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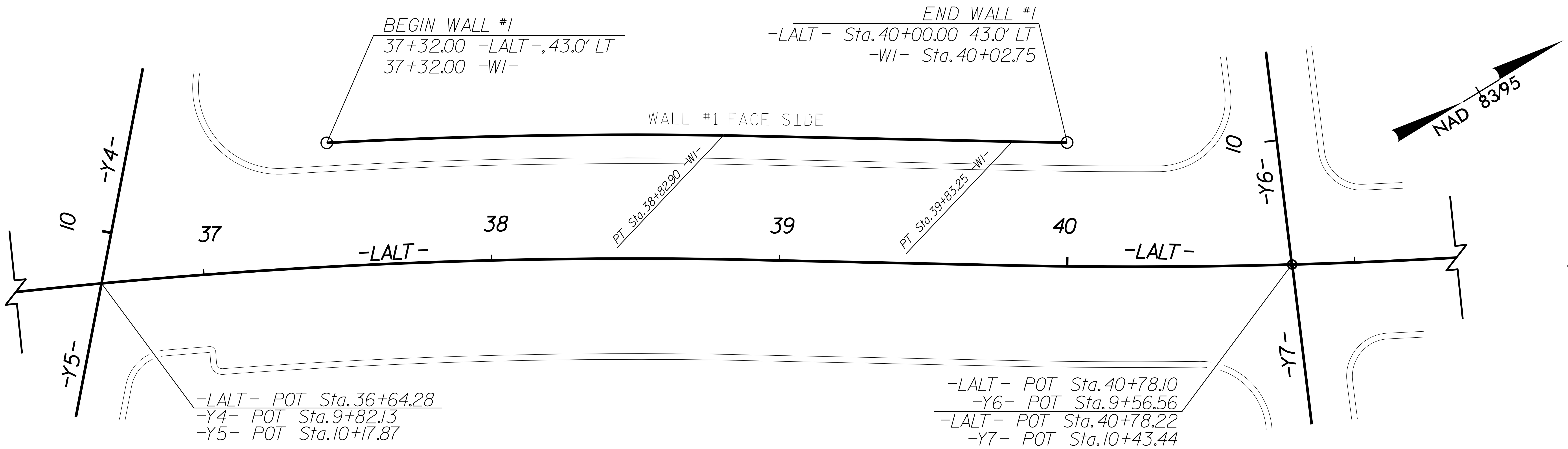


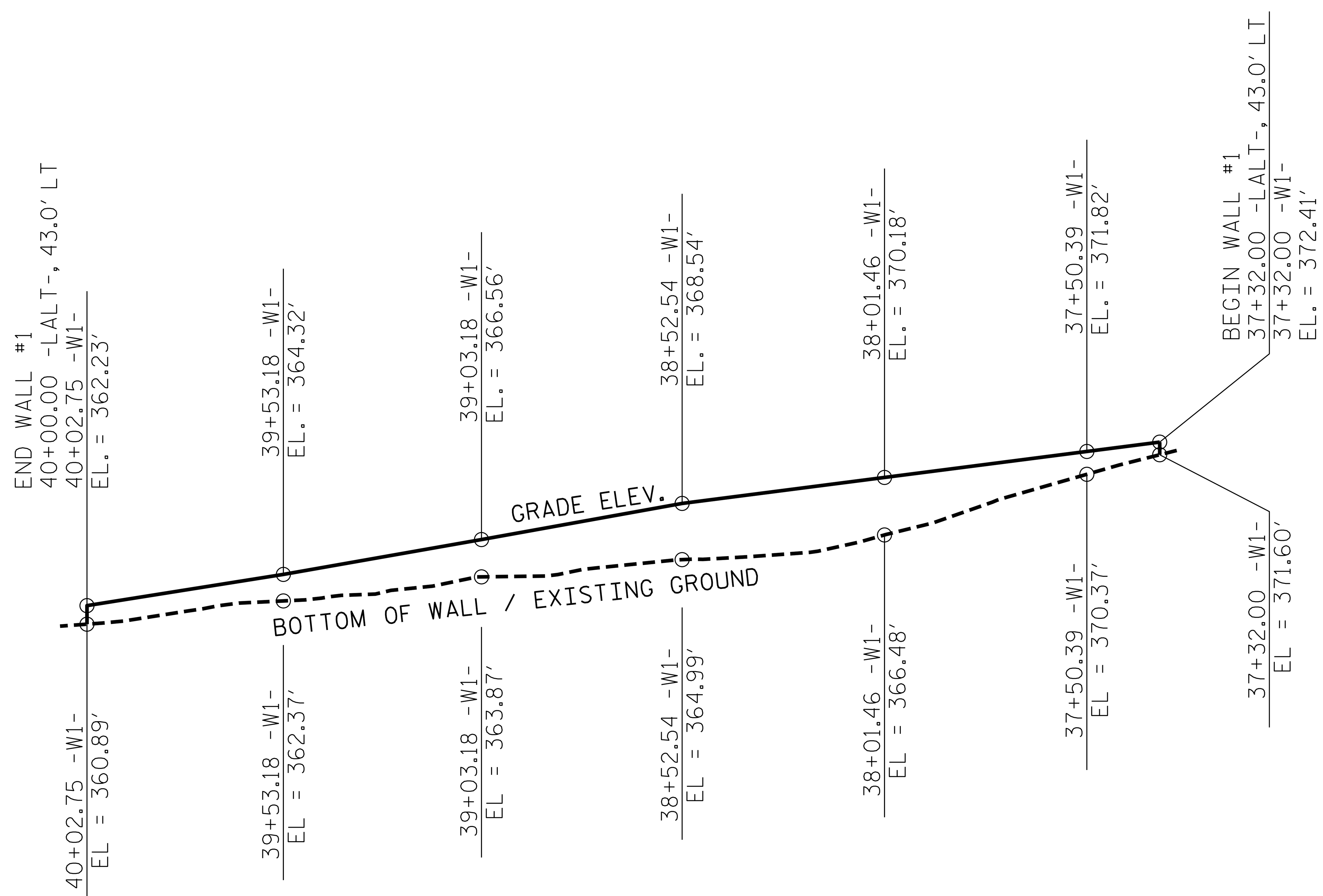
-Wall #1-

PI Sta 38+07.49	PI Sta 40+07.68
Δ = 4° 13' 15.0" (RT)	Δ = 1° 25' 48.8" (LT)
D = 2° 47' 49.3"	D = 2° 55' 39.8"
L = 150.90'	L = 48.85'
T = 75.49'	T = 24.43'
R = 2,048.46'	R = 1,957.00'

PLAN VIEW FOR RETAINING WALL NO. 1

N.T.S.

ESTIMATED MSE WALL QUANTITIES	
MSE RETAINING WALL NO. 1	1,090 SF



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

MSE RETAINING WALL NO. 1

-LALT- STA	-W1- STA	WALL #1 OFFSET	GRADE ELEV., ①	BOTTOM ELEV., ②	① - ②
37+32.00	37+32.00	43.0' LT	372.41'	371.60'	0.81'
37+50.00	37+50.39	43.0' LT	371.82'	370.37'	1.45'
38+00.00	38+01.46	43.0' LT	370.18'	366.48'	3.70'
38+50.00	38+52.54	43.0' LT	368.54'	364.99'	3.55'
39+00.00	39+03.18	43.0' LT	366.56'	363.87'	2.69'
39+50.00	39+53.18	43.0' LT	364.32'	362.37'	1.95'
40+00.00	40+02.75	43.0' LT	362.23'	360.89'	1.34'

BOTTOM ELEV. - BOTTOM OF WALL ELEVATION

GEOTECHNICAL ENGINEER — SEAL 032171, NORTH CAROLINA PROFESSIONAL ENGINEER, JINYOUNG PARK — DocuSigned by: — DATE 4/17/2015

ENGINEER — SIGNATURE — DATE

PROJECT NO.: U-3308 (34915.1.1)
DURHAM COUNTY
STATION: 37+40.00 -LALT-
SHEET 1 OF 8

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

RETAINING WALL NO. 1
PLAN VIEW AND
WALL ENVELOPE

REVISIONS

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

SHEET NO. W-1

PREPARED BY: J. PARK	DATE: 04 / 2015
REVIEWED BY: J. BATTS	DATE: 04 / 2015

GEOTECHNICAL ENGINEER

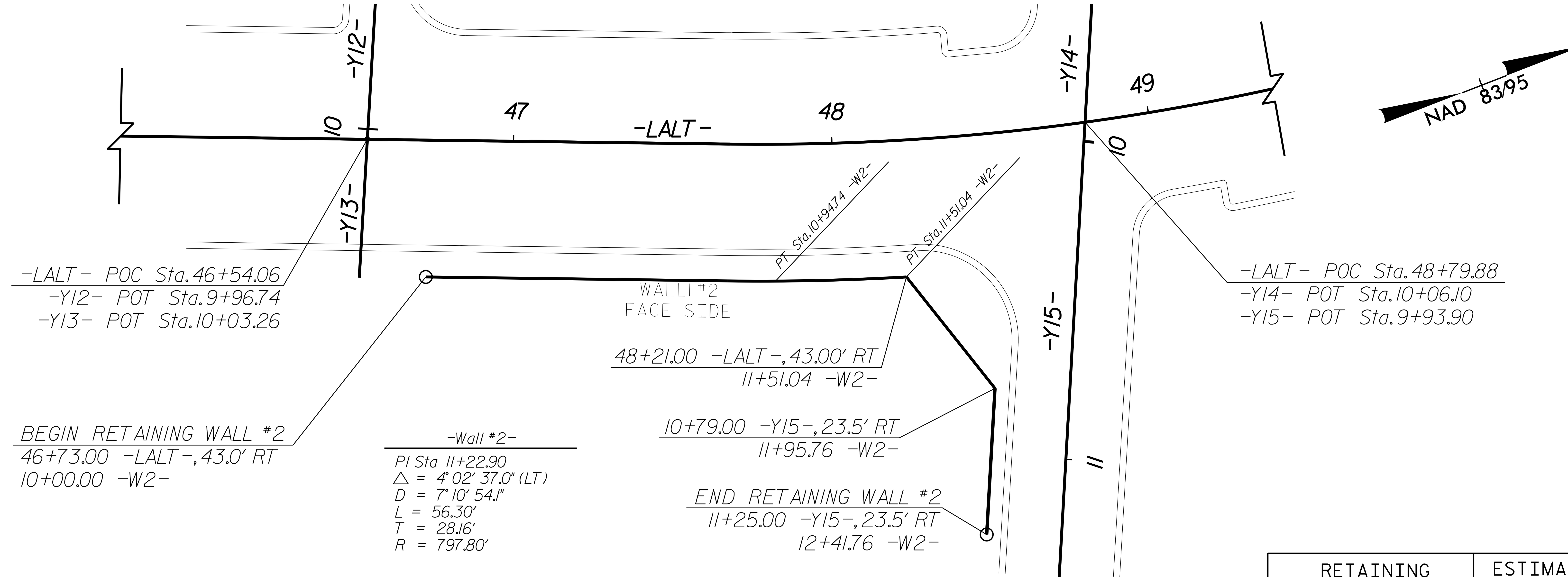
NORTH CAROLINA PROFESSIONAL SEAL 032171 ENGINEER JINYOUNG PARK

DocuSigned by: 4/17/2015

SIGNATURE DATE

ENGINEER

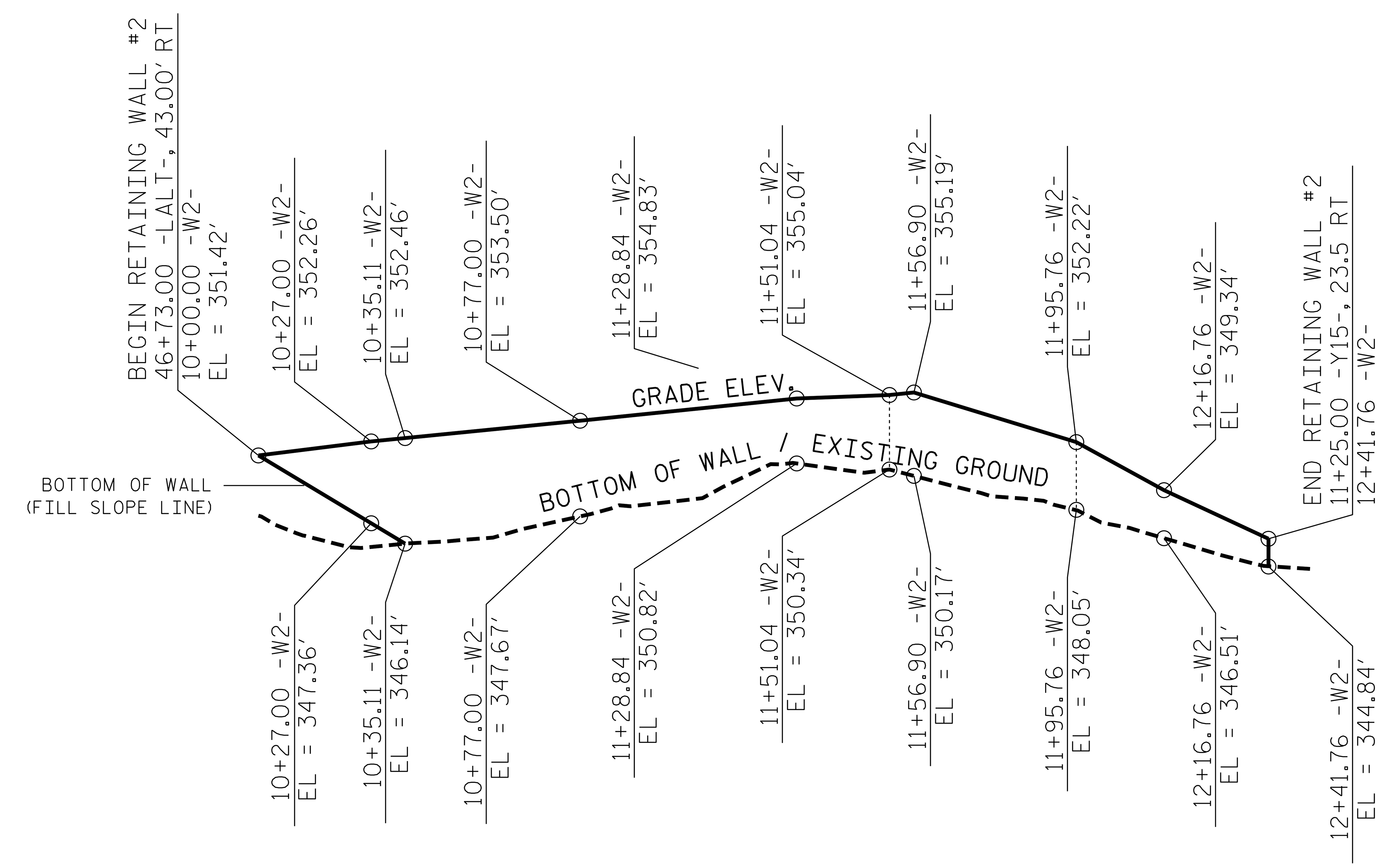
SIGNATURE DATE



PLAN VIEW FOR RETAINING WALL NO. 2

N.T.S.

RETAINING WALL NO.	ESTIMATED CAST-IN-PLACE GRAVITY RETAINING WALL QUANTITIES
2	1,375 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

CAST-IN-PLACE GRAVITY RETAINING WALL NO. 2

-LALT- STA	-W2- STA	WALL #2 OFFSET	GRADE ELEV., ①	BOTTOM ELEV., ②	① - ②
46+73.00	10+00.00	43.0' RT	351.42'	351.42'	0.00'
47+00.00	10+27.00	43.0' RT	352.26'	347.36'	4.90'
47+08.11	10+35.11	43.0' RT	352.46'	346.14'	6.32'
47+50.00	10+77.00	43.0' RT	353.50'	347.67'	5.83'
48+00.00	11+28.84	43.0' RT	354.83'	350.82'	4.01'
48+21.00	11+51.04	43.0' RT	355.04'	350.34'	4.70'
-Y15- STA	**-W2- STA**	**WALL #2 OFFSET**	**GRADE ELEV., ①**	**BOTTOM ELEV., ②**	**① - ②**
10+50.00	11+56.90	49.36' RT	355.19'	350.17'	5.02'
10+79.00	11+95.76	23.5' RT	352.22'	348.05'	4.17'
11+00.00	12+16.76	23.5' RT	349.34'	346.51'	2.83'
11+25.00	12+41.76	23.5' RT	346.43'	344.84'	1.59'

BOTTOM ELEV. - BOTTOM OF WALL ELEVATION

PROJECT NO.: U-3308 (34915.1.1)

DURHAM COUNTY

STATION: 46+80.00 -LALT-.

SHEET 2 OF 8

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

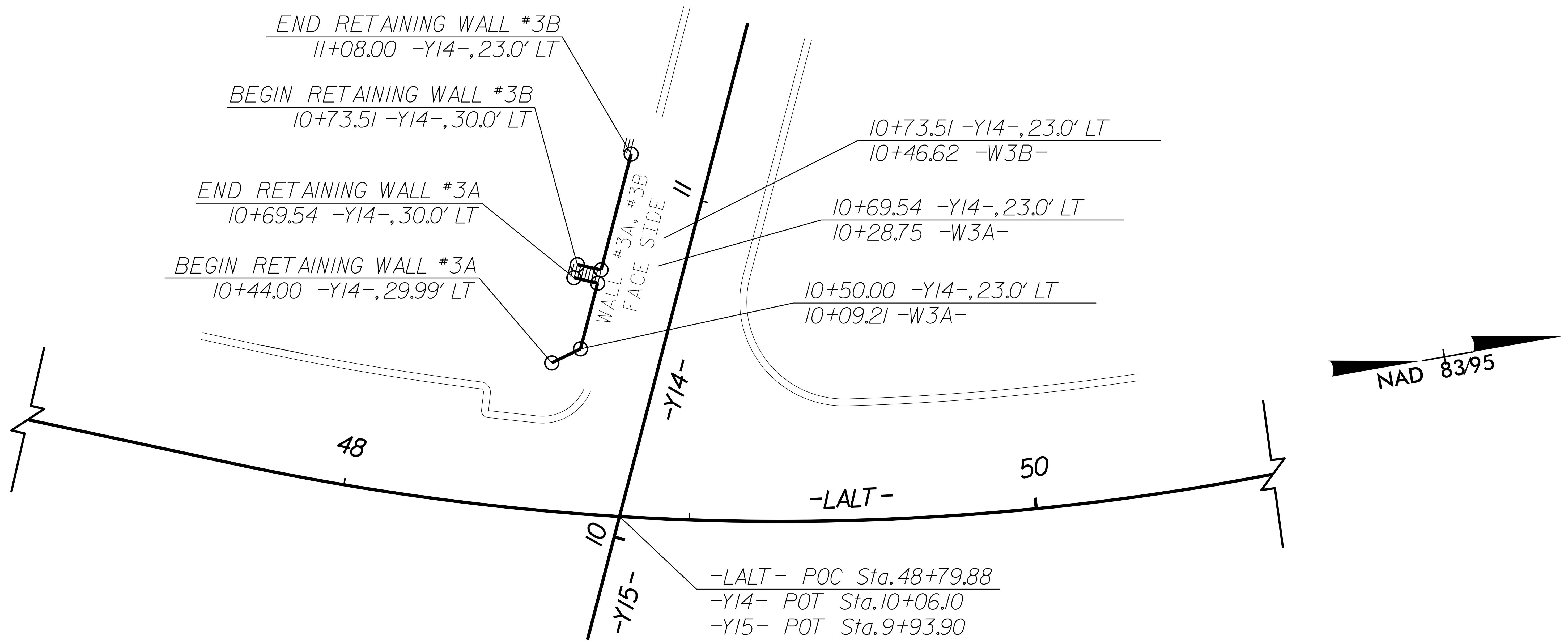
GEOTECHNICAL ENGINEERING UNIT

RETAINING WALL NO. 2
PLAN VIEW AND
WALL ENVELOPE

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

PREPARED BY: J. PARK	DATE: 04 / 2015
REVIEWED BY: J. BATTS	DATE: 04 / 2015

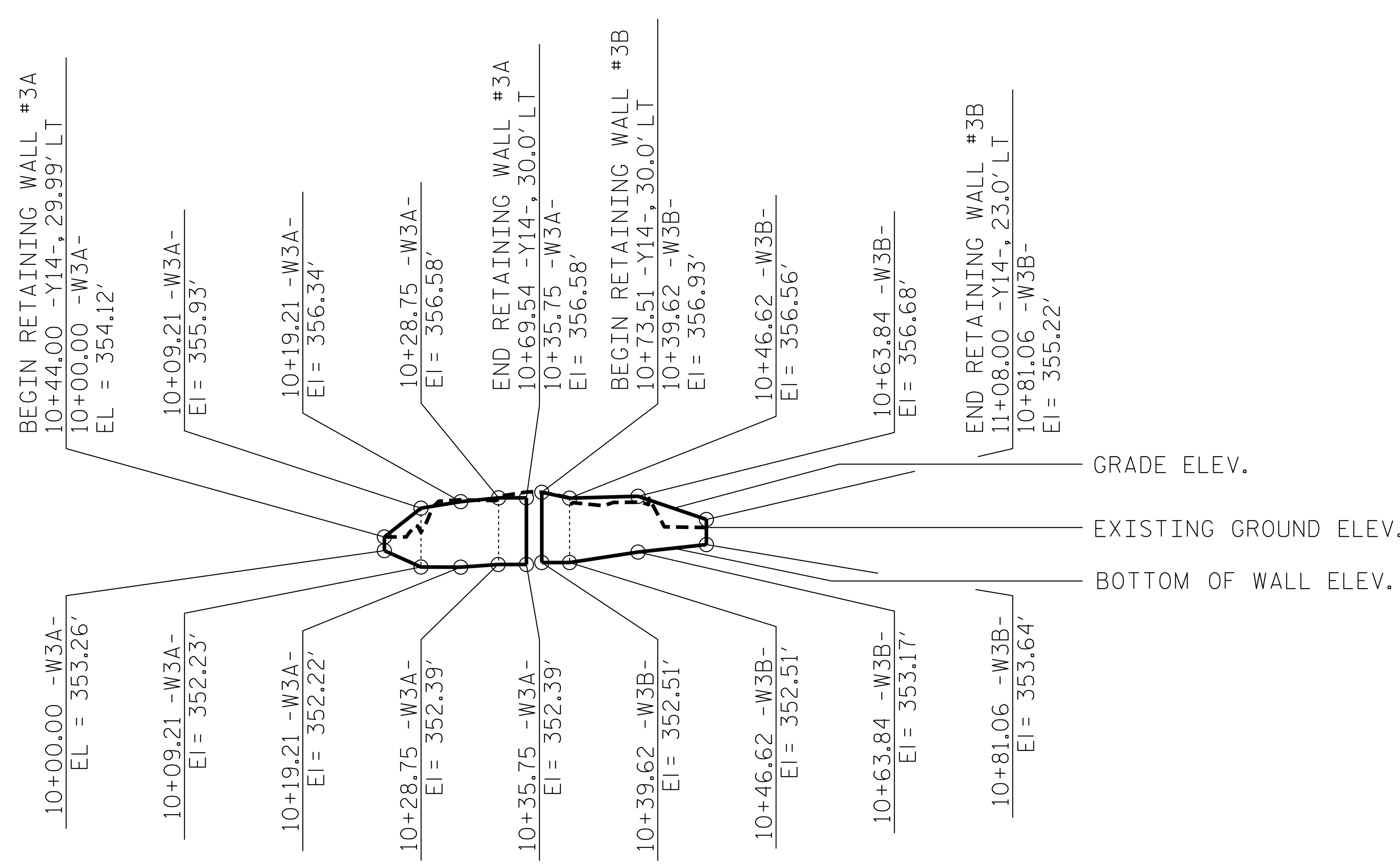
GEOTECHNICAL ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 032171 ENGINEER JINYOUNG PARK
DocuSigned by:
4/17/2015
ENGINEER



PLAN VIEW FOR RETAINING WALL NO. 3A & 3B

N.T.S.

RETAINING WALL NO.	ESTIMATED CAST-IN-PLACE GRAVITY RETAINING WALL QUANTITIES
3A	175 SF
3B	190 SF



WALL ENVELOPE FOR RETAINING WALL NO. 3A & 3B

EXPOSED WALL FACE VIEW, N.T.S.

CAST-IN-PLACE GRAVITY RETAINING WALL NO. 3A & 3B

-Y14- STA	-W3A- STA	WALL #3A OFFSET	GRADE ELEV., ①	BOTTOM ELEV., ②	① - ②
10+44.00	10+00.00	29.99' LT	354.12'	353.26'	0.86'
10+50.00	10+09.21	23.0' LT	355.93'	352.23'	3.70'
10+60.00	10+19.21	23.0' LT	356.34'	352.22'	4.12'
10+69.54	10+28.75	23.0' LT	356.58'	352.39'	4.19'
10+69.54	10+35.75	30.0' LT	356.58'	352.39'	4.19'
STEPS					
-Y14- STA	**-W3B- STA**	**WALL #3B OFFSET**	**GRADE ELEV., ①**	**BOTTOM ELEV., ②**	**① - ②**
10+73.51	10+39.62	30.0' LT	356.93'	352.51'	4.42'
10+73.51	10+46.62	23.0' LT	356.56'	352.51'	4.05'
10+90.73	10+63.84	23.0' LT	356.68'	353.17'	3.51'
11+08.00	10+81.06	23.0' LT	355.22'	353.64'	1.58'

BOTTOM ELEV.- BOTTOM OF WALL ELEVATION

PROJECT NO.: U-3308 (34915.1.1)

DURHAM COUNTY

STATION: 10+50.00 -Y14- / 10+80.00 -Y14-

SHEET 3 OF 8

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

RETAINING WALL NO. 3A & 3B
PLAN VIEWS AND
WALL ENVELOPES

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

PREPARED BY: J. PARK	DATE: 04 / 2015
REVIEWED BY: J. BATTS	DATE: 04 / 2015

GEOTECHNICAL ENGINEER

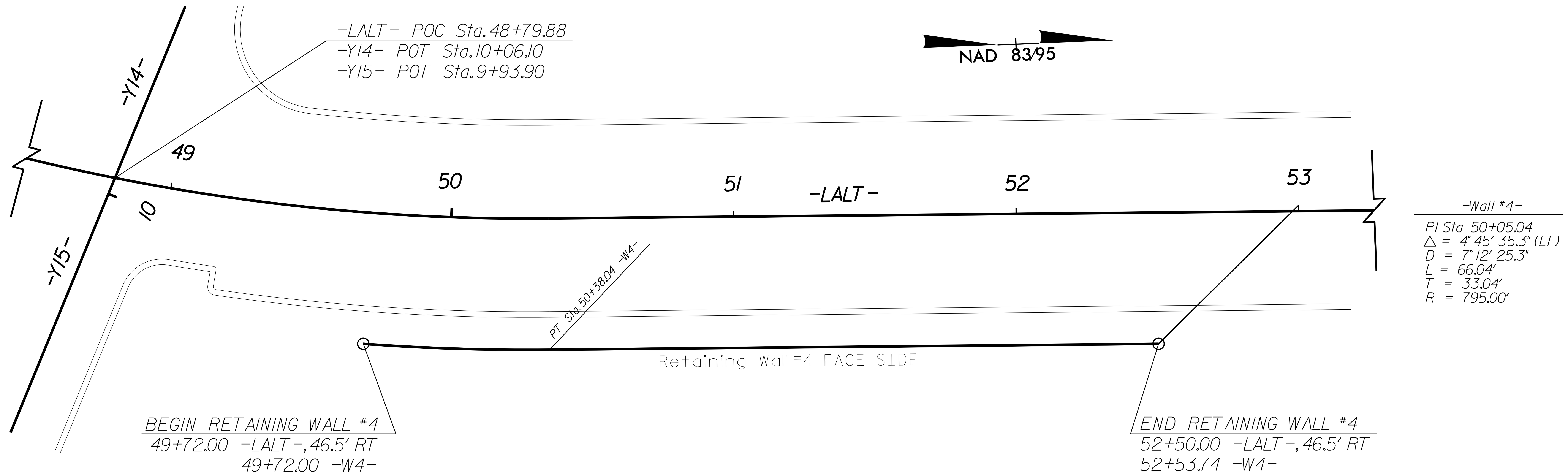
SEAL 032171 — NORTH CAROLINA PROFESSIONAL ENGINEER — JINYOUNG PARK

DocuSigned by: 4/17/2015

SIGNATURE DATE

ENGINEER

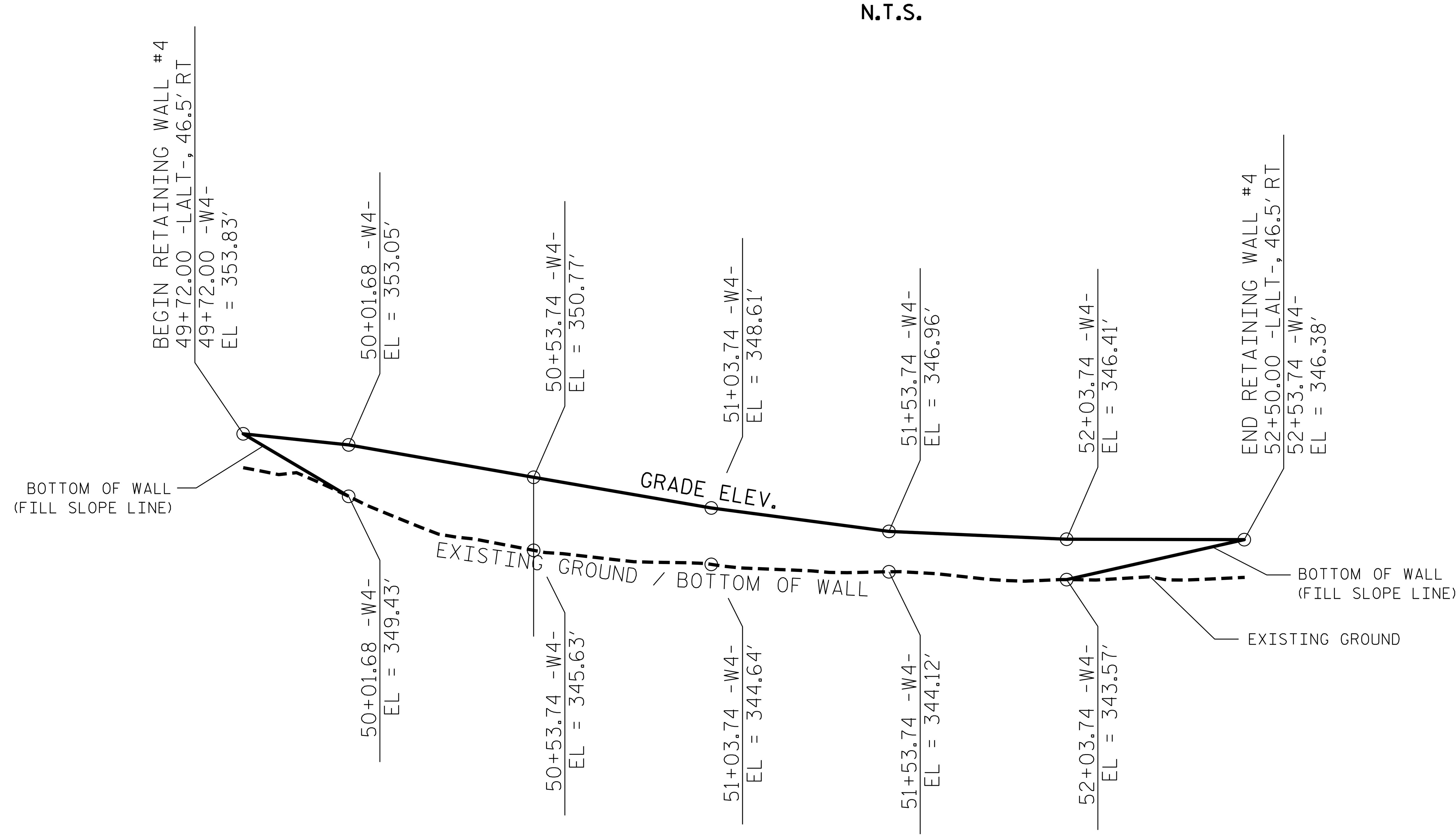
SIGNATURE DATE



PLAN VIEW FOR RETAINING WALL NO. 4

N.T.S.

ESTIMATED MSE WALL QUANTITIES	
MSE RETAINING WALL NO. 4	1,360 SF



MSE RETAINING WALL NO. 4

-LALT- STA	-W4- STA	WALL #4 OFFSET	GRADE ELEV., ①	BOTTOM ELEV., ②	① - ②
49+72.00	49+72.00	46.5' RT	353.83'	353.83'	0.00'
50+00.00	50+01.68	46.5' RT	353.05'	349.43'	3.62'
50+50.00	50+53.74	46.5' RT	350.77'	345.63'	5.14'
51+00.00	51+03.74	46.5' RT	348.61'	344.64'	3.97'
51+50.00	51+53.74	46.5' RT	346.96'	344.12'	2.84'
52+00.00	52+03.74	46.5' RT	346.41'	343.57'	2.84'
52+50.00	52+53.74	46.5' RT	346.38'	346.38'	0.00'

BOTTOM ELEV. - BOTTOM OF WALL ELEVATION

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

PROJECT NO.: U-3308 (34915.1.1)

DURHAM COUNTY

STATION: 49+80.00 -LALT-

SHEET 4 OF 8

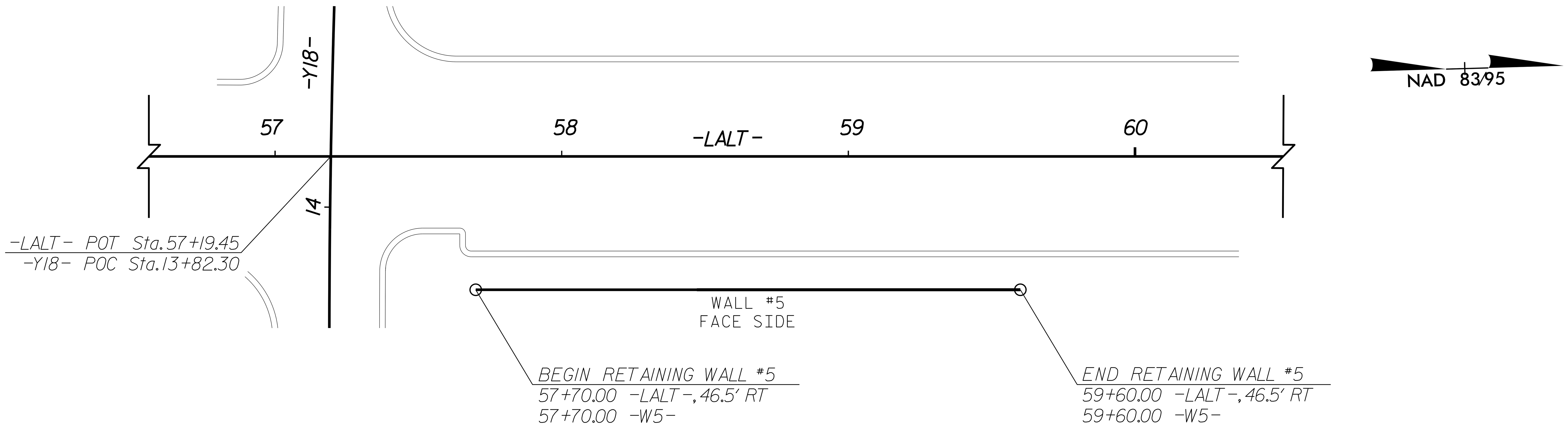
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

RETAINING WALL NO. 4
PLAN VIEW AND
WALL ENVELOPE

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

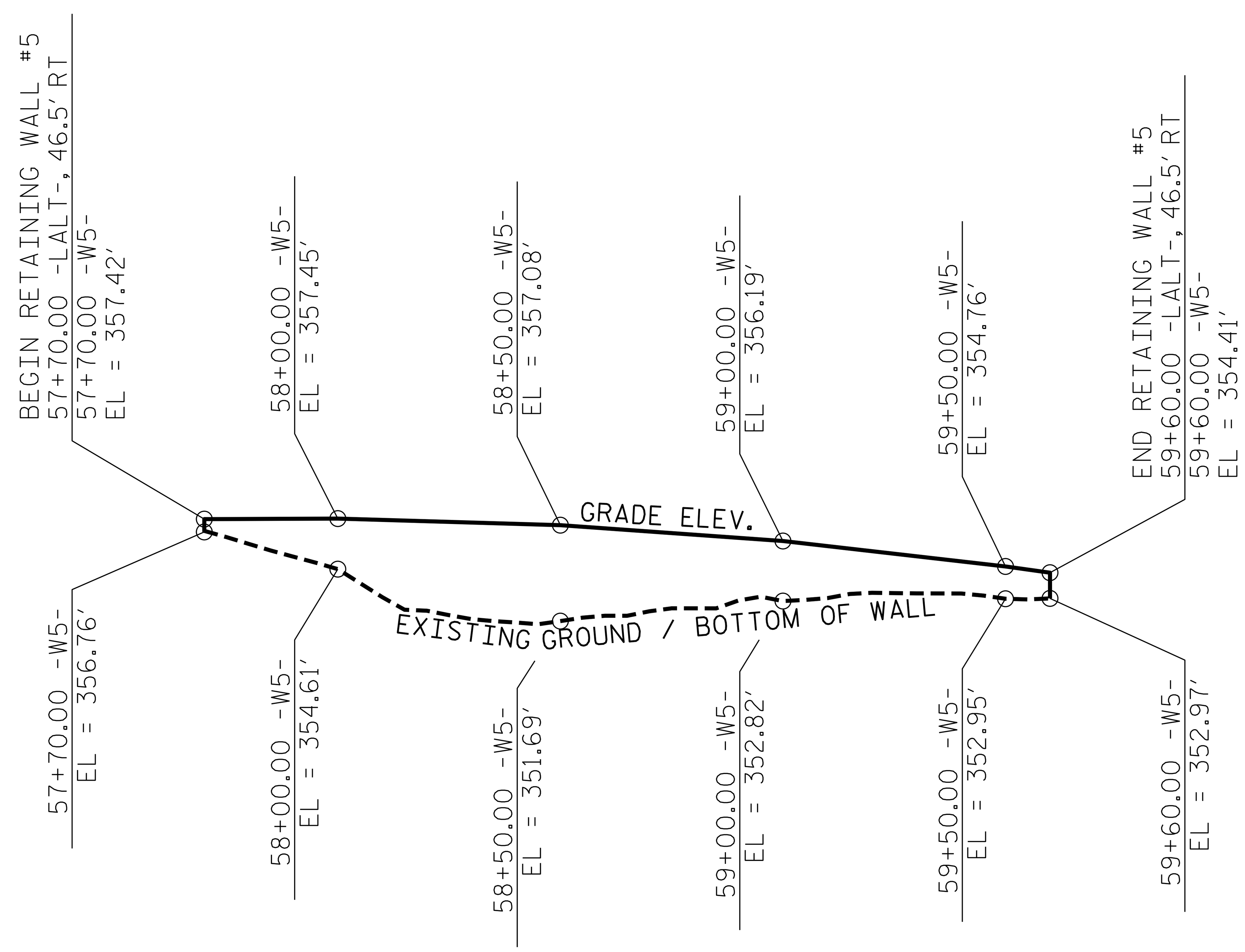
PREPARED BY: J. PARK	DATE: 04 / 2015
REVIEWED BY: J. BATTS	DATE: 04 / 2015



PLAN VIEW FOR RETAINING WALL NO. 5

N.T.S.

ESTIMATED MSE WALL QUANTITIES	
MSE RETAINING WALL NO. 5	935 SF



WALL ENVELOPE FOR RETAINING WALL NO. 5

EXPOSED WALL FACE VIEW, N.T.S.

MSE RETAINING WALL NO. 5

-LALT- STA	-W5- STA	WALL #5 OFFSET	GRADE ELEV., ①	BOTTOM ELEV., ②	① - ②
57+70.00	57+70.00	46.5' RT	357.42'	356.76'	0.66'
58+00.00	58+00.00	46.5' RT	357.45'	354.61'	2.84'
58+50.00	58+50.00	46.5' RT	357.08'	351.69'	5.39'
59+00.00	59+00.00	46.5' RT	356.19'	352.82'	3.38'
59+50.00	59+50.00	46.5' RT	354.76'	352.95'	1.82'
59+60.00	59+60.00	46.5' RT	354.41'	352.97'	1.44'

BOTTOM ELEV. - BOTTOM OF WALL ELEVATION

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032171 ENGINEER JINYOUNG PARK

DocuSigned by: 4/17/2015

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

PROJECT NO.: U-3308 (34915.1.1)

DURHAM COUNTY

STATION: 57+70.00 -LALT-

SHEET 5 OF 8

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

RETAINING WALL NO. 5
PLAN VIEW AND
WALL ENVELOPE

REVISIONS

NO.	BY	DATE	NO.	BY	DATE	SHEET NO.
1	-	-	3	-	-	W-5
2	-	-	4	-	-	

PREPARED BY: J. PARK	DATE: 04 / 2015
REVIEWED BY: J. BATTS	DATE: 04 / 2015

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032171 ENGINEER JINYOUNG PARK

DocuSigned by: A71308[illegible] SIGNATURE 4/17/2015 DATE

ENGINEER

SIGNATURE DATE

NOTES:

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

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, NO. 4 AND NO. 5.

AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALL NO. 1, NO. 4 AND NO. 5.

CAST-IN-PLACE REINFORCED CONCRETE COPING IS REQUIRED FOR RETAINING WALL NO 1.

A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NO. 1, NO. 4 AND NO. 5 WHEN COARSE AGGREGATE IS USED IN THE REINFORCED ZONE OF RETAINING WALL NO. 1, NO. 4 AND NO. 5.

A DRAIN IS NOT REQUIRED FOR RETAINING WALL NO. 1, NO. 4 AND NO. 5.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO. 1, NO. 4 AND NO. 5, 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, NO. 4 AND 5 FOR THE FOLLOWING:
1) H = DESIGN HEIGHT + EMBEDMENT
2) DESIGN LIFE = 100 YEARS
3) 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:

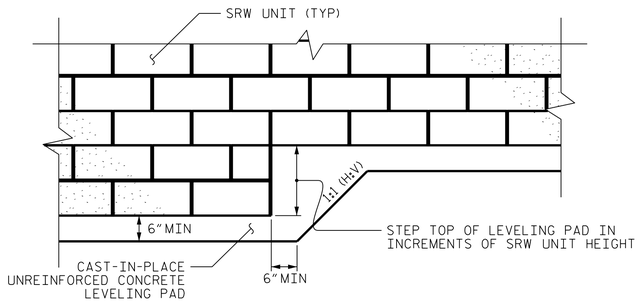
MATERIAL TYPE	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) LB/SF
BACKFILL	120	30	0
FOUNDATION	120	30	0

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO. 1, NO. 4 AND NO. 5.

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO. 1, NO. 4 AND NO. 5 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

HANDRAIL SHALL BE INSTALLED FOR WALL NO. 1, NO. 4 AND NO. 5. SEE ROADWAY PLANS FOR HANDRAIL DETAILS.

USE AASHTO RAILING LOAD (50 PLF) FOR HANDRAIL LATERAL LOAD.



SEGMENTAL RETAINING WALL (SRW) UNITS

LEVELING PAD STEP DETAILS

ESTIMATED MSE WALL QUANTITIES	
MSE RETAINING WALL NO. 1	1,090 SF
MSE RETAINING WALL NO. 4	1,360 SF
MSE RETAINING WALL NO. 5	935 SF

PROJECT NO.: U-3308 (34915.1.1)

DURHAM COUNTY

STATION: SEE WALL NO. 1, 4 AND 5

SHEET 6 OF 8

PREPARED BY: J. PARK	DATE: 04 / 2015
REVIEWED BY: J. BATTS	DATE: 04 / 2015

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

NOTES AND LEVELING PAD STEP DETAILS FOR MSE RETAINING WALL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	W-6
1	-	-	3	-	-	
2	-	-	4	-	-	

GEOTECHNICAL ENGINEER

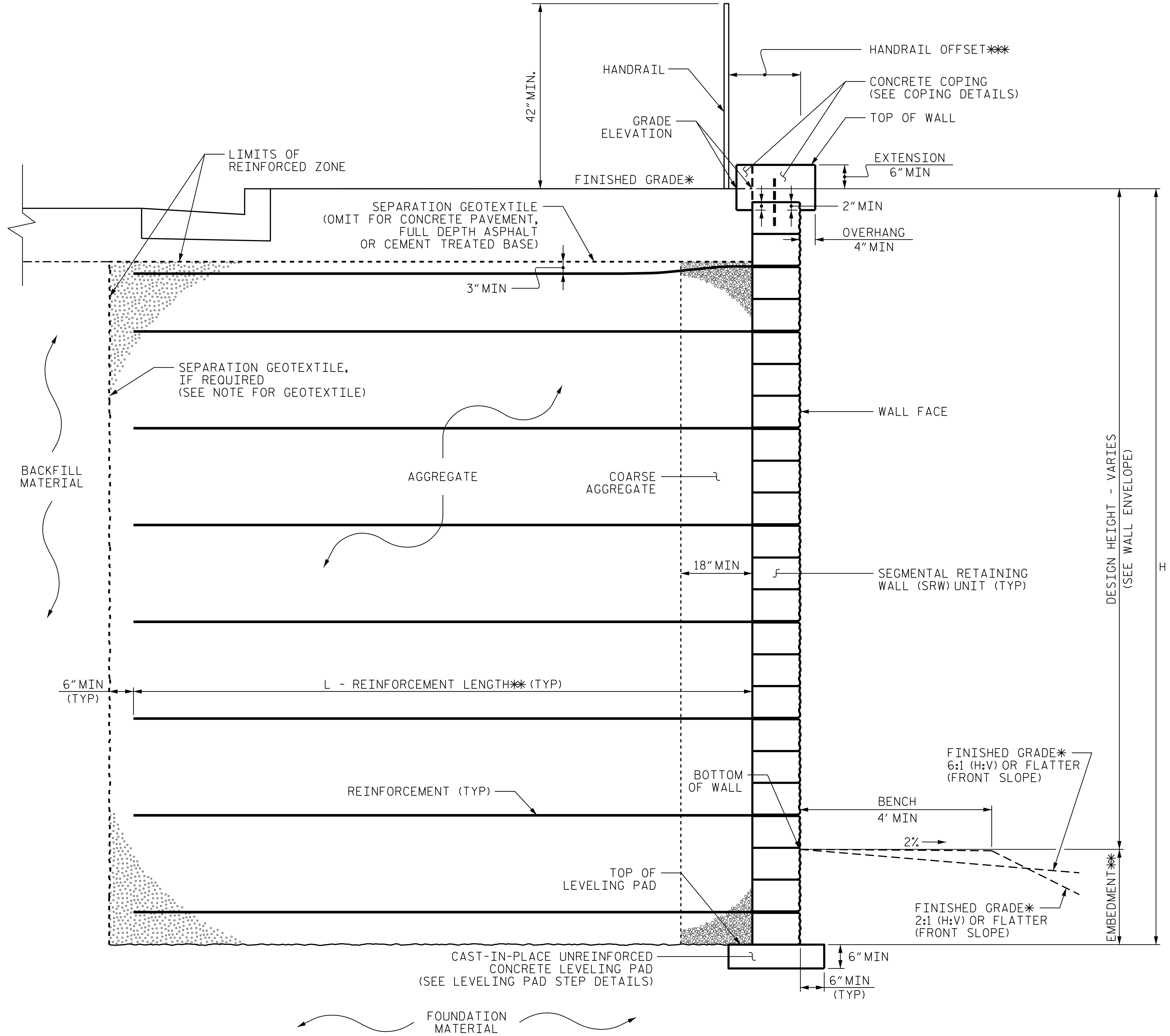
NORTH CAROLINA PROFESSIONAL SEAL 032171 ENGINEER JINYOUNG PARK

DocuSigned by: 4/17/2015

SIGNATURE DATE

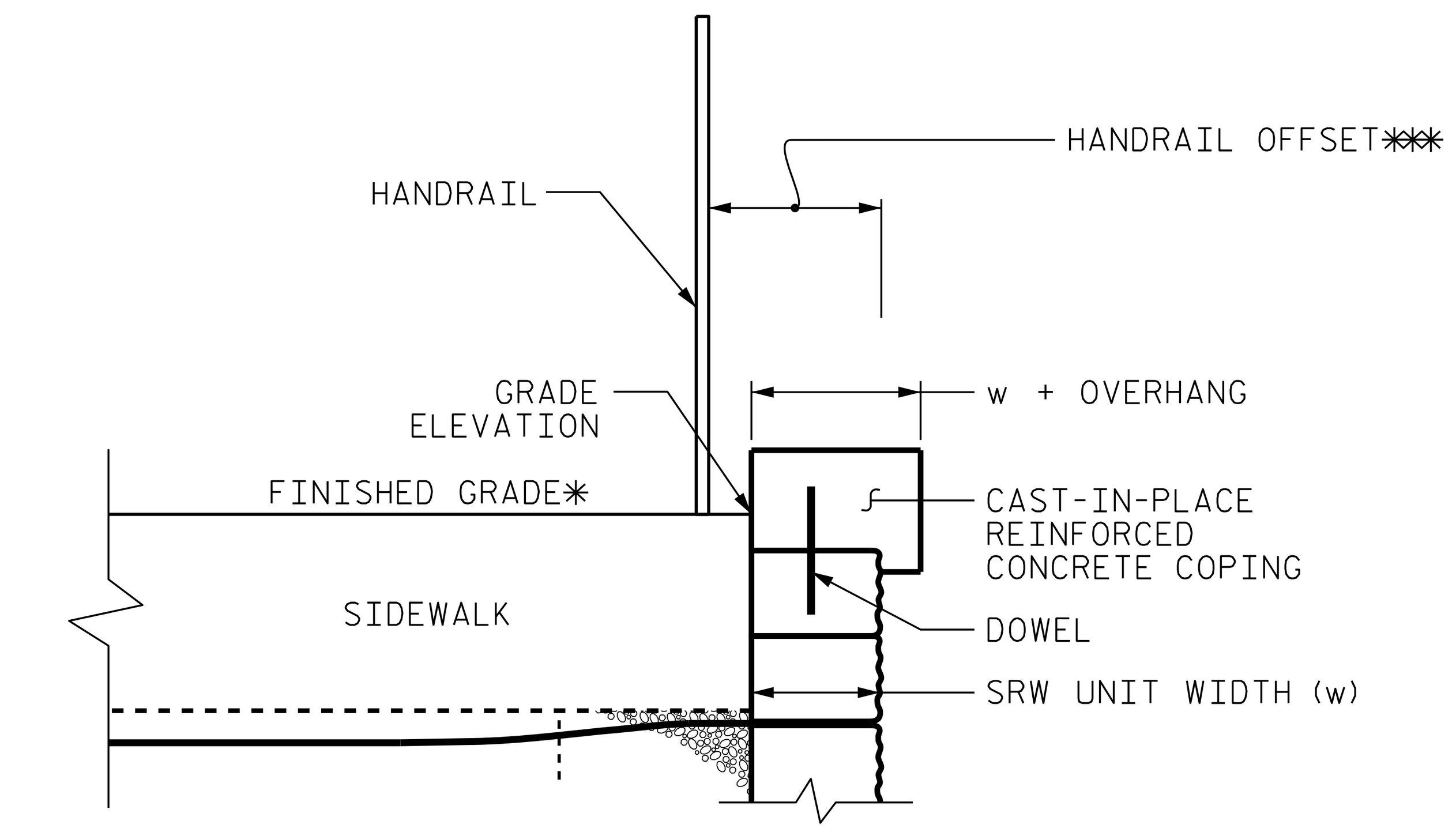
ENGINEER

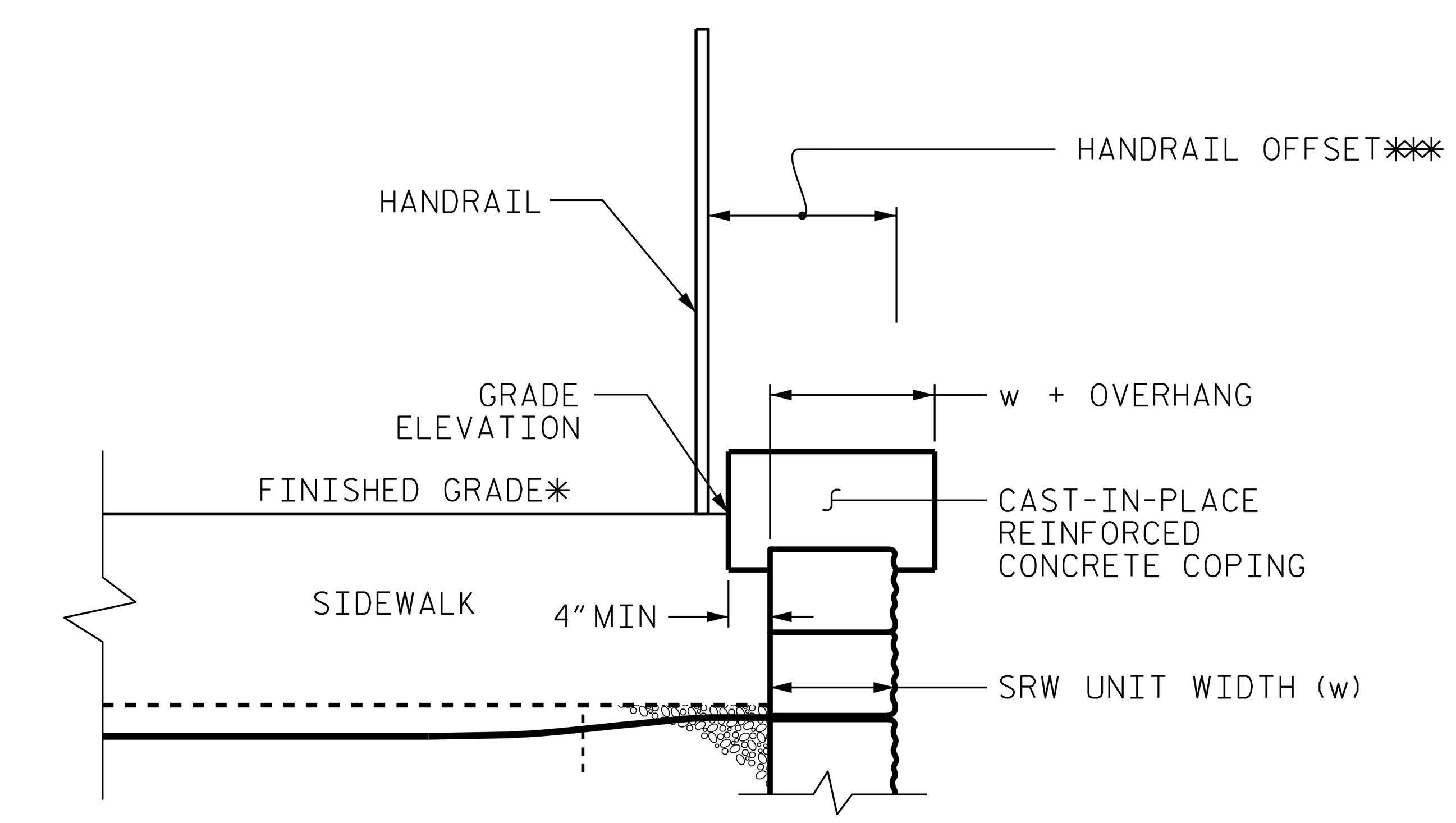
SIGNATURE DATE



MSE WALL WITH SRW UNITS - TYPICAL SECTION (N.T.S.)

* SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.
** SEE MSE RETAINING WALLS PROVISION AND IF APPLICABLE, MSE WALL NOTES FOR EMBEDMENT AND REINFORCEMENT LENGTH REQUIREMENTS.
*** HANDRAIL OFFSET FROM WALL FACE IS 1 FT. FOR WALL NO. 1 AND 2.5 FT. FOR WALL NO. 4 AND NO. 5.





COPING DETAILS (N.T.S.)

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.
*** HANDRAIL OFFSET FROM WALL FACE IS 1 FT. FOR WALL NO. 1 AND 2.5 FT. FOR WALL NO. 4 AND NO. 5.

PROJECT NO.: U-3308 (34915.1.1)

DURHAM COUNTY

STATION: SEE WALL NO. 1, 4 AND 5

SHEET 7 OF 8

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

DETAILS OF
MSE RETAINING WALL

REVISIONS

NO.	BY	DATE	NO.	BY	DATE	SHEET NO.
1	-	-	3	-	-	W-7
2	-	-	4	-	-	

PREPARED BY: J. PARK	DATE: 04 / 2015
REVIEWED BY: J. BATTS	DATE: 04 / 2015

GEOTECHNICAL ENGINEER

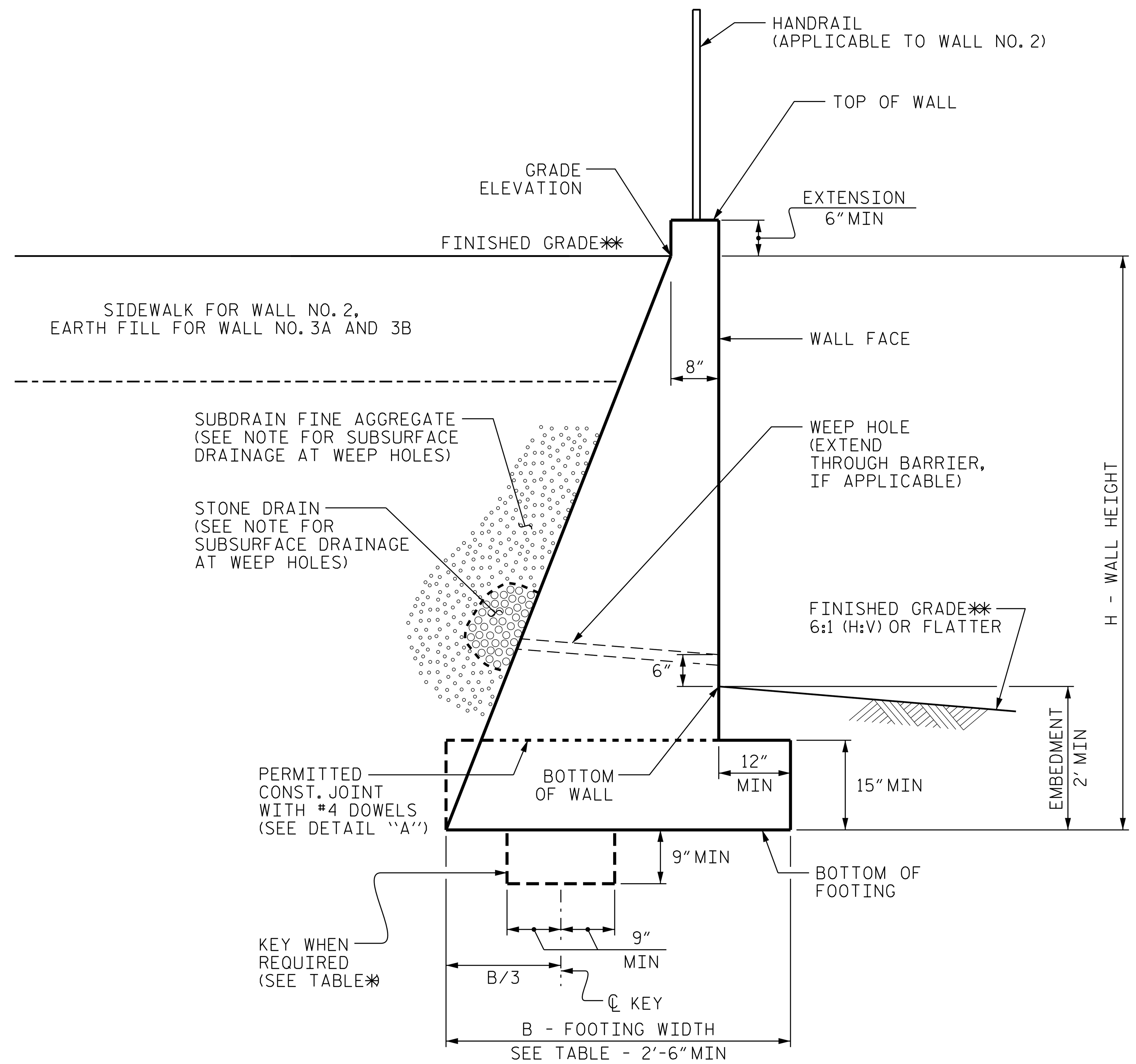
NORTH CAROLINA PROFESSIONAL SEAL 032171 ENGINEER JINYOUNG PARK

DocuSigned by: 4/17/2015

SIGNATURE DATE

ENGINEER

SIGNATURE DATE



CIP GRAVITY WALL - TYPICAL SECTION (N.T.S.)

**SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

ESTIMATED CAST-IN-PLACE GRAVITY RETAINING WALL QUANTITIES	
RETAINING WALL NO.	CAST-IN-PLACE GRAVITY RETAINING WALLS
2	1,375 SF
3A	175 SF
3B	190 SF
TOTAL QUANTITY = 1,740 SF	

NOTES:

FOR CAST-IN-PLACE (CIP) GRAVITY RETAINING WALLS, SEE CAST-IN-PLACE GRAVITY RETAINING WALLS PROVISION.

FOR HANDRAILS ON TOP OF WALLS, SEE ROADWAY PLANS FOR HANDRAIL ATTACHMENT DETAILS.

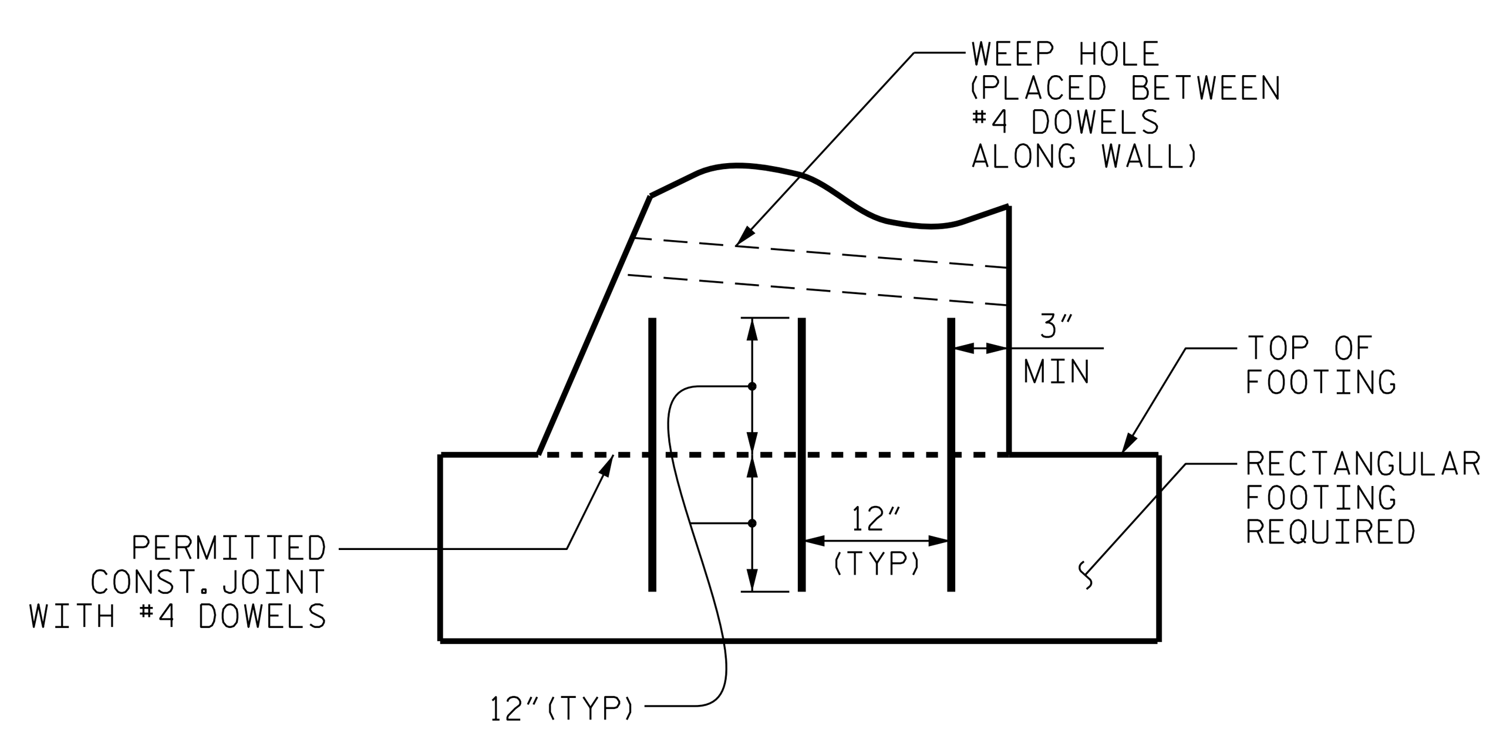
FOR SUBSURFACE DRAINAGE AT WEEP HOLES, SEE ARTICLE 414-8 OF THE STANDARD SPECIFICATIONS.

BEFORE BEGINNING CIP GRAVITY WALL CONSTRUCTION, SURVEY WALL LOCATIONS AND SUBMIT WALL PROFILE VIEWS (WALL ENVELOPES) FOR REVIEW. FOR WALL ENVELOPES, INCLUDE BOTTOM OF WALL, EXISTING GROUND AND GRADE ELEVATIONS AND OTHER ELEVATIONS AS NEEDED AT INTERVALS OF 25' OR LESS ALONG WALLS. DO NOT START WALL CONSTRUCTION UNTIL WALL ENVELOPES ARE ACCEPTED.

FACE FOR RETAINING WALL NO. 2, 3A AND 3B SHALL BE SMOOTH CONCRETE WITH NO ADORNMENT.

DO NOT PLACE CONCRETE FOR FOOTINGS UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

WHEN CONSTRUCTING CIP GRAVITY WALLS WITH A CONSTRUCTION JOINT AS SHOWN IN DETAIL "A", PROVIDE A MINIMUM OF 3 EQUALLY SPACED #4 DOWELS AT INTERVALS OF 1'-6" ALONG WALLS.



DETAIL "A" (N.T.S.)

RETAINING WALL NO.	H < 6 FT	H > 6 FT
2	.80	.75*
3A, 3B	.60	.60

B/H RATIO (B = 2'-6" MIN)

* KEY IS REQUIRED WHEN H IS 6' OR GREATER FOR RETAINING WALL NO. 2.

PROJECT NO.: U-3308 (34915.1.1)

DURHAM COUNTY

STATION: SEE WALL NO. 2, 3A AND 3B

SHEET 8 OF 8

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

NOTES AND DETAILS OF CAST-IN-PLACE (CIP) GRAVITY RETAINING WALL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	W-8
1	-	-	3	-	-	
2	-	-	4	-	-	

PREPARED BY: J. PARK	DATE: 04 / 2015
REVIEWED BY: J. BATTS	DATE: 04 / 2015

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF	
STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION	
GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR	
UNTREATED - EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN

REV. 6-16-95 EEM (c) RGW REV. 5-7-03 RWW (c) JTE REV. 10-1-11 MAA (c) GM
REV. 8-16-99 RWW (c) LES REV. 5-1-06 TLA (c) GM

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