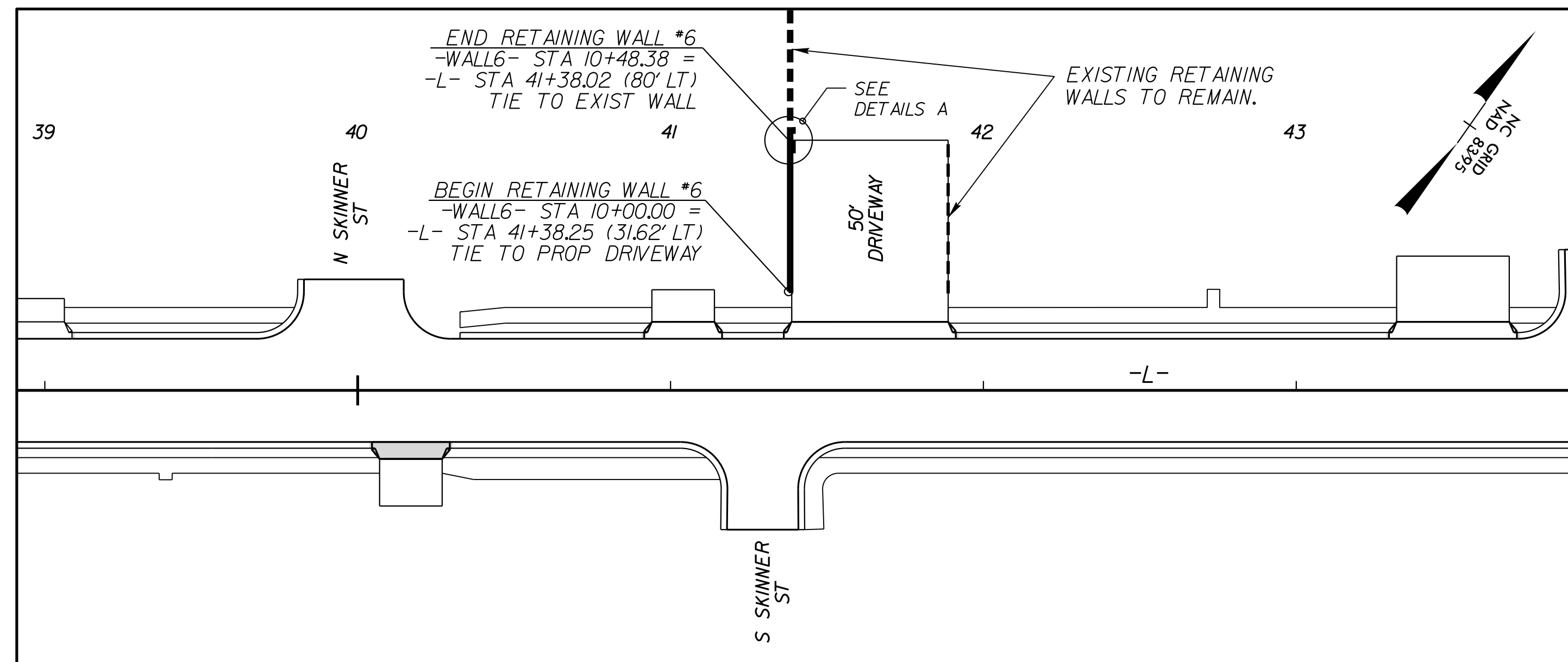


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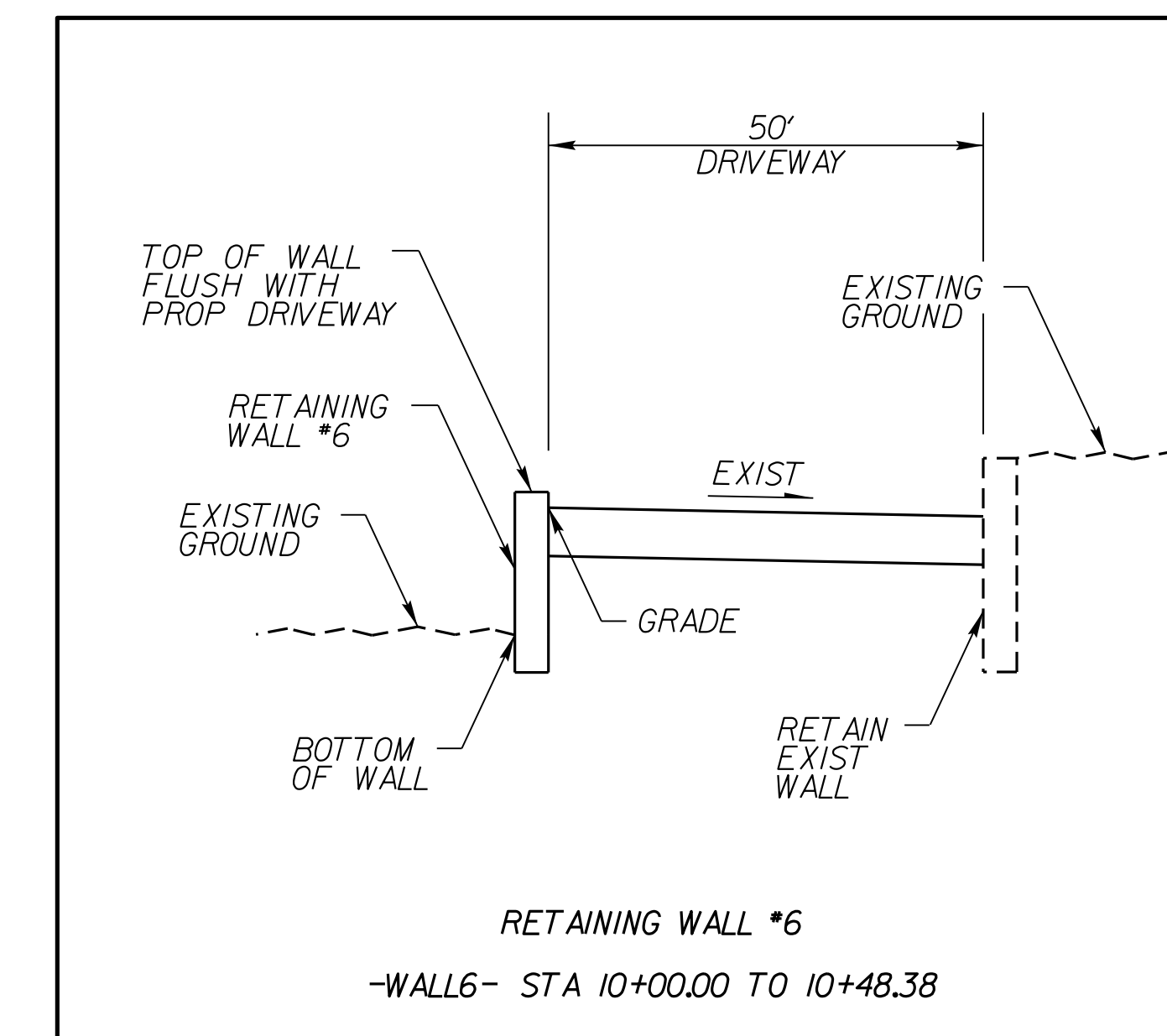
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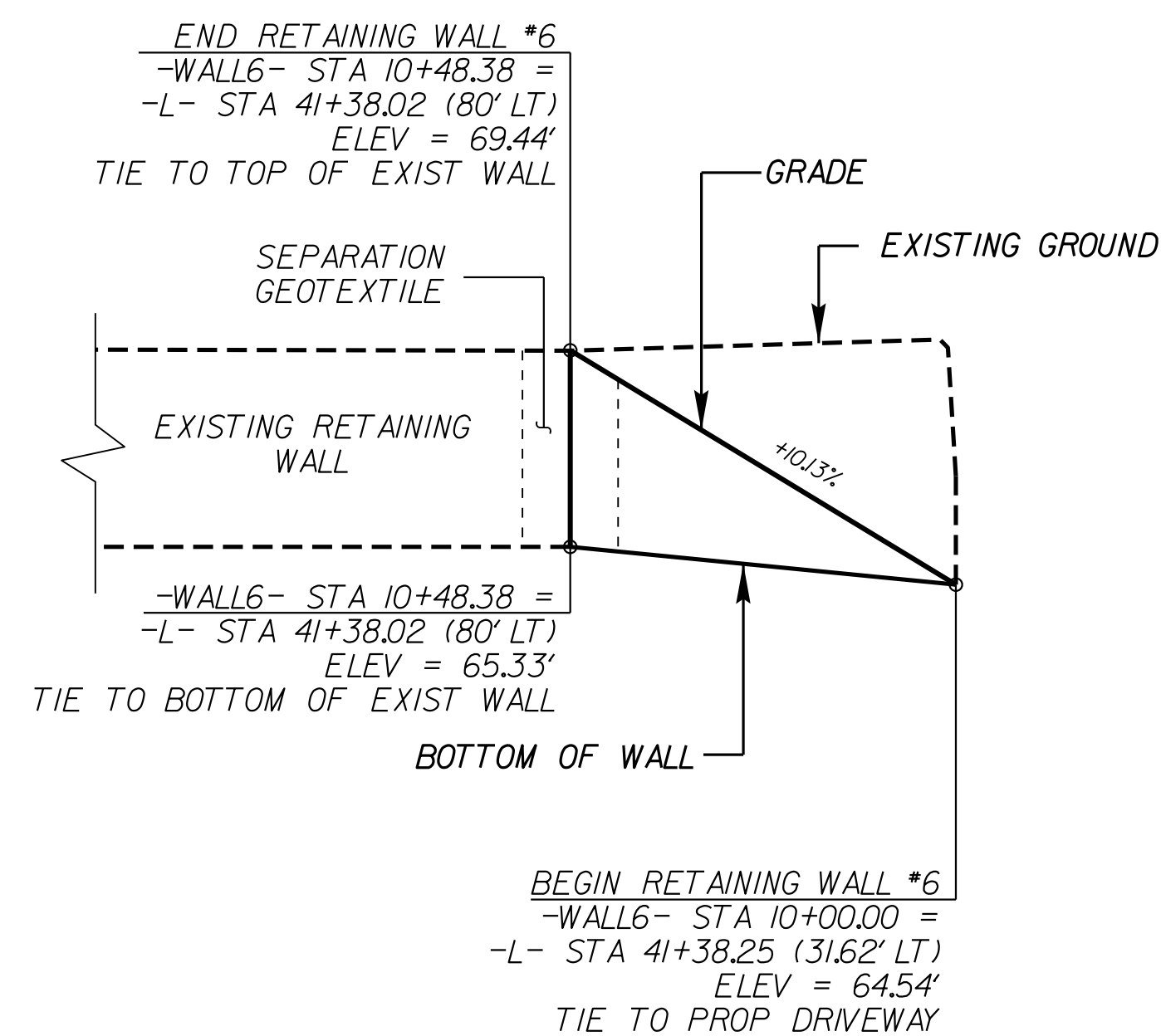
RETAINING WALL NO. 4
PLAN VIEW AND
WALL ENVELOPE



PLAN VIEW FOR RETAINING WALL NO. 6

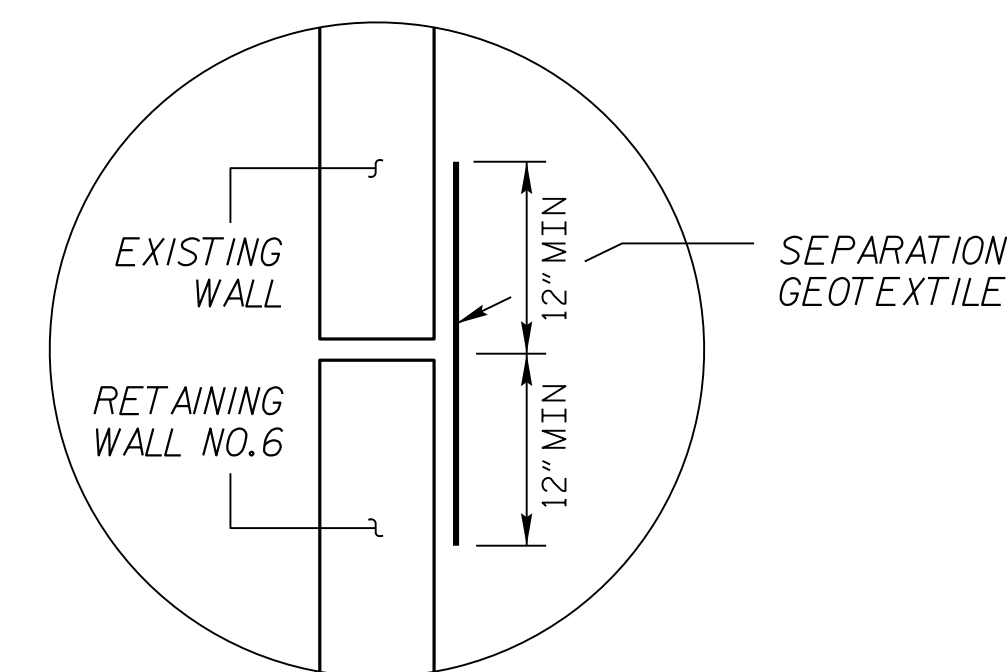


TYPICAL SECTION NO. 6



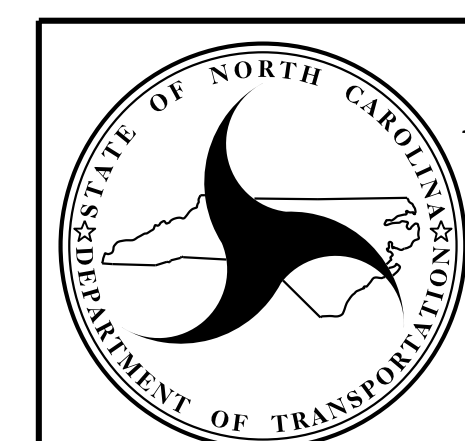
WALL ENVELOPE FOR RETAINING WALL NO. 6

EXPOSED WALL FACE VIEW, N.T.S.
THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL



DETAILS A
N.T.S.

ESTIMATED MSE WALL QUANTITY	
MSE RETAINING WALL NO. 6	180 SF



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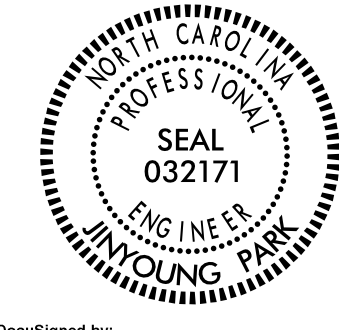
**GEOTECHNICAL
ENGINEERING UNIT**

**RETAINING WALL NO. 6
PLAN VIEW AND
WALL ENVELOPE**

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

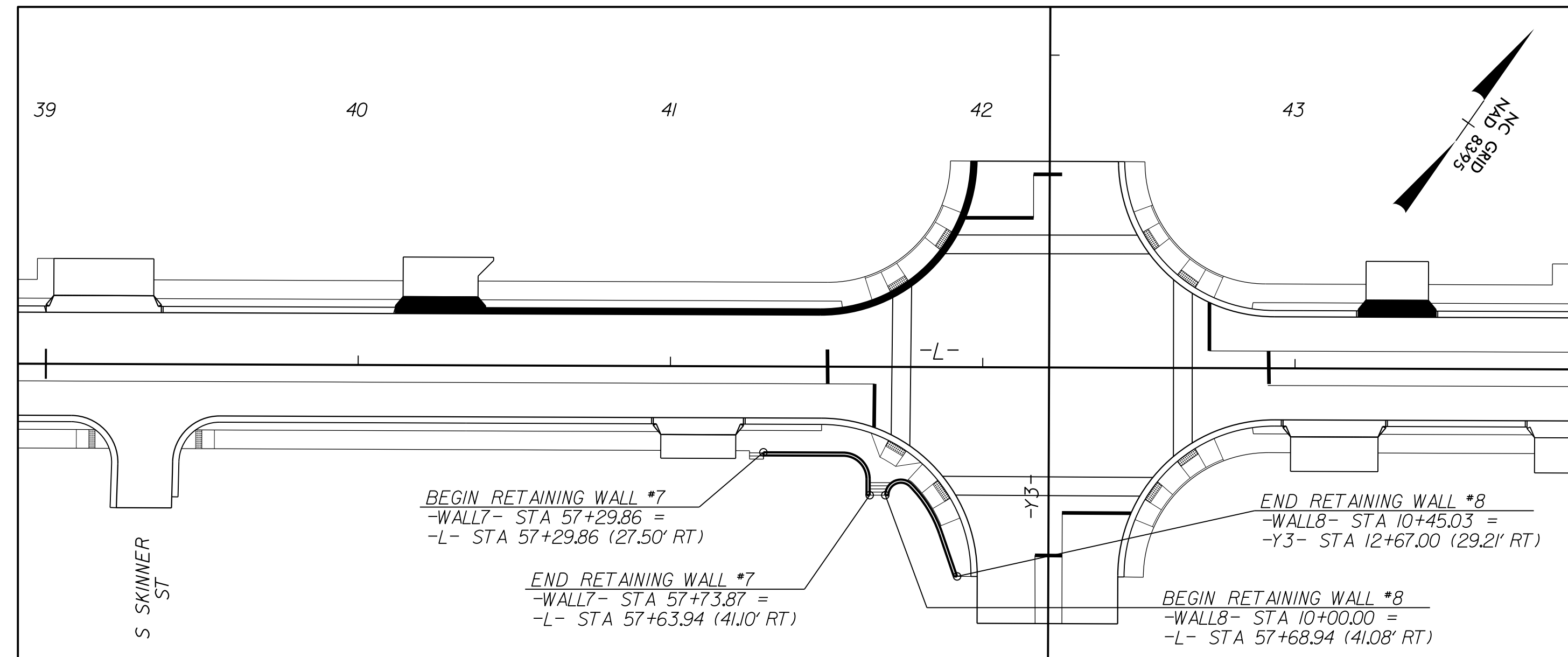
GEOTECHNICAL ENGINEER

ENGINEER

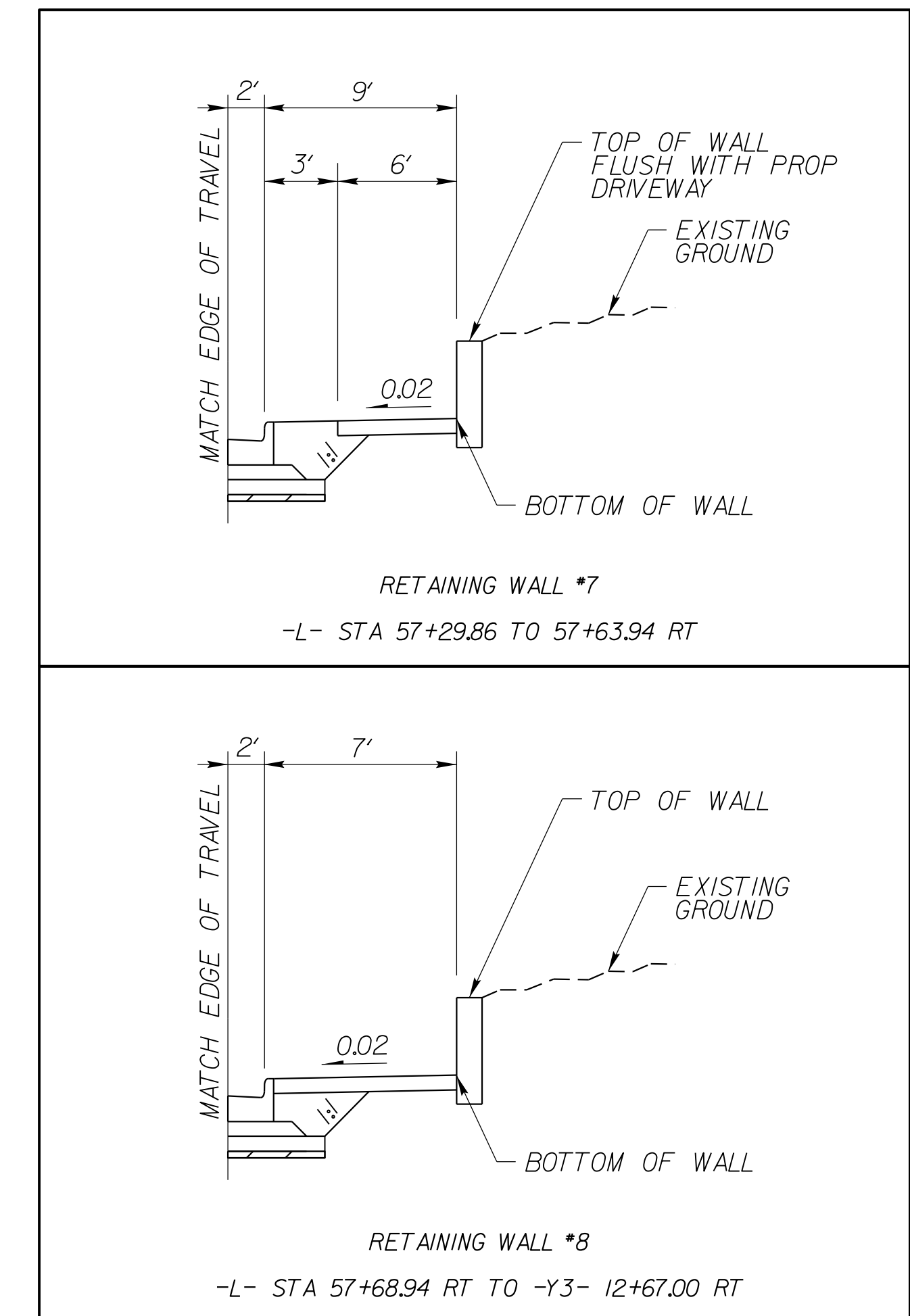


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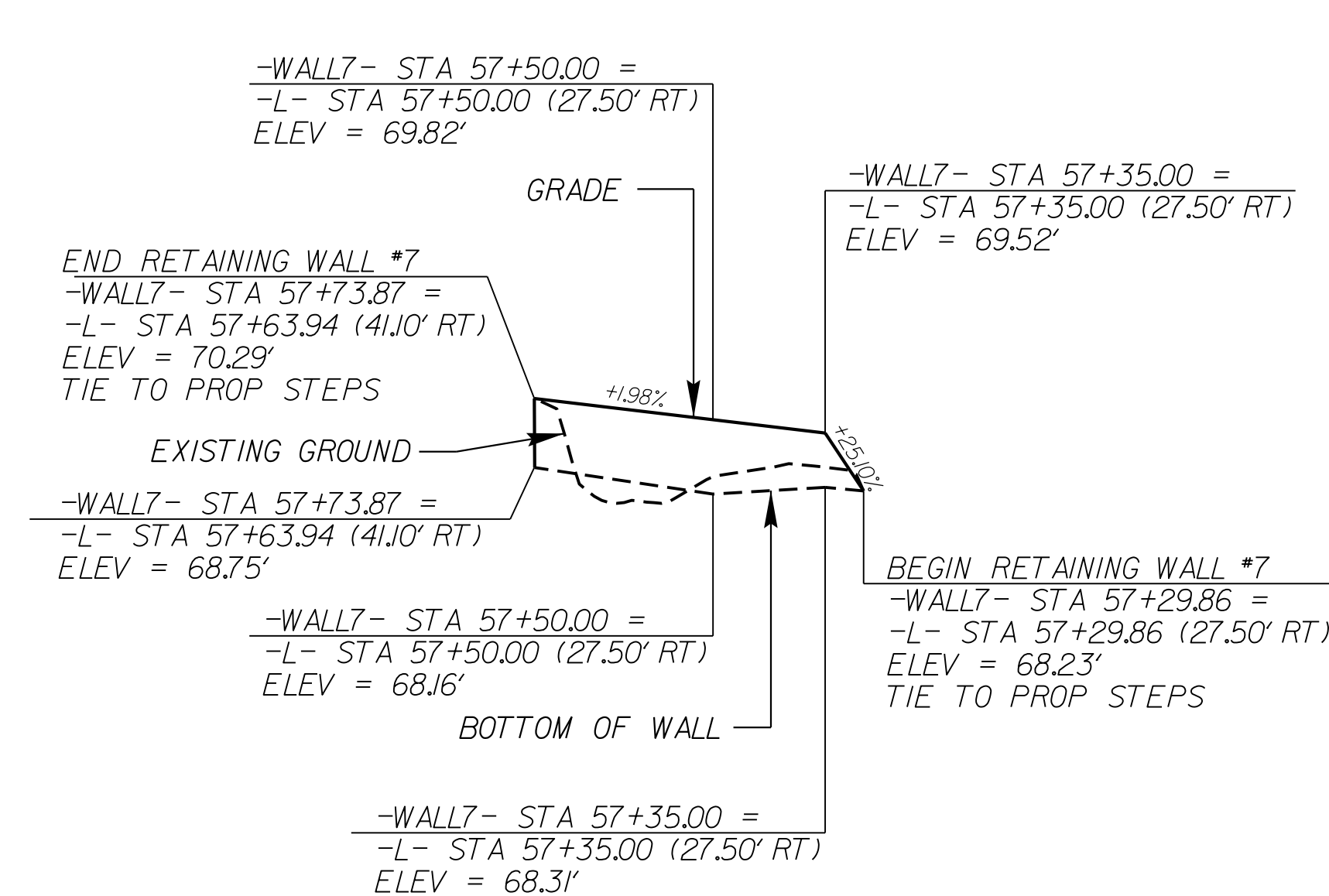
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① PLAN VIEW FOR RETAINING WALL NO. 7 AND NO. 8



① TYPICAL SECTION

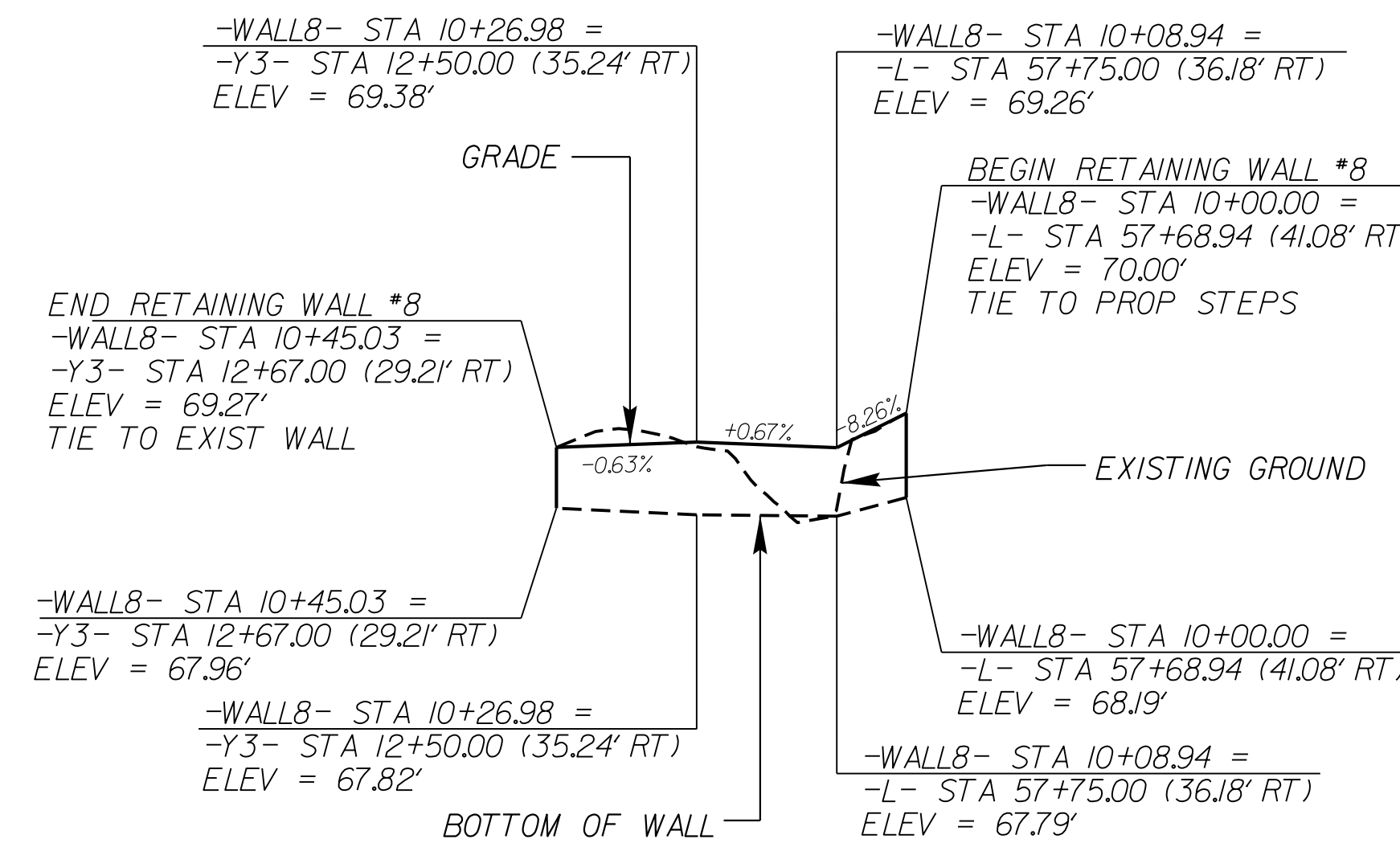


① WALL ENVELOPE FOR RETAINING WALL NO. 7

EXPOSED WALL FACE VIEW, N.T.S.
THE WALL ENVELOPE DOES NOT ACCURATELY
DEPICT THE ACTUAL FACE OF THE WALL

①

ESTIMATED SEGMENTAL GRAVITY RETAINING WALL NO. 7 QUANTITY	
SEGMENTAL GRAVITY RETAINING WALLS	130 SF

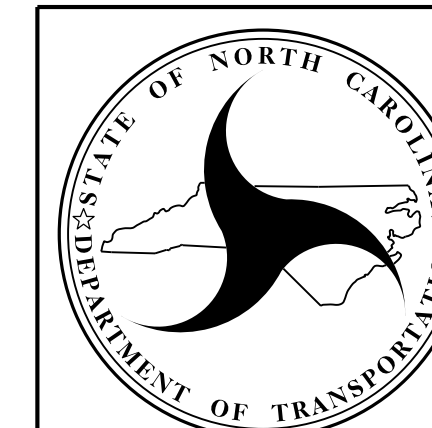


① WALL ENVELOPE FOR RETAINING WALL NO. 8

EXPOSED WALL FACE VIEW, N.T.S.
THE WALL ENVELOPE DOES NOT ACCURATELY
DEPICT THE ACTUAL FACE OF THE WALL

①

ESTIMATED SEGMENTAL GRAVITY RETAINING WALL NO. 8 QUANTITY	
SEGMENTAL GRAVITY RETAINING WALLS	130 SF



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① RETAINING WALL NO. 7
AND NO. 8 PLAN VIEW AND
WALL ENVELOPE

REVISIONS

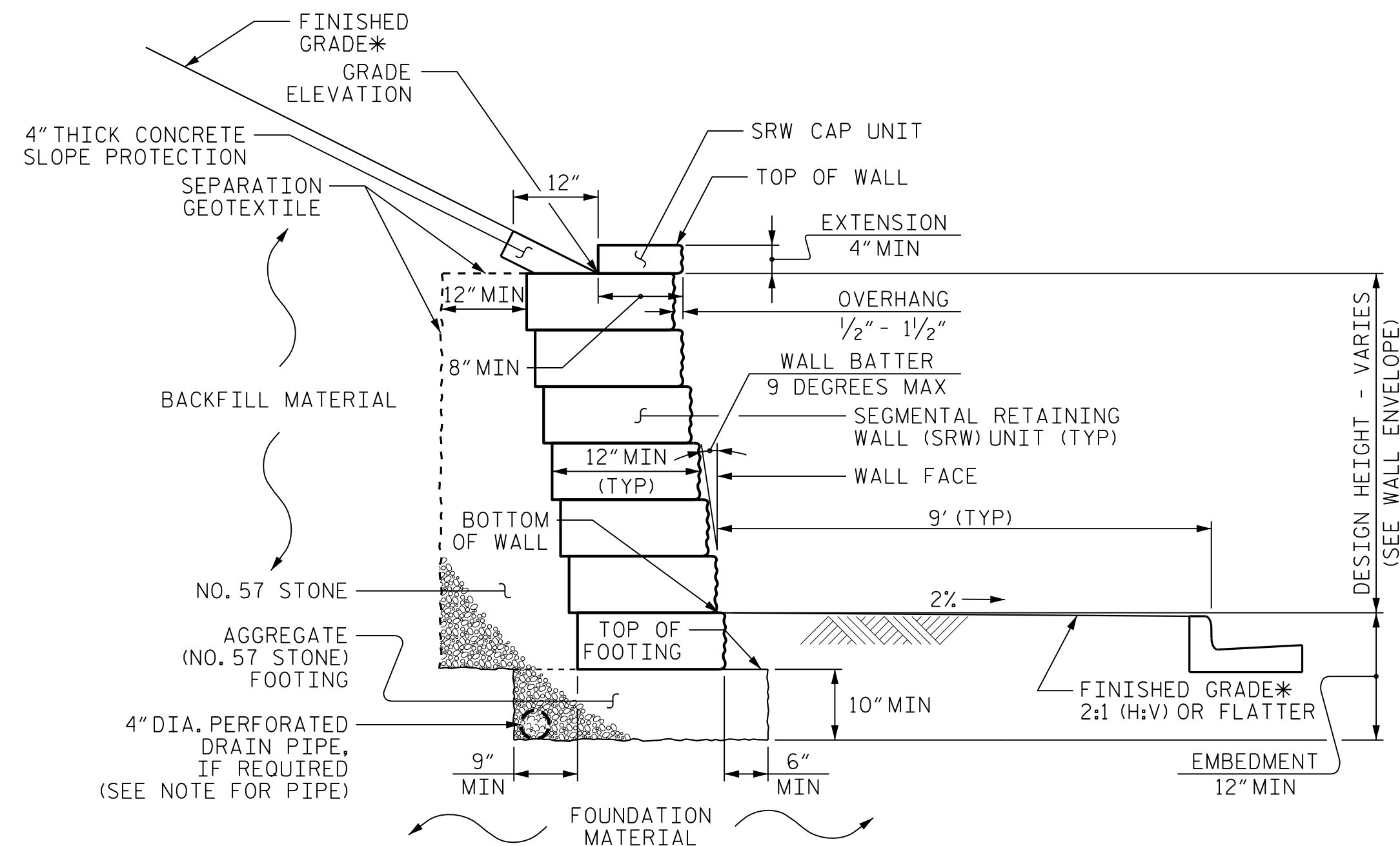
NO.	BY	DATE	NO.	BY	DATE
1	JINYOUNG PARK	10/20/21	3	-	-
2	-	-	4	-	-

PREPARED BY: J. PARK	DATE: 02 / 2018
REVIEWED BY: J. BATTS	DATE: 02 / 2018



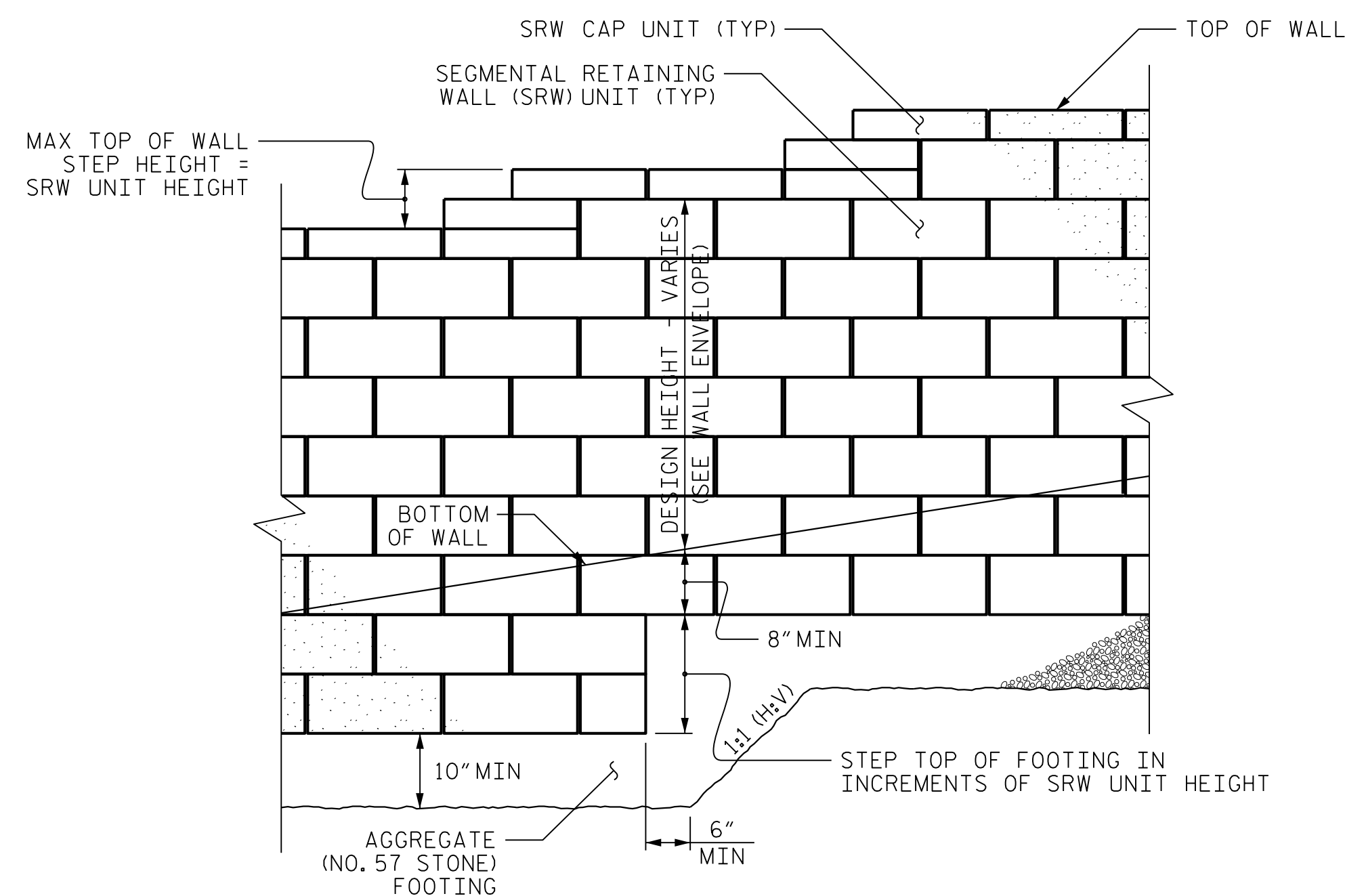
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SEGMENTAL GRAVITY WALL - TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.



SEGMENTAL GRAVITY WALL - TYPICAL ELEVATION

ESTIMATED SEGMENTAL GRAVITY RETAINING WALL QUANTITIES	
RETAINING WALL NO.	SEGMENTAL GRAVITY RETAINING WALLS (SQURE FEET)
1	300 SF
2	190 SF
3	120 SF
4	350 SF
① 7	130 SF
① 8	130 SF
TOTAL QUANTITY = 1,220 SF	

① NOTES:

FOR SEGMENTAL GRAVITY RETAINING WALLS, SEE SEGMENTAL GRAVITY RETAINING WALLS (SPECIAL) PROVISION.

USE SRW UNITS WITH A COLOR MATCHING WITH EXISTING WALL COLOR FOR RETAINING WALL NO. 1 THROUGH NO. 4, NO. 7 AND NO. 8.

A DRAIN PIPE IS REQUIRED FOR RETAINING WALL NO. 1 THROUGH NO. 4, NO. 7 AND NO. 8.

BEFORE BEGINNING SEGMENTAL GRAVITY WALL DESIGN FOR RETAINING WALL NO. 1 THROUGH NO. 4, NO. 7 AND NO. 8, SURVEY WALL LOCATION AND SUBMIT A REVISED WALL PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.

DESIGN RETAINING WALL NO. 1 THROUGH NO. 4, NO. 7 AND NO. 8 FOR WALL HEIGHTS EQUAL TO THE DESIGN HEIGHT PLUS DEPTH TO TOP OF FOOTING (DIFFERENCE BETWEEN GRADE ELEVATION AND TOP OF FOOTING ELEVATION).

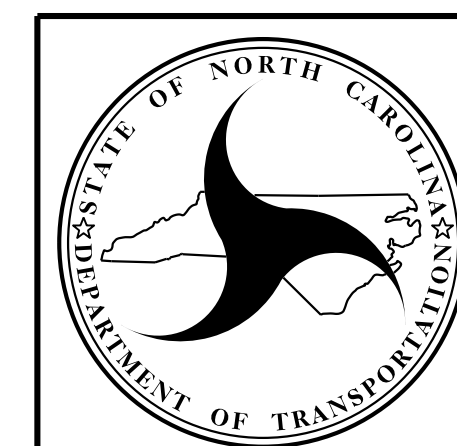
DESIGN RETAINING WALL NO. 1 THROUGH NO. 4, NO. 7 AND NO. 8 FOR THE FOLLOWING:
 1) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 1,100 LB/SF (RW1), 770 LB/SF (RW2), 820 LB/SF (RW3), 560 LB/SF (RW4), 640 LB/SF (RW7) AND 680 LB/SF (RW8)
 2) MINIMUM EMBEDMENT = 1.0 FT
 3) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (φ) DEGREES	COHESION (c) LB/SF
BACKFILL	120	30	0
FOUNDATION	120	30	0

DO NOT PLACE NO. 57 STONE FOR FOOTINGS FOR RETAINING WALL NO. 1 THROUGH NO. 4, NO. 7 AND NO. 8 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.


AT THE CONTRACTOR'S OPTION, "TEMPORARY SHORING FOR WALL CONSTRUCTION" MAY BE USED TO CONSTRUCT SEGMENTAL GRAVITY RETAINING WALL NO. 1 THROUGH NO. 4, NO. 7 AND NO. 8. SEE SEGMENTAL GRAVITY RETAINING WALLS PROVISION FOR TEMPORARY SHORING FOR WALL CONSTRUCTION.

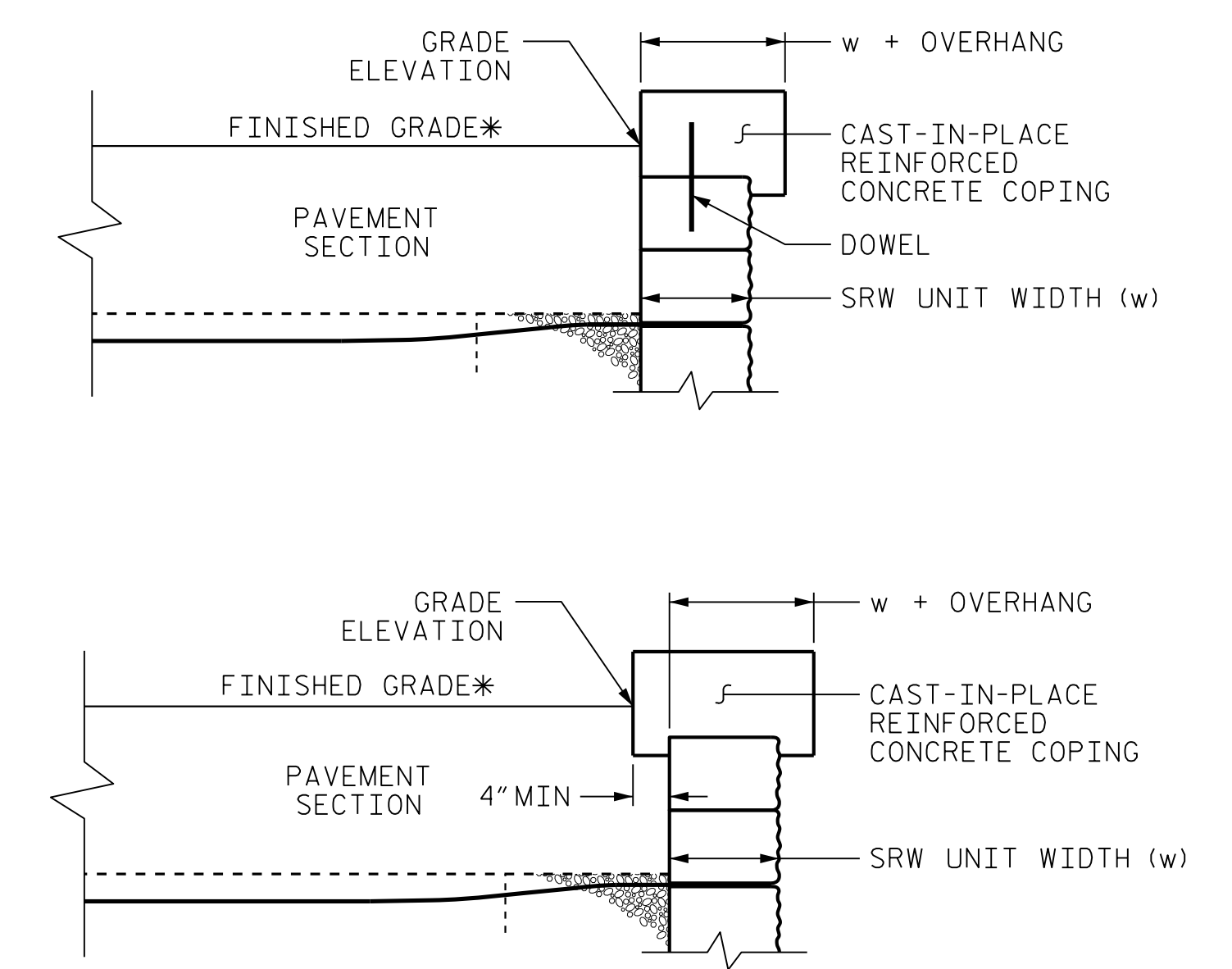
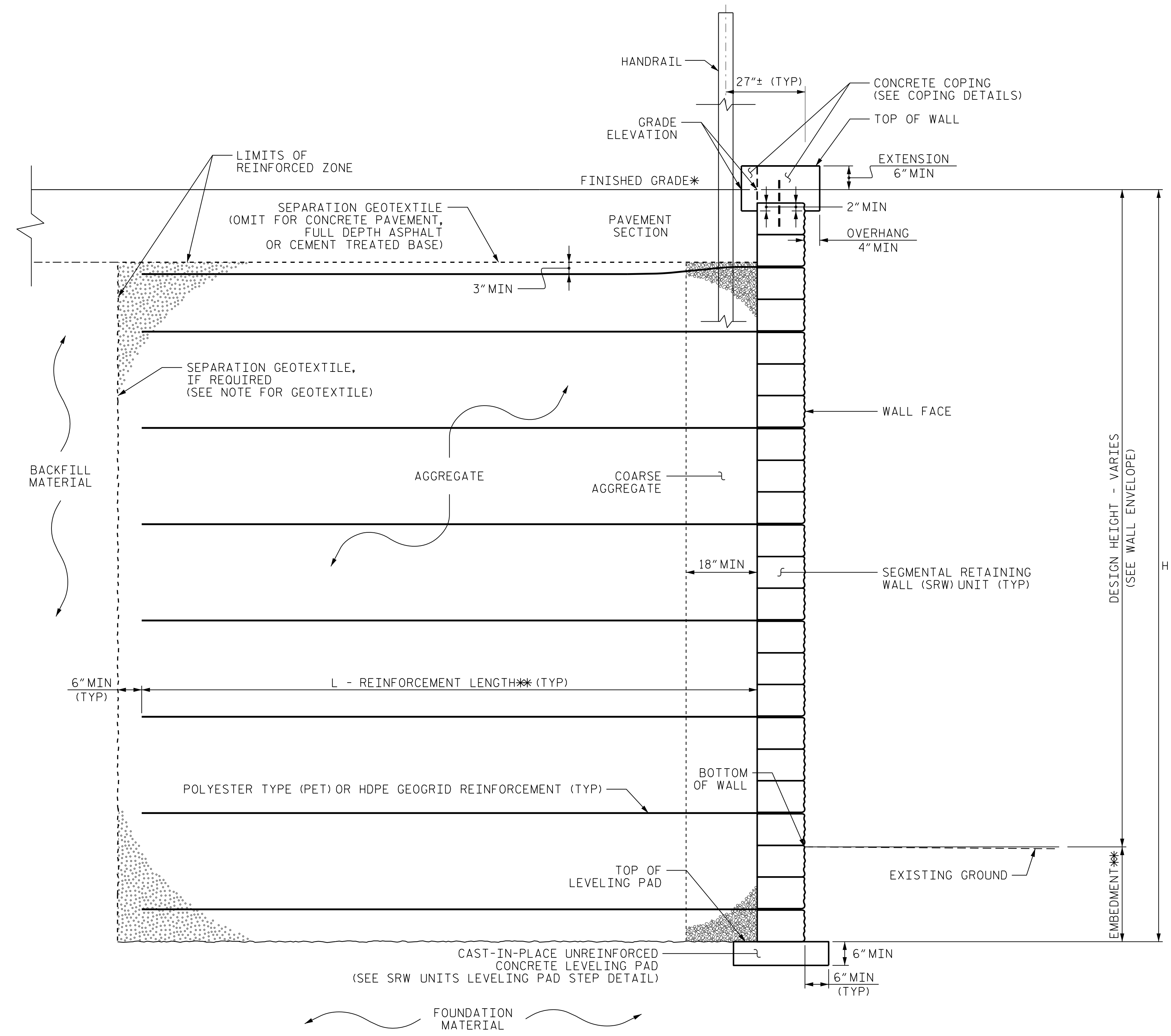
WALL NO. 5 DOES NOT EXIST ON THIS PROJECT.



REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1	JINYOUNG PARK	10/2021	3		
2			4		

PROJECT REFERENCE NO. U-5606		SHEET NO. W-8	
GEOTECHNICAL ENGINEER		ENGINEER	
			
DocuSigned by: <i>Jinyoung Park</i>		DATE 11/18/2021	SIGNATURE DATE
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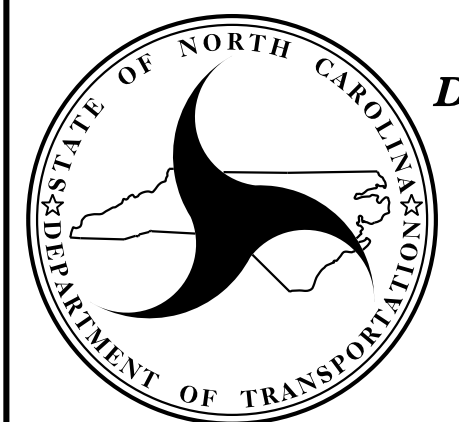
COPING DETAILS

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.

① 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.

PREPARED BY: J. PARK	DATE: 02 / 2018
REVIEWED BY: J. BATTS	DATE: 02 / 2018


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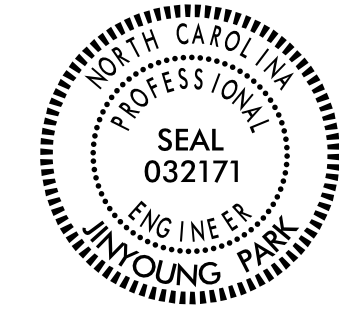
GEOTECHNICAL
ENGINEERING UNIT

**DETAILS FOR
MSE RETAINING WALL NO. 6**

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2			4		

GEOTECHNICAL ENGINEER

ENGINEER



DocuSigned by: *Jinyoung Park* 11/18/2021

SIGNATURE DATE SIGNATURE DATE

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NOTES:

FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS, SEE MECHANICALLY STABILIZED EARTH RETAINING WALLS PROVISION.

① FOR HANDRAILS BEHIND THE TOP OF WALL NO. 6, SEE ROADWAY PLANS FOR HANDRAIL DETAILS.

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. 6.

AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALL NO. 6.

USE SRW UNITS WITH A COLOR MATCHING WITH EXISTING WALL COLOR FOR RETAINING WALL NO. 6.

A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NO. 6.

A SEPARATION GEOTEXTILE IS REQUIRED AT THE END OF RETAINING WALL NO. 6 AS SHOWN IN W-5 SHEET.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO. 6, SURVEY WALL LOCATION AND SUBMIT REVISED WALL PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.

DESIGN RETAINING WALL NO. 6 FOR THE FOLLOWING:

- 1) H = DESIGN HEIGHT + EMBEDMENT
- 2) DESIGN LIFE = 75 YEARS
- 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 1,620 LB/SF
- 4) MINIMUM REINFORCEMENT LENGTH (L) = 0.9H OR 6 FT, WHICHEVER IS LONGER
- 5) MINIMUM EMBEDMENT = 1.0 FT
- 6) REINFORCED ZONE AGGREGATE PARAMETERS:

AGGREGATE TYPE*	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (φ) DEGREES	COHESION (c) LB/SF
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:

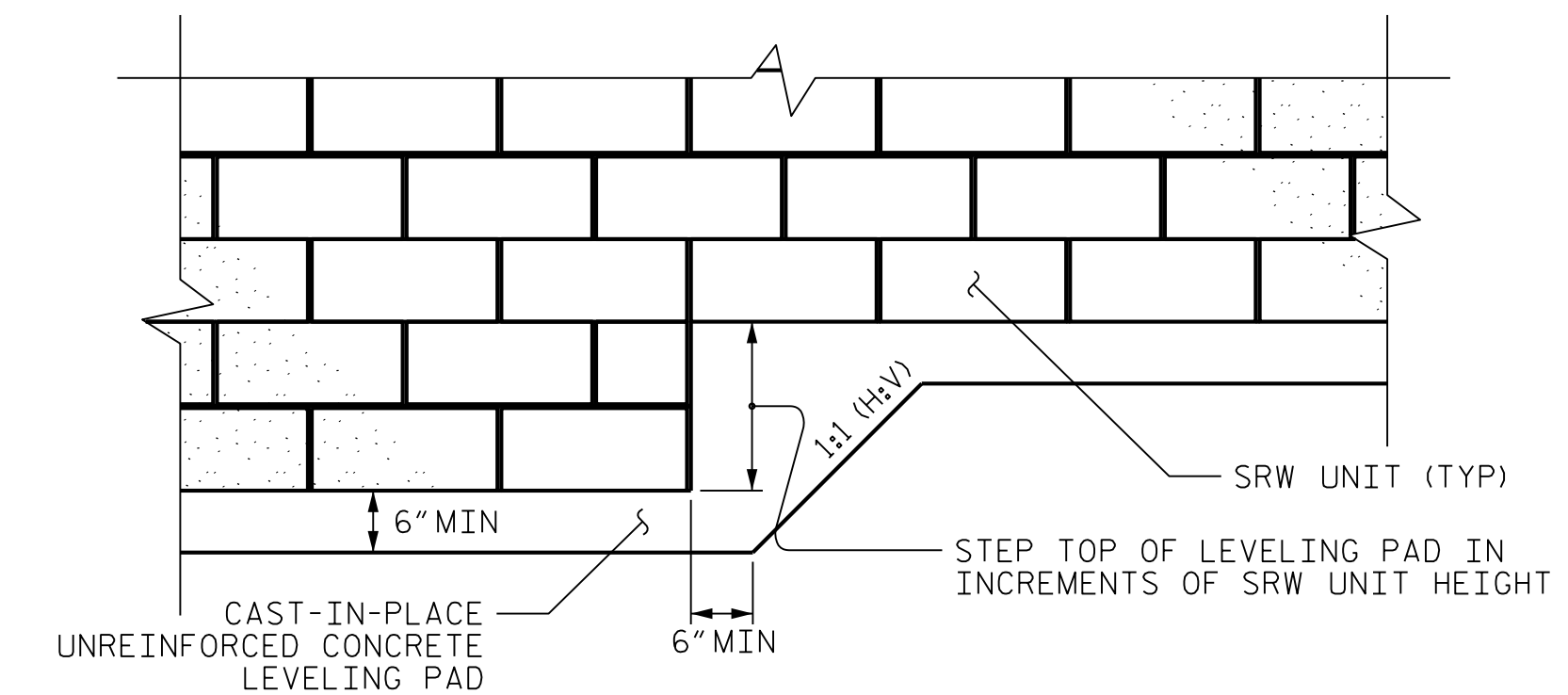
MATERIAL TYPE	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (φ) DEGREES	COHESION (c) LB/SF
BACKFILL	120	30	0
FOUNDATION	120	30	0

DESIGN RETAINING WALL NO. 6 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO. 6 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

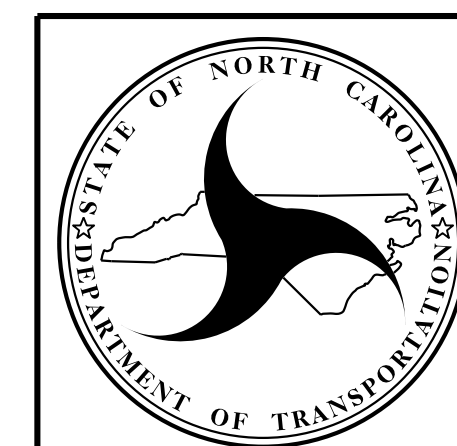
SUBMIT FOR REVIEW THE TEMPORARY SHORING/SLOPE NECESSARY TO TIE MSE RETAINING WALL NO. 6 TO THE EXISTING RETAINING WALL. THE USE OF A TEMPORARY SLOPE BEHIND EXISTING RETAINING WALL MAY BE CONSIDERED IF THE EXISTING RETAINING WALL CAN BE MAINTAINED WITHOUT DAMAGE.

THE RETAINED PORTION OF THE EXISTING RETAINING WALL SHALL NOT BE DAMAGED.



SRW UNITS LEVELING PAD STEP DETAIL

PREPARED BY: J. PARK	DATE: 02 / 2018
REVIEWED BY: J. BATTS	DATE: 02 / 2018



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

NOTES AND LEVELING PAD DETAILS FOR MSE RETAINING WALL No. 6

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1	JINYOUNG PARK	11/2021	3		
2			4		