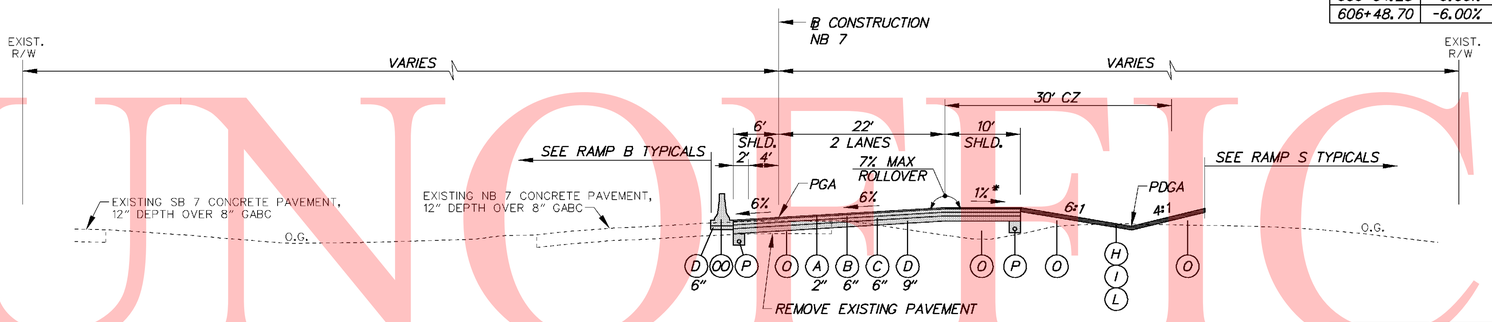
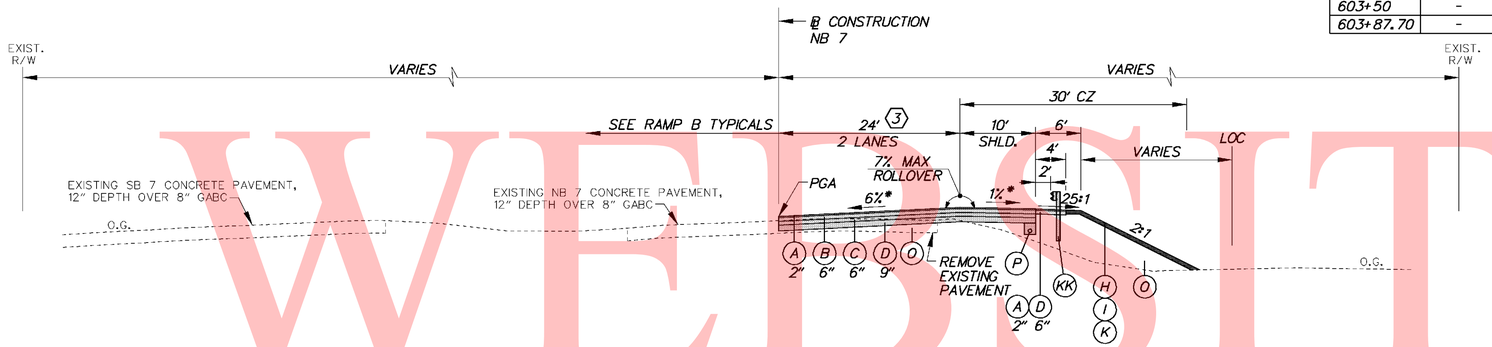
*NB 7 CROSS-SLOPES			
STA.	LT. SHLD.	LANES	RT. SHLD.
605+82.01	-6.00%	6.00%	-1.00%
606+00	-6.00%	6.00%	-0.19%
606+04.23	-6.00%	6.00%	0.00%
606+48.70	-6.00%	6.00%	2.00%



NB 7

STA. 605+69.41 TO STA. 606+48.70

*NB 7 CROSS-SLOPES			
STA.	LT. SHLD.	LANES	RT. SHLD.
603+00	-	3.81%	-3.19%
603+07.70	-	4.00%	-3.00%
603+50	-	5.06%	-1.94%
603+87.70	-	6.00%	-1.00%

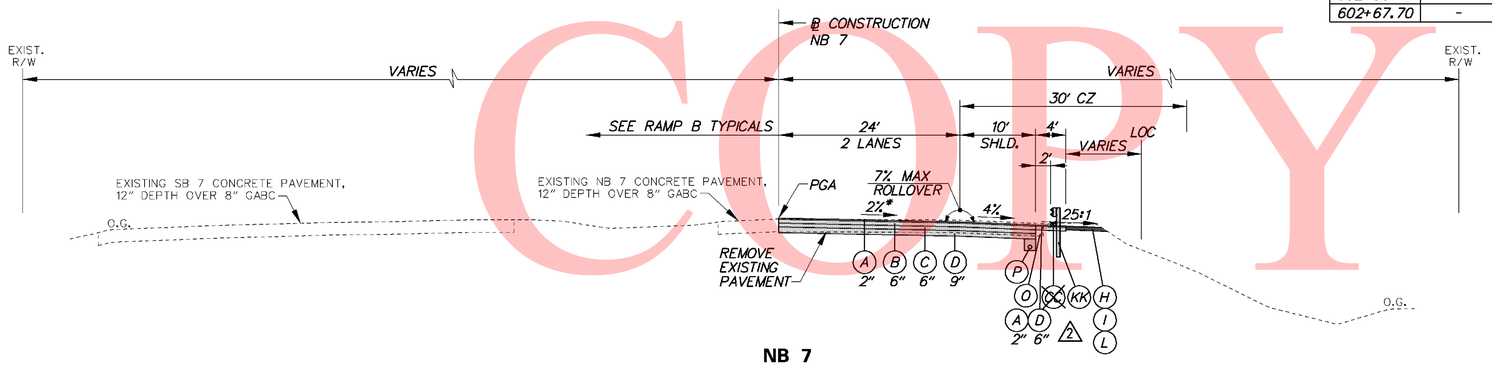


NB 7

STA. 602+83.58 TO STA. 605+69.41

(3) STA. 603+70.97 TO STA. 605+69.41 WIDTH TAPERS 24' TO 22'

*NB 7 CROSS-SLOPES			
STA.	LT. SHLD.	LANES	RT. SHLD.
600+67.70	-	-2.00%	-4.00%
600+97.78	-	-1.25%	-4.00%
601+00	-	-1.19%	-4.00%
601+47.70	-	0.00%	-4.00%
601+50	-	0.06%	-4.00%
602+00	-	1.31%	-4.00%
602+27.70	-	2.00%	-4.00%
602+50	-	2.56%	-4.00%
602+67.70	-	3.00%	-4.00%



NB 7

STA. 598+63.13 TO STA. 602+83.58

LEGEND

- (A) ITEM 401708 - SUPERPAVE, TYPE C HOT-MIX, 160 GYRATIONS, PG 70-22 (NON-CARBONATE STONE)
- (B) ITEM 401654 - SUPERPAVE, TYPE B HOT-MIX, 160 GYRATIONS, PG 70-22
- (C) ITEM 401663 - SUPERPAVE, BITUMINOUS CONCRETE BASE COURSE, 160 GYRATIONS, PG 64-22
- (D) ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE B
- (E) ITEM 401711 - SUPERPAVE, TYPE C HOT-MIX, 160 GYRATIONS, PG 76-22 (NON-CARBONATE STONE)
- (F) ITEM 401660 - SUPERPAVE, TYPE B HOT-MIX, 160 GYRATIONS, PG 76-22
- (G) ITEM 501006 - PORTLAND CEMENT CONCRETE PAVEMENT, 12"
- (H) ITEM 732002 - TOPSOIL, 6" DEPTH
- (I) ITEM 734013 - PERMANENT GRASS SEEDING, DRY GROUND
- (J) ITEM 602017 - PCC MASONRY, PARAPET, CLASS A
- (K) ITEM 735533 - SOIL RETENTION BLANKET MULCH, TYPE 3
- (L) ITEM 735534 - SOIL RETENTION BLANKET MULCH, TYPE 4
- (M) ITEM 735535 - SOIL RETENTION BLANKET MULCH, TYPE 5, UNLESS OTHERWISE NOTED, SEE DRAINAGE PLANS FOR LIMITS AND TYPE
- (N) ITEM 209001 - BORROW, TYPE A
- (O) ITEM 209006 - BORROW, TYPE F OR APPROVED PROJECT EXCAVATION
- (P) ITEM 715001 - PERFORATED PIPE UNDERDRAINS, 6"
- (Q) ITEM 760504 - RUMBLE STRIPS, HOT-MIX
- (R) ITEM 602772 - MECHANICALLY STABILIZED EARTH WALLS
- (S) ITEM 602773 - PCC MASONRY FOR MECHANICALLY STABILIZED EARTH WALLS
- (T) ITEM 720512 - PCC SAFETY BARRIER PERMANENT, SINGLE FACE
- (U) ITEM 720654 - PCC SAFETY BARRIER PERMANENT, SINGLE FACE, MODIFIED TYPE 1
- (V) ITEM 720587 - PCC SAFETY BARRIER PERMANENT, DOUBLE FACE, MODIFIED
- (W) ITEM 720655 - PCC SAFETY BARRIER PERMANENT, SINGLE FACE, MODIFIED TYPE 2
- (X) ITEM 712005 - RIPRAP, R-4
- (Y) ITEM 401665 - SUPERPAVE, TYPE C HOT-MIX, 160 GYRATIONS, PG 64-22, PATCHING
- (Z) ITEM 401666 - SUPERPAVE, TYPE B HOT-MIX, 160 GYRATIONS, PG 64-22, PATCHING
- (AA) ITEM 401667 - SUPERPAVE, BITUMINOUS CONCRETE BASE COURSE, 160 GYRATIONS, PG 64-22, PATCHING
- (BB) ITEM 302008 - GRADED AGGREGATE BASE COURSE, TYPE B, PATCHING
- (CC) ITEM 755000 - HOT-MIX, HOT LAID, BITUMINOUS CONCRETE CURB
- (DD) ITEM 701010 - PORTLAND CEMENT CONCRETE CURB, TYPE 1
- (EE) ITEM 701011 - PORTLAND CEMENT CONCRETE CURB, TYPE 2
- (FF) ITEM 701020 - INTEGRAL PORTLAND CEMENT CONCRETE CURB AND GUTTER, TYPE 1
- (GG) ITEM 701023 - INTEGRAL PORTLAND CEMENT CONCRETE CURB AND GUTTER, TYPE 4
- (HH) ITEM 701026 - PORTLAND CEMENT CONCRETE MONOLITHIC MEDIAN
- (II) ITEM 701027 - PORTLAND CEMENT CONCRETE CURB, TYPE 1 MODIFIED
- (JJ) ITEM 720658 - PCC SAFETY BARRIER PERMANENT SINGLE FACE, MODIFIED, TYPE 5
- (KK) ITEM 720050 - GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1
- (LL) ITEM 760507 - PROFILE MILLING, HOT-MIX
- (MM) ITEM 720656 - PCC SAFETY BARRIER PERMANENT, SINGLE FACE, MODIFIED, TYPE 3
- (NN) ITEM 720657 - PCC SAFETY BARRIER PERMANENT, SINGLE FACE, MODIFIED, TYPE 4
- (OO) ITEM 720651 - PCC SAFETY BARRIER PERMANENT, DOUBLE FACE, BIFURCATED, TYPE 1
- (PP) ITEM 720652 - PCC SAFETY BARRIER PERMANENT, DOUBLE FACE, BIFURCATED, TYPE 2
- (RR) ITEM 401668 - SUPERPAVE, TYPE C HOT-MIX, 160 GYRATIONS, PG 64-22, WEDGE
- (SS) ITEM 401669 - SUPERPAVE, TYPE B HOT-MIX, 160 GYRATIONS, PG 64-22, WEDGE

PAVEMENT LIFT NOTE:

THE MAXIMUM LIFTS FOR THE INDIVIDUAL PAVING MATERIAL ARE AS FOLLOWS:
SUPERPAVE, TYPE C HOT-MIX - 2"
SUPERPAVE, TYPE B HOT-MIX - 3"
SUPERPAVE, BIT. CONC. BASE COURSE - 6"
GRADED AGGREGATE BASE COURSE - 8"

NOTES:

1) THE PGA IS APPLIED TO THE TOP OF THE FINAL PAVEMENT SURFACE.

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DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. 2 REMOVED BITUMINOUS CURB, 01/26/2011, RLS	

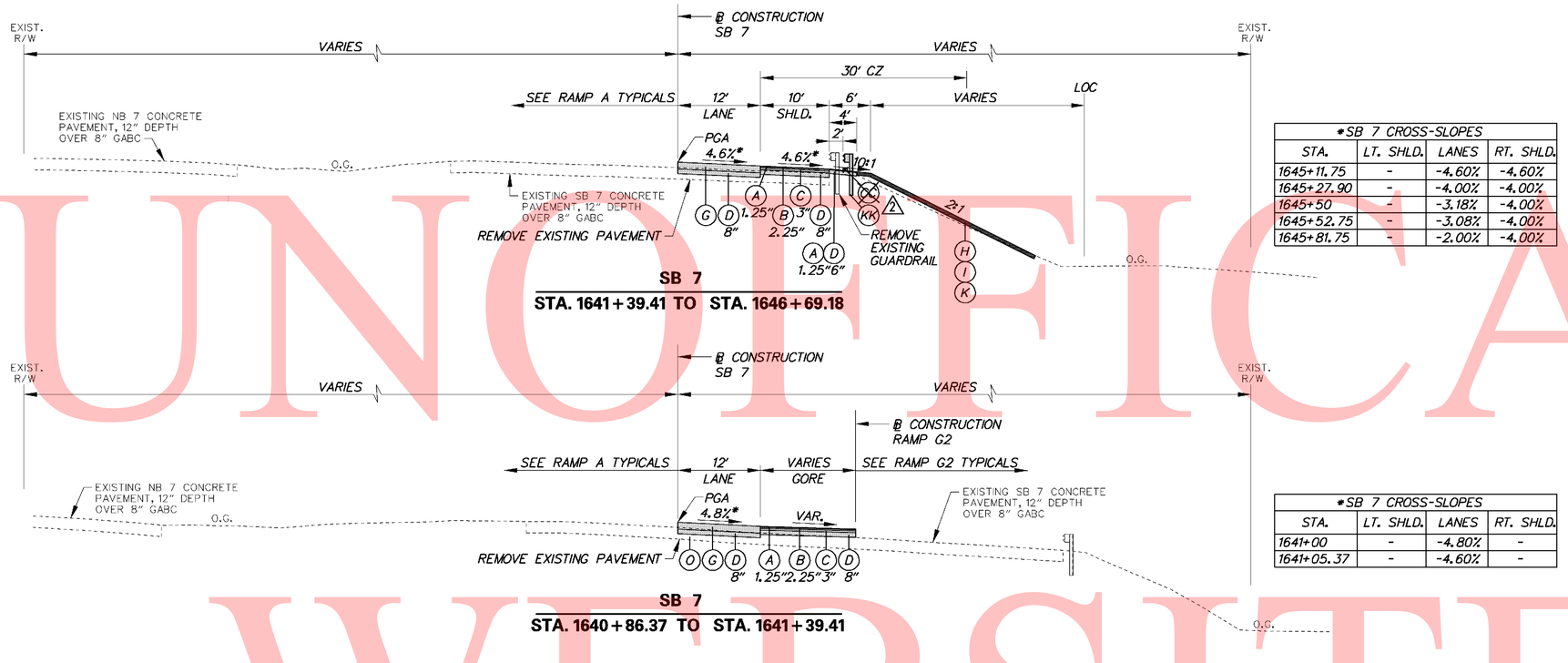
NOT TO SCALE

SR1 / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	
28-090-03	DESIGNED BY:	
COUNTY	CHECKED BY:	
NEW CASTLE		

TYPICAL SECTIONS

SHEET NO.
7
TOTAL SHTS.
803



*SB 7 CROSS-SLOPES			
STA.	LT. SHLD.	LANES	RT. SHLD.
1645+11.75	-	-4.60%	-4.60%
1645+27.90	-	-4.00%	-4.00%
1645+50	-	-3.18%	-4.00%
1645+52.75	-	-3.08%	-4.00%
1645+81.75	-	-2.00%	-4.00%

*SB 7 CROSS-SLOPES			
STA.	LT. SHLD.	LANES	RT. SHLD.
1641+00	-	-4.80%	-
1641+05.37	-	-4.60%	-

*SB 7 CROSS-SLOPES			
STA.	LT. SHLD.	LANES	RT. SHLD.
1639+75.00	-1.00%	-6.00%	-
1639+90.00	0.00%	-6.00%	-
1640+00	0.67%	-6.00%	-
1640+50	4.00%	-6.00%	-
1640+67.37	5.16%	-6.00%	-
1640+80.00	6.00%	-5.53%	-
1640+86.37	6.00%	-5.30%	-

LEGEND

- (A) ITEM 401708 - SUPERPAVE, TYPE C HOT-MIX, 160 GYRATIONS, PG 70-22 (NON-CARBONATE STONE)
- (B) ITEM 401654 - SUPERPAVE, TYPE B HOT-MIX, 160 GYRATIONS, PG 70-22
- (C) ITEM 401663 - SUPERPAVE, BITUMINOUS CONCRETE BASE COURSE, 160 GYRATIONS, PG 64-22
- (D) ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE B
- (E) ITEM 401711 - SUPERPAVE, TYPE C HOT-MIX, 160 GYRATIONS, PG 76-22 (NON-CARBONATE STONE)
- (F) ITEM 401660 - SUPERPAVE, TYPE B HOT-MIX, 160 GYRATIONS, PG 76-22
- (G) ITEM 501006 - PORTLAND CEMENT CONCRETE PAVEMENT, 12"
- (H) ITEM 732002 - TOPSOIL, 6" DEPTH
- (I) ITEM 734013 - PERMANENT GRASS SEEDING, DRY GROUND
- (J) ITEM 602017 - PCC MASONRY, PARAPET, CLASS A
- (K) ITEM 735533 - SOIL RETENTION BLANKET MULCH, TYPE 3
- (L) ITEM 735534 - SOIL RETENTION BLANKET MULCH, TYPE 4
- (M) ITEM 735535 - SOIL RETENTION BLANKET MULCH, TYPE 5, UNLESS OTHERWISE NOTED, SEE DRAINAGE PLANS FOR LIMITS AND TYPE
- (N) ITEM 209001 - BORROW, TYPE A
- (O) ITEM 209006 - BORROW, TYPE F OR APPROVED PROJECT EXCAVATION
- (P) ITEM 715001 - PERFORATED PIPE UNDERDRAINS, 6"
- (Q) ITEM 760504 - RUMBLE STRIPS, HOT-MIX
- (R) ITEM 602772 - MECHANICALLY STABILIZED EARTH WALLS
- (S) ITEM 602773 - PCC MASONRY FOR MECHANICALLY STABILIZED EARTH WALLS
- (T) ITEM 720512 - PCC SAFETY BARRIER PERMANENT, SINGLE FACE
- (U) ITEM 720654 - PCC SAFETY BARRIER PERMANENT, SINGLE FACE, MODIFIED TYPE 1
- (V) ITEM 720587 - PCC SAFETY BARRIER PERMANENT, DOUBLE FACE, MODIFIED
- (W) ITEM 720655 - PCC SAFETY BARRIER PERMANENT, SINGLE FACE, MODIFIED TYPE 2
- (X) ITEM 712005 - RIPRAP, R-4
- (Y) ITEM 401665 - SUPERPAVE, TYPE C HOT-MIX, 160 GYRATIONS, PG 64-22, PATCHING
- (Z) ITEM 401666 - SUPERPAVE, TYPE B HOT-MIX, 160 GYRATIONS, PG 64-22, PATCHING
- (AA) ITEM 401667 - SUPERPAVE, BITUMINOUS CONCRETE BASE COURSE, 160 GYRATIONS, PG 64-22, PATCHING
- (BB) ITEM 302008 - GRADED AGGREGATE BASE COURSE, TYPE B, PATCHING
- (CC) ITEM 755000 - HOT-MIX, HOT LAID, BITUMINOUS CONCRETE CURB
- (DD) ITEM 701010 - PORTLAND CEMENT CONCRETE CURB, TYPE 1
- (EE) ITEM 701011 - PORTLAND CEMENT CONCRETE CURB, TYPE 2
- (FF) ITEM 701020 - INTEGRAL PORTLAND CEMENT CONCRETE CURB AND GUTTER, TYPE 1
- (GG) ITEM 701023 - INTEGRAL PORTLAND CEMENT CONCRETE CURB AND GUTTER, TYPE 4
- (HH) ITEM 701026 - PORTLAND CEMENT CONCRETE MONOLITHIC MEDIAN
- (II) ITEM 701027 - PORTLAND CEMENT CONCRETE CURB, TYPE 1 MODIFIED
- (JJ) ITEM 720658 - PCC SAFETY BARRIER PERMANENT SINGLE FACE, MODIFIED, TYPE 5
- (KK) ITEM 720050 - GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1
- (LL) ITEM 760507 - PROFILE MILLING, HOT-MIX
- (MM) ITEM 720656 - PCC SAFETY BARRIER PERMANENT, SINGLE FACE, MODIFIED, TYPE 3
- (NN) ITEM 720657 - PCC SAFETY BARRIER PERMANENT, SINGLE FACE, MODIFIED, TYPE 4
- (OO) ITEM 720651 - PCC SAFETY BARRIER PERMANENT, DOUBLE FACE, BIFURCATED, TYPE 1
- (PP) ITEM 720652 - PCC SAFETY BARRIER PERMANENT, DOUBLE FACE, BIFURCATED, TYPE 2
- (RR) ITEM 401668 - SUPERPAVE, TYPE C HOT-MIX, 160 GYRATIONS, PG 64-22, WEDGE
- (SS) ITEM 401669 - SUPERPAVE, TYPE B HOT-MIX, 160 GYRATIONS, PG 64-22, WEDGE

PAVEMENT LIFT NOTE:

THE MAXIMUM LIFTS FOR THE INDIVIDUAL PAVING MATERIAL ARE AS FOLLOWS:
SUPERPAVE, TYPE C HOT-MIX - 2"
SUPERPAVE, TYPE B HOT-MIX - 3"
SUPERPAVE, BIT. CONC. BASE COURSE - 6"
GRADED AGGREGATE BASE COURSE - 8"

NOTES:

1) THE PGA IS APPLIED TO THE TOP OF THE FINAL PAVEMENT SURFACE.

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	NOT TO SCALE	SR1 / I-95 INTERCHANGE	CONTRACT 28-090-03	BRIDGE NO.	TYPICAL SECTIONS	SHEET NO. 14
	ADDENDUM NO. 2 REMOVED BITUMINOUS CURB, 01/26/2011, RLS			COUNTY NEW CASTLE	DESIGNED BY:		TOTAL SHTS. 803
					CHECKED BY:		

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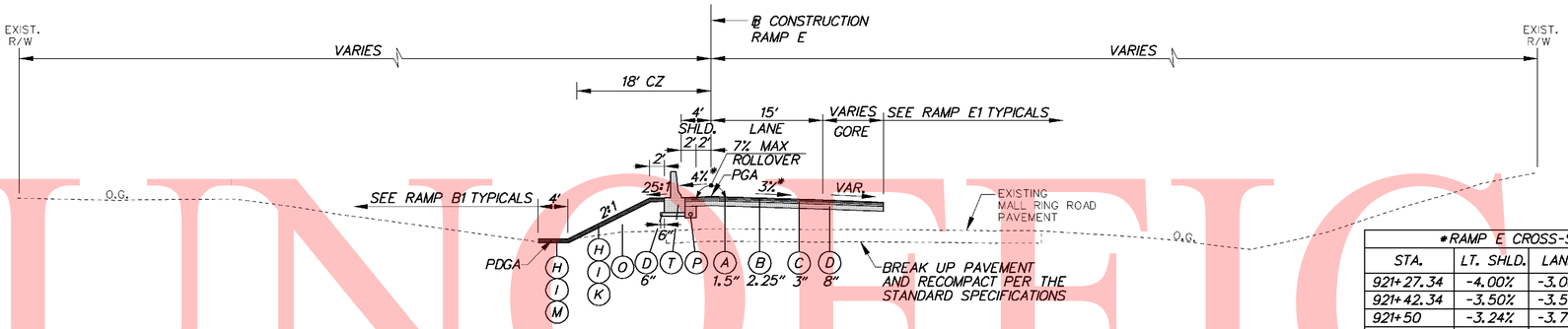
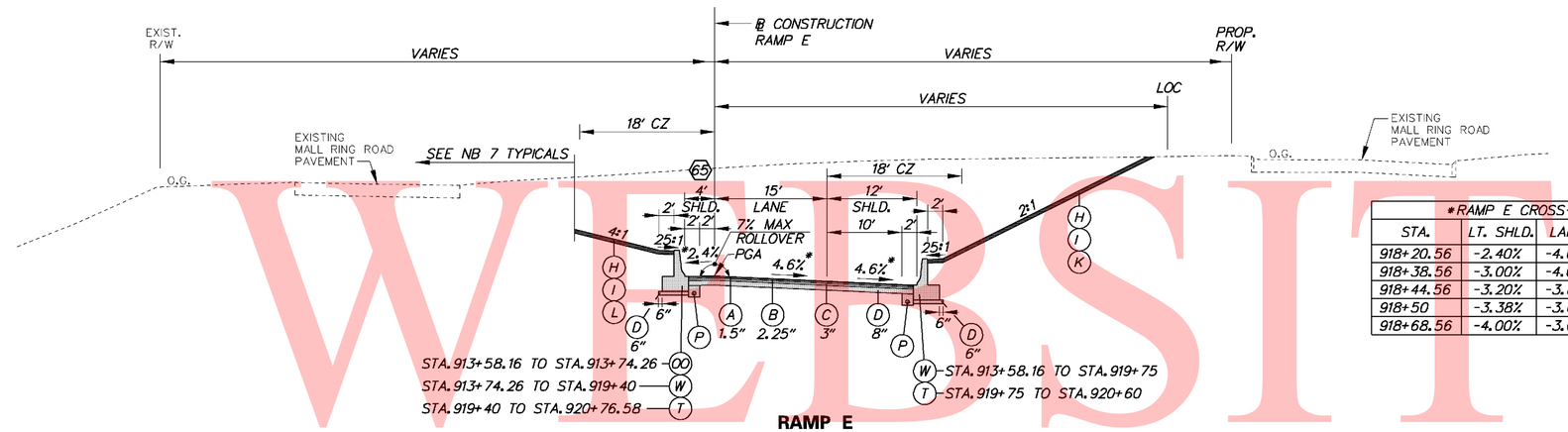


RAMP E

STA. 920+76.58 TO STA. 921+62.20

*RAMP E CROSS-SLOPES

STA.	LT. SHLD.	LANES	RT. SHLD.
921+27.34	-4.00%	-3.00%	-
921+42.34	-3.50%	-3.50%	-
921+50	-3.24%	-3.76%	-
921+57.34	-3.00%	-4.00%	-



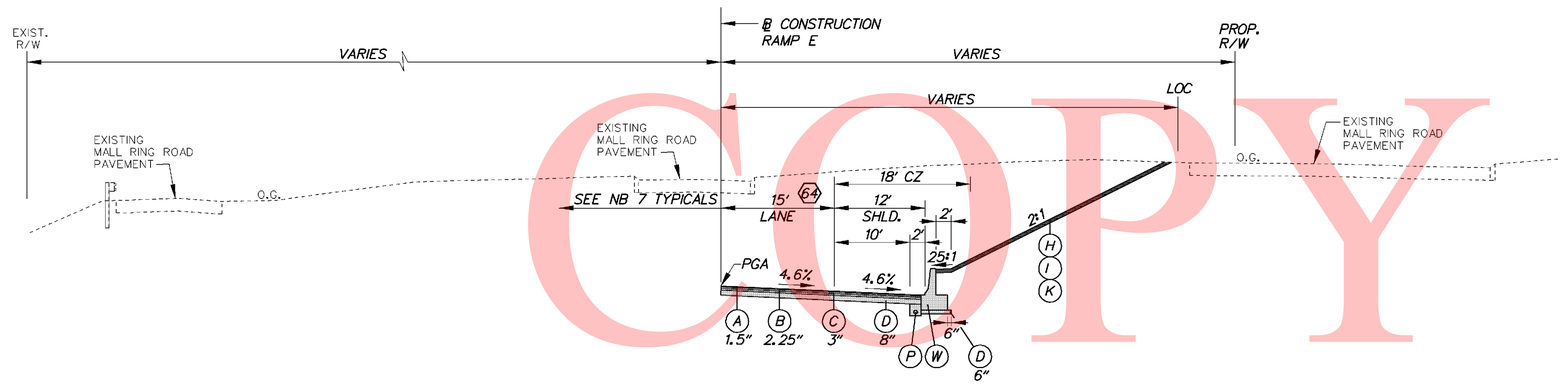
*RAMP E CROSS-SLOPES

STA.	LT. SHLD.	LANES	RT. SHLD.
918+20.56	-2.40%	-4.60%	-4.60%
918+38.56	-3.00%	-4.00%	-4.00%
918+44.56	-3.20%	-3.80%	-4.00%
918+50	-3.38%	-3.62%	-4.00%
918+68.56	-4.00%	-3.00%	-4.00%

RAMP E

STA. 913+58.16 TO STA. 920+76.58

65 STA. 913+58.16 TO STA. 914+58.16
SHOULDER TAPERS 6' TO 4'



RAMP E

STA. 910+90.03 TO STA. 913+58.16

64 STA. 910+90.03 TO STA. 912+41.18
WIDTH TAPERS 12' TO 15'

LEGEND

- (A) ITEM 401708 - SUPERPAVE, TYPE C HOT-MIX, 160 GYRATIONS, PG 70-22 (NON-CARBONATE STONE)
- (B) ITEM 401654 - SUPERPAVE, TYPE B HOT-MIX, 160 GYRATIONS, PG 70-22
- (C) ITEM 401663 - SUPERPAVE, BITUMINOUS CONCRETE BASE COURSE, 160 GYRATIONS, PG 64-22
- (D) ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE B
- (E) ITEM 401711 - SUPERPAVE, TYPE C HOT-MIX, 160 GYRATIONS, PG 76-22 (NON-CARBONATE STONE)
- (F) ITEM 401660 - SUPERPAVE, TYPE B HOT-MIX, 160 GYRATIONS, PG 76-22
- (G) ITEM 501006 - PORTLAND CEMENT CONCRETE PAVEMENT, 12"
- (H) ITEM 732002 - TOPSOIL, 6" DEPTH
- (I) ITEM 734013 - PERMANENT GRASS SEEDING, DRY GROUND
- (J) ITEM 602017 - PCC MASONRY, PARAPET, CLASS A
- (K) ITEM 735533 - SOIL RETENTION BLANKET MULCH, TYPE 3
- (L) ITEM 735534 - SOIL RETENTION BLANKET MULCH, TYPE 4
- (M) ITEM 735535 - SOIL RETENTION BLANKET MULCH, TYPE 5, UNLESS OTHERWISE NOTED, SEE DRAINAGE PLANS FOR LIMITS AND TYPE
- (N) ITEM 209001 - BORROW, TYPE A
- (O) ITEM 209006 - BORROW, TYPE F OR APPROVED PROJECT EXCAVATION
- (P) ITEM 715001 - PERFORATED PIPE UNDERDRAINS, 6"
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- (R) ITEM 602772 - MECHANICALLY STABILIZED EARTH WALLS
- (S) ITEM 602773 - PCC MASONRY FOR MECHANICALLY STABILIZED EARTH WALLS
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- (U) ITEM 720654 - PCC SAFETY BARRIER PERMANENT, SINGLE FACE, MODIFIED TYPE 1
- (V) ITEM 720587 - PCC SAFETY BARRIER PERMANENT, DOUBLE FACE, MODIFIED
- (W) ITEM 720655 - PCC SAFETY BARRIER PERMANENT, SINGLE FACE, MODIFIED TYPE 2
- (X) ITEM 712005 - RIPRAP, R-4
- (Y) ITEM 401665 - SUPERPAVE, TYPE C HOT-MIX, 160 GYRATIONS, PG 64-22, PATCHING
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- (FF) ITEM 701020 - INTEGRAL PORTLAND CEMENT CONCRETE CURB AND GUTTER, TYPE 1
- (GG) ITEM 701023 - INTEGRAL PORTLAND CEMENT CONCRETE CURB AND GUTTER, TYPE 4
- (HH) ITEM 701026 - PORTLAND CEMENT CONCRETE MONOLITHIC MEDIAN
- (II) ITEM 701027 - PORTLAND CEMENT CONCRETE CURB, TYPE 1 MODIFIED
- (JJ) ITEM 720658 - PCC SAFETY BARRIER PERMANENT SINGLE FACE, MODIFIED, TYPE 5
- (KK) ITEM 720050 - GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1
- (LL) ITEM 760507 - PROFILE MILLING, HOT-MIX
- (MM) ITEM 720656 - PCC SAFETY BARRIER PERMANENT, SINGLE FACE, MODIFIED, TYPE 3
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- (OO) ITEM 720651 - PCC SAFETY BARRIER PERMANENT, DOUBLE FACE, BIFURCATED, TYPE 1
- (PP) ITEM 720652 - PCC SAFETY BARRIER PERMANENT, DOUBLE FACE, BIFURCATED, TYPE 2
- (RR) ITEM 401668 - SUPERPAVE, TYPE C HOT-MIX, 160 GYRATIONS, PG 64-22, WEDGE
- (SS) ITEM 401669 - SUPERPAVE, TYPE B HOT-MIX, 160 GYRATIONS, PG 64-22, WEDGE

PAVEMENT LIFT NOTE:

THE MAXIMUM LIFTS FOR THE INDIVIDUAL PAVING MATERIAL ARE AS FOLLOWS:
SUPERPAVE, TYPE C HOT-MIX - 2"
SUPERPAVE, TYPE B HOT-MIX - 3"
SUPERPAVE, BIT. CONC. BASE COURSE - 6"
GRADED AGGREGATE BASE COURSE - 8"

NOTES:

1) THE PGA IS APPLIED TO THE TOP OF THE FINAL PAVEMENT SURFACE.

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DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	NOT TO SCALE	SR1 / I-95 INTERCHANGE	CONTRACT 28-090-03 / COUNTY NEW CASTLE; BRIDGE NO.; DESIGNED BY:; CHECKED BY:	TYPICAL SECTIONS	SHEET NO. 37 / TOTAL SHTS. 803

DRAINAGE PIPE SCHEDULE

NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INT. EL.	DIS. EL.
11	15" RCP	IV	6.70	0.0150	29.20	29.10
13	18" RCP	IV	33.30	0.0660	37.18	35.00
14	18" RCP	IV	52.10	0.0080	32.92	32.50
50	18" RCP	IV	24.20	0.0160	31.50	31.12
183	15" RCP	IV	38.10	0.0050	38.00	37.80
184	15" RCP	IV	52.70	0.0080	38.20	37.80
185	18" RCP	IV	39.10	0.0050	37.60	37.40
187	18" RCP	IV	38.90	0.0080	36.20	35.90
188	24" RCP	IV	62.50	0.0040	35.70	35.45
② 189	24" RCP	IV	~~82.80~~ 78.80	0.0080	35.25	~~34.60~~ 34.63
197	18" RCP	IV	182.20	0.0070	33.00	31.70
198	15" RCP	IV	49.20	0.0100	37.85	37.38
199	18" RCP	IV	170.30	0.0100	34.80	33.12
301	18" RCP	IV	64.20	0.0080	37.00	36.50
304	18" RCP	IV	37.00	0.0140	36.00	35.50
306	18" RCP	IV	9.10	0.0330	31.40	31.10
328	18" RCP	IV	27.70	0.0110	35.30	35.00
329	18" RCP	IV	33.30	0.0300	36.00	35.00
332	18" RCP	IV	34.40	0.0130	33.70	33.25
333	15" RCP	IV	132.70	0.0190	35.30	32.80
334	18" RCP	IV	36.50	0.0270	32.60	31.60
336	18" RCP	IV	34.00	0.0530	39.00	37.20
337	18" RCP	IV	33.30	0.0600	37.00	35.00
338	15" RCP	IV	120.30	0.0170	37.20	35.20
339	15" RCP	IV	25.10	0.0160	35.00	34.60
340	15" RCP	IV	112.00	0.0190	33.20	31.10
359	18" RCP	IV	82.40	0.0100	34.80	34.00
361	15" RCP	IV	70.70	0.0360	31.10	28.55
374	15" RCP	IV	52.40	0.0270	35.70	34.30
411	15" RCP	IV	62.50	0.0250	39.15	37.60
413	18" RCP	IV	38.40	0.0050	36.60	36.40
414	15" RCP	IV	28.40	0.0180	38.30	37.80
415	15" RCP	IV	45.20	0.0150	39.20	38.50
501	18" RCP	IV	79.10	0.0100	40.29	39.50
502	21" RCP	IV	17.00*	0.0120*	32.20	32.00*
522	36" RCP	IV	303.80	0.0060	37.00	35.21
523	36" RCP	IV	303.80	0.0060	37.00	35.21

MANHOLE SCHEDULE

NO.	STATION	OFFSET	SIZE / TYPE	T.C. EL.	INV. EL.
11	1282+04.50	-1.48	48" x 30"	35.47	29.20
12	1278+86.00	-3.00	48" x 30"	40.28	28.80*
13	1276+55.00	-4.00	48" x 30"	41.88	37.18
14	1274+76.00	32.00	48" x 30"	40.90	32.92
50	410+61.50	-8.00	48" x 30"	39.65	31.50
51	410+92.50	-8.00	48" x 30"	39.89	30.92*
302	1274+17.50	30.00	48" x 30"	41.31	30.09*

* TO BE VERIFIED BY ENGINEER IN THE FIELD.

** MATCH FLOWLINE OF PROPOSED CURB AND GUTTER.

*** MATCH PROPOSED CURB LINE.

DRAINAGE INLET SCHEDULE

NO.	STATION	OFFSET	BOX SIZE / TOP	GRATE	T.G. EL.	INV. EL.
184	739+50.00	***	34" x 24" TYPE A MOD.	1	**	38.20
185	740+06.47	***	34" x 24" TYPE A MOD.	1	**	37.60
187	414+90.50	***	SPECIAL II, TYPE A MOD.	1	**	36.20
188	414+90.00	***	72" x 24" TYPE A MOD.	1	**	35.70
189	1270+49.50	***	72" x 24" TYPE A MOD.	1	**	35.25
197	408+72.00	***	72" x 48" TYPE A MOD.	1	**	33.00
198	1276+00.00	***	72" x 24" TYPE A MOD.	1	**	37.85
199	1276+55.50	***	48" x 30" TYPE A MOD.	1	**	34.80
301	1273+45.50	***	72" x 48" TYPE A MOD.	1	**	37.00
304	411+94.00	***	72" x 24" TYPE A MOD.	1	**	36.00
306	406+35.00	***	34" x 24" TYPE A MOD.	1	**	31.40
307	1278+87.00	***	34" x 24" TYPE A MOD.	1	**	28.25*
308	403+15.00	***	72" x 24" TYPE A MOD.	1	**	28.90
327	413+16.00	***	72" x 48" TYPE A MOD.	1	**	33.25*
328	411+93.00	***	SPECIAL II, TYPE A MOD.	1	**	35.30
329	410+61.50	***	72" x 24" TYPE A MOD.	1	**	36.00
332	408+72.00	***	SPECIAL II, TYPE A MOD.	1	**	33.70
333	407+75.00	***	72" x 24" TYPE A MOD.	1	**	35.30
334	406+38.00	***	SPECIAL IV, TYPE A MOD.	1	**	32.60
335	1272+40.00	***	SPECIAL VII, TYPE A MOD.	1	**	27.96*
336	1273+45.00	***	72" x 24" TYPE A MOD.	1	**	39.00
337	1274+75.00	***	72" x 24" TYPE A MOD.	1	**	37.00
338	1277+28.00	***	72" x 24" TYPE A MOD.	1	**	37.20
339	1278+55.00	***	72" x 24" TYPE A MOD.	1	**	35.00
340	1280+85.50	***	72" x 24" TYPE A MOD.	1	**	33.20
359	412+27.00	***	72" x 48" TYPE A MOD.	1	**	34.80
361	1279+65.00	***	72" x 24" TYPE A MOD.	1	**	31.10
374	409+30.50	***	72" x 24" TYPE A MOD.	1	**	35.70
413	740+06.47	***	SPECIAL I, TYPE A MOD.	1	**	36.60
414	739+75.00	***	34" x 24" TYPE A MOD.	1	**	38.30
415	739+25.00	***	34" x 24" TYPE A MOD.	1	**	39.20
501	736+30.00	46.00	34" x 24" TYPE A	1	43.70	40.29

UNDERDRAIN SCHEDULE

NO.	SIZE / TYPE	LENGTH	DIS. TYPE	DIS. EL.
12	6" OUTLET	10.50	1414+40.00 RT	26.77
13	6" PERFORATED	240	1414+40.00 RT	26.87
14	6" OUTLET	17.50	1412+00.00 RT	31.86
15	6" PERFORATED	340.46	1412+00.00 RT	32.03
16	6" OUTLET	38.50	1638+40.46 RT	34.34
17	6" PERFORATED	375.46	1638+40.46 RT	35.57
18	6" PERFORATED	295.00	D1-301	38.51
19	6" PERFORATED	22.05	D1-361	34.03
20	6" PERFORATED	230.49	D1-340	34.47
21	6" PERFORATED	78.01	D1-361	34.25
22	6" PERFORATED	126.99	D1-339	37.65
23	6" PERFORATED	231.74	D1-307	35.22
24	6" PERFORATED	128.00	D1-338	38.58
25	6" PERFORATED	309.73	D1-199	36.84
26	6" PERFORATED	125.02	D1-198	39.22
27	6" PERFORATED	129.98	D1-337	39.85
28	6" PERFORATED	103.40	D1-336	40.43
29	6" PERFORATED	296.22	D1-301	38.76
30	6" PERFORATED	506.61	D1-335	40.83
31	6" PERFORATED	320.00	D1-308	30.62
32	6" PERFORATED	53.39	D1-334	34.75
33	6" PERFORATED	137.00	D1-334	35.66
34	6" PERFORATED	237.00	D1-306	33.29
35	6" PERFORATED	97.00	D1-333	36.44
36	6" PERFORATED	58.50	D1-332	37.17
37	6" PERFORATED	131.00	D1-374	37.61
38	6" PERFORATED	322.00	D1-197	35.07
39	6" PERFORATED	131.50	D1-329	38.59
40	6" PERFORATED	34.00	D1-328	39.51
41	6" PERFORATED	89.00	D1-359	39.48
42	6" PERFORATED	296.00	D1-304	37.51
43	6" PERFORATED	174.50	D1-327	39.24
44	6" PERFORATED	200.00	602+00.00 RT	30.72
45	6" OUTLET	13.00	604+00.00 RT	34.81
46	6" PERFORATED	248.70	604+00.00 RT	34.94
47	6" PERFORATED	54.77	D1-334	34.72
48	6" PERFORATED	210.68	D1-334	35.49
49	6" OUTLET	457.41	610+51.00 RT	40.58
50	6" PERFORATED	330.00	D1-332	37.19
51	6" PERFORATED	300.00	D1-328	38.88
52	6" OUTLET	15.50	D1-502	36.02
53	6" PERFORATED	117.11	213+86.92 LT	35.52
54	6" OUTLET	12.00	213+86.92 LT	34.25
55	6" OULET	12.00	213+87.42 LT	34.25
56	6" PERFORATED	117.11	213+86.92 RT	34.18
57	6" OUTLET	30.00	213+86.92 RT	32.95
58	6" OUTLET	30.00	213+87.42 RT	32.95
59	6" PERFORATED	363.83	213+87.42 RT	38.23
60	6" PERFORATED	236.71	213+87.45 LT	38.13
61	6" OUTLET	10.00	217+50.00 RT	38.61
62	6" PERFORATED	330.07	217+50.00 RT	38.71
63	6" PERFORATED	181.56	835+81.86 RT	43.73
64	6" PERFORATED	250.00	836+50.00 RT	41.15
65	6" OUTLET	29.00	835+81.86 RT	42.15
66	6" OUTLET	29.50	836+50.00 RT	41.00
67	6" PERFORATED	245.08	D1-415	36.97
68	6" PERFORATED	50.00	D1-414	35.82
69	6" PERFORATED	31.47	D1-414	35.82
70	6" PERFORATED	68.21	D1-413	34.12
71	6" PERFORATED	163.35	D1-184	35.72
72	6" PERFORATED	56.47	D1-185	35.12
73	6" PERFORATED	43.53	D1-185	35.12

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DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. ② MODIFIED PIPE INFO.	
01/26/2011, RLS	

SR1 / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	
28-090-03	DESIGNED BY:	
COUNTY	CHECKED BY:	
NEW CASTLE		

DRAINAGE PLAN
STRUCTURE SCHEDULES

DR-03A
SHEET NO. 130
TOTAL SHTS. 803

DRAINAGE PIPE SCHEDULE

NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INT. EL.	DIS. EL.
33	15" RCP	IV	220.40	0.0290	87.10	80.80
34	18" RCP	IV	192.10	0.0110	109.80	107.60
100	18" RCP	IV	24.50	0.0080	111.40	111.20
101	18" RCP	IV	125.40	0.0050	110.70	110.10
102	18" RCP	IV	47.00	0.0090	106.40	106.00
104	18" RCP	IV	25.00	0.0080	107.10	106.90
131	18" RCP	IV	61.40	0.0610	104.75	101.00
200	15" RCP	IV	15.00	0.0130	90.30	90.10
203	24" RCP	IV	223.50	0.0040	74.00	73.20
207	15" RCP	IV	217.70	0.0300	93.75	87.30
236	~~24"~~ 18" RCP	IV	106.40	0.0170	80.20	78.40
251	18" RCP	IV	158.70	0.0060	87.00	86.00
252	18" RCP	IV	7.80	0.0130	87.30	87.20
254	18" RCP	IV	239.90	0.0090	85.50	83.30
255	18" RCP	IV	19.60	0.0050	82.70	82.60
270	18" RCP	IV	20.00	0.0050	74.30	74.20
317	18" RCP	IV	13.70	0.0070	106.70	106.60
324	18" RCP	IV	15.30	0.0070	111.00	110.90
325	18" RCP	IV	53.60	0.0070	111.80	111.40
330	18" RCP	IV	23.00	0.0090	112.20	112.00
354	15" RCP	IV	119.60	0.0180	109.80	107.70
386	18" RCP	IV	119.00	0.0100	89.30	88.10
387	18" RCP	IV	78.50	0.0050	87.90	87.50
388	18" RCP	IV	11.20	0.0090	86.10	86.00
389	18" RCP	IV	223.40	0.0110	82.40	80.00
390	18" RCP	IV	149.20	0.0100	79.50	78.00

DRAINAGE INLET SCHEDULE

NO.	STATION	OFFSET	BOX SIZE / TOP	GRATE	T.G. EL.	INV. EL.
100	448+45.00	***	34" x 24" TYPE A MOD.	1	**	111.40
101	1236+65.00	***	72" x 48" TYPE A MOD.	1	**	110.70
102	1239+97.00	***	48" x 30" TYPE A MOD.	1	**	106.40
104	445+15.00	***	34" x 24" TYPE A MOD.	1	**	107.10
115	1239+97.00	***	48" x 30" TYPE A MOD.	1	**	105.50
131	510+02.00	***	34" x 24" TYPE A MOD.	1	**	104.75
200	1703+92.00	***	72" x 24" TYPE A MOD.	1	**	90.30
203	1710+98.00	***	SPECIAL VIII, TYPE A MOD.	1	**	74.00
207	514+78.00	***	34" x 24" TYPE A MOD.	1	**	93.75
236	1710+74.56	***	72" x 48" TYPE A MOD.	1	**	80.20
251	1703+92.00	***	72" x 48" TYPE A MOD.	1	**	87.00
254	1705+55.50	***	48" x 48" TYPE A MOD.	1	**	85.50
255	1708+00.00	***	48" x 48" TYPE A MOD.	1	**	82.70
270	1710+98.00	83.00	34" x 24" TYPE A	1	80.00	74.30
317	445+15.00	***	34" x 24" TYPE A MOD.	1	**	106.70
324	448+45.00	***	48" x 30" TYPE A MOD.	1	**	111.00
325	449+00.00	***	72" x 48" TYPE A MOD.	1	**	111.80
330	449+00.00	***	72" x 24" TYPE A MOD.	1	**	112.20
354	446+40.00	***	72" x 24" TYPE A MOD.	1	**	109.80
386	1701+84.00	***	72" x 48" TYPE A MOD.	1	**	89.30
387	1703+08.50	***	48" x 30" TYPE A MOD.	1	**	87.90
388	1705+54.50	***	72" x 24" TYPE A MOD.	1	**	86.10
389	1708+00.00	***	72" x 48" TYPE A MOD.	1	**	82.40
390	1710+30.00	***	72" x 48" TYPE A MOD.	1	**	79.50

UNDERDRAIN SCHEDULE

NO.	SIZE / TYPE	LENGTH	DIS. TYPE	DIS. EL.
189	6" PERFORATED	246.00	DI-388	87.35
190	6" PERFORATED	245.50	DI-389	84.44
191	6" PERFORATED	230.00	DI-390	81.81
192	6" PERFORATED	149.73	CONNECT EX.	CONNECT EX.
193	6" PERFORATED	277.95	DI-251	90.05
194	6" PERFORATED	163.50	DI-254	88.18
195	6" PERFORATED	244.50	DI-255	85.20
196	6" PERFORATED	274.56	DI-236	81.93
197	6" PERFORATED	126.89	CONNECT EX.	CONNECT EX.
198	6" PERFORATED	51.05	1700+50.00 RT	91.21
199	6" OUTLET	25.00	1700+50.00 RT	90.96
200	6" PERFORATED	277.95	DI-200	89.90
201	6" PERFORATED	358.00	1707+50.00 RT	85.72
202	6" OUTLET	75.50	1707+50.00 RT	84.96
203	6" PERFORATED	348.00	DI-203	81.57
204	6" PERFORATED	191.25	516+50.00 RT	88.33
205	6" OUTLET	11.50	516+50.00 RT	88.22
266	6" PERFORATED	149.73	CONNECT EX.	CONNECT EX.
267	6" PERFORATED	69.95	DI-386	90.71
268	6" PERFORATED	124.50	DI-387	89.92

MANHOLE SCHEDULE

NO.	STATION	OFFSET	SIZE / TYPE	T.C. EL.	INV. EL.
33	517+00.00	2.00	48" x 30"	91.70	87.10
34	1238+00.00	-7.00	48" x 30"	117.69	109.80
252	1703+92.00	-21.50	48" x 30"	93.61	87.30

* TO BE VERIFIED BY ENGINEER IN THE FIELD.

** MATCH FLOWLINE OF PROPOSED CURB AND GUTTER.

*** MATCH PROPOSED CURB LINE.

DRAINAGE DITCH SCHEDULE

STATION	OFFSET	ELEV.	BOTTOM WIDTH	LEFT SIDE SLOPE	RIGHT SIDE SLOPE
RAMP E STA. 926+50	16.3' LT	99.4	4	2:1	2:1
RAMP E STA. 927+00	17.2' LT	101.8	4	2:1	2:1
RAMP E STA. 927+50	16.9' LT	103.9	4	2:1	2:1
RAMP E STA. 928+00	12.1' LT	105.5	4	2:1	2:1
RAMP E STA. 928+25	11.5' LT	106.1	4	2:1	2:1
RAMP E STA. 926+50	81.4' RT	81.0	2	2:1	2:1
RAMP E STA. 927+00	83.7' RT	81.5	2	2:1	2:1
RAMP E STA. 927+50	92.5' RT	82.0	2	2:1	2:1
RAMP E STA. 928+00	92.4' RT	82.5	2	2:1	2:1
RAMP E STA. 928+50	86.1' RT	84.5	2	2:1	2:1
RAMP E STA. 929+00	80.0' RT	84.8	2	2:1	2:1
RAMP E STA. 929+50	78.6' RT	85.1	2	2:1	2:1
RAMP E STA. 930+00	76.8' RT	85.4	2	2:1	2:1
RAMP E STA. 930+50	75.4' RT	85.7	2	2:1	2:1
RAMP E STA. 931+00	73.8' RT	86.0	2	2:1	2:1
RAMP E STA. 931+50	71.4' RT	86.5	2	2:1	2:1
RAMP E STA. 932+00	68.3' RT	87.0	2	2:1	2:1
RAMP E STA. 932+50	64.7' RT	87.5	2	2:1	2:1
RAMP E STA. 933+00	60.9' RT	88.0	2	2:1	2:1
RAMP E STA. 933+50	57.1' RT	88.5	2	2:1	2:1
RAMP E STA. 934+00	51.2' RT	90.0	2	2:1	2:1
RAMP E STA. 934+50	46.4' RT	91.0	2	2:1	2:1
RAMP E STA. 927+50	60.0' RT	93.7	0	2:1	6:1
RAMP E STA. 928+00	59.7' RT	94.3	0	2:1	6:1
RAMP E STA. 928+50	56.1' RT	96.3	0	2:1	6:1
RAMP B1 STA. 506+00	17.0' LT	108.4	4	3:1	3:1
RAMP B1 STA. 506+50	20.1' LT	108.0	4	3:1	3:1
RAMP B1 STA. 507+00	22.9' LT	107.2	4	3:1	3:1
RAMP B1 STA. 507+50	25.7' LT	106.4	4	3:1	3:1
RAMP B1 STA. 508+00	28.2' LT	105.5	4	3:1	3:1
RAMP B1 STA. 508+50	30.7' LT	104.4	4	3:1	3:1
RAMP B1 STA. 509+00	33.3' LT	103.2	4	3:1	3:1
RAMP B1 STA. 509+50	35.2' LT	102.1	4	3:1	3:1
RAMP B1 STA. 510+00	36.5' LT	101.0	4	3:1	3:1
RAMP B1 STA. 510+50	37.9' LT	100.0	4	3:1	3:1
RAMP B1 STA. 511+00	55.1' LT	86.5	4	3:1	3:1
RAMP B1 STA. 511+50	57.9' LT	85.5	4	2:1	2:1
RAMP B1 STA. 512+00	57.0' LT	85.0	4	2:1	2:1
RAMP B1 STA. 512+50	55.2' LT	84.5	4	2:1	2:1
RAMP B1 STA. 513+00	48.5' LT	84.0	4	2:1	2:1
RAMP B1 STA. 513+50	46.6' LT	83.5	4	2:1	2:1
RAMP B1 STA. 514+00	44.7' LT	83.0	4	2:1	2:1
RAMP B1 STA. 514+50	42.8' LT	82.5	4	2:1	2:1
RAMP B1 STA. 515+00	40.9' LT	82.0	4	2:1	2:1
RAMP B1 STA. 515+50	39.0' LT	81.5	4	2:1	2:1
RAMP B1 STA. 516+00	37.1' LT	81.0	4	2:1	2:1
RAMP B1 STA. 516+50	35.2' LT	80.5	4	2:1	2:1
RAMP B1 STA. 517+00	34.0' LT	80.0	4	2:1	2:1
RAMP B1 STA. 517+50	32.3' LT	83.8	4	2:1	2:1
RAMP A STA. 1236+50	74.4' RT	108.4	0	2:1	6:1
RAMP A STA. 1237+00	78.2' RT	105.5	0	2:1	6:1
RAMP A STA. 1237+50	78.4' RT	104.3	0	2:1	6:1
RAMP A STA. 1238+00	78.0' RT	103.2	0	2:1	6:1
RAMP A STA. 1238+50	78.3' RT	101.6	0	2:1	6:1
RAMP A STA. 1239+00	78.6' RT	99.9	0	2:1	6:1
RAMP A STA. 1239+50	78.6' RT	98.6	0	2:1	6:1
RAMP A STA. 1240+00	78.5' RT	97.4	0	2:1	6:1
I-95 NB STA. 1704+00	88.2' RT	90.1	2	2:1	2:1
I-95 NB STA. 1704+50	101.3' RT	88.8	2	2:1	2:1
I-95 NB STA. 1704+85.8	111.5' RT	87.9	2	2:1	2:1
I-95 NB STA. 1705+00	127.2' RT	87.4	2	2:1	2:1
I-95 NB STA. 1705+50	185.0' RT	85.5	2	2:1	2:1

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DELAWARE
DEPARTMENT OF TRANSPORTATION

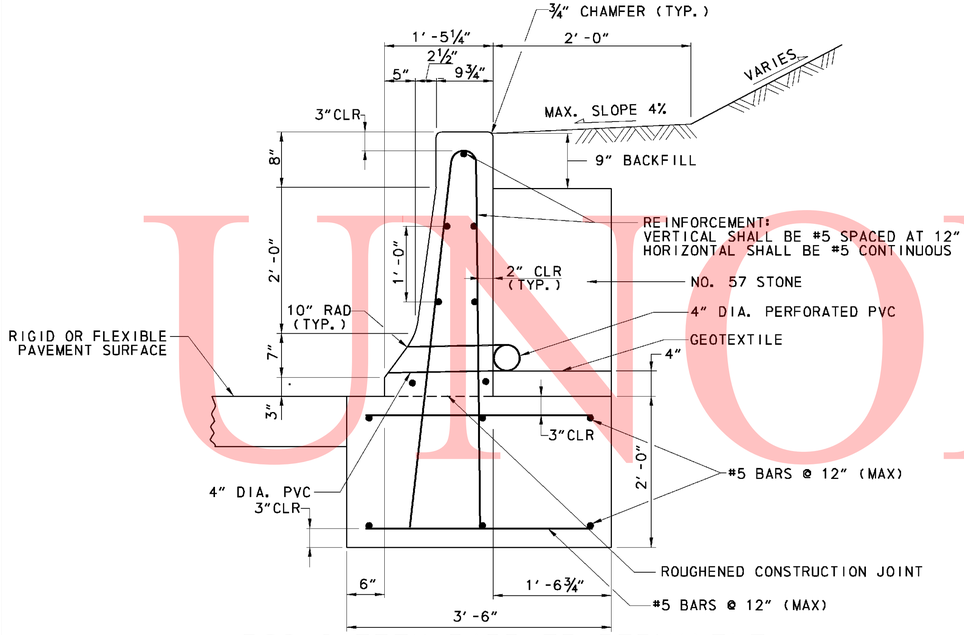
ADDENDUMS / REVISIONS	
ADDENDUM NO. 2 MODIFIED PIPE INFO.	
01/26/2011, RLS	

SR1 / I-95 INTERCHANGE

CONTRACT	28-090-03
COUNTY	NEW CASTLE
BRIDGE NO.	
DESIGNED BY:	
CHECKED BY:	

DRAINAGE PLAN STRUCTURE SCHEDULES

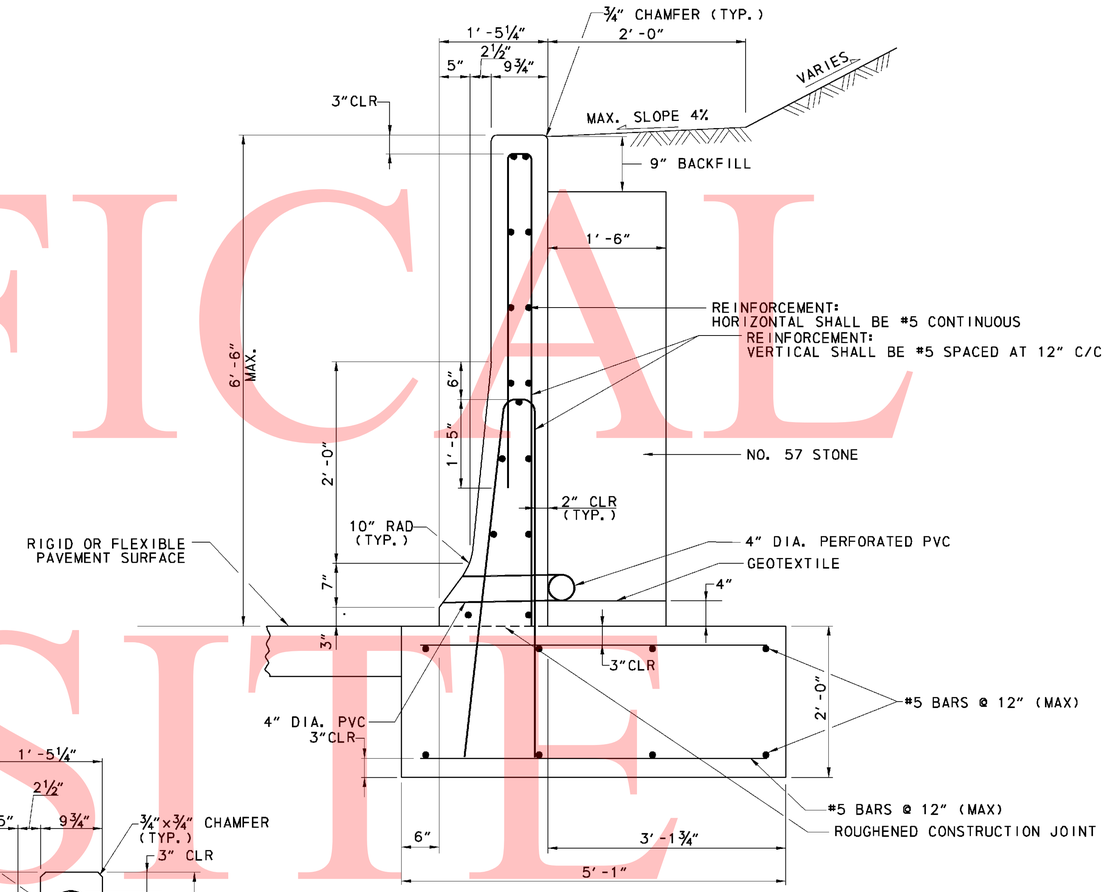
	DR-11A
SHEET NO.	141
TOTAL SHTS.	803



PCC SAFETY BARRIER PERMANENT, SINGLE FACE, MODIFIED TYPE 2 (720655)

NOT TO SCALE

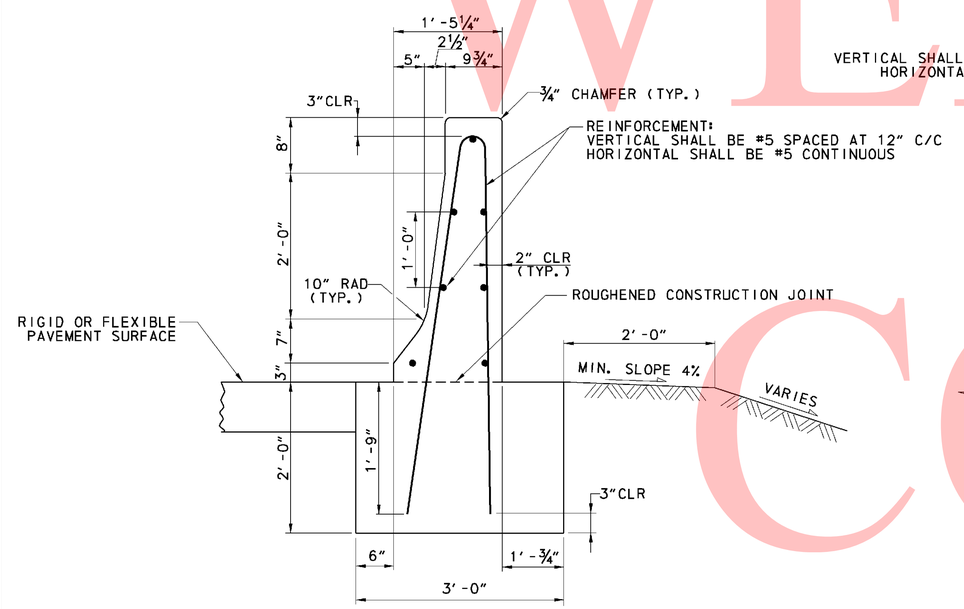
42 INCH F-SHAPE
(BOTTOM OF CUT OR TOE OF FILL)



PCC SAFETY BARRIER PERMANENT, SINGLE FACE, MODIFIED TYPE 3 (720656)

NOT TO SCALE

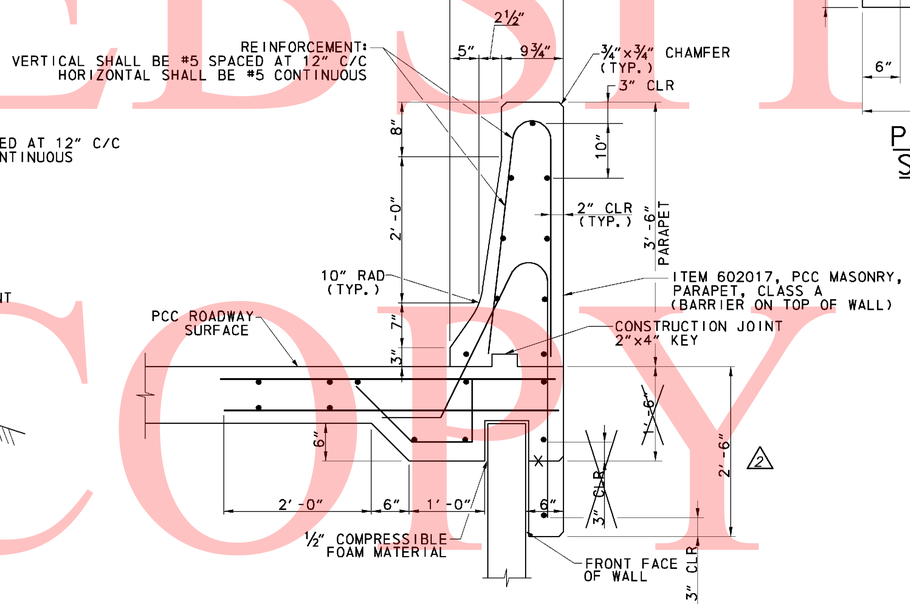
42 INCH F-SHAPE 1'-6" TO 4'-0"



PCC SAFETY BARRIER PERMANENT, SINGLE FACE (720512)

NOT TO SCALE

42 INCH F-SHAPE (FREE STANDING - FILL)



PCC BARRIER

NOT TO SCALE

42 INCH F-SHAPE

NOTES:

1. ALL CONCRETE SHALL BE 4500 PSI. BARRIER AND FOOTING SHALL BE CAST SEPARATELY.
2. ALL REINFORCING BARS SHALL BE ASTM A615, GRADE 60. ALL BARS SHALL BE EPOXY COATED.
3. ALL REINFORCING BAR LAP SPLICES SHALL BE 24" MINIMUM.
4. CONTRACTION JOINTS SHALL BE SPACED AT 20'-0".
5. BARRIER FOOTER AND BARRIER FORMS SHALL BE REMOVED PRIOR TO PLACING PAVEMENT.
6. OUTLET 4" DIA PVC DRAIN INTO INLET WHERE POSSIBLE.

2 CROSS REFERENCE NOTES:

1. FOR BARRIER END SEGMENT DETAILS, SEE SHEET NO. 183.
2. FOR MINIMUM BARRIER SECTION LENGTH, SEE SHEET NO. 183.

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS
ADDENDUM NO. 2, UPDATED PCC BARRIER, ADDED CROSS REFERENCE NOTES, 01/26/11, JSW & DWD

SR1 / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	
28-090-03	DESIGNED BY:	RMB
COUNTY	CHECKED BY:	DWD
NEW CASTLE		

BARRIER DETAILS

SHEET NO.
182
TOTAL SHTS.
803

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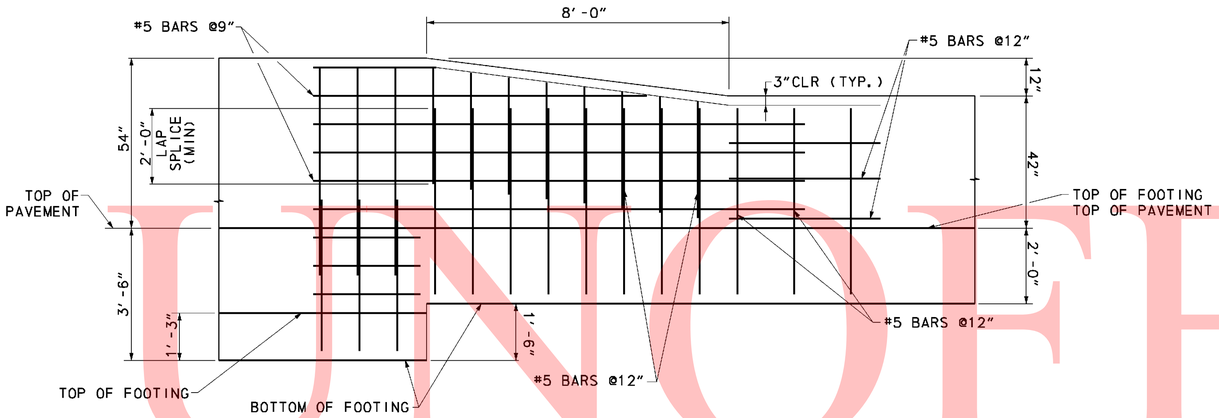
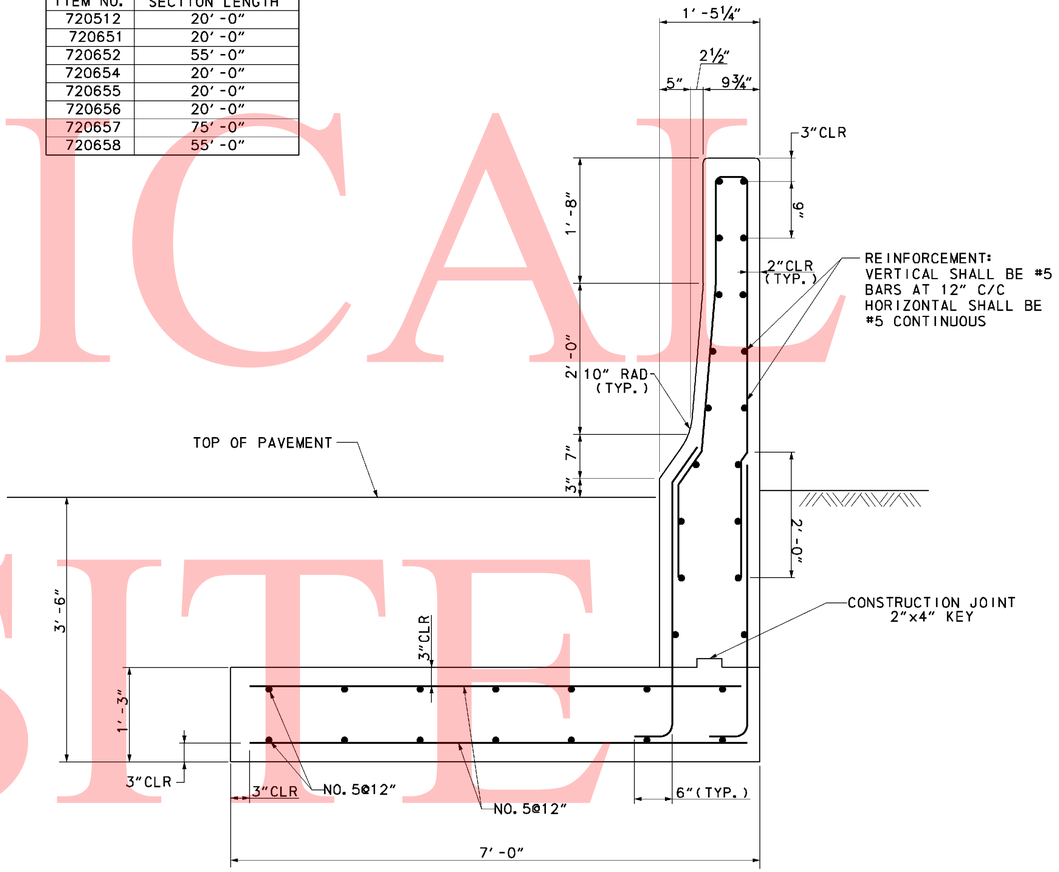


54" to 42" BARRIER TRANSITION DETAIL

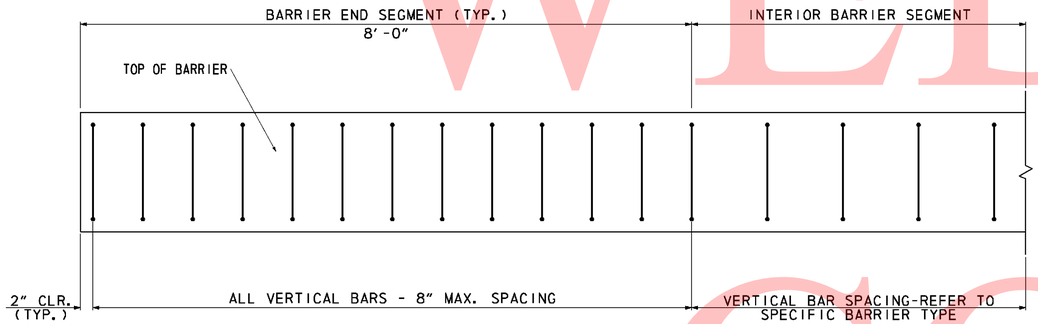
NOT TO SCALE

BARRIER ITEM NO.	MINIMUM BARRIER SECTION LENGTH
720512	20'-0"
720651	20'-0"
720652	55'-0"
720654	20'-0"
720655	20'-0"
720656	20'-0"
720657	75'-0"
720658	55'-0"



PCC SAFETY BARRIER PERMANENT, SINGLE FACE MODIFIED TYPE 4 (720657)

NOT TO SCALE



PLAN

HORIZONTAL BARS AND BARRIER FOOTING NOT SHOWN FOR CLARITY

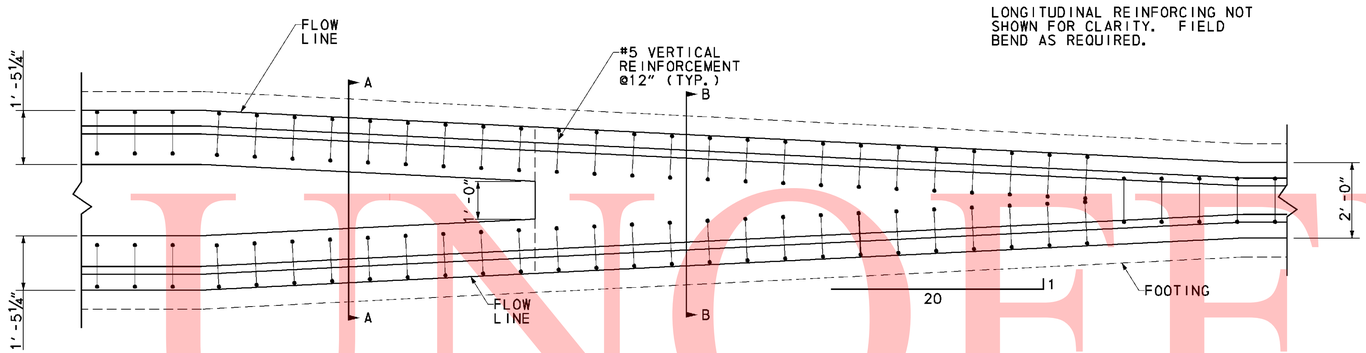
⚠2 BARRIER END SEGMENT DETAIL

NOT TO SCALE

BARRIER END SEGMENT DETAIL APPLIES TO ALL ROADWAY BARRIERS (ITEM NO. 720512, 720651, 720652, 720654, 720655, 720656, 720657, 720658 AND PCC BARRIER)

NOTES:

1. ALL CONCRETE SHALL BE 4500 PSI. BARRIER AND FOOTING SHALL BE CAST SEPARATELY.
2. ALL REINFORCING BARS SHALL BE ASTM A615, GRADE 60. ALL BARS SHALL BE EPOXY COATED.
3. ALL REINFORCING BAR LAP SPLICES SHALL BE 24" MINIMUM.
4. CONTRACTION JOINTS SHALL BE SPACED AT 20'-0".
5. BARRIER FOOTER AND BARRIER FORMS SHALL BE REMOVED PRIOR TO PLACING PAVEMENT.
6. OUTLET 4" DIA PVC DRAIN INTO INLET WHERE POSSIBLE.



LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY. FIELD BEND AS REQUIRED.

PLAN

TRANSITION DETAIL DOUBLE FACE TO TWO SINGLE FACE

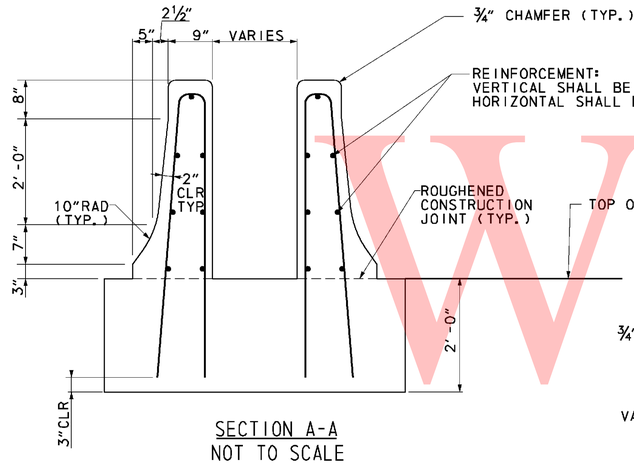
NOT TO SCALE

NOTES:

1. ALL CONCRETE SHALL BE 4500 PSI. BARRIER AND FOOTING SHALL BE CAST SEPARATELY.
2. ALL REINFORCING BARS SHALL BE ASTM A615, GRADE 60. ALL BARS SHALL BE EPOXY COATED.
3. ALL REINFORCING BAR LAP SPLICES SHALL BE 24" MINIMUM.
4. CONTRACTION JOINTS SHALL BE SPACED AT 20'-0".
5. BARRIER FOOTER AND BARRIER FORMS SHALL BE REMOVED PRIOR TO PLACING PAVEMENT.
6. OUTLET 4" DIA PVC DRAIN INTO INLET WHERE POSSIBLE.

2 CROSS REFERENCE NOTES:

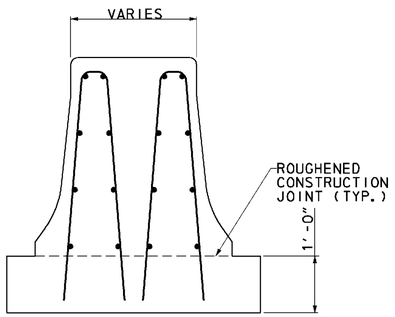
1. FOR BARRIER END SEGMENT DETAILS, SEE SHEET NO. 183.
2. FOR MINIMUM BARRIER SECTION LENGTH, SEE SHEET NO. 183.



SECTION A-A

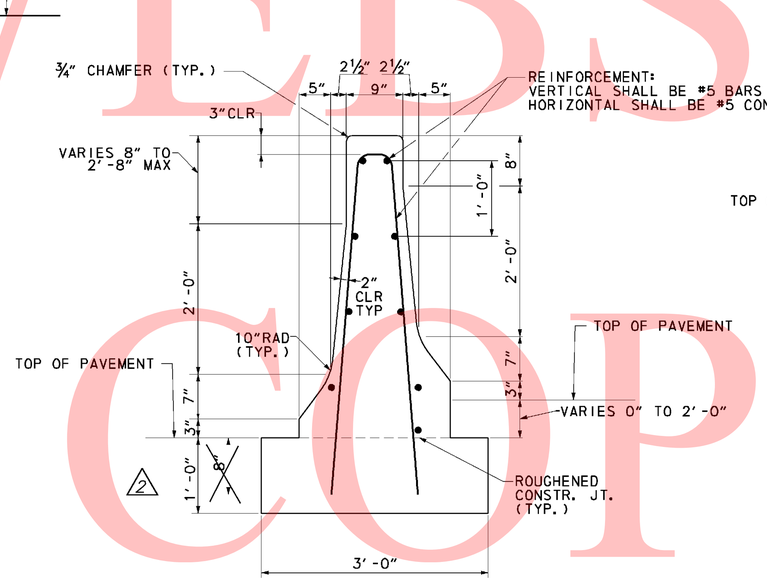
NOT TO SCALE

IF TAPER EXCEEDS 70'-0", A TRANSITION FROM SECTION A-A TO TWO SINGLE FACE BARRIERS (7205012) WITH 6" MIN GAP BETWEEN FOOTINGS IS ACCEPTABLE.



SECTION B-B

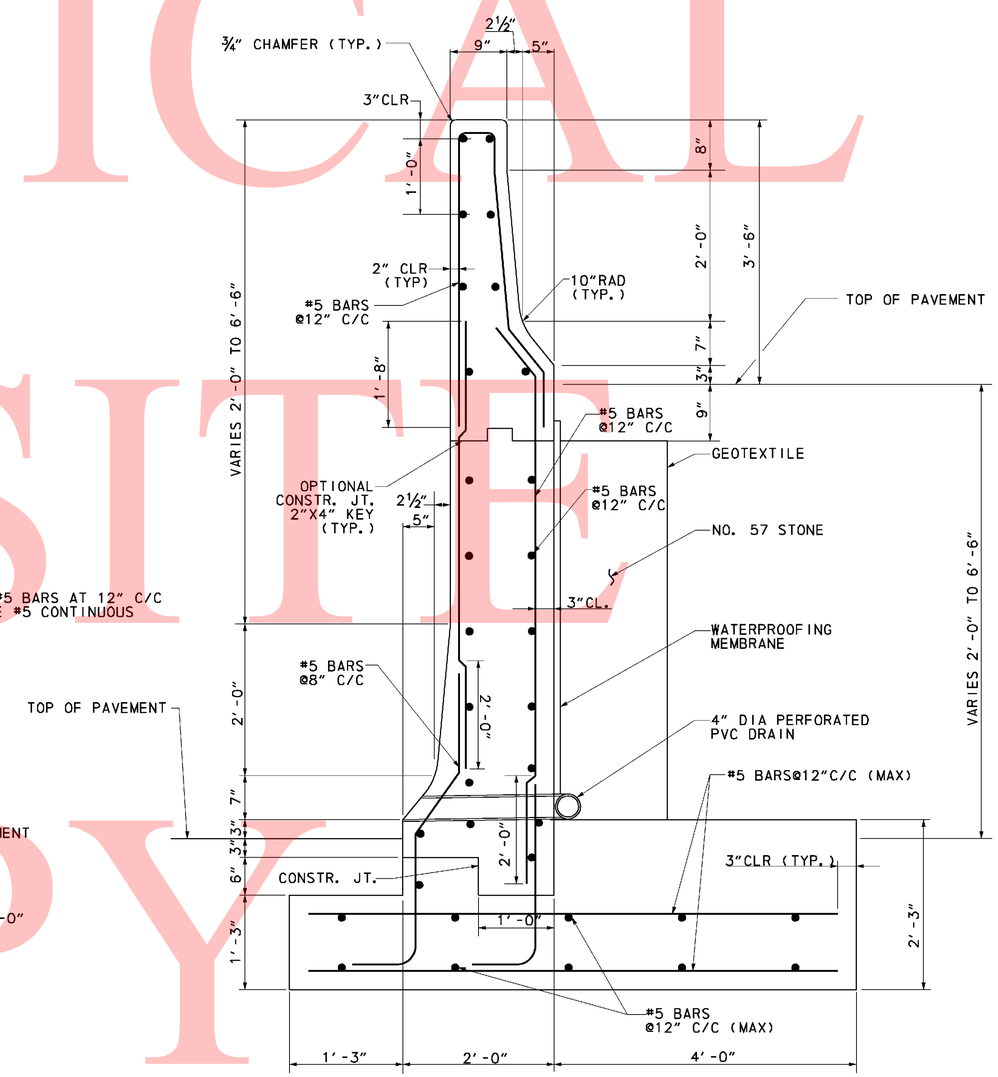
NOT TO SCALE



PCC SAFETY BARRIER PERMANENT, DOUBLE FACE BIFURCATED TYPE 1 (720651)

NOT TO SCALE

42 INCH F-SHAPE 0" TO 2'-0"



PCC SAFETY BARRIER PERMANENT, DOUBLE FACE BIFURCATED TYPE 2 (720652)

NOT TO SCALE

42 INCH F-SHAPE 2'-0" TO 6'-6"

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		SR1 / I-95 INTERCHANGE	CONTRACT 28-090-03	BRIDGE NO.	BARRIER DETAILS	SHEET NO. 184
	ADDENDUM NO. 2, CORRECTED BARRIER 720651			COUNTY NEW CASTLE	DESIGNED BY: RWB		TOTAL SHTS. 803
	FTG DEPTH, CROSS REFERENCE NOTES,				CHECKED BY: DWD		
	01/26/11, DWD						

1/26/2011 8:21:01 AM
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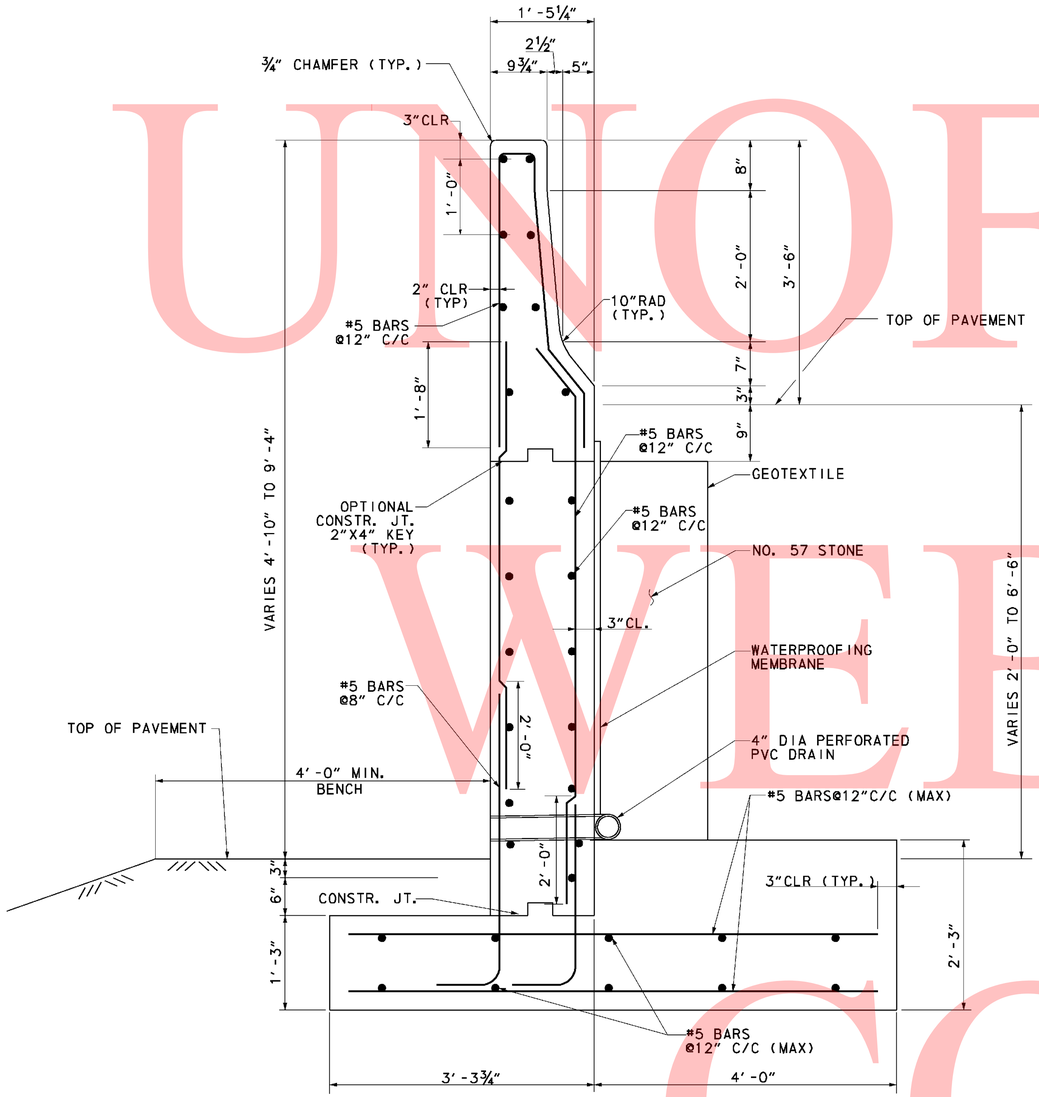
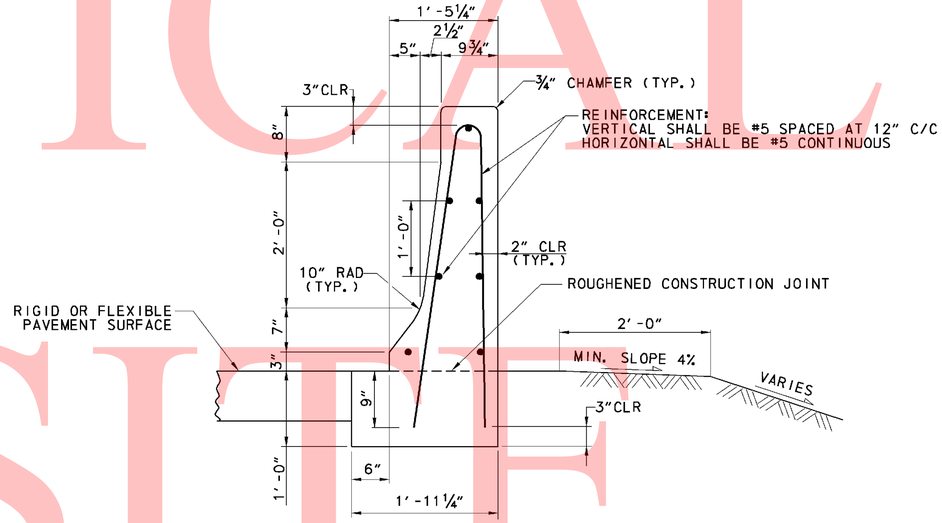


PCC SAFETY BARRIER PERMANENT,
SINGLE FACE, MODIFIED TYPE 5
~~(720585)~~ (720658) ⚠2

NOT TO SCALE

42 INCH F-SHAPE 2'-0" TO 6'-6"



PCC SAFETY BARRIER PERMANENT,
SINGLE FACE MODIFIED TYPE 1
(720654)

NOT TO SCALE

42 INCH F-SHAPE (FREE STANDING - FILL)

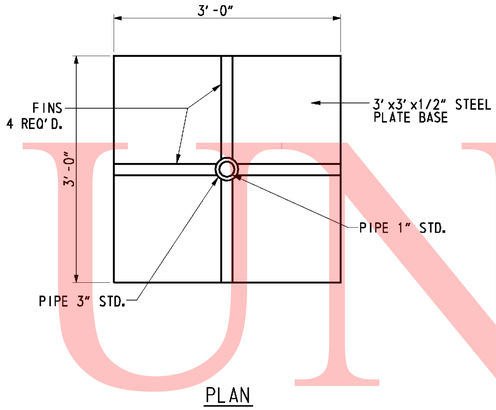
NOTES:

1. ALL CONCRETE SHALL BE 4500 PSI. BARRIER AND FOOTING SHALL BE CAST SEPARATELY.
2. ALL REINFORCING BARS SHALL BE ASTM A615, GRADE 60. ALL BARS SHALL BE EPOXY COATED.
3. ALL REINFORCING BAR LAP SPLICES SHALL BE 24" MINIMUM.
4. CONTRACTION JOINTS SHALL BE SPACED AT 20'-0".
5. BARRIER FOOTER AND BARRIER FORMS SHALL BE REMOVED PRIOR TO PLACING PAVEMENT.
6. OUTLET 4" DIA PVC DRAIN INTO INLET WHERE POSSIBLE.

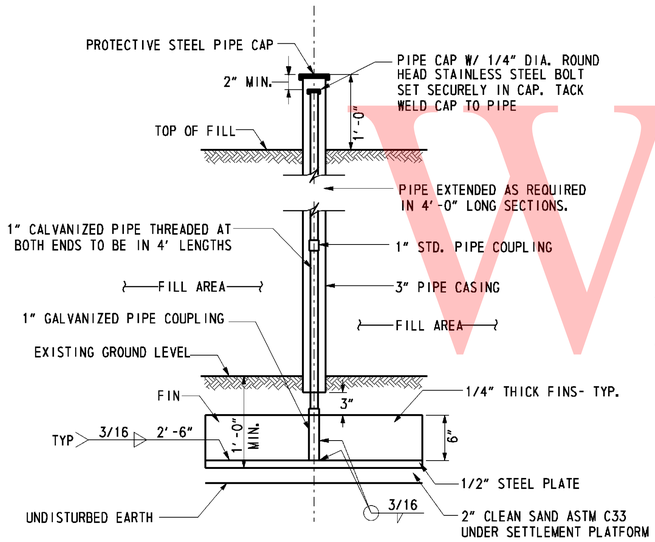
⚠2 CROSS REFERENCE NOTES:

1. FOR BARRIER END SEGMENT DETAILS, SEE SHEET NO. 183.
2. FOR MINIMUM BARRIER SECTION LENGTH, SEE SHEET NO. 183.

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		SR1 / I-95 INTERCHANGE	CONTRACT 28-090-03	BRIDGE NO.	BARRIER DETAILS	SHEET NO. 185
	ADDENDUM NO. ⚠2, CORRECTED BARRIER ITEM NO., CROSS REFERENCE NOTES, 01/26/11, DWD			COUNTY NEW CASTLE	DESIGNED BY: RMB		TOTAL SHTS. 803
					CHECKED BY: DWD		



PLAN



ELEVATION

NOTES:

2 1. SETTLEMENT PLATFORMS AND SETTLEMENT MONUMENTS (SM) SHALL BE INSTALLED ACCORDING TO SPECIAL PROVISIONS ~~XXX.~~ 202505 & 202518.

2 2. VIBRATING WIRE PIEZIEOMETERS SHALL BE INSTALLED PER SPECIAL PROVISION ~~XXX.~~ 202514.

3. THE SETTLEMENT PLATFORM SHALL BE INSTALLE DWITH THE PIPE PLUMB.

4. THE ELEVATION OF THE SETTLEMENT PLATFORMS AND GROUND SURFACE NEAR THE INSTRUMENTS SHALL BE SURVEYED UPON INSTALLATION, AND AGAIN 24-72 HOURS AFTER INSTALLATION TO VERIFY INITAL DATA.

5. SETTLEMENT PLATFORMS SHALL BE READ AT LEAST WEEKLY DURING FILL OPERATION ANDWEEKLY THEREAFTER FOR 30 DAYS. SETTLEMENT PLATFORMS SHALL BE READ ONCE EVERYMONTH THEREAFTER FOR 6 MONTHS, OR AS DIRECTED BY THE ENGINEER.

6. WHEN MEASURING SETTLEMENTS CONTRACTOR SHALL ALSO MEASURE ELEVATION AT THE TOP OF FILL ADJACENT TO SETTLEMENT PLATFORMS AND SETTLMENT MONUMNETS.

7. THE CONTRACTOR SHALL PROTECT ALL SETTLEMENT PLATFORMS AND SETTLEMENT MONUMENT FROM DAMAGE DUE TO CONSTRUCTION OPERATIONS, WEATHER, TRAFFIC, AND VANDALISM. IF A SETTLEMENT PLATFORM OR SETTLEMENT MONUMENT IS DAMAGED, THE CONTRACTOR SHALL REPAIR OR REPLACE THE DAMAGED SETTLEMENT PLATFORM AT NO ADDITIONALCOST TO THE AUTHORITY.

8. THE ELEVATION OF THE SETTLEMENT PLATFORM SHALL BE SURVEYED BEFORE AND AFTER EACH RISER IS INSTALLED.

VIBRATING WIRE PIEZOMETERS

STRUCTURE NO.	INSTRUMENT NAME	COORDINATES		BASELINE	STATION	OFFSET
		NORTHING	EASTING			
S-6-VP-1	S-6-VP-1	613423	433051	RAMP B	450+45	04 LT
S-6-VP-2	S-6-VP-2	613401	433073	RAMP B	450+65	28 RT
S-6-VP-3	S-6-VP-3	613847	433691	RAMP B	458+16	04 LT
S-6-VP-4	S-6-VP-4	613826	433720	RAMP B	158+15	27 RT

SETTLEMENT MONITORING LOCATIONS

STRUCTURE NO.	INSTRUMENT NAME	INSTRUMENTATION TYPE	COORDINATES		BASELINE	STATION	OFFSET
			NORTHING	EASTING			
S1	S-1-SP-1	SETTLEMENT PLATFORM	613933	433547	RAMP A	1227+48	15
S1	S-1-SM-1	SETTLEMENT MONUMENTS	613894	433534	RAMP A	1227+81	11
S1	S-1-SM-2	SETTLEMENT MONUMENTS	613937	433506	RAMP A	1227+81	41
S1	S-1-SP-2	SETTLEMENT PLATFORM	613317	432917	RAMP A	1236+30	0
S1	S-1-SM-3	SETTLEMENT MONUMENTS	613342	432951	RAMP A	1235+89	11
S1	S-1-SM-4	SETTLEMENT MONUMENTS	613375	432912	RAMP A	1235+89	41
S2	S-2-SP-1	SETTLEMENT PLATFORM	612534	432437	RAMP A	1245+51	0
S2	S-2-SM-1	SETTLEMENT MONUMENTS	612502	432435	RAMP A	1245+81	11
S2	S-2-SM-2	SETTLEMENT MONUMENTS	612518	432399	RAMP A	1245+81	29
S2	S-2-SP-2	SETTLEMENT PLATFORM	612014	432275	RAMP A	1250+97	09
S2	S-2-SM-3	SETTLEMENT MONUMENTS	612045	432300	RAMP A	1250+29	11
S2	S-2-SM-4	SETTLEMENT MONUMENTS	612051	432261	RAMP A	1250+29	29
S3	S-3-SP-1	SETTLEMENT PLATFORM	611874	432312	RAMP B	432+93	15
S3	S-3-SM-1	SETTLEMENT MONUMENTS	611910	432296	RAMP B	433+28	04
S3	S-3-SM-2	SETTLEMENT MONUMENTS	611907	432334	RAMP B	433+28	34
S3	S-3-SP-2	SETTLEMENT PLATFORM	612297	432391	RAMP B	437+28	15
S3	S-3-SM-3	SETTLEMENT MONUMENTS	612269	432363	RAMP B	436+93	04
S3	S-3-SM-4	SETTLEMENT MONUMENTS	612258	432400	RAMP B	436+93	34
S4	S-4-SP-1	SETTLEMENT PLATFORM	612421	432202	RAMP C	1114+32	06
S4	S-4-SM-1	SETTLEMENT MONUMENTS	612450	432224	RAMP C	1114+66	07
S4	S-4-SM-2	SETTLEMENT MONUMENTS	612430	432228	RAMP C	1114+66	18
S4	S-4-SP-2	SETTLEMENT PLATFORM	612667	432415	RAMP C	1117+59	06
S4	S-4-SM-3	SETTLEMENT MONUMENTS	612642	432288	RAMP C	1117+18	07
S4	S-4-SM-4	SETTLEMENT MONUMENTS	612630	432410	RAMP C	1117+18	18
S5	S-5-SP-1	SETTLEMENT PLATFORM	612581	432414	RAMP G1	1311+18	0
S5	S-5-SM-1	SETTLEMENT MONUMENTS	612546	432403	RAMP G1	1311+53	11
S5	S-5-SM-2	SETTLEMENT MONUMENTS	612563	432378	RAMP G1	1311+53	20
S5	S-5-SP-2	SETTLEMENT PLATFORM	611999	432135	RAMP G1	1317+73	03
S5	S-5-SM-3	SETTLEMENT MONUMENTS	612032	432147	RAMP G1	1317+38	11
S5	S-5-SM-4	SETTLEMENT MONUMENTS	612037	432117	RAMP G1	1317+38	20
S6	S-6-SP-1	SETTLEMENT PLATFORM	613423	433033	RAMP B	450+53	04 RT
S6	S-6-SM-1	SETTLEMENT MONUMENTS	613437	433065	RAMP B	450+65	04 LT
S6	S-6-SM-2	SETTLEMENT MONUMENTS	613401	433073	RAMP B	450+45	27 RT
S6	S-6-SP-2	SETTLEMENT PLATFORM	613412	433074	RAMP B	450+53	19 RT
S6	S-6-SM-4	SETTLEMENT MONUMENTS	613817	433702	RAMP B	458+35	04 LT
S6	S-6-SP-3	SETTLEMENT PLATFORM	613844	433704	RAMP B	458+27	04 RT
S6	S-6-SM-3	SETTLEMENT MONUMENTS	613855	433709	RAMP B	458+15	28 RT
S6	S-6-SP-4	SETTLEMENT PLATFORM	613830	433709	RAMP B	458+27	19 RT
RW1	RW-1-SP-1	SETTLEMENT PLATFORM	611937	432268	RAMP A	1251+74	07
RW1	RW-1-SM-1	SETTLEMENT MONUMENTS	611976	432292	RAMP A	1251+32	12
RW2	RW-2-SP-1	SETTLEMENT PLATFORM	612615	432439	RAMP G1	1310+76	03
RW2	RW-2-SM-1	SETTLEMENT MONUMENTS	612632	432421	RAMP G1	1310+71	22
RW2	RW-2-SM-2	SETTLEMENT MONUMENTS	612600	432400	RAMP G1	1311+10	22
RW3	RW-3-SM-1	SETTLEMENT MONUMENTS	612472	432433	RAMP B	439+07	07
RW3	RW-3-SP-1	SETTLEMENT PLATFORM	612376	432395	RAMP B	438+05	07
RW3	RW-3-SP-2	SETTLEMENT PLATFORM	612462	432456	RAMP B	439+07	18
RW3	RW-3-SM-2	SETTLEMENT MONUMENTS	612368	432419	RAMP B	438+05	18
RW4	RW-4-SM-1	SETTLEMENT MONUMENTS	611861	432347	SR 7	632+54	06 LT
RW5	RW-5-SM-1	SETTLEMENT MONUMENTS	613409	433037	RAMP B	450+61	05 LT
RW5	RW-5-SM-2	SETTLEMENT MONUMENTS	613354	432985	RAMP B	449+78	05 LT
RW6	RW-6-SM-1	SETTLEMENT MONUMENTS	612828	432471	RAMP C	1119+25	15 RT
RW6	RW-6-SM-2	SETTLEMENT MONUMENTS	612730	432449	RAMP C	1118+27	15 RT
RW6	RW-6-SM-3	SETTLEMENT MONUMENTS	612658	432421	RAMP C	117+51	15 RT
RW7	RW-7-SM-1	SETTLEMENT MONUMENTS	612013	432112	RAMP G1	1317+63	22 RT
RW7	RW-7-SM-2	SETTLEMENT MONUMENTS	611888	432101	RAMP G1	1318+88	22 RT
RW7	RW-7-SM-3	SETTLEMENT MONUMENTS	611787	432096	RAMP G1	1319+87	22 RT
RW7	RW-7-SM-4	SETTLEMENT MONUMENTS	611687	432093	RAMP G1	1320+87	22 RT
RW7	RW-7-SM-5	SETTLEMENT MONUMENTS	611583	432094	RAMP G1	1321+91	22 RT
RW7	RW-7-SM-6	SETTLEMENT MONUMENTS	611495	432097	RAMP G1	1322+78	22 RT
RW9	RW-9-SM-1	SETTLEMENT MONUMENTS	611725	432237	RAMP A	1253+86	31 RT
RW10	RW-10-SM-1	SETTLEMENT MONUMENTS	612428	432184	RAMP C	1114+18	09 LT
RW10	RW-10-SM-2	SETTLEMENT MONUMENTS	612388	432090	RAMP C	1113+14	09 LT
RW10	RW-10-SM-3	SETTLEMENT MONUMENTS	612370	431996	RAMP C	1112+17	09 LT
RW12	RW-12-SMP-1	SETTLEMENT MONUMENTS	614032	433661	RAMP A	1226+04	43 RT
RW12	RW-12-SMP-2	SETTLEMENT MONUMENTS	613983	433575	RAMP A	1227+00	43 RT
RW13	RW-13-SM-1	SETTLEMENT MONUMENTS	613910	433561	RAMP A	1226+35	13 LT
RW13	RW-13-SM-2	SETTLEMENT MONUMENTS	613968	433660	RAMP A	1227+51	13 LT
RW14	RW-14-SM-1	SETTLEMENT MONUMENTS	613831	433732	RAMP B	458+47	28 RT
RW14	RW-14-SM-2	SETTLEMENT MONUMENTS	613871	433832	RAMP B	459+55	27 RT
RW14	RW-14-SM-3	SETTLEMENT MONUMENTS	613908	433921	RAMP B	460+51	26 RT
RW14	RW-14-SM-4	SETTLEMENT MONUMENTS	613953	434028	RAMP B	461+67	25 RT
RW15	RW-15-SM-1	SETTLEMENT MONUMENTS	613955	433955	RAMP B	461+00	05 LT
RW15	RW-15-SM-2	SETTLEMENT MONUMENTS	613918	433862	RAMP B	460+00	05 LT
RW15	RW-15-SM-3	SETTLEMENT MONUMENTS	613881	433769	RAMP B	459+00	06 LT
RW16	RW-16-SM-1	SETTLEMENT MONUMENTS	612678	432388	SR7 NB	640+78	38 RT

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. 2 MODIFIED NOTES.	
01/26/2011, RLS	

SR1 / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	
28-090-03	DESIGNED BY:	GKG
COUNTY	CHECKED BY:	EMK
NEW CASTLE		

SETTLEMENT MONITORING PLATFORM DETAIL

SHEET NO.
194A
TOTAL SHTS.
803

GENERAL NOTES

1. DESIGN SPECIFICATIONS
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4th EDITION WITH 2009 INTERIM REVISIONS.
DELAWARE DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL, MAY 2005 INCLUDING LATEST REVISIONS. ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

2. LOADING
UNIT WEIGHTS OF MATERIALS SHALL BE IN ACCORDANCE WITH THE DELAWARE DESIGN MANUAL.
FUTURE OVERLAY ALLOWANCE SHALL BE 25 LBS/SQ FT.
STEEL BRIDGE DECK FORMS WHICH STAY IN PLACE (INCLUDING CONCRETE IN FORM CORRUGATIONS) SHALL BE 15 LBS/SQ FT.
VEHICLE LIVE LOAD SHALL BE HL-93, WHICH CONSISTS OF A DESIGN TRUCK OR TANDEM WITH DYNAMIC LOAD ALLOWANCE AND A LANE LOAD. RATING SHALL USE ALL DELAWARE LEGAL LOADS SPECIFIED IN THE BRIDGE DESIGN MANUAL.
BARRIER HAS BEEN DESIGNED FOR TEST LEVEL FIVE (TL-5).
FATIGUE DESIGN SHALL BE BASED ON THE FOLLOWING ONE DIRECTIONAL TRAFFIC VOLUMES:

RAMP A OVER I-95: DESIGN ADT = 27,550, DESIGN ADTT = 3,300

FOR THERMAL LOADS, CONSIDER THE MODERATE TEMPERATURE RANGE AS STIPULATED IN THE AASHTO LRFD DESIGN SPECIFICATIONS. THE NORMAL TEMPERATURE SHALL BE CONSIDERED TO BE 60F.
FOR SEISMIC LOADS, CONSIDER SEISMIC PERFORMANCE ZONE 1, WITH A SITE CLASS = E AND IMPORTANCE CATEGORY - CRITICAL.

3. PORTLAND CEMENT CONCRETE
PORTLAND CEMENT CONCRETE FOR CAST-IN-PLACE ELEMENTS SHALL BE AS FOLLOWS:
(28 DAY COMPRESSIVE STRENGTH)
ITEM NO. 602007 (CLASS A, F'c=4500 PSI) - PIER ABOVE FOOTING
ITEM NO. 602011 (CLASS A, F'c=4500 PSI) - PIER FOOTING, TOP OF PIER PILES
ITEM NO. 602786 (CLASS A, F'c=8000 PSI) - POST-TENSIONED PIER CAP
ITEM NO. 602013 (CLASS D, F'c=4500 PSI) - DECK
ITEM NO. 602014 (CLASS D, F'c=4500 PSI) - APPROACH SLAB
ITEM NO. 602015 (CLASS A, F'c=4500 PSI) - ABUTMENT, TOP OF ABUTMENT PILES
ITEM NO. 602017 (CLASS A, F'c=4500 PSI) - BARRIER
MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" X ¾" MILLED CHAMFER STRIPS UNLESS NOTED OTHERWISE, EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE NOTATION ON THE PLANS, "DO NOT CHAMFER".
NO SLIP-FORMING OF BARRIERS IS PERMITTED, UNLESS NOTED OTHERWISE.

4. BAR REINFORCEMENT
REINFORCING STEEL SHALL CONFORM TO AASHTO M31 (ASTM A615), GRADE 60. ALL REINFORCING STEEL SHALL HAVE A CLEAR COVER OF 2" UNLESS OTHERWISE SPECIFIED ON THE PLANS. FUSION-BONDED EPOXY COATED REINFORCING STEEL SHALL CONFORM TO AASHTO M284 (ASTM D3963), AND SHALL BE DENOTED WITH A SUFFIX "E" IN THE BAR MARKS.

DO NOT WELD GRADE 60 REINFORCING STEEL.

5. POST-TENSIONING STEEL
ALL POST-TENSIONING STRAND TENDONS SHALL CONSIST OF 0.6 INCH DIAMETER SEVEN WIRE UNCOATED LOW RELAXATION STRANDS CONFORMING TO AASHTO M203 (ASTM A416), GRADE 270.
DUCTS SHALL BE 4½ INCH DIA. POLYETHYLENE/POLYPROPYLENE (PE/PP) PLASTIC DUCTS.
GROUT FOR DUCTS SHALL BE IN ACCORDANCE WITH ITEM NO. 602779 "POST TENSIONING GROUT"

6. STRUCTURAL STEEL
STRUCTURAL STEEL SHALL CONFORM TO ASTM A 709, GRADE 50W, AND ASTM A 709, GRADE HPS 70W (AS NOTED), INCLUDING THE ADDITIONAL REQUIREMENTS FOR CHARPY V-NOTCH TESTING OF AASHTO M270 FOR PRIMARY LOAD CARRYING MEMBERS UNDER TENSILE STRESS. THE PRIMARY LOAD CARRYING MEMBER COMPONENTS ARE THE FLANGES, WEBS, AND SPLICE PLATES OF THE STEEL GIRDERS. THE USE OF FRACTURE CRITICAL MEMBERS IS PROHIBITED. FATIGUE CATEGORIES D, E AND F SHALL NOT BE USED IN STRESS REVERSAL OR TENSION AREAS, EXCEPT FOR TEMPORARY CONDITIONS.

TEN (10) FEET AT THE ENDS OF EACH GIRDER AND THE END CROSS FRAMES SHALL BE PAINTED WITH A URETHANE PAINT SYSTEM IN ACCORDANCE WITH SPECIAL PROVISION #605537-URETHANE PAINT SYSTEM. THE FINAL COLOR SHALL BE FEDERAL #10076 (BROWN) OF FED-STD-595B. COST OF PAINTING SHALL BE INCIDENTAL TO ITEM 605002, STEEL STRUCTURES.

△2 THE AREA IN CONTACT WITH THE INTEGRAL PIER CAP CONCRETE SHALL BE PAINTED WITH ONE COAT OF PRIMER AFTER THE SHEAR STUDS ARE INSTALLED.

ALL BOLTS FOR SPLICE PLATES AND CROSS FRAMES SHALL BE ⅞" DIA. IN 15/16" DIA. HOLES AND CONFORM TO ASTM A325, TYPE 3, WITH THREADS EXCLUDED FROM SHEAR PLANES. BOLTED CONNECTIONS SHALL BE CLASS B SLIP CRITICAL CONNECTIONS, UNLESS NOTED ON THE PLANS.

7. SERVICEABILITY
LIVE LOAD DEFLECTION SHALL BE LIMITED TO L/800.
FOR REINFORCEMENT DISTRIBUTION REQUIREMENTS, CONSIDER CLASS 2 EXPOSURE CRITERIA FOR DECKS. ACCOMMODATION TO JACK GIRDERS FOR FUTURE BEARING REPLACEMENT HAS BEEN CONSIDERED IN THE DESIGN.

8. CONSTRUCTION JOINTS
KEYED CONSTRUCTION JOINTS SHALL BE 2" X 4" OR AS NOTED. ALL EXPOSED CONSTRUCTION JOINT EDGES SHALL HAVE A ¾" V-NOTCH, UNLESS NOTED OTHERWISE.

9. STABILIZING STRUCTURAL EXCAVATIONS
SHEETING AND SHORING SHALL BE REQUIRED FOR ANY EXCAVATION EXCEEDING FIVE (5) FEET IN HEIGHT, THE COST SHALL BE PAID UNDER ITEM NO. 207501. IN LIEU OF SHORING, THE CONTRACTOR MAY USE A 2:1 CUT SLOPE. NO PAYMENT SHALL BE MADE FOR ADDITIONAL EXCAVATION OR FILL OUTSIDE THE LIMITS AS DEFINED IN SECTION 207 OF THE STANDARD SPECIFICATIONS.

10. EXCAVATION REQUIRED TO ATTAIN THE GRADE FOR INSTALLATION OF MSE WALLS SHALL BE INCIDENTAL TO ITEM NO. 602772 - MECHANICALLY STABILIZED EARTH WALLS.

11. STRUCTURAL BACKFILL SHALL CONFORM TO THE REQUIREMENTS OF BORROW TYPE C. MSE WALL BACKFILL SHALL BE AS SPECIFIED ON THE PLANS.

12. ROADWAY CLEARANCES
A MINIMUM OF 16'-6" VERTICAL CLEARANCE SHALL BE MAINTAINED ABOVE ALL ROADWAYS.
A MINIMUM OF 2'-0" HORIZONTAL CLEARANCE SHALL BE MAINTAINED FROM THE OUTSIDE EDGE OF SHOULDER OFFSET (FACE OF CURB) TO THE FACE OF ANY OBSTRUCTION. THESE CLEARANCES APPLY AT ALL TIMES INCLUDING DURING CONSTRUCTION.

13. DECK REPLACEMENT
FUTURE DECK REPLACEMENT FOR THIS BRIDGE MUST TAKE INTO ACCOUNT THE UNBALANCED MOMENT FROM THE SUPERSTRUCTURE ON THE BEARINGS AT PIERS 1 AND 3. IT IS RECOMMENDED THAT THE DECK BE REPLACED IN A SYMMETRICAL FASHION, WORKING IN THE REGIONS AT BOTH FASCIA GIRDERS AT THE SAME TIME, AND PROGRESSING IN STAGES TOWARD THE CENTER OF THE TYPICAL SECTION. THIS APPROACH WILL ELIMINATE THE POSSIBILITY OF UPLIFT AT THE BEARINGS FOR PIERS 1 AND 3.

14. TEST PILES
PILE LENGTHS FOR ORDERING PURPOSES SHALL BE DETERMINED BY TEST PILES. A MINIMUM OF ONE (1) PILE PER SUBSTRUCTURE, AS SHOWN ON THE PLANS, SHALL BE DYNAMICALLY TESTED BY THE CONTRACTOR IN ACCORDANCE WITH SPECIAL PROVISION 619519. TEST AND PRODUCTION PILE RE-STRIKES WILL BE PAID AS FOLLOWS:

A). ALL TEST PILE(S) WILL BE RESTRUCK AND DYNAMICALLY TESTED BY THE CONTRACTOR. THE TEST PILE RESTRIKES SHALL BE INCIDENTAL TO ITEM NO. 619519 DYNAMIC PILE TESTING BY CONTRACTOR PROVIDED THAT THEY ARE PERFORMED WITHIN FIVE (5) CALENDAR DAYS FROM INITIAL DRIVE.

B). AN ADDITIONAL PAYMENT WILL BE MADE TO THE CONTRACTOR IF HE IS DIRECTED BY THE ENGINEER TO WAIT AND RESTRIKE THE TEST PILE MORE THAN FIVE (5) CALENDAR DAYS AFTER INITIAL DRIVE. THE CONTRACTOR SHALL BE COMPENSATED AT THE FIXED PRICE OF $1,000.00 PER CALENDAR DAY FOR EVERY DAY, AFTER THE FIFTH CALENDAR DAY, UNDER ITEM NO. 619502 TEST PILE RESTRIKE. MULTIPLE TEST PILE RESTRIKES OCCURRING ON THE SAME DAY WILL ONLY BE PAID FOR AS ONE CALENDAR DAY. NO ADDITIONAL COMPENSATION WILL BE MADE REGARDLESS OF THE NUMBER OF TEST PILE RESTRIKES PERFORMED THAT DAY.

C). RESTRIKES ON PRODUCTION PILES WHICH ARE DESIGNATED TO BE DYNAMICALLY TESTED WILL NOT BE PAID UNDER ITEM NO. 619501 PRODUCTION PILE RESTRIKE. THESE PRODUCTION PILE RESTRIKES ARE INCIDENTAL TO ITEM NO. 619519 DYNAMIC PILE TESTING BY CONTRACTOR.

THE DEPARTMENT RESERVES THE RIGHT TO PERFORM DYNAMIC TESTING OF RESTRIKES.

15. THE CONCRETE PIER CAPS SHOWN ON THE PLANS SHALL BE USED. NO OTHER ALTERNATES WILL BE CONSIDERED.

BRIDGE LEGAL LOAD RATING (TONS)
RAMP A OVER I-95

TRUCK TYPE	RATING FACTOR	SAFE LOAD CAPACITY
HS-20	2.13	76.6
S220	3.91	78.2
S327	3.08	83.1
S335	2.36	82.6
S437	2.28	83.2
T330	2.95	88.5
T435	2.60	91.0
T540	2.27	90.8

BRIDGE DESIGN LOAD RATING:
INVENTORY = 1.35
OPERATING = 1.75

NOTE:

LOAD RATING IS IN ACCORDANCE WITH THE LOAD AND RESISTANCE FACTOR RATING (LRFR) METHOD.

CROSS REFERENCE NOTE:

FOR MSE WALL NOTES, SEE DWG S1-13 & S1-14.

DELAWARE DEPARTMENT OF TRANSPORTATION

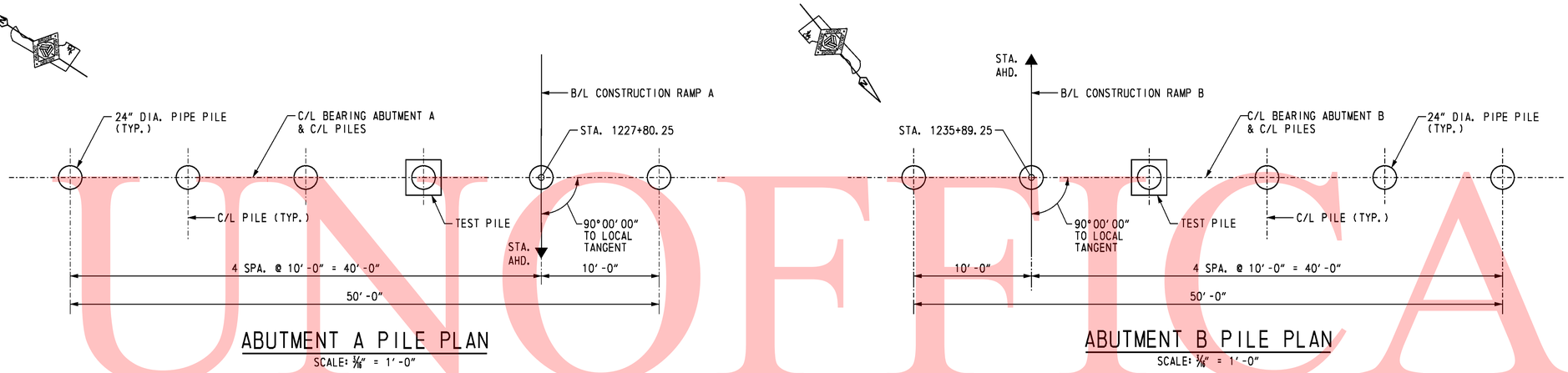
ADDENDUMS / REVISIONS	
ADDENDUM NO. △2 REV. NOTE 6, 01/26/11, SAM	

SR1 / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	1-716B
28-090-03	DESIGNED BY: R.F. KIRCHNER	
COUNTY	CHECKED BY: J.S. LI	
NEW CASTLE		

RAMP A OVER I-95
GENERAL NOTES

SHEET NO.	S1-2
	196
TOTAL SHTS.	
	803

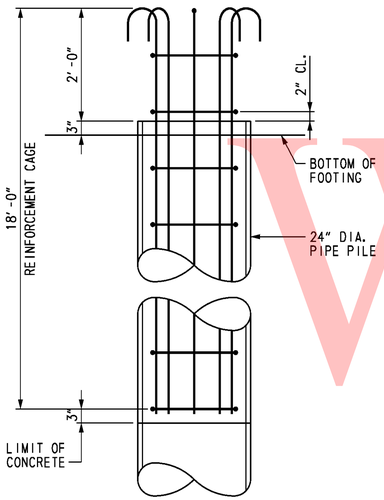


ABUTMENT A PILE PLAN

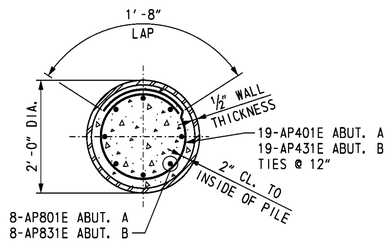
SCALE: 1/16" = 1'-0"

ABUTMENT B PILE PLAN

SCALE: 1/16" = 1'-0"



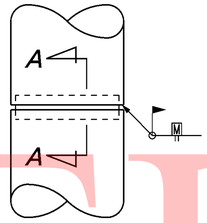
ELEVATION



SECTION

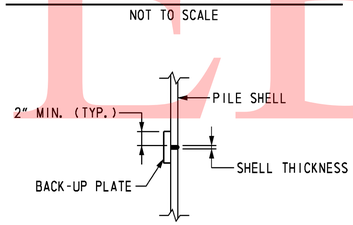
PIPE PILE REINFORCEMENT

SCALE: 3/4" = 1'-0"



PIPE PILE SPLICE DETAIL

NOT TO SCALE



SECTION A-A

NOT TO SCALE

PILE SPLICE NOTES:

1. BACK-UP PLATE TO BE CUT FROM SAME PILE SIZE AS IS BEING SPLICED. CUT AND BEND TO FIT INSIDE DIAMETER OF PILE.
2. NO PILE SPLICING TO BE ALLOWED ON ANY PORTION OF PILE THAT IS TO REMAIN EXPOSED IN COMPLETED STRUCTURE.
3. SPLICER SLEEVE MATERIAL SHALL BE STEEL CONFORMING TO ASTM DESIGNATION A709, GRADE 36 (250).

PILE INSTALLATION DATA

SUBSTRUCTURE UNIT	DESIGN DATA: NOMINAL PILE DRIVING RESISTANCE (KIPS)	DESIGN DATA: ESTIMATED PILE TIP ELEVATION	ACTUAL FIELD DATA: AVERAGE MINIMUM TIP ELEVATION	ACTUAL FIELD DATA: AVERAGE MAXIMUM TIP ELEVATION
ABUTMENT A	580	10.0		
ABUTMENT B	600	20.0		

ABUTMENT A PILE DRIVING INFORMATION

PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

ABUTMENT B PILE DRIVING INFORMATION

PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

NOTES:

1. PILES SHALL BE 24" DIA. WITH 1/2" WALL THICKNESS OPEN-ENDED STEEL PIPE PILES, ASTM A252 GRADE 3.
2. REINFORCING STRAPS SHALL BE PROVIDED FOR THE ABUTMENT STEM AND BACKWALL TO RESIST THE LONGITUDINAL FORCES ON THE SUPERSTRUCTURE.
3. PILE CASINGS SHALL BE INSTALLED AT THE PROPOSED PILE LOCATIONS DURING THE ABUTMENT MSE WALL CONSTRUCTON.
4. UPON COMPLETION OF THE MSE WALL THERE SHALL BE A ~~30 TO~~ 60 DAY QUARANTINE PERIOD PRIOR TO DRIVING THE ABUTMENT PILES TO ALLOW FOR SETTLEMENT AND TO MINIMIZE THE DOWNDRAG FORCES THAT MIGHT DEVELOP ON THE PILES. (2)
5. THE ENGINEER SHALL MONITOR THE SETTLEMENT DURING THE QUARANTINE PERIOD TO DETERMINE WHEN THE PILES MAY BE DRIVEN.
6. UPON COMPLETION OF THE QUARANTINE PERIOD, AS JUDGED BY THE ENGINEER, DRIVE PILES TO THE NOMINAL PILE DRIVING RESISTANCE INDICATED ON THE PLANS.
7. 'TEST PILES' SHALL BE TESTED IN ACCORDANCE WITH THE SPECIFICATIONS.

CROSS REFERENCE NOTES:

1. FOR ABUTMENT PLAN AND ELEVATION, SEE DWG. S1-5 & S1-6.
2. FOR ABUTMENT REINFORCEMENT SCHEDULE, SEE DWG. S1-15.
3. FOR PILE CASING DETAILS, SEE DWG. S1-5.
4. FOR SOIL PROFILE, SOIL PROPERTIES AND TOTAL ESTIMATED SETTLEMENT, SEE DWG. S1-14.
5. FOR TEST PILE PAYMENT NOTES, SEE DWG. S1-2.

S1-4

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. (2) REV. QUARANTINE PERIOD, 01/26/11, RFK	

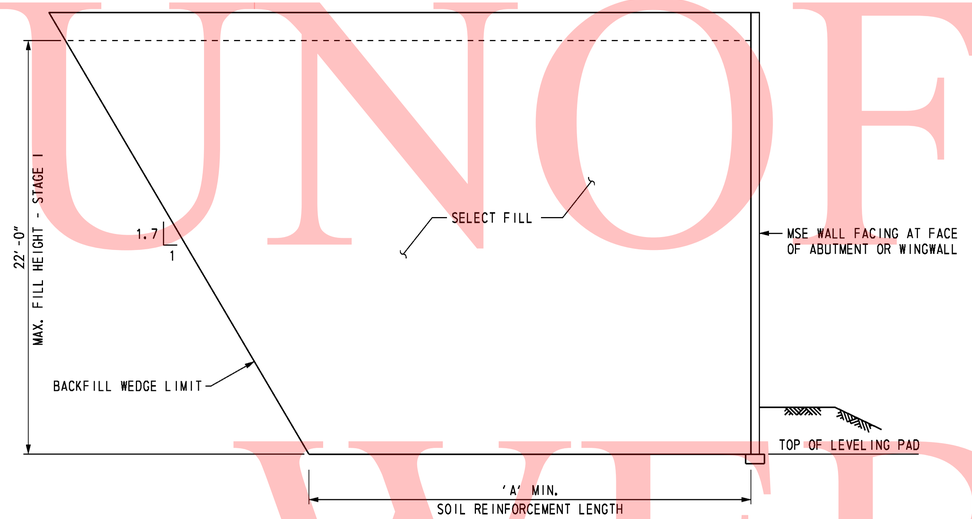
SR1 / I-95 INTERCHANGE

CONTRACT	28-090-03	BRIDGE NO.	1-716B
COUNTY	NEW CASTLE	DESIGNED BY: K. D. BEAVER	
		CHECKED BY: R. F. KIRCHNER	

RAMP A OVER I-95

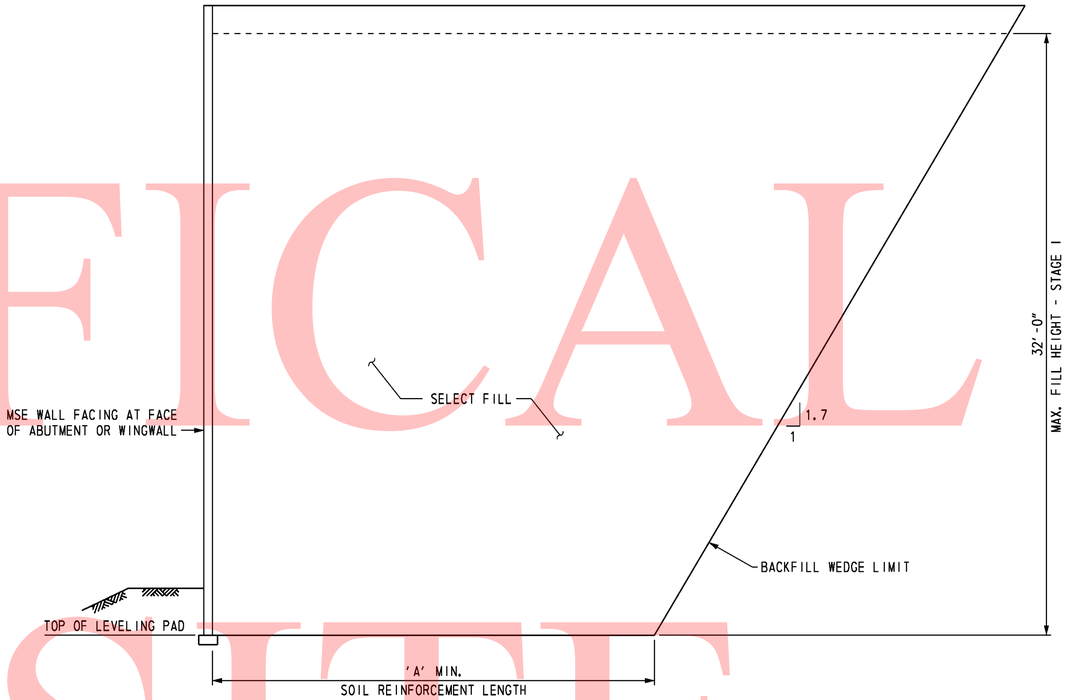
ABUTMENT FOUNDATION PLAN

SHEET NO.	198
TOTAL SHTS.	803



SOIL PROFILE SECTION
ABUTMENT A AND WINGWALLS I AND II

NOT TO SCALE



SOIL PROFILE SECTION
ABUTMENT B AND WINGWALLS III AND IV

NOT TO SCALE

MINIMUM REINFORCED ZONE WIDTH (A) FEET	
ABUTMENT A	
FACE OF ABUTMENT	33.0
WINGWALLS I AND III	23.5
ABUTMENT B	
FACE OF ABUTMENT	38.0
WINGWALLS III AND IV	38.0

SOIL PROPERTIES				
SOIL TYPE	UNIT WEIGHT (PCF)	DRAINED ANGLE OF FRICTION (DEGREES)	UNDRAINED SHEAR (PSF)	FACTORED BEARING RESISTANCE (KSF)
SELECT FILL	125	34	-	-
FOUNDATION SOIL:				
ABUTMENT A	70	27	1000	4.0
ABUTMENT B	70	28	1000	6.0

FOUNDATION NOTES

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED FOR EACH STRUCTURE LOCATION. THE INTERNAL STABILITY CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS.

ISOLATED AREAS OF EXISTING FILL MAY BE ENCOUNTERED DURING CONSTRUCTION OF THIS MSE WALL. EXISTING FILL SHALL BE UNDERCUT TO EXPOSE UNDISTURBED NATURAL SOIL. UNDERCUTTING AND BACKFILLING WILL BE MEASURED AND PAID IN ACCORDANCE WITH THE SPECIFICATIONS.

A MINIMUM 7-DAY QUARANTINE PERIOD SHALL BE REQUIRED AFTER CONSTRUCTION OF THE WALL TO THE "MAX. FILL HEIGHT - STAGE 1" INDICATED ON THE SOIL PROFILE SECTION. NO FURTHER FILL SHALL BE PLACED UNTIL AUTHORIZED BY THE ENGINEER. ONCE AUTHORIZATION IS GIVEN, FILL SHALL BE PLACED IN ADDITIONAL INCREMENTS OF 5 FEET IN HEIGHT, WITH THE SAME QUARANTINE PERIOD AND AUTHORIZATION REQUIRED AT EACH INCREMENT. AN ADDITIONAL QUARANTINE PERIOD OF ~~30 TO~~ 60 DAYS IS REQUIRED AFTER CONSTRUCTION OF THE MSE WALL TO ITS FULL HEIGHT. NO FURTHER CONSTRUCTION SHALL BE PERMITTED UNTIL AUTHORIZED BY THE ENGINEER. A TOTAL ESTIMATED SETTLEMENT OF APPROXIMATELY FOUR (4) TO FIVE (5) INCHES IS ANTICIPATED.

(2)

S1-14

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. (2) REV. QUARANTINE PERIOD, 01/26/11, RFK	

SR1 / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	1-716B	SHEET NO.
28-090-03	DESIGNED BY: R. F. KIRCHNER		208
COUNTY			TOTAL SHTS.
NEW CASTLE	CHECKED BY: G.P. MISTRY		803

RAMP A OVER I-95

WINGWALL DETAILS 2

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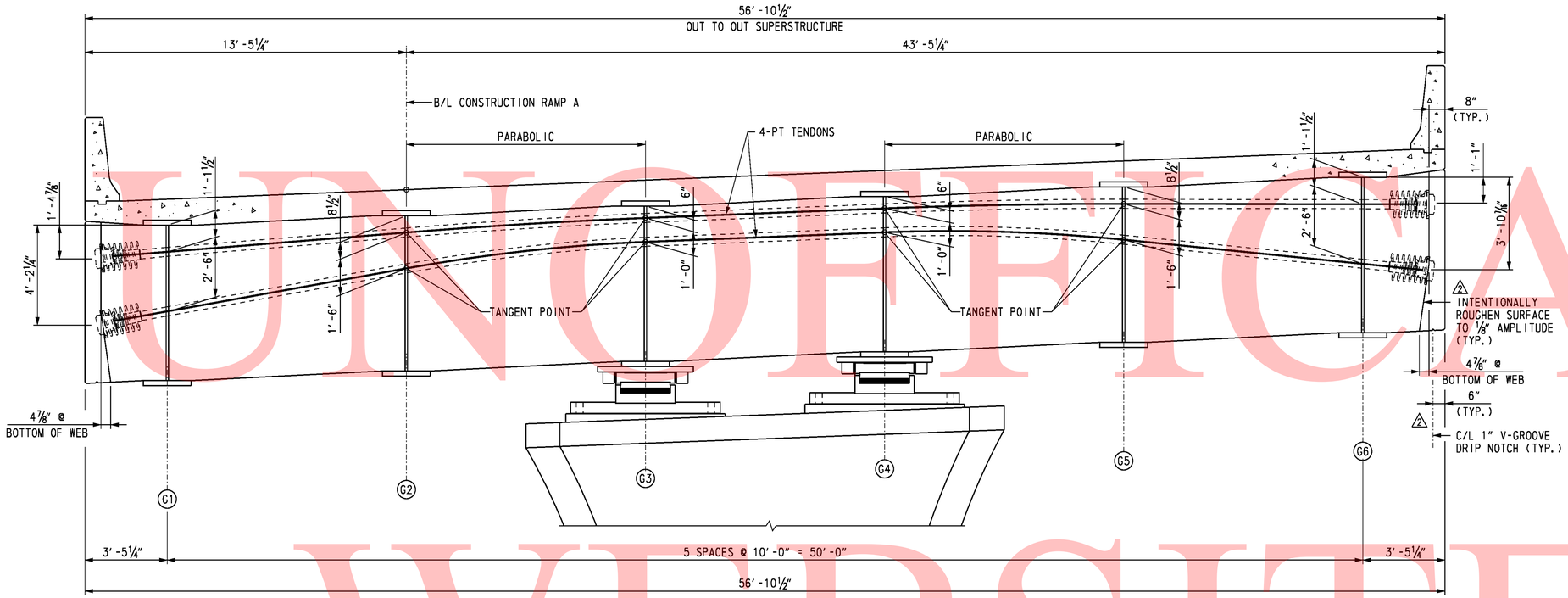
12/2/2011
Steve_Lambert

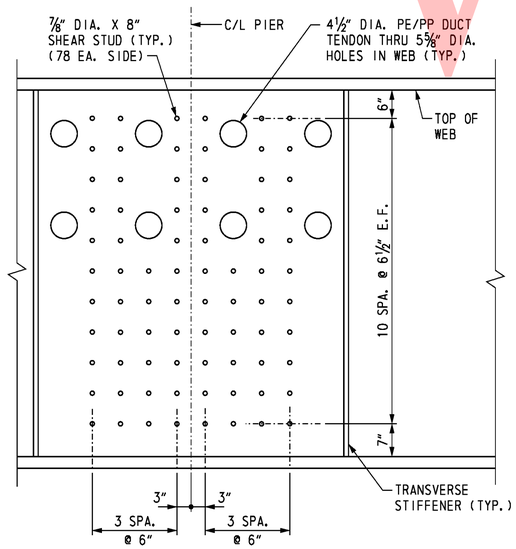


POST-TENSIONING SECTION

SCALE: ⅜″ = 1′-0″

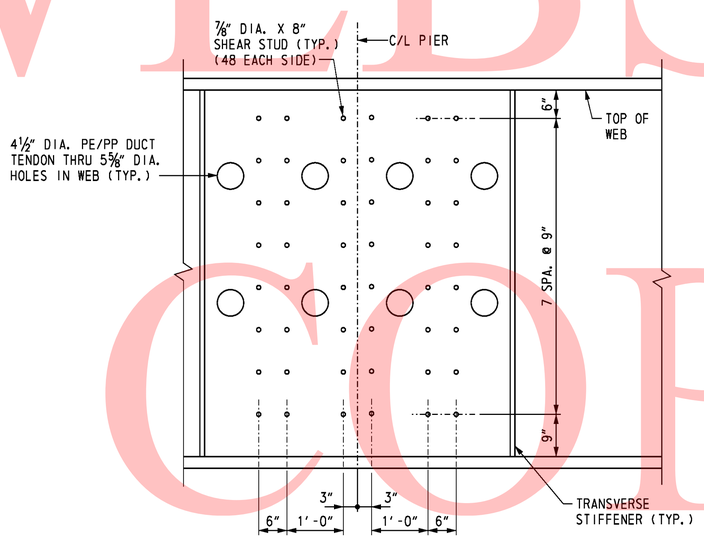
SEQUENCE OF CONSTRUCTION:

1. CONSTRUCT PIER FOUNDATION AND COLUMN.
2. AFTER THE FOUNDATION AND COLUMNS HAVE ATTAINED AT LEAST 80% OF THEIR DESIGN COMPRESSIVE STRENGTH, CONSTRUCT TEMPORARY SHORING TO SUPPORT SUPERSTRUCTURE GIRDERS. PIER CAP AND GIRDERS SHALL BE SUPPORTED ON TEMPORARY SHORING FRAMES UNTIL DECK SLAB HAS BEEN CONSTRUCTED AND POST-TENSIONING OPERATIONS HAVE BEEN COMPLETED.
3. ERECT SUPERSTRUCTURE GIRDERS ON TEMPORARY SHORING.
4. POUR DECK CONCRETE IN POSITIVE MOMENT REGIONS 1, 2, 3 AND 4 AS SHOWN ON THE POURING SEQUENCE PLANS. THIS WILL ALLOW THE GIRDERS TO DEFLECT DUE TO THE DECK WEIGHT WITHOUT ANY RESTRAINT AT THE INTEGRAL PIER LOCATIONS.
5. POUR CONCRETE FOR THE INTEGRAL PIER CAP.
6. POUR REMAINING DECK CONCRETE IN NEGATIVE MOMENT REGIONS AFTER PIER CAPS HAVE REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.
7. CONSTRUCT CONCRETE BARRIERS. AS AN ALTERNATE, BARRIERS MAY BE CONSTRUCTED AFTER POST TENSIONING OPERATIONS.
8. AFTER DECK CONCRETE HAS ATTAINED ITS 28 DAY COMPRESSIVE STRENGTH, POST-TENSIONING OPERATIONS MAY COMMENCE. TENDONS SHALL BE STRESSED FROM ONE END OF THE PIER CAP IN THE ORDER SHOWN. CONTRACTOR MAY PROPOSE AN ALTERNATE STRESSING SEQUENCE AND SUBMIT TO THE ENGINEER FOR APPROVAL.
9. DURING THE POST TENSIONING OPERATION, THE GIRDERS SHALL BE SHIMMED AS NECESSARY TO MAINTAIN FULL SUPPORT FROM THE TEMPORARY SHORING.
10. WHEN POST TENSIONING IS COMPLETE, REMOVE TEMPORARY SHORING AND GROUT DUCTS.
11. CONSTRUCT CONCRETE ANCHORAGE COVER AT ENDS OF PIER CAP.



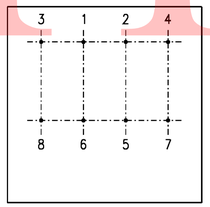
SHEAR STUDS (GIRDERS 2-5)

SCALE: ¾″ = 1′-0″



SHEAR STUDS (GIRDERS 1 & 6)

SCALE: ¾″ = 1′-0″



POST-TENSION STRESSING SEQUENCE

NOT TO SCALE

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. S1-1.
2. FOR PIER PLAN AND ELEVATION, SEE DWG. S1-17.
3. FOR PIER CAP REINFORCEMENT DETAILS, SEE DWG. S1-21.
4. FOR PIER COLUMN REINFORCEMENT DETAILS, SEE DWG. S1-22.
5. FOR PIER FOOTING REINFORCEMENT DETAILS, SEE DWG. S1-23.
6. FOR BRIDGE DECK POURING SEQUENCE, SEE DWG. S1-45.

POST TENSIONING NOTES:

MATERIAL PROPERTIES:

CONCRETE CAP: f′c = 8000 psi
f′ci = 5500 psi

POST TENSIONING STEEL:

EACH TENDON CONSISTS OF 22 STRANDS ENCLOSED WITHIN 4½″ DIAMETER POLYETHYLENE/POLYPROPYLENE (PE/PP) PLASTIC DUCTS.

STRANDS SHALL BE 0.6 INCH DIAMETER SEVEN WIRE UNCOATED LOW RELAXATION STRANDS CONFORMING TO AASHTO M203 (ASTM A416), GRADE 270.

MODULUS OF ELASTICITY:	28,000 ksi
WOBBLE COEFFICIENT:	0.0002
COEFFICIENT OF FRICTION:	0.23
ANCHOR SET:	0.25 IN
JACKING STRESS:	UPPER TENDON 199,500 PSI LOWER TENDON 204,000 PSI
ANCHORING STRESS:	UPPER TENDON 183,000 PSI LOWER TENDON 179,000 PSI

1. TENDONS SHALL NOT BE STRESSED UNTIL THE PIER CAP CONCRETE REACHES A MINIMUM COMPRESSIVE STRENGTH OF 5,500 psi.
2. LOCAL ZONE REINFORCEMENT FOR TENDON ANCHORAGES SHALL BE DESIGNED BY THE CONTRACTOR, SHOWN ON SHOP DRAWINGS AND SUBMITTED FOR APPROVAL BY THE ENGINEER.

S1-20

DELAWARE DEPARTMENT OF TRANSPORTATION

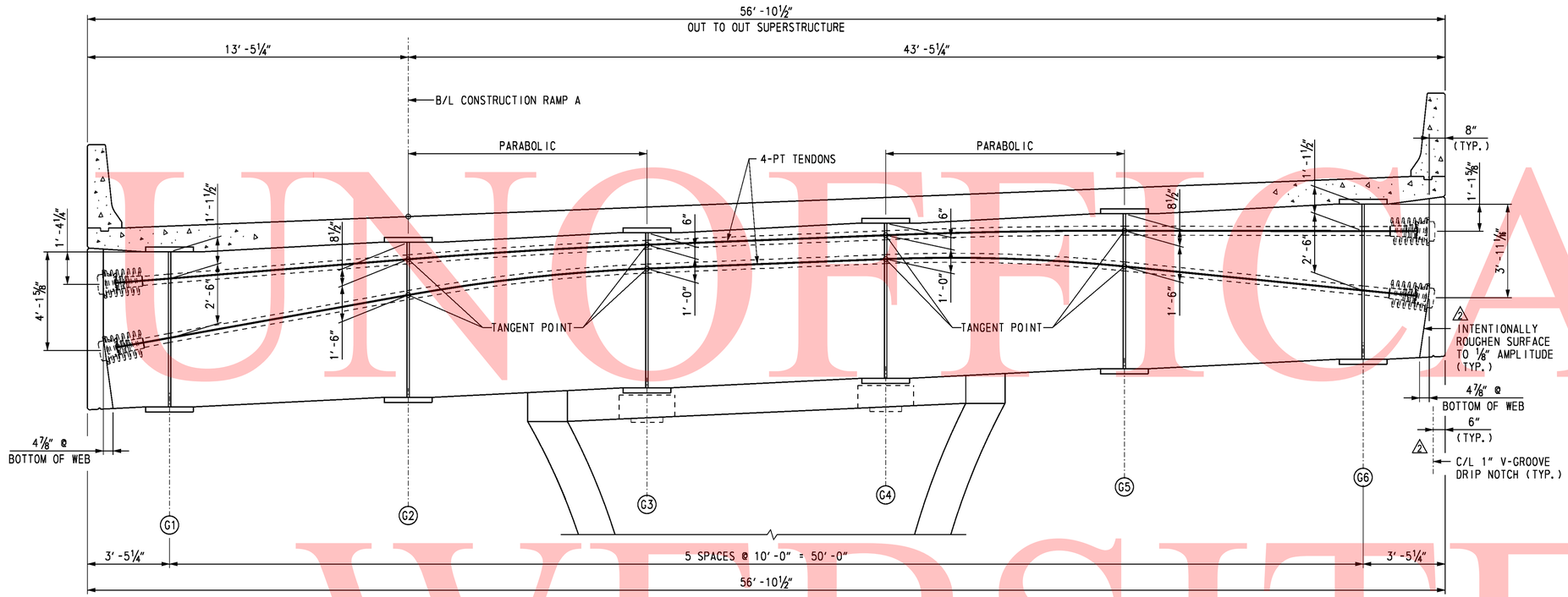
ADDENDUMS / REVISIONS	
ADDENDUM NO. 2 ADDED V-GROOVE DRIP NOTCH AND ROUGHENED SURFACE NOTES, 01/26/11, SAM	

SR1 / I-95 INTERCHANGE

CONTRACT	28-090-03
COUNTY	NEW CASTLE
BRIDGE NO.	1-716B
DESIGNED BY: K. D. BEAVER	
CHECKED BY: R. F. KIRCHNER	

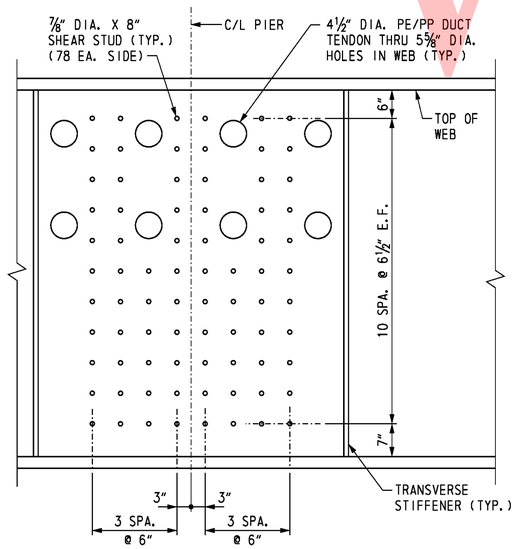
RAMP A OVER I-95
PIER 1
REINFORCEMENT 1

SHEET NO.	214
TOTAL SHTS.	803



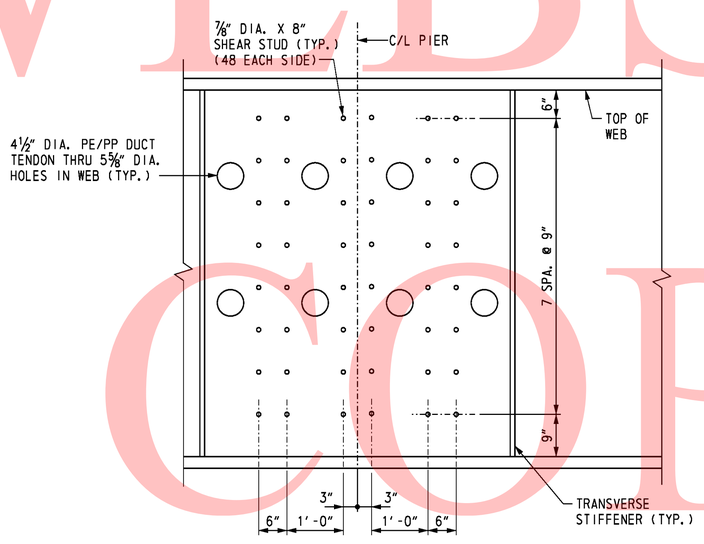
POST-TENSIONING SECTION

SCALE: ⅜″ = 1′-0″



SHEAR STUDS (GIRDERS 2-5)

SCALE: ¾″ = 1′-0″

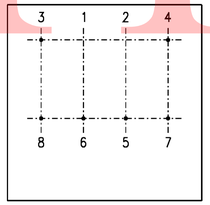


SHEAR STUDS (GIRDERS 1 & 6)

SCALE: ¾″ = 1′-0″

SEQUENCE OF CONSTRUCTION:

1. CONSTRUCT PIER FOUNDATION AND COLUMN.
2. AFTER THE FOUNDATION AND COLUMNS HAVE ATTAINED AT LEAST 80% OF THEIR DESIGN COMPRESSIVE STRENGTH, CONSTRUCT TEMPORARY SHORING TO SUPPORT SUPERSTRUCTURE GIRDERS. PIER CAP AND GIRDERS SHALL BE SUPPORTED ON TEMPORARY SHORING FRAMES UNTIL DECK SLAB HAS BEEN CONSTRUCTED AND POST-TENSIONING OPERATIONS HAVE BEEN COMPLETED.
3. ERECT SUPERSTRUCTURE GIRDERS ON TEMPORARY SHORING.
4. POUR DECK CONCRETE IN POSITIVE MOMENT REGIONS 1, 2, 3 AND 4 AS SHOWN ON THE POURING SEQUENCE PLANS. THIS WILL ALLOW THE GIRDERS TO DEFLECT DUE TO THE DECK WEIGHT WITHOUT ANY RESTRAINT AT THE INTEGRAL PIER LOCATIONS.
5. POUR CONCRETE FOR THE INTEGRAL PIER CAP.
6. POUR REMAINING DECK CONCRETE IN NEGATIVE MOMENT REGIONS AFTER PIER CAPS HAVE REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.
7. CONSTRUCT CONCRETE BARRIERS. AS AN ALTERNATE, BARRIERS MAY BE CONSTRUCTED AFTER POST TENSIONING OPERATIONS.
8. AFTER DECK CONCRETE HAS ATTAINED ITS 28 DAY COMPRESSIVE STRENGTH, POST-TENSIONING OPERATIONS MAY COMMENCE. TENDONS SHALL BE STRESSED FROM ONE END OF THE PIER CAP IN THE ORDER SHOWN. CONTRACTOR MAY PROPOSE AN ALTERNATE STRESSING SEQUENCE AND SUBMIT TO THE ENGINEER FOR APPROVAL.
9. DURING THE POST TENSIONING OPERATION, THE GIRDERS SHALL BE SHIMMED AS NECESSARY TO MAINTAIN FULL SUPPORT FROM THE TEMPORARY SHORING.
10. WHEN POST TENSIONING IS COMPLETE, REMOVE TEMPORARY SHORING AND GROUT DUCTS.
11. CONSTRUCT CONCRETE ANCHORAGE COVER AT ENDS OF PIER CAP.



POST-TENSION STRESSING SEQUENCE

NOT TO SCALE

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. S1-1.
2. FOR PIER PLAN AND ELEVATION, SEE DWG. S1-18.
3. FOR PIER CAP REINFORCEMENT DETAILS, SEE DWG. S1-25.
4. FOR PIER COLUMN REINFORCEMENT DETAILS, SEE DWG. S1-26.
5. FOR PIER FOOTING REINFORCEMENT DETAILS, SEE DWG. S1-27.
6. FOR BRIDGE DECK POURING SEQUENCE, SEE DWG. S1-45.

POST TENSIONING NOTES:

MATERIAL PROPERTIES:

CONCRETE CAP: f′c = 8000 psi
f′ci = 5500 psi

POST TENSIONING STEEL:

EACH TENDON CONSISTS OF 22 STRANDS ENCLOSED WITHIN 4½″ DIAMETER POLYETHYLENE/POLYPROPYLENE (PE/PP) PLASTIC DUCTS.

STRANDS SHALL BE 0.6 INCH DIAMETER SEVEN WIRE UNCOATED LOW RELAXATION STRANDS CONFORMING TO AASHTO M203 (ASTM A416), GRADE 270.

MODULUS OF ELASTICITY:	28,000 ksi
WOBBLE COEFFICIENT:	0.0002
COEFFICIENT OF FRICTION:	0.23
ANCHOR SET:	0.25 IN
JACKING STRESS:	UPPER TENDON 199,500 PSI
	LOWER TENDON 204,000 PSI
ANCHORING STRESS:	UPPER TENDON 183,000 PSI
	LOWER TENDON 179,000 PSI

1. TENDONS SHALL NOT BE STRESSED UNTIL THE PIER CAP CONCRETE REACHES A MINIMUM COMPRESSIVE STRENGTH OF 5,500 psi.
2. LOCAL ZONE REINFORCEMENT FOR TENDON ANCHORAGES SHALL BE DESIGNED BY THE CONTRACTOR, SHOWN ON SHOP DRAWINGS AND SUBMITTED FOR APPROVAL BY THE ENGINEER.

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1/25/2011
Steve_Lambert

S1-24

DELAWARE DEPARTMENT OF TRANSPORTATION

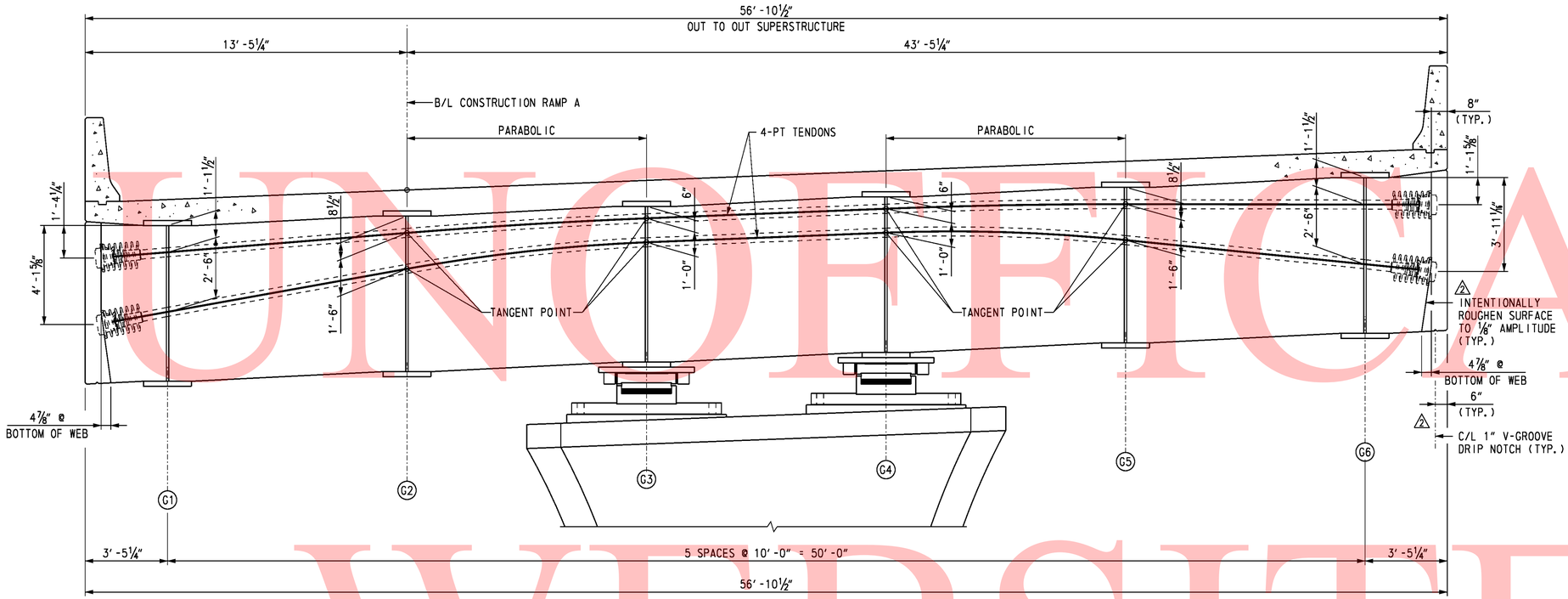
ADDENDUMS / REVISIONS	
ADDENDUM NO. 2 ADDED V-GROOVE DRIP NOTCH AND	
ROUGHENED SURFACE NOTES, 01/26/11, SAM	

SR1 / I-95 INTERCHANGE

CONTRACT	28-090-03
COUNTY	NEW CASTLE
BRIDGE NO.	1-716B
DESIGNED BY: K. D. BEAVER	
CHECKED BY: R. F. KIRCHNER	

RAMP A OVER I-95
PIER 2
REINFORCEMENT 1

SHEET NO.	218
TOTAL SHTS.	803

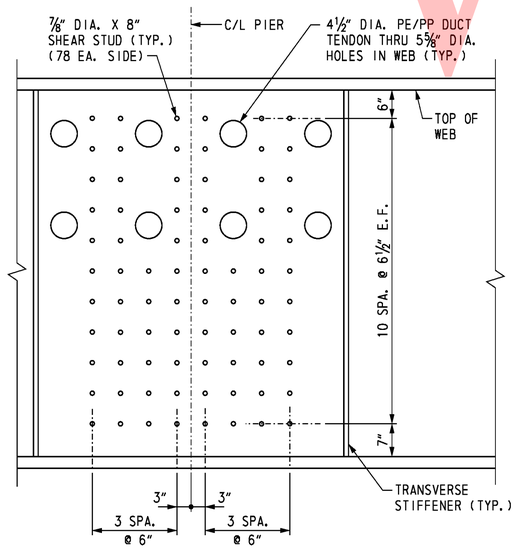


POST-TENSIONING SECTION

SCALE: ⅜″ = 1′-0″

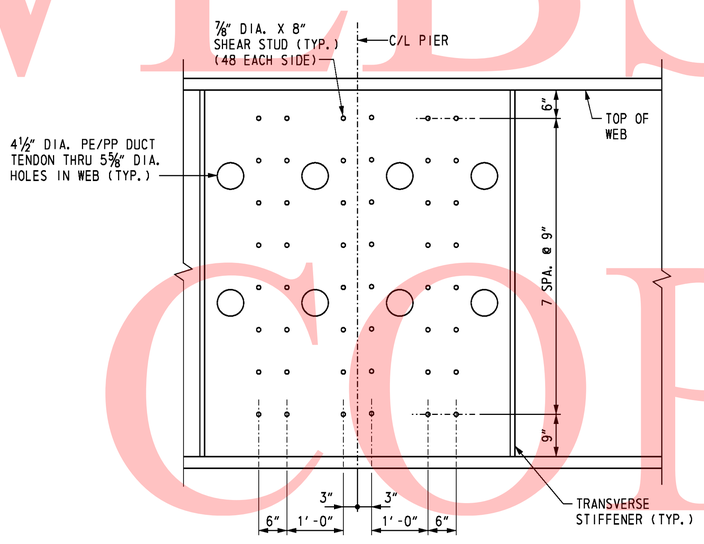
SEQUENCE OF CONSTRUCTION:

1. CONSTRUCT PIER FOUNDATION AND COLUMN.
2. AFTER THE FOUNDATION AND COLUMNS HAVE ATTAINED AT LEAST 80% OF THEIR DESIGN COMPRESSIVE STRENGTH, CONSTRUCT TEMPORARY SHORING TO SUPPORT SUPERSTRUCTURE GIRDERS. PIER CAP AND GIRDERS SHALL BE SUPPORTED ON TEMPORARY SHORING FRAMES UNTIL DECK SLAB HAS BEEN CONSTRUCTED AND POST-TENSIONING OPERATIONS HAVE BEEN COMPLETED.
3. ERECT SUPERSTRUCTURE GIRDERS ON TEMPORARY SHORING.
4. POUR DECK CONCRETE IN POSITIVE MOMENT REGIONS 1, 2, 3 AND 4 AS SHOWN ON THE POURING SEQUENCE PLANS. THIS WILL ALLOW THE GIRDERS TO DEFLECT DUE TO THE DECK WEIGHT WITHOUT ANY RESTRAINT AT THE INTEGRAL PIER LOCATIONS.
5. POUR CONCRETE FOR THE INTEGRAL PIER CAP.
6. POUR REMAINING DECK CONCRETE IN NEGATIVE MOMENT REGIONS AFTER PIER CAPS HAVE REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.
7. CONSTRUCT CONCRETE BARRIERS. AS AN ALTERNATE, BARRIERS MAY BE CONSTRUCTED AFTER POST TENSIONING OPERATIONS.
8. AFTER DECK CONCRETE HAS ATTAINED ITS 28 DAY COMPRESSIVE STRENGTH, POST-TENSIONING OPERATIONS MAY COMMENCE. TENDONS SHALL BE STRESSED FROM ONE END OF THE PIER CAP IN THE ORDER SHOWN. CONTRACTOR MAY PROPOSE AN ALTERNATE STRESSING SEQUENCE AND SUBMIT TO THE ENGINEER FOR APPROVAL.
9. DURING THE POST TENSIONING OPERATION, THE GIRDERS SHALL BE SHIMMED AS NECESSARY TO MAINTAIN FULL SUPPORT FROM THE TEMPORARY SHORING.
10. WHEN POST TENSIONING IS COMPLETE, REMOVE TEMPORARY SHORING AND GROUT DUCTS.
11. CONSTRUCT CONCRETE ANCHORAGE COVER AT ENDS OF PIER CAP.



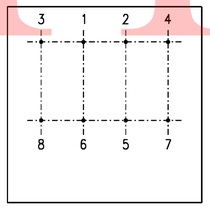
SHEAR STUDS (GIRDERS 2-5)

SCALE: ¾″ = 1′-0″



SHEAR STUDS (GIRDERS 1 & 6)

SCALE: ¾″ = 1′-0″



POST-TENSION STRESSING SEQUENCE

NOT TO SCALE

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. S1-1.
2. FOR PIER PLAN AND ELEVATION, SEE DWG. S1-19.
3. FOR PIER CAP REINFORCEMENT DETAILS, SEE DWG. S1-29.
4. FOR PIER COLUMN REINFORCEMENT DETAILS, SEE DWG. S1-30.
5. FOR PIER FOOTING REINFORCEMENT DETAILS, SEE DWG. S1-31.
6. FOR BRIDGE DECK POURING SEQUENCE, SEE DWG. S1-45.

POST TENSIONING NOTES:

MATERIAL PROPERTIES:

CONCRETE CAP: f′c = 8000 psi
f′ci = 5500 psi

POST TENSIONING STEEL:

EACH TENDON CONSISTS OF 22 STRANDS ENCLOSED WITHIN 4½″ DIAMETER POLYETHYLENE/POLYPROPYLENE (PE/PP) PLASTIC DUCTS.

STRANDS SHALL BE 0.6 INCH DIAMETER SEVEN WIRE UNCOATED LOW RELAXATION STRANDS CONFORMING TO AASHTO M203 (ASTM A416), GRADE 270.

MODULUS OF ELASTICITY:	28,000 ksi
WOBBLE COEFFICIENT:	0.0002
COEFFICIENT OF FRICTION:	0.23
ANCHOR SET:	0.25 IN
JACKING STRESS:	UPPER TENDON 199,500 PSI
	LOWER TENDON 204,000 PSI
ANCHORING STRESS:	UPPER TENDON 183,000 PSI
	LOWER TENDON 179,000 PSI

1. TENDONS SHALL NOT BE STRESSED UNTIL THE PIER CAP CONCRETE REACHES A MINIMUM COMPRESSIVE STRENGTH OF 5,500 psi.
2. LOCAL ZONE REINFORCEMENT FOR TENDON ANCHORAGES SHALL BE DESIGNED BY THE CONTRACTOR, SHOWN ON SHOP DRAWINGS AND SUBMITTED FOR APPROVAL BY THE ENGINEER.

S1-28

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. 2 ADDED V-GROOVE DRIP NOTCH AND	
ROUGHENED SURFACE NOTES, 01/26/11, SAM	

SR1 / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	1-716B
28-090-03	DESIGNED BY: K. D. BEAVER	
COUNTY	CHECKED BY: R. F. KIRCHNER	
NEW CASTLE		

RAMP A OVER I-95
PIER 3
REINFORCEMENT 1

SHEET NO.	222
TOTAL SHTS.	803

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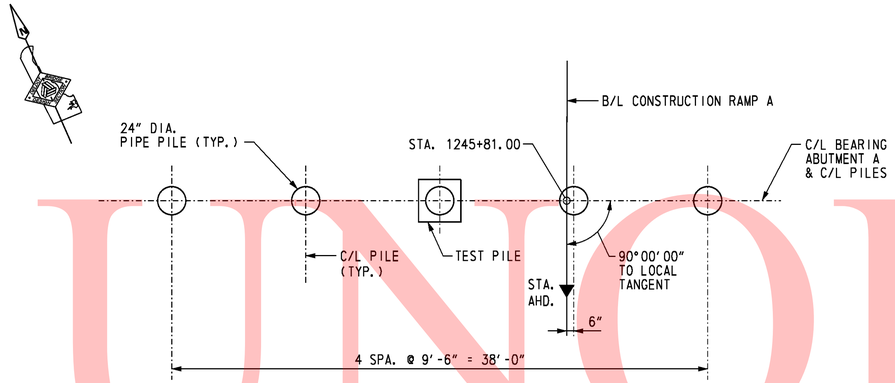
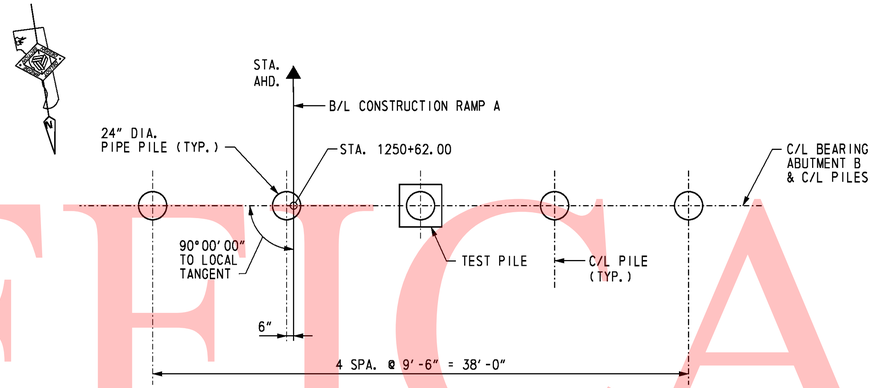
1/25/2011
Steve_Lambert



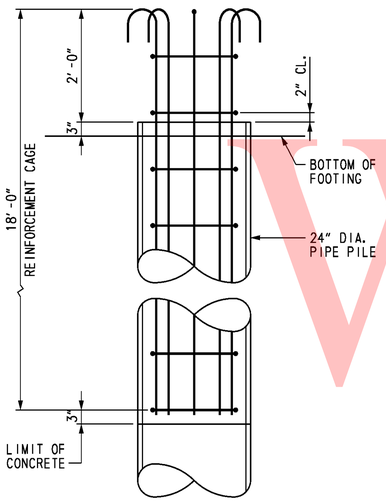
ABUTMENT A PILE PLAN

SCALE: 3/16" = 1'-0"

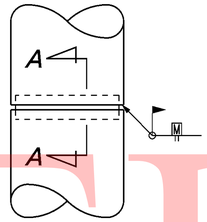


ABUTMENT B PILE PLAN

SCALE: 3/16" = 1'-0"

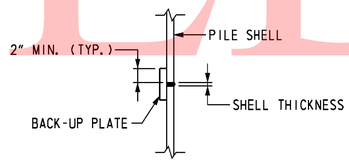


ELEVATION



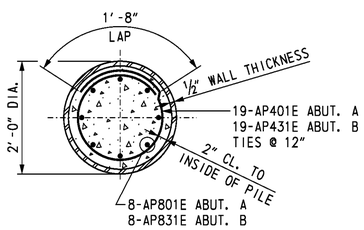
PIPE PILE SPLICE DETAIL

NOT TO SCALE



SECTION A-A

NOT TO SCALE



SECTION

PIPE PILE REINFORCEMENT

SCALE: 3/4" = 1'-0"

PILE SPLICE NOTES:

1. BACK-UP PLATE TO BE CUT FROM SAME PILE SIZE AS IS BEING SPLICED. CUT AND BEND TO FIT INSIDE DIAMETER OF PILE.
2. NO PILE SPLICING TO BE ALLOWED ON ANY PORTION OF PILE THAT IS TO REMAIN EXPOSED IN COMPLETED STRUCTURE.
3. SPLICER SLEEVE MATERIAL SHALL BE STEEL CONFORMING TO ASTM DESIGNATION A709, GRADE 36 (250).

PILE INSTALLATION DATA

SUBSTRUCTURE UNIT	DESIGN DATA: NOMINAL PILE DRIVING RESISTANCE (KIPS)	DESIGN DATA: ESTIMATED PILE TIP ELEVATION	ACTUAL FIELD DATA: AVERAGE MINIMUM TIP ELEVATION	ACTUAL FIELD DATA: AVERAGE MAXIMUM TIP ELEVATION
ABUTMENT A	430	21.0		
ABUTMENT B	430	13.0		

ABUTMENT A PILE DRIVING INFORMATION

PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

ABUTMENT B PILE DRIVING INFORMATION

PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

NOTES:

1. PILES SHALL BE 24" DIA. WITH 1/2" WALL THICKNESS OPEN-ENDED STEEL PIPE PILES, ASTM A252 GRADE 3.
2. REINFORCING STRAPS SHALL BE PROVIDED FOR THE ABUTMENT STEM AND BACKWALL TO RESIST THE LONGITUDINAL FORCES ON THE SUPERSTRUCTURE.
3. PILE CASINGS SHALL BE INSTALLED AT THE PROPOSED PILE LOCATIONS DURING THE ABUTMENT MSE WALL CONSTRUCTON.
4. UPON COMPLETION OF THE MSE WALL THERE SHALL BE A ~~30 TO~~ 60 DAY QUARANTINE PERIOD PRIOR TO DRIVING THE ABUTMENT PILES TO ALLOW FOR SETTLEMENT AND TO MINIMIZE THE DOWNDRAG FORCES THAT MIGHT DEVELOP ON THE PILES. (2)
5. THE ENGINEER SHALL MONITOR THE SETTLEMENT DURING THE QUARANTINE PERIOD TO DETERMINE WHEN THE PILES MAY BE DRIVEN.
6. UPON COMPLETION OF THE QUARANTINE PERIOD, AS JUDGED BY THE ENGINEER, DRIVE PILES TO THE NOMINAL PILE DRIVING RESISTANCE INDICATED ON THE PLANS.
7. 'TEST PILES' SHALL BE TESTED IN ACCORDANCE WITH THE SPECIFICATIONS.

CROSS REFERENCE NOTES:

1. FOR ABUTMENT PLAN AND ELEVATION, SEE DWGS. S2-5 & S2-6.
2. FOR REINFORCING BAR LIST, SEE DWG. S2-15.
3. FOR PILE CASING DETAILS, SEE DWG. S2-5.
4. FOR SOIL PROFILE, SOIL PROPERTIES AND TOTAL ESTIMATED SETTLEMENT, SEE DWG. S2.14
5. FOR TEST PILE PAYMENT NOTES, SEE DWG. S2-2..

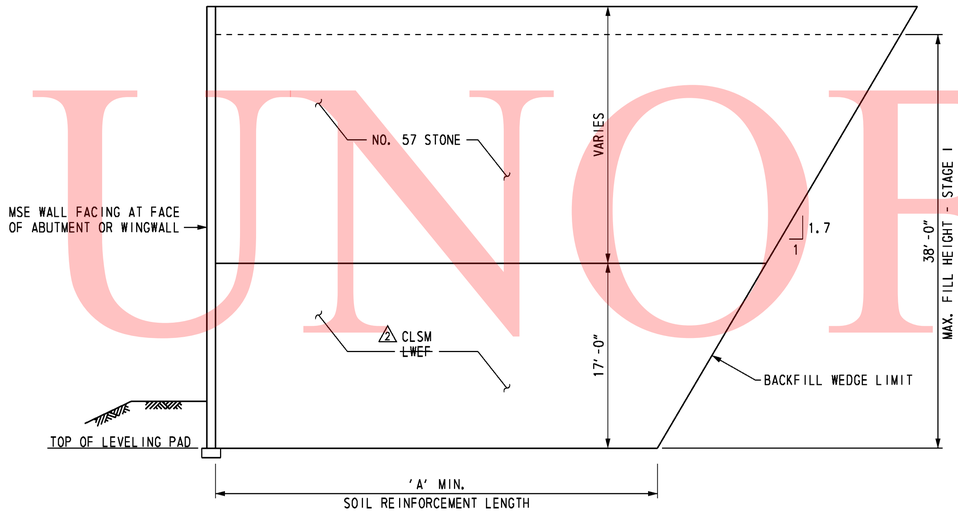
DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. (2) REV. QUARANTINE PERIOD, 01/26/11, RFK	

SR1 / I-95 INTERCHANGE

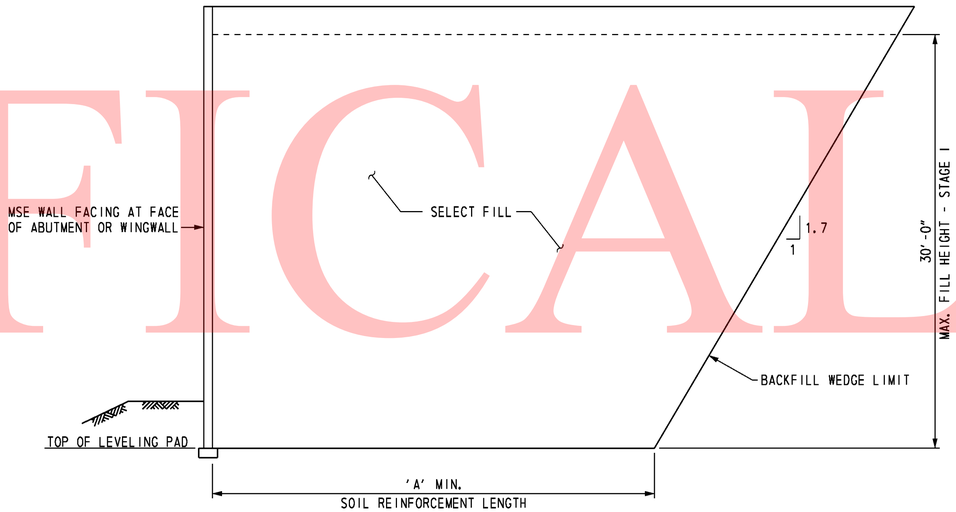
CONTRACT	BRIDGE NO.	1-716C	RAMP A OVER SR 7
28-090-03	DESIGNED BY: K. D. BEAVER		ABUTMENT FOUNDATION PLAN
COUNTY	CHECKED BY: R. F. KIRCHNER		
NEW CASTLE			

SHEET NO.	TOTAL SHTS.
257	803



SOIL PROFILE SECTION
ABUTMENT A AND WINGWALLS I AND II

NOT TO SCALE



SOIL PROFILE SECTION
ABUTMENT B AND WINGWALLS III AND IV

NOT TO SCALE

MINIMUM REINFORCED ZONE WIDTH (A) FEET	
ABUTMENT A	
FACE OF ABUTMENT	31.0
WINGWALLS I AND II	31.0
ABUTMENT B	
FACE OF ABUTMENT	33.0
WINGWALLS III AND IV	26.0

SOIL PROPERTIES				
SOIL TYPE	UNIT WEIGHT (PCF)	DRAINED ANGLE OF FRICTION (DEGREES)	UNDRAINED SHEAR (PSF)	FACTORED BEARING RESISTANCE (KSF)
SELECT FILL	125	34	-	-
1 ~~LWEF~~	~~40~~	~~38~~	-	-
NO. 57 STONE	105	38	-	-
FOUNDATION SOIL:				
ABUTMENT A	120	24	1250	5.0
ABUTMENT B	120	24	1400	5.1
2 CONTROLLED LOW STRENGTH MATERIAL (CLSM)	40	38	-	-

FOUNDATION NOTES

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED FOR EACH STRUCTURE LOCATION. THE INTERNAL STABILITY CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS.

ISOLATED AREAS OF EXISTING FILL MAY BE ENCOUNTERED DURING CONSTRUCTION OF THIS MSE WALL. EXISTING FILL SHALL BE UNDERCUT TO EXPOSE UNDISTURBED NATURAL SOIL. UNDERCUTTING AND BACKFILLING WILL BE MEASURED AND PAID IN ACCORDANCE WITH THE SPECIFICATIONS.

A MINIMUM 7-DAY QUARANTINE PERIOD SHALL BE REQUIRED AFTER CONSTRUCTION OF THE WALL TO THE "MAX. FILL HEIGHT - STAGE 1" INDICATED ON THE SOIL PROFILE SECTION. NO FURTHER FILL SHALL BE PLACED UNTIL AUTHORIZED BY THE ENGINEER. ONCE AUTHORIZATION IS GIVEN, FILL SHALL BE PLACED IN ADDITIONAL INCREMENTS OF 5 FEET IN HEIGHT, WITH THE SAME QUARANTINE PERIOD AND AUTHORIZATION REQUIRED AT EACH INCREMENT. AN ADDITIONAL QUARANTINE PERIOD OF ~~30 TO~~ 60 DAYS IS REQUIRED AFTER CONSTRUCTION OF THE MSE WALL TO ITS FULL HEIGHT. NO FURTHER CONSTRUCTION SHALL BE PERMITTED UNTIL AUTHORIZED BY THE ENGINEER. A TOTAL ESTIMATED SETTLEMENT OF APPROXIMATELY FOUR TO FIVE INCHES IS ANTICIPATED.

1 REVISED QUARANTINE PERIOD AND SOIL PROPERTIES, 01/26/11, RFK

2 REVISED CLSM TO CONTROLLED LOW STRENGTH MATERIAL (CLSM), 02/01/11, RFK

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

ADDENDUM NO. 1 REVISED QUARANTINE PERIOD AND SOIL PROPERTIES, 01/26/11, RFK

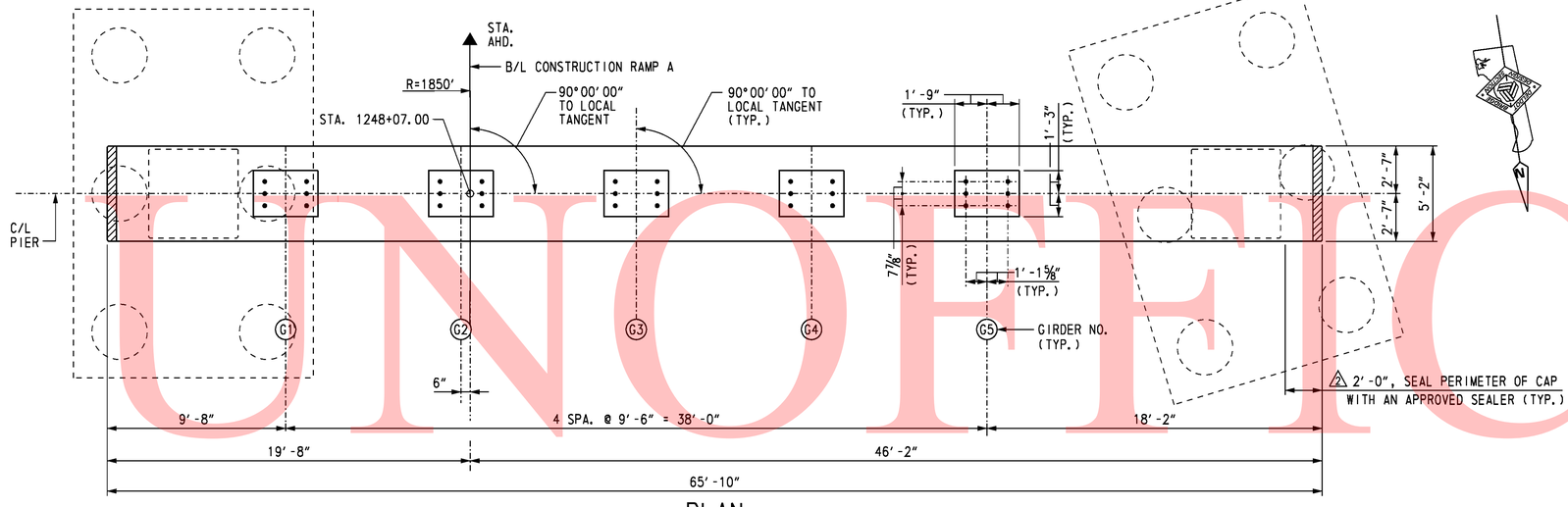
SR1 / I-95 INTERCHANGE

CONTRACT	28-090-03
COUNTY	NEW CASTLE
BRIDGE NO.	1-716C
DESIGNED BY:	R. F. KIRCHNER
CHECKED BY:	G.P. MISTRY

RAMP A OVER SR 7

WINGWALL DETAILS 2

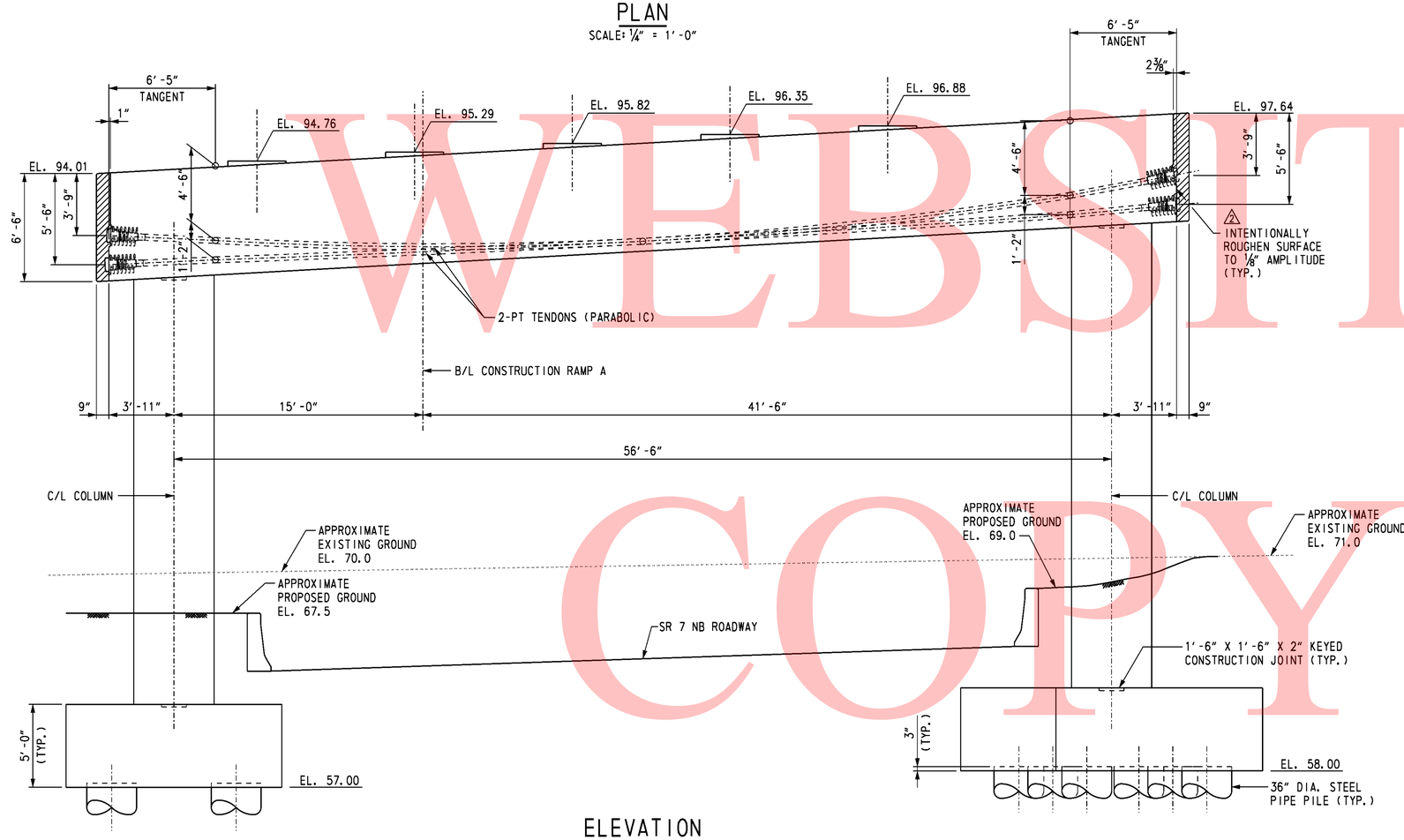
SHEET NO.	267
TOTAL SHTS.	803



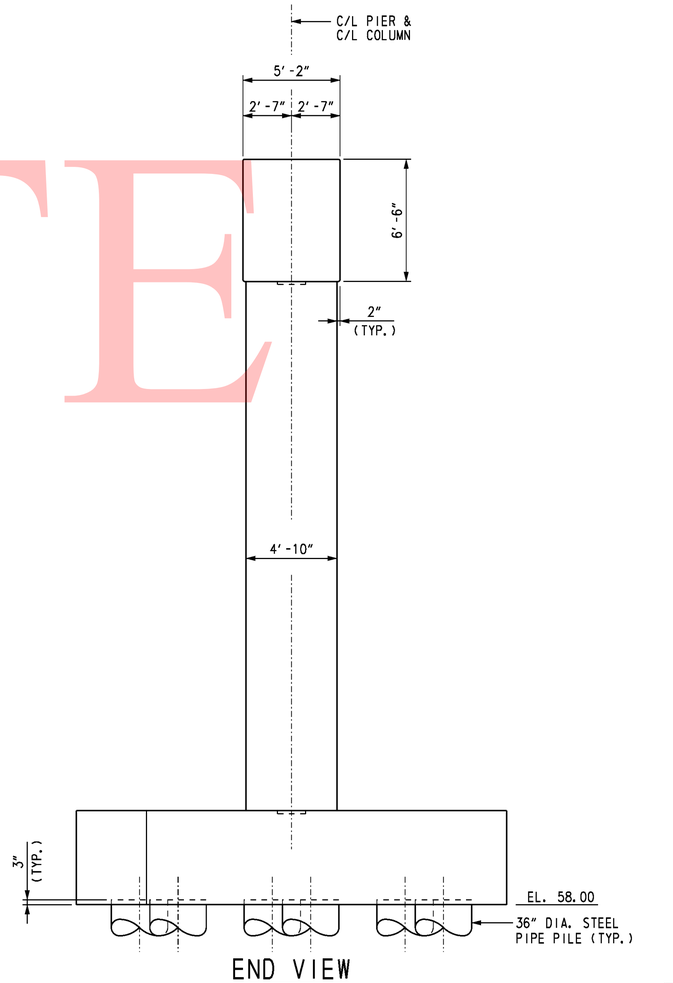
PLAN
SCALE: ¼" = 1'-0"

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. S2-1.
2. FOR PIER FOUNDATION PLAN, SEE DWG. S2-16.
3. FOR PIER REINFORCING DETAILS, SEE DWGS. S2-22 THRU S2-25.



ELEVATION
SCALE: ¼" = 1'-0"



END VIEW
SCALE: ¼" = 1'-0"

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1/25/2011
Steve_Lambert

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. 2 ADDED ROUGHENED SURFACE AND	
CONCRETE SEALER NOTES, 01/26/11, SAM	

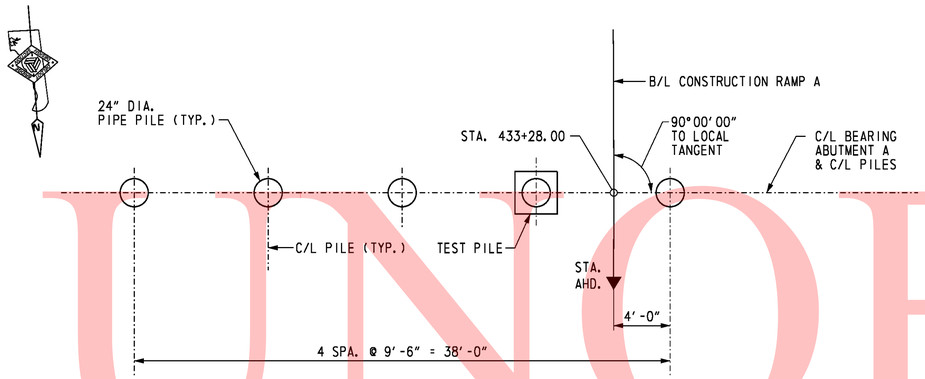
SR1 / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	1-716C
28-090-03	DESIGNED BY: T. B. CUSTER	
COUNTY	CHECKED BY: J. S. LI	
NEW CASTLE		

RAMP A OVER SR 7

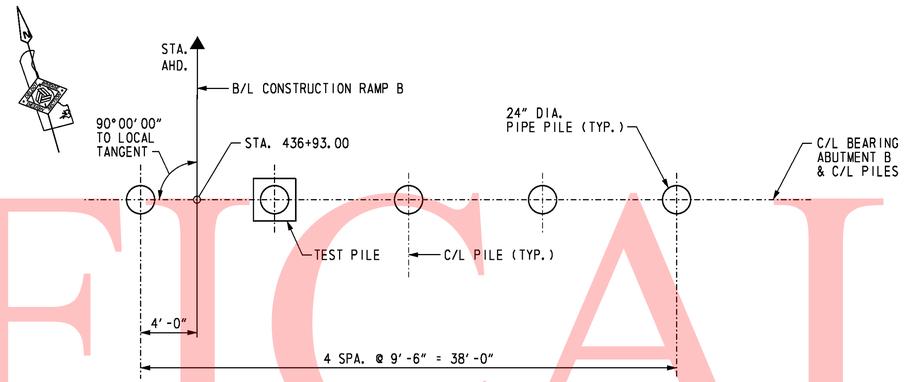
PIER 2 PLAN AND ELEVATION

S2-18
SHEET NO.
271
TOTAL SHTS.
803



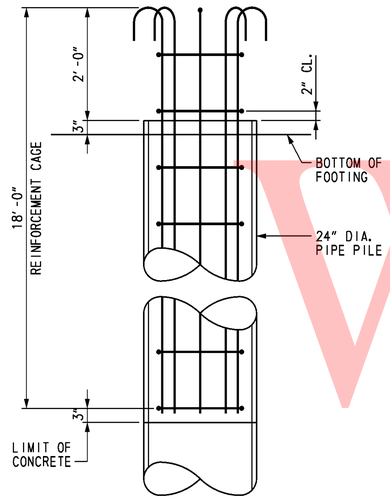
ABUTMENT A PILE PLAN

SCALE: 1/8" = 1'-0"

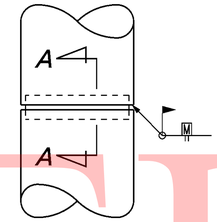


ABUTMENT B PILE PLAN

SCALE: 1/8" = 1'-0"

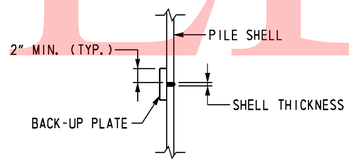


ELEVATION



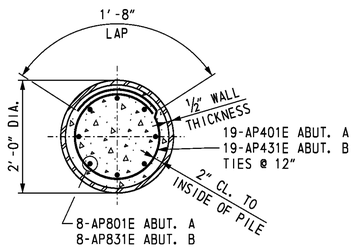
PIPE PILE SPLICE DETAIL

NOT TO SCALE



SECTION A-A

NOT TO SCALE



SECTION

PIPE PILE REINFORCEMENT

SCALE: 3/4" = 1'-0"

PILE SPLICE NOTES:

1. BACK-UP PLATE TO BE CUT FROM SAME PILE SIZE AS IS BEING SPLICED. CUT AND BEND TO FIT INSIDE DIAMETER OF PILE.
2. NO PILE SPLICING TO BE ALLOWED ON ANY PORTION OF PILE THAT IS TO REMAIN EXPOSED IN COMPLETED STRUCTURE.
3. SPLICER SLEEVE MATERIAL SHALL BE STEEL CONFORMING TO ASTM DESIGNATION A709, GRADE 36 (250).

PILE INSTALLATION DATA

SUBSTRUCTURE UNIT	DESIGN DATA		ACTUAL FIELD DATA	
	NOMINAL PILE DRIVING RESISTANCE (KIPS)	ESTIMATED PILE TIP ELEVATION	AVERAGE MINIMUM TIP ELEVATION	AVERAGE MAXIMUM TIP ELEVATION
ABUTMENT A	660	-7.0		
ABUTMENT B	660	11.0		

ABUTMENT A PILE DRIVING INFORMATION

PILE SIZE AND TYPE:	
ACTUAL BEARING OBTAINED:	
HAMMER TYPE:	
PILE HAMMER ENERGY:	
SPECIAL DRIVING CONDITIONS AND COMMENTS:	

ABUTMENT B PILE DRIVING INFORMATION

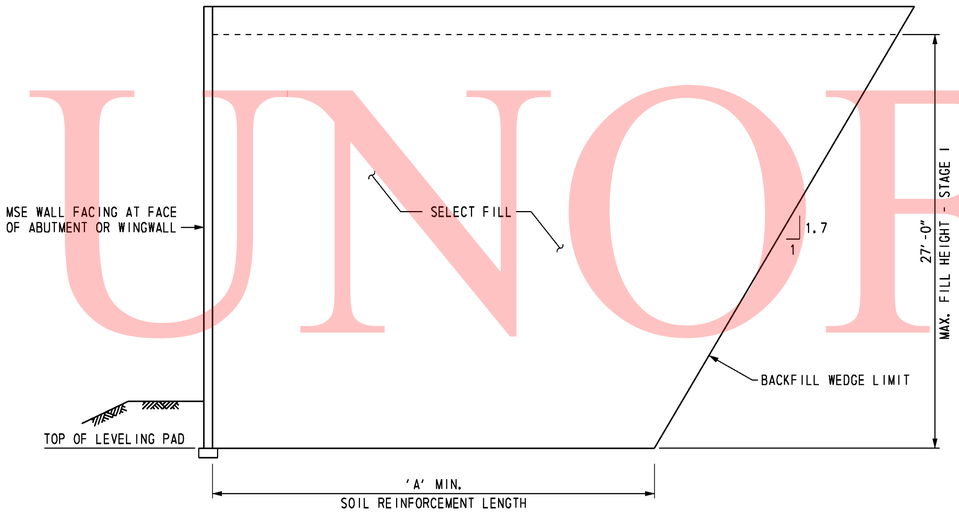
PILE SIZE AND TYPE:	
ACTUAL BEARING OBTAINED:	
HAMMER TYPE:	
PILE HAMMER ENERGY:	
SPECIAL DRIVING CONDITIONS AND COMMENTS:	

NOTES:

1. PILES SHALL BE 24" DIA. WITH ½" WALL THICKNESS OPEN-ENDED STEEL PIPE PILES, ASTM A252 GRADE 3.
2. REINFORCING STRAPS SHALL BE PROVIDED FOR THE ABUTMENT STEM AND BACKWALL TO RESIST THE LONGITUDINAL FORCES ON THE SUPERSTRUCTURE.
3. PILE CASINGS SHALL BE INSTALLED AT THE PROPOSED PILE LOCATIONS DURING THE ABUTMENT MSE WALL CONSTRUCTON.
4. (2) UPON COMPLETION OF THE MSE WALL THERE SHALL BE A ~~30 TO~~ 60 DAY QUARANTINE PERIOD PRIOR TO DRIVING THE ABUTMENT PILES TO ALLOW FOR SETTLEMENT AND TO MINIMIZE THE DOWNDRAG FORCES THAT MIGHT DEVELOP ON THE PILES.
5. THE ENGINEER SHALL MONITOR THE SETTLEMENT DURING THE QUARANTINE PERIOD TO DETERMINE WHEN THE PILES MAY BE DRIVEN.
6. UPON COMPLETION OF THE QUARANTINE PERIOD, AS JUDGED BY THE ENGINEER, DRIVE PILES TO THE NOMINAL PILE DRIVING RESISTANCE INDICATED ON THE PLANS.
7. 'TEST PILES' SHALL BE TESTED IN ACCORDANCE WITH THE SPECIFICATIONS.

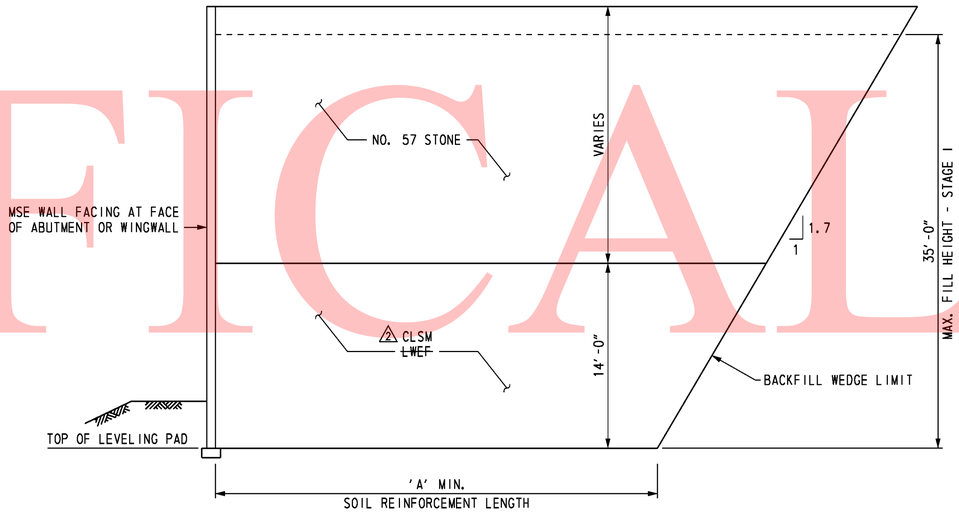
CROSS REFERENCE NOTES:

1. FOR ABUTMENT PLAN AND ELEVATION, SEE DWGS. S3-5 & S3-6.
2. FOR REINFORCING BAR LIST, SEE DWG. S3-15.
3. FOR PILE CASING DETAILS, SEE DWG. S3-5.
4. FOR SOIL PROFILE, SOIL PROPERTIES AND TOTAL ESTIMATED SETTLEMENT, SEE DWG. S3-14.
5. FOR TEST PILE PAYMENT NOTES, SEE DWG. S3-2.



SOIL PROFILE SECTION
ABUTMENT A AND WINGWALLS I AND II

NOT TO SCALE



SOIL PROFILE SECTION
ABUTMENT B AND WINGWALLS III AND IV

NOT TO SCALE

MINIMUM REINFORCED ZONE WIDTH (A) FEET	
ABUTMENT A	
FACE OF ABUTMENT	26.0
WINGWALLS I AND II	26.0
ABUTMENT B	
FACE OF ABUTMENT	27.0
WINGWALLS III AND IV	27.0

SOIL PROPERTIES				
SOIL TYPE	UNIT WEIGHT (PCF)	DRAINED ANGLE OF FRICTION (DEGREES)	UNDRAINED SHEAR (PSF)	FACTORED BEARING RESISTANCE (KSF)
SELECT FILL	125	34	-	-
2 ~~LWEF~~	~~40~~	~~38~~	-	-
NO. 57 STONE	105	38	-	-
FOUNDATION SOIL:				
ABUTMENT A	120	24	1400	5.5
ABUTMENT B	120	24	1250	5.5
2 CONTROLLED LOW STRENGTH MATERIAL (CLSM)	40	38	-	-

FOUNDATION NOTES

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED FOR EACH STRUCTURE LOCATION. THE INTERNAL STABILITY CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS.

ISOLATED AREAS OF EXISTING FILL MAY BE ENCOUNTERED DURING CONSTRUCTION OF THIS MSE WALL. EXISTING FILL SHALL BE UNDERCUT TO EXPOSE UNDISTURBED NATURAL SOIL. UNDERCUTTING AND BACKFILLING WILL BE MEASURED AND PAID IN ACCORDANCE WITH THE SPECIFICATIONS.

A MINIMUM 7-DAY QUARANTINE PERIOD SHALL BE REQUIRED AFTER CONSTRUCTION OF THE WALL TO THE "MAX. FILL HEIGHT - STAGE 1" INDICATED ON THE SOIL PROFILE SECTION. NO FURTHER FILL SHALL BE PLACED UNTIL AUTHORIZED BY THE ENGINEER. ONCE AUTHORIZATION IS GIVEN, FILL SHALL BE PLACED IN ADDITIONAL INCREMENTS OF 5 FEET IN HEIGHT, WITH THE SAME QUARANTINE PERIOD AND AUTHORIZATION REQUIRED AT EACH INCREMENT. AN ADDITIONAL QUARANTINE PERIOD OF
2 ~~30 TO~~ 60 DAYS IS REQUIRED AFTER CONSTRUCTION OF THE MSE WALL TO ITS FULL HEIGHT. NO FURTHER CONSTRUCTION SHALL BE PERMITTED UNTIL AUTHORIZED BY THE ENGINEER. A TOTAL ESTIMATED SETTLEMENT OF APPROXIMATELY FOUR TO FIVE INCHES IS ANTICIPATED.

S3-14

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. 2 REVISED QUARANTINE PERIOD AND SOIL PROPERTIES, 01/26/11, RFK	

SR1 / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	1-268A
28-090-03	DESIGNED BY: R. F. KIRCHNER	
COUNTY	CHECKED BY: G.P. MISTRY	
NEW CASTLE		

RAMP B OVER SR 7

WINGWALL DETAILS 2

SHEET NO.	320
TOTAL SHTS.	803

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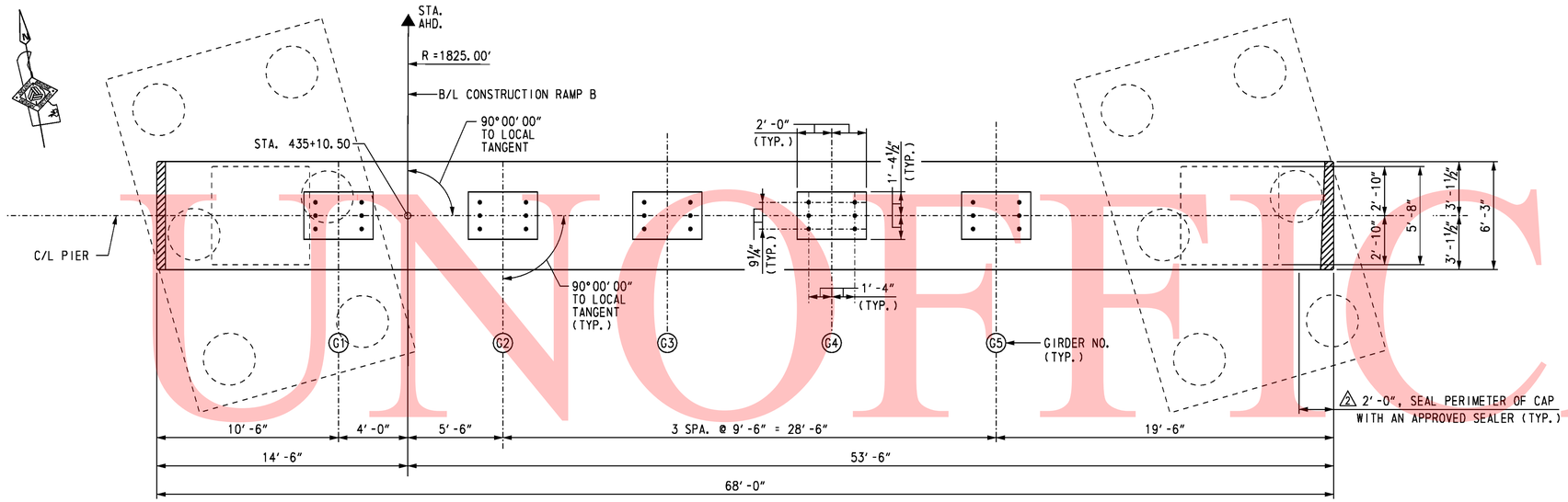
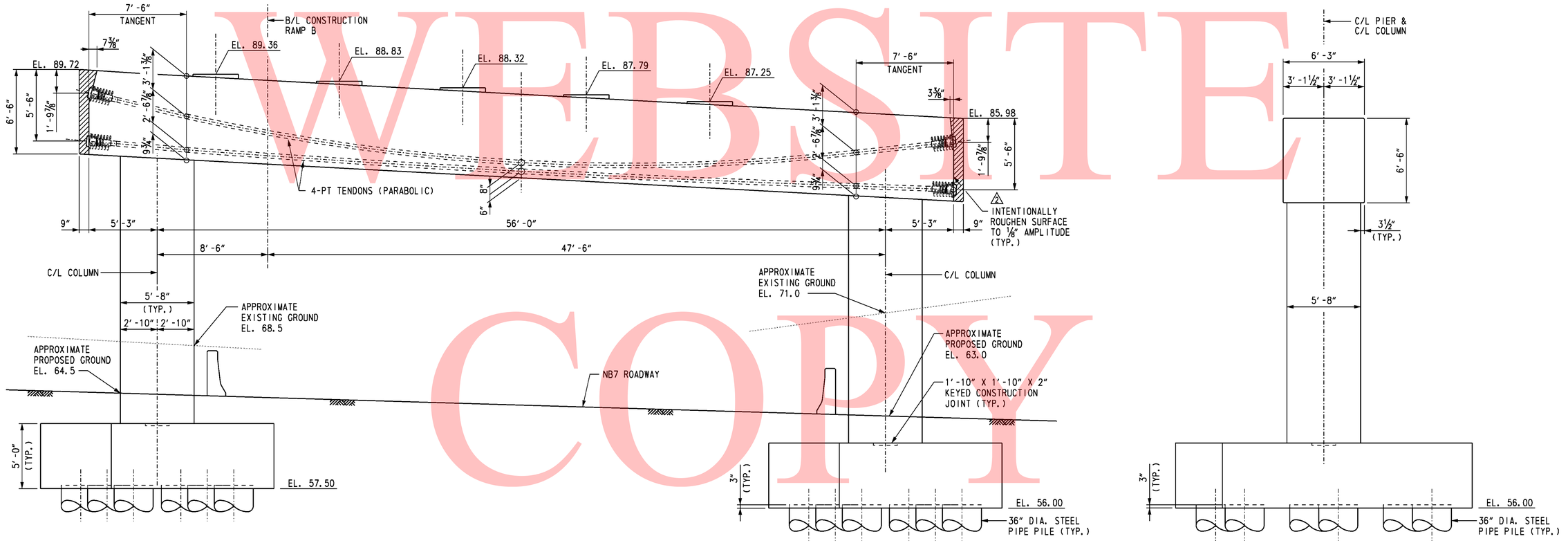
12/2/2011
Steve_Lambert



PLAN

SCALE: ¼" = 1'-0"



ELEVATION

SCALE: ¼" = 1'-0"

END VIEW

SCALE: ¼" = 1'-0"

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. S3-1.
2. FOR PIER FOUNDATION PLAN, SEE DWG. S3-16.
3. FOR PIER REINFORCING DETAILS, SEE DWG. S3-22.

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1/25/2011
Steve_Lambert

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. 2 ADDED ROUGHENED SURFACE AND	
CONCRETE SEALER NOTES, 01/26/11, SAM	

SR1 / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	1-268A
28-090-03	DESIGNED BY: T. B. CUSTER	
COUNTY	CHECKED BY: J. S. LI	
NEW CASTLE		

RAMP B OVER SR 7
PIER
PLAN AND ELEVATION

S3-17	
SHEET NO.	323
TOTAL SHTS.	803

GENERAL NOTES

1. DESIGN SPECIFICATIONS
   AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4th EDITION WITH 2009 INTERIM REVISIONS.
   DELAWARE DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL, MAY 2005 INCLUDING LATEST REVISIONS. ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

2. LOADING
   UNIT WEIGHTS OF MATERIALS SHALL BE IN ACCORDANCE WITH THE DELAWARE DESIGN MANUAL.
   FUTURE OVERLAY ALLOWANCE SHALL BE 25 LBS/SQ FT.
   STEEL BRIDGE DECK FORMS WHICH STAY IN PLACE (INCLUDING CONCRETE IN FORM CORRUGATIONS) SHALL BE 15 LBS/SQ FT.
   VEHICLE LIVE LOAD SHALL BE HL-93, WHICH CONSISTS OF A DESIGN TRUCK OR TANDEM WITH DYNAMIC LOAD ALLOWANCE AND A LANE LOAD. RATING SHALL USE ALL DELAWARE LEGAL LOADS SPECIFIED IN THE BRIDGE DESIGN MANUAL.
   BARRIER HAS BEEN DESIGNED FOR TEST LEVEL FIVE (TL-5).
   FATIGUE DESIGN SHALL BE BASED ON THE FOLLOWING ONE DIRECTIONAL TRAFFIC VOLUMES:

   RAMP C OVER SR 7: DESIGN ADT = 7,175, DESIGN ADTT = 215

   FOR THERMAL LOADS, CONSIDER THE MODERATE TEMPERATURE RANGE AS STIPULATED IN THE AASHTO LRFD DESIGN SPECIFICATIONS. THE NORMAL TEMPERATURE SHALL BE CONSIDERED TO BE 60F.
   FOR SEISMIC LOADS, CONSIDER SEISMIC PERFORMANCE ZONE 1, WITH A SITE CLASS = E AND IMPORTANCE CATEGORY - CRITICAL.

3. PORTLAND CEMENT CONCRETE
   PORTLAND CEMENT CONCRETE FOR CAST-IN-PLACE ELEMENTS SHALL BE AS FOLLOWS:
   (28 DAY COMPRESSIVE STRENGTH)
   ITEM NO. 602007 (CLASS A, F'c=4500 PSI) - PIER ABOVE FOOTING
   ITEM NO. 602011 (CLASS A, F'c=4500 PSI) - PIER FOOTING, TOP OF PIER PILES
   ITEM NO. 602785 (CLASS A, F'c=6000 PSI) - POST-TENSIONED PIER CAP
   ITEM NO. 602013 (CLASS D, F'c=4500 PSI) - DECK
   ITEM NO. 602014 (CLASS D, F'c=4500 PSI) - APPROACH SLAB
   ITEM NO. 602015 (CLASS A, F'c=4500 PSI) - ABUTMENT, TOP OF ABUTMENT PILES
   ITEM NO. 602017 (CLASS A, F'c=4500 PSI) - BARRIER
   MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" X ¾" MILLED CHAMFER STRIPS UNLESS NOTED OTHERWISE, EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE NOTATION ON THE PLANS, "DO NOT CHAMFER". NO SLIP-FORMING OF BARRIERS IS PERMITTED, UNLESS OTHERWISE APPROVED.

4. BAR REINFORCEMENT
   REINFORCING STEEL SHALL CONFORM TO AASHTO M31 (ASTM A615), GRADE 60. ALL REINFORCING STEEL SHALL HAVE A CLEAR COVER OF 2" UNLESS OTHERWISE SPECIFIED ON THE PLANS.
   FUSION-BONDED EPOXY COATED REINFORCING STEEL SHALL CONFORM TO AASHTO M284 (ASTM D3963), AND SHALL BE DENOTED WITH A SUFFIX "E" IN THE BAR MARKS.

   DO NOT WELD GRADE 60 REINFORCING STEEL.

5. POST-TENSIONING STEEL
   ALL POST-TENSIONING BAR TENDONS SHALL CONFORM TO ASTM A722, GRADE 150 KSI (TYPE II), AND SHALL BE EPOXY COATED. ACCESSORIES INCLUDING ANCHOR PLATE AND NUT SHALL ALSO BE EPOXY COATED. DUCTS SHALL BE SEMI-RIGID METAL. GROUT FOR DUCTS SHALL BE IN ACCORDANCE WITH ITEM NO. 602779 "POST TENSIONING GROUT"

6. STRUCTURAL STEEL
   STRUCTURAL STEEL SHALL CONFORM TO ASTM A 709, GRADE 50W, NCLUDING THE ADDITIONAL REQUIREMENTS FOR CHARPY V-NOTCH TESTING OF AASHTO M270 FOR PRIMARY LOAD CARRYING MEMBERS UNDER TENSILE STRESS. THE PRIMARY LOAD CARRYING MEMBER COMPONENTS ARE THE FLANGES, WEBS, AND SPLICE PLATES OF THE STEEL GIRDERS. THE USE OF FRACTURE CRITICAL MEMBERS IS PROHIBITED. FATIGUE CATEGORIES D, E AND F SHALL NOT BE USED IN STRESS REVERSAL OR TENSION AREAS, EXCEPT FOR TEMPORARY CONDITIONS.

   EIGHT (8) FEET AT THE ENDS OF EACH GIRDER AND THE END CROSS FRAMES SHALL BE PAINTED WITH A URETHANE PAINT SYSTEM IN ACCORDANCE WITH SPECIAL PROVISION #605537-URETHANE PAINT SYSTEM. THE FINAL COLOR SHALL BE FEDERAL #10076 (BROWN) OF FED-STD-595B. COST OF PAINTING SHALL BE INCIDENTAL TO ITEM 605002, STEEL STRUCTURES.

   2 THE AREA IN CONTACT WITH THE INTEGRAL PIER CAP CONCRETE SHALL BE PAINTED WITH ONE COAT OF PRIMER AFTER THE SHEAR STUDS ARE INSTALLED.

   ALL BOLTS FOR SPLICE PLATES AND CROSS FRAMES SHALL BE ⅞" DIA. IN 1⅛" DIA. HOLES AND CONFORM TO ASTM A325, TYPE 3, WITH THREADS EXCLUDED FROM SHEAR PLANES. BOLTED CONNECTIONS SHALL BE CLASS B SLIP CRITICAL CONNECTIONS, UNLESS NOTED ON THE PLANS.

7. SERVICEABILITY
   LIVE LOAD DEFLECTION SHALL BE LIMITED TO L/800.
   FOR REINFORCEMENT DISTRIBUTION REQUIREMENTS, CONSIDER CLASS 2 EXPOSURE CRITERIA FOR DECKS. ACCOMMODATION TO JACK GIRDERS FOR FUTURE BEARING REPLACEMENT HAS BEEN CONSIDERED IN THE DESIGN.

8. CONSTRUCTION JOINTS
   KEYED CONSTRUCTION JOINTS SHALL BE 2" X 4" OR AS NOTED. ALL EXPOSED CONSTRUCTION JOINT EDGES SHALL HAVE A ¾" V-NOTCH, UNLESS OTHERWISE NOTED.

9. STABILIZING STRUCTURAL EXCAVATIONS
   SHEETING AND SHORING SHALL BE REQUIRED FOR ANY EXCAVATION EXCEEDING FIVE (5) FEET IN HEIGHT, THE COST SHALL BE PAID UNDER ITEM NO. 207501 - IN LIEU OF SHORING, THE CONTRACTOR MAY USE A 2:1 CUT SLOPE. NO PAYMENT SHALL BE MADE FOR ADDITIONAL EXCAVATION OR FILL OUTSIDE THE LIMITS AS DEFINED IN SECTION 207 OF THE STANDARD SPECIFICATIONS.

10. EXCAVATION REQUIRED TO ATTAIN THE GRADE FOR INSTALLATION OF MSE WALLS SHALL BE INCIDENTAL TO ITEM NO. 602772 - MECHANICALLY STABILIZED EARTH WALLS.

11. STRUCTURAL BACKFILL SHALL CONFORM TO THE REQUIREMENTS OF BORROW TYPE C. MSE WALL BACKFILL SHALL BE AS SPECIFIED ON THE PLANS.

12. ROADWAY CLEARANCES
    A MINIMUM OF 16'-6" VERTICAL CLEARANCE SHALL BE MAINTAINED ABOVE ALL ROADWAYS.
    A MINIMUM OF 2'-0" HORIZONTAL CLEARANCE SHALL BE MAINTAINED FROM THE OUTSIDE EDGE OF SHOULDER OFFSET (FACE OF CURB) TO THE FACE OF ANY OBSTRUCTION. THESE CLEARANCES APPLY AT ALL TIMES INCLUDING DURING CONSTRUCTION.

BRIDGE LEGAL LOAD RATING (TONS)
RAMP C OVER SR 7

TRUCK TYPE	RATING FACTOR	SAFE LOAD CAPACITY
HS-20	1.77	63.7
S220	2.84	56.8
S327	2.49	67.2
S335	1.89	66.1
S437	1.84	67.1
T330	2.46	73.8
T435	2.14	74.9
T540	1.90	76.0

BRIDGE DESIGN LOAD RATING:
INVENTORY = 1.27
OPERATING = 1.65

13. TEST PILES
    PILE LENGTHS FOR ORDERING PURPOSES SHALL BE DETERMINED BY TEST PILES. A MINIMUM OF ONE (1) PILE PER SUBSTRUCTURE, AS SHOWN ON THE PLANS, SHALL BE DYNAMICALLY TESTED BY THE CONTRACTOR IN ACCORDANCE WITH SPECIAL PROVISION 619519. TEST AND PRODUCTION PILE RE-STRIKES WILL BE PAID AS FOLLOWS:

    A). ALL TEST PILE(S) WILL BE RESTRUCK AND DYNAMICALLY TESTED BY THE CONTRACTOR. THE TEST PILE RESTRIKES SHALL BE INCIDENTAL TO ITEM NO. 619519 DYNAMIC PILE TESTING BY CONTRACTOR PROVIDED THAT THEY ARE PERFORMED WITHIN FIVE (5) CALENDAR DAYS FROM INITIAL DRIVE.

    B). AN ADDITIONAL PAYMENT WILL BE MADE TO THE CONTRACTOR IF HE IS DIRECTED BY THE ENGINEER TO WAIT AND RESTRIKE THE TEST PILE MORE THAN FIVE (5) CALENDAR DAYS AFTER INITIAL DRIVE. THE CONTRACTOR SHALL BE COMPENSATED AT THE FIXED PRICE OF $1,000.00 PER CALENDAR DAY FOR EVERY DAY, AFTER THE FIFTH CALENDAR DAY, UNDER ITEM NO. 619502 TEST PILE RESTRIKE. MULTIPLE TEST PILE RESTRIKES OCCURRING ON THE SAME DAY WILL ONLY BE PAID FOR AS ONE CALENDAR DAY. NO ADDITIONAL COMPENSATION WILL BE MADE REGARDLESS OF THE NUMBER OF TEST PILE RESTRIKES PERFORMED THAT DAY.

    C). RESTRIKES ON PRODUCTION PILES WHICH ARE DESIGNATED TO BE DYNAMICALLY TESTED WILL NOT BE PAID UNDER ITEM NO. 619501 PRODUCTION PILE RESTRIKE. THESE PRODUCTION PILE RESTRIKES ARE INCIDENTAL TO ITEM NO. 619519 DYNAMIC PILE TESTING BY CONTRACTOR.

    THE DEPARTMENT RESERVES THE RIGHT TO PERFORM DYNAMIC TESTING OF RESTRIKES.

14. THE CONCRETE PIER CAPS SHOWN ON THE PLANS SHALL BE USED. NO OTHER ALTERNATES WILL BE CONSIDERED.

NOTE:

LOAD RATING IS IN ACCORDANCE WITH THE LOAD AND RESISTANCE FACTOR RATING (LRFR) METHOD.

CROSS REFERENCE NOTE:

FOR MSE WALL NOTES, SEE DWG S4-14.

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

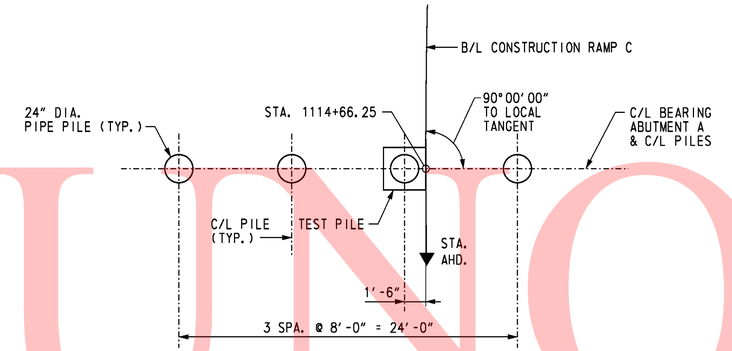
ADDENDUM NO.	REV. NOTE
2	REV. NOTE 6, 01/26/11, SAM

SR1 / I-95 INTERCHANGE

CONTRACT 28-090-03
COUNTY NEW CASTLE
BRIDGE NO. 1-717A
DESIGNED BY: R. F. KIRCHNER
CHECKED BY: J. S. LI

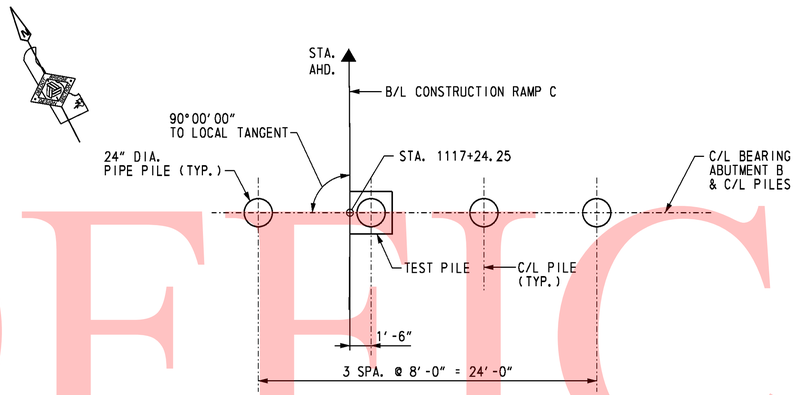
RAMP C OVER SR 7
GENERAL NOTES

S4-2
SHEET NO. 350
TOTAL SHTS. 803



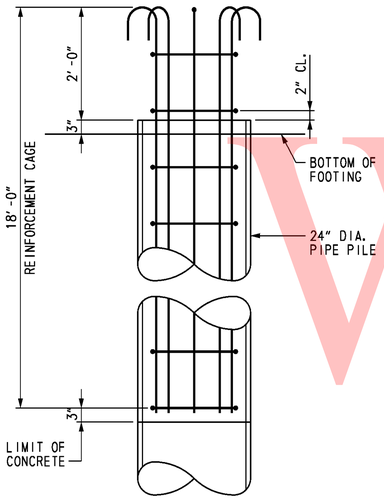
ABUTMENT A PILE PLAN

SCALE: 3/16" = 1'-0"

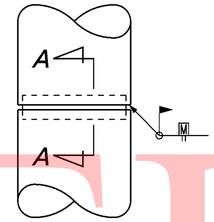


ABUTMENT B PILE PLAN

SCALE: 3/16" = 1'-0"

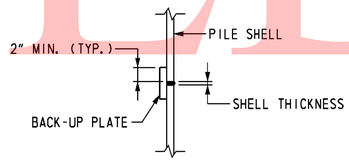


ELEVATION



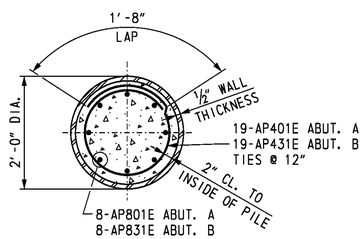
PIPE PILE SPLICE DETAIL

NOT TO SCALE



SECTION A-A

NOT TO SCALE



SECTION

PIPE PILE REINFORCEMENT

SCALE: 3/4" = 1'-0"

PILE SPLICE NOTES:

1. BACK-UP PLATE TO BE CUT FROM SAME PILE SIZE AS IS BEING SPLICED. CUT AND BEND TO FIT INSIDE DIAMETER OF PILE.
2. NO PILE SPLICING TO BE ALLOWED ON ANY PORTION OF PILE THAT IS TO REMAIN EXPOSED IN COMPLETED STRUCTURE.
3. SPLICER SLEEVE MATERIAL SHALL BE STEEL CONFORMING TO ASTM DESIGNATION A709, GRADE 36 (250).

PILE INSTALLATION DATA

SUBSTRUCTURE UNIT	DESIGN DATA: NOMINAL PILE DRIVING RESISTANCE (KIPS)	DESIGN DATA: ESTIMATED PILE TIP ELEVATION	ACTUAL FIELD DATA: AVERAGE MINIMUM TIP ELEVATION	ACTUAL FIELD DATA: AVERAGE MAXIMUM TIP ELEVATION
ABUTMENT A	477	24.0		
ABUTMENT B	477	15.0		

ABUTMENT A PILE DRIVING INFORMATION

PILE SIZE AND TYPE:	
ACTUAL BEARING OBTAINED:	
HAMMER TYPE:	
PILE HAMMER ENERGY:	
SPECIAL DRIVING CONDITIONS AND COMMENTS:	

ABUTMENT B PILE DRIVING INFORMATION

PILE SIZE AND TYPE:	
ACTUAL BEARING OBTAINED:	
HAMMER TYPE:	
PILE HAMMER ENERGY:	
SPECIAL DRIVING CONDITIONS AND COMMENTS:	

NOTES:

1. PILES SHALL BE 24" DIA. WITH 1/2" WALL THICKNESS OPEN-ENDED STEEL PIPE PILES, ASTM A252 GRADE 3.
2. REINFORCING STRAPS SHALL BE PROVIDED FOR THE ABUTMENT STEM AND BACKWALL TO RESIST THE LONGITUDINAL FORCES ON THE SUPERSTRUCTURE.
3. PILE CASINGS SHALL BE INSTALLED AT THE PROPOSED PILE LOCATIONS DURING THE ABUTMENT MSE WALL CONSTRUCTON.
4. UPON COMPLETION OF THE MSE WALL THERE SHALL BE A ~~30 TO~~ 60 DAY QUARANTINE PERIOD PRIOR TO DRIVING THE ABUTMENT PILES TO ALLOW FOR SETTLEMENT AND TO MINIMIZE THE DOWNDRAG FORCES THAT MIGHT DEVELOP ON THE PILES. (2)
5. THE ENGINEER SHALL MONITOR THE SETTLEMENT DURING THE QUARANTINE PERIOD TO DETERMINE WHEN THE PILES MAY BE DRIVEN.
6. UPON COMPLETION OF THE QUARANTINE PERIOD, AS JUDGED BY THE ENGINEER, DRIVE PILES TO THE NOMINAL PILE DRIVING RESISTANCE INDICATED ON THE PLANS.
7. 'TEST PILES' SHALL BE TESTED IN ACCORDANCE WITH THE SPECIFICATIONS.

CROSS REFERENCE NOTES:

1. FOR ABUTMENT PLAN AND ELEVATION, SEE DWGS. S4-5 & S4-6.
2. FOR REINFORCING BAR LIST, SEE DWG. S4-18.
3. FOR PILE CASING DETAILS, SEE DWG. S4-5.
4. FOR SOIL PROFILE, SOIL PROPERTIES AND TOTAL ESTIMATED SETTLEMENT, SEE DWG. S4-15.
5. FOR TEST PILE PAYMENT NOTES, SEE DWG. S4-2.

S4-4

DELAWARE DEPARTMENT OF TRANSPORTATION

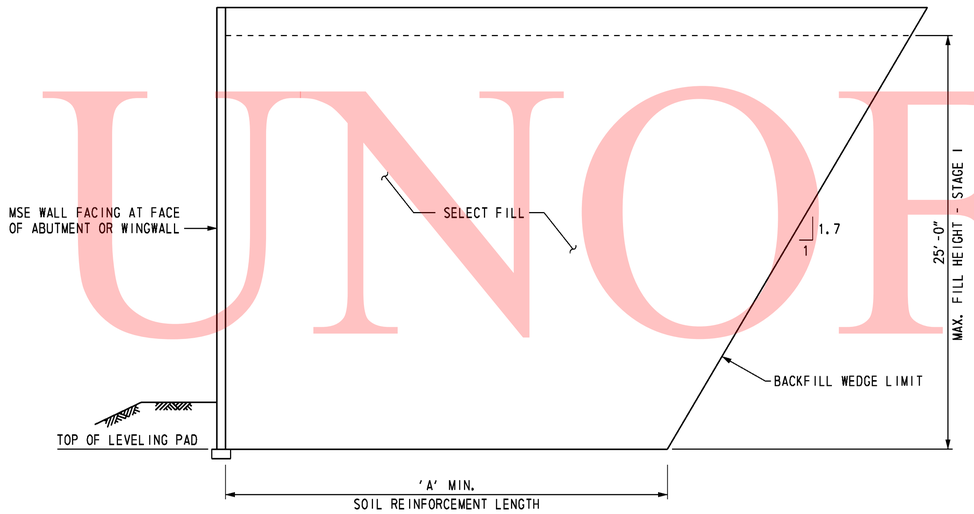
ADDENDUMS / REVISIONS	
ADDENDUM NO. (2) REV. QUARANTINE PERIOD, 01/26/11, RFK	

SR1 / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	1-717A	SHEET NO.
28-090-03	DESIGNED BY: K. D. BEAVER		352
COUNTY			TOTAL SHTS.
NEW CASTLE	CHECKED BY: R. F. KIRCHNER		803

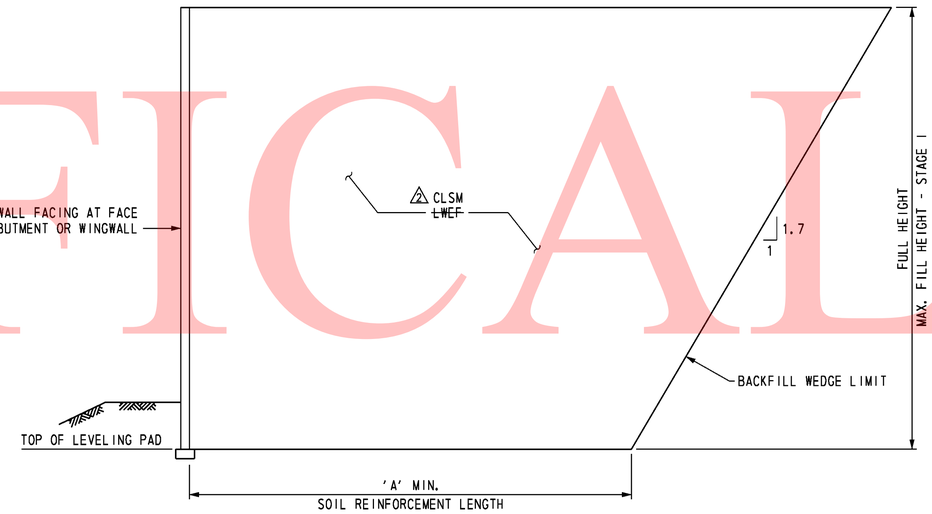
RAMP C OVER SR 7

ABUTMENT FOUNDATION PLAN



SOIL PROFILE SECTION
ABUTMENT A AND WINGWALLS I AND II

NOT TO SCALE



SOIL PROFILE SECTION
ABUTMENT B AND WINGWALLS III AND IV

NOT TO SCALE

MINIMUM REINFORCED ZONE WIDTH (A) FEET	
ABUTMENT A	
FACE OF ABUTMENT	24.0
WINGWALLS I AND II	21.0
ABUTMENT B	
FACE OF ABUTMENT	24.5
WINGWALLS III AND IV	24.5

SOIL PROPERTIES

	SOIL TYPE	UNIT WEIGHT (PCF)	DRAINED ANGLE OF FRICTION (DEGREES)	UNDRAINED SHEAR (PSF)	FACTORED BEARING RESISTANCE (KSF)
	SELECT FILL	125	34	-	-
2	~~LWEF~~	~~40~~	~~38~~	-	-
	NO. 57 STONE	105	38	-	-
	FOUNDATION SOIL:				
	ABUTMENT A	120	24	1250	5.0
	ABUTMENT B	120	24	1250	5.0
2	CONTROLLED LOW STRENGTH MATERIAL (CLSM)	40	38	-	-

FOUNDATION NOTES

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED FOR EACH STRUCTURE LOCATION. THE INTERNAL STABILITY CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS.

ISOLATED AREAS OF EXISTING FILL MAY BE ENCOUNTERED DURING CONSTRUCTION OF THIS MSE WALL. EXISTING FILL SHALL BE UNDERCUT TO EXPOSE UNDISTURBED NATURAL SOIL. UNDERCUTTING AND BACKFILLING WILL BE MEASURED AND PAID IN ACCORDANCE WITH THE SPECIFICATIONS.

A MINIMUM 7-DAY QUARANTINE PERIOD SHALL BE REQUIRED AFTER CONSTRUCTION OF THE WALL TO THE "MAX. FILL HEIGHT - STAGE 1" INDICATED ON THE SOIL PROFILE SECTION. NO FURTHER FILL SHALL BE PLACED UNTIL AUTHORIZED BY THE ENGINEER. ONCE AUTHORIZATION IS GIVEN, FILL SHALL BE PLACED IN ADDITIONAL INCREMENTS OF 5 FEET IN HEIGHT, WITH THE SAME QUARANTINE PERIOD AND AUTHORIZATION REQUIRED AT EACH INCREMENT. AN ADDITIONAL QUARANTINE PERIOD OF
2 ~~30 TO~~ 60 DAYS IS REQUIRED AFTER CONSTRUCTION OF THE MSE WALL TO ITS FULL HEIGHT. NO FURTHER CONSTRUCTION SHALL BE PERMITTED UNTIL AUTHORIZED BY THE ENGINEER. A TOTAL ESTIMATED SETTLEMENT OF APPROXIMATELY FOUR TO FIVE INCHES IS ANTICIPATED.

S4-15

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. 2 REVISED QUARANTINE PERIOD AND SOIL PROPERTIES, 01/26/11, RFK	

SR1 / I-95 INTERCHANGE

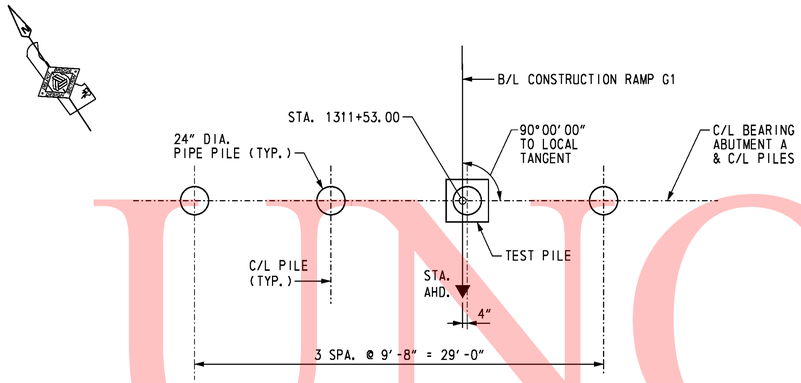
CONTRACT	BRIDGE NO.	1-717A
28-090-03	DESIGNED BY: R. F. KIRCHNER	
COUNTY	CHECKED BY: G.P. MISTRY	
NEW CASTLE		

RAMP C OVER SR 7

WINGWALL DETAILS 2

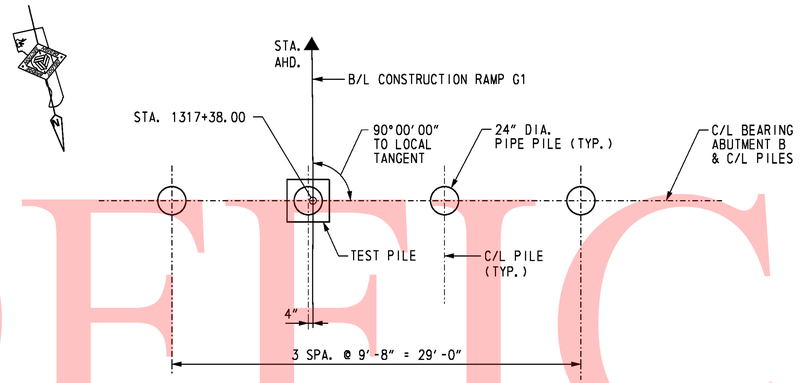
SHEET NO.	363
TOTAL SHTS.	803

Steve_Lambert 12/2/2011 O:\20832687-XM\CAD\Bridge\BR-S4\rd04_BR-S4_srf.dgn



ABUTMENT A PILE PLAN

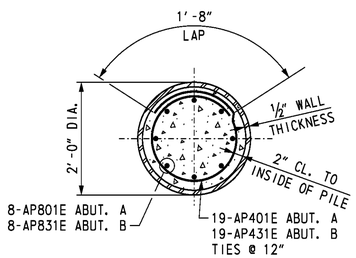
SCALE: 3/16" = 1'-0"



ABUTMENT B PILE PLAN

SCALE: 3/16" = 1'-0"

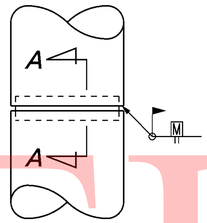
ELEVATION



SECTION

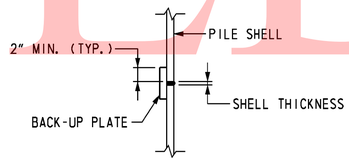
PIPE PILE REINFORCEMENT

SCALE: 3/4" = 1'-0"



PIPE PILE SPLICE DETAIL

NOT TO SCALE



SECTION A-A

NOT TO SCALE

PILE SPLICE NOTES:

1. BACK-UP PLATE TO BE CUT FROM SAME PILE SIZE AS IS BEING SPLICED. CUT AND BEND TO FIT INSIDE DIAMETER OF PILE.
2. NO PILE SPLICING TO BE ALLOWED ON ANY PORTION OF PILE THAT IS TO REMAIN EXPOSED IN COMPLETED STRUCTURE.
3. SPLICER SLEEVE MATERIAL SHALL BE STEEL CONFORMING TO ASTM DESIGNATION A709, GRADE 36 (250).

PILE INSTALLATION DATA				
	DESIGN DATA		ACTUAL FIELD DATA	
SUBSTRUCTURE UNIT	NOMINAL PILE DRIVING RESISTANCE (KIPS)	ESTIMATED PILE TIP ELEVATION	AVERAGE MINIMUM TIP ELEVATION	AVERAGE MAXIMUM TIP ELEVATION
ABUTMENT A	540	8.0		
ABUTMENT B	540	10.0		

ABUTMENT A PILE DRIVING INFORMATION
PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

ABUTMENT B PILE DRIVING INFORMATION
PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

NOTES:

1. PILES SHALL BE 24" DIA. WITH ½" WALL THICKNESS OPEN-ENDED STEEL PIPE PILES, ASTM A252 GRADE 3.
2. REINFORCING STRAPS SHALL BE PROVIDED FOR THE ABUTMENT STEM AND BACKWALL TO RESIST THE LONGITUDINAL FORCES ON THE SUPERSTRUCTURE.
3. PILE CASINGS SHALL BE INSTALLED AT THE PROPOSED PILE LOCATIONS DURING THE ABUTMENT MSE WALL CONSTRUCTON.
4. UPON COMPLETION OF THE MSE WALL THERE SHALL BE A ~~30 TO~~ 60 DAY QUARANTINE PERIOD PRIOR TO DRIVING THE ABUTMENT PILES TO ALLOW FOR SETTLEMENT AND TO MINIMIZE THE DOWNDRAG FORCES THAT MIGHT DEVELOP ON THE PILES. (2)
5. THE ENGINEER SHALL MONITOR THE SETTLEMENT DURING THE QUARANTINE PERIOD TO DETERMINE WHEN THE PILES MAY BE DRIVEN.
6. UPON COMPLETION OF THE QUARANTINE PERIOD, AS JUDGED BY THE ENGINEER, DRIVE PILES TO THE NOMINAL PILE DRIVING RESISTANCE INDICATED ON THE PLANS.
7. 'TEST PILES' SHALL BE TESTED IN ACCORDANCE WITH THE SPECIFICATIONS.

CROSS REFERENCE NOTES:

1. FOR ABUTMENT PLAN AND ELEVATION, SEE DWGS. S5-5 & S5-6.
2. FOR REINFORCING BAR LIST, SEE DWG. S5-16.
3. FOR PILE CASING DETAILS, SEE DWG. S5-5.
4. FOR SOIL PROFILE, SOIL PROPERTIES AND TOTAL ESTIMATED SETTLEMENT, SEE DWG. S5-15.
5. FOR TEST PILE PAYMENT NOTES, SEE DWG. S5-2.

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12/1/2011
Steve_Lambert

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. (2) REV. QUARANTINE PERIOD, 01/26/11, RFK	

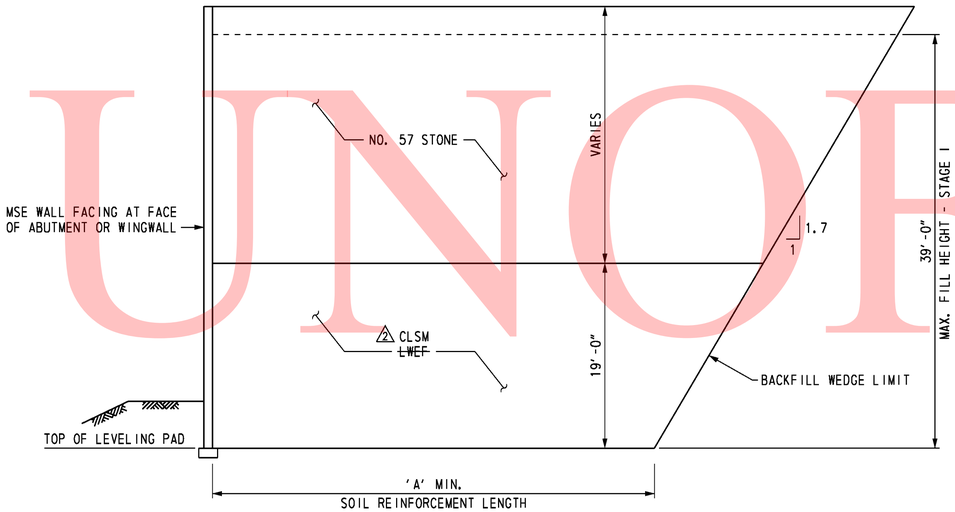
SR1 / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	1-716D
28-090-03	DESIGNED BY: K. D. BEAVER	
COUNTY	CHECKED BY: R. F. KIRCHNER	
NEW CASTLE		

RAMP G1 OVER SR 7

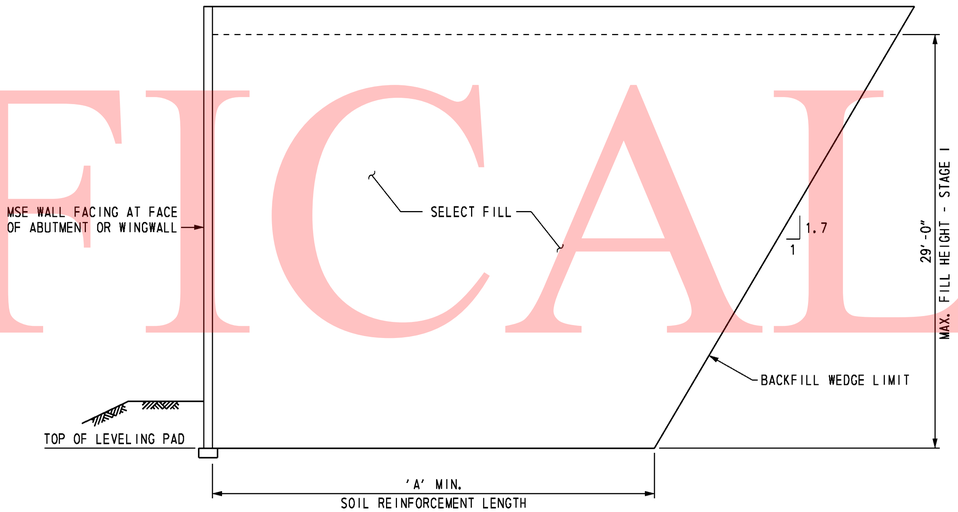
ABUTMENT FOUNDATION PLAN

S5-4
SHEET NO.
397
TOTAL SHTS.
803



SOIL PROFILE SECTION
ABUTMENT A AND WINGWALLS I AND II

NOT TO SCALE



SOIL PROFILE SECTION
ABUTMENT B AND WINGWALLS III AND IV

NOT TO SCALE

MINIMUM REINFORCED ZONE WIDTH (A) FEET	
ABUTMENT A	
FACE OF ABUTMENT	33.0
WINGWALLS I AND II	33.0
ABUTMENT B	
FACE OF ABUTMENT	27.0
WINGWALLS III AND IV	32.0

SOIL PROPERTIES

	SOIL TYPE	UNIT WEIGHT (PCF)	DRAINED ANGLE OF FRICTION (DEGREES)	UNDRAINED SHEAR (PSF)	FACTORED BEARING RESISTANCE (KSF)
	SELECT FILL	125	34	-	-
2	~~LWEF~~	~~40~~	~~38~~	-	-
	NO. 57 STONE	105	38	-	-
	FOUNDATION SOIL:				
	ABUTMENT A	120	24	1250	5.3
	ABUTMENT B	120	24	1400	6.0
2	CONTROLLED LOW STRENGTH MATERIAL (CLSM)	40	38	-	-

FOUNDATION NOTES

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED FOR EACH STRUCTURE LOCATION. THE INTERNAL STABILITY CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS.

ISOLATED AREAS OF EXISTING FILL MAY BE ENCOUNTERED DURING CONSTRUCTION OF THIS MSE WALL. EXISTING FILL SHALL BE UNDERCUT TO EXPOSE UNDISTURBED NATURAL SOIL. UNDERCUTTING AND BACKFILLING WILL BE MEASURED AND PAID IN ACCORDANCE WITH THE SPECIFICATIONS.

A MINIMUM 7-DAY QUARANTINE PERIOD SHALL BE REQUIRED AFTER CONSTRUCTION OF THE WALL TO THE "MAX. FILL HEIGHT - STAGE 1" INDICATED ON THE SOIL PROFILE SECTION. NO FURTHER FILL SHALL BE PLACED UNTIL AUTHORIZED BY THE ENGINEER. ONCE AUTHORIZATION IS GIVEN, FILL SHALL BE PLACED IN ADDITIONAL INCREMENTS OF 5 FEET IN HEIGHT, WITH THE SAME QUARANTINE PERIOD AND AUTHORIZATION REQUIRED AT EACH INCREMENT. AN ADDITIONAL QUARANTINE PERIOD OF
2 ~~30 TO~~ 60 DAYS IS REQUIRED AFTER CONSTRUCTION OF THE MSE WALL TO ITS FULL HEIGHT. NO FURTHER CONSTRUCTION SHALL BE PERMITTED UNTIL AUTHORIZED BY THE ENGINEER. A TOTAL ESTIMATED SETTLEMENT OF APPROXIMATELY FOUR TO FIVE INCHES IS ANTICIPATED.

S5-15

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. 2 REVISED QUARANTINE PERIOD AND SOIL PROPERTIES, 01/26/11, RFK	

SR1 / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	1-716D
28-090-03	DESIGNED BY: R. F. KIRCHNER	
COUNTY	CHECKED BY: G.P. MISTRY	
NEW CASTLE		

RAMP G1 OVER SR 7

WINGWALL DETAILS 2

SHEET NO.	408
TOTAL SHTS.	803

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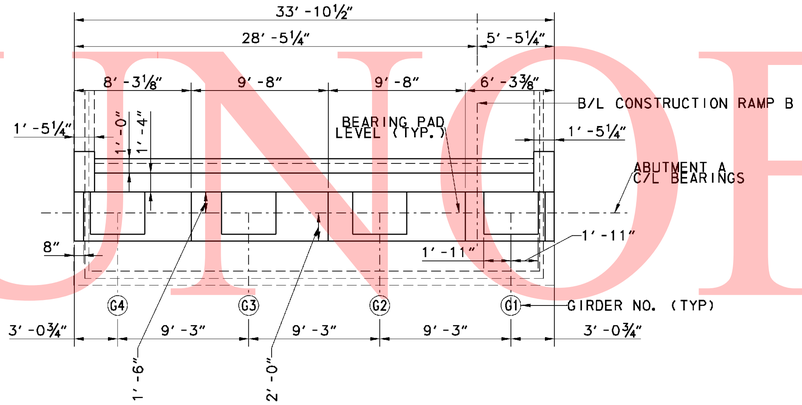
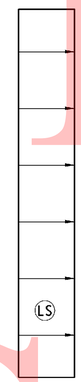
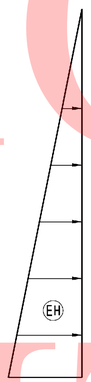
12/20/11
Steve_Lambert

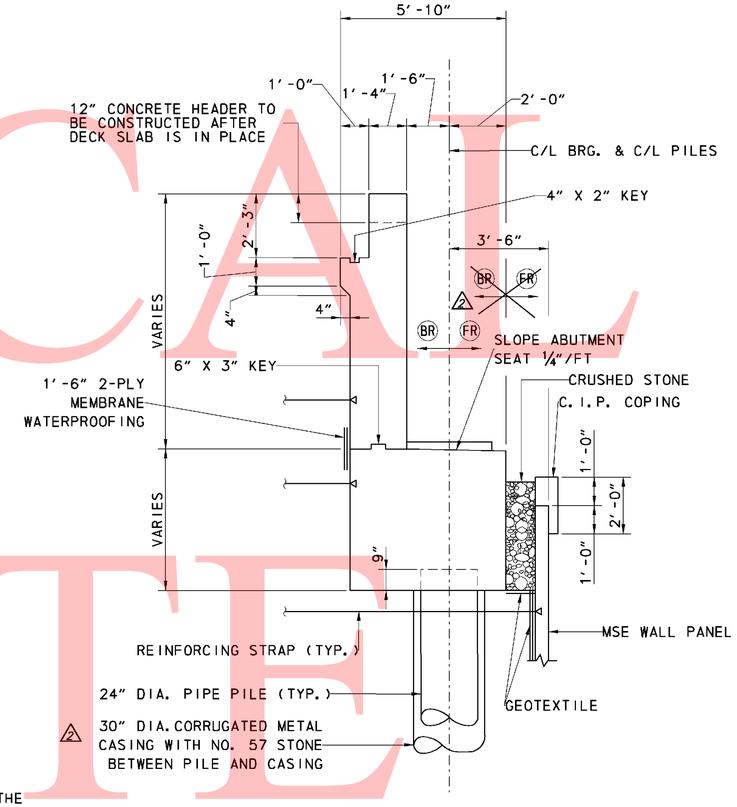


ABUTMENT A PLAN

SCALE: 3/16″ = 1′-0″

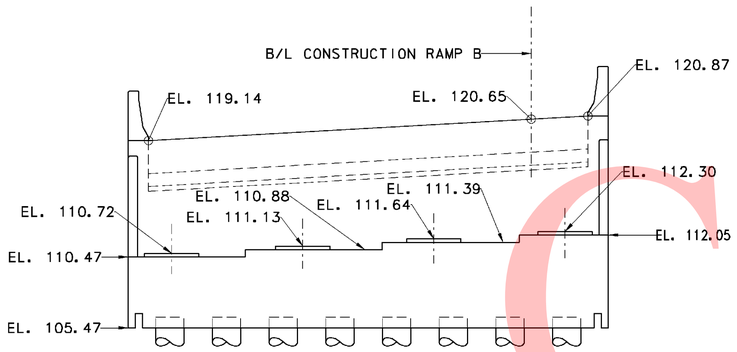






TYPICAL ABUTMENT SECTION

SCALE: 3/8″ = 1′-0″



ABUTMENT A ELEVATION

SCALE: 3/16″ = 1′-0″

ABUTMENT NOTES:

1. CONTRACTOR SHALL DESIGN THE SOIL REINFORCING STRAPS IN THE ABUTMENT STEM AND BACKWALL TO RESIST LATERAL LOADS "EH", "LS", "BR" AND "FR".
2. LOAD "EH" IS THE HORIZONTAL EARTH PRESSURE EXERTED ON THE ABUTMENT.
3. LOAD "LS" IS THE ADDITIONAL HORIZONTAL SOIL PRESSURE DUE TO 3 FEET OF SOIL SURCHARGE. CONTRACTOR IS RESPONSIBLE FOR PROVIDING MSE WALL DESIGNER WITH OTHER CONSTRUCTION LOADS WHICH WILL BE IN EXCESS OF 3 FEET OF SOIL SURCHARGE.
4. LOAD "BR" IS THE HORIZONTAL LOAD DUE TO BRAKING FORCE ON THE SUPERSTRUCTURE.
5. LOAD "FR" IS THE HORIZONTAL LOAD DUE TO FRICTION ON THE BEARINGS AS A RESULT OF BRIDGE EXPANSION AND CONTRACTION.
6. ~~THE POINT OF APPLICATION OF LOADS.~~

ABUTMENT LATERAL LOADS	
TYPE	SERVICE LOAD (KIPS/FT.)
EH	3.00
LS	1.31
BR	0.19
FR	1.11

△2 6. THE POINT OF APPLICATION OF THE LOADS "EH" AND "LS" ARE AT THE CENTROID OF THE PRESSURE DIAGRAM. THE LOADS "BR" AND "FR" ARE APPLIED AT THE CENTER OF THE BEARINGS. THE LOADS "BR" AND "FR" MAY ACT TOGETHER IN EITHER DIRECTION.

NOTES:

1. CRUSHED STONE AND GEOTEXTILE BETWEEN MSE WALL COPING AND ABUTMENT FOOTING SHALL BE INCIDENTAL TO ITEM NO. 602772 - MECHANICALLY STABILIZED EARTH WALLS.
2. MSE WALL AND COPING NOT SHOWN IN ELEVATION VIEW.

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. S6-1.
2. FOR TYPICAL SIDE ELEVATION, SEE DWG. S6-9.
3. FOR MSE WINGWALLS PLAN AND ELEVATION, SEE DWG. S6-12.
4. FOR ABUTMENT REINFORCEMENT, SEE DWG. S6-7 & S6-8.

△2 3. METAL CASINGS FOR PILES SHALL EXTEND FROM BOTTOM OF ABUTMENT TO BOTTOM OF MSE WALL LEVELING PAD. COST OF METAL IS CASING AND NO. 57 STONE SHALL BE INCIDENTAL TO FURNISHING 24" STEEL PIPE PILE ITEM.

DELAWARE DEPARTMENT OF TRANSPORTATION

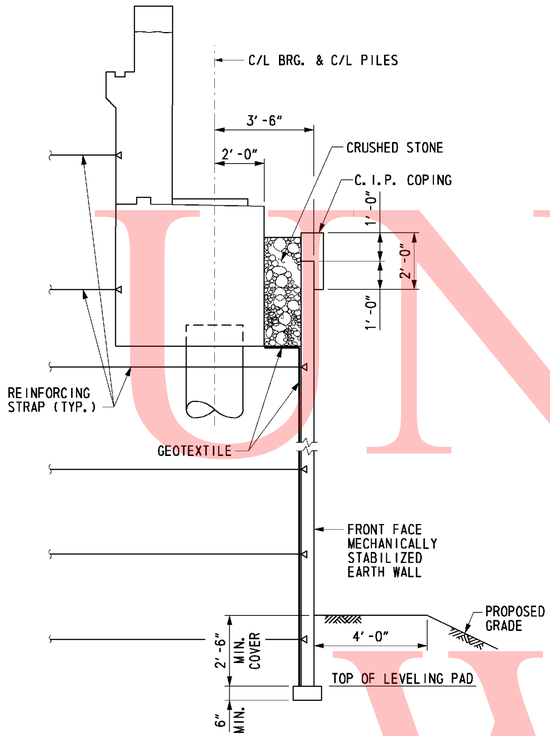
ADDENDUMS / REVISIONS	
ADDENDUM NO. △2, UPDATED TYPICAL ABUTMENT SECTION, MODIFIED NOTES, 01/26/11, DWD	

SR1 / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	1-268B
28-090-03	DESIGNED BY:	RMB
COUNTY	CHECKED BY:	DWD
NEW CASTLE		

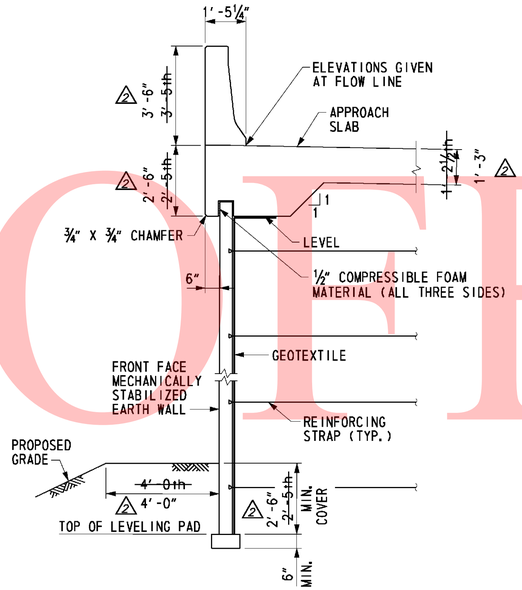
RAMP B OVER I-95NB
ABUTMENT A
PLAN AND ELEVATION

S6-6	
SHEET NO.	453
TOTAL SHTS.	803



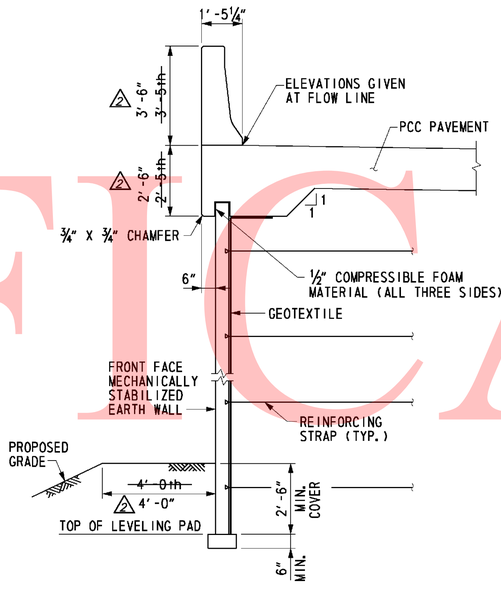
TYPICAL MSE WALL SECTION AT ABUTMENT

SCALE: 3/8" = 1'-0"



TYPICAL WINGWALL SECTION WITH APPROACH SLAB

SCALE: 3/8" = 1'-0"



TYPICAL WINGWALL SECTION WITH PCC PAVEMENT

SCALE: 3/8" = 1'-0"

MSE WALL NOTES

SPECIFICATIONS: PROPRIETARY MSE WALLS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH ALL CURRENT REVISIONS.
- FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NO. FHWA-NHI-10-024 AND FHWA-NHI-025, "DESIGN AND CONSTRUCTION OF MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES", VOLUME I AND VOLUME II. "MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES DESIGN AND CONSTRUCTION GUIDELINES"

CONCRETE: CONCRETE DESIGN SHALL BE PERFORMED USING THE LOAD AND RESISTANCE FACTOR DESIGN METHOD.

CHAMFERS: ALL CONCRETE FOR ROADWAY BARRIERS SHALL BE 4,500 PSI. LEVELING PAD CONCRETE SHALL BE 3,500 PSI. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

REINFORCING STEEL: ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" x ¾" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED, EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS: "DO NOT CHAMFER".

REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER THE LRFD BRIDGE DESIGN SPECIFICATIONS. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.

FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCE.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

ALL REINFORCING STEEL IN THE BARRIER SHALL BE EPOXY COATED, AND SHALL CONFORM TO ASTM D3936.

ALL KEYS ARE NOMINAL SIZE.

THE MSE WALL MANUFACTURER MAY SUBSTITUTE ALTERNATE REINFORCING CONFIGURATIONS AND SUBMIT FOR APPROVAL.

EXPANSION AND CONTRACTION JOINTS: THE LOCATION OF THE EXPANSION AND CONTRACTION JOINTS IN THE BARRIER SHOWN ON THE PLANS MAY BE ADJUSTED TO ACCOMMODATE THE PANEL TYPE USED IN THE PROJECT. ANY CHANGE TO THESE JOINT LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

LEVELING PAD: THE PROPRIETARY WALL MANUFACTURER MAY RELOCATE THE LEVELING PAD STEPS AT THEIR DISCRETION PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED. ANY CHANGE TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ROADWAY LIMITS: THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCROACHED UPON.

TRAFFIC BARRIER JOINTS: TRAFFIC BARRIER FOOTING SHALL HAVE CONSTRUCTION JOINTS TO COINCIDE WITH THE BARRIER JOINTS.

COORDINATION: CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATIONS OF INLETS AND PIPES WITH LOCATIONS OF PROPRIETARY WALL TIE BACK SYSTEM AND MOMENT SLAB.

ARCHITECTURAL FINISH: THE MSE WALL PANELS SHALL RECEIVE AN ARCHITECTURAL FINISH.

SERVICE LIFE: ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 100 YEARS.

WALL SYSTEM: ONLY ONE MSE WALL SYSTEM MAY BE USED ON THIS PROJECT.

ROADWAY SUPERELEVATION: FOR ROADWAY SUPERELEVATION, SEE SUPERELEVATION TABLES.

MSE WALL BACKFILL: MSE WALL BACKFILL SHALL CONSIST OF SPECIFIED BACKFILL AS SHOWN ON SOIL PROFILE SECTION.

REINFORCING STRAPS: SET REINFORCING STRAPS TO CLEAR PILE CASING, 2" MIN. CLEARANCE. MAXIMUM IN-FIELD SKEW OF 15 DEGREES. IF GREATER SKEW ANGLE IS REQUIRED, CONTACT MSE WALL FIELD REPRESENTATIVE PRIOR TO INSTALLATION.

△2

SOIL PROPERTIES

SOIL TYPE	UNIT WEIGHT (PCF)	DRAINED ANGLE OF FRICTION (DEGREES)
SELECT FILL	125	34
COMMON BORROW	130	38
FOUNDATION SOIL		

FOUNDATION NOTES:

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

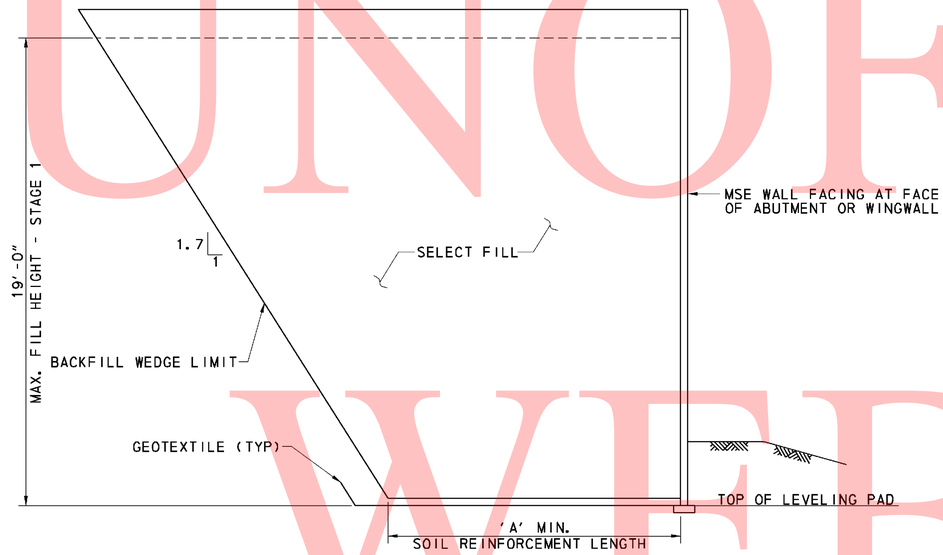
THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED FOR EACH STRUCTURE LOCATION. THE INTERNAL STABILITY CALCULATIONS SHOULD BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS.

ISOLATED AREAS OF UNDERCUTTING OF EXISTING FILL MAY BE ENCOUNTERED DURING CONSTRUCTION OF THIS RETAINING WALL.

△2 A QUARANTINE PERIOD OF ~~APPROXIMATELY~~ 60-DAYS IS REQUIRED AFTER CONSTUCTION OF THE FULL HEIGHT OF THE MSE WALL IS ACHIEVED. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE QUARANTINE PERIOD PRIOR TO CONSTUCTION OF ANY MOMENT SLABS OR PARAPETS. THE LENGTH OF QUARANTINE PERIOD MAY BE ADJUSTED BY THE ENGINEER BASED ON THE RESULTS OF INSTRUMENTATION MONITORING PROGRAM ITEMS 202505, 202514 AND 202518.

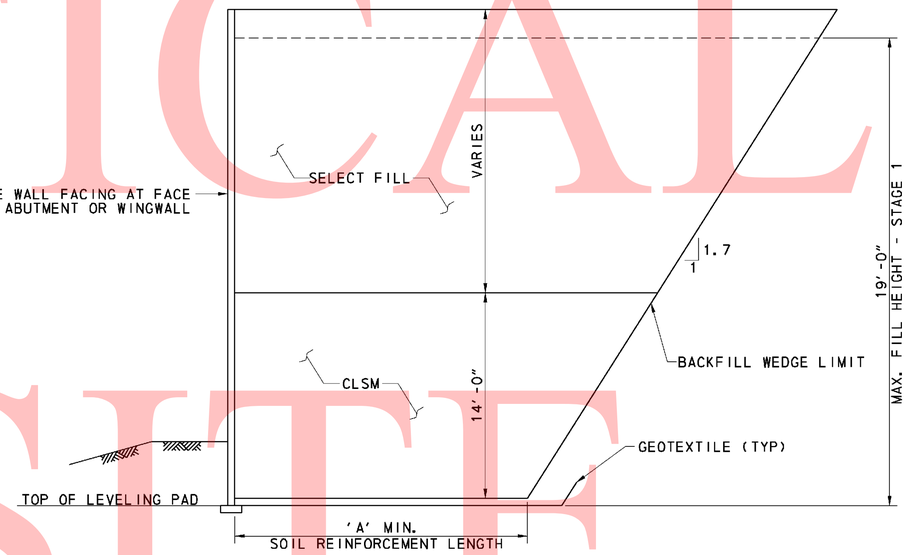
CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. S6-1.
2. FOR WINGWALLS PLAN AND ELEVATION, SEE DWGS. S6-12 & 13.
△2 3. FOR SOIL PROPERTIES AND PROFILE INFORMATION, SEE DWG. S6-14A.



SOIL PROFILE SECTION
ABUTMENT A AND WINGWALL I AND II

NOT TO SCALE



SOIL PROFILE SECTION
ABUTMENT B AND WINGWALL III AND IV

NOT TO SCALE

MINIMUM REINFORCED ZONE WIDTH (A) FEET	
ABUTMENT A	
FACE OF ABUTMENT	25
WINGWALLS I AND II	25
ABUTMENT B	
FACE OF ABUTMENT	35
WINGWALLS III AND IV	35

SOIL PROPERTIES			
SOIL TYPE	UNIT WEIGHT (PCF)	DRAINED ANGLE OF FRICTION (DEGREES)	UNDRAINED SHEAR (PSF)
SELECT FILL	125	34	-
CLSM	40	38	-
FOUNDATION SOIL:			
ABUTMENT A	68	29	1700
ABUTMENT B	68	28	-

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. 2 , SHEET S6-14A WINGWALL	
DETAILS 2 CREATED, 01/26/11, DWD	

SR1 / I-95 INTERCHANGE

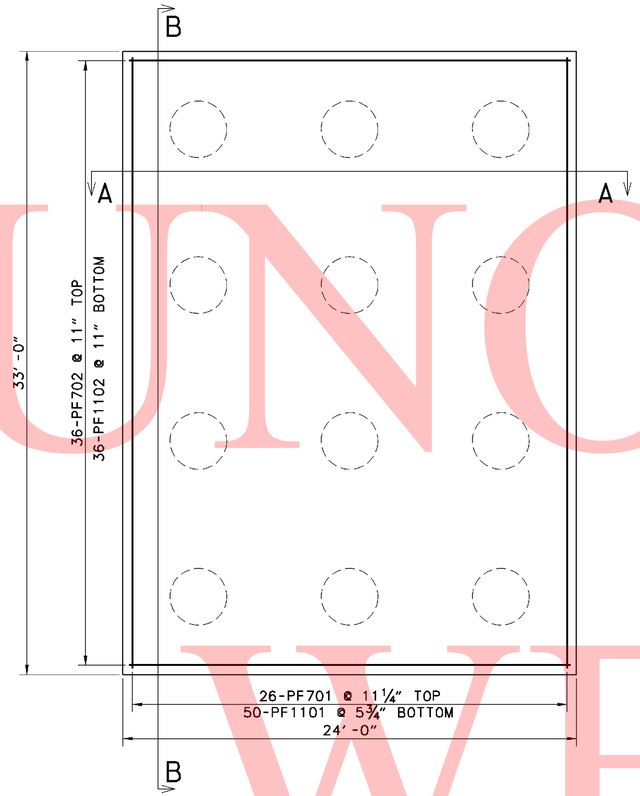
CONTRACT	BRIDGE NO.	1-268B	
28-090-03	DESIGNED BY:	RMB	
COUNTY	CHECKED BY:	DWD	
NEW CASTLE			

RAMP B OVER I-95NB

WINGWALL DETAILS 2

2 S6-14A

SHEET NO.	461A
TOTAL SHTS.	803



⚠2 TOP AND BOTTOM MAT REINFORCING PLAN

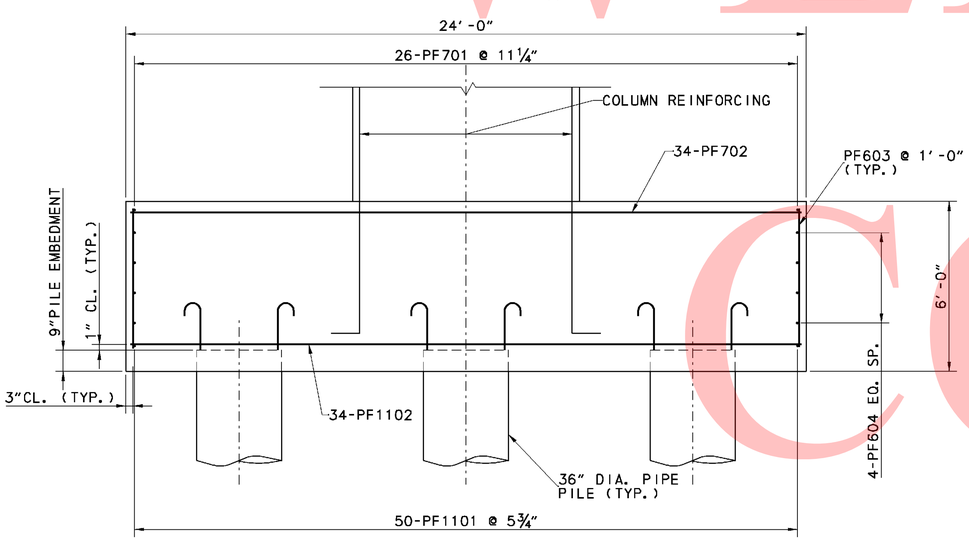
SCALE: ¼"=1'-0"

NOTE:

1. PIER FOUNDATION DETAILS ARE FOR PIERS 1, 2N, 2S AND 3.

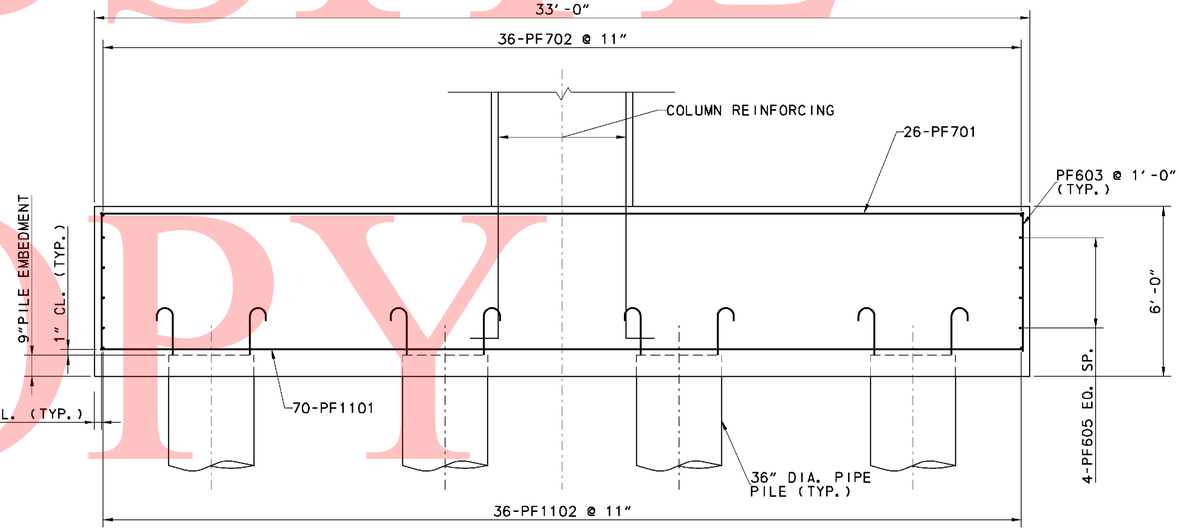
CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. S6-1.
2. FOR PIER FOUNDATION PLAN, SEE DWG. S6-16.
3. FOR PIER 1 PLAN AND ELEVATION, SEE DWG. S6-19.
   FOR PIER 2N AND2S PLAN AND ELEVATION, SEE DWG. S6-21.
   FOR PIER 3 PLAN AND ELEVATION, SEE DWG. S6-26.
4. FOR REINFORCEMENT SCHEDULES, SEE DWG. S6-30.



SECTION A-A

SCALE: ⅜"=1'-0"



SECTION B-B

SCALE: ⅜"=1'-0"

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DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. ⚠2, UPDATED MAT REINFORCING	
PLAN TITLE, 01/26/11, DWD	

SR1 / I-95 INTERCHANGE

CONTRACT	28-090-03	BRIDGE NO.	1-268B
COUNTY	NEW CASTLE	DESIGNED BY:	RMB
		CHECKED BY:	DWD

RAMP B OVER I-95NB
PIER FOUNDATION DETAILS

	S6-17
SHEET NO.	464
TOTAL SHTS.	803

PILE INSTALLATION DATA

SUBSTRUCTURE UNIT	DESIGN DATA: PILE SIZE (INCHES)	PILE THICKNESS (Inches)	NOMINAL DRIVING RESISTANCE (KIPS)	ESTIMATED PILE TIP ELEVATION	MINIMUM PILE TIP ELEVATION	ACTUAL FIELD DATA: AVERAGE ACTUAL MINIMUM TIP ELEVATION	AVERAGE ACTUAL MAXIMUM TIP ELEVATION
ABUTMENT A	24	0.50	382	+10	+15		
PIER 1	36	0.625	758	+12	+13		
PIER 2 N	36	0.625	435	+34	+36		
PIER 2 S	36	0.625	435	+34	+35		
PIER 3	36	0.625	758	+9	+12		
ABUTMENT B	24	0.50	382	+10	+15		

ABUTMENT A PILE DRIVING INFORMATION
PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

PIER 1 PILE DRIVING INFORMATION
PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

PIER 2 N PILE DRIVING INFORMATION
PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

PIER 2 S PILE DRIVING INFORMATION
PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

PIER 3 PILE DRIVING INFORMATION
PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

ABUTMENT B PILE DRIVING INFORMATION
PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

1. THE ABUTMENT PILES INCLUDE AN ESTIMATED 35-FT STICKUP FOR THE MSE WALL.

CROSS REFERENCE NOTES:

1. FOR PIER REINFORCEMENT SCHEDULE, SEE DWG. S6-30.
2. FOR ABUTMENT REINFORCMENT SCHEDULE, SEE DWG. S6-15.

PILE INSTALLATION NOTES:

1. ALL PILES SHALL BE PIPE PILES (ASTM A 252), GRADE 50. PILES SHALL NOT BE COATED ~~OR CASED~~. 2 ABUTMENT PILES SHALL BE CASED.
2. ALL PILES SHALL BE DRIVEN TO THE NOMINAL PILE DRIVING RESISTANCE (Rndr) LISTED IN THE PILE INSTALLATION DATA TABLE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A WAVE EQUATION ANALYSIS AND ALL OTHER INCIDENTALS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. THE WAVE EQUATION AND HIGH-STRAIN DYNAMIC PILE TESTING MUST BE SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER LISENCED IN THE STATE OF DELAWARE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
4. UPON COMPLETION OF THE HIGH-STRAIN DYNAMIC PILE TESTING THE CONTRACTOR SHALLSUBMIT A CAPWAP ANALYSIS OR OTHER SIMILAR APPROVED SIGNAL MATCHING TECHNIQUE TO THE ENGINEER FOR REVIEW AND APPROVAL IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
5. A QUARANTINE PERIOD OF ~~APPROXIMATELY~~ 60 DAYS IS REQUIRED AFTER THE CONSTRUCTION OF THE FULL HEIGHT OF THE FILL AT THE ABUTMENTS IS ACHIEVED. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE WAITING PERIOD, BASED ON RESULTS OF INSTRUMENTATION.
6. PILES MAY NOT BE DRIVEN UNTIL AFTER THE COMPLETION OF THE 60 DAY QUARANTINE PERIOD.
7. SEE THE SPECIAL PROVISIONS FOR SETTLEMENT MONITORING LOCATIONS AND REQUIREMENTS.

8. PILE LENGTHS FOR ORDERING PURPOSES SHALL BE DETERMINED BY TEST PILES. A MINIMUM OF ONE PILE PER SUBSTRUCTURE, AS SHOWN ON THE PLANS, SHALL BE DYNAMICALLY TESTED BY THE CONTRACTOR IN ACCORDANCE WITH SPECIAL PROVISIONS 619519. TEST AND PRODUCTION PILE RE-STRIKES WILL BE PAID AS FOLLOWS:

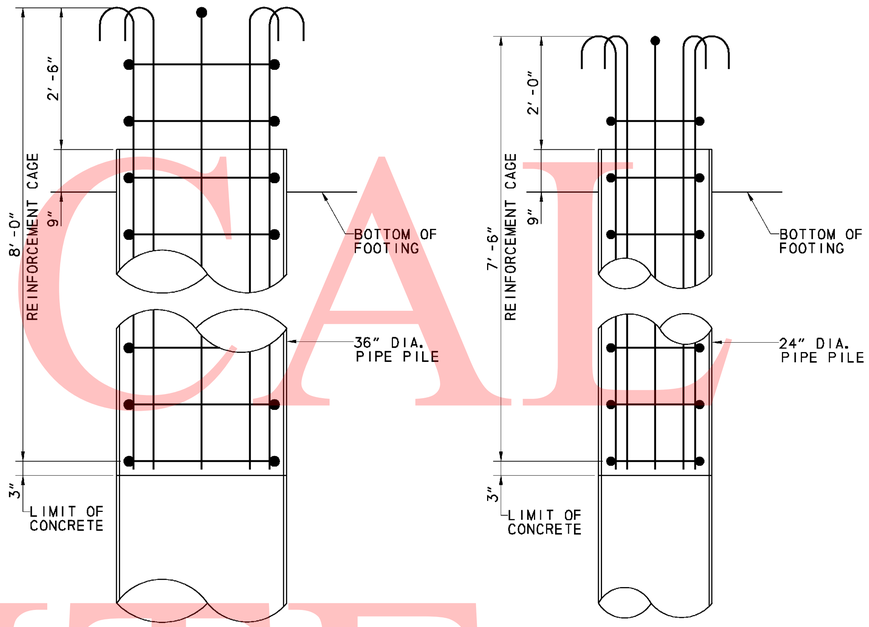
A). ALL TEST PILE(S) WILL BE RESTRUCK AND DYNAMICALLY TESTED BY THE CONTRACTOR. THE TEST PILE RESTRIKES SHALL BE INCIDENTAL TO ITEM NO. 619519 DYNAMIC PILE TESTING BY CONTRACTOR PROVIDE THAT THEY ARE PERFORMED WITHIN FIVE CALANDAR DAYS FROM INITIAL DRIVE.

B). AN ADDITIONAL PAYMENT WILL BE MADE TO THE CONTRACTOR IF HE IS DIRECTED BY THE ENGINEER TO WAIT AND RESTRIKE THE TEST PILE MORE THAT FIVE CALENDAR DAYS AFTER INITIAL DRIVE. THE CONTRACTOR SHALL BE COMPENSATED AT THE FIXED PRICE OF $1,000.00 PER CALENDAR DAY FOR EVERY DAY, AFTER THE FIFTH CALENDAR DAY, UNDER ITEM NO. 619502 TEST PILE RESTRIKE. MULTIPLE TEST PILE RESTRIKES OCCURRING ON THE SAME DAY WILL ONLY BE PAID FOR AS ONE CALENDAR DAY. NO ADDITIONAL COMPENSATION WILL BE MADE REGARDLESS OF THE NUMBER OF TEST PILE RESTRIKES PERFORMED THAT DAY.

C). RESTRIKES ON PRODUCTION PILES WHICH ARE DESIGNATED TO BE DYNAMICALLY TESTED WILL NO BE PAID UNDER ITEM NO. 619501 PRODUCTION PILE RESTRIKE. THESE PRODUCTION PILE RESTRIKES ARE INCIDENTAL TO ITEM NO. 61519 DYNAMIC PILE TESTING BY CONTRACTOR.

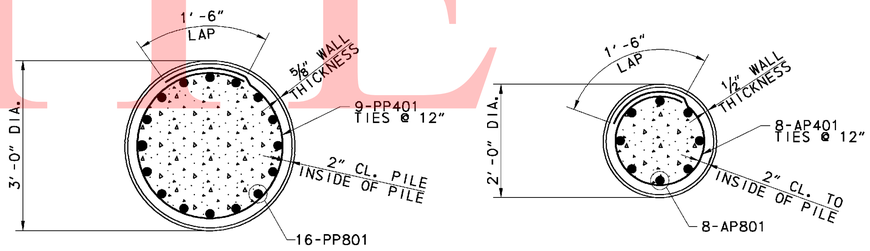
2 ~~D). THE FIRST 12 PRODUCTION PILE RESTRIKES FOR THE WALL BRIDGE SHALL BE PERFORMED AT NO COST TO THE DEPARTMENT SUBSEQUENT RESTRIKES SHALL BE UNDER ITEM NO. 619501 PRODUCTION PILE RESTRIKES AT THE FIXED PRICE OF $500.00 EACH.~~

THE DEPARTMENT RESERVE THE RIGHT TO PERFORM DYNAMIC TESTING OF RESTRIKES.



ELEVATION A & B

SCALE: 3/4"=1'-0"



SECTION A & B

SCALE: 3/4"=1'-0"

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DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. 2, MODIFIED NOTES, 01/26/11,	
DWD	

SR1/I-95 INTERCHANGE

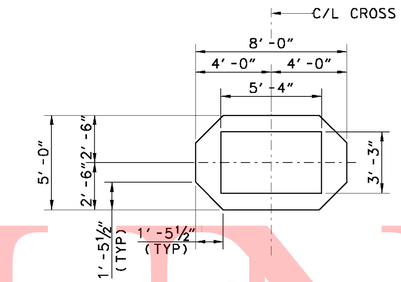
CONTRACT	BRIDGE NO.	1-268B
28-090-03	DESIGNED BY:	DWD
COUNTY	CHECKED BY:	
NEW CASTLE		

RAMP B OVER I-95NB

PILE DETAILS

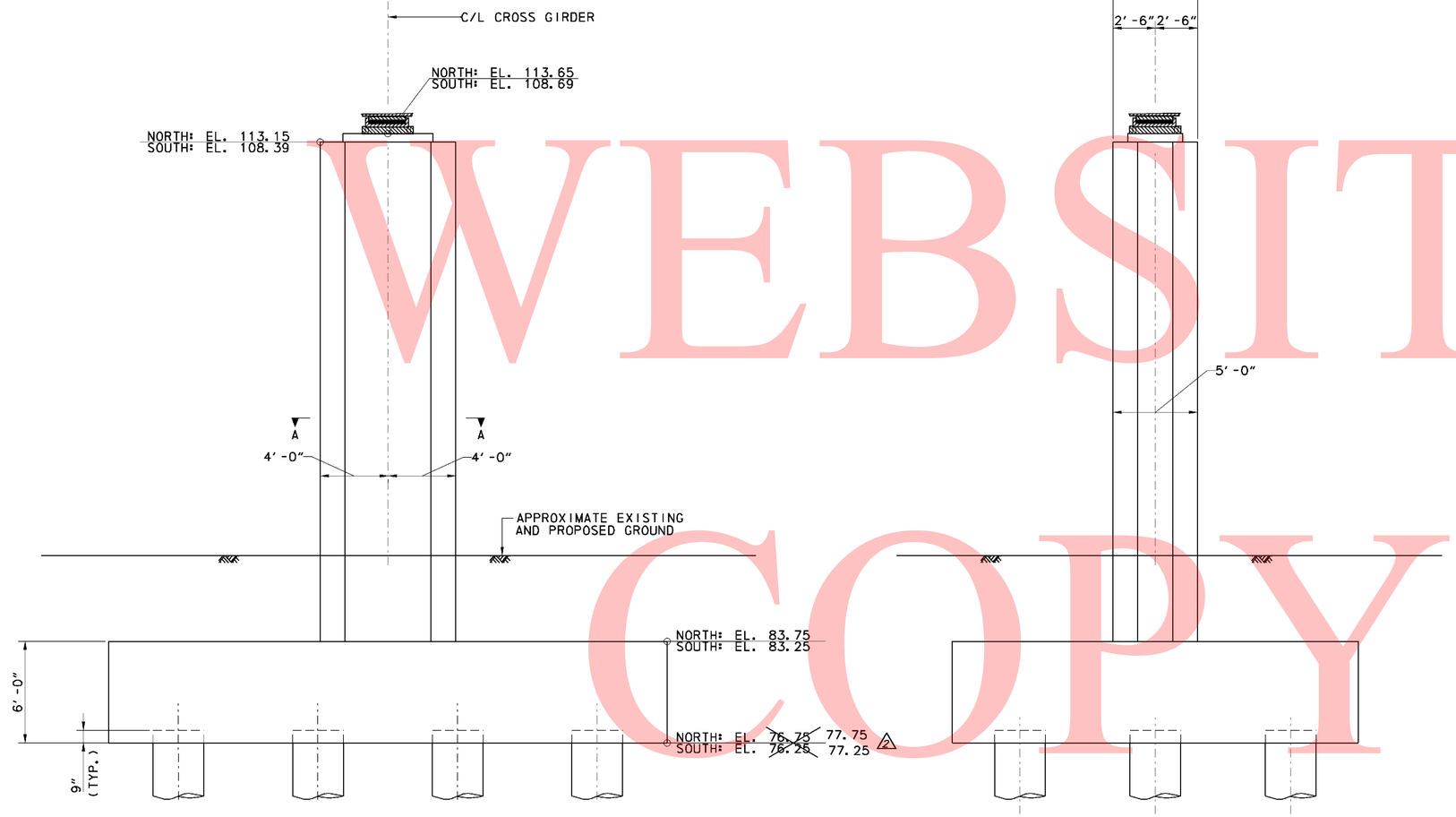
S6-18

SHEET NO.	TOTAL SHTS.
465	803



PLAN

SCALE: ¼"=1'-0"



ELEVATION-PIER 2

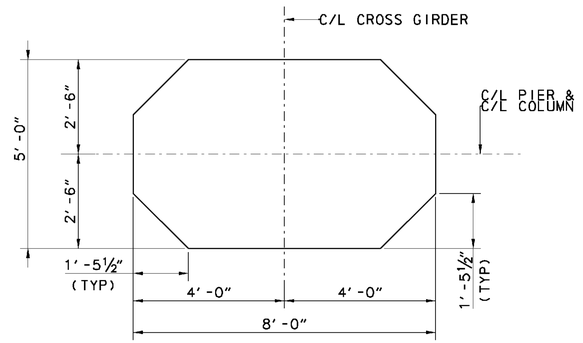
SCALE: ¼"=1'-0"

END VIEW

SCALE: ¼"=1'-0"

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. S6-1.
2. FOR PIER FOUNDATION PLAN, SEE DWG. S6-16.
3. FOR CROSSGIRDER DETAILS, SEE DWG. S6-23, S6-24 & S6-25.
4. FOR PIER COLUMN AND FOOTING REINFORCEMENT DETAILS, SEE DWG. S6-22 & S6-17.



SECTION A-A

SCALE: ¼"=1'-0"

S6-21

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. 2, CORRECTED BOTTOM OF FOOTING ELEVATION, 01/26/11, DWD	

SR1 / I-95 INTERCHANGE

CONTRACT	28-090-03	BRIDGE NO.	1-268B
COUNTY	NEW CASTLE	DESIGNED BY:	RMB
		CHECKED BY:	DWD

RAMP B OVER I-95NB
PIER 2 PLAN AND ELEVATION

SHEET NO.	468
TOTAL SHTS.	803

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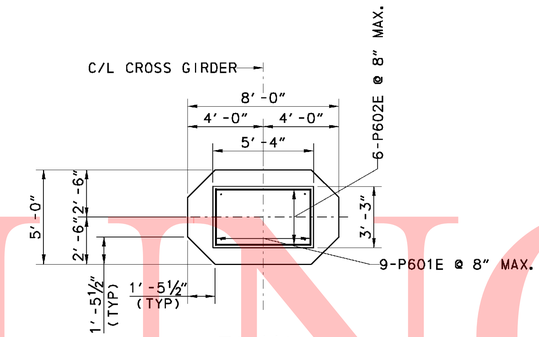
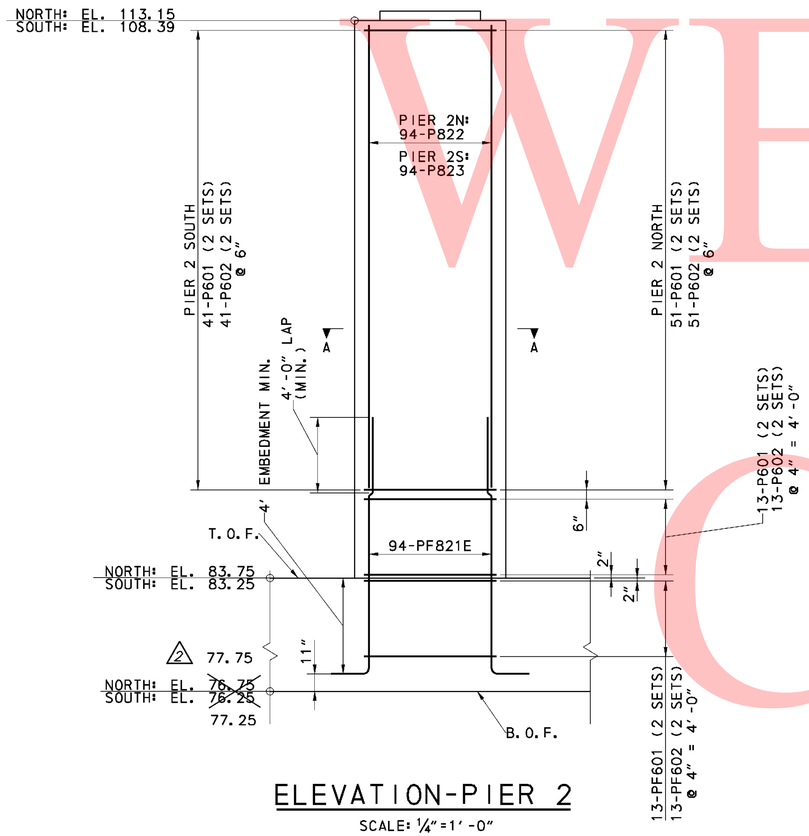


PLAN

SCALE: ¼″=1′-0″

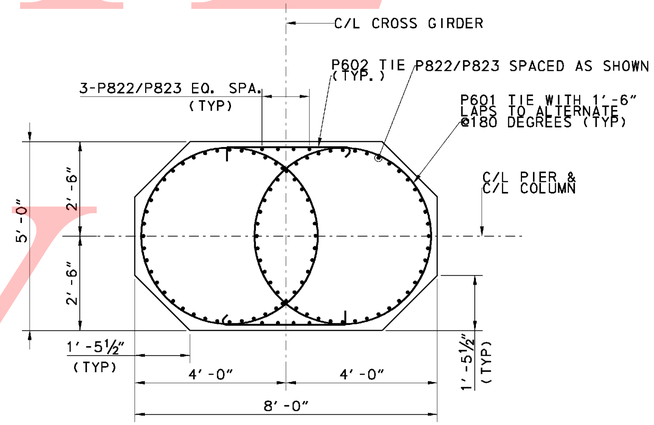
CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. S6-1.
2. FOR PIER PLAN AND ELEVATION, SEE DWG. S6-21.
3. FOR PIER FOUNDATION PLAN, SEE DWG. S6-16.
4. FOR PIER FOUNDATION DETAILS, SEE DWG. S6-17.
5. FOR CROSSGIRDER DETAILS, SEE DWG. S6-23, S6-24 & S6-25.



ELEVATION-PIER 2

SCALE: ¼″=1′-0″



SECTION A-A

SCALE: ¼″=1′-0″

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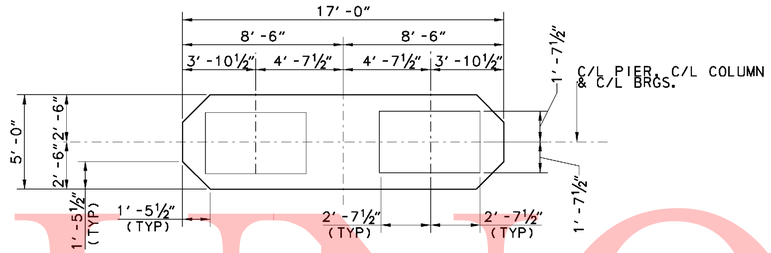
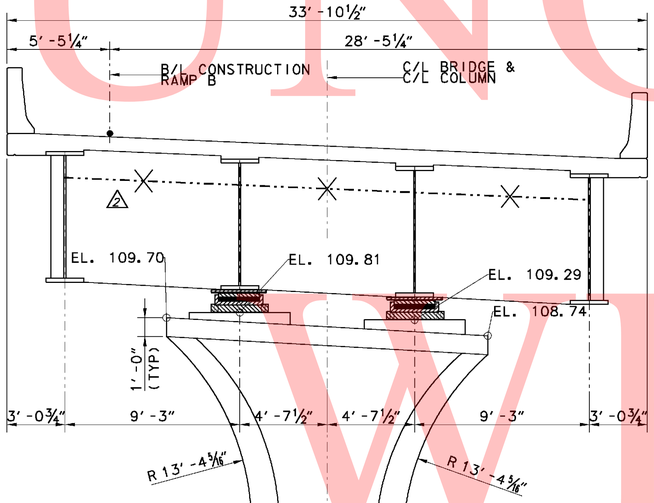
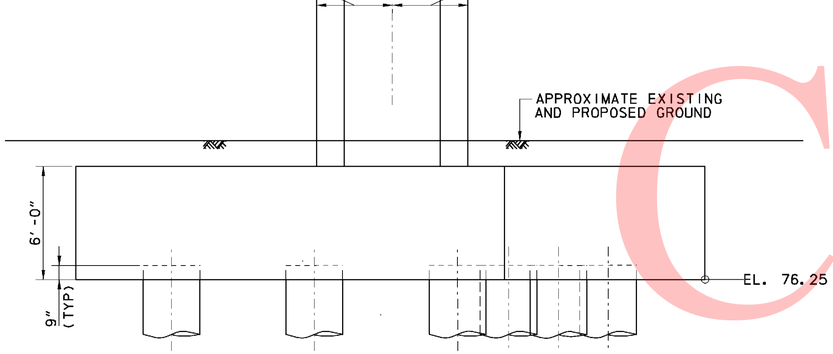
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SR1 / I-95 INTERCHANGE	CONTRACT 28-090-03	BRIDGE NO. 1-268B	RAMP B OVER I-95NB PIER 2 REINFORCING DETAILS	S6-22 SHEET NO. 469
	ADDENDUM NO. 2, CORRECTED BOTTOM OF FOOTING ELEVATIONS, 01/26/11, DWD		COUNTY NEW CASTLE	DESIGNED BY: RMB		TOTAL SHTS. 803
				CHECKED BY: DWD		



PLAN

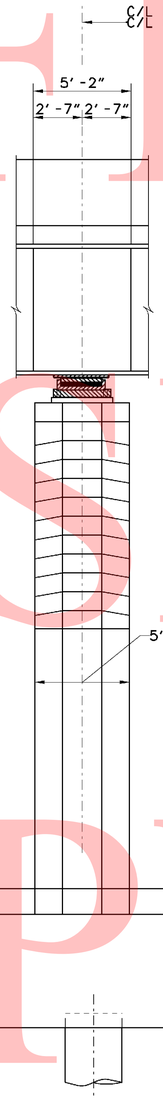
SCALE: ¼″=1′ -0″





ELEVATION-PIER ✕ 3 ⚠2

SCALE: ¼″=1′ -0″

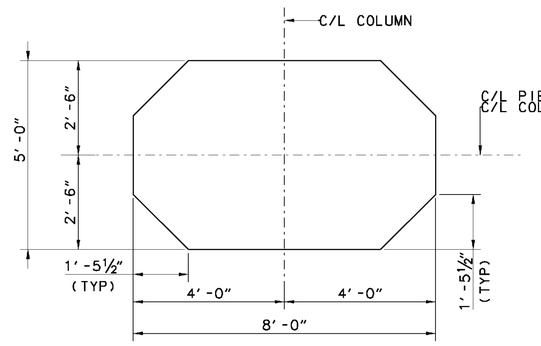


END VIEW

SCALE: ¼″=1′ -0″

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. S6-1.
2. FOR PIER FOUNDATION PLAN, SEE DWG. S6-16.
3. FOR INTEGRAL PIER CAP, REINFORCEMENT DETAILS, SEE DWG. S6-28 & S6-29.
4. FOR PIER COLUMN AND FOOTING REINFORCEMENT DETAILS, SEE DWG. S6-27 & S6-17.



SECTION A-A

SCALE: ¼″=1′ -0″

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DELAWARE DEPARTMENT OF TRANSPORTATION

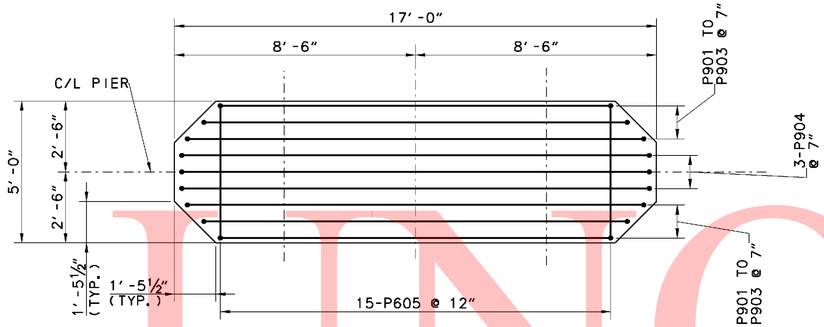
ADDENDUMS / REVISIONS	
ADDENDUM NO. ⚠2 ,MODIFIED ELEVATION VIEW	
AND CORRECTED TITLE, 1/26/11, DWD	

SR1 / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	1-268B
28-090-03	DESIGNED BY:	RMB
COUNTY	CHECKED BY:	DWD
NEW CASTLE		

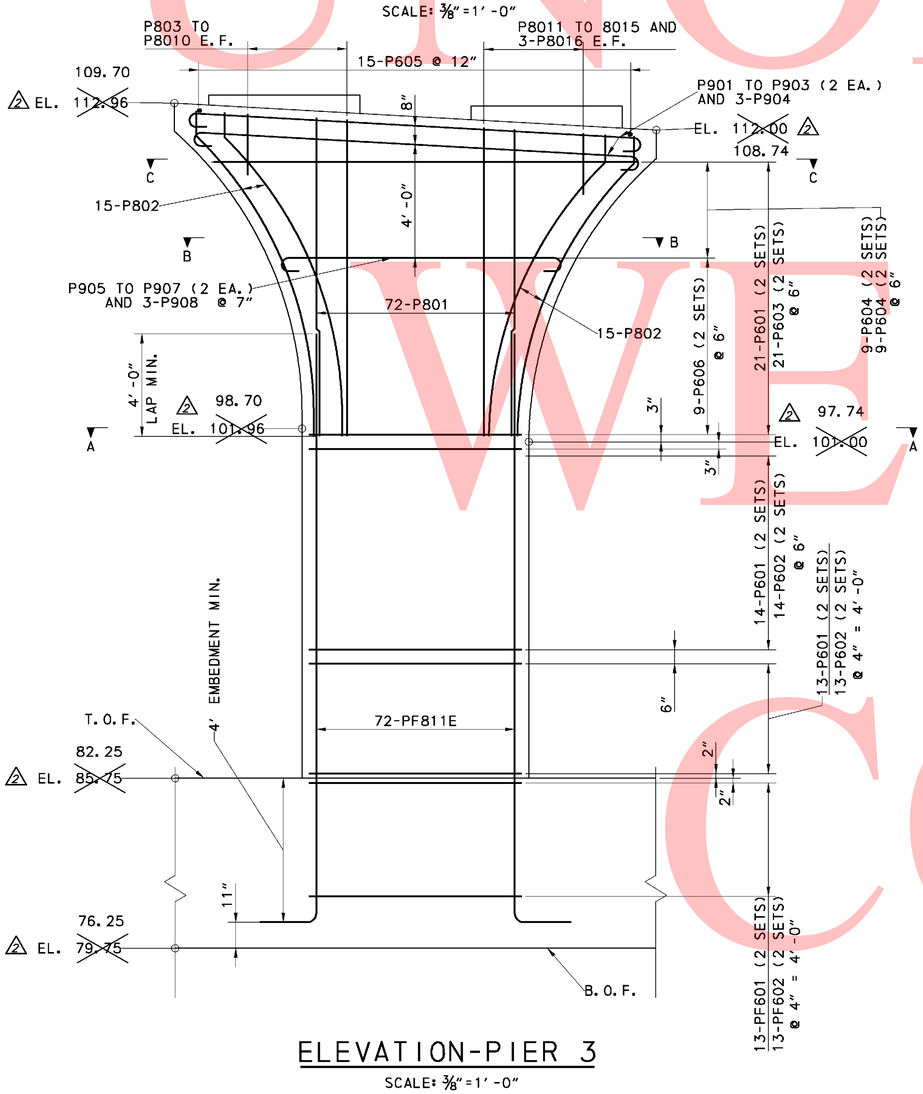
RAMP B OVER I-95NB
PIER 3 PLAN AND ELEVATION

S6-26	
SHEET NO.	473
TOTAL SHTS.	803



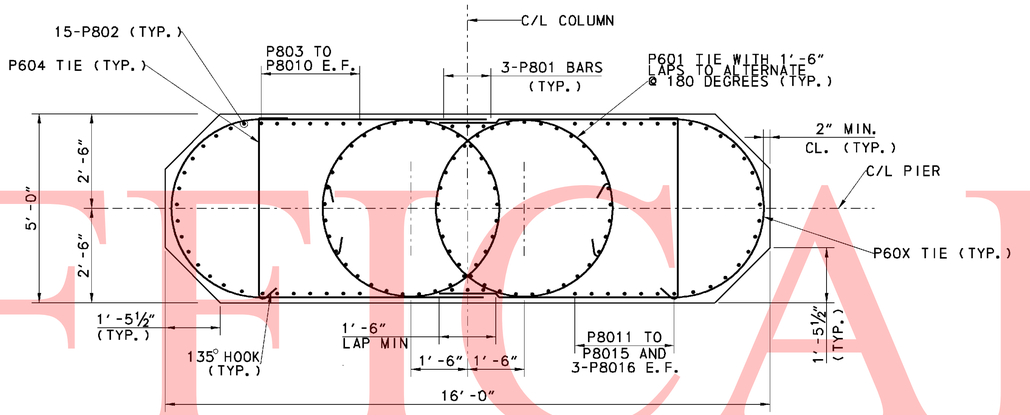
PLAN

SCALE: ⅜″=1′-0″



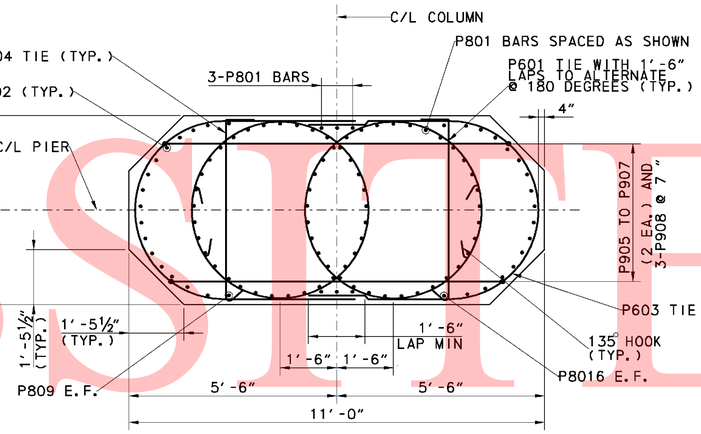
ELEVATION-PIER 3

SCALE: ⅜″=1′-0″



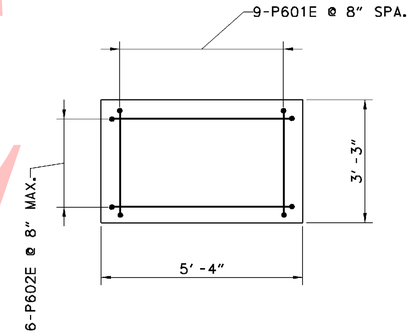
SECTION C-C

SCALE: ½″=1′-0″



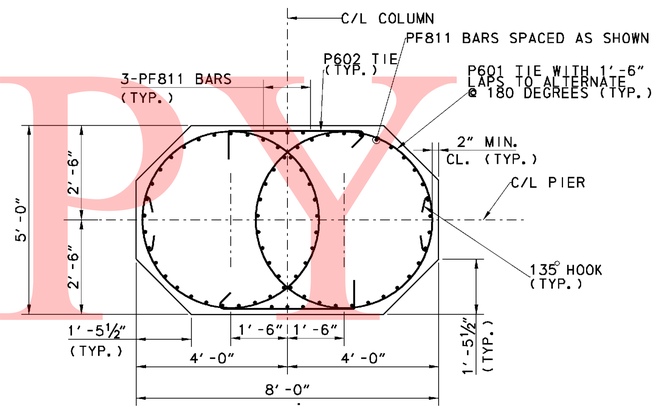
SECTION B-B

SCALE: ½″=1′-0″



PEDESTAL REINFORCING PLAN

SCALE: ½″=1′-0″



SECTION A-A

SCALE: ½″=1′-0″

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. S6-1.
2. FOR PIER PLAN AND ELEVATION, SEE DWG. S6-26.
3. FOR PIER FOUNDATION PLAN, SEE DWG. S6-16.
4. FOR PIER FOUNDATION DETAILS, SEE DWG. S6-17.

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DELAWARE DEPARTMENT OF TRANSPORTATION

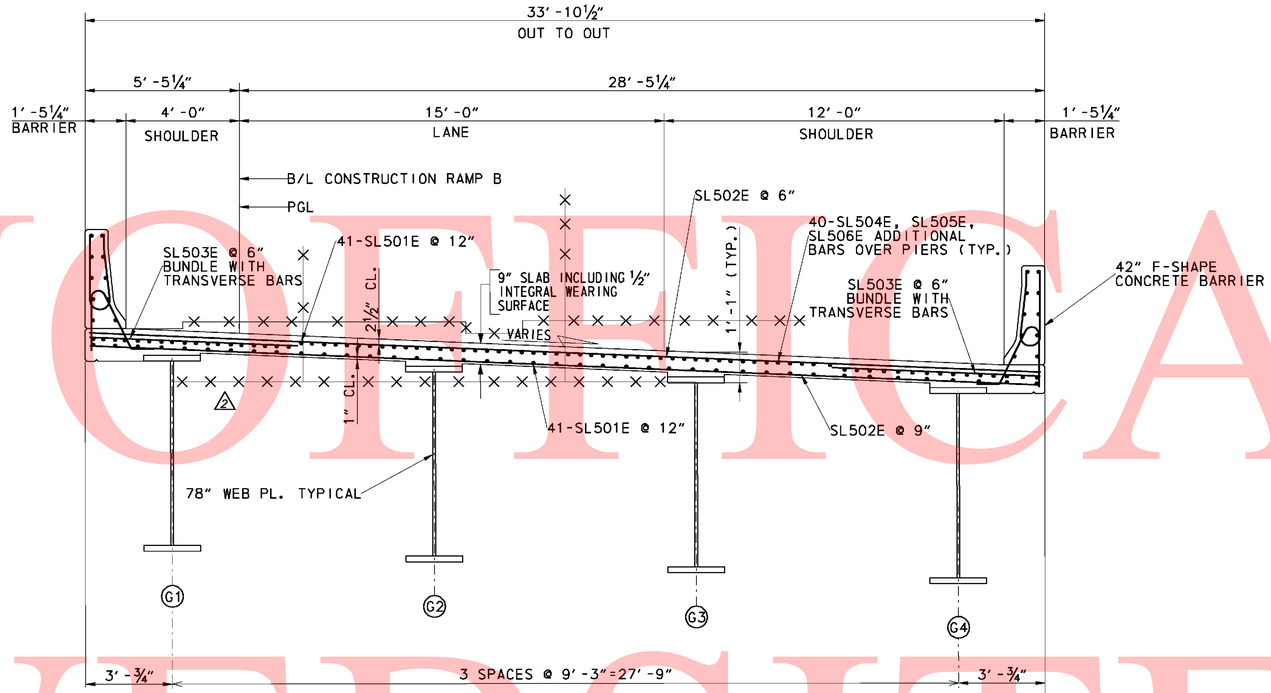
ADDENDUMS / REVISIONS
ADDENDUM NO. 2, CORRECTED ELEVATIONS, 01/26/11, DWD

SR1 / I-95 INTERCHANGE

CONTRACT	28-090-03	BRIDGE NO.	1-268B
COUNTY	NEW CASTLE	DESIGNED BY:	RMB
		CHECKED BY:	DWD

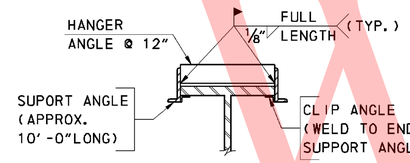
RAMP B OVER I-95NB
PIER 3 REINFORCING DETAILS

S6-27
SHEET NO. 474
TOTAL SHTS. 803



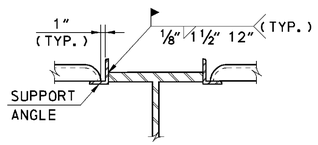
TYPICAL SECTION - RAMP B OVER I-95NB

SCALE: ⅜″ = 1′-0″



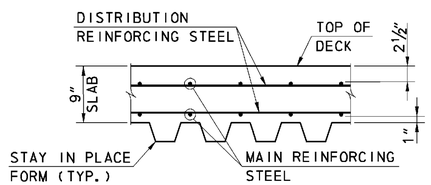
TENSION FLANGE FOR SIP FORMS

SCALE: NTS



COMPRESSION FLANGE FOR SIP FORMS

SCALE: NTS



STEEL FORM SECTION

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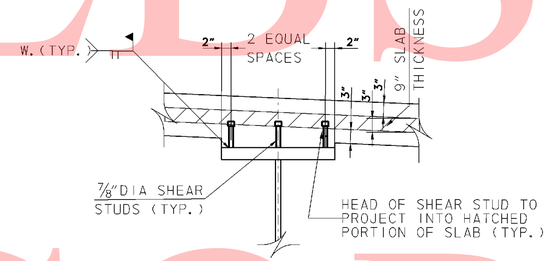

SHEAR STUD DETAIL

SCALE: NTS

NOTE: SIP FORM DETAILS NOT SHOWN

0 2 4 8

SCALE: ⅜″=1′-0″

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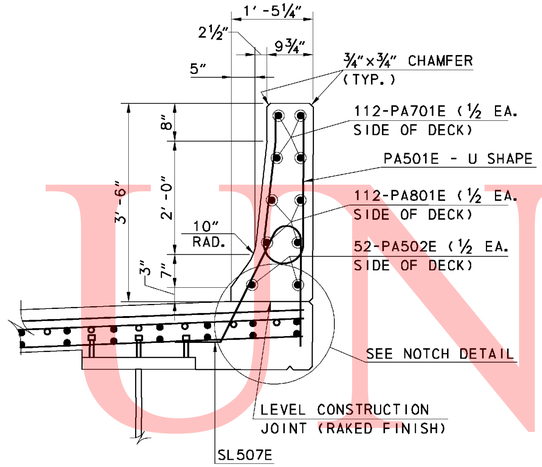
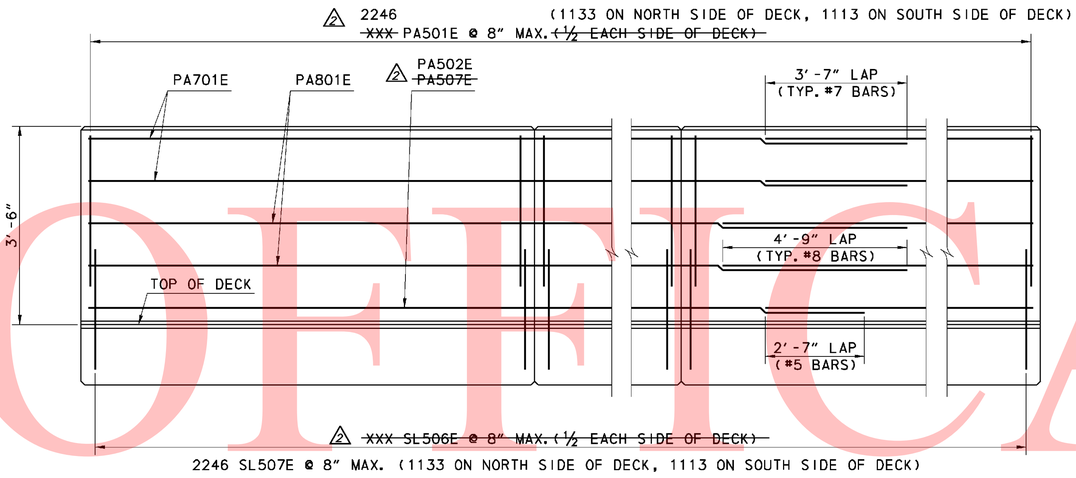
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS ADDENDUM NO. 2, DELETED STRAY LINEWORK, 01/26/11, DWD		**SR1 / I-95 INTERCHANGE**	CONTRACT 28-090-03 COUNTY NEW CASTLE	BRIDGE NO. 1-268B DESIGNED BY: RMB CHECKED BY: DWD	**RAMP B OVER I-95NB DECK SECTIONS AND DETAILS**	S6-46 SHEET NO. 493 TOTAL SHTS. 803



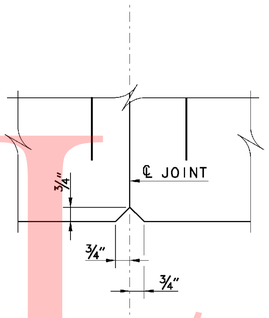
TYPICAL BARRIER REINFORCEMENT

SCALE: ¾"=1'-0"



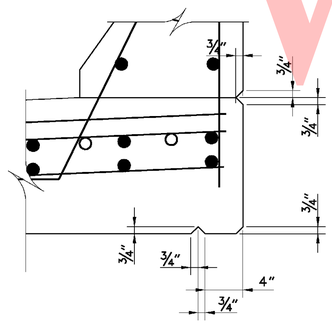
ELEVATION A-A - BRIDGE BARRIER

SCALE: ¾"=1'-0"



BARRIER CONTRACTION JOINT DETAIL

NO SCALE



NOTCH DETAIL

SCALE: 1½"=1'-0"

CROSS REFERENCE NOTES:
1. FOR BARRIER CONTRACTION JOINT SPACING, SEE GENERAL PLAN & ELEVATION.
2. FOR TYPICAL DECK REINFORCING AND DETAILS, SEE SHEET S6-41.

0 1 4
.5 2

SCALE: ¾"=1'-0"

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS: ADDENDUM NO. 2, CHANGED SHEET TITLE, UPDATED REINFORCING STEEL CALLOUTS, 01/26/11, DWD		SR1 / I-95 INTERCHANGE	CONTRACT 28-090-03	BRIDGE NO. 1-268B	RAMP B OVER I-95NB
				COUNTY NEW CASTLE	DESIGNED BY: MDM	2 ~~PARAPET DETAILS~~ BRIDGE BARRIER DETAILS
					CHECKED BY: DWD	

S6-47 | SHEET NO. 494 | TOTAL SHTS. 803

1/26/2011 8:48:49 AM
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GENERAL NOTES

SPECIFICATIONS: PROPRIETARY MSE WALLS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH ALL CURRENT REVISIONS.
- FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NOS. FHWA-NHI-10-024 AND FHWA-NHI-025, "DESIGN AND CONSTRUCTION OF MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES", VOLUME I AND VOLUME II.

CONCRETE DESIGN SHALL BE PERFORMED USING THE LOAD AND RESISTANCE FACTOR DESIGN METHOD.

CONCRETE: ALL CONCRETE FOR ROADWAY BARRIERS SHALL BE 4,500 PSI. LEVELING PAD CONCRETE SHALL BE 3,500 PSI. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

CHAMFERS: ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" x ¾" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED, EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS: "DO NOT CHAMFER".

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER THE LRFD BRIDGE DESIGN SPECIFICATIONS. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.

FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCE.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

ALL REINFORCING STEEL IN THE BARRIER SHALL BE EPOXY COATED, AND SHALL CONFORM TO ASTM D3936.

ALL KEYS ARE NOMINAL SIZE.

THE MSE WALL MANUFACTURER MAY SUBSTITUTE ALTERNATE REINFORCING CONFIGURATIONS AND SUBMIT FOR APPROVAL.

EXPANSION AND CONTRACTION JOINTS: THE LOCATION OF THE EXPANSION AND CONTRACTION JOINTS IN THE BARRIER SHOWN ON THE PLANS MAY BE ADJUSTED TO ACCOMMODATE THE PANEL TYPE USED IN THE PROJECT. ANY CHANGE TO THESE JOINT LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

LEVELING PAD: THE PROPRIETARY WALL MANUFACTURER MAY RELOCATE THE LEVELING PAD STEPS AT THEIR DISCRETION PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED. ANY CHANGE TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ROADWAY LIMITS: THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCROACHED UPON.

TRAFFIC BARRIER JOINTS: TRAFFIC BARRIER FOOTING SHALL HAVE CONSTRUCTION JOINTS TO COINCIDE WITH THE BARRIER JOINTS.

COORDINATION: CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATIONS OF INLETS AND PIPES WITH LOCATIONS OF PROPRIETARY WALL TIE BACK SYSTEM.

ARCHITECTURAL FINISH: THE MSE WALL PANELS SHALL RECEIVE AN ARCHITECTURAL FINISH.

SERVICE LIFE: ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 100 YEARS.

WALL SYSTEM: ONLY ONE MSE WALL SYSTEM MAY BE USED ON THIS PROJECT.

ROADWAY SUPERELEVATION: FOR ROADWAY SUPERELEVATION, SEE SUPERELEVATION TABLES.

MSE WALL BACKFILL: MSE WALL BACKFILL SHALL CONSIST OF SPECIFIED BACKFILL.

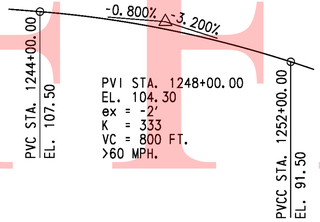
△2 PAY ITEMS: MECHANICALLY STABILIZED EARTH WALLS (602772)

PCC MASONRY FOR MSE WALLS (602773)

BAR REINFORCEMENT. EPOXY COATED (604000)

SOIL PROPERTIES

SOIL TYPE	UNIT WEIGHT (PCF)	DRAINED ANGLE OF FRICTION (DEGREES)	UNDRAINED SHEAR (PSF)
SELECT FILL	125	34	-
FOUNDATION SOIL	105	28	1400



RAMP A
VERTICAL CURVE DATA
NOT TO SCALE

PI STA. 1254+08.88
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Dc = 3°05'49.45"
R = 1,850.0000'
T = 829.98'
L = 1,560.36'

RAMP A
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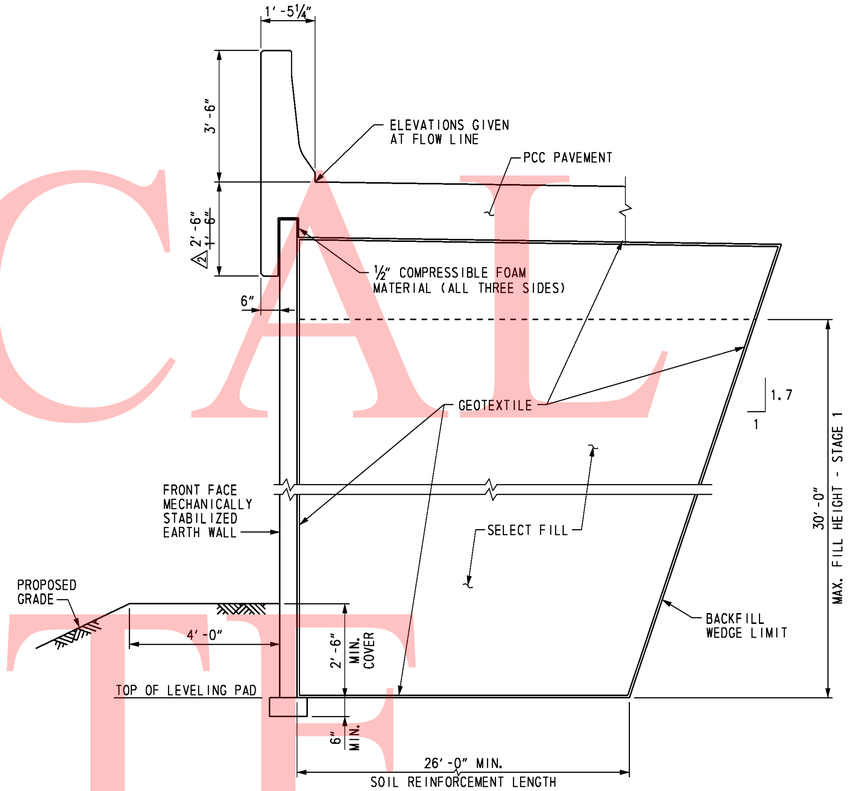

TYPICAL SECTION
SCALE: ½" = 1'-0"

FOUNDATION NOTES:

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED FOR EACH STRUCTURE LOCATION. THE INTERNAL STABILITY CALCULATIONS SHOULD BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS.

ISOLATED AREAS OF UNDERCUTTING OF EXISTING FILL MAY BE ENCOUNTERED DURING CONSTRUCTION OF THIS RETAINING WALL.

△2 A QUARANTINE PERIOD OF ~~APPROXIMATELY~~ THIRTY (30) DAYS IS REQUIRED AFTER CONSTRUCTION OF THE FULL HEIGHT OF THE MSE WALL IS ACHIEVED. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE QUARANTINE PERIOD PRIOR TO CONSTRUCTION OF ANY PAVEMENT OR BARRIER. A TOTAL ESTIMTED SETTLEMENT OF APPROXIMATELY FOUR (4) INCHES IS ANTICIPATED.

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12/2/2011
Steve_Lambert

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS
ADDENDUM NO. △2 REVISED FOUNDATION NOTES AND COPING
DIMENSION, ADDED PAY ITEMS, 01/26/11, RFK

SR1 / I-95 INTERCHANGE

CONTRACT 28-090-03
COUNTY NEW CASTLE
BRIDGE NO.
DESIGNED BY: R. F. KIRCHNER
CHECKED BY: J. S. LI

RETAINING WALL 1
GENERAL NOTES AND TYPICAL SECTION

R1-1
SHEET NO. 533
TOTAL SHTS. 803

GENERAL NOTES

SPECIFICATIONS: PROPRIETARY MSE WALLS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH ALL CURRENT REVISIONS.
- FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NOS. FHWA-NHI-10-024 AND FHWA-NHI-025, "DESIGN AND CONSTRUCTION OF MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES", VOLUME I AND VOLUME II.

CONCRETE DESIGN SHALL BE PERFORMED USING THE LOAD AND RESISTANCE FACTOR DESIGN METHOD.

CONCRETE: ALL CONCRETE FOR BARRIERS, MOMENT SLABS, AND ROADWAY BARRIERS SHALL BE 4,500 PSI. LEVELING PAD CONCRETE SHALL BE 3,500 PSI. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

CHAMFERS: ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" x ¾" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED, EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS: "DO NOT CHAMFER".

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER THE LRFD BRIDGE DESIGN SPECIFICATIONS. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.

FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCE.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

ALL REINFORCING STEEL IN THE BARRIER AND MOMENT SLAB SHALL BE EPOXY COATED, AND SHALL CONFORM TO ASTM D3936.

ALL KEYS ARE NOMINAL SIZE.

THE MSE WALL MANUFACTURER MAY SUBSTITUTE ALTERNATE REINFORCING CONFIGURATIONS AND SUBMIT FOR APPROVAL.

EXPANSION AND CONTRACTION JOINTS: THE LOCATION OF THE EXPANSION AND CONTRACTION JOINTS IN THE BARRIER/MOMENT SLAB SHOWN ON THE PLANS MAY BE ADJUSTED TO ACCOMMODATE THE PANEL TYPE USED IN THE PROJECT. ANY CHANGE TO THESE JOINT LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

LEVELING PAD: THE PROPRIETARY WALL MANUFACTURER MAY RELOCATE THE LEVELING PAD STEPS AT THEIR DISCRETION PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED. ANY CHANGE TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ROADWAY LIMITS: THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCROACHED UPON.

MOMENT SLAB: THE MOMENT SLAB IS DESIGNED IN ACCORDANCE WITH THE SAME CRITERIA SPECIFIED FOR MECHANICALLY STABILIZED EARTH WALLS IN SECTION 11.10.10.2 OF AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH. EDITION.

TRAFFIC BARRIER JOINTS: TRAFFIC BARRIER FOOTING/ MOMENT SLAB SHALL HAVE CONSTRUCTION JOINTS TO COINCIDE WITH THE BARRIER JOINTS.

COORDINATION: CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATIONS OF INLETS AND PIPES WITH LOCATIONS OF PROPRIETARY WALL TIE BACK SYSTEM AND MOMENT SLAB.

ARCHITECTURAL FINISH: THE MSE WALL PANELS SHALL RECEIVE AN ARCHITECTURAL FINISH.

SERVICE LIFE: ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 100 YEARS.

WALL SYSTEM: ONLY ONE MSE WALL SYSTEM MAY BE USED ON THIS PROJECT.

ROADWAY SUPERELEVATION: FOR ROADWAY SUPERELEVATION, SEE SUPERELEVATION TABLES.

MSE WALL BACKFILL: MSE WALL BACKFILL SHALL CONSIST OF SPECIFIED BACKFILL.

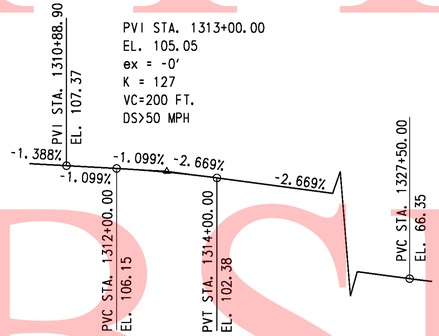
△2 PAY ITEMS: MECHANICALLY STABILIZED EARTH WALLS (602772)

PCC MASONRY FOR MSE WALLS (602773)

BAR REINFORCEMENT. EPOXY COATED (604000)

SOIL PROPERTIES

SOIL TYPE	UNIT WEIGHT (PCF)	DRAINED ANGLE OF FRICTION (DEGREES)	UNDRAINED SHEAR (PSF)
SELECT FILL	125	34	-
△2 ~~LWEF~~	~~40~~	~~38~~	-
NO. 57 STONE	105	38	-
FOUNDATION SOIL	120	27	1250
△2 CONTROLLED LOW STRENGTH MATERIAL (CLSM)	40	38	-



RAMP G1
VERTICAL CURVE DATA
NOT TO SCALE

PI STA. 1310+72.06
△ = 4°47'24.25" RT
Dc = 2°17'30.59"
R = 2,500.0000'
T = 104.56'
L = 209.01'

RAMP G1
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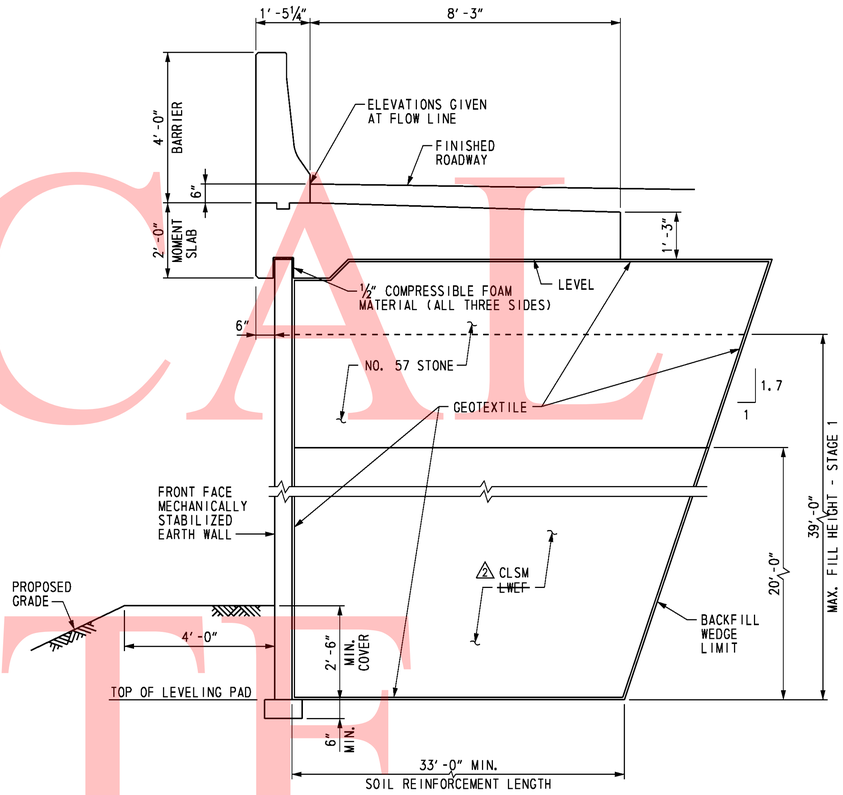

TYPICAL SECTION
SCALE: ½" = 1'-0"

FOUNDATION NOTES:

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED FOR EACH STRUCTURE LOCATION. THE INTERNAL STABILITY CALCULATIONS SHOULD BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS.

ISOLATED AREAS OF UNDERCUTTING OF EXISTING FILL MAY BE ENCOUNTERED DURING CONSTRUCTION OF THIS RETAINING WALL.

△2 A QUARANTINE PERIOD OF ~~APPROXIMATELY~~ THIRTY (30) DAYS IS REQUIRED AFTER CONSTRUCTION OF THE FULL HEIGHT OF THE MSE WALL IS ACHIEVED. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE QUARANTINE PERIOD PRIOR TO CONSTRUCTION OF ANY PAVEMENT OR BARRIER. A TOTAL ESTIMTED SETTLEMENT OF APPROXIMATELY FOUR (4) INCHES IS ANTICIPATED.

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12/2011
Steve_Lambert

R2-1

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. △2 REVISED FOUNDATION NOTES AND SOIL PROPERTIES, ADDED PAY ITEMS, 01/26/11, RFK	

SR1 / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	
28-090-03	DESIGNED BY: R. F. KIRCHNER	
COUNTY	CHECKED BY: J. S. LI	
NEW CASTLE		

RETAINING WALL 2

GENERAL NOTES AND TYPICAL SECTION

SHEET NO.	TOTAL SHTS.
537	803

GENERAL NOTES

SPECIFICATIONS: PROPRIETARY MSE WALLS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH ALL CURRENT REVISIONS.
- FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NOS. FHWA-NHI-10-024 AND FHWA-NHI-025, "DESIGN AND CONSTRUCTION OF MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES", VOLUME I AND VOLUME II.

CONCRETE DESIGN SHALL BE PERFORMED USING THE LOAD AND RESISTANCE FACTOR DESIGN METHOD.

CONCRETE: ALL CONCRETE FOR ROADWAY BARRIERS SHALL BE 4,500 PSI. LEVELING PAD CONCRETE SHALL BE 3,500 PSI. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

CHAMFERS: ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" x ¾" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED, EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS: "DO NOT CHAMFER".

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER THE LRFD BRIDGE DESIGN SPECIFICATIONS. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.

FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCE.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

ALL REINFORCING STEEL IN THE BARRIER SHALL BE EPOXY COATED, AND SHALL CONFORM TO ASTM D3936.

ALL KEYS ARE NOMINAL SIZE.

THE MSE WALL MANUFACTURER MAY SUBSTITUTE ALTERNATE REINFORCING CONFIGURATIONS AND SUBMIT FOR APPROVAL.

EXPANSION AND CONTRACTION JOINTS: THE LOCATION OF THE EXPANSION AND CONTRACTION JOINTS IN THE BARRIER SHOWN ON THE PLANS MAY BE ADJUSTED TO ACCOMMODATE THE PANEL TYPE USED IN THE PROJECT. ANY CHANGE TO THESE JOINT LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

LEVELING PAD: THE PROPRIETARY WALL MANUFACTURER MAY RELOCATE THE LEVELING PAD STEPS AT THEIR DISCRETION PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED. ANY CHANGE TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ROADWAY LIMITS: THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCROACHED UPON.

TRAFFIC BARRIER JOINTS: TRAFFIC BARRIER FOOTING SHALL HAVE CONSTRUCTION JOINTS TO COINCIDE WITH THE BARRIER JOINTS.

COORDINATION: CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATIONS OF INLETS AND PIPES WITH LOCATIONS OF PROPRIETARY WALL TIE BACK SYSTEM.

ARCHITECTURAL FINISH: THE MSE WALL PANELS SHALL RECEIVE AN ARCHITECTURAL FINISH.

SERVICE LIFE: ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 100 YEARS.

WALL SYSTEM: ONLY ONE MSE WALL SYSTEM MAY BE USED ON THIS PROJECT.

ROADWAY SUPERELEVATION: FOR ROADWAY SUPERELEVATION, SEE SUPERELEVATION TABLES.

MSE WALL BACKFILL: MSE WALL BACKFILL SHALL CONSIST OF SPECIFIED BACKFILL.

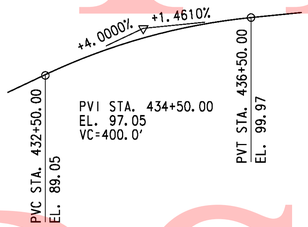
△2 PAY ITEMS: MECHANICALLY STABILIZED EARTH WALLS (602772)

PCC MASONRY FOR MSE WALLS (602773)

BAR REINFORCEMENT. EPOXY COATED (604000)

SOIL PROPERTIES

SOIL TYPE	UNIT WEIGHT (PCF)	DRAINED ANGLE OF FRICTION (DEGREES)	UNDRAINED SHEAR (PSF)
SELECT FILL	125	34	-
△2 ~~LWEF~~	~~40~~	~~38~~	-
NO. 57 STONE	105	38	-
FOUNDATION SOIL	105	28	1250
△2 CONTROLLED LOW STRENGTH MATERIAL (CLSM)	40	38	-



RAMP B
VERTICAL CURVE DATA
NOT TO SCALE

PI STA. 432+05.12
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T = 836.55'
L = 1,568.78'

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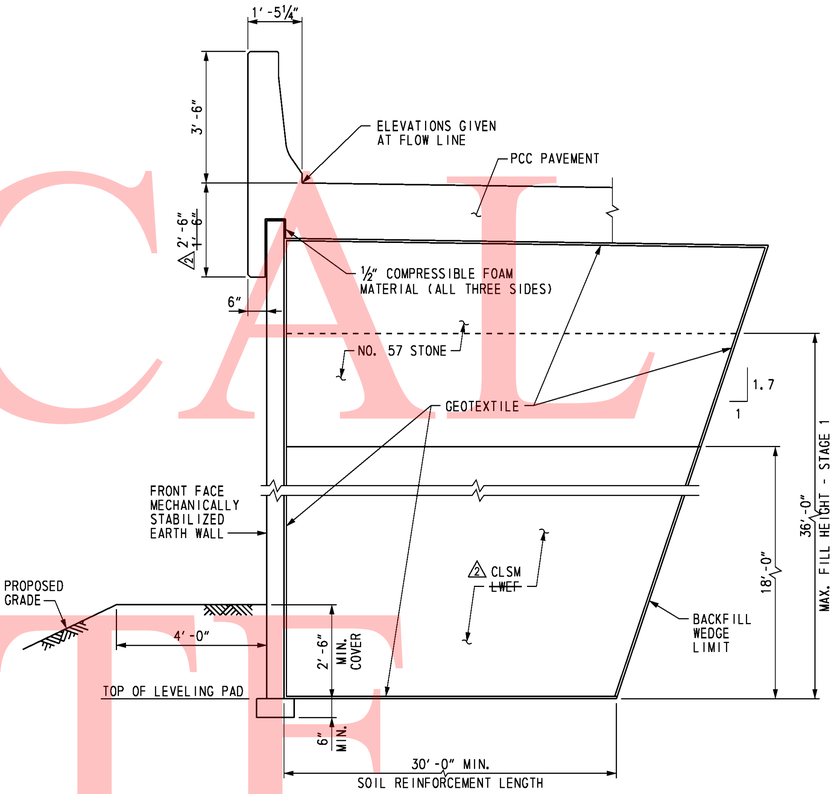

TYPICAL SECTION
SCALE: ½" = 1'-0"

FOUNDATION NOTES:

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED FOR EACH STRUCTURE LOCATION. THE INTERNAL STABILITY CALCULATIONS SHOULD BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS.

ISOLATED AREAS OF UNDERCUTTING OF EXISTING FILL MAY BE ENCOUNTERED DURING CONSTRUCTION OF THIS RETAINING WALL.

△2 A QUARANTINE PERIOD OF ~~APPROXIMATELY~~ THIRTY (30) DAYS IS REQUIRED AFTER CONSTRUCTION OF THE FULL HEIGHT OF THE MSE WALL IS ACHIEVED. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE QUARANTINE PERIOD PRIOR TO CONSTRUCTION OF ANY PAVEMENT OR BARRIER. A TOTAL ESTIMTED SETTLEMENT OF APPROXIMATELY FOUR (4) INCHES IS ANTICIPATED.

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12/1/2011
Steve_Lambert

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS
ADDENDUM NO. △2 REV. FOUNDATION NOTES, COPING DIMENSION AND SOIL PROPERTIES, ADDED PAY ITEMS, 01/26/11, RFK

SR1 / I-95 INTERCHANGE

CONTRACT 28-090-03
COUNTY NEW CASTLE
BRIDGE NO.
DESIGNED BY: R. F. KIRCHNER
CHECKED BY: J. S. LI

RETAINING WALL 3
GENERAL NOTES AND TYPICAL SECTION

R3-1
SHEET NO. 542
TOTAL SHTS. 803

GENERAL NOTES

SPECIFICATIONS: PROPRIETARY MSE WALLS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH ALL CURRENT REVISIONS.
- FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NO. FHWA-NHI-00-043, "MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES DESIGN AND CONSTRUCTION GUIDELINES"

CONCRETE: CONCRETE DESIGN SHALL BE PERFORMED USING THE LOAD AND RESISTANCE FACTOR DESIGN METHOD.

COPING CONCRETE SHALL BE 3500 PSI. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

CHAMFERS: ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" x ¾" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS: "DO NOT CHAMFER".

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.

FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCE.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

ALL REINFORCING STEEL IN THE COPING SHALL BE EPOXY COATED.

ALL KEYS ARE NOMINAL SIZE.

THE MSE WALL MANUFACTURER MAY SUBSTITUTE ALTERNATE REINFORCING CONFIGURATIONS AND SUBMIT FOR APPROVAL.

EXPANSION AND CONTRACTION JOINTS: THE LOCATION OF THE EXPANSION AND CONTRACTION JOINTS IN THE COPING SHOWN ON THE PLANS MAY BE ADJUSTED TO ACCOMMODATE THE PANEL TYPE USED IN THE PROJECT. ANY CHANGE TO THESE JOINT LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. EXPANSION JOINTS ARE LABELED "EJ".

LEVELING PAD: THE PROPRIETARY WALL MANUFACTURER MAY RELOCATE THE LEVELING PAD STEPS AT THEIR DISCRETION PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED. ANY CHANGE TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ROADWAY LIMITS: THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCROACHED UPON.

COPING JOINTS: COPING SHALL HAVE CONSTRUCTION JOINTS.

COORDINATION: CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATIONS OF INLETS AND PIPES WITH LOCATIONS OF PROPRIETARY WALL TIEBACK SYSTEM.

ARCHITECTURAL FINISH: THE MSE WALL PANELS SHALL RECEIVE AN ARCHITECTURAL FINISH.

SERVICE LIFE: ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 75 YEARS.

WALL SYSTEM: ONLY ONE MSE WALL SYSTEM MAY BE USED ON THIS PROJECT.

ROADWAY SUPERELEVATION: FOR ROADWAY SUPERELEVATION, SEE SUPERELEVATION TABLES.

MSE WALL BACKFILL: MSE WALL BACKFILL SHALL CONSIST OF SPECIFIED BACKFILL.

PAY ITEMS: MECHANICALLY STABILIZED EARTH WALLS (602772)
PCC MASONRY FOR MSE WALLS (602773)
BAR REINFORCEMENT, EPOXY COATED (604000)

FOUNDATION NOTES

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED. THE INTERNAL STABILITY SHOULD BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS. THE FACTORED APPLIED BEARING STRESS SHALL NOT EXCEED THE FACTORED BEARING RESISTANCE.

ISOLATED AREAS OF UNDERCUTTING OF SOFT SOIL OR EXISTING FILL MAY BE ENCOUNTERED DURING CONSTRUCTION OF THIS RETAINING WALL.

GROUNDWATER MAY BE ENCOUNTERED DURING EXCAVATION TO THE LEVELING PAD AND DURING CONSTRUCTION OF THIS RETAINING WALL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A RELATIVELY DRY EXCAVATION, INCLUDING DETERMINING APPROPRIATE DEWATERING METHODS DURING CONSTRUCTION.

2 A QUARANTINE PERIOD OF ~~APPROXIMATELY~~ 30-DAYS IS REQUIRED AFTER CONSTRUCTION OF THE FULL HEIGHT OF THE MSE WALL IS ACHIEVED. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE QUARANTINE PERIOD PRIOR TO CONSTRUCTION OF ANY COPING.

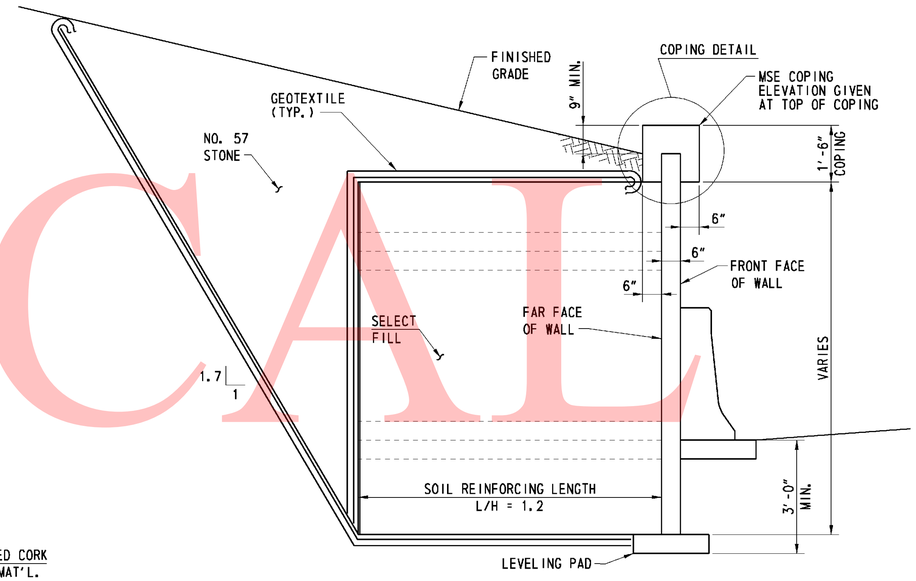
THE DESIGN UNIT WEIGHT INDICATED IN SOIL PROPERTIES TABLE HAS BEEN ADJUSTED DUE TO THE PRESENCE OF SHALLOW GROUNDWATER.

SOIL PROPERTIES FOR DESIGN

SOIL TYPE	UNIT WEIGHT (PCF)	ANGLE OF FRICTION (DEGREES)
SELECT FILL	125	34
NO. 57 STONE	105	38
FOUNDATION SOIL	68	24

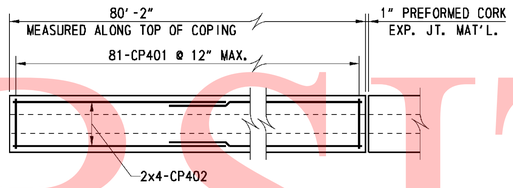
SR7 (NB) VERTICAL CURVE DATA

NO SCALE

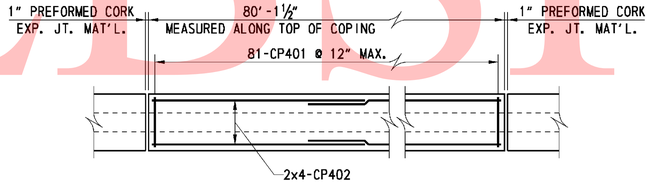


TYPICAL SECTION

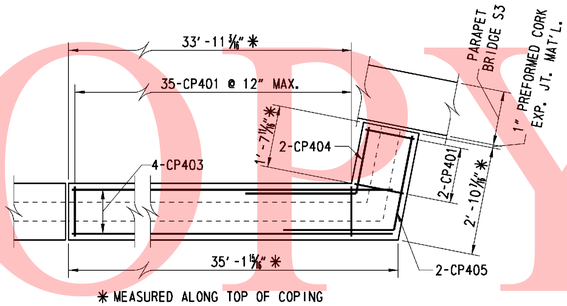
(LOOKING AHEAD STATION)
SCALE: ½" = 1'-0"



TYPE 1 PANEL (1 REQUIRED)



TYPE 2 PANEL (2 REQUIRED)

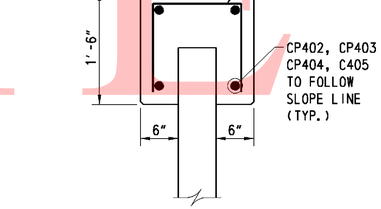


* MEASURED ALONG TOP OF COPING

TYPE 3 PANEL (1 REQUIRED)

COPING REINFORCING PLANS

SCALE: ½" = 1'-0"

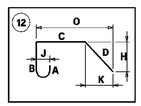


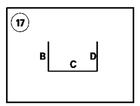
COPING DETAIL

SCALE: 1" = 1'-0"

	SPECIFICATIONS					BENDING DIMENSIONS (FEET-INCHES /QUARTER INCH)						
	QTY.	SIZE	LENGTH	MARK	TYPE	A	B	C	D	H	K	O
COPING	280	4	3-6	CP401	17		1-2	1-2	1-2			
	24	4	41-4 12	CP402	STR							
	4	4	34-9 15/16	CP403	STR							
	2	4	4-6 3/4	CP404	12	0	0	2-11	1-7 3/4	1-7 3/8	0-3 7/8	3-2 7/8
	2	4	5-5 7/16	CP405	12	0	0	2-11	2-6 7/16	2-5 7/8	0-6	3-5

SEE SHEET R7-07 FOR BAR BEND NOTES





0 1 4
½ 2
SCALE: ½"=1'-0"

0 1
½ 2
SCALE: 1"=1'-0"

1/19/2011 8:09:43 AM
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DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		SR1 / I-95 INTERCHANGE	CONTRACT	28-090-03	BRIDGE NO.		RETAINING WALL 4 GENERAL NOTES AND TYPICAL SECTION	R4-01 SHEET NO. 546 TOTAL SHTS. 803
	ADDENDUM NO. 2, UPDATED FOUNDATION NOTES, 01/26/11, JSW			COUNTY	NEW CASTLE	DESIGNED BY:	JMS		
						CHECKED BY:	JSW		

GENERAL NOTES

SPECIFICATIONS: PROPRIETARY MSE WALLS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH ALL CURRENT REVISIONS.
- FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NO. FHWA-NHI-00-043, "MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES DESIGN AND CONSTRUCTION GUIDELINES"

CONCRETE: CONCRETE DESIGN SHALL BE PERFORMED USING THE LOAD AND RESISTANCE FACTOR DESIGN METHOD.

COPING CONCRETE SHALL BE 3500 PSI. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

CHAMFERS: ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" x ¾" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS: "DO NOT CHAMFER".

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.

FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCE.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

ALL REINFORCING STEEL IN THE COPING SHALL BE EPOXY COATED.

ALL KEYS ARE NOMINAL SIZE.

THE MSE WALL MANUFACTURER MAY SUBSTITUTE ALTERNATE REINFORCING CONFIGURATIONS AND SUBMIT FOR APPROVAL.

EXPANSION AND CONTRACTION JOINTS: THE LOCATION OF THE EXPANSION AND CONTRACTION JOINTS IN THE COPING SHOWN ON THE PLANS MAY BE ADJUSTED TO ACCOMMODATE THE PANEL TYPE USED IN THE PROJECT. ANY CHANGE TO THESE JOINT LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. EXPANSION JOINTS ARE LABELED "EJ".

LEVELING PAD: THE PROPRIETARY WALL MANUFACTURER MAY RELOCATE THE LEVELING PAD STEPS AT THEIR DISCRETION PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED. ANY CHANGE TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ROADWAY LIMITS: THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCROACHED UPON.

COPING JOINTS: COPING SHALL HAVE CONSTRUCTION JOINTS.

COORDINATION: CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATIONS OF INLETS AND PIPES WITH LOCATIONS OF PROPRIETARY WALL TIEBACK SYSTEM.

ARCHITECTURAL FINISH: THE MSE WALL PANELS SHALL RECEIVE AN ARCHITECTURAL FINISH.

SERVICE LIFE: ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 75 YEARS.

WALL SYSTEM: ONLY ONE MSE WALL SYSTEM MAY BE USED ON THIS PROJECT.

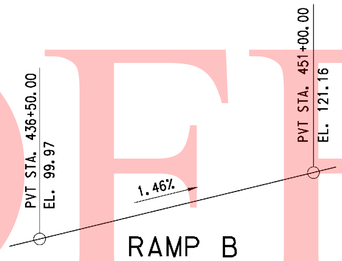
ROADWAY SUPERELEVATION: FOR ROADWAY SUPERELEVATION, SEE SUPERELEVATION TABLES.

MSE WALL BACKFILL: MSE WALL BACKFILL SHALL CONSIST OF SPECIFIED BACKFILL.

PAY ITEMS: PCC MASONRY, PARAPET, CLASS A (602017)
MECHANICALLY STABILIZED EARTH WALLS (602772)
PCC MASONRY FOR MSE WALLS (602773)
BAR REINFORCEMENT, EPOXY COATED (604000)

SOIL PROPERTIES FOR DESIGN

SOIL TYPE	UNIT WEIGHT (PCF)	ANGLE OF FRICTION (DEGREES)
SELECT FILL	125	34
COMMON BORROW	130	28
FOUNDATION SOIL	63	29



RAMP B
VERTICAL CURVE DATA

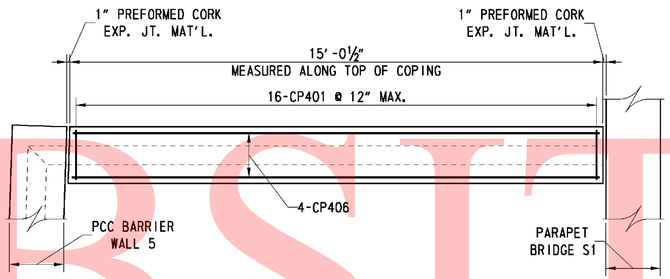
NO SCALE

CURVE NO. 20

P. I. STA.	453+31.90
△	29°54'47.21" RT
DC	3°00'56.04"
R	1900.00'
TANGENT	507.56'
LENGTH	991.96'

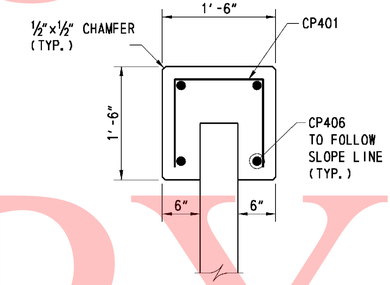
RAMP B
HORIZONTAL CURVE DATA

NO SCALE



COPING REINFORCING PLAN

SCALE: ½" = 1'-0"

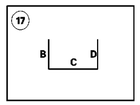


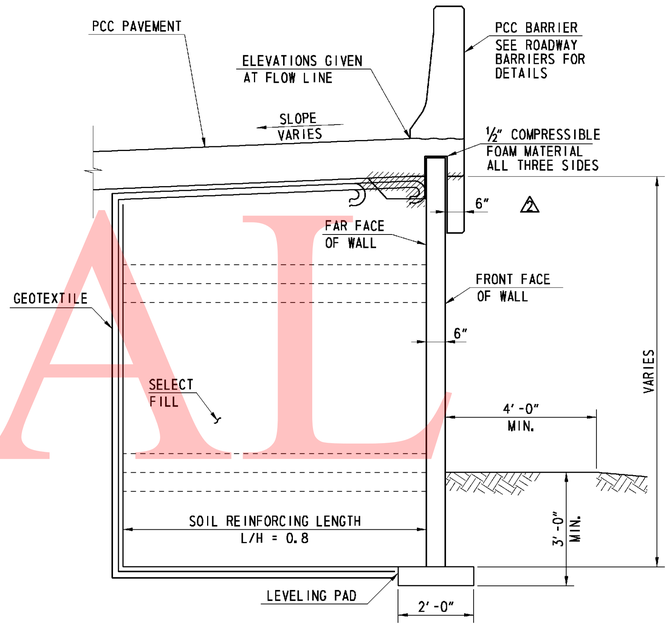
COPING DETAIL

SCALE: 1"= 1'-0"

	SPECIFICATIONS					BENDING DIMENSIONS (FEET-INCHES /QUARTER INCH)							
	QTY.	SIZE	LENGTH	MARK	TYPE	A	B	C	D	H	K	O	REMARKS
COPING	16	4	3-6	CP401	17		1-2	1-2	1-2				
	4	4	14-8 12	CP406	STR								BEND BARS IN FIELD AS NEEDED

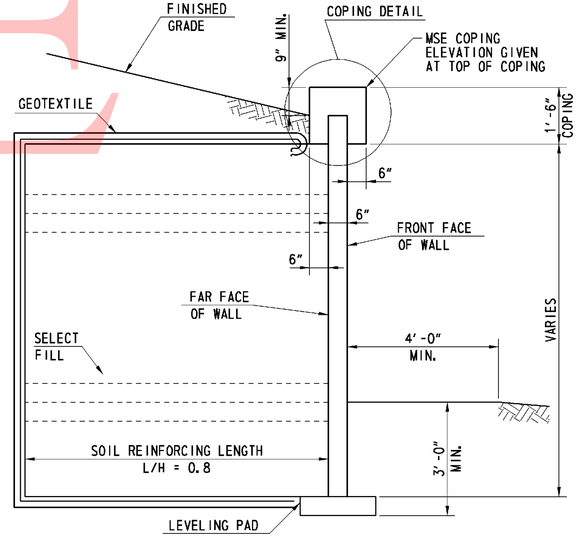
SEE SHEET R7-07 FOR BAR BEND NOTES





TYPICAL SECTION
STA. 449+22.48 TO STA. 450+42.00

(LOOKING BACK STATION)
SCALE: ½" = 1'-0"



TYPICAL SECTION
STA. 449+22.01 TO STA. 449+22.48

SCALE: ½" = 1'-0"

0 ½ 1 2 4
SCALE: ½"=1'-0"

0 ½ 1 2
SCALE: 1"=1'-0"

FOUNDATION NOTES

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED. THE INTERNAL STABILITY SHOULD BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS. THE FACTORED APPLIED BEARING STRESS SHALL NOT EXCEED THE FACTORED BEARING RESISTANCE.

ISOLATED AREAS OF UNDERCUTTING OF SOFT SOIL OR EXISTING FILL MAY BE ENCOUNTERED DURING CONSTRUCTION OF THIS RETAINING WALL.

GROUNDWATER MAY BE ENCOUNTERED DURING EXCAVATION TO THE LEVELING PAD AND DURING CONSTRUCTION OF THIS RETAINING WALL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A RELATIVELY DRY EXCAVATION, INCLUDING DETERMINING APPROPRIATE DEWATERING METHODS DURING CONSTRUCTION.

⚠2 A QUARANTINE PERIOD OF ~~APPROXIMATELY~~ 30-DAYS IS REQUIRED AFTER CONSTRUCTION OF THE FULL HEIGHT OF THE MSE WALL IS ACHIEVED. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE QUARANTINE PERIOD PRIOR TO CONSTRUCTION OF ANY COPING OR PARAPETS.

THE DESIGN UNIT WEIGHT INDICATED IN SOIL PROPERTIES TABLE HAS BEEN ADJUSTED DUE TO THE PRESENCE OF SHALLOW GROUNDWATER.

THE WALL SUPPLIER SHALL PERFORM A DETAILED SEISMIC ANALYSIS FOR BACK TO BACK MSE WALLS WITH L/H LESS THAN 1.1, IF NECESSARY, AS REQUIRED BY FHWA PUBLICATION NO. FHWA-NHI-00-043.

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DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. ⚠2, UPDATED FOUNDATION NOTES, SECTION, 01/26/11, JSW	

SR1 / I-95 INTERCHANGE

CONTRACT	28-090-03
COUNTY	NEW CASTLE
BRIDGE NO.	
DESIGNED BY:	JMS
CHECKED BY:	JSW

RETAINING WALL 5
GENERAL NOTES AND TYPICAL SECTION

R5-01
SHEET NO. 551
TOTAL SHTS. 803

GENERAL NOTES

SPECIFICATIONS: PROPRIETARY MSE WALLS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH ALL CURRENT REVISIONS.
- FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NO. FHWA-NHI-00-043, "MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES DESIGN AND CONSTRUCTION GUIDELINES"

CONCRETE: CONCRETE DESIGN SHALL BE PERFORMED USING THE LOAD AND RESISTANCE FACTOR DESIGN METHOD.

COPING CONCRETE SHALL BE 3500 PSI. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

CHAMFERS: ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" x ¾" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS: "DO NOT CHAMFER".

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.

FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCE.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

ALL REINFORCING STEEL IN THE COPING SHALL BE EPOXY COATED.

ALL KEYS ARE NOMINAL SIZE.

THE MSE WALL MANUFACTURER MAY SUBSTITUTE ALTERNATE REINFORCING CONFIGURATIONS AND SUBMIT FOR APPROVAL.

EXPANSION AND CONTRACTION JOINTS: THE LOCATION OF THE EXPANSION AND CONTRACTION JOINTS IN THE COPING SHOWN ON THE PLANS MAY BE ADJUSTED TO ACCOMMODATE THE PANEL TYPE USED IN THE PROJECT. ANY CHANGE TO THESE JOINT LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. EXPANSION JOINTS ARE LABELED "EJ".

LEVELING PAD: THE PROPRIETARY WALL MANUFACTURER MAY RELOCATE THE LEVELING PAD STEPS AT THEIR DISCRETION PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED. ANY CHANGE TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ROADWAY LIMITS: THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCROACHED UPON.

COPING JOINTS: COPING SHALL HAVE CONSTRUCTION JOINTS.

COORDINATION: CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATIONS OF INLETS AND PIPES WITH LOCATIONS OF PROPRIETARY WALL TIEBACK SYSTEM.

ARCHITECTURAL FINISH: THE MSE WALL PANELS SHALL RECEIVE AN ARCHITECTURAL FINISH.

SERVICE LIFE: ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 75 YEARS.

WALL SYSTEM: ONLY ONE MSE WALL SYSTEM MAY BE USED ON THIS PROJECT.

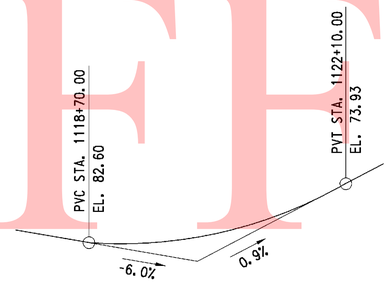
ROADWAY SUPERELEVATION: FOR ROADWAY SUPERELEVATION, SEE SUPERELEVATION TABLES.

MSE WALL BACKFILL: MSE WALL BACKFILL SHALL CONSIST OF SPECIFIED BACKFILL.

PAY ITEMS: MECHANICALLY STABILIZED EARTH WALLS (602772)
PCC MASONRY FOR MSE WALLS (602773)
BAR REINFORCEMENT, EPOXY COATED (604000)

SOIL PROPERTIES FOR DESIGN

SOIL TYPE	UNIT WEIGHT (PCF)	ANGLE OF FRICTION (DEGREES)
SELECT FILL	125	34
NO. 57 STONE	130	28
FOUNDATION SOIL	125	32

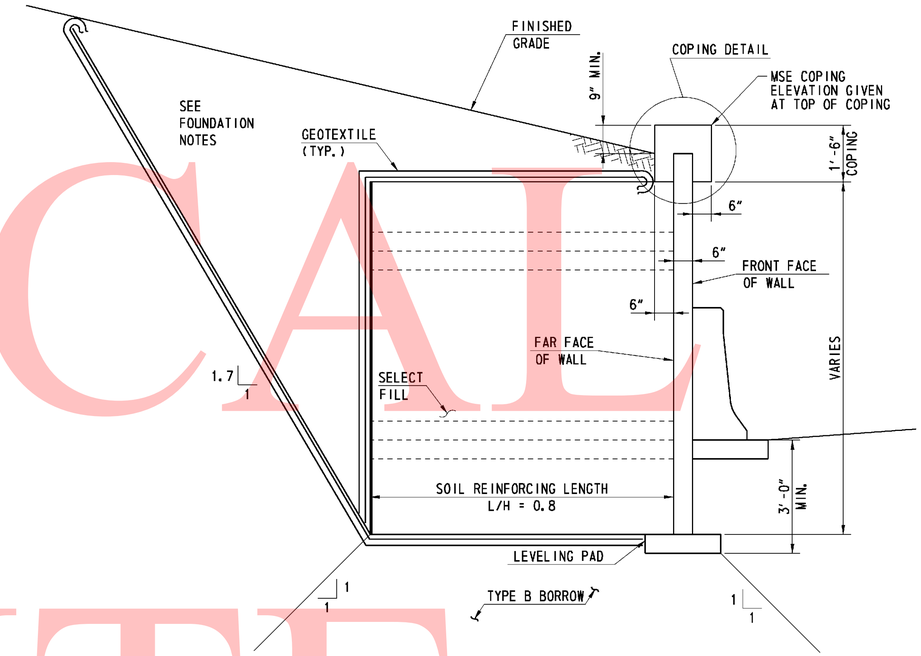


RAMP C
VERTICAL CURVE DATA
NO SCALE

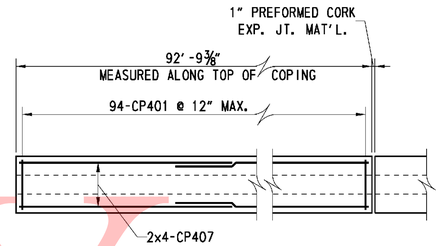
CURVE NO. 30

P.I. STA.	1118+29.56
Δ	39°23'47.64" LT
DC	9°32'57.47"
R	600.00'
TANGENT	214.81'
LENGTH	412.56'

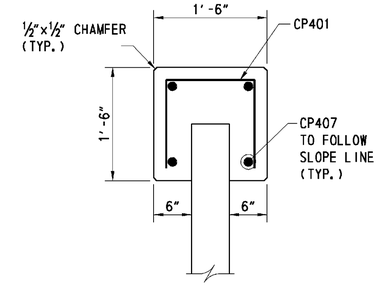
RAMP C
HORIZONTAL CURVE DATA
NO SCALE



TYPICAL SECTION
(LOOKING BACK STATION)
SCALE: ½" = 1'-0"



COPING REINFORCING PLAN
(2 REQUIRED)
SCALE: ½" = 1'-0"



COPING DETAIL
SCALE: 1"= 1'-0"

FOUNDATION NOTES

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED. THE INTERNAL STABILITY SHOULD BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS. THE FACTORED APPLIED BEARING STRESS SHALL NOT EXCEED THE FACTORED BEARING RESISTANCE.

2 A QUARANTINE PERIOD OF ~~APPROXIMATELY~~ 30-DAYS IS REQUIRED AFTER CONSTRUCTION OF THE FULL HEIGHT OF THE MSE WALL IS ACHIEVED. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE QUARANTINE PERIOD PRIOR TO CONSTRUCTION OF ANY COPING.

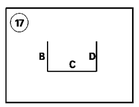
RETAINING WALL 6 MUST BE CONSTRUCTED ON SELECT FILL FOUNDATION SOIL.

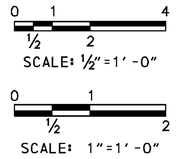
RETAINING WALL 6 FROM RAMP C STATION 1117+47.08 TO 1117+75 CAN BE CONSTRUCTED WITH SELECT FILL IN THE MSE REINFORCEMENT ZONE AND WITH COMMON BORROW IN THE RETAINED WEDGE. FROM STATION 1117+75 TO STATION 1119+25, SELECT FILL MUST BE USED IN THE MSE REINFORCEMENT ZONE AND IN THE RETAINED WEDGE.

THE WALL SUPPLIER SHAL PERFORM A DETAILED SEISMIC ANALYSIS FOR BACK TO BACK MSE WALLS WITH L/H LESS THAN 1.1, IF NECESSARY, AS REQUIRED BY FHWA PUBLICATION NO. FHWA-NHI-00-043.

	SPECIFICATIONS					BENDING DIMENSIONS (FEET-INCHES /QUARTER INCH)							
	QTY.	SIZE	LENGTH	MARK	TYPE	A	B	C	D	H	K	O	REMARKS
COPING	188	4	3-6	CP401	17		1-2	1-2	1-2				
	16	4	47-10 3/16	CP407	STR								BEND BARS IN FIELD AS NEEDED

SEE SHEET R7-07 FOR BAR BEND NOTES





ADDENDUMS / REVISIONS	
ADDENDUM NO. 2, UPDATED FOUNDATION NOTES, 01/26/11, JSW	

DELAWARE DEPARTMENT OF TRANSPORTATION

SR1 / I-95 INTERCHANGE

CONTRACT	28-090-03
COUNTY	NEW CASTLE
BRIDGE NO.	
DESIGNED BY:	JMS
CHECKED BY:	JSW

RETAINING WALL 6
GENERAL NOTES AND TYPICAL SECTION

R6-01	
SHEET NO.	555
TOTAL SHTS.	803

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GENERAL NOTES

SPECIFICATIONS: PROPRIETARY MSE WALLS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH ALL CURRENT REVISIONS.
- FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NO. FHWA-NHI-00-043, "MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES DESIGN AND CONSTRUCTION GUIDELINES"

CONCRETE: CONCRETE DESIGN SHALL BE PERFORMED USING THE LOAD AND RESISTANCE FACTOR DESIGN METHOD.

COPING CONCRETE SHALL BE 3500 PSI. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

CHAMFERS: ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" x ¾" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS: "DO NOT CHAMFER".

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.

FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCE.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

ALL REINFORCING STEEL IN THE COPING SHALL BE EPOXY COATED.

ALL KEYS ARE NOMINAL SIZE.

THE MSE WALL MANUFACTURER MAY SUBSTITUTE ALTERNATE REINFORCING CONFIGURATIONS AND SUBMIT FOR APPROVAL.

EXPANSION AND CONTRACTION JOINTS: THE LOCATION OF THE EXPANSION AND CONTRACTION JOINTS IN THE COPING SHOWN ON THE PLANS MAY BE ADJUSTED TO ACCOMMODATE THE PANEL TYPE USED IN THE PROJECT. ANY CHANGE TO THESE JOINT LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. EXPANSION JOINTS ARE LABELED "EJ".

LEVELING PAD: THE PROPRIETARY WALL MANUFACTURER MAY RELOCATE THE LEVELING PAD STEPS AT THEIR DISCRETION PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED. ANY CHANGE TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ROADWAY LIMITS: THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCROACHED UPON.

COPING JOINTS: COPING SHALL HAVE CONSTRUCTION JOINTS.

COORDINATION: CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATIONS OF INLETS AND PIPES WITH LOCATIONS OF PROPRIETARY WALL TIEBACK SYSTEM.

ARCHITECTURAL FINISH: THE MSE WALL PANELS SHALL RECEIVE AN ARCHITECTURAL FINISH.

SERVICE LIFE: ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 75 YEARS.

WALL SYSTEM: ONLY ONE MSE WALL SYSTEM MAY BE USED ON THIS PROJECT.

ROADWAY SUPERELEVATION: FOR ROADWAY SUPERELEVATION, SEE SUPERELEVATION TABLES.

MSE WALL BACKFILL: MSE WALL BACKFILL SHALL CONSIST OF SPECIFIED BACKFILL.

PAY ITEMS: MECHANICALLY STABILIZED EARTH WALLS (602772)
PCC MASONRY FOR MSE WALLS (602773)
BAR REINFORCEMENT, EPOXY COATED (604000)

FOUNDATION NOTES

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED FOR EACH STRUCTURE LOCATION. THE INTERNAL STABILITY SHOULD BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS. THE FACTORED APPLIED BEARING STRESS SHALL NOT EXCEED THE FACTORED BEARING RESISTANCE.

ISOLATED AREAS OF UNDERCUTTING OF EXISTING FILL MAY BE ENCOUNTERED DURING CONSTRUCTION OF THIS RETAINING WALL.

GROUNDWATER MAY BE ENCOUNTERED DURING EXCAVATION TO THE LEVELING PAD AND DURING CONSTRUCTION OF THIS RETAINING WALL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A RELATIVELY DRY EXCAVATION, INCLUDING DETERMINING APPROPRIATE DEWATERING METHODS DURING CONSTRUCTION.

2 A QUARANTINE PERIOD OF ~~APPROXIMATELY~~ 30-DAYS IS REQUIRED AFTER CONSTRUCTION OF THE FULL HEIGHT OF THE MSE WALL IS ACHIEVED. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE QUARANTINE PERIOD PRIOR TO CONSTRUCTION OF ANY COPING.

RETAINING WALL 8 FROM RAMP C1 STA 1815+58.62 TO STA 1816+35 MAY BE CONSTRUCTED WITH SELECT FILL FOR THE FULL HEIGHT OF THE RETAINING WALL. THERE WILL BE NO BACKFILL BETWEEN THE WALLS. THE MINIMUM REINFORCEMENT LENGTH TO HEIGHT RATIO FOR RETAINING WALL 8 IS L/H=1.2. FROM RAMP C1 STA 1816+35 TO SR 7 (SB) STA 1815+60, THE REINFORCEMENT LENGTH TO HEIGHT RATIO MUST BE L/H = 1.2. NO. 57 STONE SHOULD BE USED AS BACKFILL BEHIND THE REINFORCEMENT ZONE BETWEEN THESE STATIONS.

THE DESIGN UNIT WEIGHT INDICATED IN SOIL PROPERTIES TABLE HAS BEEN ADJUSTED DUE TO THE PRESENCE OF SHALLOW GROUNDWATER.

THE WALL SUPPLIER SHAL PERFORM A DETAILED SEISMIC ANALYSIS FOR BACK TO BACK MSE WALLS WITH L/H LESS THAN 1.1, IF NECESSARY, AS REQUIRED BY FHWA PUBLICATION NO. FHWA-NHI-00-043.

SOIL PROPERTIES FOR DESIGN

SOIL TYPE	UNIT WEIGHT (PCF)	ANGLE OF FRICTION (DEGREES)
SELECT FILL	125	34
NO. 57 STONE	105	38
FOUNDATION SOIL	68	24

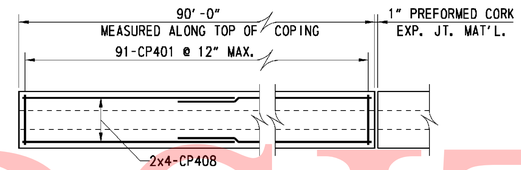
SEE SHEETS 53 & 57 FOR RAMP C1 VERTICAL CURVE DATA.

RAMP C1
VERTICAL CURVE DATA

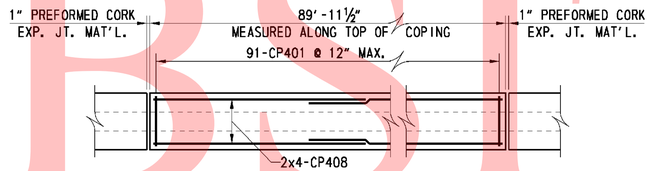
CURVE NO. 33

P.I. STA.	1815+13.61
△	46°23'34.62" RT
DC	22°55'05.92"
R	250.00'
TANGENT	107.13'
LENGTH	202.42'

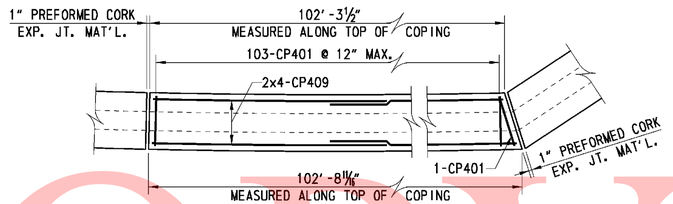
RAMP C1
HORIZONTAL CURVE DATA



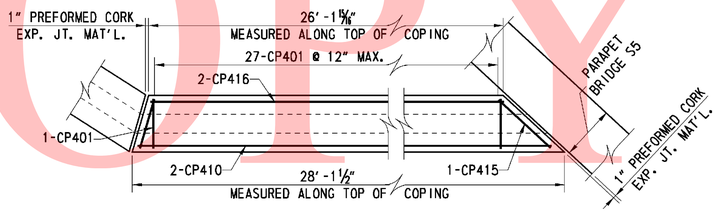
TYPE 1 PANEL (1 REQUIRED)



TYPE 2 PANEL (2 REQUIRED)



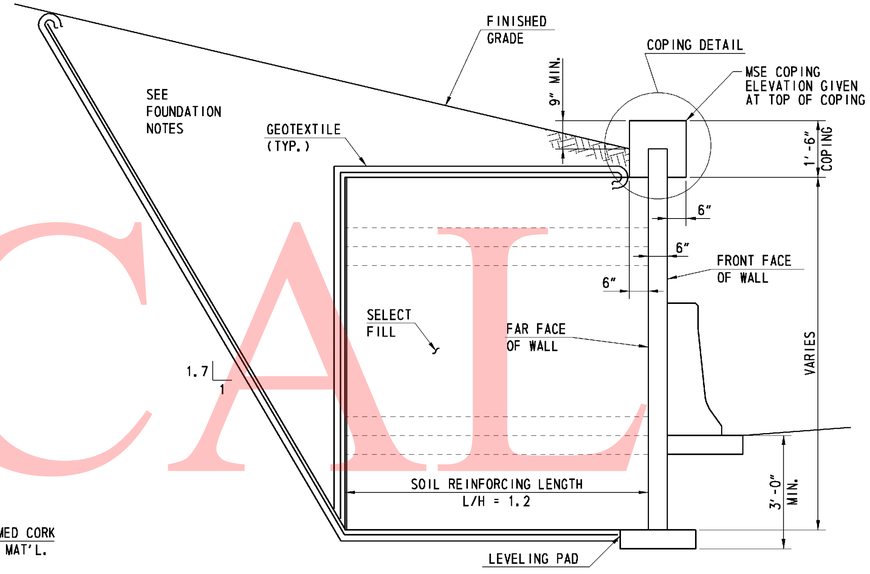
TYPE 3 PANEL (1 REQUIRED)



TYPE 4 PANEL (1 REQUIRED)

COPING REINFORCING PLANS

SCALE: ½" = 1'-0"



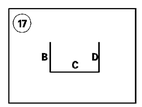
TYPICAL SECTION

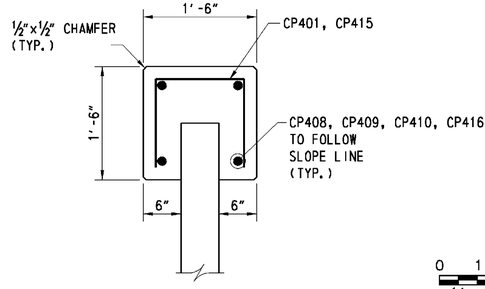
(LOOKING BACK STATION)
SCALE: ½" = 1'-0"

COPING	QTY.	SIZE	LENGTH	MARK	TYPE	A	B	C	D	H	K	O	REMARKS
SPECIFICATIONS	405	4	3-6	CP401	17		1-2	1-2	1-2				
	24	4	46-5 12	CP408	STR								BEND BARS IN FIELD AS NEEDED
	8	4	52-7 7/8	CP409	STR								BEND BARS IN FIELD AS NEEDED
	2	4	27-9 12	CP410	STR								BEND BARS IN FIELD AS NEEDED
	1	4	4-2 12	CP415	17		1-2	1-10 12	1-2				
	2	4	25-9 15/16	CP416	STR								BEND BARS IN FIELD AS NEEDED

BENDING DIMENSIONS (FEET-INCHES /QUARTER INCH)

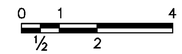
SEE SHEET R7-07 FOR BAR BEND NOTES





COPING DETAIL

SCALE: 1"= 1'-0"



SCALE: ½"=1'-0"

SCALE: 1"=1'-0"

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DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. 2, UPDATED FOUNDATION NOTES, 01/26/11, JSW	

SR1 / I-95 INTERCHANGE

CONTRACT	28-090-03
COUNTY	NEW CASTLE
BRIDGE NO.	
DESIGNED BY:	JMS
CHECKED BY:	JSW

RETAINING WALL 8
GENERAL NOTES AND TYPICAL SECTION

R8-01
SHEET NO. 570
TOTAL SHTS. 803

GENERAL NOTES

SPECIFICATIONS: PROPRIETARY MSE WALLS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH ALL CURRENT REVISIONS.
- FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NO. FHWA-NHI-00-043, "MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES DESIGN AND CONSTRUCTION GUIDELINES"

CONCRETE DESIGN SHALL BE PERFORMED USING THE LOAD AND RESISTANCE FACTOR DESIGN METHOD.

CONCRETE: CONCRETE FOR BARRIERS SHALL BE 4500 PSI. LEVELING PAD CONCRETE SHALL BE 3500 PSI. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

CHAMFERS: ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" x ¾" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS: "DO NOT CHAMFER".

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.

FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCE.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

ALL REINFORCING STEEL IN THE PARAPET SHALL BE EPOXY COATED.

ALL KEYS ARE NOMINAL SIZE.

THE MSE WALL MANUFACTURER MAY SUBSTITUTE ALTERNATE REINFORCING CONFIGURATIONS AND SUBMIT FOR APPROVAL.

EXPANSION AND CONTRACTION JOINTS: THE LOCATION OF THE EXPANSION AND CONTRACTION JOINTS IN THE BARRIER SHOWN ON THE PLANS MAY BE ADJUSTED TO ACCOMMODATE THE PANEL TYPE USED IN THE PROJECT. ANY CHANGE TO THESE JOINT LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. EXPANSION JOINTS ARE LABELED "EJ".

LEVELING PAD: THE PROPRIETARY WALL MANUFACTURER MAY RELOCATE THE LEVELING PAD STEPS AT THEIR DISCRETION PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED. ANY CHANGE TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ROADWAY LIMITS: THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCROACHED UPON.

TRAFFIC BARRIER JOINTS: TRAFFIC BARRIER SHALL HAVE CONSTRUCTION JOINTS.

COORDINATION: CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATIONS OF INLETS AND PIPES WITH LOCATIONS OF PROPRIETARY WALL TIEBACK SYSTEM.

ARCHITECTURAL FINISH: THE MSE WALL PANELS SHALL RECEIVE AN ARCHITECTURAL FINISH.

SERVICE LIFE: ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 75 YEARS.

WALL SYSTEM: ONLY ONE MSE WALL SYSTEM MAY BE USED ON THIS PROJECT.

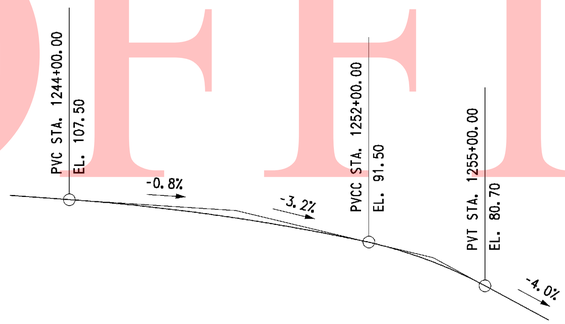
ROADWAY SUPERELEVATION: FOR ROADWAY SUPERELEVATION, SEE SUPERELEVATION TABLES.

MSE WALL BACKFILL: MSE WALL BACKFILL SHALL CONSIST OF SPECIFIED BACKFILL.

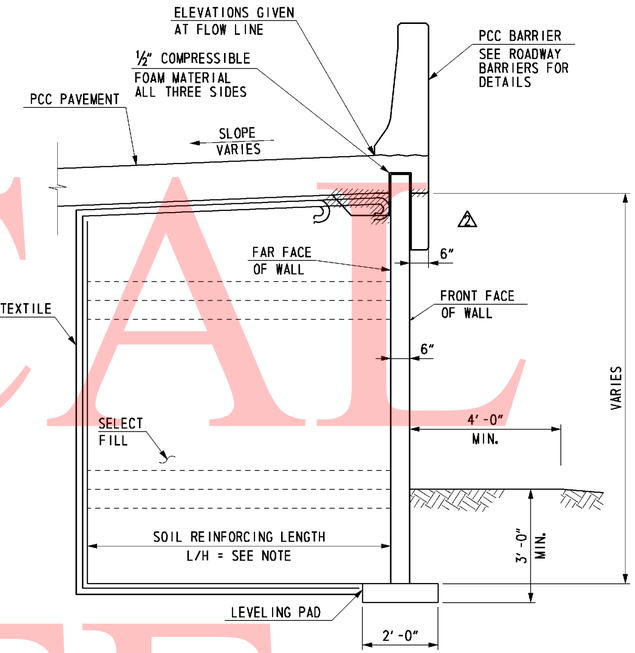
PAY ITEMS: PCC MASONRY, PARAPET, CLASS A, (602017)
BAR REINFORCEMENT, EPOXY COATED (604000)
MECHANICALLY STABILIZED EARTH WALLS (602772)

SOIL PROPERTIES FOR DESIGN

SOIL TYPE	UNIT WEIGHT (PCF)	ANGLE OF FRICTION (DEGREES)
SELECT FILL	125	34
NO. 57 STONE	130	28
FOUNDATION SOIL 1250+84.83 TO 1252+14	92	24
FOUNDATION SOIL 1252+14 TO 1259+50	85	24



RAMP A
VERTICAL CURVE DATA
NO SCALE



TYPICAL SECTION
(LOOKING AHEAD STATION)
SCALE: ½" = 1'-0"

CURVE NO. 14	
P.I. STA.	1254+08.88
△	48°19'31.68" LT
DC	3°05'48.45"
R	1850.00
TANGENT	829.98
LENGTH	1560.36

RAMP A
HORIZONTAL CURVE DATA
NO SCALE

FOUNDATION NOTES

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED FOR EACH STRUCTURE LOCATION. THE INTERNAL STABILITY SHOULD BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS. THE FACTORED APPLIED BEARING STRESS SHALL NOT EXCEED THE FACTORED BEARING RESISTANCE.

ISOLATED AREAS OF UNDERCUTTING OF EXISTING FILL MAY BE ENCOUNTERED DURING CONSTRUCTION OF THIS RETAINING WALL.

GROUNDWATER MAY BE ENCOUNTERED DURING EXCAVATION TO THE LEVELING PAD AND DURING CONSTRUCTION OF THIS RETAINING WALL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A RELATIVELY DRY EXCAVATION, INCLUDING DETERMINING APPROPRIATE DEWATERING METHODS DURING CONSTRUCTION.

⚠2 A QUARANTINE PERIOD OF ~~APPROXIMATELY~~ 30-DAYS IS REQUIRED AFTER CONSTRUCTION OF THE FULL HEIGHT OF THE MSE WALL IS ACHIEVED. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE QUARANTINE PERIOD PRIOR TO CONSTRUCTION OF ANY PARAPETS.

RETAINING WALL 9 FROM RAMP A STA 1250+84.83 TO STA 1252+14 MAY BE CONSTRUCTED WITH SELECT FILL FOR THE FULL HEIGHT OF THE RETAINING WALL. THE MINIMUM REINFORCEMENT LENGTH TO HEIGHT RATIO FOR RETAINING WALL 9 IS L/H=0.7. FROM RAMP A STA 1252+14 TO STA 1259+50, THE REINFORCEMENT LENGTH TO HEIGHT RATIO MUST BE L/H = 1.0. COMMON BORROW MAY BE USED AS BACKFILL BEHIND THE REINFORCEMENT ZONE.

THE DESIGN UNIT WEIGHT INDICATED IN SOIL PROPERTIES TABLE HAS BEEN ADJUSTED DUE TO THE PRESENCE OF SHALLOW GROUNDWATER.

0 1 4
½ 2
SCALE: ½"=1'-0"

GENERAL NOTES

SPECIFICATIONS: PROPRIETARY MSE WALLS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH ALL CURRENT REVISIONS.
- FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NO. FHWA-NHI-00-043, "MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES DESIGN AND CONSTRUCTION GUIDELINES"

CONCRETE DESIGN SHALL BE PERFORMED USING THE LOAD AND RESISTANCE FACTOR DESIGN METHOD.

CONCRETE: ALL CONCRETE FOR BARRIERS AND MOMENT SLABS SHALL BE 4500 PSI. LEVELING PAD CONCRETE SHALL BE 3500 PSI. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

CHAMFERS: ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" x ¾" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS: "DO NOT CHAMFER".

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.

FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCE.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

ALL REINFORCING STEEL IN THE PARAPET AND MOMENT SLAB SHALL BE EPOXY COATED.

ALL KEYS ARE NOMINAL SIZE.

THE MSE WALL MANUFACTURER MAY SUBSTITUTE ALTERNATE REINFORCING CONFIGURATIONS AND SUBMIT FOR APPROVAL.

EXPANSION AND CONTRACTION JOINTS: THE LOCATION OF THE EXPANSION AND CONTRACTION JOINTS IN THE BARRIER/MOMENT SLAB SHOWN ON THE PLANS MAY BE ADJUSTED TO ACCOMMODATE THE PANEL TYPE USED IN THE PROJECT. ANY CHANGE TO THESE JOINT LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. EXPANSION JOINTS ARE LABELED "EJ".

LEVELING PAD: THE PROPRIETARY WALL MANUFACTURER MAY RELOCATE THE LEVELING PAD STEPS AT THEIR DISCRETION PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED. ANY CHANGE TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ROADWAY LIMITS: THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCROACHED UPON.

TRAFFIC BARRIER JOINTS: TRAFFIC BARRIER/MOMENT SLAB SHALL HAVE CONSTRUCTION JOINTS.

COORDINATION: CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATIONS OF INLETS AND PIPES WITH LOCATIONS OF PROPRIETARY WALL TIEBACK SYSTEM AND MOMENT SLAB.

ARCHITECTURAL FINISH: THE MSE WALL PANELS SHALL RECEIVE AN ARCHITECTURAL FINISH.

SERVICE LIFE: ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 75 YEARS.

WALL SYSTEM: ONLY ONE MSE WALL SYSTEM MAY BE USED ON THIS PROJECT.

ROADWAY SUPERELEVATION: FOR ROADWAY SUPERELEVATION, SEE SUPERELEVATION TABLES.

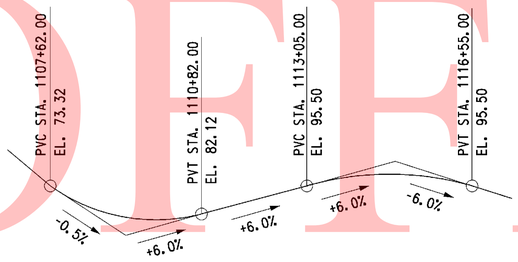
MSE WALL BACKFILL: MSE WALL BACKFILL SHALL CONSIST OF SPECIFIED BACKFILL.

MOMENT SLAB: THE MOMENT SLAB IS DESIGNED IN ACCORDANCE WITH THE SAME CRITERIA SPECIFIED FOR MECHANICALLY STABILIZED EARTH WALLS IN SECTION 11.10.10.2 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH ED.

PAY ITEMS: PCC MASONRY, PARAPET, CLASS A (602017)
MECHANICALLY STABILIZED EARTH WALLS (602772)
BAR REINFORCEMENT, EPOXY COATED (604000)

SOIL PROPERTIES FOR DESIGN

SOIL TYPE	UNIT WEIGHT (PCF)	ANGLE OF FRICTION (DEGREES)
SELECT FILL	125	34
NO. 57 STONE	105	38
FOUNDATION SOIL	68	24

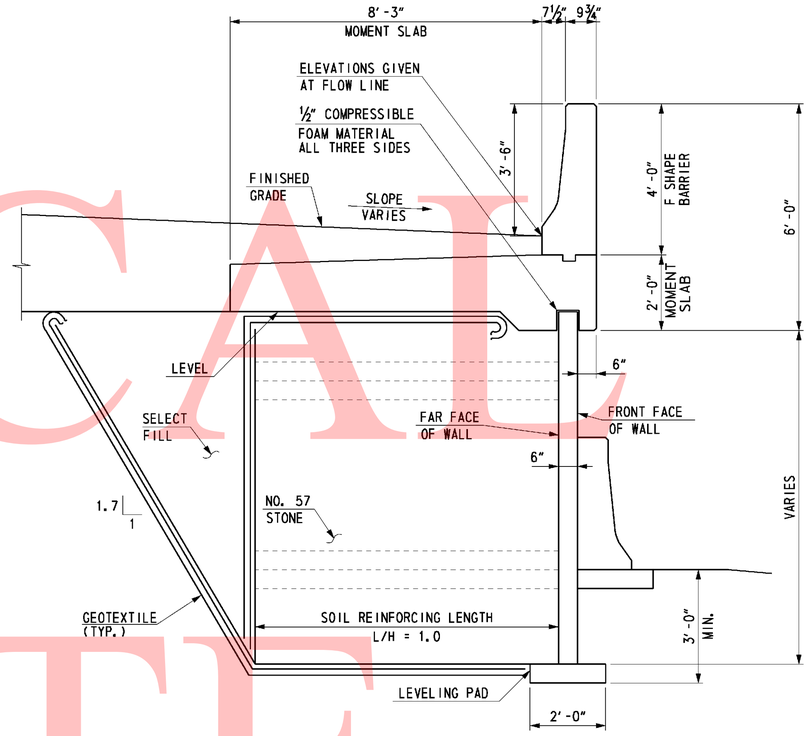


RAMP C
VERTICAL CURVE DATA
NO SCALE

CURVE NO. 30

P. I. STA.	1113+47.25
△	77°59'15.14" LT
DC	11°48'48.82"
R	485.00'
TANGENT	392.66'
LENGTH	660.15'

RAMP C
HORIZONTAL CURVE DATA
NO SCALE



TYPICAL SECTION
(LOOKING BACK STATION)
SCALE: ½" = 1'-0"

FOUNDATION NOTES

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED FOR EACH STRUCTURE LOCATION. THE INTERNAL STABILITY SHOULD BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS. THE FACTORED APPLIED BEARING STRESS SHALL NOT EXCEED THE FACTORED BEARING RESISTANCE.

GROUNDWATER MAY BE ENCOUNTERED DURING EXCAVATION TO THE LEVELING PAD AND DURING CONSTRUCTION OF THIS RETAINING WALL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A RELATIVELY DRY EXCAVATION, INCLUDING DETERMINING APPROPRIATE DEWATERING METHODS DURING CONSTRUCTION.

△2 A QUARANTINE PERIOD OF ~~APPROXIMATELY~~ 30-DAYS IS REQUIRED AFTER CONSTRUCTION OF THE FULL HEIGHT OF THE MSE WALL IS ACHIEVED. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE QUARANTINE PERIOD PRIOR TO CONSTRUCTION OF ANY MOMENT SLABS OR PARAPETS.

THE DESIGN UNIT WEIGHT INDICATED IN SOIL PROPERTIES TABLE HAS BEEN ADJUSTED DUE TO THE PRESENCE OF SHALLOW GROUNDWATER.

THE WALL SUPPLIER SHAL PERFORM A DETAILED SEISMIC ANALYSIS FOR BACK TO BACK MSE WALLS WITH L/H LESS THAN 1.1, IF NECESSARY, AS REQUIRED BY FHWA PUBLICATION NO. FHWA-NHI-00-043.

0 1 4
½ 2
SCALE: ½"=1'-0"

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DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. △2, UPDATED FOUNDATION NOTES, 01/26/11, JSW	

SR1 / I-95 INTERCHANGE

CONTRACT	28-090-03	BRIDGE NO.	
COUNTY	NEW CASTLE	DESIGNED BY:	JMS
		CHECKED BY:	JSW

RETAINING WALL 10
GENERAL NOTES AND TYPICAL SECTION

R10-01

SHEET NO.	TOTAL SHTS.
583	803

GENERAL NOTES

SPECIFICATIONS: PROPRIETARY MSE WALLS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH ALL CURRENT REVISIONS.
- FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NO. FHWA-NHI-00-043, "MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES DESIGN AND CONSTRUCTION GUIDELINES"

CONCRETE DESIGN SHALL BE PERFORMED USING THE LOAD AND RESISTANCE FACTOR DESIGN METHOD.

CONCRETE: LEVELING PAD CONCRETE SHALL BE 3500 PSI. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

CHAMFERS: ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" x ¾" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS: "DO NOT CHAMFER".

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.

FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCE.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

ALL REINFORCING STEEL IN THE PARAPET SHALL BE EPOXY COATED.

ALL KEYS ARE NOMINAL SIZE.

THE MSE WALL MANUFACTURER MAY SUBSTITUTE ALTERNATE REINFORCING CONFIGURATIONS AND SUBMIT FOR APPROVAL.

EXPANSION AND CONTRACTION JOINTS: THE LOCATION OF THE EXPANSION AND CONTRACTION JOINTS IN THE BARRIER SHOWN ON THE PLANS MAY BE ADJUSTED TO ACCOMMODATE THE PANEL TYPE USED IN THE PROJECT. ANY CHANGE TO THESE JOINT LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. EXPANSION JOINTS ARE LABELED "EJ".

LEVELING PAD: THE PROPRIETARY WALL MANUFACTURER MAY RELOCATE THE LEVELING PAD STEPS AT THEIR DISCRETION PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED. ANY CHANGE TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ROADWAY LIMITS: THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCROACHED UPON.

TRAFFIC BARRIER JOINTS: TRAFFIC BARRIER SHALL HAVE CONSTRUCTION JOINTS.

COORDINATION: CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATIONS OF INLETS AND PIPES WITH LOCATIONS OF PROPRIETARY WALL TIEBACK SYSTEM.

ARCHITECTURAL FINISH: THE MSE WALL PANELS SHALL RECEIVE AN ARCHITECTURAL FINISH.

SERVICE LIFE: ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 75 YEARS.

WALL SYSTEM: ONLY ONE MSE WALL SYSTEM MAY BE USED ON THIS PROJECT.

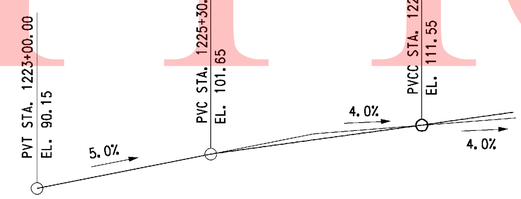
ROADWAY SUPERELEVATION: FOR ROADWAY SUPERELEVATION, SEE SUPERELEVATION TABLES.

MSE WALL BACKFILL: MSE WALL BACKFILL SHALL CONSIST OF SPECIFIED BACKFILL.

PAY ITEMS: PCC MASONRY, PARAPET, CLASS A (602017)
BAR REINFORCEMENT, EPOXY COATED (604000)
MECHANICALLY STABILIZED EARTH WALLS (602772)

SOIL PROPERTIES FOR DESIGN

SOIL TYPE	UNIT WEIGHT (PCF)	ANGLE OF FRICTION (DEGREES)
SELECT FILL	125	34
COMMON BORROW	130	28
FOUNDATION SOIL	68	32



RAMP A
VERTICAL CURVE DATA
NO SCALE

CURVE NO. 12

P. I. STA.	1226+68.24
△	27°44'07.64" LT
DC	03°05'49.45"
R	1850.00'
TANGENT	456.72'
LENGTH	895.54'

RAMP A
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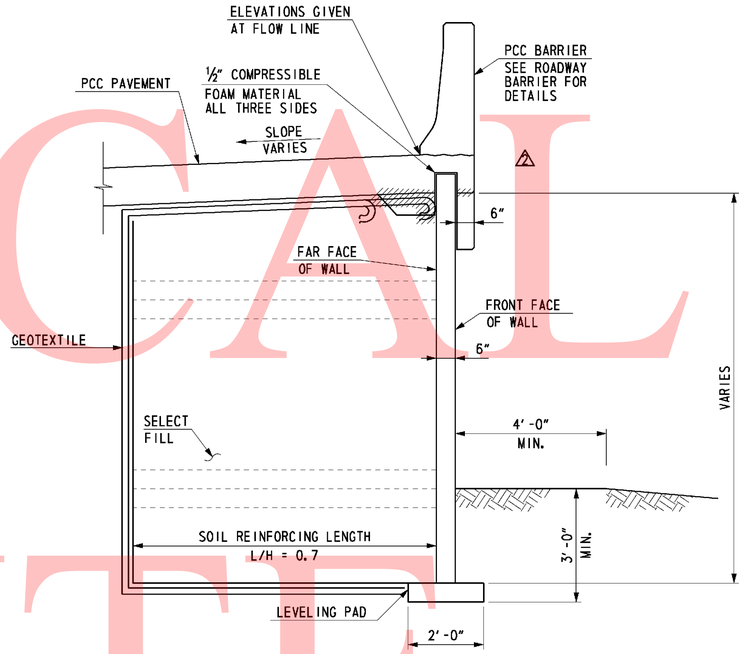
NO SCALE



TYPICAL SECTION
(LOOKING AHEAD STATIONS)
SCALE: ½" = 1'-0"

FOUNDATION NOTES

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED FOR EACH STRUCTURE LOCATION. THE INTERNAL STABILITY SHOULD BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS. THE FACTORED APPLIED BEARING STRESS SHALL NOT EXCEED THE FACTORED BEARING RESISTANCE.

ISOLATED AREAS OF UNDERCUTTING OF EXISTING FILL MAY BE ENCOUNTERED DURING CONSTRUCTION OF THIS RETAINING WALL.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A RELATIVELY DRY EXCAVATION, INCLUDING DETERMINING APPROPRIATE DEWATERING METHODS DURING CONSTRUCTION IF NECESSARY.

2 A QUARANTINE PERIOD OF ~~APPROXIMATELY~~ 30-DAYS IS REQUIRED AFTER CONSTRUCTION OF THE FULL HEIGHT OF THE MSE WALL IS ACHIEVED. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE QUARANTINE PERIOD PRIOR TO CONSTRUCTION OF ANY PARAPETS.

THE DESIGN UNIT WEIGHT INDICATED IN SOIL PROPERTIES TABLE HAS BEEN ADJUSTED DUE TO THE PRESENCE OF SHALLOW GROUNDWATER.

THE WALL SUPPLIER SHAL PERFORM A DETAILED SEISMIC ANALYSIS FOR BACK TO BACK MSE WALLS WITH L/H LESS THAN 1.1, IF NECESSARY, AS REQUIRED BY FHWA PUBLICATION NO. FHWA-NHI-00-043.

0 1 4
½ 2
SCALE: ½"=1'-0"

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DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. 2, UPDATED FOUNDATION	
NOTES, SECTION, 01/26/11, JSW	

SR1 / I-95 INTERCHANGE

CONTRACT	28-090-03
COUNTY	NEW CASTLE
BRIDGE NO.	
DESIGNED BY:	JMS
CHECKED BY:	JSW

RETAINING WALL 12
GENERAL NOTES AND TYPICAL SECTION

R12-01

SHEET NO.	TOTAL SHTS.
590	803

GENERAL NOTES

SPECIFICATIONS: PROPRIETARY MSE WALLS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH ALL CURRENT REVISIONS.
- FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NO. FHWA-NHI-00-043, "MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES DESIGN AND CONSTRUCTION GUIDELINES"

CONCRETE DESIGN SHALL BE PERFORMED USING THE LOAD AND RESISTANCE FACTOR DESIGN METHOD.

CONCRETE: ALL CONCRETE FOR PARAPETS, AND ROADWAY BARRIERS SHALL BE 4500 PSI. LEVELING PAD CONCRETE SHALL BE 3500 PSI. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

CHAMFERS: ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" x ¾" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS: "DO NOT CHAMFER".

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.

FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCE.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

ALL REINFORCING STEEL IN THE PARAPET SHALL BE EPOXY COATED.

ALL KEYS ARE NOMINAL SIZE.

THE MSE WALL MANUFACTURER MAY SUBSTITUTE ALTERNATE REINFORCING CONFIGURATIONS AND SUBMIT FOR APPROVAL.

EXPANSION AND CONTRACTION JOINTS: THE LOCATION OF THE EXPANSION AND CONTRACTION JOINTS IN THE BARRIER SHOWN ON THE PLANS MAY BE ADJUSTED TO ACCOMMODATE THE PANEL TYPE USED IN THE PROJECT. ANY CHANGE TO THESE JOINT LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. EXPANSION JOINTS ARE LABELED "EJ".

LEVELING PAD: THE PROPRIETARY WALL MANUFACTURER MAY RELOCATE THE LEVELING PAD STEPS AT THEIR DISCRETION PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED. ANY CHANGE TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ROADWAY LIMITS: THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCROACHED UPON.

TRAFFIC BARRIER JOINTS: TRAFFIC BARRIER SHALL HAVE CONSTRUCTION JOINTS.

COORDINATION: CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATIONS OF INLETS AND PIPES WITH LOCATIONS OF PROPRIETARY WALL TIEBACK SYSTEM.

ARCHITECTURAL FINISH: THE MSE WALL PANELS SHALL RECEIVE AN ARCHITECTURAL FINISH.

SERVICE LIFE: ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 75 YEARS.

WALL SYSTEM: ONLY ONE MSE WALL SYSTEM MAY BE USED ON THIS PROJECT.

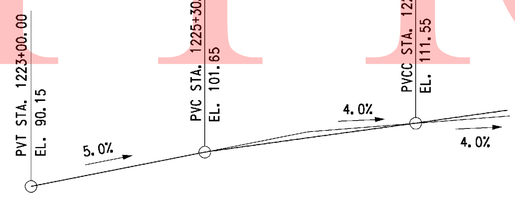
ROADWAY SUPERELEVATION: FOR ROADWAY SUPERELEVATION, SEE SUPERELEVATION TABLES.

MSE WALL BACKFILL: MSE WALL BACKFILL SHALL CONSIST OF SPECIFIED BACKFILL.

PAY ITEMS: PCC MASONRY, PARAPET, CLASS A (602017)
BAR REINFORCEMENT, EPOXY COATED (604000)
MECHANICALLY STABILIZED EARTH WALLS (602772)

SOIL PROPERTIES FOR DESIGN

SOIL TYPE	UNIT WEIGHT (PCF)	ANGLE OF FRICTION (DEGREES)
SELECT FILL	125	34
COMMON BORROW	130	28
FOUNDATION SOIL	68	32

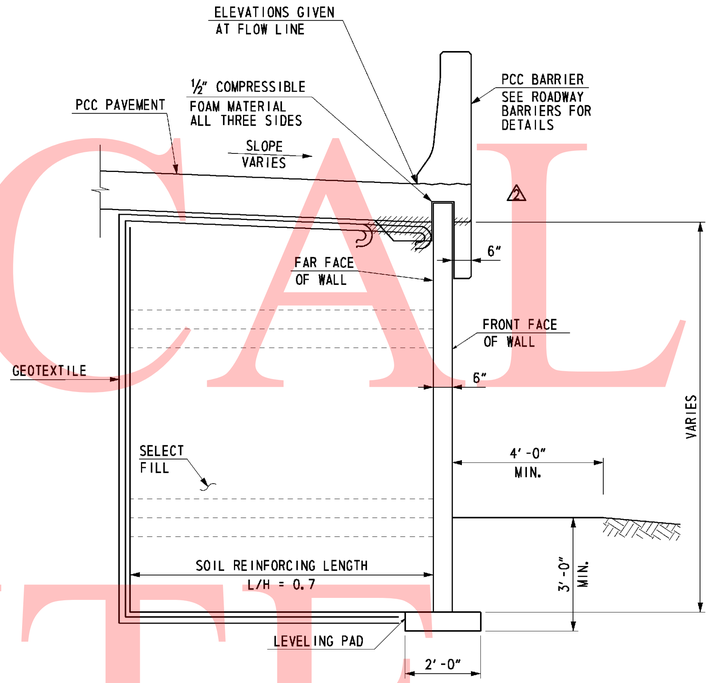


RAMP A
VERTICAL CURVE DATA
NO SCALE

CURVE NO. 12

P. I. STA.	1226+68.24
△	27°44'07.64" LT
DC	03°05'49.45"
R	1850.00'
TANGENT	456.72'
LENGTH	895.54'

RAMP A
HORIZONTAL CURVE DATA
NO SCALE



TYPICAL SECTION
(LOOKING BACK STATIONS)
SCALE: ½" = 1'-0"

FOUNDATION NOTES

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED FOR EACH STRUCTURE LOCATION. THE INTERNAL STABILITY SHOULD BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS. THE FACTORED APPLIED BEARING STRESS SHALL NOT EXCEED THE FACTORED BEARING RESISTANCE.

ISOLATED AREAS OF UNDERCUTTING OF EXISTING FILL MAY BE ENCOUNTERED DURING CONSTRUCTION OF THIS RETAINING WALL.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A RELATIVELY DRY EXCAVATION, INCLUDING DETERMINING APPROPRIATE DEWATERING METHODS DURING CONSTRUCTION IF NECESSARY.

2 A QUARANTINE PERIOD OF ~~APPROXIMATELY~~ 30-DAYS IS REQUIRED AFTER CONSTRUCTION OF THE FULL HEIGHT OF THE MSE WALL IS ACHIEVED. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE QUARANTINE PERIOD PRIOR TO CONSTRUCTION OF ANY PARAPETS.

THE DESIGN UNIT WEIGHT INDICATED IN SOIL PROPERTIES TABLE HAS BEEN ADJUSTED DUE TO THE PRESENCE OF SHALLOW GROUNDWATER.

THE WALL SUPPLIER SHAL PERFORM A DETAILED SEISMIC ANALYSIS FOR BACK TO BACK MSE WALLS WITH L/H LESS THAN 1.1, IF NECESSARY, AS REQUIRED BY FHWA PUBLICATION NO. FHWA-NHI-00-043.

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SCALE: ½"=1'-0"

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DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. 2, UPDATED FOUNDATION	
NOTES, SECTION, 01/26/11, JSW	

SR1 / I-95 INTERCHANGE

CONTRACT	28-090-03	BRIDGE NO.	
COUNTY	NEW CASTLE	DESIGNED BY:	JMS
		CHECKED BY:	JSW

RETAINING WALL 13
GENERAL NOTES AND TYPICAL SECTION

R13-01

SHEET NO.	TOTAL SHTS.
596	803

GENERAL NOTES

SPECIFICATIONS: PROPRIETARY MSE WALLS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH ALL CURRENT REVISIONS.
- FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NO. FHWA-NHI-00-043, "MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES DESIGN AND CONSTRUCTION GUIDELINES"

CONCRETE DESIGN SHALL BE PERFORMED USING THE LOAD AND RESISTANCE FACTOR DESIGN METHOD.

CONCRETE: ALL CONCRETE FOR PARAPETS AND ROADWAY BARRIERS SHALL BE 4500 PSI. LEVELING PAD CONCRETE SHALL BE 3500 PSI. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

CHAMFERS: ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" x ¾" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS: "DO NOT CHAMFER".

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.

FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCE.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

ALL REINFORCING STEEL IN THE PARAPET SHALL BE EPOXY COATED.

ALL KEYS ARE NOMINAL SIZE.

THE MSE WALL MANUFACTURER MAY SUBSTITUTE ALTERNATE REINFORCING CONFIGURATIONS AND SUBMIT FOR APPROVAL.

EXPANSION AND CONTRACTION JOINTS: THE LOCATION OF THE EXPANSION AND CONTRACTION JOINTS IN THE BARRIER SHOWN ON THE PLANS MAY BE ADJUSTED TO ACCOMMODATE THE PANEL TYPE USED IN THE PROJECT. ANY CHANGE TO THESE JOINT LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. EXPANSION JOINTS ARE LABELED "EJ".

LEVELING PAD: THE PROPRIETARY WALL MANUFACTURER MAY RELOCATE THE LEVELING PAD STEPS AT THEIR DISCRETION PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED. ANY CHANGE TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ROADWAY LIMITS: THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCROACHED UPON.

TRAFFIC BARRIER JOINTS: TRAFFIC BARRIER SHALL HAVE CONSTRUCTION JOINTS.

COORDINATION: CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATIONS OF INLETS AND PIPES WITH LOCATIONS OF PROPRIETARY WALL TIEBACK SYSTEM.

ARCHITECTURAL FINISH: THE MSE WALL PANELS SHALL RECEIVE AN ARCHITECTURAL FINISH.

SERVICE LIFE: ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 75 YEARS.

WALL SYSTEM: ONLY ONE MSE WALL SYSTEM MAY BE USED ON THIS PROJECT.

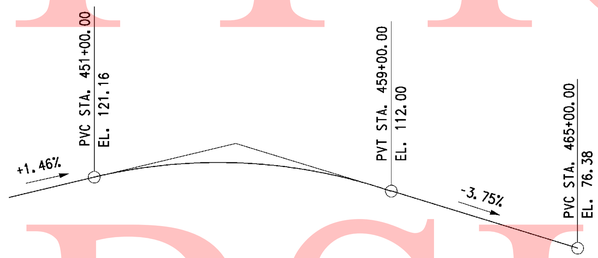
ROADWAY SUPERELEVATION: FOR ROADWAY SUPERELEVATION, SEE SUPERELEVATION TABLES.

MSE WALL BACKFILL: MSE WALL BACKFILL SHALL CONSIST OF SPECIFIED BACKFILL.

PAY ITEMS: PCC MASONRY, PARAPET, CLASS A (602017)
BAR REINFORCEMENT, EPOXY COATED (604000)
MECHANICALLY STABILIZED EARTH WALLS (602772)

SOIL PROPERTIES FOR DESIGN

SOIL TYPE	UNIT WEIGHT (PCF)	ANGLE OF FRICTION (DEGREES)
SELECT FILL	125	34
FOUNDATION SOIL	68	24



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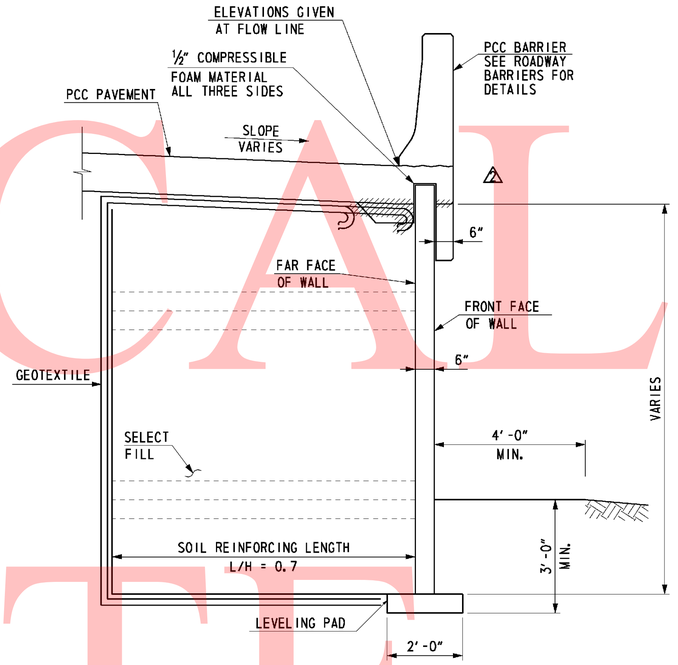

TYPICAL SECTION

(LOOKING AHEAD STATIONS)
SCALE: ½" = 1'-0"

FOUNDATION NOTES

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED FOR EACH STRUCTURE LOCATION. THE INTERNAL STABILITY SHOULD BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS. THE FACTORED APPLIED BEARING STRESS SHALL NOT EXCEED THE FACTORED BEARING RESISTANCE.

GROUNDWATER MAY BE ENCOUNTERED DURING EXCAVATION TO THE LEVELING PAD AND DURING CONSTRUCTION OF THIS RETAINING WALL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A RELATIVELY DRY EXCAVATION, INCLUDING DETERMINING APPROPRIATE DEWATERING METHODS DURING CONSTRUCTION.

2 A QUARANTINE PERIOD OF ~~APPROXIMATELY~~ 30-DAYS IS REQUIRED AFTER CONSTRUCTION OF THE FULL HEIGHT OF THE MSE WALL IS ACHIEVED. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE QUARANTINE PERIOD PRIOR TO CONSTRUCTION OF ANY PARAPETS.

THE DESIGN UNIT WEIGHT INDICATED IN SOIL PROPERTIES TABLE HAS BEEN ADJUSTED DUE TO THE PRESENCE OF SHALLOW GROUNDWATER.

THE WALL SUPPLIER SHAL PERFORM A DETAILED SEISMIC ANALYSIS FOR BACK TO BACK MSE WALLS WITH L/H LESS THAN 1.1, IF NECESSARY, AS REQUIRED BY FHWA PUBLICATION NO. FHWA-NHI-00-043.

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SCALE: ½"=1'-0"

ADDENDUMS / REVISIONS	
ADDENDUM NO. 2, UPDATED FOUNDATION	
NOTES, SECTION, 01/26/11, JSW	

DELAWARE DEPARTMENT OF TRANSPORTATION

SR1 / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	
28-090-03	DESIGNED BY:	JMS
COUNTY	CHECKED BY:	JSW
NEW CASTLE		

RETAINING WALL 14
GENERAL NOTES AND TYPICAL SECTION

R14-01

SHEET NO.	TOTAL SHTS.
602	803

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GENERAL NOTES

SPECIFICATIONS: PROPRIETARY MSE WALLS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH ALL CURRENT REVISIONS.
- FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NO. FHWA-NHI-00-043, "MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES DESIGN AND CONSTRUCTION GUIDELINES"

CONCRETE DESIGN SHALL BE PERFORMED USING THE LOAD AND RESISTANCE FACTOR DESIGN METHOD.

CONCRETE: ALL CONCRETE FOR PARAPETS, AND ROADWAY BARRIERS SHALL BE 4500 PSI. LEVELING PAD CONCRETE SHALL BE 3500 PSI. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

CHAMFERS: ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" x ¾" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS: "DO NOT CHAMFER".

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.

FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCE.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

ALL REINFORCING STEEL IN THE PARAPET SHALL BE EPOXY COATED.

ALL KEYS ARE NOMINAL SIZE.

THE MSE WALL MANUFACTURER MAY SUBSTITUTE ALTERNATE REINFORCING CONFIGURATIONS AND SUBMIT FOR APPROVAL.

EXPANSION AND CONTRACTION JOINTS: THE LOCATION OF THE EXPANSION AND CONTRACTION JOINTS IN THE BARRIER SHOWN ON THE PLANS MAY BE ADJUSTED TO ACCOMMODATE THE PANEL TYPE USED IN THE PROJECT. ANY CHANGE TO THESE JOINT LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. EXPANSION JOINTS ARE LABELED "EJ".

LEVELING PAD: THE PROPRIETARY WALL MANUFACTURER MAY RELOCATE THE LEVELING PAD STEPS AT THEIR DISCRETION PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED. ANY CHANGE TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ROADWAY LIMITS: THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCROACHED UPON.

TRAFFIC BARRIER JOINTS: TRAFFIC BARRIER SHALL HAVE CONSTRUCTION JOINTS.

COORDINATION: CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATIONS OF INLETS AND PIPES WITH LOCATIONS OF PROPRIETARY WALL TIEBACK SYSTEM.

ARCHITECTURAL FINISH: THE MSE WALL PANELS SHALL RECEIVE AN ARCHITECTURAL FINISH.

SERVICE LIFE: ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 75 YEARS.

WALL SYSTEM: ONLY ONE MSE WALL SYSTEM MAY BE USED ON THIS PROJECT.

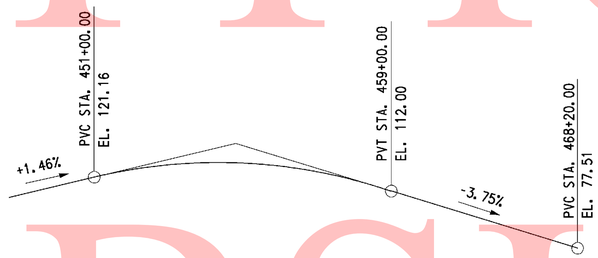
ROADWAY SUPERELEVATION: FOR ROADWAY SUPERELEVATION, SEE SUPERELEVATION TABLES.

MSE WALL BACKFILL: MSE WALL BACKFILL SHALL CONSIST OF SPECIFIED BACKFILL.

PAY ITEMS: PCC MASONRY, PARAPET, CLASS A (602017)
BAR REINFORCEMENT, EPOXY COATED (604000)
MECHANICALLY STABILIZED EARTH WALLS (602772)

SOIL PROPERTIES FOR DESIGN

SOIL TYPE	UNIT WEIGHT (PCF)	ANGLE OF FRICTION (DEGREES)
SELECT FILL	125	34
FOUNDATION SOIL	68	24



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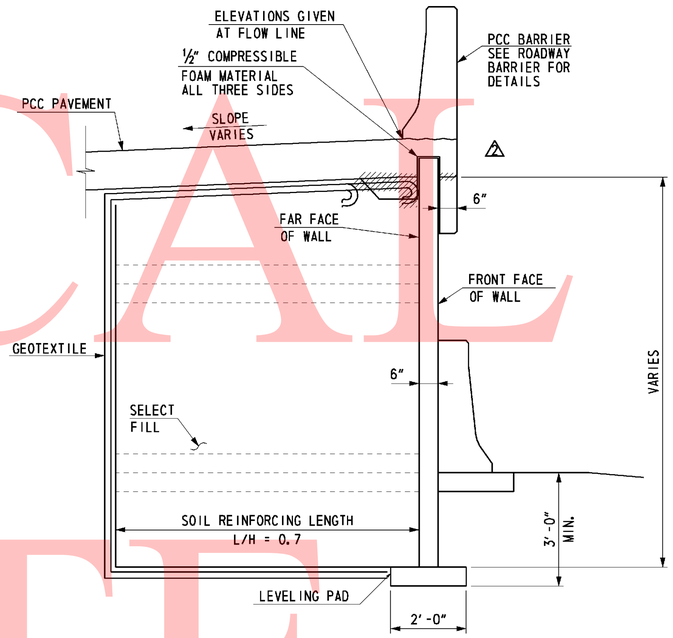

TYPICAL SECTION
(LOOKING BACK STATION)
SCALE: ½" = 1'-0"

FOUNDATION NOTES

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED FOR EACH STRUCTURE LOCATION. THE INTERNAL STABILITY SHOULD BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS. THE FACTORED APPLIED BEARING STRESS SHALL NOT EXCEED THE FACTORED BEARING RESISTANCE.

GROUNDWATER MAY BE ENCOUNTERED DURING EXCAVATION TO THE LEVELING PAD AND DURING CONSTRUCTION OF THIS RETAINING WALL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A RELATIVELY DRY EXCAVATION, INCLUDING DETERMINING APPROPRIATE DEWATERING METHODS DURING CONSTRUCTION.

2 A QUARANTINE PERIOD OF ~~APPROXIMATELY~~ 30-DAYS IS REQUIRED AFTER CONSTRUCTION OF THE FULL HEIGHT OF THE MSE WALL IS ACHIEVED. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE QUARANTINE PERIOD PRIOR TO CONSTRUCTION OF ANY PARAPETS.

THE DESIGN UNIT WEIGHT INDICATED IN SOIL PROPERTIES TABLE HAS BEEN ADJUSTED DUE TO THE PRESENCE OF SHALLOW GROUNDWATER.

THE WALL SUPPLIER SHAL PERFORM A DETAILED SEISMIC ANALYSIS FOR BACK TO BACK MSE WALLS WITH L/H LESS THAN 1.1, IF NECESSARY, AS REQUIRED BY FHWA PUBLICATION NO. FHWA-NHI-00-043.

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SCALE: ½" = 1'-0"

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DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. 2, UPDATED FOUNDATION NOTES, SECTION, 01/26/11, JSW	

SR1 / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	
28-090-03	DESIGNED BY:	JMS
COUNTY	CHECKED BY:	JSW
NEW CASTLE		

RETAINING WALL 15
GENERAL NOTES AND TYPICAL SECTION

R15-01

SHEET NO.	TOTAL SHTS.
610	803

GENERAL NOTES

SPECIFICATIONS: PROPRIETARY MSE WALLS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH ALL CURRENT REVISIONS.
- FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NO. FHWA-NHI-00-043, "MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES DESIGN AND CONSTRUCTION GUIDELINES"

CONCRETE: CONCRETE DESIGN SHALL BE PERFORMED USING THE LOAD AND RESISTANCE FACTOR DESIGN METHOD.

COPING CONCRETE SHALL BE 3500 PSI. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

CHAMFERS: ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" x ¾" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS: "DO NOT CHAMFER".

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.

FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCE.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

ALL REINFORCING STEEL IN THE COPING SHALL BE EPOXY COATED.

ALL KEYS ARE NOMINAL SIZE.

THE MSE WALL MANUFACTURER MAY SUBSTITUTE ALTERNATE REINFORCING CONFIGURATIONS AND SUBMIT FOR APPROVAL.

EXPANSION AND CONTRACTION JOINTS: THE LOCATION OF THE EXPANSION AND CONTRACTION JOINTS IN THE COPING SHOWN ON THE PLANS MAY BE ADJUSTED TO ACCOMMODATE THE PANEL TYPE USED IN THE PROJECT. ANY CHANGE TO THESE JOINT LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. EXPANSION JOINTS ARE LABELED "EJ".

LEVELING PAD: THE PROPRIETARY WALL MANUFACTURER MAY RELOCATE THE LEVELING PAD STEPS AT THEIR DISCRETION PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED. ANY CHANGE TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ROADWAY LIMITS: THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCROACHED UPON.

COPING JOINTS: COPING SHALL HAVE CONSTRUCTION JOINTS.

COORDINATION: CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATIONS OF INLETS AND PIPES WITH LOCATIONS OF PROPRIETARY WALL TIEBACK SYSTEM.

ARCHITECTURAL FINISH: THE MSE WALL PANELS SHALL RECEIVE AN ARCHITECTURAL FINISH.

SERVICE LIFE: ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 75 YEARS.

WALL SYSTEM: ONLY ONE MSE WALL SYSTEM MAY BE USED ON THIS PROJECT.

ROADWAY SUPERELEVATION: FOR ROADWAY SUPERELEVATION, SEE SUPERELEVATION TABLES.

MSE WALL BACKFILL: MSE WALL BACKFILL SHALL CONSIST OF SPECIFIED BACKFILL.

PAY ITEMS: MECHANICALLY STABILIZED EARTH WALLS (602772)
PCC MASONRY FOR MSE WALLS (602773)
BAR REINFORCEMENT, EPOXY COATED (604000)

FOUNDATION NOTES

THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED FOR EACH STRUCTURE LOCATION. THE INTERNAL STABILITY SHOULD BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS. THE FACTORED APPLIED BEARING STRESS SHALL NOT EXCEED THE FACTORED BEARING RESISTANCE.

ISOLATED AREAS OF UNDERCUTTING OF EXISTING FILL MAY BE ENCOUNTERED DURING CONSTRUCTION OF THIS RETAINING WALL.

GROUNDWATER MAY BE ENCOUNTERED DURING EXCAVATION TO THE LEVELING PAD AND DURING CONSTRUCTION OF THIS RETAINING WALL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A RELATIVELY DRY EXCAVATION, INCLUDING DETERMINING APPROPRIATE DEWATERING METHODS DURING CONSTRUCTION.

⚠2 A QUARANTINE PERIOD OF ~~APPROXIMATELY~~ 30-DAYS IS REQUIRED AFTER CONSTRUCTION OF THE FULL HEIGHT OF THE MSE WALL IS ACHIEVED. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE QUARANTINE PERIOD PRIOR TO CONSTRUCTION OF ANY COPING.

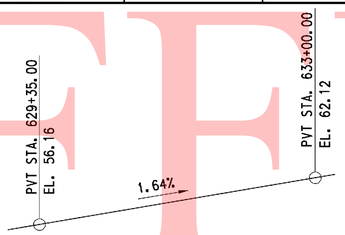
THE DESIGN UNIT WEIGHT INDICATED IN SOIL PROPERTIES TABLE HAS BEEN ADJUSTED DUE TO THE PRESENCE OF SHALLOW GROUNDWATER.

THE WALL SUPPLIER SHAL PERFORM A DETAILED SEISMIC ANALYSIS FOR BACK TO BACK MSE WALLS WITH L/H LESS THAN 1.1, IF NECESSARY, AS REQUIRED BY FHWA PUBLICATION NO. FHWA-NHI-00-043.

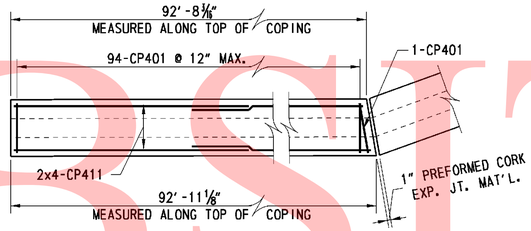
SOIL PROPERTIES FOR DESIGN

SOIL TYPE	UNIT WEIGHT (PCF)	ANGLE OF FRICTION (DEGREES)
LIGHT WEIGHT ENGINEERED FILL (LWEF)	42	38
FOUNDATION SOIL	68	24
TYPE F	125	28
CONTROLLED LOW STRENGTH MATERIAL (CLSM)	42	38

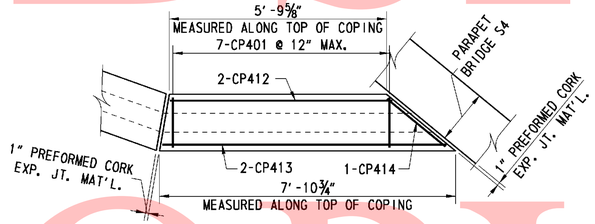
⚠2



SR7 (NB)
VERTICAL CURVE DATA
NO SCALE

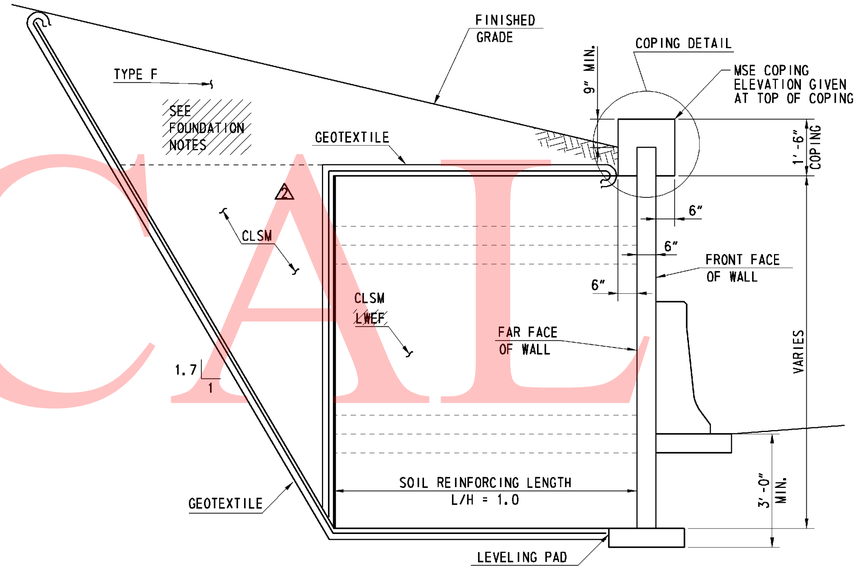


TYPE 1 PANEL (1 REQUIRED)

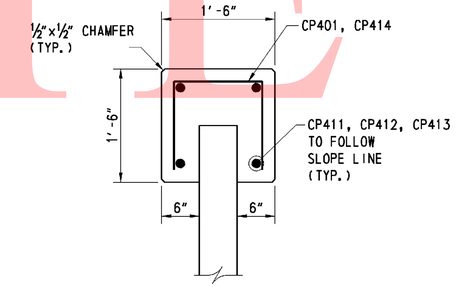


TYPE 2 PANEL (1 REQUIRED)

COPING REINFORCING PLANS
SCALE: ½" = 1'-0"



TYPICAL SECTION
(LOOKING BACK STATION)
SCALE: ½" = 1'-0"

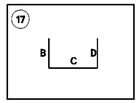


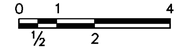
COPING DETAIL
SCALE: 1"= 1'-0"

	QTY.	SIZE	LENGTH	MARK	TYPE	A	B	C	D	H	K	O
COPING	101	4	3-6	CP401	17		1-2	1-2	1-2			
	8	4	47-9 1/16	CP411	STR							
	2	4	5-7	CP412	STR							
	2	4	7-8 1/8	CP413	STR							
	1	4	4-4 5/16	CP414	17		1-2	2-0 5/16	1-2			

BENDING DIMENSIONS (FEET-INCHES /QUARTER INCH)

SEE SHEET R7-07 FOR BAR BEND NOTES





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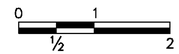

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DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
ADDENDUM NO. ⚠2, UPDATED FOUNDATION	
NOTES, SECTION, 01/26/11, JSW	

SR1 / I-95 INTERCHANGE

CONTRACT	28-090-03
COUNTY	NEW CASTLE
BRIDGE NO.	
DESIGNED BY:	JMS
CHECKED BY:	JSW

RETAINING WALL 16
GENERAL NOTES AND TYPICAL SECTION

	R16-01
SHEET NO.	619
TOTAL SHTS.	803