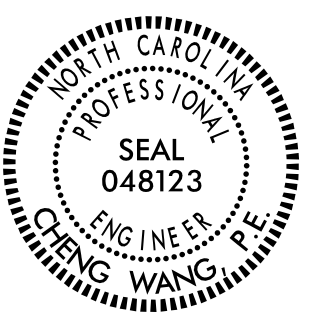


GEOTECHNICAL
ENGINEER



DocuSigned by:
Cheng Wang
1714226880

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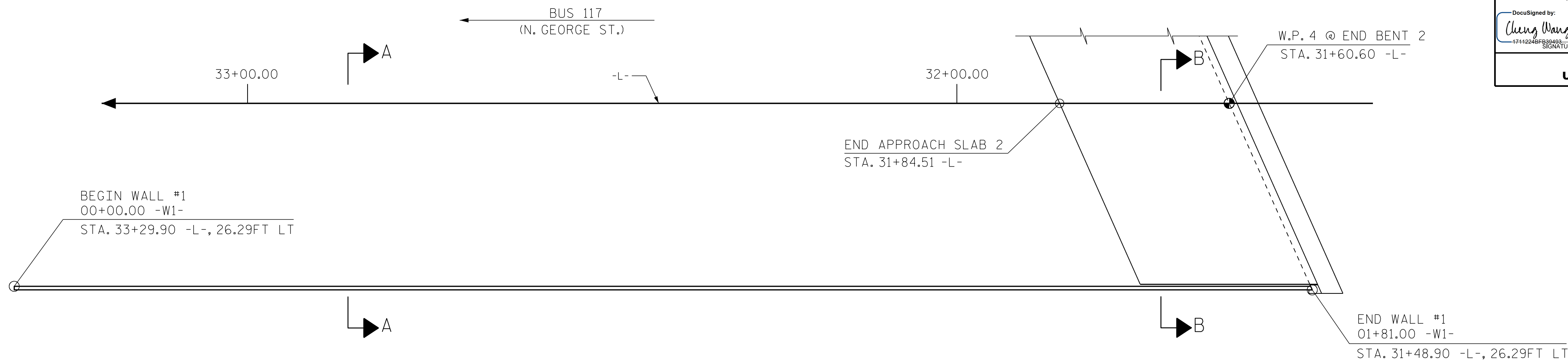
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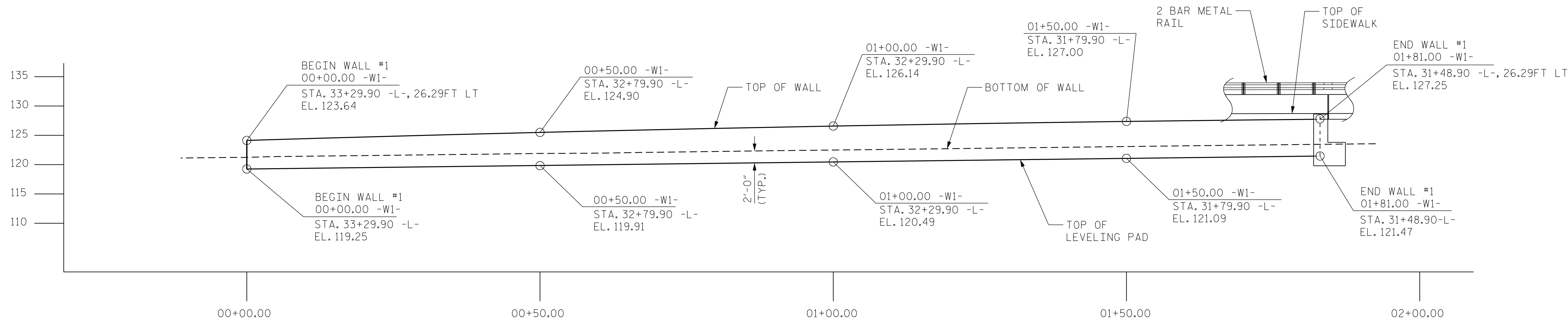
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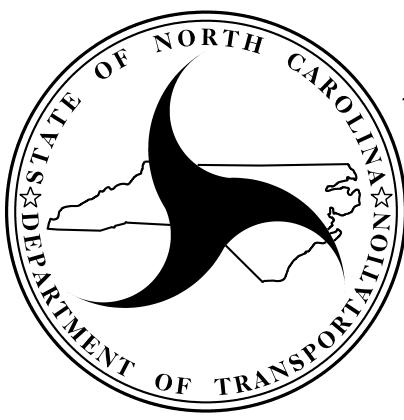
PLAN OF WALL (W1)



ELEVATION OF WALL (W1)

PROJECT NO.: B-4838
COUNTY: WAYNE
SHEET 1 OF 7 WALL ID RW-1

ESTIMATED MSE WALL QUANTITIES (SQUARE FEET)	
MSE RETAINING WALL NO.1	1077 SF



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RETAINING WALL NO. 1 WALL ENVELOPE					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. W-1

PREPARED BY: C. WANG, P.E.	DATE: 12/22
REVIEWED BY: P. ALTON, P.E.	DATE: 12/22

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ENGINEER



DocuSigned by:
Cheng Wang
1711224878

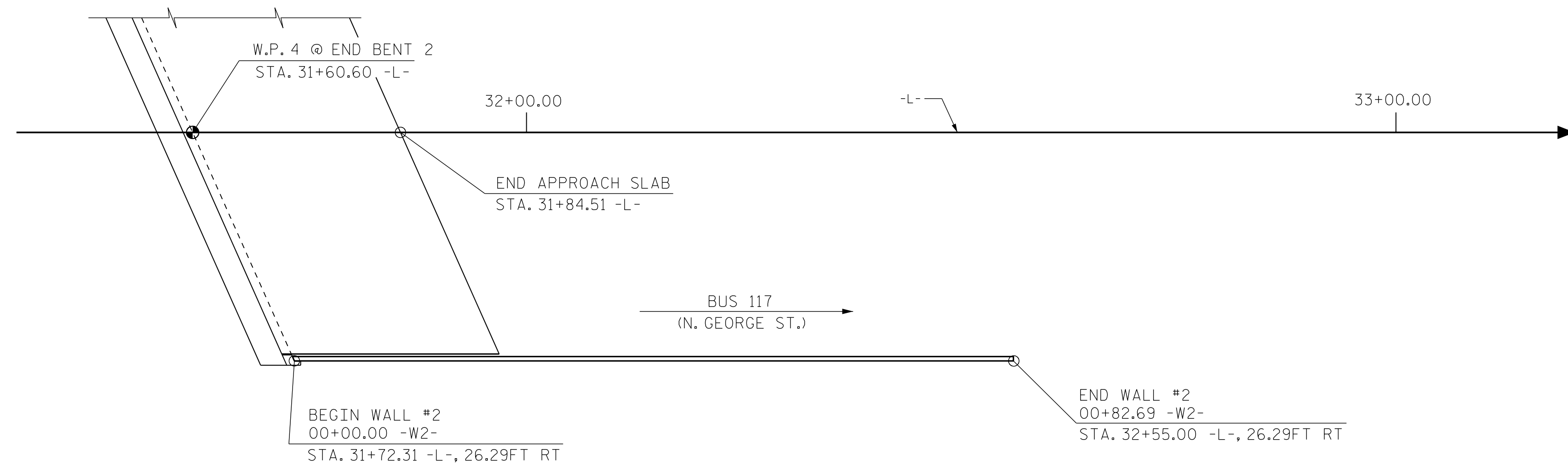
ENGINEER

01/18/2023

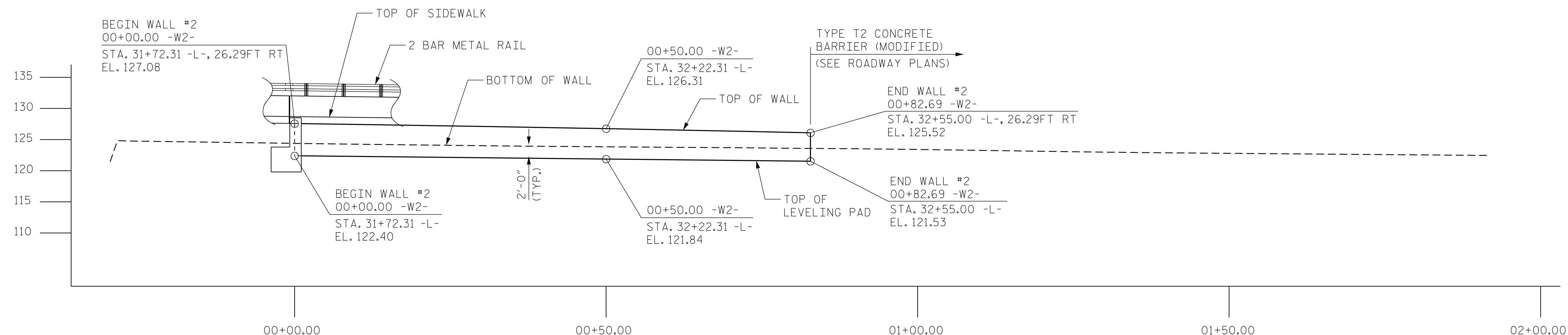
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DATE

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PLAN OF WALL (W2)

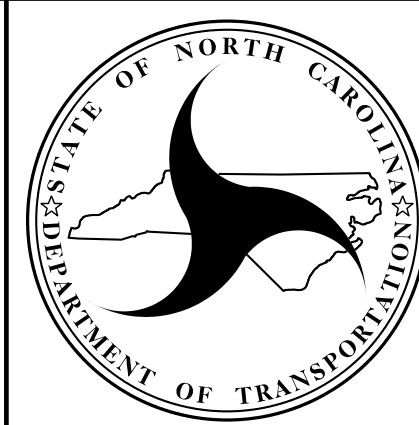


ELEVATION OF WALL (W2)

PROJECT NO.: B-4838
COUNTY: WAYNE
SHEET 2 OF 7 WALL ID RW-2

PREPARED BY: C. WANG, P.E. DATE: 12/22
REVIEWED BY: P. ALTON, P.E. DATE: 12/22

ESTIMATED MSE WALL QUANTITIES (SQUARE FEET)	
MSE RETAINING WALL NO. 2	408 SF



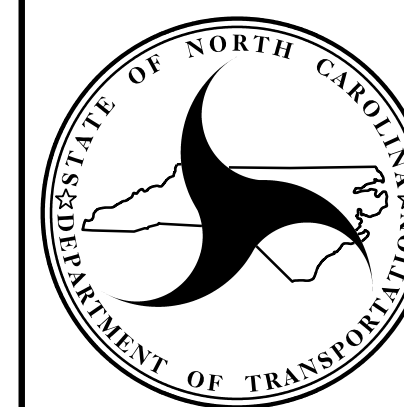
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DIVISION OF HIGHWAYS**

**GEOTECHNICAL
ENGINEERING UNIT**

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



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



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

NOTES:

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

② FOR TYPE 1 REINFORCED BRIDGE APPROACH FILL, SEE BRIDGE APPROACH FILLS PROVISION AND ROADWAY STANDARD DRAWING NO. 423.01.

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

FOR SINGLE FACED PRECAST CONCRETE BARRIER,SEE ROADWAY PLANS AND SECTION 857 OF THE STANDARD SPECIFICATIONS.

A CONCRETE BARRIER RAIL WITH MOMENT SLAB IS REQUIRED ABOVE RETAINING WALL NO.1 AND 2. SEE PLANS FOR CONCRETE BARRIER RAIL WITH MOMENT SLAB 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.1 AND 2.

AT THE CONTRACTOR'S OPTION,USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALL NO.1 AND 2.

A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NO.1 AND 2.

A DRAIN IS REQUIRED FOR RETAINING WALL NO.1 AND 2.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO.1 AND 2, 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 AND 2 FOR THE FOLLOWING:

- 1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 100 YEARS
3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 1,600 PSF
4) MINIMUM REINFORCEMENT LENGTH (L) = 1.0 H OR 6 FT, WHICHEVER IS LONGER
5) MINIMUM EMBEDMENT DEPTH = 2 FT
6) 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
RETAINED	120	30	0
FOUNDATION	120	30	0


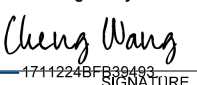
① FOR THE AREA WHERE THE REINFORCED ZONE OF MSE WALLS OVERLAPS WITH BACKFILL FOR BRIDGE APPROACH FILLS,USE BACKFILL MATERIAL REQUIRED FOR TYPE 1 BRIDGE APPROACH FILLS IN THE REINFORCED ZONE OF MSE WALLS.

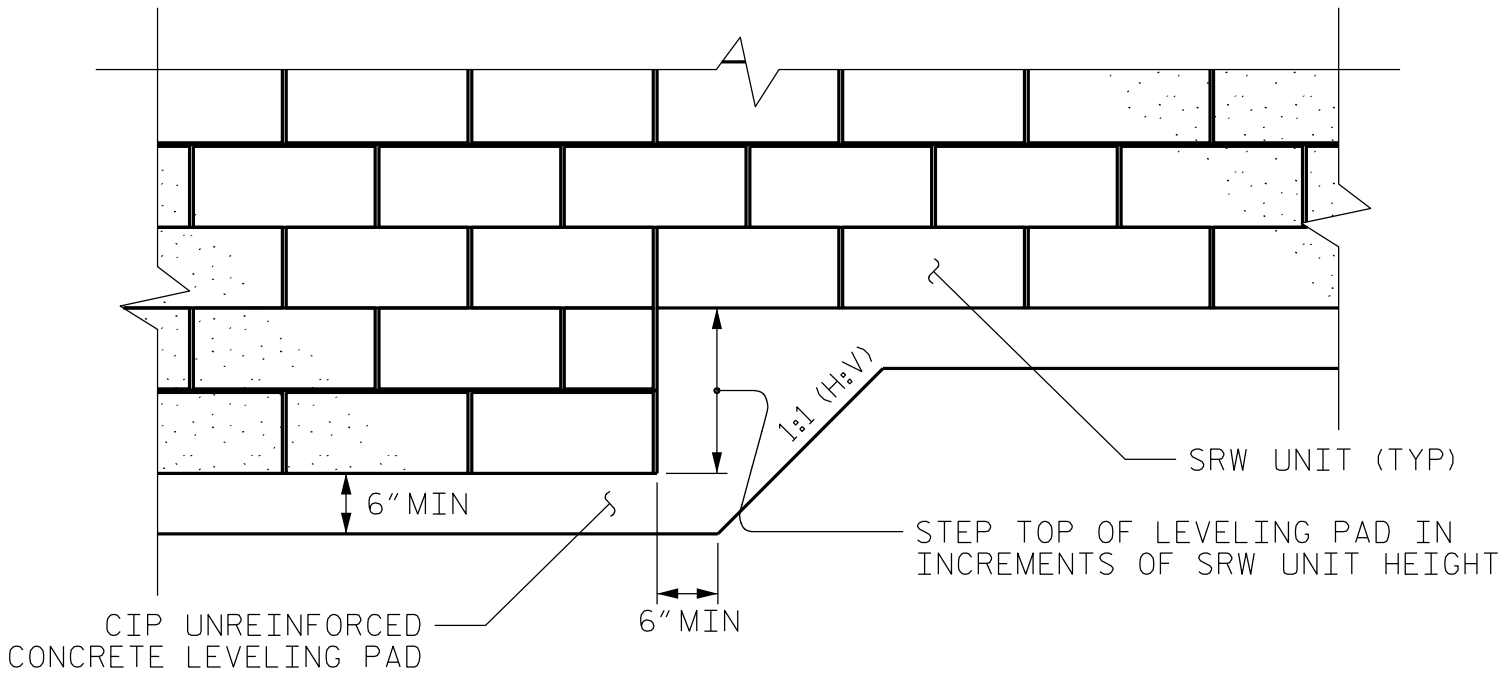
DESIGN RETAINING WALL NO.1 AND 2 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

FOUNDATIONS FOR SIGNS OR LIGHTING WILL BE LOCATED BEHIND RETAINING WALL NO.1 AND 2 AND MAY INTERFERE WITH REINFORCEMENT. BEFORE BEGINNING MSE WALL CONSTRUCTION, SUBMIT PROPOSED CONSTRUCTION METHODS FOR THESE FOUNDATIONS FOR APPROVAL.

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO.1 AND 2 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

THE ACUTE ANGLE WILL BE TAKEN CARE OF DURING DESIGN IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION AND APPROVED SYSTEM SUBMITTAL.

GEOTECHNICAL ENGINEER	ENGINEER
	
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SRW UNITS LEVELING PAD STEP DETAIL

PROJECT NO.: B-4838


COUNTY: WAYNE

SHEET 4 OF 7

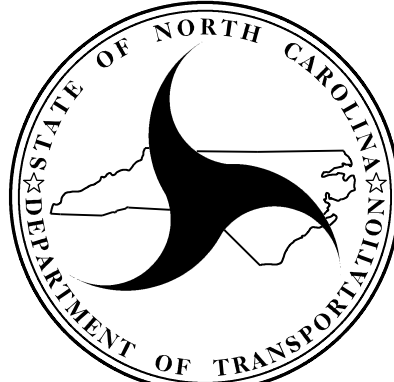
WALL ID RW-1 AND 2

PREPARED BY: C. WANG, P.E.	DATE: 06/23
REVIEWED BY: P. ALTON, P.E.	DATE: 06/23

SINCE



1881



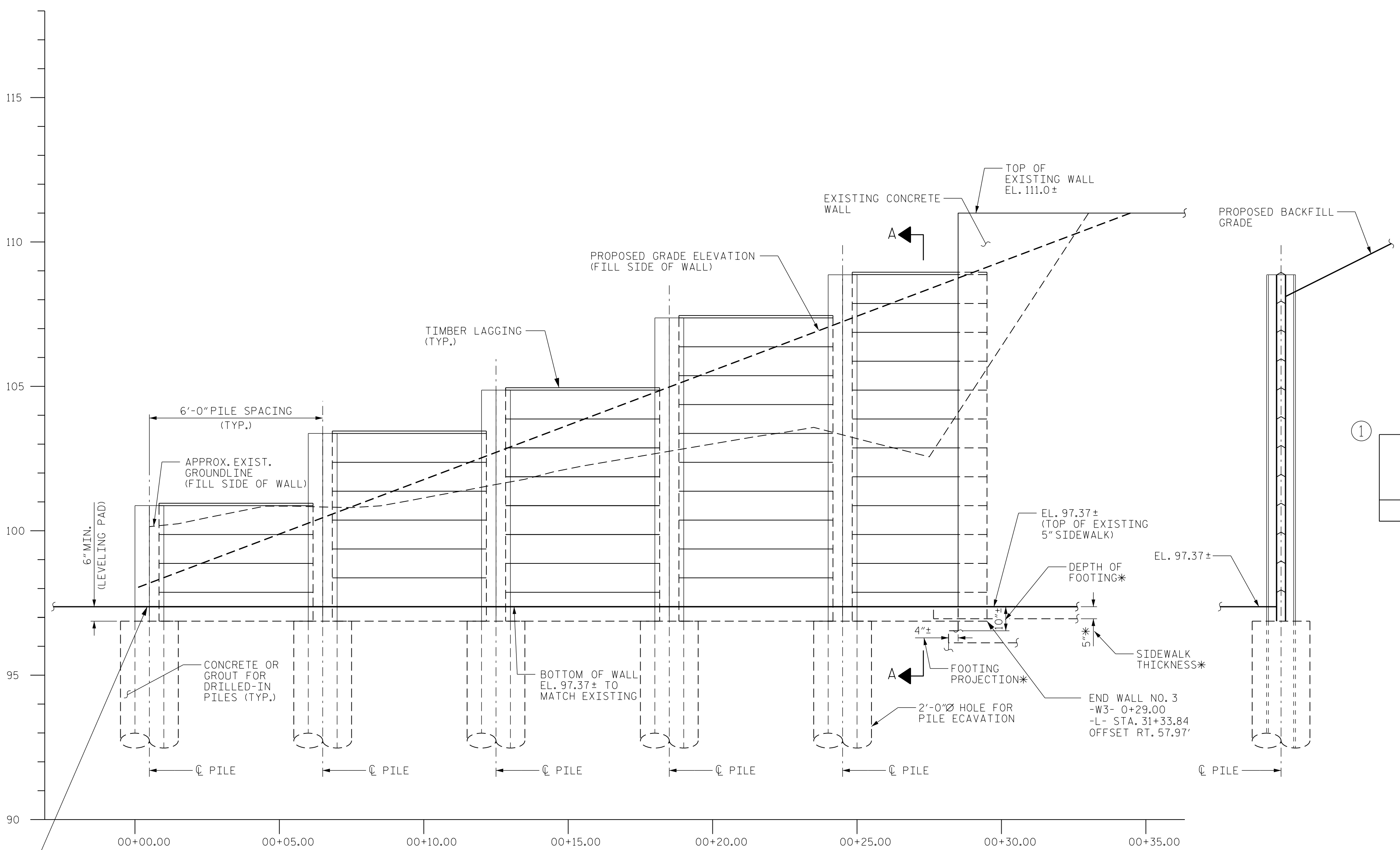
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DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

RETAINING WALL NO. 1 AND NO. 2
MSE RETAINING WALL

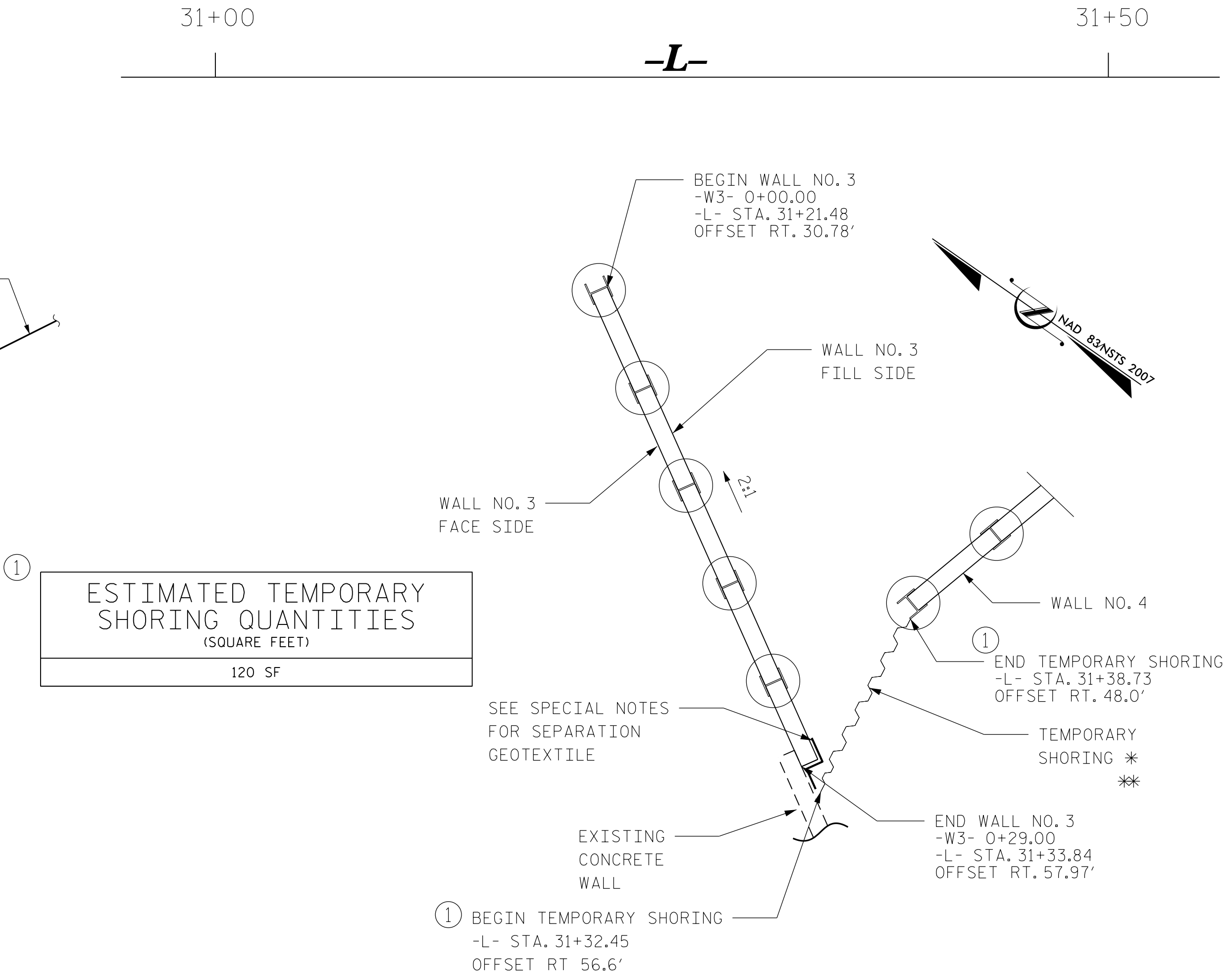
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	CHENG WANG	6/29/2023	3		
2	CHENG WANG	2/23/2024	4		

SHEET NO.
W-4



ELEVATION OF WALL (W3)

* APPROXIMATE FOOTING AND SIDEWALK
DIMENSIONS FROM F&R FIELD INVESTIGATION



PLAN OF WALL (W3)

① * THE CONTRACTOR WILL BE REQUIRED TO DESIGN, CONSTRUCT AND
AFTERWARDS REMOVE TEMPORARY SHORING REQUIRED IN THE AREAS
INDICATED IN THE PLAN VIEW.

** FOR TEMPORARY SHORING, SEE TEMPORARY SHORING PROVISION.

PROJECT NO.: B-4838

COUNTY: WAYNE

SHEET 5 OF 7 WALL ID RW-3

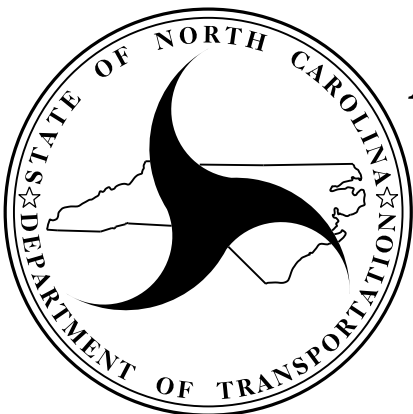
PREPARED BY: C. WANG, P.E. DATE: 10/25

REVIEWED BY: P. ALTON, P.E. DATE: 10/25

ESTIMATED SOLDIER PILE WALL QUANTITIES (SQUARE FEET)	
SOLDIER PILE WALL NO. 3	214 SF



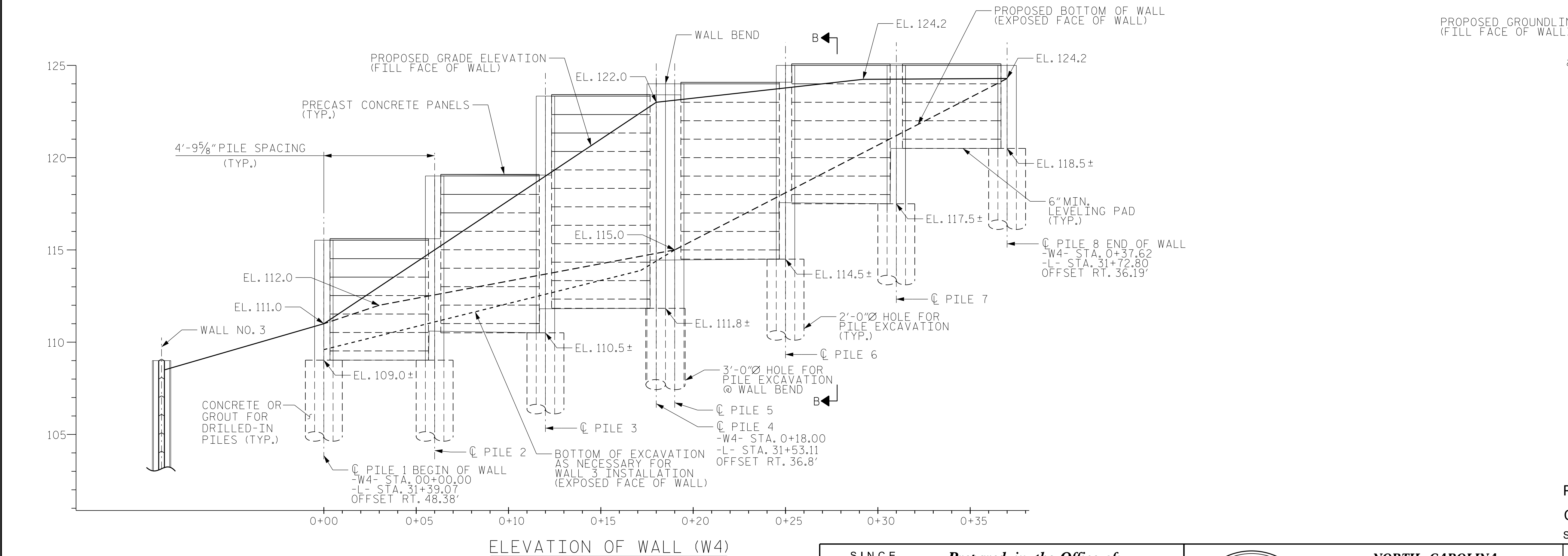
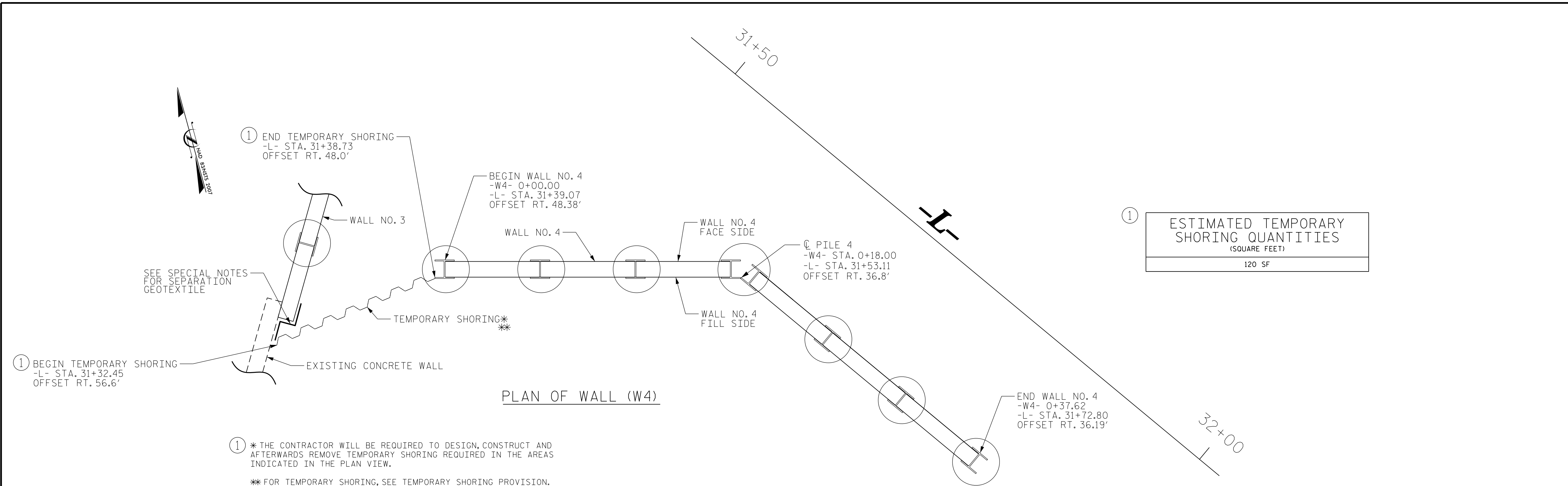
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**GEOTECHNICAL
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REVISIONS						SHEET NO. W-5
NO.	BY	DATE	NO.	BY	DATE	
1	C. WANG, P.E.	10/31/25	3			
2			4			



GEOTECHNICAL
ENGINEER

DocuSigned by:
Cheng Wang
1711586986

ENGINEER

10/31/2025

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DATE

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ESTIMATED SOLDIER PILE WALL QUANTITIES (SQUARE FEET)	
SOLDIER PILE WALL NO. 4	223 SF

PREPARED BY: C. WANG	DATE: 10/25
REVIEWED BY: P. ALTON, P.E.	DATE: 10/25

SINCE

1881

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DIVISION OF HIGHWAYS**

**GEOTECHNICAL
ENGINEERING UNIT**

PROJECT NO.: B-4838

COUNTY: WAYNE

SHEET 6 OF 7

WALL ID RW-4

RETAINING WALL NO. 4
WALL ENVELOPE

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	C. WANG, P.E.	10/31/25	3		
2			4		

SHEET NO.
W-6

