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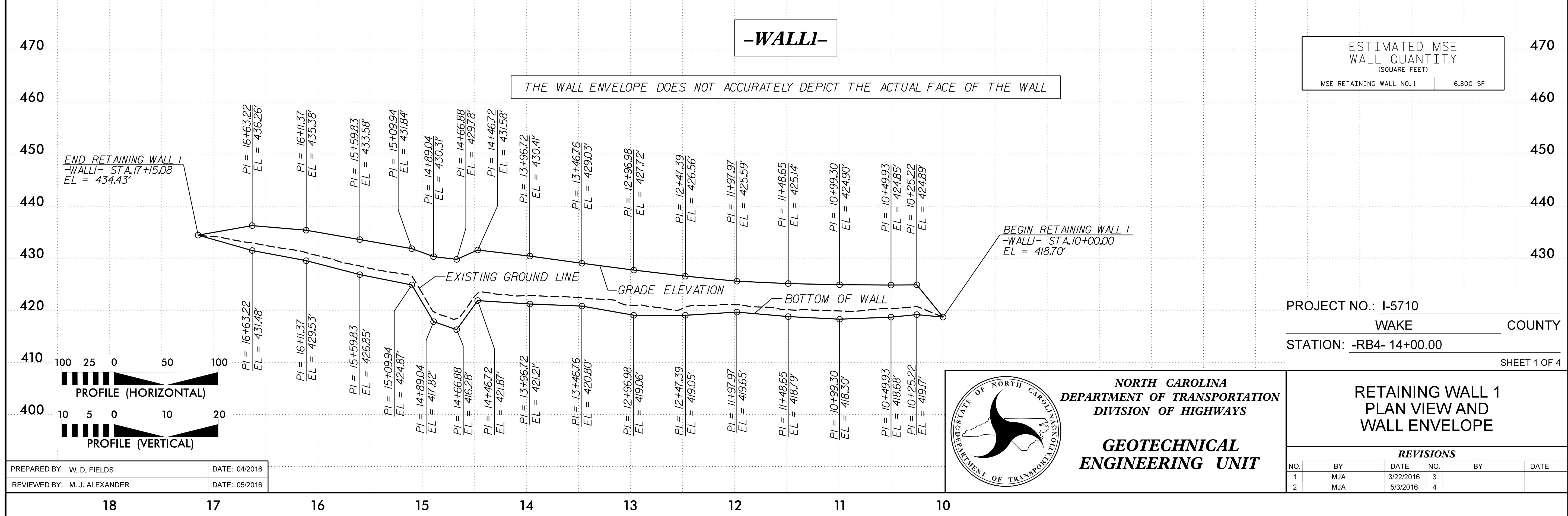
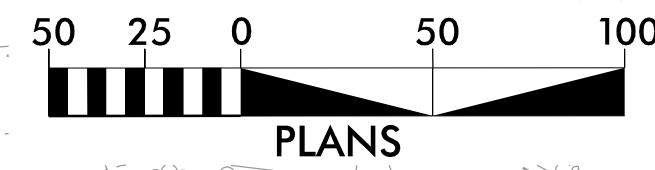
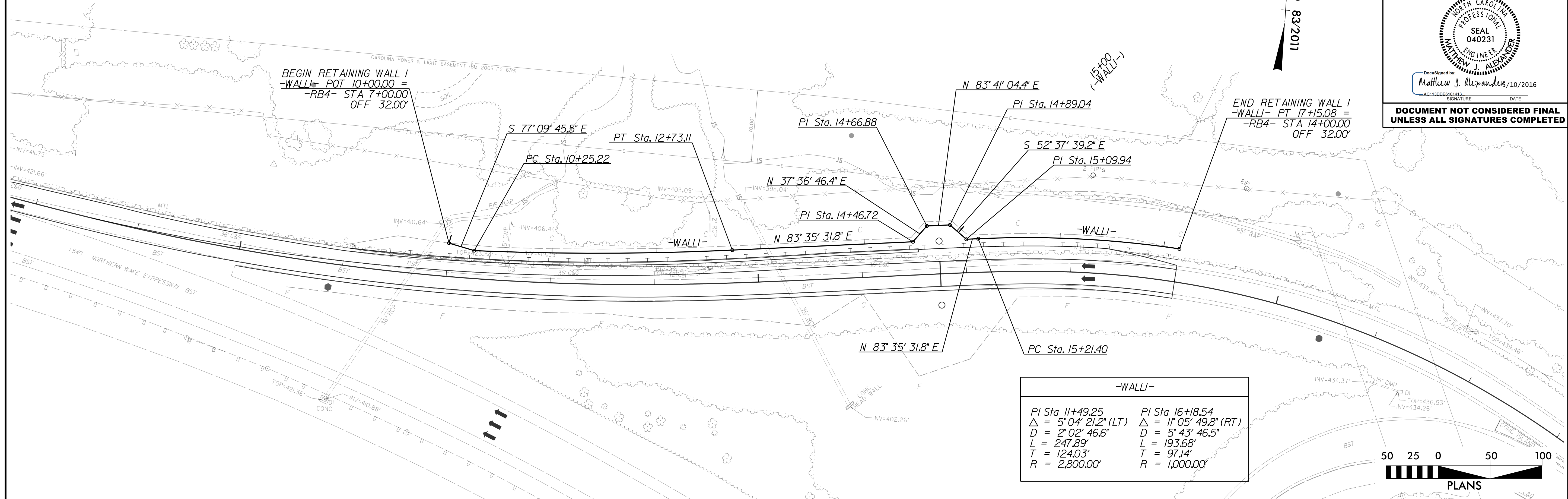
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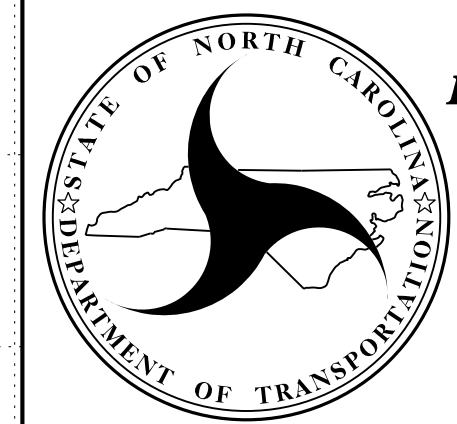
# RETAINING WALL DETAIL -WALL1-

PROJECT REFERENCE NO. I-5710	SHEET W-1
GEOTECHNICAL ENGINEER	
DocuSigned by: Matthew J. Alexander 10/2016 SIGNATURE DATE	
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NAD 83/2011



PREPARED BY: W. D. FIELDS      DATE: 04/2016  
REVIEWED BY: M. J. ALEXANDER      DATE: 05/2016

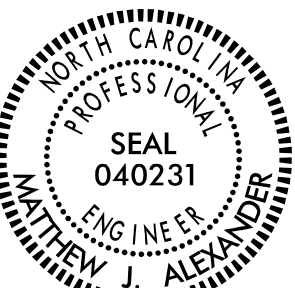


**NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS**

**GEOTECHNICAL  
ENGINEERING UNIT**

**RETAINING WALL 1  
PLAN VIEW AND  
WALL ENVELOPE**

18      17      16      15      14      13      12      11      10



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Matthew J. Alexander/2016  
AC113006888443 SIGNATURE DATE

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**NOTES:**

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

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

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.

AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF 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.

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

- 1) H = DESIGN HEIGHT + EMBEDMENT
- 2) DESIGN LIFE = 100 YEARS
- 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 3,100 LB/SF
- 4) MINIMUM REINFORCEMENT LENGTH (L) = 1.0H OR 6 FT, WHICHEVER IS LONGER
- 5) MINIMUM EMBEDMENT BELOW FINISHED GRADE = 2 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	125	30	0
FOUNDATION	120	30	0

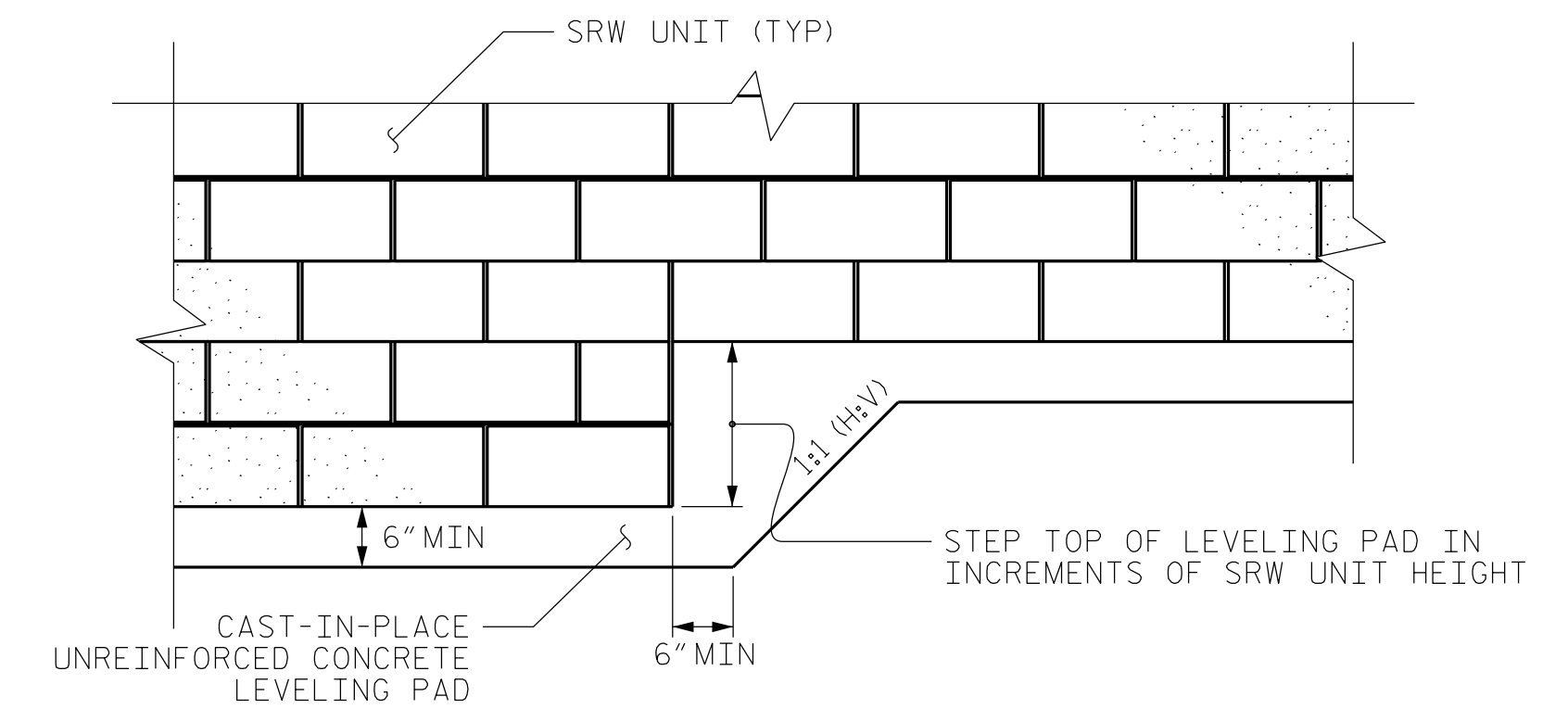
DESIGN RETAINING WALL NO. 1 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

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

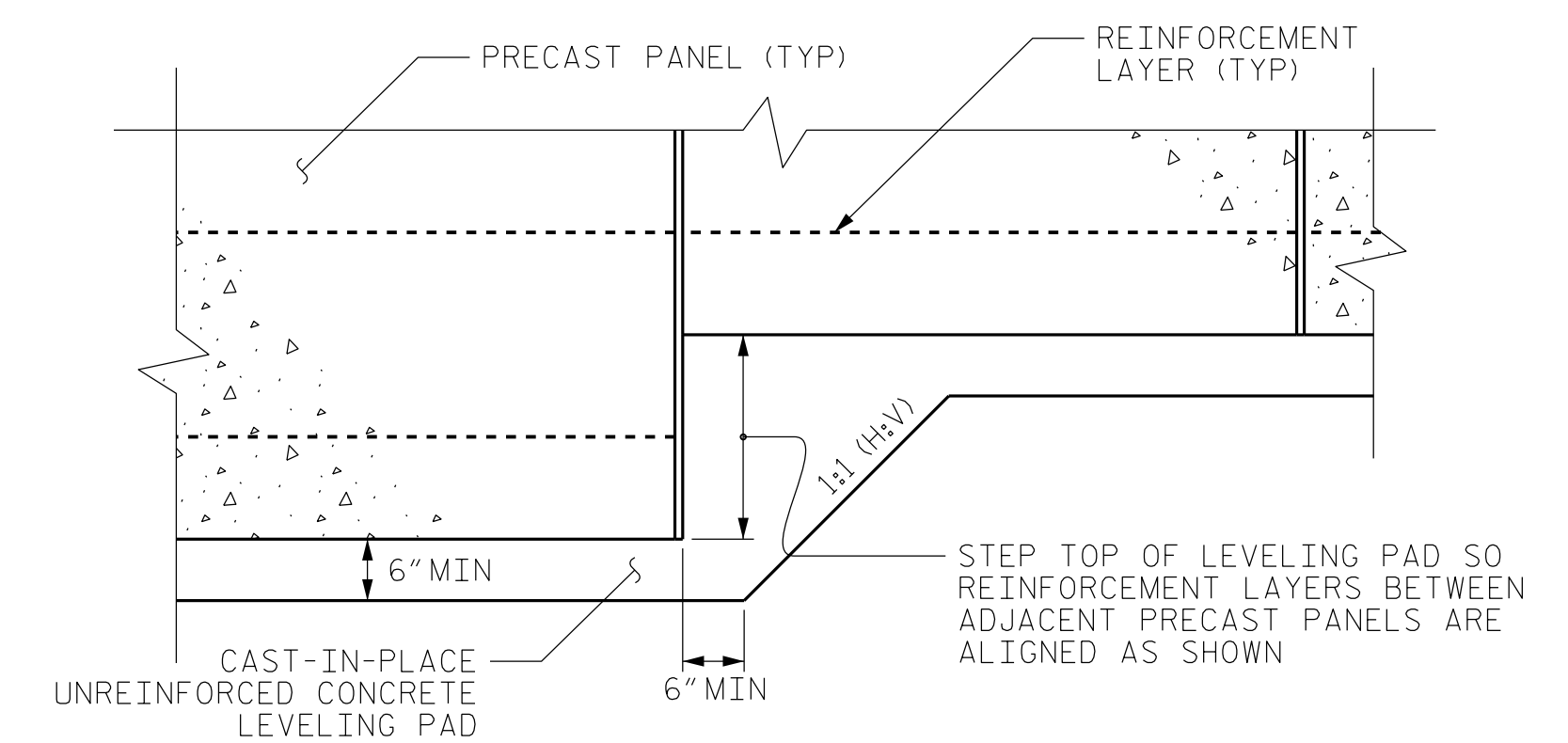
EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS OR GUARDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO. 1.

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

"TEMPORARY SHORING" IS REQUIRED FOR RETAINING WALL NO. 1 IN ACCORDANCE WITH THE TEMPORARY SHORING PROVISION. SEE ROADWAY, STRUCTURE OR TRAFFIC CONTROL PLANS.



SEGMENTAL RETAINING WALL (SRW) UNITS



PRECAST CONCRETE PANELS

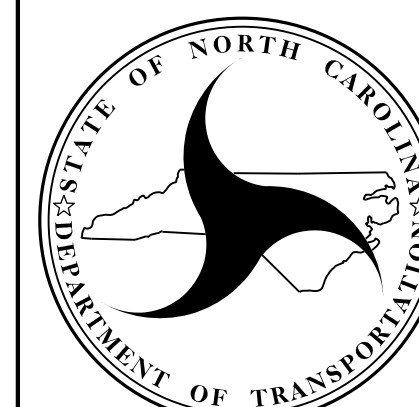
LEVELING PAD STEP DETAILS

PROJECT NO.: I-5710  
WAKE COUNTY  
STATION: -RB4- 14+00.00

SHEET 2 OF 4

PREPARED BY: W. D. FIELDS	DATE: 04/2016
REVIEWED BY: M. J. ALEXANDER	DATE: 05/2016

**Terracon**  
Consulting Engineers & Scientists  
2401 BRENTWOOD ROAD RALEIGH, NC 27604  
PH. (919) 873-2211 FAX. (919) 873-9555



NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
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**GEOTECHNICAL  
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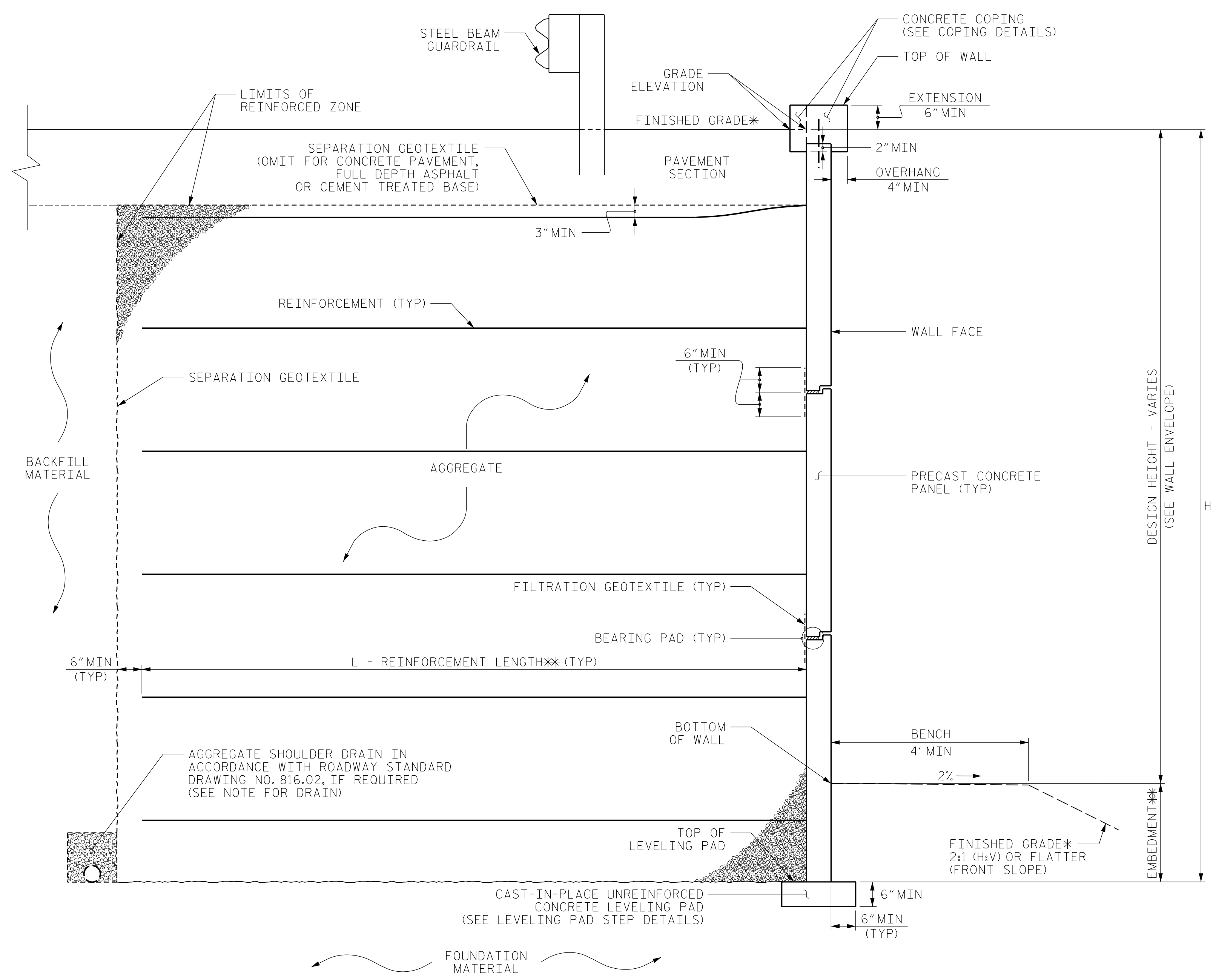
**RETAINING WALL 1  
NOTES AND DETAILS**

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	MJA	3/22/2016	3		
2	MJA	5/3/2016	4		



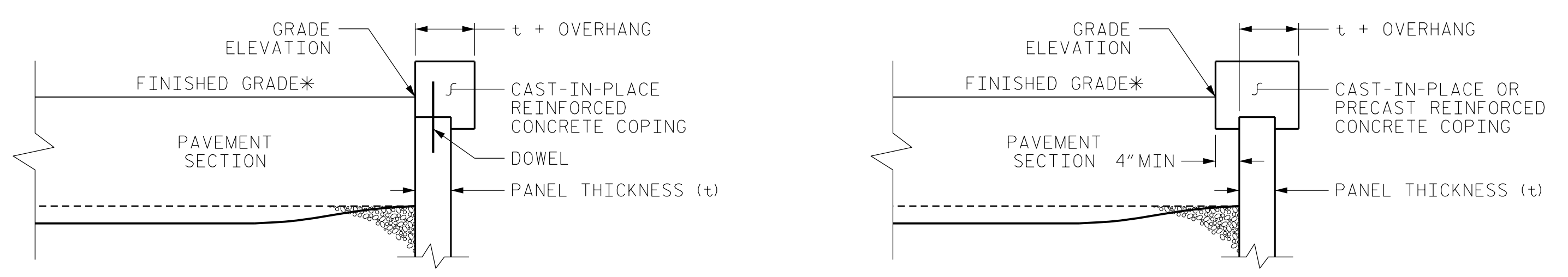
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**MSE WALL WITH PRECAST PANELS - TYPICAL SECTION**

\* 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 PANELS WITH DOWELS OR EXTEND COPING DOWN BACK OF PANELS.  
\* SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

PROJECT NO.: I-5710  
WAKE COUNTY  
STATION: -RB4- 14+00.00  
SHEET 3 OF 4

PREPARED BY: W. D. FIELDS DATE: 04/2016  
REVIEWED BY: M. J. ALEXANDER DATE: 05/2016

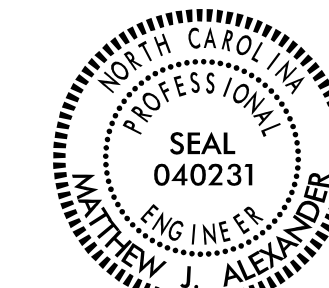
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**GEOTECHNICAL ENGINEERING UNIT**

**RETAINING WALL 1 TYPICAL SECTION**

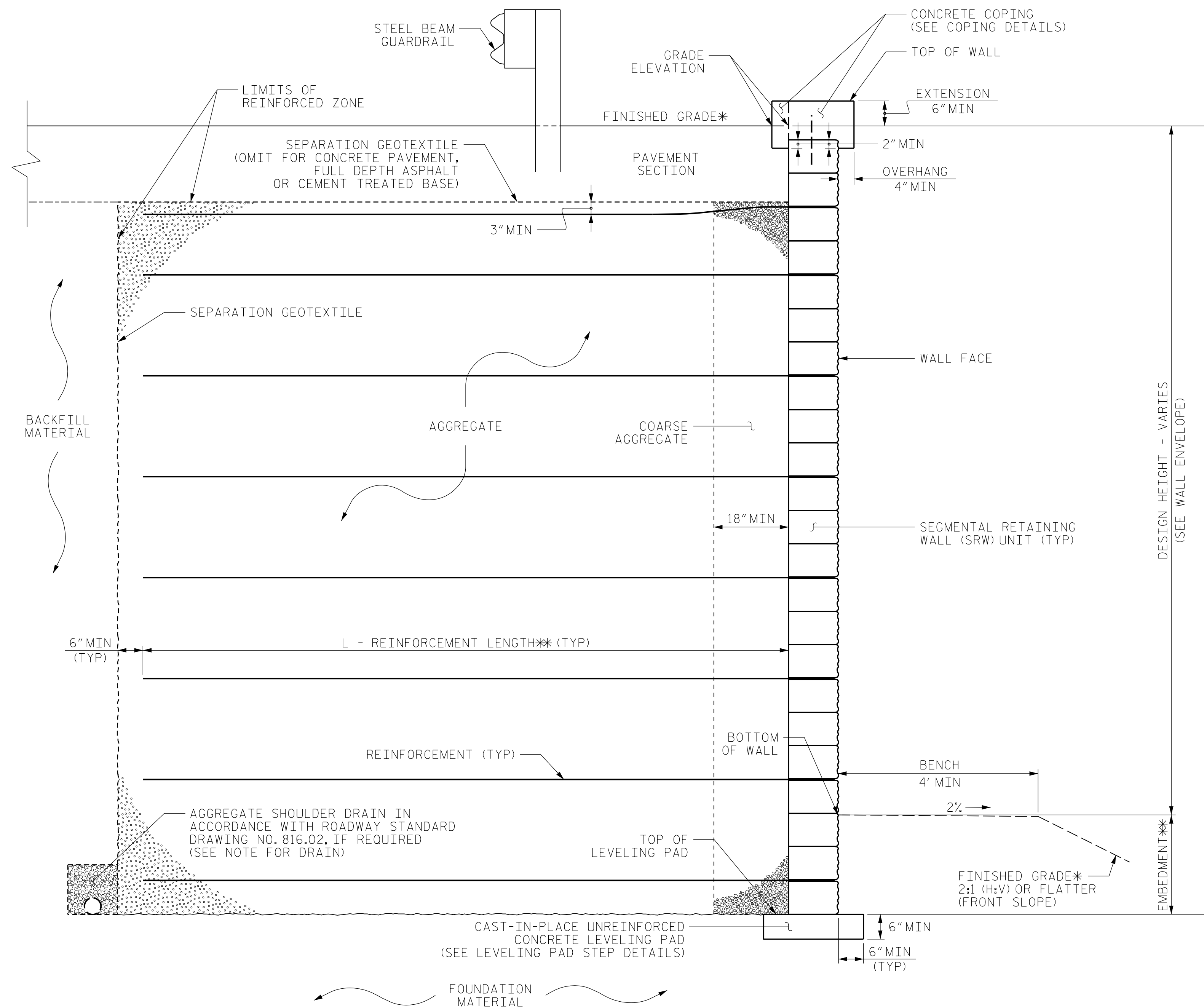
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NO.	BY	DATE	NO.	BY	DATE
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2	MJA	5/2/2016	4		

GEOTECHNICAL ENGINEER



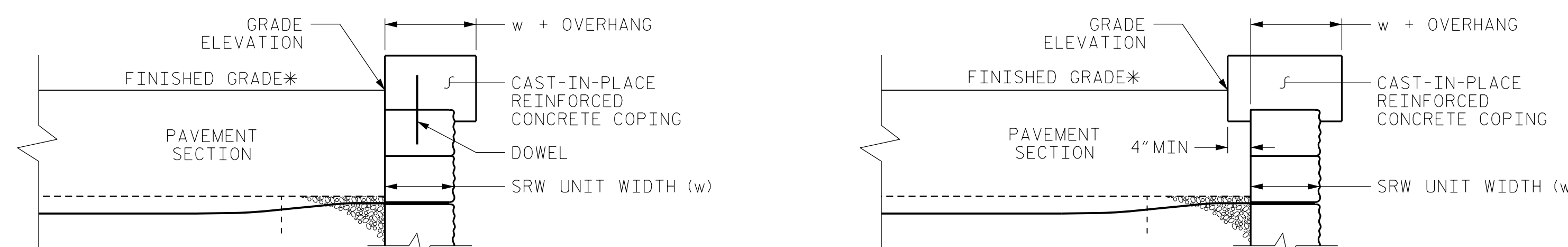
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**MSE WALL WITH SRW UNITS - TYPICAL SECTION**

\* SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.  
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**COPING DETAILS**

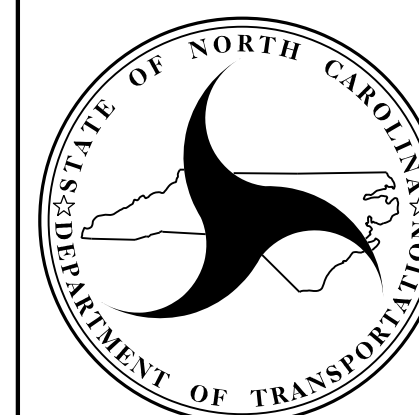
AT THE CONTRACTOR'S OPTION, CONNECT COPING TO SRW UNITS WITH DOWELS OR EXTEND COPING DOWN BACK OF SRW UNITS.  
\* SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

PROJECT NO.: I-5710  
WAKE COUNTY  
STATION: -RB4- 14+00.00

SHEET 4 OF 4

PREPARED BY: W. D. FIELDS	DATE: 04/2016
REVIEWED BY: M. J. ALEXANDER	DATE: 05/2016

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**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS**  
**GEOTECHNICAL ENGINEERING UNIT**

**RETAINING WALL 1 TYPICAL SECTION**

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	MJA	3/22/2016	3		
2	MJA	5/2/2016	4		