

# **CIVIL CONSTRUCTION**

# **VOLUME 4C** BRIDGES

90% SUBMISSION DATE: 01/22/16

PLAN PACKAGE INI	DEX / DESCRIPTION				
CIVIL CONSTRUCTION	BID ALTERNATES				
VOLUME 1 - EXISTING CONDITIONS & REMOVALS	VOLUME A - NOT USED				
VOLUME 2A - CIVIL	VOLUME B - NOT USED				
VOLUME 2B - CIVIL	VOLUME C - BID ALTERNATE 3 (LRCI 5)				
VOLUME 3A - TRACKWORK	VOLUME D - BID ALTERNATE 4 (LRCI 6)				
VOLUME 3B - TRACKWORK	VOLUME E - BID ALTERNATE 5 (LRCI 7)				
VOLUME 3C - TRACKWORK DETAILS	VOLUME F - BID ALTERNATE 6 (LRCI 8)				
VOLUME 4A - BRIDGES	VOLUME G - BID ALTERNATE 7 (LRCI 4)				
VOLUME 4B - BRIDGES	VOLUME H - BID ALTERNATE 8 (LRCI 10)				
VOLUME 4C - BRIDGES	VOLUME I - BID ALTERNATE 9 (LRCI 11)				
VOLUME 4D - BRIDGES	VOLUME J - BID ALTERNATE 10 (LRCI 12)				
VOLUME 4E - BRIDGES	VOLUME K - BID ALTERNATE 11 (LRCI 13)				
VOLUME 4F - BRIDGES	VOLUME L - BID ALTERNATE 12 (LRCI 14)				
VOLUME 4G - BRIDGES	VOLUME M - BID ALTERNATE 13 (LRCI 26)				
VOLUME 5 - TUNNELS	VOLUME N - BID ALTERNATE 14 (LRCI 27)				
VOLUME 6 - RETAINING WALLS	VOLUME O - BID ALTERNATE 15 (LRCI 17)				
VOLUME 7 - UTILITIES	VOLUME P - BID ALTERNATE 20 (LRCI 32)				
VOLUME 8 - DRAINAGE	VOLUME Q - BID ALTERNATE 21 (LRCI 33)				
VOLUME 9 - URBAN DESIGN / LANDSCAPE					
VOLUME 10A - TRAFFIC					
VOLUME 10B - LIGHTING *					
VOLUME 11A - STATIONS					
VOLUME 11B - STATIONS					
VOLUME 11C - STATIONS					
VOLUME 11D - STATIONS					
VOLUME 11E - STATIONS					
VOLUME 12 - SYSTEMS					
<ul> <li>★ TO BE SUBMITTED AT A LATER DATE</li> <li>▲ SUBMITTED AT 75%, NOT INCLUDED IN 90%</li> </ul>					
ROPOSED SOUTHWEST LRT PROJECT IS NOT FINAL BUT IS STILL UNDER ENVIRONMENTAL REVIEW AND THE PROJECT IS CT TO CHANGE. THESE PLANS ARE NOT FINAL. DUNCIL, THROUGH THE DEVELOPMENT OF THESE PLANS, DOES NOT INTEND THAT THEY WILL PREJUDICE OR COMPROMISE TATE OR FEDERAL ENVIRONMENTAL REVIEW OR OTHER LEGAL REQUIREMENTS. THESE PLANS DO NOT LIMIT THE CT DESIGN ALTERNATIVES OR MITIGATIVE MEASURES THAT THE COUNCIL MAY UNDERTAKE IF THE PROPOSED SWLRT CT PROCEEDS TO CONSTRUCTION.					
UNCIL WILL NOT TAKE FINAL ACTION ON THIS MATTER UNLES ECORD OF DECISION AND THE COUNCIL'S DETERMINATION OF					
G: THIS RECORD MAY CONTAIN SENSITIVE SECURITY INFORM 20. NO PART OF THIS RECORD MAY BE DISCLOSED TO PER					

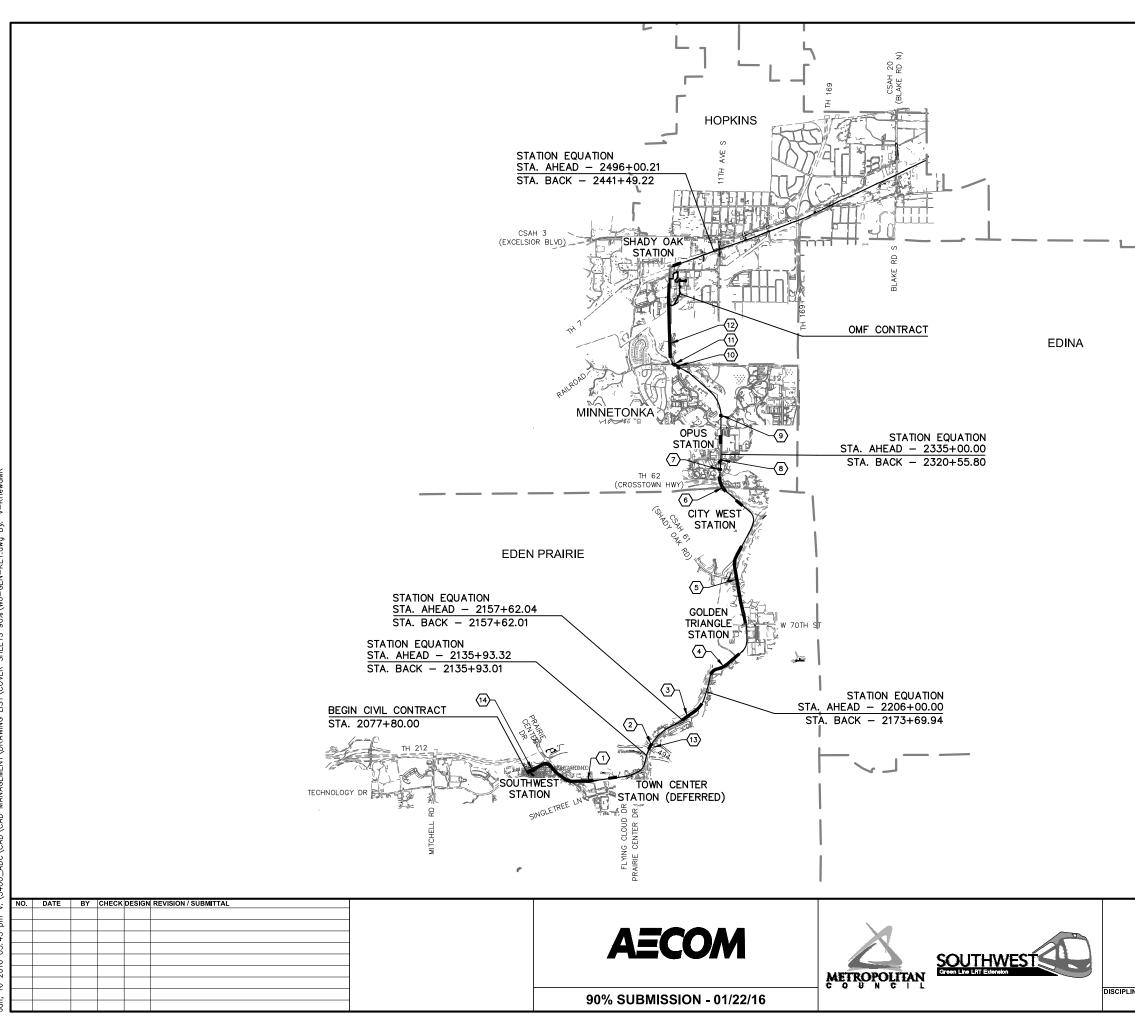
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WARNIN AND 1520 CFR PARTS 15 AND 1520, EXCEPT WITH THE WRITTEN PERMISSION OF THE ADMINISTRATOR OF THE TRANSPORTATION SECURITY ADMINISTRATION OR THE SECRETARY OF TRANSPORTATION. UNAUTHORIZED RELEASE MAY RESULT IN CIVIL PENALTY OR OTHER ACTION. FOR U.S. GOVERNMENT AGENCIES, PUBLIC DISCLOSURE IS GOVERNED BY 5 U.S.C. 552 AND 49 CFR PARTS 15 AND 1520.

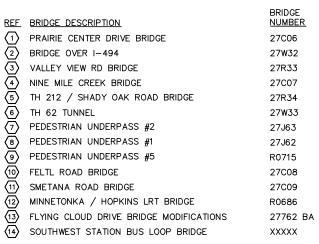


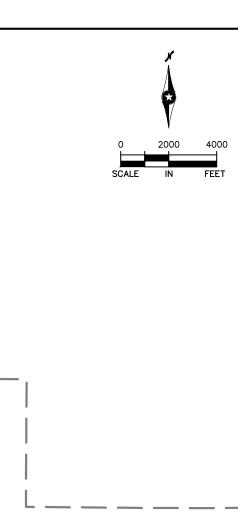
		CIVIL CONSTRUCTION				CIVIL CONSTRUCTION	ON					CIVIL CONSTRUCTION	
SHT #	SHEET NAME	SHEET DESCRIPTION	STATION STATION REV	SHT #	SHEET NAME	SHEET DESCRIF	PTION	STATION STATION REV	SHT #	SHEET	T NAME	SHEET DESCRIPTION	STATION STATION
		VOLUME 4C - BRIDGES		62	CBRR0686-BRG-PIR-023	PIER DETAILS - PIERS 13-17 (4)			131	CBRR0686-	BRG-DTL-007	WIRE FENCE (DESIGN W-1)	
1	00-GEN-CVR-001	COVER SHEET		63	CBRR0686-BRG-PIR-024	PIER DETAILS - PIERS 13-17 (5)			132	CBRR0686-	BRG-DTL-008	WATERPROOF EXPANSION DEVICE 1	
2	00-GEN-IDX-001	VOLUME INDEX OF PLAN SHEETS SHEET 1		64	CBRR0686-BRG-PIR-025	PIER DETAILS - PIERS 13-17 (6)			133	CBRR0686-	BRG-DTL-009	WATERPROOF EXPANSION DEVICE 2	
3	00-GEN-IDX-002	VOLUME INDEX OF PLAN SHEETS SHEET 2		65	CBRR0686-BRG-PIR-026	PIER DETAILS - PIER 18 (1)			134		BRG-DTL-010	AS-BUILT BRIDGE DATA	
4	W0-GEN-KEY-001	GENERAL KEY MAP SHEET 1		66	CBRR0686-BRG-PIR-027	PIER DETAILS - PIER 18 (2)			135		BRG-SUR-001	BRIDGE SURVEY 1	
5	E0-GEN-KEY-002	GENERAL KEY MAP SHEET 2		67	CBRR0686-BRG-PIR-028	PIER DETAILS - PIER 18 (3)			136		BRG-SUR-002	BRIDGE SURVEY 2	
6	00-GEN-NTS-001	GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS		68	CBRR0686-BRG-PIR-029	PIER DETAILS - PIER 18 (4)			137		BRG-BOR-001	BRIDGE SURVEY PLAN 1	
-		SHEET 1		69	CBRR0686-BRG-PIR-030	PIER DETAILS - PIER 18 (5)			138		BRG-BOR-002	BRIDGE SURVEY PLAN 2	
7	00-GEN-NTS-002	GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS		70	CBRR0686-BRG-PIR-031	PIER DETAILS - PIER 19 (1)			139		BRG-BOR-003	BRIDGE SURVEY PLAN 3	
		SHEET 2		71	CBRR0686-BRG-PIR-032	PIER DETAILS - PIER 19 (2)			140		BRG-BOR-004	BRIDGE SURVEY PLAN 4	
		MINNETONKA/HOPKINS - BRIDGE R0686		72	CBRR0686-BRG-PIR-033	PIER DETAILS - PIER 19 (3)			141		BRG-BOR-005	BRIDGE SURVEY PLAN 5	
				73	CBRR0686-BRG-PIR-034	PIER DETAILS - PIER 19 (4)			142		BRG-BOR-006	BRIDGE SURVEY PLAN 6	
1	CBRR0686-BRG-GPE-001	KEY PLAN		74	CBRR0686-BRG-PIR-035	PIER DETAILS - PIER 19 (5)			143		BRG-BOR-007	BRIDGE SURVEY PLAN 7	
2	CBRR0686-BRG-GPE-002	GENERAL PLAN & ELEVATION 1		75	CBRR0686-BRG-PIR-036	PIER DETAILS - PIERS 20-24 (1)			144		BRG-BOR-008	BRIDGE SURVEY PLAN 8	
3	CBRR0686-BRG-GPE-003	GENERAL PLAN & ELEVATION 2		76	CBRR0686-BRG-PIR-037	PIER DETAILS - PIERS 20-24 (2)			145		BRG-BOR-009	BRIDGE SURVEY PLAN 9	
4	CBRR0686-BRG-GPE-004	GENERAL PLAN & ELEVATION 3		77	CBRR0686-BRG-PIR-038	PIER DETAILS - PIERS 20-24 (3)			146		BRG-BOR-010	BRIDGE SURVEY PLAN 10	
5	CBRR0686-BRG-GPE-005	GENERAL PLAN & ELEVATION 4		78	CBRR0686-BRG-PIR-039	PIER DETAILS - PIERS 20-24 (4)			147		BRG-BOR-011	BRIDGE SURVEY PLAN 11	
6	CBRR0686-BRG-GPE-006	GENERAL PLAN & ELEVATION 5		79	CBRR0686-BRG-PIR-040	PIER DETAILS - PIERS 20-24 (5)			148		BRG-BOR-012	BRIDGE SURVEY PROFILE 1	
7	CBRR0686-BRG-GPE-007	GENERAL PLAN & ELEVATION 6		80	CBRR0686-BRG-PIR-041	PIER DETAILS - PIERS 20-24 (6)			149		BRG-BOR-013		
8	CBRR0686-BRG-TRN-001	QUANTITIES & NOTES		81	CBRR0686-BRG-PIR-042	PIER DETAILS - PIER 25 (1) PIER DETAILS - PIER 25 (2)			150		BRG-BOR-014	BRIDGE SURVEY PROFILE 3	
9	CBRR0686-BRG-TRN-002	TRANSVERSE SECTION 1		82	CBRR0686-BRG-PIR-043				151		BRG-BOR-015		
10	CBRR0686-BRG-TRN-003	TRANSVERSE SECTION 2		83	CBRR0686-BRG-PIR-044	PIER DETAILS - PIER 25 (3) PIER DETAILS - PIER 25 (4)			152		BRG-BOR-016		
11	CBRR0686-BRG-TRN-004	TRANSVERSE SECTION & LOADING DIAGRAM		84	CBRR0686-BRG-PIR-045				153		BRG-BOR-017	BRIDGE SURVEY PROFILE 6	
12	CBRR0686-BRG-SUP-001	BRIDGE LAYOUT 1		85	CBRR0686-BRG-PIR-046	PIER DETAILS - PIER 25 (5) PIER DETAILS - PIERS 26 & 28 & 29	(1)		154		BRG-BOR-018		
13	CBRR0686-BRG-SUP-002	BRIDGE LAYOUT 2		86	CBRR0686-BRG-PIR-047		( )		155		BRG-BOR-019		
14	CBRR0686-BRG-SUP-003	BRIDGE LAYOUT 3		87	CBRR0686-BRG-PIR-048	PIER DETAILS - PIERS 26 & 28 & 29	(4)		156		BRG-BOR-020	BRIDGE SURVEY PROFILE 9	
15	CBRR0686-BRG-SUP-004	BRIDGE LAYOUT 4		88	CBRR0686-BRG-PIR-049	PIER DETAILS - PIER 27 (1)			157		BRG-BOR-021	BRIDGE SURVEY PROFILE 10	
16	CBRR0686-BRG-SUP-005	BRIDGE LAYOUT 5		89	CBRR0686-BRG-PIR-050	PIER DETAILS - PIER 27 (2)			158	CBKK0686-	BRG-BOR-022	BRIDGE SURVEY PROFILE 11	
17	CBRR0686-BRG-SUP-006	BRIDGE LAYOUT 6		90	CBRR0686-BRG-SUP-010	FRAMING PLAN 1			1			NINE MILE CREEK - BRIDGE 27C07	
18	CBRR0686-BRG-SUP-007	BRIDGE LAYOUT 7		91	CBRR0686-BRG-SUP-011	FRAMING PLAN 2				00007007			
19 20	CBRR0686-BRG-SUP-008	BRIDGE LAYOUT 8		92	CBRR0686-BRG-SUP-012	FRAMING PLAN 3			2		BRG-KEY-001		
	CBRR0686-BRG-SUP-009	BRIDGE LAYOUT 9		93	CBRR0686-BRG-SUP-013	FRAMING PLAN 4			2		BRG-GPE-001	STRAY CURRENT/CORROSION CONTROL NOTE	
21	CBRR0686-BRG-AES-001			94	CBRR0686-BRG-SUP-014	FRAMING PLAN 5					BRG-GPE-002	SCEHDULE OF QUANTITIES	
22	CBRR0686-BRG-ABT-001	SOUTH ABUTMENT FOOTING DETAILS		95	CBRR0686-BRG-SUP-015	FRAMING PLAN 6			4		BRG-GPE-003 BRG-GPE-004	GENERAL PLAN & ELEVATION 1	
23	CBRR0686-BRG-ABT-002	SOUTH ABUTMENT DETAILS 1		96 97	CBRR0686-BRG-SUP-016	FRAMING PLAN DETAILS 1			-			GENERAL PLAN & ELEVATION 2	
24	CBRR0686-BRG-ABT-003	SOUTH ABUTMENT DETAILS 2		9/	CBRR0686-BRG-SUP-017	FRAMING PLAN DETAILS 2	DEAM		6		BRG-GPE-005	GENERAL PLAN & ELEVATION 3	
25 26	CBRR0686-BRG-ABT-004 CBRR0686-BRG-ABT-005	SOUTH ABUTMENT DETAILS 3 SOUTH ABUTMENT DETAILS 4		98	CBRR0686-BRG-PCB-001	MN45" PRESTRESSED CONCRETE (PRETENSIONED) MN45-100	DEAM		8		BRG-GPE-006 BRG-GPE-007	GENERAL PLAN & ELEVATION 4 TRANSVERSE SECTION	
26						, ,	DEAM		8				
	CBRR0686-BRG-ABT-006	SOUTH ABUTMENT DETAILS 5		99	CBRR0686-BRG-PCB-002	MN45" PRESTRESSED CONCRETE (PRETENSIONED) MN45-100	BEAM				BRG-GPE-008		
28	CBRR0686-BRG-ABT-007	SOUTH ABUTMENT DETAILS 6		100		, ,			10		BRG-SUP-012	BRIDGE LAYOUT 1	
29 30	CBRR0686-BRG-ABT-008 CBRR0686-BRG-ABT-009	SOUTH ABUTMENT DETAILS 7		100	CBRR0686-BRG-PCB-003	MN45 PRESTRESSED CONC. BEAM MN63" PRESTRESSED CONCRETE			11		BRG-SUP-013 BRG-SUP-014	BRIDGE LAYOUT 2	
31	CBRR0686-BRG-ABT-009 CBRR0686-BRG-ABT-010	SOUTH ABUTMENT DETAILS 8 SOUTH ABUTMENT DETAILS 9		101	CBRR0686-BRG-PCB-004	(PRETENSIONED) MN63-125	BEAM		12 13		BRG-SUP-014 BRG-SUP-015	BRIDGE LAYOUT 3 BRIDGE LAYOUT 4	
32	CBRR0686-BRG-ABT-010	NORTH ABUTMENT FOOTING DETAILS		102	CBRR0686-BRG-PCB-005	MN63 PRESTRESSED CONC. BEAN			13		BRG-SUP-015	BRIDGE LAYOUT 5	
33	CBRR0686-BRG-ABT-012	NORTH ABUTMENT DETAILS 1		102	CBRR0080-BRG-PCB-003	82MW PRESTRESSED CONCRETE			14		BRG-AES-001	AESTHETICS 1	
34	CBRR0686-BRG-ABT-012	NORTH ABUTMENT DETAILS 1		103	CBRR0686-BRG-PCB-006	(PRETENSIONED) 82MW-146	DEAM		16		BRG-AES-001	AESTHETICS 2	
35	CBRR0686-BRG-ABT-014	NORTH ABUTMENT DETAILS 3		104	CBRR0686-BRG-SUP-018	SUPERSTRUCTURE - SPANS 1 & 2			17		-BRG-ABT-001	WEST ABUTMENT FOOTING DETAILS 1	
36	CBRR0686-BRG-ABT-015	NORTH ABUTMENT DETAILS 4		104	CBRR0686-BRG-SUP-019	SUPERSTRUCTURE - SPANS 3-6 &			18		BRG-ABT-002	WEST ABUTMENT DETAILS 1	
37	CBRR0686-BRG-ABT-016	NORTH ABUTMENT DETAILS 5		106	CBRR0686-BRG-SUP-020	SUPERSTRUCTURE - SPANS 7 & 8			19		BRG-ABT-003	WEST ABUTMENT DETAILS 2	
38	CBRR0686-BRG-ABT-017	NORTH ABUTMENT DETAILS 6		107	CBRR0686-BRG-SUP-021	SUPER SPANS 13-18 & 24 & 25	420421		20		BRG-ABT-004	WEST ABUTMENT DETAILS 3	
39	CBRR0686-BRG-ABT-018	NORTH ABUTMENT DETAILS 7		108	CBRR0686-BRG-SUP-022	SUPERSTRUCTURE - SPANS 19 &	20		21		BRG-ABT-005	WEST ABUTMENT FOOTING DETAILS 2	
40	CBRR0686-BRG-PIR-001	PIER DETAILS - PIERS 1-5 & 9 (1)		109	CBRR0686-BRG-SUP-023	SUPERSTRUCTURE - SPANS 21-23			22		BRG-ABT-006	WEST ABUTMENT DETAILS 4	
41	CBRR0686-BRG-PIR-002	PIER DETAILS - PIERS 1-5 & 9 (2)		110	CBRR0686-BRG-SUP-024	SUPERSTRUCTURE - SPANS 28-30			23		BRG-ABT-007	WEST ABUTMENT DETAILS 5	
42	CBRR0686-BRG-PIR-003	PIER DETAILS - PIERS 1-5 & 9 (3)		111	CBRR0686-BRG-SUP-025	SUPERSTRUCTURE DETAILS 1			24		BRG-ABT-008	WEST ABUTMENT DETAILS 6	
43	CBRR0686-BRG-PIR-004	PIER DETAILS - PIER 6 (1)		112	CBRR0686-BRG-SUP-026	SUPERSTRUCTURE DETAILS 2			25		BRG-ABT-009	EAST ABUTMENT FOOTING DETAILS 1	
44	CBRR0686-BRG-PIR-005	PIER DETAILS - PIER 6 (2)		113	CBRR0686-BRG-SUP-027	SUPERSTRUCTURE DETAILS 3			26		BRG-ABT-010	EAST ABUTMENT MSE DETAILS 1	
45	CBRR0686-BRG-PIR-006	PIER DETAILS - PIER 6 (3)		114	CBRR0686-BRG-SUP-028	SUPERSTRUCTURE DETAILS 4			27		-BRG-ABT-011	EAST ABUTMENT MSE DETAILS 2	
46	CBRR0686-BRG-PIR-007	PIER DETAILS - PIER 7 (1)		115	CBRR0686-BRG-SUP-029	SUPERSTRUCTURE DETAILS 5			28		BRG-ABT-012	EAST ABUTMENT MSE DETAILS 3	
47	CBRR0686-BRG-PIR-008	PIER DETAILS - PIER 7 (2)		116	CBRR0686-BRG-SUP-030	SUPERSTRUCTURE DETAILS 6			29		BRG-ABT-013	EAST ABUTMENT FOOTING DETAILS 2	
48	CBRR0686-BRG-PIR-009	PIER DETAILS - PIER 8 (1)		117	CBRR0686-BRG-SUP-031	SUPERSTRUCTURE DETAILS 7			30		BRG-ABT-014	EAST ABUTMENT MSE DETAILS 4	
49	CBRR0686-BRG-PIR-010	PIER DETAILS - PIER 8 (2)		118	CBRR0686-BRG-SUP-032	SUPERSTRUCTURE DETAILS 8			31		BRG-ABT-015	EAST ABUTMENT MSE DETAILS 5	
50	CBRR0686-BRG-PIR-011	PIER DETAILS - PIER 8 (3)		119	CBRR0686-BRG-SUP-033	SUPERSTRUCTURE DETAILS 9			32		BRG-ABT-016	EAST ABUTMENT MSE DETAILS 6	
51	CBRR0686-BRG-PIR-012	PIER DETAILS - PIERS 10 & 11 (1)		120	CBRR0686-BRG-SUP-034	SUPERSTRUCTURE DETAILS 10			33		-BRG-PIR-001	PIER 1 & 2 DETAILS	
52	CBRR0686-BRG-PIR-013	PIER DETAILS - PIERS 10 & 11 (2)		120	CBRR0686-BRG-SUP-035	SUPERSTRUCTURE DETAILS 11			34		-BRG-PIR-002	PIER 3 DETAILS	
53	CBRR0686-BRG-PIR-014	PIER DETAILS - PIERS 10 & 11 (3)		122	CBRR0686-BRG-SUP-036	SUPERSTRUCTURE DETAILS 12			35		-BRG-PIR-003	PIER 4 DETAILS	
54	CBRR0686-BRG-PIR-015	PIER DETAILS - PIER 12 (1)		123	CBRR0686-BRG-SUP-037	SUPERSTRUCTURE DRAINAGE DE	TAILS 1		36		-BRG-PIR-004	PIER 5 DETAILS	
55	CBRR0686-BRG-PIR-016	PIER DETAILS - PIER 12 (2)		124	CBRR0686-BRG-SUP-038	SUPERSTRUCTURE DRAINAGE DE			37		-BRG-PIR-005	PIER 1 THRU 5 DETAILS 1	
56	CBRR0686-BRG-PIR-017	PIER DETAILS - PIER 12 (3)		125	CBRR0686-BRG-DTL-001	BRIDGE DETAILS 1			38		-BRG-PIR-006	PIER 1 THRU 5 DETAILS 2	
57	CBRR0686-BRG-PIR-018	PIER DETAILS - PIER 12 (4)		126	CBRR0686-BRG-DTL-002	BRIDGE DETAILS 2			39		-BRG-PIR-007	PIER 6 FOOTING DETAILS	
58	CBRR0686-BRG-PIR-019	PIER DETAILS - PIER 12 (5)		127	CBRR0686-BRG-DTL-003	BRIDGE DETAILS 3			40		-BRG-PIR-008	PIER 6 DETAILS 1	
59	CBRR0686-BRG-PIR-020	PIER DETAILS - PIERS 13-17 (1)		128	CBRR0686-BRG-DTL-004	BRIDGE DETAILS 4			41	CBR27C07-	-BRG-PIR-009	PIER 6 DETAILS 2	
60	CBRR0686-BRG-PIR-021	PIER DETAILS - PIERS 13-17 (2)		129	CBRR0686-BRG-DTL-005	BRIDGE DETAILS 5			42	CBR27C07-	-BRG-PIR-010	PIER 6 DETAILS 3	
61	CBRR0686-BRG-PIR-022	PIER DETAILS - PIERS 13-17 (3)		130	CBRR0686-BRG-DTL-006	BRIDGE DETAILS 6			43	CBR27C07	-BRG-PIR-011	PIER 6 DETAILS 4	
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U. D/	ATE BY CHECK DESIGN REVI	ISION / SUBMITTAL										<b>CIVIL - VOLUME 4C</b>	SHE
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							METROPOLITZ					SHEET 1	
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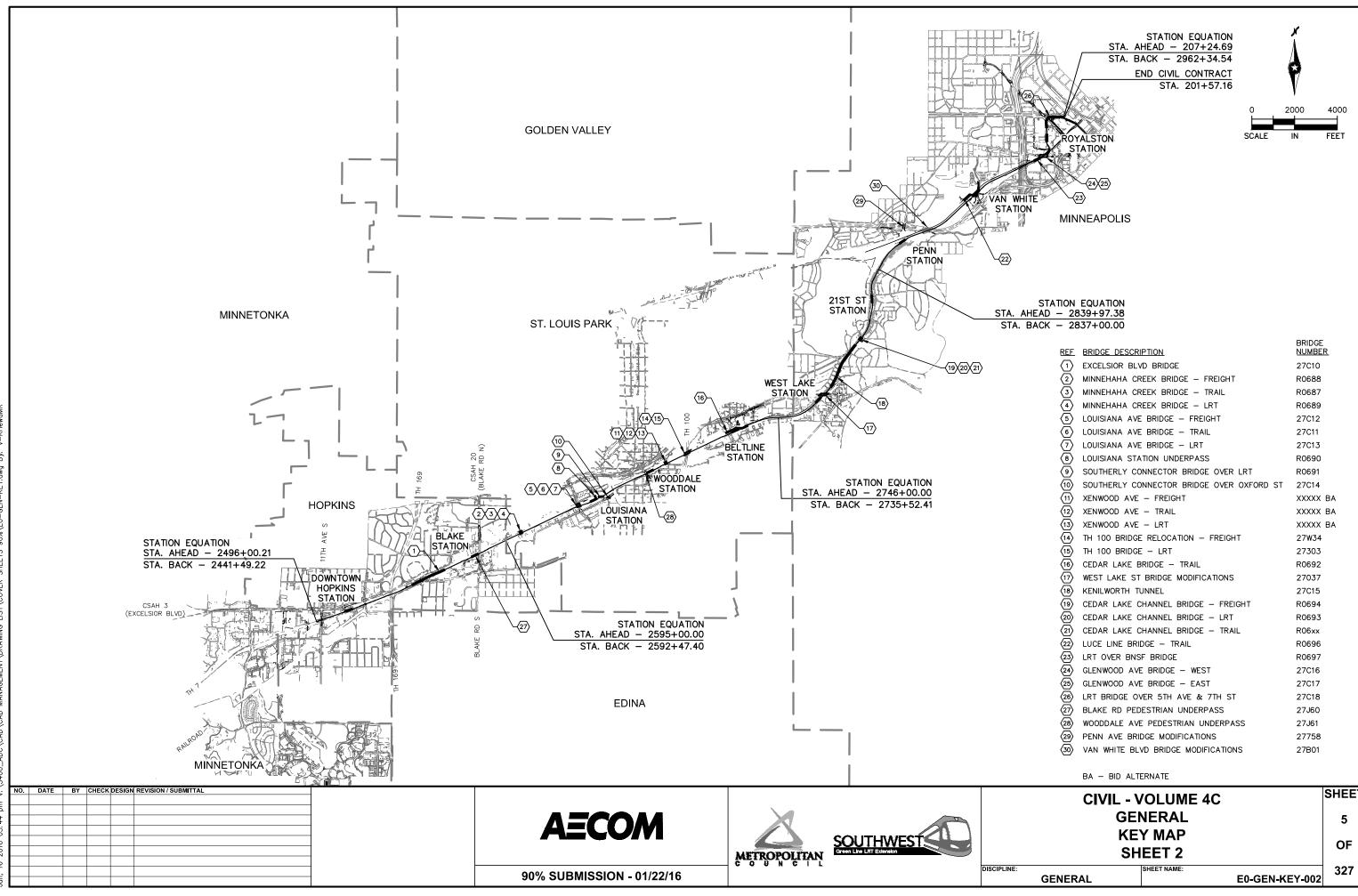
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Unite         Description         Description         Description           1         Control of the second secon	#	SHEET NAME		STATION STATION REV	SHT #	SHEET NAME		STATION STATION REVIS	SHT #	SHEET NAME			STATION ST	ATION RE
			VOLUME 4C - BRIDGES (cont'd)			CBR27J62-BRG-SUR-001								
					16	CBR27J62-BRG-SUR-002	BRIDGE SURVEY 2							
					18	CBR27J62-BRG-BOR-002								
σε							PEDESTRIAN UNDERPASS 2 - BRIDGE 27J63							
	-				1	CBR27 163-BRG-GPE-001	GENERAL PLAN AND ELEVATION							
					2									
					3									
	: C	BR27C07-BRG-PIR-020	PIER 11 DETAILS 3		4	CBR27J63-BRG-DTL-012	CONSTRUCTION STAGING PLAN 2							
	, с	CBR27C07-BRG-PIR-021	PIER 12 THRU 14 FOOTING DETAILS		5	CBR27J63-BRG-DTL-001	REINFORCED WALL SECTION							
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	. C	BR27C07-BRG-PCB-001	MN63 PRESTRESSED CONCRETE BEAM 1		14	CBR27J63-BRG-DTL-010								
	, Cr	BR27C07-BRG-PCB-002	MN63 PRESTRESSED CONCRETE BEAM 2		15	CBR27J62-BRG-SUR-001	BRIDGE SURVEY 1							
0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0 <td></td>														
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					18	CBR27J62-BRG-BOR-002								
							PEDESTRIAN UNDERPASS 5 - BRIDGE R0715	I						
					1	CBRR0715-BRG-GPF-001	GENERAL PLAN AND ELEVATION							
1       0000-CURRENALUAC:       PRODE SARE DEVELS PRANT REG:       1       2       CONSTRUMENTATION 11 - NON-CONSTRUMENTATION 12 - NON-CENTRAL SALE DEVELS PRANT REG:       1       1       PRODE SARE DEVELS PRANT REG:       1       1       PROE SARE DEVELS PRANT REG:       1       PROE SARE DEVELS PRANT REG:       1       1 <td></td> <td></td> <td></td> <td></td> <td>· ·</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>					· ·									
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Normality         Normality <t< td=""><td></td><td></td><td></td><td></td><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>					6									
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	2 C	BR27C07-BRG-DTL-007	CONCRETE SLOPE PAVING UNDER BRIDGE		14	CBRR0715-BRG-DTL-005	WEST END DETAILS 2							
	, C'	BR27C07-BRG-DTL-008	WATERPROOF EXPANSION DEVICE 1		15	CBRR0715-BRG-DTL-007	WEST END DETAILS 3							
IP       ENERGY STARES-300/2013       BIODE SURVY Y AND 1       IP       ID       CONVENT-1000/CONVENT I       IP       CONVENT I       IP														
10       CORPCONTRACE-GADA DO REDES JUNCY PLANS       0       22       CORPCONTRACE-GADA DO REDES JUNCY PLANS       0         01       CORPCONTRACE-GADA DO REDES JUNCY PLANS       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0														
91       OB270714RP-30400       BRIDGE SURVY PLN.4       33       OB280713493-0300-01.01       AdsULT BRIDGE DIVIN       Image: Survey Plance Survey Survey Survey Plance Survey Plance Survey Survey Survey Plance														
01       CORRECTON BIGG BURNEY PLAN 0       20       CORRECTON BIGG BURNEY PLAN 1       0         03       CORRECTON BIGG BURNEY PLAN 0       1       27       CORRECTON BIGG BURNEY PLAN 1       0         04       CORRECTON BIGG BURNEY PLAN 0       1       17       CORRECTON BIGG BURNEY PLAN 1       0       0         05       CORRECTON BIGG BURNEY PLAN 1       1       1       17       CORRECTON BIGG BURNEY PLAN 1       0       0         05       CORRECTON BIGG BURNEY PLAN 1       1       1       17       CORRECTON BIGG BURNEY PLAN 1       0       0         05       CORRECTON BIGG BURNEY PLAN 1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       <		BR27C07-BRG-BOR-004				CBRR0715-BRG-DTL-018								
94       DERECUSARGE-ORAGE       BENDE SUMPLY PROFILE 1       0       28       DERECUSARGE-ORAGE       BENDE SUMPLY PROFILE 3       0       0         96       DERECUSARGE-ORAGE       BENDE SUMPLY PROFILE 3       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0					24									
00       C0847/02/#NO-004006       BNDCE SUMMY PROFILE 2       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0 <td>, CF</td> <td>BR27C07-BRG-BOR-006</td> <td>BRIDGE SURVEY PLAN 6</td> <td></td> <td>25</td> <td>CBRR0715-BRG-SUR-002</td> <td>BRIDGE SURVEY 2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	, CF	BR27C07-BRG-BOR-006	BRIDGE SURVEY PLAN 6		25	CBRR0715-BRG-SUR-002	BRIDGE SURVEY 2							
06       CORRECTORATION DIRACTION OF ARCORANCE)       BRIDDE SUNCEY MORTLE 3       Image: Control of Anticona Contrel of Anticona Control of Anticona Control of Anticon		BR27C07-BRG-BOR-007	BRIDGE SURVEY PROFILE 1											
07       C0872702480-080-010       BND05 SUNVEY PROFILE 4       Image: C0872704780-080-012         98       C0872704780-080-012       BND05 SUNVEY PROFILE 6       Image: C0872704780-080-012         99       C0872704780-080-012       BND05 SUNVEY PROFILE 6       Image: C0872704780-080-012         1       C0872704780-080-012       BND05 SUNVEY PROFILE 6       Image: C0872704780-080-012         2       C0872704780-080-012       BND05 SUNVEY PROFILE 6       Image: C0872704780-080-012         2       C0872782480-01-025       Image: C087270-026       Image: C087270-026         3       C0872782480-01-025       Image: C0872782-080-01-026       Image: C0872782-080-01-026         4       C0872782480-01-026       Image: C0872782-080-01-026       Image: C0872782-080-01-026         9       C0872782-080-01-026       Image: C0872782-080-01-026       Image: C0872782-080-01-026         9       C0872782-080-01-026       Image: C0872782-080-01-026       Image: C0872782-080-01-026         10       C0872782-080-01-026       Image: C0872782-080-01-026       Image: C0872782-080-01-026         11       C0872782-080-01-026       Image: C0872782-080-01-026       Image: C0872782-080-01-026         11       C0872782-080-01-026       Image: C0872782-080-01-026       Image: C0872782-080-01-026         12       C0872782-080-01					27	CBRR0715-BRG-BOR-002	BRIDGE SURVEY PROFILE							
91       DER27C0748R-000-011       REDGE SUMMY PROFILE 5       0         90       DER27C0748R-000-012       SPRIDE SUMMY PROFILE 5       0         1       DER27C0748R-000-020       SPRIDE SUMMY PROFILE 5       0         1       DER27C0748R-000-020       SPRIDE SUMMY PROFILE 5       0         2       CR8727628R-000-020       GENETAL SUMMY PROFILE 5       0         3       CR8727628R-000-020       GENETAL SUMMY PROFILE 5       0         4       CR8727628R-000-020       GENETAL SUMMY PROFILE 5       0         3       CR8727628R-000-020       GUMERT ENARCE COME       0         4       CR8727628R-000-020       GUMERT ENARCE COME       0         4       CR8727628R-000-020       GUMERT ENARCE COME       0         4       CR8727628R-00-020       GUMERT ENARCE COME       0         4       CR8727628R-00-020       GUMERT ENARCE COME       0         4       CR8727628R-00-020       AS-BUIL SR00E DATA       0         4       CR8727828R-00-														
98       CBR27027-BR36-900-012       SINDEG SUMVY PROFILE @       I       I         PEDESTRIAN UNDERFASS 1 - BR06 Z JA2         1       CBR27A22-BR3-GPE-002       Loan Not DELEVATION       I       I       I       CBR27A22-BR3-GPE-002       Loan Not DELEVATION         2       CBR27A22-BR3-GPE-002       Loan Not DELEVATION       I       I       I       CBR27A22-BR3-GPE-002       Loan Not DELEVATION       I       I       I       I       CBR27A22-BR3-GPE-002       Loan Not DELEVATION       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I<								I						
V       PPEDESTRIAN UNDERPASS 1- BRIDGE 27/42         1       CERE7/422-BRG-0FE-001       CENERAL FLAN NAD ELEVATION         3       CERE7/422-BRG-0FE-001       CENERAL FLAN NAD ELEVATION         4       CERE7/422-BRG-0FE-001       REINFORCED WALL SECTION         5       CERE7/422-BRG-0FE-001       REINFORCED WALL SECTION         6       CERE7/402-BRG-0TI-002       PRECAST CONCRETE BARREL DTAILS         6       CERE7/402-BRG-0TI-002       CUP COLLA REINFORCED WALL SECTION         7       CERE7/402-BRG-0TI-002       REINFORCED WALL SECTION         8       CERE7/402-BRG-0TI-002       REINFORCED WALL SECTION         9       CERE7/402-BRG-0TI-002       REINFORCED WALL SECTION         10       CERE7/402-BRG-0TI-002       REINFORCED WALL SECTION         10       CERE7/402-BRG-0TI-002       REINFORCED WALL SECTION         11       CERE7/402-BRG-0TI-002       REINFORCED WALL SECTION         12       CERE7/402-BRG-0TI-002       REINFORCED WALL SECTION       CIVIL - VOLUME 4C         14       CERE7/402-BRG-0TI-002       REINFORCED WALL SECTION SUBMITAL       CIVIL - VOLUME 4C         14       CERE7/402-BRG-0TI-002       REINFORCED WALL SECTION SUBMITAL       CIVIL - VOLUME 4C         14       CEREF       CEREF       SUBMET SECTION SUBMITAL       S								I						
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2       CBR27U224RG.OFE-02       LOADING DIAGRAM       Image: Control of Contro of Control of Control of Co			PEDESTRIAN UNDERPASS 1 - BRIDGE 27J62					I						
3       CBR27/#28-PR-OT-001       REMFORCED WALL SECTION       Image: Constraint of the constraint	С	BR27J62-BRG-GPE-001	GENERAL PLAN AND ELEVATION					I						
4       CRP2/#2-RPG-0TL-002       PPECAST CONCRETE BARREL DETAILS       Image: Concent of the Conc														
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13       CBR27J62-BRG-BDTL       BRIDGE DETAILS         14       CBR27J62-BRG-DTL-009       AS-BUILT BRIDGE DATA         NO       DATE       BY       CHECKDESIGN REVISION/SUBMITAL         A       A       B       CONTACT         A       B       CONTACT       CONTACT         B       CONTACT       CONTACT       CONTACT								I						
14       CBR27J62-BRG-DTL-009       AS-BUILT BRIDGE DATA         NO       DATE       BY       CHECK DESIGN REVISION / SUBMITAL         A       D       AS-BUILT BRIDGE DATA       D       CIVIL - VOLUME 4C         G       A       D       CIVIL - VOLUME 4C       GENERAL         A       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>I</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								I						
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AECOM	C	BR27J62-BRG-DTL-009	AS-BUILT BRIDGE DATA					1						
A   A   A   A   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B   B <td>DATE</td> <td>BY CHECK DESIGN REVIS</td> <td>ION / SUBMITTAL</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td><b></b></td> <td></td> <td></td> <td>SHEET</td>	DATE	BY CHECK DESIGN REVIS	ION / SUBMITTAL								<b></b>			SHEET
	I										CIVIL - V	OLUME 4C		JOHEEL
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DISCIPLINE: SHEET NAME:	+						METROPO				51			
90% SUBMISSION - 01/22/16	+							τι I L						327
GENERAL 00-GE	+					an% 20RMISS	ION - 01/22/16			(	GENERAL		00-GEN-IDX-002	.



	AL W0-GEN-KEY-001	
E:	SHEET NAME:	327
	SHEET 1	
	ΚΕΥ ΜΑΡ	OF
	GENERAL	4
	CIVIL - VOLUME 4C	SHEET
	BA – BID ALTERNATE	
<u>\14</u>	SOUTHWEST STATION BUS LOOP BRIDGE XXXXX	
(13)	FLYING CLOUD DRIVE BRIDGE MODIFICATIONS 27762	
12	MINNETONKA / HOPKINS LRT BRIDGE R0686	
1	SMETANA ROAD BRIDGE 27C09	
1	FELTL ROAD BRIDGE 27C08	
ত	PEDESTRIAN UNDERPASS #5 R0715	
	PEDESTRIAN UNDERPASS #I 27J62	







			SHEET
	BA – BID ALTERNATE		
(30)	VAN WHITE BLVD BRIDGE MODIFICATIONS	27B01	
(29)	PENN AVE BRIDGE MODIFICATIONS	27758	
(28)	WOODDALE AVE PEDESTRIAN UNDERPASS	27J61	
(27)	BLAKE RD PEDESTRIAN UNDERPASS	27J60	
(26)	LRT BRIDGE OVER 5TH AVE & 7TH ST	27C18	
(25)	GLENWOOD AVE BRIDGE - EAST	27C17	
<sup>(24)</sup>	GLENWOOD AVE BRIDGE - WEST	27C16	
(23)	LRT OVER BNSF BRIDGE	R0697	
(22)	LUCE LINE BRIDGE - TRAIL	R0696	
(21)	CEDAR LAKE CHANNEL BRIDGE - TRAIL	R06xx	
	CEDAR LAKE CHANNEL BRIDGE - LRT	R0693	
(19)	CEDAR LAKE CHANNEL BRIDGE - FREIGHT	R0694	
	KENILWORTH TUNNEL	27C15	
	WEST LAKE ST BRIDGE MODIFICATIONS	27037	
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	TH 100 BRIDGE - LRT	27303 R0602	
	TH 100 BRIDGE RELOCATION - FREIGHT	27W34	
	XENWOOD AVE - LRT	XXXXX	DA
	XENWOOD AVE - TRAIL	XXXXX	
	XENWOOD AVE - FREIGHT	XXXXX	
U M	SOUTHERLY CONNECTOR BRIDGE OVER LKT SOUTHERLY CONNECTOR BRIDGE OVER OXFORD ST		
ال	SOUTHERLY CONNECTOR BRIDGE OVER LRT	R0690	
$\forall$	LOUISIANA AVE BRIDGE - LRT LOUISIANA STATION UNDERPASS	27013 R0690	
	LOUISIANA AVE BRIDGE - TRAIL	27011	
Š	LOUISIANA AVE BRIDGE - TRAIL	27012	
U S	LOUISIANA AVE BRIDGE - FREIGHT	27C12	
Ä	MINNEHAHA CREEK BRIDGE - LRT	R0689	
Š	MINNEHAHA CREEK BRIDGE - TRAIL	R0687	
_	MINNEHAHA CREEK BRIDGE - FREIGHT	R0688	
$\langle 1 \rangle$	EXCELSION BLVD BRIDGE	27C10	
REF	BRIDGE DESCRIPTION	BRIDGE NUMBE	

CIVIL - VOLUME 4C	SHEET		
GENERAL			
KEY MAP SHEET 2	OF		
GENERAL SHEET NAME: E0-GEN-KEY-002	2 327		

SYMBOLS	
$\Rightarrow$	PROPOSED DIRECTIONAL LANE USE
र्यद्र	EXISTING DIRECTIONAL LANE USE
×	FLASHER (FREIGHT & PEDESTRIAN)
X	CROSSING GATE (FREIGHT & LRT)
	CANTILEVER SIGNAL
	RAIL TURNOUT
	RAIL CROSSOVER (DOUBLE)
	RAIL CROSSOVER (SINGLE)
9	POINT OF SWITCH (PS)
• •	OCS POLE FOUNDATION
φ	RAIL LUBRICATOR
$-\Delta$	POINT OF INTERSECTION (PI)
(W2-200)	RAILROAD CURVE NUMBER
	ACCESSIBLE PEDESTRIAN CURB RAMI (DESIGN VARIES)
<b>6</b> .	HANDICAP PARKING STALL
8000000000 1000000000	TACTILE WARNING STRIP
	TPSS BUILDING (TPSS-SW###) - NIG TUNNEL SYSTEMS HOUSE (TSY-SW##
	SIGNAL / COMMUNICATION HOUSE -
•	STORM SEWER MANHOLE
-	STORM SEWER CATCH BASIN
	STORM SEWER FLARED END SECTION
۲	STORM SEWER CLEAN-OUT
	STORM SEWER PUMP STATION
DTXX NV XXX.XX	DRAINTILE ID
• XXXX - ST	STORM SEWER STRUCTURE ID
	BUS SHELTER
<b>≟</b> ★	ROADWAY / PEDESTRIAN LIGHT

7

By:

-GEN-NTS.dwg

CIV-

1206

SHEETS

LIST\COVER

MANAGEMENT\DRAWING

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001

# **LINETYPES**

LANE USE		-ROADWAY Q
NE USE		-TRACK 🖞 (LRT)
		- TRACK 🖞 (FRT)
DESTRIAN)		RETAINING WALL
* & LRT)		BALLAST CURB
a litty		- TUNNEL WALL
	xxx	- FENCE
		EX ROW
		- PROP ROW
		- PROP TCE
E)	· · ·	PROP PE
		- FENCE / RAILING
)	—— ID —— ID ——	- FREIGHT INTRUSION DETECTION
		CONCRETE CURB AND GUTTER
		TRAIL (WIDTH VARIES)
		- SIDEWALK
		- DRIVEWAY
		- BRIDGE
(PI)		- SAWCUT
		- DELINEATED WETLAND
۶	_ · · · · ·	- BMP (NWL) WATER EDGE
CURB RAMP		PROPOSED FLOODPLAIN MITIGATION AREA
		- SILT FENCE
L		BALE BARRIER
	>>	- STORM SEWER
		- CASING PIPE
V###) — NIC (TSY—SW###) — NIC	· ////////////////////////////////////	
		STRUCTURE REMOVAL
N HOUSE - NIC	-00000000000000000000000000000000000000	FLOATING SILT FENCE
		- SUPER DUTY SILT FENCE
		- CONSTRUCTION LIMITS
SIN		
ND SECTION	·····	
		OVERLAND FLOW
JΤ		
TION		STOP BAR
		MEDIAN NOSE
	EP-EP-18	WETLAND ID
E ID		

## CONSTRUCTION PACKAGE NOTE

NOTE: THE SWLRT CONSTRUCTION IS BEING IMPLEMENTED THROUGH THREE MAIN CONSTRUCTION PACKAGES; CIVIL, SYSTEMS & TUNNEL FACILITIES (SYS), AND OPERATIONS & MAINTENANCE FACILITY (OMF). CERTAIN SYS AND OMF SYMBOLS ARE SHOWN ON THE CIVIL CONTRACT PLANS FOR INFORMATION ONLY AND CERTAIN FACILITIES ARE NOT PART OF THE CIVIL CONTRACT.

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 ב	NO.	DATE BY CHE	CK DESK	SN REVISION / SUBMITTAL				CIVIL - \	OLUME 4C	SHEET
:43 a					_	AECOM			NERAL	6
16 07					_		SOUTHWEST		TIONS, AND SYMBOLS	OF
18 20									EET 1	
Jan, 1						90% SUBMISSION - 01/22/16			SHEET NAME: 00-GEN-NTS-001	327 1

# ABBREVIATIONS

	3-2 (EG) AD	SIGNAL HEAD NUMBER (PHASE 3, NO. 2) ALGEBRAIC DIFFERENCE
	AVE AWF	AVENUE ADVANCE WARNING FLASHER
	BA BGN	BID ALTERNATE BEGIN
	BP BVCE	BEGINNING POINT BEGINNING VERTICAL CURVE ELEVATION
	BVCS BLVD	BEGINNING VERTICAL CURVE STATION BOULEVARD BEST MANAGEMENT PRACTICE
	BMP BNSF C&G	BURLINGTON NORTHERN SANTA FE RAILWAY CURB AND GUTTER
	Са G CB	CENTERLINE CATCH BASIN
	CE CIR	CLEARANCE ENVELOPE CIRCLE
	CO CP	DRAINTILE CLEANOUT STRUCTURE CANADIAN PACIFIC
	CPRAIL CS	CANADIAN PACIFIC RAILWAY CURVE TO SPIRAL
	CSAH D&U	COUNTY STATE AID HIGHWAY DRAINAGE AND UTILITY
	DF DR	
	DT DTL DWY	DRAINTILE DETAIL DRIVEWAY
	E Ea	DRIVEWAY EAST ACTUAL SUPERELEVATION (INCHES)
	EB EL or ELEV	EAST BOUND ELEVATION
	EP ESMT	ENDING POINT EASEMENT
	Eu EVCE	UNBALANCED SUPERELEVATION (INCHES) ENDING VERTICAL CURVE ELEVATION
	EVCS EVP	ENDING VERTICAL CURVE STATION EMERGENCY VEHICLE PRE-EMPTION
	EX FES FYA	EXISTING FLARED END SECTION FLASHING YELLOW ARROW
ſR	GR RD GRN	GROUND ROD GREEN INDICATION
iewaN	HCRRA INL	HENNEPIN COUNTY REGIONAL RAILROAD AUTHORITY BRIDGE DRAIN INLET
V-Kr	INS GR IP	INSULATED GROUND INPLACE
90%\CIV-GEN-NTS.dwg By: V-KriewaMR	LED LH	LIGHT EMITTING DIODE LEFT HAND
S.dwg	LN LRCI LRT	LANE LOCALLY REQUESTED CAPITAL INVESTMENT LIGHT RAIL TRANSIT
N-NT	LRV LT	LIGHT RAIL VEHICLE LEFT
V-GE	LUM L <sub>c</sub>	LUMINAIRE CURVE LENGTH (FEET)
o%∕ci	L <sub>S</sub> MIN	SPIRAL LENGTH (FEET) MINIMUM
S	MPH MPLS	MILES PER HOUR CITY OF MINNEAPOLIS
SHEET	MPRB N NB	MINNEAPOLIS PARK AND RECREATION BOARD NORTH NORTH BOUND
DVER	NIC	NOT IN CONTRACT NUMBER
ST\C(	NWL OCS	NORMAL WATER LINE OUTLET CONTROL SYSTEM
NG LI	OCS OMF	OVERHEAD CONTACT SYSTEM OPERATIONS AND MAINTENANCE FACILITY
DRAW	OH P1-1 (EG) PB2-1 (EG)	OVERHEAD PEDESTRIAN HEAD (PHASE 1, NO. 1) PUSHBUTTON (PHASE 2, NO. 1)
ENT\	PB2-1 (EG) PC PE	POINT OF CURVE PERMANENT EASEMENT
AGEM	PED PITO	PEDESTRIAN POINT OF INTERSECTION OF TURNOUT
MAN,	PKWY POB	PARKWAY POINT OF BEGINNING
CAD	POE POT	POINT OF ENDING POINT ON TANGENT
\CAD'	PROP PS	PROPOSED POINT OF SWITCH
«:\3400_ADC\CAD\CAD MANAGEMENT\DRAWING LIST\COVER SHI		
,3400.		
<i>.</i> .	NO. DATE	BY CHECK DESIGN REVISION / SUBMITTAL

PT PVI RCP RD RL rH ROW RT SB SC SOP ST STA STA STA TCE THRU TOR STA TCE THRU TORS TST TYP UG V VC VD E W	POINT OF TANGENT POINT OF VERTICAL INTERSECTION RADIUS (FEET) REINFORCED CONCRETE PIPE ROAD RAIL LUBRICATOR RATE OF CHANGE VERTICAL CURVE RIGHT HAND RIGHT OF WAY RIGHT SOUTH BOUND SPIRAL TO CURVE SIGNAL COMMUNICATION SOURCE OF POWER STREET SPIRAL TO TANGENT STORM MANHOLE STRUCTURE STATION TEMPORARY CONSTRUCTION EASEMENT TRUNK HIGHWAY THROUGH TOP OF RAIL TRACTION POWER SUBSTATION TRACK TANGENT TO SPIRAL TYPICAL UNDERGROUND DESIGN VELOCITY (MPH) VERTICAL CURVE VEHICLE DYNAMIC ENVELOPE WEST
VDE	VEHICLE DYNAMIC ENVELOPE
WB WLK	WEST BOUND WALK INDICATION
WLN	WALK INDICATION

## TRAIL INDEX

ABBREVIATED NAME	FULL NAME / LOCATION
TRAIL 1	UNDER RED CIRCLE DR, LRT, AND YELLOW CIRCLE DR
TRAIL 2	FROM TRAIL 1 TO GREEN CIRCLE DR
TRAIL 3	OPUS STATION ACCESS FROM BREN RD E
TRAIL 4	FROM BREN RD W TO TRAIL 5
TRAIL 5	FROM OPUS STATION TO GREEN CIRCLE DR
TRAIL 6	FROM TRAIL 5 TO SMETANA RD
CEDAR LAKE TRAIL	CEDAR LAKE LRT REGIONAL TRAIL/FROM SHADY OAK STATION TO 11TH AVE
CEDAR LAKE TRAIL	CEDAR LAKE LRT REGIONAL TRAIL/WEST OF EXCELSIOR
CEDAR LAKE TRAIL	CEDAR LAKE LRT REGIONAL LRT TRAIL/BETWEEN EXCELSIOR AND KENILWORTH TRAI
MIDTOWN GREENWAY	MIDTOWN GREENWAY/EAST OF KENILWORTH TRAIL CONNECTION
TRAIL A	KENILWORTH TRAIL (SECONDARY)/BETWEEN CEDAR-ISLES CHANNEL AND 21ST STRE
TRAIL B	KENILWORTH TRAIL (SECONDARY)/BETWEEN 21ST STREET STATION AND PENN STATI
TRAIL B	CEDAR LAKE TRAIL (SECONDARY)/EAST OF PENN STATION
TRAIL C	10' CONNECTOR TRAIL FROM CEDAR LAKE LRT REGIONAL TRAIL TO TYLER AVE.
TRAIL D	10' CONNECTOR TRAIL/BELTLINE STATION TO CEDAR LAKE LRT REGIONAL TRAIL
KENILWORTH TRAIL	KENILWORTH TRAIL (MAIN)/W LAKE ST TO PENN STATION
CEDAR LAKE TRAIL	CEDAR LAKE TRAIL (MAIN)/PENN STATION TO TH 394
TRAIL E	KENILWORTH TRAIL (SECONDARY)/EAST OF W LAKE ST
TRAIL F	KENILWORTH TRAIL (SECONDARY)/WEST OF CEDAR LAKE PKWY
TRAIL G	NOT USED
TRAIL H	10' CONNECTOR TRAIL/EAST OF PENN STATION TO KENWOOD PKWY
TRAIL I	10' CONNECTOR TRAIL FROM CEDAR LAKE REGIONAL TRAIL TO CSAH 20 (BLAKE RI
CEDAR LAKE TRAIL	CEDAR LAKE TRAIL (MAIN)/AT-GRADE CROSSING AT PENN STATION
TRAIL J	CEDAR LAKE TRAIL (SECONDARY)/NORTHWEST OF PENN STATION
TRAIL K	CEDAR LAKE TRAIL (SECONDARY)/NORTHWEST OF PENN STATION
TRAIL L	CEDAR LAKE TRAIL (SECONDARY)/EAST OF PENN STATION
TRAIL M	10' CONNECTOR TRAIL FROM CEDAR LAKE REGIONAL TRAIL TO CSAH 20 (BLAKE RI
TRAIL N	8' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO EDGEBROOOK DRIVE
TRAIL O	8' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO W LAKE STREET
TRAIL P	8' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO LOUISIANA AVE
TRAIL Q	10' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO TH 7 SERVICE ROAD
TRAIL R	20' CONNECTOR TRAIL FROM VAN WHITE STATION TO CEDAR LAKE TRAIL
TRAIL S	10' CONNECTOR TRAIL FROM CEDAR LAKE REGIONAL TRAIL TO BELTLINE BLVD
TRAIL T	8' CONNECTOR TRAIL FROM VAN WHITE STATION TO VAN WHITE MEMORIAL BLVD
TRAIL U	10' TRAIL PARALLEL TO CEDAR LAKE PKWY
LUCE LINE TRAIL	LUCE LINE REGIONAL TRAIL/ON BRIDGE OVER LIGHT RAIL
TRAIL V TRAIL W	CONNECTOR TRAIL TO LUCE LINE REGIONAL TRAIL WEST OF LIGHT RAIL CONNECTOR TRAIL TO LUCE LINE REGIONAL TRAIL WEST OF LIGHT RAIL
TRAIL X	NOT USED
TRAIL Y	12' CONNECTOR TRAIL FROM CEDAR LAKE REGIONAL TRAIL TO WOODDALE AVE S
	12' CONNECTOR TRAIL FROM CEDAR LAKE REGIONAL TRAIL TO WOODDALE AVE S
TRAIL Z TRAIL AA	8' PEDESTRIAN CONNECTOR TRAIL FROM TRAIL B TO PENN STATION
TRAIL BB	8' PEDESTRIAN CONNECTOR TRAIL FROM TRAIL B TO PENN STATION
TRAIL CC	10' CONNECTOR TRAIL FROM KENILWORTH TRAIL (MAIN) TO PENN STATION
INAL CO	TO COMPLETER TRAIL FROM REINEWORTH TRAIL (MAIN) TO FENN STATION

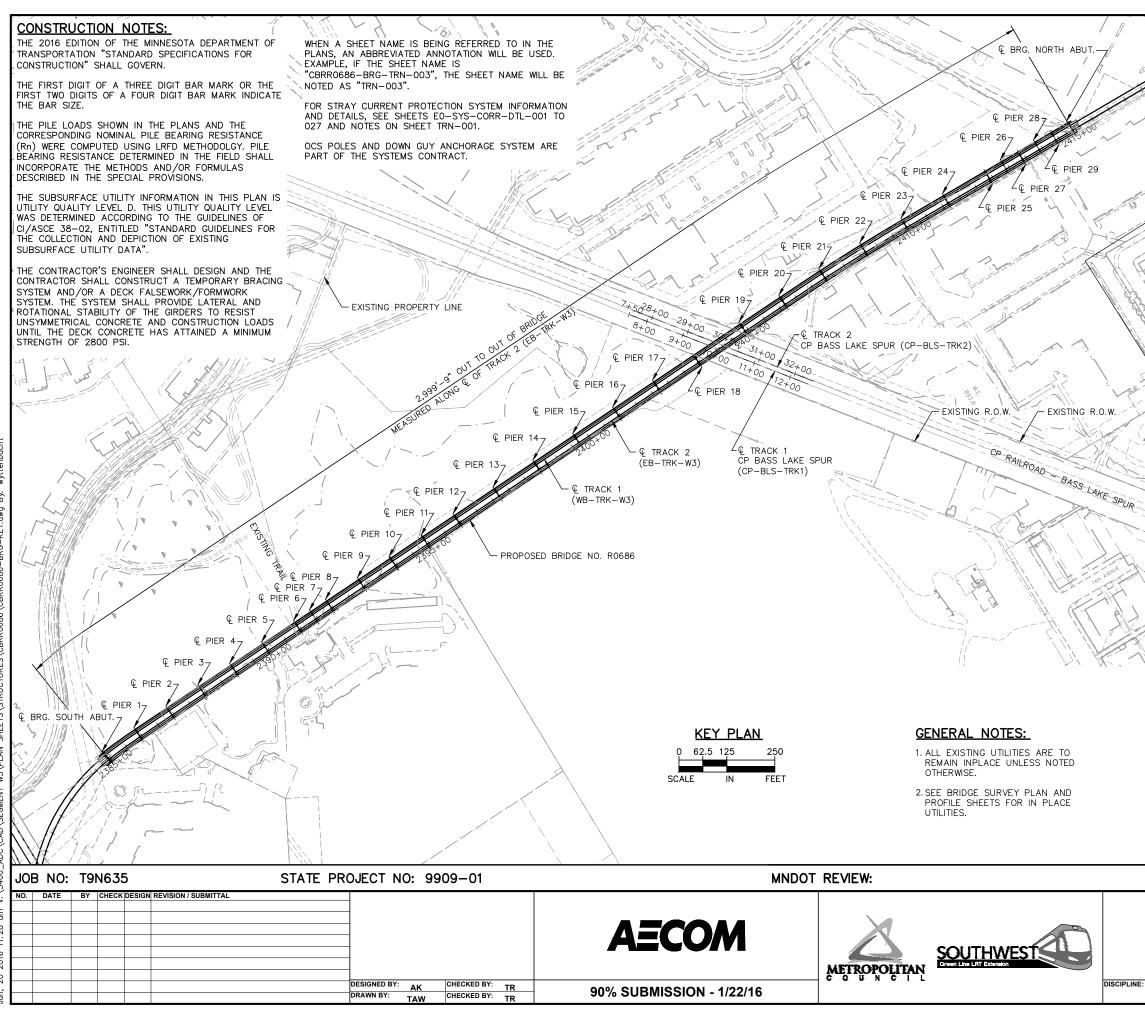
: ב ב	NO. DATE BY CHECK	DESIGN	REVISION / SUBMITTAL			CIVIL - V	OLUME 4C	SHEET
45 p							NERAL	7
6 03:					SOUTHWEST	NOTES, ABBREVIA	TIONS, AND SYMBOLS	OF
6 201						SF	IEET 2	
Jan, 1				90% SUBMISSION - 01/22/16			SHEET NAME: 00-GEN-NTS-002	327

TRAIL CONNECTION

STREET STATION STATION

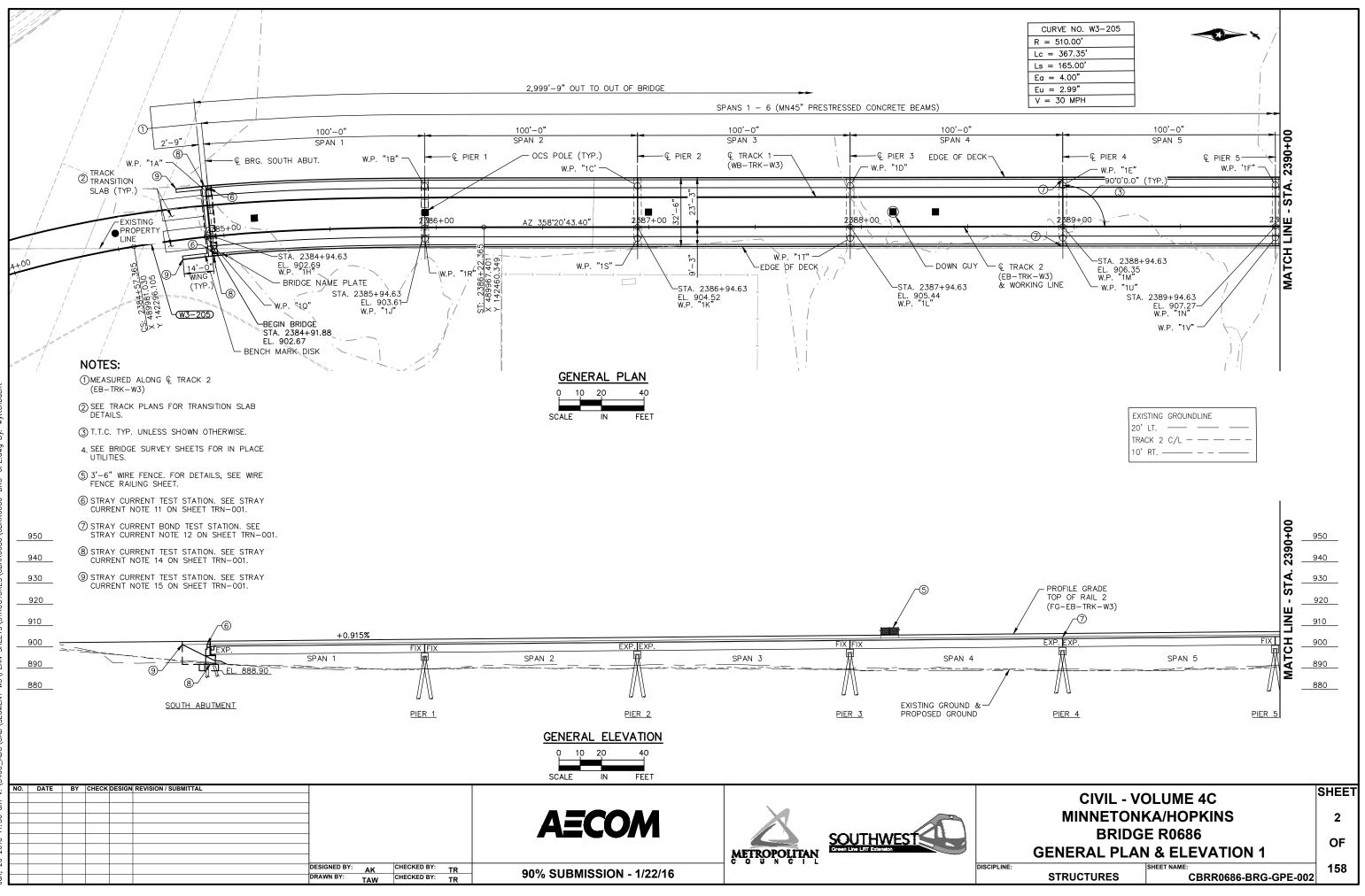
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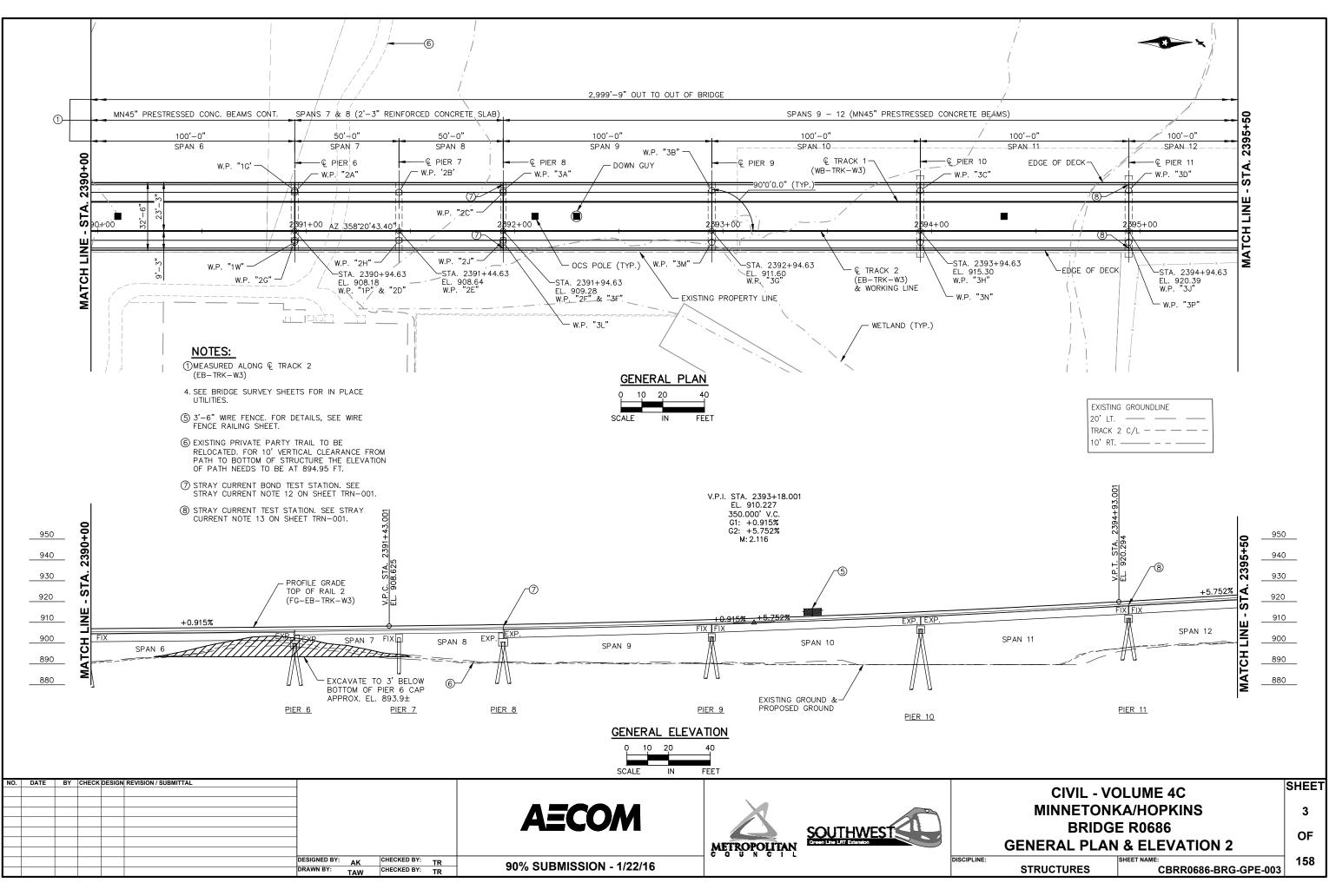


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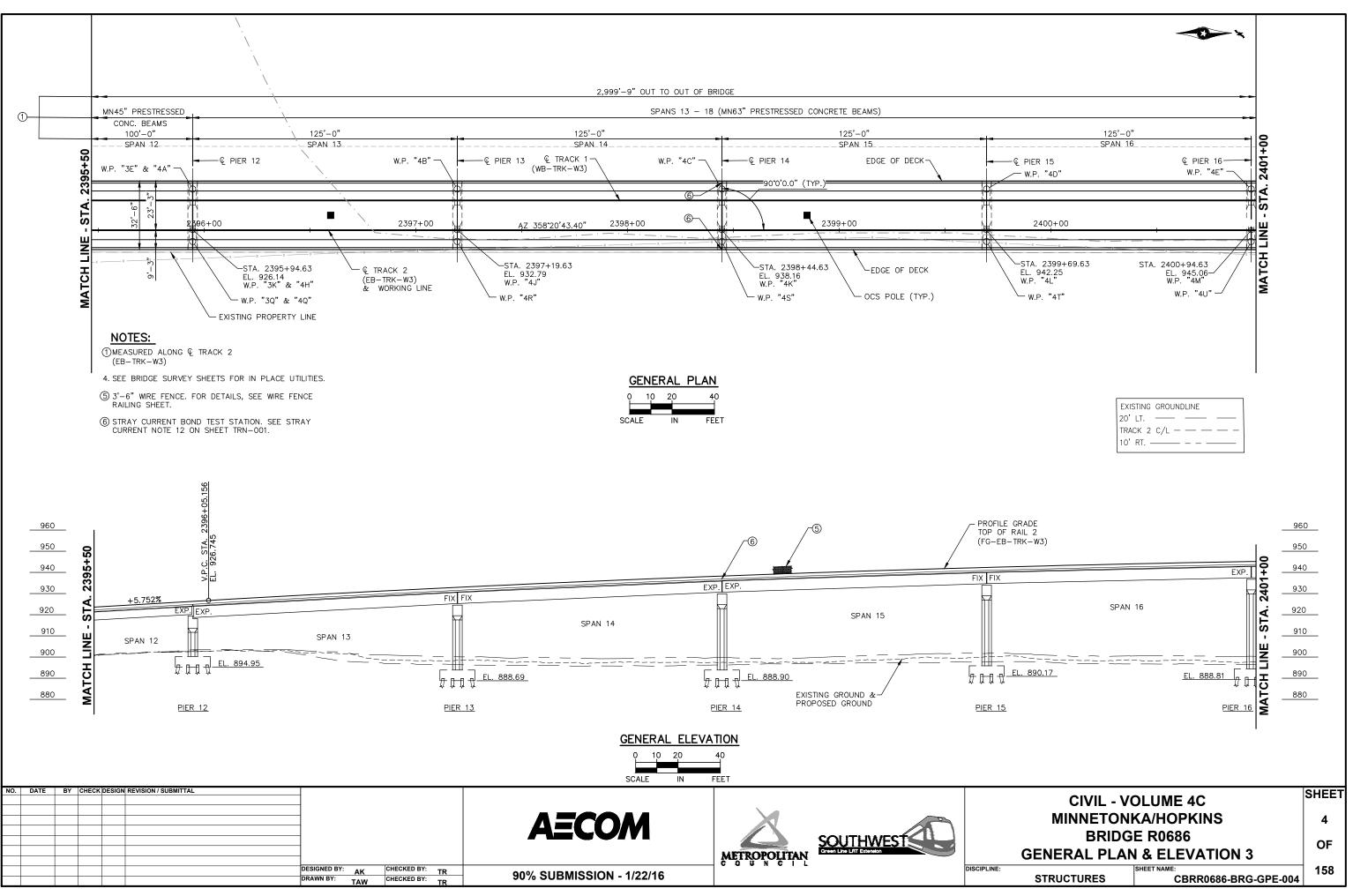
		DESIGN DATA		
B Contraction		LRFD BRIDGE DESIGN SPECIFICATIONS, 2014 AND 2015 INTERIM REVISIONS.	7TH	
	METRO I 4.0)	LIGHT RAIL TRANSIT DESIGN CRITERIA (I	REVISION	
	LOAD AI	ND RESISTANCE FACTOR DESIGN METHO	D	
~// 7	LRV & M	MV LOAD DIAGRAM SHOWN ON SHEET T	RN-004.	
11		MATERIAL DESIGN PROPERTIES: REINFORCED CONCRETE:		
		f'c = 4 ksi, n = 8 fy = 60 ksi		
	PR	ESTRESSED CONCRETE: f'c = 9 ksi, n = 1		
		fpu = 270 ksi FOR 0.6" DIA. LOW RELAXATION STRANDS		
		0.75 fpu FOR INITIAL PRESTRESS		
	DESIGN	SPEED: OVER = 30/55 MPH (LRT) UNDER = 25 MPH		
	APPROX	IMATE DECK AREA: 97,520 SQ. FT.		
	NO	LIST OF SHEETS		
	NO. 1	DESCRIPTION KEY PLAN		
K IL	2-7	GENERAL PLAN AND ELEVATION		
	8	TRANSVERSE SECTION & QUANTITIES		
	9-11	TRANSVERSE SECTION		
XX	12-20 21	BRIDGE LAYOUT AESTHETIC DETAILS		
A THET I	22-31	SOUTH ABUTMENT DETAILS		
- the line of the	32-39	NORTH ABUTMENT DETAILS		
	40-89	PIER DETAILS		
	90-97	FRAMING PLAN		
	98-100	MN45 PRESTRESSED CONC. BEAM DET MN63 PRESTRESSED CONC. BEAM DET		
	101-102 103			
レス・シアン	105	82MW PRESTRESSED CONC. BEAM DE SUPERSTRUCTURE DETAILS		
	125-130			
	131	WIRE FENCE		
	132-133	EXPANSION DEVICE		
	134	AS BUILT DATA BRIDGE SURVEY		
SOQ LINE	135–136 137–147	BRIDGE SURVEY PLAN		
	148–158	BRIDGE SURVEY PROFILE		
A. I. HALLE				
14 Avenue - Jul				
		BRIDGE NO. R0686		
	SOUTHW	EST LIGHT RAIL OVER CP RAIL AND WE	TLANDS	
	1 MI. NO REINFO	DRTH OF JCT. TH 61 & TH 62 IN MINN DRCED CONCRETE SLAB SPANS AND VA GTH PRESTRESSED CONCRETE BEAM SF 32'-6" OUT TO OUT DECK 0'0'0" SKEW	ETONKA RIABLE	
	IDEN	ITIFICATION NO. 501 MAIN & 209 APPR	ОАСН	
		KEY PLAN		
	СІТҮ С	SEC 26 T 117 N R 22 W F MINNETONKA HENNEPIN CC	DUNTY	
	APPROVE			
			SHEET	
	CIVIL - VOLUME 4C MINNETONKA/HOPKINS			
BR	IDGE F	<b>KU686</b>		
к	EY PL	AN	OF	
INE:		ET NAME:	158	
STRUCTURES		CBRR0686-BRG-GPE-001		



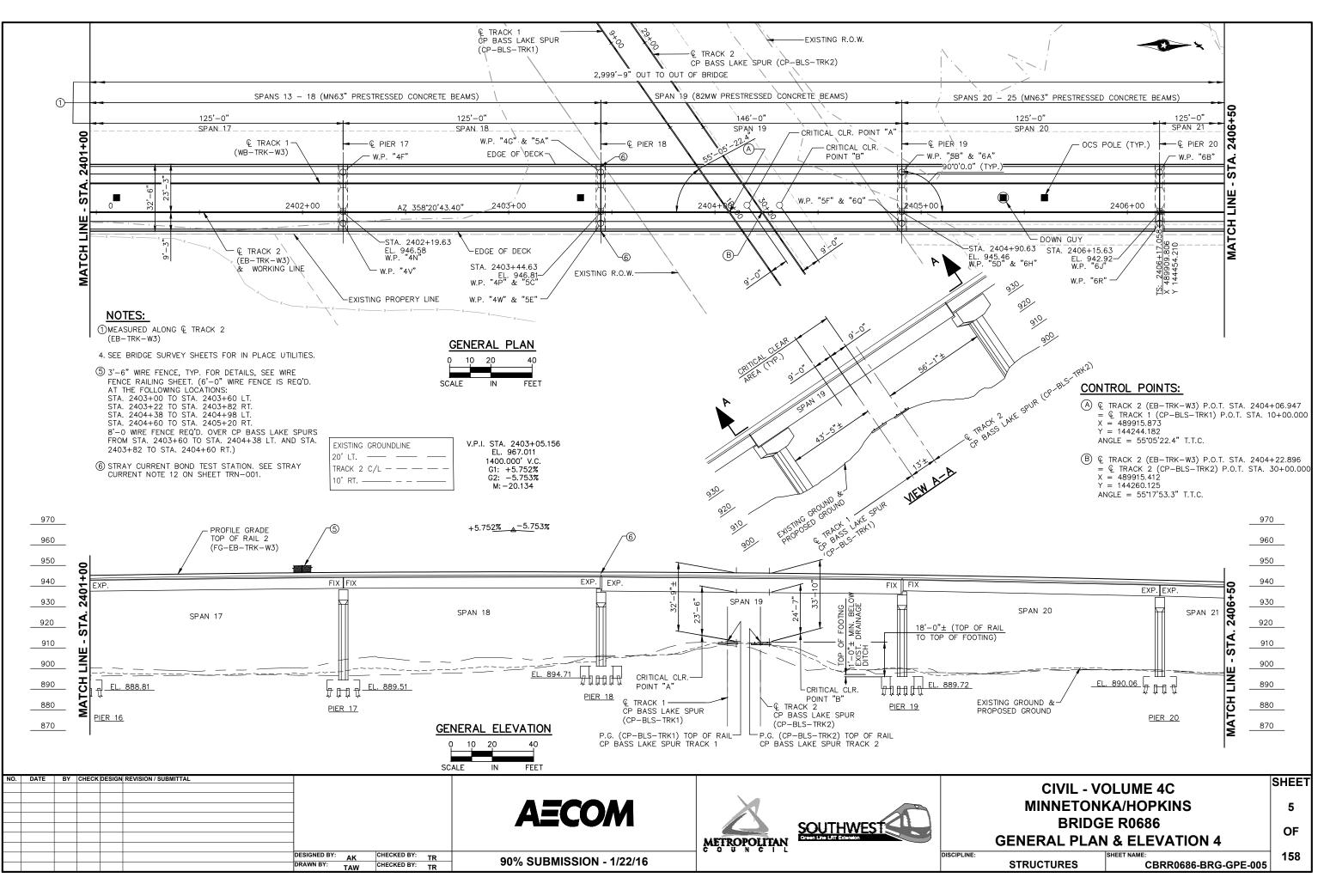
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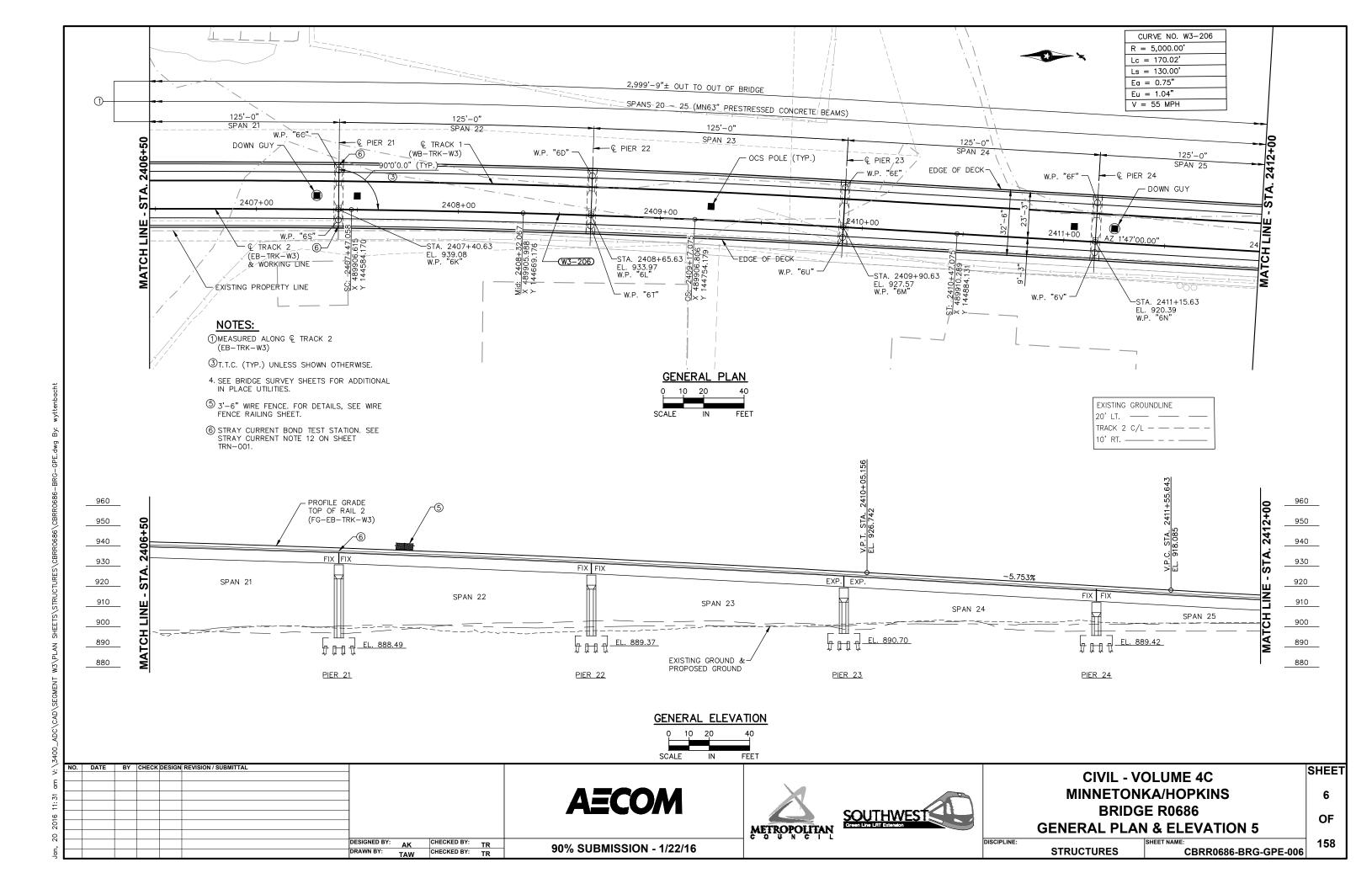
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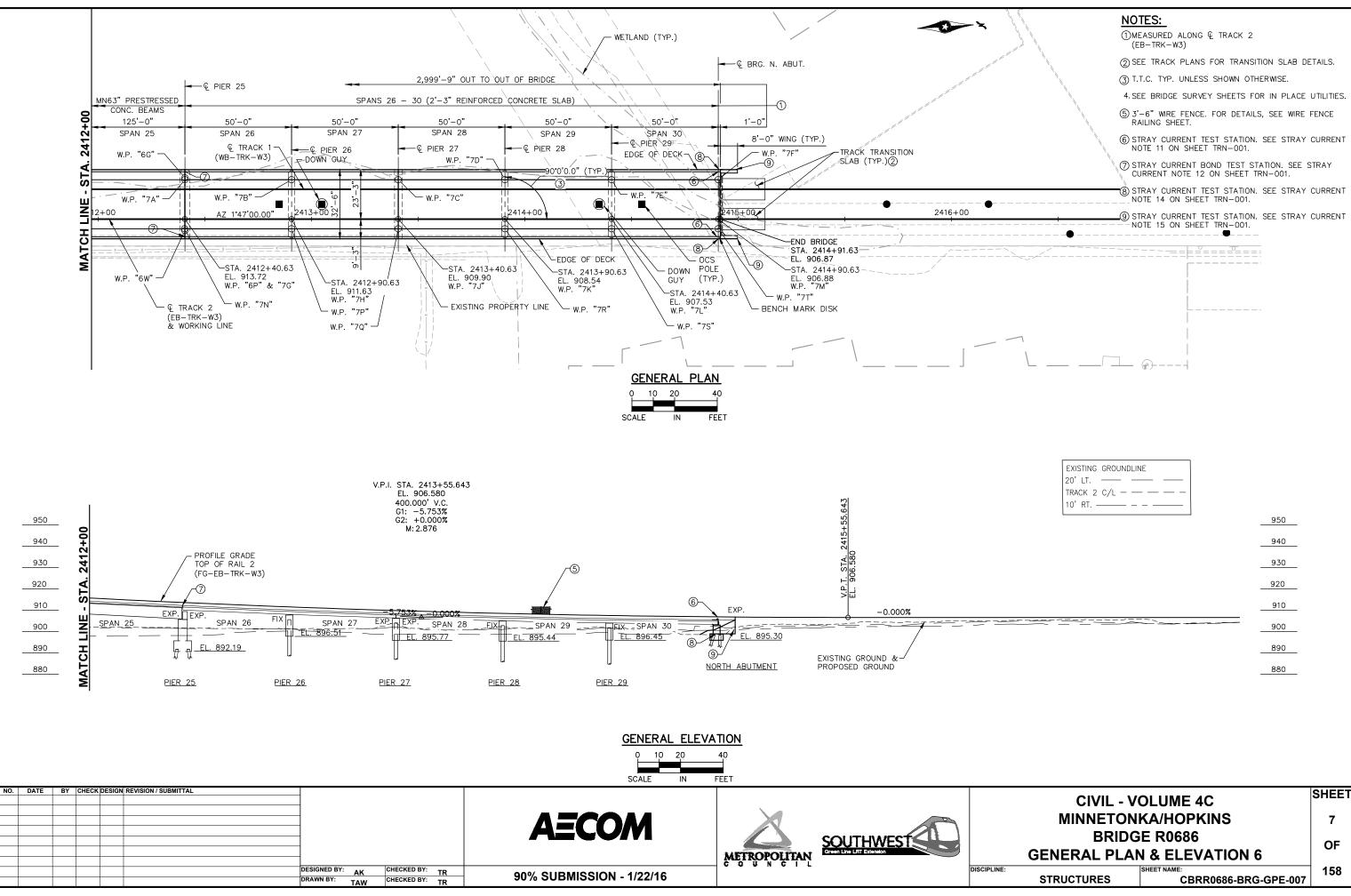


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EXISTING	GROUNDLINE
20'LT.	
TRACK 2	C/L
10'RT	

#### STRAY CURRENT CONTROL NOTES:

1. NON-STRESSED REINFORCING STEEL IN THE DECK, PLINTH BLOCKS AND BEAMS ABOVE THE INSULATED BEARING ASSEMBLIES SHALL BE MADE ELECTRICALLY CONTINUOUS. SEE SHEETS E0-SYS-CORR-DTL-001 AND 012.

2. BONDING CABLES SHALL BE INSTALLED ACROSS ALL EXPANSION/CONTRACTION TYPE JOINTS LOCATED IN THE DECK THAT DO NOT HAVE A STRAY CURRENT BOND TEST STATION INSTALLED ACROSS THEM. SEE DETAIL 2 ON SHEET E0-SYS-CORR-DTL-001 AND DETAIL 1 ON SHEET E0-SYS-CORR-DTL-012

3. ON BOTH SIDES OF EXPANSION JOINTS IN THE DECK AND AT THE ENDS OF THE STRUCTURE WELD ALL LONGITUDINAL BARS IN BOTH REBAR LAYERS TO ADDITIONAL END TRANSVERSE COLLECTOR BARS, WELD END TRANSVERSE COLLECTOR BARS TOGETHER IN EACH REBAR LAYER PER DETAILS ON SHEET E0-SYS-CORR-DTL-001 TO FORM AN ELECTRICALLY CONTINUOUS CAGE.

4. NO SPECIAL STRAY CURRENT CORROSION CONTROL MEASURES ARE REQUIRED FOR THE PIER CAPS AT PIERS 1 THROUGH 11 AND 26 THROUGH 29, OR FOR THE PIER CAPS AND COLUMNS AT PIERS 12 THROUGH 25.

THE CONCRETE/SOIL INTERFACE ALONG EACH STEEL SLEEVE FOR THE CIP PILES UNDER THE FOOTINGS FOR THE EAST AND WEST ABUTMENTS AND PIERS 12 THRU 25 AND UNDER THE PIER CAPS FOR PIERS 26 TO 29 SHALL BE COATED WITH A DIELECTRIC COATING OR HEAT SHRINK SLEEVE. THE COATING SHALL EXTEND INTO THE CONCRETE FOOTING/PIER CAP AT LEAST 6-INCHES AND EXTEND A MINIMUM OF 18-INCHES INTO THE SOIL ALONG THE EXTERNAL PILE SURFACE BELOW THE BOTTOM OF THE FOOTING.

BLACK REBAR IN ABUTMENT, ABUTMENT WINGWALLS AND ABUTMENT FOOTINGS SHALL BE MADE ELECTRICALLY CONTINUOUS. SEE DETAILS ON SHEET E0-SYS-CORR-DTL-001

ELECTRICAL CONTINUITY FOR BLACK REBAR AND THE CIP PILE SHELLS IN THE PIER CAPS AT PIERS 1 THROUGH 11 AND PIERS 26 THROUGH 29 IS NOT REQUIRED.

8. ELECTRICAL CONTINUITY FOR BLACK REBAR IN THE PIER COLUMNS AND OF BLACK REBAR AND THE CIP SHELLS IN THE FOOTINGS AT PIERS 12 THROUGH 25 NOT REQUIRED.

9. STEEL SHELLS OF CIP PILES IN THE NORTH AND SOUTH ABUTMENTS SHALL BE MADE ELECTRICALLY CONTINUOUS WITH WELDED REBAR IN FOOTINGS. SEE DETAILS ON DWG E0-SYS-CORR-DTL-008.

10. LONGITUDINAL REBAR IN TRANSITION SLAB SHALL BE MADE ELECTRICALLY CONTINUOUS WITHIN SLAB. END TRANSVERSE COLLECTOR BARS SHALL BE WELDED TO ALL LONGITUDINAL REBARS AT EACH END AND IN EACH REBAR LAYER OF THE TRANSITION SLAB. TOP AND BOTTOM REBAR LAYERS SHALL BE WELDED TOGETHER USING 1/2" X 2" STEEL TRAPS INSTALLED 2 PER TRACK AT EACH END OF TRANSITION SLAB. #1/0 AWG CABLES (2 PER TRACK) SHALL BE WELDED TO END TRANSVERSE COLLECTOR BAR NEAREST ABUTMENT AND WELDED TO WELDED BLACK BAR IN ABUTMENT. SEE DETAIL 3 ON SHEET E0-SYS-CORR-DTL-012.

11. INSTALL STRAY CURRENT BOND TEST STATION ALONG BRIDGE HOUSING TWO #1/0 AWG CABLES FROM WELDED REBAR IN TRACK SLAB, TWO #1/0 AWG CABLES FROM WELDED REBAR IN ABUTMENT, TWO #22 TEST WIRES FROM REFERENCE ELECTRODE THAT IS EMBEDDED IN THE TRACK SLAB AND 250 MCM CABLE FROM STRAY CURRENT GROUND ROD ARRAY. SUFFICIENT SLACK SHALL BE AVAILABLE IN THE CABLES THAT SPAN THE EXPANSION JOINT TO ACCOUNT FOR MOVEMENT OF THE JOINT. SEE DETAIL 1 ON SHEET E0-SYS-CORR-DTL-002, DETAIL 2 ON SHEET E0-SYS-CORR-DTL-003, DETAIL 3 ON SHEET E0-SYS-CORR-DTL-012 AND DETAIL 3 ON SHEET EO-SYS-CORR-DTL-013. SEE NOTE 16.

12. INSTALL STRAY CURRENT BOND TEST STATION ALONG BRIDGE HOUSING TWO #1/0 AWG CABLES FROM WELDED REBAR ON EACH SIDE OF EXPANSION JOINT IN TRACK SLAB AND TWO PAIRS OF #22 TEST WIRES FROM REFERENCE CELL EMBEDDED IN TRACK SLAB ON EACH SIDE OF JOINT. SEE DETAIL 1 ON SHEET E0-SYS-CORR-DTL-002, DETAIL 3 ON SHEET E0-SYS-CORR-DTL-003 AND DETAIL 1 ON SHEET E0-SYS-CORR-DTL-012. SEE NOTE 16. SUFFICIENT SLACK SHALL BE AVAILABLE IN THE CABLES THAT SPAN THE EXPANSION JOINT TO ACCOUNT FOR MOVEMENT OF THE JOINT.

13. INSTALL STRAY CURRENT INTERMEDIATE TEST STATION ALONG BRIDGE HOUSING TWO #1/O AWG CABLES FROM WELDED REBAR IN TRACK SLAB. SEE DETAIL 4 ON SHEET E0-SYS-CORR-DTL-003 AND DETAIL 2 ON SHEET E0-SYS-CORR-012. SEE NOTE 16.

14. INSTALL STRAY CURRENT TEST STATION ON THE EAST AND WEST SIDES OF EACH ABUTMENT HOUSING TWO #1/O AWG CABLES FROM ELECTRICALLY CONTINUOUS REBAR AND CORNER PILES IN FOOTING AND ONE #14 AWG HMWPE CABLE FROM COPPER/COPPER SULFATE REFERENCE CELL. SEE DETAIL 4 ON SHEET E0-SYS-CORR-DTL-003 AND DETAIL 2 ON SHEET E0SYS-CORR-DTL-013. SEE NOTE 16. REFERENCE CELL SHALL BE INSTALLED IN SOIL WITHIN 1-FOOT OF PILE AND 1-FOOT BELOW BOTTOM OF FOOTINGS.

15. INSTALL STRAY CURRENT TEST STATIONS AT ENDS OF ABUTMENT WINGWALLS HOUSING TWO #1/O AWG CABLES FROM ELECTRICALLY CONTINUOUS REBAR IN WINGWALL FOOTING AND TWO #22 TEST WIRES FROM SILVER CHLORIDE REFERENCE ELECTRODE EMBEDDED IN FOOTING. SEE DETAIL 1 ON SHEET EO-SYS-CORR-DTL-002, DETAIL 4 ON SHEET EO-SYS-CORR-DTL-003 AND DETAIL 2 ON SHEET E0-SYS-CORR-DTL-013. SEE NOTE 16. REFERENCE CELL SHALL BE INSTALLED IN SOIL WITHIN 1-FOOT OF PILE AND 1-FOOT BELOW BOTTOM OF FOOTINGS.

16. ALL STRAY CURRENT TEST STATIONS SHALL BE INSTALLED AT LOCATIONS WHERE THEY WILL BE ACCESSIBLE AFTER COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND DURING REVENUE OPERATIONS OF THE LRT SYSTEM

17. INSTALL STRAY CURRENT GROUND ROD ARRAY NEAR BASE OF ABUTMENT. GROUND ROD ARRAY SHOULD EXHIBIT A MAXIMUM RESISTANCE TO EARTH OF 25 OHMS. USE 250 MCM THWN CABLE TO INTERCONNECT GROUND RODS AND AS GROUND CABLE TO STRAY CURRENT COLLECTION MAT TEST STATIONS AT END OF BRIDGE STRUCTURE. 250 MCM CABLE SHALL RUN INSIDE 2" SCH 80 PVC CONDUIT THAT IS EMBEDDED WITHIN ABUTMENT SEE DETAILS 3 AND 4 ON SHEET E0-SYS-CORR-DTI-013

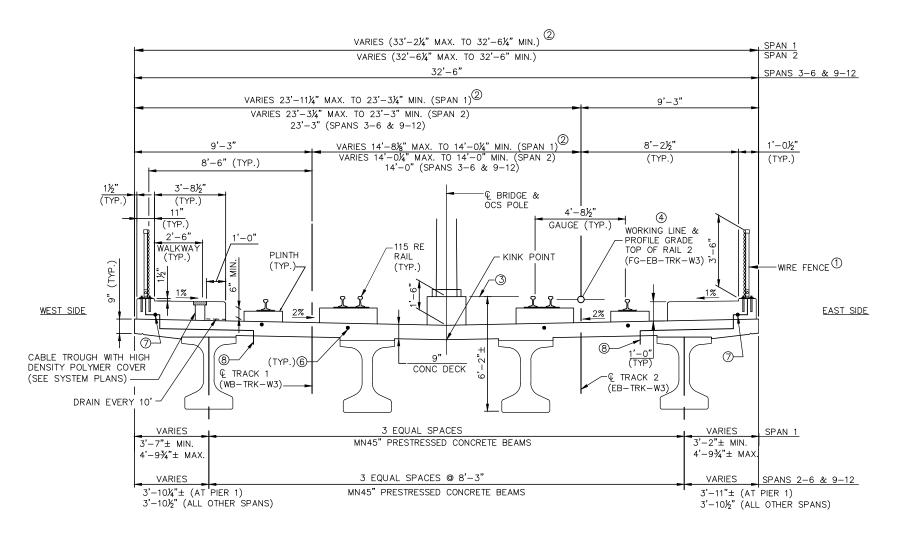
18. THE BEARINGS AT ALL PIERS SHALL PROVIDE ELECTRICAL ISOLATION OF THE STEEL ELEMENTS IN THE DECK FROM STEEL FLEMENTS IN THE PIER CAPS

	SCHEDULE OF QUANTITIES		
SPEC. SECT	ION	UNIT	QUANTITY
	CONSTRUCT BRIDGE R0686	LUMP SUM	1
	COMPONENT ITEM SUMMARY (BRIDG	E R0686)	
PEC. SECTIO	N (3) COMPONENT ITEM	UNIT (2)	QUANTITY (2)
2401	STRUCTURAL CONCRETE (3B52)	CU YD	1,248
2401	STRUCTURAL CONCRETE (1G52)	CU YD	962
2401	SIDEWALK CONCRETE (3S52)	SQ FT	25,724
2401	REINFORCEMENT BARS	POUND	1,283,240
2401	BRIDGE SLAB/DECK CONCRETE (3YHPC-M)	CU YD	3,730
2402	ELASTOMERIC BEARING PAD	EACH	54
2402	EXPANSION JOINT DEVICES TYPE 4	LIN FT	400
2402	EXPANSION JOINT DEVICES TYPE 5	LIN FT	31
2402	BEARING ASSEMBLY	EACH	184
2405	PRESTRESSED CONCRETE BEAMS MN45	LIN FT	3,998
2405	PRESTRESSED CONCRETE BEAMS MN63	LIN FT	5,995
2405	PRESTRESSED CONCRETE BEAMS 82MW	LIN FT	583
2405	DIAPHRAGMS FOR TYPE MN45 PREST BEAMS	LIN FT	743
2405	DIAPHRAGMS FOR TYPE MN63 PREST BEAMS	LIN FT	916
2405	DIAPHRAGMS FOR TYPE 82 MW PREST BEAMS	LIN FT	99
2411	ARCH SURFACE FINISH	SQ FT	99,050
2411	ARCH CONCRETE TEXTURE	SQ FT	8,020
2452	C-I-P CONCRETE PILING DELIVERED 16"	LIN FT	21,510
2452	C-I-P CONCRETE PILING DELIVERED 18"	LIN FT	1,350
2452	C-I-P CONCRETE PILING DRIVEN 16"	LIN FT	21,510
2452	C-I-P CONCRETE PILING DRIVEN 18"	LIN FT	1,350
2452	C-I-P CONCRETE TEST PILE 45 FT LONG 16"	EACH	4
2452	C-I-P CONCRETE TEST PILE 50 FT LONG 16"	EACH	3
2452	C-I-P CONCRETE TEST PILE 60 FT LONG 16"	EACH	1
2452	C-I-P CONCRETE TEST PILE 65 FT LONG 16"	EACH	3
2452	C-I-P CONCRETE TEST PILE 70 FT LONG 16"	EACH	3
2452	C-I-P CONCRETE TEST PILE 75 FT LONG 16"	EACH	6
2452	C-I-P CONCRETE TEST PILE 80 FT LONG 16"	EACH	2
2452	C-I-P CONCRETE TEST PILE 85 FT LONG 16"	EACH	4
2452	C-I-P CONCRETE TEST PILE 90 FT LONG 16"	EACH	1
2452	C-I-P CONCRETE TEST PILE 100 FT LONG 16"	EACH	2
2452	C-I-P CONCRETE TEST PILE 85 FT LONG 18"	EACH	2
2452	PILE ANALYSIS	EACH	31
2481	DAMPPROOFING	SQ FT	550
2557	WIRE FENCE (DESIGN W-1)	LIN FT	6,043

	SCHEDULE OF QUANTITIES		
SPEC. SECTION	ITEM	UNIT	QUANTITY
	CONSTRUCT BRIDGE R0686	LUMP SUM	1
(	COMPONENT ITEM SUMMARY (BRIDGE	R0686)	
SPEC. SECTION (3	) COMPONENT ITEM	UNIT (2)	QUANTITY (2)
2401	STRUCTURAL CONCRETE (3B52)	CU YD	1,248
2401	STRUCTURAL CONCRETE (1G52)	CU YD	962
2401	SIDEWALK CONCRETE (3S52)	SQ FT	25,724
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2402	ELASTOMERIC BEARING PAD	EACH	54
2402	EXPANSION JOINT DEVICES TYPE 4	LIN FT	400
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2452	C-I-P CONCRETE PILING DRIVEN 16"	LIN FT	21,510
2452	C-I-P CONCRETE PILING DRIVEN 18"	LIN FT	1,350
2452	C-I-P CONCRETE TEST PILE 45 FT LONG 16"	EACH	4
2452	C-I-P CONCRETE TEST PILE 50 FT LONG 16"	EACH	3
2452	C-I-P CONCRETE TEST PILE 60 FT LONG 16"	EACH	1
2452	C-I-P CONCRETE TEST PILE 65 FT LONG 16"	EACH	3
2452	C-I-P CONCRETE TEST PILE 70 FT LONG 16"	EACH	3
2452	C-I-P CONCRETE TEST PILE 75 FT LONG 16"	EACH	6
2452	C-I-P CONCRETE TEST PILE 80 FT LONG 16"	EACH	2
2452	C-I-P CONCRETE TEST PILE 85 FT LONG 16"	EACH	4
2452	C-I-P CONCRETE TEST PILE 90 FT LONG 16"	EACH	1
2452	C-I-P CONCRETE TEST PILE 100 FT LONG 16"	EACH	2
2452	C-I-P CONCRETE TEST PILE 85 FT LONG 18"	EACH	2
2452	PILE ANALYSIS	EACH	31
2481	DAMPPROOFING	SQ FT	550
2557	WIRE FENCE (DESIGN W-1)	LIN FT	6,043

- (1) A BENCHMARK IS REQUIRED, LOCATED AT THE SOUTHEAST CORNER OF THE BRIDGE. STATE WILL FURNISH DISK. BEND PRONGS OUTWARD TO ANCHOR DISK TO CONCRETE. BOTTOM OF DISK TOP TO BE PLACED FLUSH WITH CONCRETE.
- (2) QUANTITIES LISTED FOR THE COMPONENT ITEMS OF THE LUMP SUM BR 27W32 ITEM ARE FOR INFORMATION PURPOSES. ANY ADDITIONAL ITEMS OR CHANGES IN QUANTITIES REQUIRED SHALL BE PROVIDED BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION.
- (3) MEASUREMENT AND PAYMENT FOR COMPONENT ITEMS SHALL BE PART OF THE LUMP SUM PAYMENT FOR BR 27W32. REFER TO MNDOT STANDARD SPECIFICATION OR SPECIAL PROVISION FOR TECHNICAL SPECIFICATION REQUIREMENTS FOR ALL PROVISION OTHER THAN MEASUREMENT AND PAYMENT REQUIREMENTS.

NO.	DATE	BY CHECK	DESIGN REVISION / SUBMITTAL				CIVIL - V	OLUME 4C	SHEET
								KA/HOPKINS	8
					AECOM			E R0686	
						METROPOLITAN		ES & NOTES	OF
				DESIGNED BY: AK CHECKED BY: TR	90% SUBMISSION - 1/22/16			SHEET NAME:	158
				DRAWN BY: TAW CHECKED BY: TR	90% SUBINISSION - 1/22/16		STRUCTURES	CBRR0686-BRG-TRN-001	



#### TRANSVERSE SECTION - SPANS 1-6 & 9-12

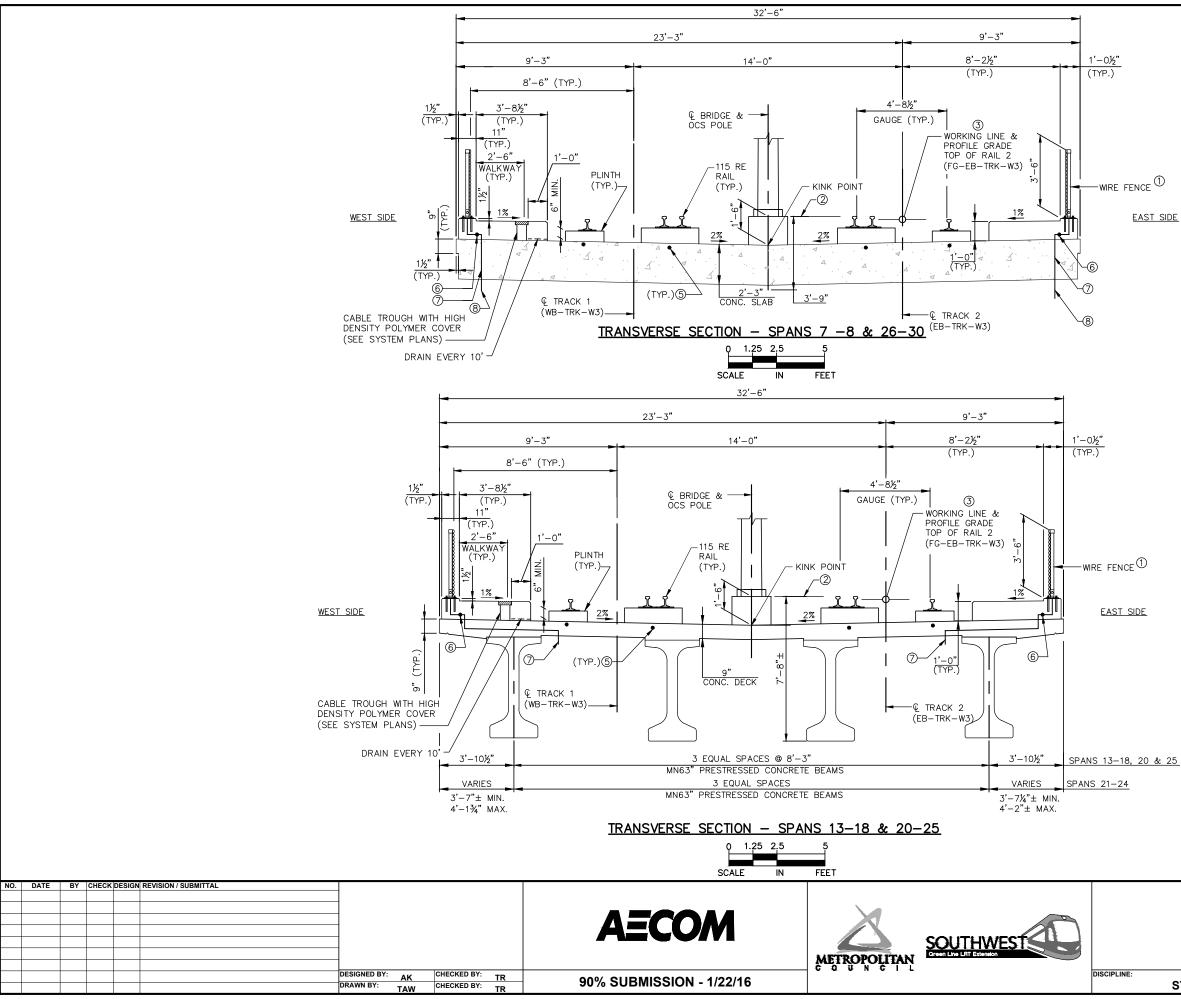
0 1.	25 2.5	5
SCALE	IN	FEET

NO. DA	TEB	BY CHE	ECK DESIGN REVISION / SUBMITTAL		AECOM	
				DESIGNED BY: AK CHECKED BY: TR DRAWN BY: TAW CHECKED BY: TR	90% SUBMISSION - 1/22/16	DISCIPLIN

### NOTES:

- 1 WIRE FENCE PER MNDOT FIG. 5-397.119 (MOD) WIRE FENCE.
- ② MAXIMUM DISTANCE IS TAKEN AT € OF BEARING AT SOUTH ABUTMENT. (SPAN 1)
- (3) 1'-6" MEASURED TO TOP OF LOW RAIL.
- (4) PROFILE GRADE LINE TRANSITIONS TO LOW RAIL IN SUPERELEVATED CURVES.
- 5. FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.
- 6 STRAY CURRENT COLLECTOR CABLE. SEE SYSTEM PLANS.
- (7) GROUND WIRE, SEE GROUNDING PLANS.
- (8) GROUND WIRE PLACED INSIDE  $1 \mspace{-1.5mu} 2^{\prime\prime}$  PVC CONDUIT WITHIN THE DECK AT PIERS. SEE GROUNDING PLANS.

CIVIL - VOLUME 4C			SHEET
MINNETONKA/HOPKINS			9
BRIDGE R0686			OF
TRANSVERSE SECTION 1			
	JRES SHEET NAME:	BRR0686-BRG-TRN-002	158



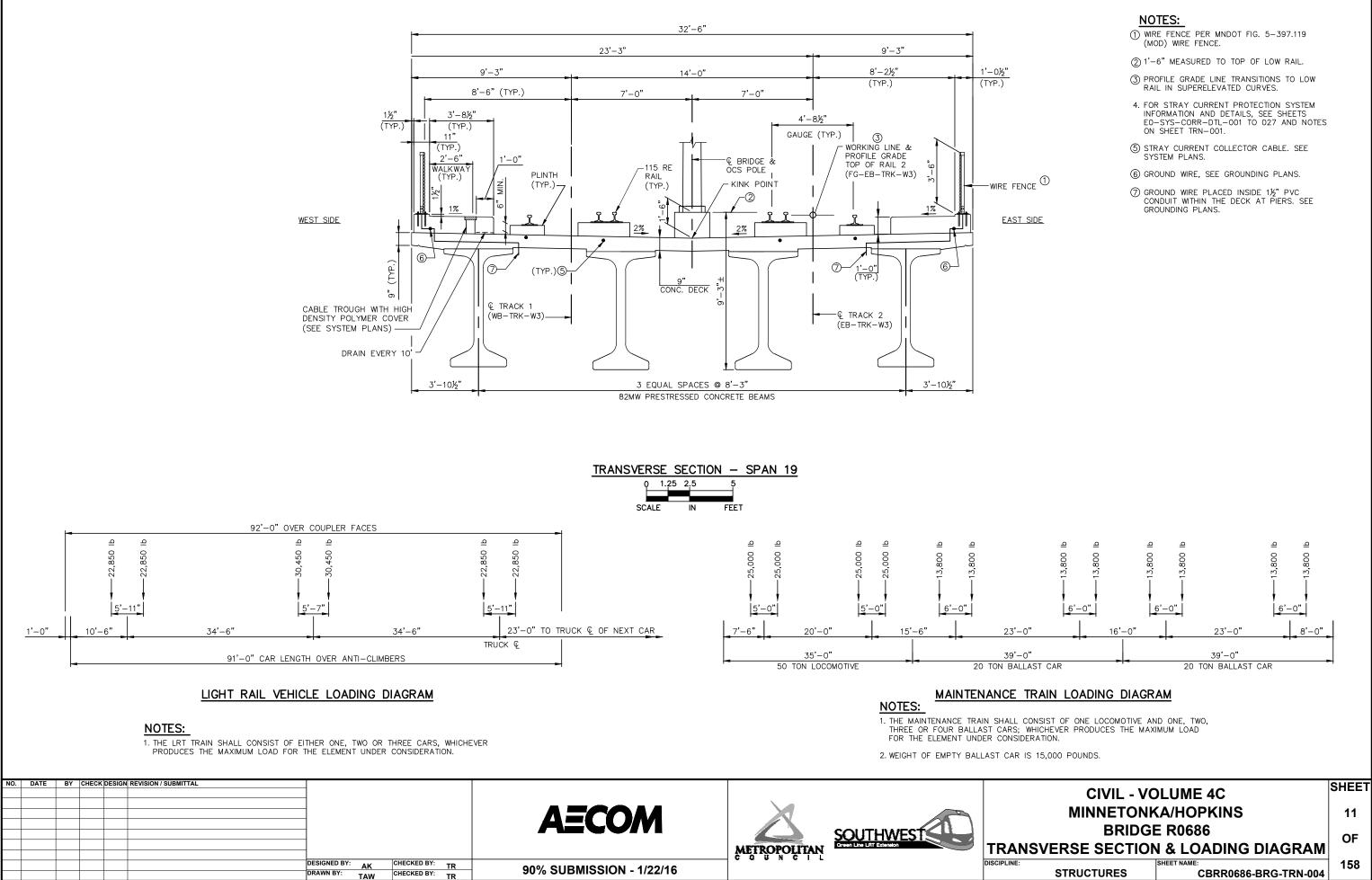
EAST SIDE

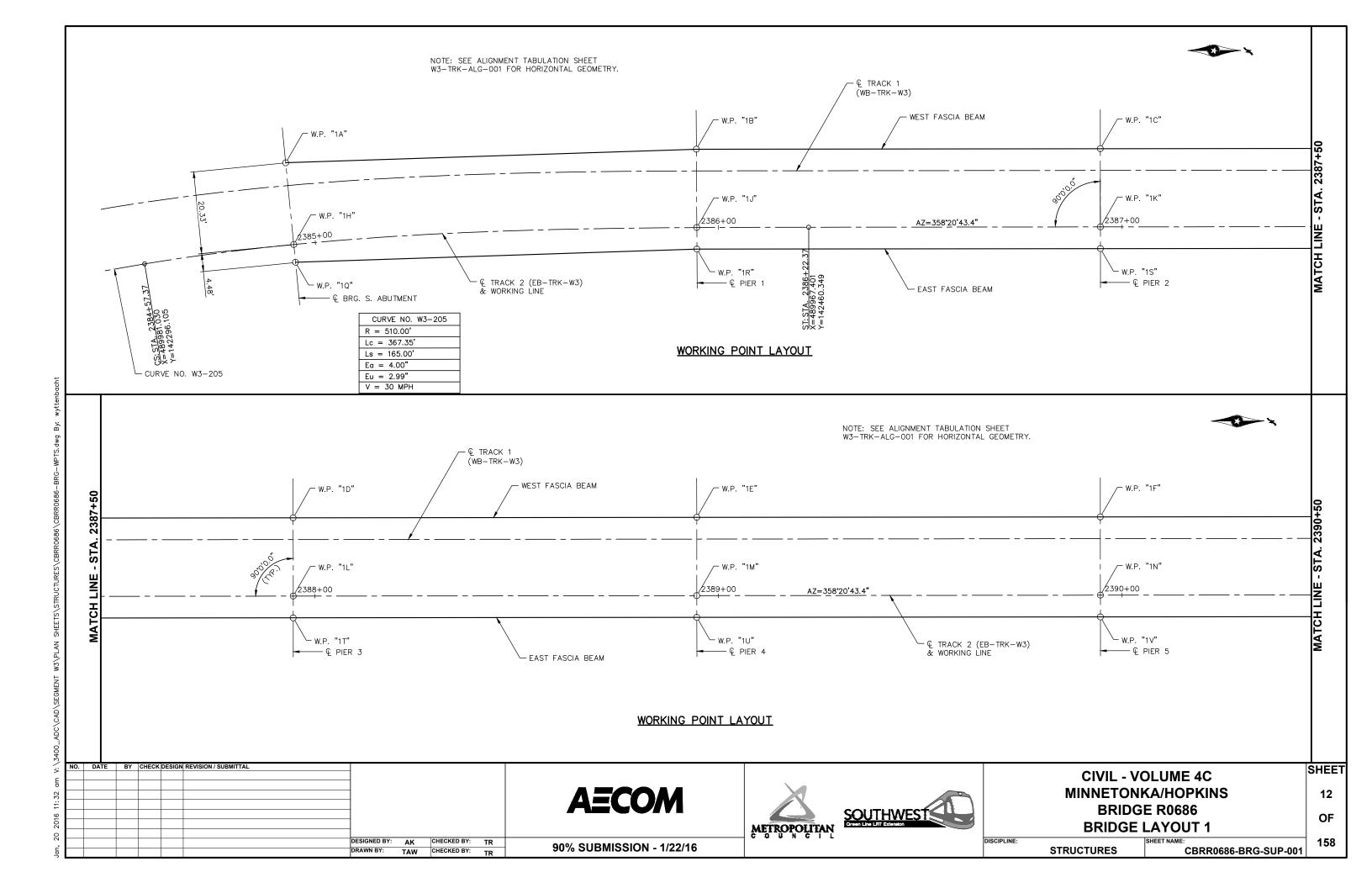
#### NOTES:

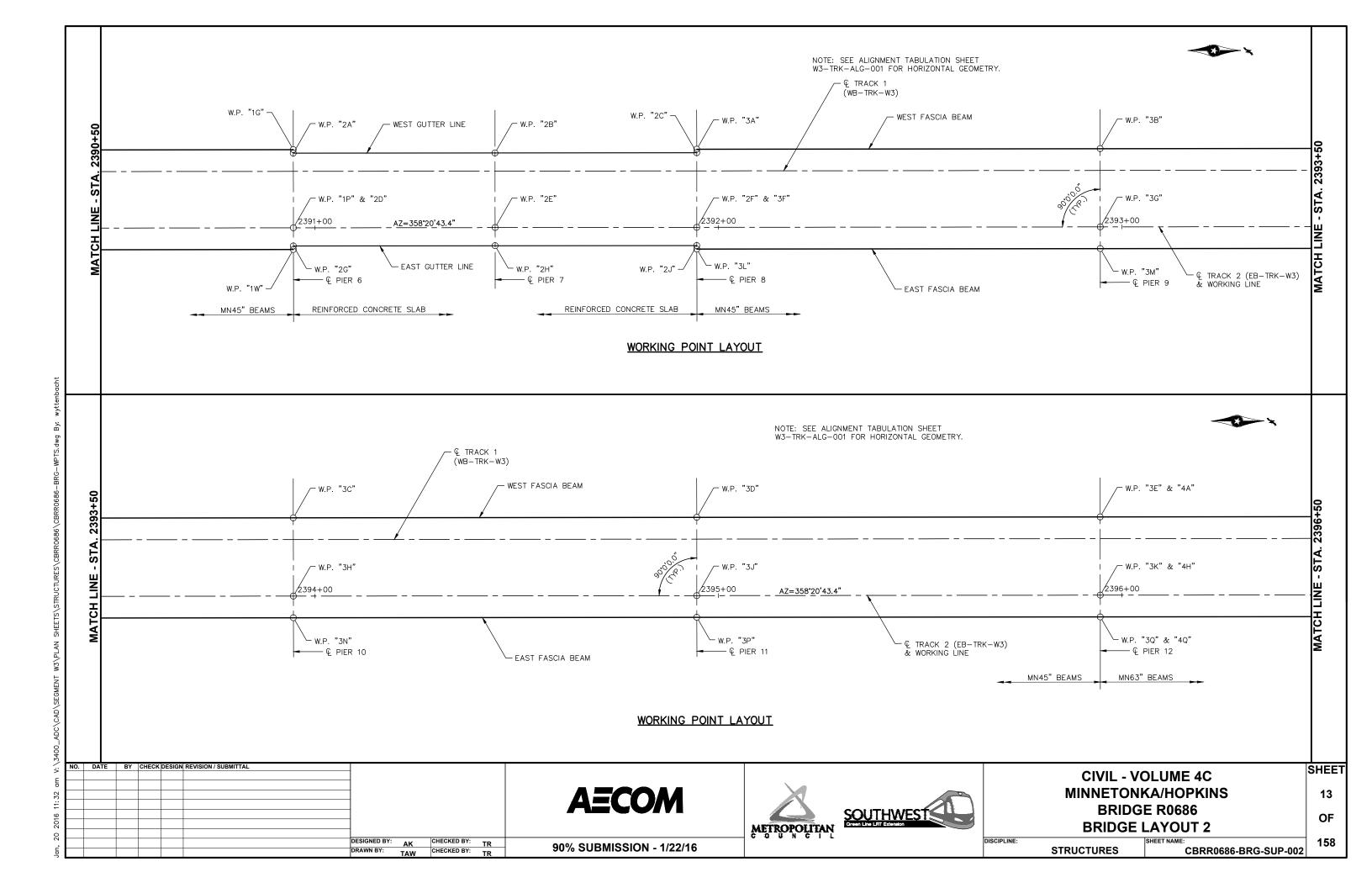
- 1) WIRE FENCE PER MNDOT FIG. 5-397.119 (MOD) WIRE FENCE.
- (2) 1'-6" MEASURED TO TOP OF LOW RAIL.
- ③ PROFILE GRADE LINE TRANSITIONS TO LOW RAIL IN SUPERELEVATED CURVES.
- 4. FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.
- (5) STRAY CURRENT COLLECTOR CABLE. SEE SYSTEM PLANS.
- 6 GROUND WIRE, SEE GROUNDING PLANS.
- ⑦ GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE DECK AT PIERS. SEE GROUNDING PLANS.
- (8) CONNECT TO GROUND WIRE IN PIERS.

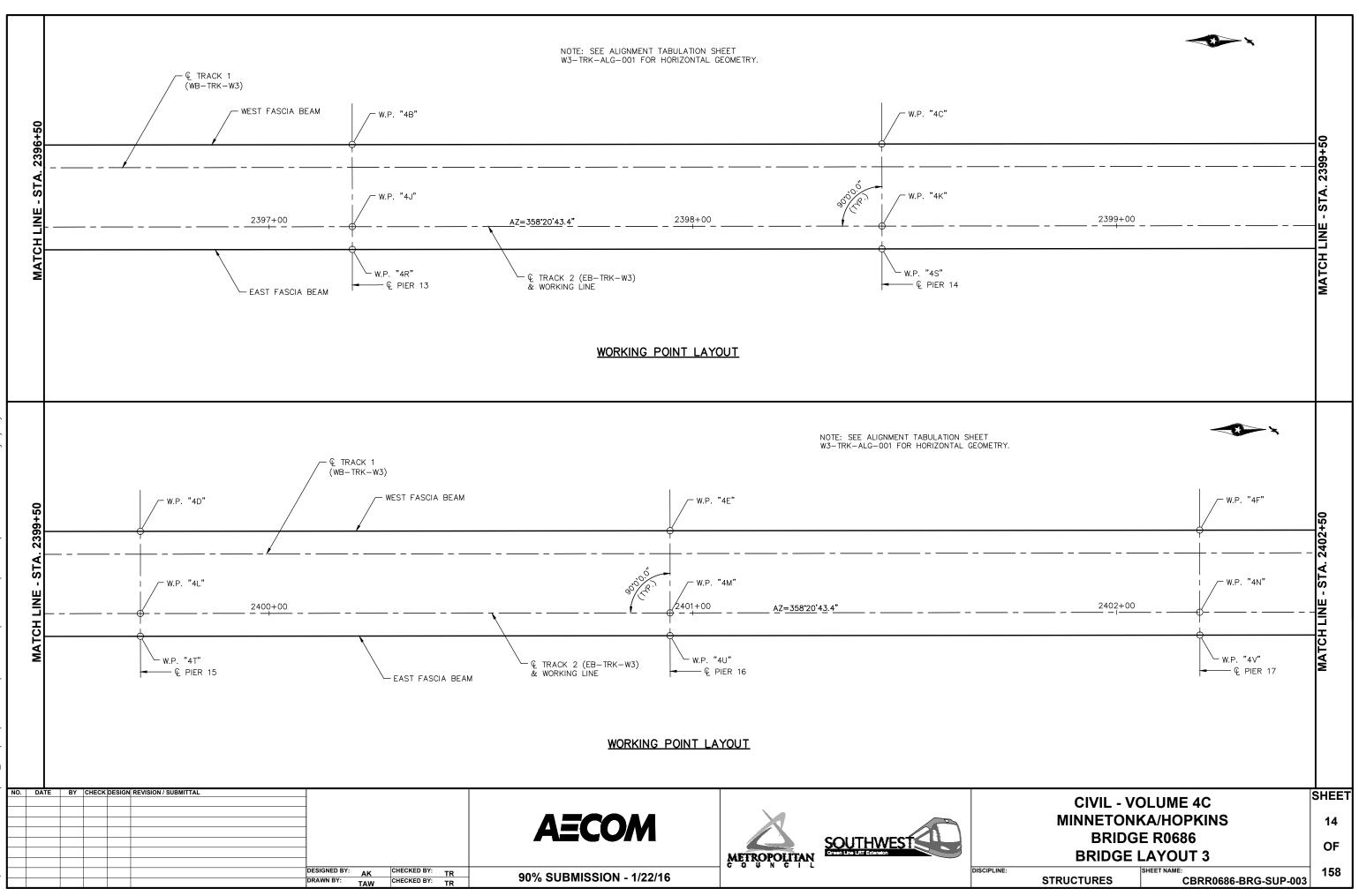
	CIVIL - V	OLUME 4C	
	MINNETON	KA/HOPKINS	10
		E R0686 SE SECTION 2	OF
NE:		SHEET NAME: CBRR0686-BRG-TRN-003	158

QUEET

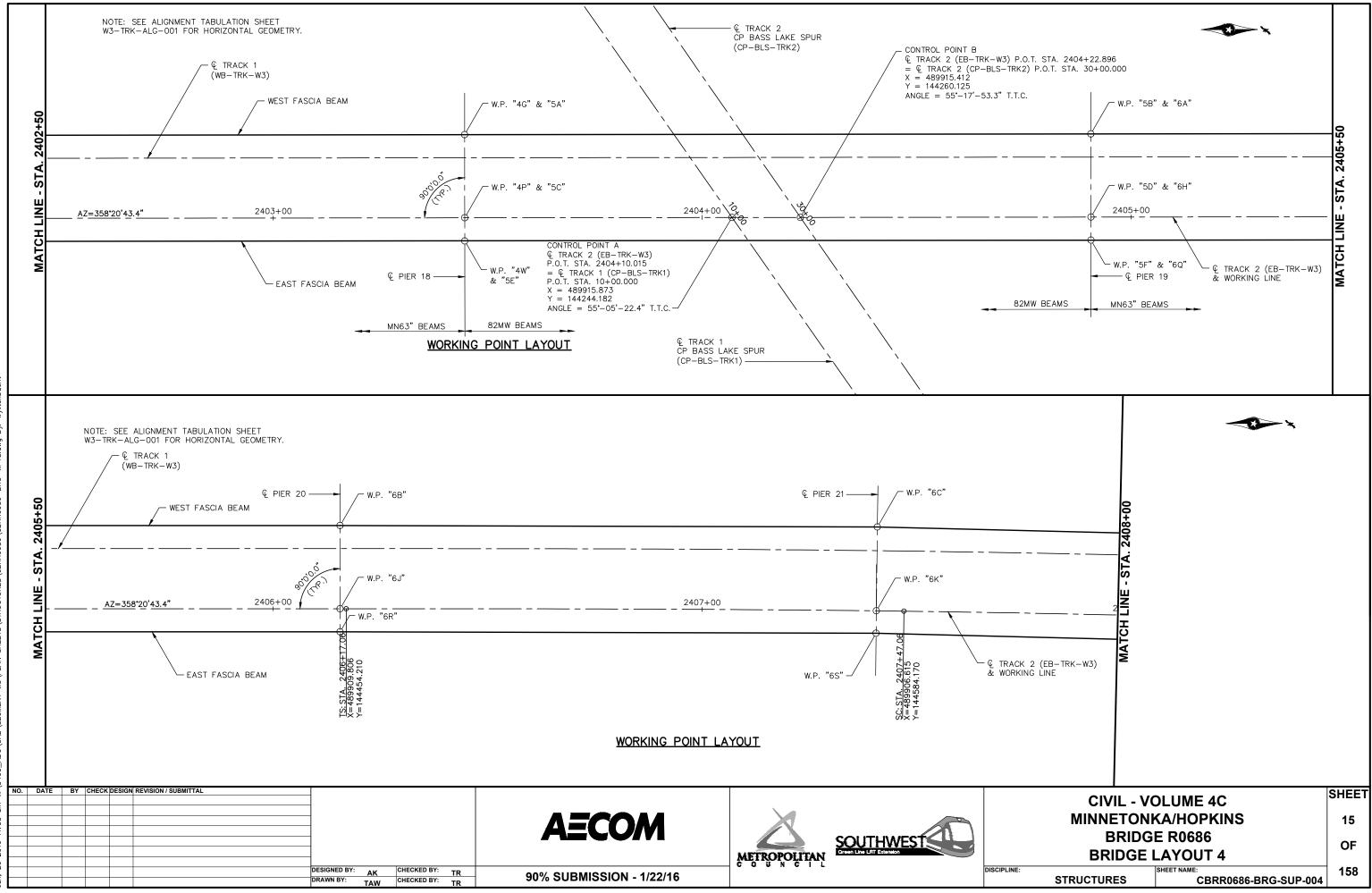


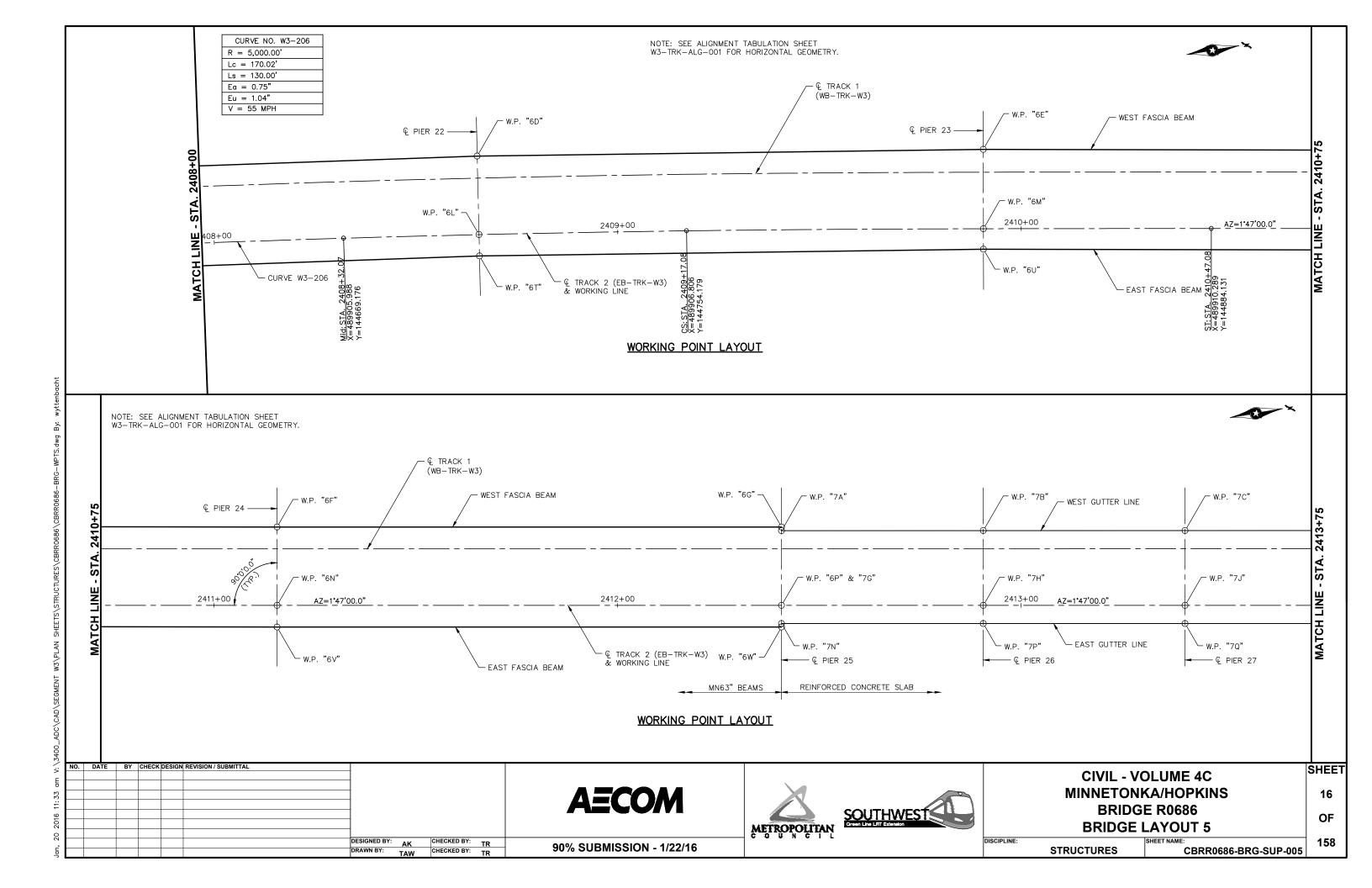


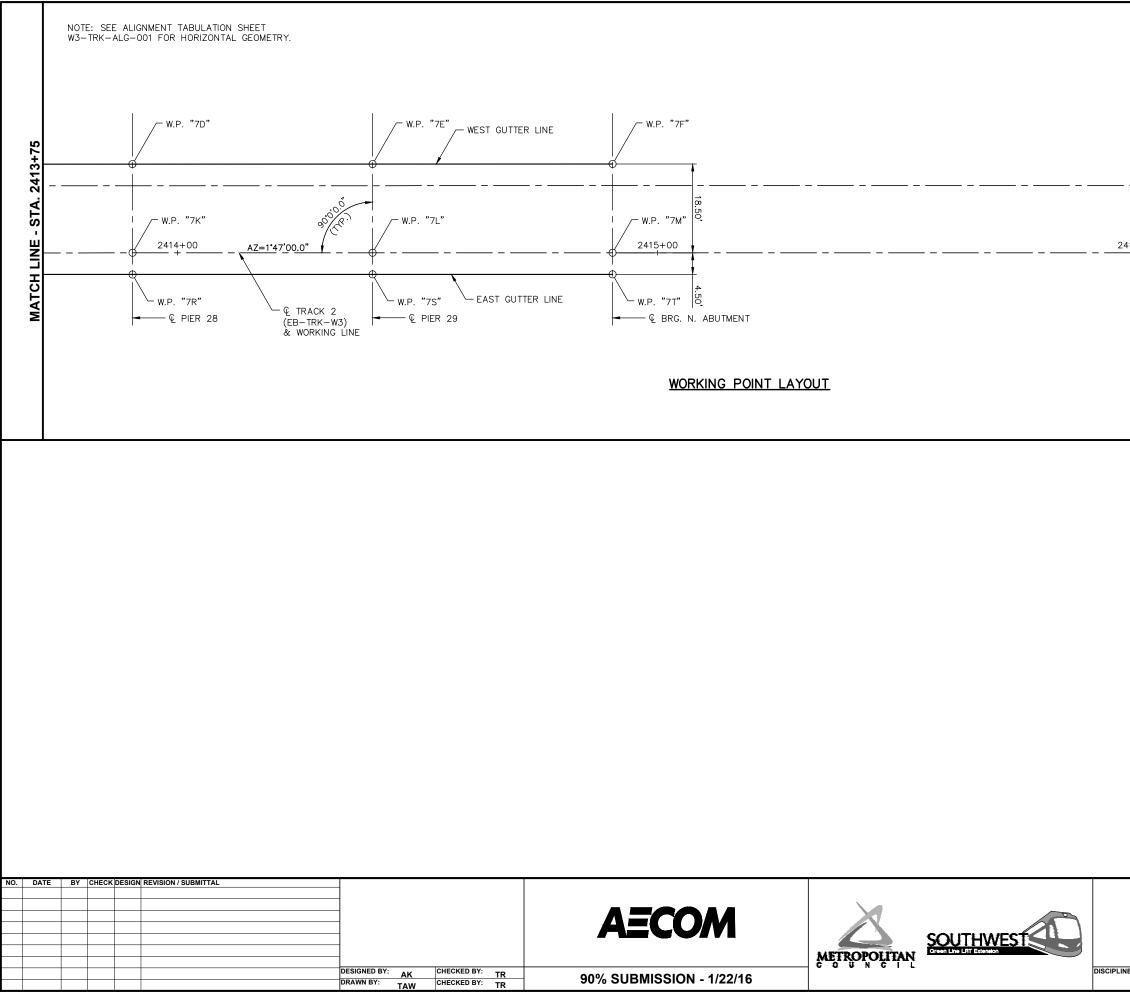




2016 11:32 mm V:\3400 ADC\CAD\SEGMENT W3\PLAN SHEETS\STBUCTURES\CBBRP0686\CBBRP0686-BBG-WPTS.dwg Bv: wviter







X X	
	-
2416+00	
CIVIL - VOLUME 4C	SHEET
MINNETONKA/HOPKINS	17
BRIDGE R0686 BRIDGE LAYOUT 6	OF
LINE: STRUCTURES STRUCTURES CBRR0686-BRG-SUP-006	158

							[	DIMENS	SIONS	BETW	EEN W	ORKIN	IG POII	NTS (	FT.)										E	ELEVATION	IS	1
										, I			1												TOP OF	TOP OF DECH	< BRIDGE	
POINT	STATION	X-COORDINATE		1A	1B	1C	1D	1E	1F	1G	1H	1J	1K	1L	1M	1N	1P	1Q	1R	1S	1T	1U	1V	1 W	DECK	TO BR. SEAT		POINT
1A	2384+94.63	489955.017	142330.350		101.81						20.35	103.13	202.50						104.12	203.00					901.45	5.23'	896.22	1A
1B	2385+94.63	489948.838	142431.975			100.09					102.52	19.42	101.95	201.03				103.21		103.11	201.62				902.36	5.06'	897.29	1B
1C	2386+94.63	489945.948	142532.026				100.00				201.26	101.87	19.38	101.86	200.94			201.40	103.00		103.02	201.53			903.27	5.23'	898.04	1C
1D	2387+94.63	489943.060	142631.984					100.00				200.94	101.86	19.38	101.86	200.94			201.50	103.02		103.02			904.19	5.06'	899.12	1D
1E	2388+94.63	489940.173	142731.942						100.00				200.94	101.86	19.38	101.86	200.94			201.52	103.02		103.02	201.53	905.10	5.23'	899.87	1E
1F	2389+94.63	489937.285	142831.901							100.00			' <b>ـــــ</b> '	200.94	101.86	19.38	101.86				201.53	103.02		103.02	906.02	5.06'	900.95	1F
1G	2390+94.63	489934.398	142931.859										<b>ا</b> ــــــــــــــــــــــــــــــــــــ		200.94	101.86	19.38					201.53	103.02		906.93	5.23'	901.70	1G
1H	2384+94.63	489975.209	142332.904									99.96	' <b>ـــــ</b> '					4.44	99.91	199.89					901.34			1H
1J	2385+94.63	489968.245	142432.624										100.00					99.81	5.33	100.15	200.07				902.25			1J
1K	2386+94.63	489965.315	142532.585										' ــــــــــــــــــــــــــــــــــــ	100.00				199.64	100.12	5.37		200.07			903.16			1K
1L	2387+94.63	489962.427	142632.544										' <b>ـــــ</b> '		100.00				200.05	100.14	5.38	100.14	200.07		904.08		!	1L
1M	2388+94.63	489959.540	142732.502										<b>ا</b> ــــــــــــــــــــــــــــــــــــ			100.00				200.07	100.14	5.38	100.14	200.07	904.99			1M
1N	2389+94.63	489956.652	142832.460										<b>ٰ</b>				100.00				200.07	100.14	5.38	100.14	905.91		'	1N
1P	2390+94.63	489953.765	142932.419										<b>ٰ</b>									200.07	100.15	5.38	906.83		!	1P
1Q	2384+94.63	489979.615	142333.461										└─── <sup> </sup>						99.53						901.43	5.23'	896.20	1Q
1R	2385+94.63	489973.574	142432.803										<u>ا</u>							99.98					902.36	5.06'	897.29	1R
1S	2386+94.63	489970.687	142532.741										└─── <sup>′</sup>								100.00				903.27	5.23'	898.04	1S
1T	2387+94.63	489967.800	142632.699										<b>ا</b>									100.00			904.19	5.06'	899.12	1T
1U	2388+94.63	489964.913	142732.657										<b>ٰ</b>										100.00		905.10	5.23'	899.87	10
1V	2389+94.63	489962.025	142832.615										ا'											100.00	906.02	5.06'	900.95	1V
1 W	2390+94.63	489959.138	142932.574										L'												906.93	5.23'	901.70	1 W

		D	IMENSIONS	BETW	EEN W	ORKIN	G POI	NTS (	FT.)				E	ELEVATI	ONS	S	1
													TOP OF	TOP OF [	DECK	BRIDGE	
POINT	STATION	X-COORDINATE	Y-COORDINATE	2A	2B	2C	2D	2E	2F	2G	2H	2J	DECK	TO BR. S	EAT	SEAT	POINT
2A	2390+94.63	489935.273	142931.884		50.00		18.50	53.31	101.70		55.04	102.61	906.92				2A
2B	2391+44.63	489933.829	142981.864			50.00	53.31	18.50	53.31	55.04		55.04	907.37				2B
2C	2391+94.63	489932.385	143031.843				101.70	53.31	18.50	102.61	55.04		908.01				2C
2D	2390+94.63	489953.765	142932.419					50.00		4.50	50.20	100.10	906.83				2D
2E	2391+44.63	489952.321	142982.398						50.00	50.20	4.50	50.20	907.28				2E
2F	2391+94.63	489950.878	143032.377							100.10	50.20	4.50	907.92				2F
2G	2390+94.63	489958.263	142932.548								50.00		906.92				2G
2H	2391+44.63	489956.819	142982.528									50.00	907.37				2H
2J	2391+94.63	489955.376	143032.507										908.01				2J

				[	DIMENS	SIONS	BETWE	een w	ORKIN	G POI	NTS (	FT.)							E	LEVATION	S	]
																			TOP OF	TOP OF DECK	BRIDGE	
POINT	STATION	X-COORDINATE	Y-COORDINATE	3A	3B	3C	3D	3E	3F	3G	ЗH	3J	3K	3L	3M	3N	3P	3Q	DECK	TO BR. SEAT	SEAT	POINT
3A	2391+94.63	489931.511	143031.817		100.00				19.38	101.86	200.94				103.02	201.53			908.03	5.35'	902.68	3A
3B	2392+94.63	489928.623	143131.776			100.00			101.86	19.38	101.86	200.94		103.02		103.02	201.53		910.35	5.19'	905.16	3B
3C	2393+94.63	489925.736	143231.734				100.00		200.94	101.86	19.38	101.86	200.94	201.53	103.02		103.02	201.53	914.05	5.35'	908.70	3C
3D	2394+94.63	489922.848	143331.692					100.00		200.94	101.86	19.38	101.86		201.53	103.02		103.02	919.14	5.19'	913.95	3D
3E	2395+94.63	489919.961	143431.651								200.94	101.86	19.38			201.53	103.02		924.89	5.13'	919.76	3E
3F	2391+94.63	489950.878	143032.377							100.00				5.38	100.14	200.07			907.92			3F
3G	2392+94.63	489947.990	143132.335								100.00			100.14	5.38	100.14	200.07		910.24		1	3G
3H	2393+94.63	489945.103	143232.294									100.00		200.07	100.14	5.38	100.14	200.07	913.94			3H
3J	2394+94.63	489942.215	143332.252										100.00		200.07	100.14	5.38	100.14	919.03			3J
3K	2395+94.63	489939.328	143432.210													200.07	100.14	5.38	924.78			3K
3L	2391+94.63	489956.250	143032.532												100.00				908.03	5.35'	902.68	3L
3M	2392+94.63	489953.363	143132.490													100.00			910.35	5.19'	905.16	3M
3N	2393+94.63	489950.476	143232.449														100.00		914.05	5.35'	908.70	3N
3P	2394+94.63	489947.588	143332.407															100.00	919.14	5.19'	913.95	3P
3Q	2395+94.63	489944.701	143432.365																924.89	5.13'	919.76	3Q

NO	D. D	DATE	BY CHECK	DESIGN	REVISION / SUBMITTAL	-				AECOM	METROPOLITAN	SOUTHWEST Green Live Litt Extension	
E						DESIGNED BY: DRAWN BY:	AK TAW	CHECKED BY: CHECKED BY:	11	90% SUBMISSION - 1/22/16	COUNCIL		DISCII

CIVIL - VO	DLUME 4C	SHEET
MINNETON	(A/HOPKINS	18
-	E R0686	OF
BRIDGE I	_AYOUT 7	
	SHEET NAME: CBRR0686-BRG-SUP-007	158

							[	DIMEN	SIONS	BETW	EEN W	ORKIN	G POI	NTS (	FT.)										E	ELEVATION	S	]
																									TOP OF	TOP OF DECK	BRIDGE	
POINT	STATION	X-COORDINATE	Y-COORDINATE	4A	4B	4C	4D	4E	4F	4G	4H	4J	4K	4L	4M	4N	4P	4Q	4R	4S	4T	4U	4V	4W	DECK	TO BR. SEAT	SEAT	POINT
4A	2395+94.63	489919.961	143431.651		125.00	1					19.38	126.49	250.75						127.43	251.22					924.89	6.63'	918.26	4A
4B	2397+19.63	489916.352	143556.599			125.00	1				126.49	19.38	126.49	250.75				127.43		127.43	251.22				931.54	6.46'	925.08	4B
4C	2398+44.63	489912.742	143681.546				125.00				250.75	126.49	19.38	126.49	250.75			251.22	127.43		127.43	251.22			936.91	6.63'	930.29	4C
4D	2399+69.63	489909.133	143806.494					125.00				250.75	126.49	19.38	126.49	250.75			251.22	127.43		127.43	251.22		941.00	6.46'	934.54	4D
4E	2400+94.63	489905.524	143931.442						125.00				250.75	126.49	19.38	126.49	250.75			251.22	127.43		127.43	251.22	943.80	6.63'	937.18	4E
4F	2402+19.63	489901.914	144056.390							125.00				250.75	126.49	19.38	126.49				251.22	127.43		127.43	945.32	6.46'	938.86	4F
4G	2403+44.63	489898.305	144181.338												250.75	126.49	19.38					251.22	127.43		945.56	6.63'	938.93	4G
4H	2395+94.63	489939.328	143432.210									125.00						5.38	125.12	250.06					924.78			4H
4J	2397+19.63	489935.718	143557.158										125.00					125.12	5.38	125.12	250.06				931.43			4J
4K	2398+44.63	489932.109	143682.106											125.00				250.06	125.12	5.38	125.12	250.06			936.80			4K
4L	2399+69.63	489928.500	143807.054												125.00				250.06	125.12	5.38	125.12	250.06		940.89			4L
4M	2400+94.63	489924.891	143932.002													125.00				250.06	125.12	5.38	125.12	250.06	943.69			4M
4N	2402+19.63	489921.281	144056.949														125.00				250.06	125.12	5.38	125.12	945.22			4N
4P	2403+44.63	489917.672	144181.897																			250.06	125.12	5.38	945.45			4P
4Q	2395+94.63	489944.701	143432.365																125.00						924.89	6.63'	918.26	4Q
4R	2397+19.63	489941.091	143557.313																	125.00					931.54	6.46'	925.08	4R
4S	2398+44.63	489937.482	143682.261																		125.00				936.91	6.63'	930.29	4S
4T	2399+69.63	489933.873	143807.209																			125.00			941.00	6.46'	934.54	4T
4U	2400+94.63	489930.264	143932.157																				125.00		943.80	6.63'	937.18	4U
4V	2402+19.63	489926.654	144057.105																					125.00	945.32	6.46'	938.86	4V
4W	2403+44.63	489923.045	144182.053																						945.56	6.63'	938.93	

		DIMENSION	IS BETWEEN	WOR	KING I	POINTS	S (FT.	)		E	ELEVATIONS	5	]
										TOP OF	TOP OF DECK	BRIDGE	
POINT	STATION	X-COORDINATE	Y-COORDINATE	5A	5B	5C	5D	5E	5F	DECK	TO BR. SEAT	SEAT	POINT
5A	2403+44.63	489898.305	144181.338		146.00	19.38			148.08	945.56	8.49'	937.07	5A
5B	2404+90.63	489894.089	144327.277			147.28	19.38	148.08		944.21	8.15'	936.06	5B
5C	2403+44.63	489917.672	144181.897				146.00	5.38	146.10	945.45			5C
5D	2404+90.63	489913.456	144327.836					146.10	5.38	944.10			5D
5E	2403+44.63	489923.045	144182.053						146.00	945.56	8.49'	937.07	5E
5F	2404+90.63	489918.829	144327.992							944.21	8.15'	936.06	5F

							[	JIMEN!	SIONS	BETW	EEN W	ORKIN	G POI	NTS (	FT.)										E		S	]
																										TOP OF DECK		
POINT	STATION		Y-COORDINATE	6A	6B	6C	6D	6E	6F	6G	6H	6J	6K	6L	6M	6N	6P	6Q	6R	6S	6T	6U	6V	6W	DECK	TO BR. SEAT		POINT
6A	2404+90.63	489894.089	144327.277		125.00			L	'	<u> </u>	19.38	126.49							127.43						944.21	6.46'	937.75	6A
6B	2406+15.63	489890.480	144452.225			125.22		L	'	L	126.49		126.56	251.00				127.43		127.42	-				941.64	6.73'	934.91	6B
6C	2407+40.63	489887.184	144577.406				125.48	L	'	<u> </u>	250.95	126.67	19.54	126.75	251.22			251.41	127.59		127.61	251.55			937.83	6.46'	931.37	6C
6D	2408+65.63	489886.682	144702.888					125.41		<u> </u>		251.16		19.46		251.09			251.57	127.58	-	127.56			932.72	6.46'	926.26	6D
6E	2409+90.63	489888.918	144828.274					L	125.05	L			251.16	126.71	19.67		250.82			251.50			127.52		926.32	6.73'	919.59	6E
6F	2411+15.63	489893.057	144953.254							125.00				250.86			126.49				251.23	127.37		127.43	919.09	6.81'	912.28	6F
6G	2412+40.63	489896.947	145078.193												250.75	126.49	19.38					251.19	127.43		912.46	6.98'	905.48	6G
6H	2404+90.63	489913.456	144327.836									125.00						5.38		250.00					944.10		<u> </u>	6H
6J	2406+15.63	489909.847	144452.784										125.00					125.12	5.38	125.06	249.92				941.55		ļ!	6J
6K	2407+40.63	489906.721	144577.741											125.00				250.04	125.09	5.21	125.04	249.92			937.72		ļ'	6K
6L	2408+65.63	489906.139	144702.736												125.00				249.96	125.04	5.29	125.04	250.02		932.61		L'	6L
6M	2409+90.63	489908.578	144827.710													125.00				249.90	125.05	5.08	125.11	250.06	926.21		'	6M
6N	2411+15.63	489912.422	144952.651														125.00				249.96	125.09	5.38	125.12	919.03		L'	6N
6P	2412+40.63	489916.312	145077.590																			250.04	125.12	5.38	912.36		<u> </u>	6P
6Q	2404+90.63	489918.829	144327.992																125.00						944.21	6.46'	937.75	6Q
6R	2406+15.63	489915.220	144452.940																	124.93					941.64	6.73'	934.91	6R
6S	2407+40.63	489911.932	144577.830																		124.87				937.83	6.46'	931.37	6S
6T	2408+65.63	489911.432	144702.694																			124.89			932.71	6.46'	926.25	6T
6U	2409+90.63	489913.658	144827.564																				124.99		926.31	6.73'	919.58	6U
6V	2411+15.63	489917.795	144952.483																					125.00	919.09	6.81'	912.28	6V
6W	2412+40.63	489921.685	145077.423					i																	912.46	6.98'	905.48	6W

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						-					METROPOLITAN	Green Line LRT Extension	*
											COUNCIL		
						DESIGNED BY:	AK	CHECKED BY:	TR	90% SUBMISSION - 1/22/16			DISCI
						DRAWN BY:	TAW	CHECKED BY:	TR	90% SUDIVIISSIUN - 1/22/16			
_		-	1					1	-				_

	CIVIL - VO	DLUME 4C	SHEET
	MINNETON	(A/HOPKINS	19
	BRIDG	E R0686	OF
	BRIDGE I	LAYOUT 8	UF
CIPLINE:	STRUCTURES		158
	STRUCTURES	CBRR0686-BRG-SUP-008	

						DIM	ENSIO	NS BE	TWEEN	I WOR	KING	POINTS	5 (FT.	)			-	-					ELEVATIO
DOINT	CTATION			7.	70	70	70	75	75	70	711	7.	717	71	714	751	70	70	70	70	77		TOP OF DEC
POINT		X-COORDINATE		7A	7B	7C	7D	7E	7F	7G	7H	/J	7K	7L	7M	7N	7P		7R	7S	7T		TO BR. SEA
7A	2412+40.63	489897.821	145078.166		50.00					18.50	53.31	101.70					55.04	102.61				912.45	
7B	2412+90.63	489899.377	145128.142			50.00				53.31	18.50	53.31	101.70			55.04		55.04	102.61			910.36	
7C	2413+40.63	489900.933	145178.117				50.00			101.70	53.31	18.50	53.31	101.70		120.61	55.04		55.04	102.61		908.63	
7D	2413+90.63	489902.489	145228.093					50.00			101.70	53.31	18.50	53.31	101.70		120.61	55.04		55.04	102.61	907.27	
7E	2414+40.63	489904.045	145278.069						50.00			101.70	53.31	18.50	53.31			120.61	55.04		55.04	906.26	
7F	2414+90.63	489905.601	145328.045												18.50				120.61	55.04		905.61	
7G	2412+40.63	489916.312	145077.590								50.00					4.50	50.20	100.10				912.36	
7H	2412+90.63	489917.870	145127.564									50.00				50.20	4.50	50.20	100.10			910.27	
7J	2413+40.63	489919.424	145177.542										50.00			100.10	50.20	4.50	50.20	100.10		908.54	
7K	2413+90.63	489920.980	145227.517											50.00			100.10	50.20	4.50	50.20	100.10	907.18	
7L	2414+40.63	489922.536	145277.493												50.00			100.10	50.20	4.50	50.20	906.17	
7M	2414+90.63	489924.092	145327.469																100.10	50.20	4.50	905.52	
7N	2412+40.63	489920.810	145077.450														50.00					912.45	
7P	2412+90.63	489922.366	145127.426															50.00				910.36	
7Q	2413+40.63	489923.922	145177.402																50.00			908.63	
7R	2413+90.63	489925.478	145227.377																	50.00		907.27	
7S	2414+40.63	489927.034	145277.353																		50.00	906.26	
71	2414+90.63		145327.329																			905.61	

	TOP OF DI	ECK TO BF	RIDGE SEA	Ţ		
	DECK	STOOL	BEAM	BEARING	TOT	- AL
	THICKNESS	HEIGHT	HEIGHT	HEIGHT	INCHES	FEET
S. ABUTMENT	9"	3.5"	45"	5.25"	62.75"	5.23'
PIER 1	9"	3.5"	45"	3.25"	60.75"	5.06'
PIER 2	9"	3.5"	45"	5.25"	62.75"	5.23'
PIER 3	9"	3.5"	45"	3.25"	60.75"	5.06'
PIER 4	9"	3.5"	45"	5.25"	62.75"	5.23'
PIER 5	9"	3.5"	45"	3.25"	60.75"	5.06'
PIER 6 (45" BEAM)	9"	3.5"	45"	5.25"	62.75"	5.23'
PIER 6 (SLAB)	27"	3"		1"	31"	2.58'
PIER 7	27"	3.75"		0"	30.75"	2.56'
PIER 8 (SLAB)	27"	3"		1"	31"	2.58'
PIER 8 (45" BEAM)	9"	5"	45"	5.25"	64.25"	5.35'
PIER 9	9"	5"	45"	3.25"	62.25"	5.19'
PIER 10	9"	5"	45"	5.25"	64.25"	5.35'
PIER 11	9"	5"	45"	3.25"	62.25"	5.19'
PIER 12 (45" BEAM)	9"	2.25"	45"	5.25"	61.5"	5.13'
PIER 12 (63" BEAM)	9"	2.25"	63"	5.25"	79.5"	6.63'
PIER 13	9"	2.25"	63"	3.25"	77.5"	6.46'
PIER 14	9"	2.25"	63"	5.25"	79.5"	6.63
PIER 15	9"	2.25"	63"	3.25"	77.5"	6.46'
PIER 16	9"	2.25"	63"	5.25"	79.5"	6.63
PIER 17	9"	2.25"	63"	3.25"	77.5"	6.46'
PIER 18 (63" BEAM)	9"	2.25"	63"	5.25"	79.5"	6.63'
PIER 18 (82" BEAM)	9"	3.5"	82"	7.375"	101.88"	8.49'
PIER 19 (82" BEAM)	9"	3.5"	82"	3.25"	97.75"	8.15'
PIER 19 (63" BEAM)	9"	2.25"	63"	3.25"	77.5"	6.46
PIER 20 (SOUTH SIDE)	9"	2.25"	63"	5.25"	79.5"	6.63
PIER 20 (NORTH SIDE)	9"	2.25"	63"	6.5"	80.75"	6.73
PIER 21	9"	2.25"	63"	3.25"	77.5"	6.46
PIER 22	9"	2.25"	63"	3.25"	77.5"	6.46'
PIER 23	9"	2.25"	63"	6.5"	80.75"	6.73
PIER 24	9"	6.5"	63"	3.25"	81.75"	6.81'
PIER 25 (63" BEAM)	9"	6.5"	63"	5.25"	83.75"	6.98'
PIER 25 (SLAB)	27"	3"		1"	31"	2.58'
PIER 26	27"	3.75"		0"	30.75"	2.56'
PIER 27	27"	3"		1"	31"	2.58'
PIER 28	27"	3.75"		0"	30.75"	2.56'
PIER 29	27"	3.75"		0"	30.75"	2.56'
N. ABUTMENT	27"	3"		1"	31"	2.58'

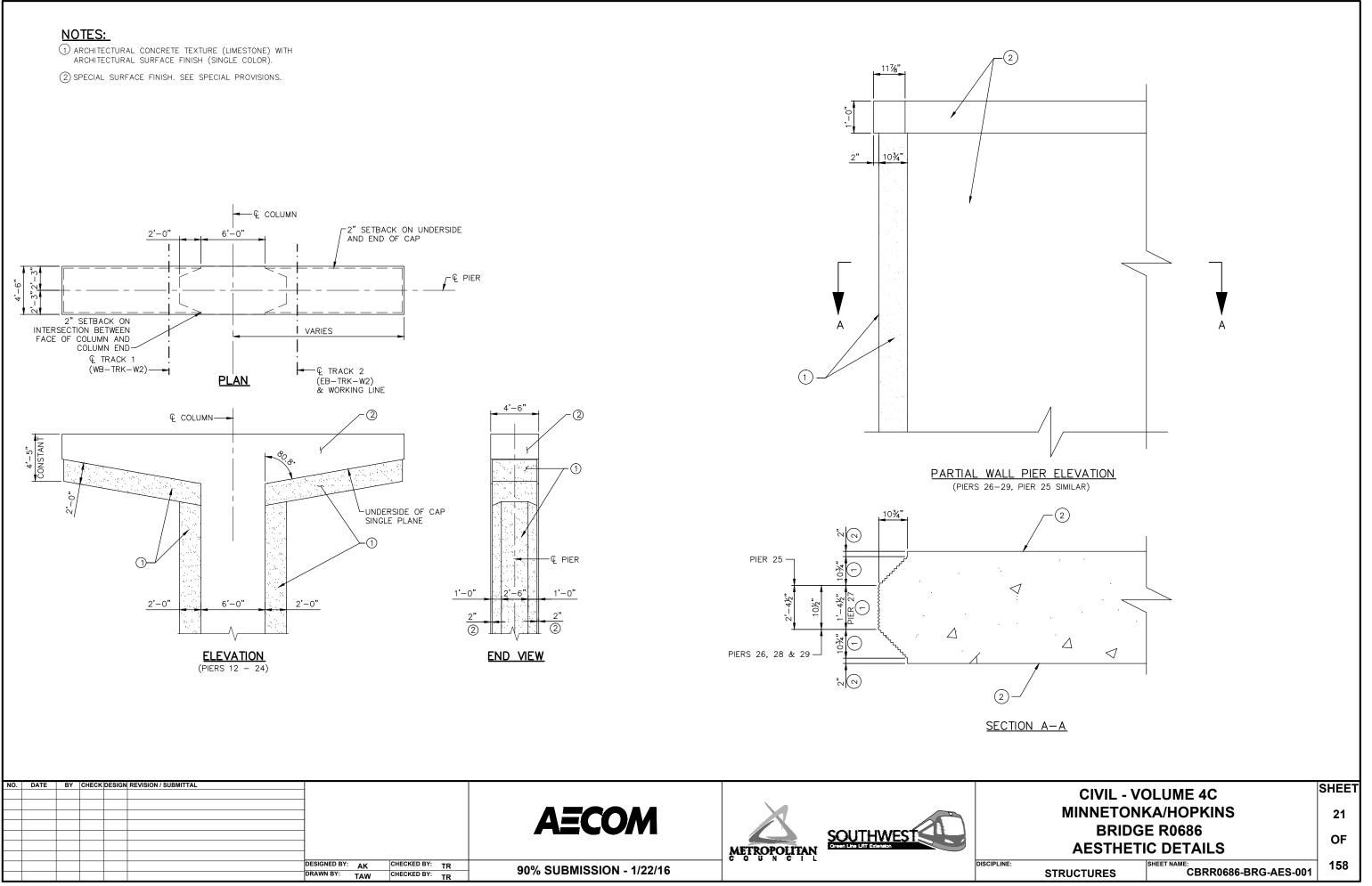
## <u>NOTE:</u>

SEE INDIVIDUAL ABUTMENT AND PIER SHEETS FOR ACTUAL BRIDGE SEAT ELEVATIONS.

m, I												
~	NO.	DATE	BY	CHECK DES	SIGN REVISION / SUBMITTAL	-						
Ę						-						
2 ai						-						
: 33						-						
11						-					COUTINATET	
016						-					Green Line LRT Extension	
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20						DESIGNED BY: AK	CHECKED BY:	TR				DISCIPLI
an,						DRAWN BY: TAW		TR	90% SUBMISSION - 1/22/16			

)N: :CK	S	
CK	BRIDGE	
ΑT	SEAT	POINT
		7A
		7B 7C 7D 7F 7G 7H 7J 7K 7L
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		7G
		7H
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		7P
		7Q
		7R
		7S
		7T

CIVIL - VOLUME 4C						
MINNETONKA/HOPKINS						
BRIDGE R0686						
BRIDGE LAYOUT 9						
IE: SHEET NAME:						
STRUCTURES	CBRR0686-BRG-SUP-009	158				



SOUTH ABUTMENT REQUIRED NOMINAL PILE BEARING RESISTANCE FOR CIP PILES R – TONS/PILE	SOUTH ABUTMENT COMPUTED PILE LOAD - T		
FIELD CONTROL METHOD	FACTORED DEAD LOAD + EARTH PRESSURE	118.1	
PDA 0.65 215.4 * $\mathbf{R}_{n} = (FACTORED DESIGN LOAD) / \Phi_{dyn}$	FACTORED LIVE LOAD  * FACTORED DESIGN LOAD	21.9	
n (interested believe cond) / r dyn	* BASED ON STRENGTH V LOAD COMBINATIC	140	
		€ TRACK 2 (EB−TRK−W3) & WORKING LINE	
	NC	<u>2'-2%", 10'-2"</u>	7'-11%"2'-2¾"2'-0"
BACK ROW PILE SPAC		- OUTLINE OF ABUT. BODY	- Q OF PILES
THORPHONE AND	<sup>∞</sup> · · · · · · · · · · · · · · · · · · ·	Contraction of the second seco	
後 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	2' - 0'' = 3' - 6k'' = 2' - 7'' = 1' - 10		
WORKING POINT SPAC	ING 5'-6½" 4'-5¼"	20'-4¼"	<u> </u>
	9'-11 <del>∛</del> 8"	24'	-6%"
	-	34'-6"	-
		FOOTING PLAN	
NO.         DATE         BY         CHECK  DESIGN  REVISION / SUBMITTAL           E			
5016 11:33		AECOM	
	ESIGNED BY: AK CHECKED BY: TR	00% SURMISSION 4/22/46	

90% SUBMISSION - 1/22/16

DESIGNED BY: AK CHECKED BY: TR DRAWN BY: TAW CHECKED BY: TR

DISCIPLINE:

### PILE NOTES

1 CAST-IN-PLACE CONC. TEST PILE 50 FT. LONG <u>9</u> CAST-IN-PLACE CONC. PILES EST. LENGTH 40 FT. 10 CAST-IN-PLACE CONC. PILES REQ'D FOR SOUTH ABUT.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED THUS  $\bigcirc$  TO BE BATTERED 3" PER FOOT IN DIRECTION SHOWN.

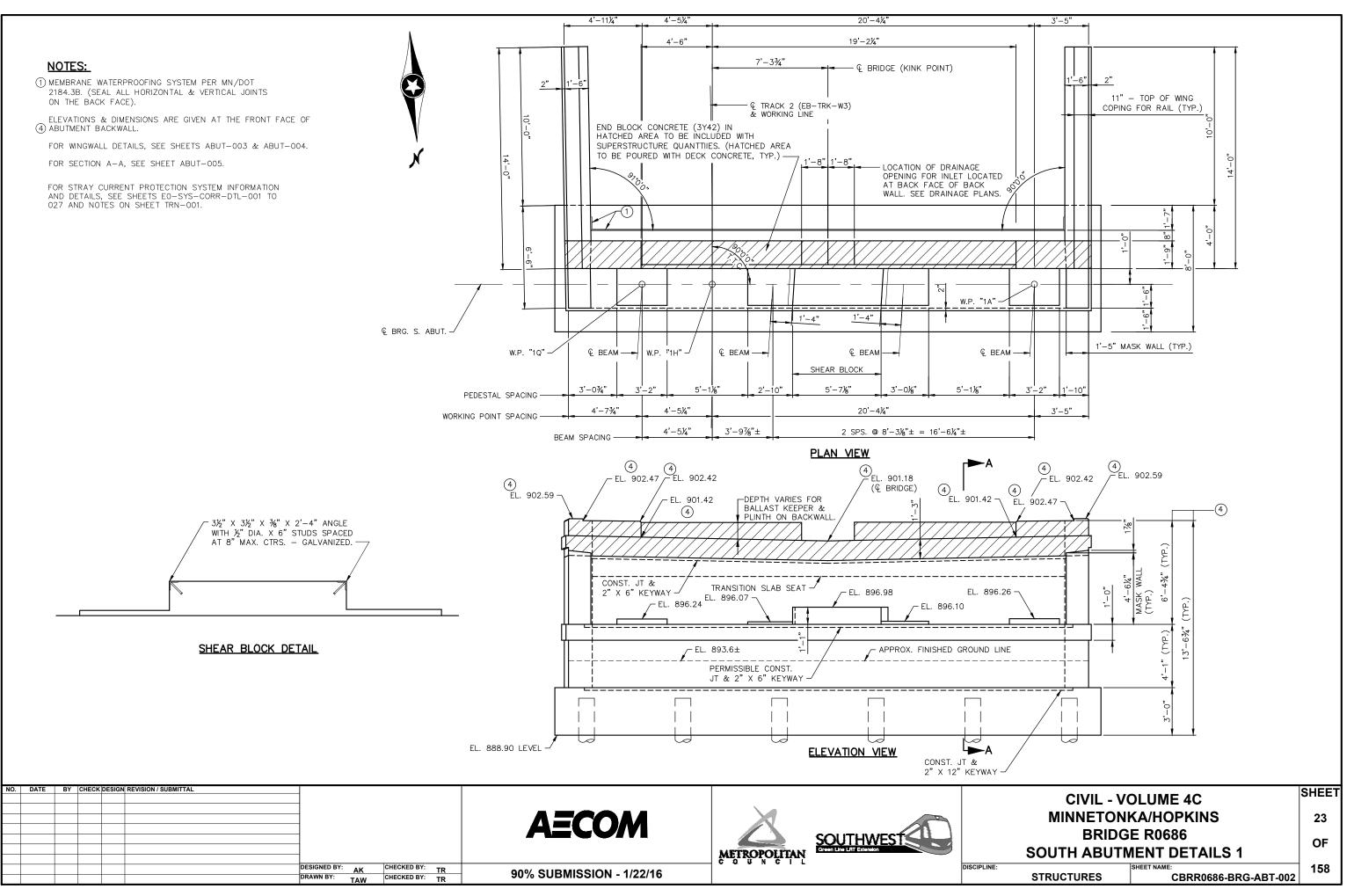
PILES TO HAVE A NOMINAL DIAMETER OF 16"

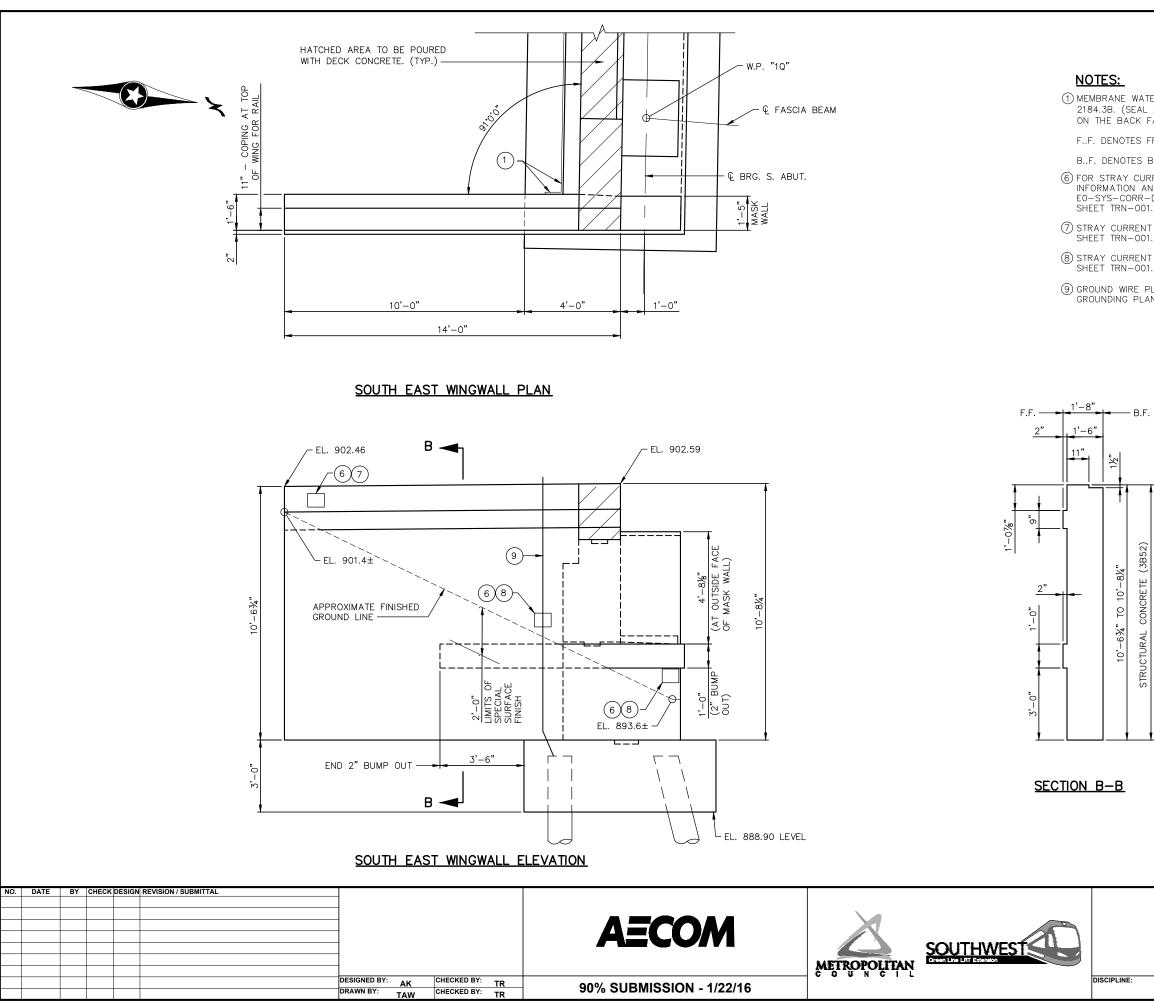
FOR PILE SPLICE DETAILS SEE DETAIL B201.

FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.

PILE CUTOFF IS EL. XXX.XX

#### SHEET CIVIL - VOLUME 4C **MINNETONKA/HOPKINS** 22 **BRIDGE R0686** OF SOUTH ABUTMENT FOOTING DETAILS HEET NAM 158 STRUCTURES CBRR0686-BRG-ABT-001





() MEMBRANE WATERPROOFING SYSTEM PER MN/DOT 2184.3B. (SEAL ALL HORIZONTAL & VERTICAL JOINTS ON THE BACK FACE).

F..F. DENOTES FRONT FACE.

B..F. DENOTES BACK FACE.

6 FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON

(7) STRAY CURRENT TEST STATION. SEE NOTE 15 ON SHEET TRN-001.

(8) STRAY CURRENT TEST STATION. SEE NOTE 14 ON

9 ground wire placed inside 1½" pvc conduit, see grounding plan.

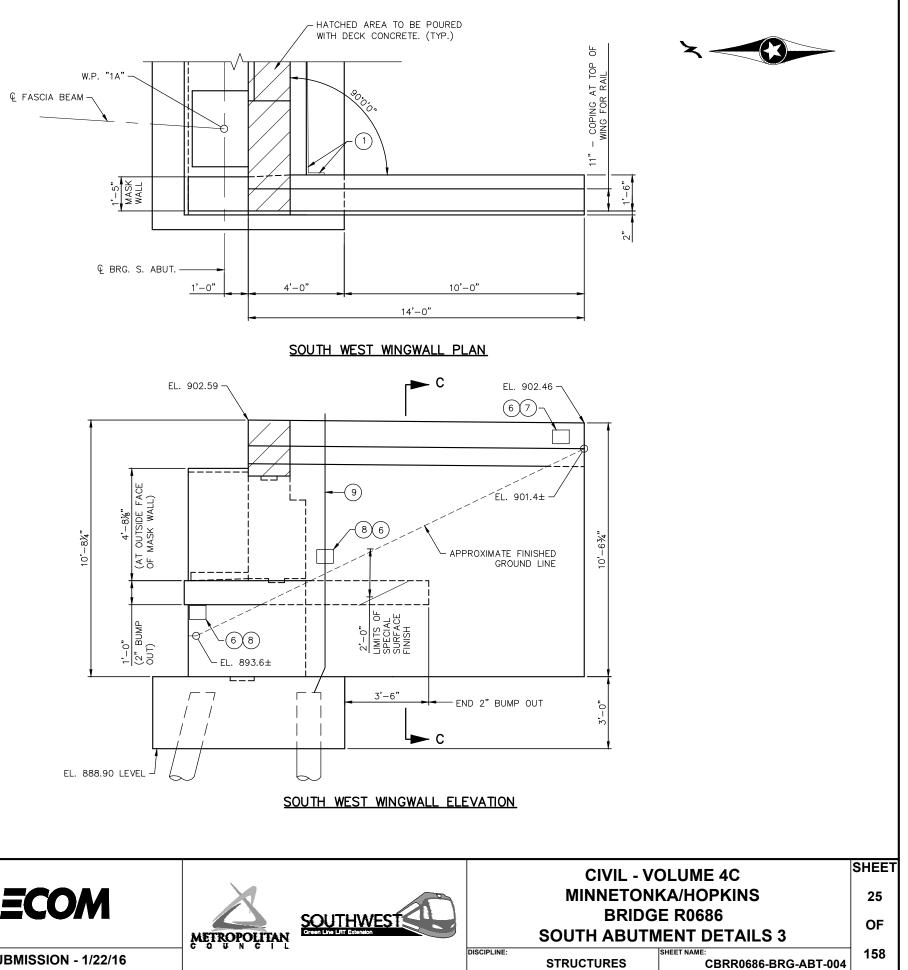
— B.F.

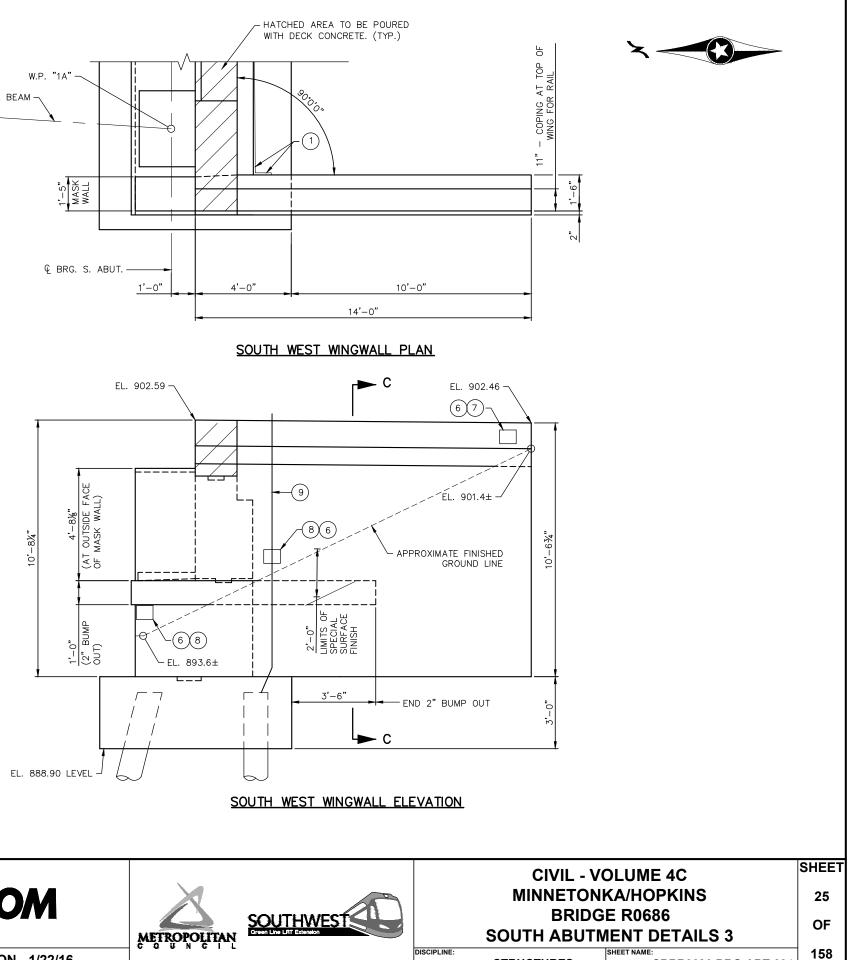
(3B52)

SHEET **CIVIL - VOLUME 4C MINNETONKA/HOPKINS** 24 **BRIDGE R0686** OF **SOUTH ABUTMENT DETAILS 2** 158 STRUCTURES CBRR0686-BRG-ABT-003

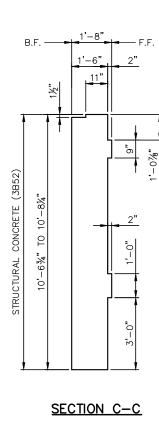
#### NOTES:

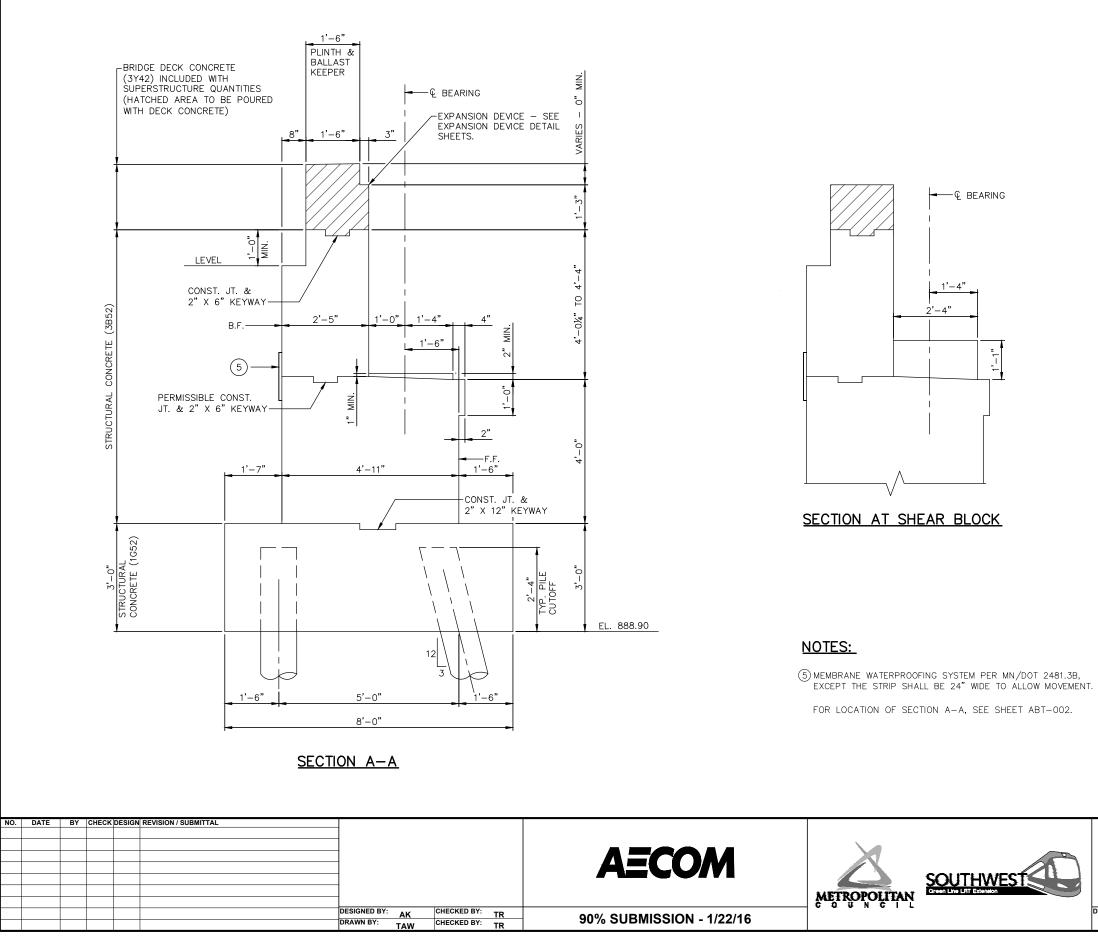
- () MEMBRANE WATERPROOFING SYSTEM PER MN/DOT 2184.3B. (SEAL ALL HORIZONTAL & VERTICAL JOINTS ON THE BACK FACE).
- F..F. DENOTES FRONT FACE.
- B..F. DENOTES BACK FACE.
- (6) FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.
- 7 STRAY CURRENT TEST STATION. SEE NOTE 15 ON SHEET TRN-001.
- $(\textcircled{B}{8})$  stray current test station. See note 14 on sheet trn-001.





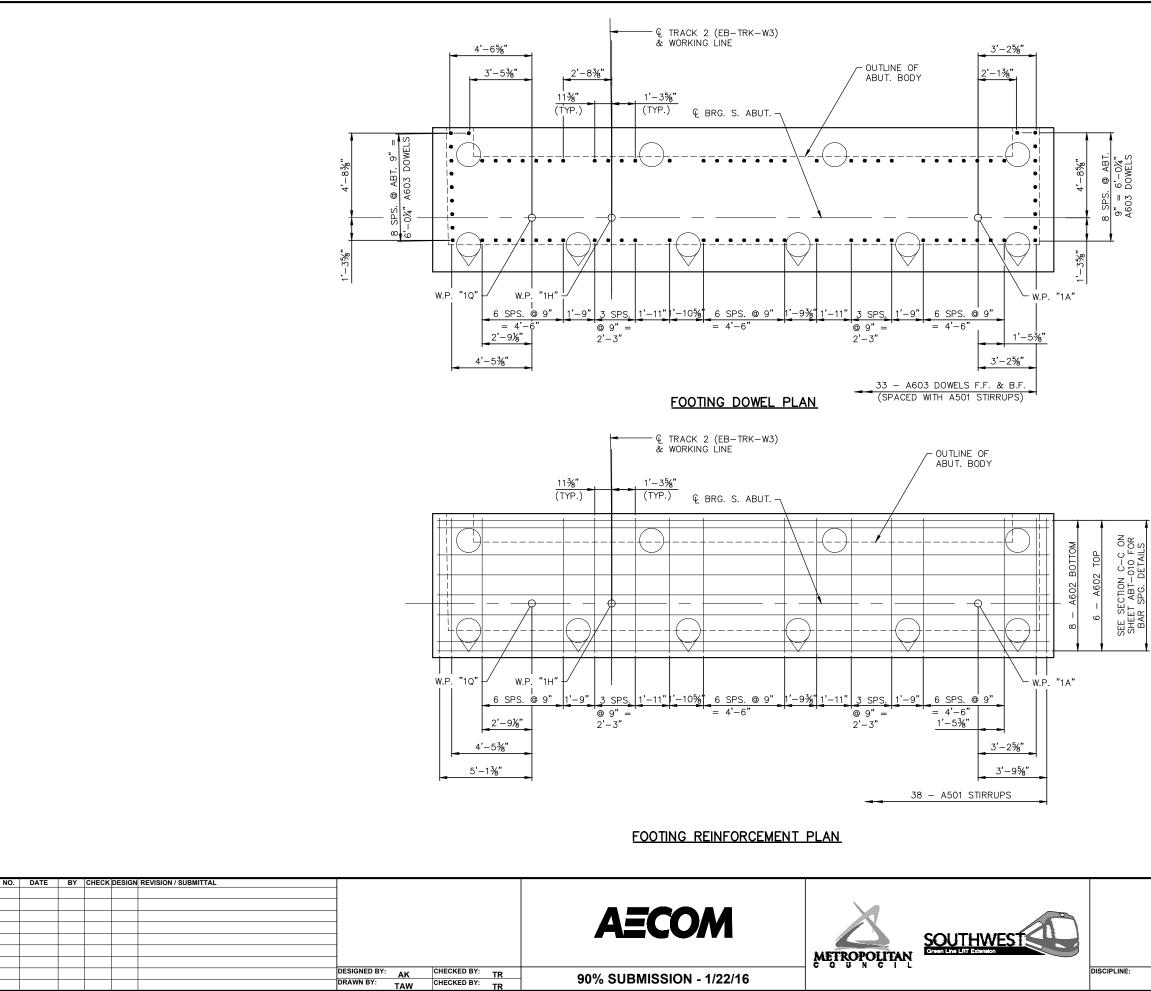
NO. DATE BY CHECK DESIGN REVISION / SUBMITT AECOM CHECKED BY: TR DESIGNED BY: AK 90% SUBMISSION - 1/22/16 DRAWN BY: CHECKED BY: TR TAW



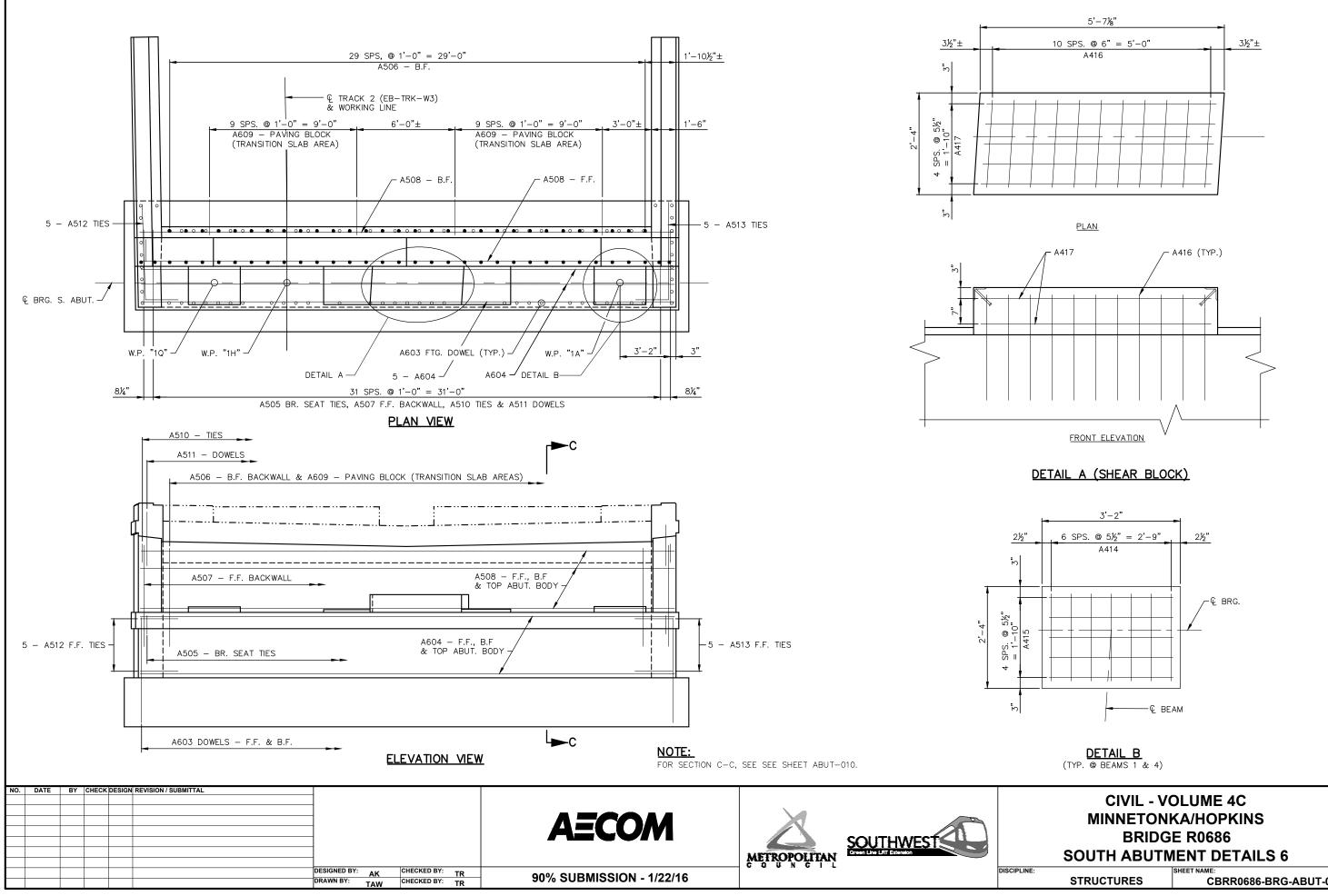


DISCIPLI

CIVIL - VOLUME 4C					
MINNETONKA/HOPKINS					
BRIDGE R0686					
SOUTH ABUTMENT DETAILS 4					
INE: STRUCTURES STRUCTURES CBRR0686-BRG-AE	158				
	71-005				

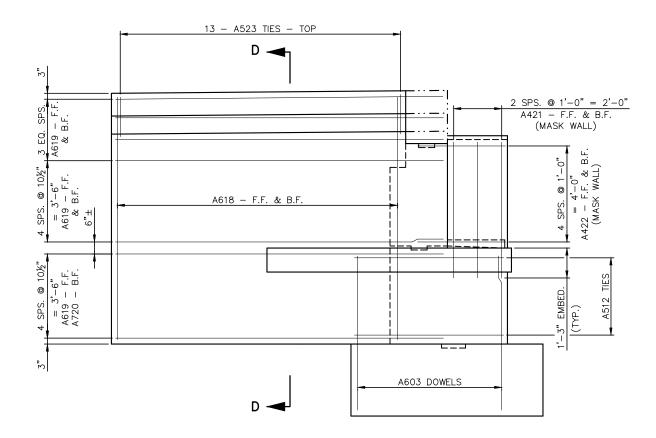


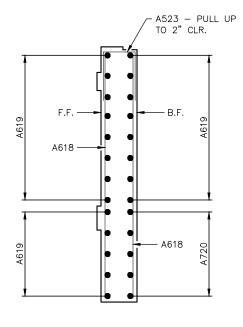
CIVIL - VOLUME 4C						
MINNETONKA/HOPKINS						
BRIDGE R0686						
SOUTH ABUTMENT DETAILS 5						
E: SHEET NAME:						
STRUCTURES CBRR0686-BRG-ABT-006						



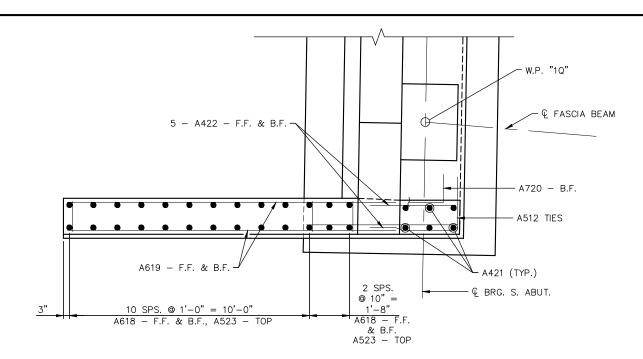
CIVIL - VOLUME 4C						
MINNETONKA/HOPKINS						
BRIDGE R0686						
SOUTH ABUTMENT DETAILS 6						
NE: SHEET NAME:						
STRUCTURES	CBRR0686-BRG-ABUT-007	158				

	SOUTH EAST WINGWALL ELEVATION										
NO. DATE	BY CHECK	DESIGN R	REVISION / SUBMITTAL	_							Γ
				_							
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										SOUTHWEST	
									METRODOLITAN	Green Line LRT Extension	
									METROPOLITAN	$\mathbf{O}$	
				DESIGNED BY:	AK	CHECKED BY:	TR				DIS
				DRAWN BY:	TAW	CHECKED BY:	TR	90% SUBMISSION - 1/22/16			





#### SOUTH EAST WINGWALL PLAN

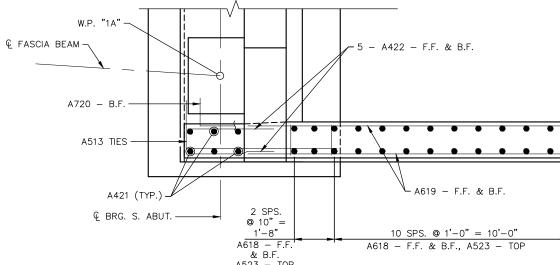


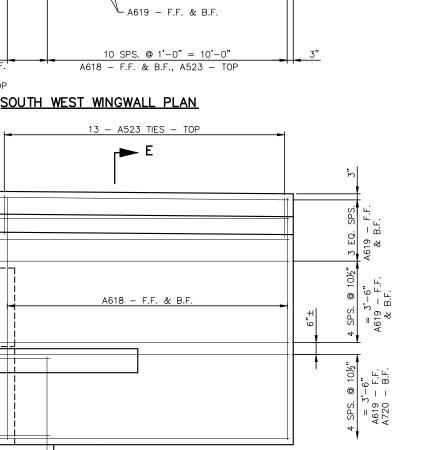
## NOTES:

F..F. DENOTES FRONT FACE.B..F. DENOTES BACK FACE.

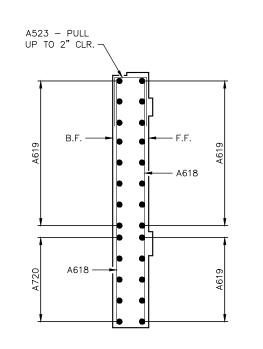
SECTION D-D

CIVIL - VOLUME 4C							
MINNETONKA/HOPKINS							
BRIDGE R0686							
SOUTH ABUTMENT DETAILS 7							
SCIPLINE: SHEET NAME:							
STRUCTURES	CBRR0686-BRG-ABT-008	158					





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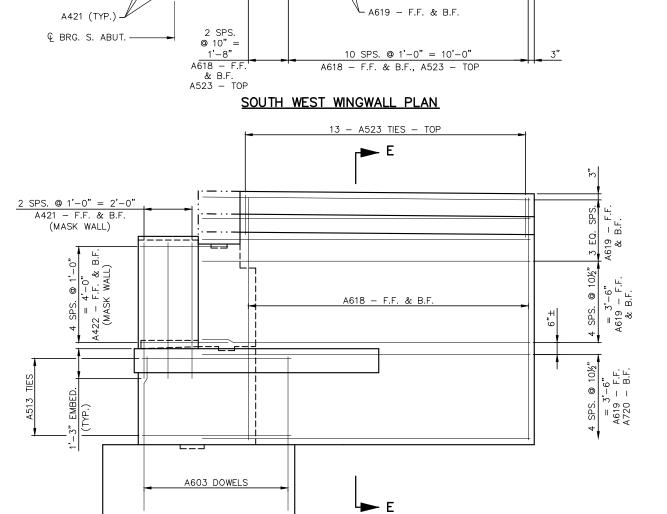


NOTES:

F..F. DENOTES FRONT FACE.

B..F. DENOTES BACK FACE.

SECTION E-E

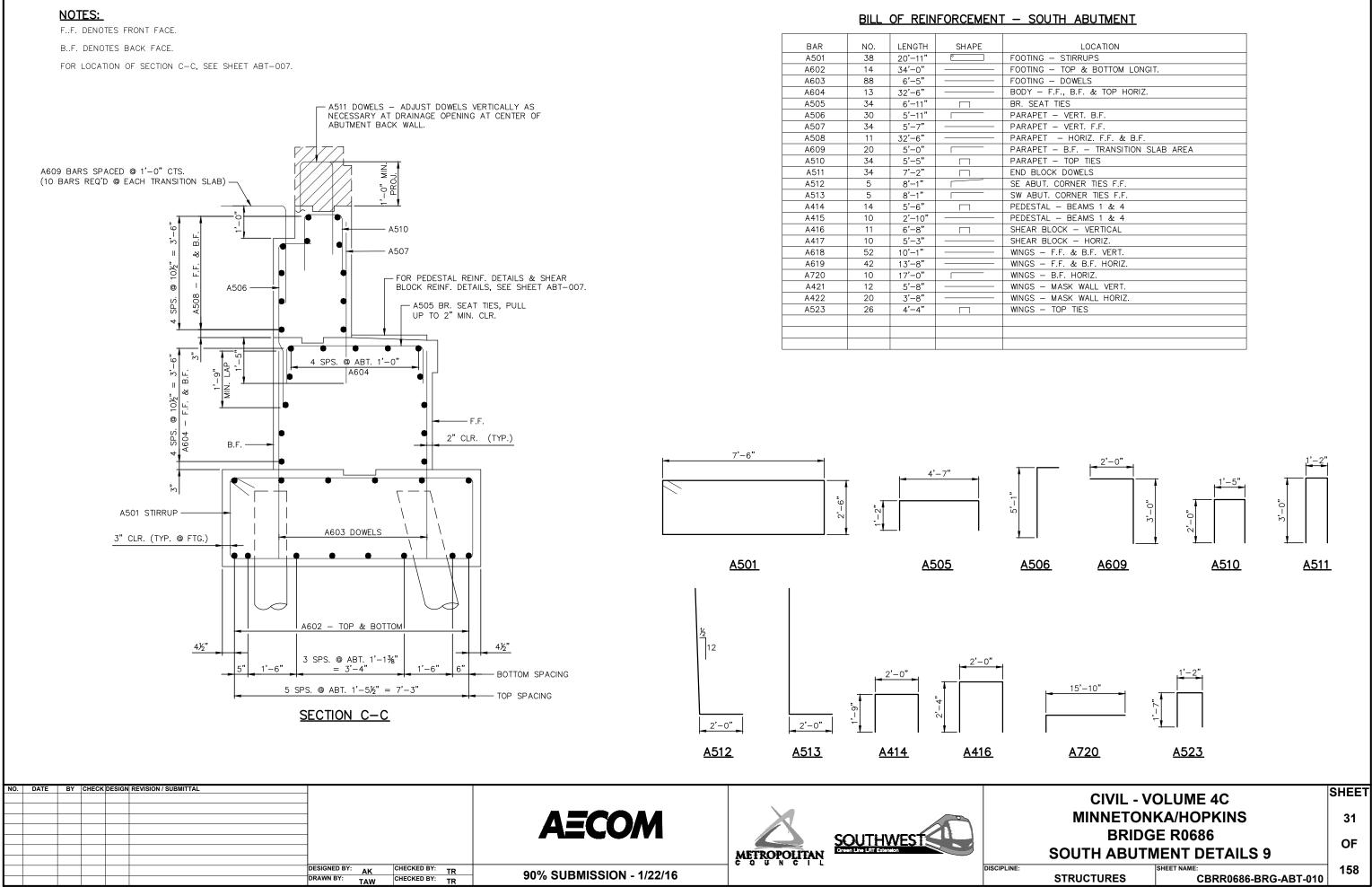


SOUTH WEST WINGWALL ELEVATION

											-		
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ŝ													
Ī												SOUTHWEST	
											ALETERODOL PEAN	Green Line LRT Extension	
						1					METROPOLITAN		
						DESIGNED BY:	AK	CHECKED BY:	16				DISCIP
						DRAWN BY:	TAW	CHECKED BY:	TR	90% SUBMISSION - 1/22/16			
· L							IAW						

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CIVIL - V	OLUME 4C	SHEET					
MINNETONKA/HOPKINS							
BRIDO	BRIDGE R0686						
SOUTH ABUT	SOUTH ABUTMENT DETAILS 8						
	SHEET NAME:	158					
STRUCTURES	CBRR0686-BRG-ABT-009						



LOCATION
FOOTING - STIRRUPS
FOOTING - TOP & BOTTOM LONGIT.
FOOTING - DOWELS
BODY - F.F., B.F. & TOP HORIZ.
BR. SEAT TIES
PARAPET – VERT. B.F.
PARAPET – VERT. F.F.
PARAPET – HORIZ. F.F. & B.F.
PARAPET – B.F. – TRANSITION SLAB AREA
PARAPET – TOP TIES
END BLOCK DOWELS
SE ABUT. CORNER TIES F.F.
SW ABUT. CORNER TIES F.F.
PEDESTAL – BEAMS 1 & 4
PEDESTAL – BEAMS 1 & 4
SHEAR BLOCK – VERTICAL
SHEAR BLOCK – HORIZ.
WINGS - F.F. & B.F. VERT.
WINGS - F.F. & B.F. HORIZ.
WINGS - B.F. HORIZ.
WINGS - MASK WALL VERT.
WINGS – MASK WALL HORIZ.
WINGS - TOP TIES

	BUTMENT AL PILE BEARING PILES R – TONS/PII	E COMPUTED PILE LO				
FIELD CONTROL METHOD	φ <sub>dyn</sub> * R <sub>n</sub>	FACTORED DEAD LOAD + EARTH PRESSURE	86.0			
PDA * $R_n = (FACTORED DESIGN LOAD$	0.65 155.4	FACTORED LIVE LOAD	15.0			
$\sim$ $\mathbf{n}_{\rm B}$ – (FACTORED DESIGN EDAL	// <sup>™</sup> dyn	<ul> <li># FACTORED DESIGN LOAD</li> <li># BASED ON STRENGTH V LOAD</li> </ul>				
	BACK ROW PILE SPACING —	<sup>1'-9"</sup> <sup>4'-0"</sup> <sup>€</sup> OF PILES W.P. "7F" 1'-9" 4'-0" 6' 5'-9"	TEST PILE NO. 31	OUTLINE OF ABUT. BODY	& TRACK 2 (EB-TRK-W3) & WORKING LINE 4'-6" 4'-0" 1'-9" 30 30 4'-6" 4'-0" 1'-9" 4'-6" 4'-0" 1'-9" 4'-6" 5'-9"	2'-10" - 5" -5" -5" -5" -5" -5" -5" -5" -5" -
NO. DATE BY CHECK DESIGN REVISION	SUBMITTAL					
		_	AEC			
		_			SOUTHV	VEST
						ion
		DESIGNED BY: AK CHECKED BY: TR				

CHECKED BY: TR CHECKED BY: TR

90% SUBMISSION - 1/22/16

DESIGNED BY: AK

DRAWN BY: TAW

DISCIPLINE

#### PILE NOTES

- 1 CAST-IN-PLACE CONC. TEST PILE 60 FT. LONG <u>6</u> CAST-IN-PLACE CONC. PILES EST. LENGTH 50 FT.
- CAST-IN-PLACE CONC. PILES EST. LENGTH 50 FT.
   CAST-IN-PLACE CONC. PILES REQ'D FOR NORTH ABUT.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED THUS  $\bigcirc$  TO BE BATTERED 3" PER FOOT IN DIRECTION SHOWN.

PILES TO HAVE A NOMINAL DIAMETER OF 16"

FOR PILE SPLICE DETAILS SEE DETAIL B201. FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.

PILE CUTOFF IS EL. XXX.XX

#### CIVIL - VOLUME 4C MINNETONKA/HOPKINS BRIDGE R0686 NORTH ABUTMENT FOOTING DETAILS NE: STRUCTURES SHEET NAME: CBRR0686-BRG-ABT-011

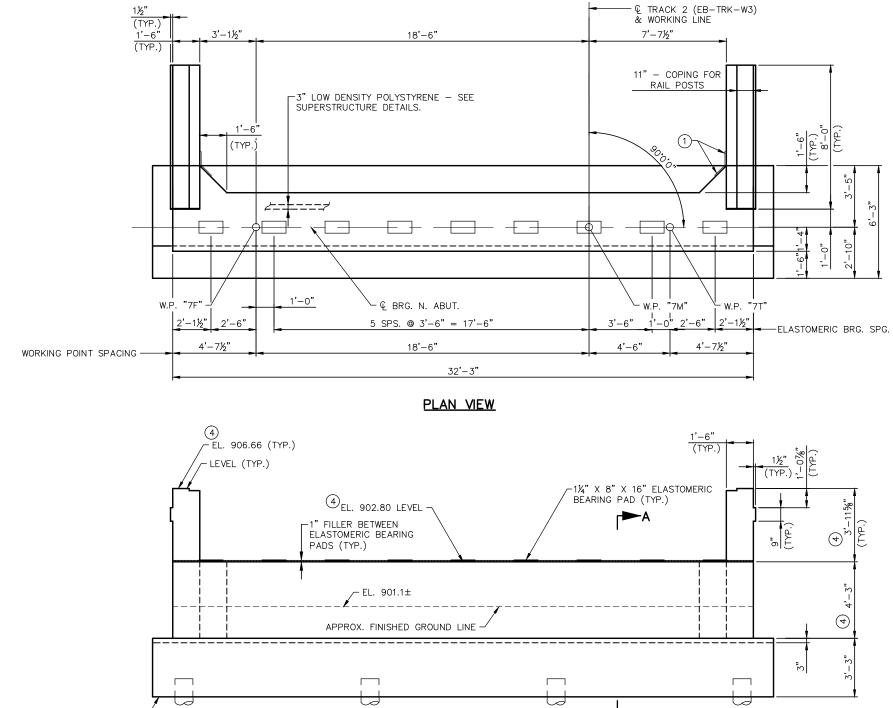
() MEMBRANE WATERPROOFING SYSTEM PER MN/DOT 2184.3B. (SEAL ALL HORIZONTAL & VERTICAL JOINTS ON THE BACK FACE).

(4) ELEVATIONS & DIMENSIONS ARE GIVEN AT THE € BEARING.

FOR WING WALL DETAILS, SEE SHEET ABUT-013.

FOR SECTION A-A, SEE SHEET ABUT-014.

FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.



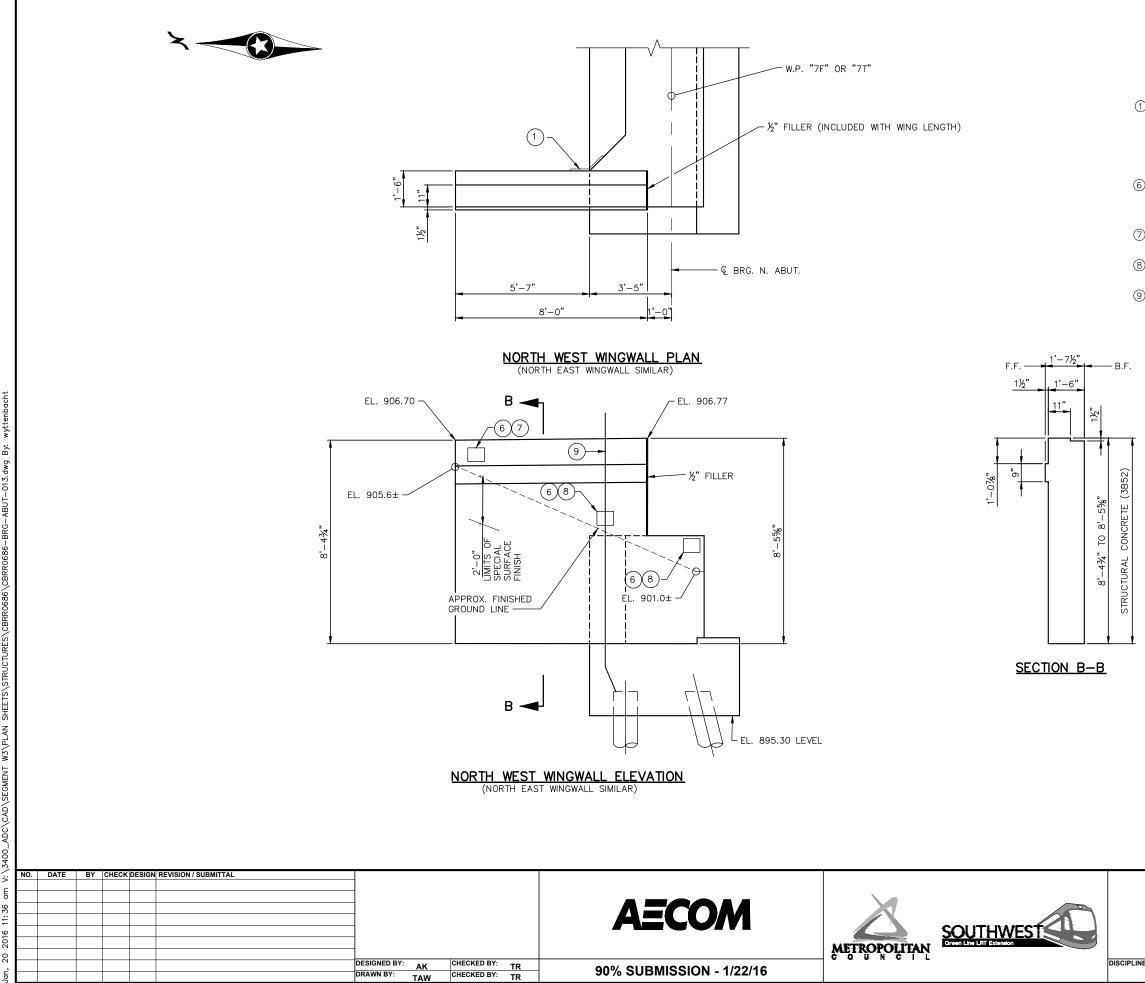
ELEVATION VIEW

L														
I	NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL								
I														
I														
ſ							1							
I							1				AECOM			
ľ							1						SOUTHWEST	
t							1					A STREAM	Green Line LRT Extension	
t							1					METROPOLITAN		
t							DESIGNED BY:	AK	CHECKED BY:	TR				DISCIP
ł							DRAWN BY:	TAW	CHECKED BY:	TR	90% SUBMISSION - 1/22/16			

EL. 895.30 LEVEL -



	CIVIL - VO	OLUME 4C	SHEET			
MINNETONKA/HOPKINS						
	BRIDGE R0686					
	NORTH ABUTM	IENT DETAILS 1	OF			
CIPLINE:		SHEET NAME:	158			
	STRUCTURES	CBRR0686-BRG-ABT-012				



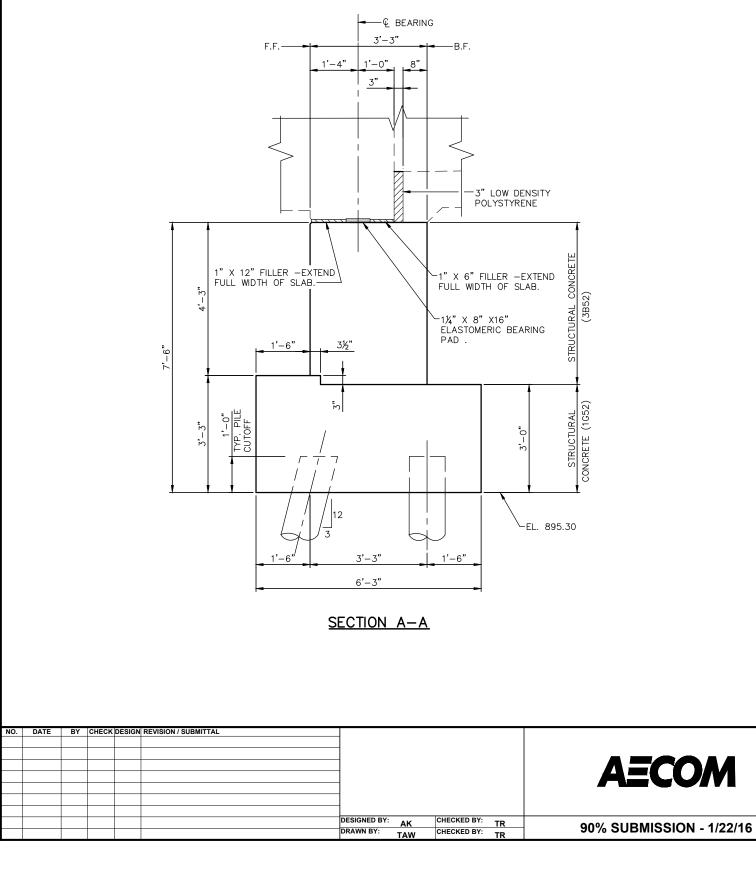
① MEMBRANE WATERPROOFING SYSTEM PER MN/DOT 2184.3B. (SEAL ALL HORIZONTAL & VERTICAL JOINTS ON THE BACK FACE).

F.F. DENOTES FRONT FACE.

B.F. DENOTES BACK FACE.

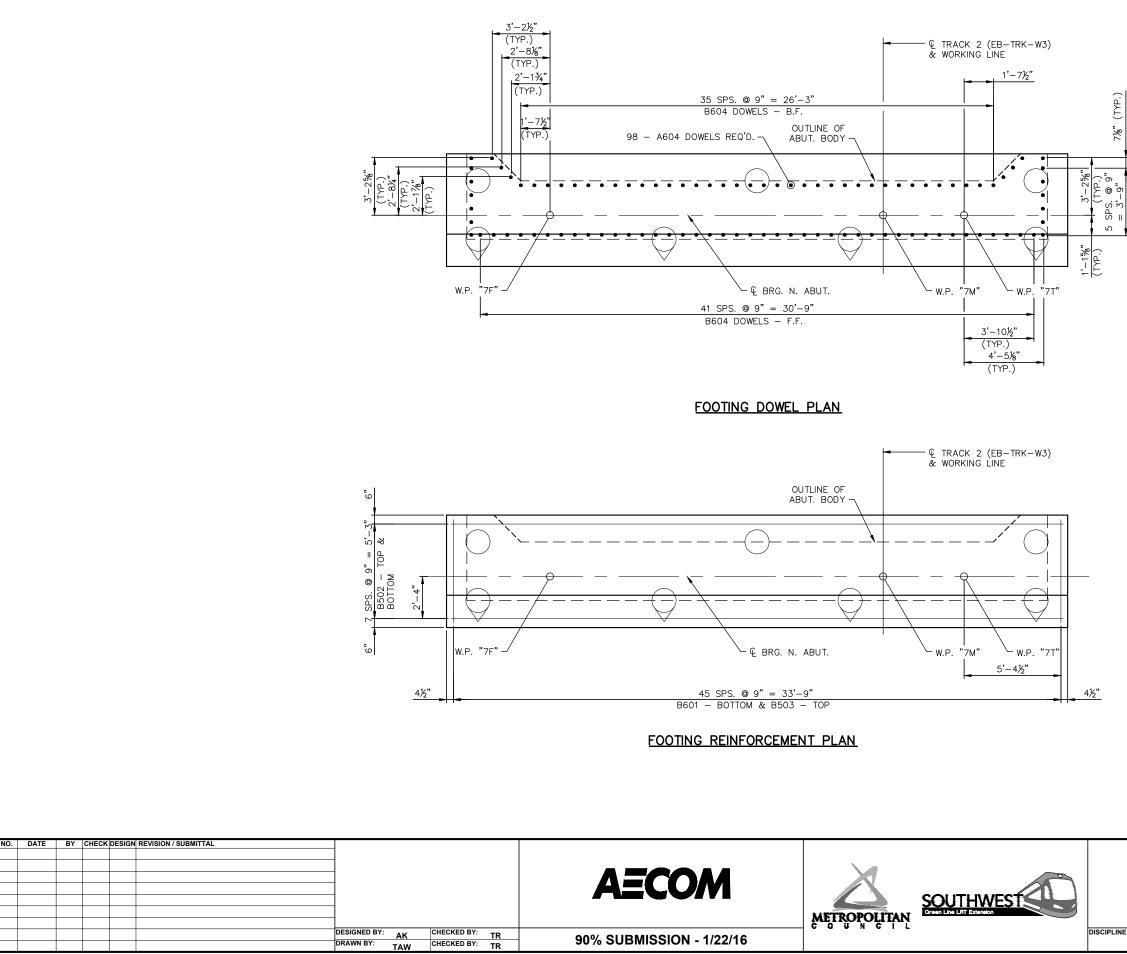
- (6) FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.
- () STRAY CURRENT TEST STATION. SEE NOTE 15 ON SHEET TRN-001.
- 8 Stray current test station. See note 14 on sheet trn-001.
- 9 ground wire placed inside 1½" PVC conduit, see grounding plans.

	CIVIL - VO	OLUME 4C	SHEET
	MINNETON	KA/HOPKINS	34
	BRIDG	E R0686	OF
	NORTH ABUTM	IENT DETAILS 2	UF
E:	STRUCTURES	SHEET NAME: CBRR0686-BRG-ABT-013	158



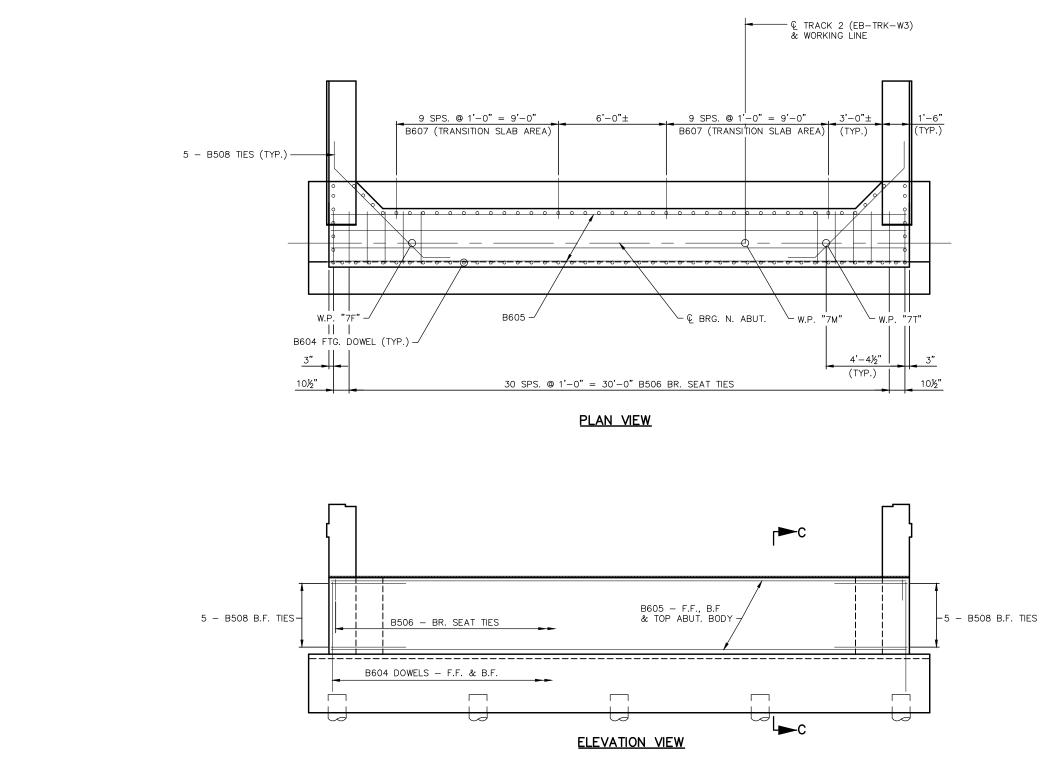
F.F. DENOTES FRONT FACE B.F. DENOTES BACK FACE FOR LOCATION OF SECTION A-A, SEE SHEET ABT-12.

	CIVIL - VO	OLUME 4C	SHEET
	MINNETON	KA/HOPKINS	35
	BRIDG	E R0686	OF
Ν	ORTH ABUTM	IENT DETAILS 3	
S	TRUCTURES	SHEET NAME: CBRR0686-BRG-ABT-014	158



//////////////////////////////////////	B704	
= 3'-9"	B604 DOWELS	(TYP. EACH END)

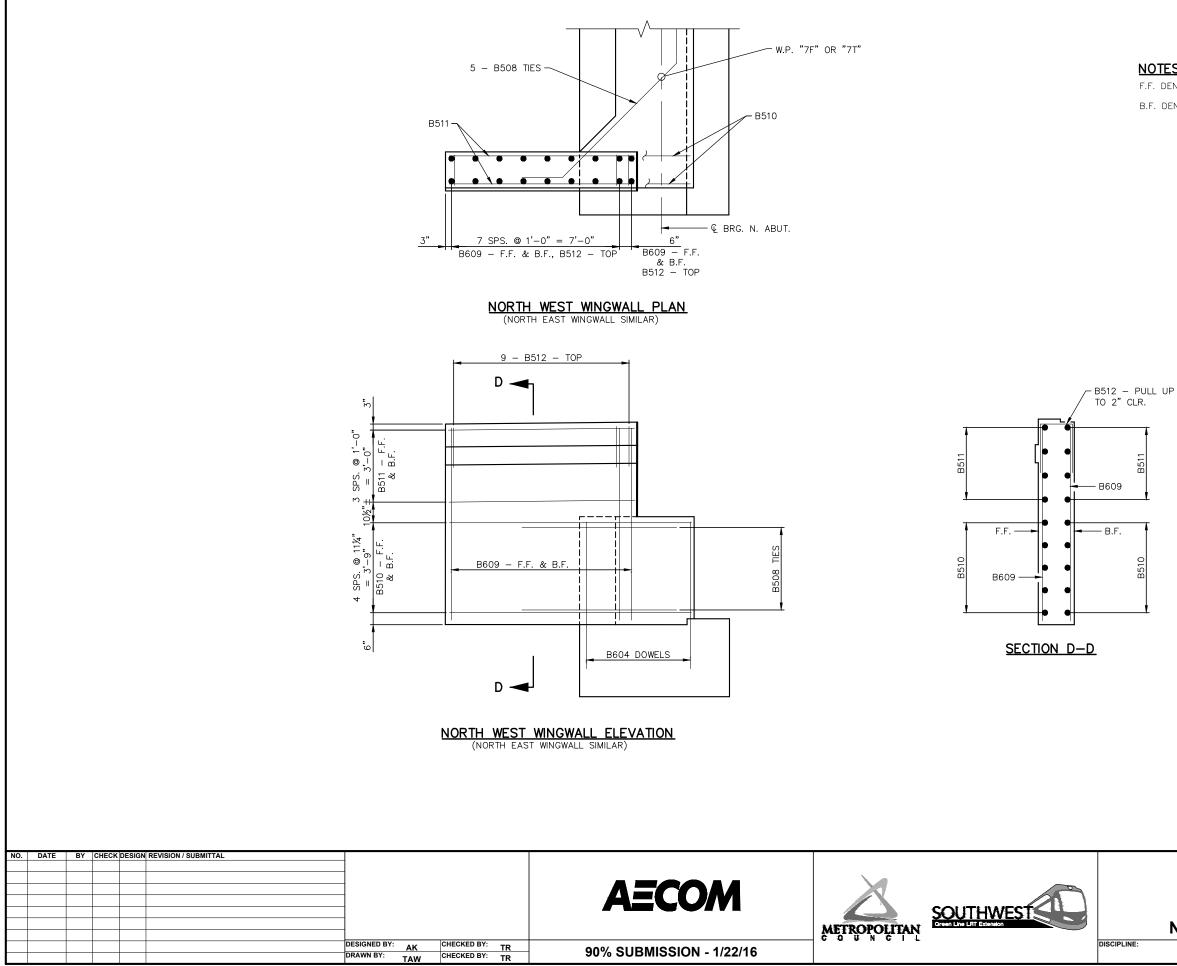
	CIVIL - VO	OLUME 4C	SHEET			
	MINNETON	KA/HOPKINS	36			
	BRIDGE R0686					
N	IORTH ABUTN	IENT DETAILS 4	OF			
IE:		SHEET NAME:	158			
	STRUCTURES	CBRR0686-BRG-ABT-015				



NO.	DATE	BY	CHECK	DESIGN	V REVISION / SUBMITTAL		AECOM	METROPOLITAN	SOUTHWEST Green Life Extension	
									)	
						DESIGNED BY: AK CHECKED BY: TR	90% SUBMISSION - 1/22/16			DISCIPLIN
						DRAWN BY: TAW CHECKED BY: TR	50 /0 30 BIVII 3310 N - 1/22/10			

NOTE: FOR SECTION C-C, SEE SHEET ABUT-018.

CIVIL - VOLUME 4C					
MINNETONKA/HOPKINS					
BRIDGE R0686					
IENT DETAILS 5	OF				
SHEET NAME: CBRR0686-BRG-ABT-016	158				
	DLUME 4C KA/HOPKINS E R0686 IENT DETAILS 5				



F.F. DENOTES FRONT FACE. B.F. DENOTES BACK FACE.

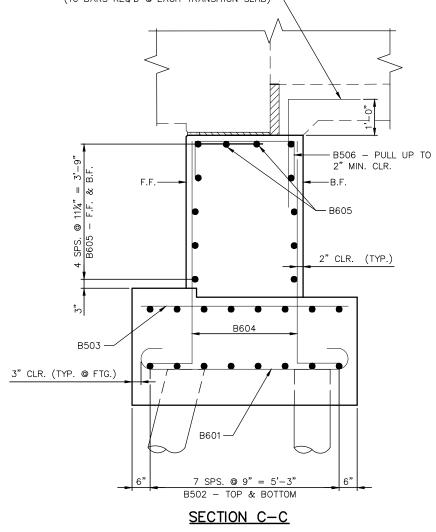
CIVIL - VO	DLUME 4C	SHEET		
MINNETONKA/HOPKINS				
BRIDGE R0686				
NORTH ABUTMENT DETAILS 6				
INE: SHEET NAME:				
STRUCTURES	STRUCTURES CBRR0686-BRG-ABT-017			

F.F. DENOTES FRONT FACE

B.F. DENOTES BACK FACE

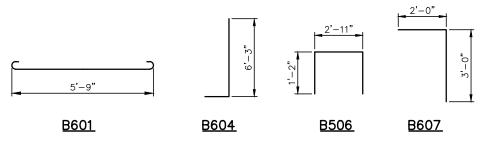
FOR LOCATION OF SECTION C-C, SEE SHEET ABT-016.

B607 BARS SPACED © 1'—0" CTS. (10 BARS REQ'D © EACH TRANSITION SLAB) —



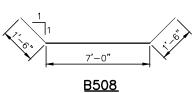
# BILL OF REINFORCEMENT - NORTH ABUTMENT

BAR	NO.	LENGTH	SHAPE	L
B601	46	7'-1"	<u>ر</u> ے	FOOTING - LONGI
B502	16	34'-0"		FOOTING - TRANS
B503	46	5'-9"		FOOTING - LONG
B604	98	7'-3"		FOOTING & BODY
B605	12	31'-11"		BODY - F.F., B.F
B506	33	5'-3"		BR. SEAT TIES
B607	20	5'-0"		BODY - TOP - 7
B508	10	10'-0"		BODY CORNERS -
B609	36	8'-0"		WINGS - VERT.
B510	20	10'-0"		WINGS - HORIZ.
B511	16	7'-8"		WINGS - HORIZ.
B512	18	4'-0"		WINGS - TOP TIE



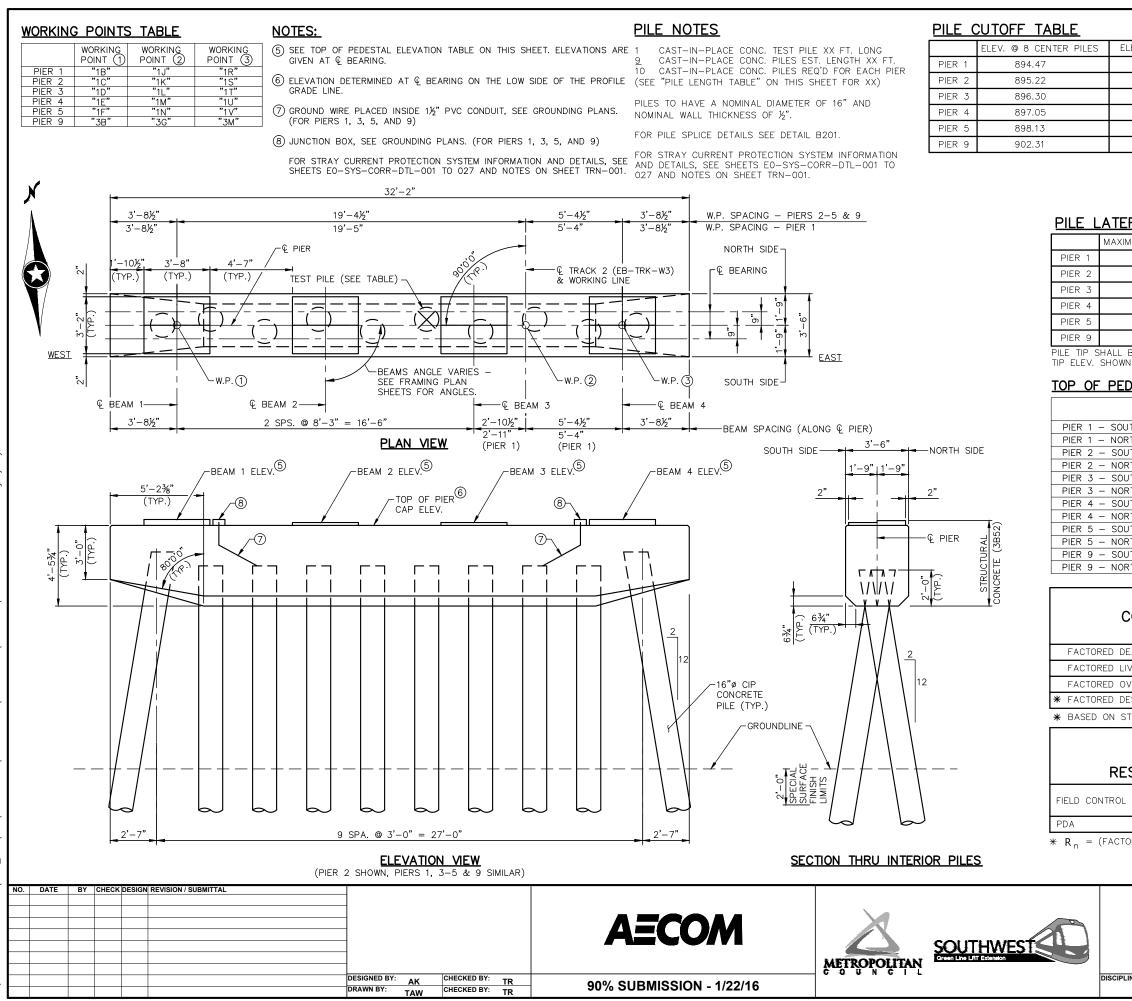
34											
- -	O. DATE	BY	CHECK	DESIGN REVISION / SUBMITTAL	-				CIVIL - V	OLUME 4C	SHEET
b										KA/HOPKINS	
: 38		-			-	ΔΞΓΟΜ					39
6 1					-		SOUTHWEST		BRIDG	E R0686	
201							METROPOLITAN			IENT DETAILS 7	OF
8											
Jan,		_			DESIGNED BY: AK CHECKED BY: TR DRAWN BY: TAW CHECKED BY: TR	90% SUBMISSION - 1/22/16		DISCIPLINE:	STRUCTURES	CBRR0686-BRG-ABT-018	158

LOCATION
IT. BOTTOM
IS. TOP & BOTTOM
IT. TOP
/ - DOWELS
F. & TOP
TRANSITION SLAB AREAS
- TIES
S





<u>B512</u>



MAXIM

PILE TIP SHALL BE PLACED BELOW THE MAXIMUM TIP ELEV. SHOWN.

PIER 1 - SOU PIER 1 - NOR PIER 2 - SOU PIER 2 - NOR PIER 3 - SOU PIER 3 - NOR PIER 4 - SOU PIER 4 - NOR PIER 5 - SOU PIER 5 - NOR

FACTORED DE FACTORED LI FACTORED O \* FACTORED DE \* BASED ON STRENGTH V LOAD COMBINATION

RE:

.ev. @ 2 e	ND PILES
895	.37
896	.12
897	.20
897	.95
899	.03
903	.21

	TEST PILE LENGTH	EST. PILE LENGTH	TEST PILE NUMBER			
PIER 1	75'	65'	2			
PIER 2	85'	75'	3			
PIER 3	100'	90'	4			
PIER 4	100'	90'	5			
PIER 5	75'	65'	6			
PIER 9	65'	55'	10			

## PILE LATERAL STABLITIY TABLE

IUM	ΤIΡ	ELEV.	FOR	LATER	AL	STA	BILITY	′
		8	39.71					
		8	40.46					
		8	41.54					
		8	22.29					
		8	23.37					
		8	37.56					

### TOP OF PEDESTAL ELEVATION TABLE

6

	ELEVATION - BEAM 1 (5)	ELEVATION - BEAM 2 (5)	ELEVATION - BEAM 35	ELEVATION - BEAM 4 (5)	ELEVATION - TOP OF CAP
JTH SIDE	897.29	897.12	897.12	897.29	896.95
RTH SIDE	897.30	897.13	897.13	897.30	
JTH SIDE	898.03	897.87	897.87	898.03	897.70
RTH SIDE	898.05	897.88	897.88	898.05	
JTH SIDE	899.12	898.95	898.95	899.12	898.78
RTH SIDE	899.13	898.97	898.97	899.13	
JTH SIDE	899.87	899.70	899.70	899.87	899.53
RTH SIDE	899.88	899.71	899.71	899.88	
JTH SIDE	900.95	900.78	900.78	900.95	900.61
RTH SIDE	900.96	900.80	900.80	900.96	
JTH SIDE	905.14	904.97	904.97	905.14	904.80
RTH SIDE	905.18	905.02	905.02	905.18	

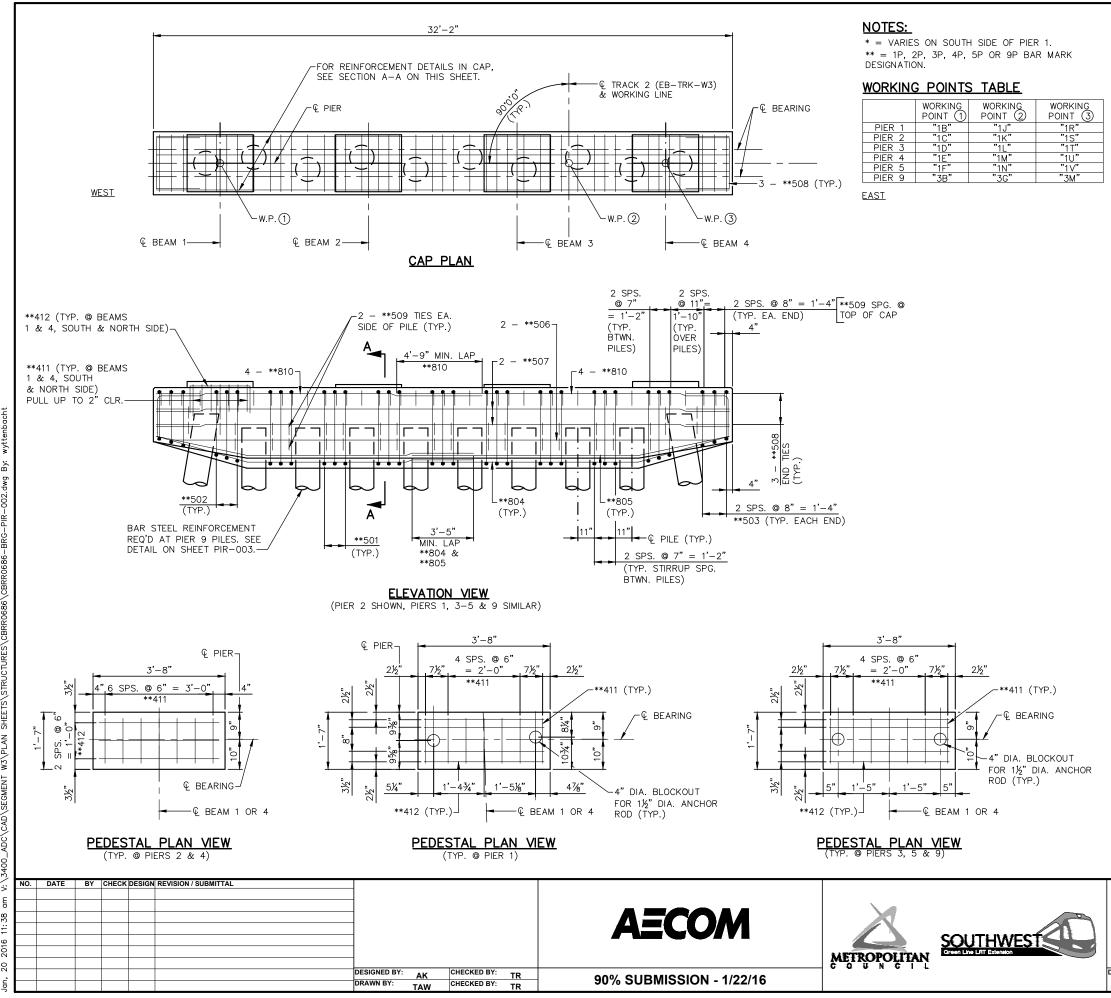
## PIERS 1-5 & 9 COMPUTED PILE LOAD - TONS/PILE

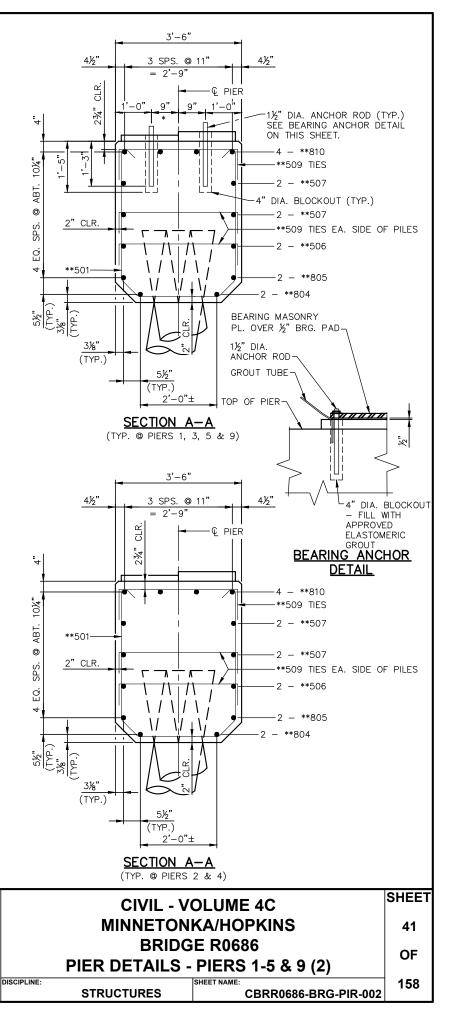
				•		
	PIER 1	PIER 2	PIER 3	PIER 4	PIER 5	PIER 9
EAD LOAD	86.4	86.4	88.2	89.7	83.0	80.9
VE LOAD	27.6	29.1	33.6	27.9	33.0	29.1
VERTURNING	14.8	12.7	15.7	15.3	17.5	21.9
ESIGN LOAD	128.9	128.2	137.5	132.9	133.5	131.9

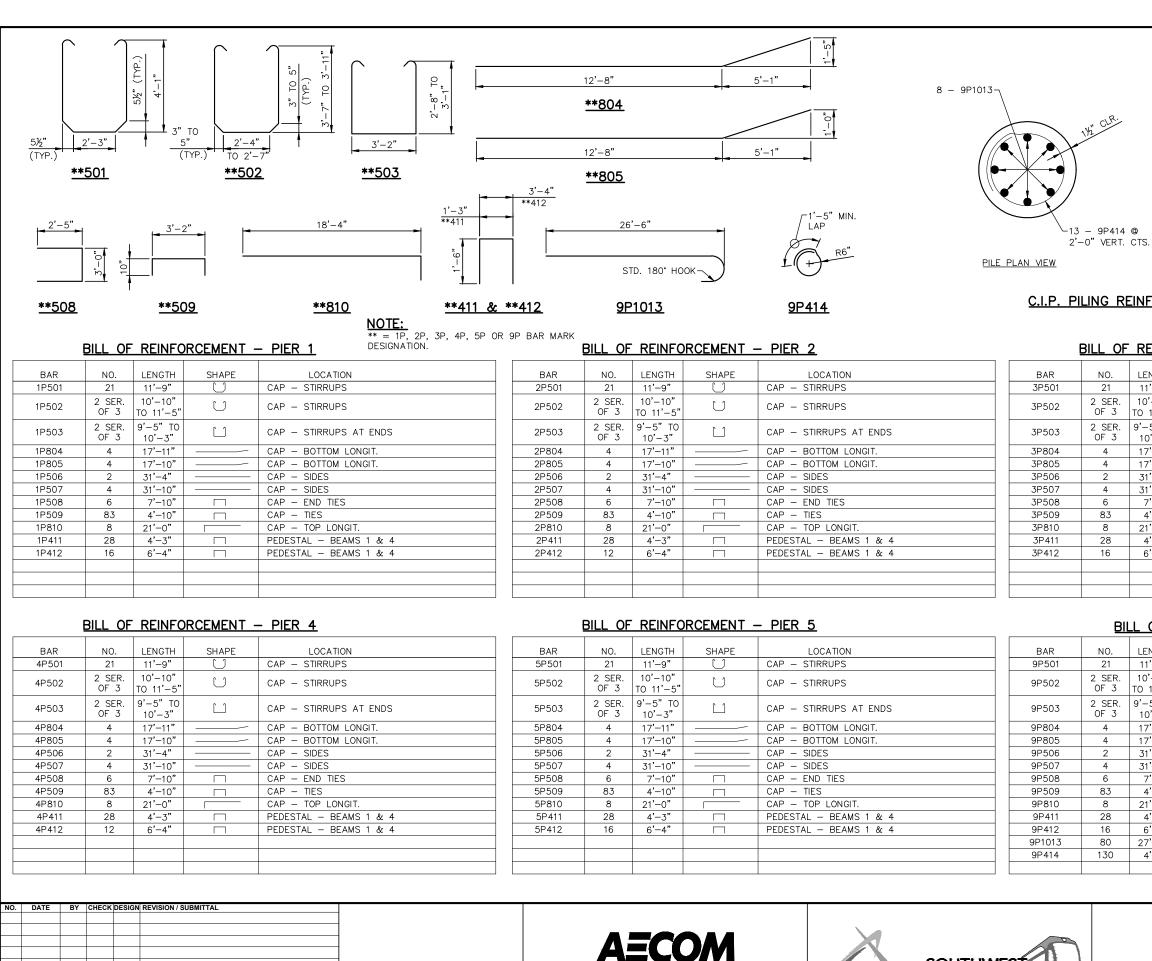
PIERS 1-5 & 9 REQUIRED NOMINAL PILE BEARING SISTANCE FOR CIP PILES R - TONS/PILE							
METHOD	φ <sub>dyn</sub>	PIER 1	PIER 2	PIER 3	PIER 4	PIER 5	PIER 9
METHOD	+ ayn	* R <sub>n</sub>					
	0.65	198.3	197.3	211.6	204.5	205.4	202.9

\* R  $_{\rm n}$  = (factored design load) /  $\phi$   $_{\rm dyn}$ 

CIVIL - VOLUME 4C					
MINNETONKA/HOPKINS					
BRIDGE R0686					
PIER DETAILS - PIERS 1-5 & 9 (1)					
INE: STRUCTURES CBRR0686-B	RG-PIR-001 158				







DESIGNED BY: AK

DRAWN BY: TAW

CHECKED BY: TR

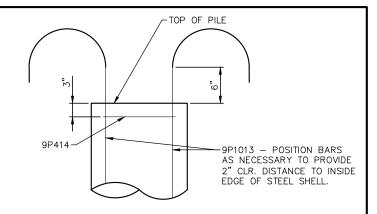
CHECKED BY: TR

90% SUBMISSION - 1/22/16

DISCIPLINE:

Southwest

METROPOLITAN



PART ELEVATION @ PILE

### C.I.P. PILING REINFORCEMENT - PIER 9

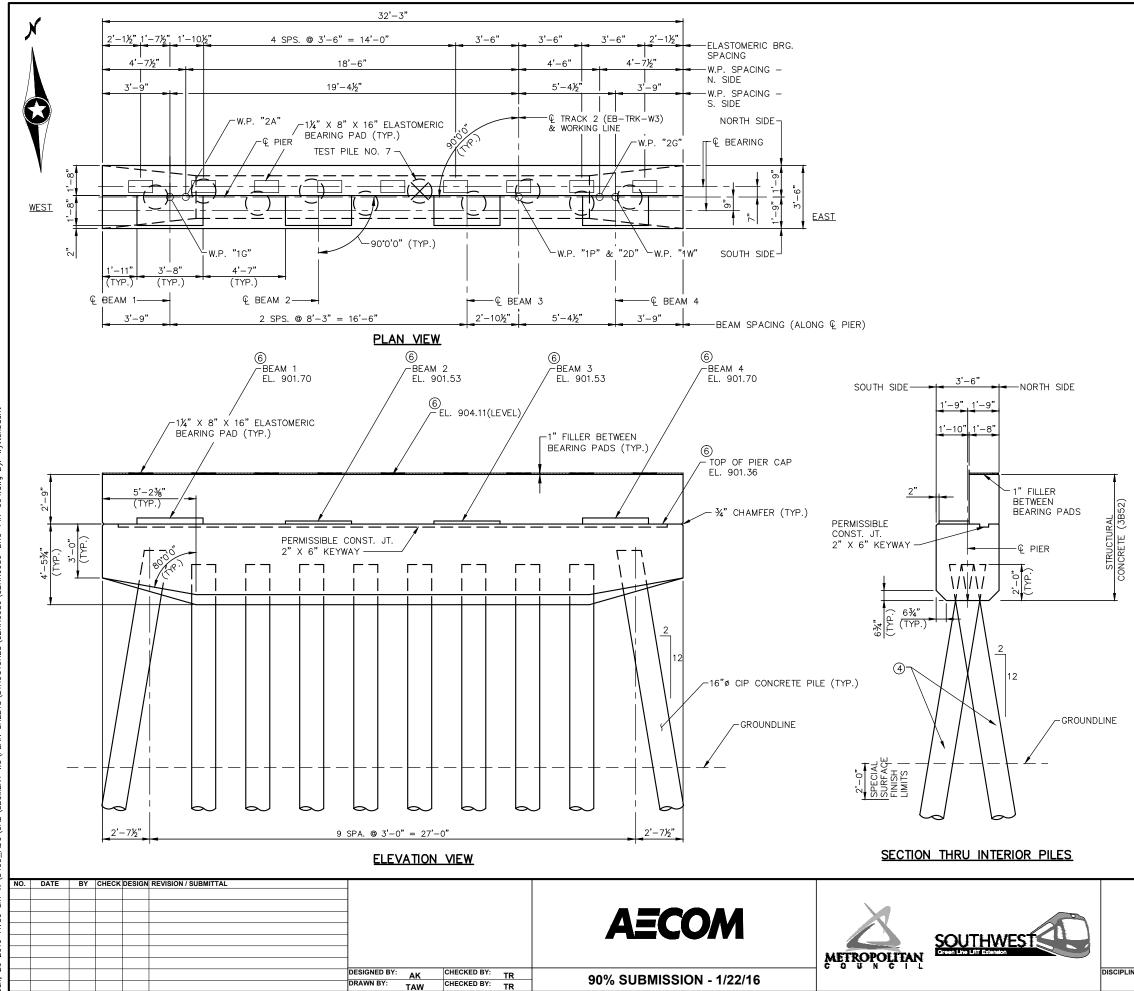
#### BILL OF REINFORCEMENT - PIER 3

LENGTH	SHAPE	LOCATION
11'-9"		CAP – STIRRUPS
10'-10" TO 11'-5"	$\bigcup$	CAP – STIRRUPS
9'-5" TO 10'-3"		CAP – STIRRUPS AT ENDS
17'-11"		CAP – BOTTOM LONGIT.
17'-10"		CAP – BOTTOM LONGIT.
31'-4"		CAP – SIDES
31'-10"		CAP – SIDES
7'-10"		CAP - END TIES
4'-10"		CAP – TIES
21'-0"		CAP – TOP LONGIT.
4'-3"		PEDESTAL – BEAMS 1 & 4
6'-4"		PEDESTAL – BEAMS 1 & 4

### BILL OF REINFORCEMENT - PIER 9

	LENGTH	SHAPE	LOCATION
	11'-9"	U	CAP – STIRRUPS
•	10'-10" TO 11'-5"	U	CAP – STIRRUPS
•	9'-5" TO 10'-3"		CAP – STIRRUPS AT ENDS
	17'-11"		CAP - BOTTOM LONGIT.
	17'-10"		CAP - BOTTOM LONGIT.
	31'-4"		CAP – SIDES
	31'-10"		CAP – SIDES
	7'-10"		CAP - END TIES
	4'-10"		CAP – TIES
	21'-0"		CAP – TOP LONGIT.
	4'-3"		PEDESTAL – BEAMS 1 & 4
	6'-4"		PEDESTAL – BEAMS 1 & 4
	27'-11"		PILES – VERTICAL
	4'-7"	Õ	PILES - HOOPS

	CIVIL - VOLUME 4C		
	MINNETONKA/HOPKINS		
	BRIDGE R0686		
	PIER DETAILS - PIERS 1-5 & 9 (3)		
:	SHEET NAME:		
	STRUCTURES CBRR0686-BRG-PIR-003		



#### PILE NOTES

1CAST-IN-PLACE CONC. TEST PILE 70 FT. LONG9CAST-IN-PLACE CONC. PILES EST. LENGTH 60 FT.10CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 6

PILES TO HAVE A NOMINAL DIAMETER OF 16" AND NOMINAL WALL THICKNESS OF  $\frac{1}{2}$ ".

FOR PILE SPLICE DETAILS SEE DETAIL B201.

PILE CUTOFF IS EL. 898.88 (8 CENTER PILES) AND EL. 899.78 (2 END PILES).

MAXIMUM TIP ELEVATION FOR LATERAL STABILITY IS EL. 844.12. PILE TIP SHALL BE PLACED BELOW MAXIMUM TIP ELEVATION.

FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.

#### NOTES:

6 ELEVATIONS DETERMINED AT & BEARING AT TOP OF CONCRETE.

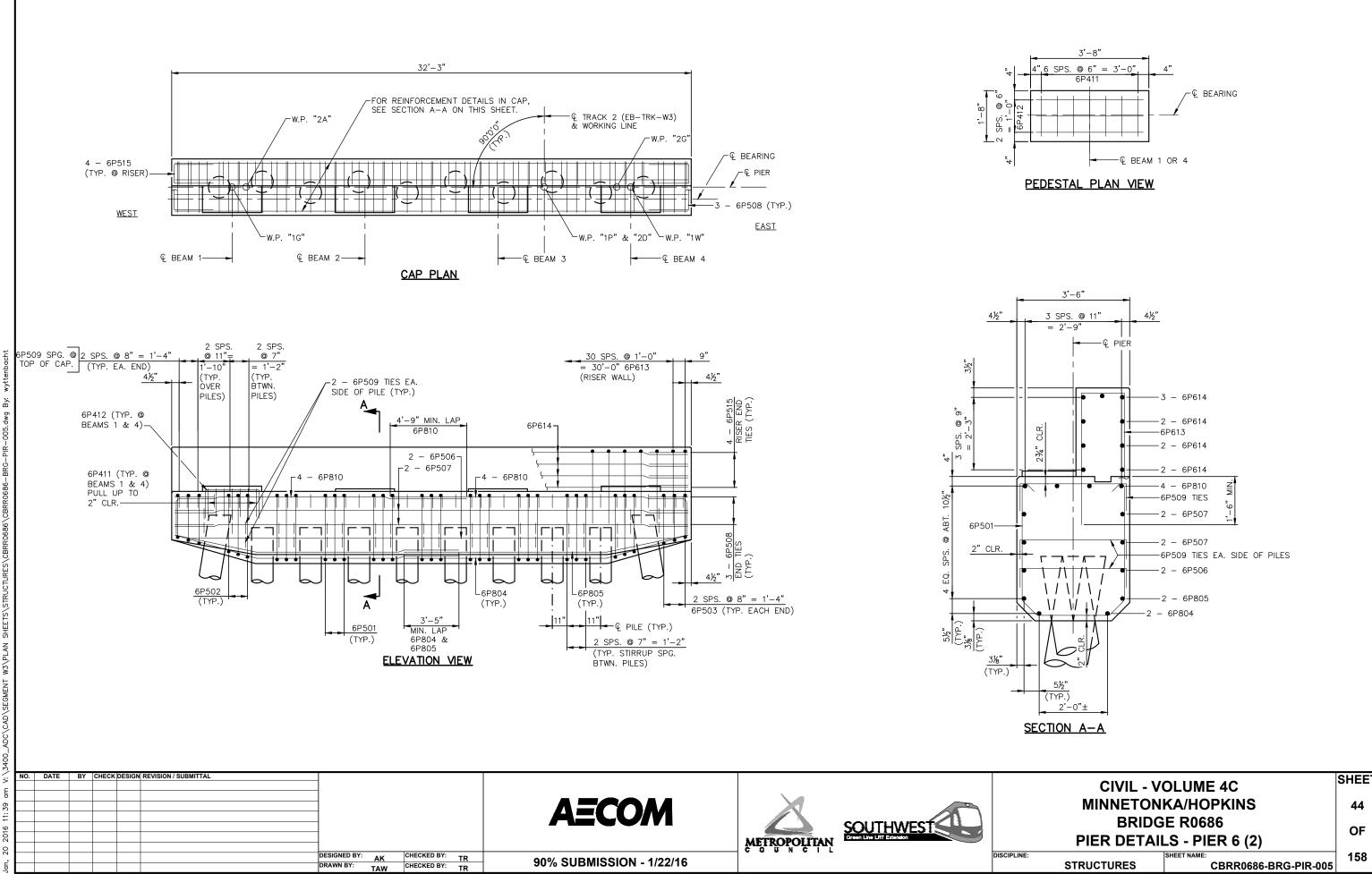
PIER 6 REQUIRED NOMINAL PILE BEARING RESISTANCE FOR CIP PILES R – TONS/PILE					
FIELD CONTROL METHOD $\phi_{dyn}$ * R n					
PDA	0.65	141.1			
* <b>D</b> - (FACTORED DESIGN LOAD) / ( <b>0</b> )					

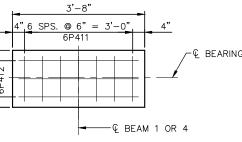
\*  $\mathbf{R}_{n} = (FACTORED DESIGN LOAD) / \Psi_{dyn}$ 

PIER 6 COMPUTED PILE LOAD	
FACTORED DEAD LOAD	64.8
FACTORED LIVE LOAD	25.0
FACTORED OVERTURNING	2.0
* FACTORED DESIGN LOAD	91.7

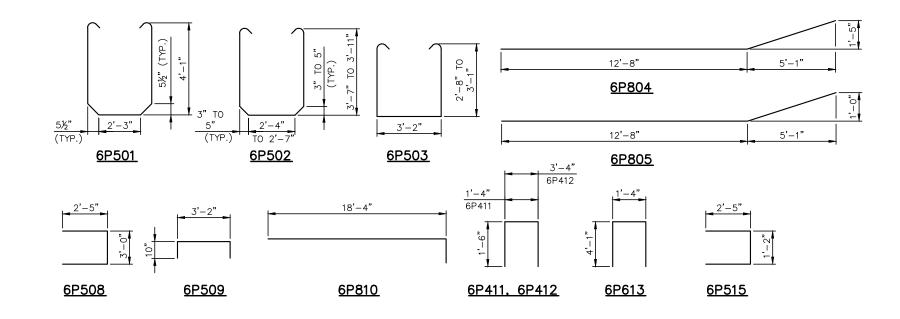
\* BASED ON STRENGTH V LOAD COMBINATION

<b>CIVIL - VOLUME 4C</b>	SHEET
<b>MINNETONKA/HOPKINS</b>	43
BRIDGE R0686	OF
PIER DETAILS - PIER 6 (1	)
IE: STRUCTURES CBRR068	6-BRG-PIR-004





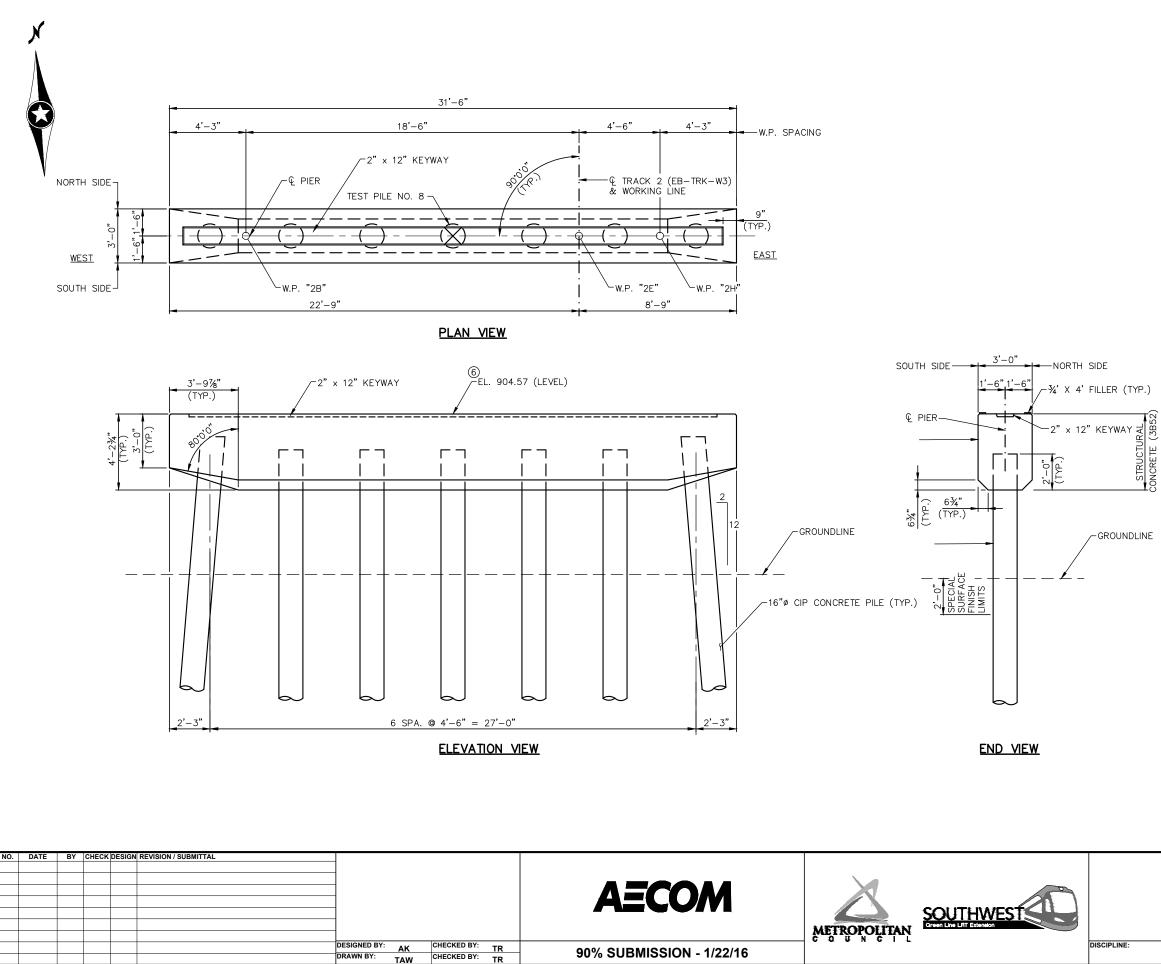
CIVIL - VOLUME 4C		
MINNETONKA/HOPKINS		
BRIDGE R0686		
PIER DETAILS - PIER 6 (2)		
INE: SHEET NAME:		
STRUCTURES CBRR0686-BRG-PIR-005		



BAR	NO.	LENGTH	SHAPE	LOCATION
6P501	21	11'-9"	U	CAP – STIRRUPS
6P502	2 SER. OF 3	10'-10" TO 11'-5"	$\cup$	CAP – STIRRUPS
6P503	2 SER. OF 3	9'-5" TO 10'-3"		CAP – STIRRUPS AT ENDS
6P804	4	17'-11"		CAP - BOTTOM LONGIT.
6P805	4	17'-10"		CAP – BOTTOM LONGIT.
6P506	2	31'-4"		CAP – SIDES
6P507	4	31'-10"		CAP – SIDES
6P508	6	7'-10"		CAP - END TIES
6P509	83	4'-10"		CAP – TIES
6P810	8	21'-0"		CAP – TOP LONGIT.
6P411	14	4'-4"		PEDESTAL – BEAMS 1 & 4
6P412	6	6'-4"		PEDESTAL – BEAMS 1 & 4
6P613	33	9'-6"		RISER – VERTICAL
6P614	9	31'-11"		RISER – LONGIT.
6P515	8	6'-0"		RISER – END TIES
6P509 6P810 6P411 6P412 6P613 6P614	83 8 14 6 33 9	4'-10" 21'-0" 4'-4" 6'-4" 9'-6" 31'-11"		CAP – TIES CAP – TOP LONGIT. PEDESTAL – BEAMS 1 & 4 PEDESTAL – BEAMS 1 & 4 RISER – VERTICAL RISER – LONGIT.

NO.	DATE	BY CHECK DESIGN REVISION / SUBMITTAL		AECOM	
			DESIGNED BY: AK CHECKED BY: TR DRAWN BY: TAW CHECKED BY: TR	90% SUBMISSION - 1/22/16	DISCIP

#### SHEET CIVIL - VOLUME 4C MINNETONKA/HOPKINS 45 BRIDGE R0686 OF PIER DETAILS - PIER 6 (3) SHEET NAME: LINE 158 STRUCTURES CBRR0686-BRG-PIR-006



### PILE NOTES

CAST-IN-PLACE CONC. TEST PILE 75 FT. LONG CAST-IN-PLACE CONC. PILES EST. LENGTH 65 FT. CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 7

PILES TO HAVE A NOMINAL DIAMETER OF 16" AND NOMINAL WALL THICKNESS OF 1/2".

FOR PILE SPLICE DETAILS SEE DETAIL B201.

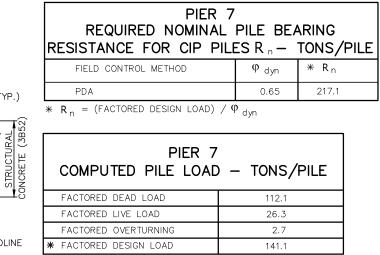
PILE CUTOFF IS EL. 902.34 (5 CENTER PILES) AND EL. 903.09 (2 END PILES).

MAXIMUM TIP ELEVATION FOR LATERAL STABILITY IS EL. 837.45. PILE TIP SHALL BE PLACED BELOW MAXIMUM TIP ELEVATION.

FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.

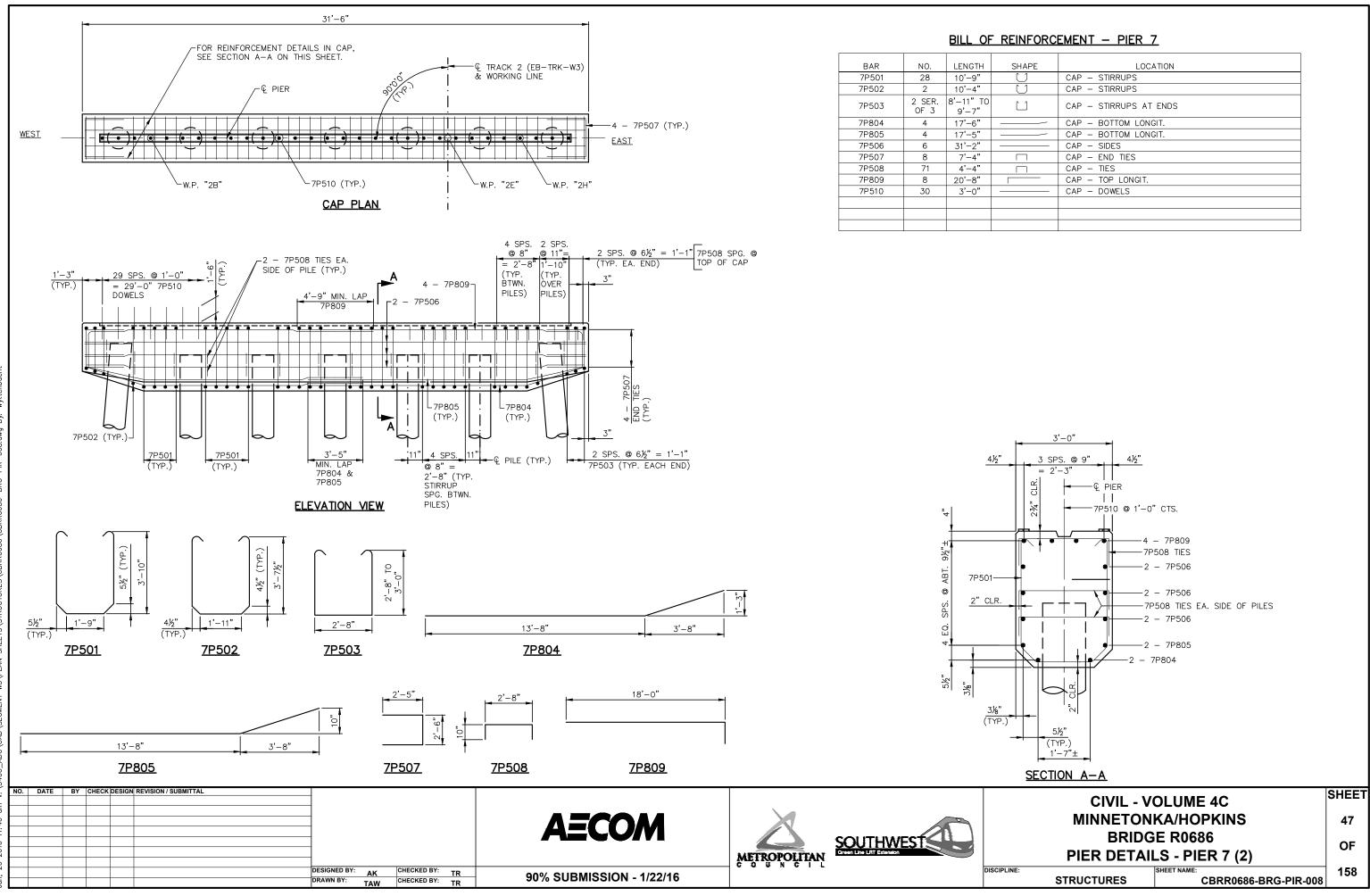
#### NOTES:

6 ELEVATION DETERMINED AT & OF PIER.

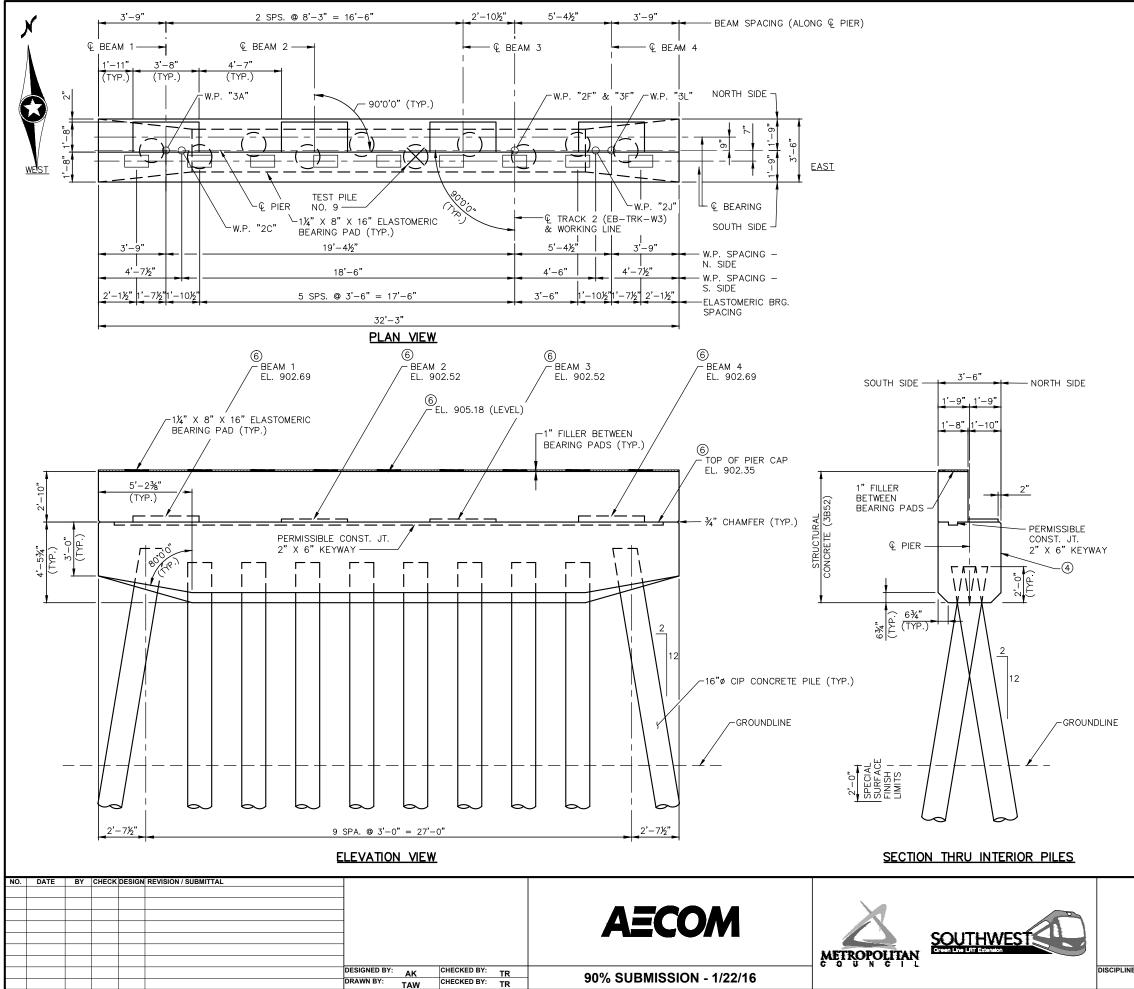


\* BASED ON STRENGTH V LOAD COMBINATION

	CIVIL - V	OLUME 4C	SHEET
	MINNETON	KA/HOPKINS	46
	BRIDG	E R0686	OF
	PIER DETAI	LS - PIER 7 (1)	
NE:	STRUCTURES	SHEET NAME: CBRR0686-BRG-PIR-007	158



SHAPE	LOCATION
U	CAP – STIRRUPS
$\bigcup$	CAP – STIRRUPS
	CAP – STIRRUPS AT ENDS
	CAP – BOTTOM LONGIT.
	CAP – BOTTOM LONGIT.
	CAP – SIDES
	CAP – END TIES
	CAP – TIES
	CAP – TOP LONGIT.
	CAP – DOWELS



#### PILE NOTES

- 1CAST-IN-PLACE CONC. TEST PILE 90 FT. LONG9CAST-IN-PLACE CONC. PILES EST. LENGTH 80 FT.10CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 6

PILES TO HAVE A NOMINAL DIAMETER OF 16" AND NOMINAL WALL THICKNESS OF 1/2".

FOR PILE SPLICE DETAILS SEE DETAIL B201.

PILE CUTOFF IS EL. 899.87 (8 CENTER PILES) AND EL. 900.77 (2 END PILES).

MAXIMUM TIP ELEVATION FOR LATERAL STABILITY IS EL. 825.11. PILE TIP SHALL BE PLACED BELOW MAXIMUM TIP ELEVATION.

FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.

#### NOTES:

⑥ ELEVATIONS DETERMINED AT ♀ BEARING AT TOP OF CONCRETE.

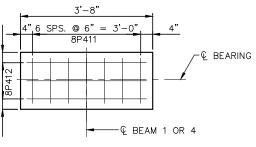
PIER 8 REQUIRED NOMINAL PILE BEARING RESISTANCE FOR CIP PILES R – TONS/PILE				
FIELD CONTROL METHOD	φ <sub>dyn</sub>	* R <sub>n</sub>		
PDA	0.65	149.2		
* $\mathbf{R}_{n}$ = (Factored design load) / $\phi_{dyn}$				

PIER 8 COMPUTED PILE LOAD	
FACTORED DEAD LOAD	66.6
FACTORED LIVE LOAD	29.4
FACTORED OVERTURNING	1.0
* FACTORED DESIGN LOAD	97.0

\* BASED ON STRENGTH V LOAD COMBINATION

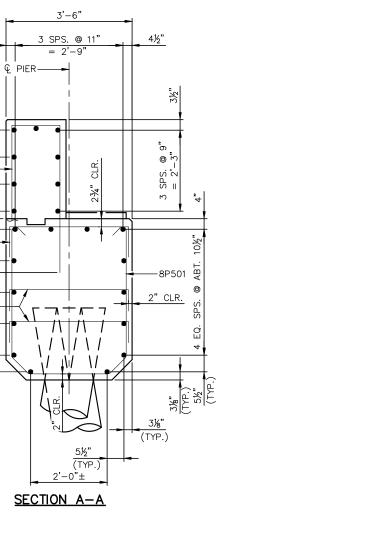
CIVIL - VOLUME 4C		
MINNETONKA/HOPKINS		
BRIDGE R0686		
PIER DETAILS - PIER 8 (1)	OF	
	158	
STRUCTURES CBRR0686-BRG-PIR-00	9	

စ ်ဝ 1'-8" SPS. € BEAM 1—— € BEAM 2-----—€ ВЕАМ З —Ҿ BEAM 4 ∕-₩.₽. "3A" W.P. "2F" & "3F" /─W.P. "3L" LN <u>WEST</u> - 8P508 (TYP.) H <u></u>. 4 – 8P515 (TYP. @ RISER)-└─Q PIER -€ BEARING <u>EAST</u> -W.P. "2J" -W.P. "2C" -€ TRACK 2 (EB-TRK-W3) & WORKING LINE -FOR REINFORCEMENT DETAILS IN CAP, SEE SECTION A-A ON THIS SHEET. 32'-3" 4½" CAP PLAN 2 SPS. @ 7" 8P509 SPG. @ 2 SPS. @ 8" = 1'−4" TOP OF CAP (TYP. EA. END) 4½"\_\_1 2 SPS. @ 11"= <u>30 SPS. @ 1'-0"</u> = 30'-0" 8P613 9" 1'-2" -10 TYP. TYP. (RISER WALL) 4½" 2 - 8P509 TIES EA. ÒVER ÈΤWΝ. SIDE OF PILE (TYP.) PILES) PILES) 3 - 8P614 -<u>4 - 8P515</u> RISER END TIES (TYP.) A\_ 8P412 (TYP. @ 4'-9" MIN. LAP 2 - 8P614-BEAMS 1 & 4)-8P614-8P810 8P613-2 - 8P614-2 - 8P506--2 - 8P507 2 - 8P614-8P411 (TYP. @ -4 - 8P810 \_4 - 8P810 BEAMS 1 & 4) PULL UP TO 4 - 8P810-┝┙<u></u>╸┝╤╶╤┧╤┎╤╷╱╴╷ ╿╫╫╫╫╫┥╫╢╫┝┙╱╱┑ 8P509 TIES-. \_ 2" CLR.-2 - 8P507 · 71 יור ΙГ 2 - 8P507-34 8P509 TIES EA. SIDE OF PILES-<del>!∳ é é! ! !∳<sup>¶</sup>é é! !</del> 1 1 4 1 4 1 3 -END 2 - 8P506-4½" 0 8P502 (TYP.) L8P804 -8P805 Ā 2 - 8P805-2 SPS. @ 8" = 1'-4" (TYP.) (TYP.) 8P503 (TYP. EACH END) 2 - 8P804 ↓11"↓ ↓ PILE (TYP.) 3'-5" - 11 8P501 MIN. LAP (TYP.) 8P804 & 2 SPS. @ 7" = 1'-2" 8P805 (TYP. STIRRUP SPG. ELEVATION VIEW BTWN. PILES) NO. DATE BY CHECK DESIGN REVISION / SUBMITT AECOM METROPOLITAN CHECKED BY: TR DESIGNED BY: AK DISCIPLIN 90% SUBMISSION - 1/22/16 CHECKED BY: TR DRAWN BY: TAW

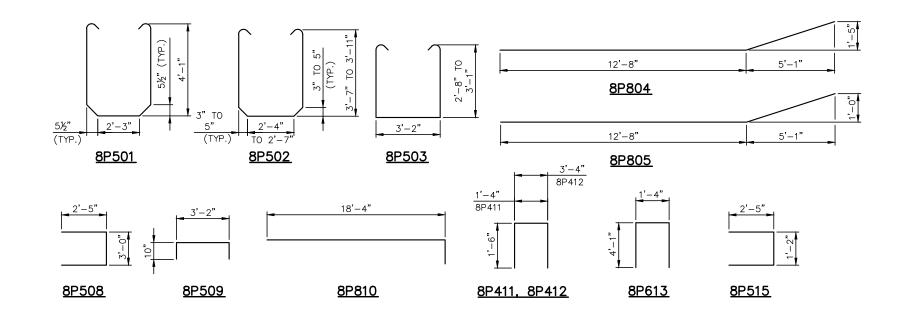


## PEDESTAL PLAN VIEW

ي \_



CIVIL - VOLUME 4C				
MINNETONKA/HOPKINS				
BRIDGE R0686				
PIER DETAILS - PIER 8 (2)				
INE: S	HEET NAME:	158		
STRUCTURES	CBRR0686-BRG-PIR-010			



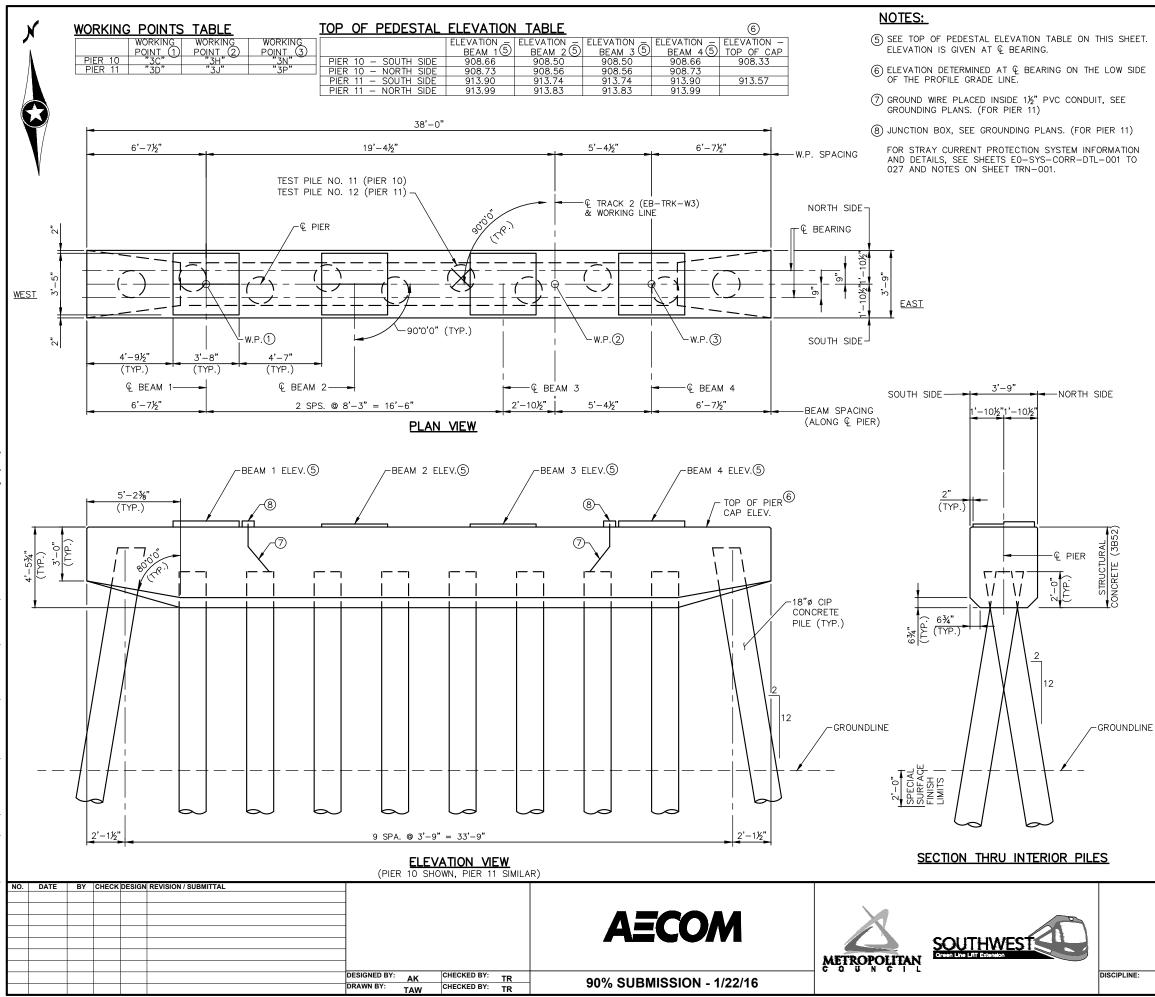
	BI
BAR	NO.
8P501	21
8P502	2 SER. OF 3
8P503	2 SER. OF 3
8P804	4
8P805	4
8P506	2
8P507	4
8P508	6
8P509	83
8P810	8
8P411	14
8P412	6
8P613	33
8P614	9
8P515	8

NO.	DATE	BY	CHECK DESIG	N REVISION / SUBMITTAL						
								AECOM		
					-					
					-					
					-				METROPOLITAN	
					An	CHECKED BY: T	R	90% SUBMISSION - 1/22/16		DISCIPLI
					DRAWN BY: TAW	CHECKED BY: T	R	90% SUDIVIISSIUN - 1/22/10		

LENGTH	SHAPE	LOCATION
11'-9"	U	CAP – STIRRUPS
10'-10" TO 11'-5"	U	CAP – STIRRUPS
9'-5" TO 10'-3"		CAP – STIRRUPS AT ENDS
17'-11"		CAP - BOTTOM LONGIT.
17'-10"		CAP – BOTTOM LONGIT.
31'-4"		CAP – SIDES
31'-10"		CAP – SIDES
7'–10"		CAP – END TIES
4'-10"		CAP – TIES
21'0"		CAP – TOP LONGIT.
4'-4"		PEDESTAL – BEAMS 1 & 4
6'-4"		PEDESTAL – BEAMS 1 & 4
9'-6"		RISER – VERTICAL
31'–11"		RISER – LONGIT.
6'-0"		RISER – END TIES

## BILL OF REINFORCEMENT - PIER 8

		SHEET
CIVIL - VOLUME 4C		
MINNETONKA/HOPKINS		50
BRIDGE R0686		
		OF
PIER DETAILS - PIER 8 (3)		
PLINE: SHEET NAME:		158
STRUCTURES	CBRR0686-BRG-PIR-011	100



#### PILE NOTES

HEET. SIDE	I CAST-IN-PLACE CONC. TEST PILE 85 FT. LONG 2 CAST-IN-PLACE CONC. PILES EST. LENGTH 75 FT. 10 CAST-IN-PLACE CONC. PILES REQ'D FOR PIERS 10 & 11	
	PILES TO HAVE A NOMINAL DIAMETER OF 18" AND NOMINAL WALL THICKNESS OF ${ m >\!\!/_2}$ ".	
1)	FOR PILE SPLICE DETAILS SEE DETAIL B201.	
ION TO	PILE CUTOFF AT PIER 10 IS EL. 905.85 (8 CENTER PILES) AND EL. 906.90 (2 END PILES) AND PILE CUTOFF AT PIER 11 IS EL. 911.09 (8 CENTER PILES) AND EL. 912.14 (2 END PILES).	
	MAXIMUM TIP ELEVATION FOR LATERAL STABILITY IS EL. 836.09 AT PIER 10 AND EL. 841.33 AT PIER 11. PILE TIP SHALL BE PLACED BELOW MAXIMUM TIP ELEVATION.	

FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.

PIER 10 REQUIRED NOMINAL PILE BEARING RESISTANCE FOR CIP PILES R - TONS/PILE				
FIELD CONTROL METHOD	φ <sub>dyn</sub>	* R <sub>n</sub>		
PDA	0.65	198.9		
* $R_n = (FACTORED DESIGN LOAD) / \Phi_{dyn}$				

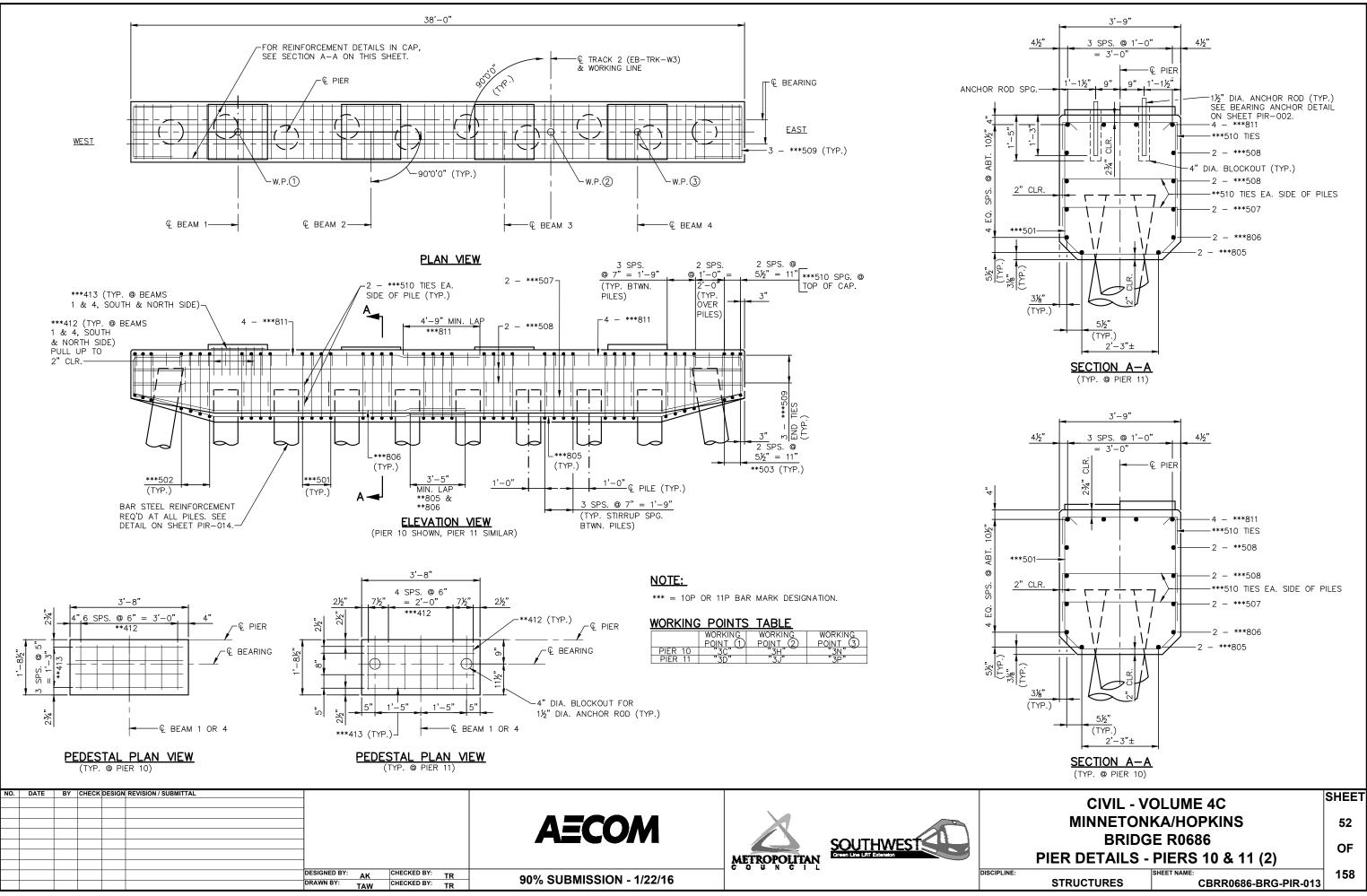
			2	
1				

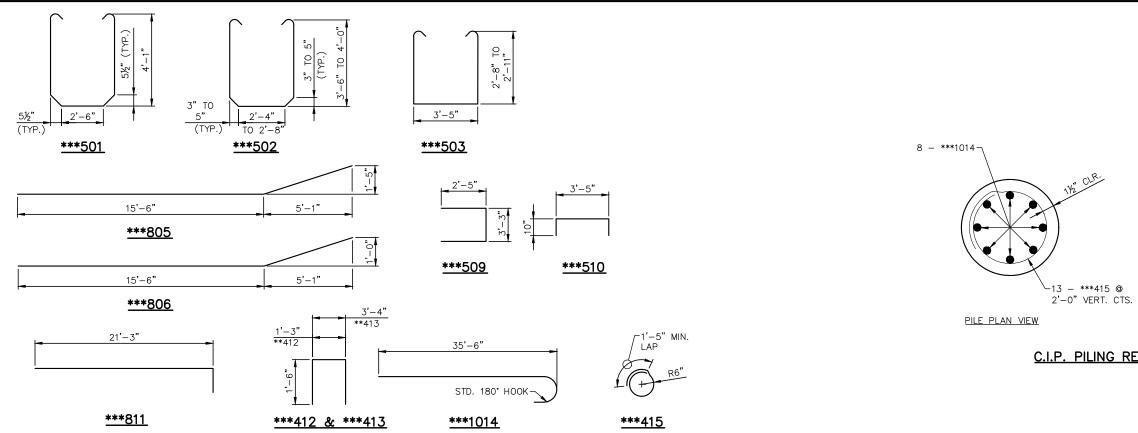
PIER 10 COMPUTED PILE LOAD – TONS/PILE					
f	FACTORED DEAD LOAD	91.5			
F	FACTORED LIVE LOAD	37.3			
F	FACTORED OVERTURNING	0.5			
<b>*</b> F	FACTORED DESIGN LOAD	129.3			
* BASED ON STRENGTH V LOAD COMBINATION					

PIER 11 REQUIRED NOMINAL PILE BEARING RESISTANCE FOR CIP PILES R - TONS/PILE				
FIELD CONTROL METHOD $\phi_{dyn}$ * R				
PDA 0.65 201.2				
* $R_n = (FACTORED DESIGN LOAD) / 9$	p <sub>dyn</sub>			

	PIER 1' COMPUTED PILE LOAD	
	FACTORED DEAD LOAD	86.1
	FACTORED LIVE LOAD	32.7
	FACTORED OVERTURNING	12.0
*	FACTORED DESIGN LOAD	130.8
*	BASED ON STRENGTH V LOAD CO	MBINATION

	CIVIL - VOLUME 4C					
	MINNETONKA/HOPKINS					
	BRIDGE R0686					
	PIER DETAILS - PIERS 10 & 11 (1)					
NE:		SHEET NAME:	158			
	STRUCTURES	CBRR0686-BRG-PIR-012				





## <u>NOTE:</u>

\*\*\* = 10P OR 11P BAR MARK DESIGNATION.

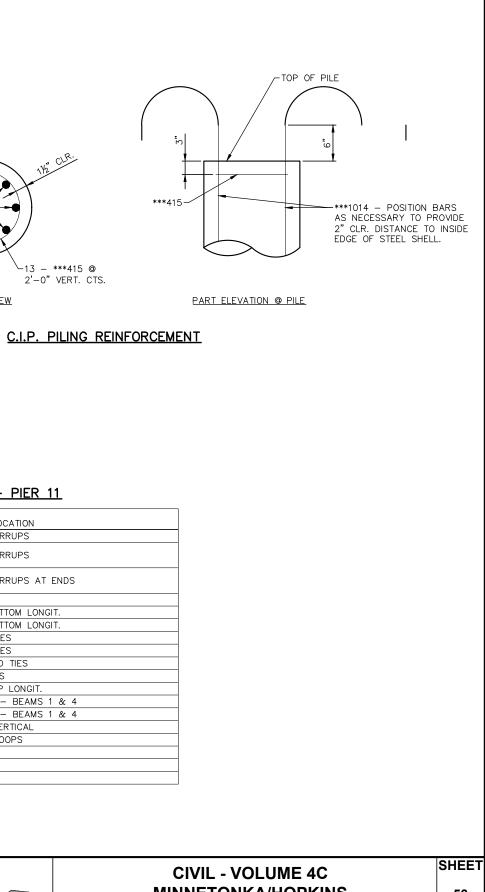
BILL	OF	REINFORCEMENT	_	PIER	10

				T
BAR	NO.	LENGTH	SHAPE	LOCATION
10P501	28	12'-0"	U	CAP – STIRRUPS
10P502	2 SER. OF 4	10'-9" TO 11'-7"	$\bigcup$	CAP – STIRRUPS
10P503	2 SER. OF 3	9'-8" TO 10'-2"		CAP – STIRRUPS AT ENDS
10P805	4	20'-9"		CAP – BOTTOM LONGIT.
10P806	4	20'-8"		CAP – BOTTOM LONGIT.
10P507	2	37'-3"		CAP – SIDES
10P508	4	37'-8"		CAP – SIDES
10P509	6	8'-1"		CAP – END TIES
10P510	92	5'-1"		CAP – TIES
10P811	8	23'-11"		CAP – TOP LONGIT.
10P412	28	4'-4"		PEDESTAL – BEAMS 1 & 4
10P413	16	6'-4"		PEDESTAL – BEAMS 1 & 4
10P1014	80	36'-11"	<u> </u>	PILES – VERTICAL
10P415	180	4'-7"	Õ	PILES - HOOPS

BAR	NO.	LENGTH	SHAPE	LOCATION
11P501	28	12'-0"	U	CAP – STIRRUPS
11P502	2 SER. OF 4	10'-9"TO 11'-7"	$\Box$	CAP – STIRRUPS
11P503	2 SER. OF 3	9'-8" TO 10'-2"		CAP – STIRRUPS AT ENDS
11P805	4	20'-9"		CAP – BOTTOM LONGIT.
11P806	4	20'-8"		CAP – BOTTOM LONGIT.
11P507	2	37'-3"		CAP – SIDES
11P508	4	37'-8"		CAP - SIDES
11P509	6	8'-1"		CAP – END TIES
11P510	92	5'-1"		CAP – TIES
11P811	8	23'-11"	[	CAP – TOP LONGIT.
11P412	28	4'-4"		PEDESTAL – BEAMS 1 & 4
11P413	16	6'-4"		PEDESTAL – BEAMS 1 & 4
11P1014	80	36'-11"		PILES – VERTICAL
11P415	180	4'-7"	Õ	PILES - HOOPS

· •	NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL			AECOM	METROPOLITAN	SOUTHWEST	
							DESIGNED BY: AK DRAWN BY: TAW	CHECKED BY: TR CHECKED BY: TR	90% SUBMISSION - 1/22/16	METROPOLITAN		DISCIPLINE:

#### BILL OF REINFORCEMENT - PIER 11

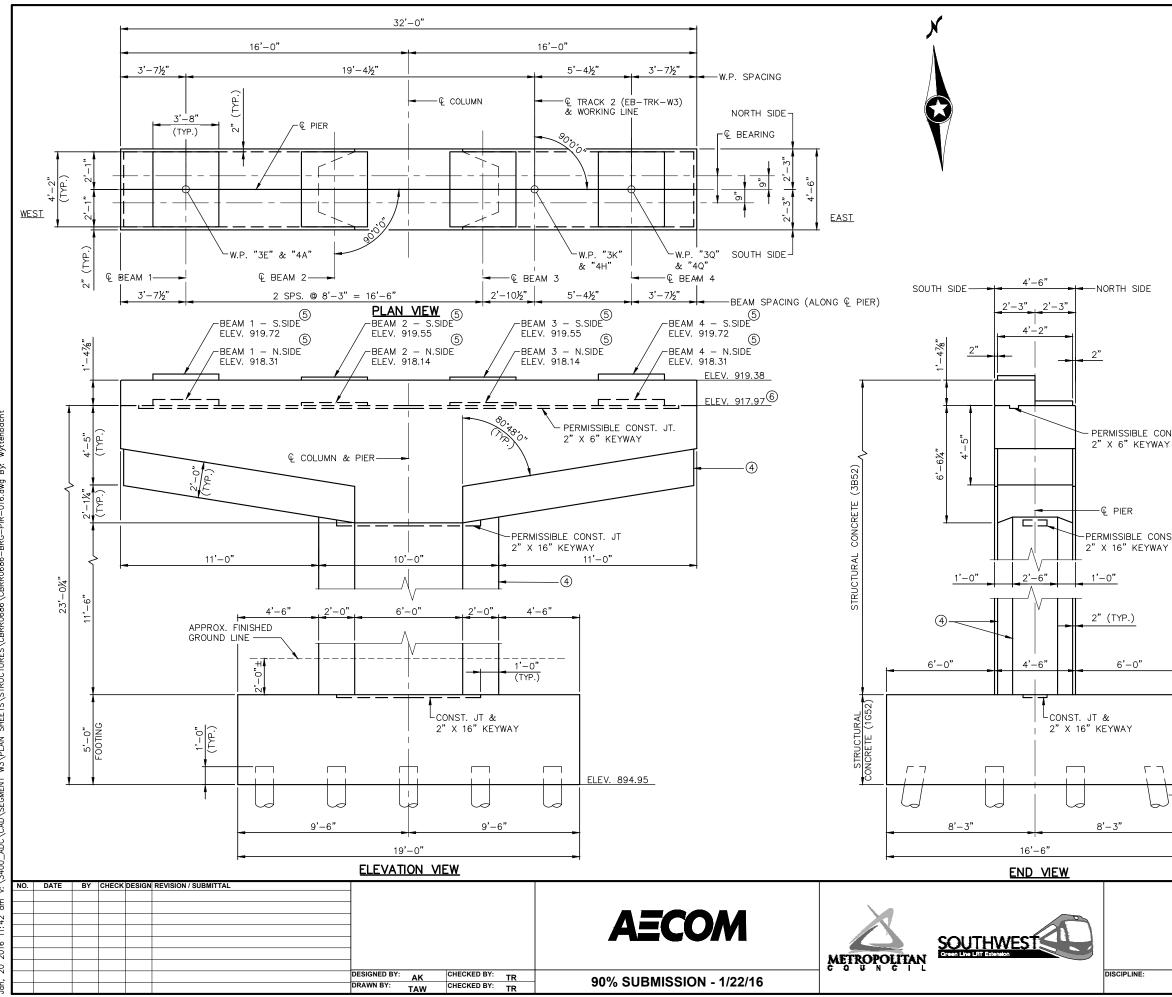


MINNETONKA/HOPKINS		
BRIDGE R0686		
PIER DETAILS - PIERS 10 & 11 (3)		
		158
STRUCTURES	CBRR0686-BRG-PIR-014	1

PIER 1 REQUIRED NOMINAL	PILE BEA		PIER 12 COMPUTED PILE LOAD		PILE NOTES 1 CAST-IN-PLACE CONC. 17 CAST-IN-PLACE CONC.	PILES EST. LENGTH 40 FT.
RESISTANCE FOR CIP PIL		· · · · · · · · · · · · · · · · · · ·			18 CAST-IN-PLACE CONC.	
FIELD CONTROL METHOD	φ <sub>dyn</sub>	* R <sub>n</sub>	FACTORED DEAD LOAD FACTORED LIVE LOAD	60.4	PILES TO HAVE A NOMINAL E WALL THICKNESS OF 纾6".	PIAMETER OF 16" AND NOMINAL
PDA	0.65	148.0	FACTORED LIVE LOAD	20.4 15.4	FOR PILE SPLICE DETAILS SE	E DETAIL B201.
* $R_n = (FACTORED DESIGN LOAD) /$	$\phi_{\text{dyn}}$		* FACTORED DESIGN LOAD	96.2	PILE CUTOFF IS EL. 895.95.	
			★ BASED ON STRENGTH V LOAD CC	MBINATION	, Maximum tip elevation for Pile tip shall be placed e for stray current protec	LATERAL STABILITY IS EL. 869.95. BELOW MAXIMUM TIP ELEVATION. CTION SYSTEM INFORMATION AND S-CORR-DTL-001 TO 027 AND
			<del>-</del>	19'-4½"		<u>−4½</u> " W.P. SPACING
			2'-10½"	16'-6"	2'-6"	2'-10½"
	X			9'-6"	9'-6" ¢	TRACK 2 (EB-TRK-W3) WORKING LINE
		ହ PIER-	<sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup>			4H" \   / & "4Q"   to
		WEST —				
		PILE SI	ACING 4'-4½"	3 SPS. (a) $4'-0'' = 12'-0''15'-0''$		PILE SPACING
				19'-0"		
				19 – 0		4
				FOOTING P	LAN	
O. DATE BY CHECK DESIGN REVISION / SUBM	<b>/</b> ITTAL					
						× ×
				AE	COM	
		DES	GNED BY: AK CHECKED BY: TR		<b>COM</b> SSION - 1/22/16	

DISCIPLI

CIVIL - VOLUME 4C					
MINNETONKA/HOPKINS					
BRIDGE R0686					
PIER DETAILS - PIER 12 (1)					
	158				
STRUCTURES CBRR0686-BRG-PIR-015					



- PERMISSIBLE CONST. JT.

PERMISSIBLE CONST. JT

 $\Box$ 

#### NOTES:

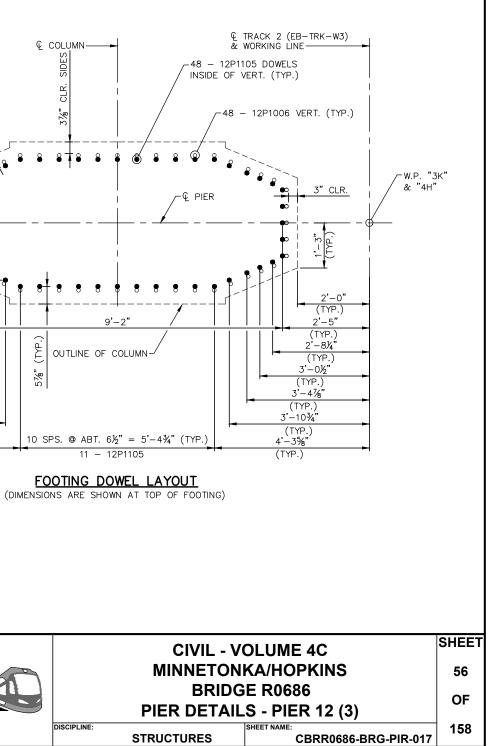
- (4) SEE SPECIAL PROVISIONS AND SHEET AES-001 FOR SPECIAL SURFACE FINISH REQUIREMENTS.
- (5) ELEVATIONS DETERMINED AT € BEARING.
- ⑥ ELEVATION DETERMINED AT € BEARING ON THE NORTH SIDE OF THE PIER.

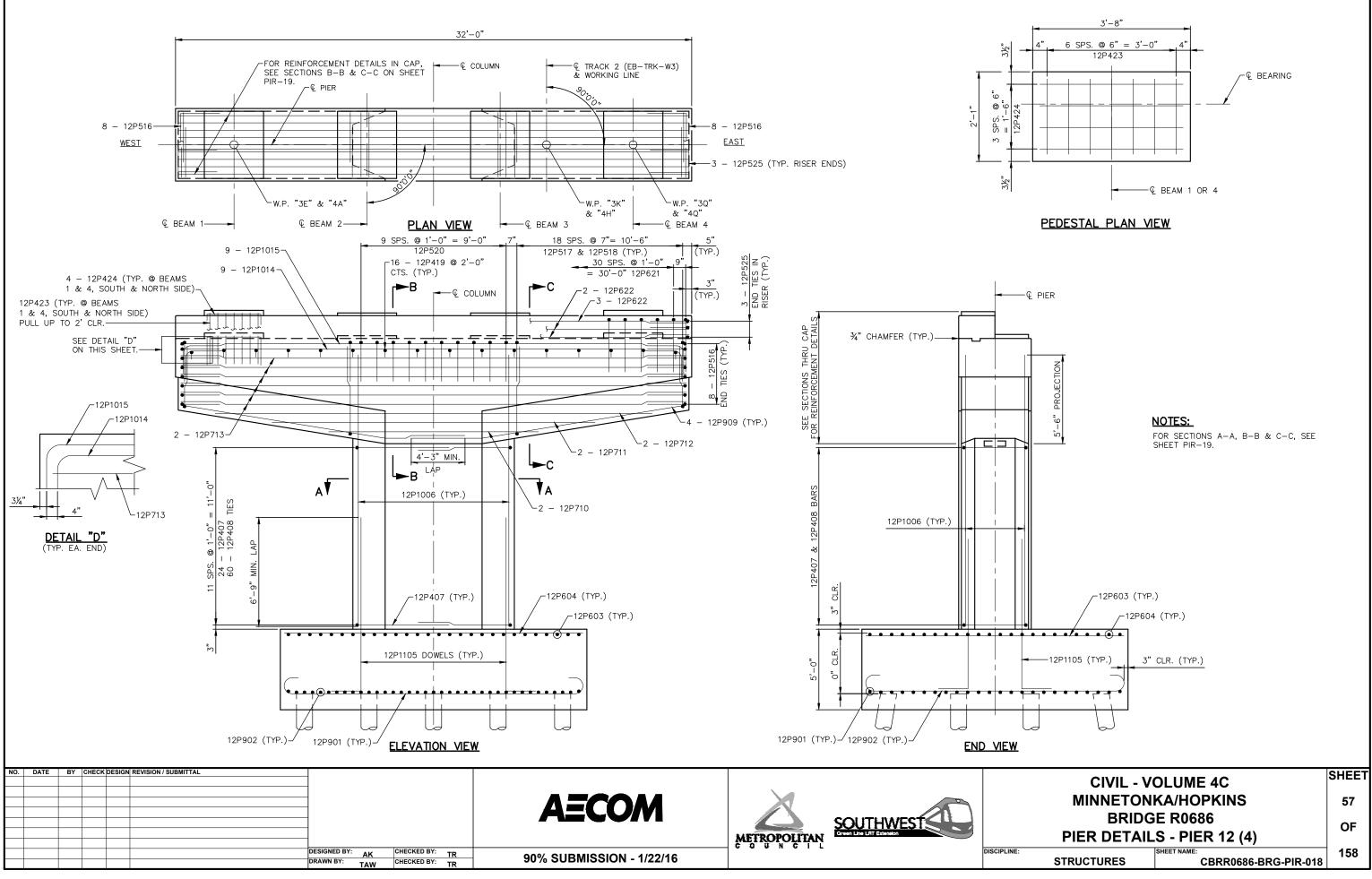
FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.

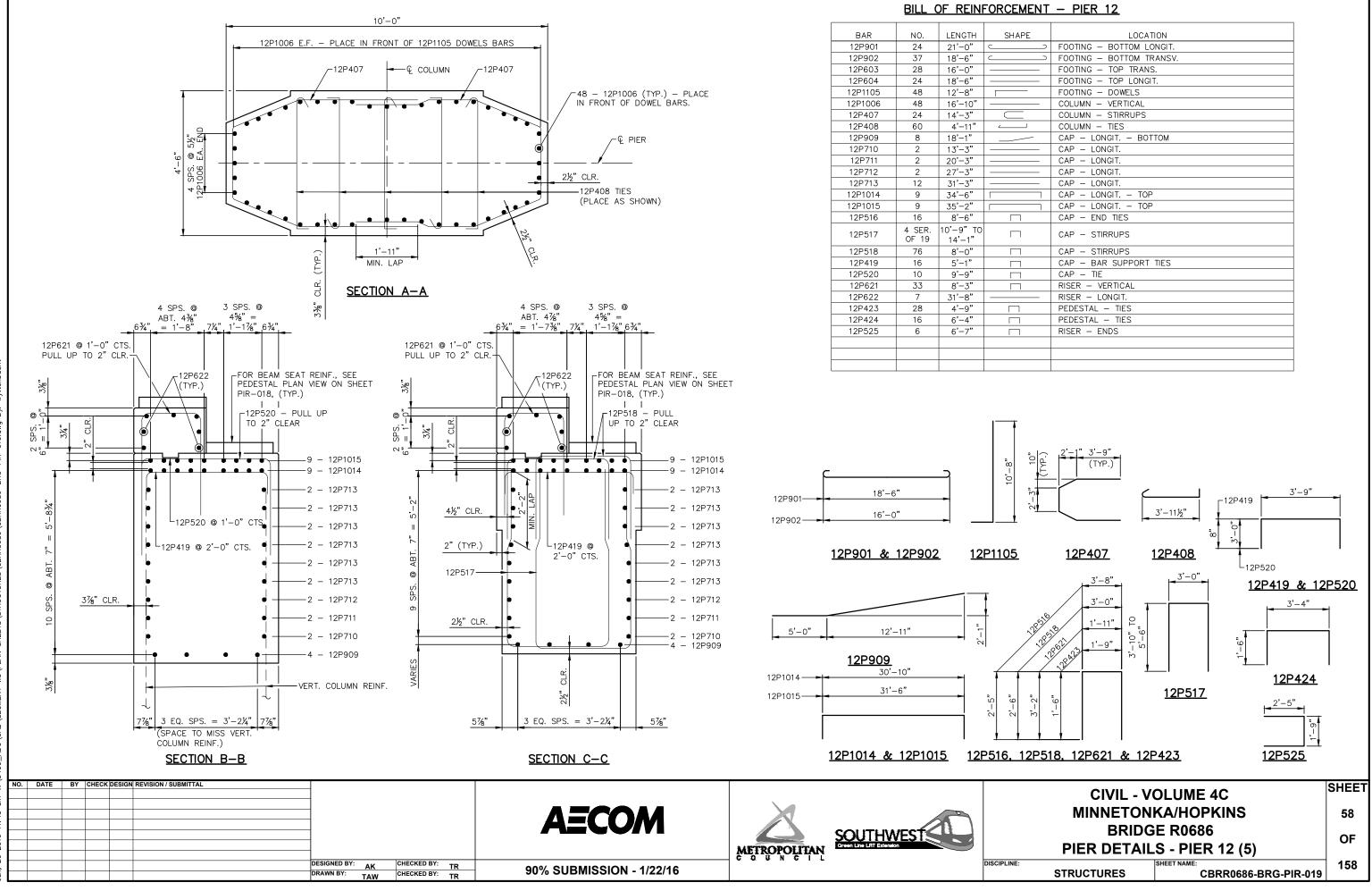
CIVIL - V	OLUME 4C	SHEET	
MINNETONKA/HOPKINS			
BRIDGE R0686			
PIER DETAILS - PIER 12 (2)			
	SHEET NAME:	158	
STRUCTURES	CBRR0686-BRG-PIR-016	100	

€ COLUMN & FOOTING-—€ TRACK 2 (EB−TRK−W3) & WORKING LINE 19'-0'9'-6" 9'-6" င္ COLUMN— ကျ 4'-6" 2'-0" 6'-0" 2'-0" 4'-6" .0 CLR. W.P. "3K" & "4H" 1,-0" οc 5<u>γ</u>" (TYP.) ∕~₩.₽. "3E" & "4A" € PIER-6'-6' <u>WEST</u> <u>EAST</u> 'n. ∠<sub>W.P.</sub> "3Q" & "4Q" (TYP.) OUTLINE OF COLUMN-ا ش 5" (TYP. 2, 8¼" (TYP.) '-0½"\_ 57%" TYP.) 1'−4%" 2'-6" (TYP.) 1'-10¾" 6" 12P603 (TOP) 12P902 (BOTTOM) 27 SPS. @ 8" = 18'-0" 6" (TYP.) 2'-3%" (TYP.) 36 SPS. @ 6" = 18'−0" 12P604 (TOP) 12P901 (BOTTOM) NOTE: THE VERTICAL COLUMN BARS MUST BE PLACED IN FRONT OF THE DOWEL BARS. FOOTING REINFORCEMENT NO. DATE BY CHECK DESIGN REVISION / SUBMITT AECOM METROPOLITAN CHECKED BY: TR CHECKED BY: TR DESIGNED BY: AK DISCIPLINE: 90% SUBMISSION - 1/22/16 DRAWN BY: TAW

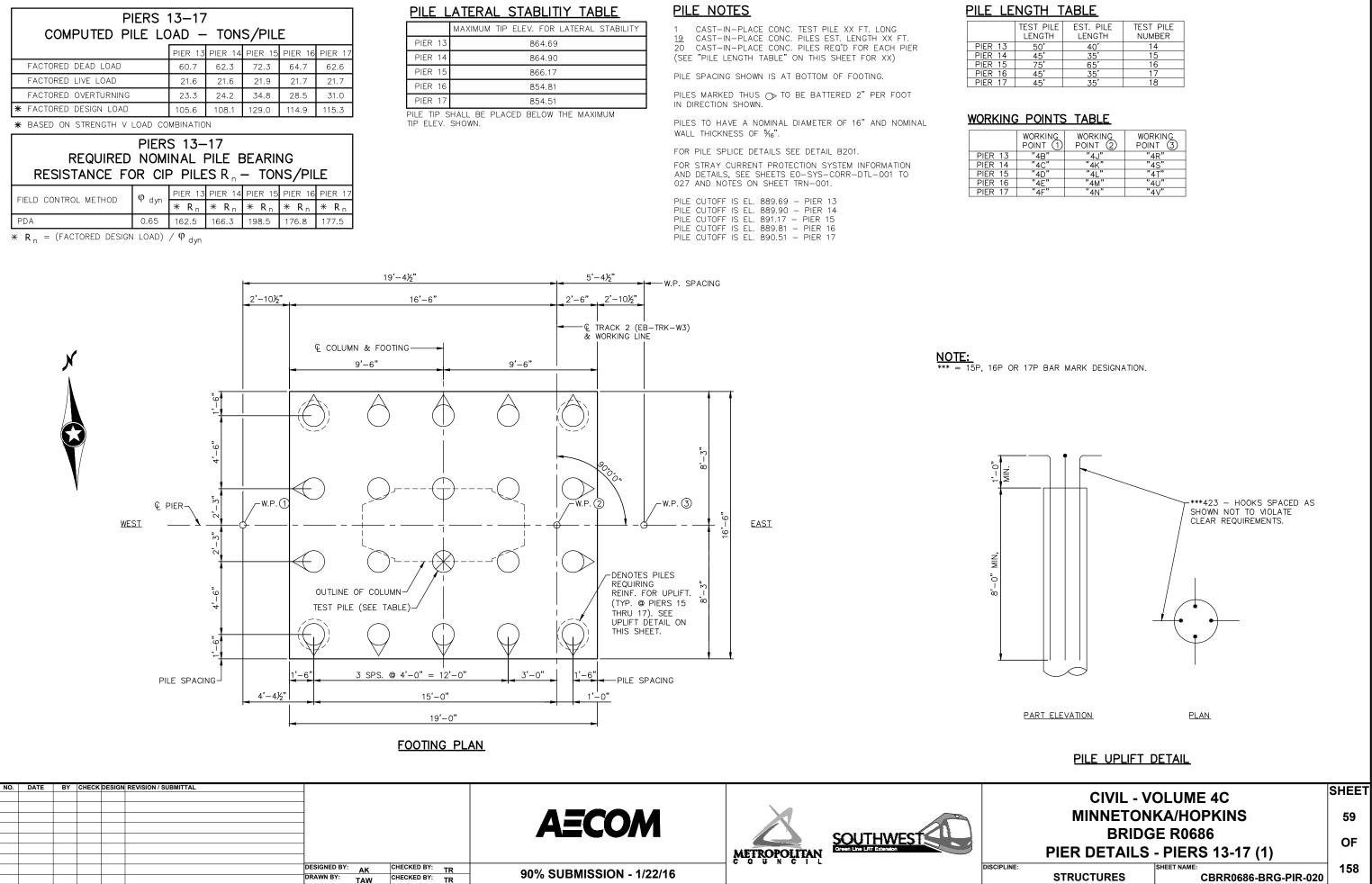
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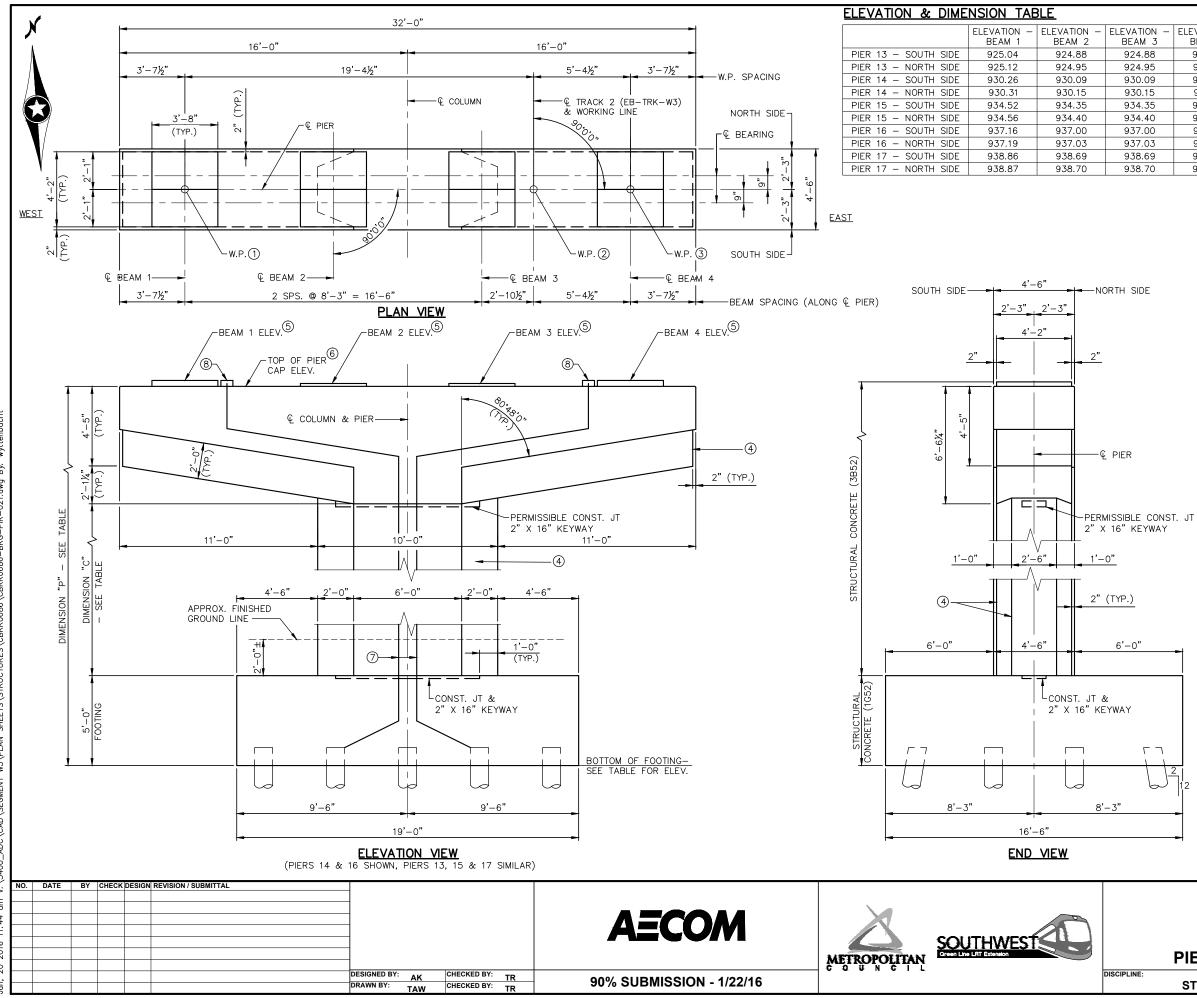


د 	FOOTING – BOTTOM LONGIT. FOOTING – BOTTOM TRANSV.	
	FOOTING – BOTTOM TRANSV.	
	FOOTING – TOP TRANS.	
	FOOTING - TOP LONGIT.	
_	FOOTING - DOWELS	
	COLUMN – VERTICAL	
_	COLUMN - STIRRUPS	
	COLUMN - TIES	
	CAP – LONGIT. – BOTTOM	
	CAP – LONGIT.	
	CAP – LONGIT. – TOP	
	CAP – LONGIT. – TOP	
	CAP – END TIES	
	CAP – STIRRUPS	
	CAP – STIRRUPS	
	CAP – BAR SUPPORT TIES	
	CAP – TIE	
	RISER – VERTICAL	
	RISER – LONGIT.	
	PEDESTAL – TIES	
	PEDESTAL – TIES	
	RISER – ENDS	



TEST PILE LENGTH	EST. PILE LENGTH	TEST PILE NUMBER
50'	40'	14
45'	35'	15
75'	65'	16
45'	35'	17
45'	35'	18

	WORKING POINT (1)	WORKING POINT 2	WORKING POINT 3
5	"4B"	"4J"	"4R"
ł	"4C"	"4K"	"4S"
5	"4D"	"4L"	"4T"
5	"4E"	"4M"	"4U"
7	"4F"	"4N"	"4∨"



		6			
ATION - EAM 3	ELEVATION - BEAM 4	ELEVATION - TOP OF CAP	COLUMN HT. "C"	PIER HT. "P"	ELEV. – BOTTOM OF FOOTING
24.88	925.04	924.71	24'-6"	36'-0 1/4"	888.69
24.95	925.12				
30.09	930.26	929.92	29'-6"	41'-0 1/4"	888.90
30.15	930.31				
34.35	934.52	934.18	32'-6"	44'-0 1/4"	890.17
34.40	934.56				
37.00	937.16	936.83	36'-6"	48'-0 1/4"	888.81
37.03	937.19				
38.69	938.86	938.52	37'-6"	49'-0 1/4"	889.51
38.70	938.87				

#### WORKING POINTS TABLE

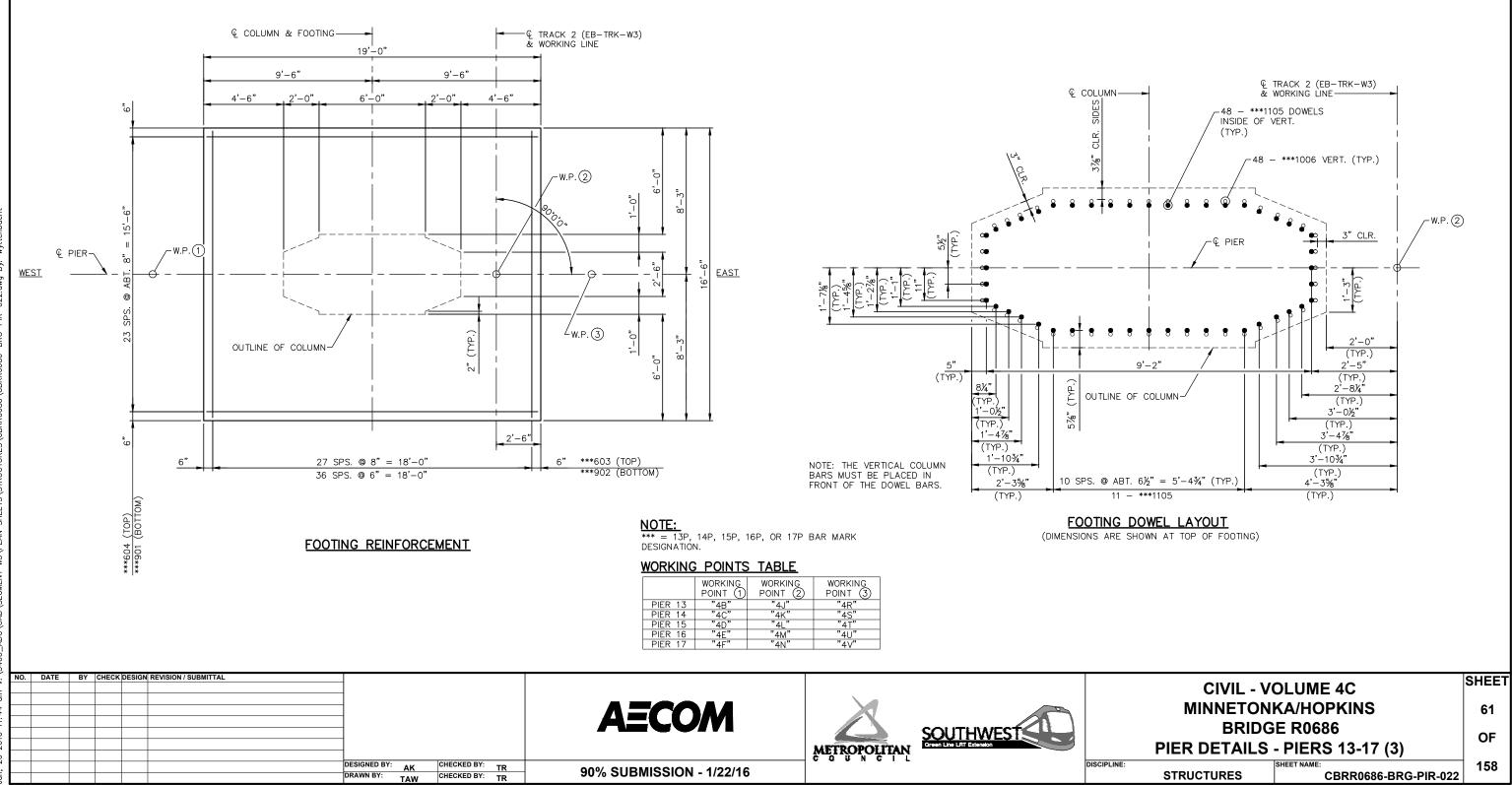
	WORKING POINT (1)	WORKING POINT (2)	WORKING POINT (3)
PIER 13	"4B"	"4J"	"4R"
PIER 14	"4C"	"4K"	"4S"
PIER 15	"4D"	"4L"	"4T"
PIER 16	"4E"	"4M"	"4∪"
PIER 17	"4F"	"4N"	"4∨"

#### NOTES:

- (4) SEE SPECIAL PROVISIONS AND SHEET AES-001 FOR SPECIAL SURFACE FINISH REQUIREMENTS.
- (5) SEE ELEVATION & DIMENSION TABLE ON THIS SHEET.
- (6) ELEVATION DETERMINED AT  $\hat{\mathbf{L}}$  BEARING ON THE LOW SIDE OF THE PROFILE GRADE LINE.
- (7) GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT, SEE GROUNDING PLANS. (FOR PIERS 13, 15, AND 17)
- (8) JUNCTION BOX, SEE GROUNDING PLANS. (FOR PIERS 13, 15, AND 17)

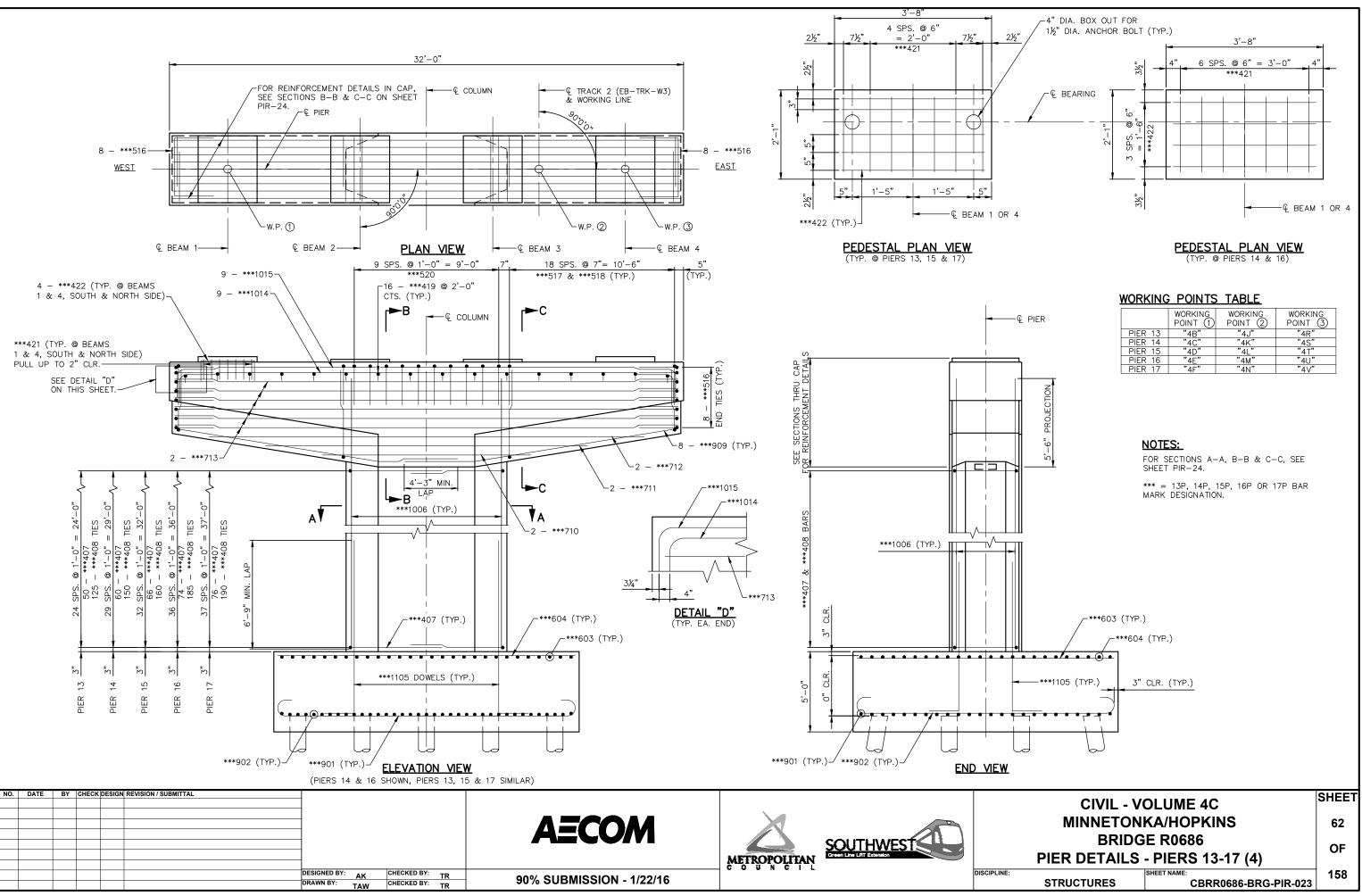
FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.

CIVIL - VOLUME 4C					
MINNETONKA/HOPKINS					
BRIDGE R0686	OF				
PIER DETAILS - PIERS 13-17 (2)					
	158				
STRUCTURES CBRR0686-BRG-PIR-	021				

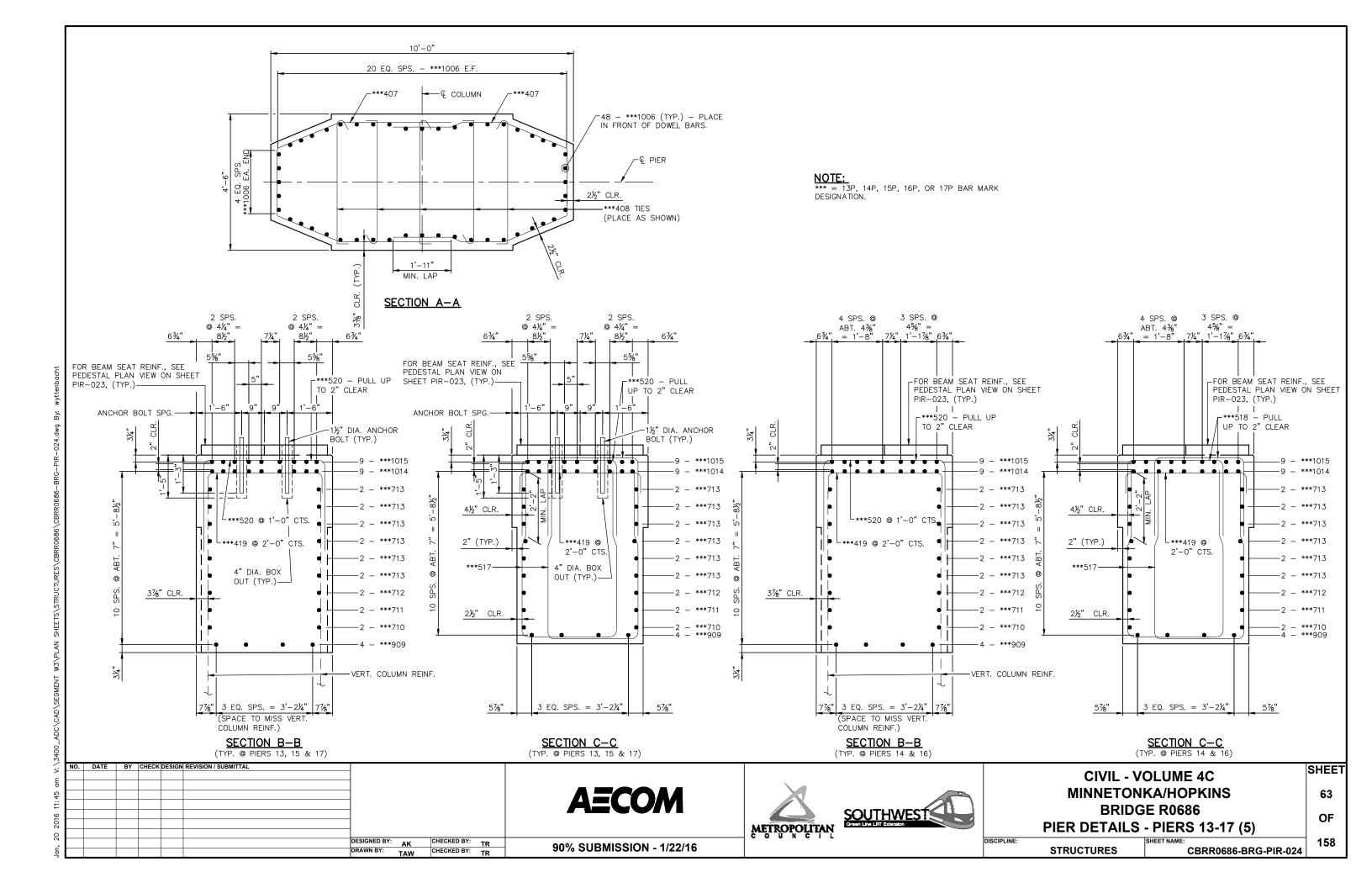


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STRUCTURES	CBRR0686-BRG-PIR-022	
		_



E:	SHEET NAME:	
STRUCTURES	CBRR0686-BRG-PIR-023	



BAR	NO.	LENGTH	SHAPE	LOCATION	BAR	NO.	LENGTH	SHAPE	LOCATION
13P901	24	21'-0"		FOOTING - BOTTOM LONGIT.	14P901	24	21'-0"		FOOTING - BOTTOM LONGIT
13P902	37	18'-6"		FOOTING - BOTTOM TRANSV.	14P902	37	18'-6"	с э	FOOTING - BOTTOM TRANS
13P603	28	16'-0"		FOOTING - TOP TRANS.	14P603	28	16'-0"		FOOTING - TOP TRANS.
13P604	24	18'-6"		FOOTING - TOP LONGIT.	14P604	24	18'-6"		FOOTING - TOP LONGIT.
3P1105	48	12'-8"		FOOTING - DOWELS	14P1105	48	12'-8"		FOOTING - DOWELS
3P1006	48	29'-10"	·	COLUMN – VERTICAL	14P1006	48	34'-10"	· · · · · · · · · · · · · · · · · · ·	COLUMN - VERTICAL
13P407	50	14'-3"		COLUMN - STIRRUPS	14P407	60	14'-3"		COLUMN - STIRRUPS
13P408	125	5'-0"	ــــــــــــــــــــــــــــــــــــــ	COLUMN - TIES	14P408	150	5'-0"	ــــــــــــــــــــــــــــــــــــــ	COLUMN - TIES
13P909	8	18'-1"		CAP – LONGIT.	14P909	8	18'-1"		CAP – LONGIT.
13P710	2	13'-9"		CAP – LONGIT.	14P710	2	13'-9"		CAP – LONGIT.
13P711	2	20'-9"	·	CAP – LONGIT.	14P711	2	20'-9"	·	CAP – LONGIT.
13P712	2	27'-9"		CAP – LONGIT.	14P712	2	27'-9"		CAP – LONGIT.
13P713	12	31'-4"		CAP – LONGIT.	14P713	12	31'-4"		CAP – LONGIT.
3P1014	9	34'-8"		CAP – LONGIT.	14P1014	9	34'-8"		CAP – LONGIT.
3P1015	9	35'-2"		CAP – LONGIT.	14P1015	9	35'-2"	[ ]	CAP – LONGIT.
13P516	16	8'-7"		CAP – END TIES	14P516	16	8'-7"		CAP – END TIES
13P517	4 SER. OF 19	10'-9" TO 14'-1"		CAP – STIRRUPS	14P517	4 SER. OF 19	10'-9" TO 14'-1"		CAP – STIRRUPS
13P518	76	8'-1"		CAP – STIRRUPS	14P518	76	8'-1"		CAP – STIRRUPS
13P419	16	5'-4"		CAP – BAR SUPPORT TIES	14P419	16	5'-4"		CAP - BAR SUPPORT TIES
13P520	10	10'-0"		CAP – TOP	14P520	10	10'-0"		CAP – TOP
13P421	28	5'-3"		PEDESTAL – TIES	14P421	28	5'-3"		PEDESTAL – TIES
13P422	20	3'-4"		PEDESTAL – TIES	14P422	16	3'-4"		PEDESTAL – TIES

E	BILL OF	REINFO	RCEMENT	<u>– PIER 15</u>
BAR	NO.	LENGTH	SHAPE	LOCATION
15P901	24	21'-0"		FOOTING - BOTTOM LONGIT.
15P902	37	18'-6"	<u>ر</u> ے	FOOTING - BOTTOM TRANSV.
15P603	28	16'-0"		FOOTING - TOP TRANS.
15P604	24	18'-6"		FOOTING - TOP LONGIT.
15P1105	48	12'-8"		FOOTING - DOWELS
15P1006	48	37'-10"		COLUMN - VERTICAL
15P407	66	14'-3"	$\square$	COLUMN - STIRRUPS
15P408	160	5'-0"	ــــــــــــــــــــــــــــــــــــــ	COLUMN - TIES
15P909	8	18'-1"		CAP – LONGIT.
15P710	2	13'-9"		CAP – LONGIT.
15P711	2	20'-9"		CAP – LONGIT.
15P712	2	27'-9"		CAP – LONGIT.
15P713	12	31'-4"		CAP – LONGIT.
15P1014	9	34'-8"		CAP – LONGIT.
15P1015	9	35'-2"		CAP – LONGIT.
15P516	16	8'-7"		CAP – END TIES
15P517	4 SER. OF 19	10'-9"TO 14'-1"		CAP – STIRRUPS
15P518	76	8'-1"		CAP – STIRRUPS
15P419	16	5'-4"		CAP - BAR SUPPORT TIES
15P520	10	10'-0"		CAP - TOP
15P421	28	5'-3"		PEDESTAL – TIES
15P422	20	3'-4"		PEDESTAL – TIES
15P523	16	9'-8"		CORNER PILES - UPLIFT

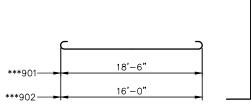
# BILL OF REINFORCEMENT - PIER 16

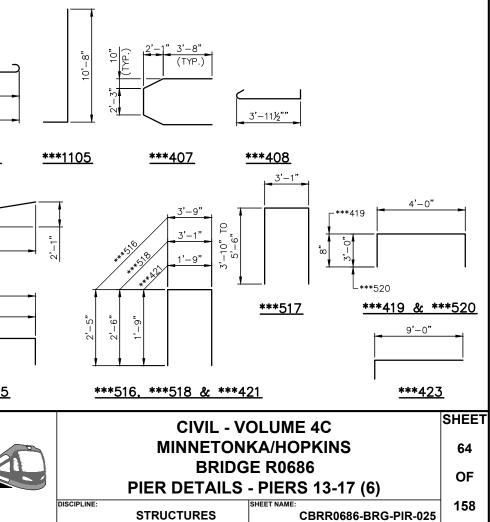
#### LENGTH BAR NO. SHAPE LOCATION 16P901 24 21'-0" FOOTING - BOTTOM LONGIT. 16P902 FOOTING - BOTTOM TRANSV. 37 18'-6" 16P603 28 16'-0" FOOTING - TOP TRANS 16P604 FOOTING - TOP LONGIT. 24 18'-6" 16P1105 48 12'-8" FOOTING - DOWELS 16P1006 48 COLUMN - VERTICAL 41'-10" 16P407 74 14'-3" COLUMN - STIRRUPS 16P408 185 5'-0" COLUMN - TIES 16P909 18'-1" CAP - LONGIT. 8 16P710 13'-9" CAP - LONGIT. 2 16P711 2 20'-9" CAP - LONGIT. 16P712 CAP - LONGIT. 2 27'-9" 16P713 12 31'-4" CAP - LONGIT. 16P1014 9 34'-8" CAP - LONGIT. 16P1015 35'-2" CAP - LONGIT. 9 16P516 16 8'-7" CAP - END TIES 10'-9" TC 4 SER. 16P517 CAP - STIRRUPS $\square$ OF 19 14'-1" 16P518 76 8'-1" CAP - STIRRUPS 16P419 16 5'-4" CAP - BAR SUPPORT TIES 16P520 10 10'-0" CAP - TOP 16P421 28 5'-3" PEDESTAL - TIES 16P422 16 3'-4" PEDESTAL - TIES CORNER PILES - UPLIFT 16P523 16 9'-8"

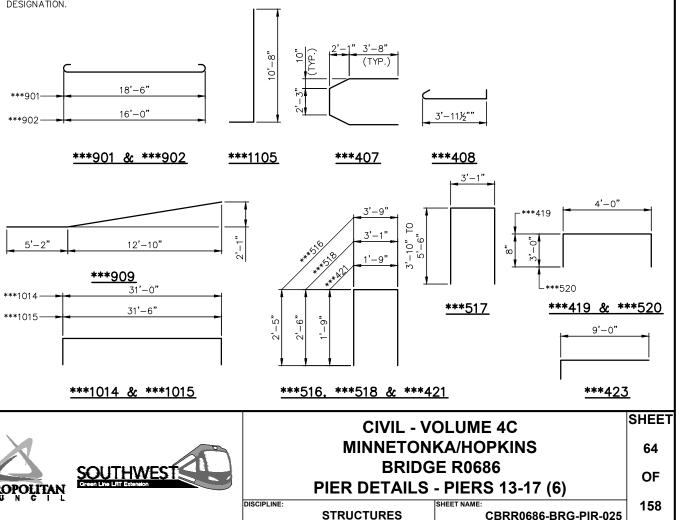
BAR	NO.	LENGTH	SHAPE	LOCATION
17P901	24	21'-0"		FOOTING - BOTTOM LONGIT.
17P902	37	18'-6"	Ĵ	FOOTING - BOTTOM TRANSV.
17P603	28	16'-0"		FOOTING - TOP TRANS.
17P604	24	18'-6"		FOOTING - TOP LONGIT.
17P1105	48	12'-8"		FOOTING - DOWELS
17P1006	48	42'-10"		COLUMN – VERTICAL
17P407	76	14'-3"	$\bigcup$	COLUMN - STIRRUPS
17P408	190	5'-0"		COLUMN - TIES
17P909	8	18'-1"		CAP – LONGIT.
17P710	2	13'-9"		CAP – LONGIT.
17P711	2	20'-9"		CAP – LONGIT.
17P712	2	27'-9"		CAP – LONGIT.
17P713	12	31'-4"		CAP – LONGIT.
17P1014	9	34'-8"		CAP – LONGIT.
17P1015	9	35'-2"		CAP – LONGIT.
17P516	16	8'-7"		CAP – END TIES
17P517	4 SER. OF 19	10'-9" TO 14'-1"		CAP – STIRRUPS
17P518	76	8'-1"		CAP – STIRRUPS
17P419	16	5'-4"	Γ	CAP – BAR SUPPORT TIES
17P520	10	10'-0"		CAP - TOP
17P421	28	5'-3"		PEDESTAL – TIES
17P422	20	3'-4"		PEDESTAL – TIES
17P523	16	9'-8"		CORNER PILES - UPLIFT

BILL OF REINFORCEMENT - PIER 17

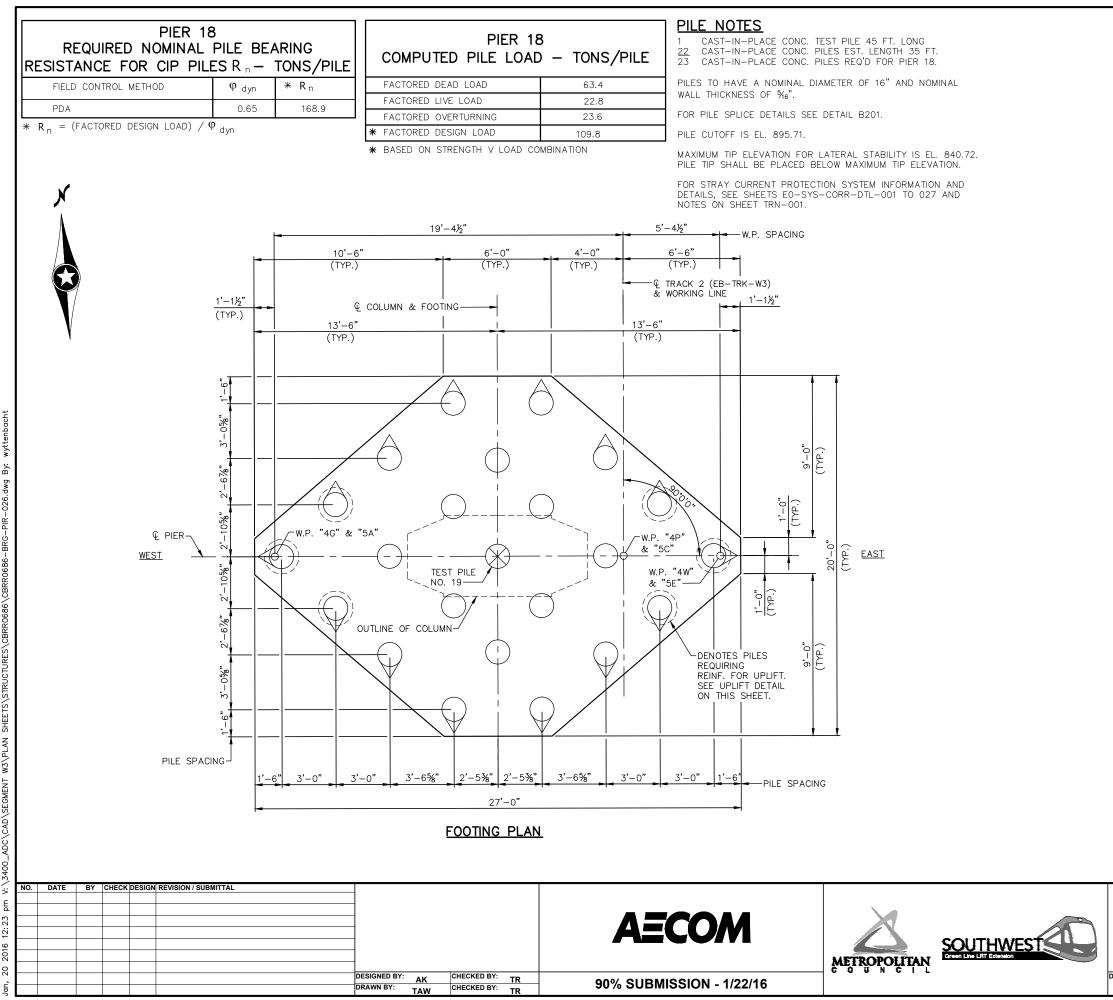
NOTE: \*\*\* = 13P, 14P, 15P, 16P, OR 17P BAR MARK DESIGNATION.







NO.	DATE	BY	CHECK D	DESIGN REVISION / SUBMITTAL						1
										l l
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							AELUMI		COUTINATECT	1
									SUUTHWEST	1
								METROPOLITAN	Green Line LRT Extension	l l
								COUNCIL		DISC
					DESIGNED BY: AK	CHECKED BY: TR	90% SUBMISSION - 1/22/16			DISC
					DRAWN BY: TAW	CHECKED BY: TR	90 /0 SODIMISSION - 1/22/10			1

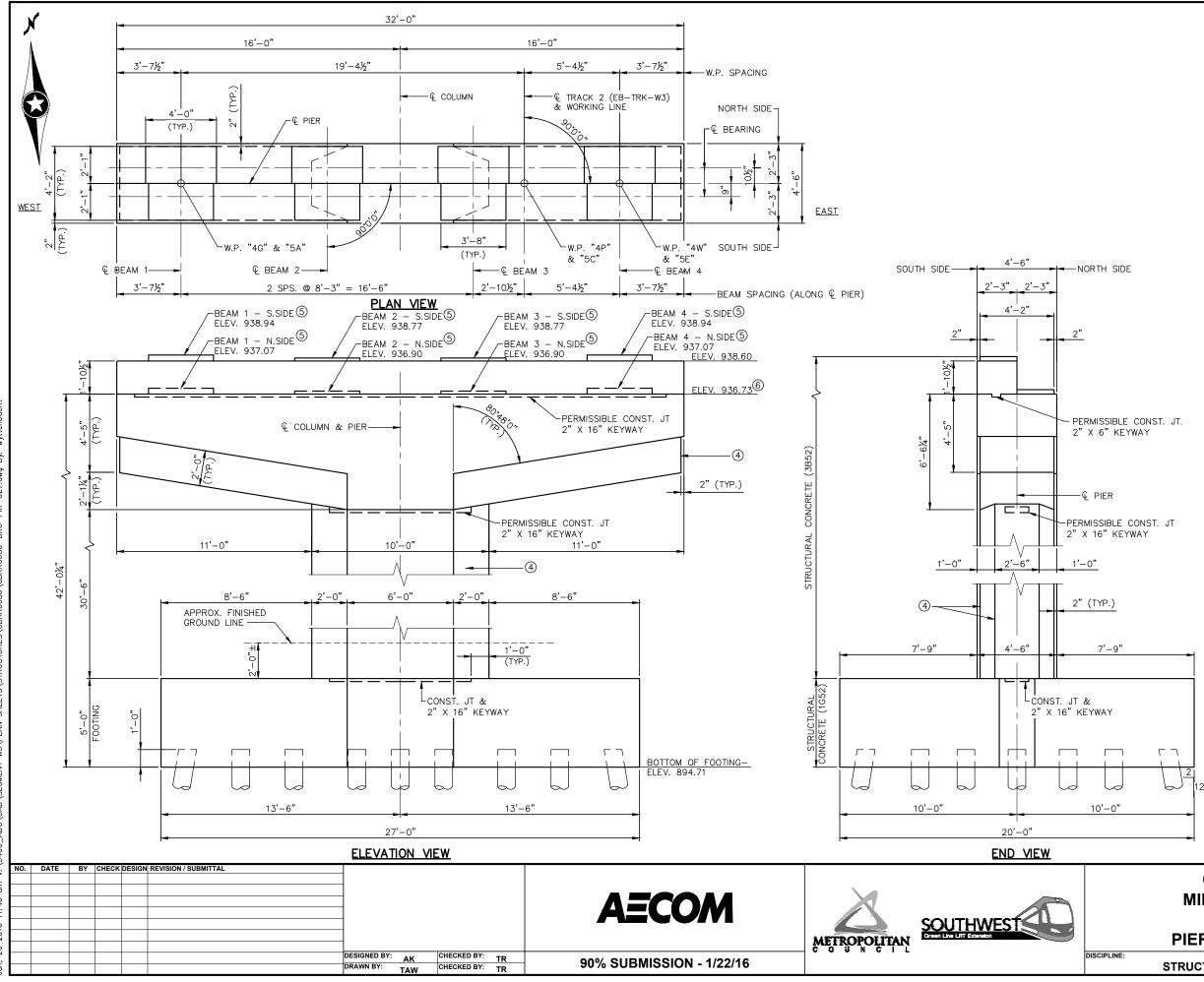


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PART ELEVATION	<u>PLAN</u>				
<u>PILE_UPLIFT</u>	<u>DETAIL</u>				
CIVIL - V	OLUME 4C	SHEET			
MINNETON	KA/HOPKINS	65			
BRIDGE R0686 PIER DETAILS - PIER 18 (1)					
	SHEET NAME: CBRR0686-BRG-PIR-026	158			

←18P431 – HOOKS SPACED AS SHOWN NOT TO VIOLATE CLEAR REQUIREMENTS.

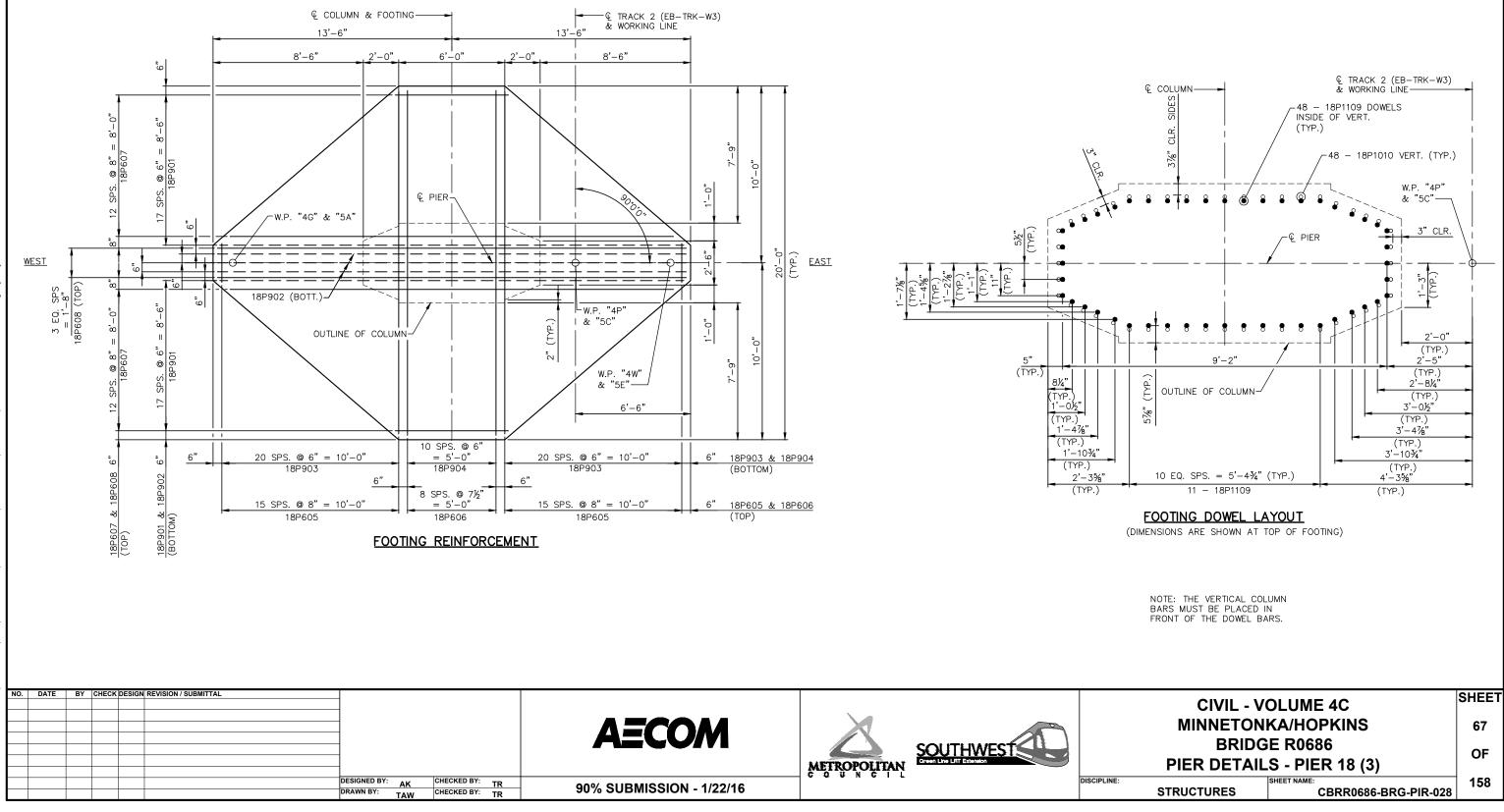


# NOTES:

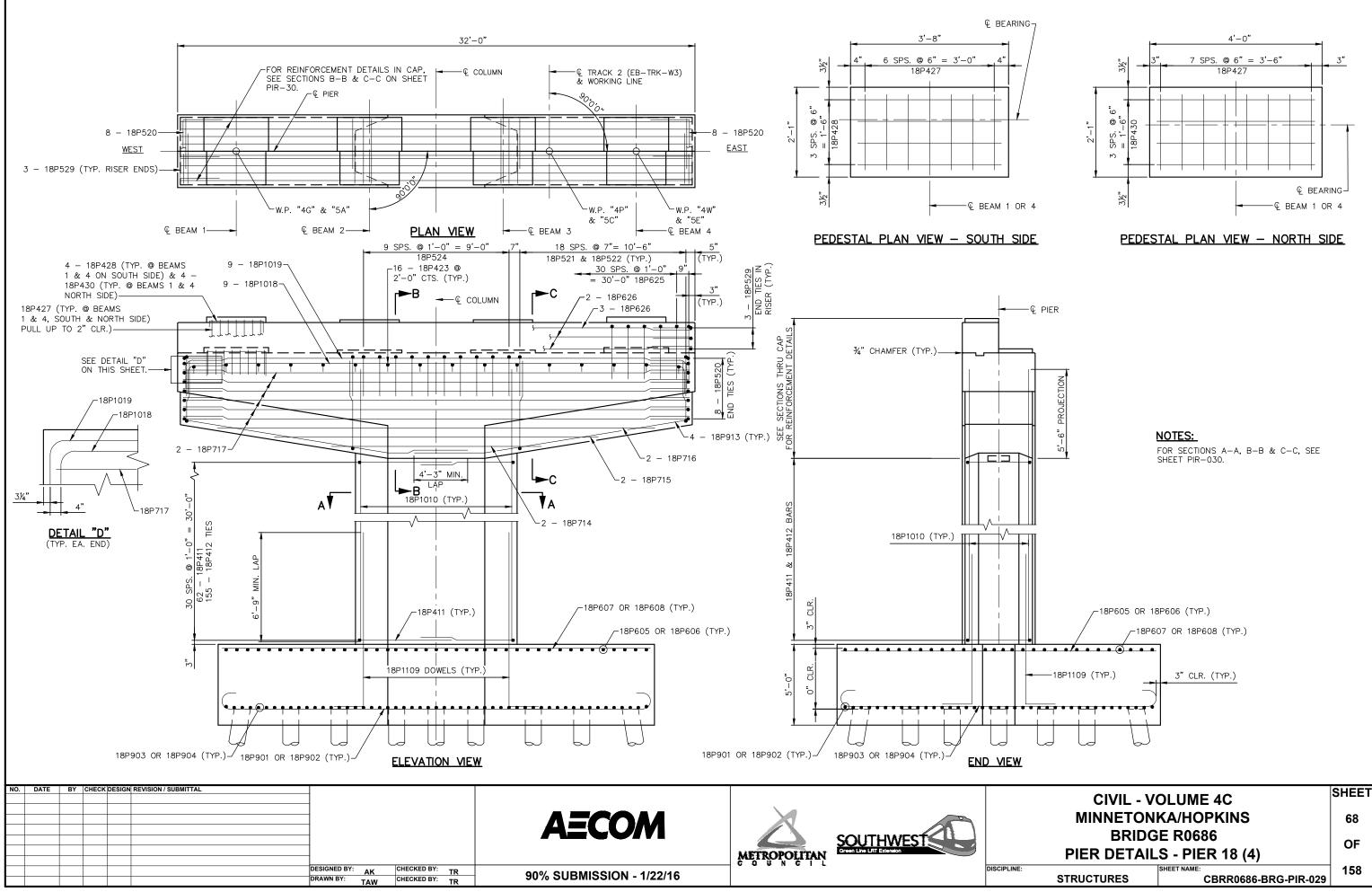
- (4) SEE SPECIAL PROVISIONS AND SHEET AES-001 FOR SPECIAL SURFACE FINISH REQUIREMENTS.
- (5) ELEVATIONS DETERMINED AT € BEARING.
- 6 elevation determined at  $\mathbb Q$  bearing on the north side of the pier.

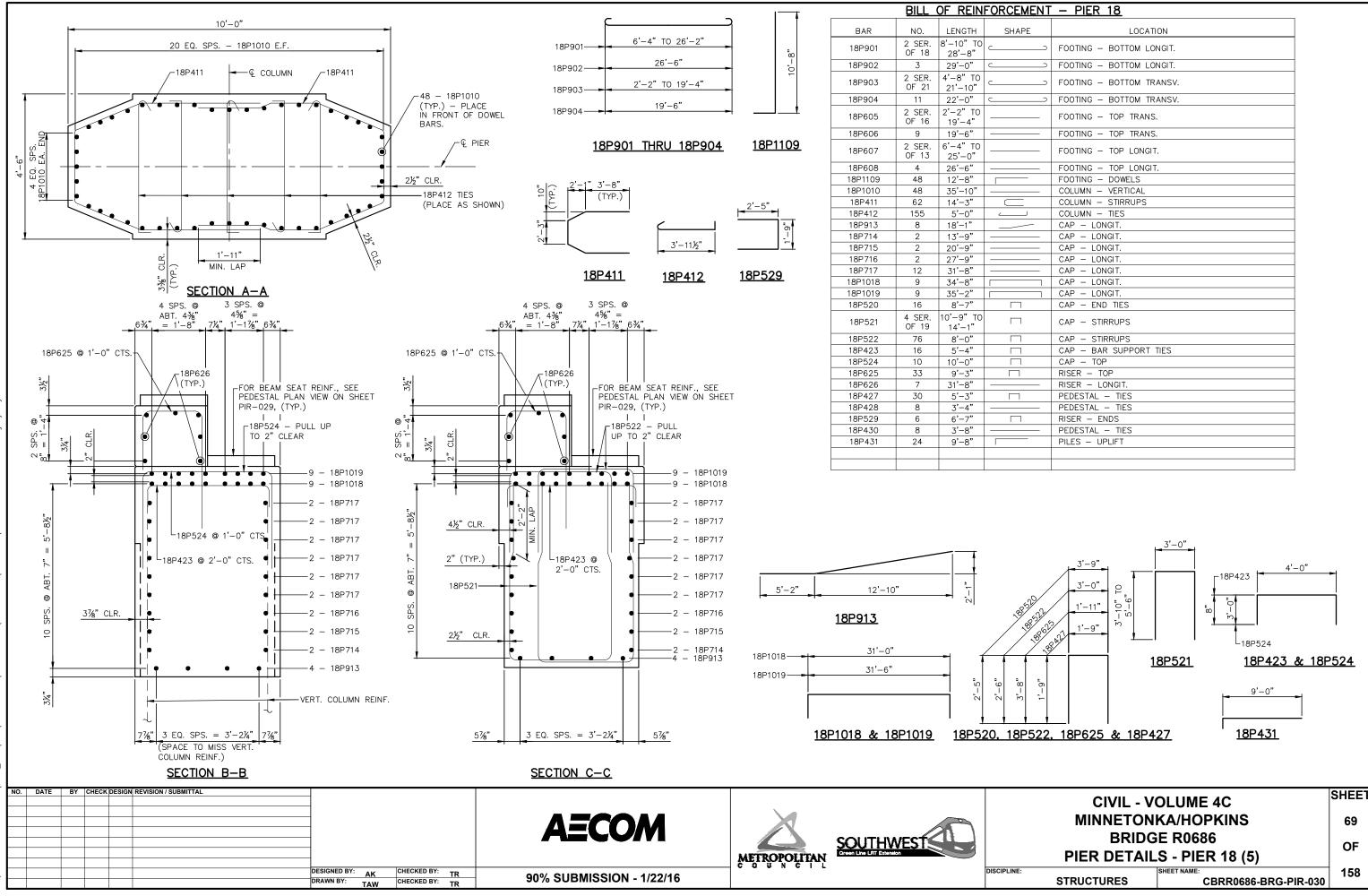
FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.

CIVIL - VOLUME 4C				
MINNETONKA/HOPKINS				
BRIDGE R0686				
PIER DETAILS - PIER 18 (2)				
INE:	SHEET NAME:	158		
STRUCTURES	CBRR0686-BRG-PIR-027			



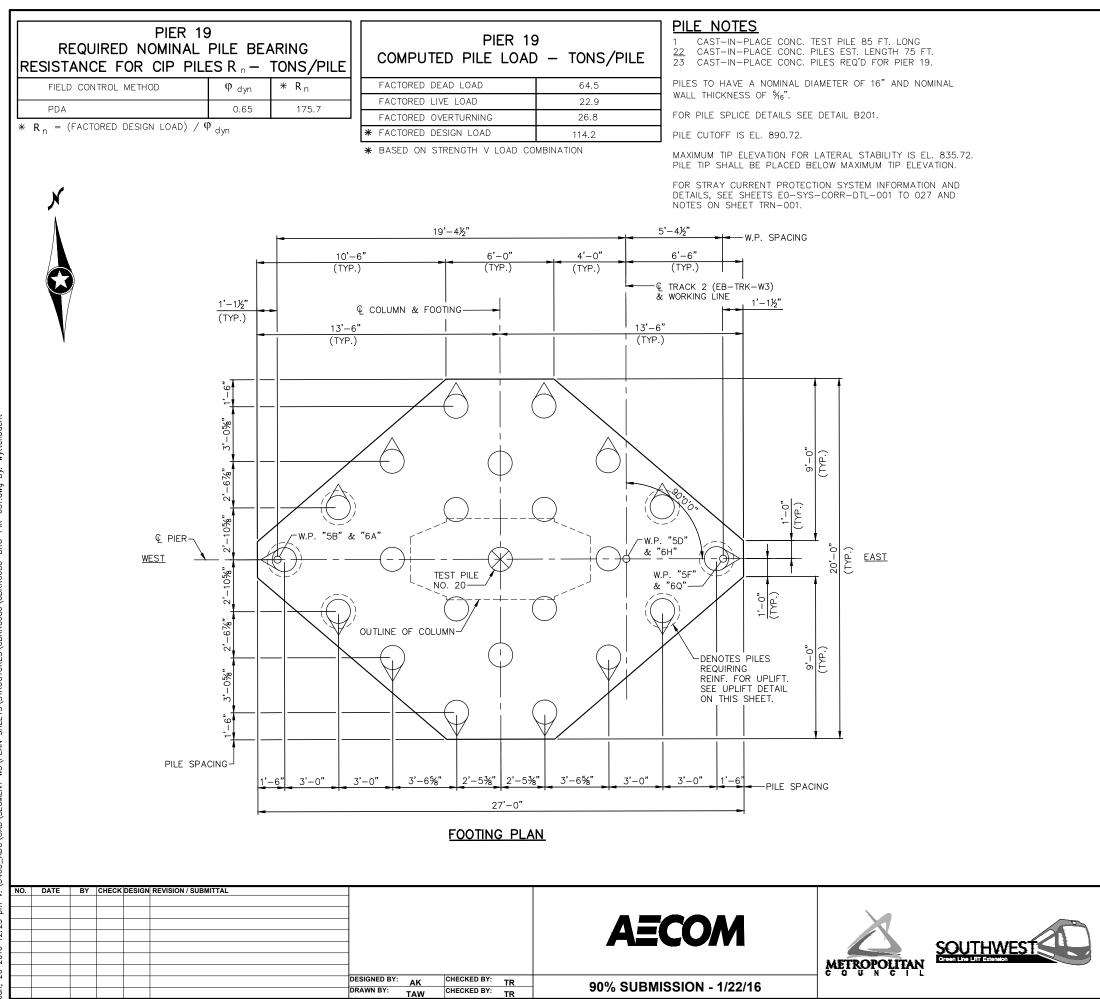
11:46 am v:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBRR0686\CBRR0686-BRG-PIR-020





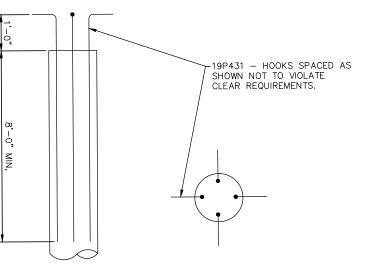
CEMENT	<u>– PIER 18</u>
SHAPE	LOCATION
	FOOTING - BOTTOM LONGIT.
	FOOTING - BOTTOM LONGIT.
	FOOTING - BOTTOM TRANSV.
>	FOOTING - BOTTOM TRANSV.
	FOOTING - TOP TRANS.
	FOOTING - TOP TRANS.
	FOOTING - TOP LONGIT.
	FOOTING - TOP LONGIT.
	FOOTING - DOWELS
	COLUMN – VERTICAL
$\equiv$	COLUMN - STIRRUPS
	COLUMN - TIES
	CAP – LONGIT.
	CAP – LONGIT. CAP – LONGIT.
	CAP – END TIES
	CAP – STIRRUPS
	CAP – STIRRUPS
	CAP – BAR SUPPORT TIES
$\square$	CAP – TOP
	RISER – TOP
	RISER – LONGIT.
	PEDESTAL – TIES
	PEDESTAL – TIES
$\Box$	RISER – ENDS
	PEDESTAL – TIES
	PILES – UPLIFT
	3'-0"_1
	<u>3'-9"</u>
/	<u>3'-0"</u> 2

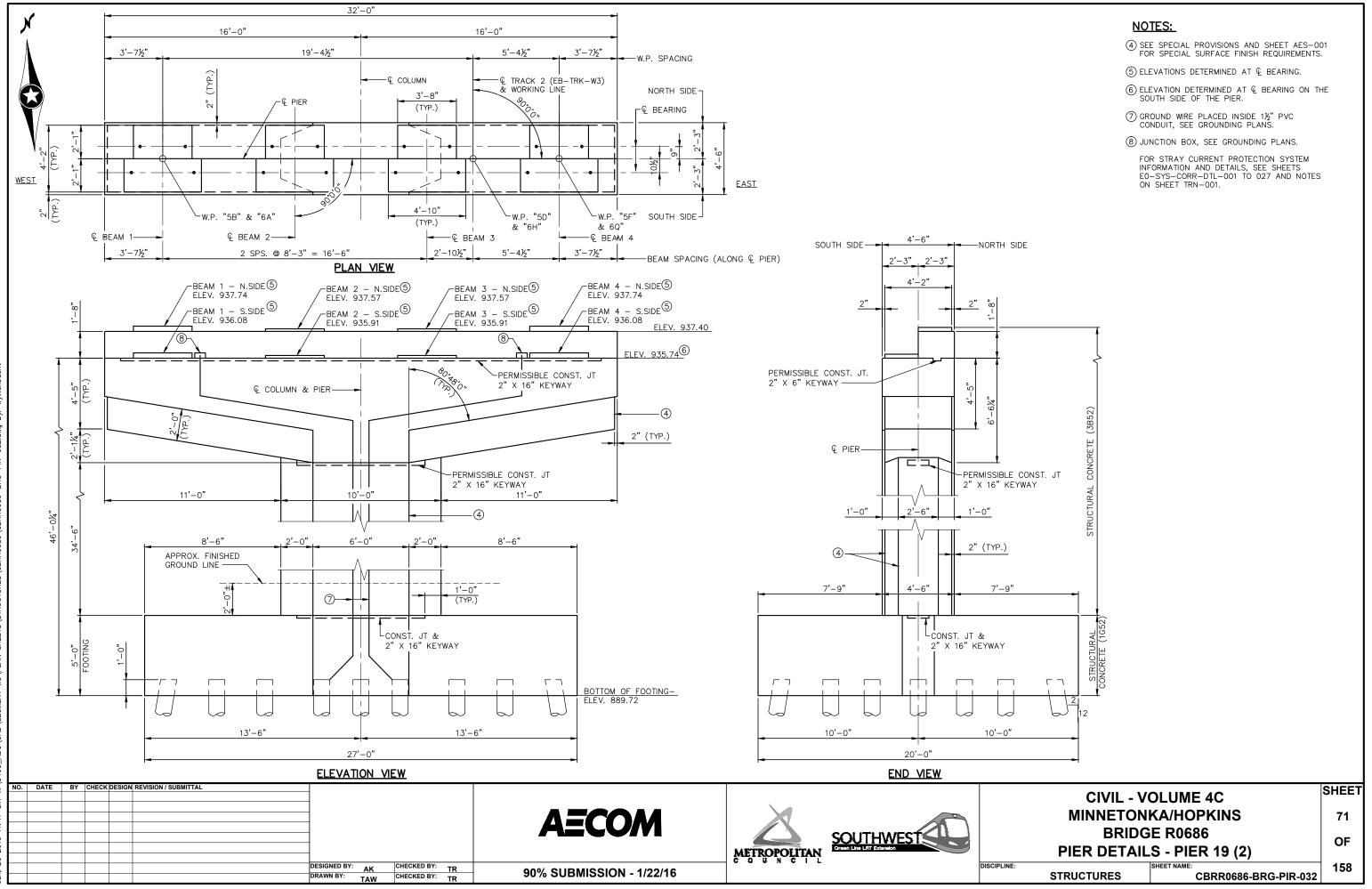
CIVIL - VOLUME 4C				
MINNETONKA/HOPKINS				
BRIDGE R0686				
F	PIER DETAIL	.S - PIER 18 (5)	OF	
E: ST	RUCTURES	SHEET NAME: CBRR0686-BRG-PIR-030	158	

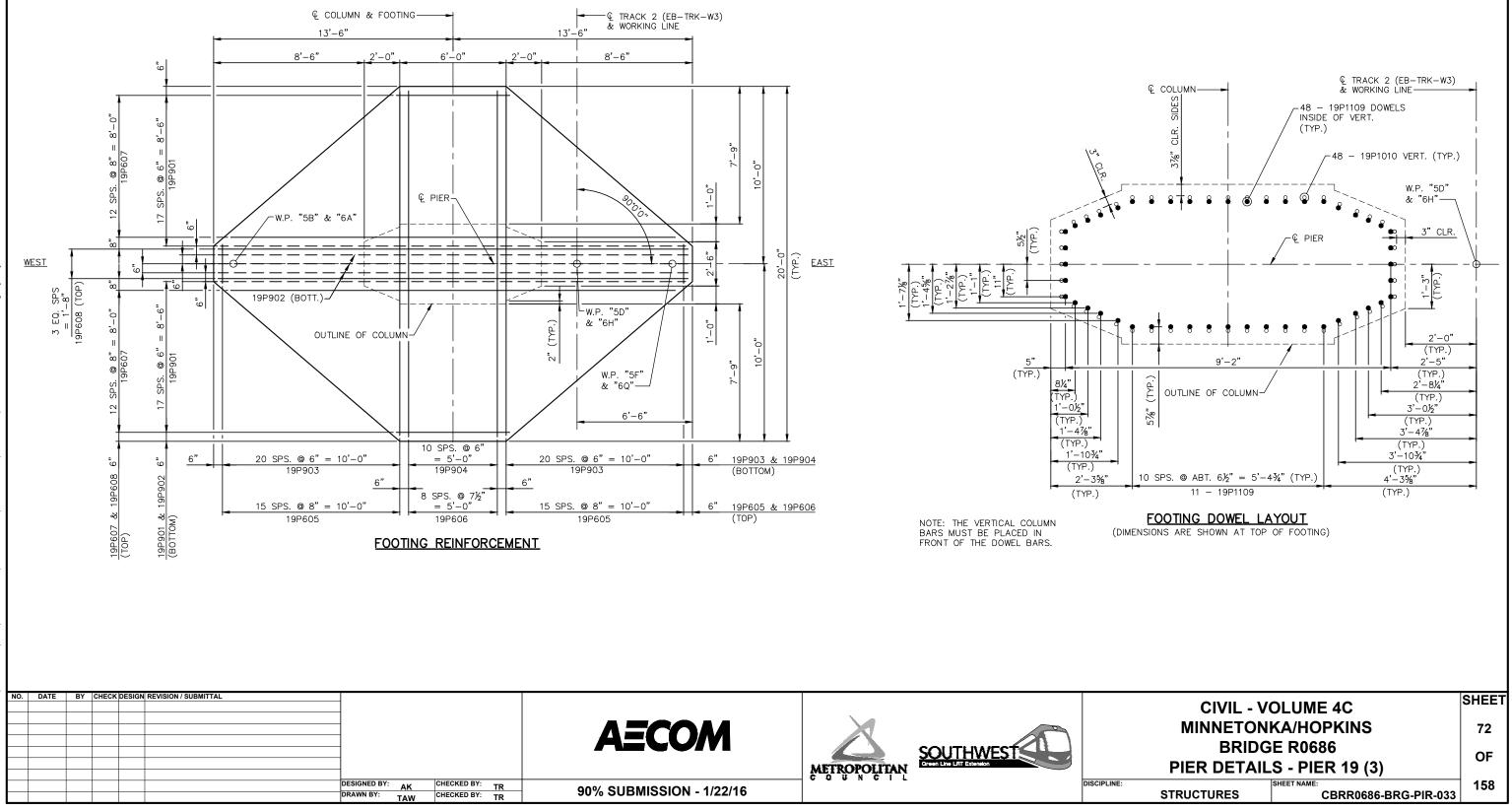


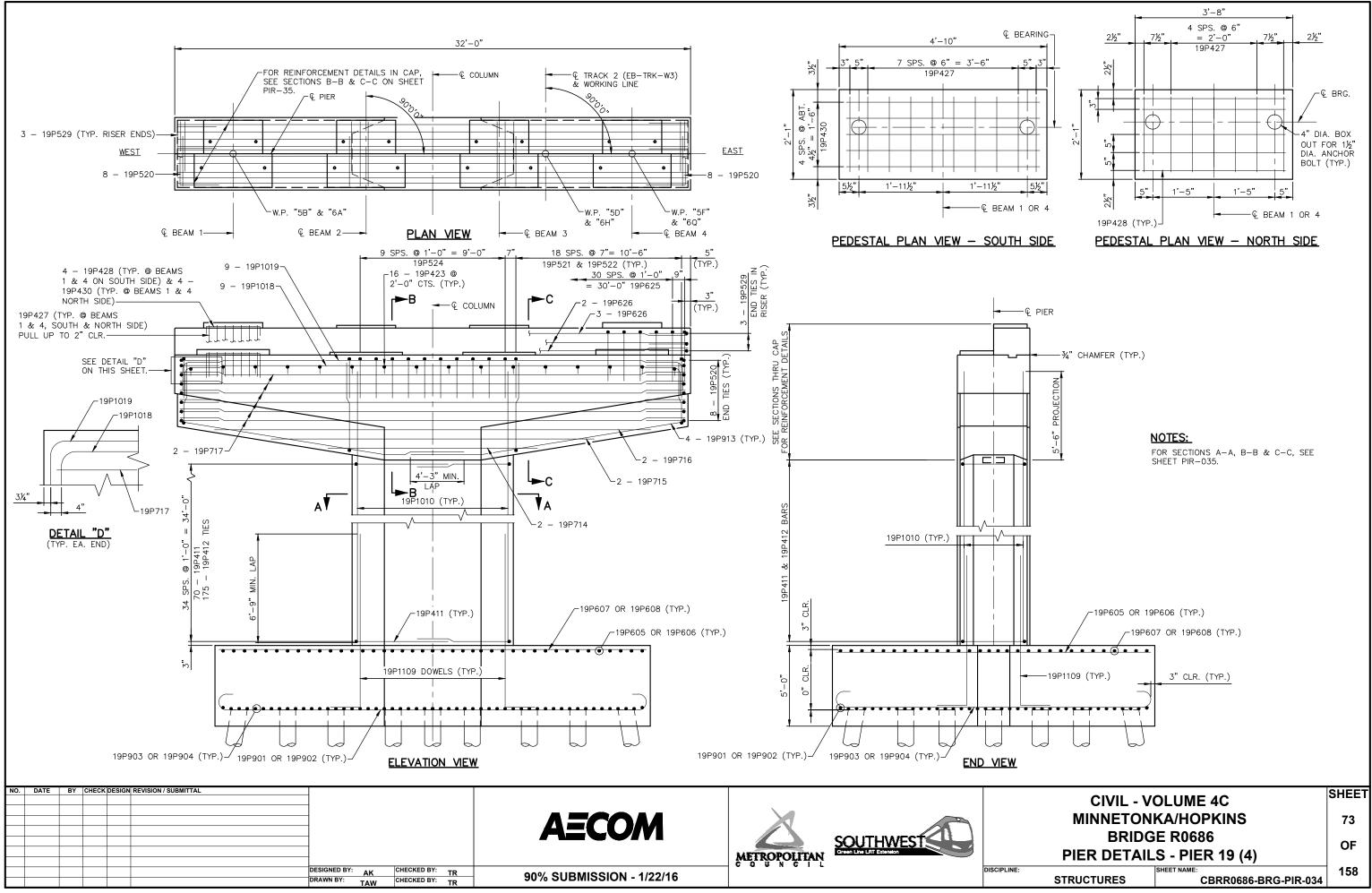
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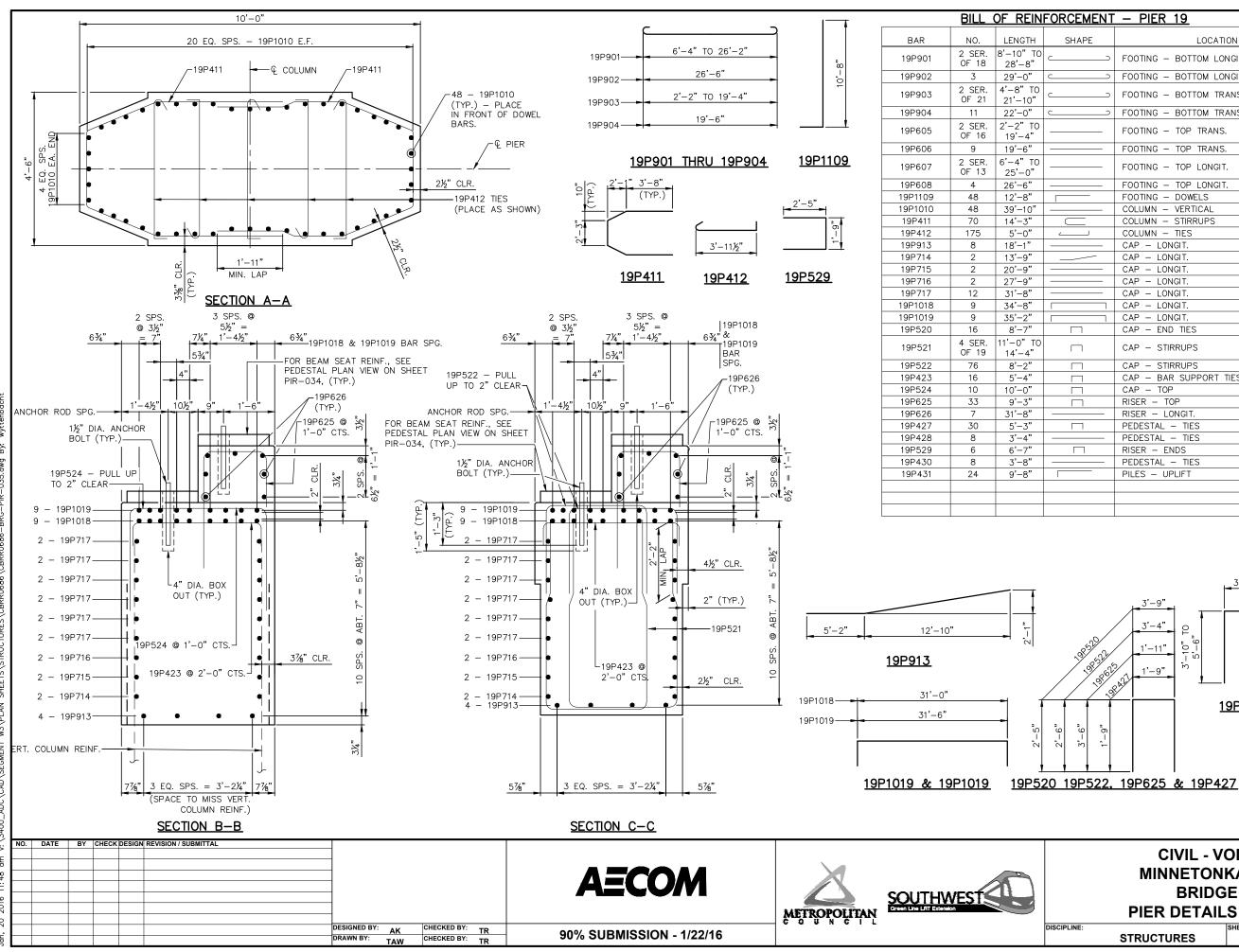
PART ELEVATION	PLAN		
<u>PILE UPLIFT</u>	DETAIL		
CIVIL - V	OLUME 4C	SHEET	
MINNETON	KA/HOPKINS	70	
BRIDGE R0686 PIER DETAILS - PIER 19 (1)			
	SHEET NAME: CBRR0686-BRG-PIR-031	158	











CEMENT	<u>– PIER 19</u>
SHAPE	LOCATION
>	FOOTING - BOTTOM LONGIT.
	FOOTING - BOTTOM LONGIT.
>	FOOTING - BOTTOM TRANSV.
5	FOOTING - BOTTOM TRANSV.
	FOOTING - TOP TRANS.
	FOOTING - TOP TRANS.
	FOOTING - TOP LONGIT.
	FOOTING - TOP LONGIT.
	FOOTING - DOWELS
	COLUMN – VERTICAL COLUMN – STIRRUPS
I	COLUMN - TIES
	CAP – LONGIT.
	CAP - LONGIT.
$\Box$	CAP – END TIES
	CAP - STIRRUPS
$\square$	CAP – STIRRUPS CAP – BAR SUPPORT TIES
	CAP - TOP
	RISER – TOP
	RISER – LONGIT.
	PEDESTAL – TIES
	PEDESTAL – TIES
$\Box$	RISER – ENDS
	PEDESTAL – TIES
	PILES – UPLIFT
	3'-4"
	, - <sup>3</sup> ′−9" - 1 / / / · −0"
/	
198520	1'-11" - 10 1'-11" - 10 1'-11 1'-11" - 10 1'-11 1'-11" - 10 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'-11 1'
19834 19834	
1967	
	<u>19P521</u> <u>19P423 &amp; 19P524</u>
3'-6" 1'-9"	9'-0"

CIVIL - VOLUME 4C	SHEET
MINNETONKA/HOPKINS	74
BRIDGE R0686	OF
PIER DETAILS - PIER 19 (5)	
LINE: STRUCTURES STRUCTURES CBRR0686-BRG-PIR-(	035 158

<u>19P431</u>

PIERS 20-24 COMPUTED PILE LOAD - TONS/PILE						
	PIER 20 PIER 21 PIER 22 PIER 23 PIER 2					
FAC	TORED DEAD LOAD	65.3	68.3	64.3	64.0	61.2
FAC	TORED LIVE LOAD	16.2	16.7	16.4	16.9	16.1
FAC	TORED OVERTURNING	27.1	45.6	32.0	20.9	23.4
* FAC	TORED DESIGN LOAD	108.6	130.6	112.7	101.8	100.7
* BASED ON STRENGTH V LOAD COMBINATION						

PIERS 20–24 REQUIRED NOMINAL PILE BEARING RESISTANCE FOR CIP PILES R – TONS/PILE						
ELD CONTROL METHOD	0	PIER 20	PIER 21	PIER 22	PIER 23	PIER 24
ELD CONTROL METHOD	+ ayn	* R <sub>n</sub>				

FIELD CONTROL METHOD	Ψdyn	* R <sub>n</sub>				
PDA	0.65	167.1	200.9	173.4	156.6	154.9

 $\overline{*}$  R <sub>n</sub> = (FACTORED DESIGN LOAD) /  $\phi$  <sub>dyn</sub>

# PILE LATERAL STABLITIY TABLE

	MAXIMUM TIP ELEV. FOR LATERAL STABILITY
PIER 20	856.06
PIER 21	854.49
PIER 22	855.37
PIER 23	856.67
PIER 24	855.42
PILE TIP S	HALL BE PLACED BELOW THE MAXIMUM

TIP ELEV. SHOWN.

# PILE NOTES

1 CAST-IN-PLACE CONC. TEST PILE XX FT. LONG 19 CAST-IN-PLACE CONC. PILES EST. LENGTH XX FT. 20 CAST-IN-PLACE CONC. PILES REQ'D FOR EACH PIER (SEE "PILE LENGTH TABLE" ON THIS SHEET FOR XX)

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED THUS  $\bigcirc$  TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.

PILES TO HAVE A NOMINAL DIAMETER OF 16" AND NOMINAL WALL THICKNESS OF  $5\!\!/_{6}$ ".

FOR PILE SPLICE DETAILS SEE DETAIL B201.

FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.

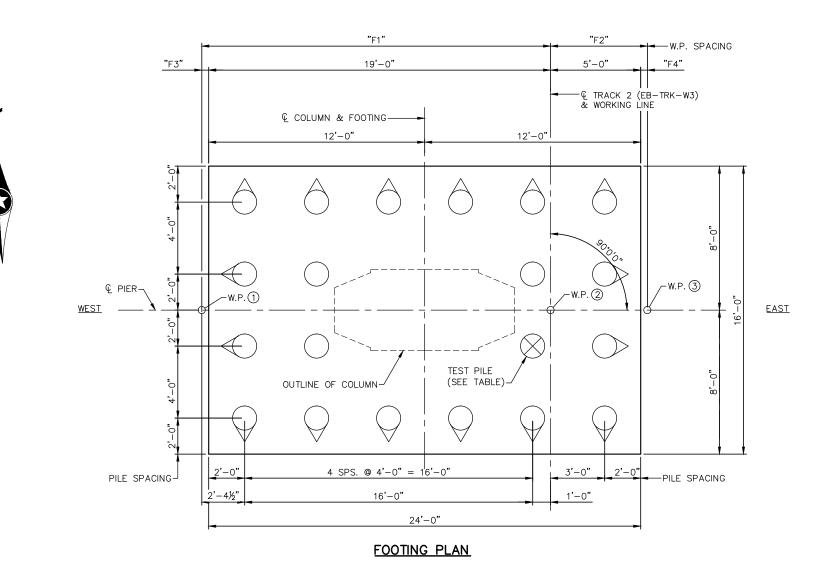
 PILE
 CUTOFF
 IS
 EL.
 891.06
 –
 PIER
 20

 PILE
 CUTOFF
 IS
 EL.
 889.49
 –
 PIER
 21

 PILE
 CUTOFF
 IS
 EL.
 890.37
 –
 PIER
 22

 PILE
 CUTOFF
 IS
 EL.
 891.71
 –
 PIER
 23

 PILE
 CUTOFF
 IS
 EL.
 890.42
 –
 PIER
 24



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PILE LENGTH TABLE

	TEST PILE LENGTH	EST. PILE LENGTH	TEST PILE NUMBER
PIER 20	80'	70'	21
PIER 21	75'	65'	22
PIER 22	70'	60'	23
PIER 23	65'	55'	24
PIER 24	65'	55'	25

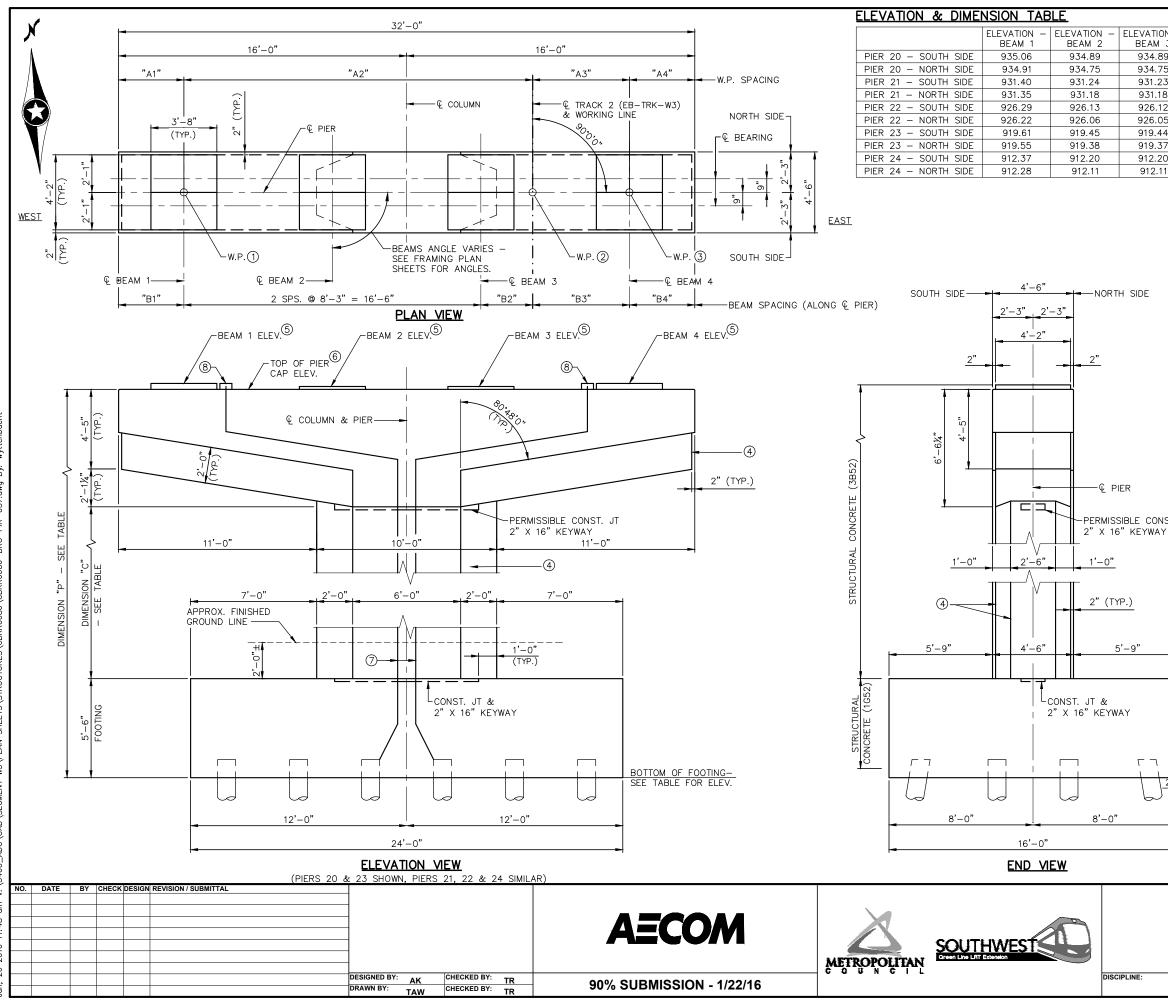
# DIMENSION TABLE

	DISTANCE "F1"	DISTANCE "F2"	DISTANCE "F3"	DISTANCE "F4"
PIER 20	19'-4 1/2"	5'-4 1/2"	4 1/2"	4 1/2"
PIER 21	19'-6 1/2"	5'-2 1/2"	6 1/2"	2 1/2"
PIER 22	19'-5 1/2"	5'-3 1/2"	5 1/2"	3 1/2"
PIER 23	19'-8"	5'-1"	8"	1"
PIER 24	19'-4 1/2"	5'-4 1/2"	4 1/2"	4 1/2"

# WORKING POINTS TABLE

	WORKING POINT (1)	WORKING POINT (2)	WORKING POINT (3)
PIER 20	"6B"	"6J"	"6R"
PIER 21	"6C"	"6K"	"6S"
PIER 22	"6D"	"6L"	"6T"
PIER 23	"6E"	"6M"	"6U"
PIER 24	"6F"	"6N"	"6V"

	CIVIL - V	OLUME 4C	SHEET				
	MINNETON	KA/HOPKINS	75				
	BRIDGE R0686						
	PIER DETAILS	- PIERS 20-24 (1)	OF				
E:	STRUCTURES	SHEET NAME: CBRR0686-BRG-PIR-036	158				



		6			
LEVATION - BEAM 3	ELEVATION - BEAM 4	ELEVATION - TOP OF CAP	COLUMN HT. "C"	PIER HT. "P"	ELEV. – BOTTOM OF FOOTING
934.89	935.06				
934.75	934.91	934.58	32'-6"	44'-6 1/4"	890.06
931.23	931.39				
931.18	931.34	931.01	30'-6"	42'-6 1/4"	888.49
926.12	926.29				
926.05	926.22	925.89	24'-6"	36'-6 1/4"	889.37
919.44	919.60				
919.37	919.54	919.21	16'-6"	28'-6 1/4"	890.70
912.20	912.37				
912.11	912.28	911.94	10'-6"	22'-6 1/4"	889.42

# **DIMENSION TABLE**

	DISTANCE	DISTANCE	DISTANCE	DISTANCE
	"A1"	"A2"	"A3"	"A4"
PIER 20	3'-7 1/2"	19'-4 1/2"	5'-4 1/2"	3'-7 1/2"
PIER 21	3'-5 1/2"	19'-6 1/2"	5'-2 1/2"	3'-9 1/2"
PIER 22	3'-6 1/2"	19'-5 1/2"	5'-3 1/2"	3'-8 1/2"
PIER 23	3'-4"	19'-8"	5'-1"	3'-11"
PIER 24	3'-7 1/2"	19'-4 1/2"	5'-4 1/2"	3'-7 1/2"
	DISTANCE	DISTANCE	DISTANCE	DISTANCE
	"B1"	"B2"	"B3"	"B4"
PIER 20	3'-7 1/2"	2'-10 1/2"	5'-4 1/2"	3'-7 1/2"
PIER 21	3'-5 1/2"	3'-0 1/2"	5'-2 1/2"	3'-9 1/2"
PIER 22	3'-6 1/2"	2'-11 1/2"	5'-3 1/2"	3'-8 1/2"
PIER 23	3'-4"	3'-2"	5'-1"	3'-11"
PIER 24	3'-7 1/2"	2'-10 1/2"	5'-4 1/2"	3'-7 1/2"

# WORKING POINTS TABLE

	WORKING POINT (1)	WORKING POINT (2)	WORKING POINT (3)
PIER 20	"6B"	"6J"	"6R"
PIER 21	"6C"	"6K"	"6S"
PIER 22	"6D"	"6L"	"6T"
PIER 23	"6E"	"6M"	"6U"
PIER 24	"6F"	"6N"	"6V"

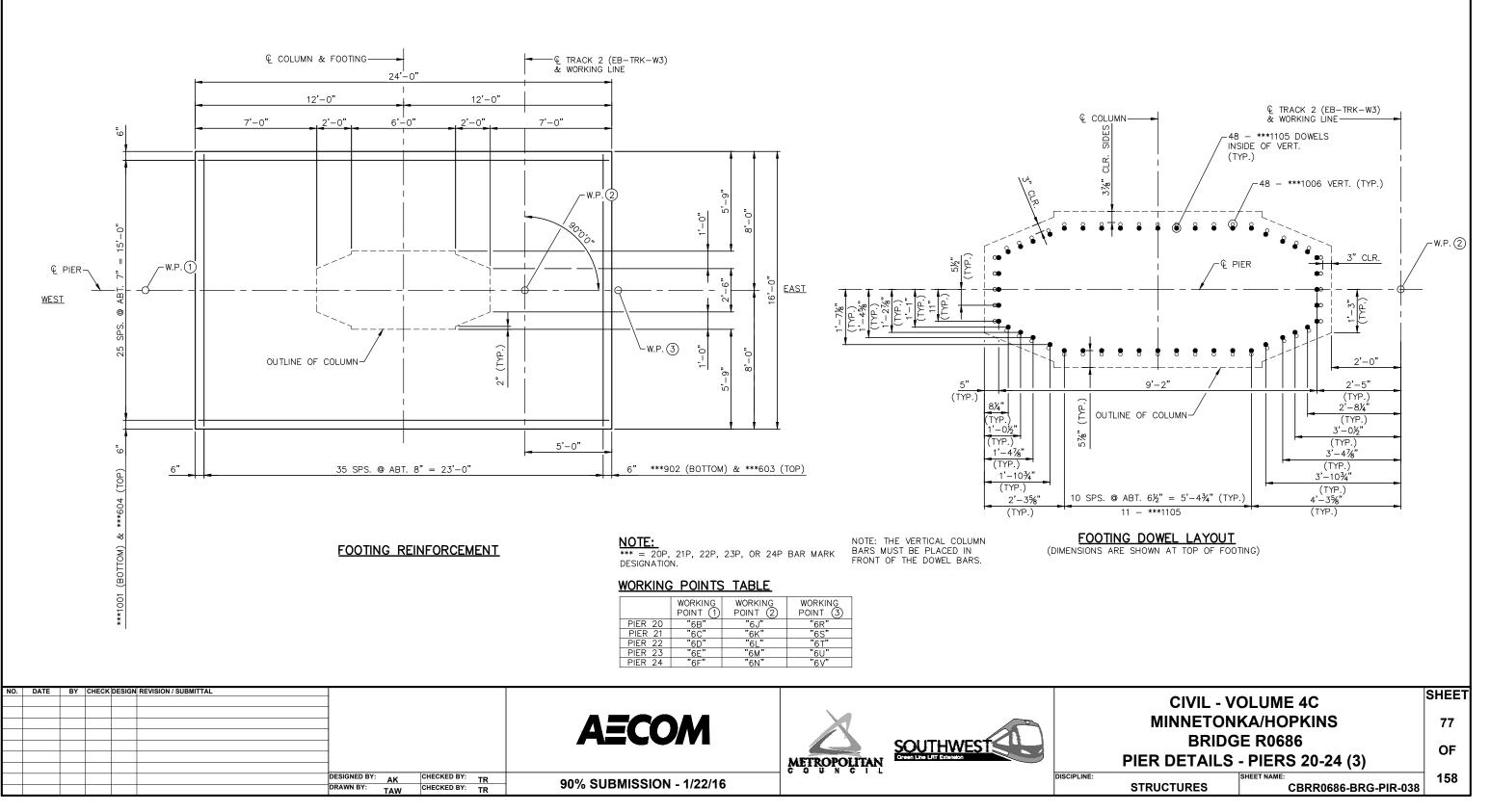
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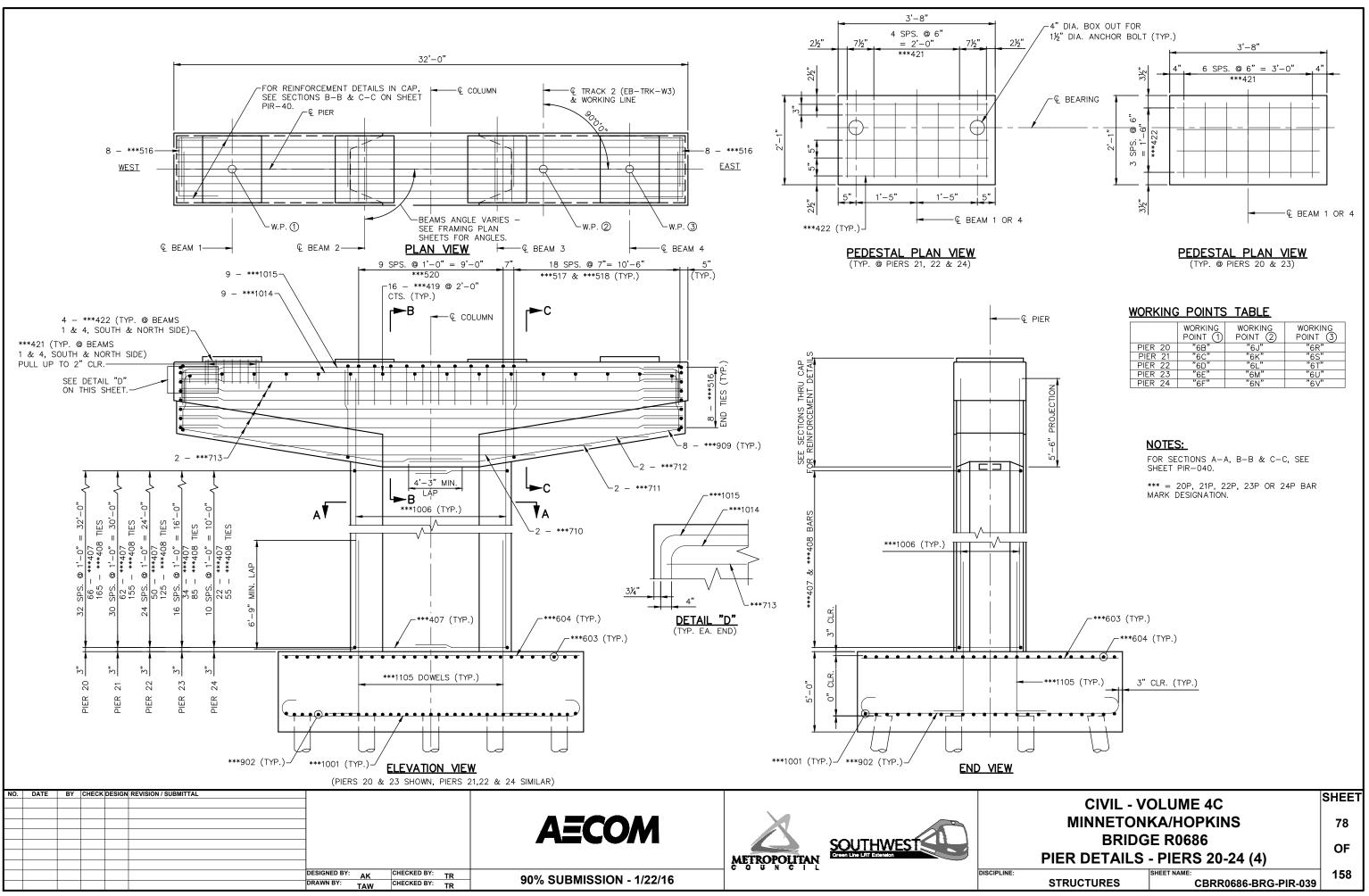
## NOTES:

- (5) SEE ELEVATION & DIMENSION TABLE ON THIS SHEET.
- 6 elevation determined at 2 bearing on the low side of the profile grade line.
- ⑦ GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT, SEE GROUNDING PLANS. (FOR PIERS 21, 22, AND 24)
- (8) JUNCTION BOX, SEE GROUNDING PLANS. (FOR PIERS 21, 22, AND 24)

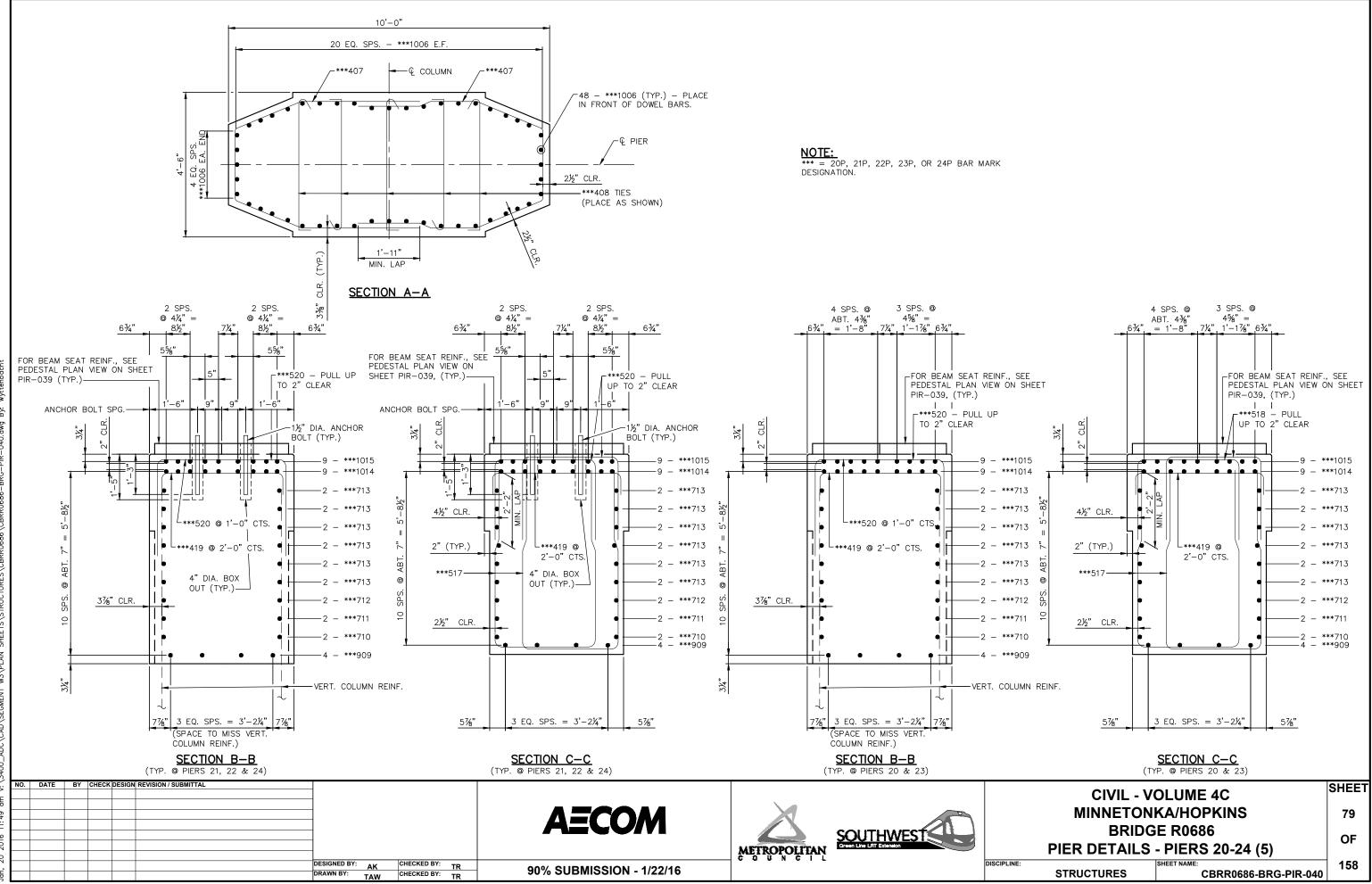
FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.

CIVIL - VOLUME 4C	SHEET				
	76				
MINNETONKA/HOPKINS					
BRIDGE R0686					
PIER DETAILS - PIERS 20-24 (2)	) OF				
	158				
STRUCTURES CBRR0686-BF	(G-PIR-037				





STRUCTURES	CBRR0686-BRG-PIR-03
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BAR         NO.         LENGTH         SHAPE         LOCATION         BAR         NO.         LENGTH         SHAPE         LOCATION         BAR           20P1001         26         25"-4"         C         FOOTING - BOTTOM LONGIT.         FOOTING - BOTTOM LONGIT.         FOOTING - BOTTOM LONGIT.         FOOTING - BOTTOM CONTOR - DOT TRANS.         FOOTING - TOP TRANS.         FOOTING - TOP TRANS.         FOOTING - TOP TRANS.         22P603         36         15"-6"         FOOTING - TOP TRANS.         22P604         22         FOOTING - TOP TRANS.         22P604         22         22902         22P604         22P105         48         12"-8"         FOOTING - TOP TRANS.         22P604         22P604         22P604         22P604         22P106         22P604         22P604         22P106         22P604         22P604         22P106         22P604         22P106         22P106         22P604         22P106         22P107         22P106         22P106         22P106         22P106         22P106         22P107         22P106         22P107         22P107         22P107         22P107         22P107         22		BILL	OF REIN	FORCEME	<u>NT - PIER 20</u>		BILL	OF REI	NFORCEM	<u> ENT - PIER 21</u>		BII
20P902       36       18'-0"       C       FOOTING - BOTTOM TRANSV.       22P902       36       28'-0"       C       FOOTING - BOTTOM TRANSV.       22P902         20P603       36       15'-6"       FOOTING - TOP TRANS.       21P902       36       15'-6"       FOOTING - TOP TRANS.       22P902         20P604       26       23'-6"       FOOTING - TOP LONGIT.       21P604       26       23'-6"       FOOTING - TOP LONGIT.       22P106       48       12'-8"       FOOTING - DOWELS       22P105       22P106       48       12'-8"       FOOTING - DOWELS       22P105       22P105       22P106       28       35'-0"       COLUMN - VERTICAL       22P106       28       36'-0"       COLUMN - VERTICAL       22P106       22P10       22P105       22P105       22P105       22P105       22P105       22P105       22P105       22P105       22P105       22P107       22P106       22P107       22P106       22P107       22P106       22P107       22P106       22P107       22P105       22P107       22P107       22P105       22P107       22P107       22P106       22P107       22P101	BAR	NO.	LENGTH	SHAPE	LOCATION	BAR	NO.	LENGTH	SHAPE	LOCATION	BAR	
20P603       36       15'-6"       FOOTING - TOP TRANS.       21P603       36       15'-6"       FOOTING - TOP TRANS.       22P603         20P604       26       23'-6"       FOOTING - TOP LONGIT.       FOOTING - TOP LONGIT.       22P604       22       22-6"       FOOTING - TOP LONGIT.       22P603       22P604       22       22-6"       FOOTING - TOP LONGIT.       22P603       22P604       22       22-6"       FOOTING - TOP LONGIT.       22P603       22P604       22       22-6"       FOOTING - TOP LONGIT.       22P604       22P105       22P105       22P105       22P106       22P105       22P105       22P105       22P106       22P105       22P106       22P105       22P106       22P105       22P106       22P105       22P106       22P107       22P105       22P106       22P107       22P105       22P106       22P107	20P1001	26	26'-4"	<u>ر</u> ے	FOOTING - BOTTOM LONGIT.	21P1001	26	26'-4"	<u>ر</u> ے	FOOTING - BOTTOM LONGIT.	22P1001	+
20P604       26       23'-6"	20P902	36	18'-0"		FOOTING - BOTTOM TRANSV.	21P902	36	28'-0"		FOOTING - BOTTOM TRANSV.	22P902	+
20P1105       48       12'-8"       FOOTING - DOWELS       22P105       22P106       48       37'-10"       COLUMN - VERTICAL       22P106       22P106       48       35'-10"       COLUMN - VERTICAL       22P106       22P101       22P101       21P102       21P102       21P102       21P102       21P102       21P101       21P101       21P101       21P101       22P101       22P111       22P101       22P111       22P101       22P101       22P101       22P101       22P111       22P101	20P603	36	15'-6"		FOOTING - TOP TRANS.	21P603	36	15'-6"		FOOTING - TOP TRANS.	22P603	
20P1006       48       37'-10"	20P604	26	23'-6"		FOOTING - TOP LONGIT.	21P604	26	23'-6"		FOOTING - TOP LONGIT.	22P604	
20P407       65       14'-3"       C       COLUMN - STIRRUPS       21P407       62       14'-3"       C       COLUMN - STIRRUPS       22P407       22P407         20P408       165       5'-0"       COLUMN - TIES       CAP - LONGIT.       21P408       155       5'-0"       CAP - LONGIT.       22P408       22P409       8       18'-1"       CAP - LONGIT.       22P409       8       18'-1"       CAP - LONGIT.       22P407       22P407       22P407       22P408       22P409       22P408       22P409       22P408       22P409       22P408       22P409       22P408       22P407       22P408       22P407       22P407       22P408       22P407       22P408       22P407       22P408       22P407       22P408       22P407       22P408       22P407       22P407       22P408       22P407       22P408       22P407       22P408       22P408       22P407       22P408       22P407       22P408       22P407       22P101       22P407       22P407       22P407       22P407       22P408       22P407       22P101       22P101       22P101       22P111       22       22P111       22       22P111       22       22P111       22       22P111       22       22P112       22P112       22P111	20P1105	48	12'-8"		FOOTING - DOWELS	21P1105	48	12'-8"		FOOTING - DOWELS	22P1105	
20P408       165       5'-0"       Column - Ties       22P408       155       5'-0"       Column - Ties       22P408         20P909       8       18'-1"       CAP - LONGIT.       21P909       8       18'-1"       CAP - LONGIT.       22P909       22P700       2       13'-9"       CAP - LONGIT.       22P909       8       18'-1"       CAP - LONGIT.       22P909       22P710       2       13'-9"       CAP - LONGIT.       22P101       2       22P709       CAP - LONGIT.       22P710       22P711       2       20'-9"       CAP - LONGIT.       22P710       22P710       22P711       2       20'-9"       CAP - LONGIT.       22P710       22P711       2       20'-9"       CAP - LONGIT.       22P711       22P713       12       31'-4"       CAP - LONGIT.       22P713       22P713       22P713       22P713       22P713       22P713       22P713       22P1014       9       34'-8"       CAP - LONGIT.       22P1014       22P1014       22P1014       22P1014       22P1015       22P1014       22P1015       22P1014       22P1015       22P1015       22P1015       22P1014       22P1015       22P1015       22P1015       22P1015       22P1015       22P1015       22P1015       22P1015       22P1015       22P1015 </td <td>20P1006</td> <td>48</td> <td>37'-10"</td> <td></td> <td>COLUMN – VERTICAL</td> <td>21P1006</td> <td>48</td> <td>35'-10"</td> <td></td> <td>COLUMN – VERTICAL</td> <td>22P1006</td> <td></td>	20P1006	48	37'-10"		COLUMN – VERTICAL	21P1006	48	35'-10"		COLUMN – VERTICAL	22P1006	
20P909       8       18'-1"       CAP - LONGIT.       21P909       8       18'-1"       CAP - LONGIT.       22P909         20P710       2       13'-9"       CAP - LONGIT.       21P710       2       13'-9"       CAP - LONGIT.       22P710       22P711       22P713       22P516       22P516       22P516       22P516 </td <td>20P407</td> <td>65</td> <td>14'-3"</td> <td></td> <td>COLUMN - STIRRUPS</td> <td>21P407</td> <td>62</td> <td>14'-3"</td> <td></td> <td>COLUMN - STIRRUPS</td> <td>22P407</td> <td></td>	20P407	65	14'-3"		COLUMN - STIRRUPS	21P407	62	14'-3"		COLUMN - STIRRUPS	22P407	
20P710       2       13'-9"       CAP - LONGIT.       21P710       2       13'-9"       CAP - LONGIT.       22P710       2       20'-9"       CAP - LONGIT.       22P710       2       20'-9"       CAP - LONGIT.       22P711       2       20'-9"       CAP - LONGIT.       22P710       2       20'-9"       CAP - LONGIT.       22P710       2       20'-9"       CAP - LONGIT.       22P711       2       20'-9"       CAP - LONGIT.       22P713       22P713       22P710       2       27'-9"       CAP - LONGIT.       22P713	20P408	165	5'-0"	ــــــــــــــــــــــــــــــــــــــ	COLUMN - TIES	21P408	155	5'-0"	ــــــــــــــــــــــــــــــــــــــ	COLUMN - TIES	22P408	
20P711       2       20'-9"       CAP - LONGIT.       21P711       2       20'-9"       CAP - LONGIT.       22P711       2       20'-9"       CAP - LONGIT.       22P712       2       27'-9"       CAP - LONGIT.       22P713       12       31'-4"       CAP - LONGIT.       21P713       12       31'-4"       CAP - LONGIT.       22P713       22P713       12       31'-4"       CAP - LONGIT.       22P713       22P713       22P713       22P713       22P714       2       27'-9"       CAP - LONGIT.       22P713       22P713       22P714       2       27'-9"       CAP - LONGIT.       22P713       22P713       22P714       2       22P713       22P714       2       22P713       22P713       22P713       22P713       22P713       22P713       22P714       2       22P713       22P714       2       22P713       22P714       2       22P713       22P713       22P714       2       22P713       22P713       22P714       2       22P713       2       22P713       22P714       2       22P715       2       22P1014       2       22P1014 <td< td=""><td>20P909</td><td>8</td><td>18'-1"</td><td></td><td>CAP – LONGIT.</td><td>21P909</td><td>8</td><td>18'-1"</td><td></td><td>CAP – LONGIT.</td><td>22P909</td><td></td></td<>	20P909	8	18'-1"		CAP – LONGIT.	21P909	8	18'-1"		CAP – LONGIT.	22P909	
207712       2       27'-9"       CAP - LONGIT.       217'12       2       27'-9"       CAP - LONGIT.       2227'12         20713       12       31'-4"       CAP - LONGIT.       217'13       12       31'-4"       CAP - LONGIT.       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       2227'13       227'14       227'13       227'14       227'13       227'13       227'13       227'13       227'14       227'14       227'13       227'13       227'13       227'14       227'14       227'14       227'14       227'14       227'14       227'14       227'14       227'14       227'14       227'14       227'14       227'14       227'14       227'14       227'14       227'14       227'14       227'15       227'15       227'15       227'15       227'14       227'14       227'14       227'14       22'14'14       22'14'14       22'14'14       22'14'14       22'14'14       21'15'16       16       6'1'''''''''''''	20P710	2	13'-9"		CAP – LONGIT.	21P710	2	13'-9"		CAP – LONGIT.	22P710	T
20P713       12       31'-4"       —       CAP - LONGIT.       22P713       12       31'-4"       —       CAP - LONGIT.       22P713       22P713       12       31'-4"       —       CAP - LONGIT.       22P1014       22P1014       9       34'-8"       CAP - LONGIT.       22P1014       9       34'-8"       CAP - LONGIT.       22P1014       22P1014       9       34'-8"       CAP - LONGIT.       22P1014       22P1014       9       34'-8"       CAP - LONGIT.       22P1014       22P1015       9       35'-2"       CAP - LONGIT.       22P1014       22P1015       9       35'-2"       CAP - LONGIT.       22P1014       22P1015	20P711	2	20'-9"		CAP – LONGIT.	21P711	2	20'-9"		CAP – LONGIT.	22P711	
20P1014       9       34'-8"       CAP       LONGIT.         20P1015       9       35'-2"       CAP       CAP       LONGIT.         20P516       16       8'-7"       CAP       CAP       LONGIT.         20P517       4 SER.       10'-9" TO 14'-1"       CAP       STRRUPS       CAP       STRRUPS         20P518       76       8'-1"       CAP       CAP       STRRUPS       21P518       76       8'-1"       CAP       STRRUPS         20P520       10       10'-0"       CAP       CAP       STRRUPS       21P520       10       10'-0"       CAP       STRRUPS       22P518         20P520       10       10'-0"       CAP       STRRUPS       21P520       10       10'-0"       CAP       STRRUPS       22P518         20P421       28       5'-3"       PEDESTAL – TIES       21P421       28       5'-3"       PEDESTAL – TIES       22P520	20P712	2	27'-9"		CAP – LONGIT.	21P712	2	27'-9"		CAP – LONGIT.	22P712	
20P1015       9       35'-2"       CAP - LONGIT.         20P516       16       8'-7"       CAP - END TIES       21P1015       9       35'-2"       CAP - LONGIT.       22P1015       22P1015 <t< td=""><td>20P713</td><td>12</td><td>31'-4"</td><td></td><td>CAP – LONGIT.</td><td>21P713</td><td>12</td><td>31'-4"</td><td></td><td>CAP – LONGIT.</td><td>22P713</td><td></td></t<>	20P713	12	31'-4"		CAP – LONGIT.	21P713	12	31'-4"		CAP – LONGIT.	22P713	
20P51616 $8'-7"$ $\square$ CAP - END TIES $22P516$ 16 $8'-7"$ $\square$ CAP - END TIES $22P516$ 20P517 $4$ SER. $0F 19$ $10'-9"$ TO $14'-1"\squareCAP - STIRRUPS21P5174 SER.0F 1910'-9" TO14'-1"\squareCAP - STIRRUPS22P51620P518768'-1"\squareCAP - STIRRUPS21P518768'-1"\squareCAP - STIRRUPS22P51820P419165'-4"\squareCAP - BAR SUPPORT TIES21P419165'-4"\squareCAP - BAR SUPPORT TIES22P51020P5201010'-0"\squareCAP - TOP21P421285'-3"\squarePEDESTAL - TIES22P421$	20P1014	9	34'-8"		CAP – LONGIT.	21P1014	9	34'-8"		CAP – LONGIT.	22P1014	
20P517       4 SER. 0F 19       10'-9" TO 14'-1"       CAP - STIRRUPS       21P517       4 SER. 0F 19       10'-9" TO 14'-1"       CAP - STIRRUPS       22P517       22P517       2 SER. 0F 19       CAP - STIRRUPS       22P517       22P517       2 SER. 0F 19       CAP - STIRRUPS       22P517       22P517       2 SER. 0F 19       CAP - STIRRUPS       22P517       22P517       22P517       2 SER. 0F 19       CAP - STIRRUPS       22P517       22P517       2 SER. 0F 19       21P517       CAP - STIRRUPS       22P517       22P517       2 SER. 0F 19       21P517       CAP - STIRRUPS       22P517       22P517       2 SER. 21P517       2 SER. 21P517       CAP - STIRRUPS       22P517       22P517       22P517       2 SER. 21P517       2 SER. 21P517       CAP - STIRRUPS       22P517       22P517       22P517       2 SER. 21P517       2 SER. 21P517       2 SER. 21P517       CAP - STIRRUPS       22P517       22P517       22P517       22P517       22P517       22P517       22P517       22P517       22P517       22P518       22P518       22P518       22P517       22P518       22P517       22P518       22P518       22P517	20P1015	9	35'-2"		CAP – LONGIT.	21P1015	9	35'-2"	[	CAP – LONGIT.	22P1015	
20P517       OF 19       14'-1"       III       CAP - STIRRUPS       22P517       OF 19       14'-1"       III       CAP - STIRRUPS       22P517         20P518       76       8'-1"       III       CAP - STIRRUPS       22P517       21P518       76       8'-1"       III       CAP - STIRRUPS       22P517       22P518         20P519       16       5'-4"       IIII       CAP - STIRRUPS       22P518       22P519       22P519       16       5'-4"       CAP - STIRRUPS       22P518       22P519       22P519       16       5'-4"       CAP - BAR SUPPORT TIES       22P519       22P519       10       10'-0"       CAP - TOP       22P520       22P520       22P520       10       10'-0"       CAP - TOP       22P520       22P520       22P520       22P520       22P421       28       5'-3"       PEDESTAL - TIES       22P421	20P516	16	8'-7"		CAP – END TIES	21P516	16	8'-7"		CAP – END TIES	22P516	
20P419       16       5'-4"       CAP - BAR SUPPORT TIES       21P419       16       5'-4"       CAP - BAR SUPPORT TIES       22P419         20P520       10       10'-0"       CAP - TOP       21P520       10       10'-0"       CAP - TOP       22P520         20P421       28       5'-3"       PEDESTAL - TIES       21P421       28       5'-3"       PEDESTAL - TIES       22P421	20P517				CAP – STIRRUPS	21P517				CAP – STIRRUPS	22P517	
20P520         10         10'-0"         CAP - TOP         21P520         10         10'-0"         CAP - TOP         22P520           20P421         28         5'-3"         Image: CAP - TIES         21P421         28         5'-3"         Image: PEDESTAL - TIES         22P421         28         5'-3"         Image: PEDESTAL - TIES         28         5'-3"         Image: PEDESTAL - TIES         5'-3"         Image: PEDESTAL - TIES         5'-3"         1mage: PEDESTAL - TIE	20P518	76	8'-1"		CAP – STIRRUPS	21P518	76	8'-1"		CAP – STIRRUPS	22P518	
20P421         28         5'-3"         PEDESTAL - TIES         21P421         28         5'-3"         PEDESTAL - TIES         22P421	20P419	16	5'-4"		CAP – BAR SUPPORT TIES	21P419	16	5'-4"		CAP – BAR SUPPORT TIES	22P419	
	20P520	10	10'-0"		CAP - TOP	21P520	10	10'-0"		CAP – TOP	22P520	
20P422         16         3'-4"         PEDESTAL - TIES         21P422         20         3'-4"         PEDESTAL - TIES         22P422	20P421	28	5'-3"		PEDESTAL – TIES	21P421	28	5'-3"		PEDESTAL – TIES	22P421	
	20P422	16	3'-4"		PEDESTAL – TIES	21P422	20	3'-4"	·	PEDESTAL – TIES	22P422	

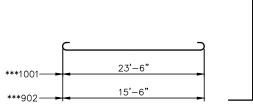
# BILL OF REINFORCEMENT - PIER 23

### LENGTH BAR NO. SHAPE LOCATION 23P1001 26'-4" FOOTING - BOTTOM LONGIT. 26 C \_\_\_\_ 23P902 FOOTING - BOTTOM TRANSV. 36 18'-0" 23P603 36 15'-6" FOOTING - TOP TRANS. 23P604 FOOTING - TOP LONGIT. 26 23'-6" 23P1105 48 12'-8" FOOTING - DOWELS 23P1006 48 COLUMN - VERTICAL 21'-10" COLUMN - STIRRUPS 23P407 34 14'-3" 23P408 85 5'-0" COLUMN - TIES CAP - LONGIT. 23P909 18'-1" 8 23P710 13'-9" CAP - LONGIT. 2 CAP - LONGIT. 23P711 2 20'-9" 23P712 CAP - LONGIT. 2 27'-9" 23P713 12 31'-4" CAP - LONGIT. 23P1014 34'-8" CAP - LONGIT. 9 23P1015 35'-2" CAP - LONGIT. 9 23P516 16 8'-7" $\square$ CAP - END TIES 4 SER. 10'-9" TO 23P517 CAP – STIRRUPS OF 19 14'-1" 23P518 76 8'-1" CAP – STIRRUPS CAP - BAR SUPPORT TIES 23P419 16 5'-4" $\square$ 23P520 10 10'-0" CAP - TOP $\square$ PEDESTAL - TIES 23P421 28 5'-3" 23P422 16 3'-4" PEDESTAL - TIES

	BAR	NO.	LENGTH	SHAPE	LOCATION
F	24P1001	26	26'-4"		FOOTING - BOTTOM LONGIT.
F	24P902	36	18'-0"		FOOTING - BOTTOM TRANSV.
	24P603	36	15'-6"		FOOTING - TOP TRANS.
	24P604	26	23'-6"		FOOTING - TOP LONGIT.
	24P1105	48	12'-8"		FOOTING - DOWELS
	24P1006	48	15'-10"		COLUMN – VERTICAL
	24P407	22	14'-3"		COLUMN - STIRRUPS
	24P408	55	5'-0"		COLUMN - TIES
Γ	24P909	8	18'-1"		CAP – LONGIT.
	24P710	2	13'-9"		CAP – LONGIT.
	24P711	2	20'-9"		CAP – LONGIT.
Γ	24P712	2	27'-9"		CAP – LONGIT.
	24P713	12	31'-4"		CAP – LONGIT.
Γ	24P1014	9	34'-8"		CAP – LONGIT.
	24P1015	9	35'-2"		CAP – LONGIT.
	24P516	16	8'-7"	Γ	CAP – END TIES
	24P517	4 SER. OF 19	10'-9" TO 14'-1"		CAP – STIRRUPS
Γ	24P518	76	8'-1"		CAP – STIRRUPS
Γ	24P419	16	5'-4"		CAP – BAR SUPPORT TIES
	24P520	10	10'-0"		CAP – TOP
	24P421	28	5'-3"	Γ	PEDESTAL – TIES
	24P422	20	3'-4"		PEDESTAL – TIES

BILL OF REINFORCEMENT - PIER 24

# NOTE: \*\*\* = 20P, 21P, 22P, 23P, OR 24P BAR MARK DESIGNATION.



LENGTH

18'-0"

15'-6"

23'-6"

12'-8"

29'-10"

14'-3"

5'-0"

18'-1"

13'-9"

20'-9" 27'-9"

31'-4"

34'-8"

35'-2"

8'-7"

10'-9" TO

14'-1"

8'-1"

5'-4"

10'-0"

5'-3"

3'-4"

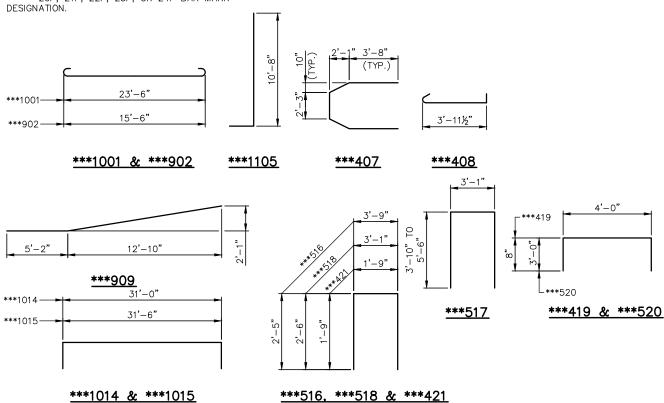
26'-4" 🦳

SHAPE

 $\square$ 

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# <u>\*\*\*1014 & \*\*\*1015</u>

34										
÷	NO.	DATE	BY CHECK DESIG	REVISION / SUBMITTAL	_					
Ĕ					-					
40					-					
12:					-		AECOM			
16									SOUTHWEST	
20					_			METROPOLITAN	Green Line LRT Extension	
20								COUNCIL		DISCIPLIN
					DESIGNED BY: AK	CHECKED BY: TR	90% SUBMISSION - 1/22/16			DISCIPLIN
Jan,					DRAWN BY: TAW	V CHECKED BY: TR	30 /0 SUDIVIISSION - 1/22/10			

# \_ OF REINFORCEMENT - PIER 22

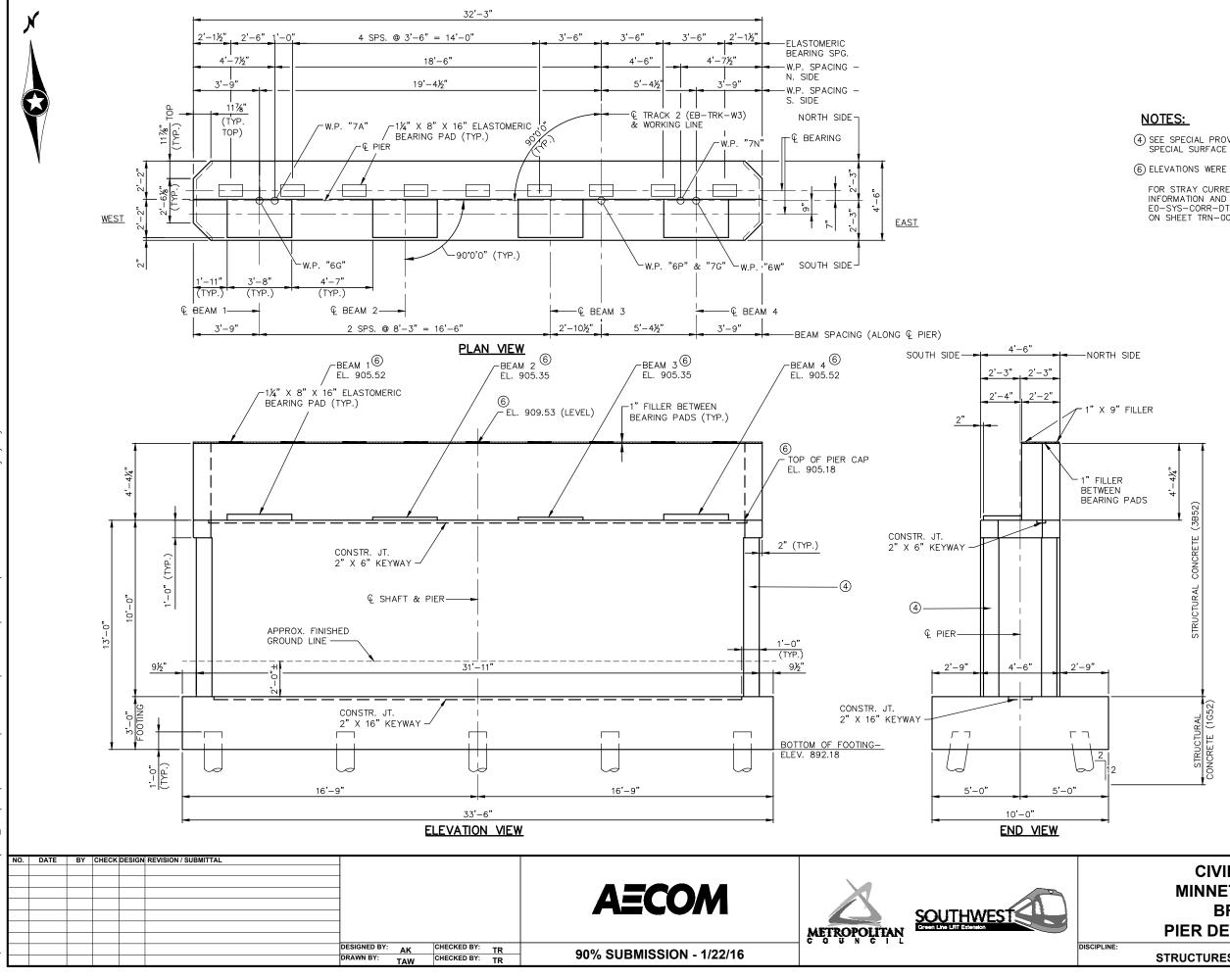
E	LOCATION
Ŋ	FOOTING - BOTTOM LONGIT.
	FOOTING - BOTTOM TRANSV.
	FOOTING - TOP TRANS.
	FOOTING - TOP LONGIT.
_	FOOTING - DOWELS
_	COLUMN – VERTICAL
_	COLUMN - STIRRUPS
	COLUMN - TIES
	CAP – LONGIT.
	CAP – END TIES
	CAP – STIRRUPS
	CAP – STIRRUPS
	CAP – BAR SUPPORT TIES
	CAP – TOP
	PEDESTAL – TIES
	PEDESTAL – TIES

CIVIL - VOLUME 4C	SHEET
MINNETONKA/HOPKINS	80
BRIDGE R0686	OF
PIER DETAILS - PIERS 20-24 (6)	
INE: SHEET NAME:	158
STRUCTURES CBRR0686-BRG-PIR-0	41

PIER 2 REQUIRED NOMINAL RESISTANCE FOR CIP PIL FIELD CONTROL METHOD PDA * R <sub>n</sub> = (FACTORED DESIGN LOAD) /	PILE         BE           LES         R         -           Φ         dyn         0.65		FACTORED FACTORED FACTORED # FACTORED	PIER TED PILE LOA DEAD LOAD UVE LOAD OVERTURNING DESIGN LOAD I STRENGTH V LOAD	AD - TONS/PILE 82.2 33.0 4.6 119.8	PILE NOTES 1 CAST-IN-PLACE CON 9 CAST-IN-PLACE CON 10 CAST-IN-PLACE CON 10 CAST-IN-PLACE CON 10 PILE SPACING IS SHOWN / PILES TO HAVE A NOMINA WALL THICKNESS OF %6". PILES MARKED THUS ○ DIRECTION SHOWN. FOR PILE SPLICE DETAILS PILE CUTOFF IS EL. 893.1 MAXIMUM TIP ELEVATION IN PILE TIP SHALL BE PLACE FOR STRAY CURRENT PROC DETAILS, SEE SHEETS EO- NOTES ON SHEET TRN-OC	NC. PILES EST. LE NC. PILES REQ'D AT BOTTOM OF F IL DIAMETER OF TO BE BATTERED SEE DETAIL B20 8. FOR LATERAL ST ID BELOW MAXIMU DIECTION SYSTEM -SYS-CORR-DTL-	ENGTH 75 FT. FOR PIER 25. OOTING. 16" AND NOMINA 0 2" PER FOOT I 1. ABILITY IS EL. 85 JM TIP ELEVATION INFORMATION AI	N 57.18. N.
	<u>WES</u>	PIER	5'-3" 4'-4½"	W.P.	23'-9" 18'-6" 19'-4½" Q SHAFT & FOOTING W.P. "7A" OUTLINE OUTLINE OUTLINE . "6G" 7'-6" 33'	OF SHAFT	<u> </u>	5'-3" 4'-4½" EB-TRK-W3)	
NO. DATE BY CHECK DESIGN REVISION / SUBMI	TTAL		GNED BY: AK WN BY: TAW	CHECKED BY: TR CHECKED BY: TR		<b>COM</b> SSION - 1/22/16	METROPO		UTHWEST he LAT Extenden

DISCIPLI

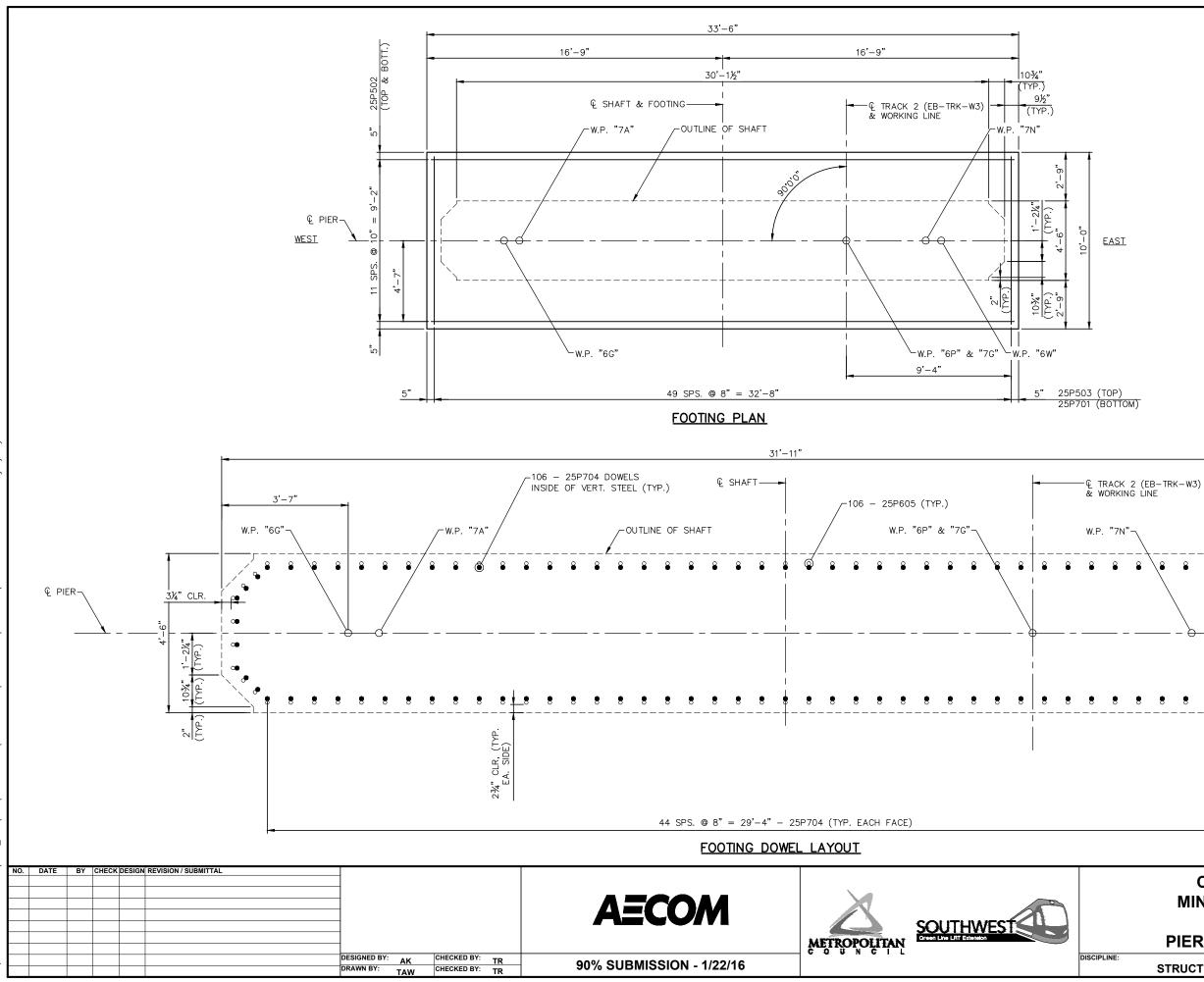
CIVIL - VOLUME 4C	SHEET
MINNETONKA/HOPKINS	81
BRIDGE R0686	OF
PIER DETAILS - PIER 25 (1)	UF
INE: STRUCTURES CBRR0686-BRG-PIR-042	158
GRRU000-DRG-PIR-U42	



- (4) SEE SPECIAL PROVISIONS AND SHEET AES-001 FOR SPECIAL SURFACE FINISH REQUIREMENTS.
- (6) ELEVATIONS WERE DETERMINED AT € BEARING.

FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.

CIVIL - VO	OLUME 4C	SHEET
MINNETONI	KA/HOPKINS	82
BRIDG	E R0686	OF
PIER DETAIL	S - PIER 25 (2)	
IE:	SHEET NAME:	158
STRUCTURES	CBRR0686-BRG-PIR-043	100



3'-2½"       (TYP.)       2'-11¼"       (TYP.)       2'-7¼"       (TYP.)       2'-7½"       (TYP.)       2'-7½"       (TYP.)       2'-3½"       (TYP.)					
CIVIL - VOLUME 4C	EET				
MINNETONKA/HOPKINS					
BRIDGE R0686					
PIER DETAILS - PIER 25 (3)	-				
STRUCTURES STRUCTURES 158	58				

<u>3'-7"</u>

∕−W.P. "6W"

8 8 8

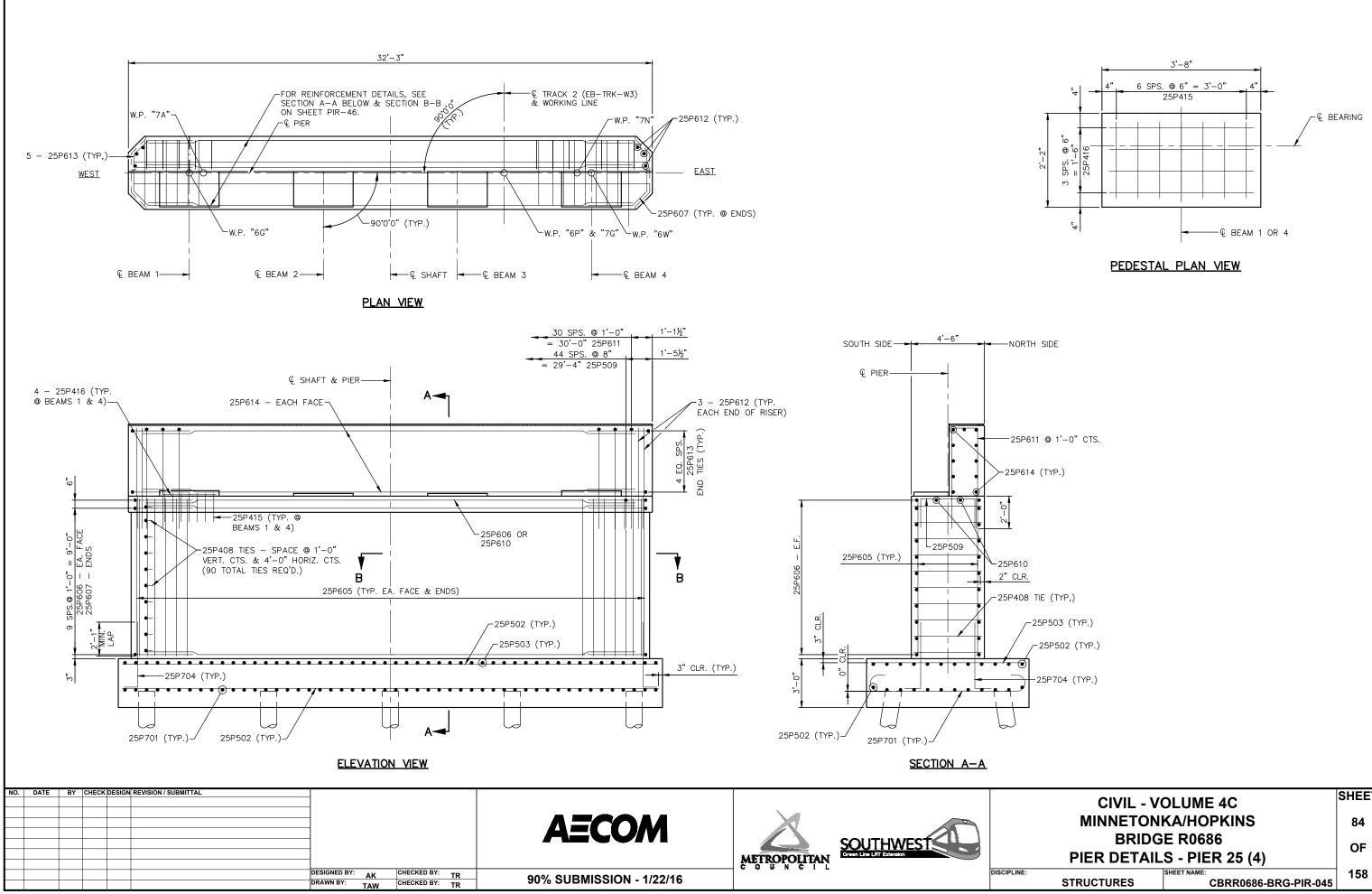
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NOTE: THE VERTICAL SHAFT BARS MUST BE PLACED IN FRONT OF THE DOWEL BARS.

4, TYP.

3%., 17%"

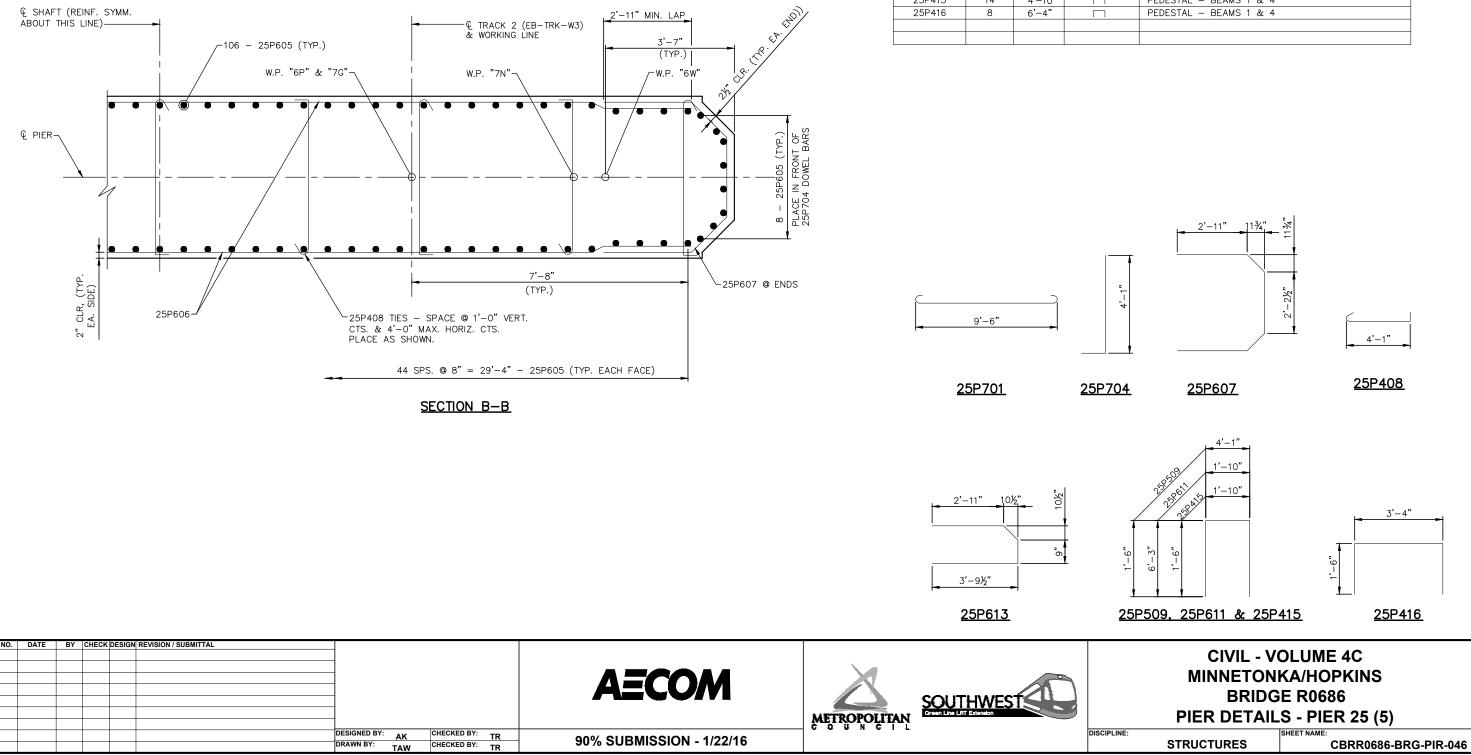
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25P611 @ 1'-0" CTS.					
5P614 (TYP.)					
2610 CLR.					
2408 TIE (TYP,)					
-25P503 (TYP.) -25P502 (TYP.)					
25P704 (TYP.)					
	OLUME 4C	SHEET 84			
BRIDGE R0686 PIER DETAILS - PIER 25 (4)					
	SHEET NAME: CBRR0686-BRG-PIR-045	158			

## BILL OF REINFORC

BAR	NO.	LENGTH	SHAPE	LOCATION
25P701	50	11'-2"	دــــــــــــــــــــــــــــــــــــ	FOOTING – TRANSV.
25P502	24	33'-0"		FOOTING – LONGIT.
25P503	50	9'-6"		FOOTING – TRANSV.
25P704	106	5'-3"		SHAFT – DOWELS
25P605	106	9'-7"		SHAFT – VERTICAL
25P606	22	29'-6"		SHAFT – LONGIT.
25P607	22	10'-10"	$\Box$	SHAFT – ENDS
25P408	90	5'-1"		SHAFT – TIES
25P509	45	7'-1"		SHAFT – TOP
25P610	2	31'-11"		SHAFT – TOP
25P611	31	14'-4"		RISER – VERTICAL
25P612	6	6'-3"		RISER – VERTICAL
25P613	10	8'-9"		RISER – ENDS
25P614	11	30'-3"		RISER – LONGIT.
25P415	14	4'-10"		PEDESTAL – BEAMS 1 & 4
25P416	8	6'-4"		PEDESTAL – BEAMS 1 & 4
25P416	8	6'-4"		PEDESTAL – BEAMS 1 & 4



|--|

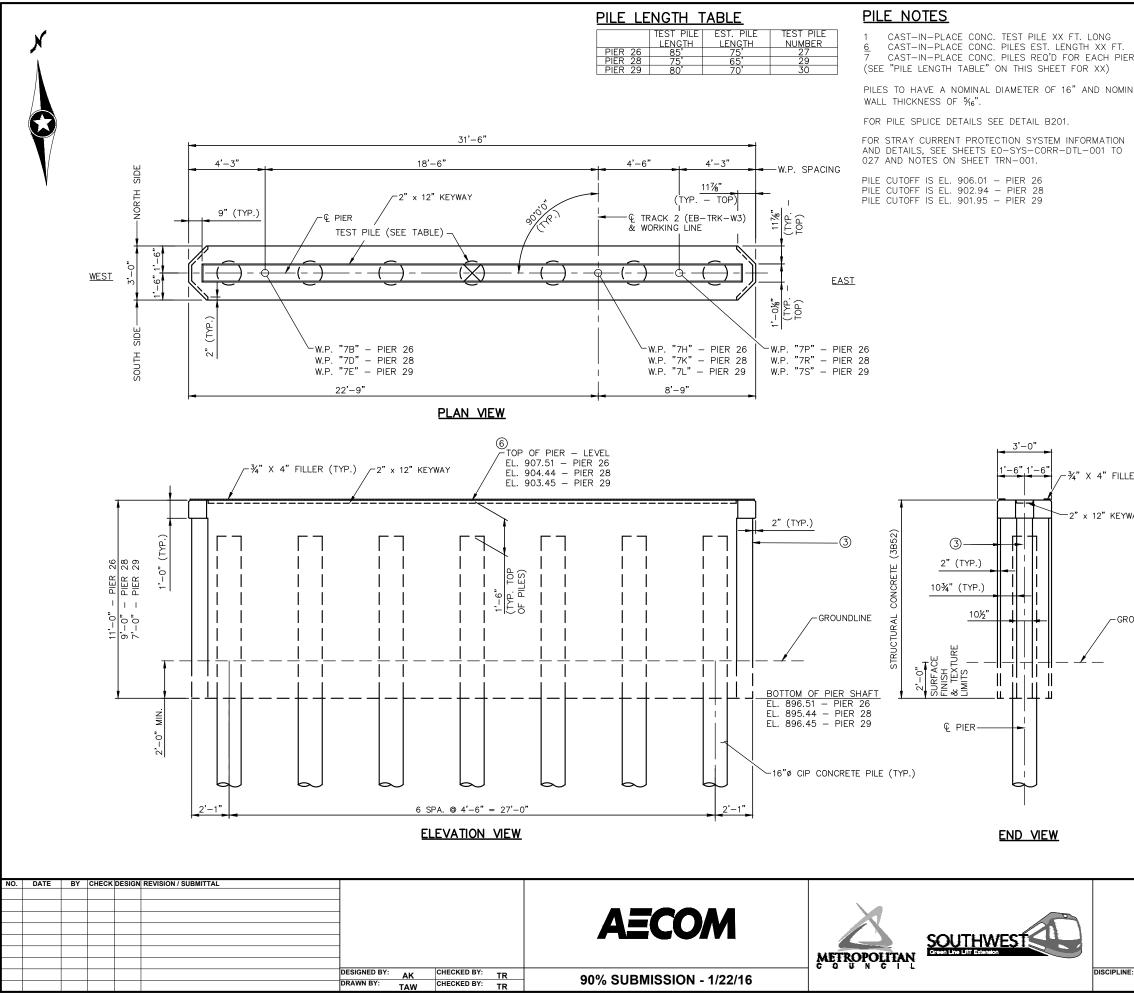
$\langle$		
	4'-1"	

SHEET

85

OF

158



		DIFRS	26	28 & 2	<u>م</u>	
-	F	REQUIRED NO				G
IER	RESIST	FANCE FOR	CIP P	ILES R n	- TONS	s/Pile
MINAL	FIELD CC	NTROL METHOD	φ <sub>dyn</sub>	PIER 26	PIER 28	PIER 29
	PDA		0.65	* R <sub>n</sub> 185.3	<b>∗ R</b> <sub>n</sub> 160.3	* R <sub>n</sub> 157.1
		(FACTORED DESIGN			100.5	137.1
N )				,		
		PIERS 26, JTED PILE L				
				PIER 26	· i	
	FACTO	RED DEAD LOAD		91.1	PIER 28 77.1	PIER 29 75.8
		RED LIVE LOAD		24.2	22.6	22.4
	FACTO	RED OVERTURNING		5.1	4.5	3.9
		RED DESIGN LOAD		120.4	104.2	102.1
		ON STRENGTH V L				
		ATERAL STA				
	PIER 26	MAXIMUM TIP ELEV		ATERAL STA	BILLIY	
	PIER 28		837.51 835.44			
	PIER 29		835.45			
		HALL BE PLACED B	ELOW TH	E MAXIMUM		
	TIP ELEV. S	SHOWN.				
LLER (TYP.)	)					
YWAY						
TWAT						
ROUNDLINE						
	NOT	-0.				

(3) SEE SPECIAL PROVISIONS AND SHEET AES-001 FOR SPECIAL SURFACE FINISH REQUIREMENTS.

6 elevations determined at north side/north face of pier at the top of concrete.

CIVIL - V	OLUME 4C	SHEET
MINNETON	KA/HOPKINS	86
BRIDG	E R0686	OF
PIER DETAILS - PI	ERS 26 & 28 & 29 (1)	
	SHEET NAME: CBRR0686-BRG-PIR-047	158



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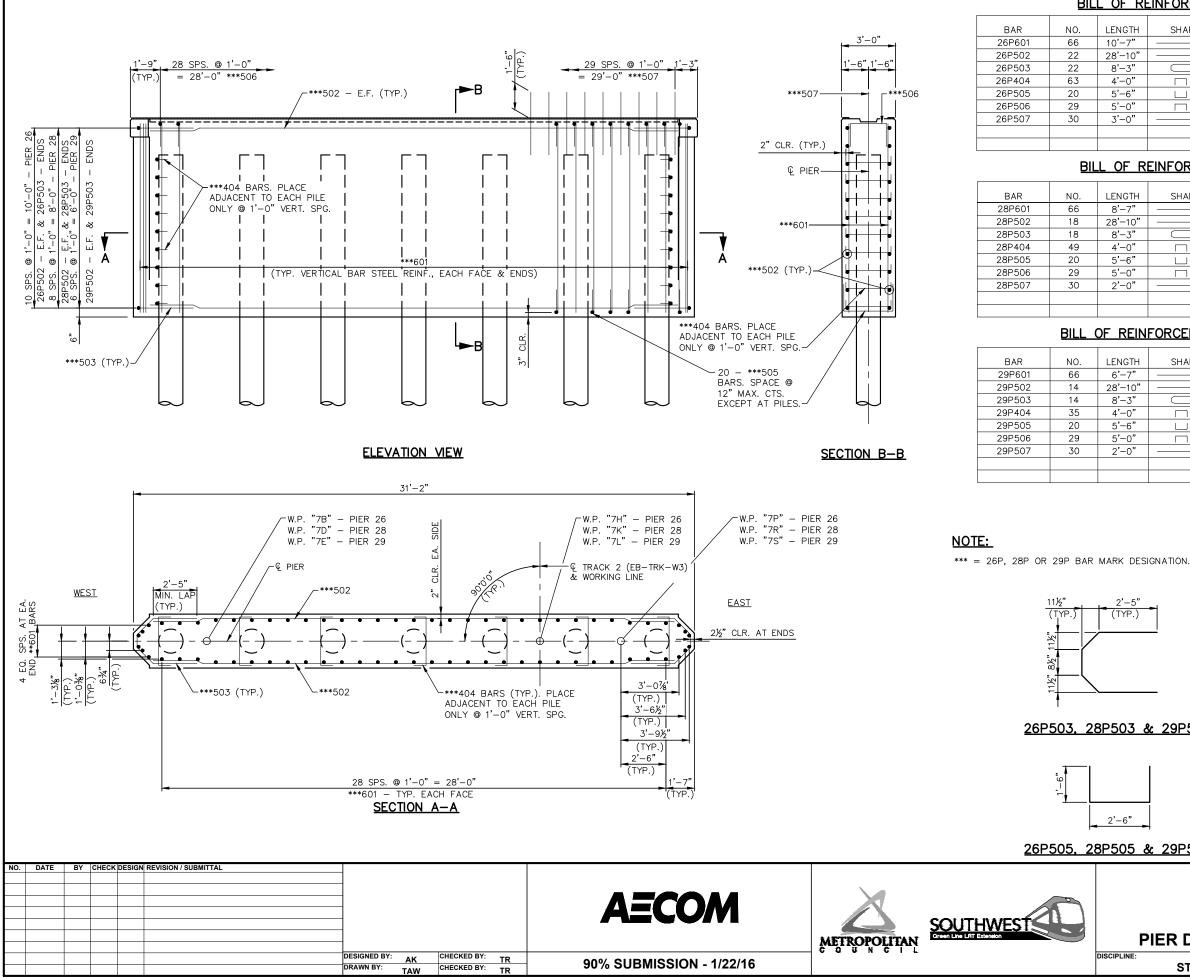
14

14

35

20

29



DISCIPLINE

2'-6"

# BILL OF REINFORCEMENT - PIER 26

	-	
LENGTH	SHAPE	LOCATION
10'-7"		SHAFT – VERTICAL
28'-10"		SHAFT – HORIZONTAL
8'-3"		SHAFT – END TIE
4'-0"		SHAFT – TIES AT PILES
5'-6"		SHAFT - TIES AT BOTTOM
5'-0"		SHAFT – TIES AT TOP
3'-0"		SHAFT - VERTICAL DOWELS AT TOP

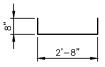
# BILL OF REINFORCEMENT - PIER 28

LENGTH	SHAPE	LOCATION
8'-7"		SHAFT – VERTICAL
28 <b>'</b> –10"		SHAFT – HORIZONTAL
8'-3"		SHAFT – END TIE
4'-0"		SHAFT – TIES AT PILES
5'-6"		SHAFT – TIES AT BOTTOM
5'-0"		SHAFT – TIES AT TOP
2'-0"		SHAFT – VERTICAL DOWELS AT TOP

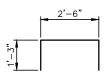
# BILL OF REINFORCEMENT - PIER 29

LENGTH	SHAPE	LOCATION
6'-7"		SHAFT – VERTICAL
28'-10"		SHAFT – HORIZONTAL
8'-3"		SHAFT – END TIE
4'-0"		SHAFT – TIES AT PILES
5'-6"		SHAFT – TIES AT BOTTOM
5'-0"		SHAFT – TIES AT TOP
2'-0"		SHAFT – VERTICAL DOWELS AT TOP



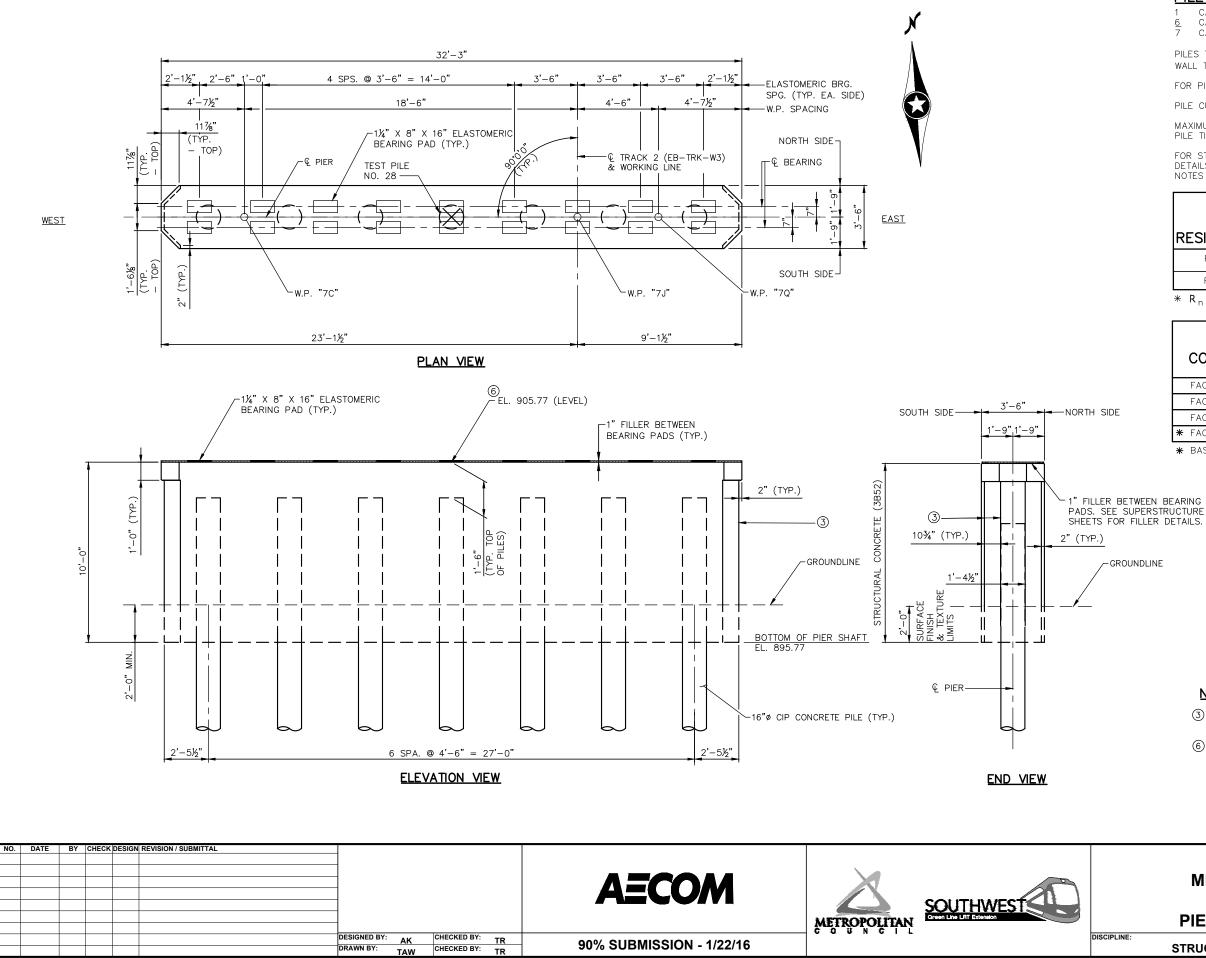


### 26P503, 28P503 & 29P503 26P404, 28P404 & 29P404



# 26P505, 28P505 & 29P505 26P506, 28P506 & 29P506

CIVIL - VOLUME 4C								
MINNETONKA/HOPKINS								
BRIDG	E R0686	OF						
PIER DETAILS - PIE	ERS 26 & 28 & 29 (2)	0.						
	CBRR0686-BRG-PIR-048	158						



# PILE NOTES

CAST-IN-PLACE CONC. TEST PILE 80 FT. LONG CAST-IN-PLACE CONC. PILES EST. LENGTH 70 FT.

CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 27.

PILES TO HAVE A NOMINAL DIAMETER OF 16" AND NOMINAL WALL THICKNESS OF 5/6".

FOR PILE SPLICE DETAILS SEE DETAIL B201.

PILE CUTOFF IS EL. 904.27.

MAXIMUM TIP ELEVATION FOR LATERAL STABILITY IS EL. 835.77. PILE TIP SHALL BE PLACED BELOW MAXIMUM TIP ELEVATION.

FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS EO-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.

PIER 27 REQUIRED NOMINAL RESISTANCE FOR CIP PILI	PILE BEA	
FIELD CONTROL METHOD	φ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	125.2

\*  $R_n = (FACTORED DESIGN LOAD) / <math>\phi_{dyn}$ 

СОМ	PIER 27 PUTED PILE LOAD	
FACTO	RED DEAD LOAD	59.6
FACTO	RED LIVE LOAD	16.9
FACTO	RED OVERTURNING	4.9
* FACTO	RED DESIGN LOAD	81.4

\* BASED ON STRENGTH V LOAD COMBINATION

SHEETS FOR FILLER DETAILS.

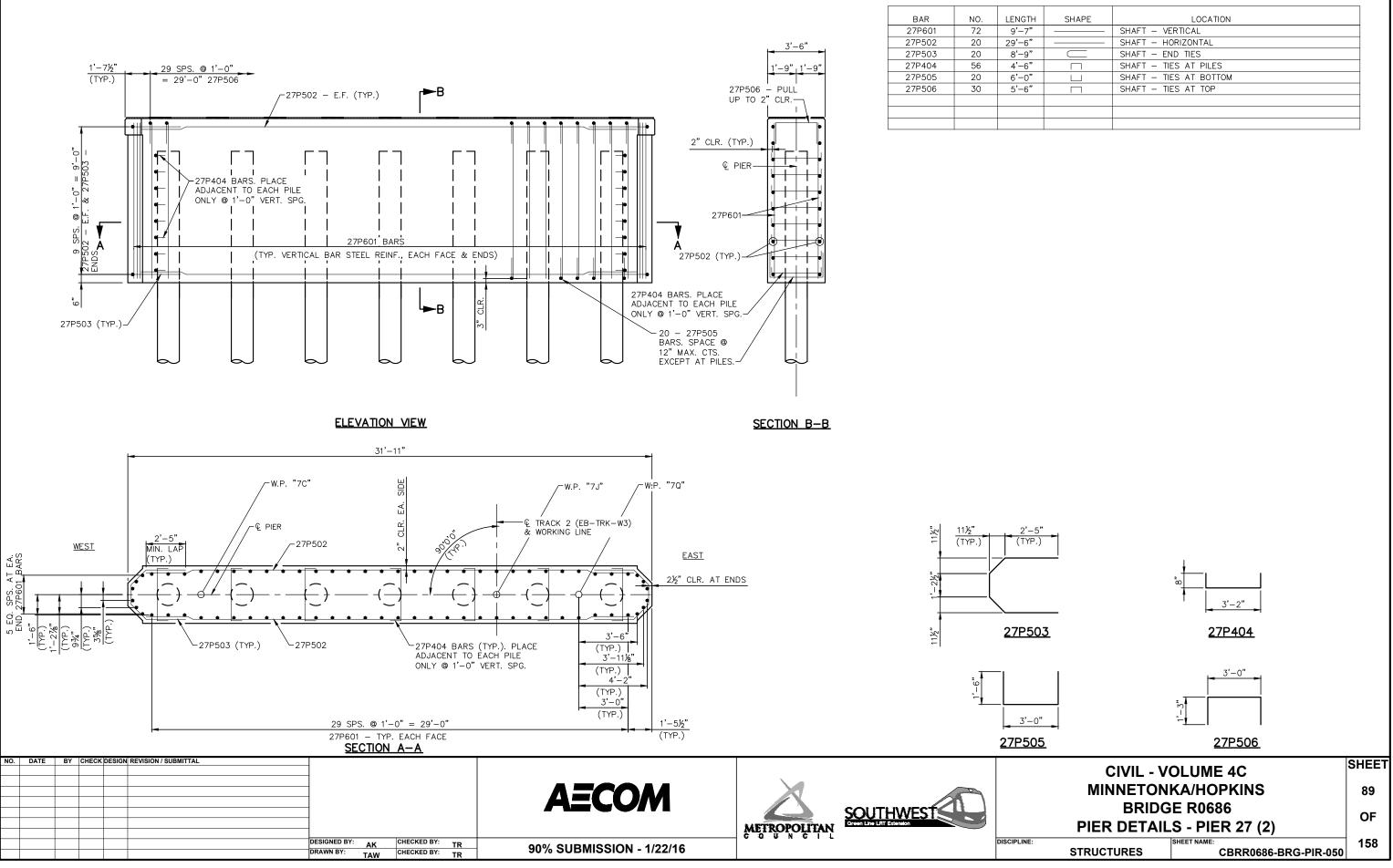
-GROUNDLINE

# NOTES:

(3) SEE SPECIAL PROVISIONS AND SHEET AES-001 FOR SPECIAL SURFACE FINISH REQUIREMENTS.

6 elevation determined at north side/north face of pier at the top of concrete.

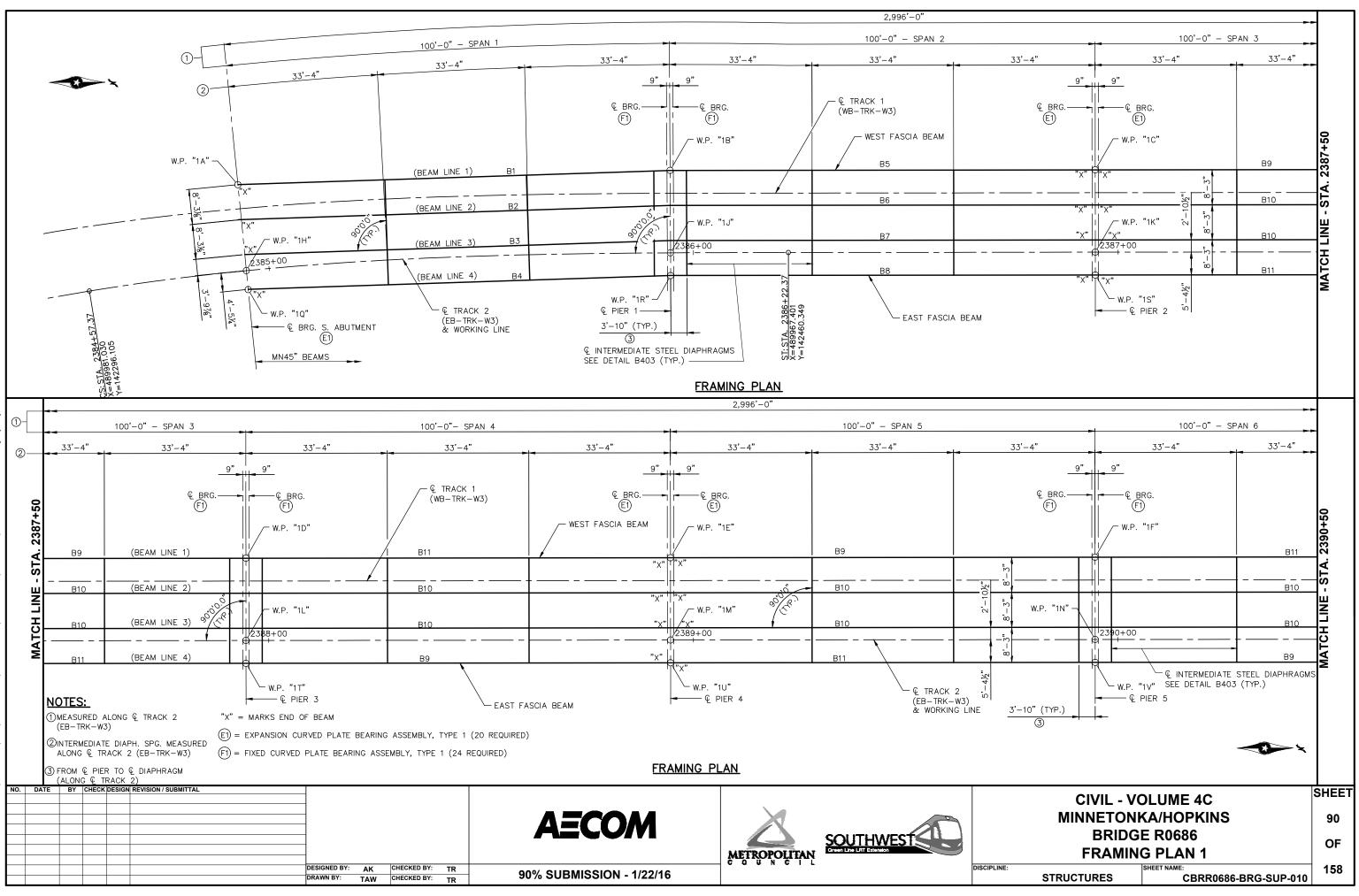
CIVIL - VOLUME 4C									
MINNETONKA/HOPKINS									
	BRIDGE R0686								
	PIER DETAILS - PIER 27 (1)								
E:	STRUCTURES	SHEET NAME: CBRR0686-BRG-PIR-049	158						

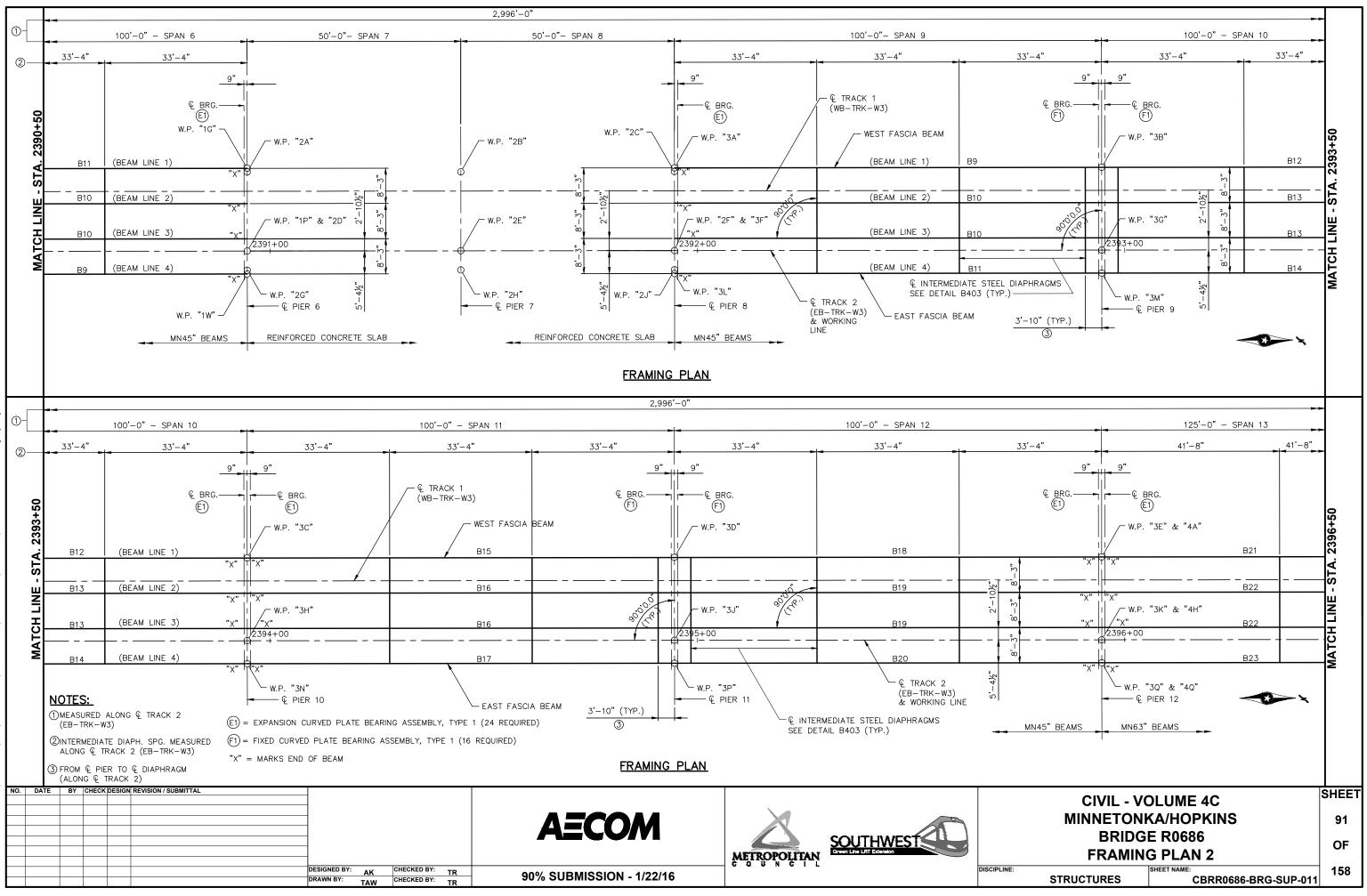


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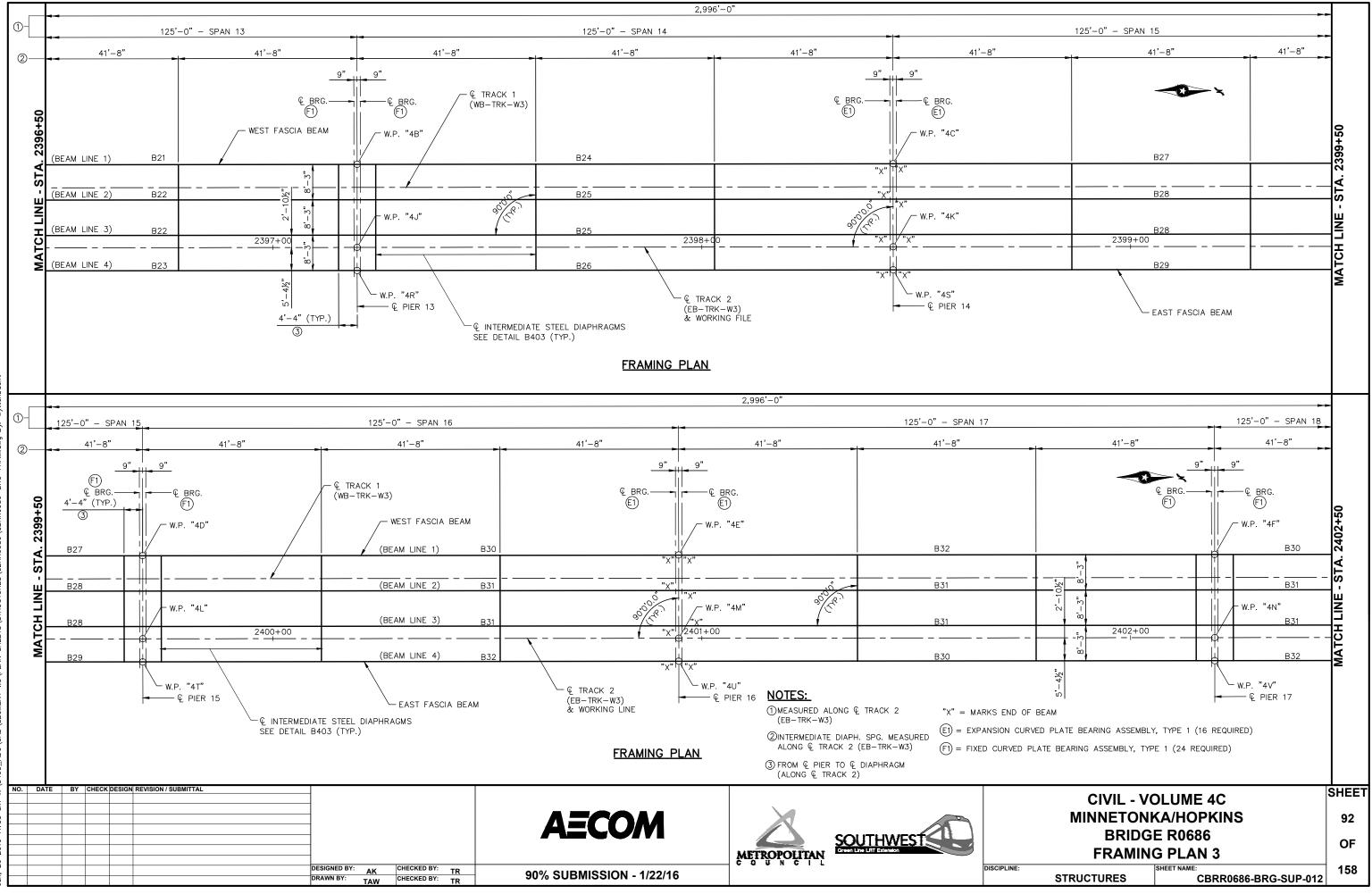
# BILL OF REINFORCEMENT - PIER 27

IGTH	SHAPE	LOCATION
-7"		SHAFT – VERTICAL
-6"		SHAFT – HORIZONTAL
-9"		SHAFT – END TIES
-6"		SHAFT – TIES AT PILES
-0"		SHAFT – TIES AT BOTTOM
-6"		SHAFT – TIES AT TOP

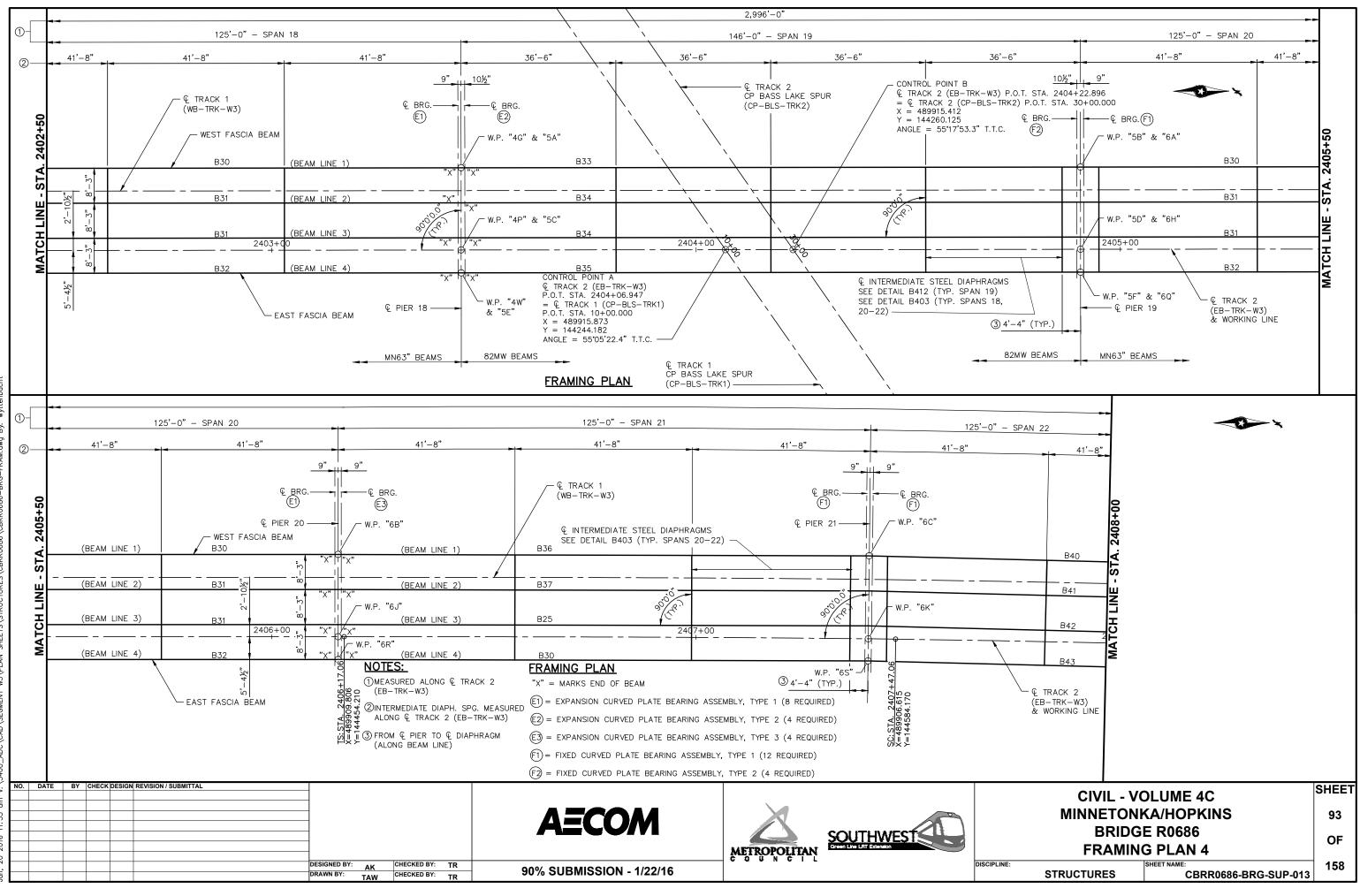


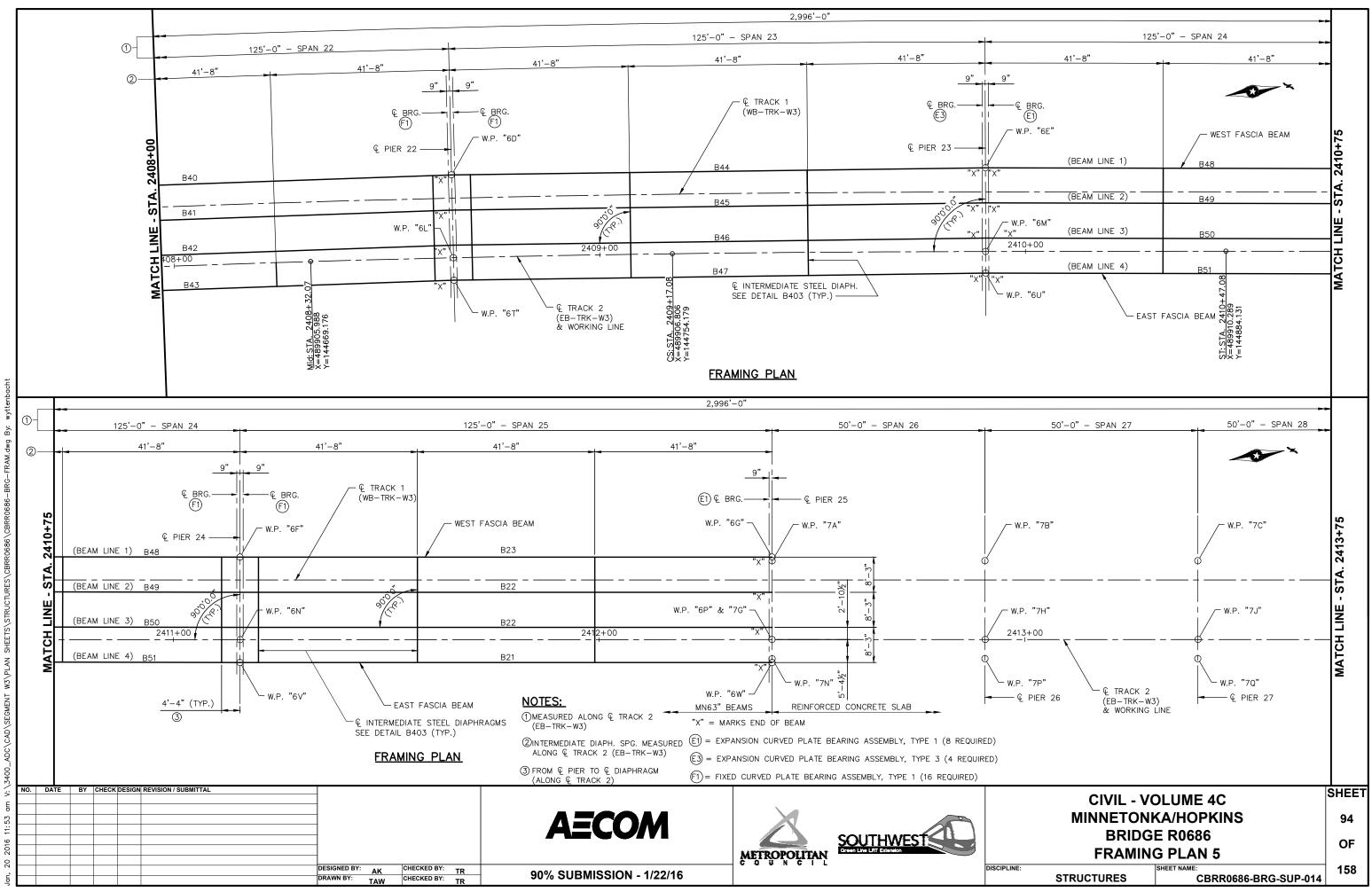


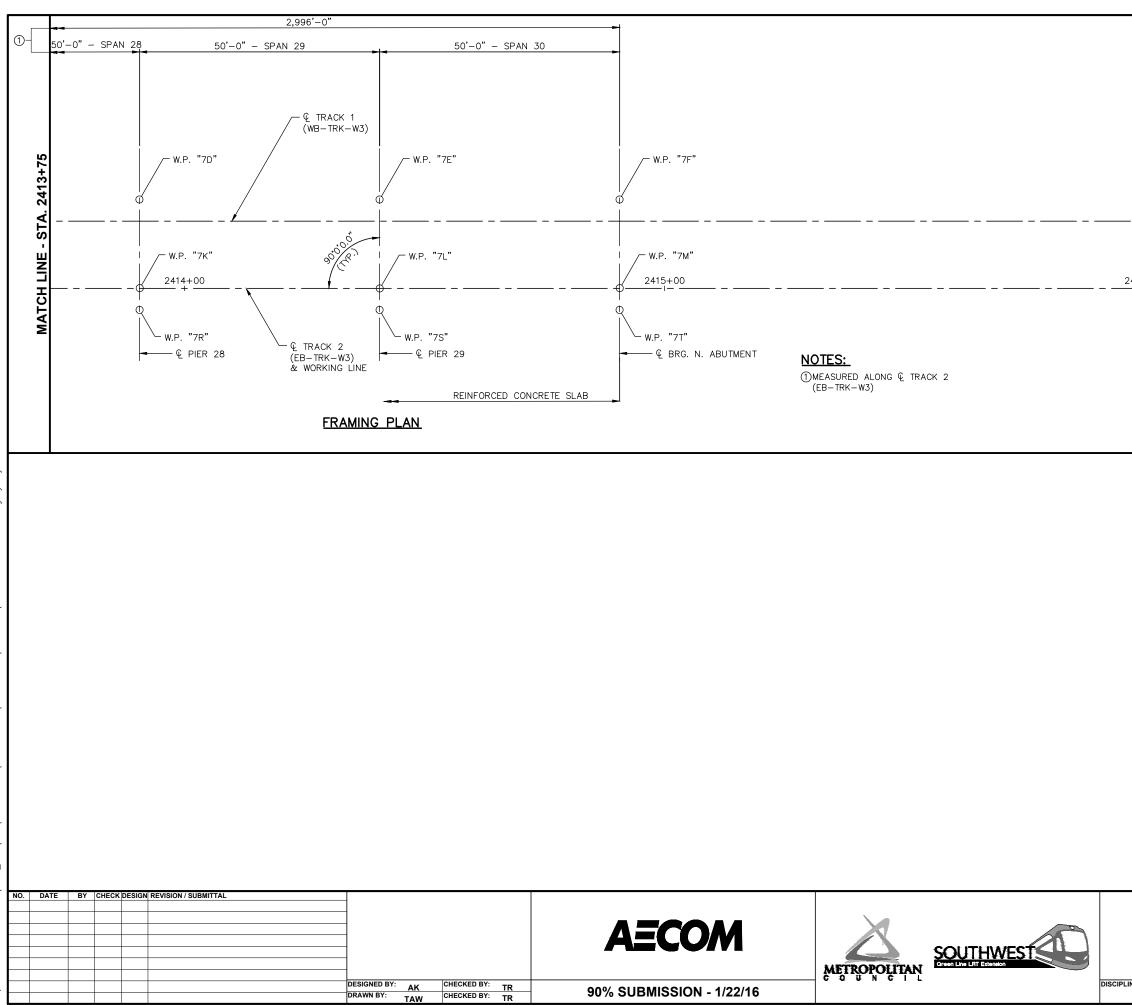
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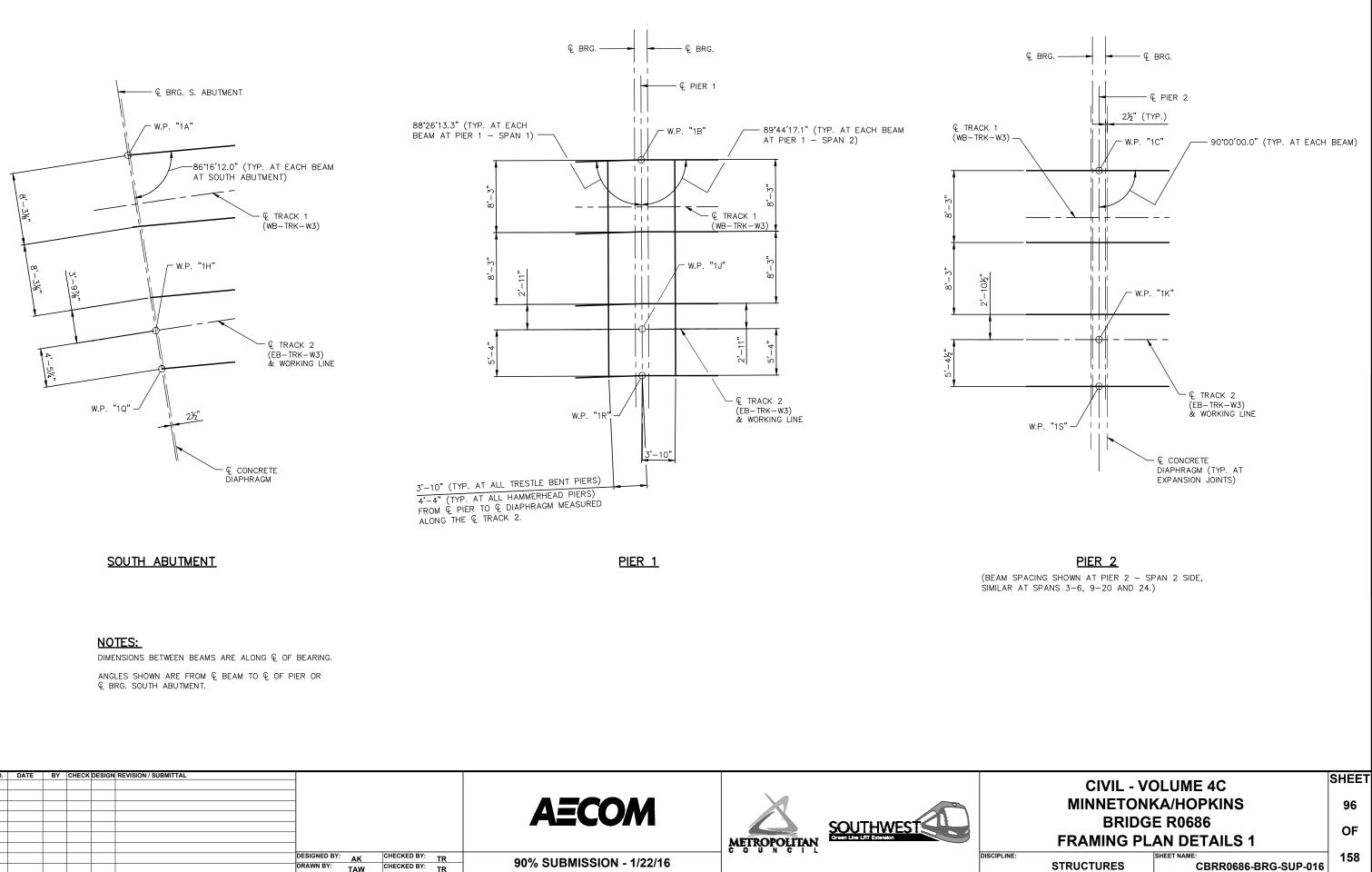
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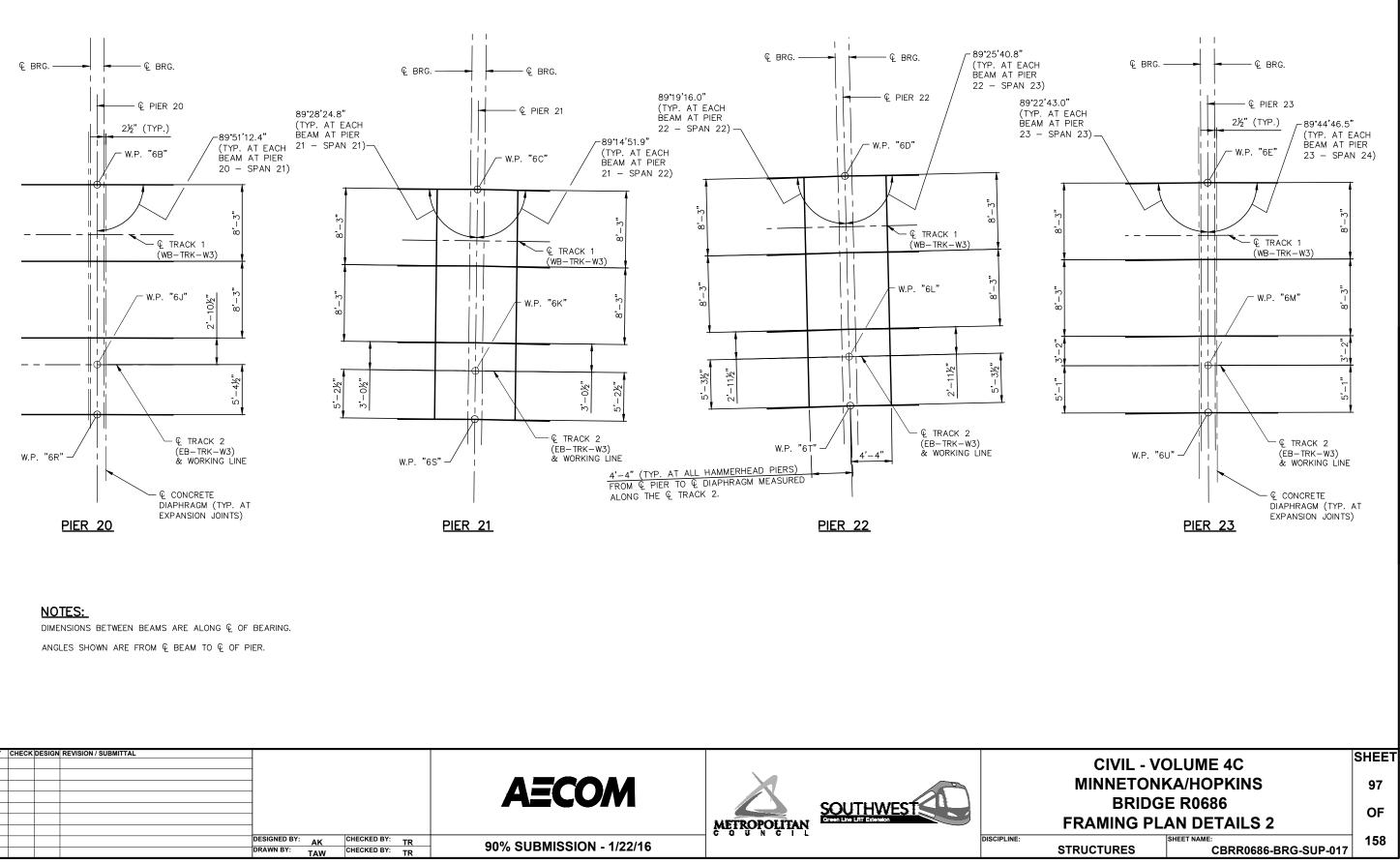




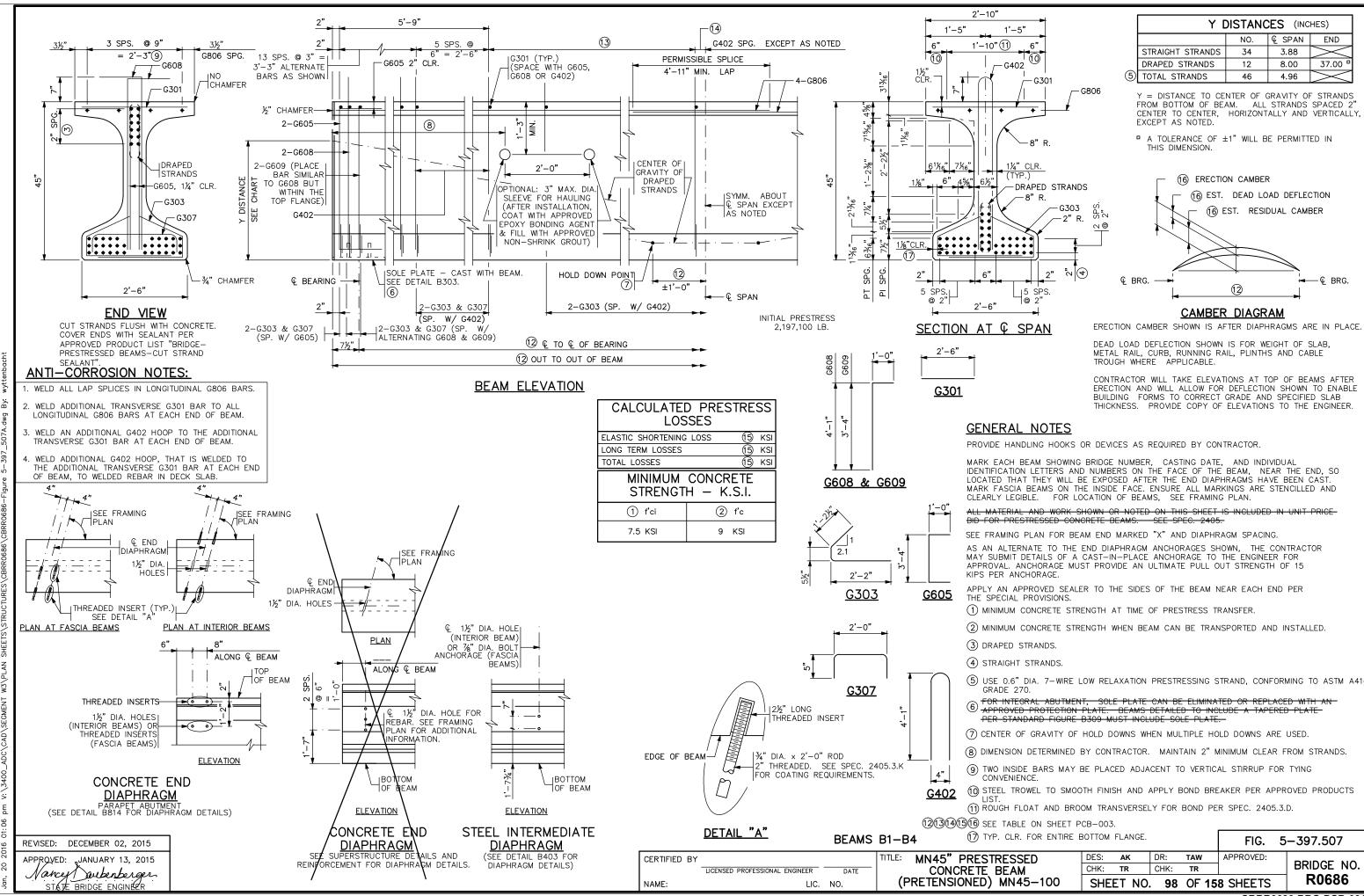
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	_
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	SHEET
CIVIL - VOLUME 4C MINNETONKA/HOPKINS	95
BRIDGE R0686 FRAMING PLAN 6	OF
STRUCTURES STRUCTURES CBRR0686-BRG-SUP-015	158



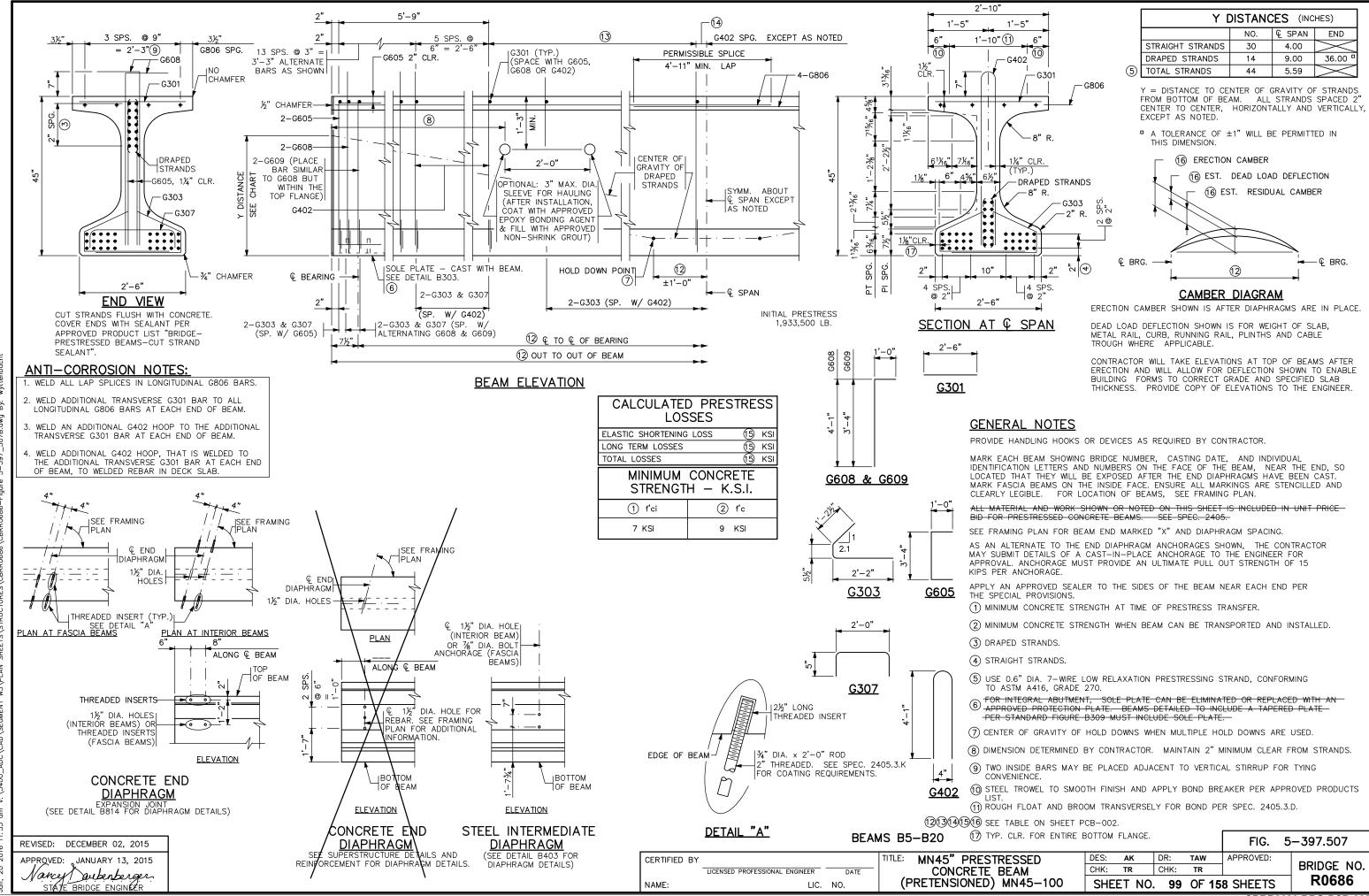
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											METROPOLITAN		
F						DESIGNED BY:	٩K	CHECKED BY:	TR				DISCIF
F								CHECKED BY:	TR	90% SUBMISSION - 1/22/16			



DESIGN REVISION / SUBMITTAL	_			
	-			
	-			1
			SOUTHWEST	
	7		Green Line LRT Extension	
	-		METROPOLITIAN	
				DISCIPLI
		90% SUBMISSION - 1/22/16		
	DRAWN BY: TAW CHECKED BY: TR	30 /0 00DMIODION - 1/22/10		
		DESIGNED BY: AK CHECKED BY: TR DRAWN BY: TAW CHECKED BY: TR		90% SUBMISSION - 1/22/16



CLR. FOR ENTIRE E	воттом	FIG. 5	-397.507			
RESSED BEAM	DES: CHK:	AK TR	DR: CHK:	TAW TR	APPROVED:	BRIDGE NO.
MN45-100	SHE	ET NO.	98	OF 15	8 SHEETS	R0686

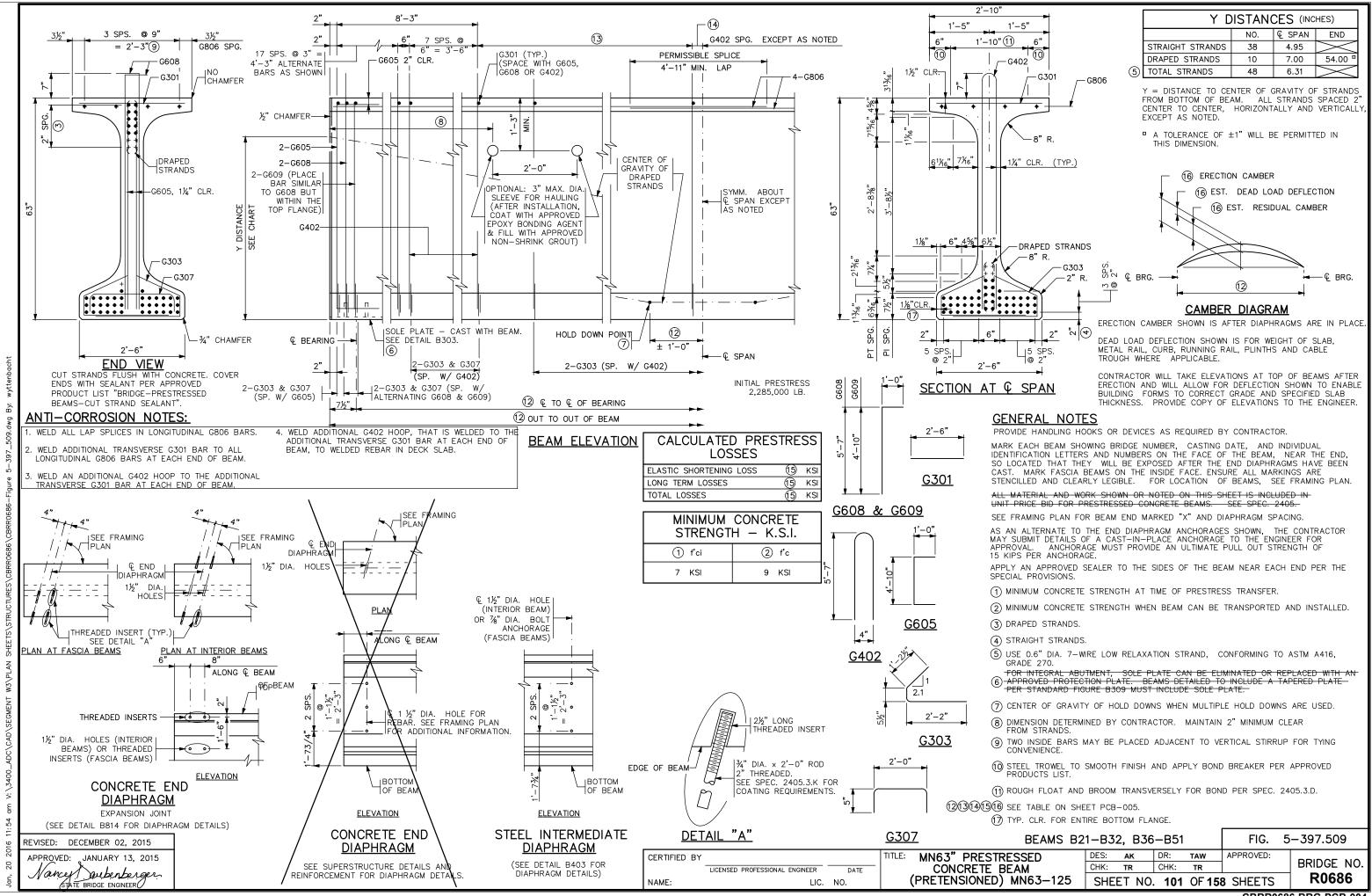


F	RESTRESSE	ED BEAM IN	FORMAT	TION 12	CALCULA	TED PRESTRESS	LOSSES 🚯				
	CL TO CL OUT TO OUT WEIGHT HOLD DOWN E				ELASTIC SHORTENING	LONG TERM	TOTAL	ERECTION	EST. DEAD LOAD	EST. RESIDUAL	STIRRUP_SPAC
BEAM NO.	OF BRG.	OF BEAM	(TONS)	POINT	LOSS (KSI)	LOSSES (KSI)	LOSSES (KSI)	CAMBER	DEFLECTION	CAMBER	13
B1	101'-0 3/4"	102'-3 3/4"	38.0	5'-1 1/2"	25.4	25.9	51.3	4 7/8"	3 1/2"	1 3/8"	45 SPS. @ 1'-0" =
B2	100'-3 5/8"	101'-6 5/8"	37.7	5'-1"	25.4	25.9	51.3	4 7/8"	3 3/8"	1 1/2"	45 EQ. SPS. (1'-0" MA
B3	99'-6 1/2"	100'-9 1/2"	37.4	5'-0 1/4"	25.4	25.9	51.3	4 7/8"	3 3/8"	1 1/2"	44 SPS. @ 1'-0" =
B4	98'-9 1/4"	100'-0 1/4"	37.2	5'-0"	25.4	25.9	51.3	4 7/8"	3 1/2"	1 3/8"	44 EQ. SPS. (1'-0" MA
B5	98'-7 1/8"	99'-10 1/8"	37.1	9'-11 7/8"	24.1	26.7	50.8	4 1/4"	3 1/4"	1"	44 EQ. SPS. (1'-0" MA
B6	98'-6 5/8"	99'-9 5/8"	37.1	9'-11 3/4"	24.1	26.7	50.8	4 1/4"	3 1/4"	1"	44 EQ. SPS. (1'-0" MA
B7	98'-6 1/4"	99'-9 1/4"	37.1	9'-11 3/4"	24.1	26.7	50.8	4 1/4"	3 1/4"	1"	44 EQ. SPS. (1'-0" MA
B8	98'-5 3/4"	99'-8 3/4"	37.0	9'-11 5/8"	24.1	26.7	50.8	4 1/4"	3 1/4"	1"	44 EQ. SPS. (1'-0" MA
B9	98'-6"	99'-9"	37.1	9'-11 3/4"	24.1	26.7	50.8	4 1/4"	3 1/4"	1"	44 EQ. SPS. (1'-0" MA
B10	98'-6"	99'-9"	37.1	9'-11 3/4"	24.1	26.7	50.8	4 1/4"	3 1/4"	1"	44 EQ. SPS. (1'-0" MA
B11	98'-6"	99'-9"	37.1	9'-11 3/4"	24.1	26.7	50.8	4 1/4"	3 1/4"	1"	44 EQ. SPS. (1'-0" MA
B12	98'-6 1/2"	99'-9 1/2"	37.1	9'-11 3/4"	24.1	26.7	50.8	4 1/4"	3 1/4"	1"	44 EQ. SPS. (1'-0" MA
B13	98'-6 1/2"	99'-9 1/2"	37.1	9'-11 3/4"	24.1	26.7	50.8	4 1/4"	3 1/4"	1"	44 EQ. SPS. (1'-0" MA
B14	98'-6 1/2"	99'-9 1/2"	37.1	9'-11 3/4"	24.1	26.7	50.8	4 1/4"	3 1/4"	1"	44 EQ. SPS. (1'-0" MA
B15	98'-7 5/8"	99'-10 5/8"	37.1	9'-11 7/8"	24.1	26.7	50.8	4 1/4"	3 1/4"	1"	44 EQ. SPS. (1'-0" MA
B16	98'-7 5/8"	99'-10 5/8"	37.1	9'-11 7/8"	24.1	26.7	50.8	4 1/4"	3 1/4"	1"	44 EQ. SPS. (1'-0" MA
B17	98'-7 5/8"	99'-10 5/8"	37.1	9'-11 7/8"	24.1	26.7	50.8	4 1/4"	3 1/4"	1"	44 EQ. SPS. (1'-0" MA
B18	98'-8 1/8"	99'-11 1/8"	37.1	9'-11 7/8"	24.1	26.7	50.8	4 1/4"	3 1/4"	1"	44 EQ. SPS. (1'-0" MA
B19	98'-8 1/8"	99'-11 1/8"	37.1	9'-11 7/8"	24.1	26.7	50.8	4 1/4"	3 1/4"	1"	44 EQ. SPS. (1'-0" MA
B20	98'-8 1/8"	99'-11 1/8"	37.1	9'-11 7/8"	24.1	26.7	50.8	4 1/4"	3 1/4"	1"	44 EQ. SPS. (1'-0" MA

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D													SOUTHWEST	
S							1					A IFTRODOL FTANT	Green Line LRT Extension	MN
, ,							1					METROPOLITAN		
Ň							DESIGNED BY:	۵K	CHECKED BY:	TR				DISCIPLIN
ć							DRAWN BY:				90% SUBMISSION - 1/22/16			-
8							DRAWN DT.	TAW	CHECKED BY:	TR				

CING	STIRRUP_SPACING	SLOPED LENGTH
	14	OF GIRDER (X)
= 45'-0"	2 7/8"	
4X) = 44' - 6''	4 5/16"	
= 44'-0"	5 3/4"	
= 44'-0'' (4X) = 43'-9''	4 1/8"	
AX) = 43' - 9"	3 1/16"	
AX) = 43' - 9''	2 13/16"	
AX) = 43' - 9''	2 5/8"	
AX) = 43' - 9''	2 3/8"	
AX) = 43' - 9''	2 1/2"	
AX) = 43' - 9''	2 1/2"	
AX) = 43' - 9''	2 1/2"	
AX) = 43' - 9''	2 3/4"	Х
AX) = 43' - 9''	2 3/4"	Х
AX) = 43' - 9''	2 3/4"	Х
AX) = 43' - 9''	3 5/16"	Х
AX) = 43' - 9''	3 5/16"	Х
AX) = 43' - 9''	3 5/16"	Х
AX) = 43' - 9''	3 5/8"	Х
AX) = 43' - 9''	3 5/8"	Х
AX) = 43' - 9"	3 5/8"	Х

### SHEET CIVIL - VOLUME 4C **MINNETONKA/HOPKINS** 100 BRIDGE R0686 OF **145 PRESTRESSED CONC. BEAM DETAILS** NE: SHEET NAME: 158 CBRR0686-BRG-PCB-003 STRUCTURES

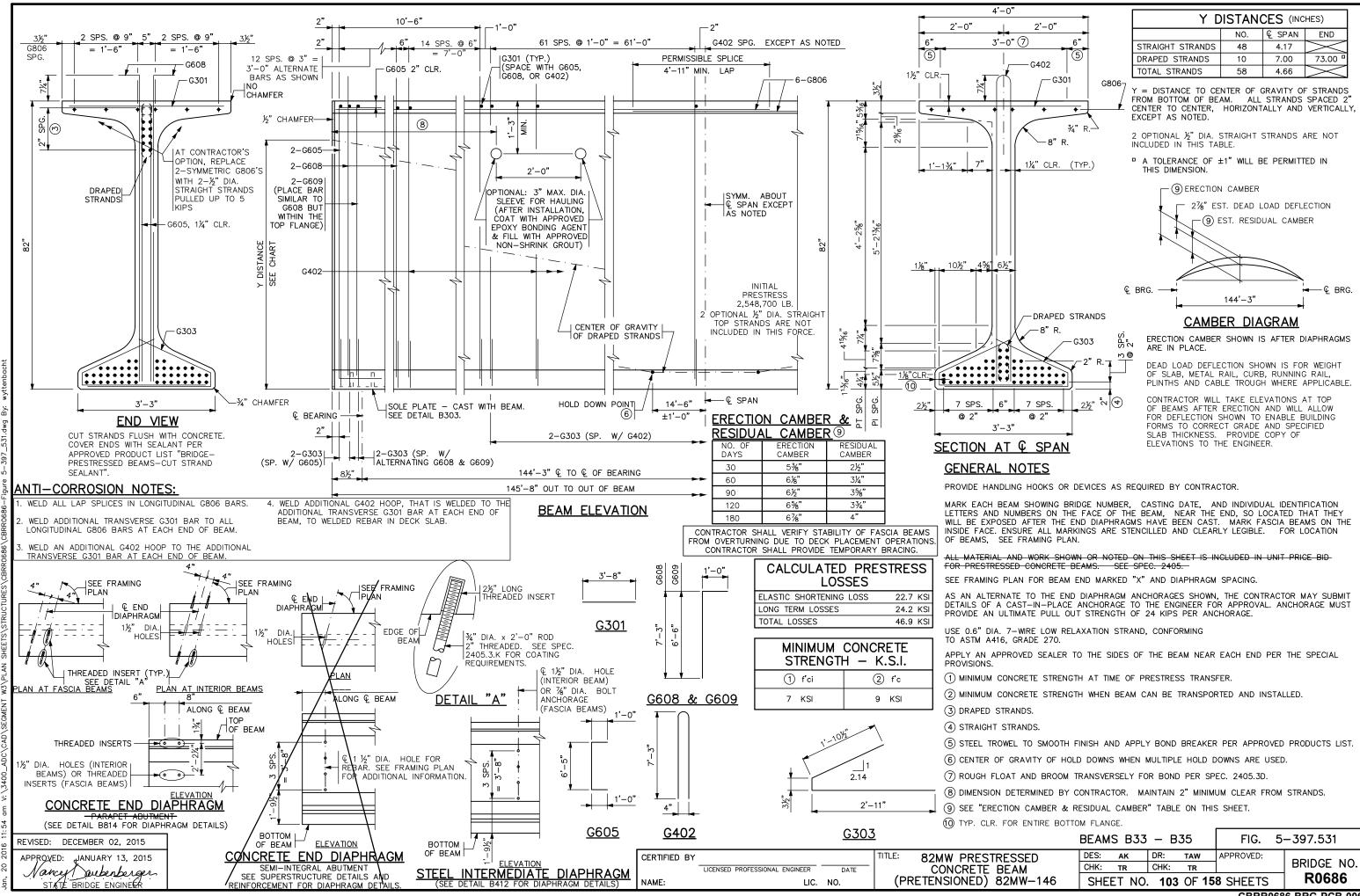


PRESTRESSED BEAM INFORMATION 🔞				TION 12	CALCULATED PRESTRESS LOSSES (5)			CAMBER 10					
	CL TO CL	OUT TO OUT	WEIGHT	HOLD DOWN	ELASTIC SHORTENING	LONG TERM	TOTAL	ERECTION	EST. DEAD LOAD	EST. RESIDUAL	STIRRUP_SPACING	STIRRUP SPACING	SLOPED LENGTH
BEAM NO.	OF BRG.	OF BEAM	(TONS)	POINT	LOSS (KSI)	LOSSES (KSI)	LOSSES (KSI)	CAMBER	DEFLECTION	CAMBER		(14)	OF GIRDER (X)
B21	123'-8 1/8"	124'-11 1/8"	54.3	6'-3"	24.9	26.8	51.7	4 5/8"	3 1/2"	1 1/8"	54  EQ. SPS.  (1'-0''  MAX) = 53'-9''	3 9/16"	X
B22	123'-8 1/8"	124'-11 1/8"	54.3	6'-3"	24.9	26.8	51.7	4 5/8"	3 3/8"	1 1/4"	54  EQ. SPS. (1'-0"  MAX) = 53'-9"	3 9/16"	Х
B23	123'-8 1/8"	124'-11 1/8"	54.3	6'-3"	24.9	26.8	51.7	4 5/8"	3 1/2"	1 1/8"	54  EQ. SPS. (1'-0"  MAX) = 53'-9"	3 9/16"	Х
B24	123'-7 1/4"	124'-10 1/4"	54.3	6'-3"	24.9	26.8	51.7	4 5/8"	3 1/2"	1 1/8"	54 EQ. SPS. $(1'-0" MAX) = 53'-9"$	3 1/8"	Х
B25	123'-7 1/4"	124'-10 1/4"	54.3	6'-3"	24.9	26.8	51.7	4 5/8"	3 3/8"	1 1/4"	54 EQ. SPS. $(1'-0'' MAX) = 53'-9''$	3 1/8"	Х
B26	123'-7 1/4"	124'-10 1/4"	54.3	6'-3"	24.9	26.8	51.7	4 5/8"	3 1/2"	1 1/8"	54 EQ. SPS. $(1'-0" MAX) = 53'-9"$	3 1/8"	Х
B27	123'-6 7/8"	124'-9 7/8"	54.2	6'-3"	24.9	26.8	51.7	4 5/8"	3 1/2"	1 1/8"	54 EQ. SPS. $(1'-0" MAX) = 53'-9"$	2 15/16"	Х
B28	123'-6 7/8"		54.2	6'-3"	24.9	26.8	51.7	4 5/8"	3 3/8"	1 1/4"	54  EQ. SPS. (1'-0"  MAX) = 53'-9"	2 15/16"	Х
B29	123'-6 7/8"	124'-9 7/8"	54.2	6'-3"	24.9	26.8	51.7	4 5/8"	3 1/2"	1 1/8"	54 EQ. SPS. $(1'-0" MAX) = 53'-9"$	2 15/16"	Х
B30	123'-6"	124'-9"	54.2	6'-3"	24.9	26.8	51.7	4 5/8"	3 1/2"	1 1/8"	54 EQ. SPS. $(1'-0" MAX) = 53'-9"$	2 1/2"	
B31	123'-6"	124'-9"	54.2	6'-3"	24.9	26.8	51.7	4 5/8"	3 3/8"	1 1/4"	54 EQ. SPS. $(1'-0" MAX) = 53'-9"$	2 1/2"	
B32	123'-6"	124'-9"	54.2	6'-3"	24.9	26.8	51.7	4 5/8"	3 1/2"	1 1/8"	54 EQ. SPS. $(1'-0" MAX) = 53'-9"$	2 1/2"	
B36	123'-9 1/2"	125'-0 1/2"	54.3	6'-3"	24.9	26.8	51.7	4 5/8"	3 1/2"	1 1/8"	54 EQ. SPS. $(1'-0'' MAX) = 53'-9''$	4 1/4"	Х
B37	123'-8 3/8"		54.3	6'-3"	24.9	26.8	51.7	4 5/8"	3 3/8"	1 1/4"	54 EQ. SPS. $(1'-0" MAX) = 53'-9"$	3 11/16"	X
B40	124'-1 1/8"	125'-4 1/8"	54.5	6'-3"	24.9	26.8	51.7	4 5/8"	3 1/2"	1 1/8"	54 SPS. @ 1'-0" = 54'-0"	3 1/16"	Х
B41	123'-10 5/8"		54.4	6'-3"	24.9	26.8	51.7	4 5/8"	3 3/8"	1 1/4"	54  EQ. SPS. (1'-0"  MAX) = 53'-9"	4 13/16"	Х
B42	123'-8 1/4"		54.3	6'-3"	24.9	26.8	51.7	4 5/8"	3 3/8"	1 1/4"	54 EQ. SPS. $(1'-0" MAX) = 53'-9"$	3 5/8"	Х
B43	123'-5 3/4"		54.2	6'-3"	24.9	26.8	51.7	4 5/8"	3 1/2"	1 1/8"	54  EQ. SPS. (1'-0"  MAX) = 53'-9"	2 3/8"	Х
B44	124'-0 3/4"		54.4	6'-3"	24.9	26.8	51.7	4 5/8"	3 1/2"	1 1/8"	54 SPS. @ 1'-0" = 54'-0"	2 7/8"	Х
B45	123'-10 3/4"		54.4	6'-3"	24.9	26.8	51.7	4 5/8"	3 3/8"	1 1/4"	54 SPS. @ 1'-0" = 54'-0"	1 7/8"	Х
B46	123'-8 5/8"		54.3	6'-3"	24.9	26.8	51.7	4 5/8"	3 3/8"	1 1/4"	54 EQ. SPS. $(1'-0" MAX) = 53'-9"$	3 7/8"	X
B47	123'-6 5/8"		54.2	6'-3"	24.9	26.8	51.7	4 5/8"	3 1/2"	1 1/8"	54 EQ. SPS. $(1'-0'' MAX) = 53'-9''$	2 13/16"	Х
B48	123'-9 1/4"	125'-0 1/4"	54.3	6'-3"	24.9	26.8	51.7	4 5/8"	3 1/2"	1 1/8"	54 EQ. SPS. $(1'-0" MAX) = 53'-9"$	4 1/8"	X
B49	123'-9"	125'-0"	54.3	6'-3"	24.9	26.8	51.7	4 5/8"	3 3/8"	1 1/4"	54 EQ. SPS. $(1'-0" MAX) = 53'-9"$	4"	Х
B50	123'-8 3/4"	124'-11 3/4"	54.3	6'-3"	24.9	26.8	51.7	4 5/8"	3 3/8"	1 1/4"	54 EQ. SPS. $(1'-0'' MAX) = 53'-9''$	3 7/8"	Х
B51	123'-8 5/8"	124'-11 5/8"	54.3	6'-3"	24.9	26.8	51.7	4 5/8"	3 1/2"	1 1/8"	54 EQ. SPS. $(1'-0" MAX) = 53'-9"$	3 13/16"	X

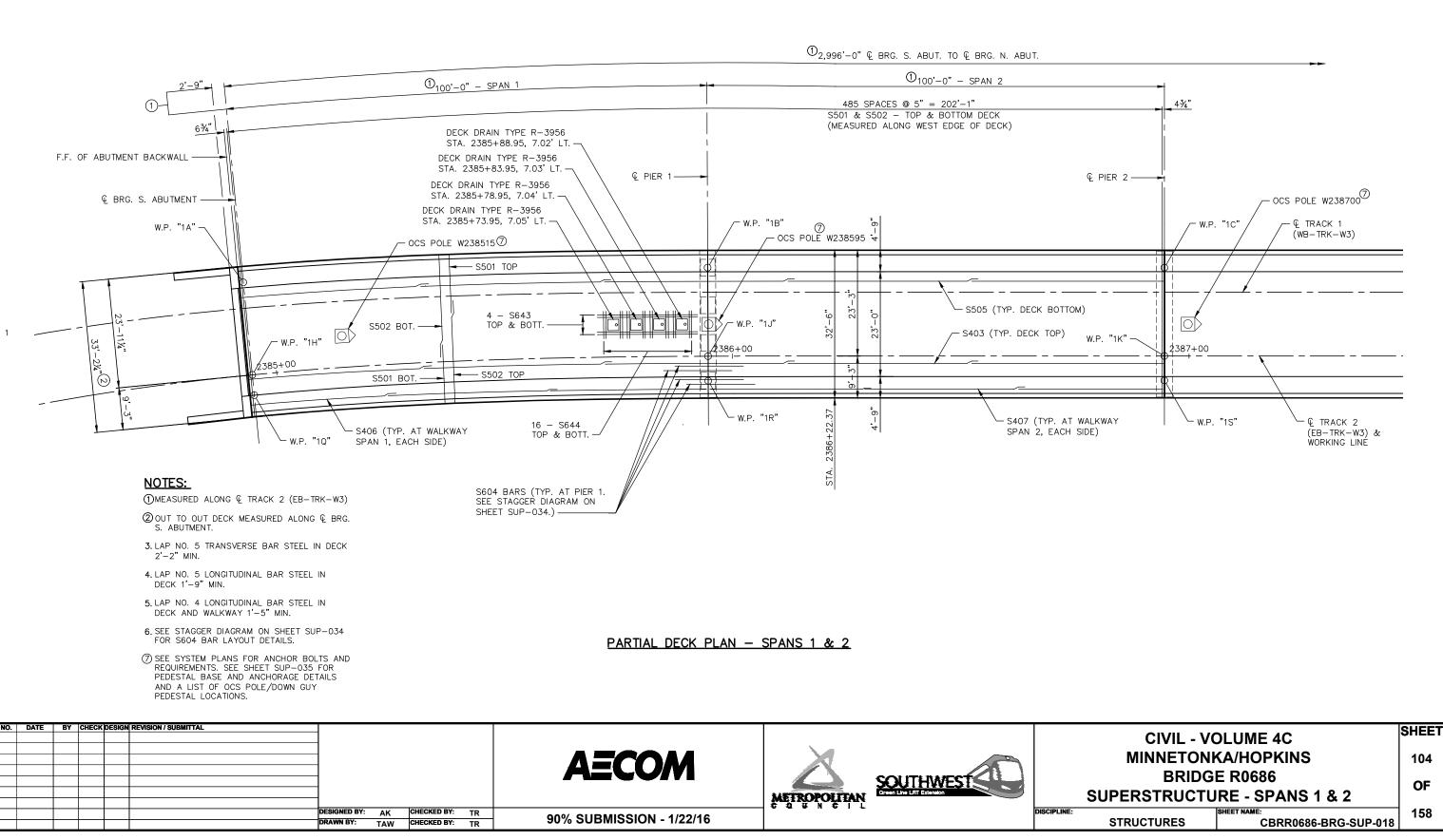
BEAM NUMBERS B38 AND B39 HAVE NOT BEEN USED IN THIS PLAN.

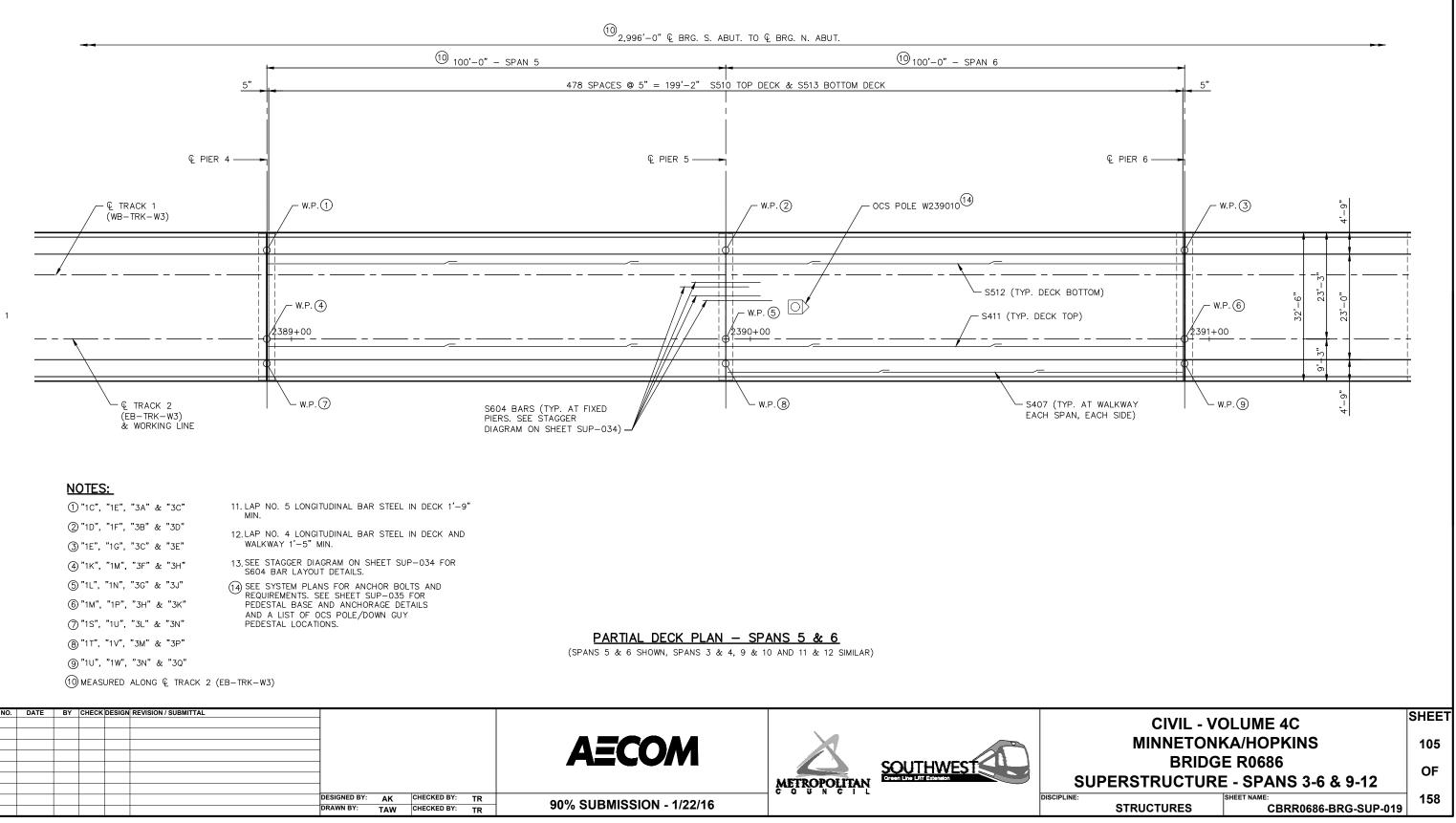
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	NO. DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL					1			
										AECOM			
												SOUTHWEST	
											METRODOLITAN	Green Line LRT Extension	M
											METROPOLITAN		
.						DESIGNED BY:	AK	CHECKED BY:	TR	90% SUBMISSION - 1/22/16			DISCIPLI
						DRAWN BY:	TAW	CHECKED BY:	TR	30 /0 30 DIVII3310 N - 1/22/10			

# CIVIL - VOLUME 4C MINNETONKA/HOPKINS BRIDGE R0686 N63 PRESTRESSED CONC. BEAM DETAILS INE: STRUCTURES SHEET NAME: CBRR0686-BRG-PCB-005



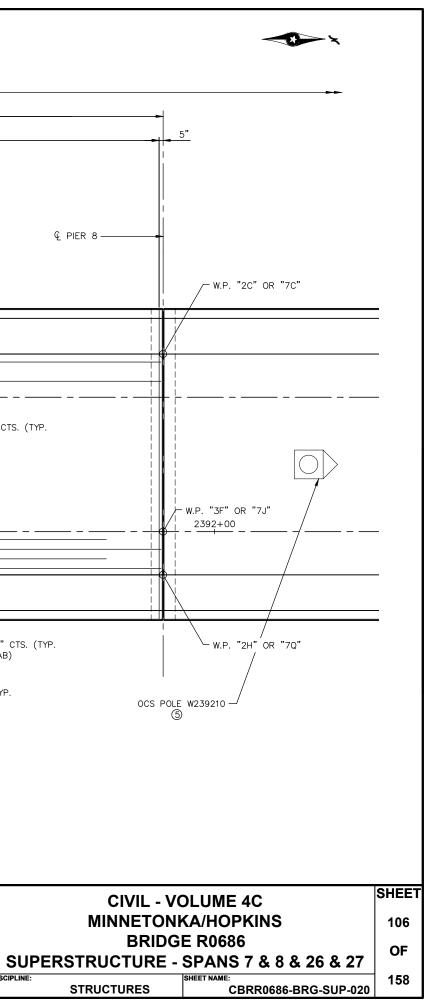
	BEAM	S B33	– B	35	FIG. 5	-397.531
RESSED BEAM	DES: CHK:	AK TR	DR: CHK:	TAW TR	APPROVED:	BRIDGE NO.
82MW-146	SHE	ET NO.	103	OF 15	8 SHEETS	R0686

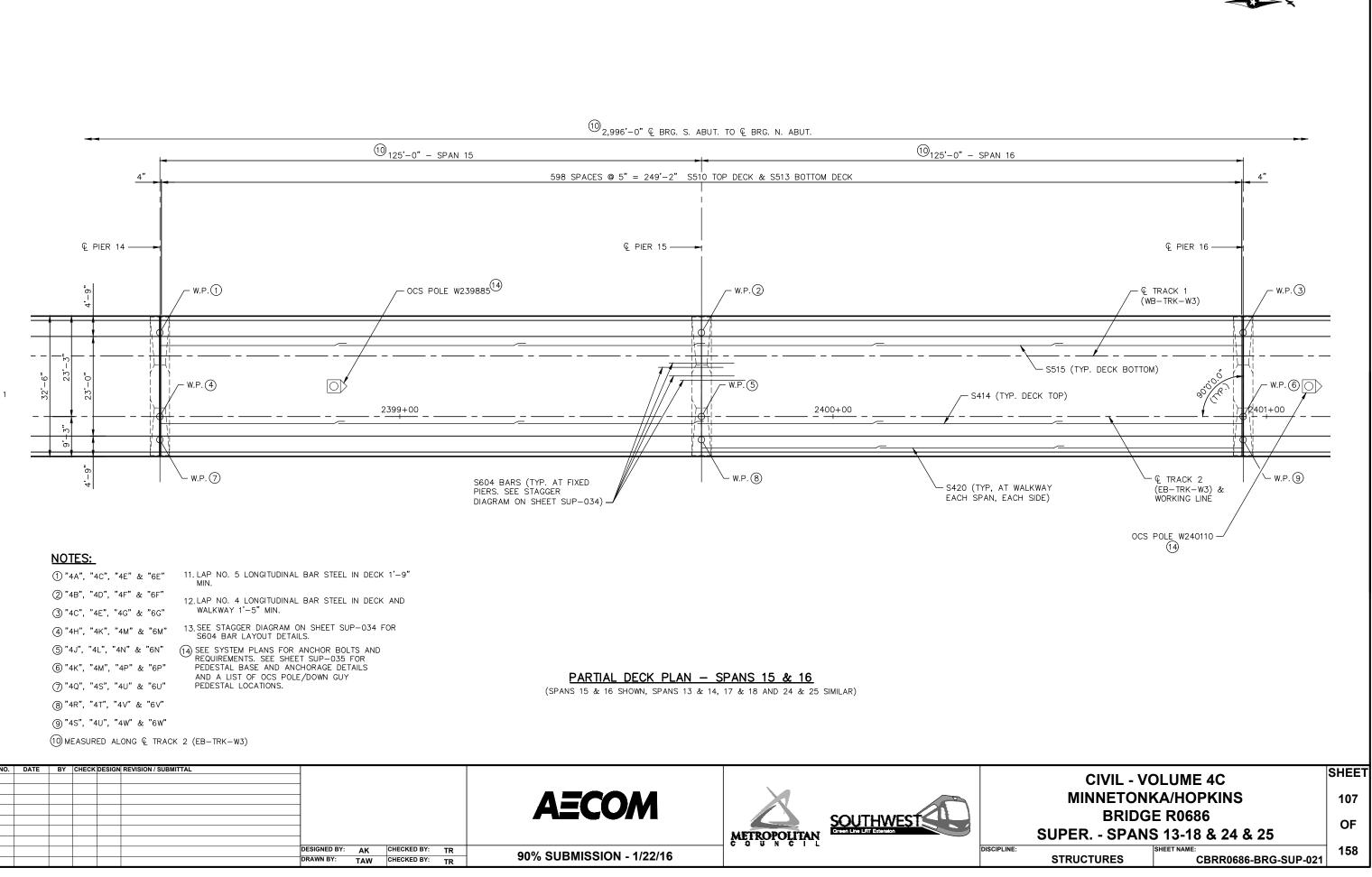


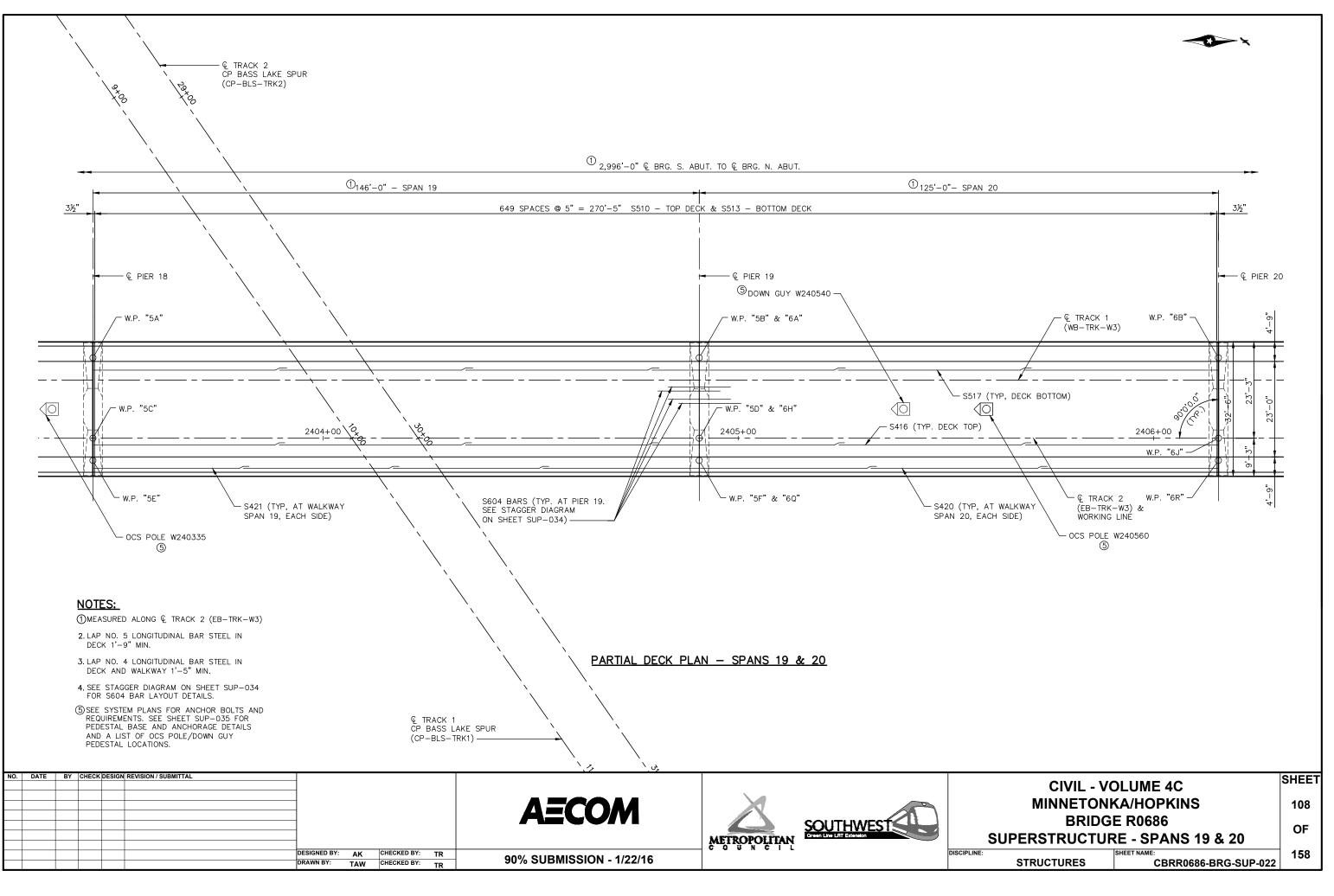


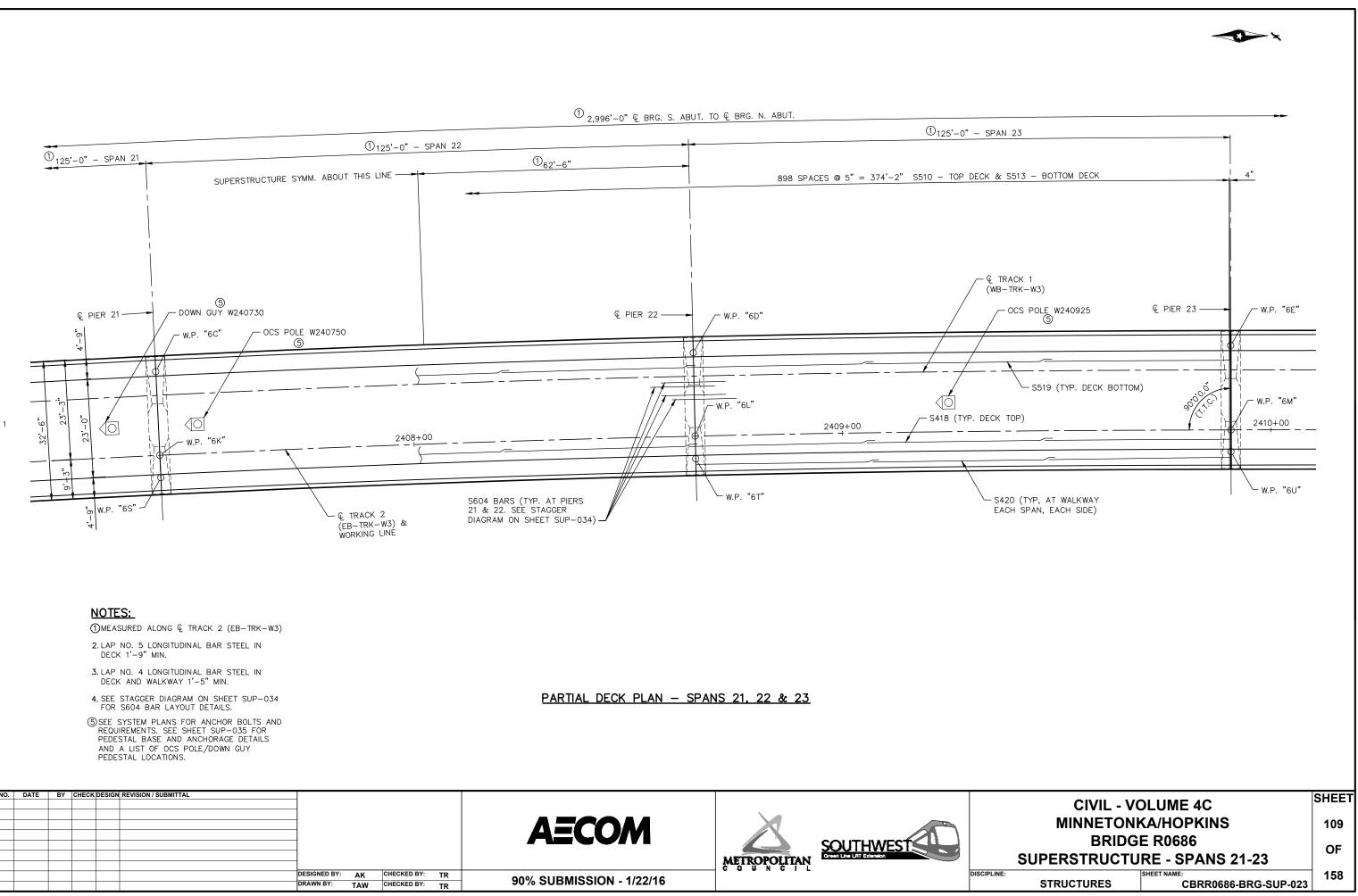
①<sub>2,996'-0" ♀ BRG. S. ABUT. TO ♀ BRG. N. ABUT.</sub> ①<sub>50</sub>′−0″− SPAN 7 ①50'-0"- SPAN 8 119 SPACES @ 10" = 99'-2" S524 - TOP SLAB & S525 BOTTOM SLAB 5" DECK DRAIN TYPE R-3949-A STA. 2390+98.57, 7.0' LT. DECK DRAIN TYPE R-3949-A 11'-6" 11'-6" STA. 2391+04.57, 7.0' LT. © PIER 6-€ PIER 7 — - DECK DRAIN TYPE R-3949-A STA. 2391+10.57, 7.0' LT. - S428 (TYP. AT WALKWAY, EACH SPAN, EACH SIDE) W.P. "2A" OR "7A" W.P. "2B" OR "7B" – € TRACK 1 (WB-TRK-W3) 'n 23'-- S1022 @ 10" CTS. (TYP. - S1023 @ 10" CTS. (TYP. TOP SLAB) TOP SLAB) S645 N 'n, TOP & BOTTOM W.P. "2D" OR "7G"-W.P. "2E" OR "7H" 2391+00 ÷~ 9,-— S1027 @ 12" CTS. (TYP. BOTTOM SLAB) ∙€ TRACK 2 - W.P. "2G" OR "7N" -W.P. "2H" OR "7P" (EB-TRK-W3) 11" (TYP.), 1'-1½"AT PIER 25 12 - S644 TOP & BOTTOM & WORKING LINE S1026 @ 12" CTS. (TYP. BOTTOM SLAB) NOTES: 14'-0" 5'-0" CL BRG. ①MEASURED ALONG € TRACK 2 (TYP.) (TYP.) (EB-TRK-W3) 2. LAP NO. 4 LONGITUDINAL BAR STEEL AT EDGE OF DECK AND WALKWAY 1'-5" MIN. LAP NO. 10 LONGITUDINAL BAR STEEL IN TOP OF DECK 7'-7" MIN. LAP NO. 10 LONGITUDINAL BAR STEEL IN BOTTOM OF DECK 5'-5" MIN. (5) SEE SYSTEM PLANS FOR ANCHOR BOLTS AND REQUIREMENTS. SEE SHEET SUP-035 FOR PEDESTAL BASE AND ANCHORAGE DETAILS PARTIAL DECK PLAN - SPANS 7 & 8 (SPANS 7 & 8 SHOWN, SPANS 26 & 27 SIMILAR) AND A LIST OF OCS POLE/DOWN GUY PEDESTAL LOCATIONS. NO. DATE BY CHECK DESIGN REVISION / SUBMITTA AECOM METROPOLITAN DESIGNED BY: AK CHECKED BY: TR DRAWN BY: TAW CHECKED BY: TR 90% SUBMISSION - 1/22/16

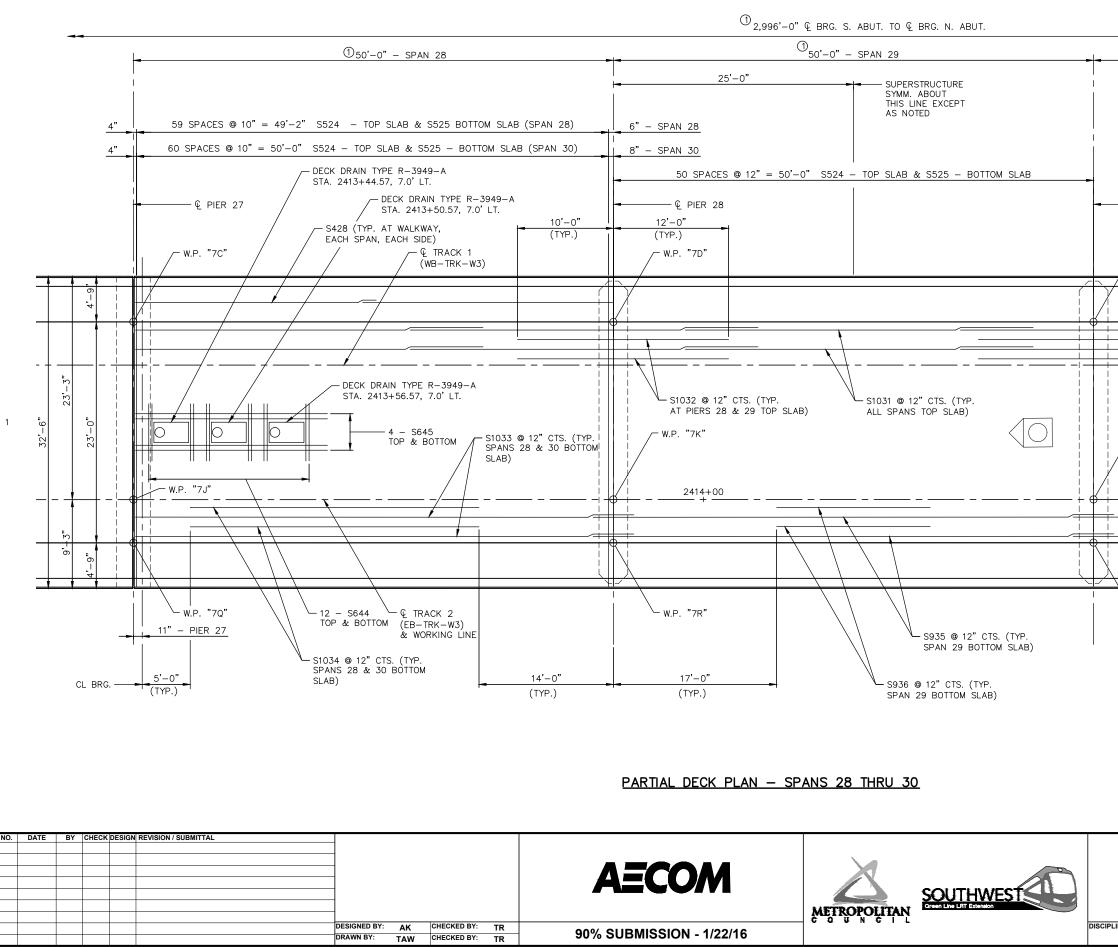
DISCIPLINE:



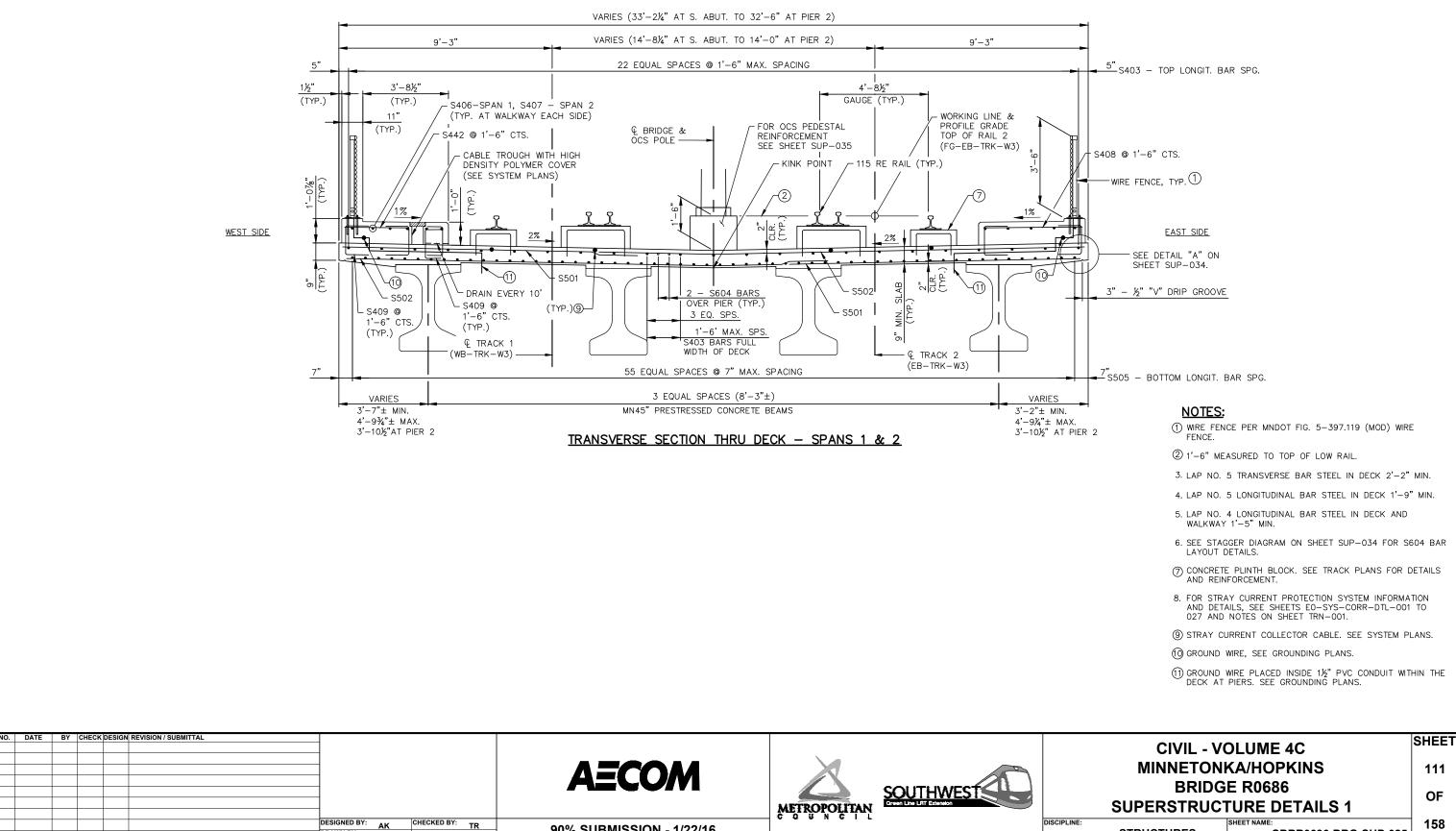








<sup>(1)</sup> 50'-0" - SPAN 30	
50-0 - SPAN 30	
/- W.P. "7E"	
	-
(	-
<u> </u>	
	_
/ W.P. "7L"	
	-
{	_
	_
	-
W.P. "75" NOTES:	
①MEASURED ALONG ♀ TRACK 2 (EB-TRK-W3)	
2. LAP NO. 4 LONGITUDINAL BAR STEEL AT	
EDGE OF DECK AND WALKWAY 1'-5" MIN.	
3. LAP NO. 10 LONGITUDINAL BAR STEEL IN TOP OF DECK 7'-7" MIN.	
4. LAP NO. 9 LONGITUDINAL BAR STEEL IN BOTTOM OF DECK 4'-3" MIN.	
5 SEE SYSTEM PLANS FOR ANCHOR BOLTS AND	
REQUIREMENTS. SEE SHEET SUP-035 FOR PEDESTAL BASE AND ANCHORAGE DETAILS	
AND A LIST OF OCS POLE/DOWN GUY PEDESTAL LOCATIONS.	
	SHEET
CIVIL - VOLUME 4C	SHEEI
MINNETONKA/HOPKINS	110
BRIDGE R0686	
SUPERSTRUCTURE - SPANS 28-30	OF
NE: SHEET NAME:	158
STRUCTURES CBRR0686-BRG-SUP-024	



90% SUBMISSION - 1/22/16

DESIGNED BY:

DRAWN BY:

AK

TAW

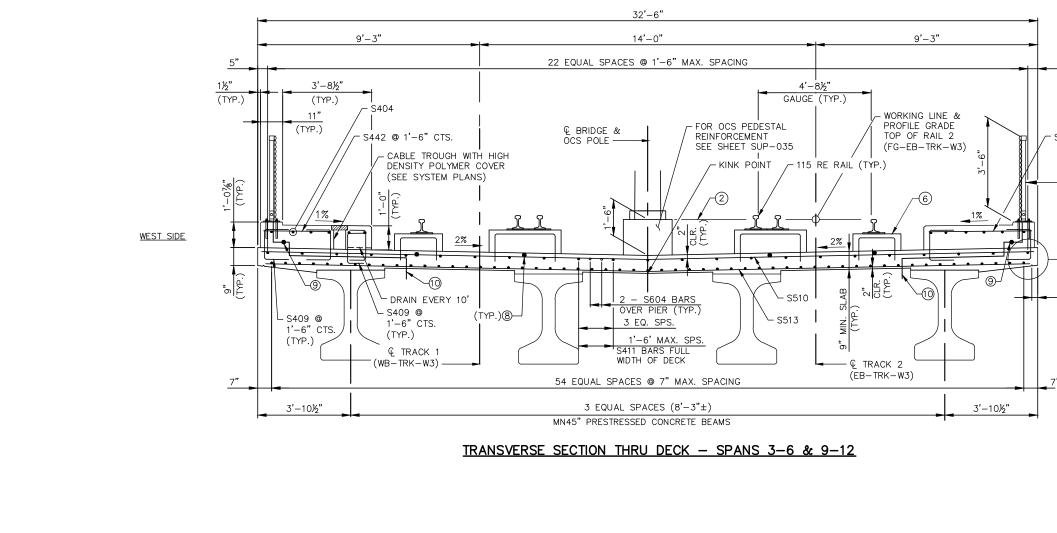
CHECKED BY: TR

DISCIPLINE:

STRUCTURES

158

CBRR0686-BRG-SUP-025



NO. DATE	BY	CHECK DESIGN REVISION / SUBMITTAL		AECOM	
			DESIGNED BY: AK CHECKED BY: TR DRAWN BY: TAW CHECKED BY: TR	90% SUBMISSION - 1/22/16	DISCIPLINE:

 $-\frac{5"}{5}$ S411 - TOP LONGIT. BAR SPG.

∕− S408 @ 1'-6" CTS.

—WIRE FENCE, TYP. 1

EAST SIDE

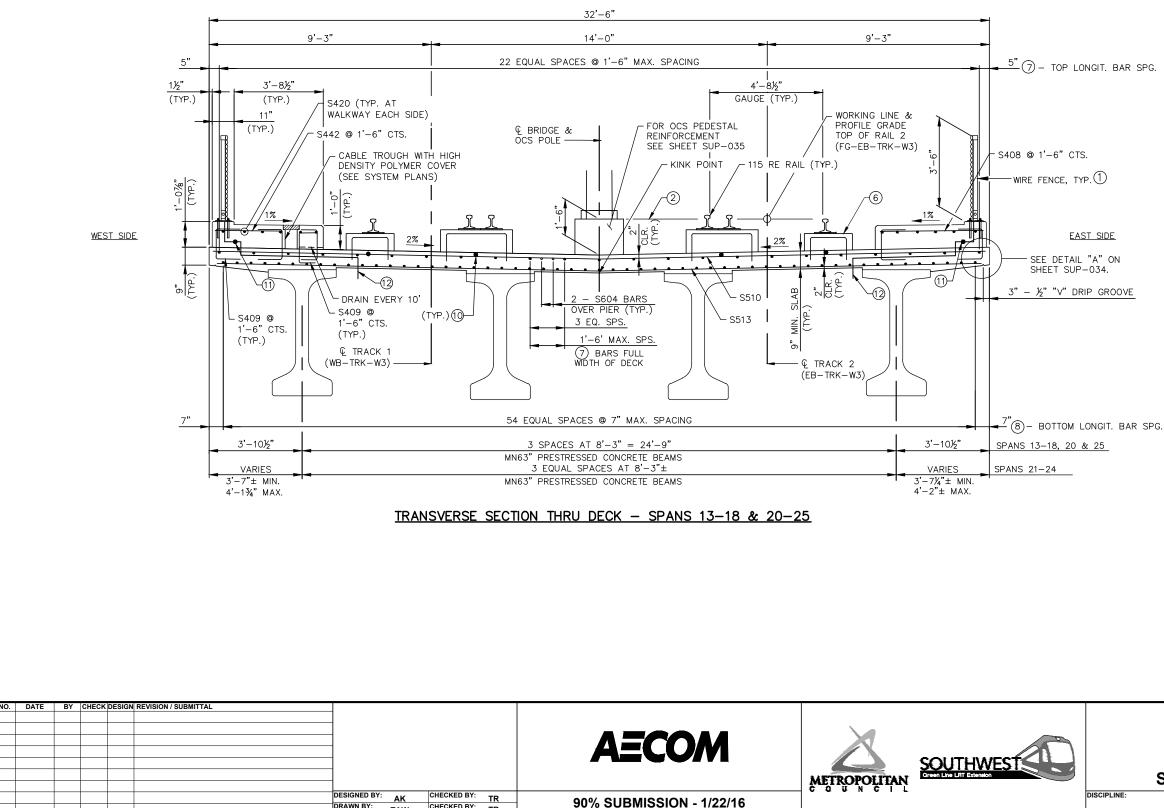
SEE DETAIL "A" ON SHEET SUP-034. 3" - ½" "V" DRIP GROOVE

-7"S512 – BOTTOM LONGIT. BAR SPG.

#### NOTES:

- (1) WIRE FENCE PER MNDOT FIG. 5-397.119 (MOD) WIRE FENCE.
- 2 1'-6" MEASURED TO TOP OF LOW RAIL.
- 3. LAP NO. 5 LONGITUDINAL BAR STEEL IN DECK  $1^{\prime}-9^{\prime\prime}$  MIN.
- LAP NO. 4 LONGITUDINAL BAR STEEL IN DECK AND WALKWAY 1'-5" MIN.
- 5. SEE STAGGER DIAGRAM ON SHEET SUP-034 FOR S604 BAR LAYOUT DETAILS.
- (6) CONCRETE PLINTH BLOCKS. SEE TRACK PLANS FOR DETAILS AND REINFORCMENT.
- 7. FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.
- (8) STRAY CURRENT COLLECTOR CABLE. SEE SYSTEM PLANS.
- (9) GROUND WIRE, SEE GROUNDING PLANS.
- (1) GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE DECK AT PIERS. SEE GROUNDING PLANS.

CIVIL - VOLUME 4C				
MINNETONKA/HOPKINS				
BRIDGE R0686 SUPERSTRUCTURE DETAILS 2				
STRUCTURES	SHEET NAME: CBRR0686-BRG-SUP-026	158		



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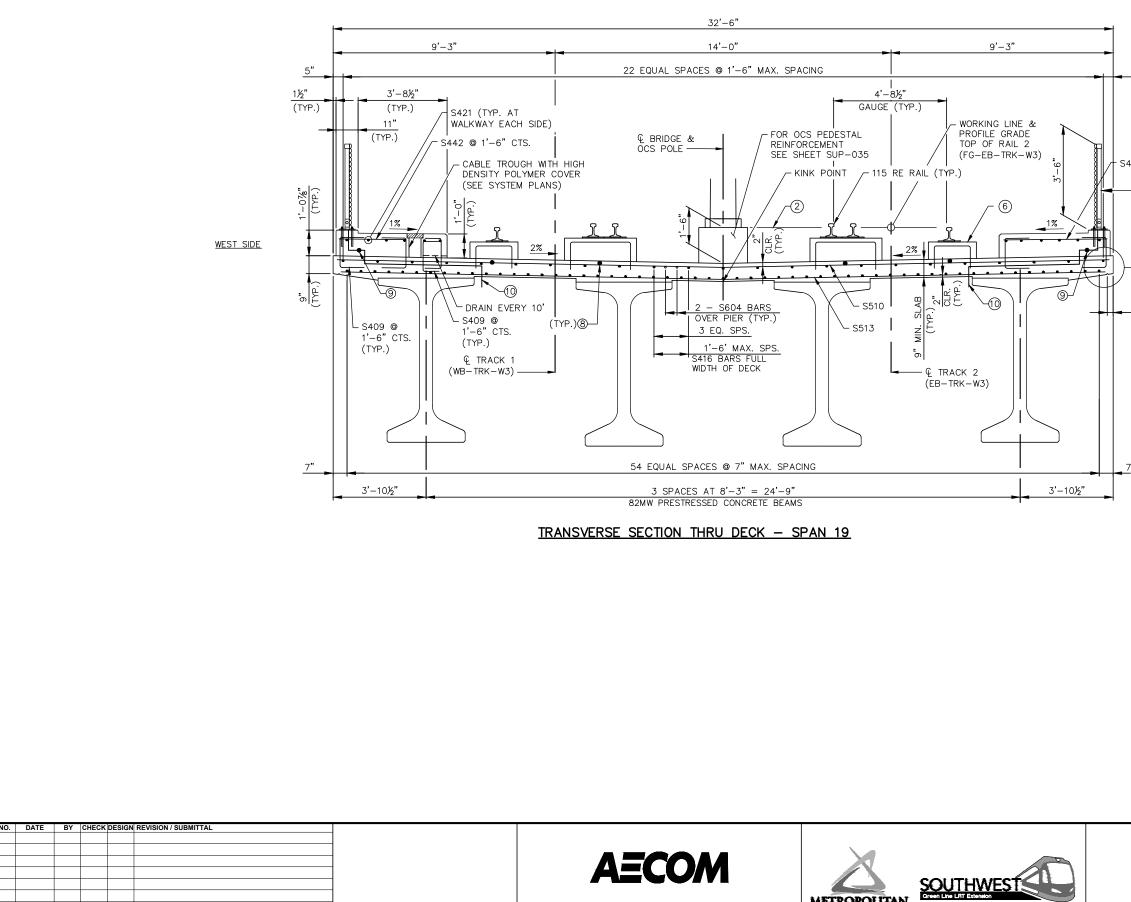
TAW

CHECKED BY: TR

## NOTES:

- () WIRE FENCE PER MNDOT FIG. 5-397.119 (MOD) WIRE FENCE.
- 2 1'-6" MEASURED TO TOP OF LOW RAIL.
- 3. LAP NO. 5 LONGITUDINAL BAR STEEL IN DECK 1'-9" MIN.
- 4. LAP NO. 4 LONGITUDINAL BAR STEEL IN DECK AND WALKWAY 1'-5" MIN.
- 5. SEE STAGGER DIAGRAM ON SHEET SUP-034 FOR S604 BAR LAYOUT DETAILS.
- (6) CONCRETE PLINTH BLOCKS. SEE TRACK PLANS FOR DETAILS AND REINFORCMENT.
- S414 SPANS 13-18, 24 & 25
   S416 - SPAN 20 S418 - SPANS 21-23
- (8) S515 SPAN 13-18, 24 & 25 S517 SPAN 20 S519 SPANS 21-23
- 9. FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.
- 1 STRAY CURRENT COLLECTOR CABLE. SEE SYSTEM PLANS.
- (1) GROUND WIRE, SEE GROUNDING PLANS.
- (2) GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE DECK AT PIERS. SEE GROUNDING PLANS.

	CIVIL - VO	OLUME 4C	SHEET		
MINNETONKA/HOPKINS					
	BRIDGE R0686				
SUPERSTRUCTURE DETAILS 3					
E:		SHEET NAME:	158		
	STRUCTURES	CBRR0686-BRG-SUP-027	100		



90% SUBMISSION - 1/22/16

CHECKED BY: TR

CHECKED BY: TR

DESIGNED BY:

DRAWN BY:

AK

TAW

0 2016 11:58 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBRR0686\CBRR0686-BRG-SUP-028.dwg By: \*

DISCIPLINE:

METROPOLITAN

 $-\frac{5^{"}}{5}$ S416 – TOP LONGIT. BAR SPG.

S408 @ 1'-6" CTS.

EAST SIDE SEE DETAIL "A" ON SHEET SUP-034. 3" - ½" "V" DRIP GROOVE

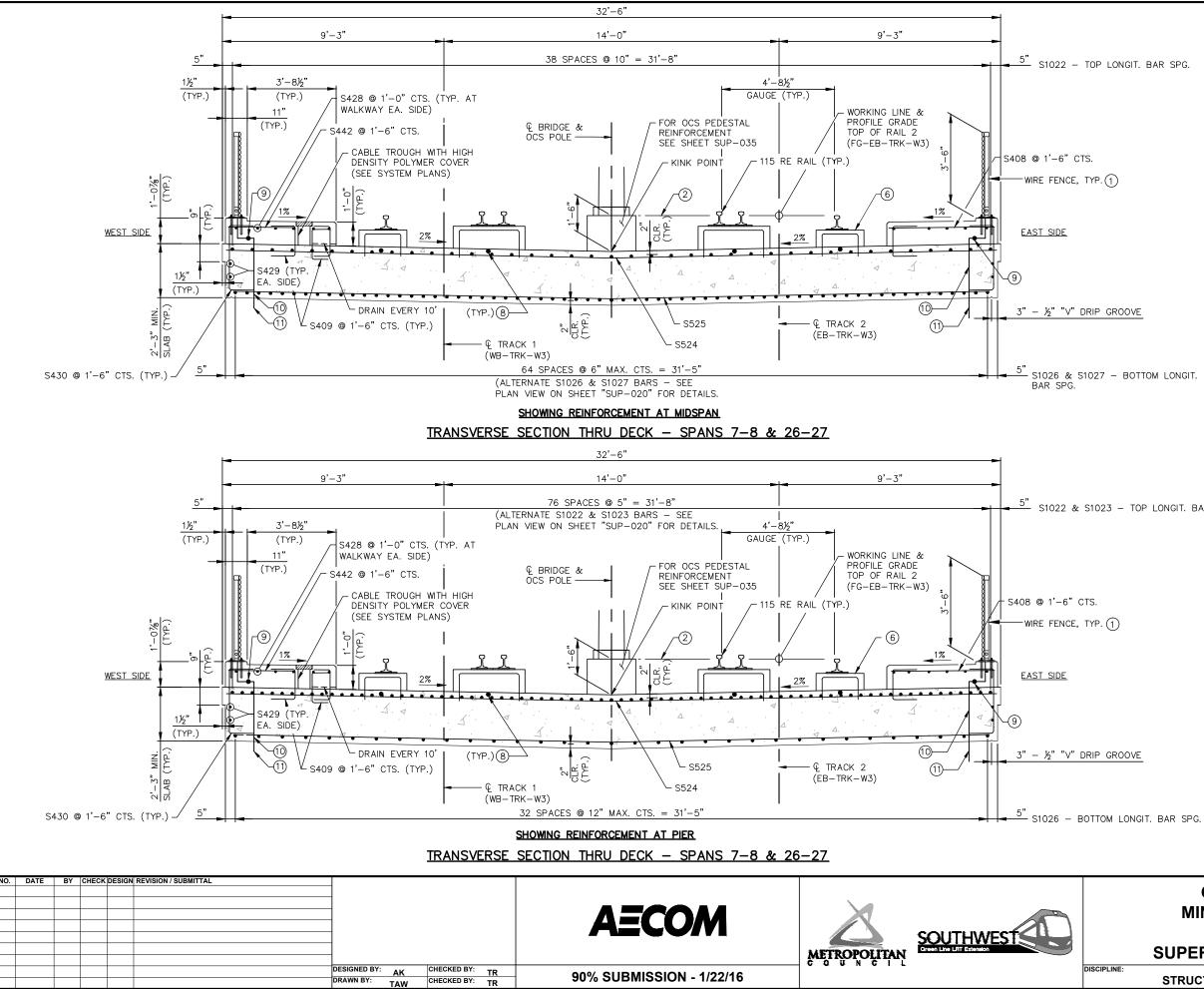
−7" S517 – BOTTOM LONGIT. BAR SPG.

### NOTES:

- (1) WIRE FENCE PER MNDOT FIG. 5-397.119 (MOD) WIRE FENCE.
- 0 1'-6" measured to top of low rail.
- 3. LAP NO. 5 LONGITUDINAL BAR STEEL IN DECK 1'-9" MIN.
- 4. LAP NO. 4 LONGITUDINAL BAR STEEL IN DECK AND WALKWAY 1'-5" MIN.
- 5. SEE STAGGER DIAGRAM ON SHEET SUP-034 FOR S604 BAR LAYOUT DETAILS.
- (6) CONCRETE PLINTH BLOCKS. SEE TRACK PLANS FOR DETAILS AND REINFORCMENT.
- 7. FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.
- (8) STRAY CURRENT COLLECTOR CABLE. SEE SYSTEM PLANS.
- (9) GROUND WIRE, SEE GROUNDING PLANS.
- ① GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE DECK AT PIERS. SEE GROUNDING PLANS.

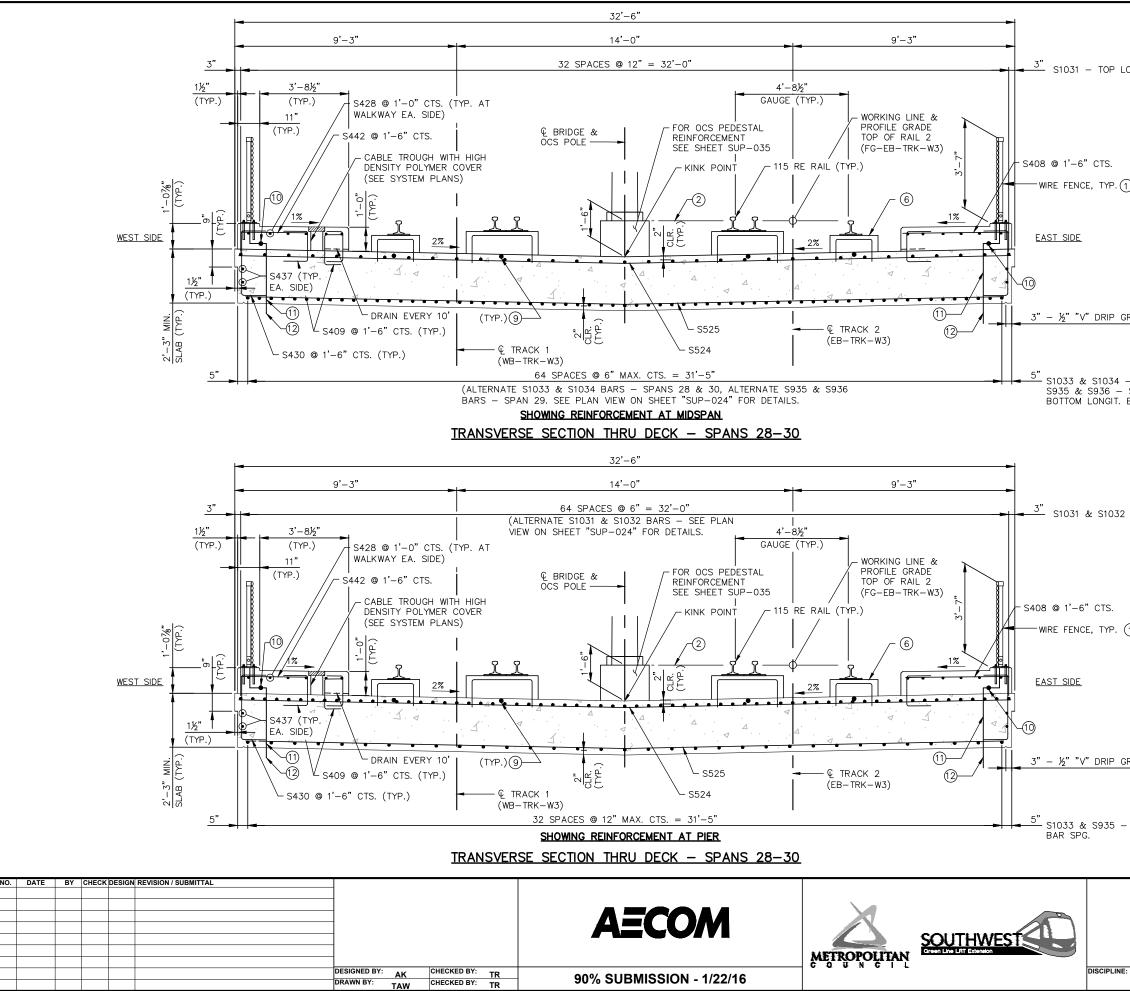
CIVIL - VOLUME 4C				
MINNETONKA/HOPKINS				
BRIDGE R0686 SUPERSTRUCTURE DETAILS 4				
STRUCTURES	SHEET NAME: CBRR0686-BRG-SUP-028	158		

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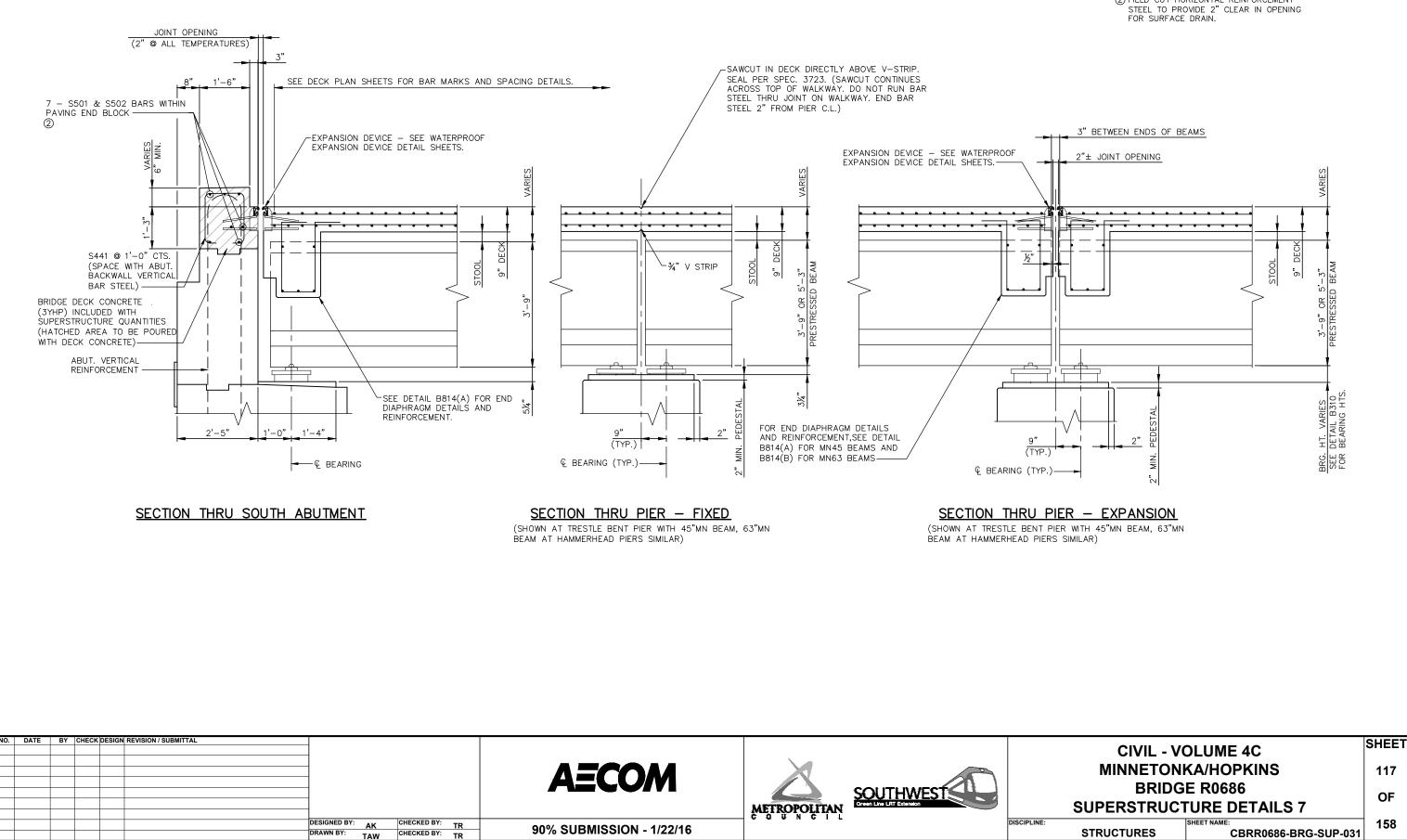
	NOTES: (1) WIRE FENCE PER MNDOT FIG. 5-397.119 (MOD) WIRE FENCE.
D	② 1'−6" MEASURED TO TOP OF LOW RAIL.
	<ol> <li>LAP NO. 4 LONGITUDINAL BAR STEEL AT EDGE OF DECK AND WALKWAY 1'-5" MIN.</li> </ol>
	<ol> <li>LAP NO. 10 LONGITUDINAL BAR STEEL IN TOP OF DECK 7'-7" MIN.</li> </ol>
	5. LAP NO. 10 LONGITUDINAL BAR STEEL IN BOTTOM OF DECK 5'-5" MIN.
	(6) CONCRETE PLINTH BLOCK. SEE TRACK PLANS FOR DETAILS AND REINFORCEMENT.
ROOVE	7. FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.
- BOTTOM LONGIT.	(8) STRAY CURRENT COLLECTOR CABLE. SEE SYSTEM PLANS.
	(9) GROUND WIRE, SEE GROUNDING PLANS.
	⑦ GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE DECK AT PIERS. SEE GROUNDING PLANS.
	(1) CONNECT TO GROUND WIRE IN PIERS.
– TOP LONGIT. BAR SF	PG.

CIVIL - VOLUME 4C	SHEET				
MINNETONKA/HOPKINS					
BRIDGE R0686 SUPERSTRUCTURE DETAILS 5					
NE: SHEET NAME:	158				
STRUCTURES CBRR0686-BRG-SUP-029					



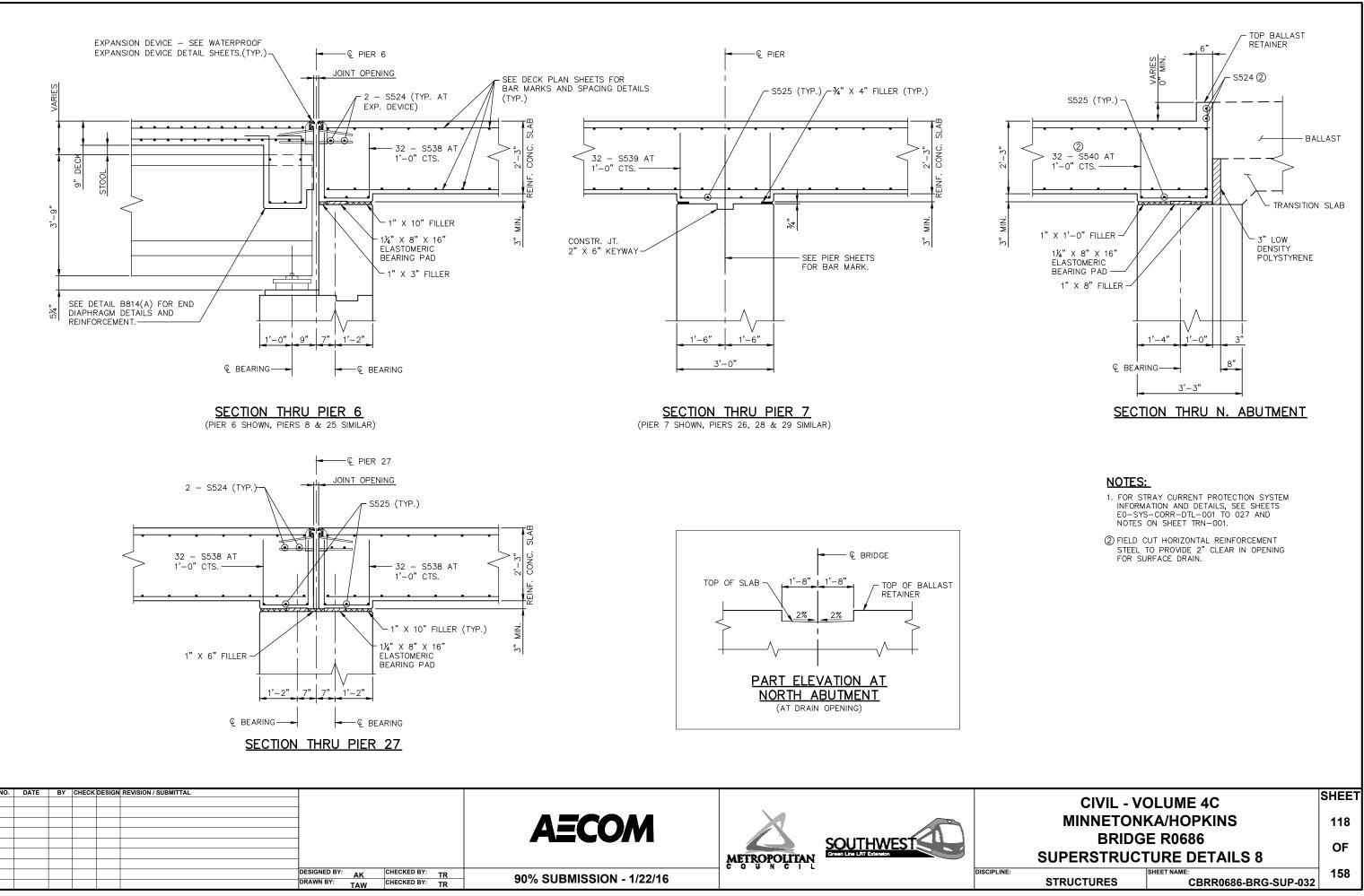
P LONGIT. BAR SPG.	NOTES: (1) WIRE FENCE PER MNDOT FIG. 5-397.119 (MOD) WIRE FENCE.
	2 1'-6" measured to top of low rail.
	<ol> <li>LAP NO. 4 LONGITUDINAL BAR STEEL AT EDGE OF DECK AND WALKWAY 1'-5" MIN.</li> </ol>
	<ol> <li>LAP NO. 10 LONGITUDINAL BAR STEEL IN TOP OF DECK 7'-7" MIN.</li> </ol>
2. (1)	(6) CONCRETE PLINTH BLOCK. SEE TRACK PLANS FOR DETAILS AND REINFORCEMENT.
	7. LAP NO. 9 LONGITUDINAL BAR STEEL IN BOTTOM OF DECK 4'-3" MIN.
	8. FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.
	③ STRAY CURRENT COLLECTOR CABLE. SEE SYSTEM PLANS.
GROOVE	10 ground wire, see grounding plans.
	<ol> <li>GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE DECK AT PIERS. SEE GROUNDING PLANS.</li> </ol>
4 – SPANS 28 & 30 – SPAN 29	(2) CONNECT TO GROUND WIRE IN PIERS.
T. BAR SPG.	
132 – TOP LONGIT. BAR SPG.	
JZ - TOI LONGIT. DAIX 31 G.	
P. (1)	
0	
P GROOVE	
5 – BOTTOM LONGIT.	

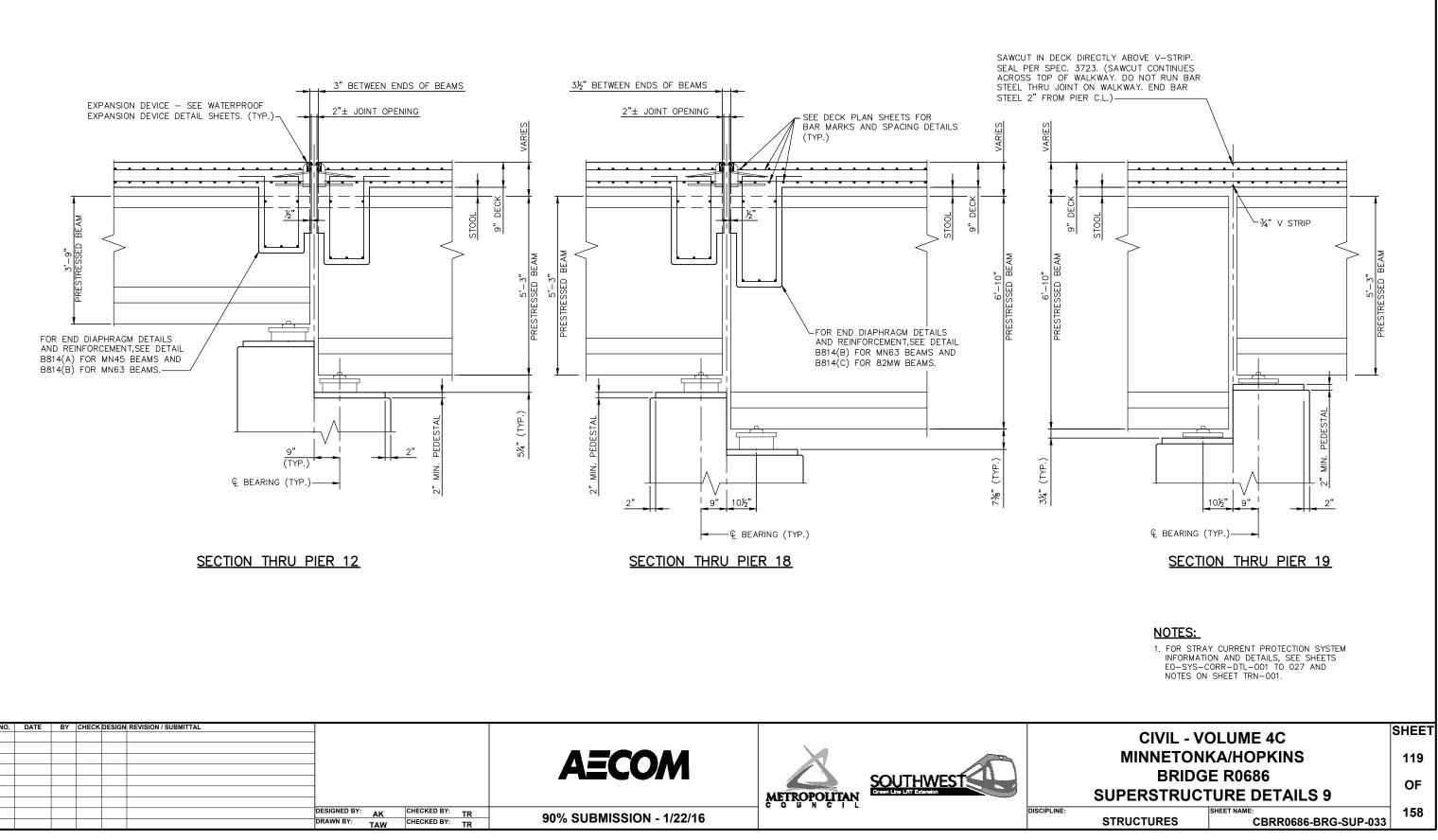
CIVIL - VOLUME 4C				
MINNETONKA/HOPKINS				
BRIDGE R0686 SUPERSTRUCTURE DETAILS 6				
STRUCTURES	SHEET NAME: CBRR0686-BRG-SUP-030	158		



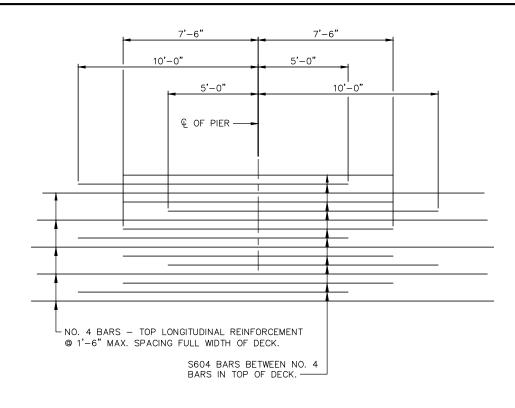
# NOTES:

- FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-001.
- (2) FIELD CUT HORIZONTAL REINFORCEMENT





				<u>2" CLEAR TO</u>	 <u><sup>1/2</sup>""V" DRIP</u> LEAR BOTTOM		€ BRG. PIER 27 (SPAN 28 S	SIDE)		R DIAGRAM	(3-SPAN S	– ę
NO. DATE	BY	CHECK	K DESIGN RE	VISION / SUBMITTAL	 -							
					-			<b>~</b> • • •				
	-				-		AEC	UM				
					_				METROPOLITAN			
					 DESIGNED BY: AK	CHECKED BY: TR	90% SUBMISSI	ON - 1/22/16			DIS	CIPL
					DRAWN BY: TAW	CHECKED BY: TR	90% SUBMISSIC	ON - 1/22/16				



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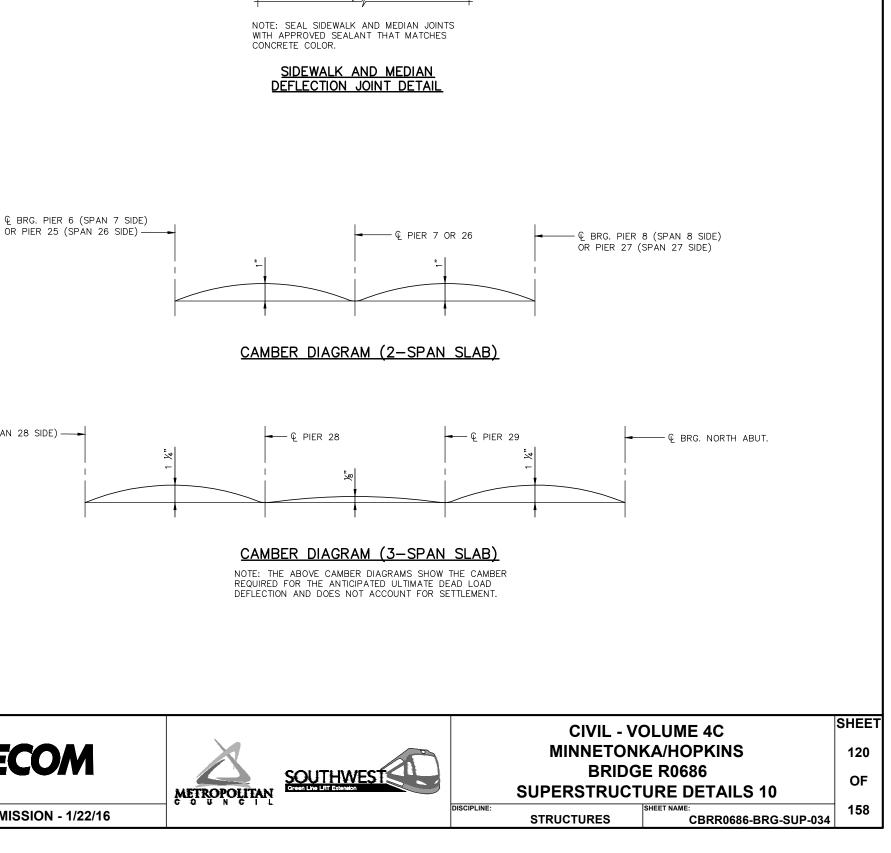
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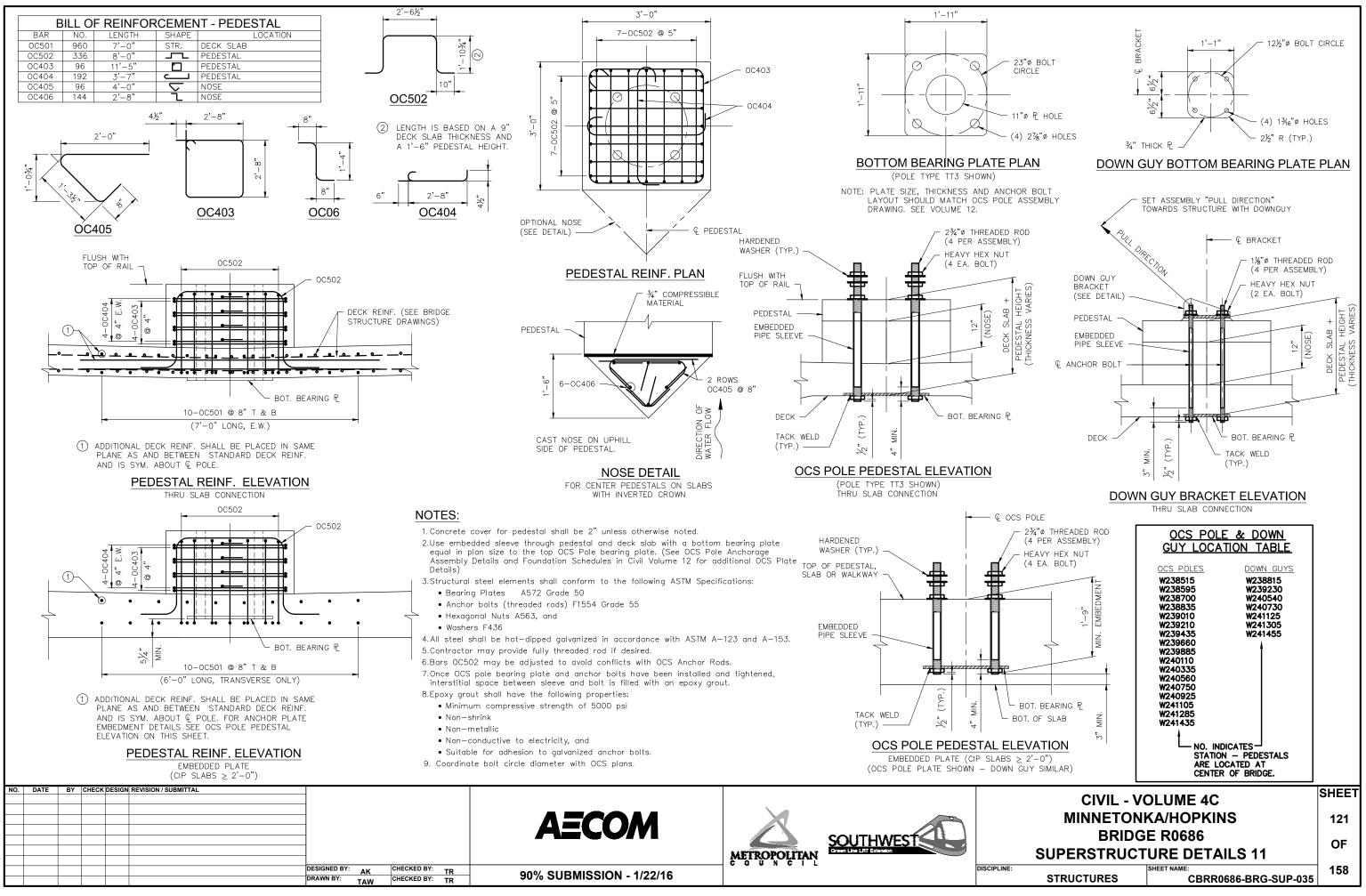


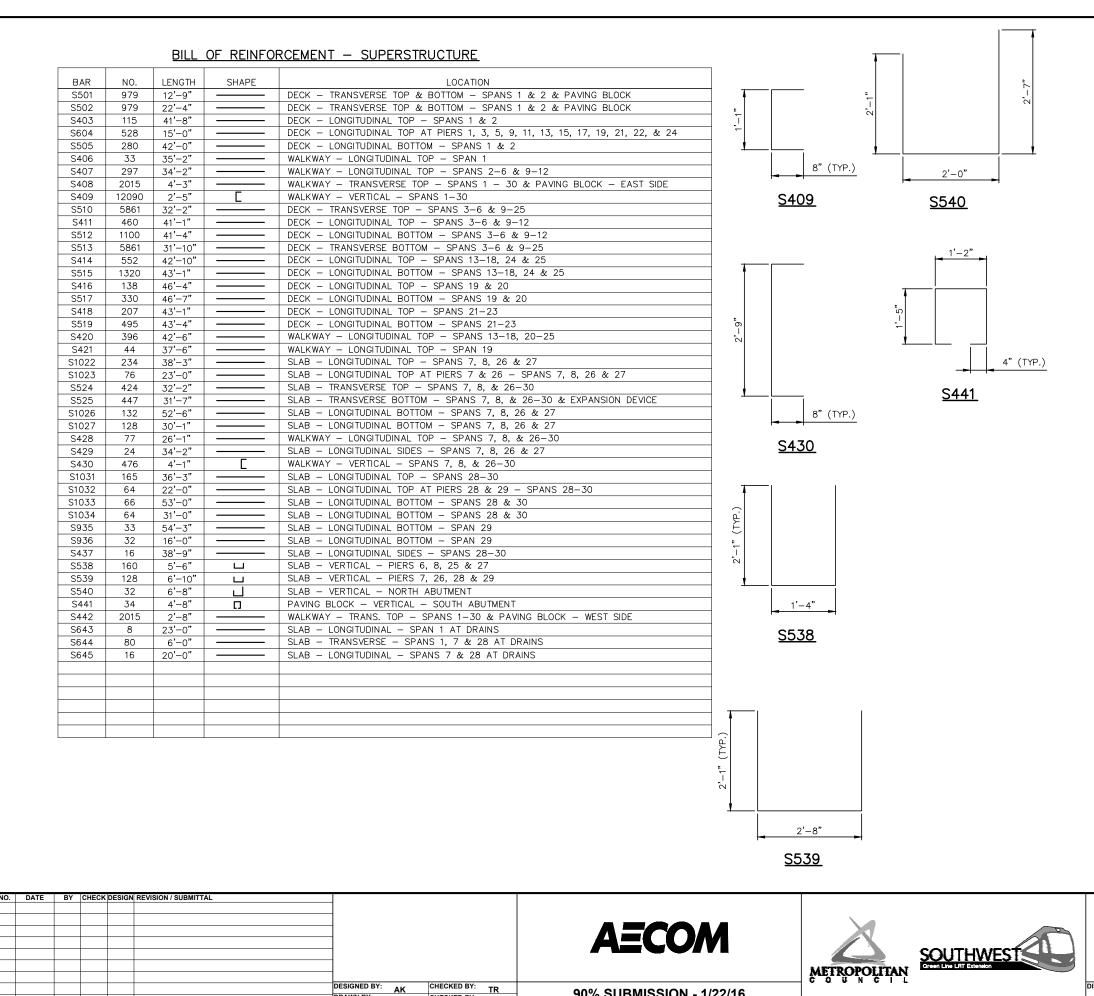




- TOOLED JOINT WITH JOINT SEALER.







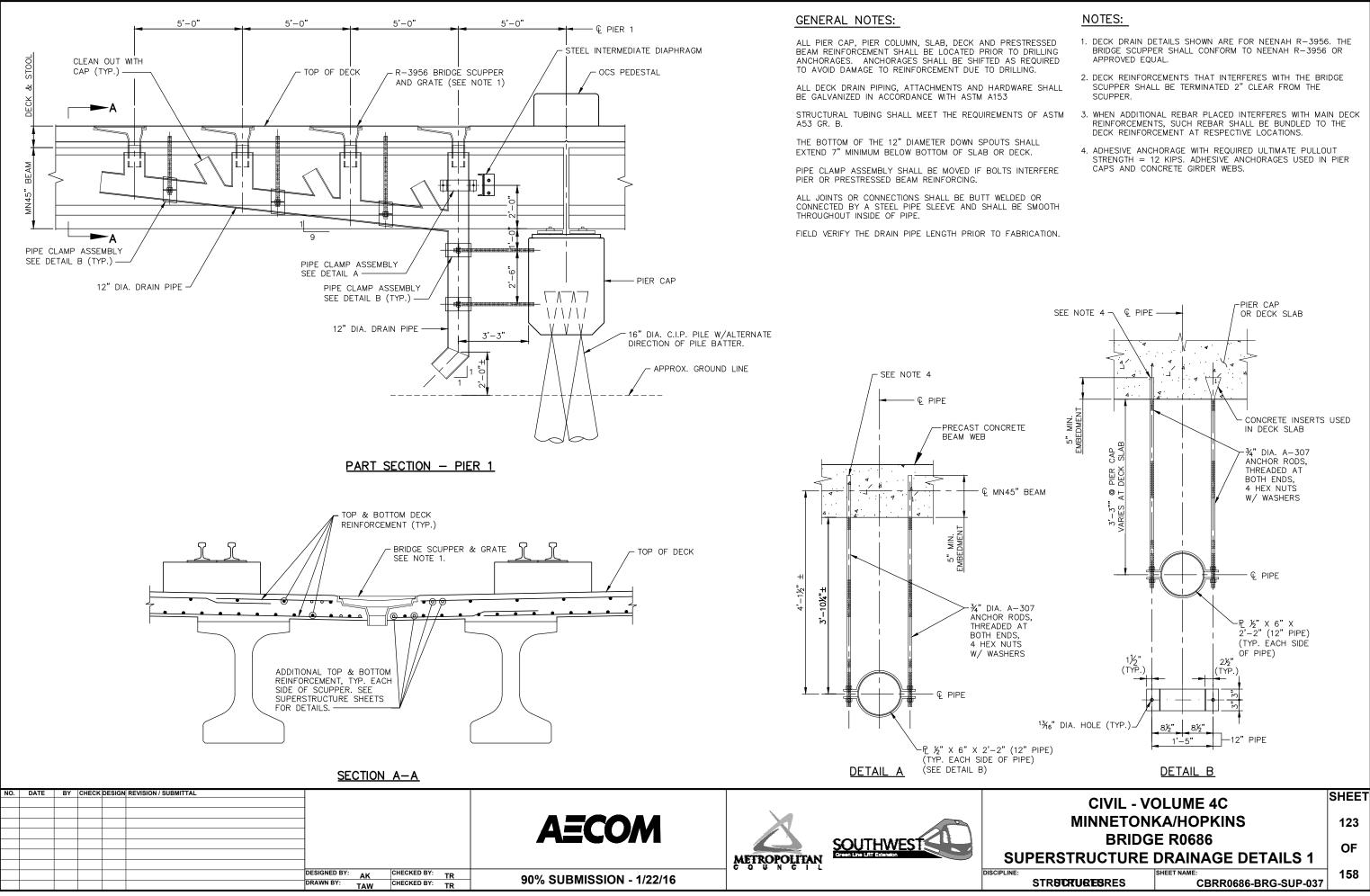
90% SUBMISSION - 1/22/16

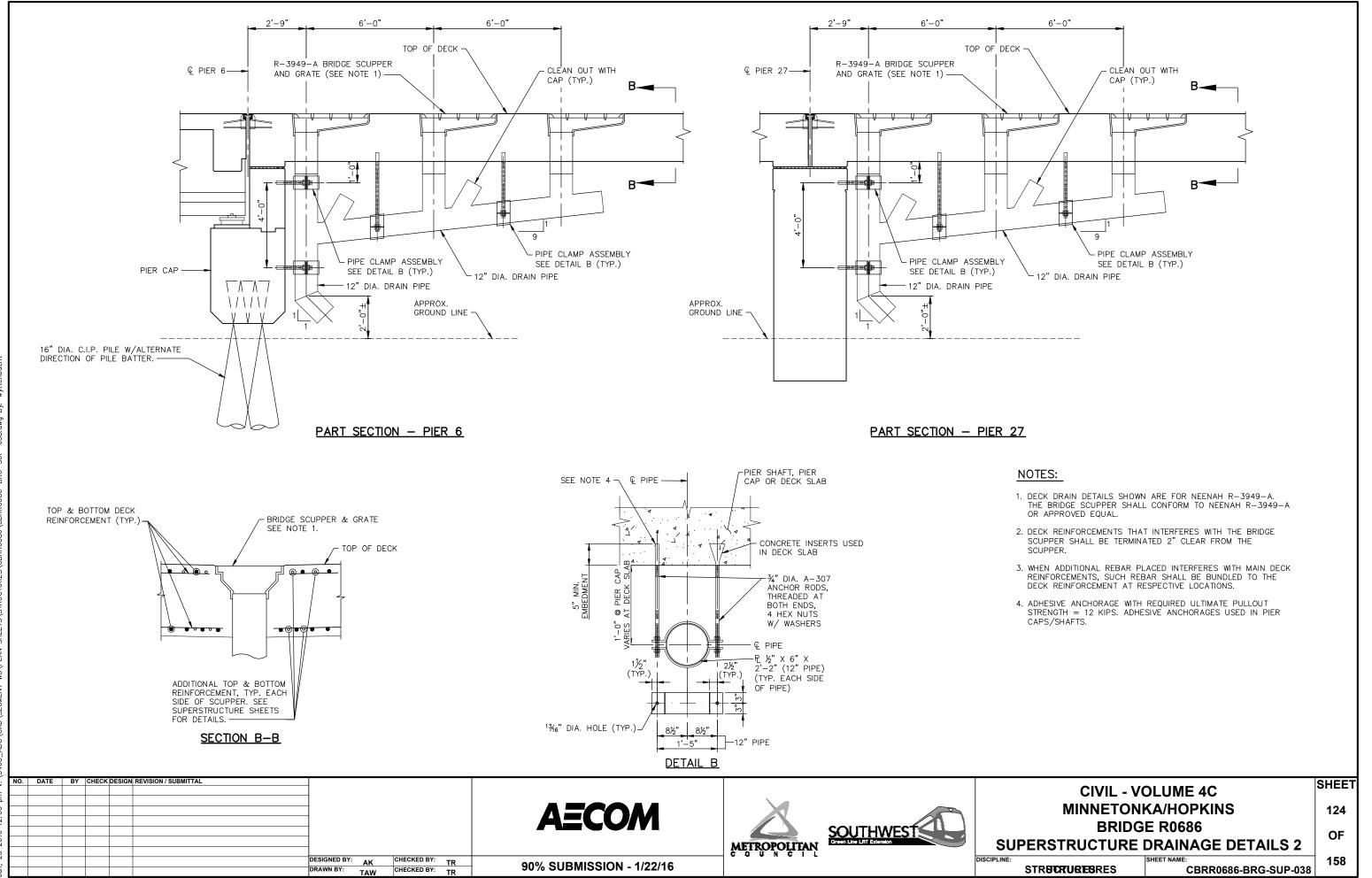
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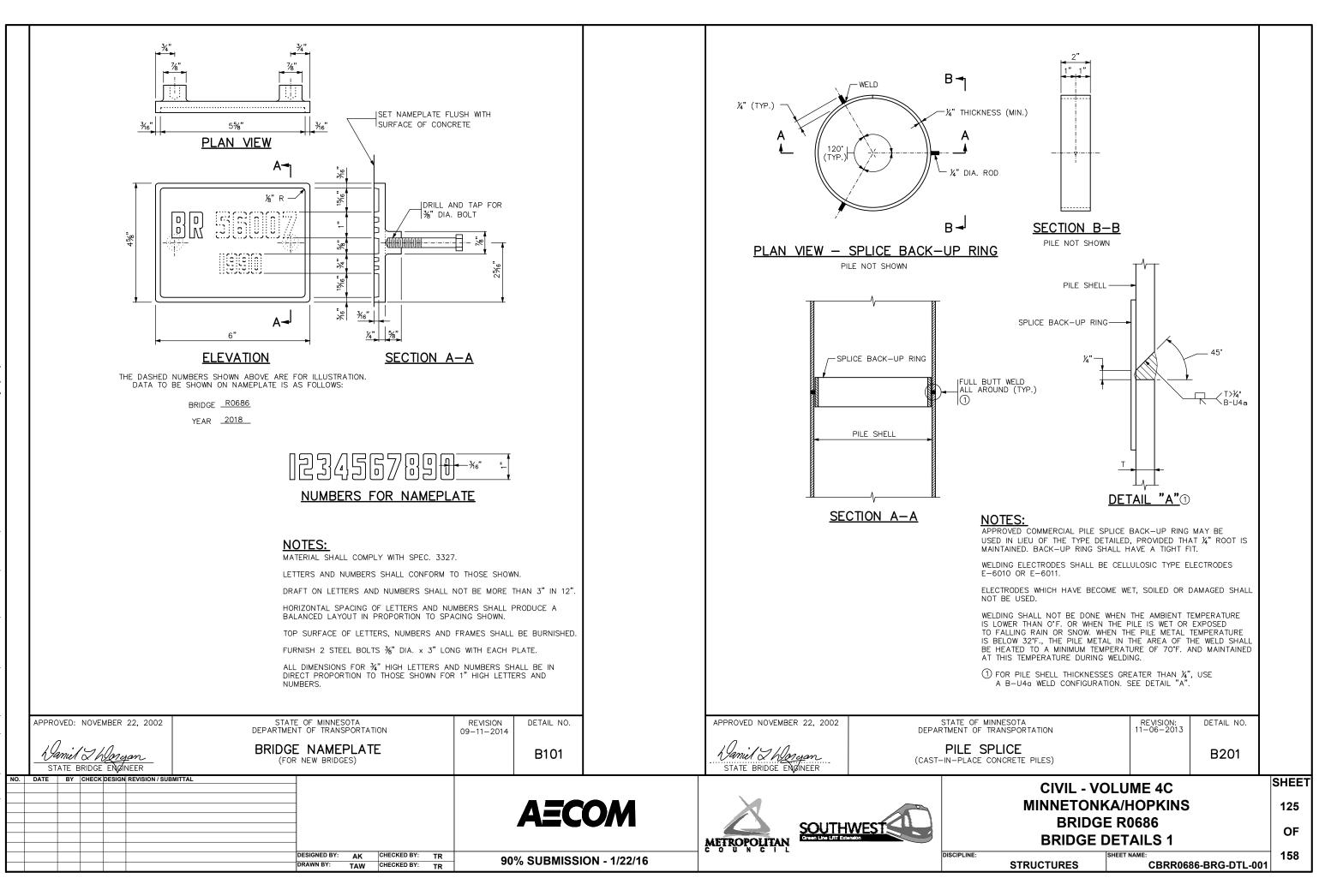
CHECKED BY: TR

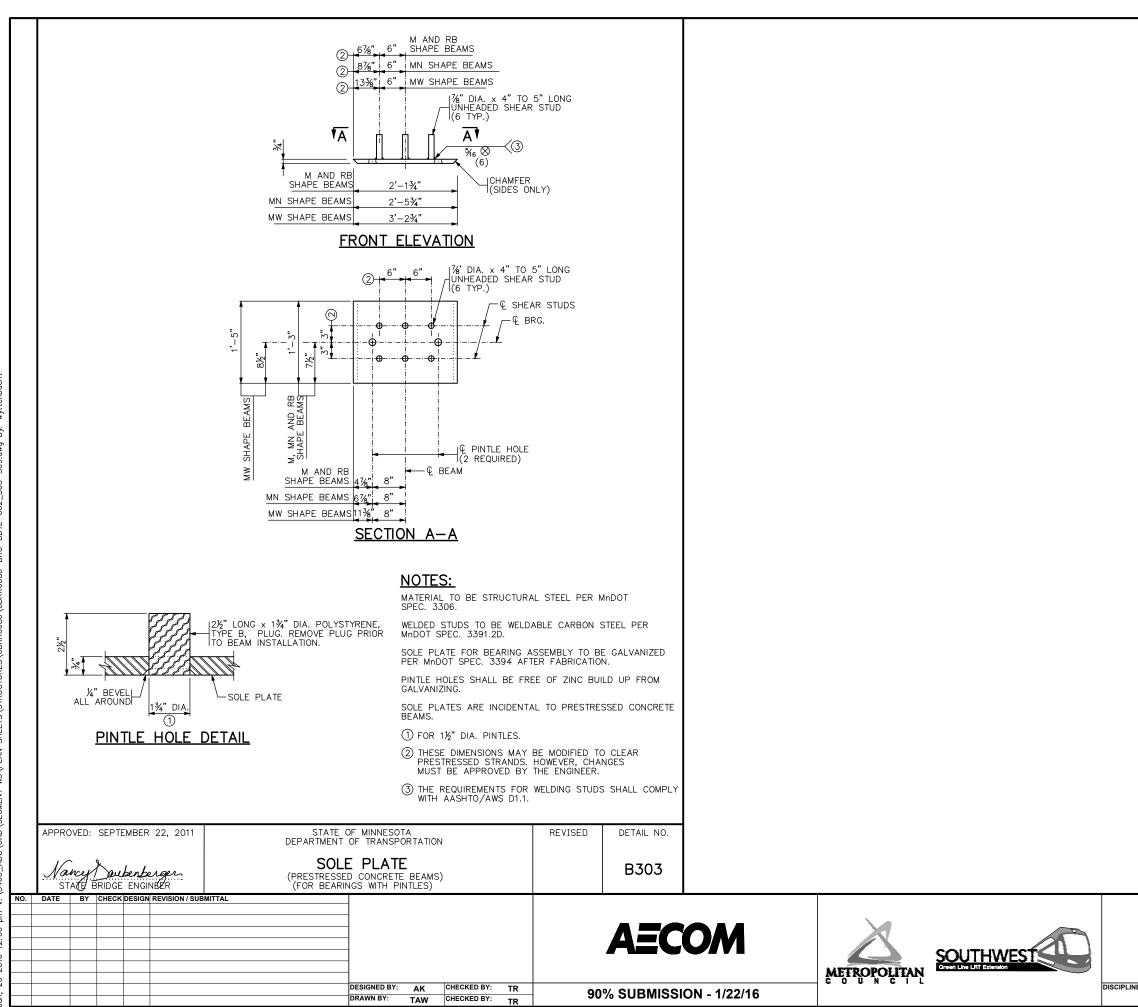
DISCIPLI

	CIVIL - VOLUME 4C						
	MINNETONKA/HOPKINS						
	BRIDGE R0686						
	SUPERSTRUCTURE DETAILS 12						
INE:		SHEET NAME:	158				
	STRUCTURES	CBRR0686-BRG-SUP-036					

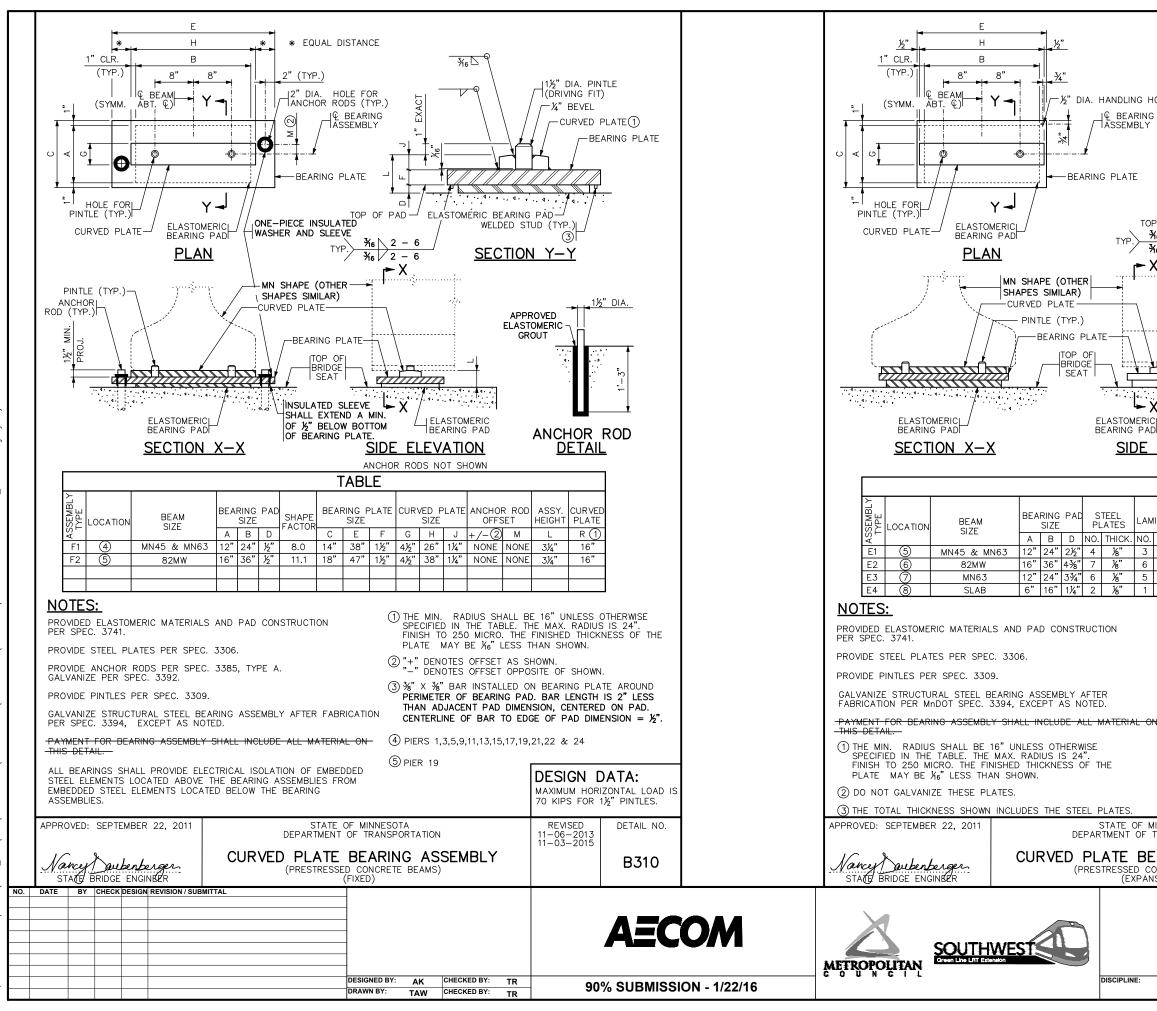








CIVIL - VOLUME 4C							
MINNETONKA/HOPKINS							
BRIDGE R0686							
BRIDGE DETAILS 2							
NE:	SHEET NAME:	158					
STRUCTURES	CBRR0686-BRG-DTL-002						



DISCIPLINE:

1/2"

<u>\_</u>%"

PINTLE (TYP.)

BEARING PA

SIZE

12" 24" 2½

D

12" 24" 3¾" 6 ⅛"

6" 16" 1¼" 2 1/8"

16" 36" 43⁄8" 7

AB

STEEL

PLATES

"4 1/8"

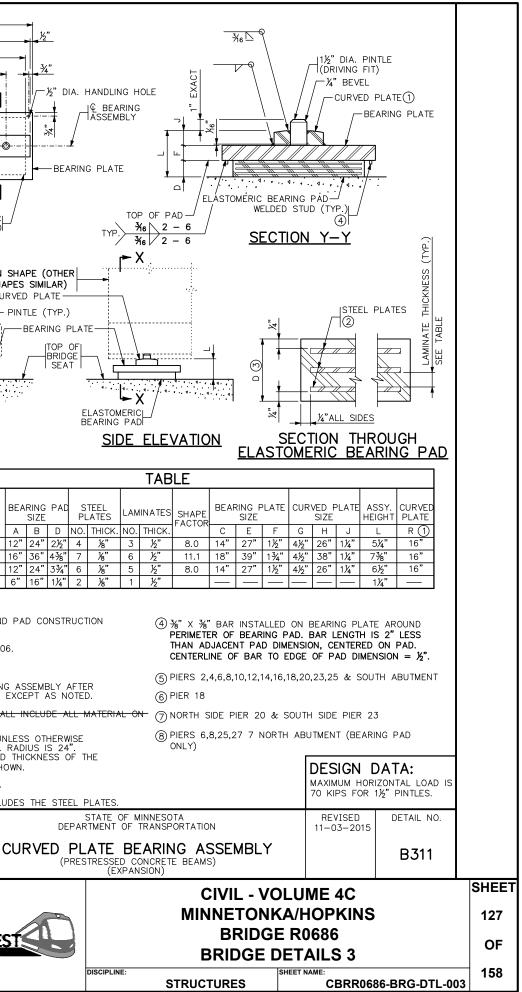
尨"

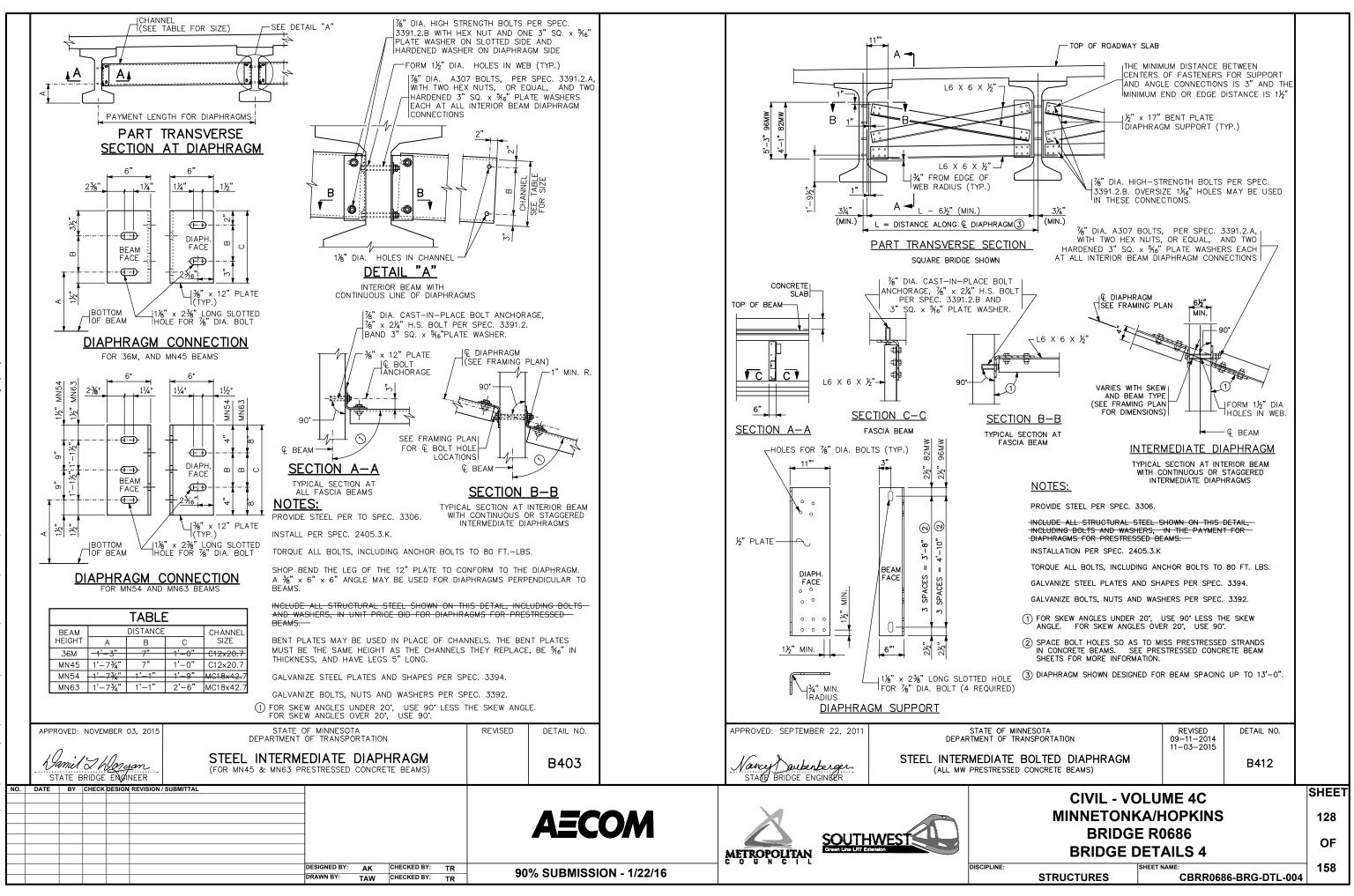
BEARING PLATE

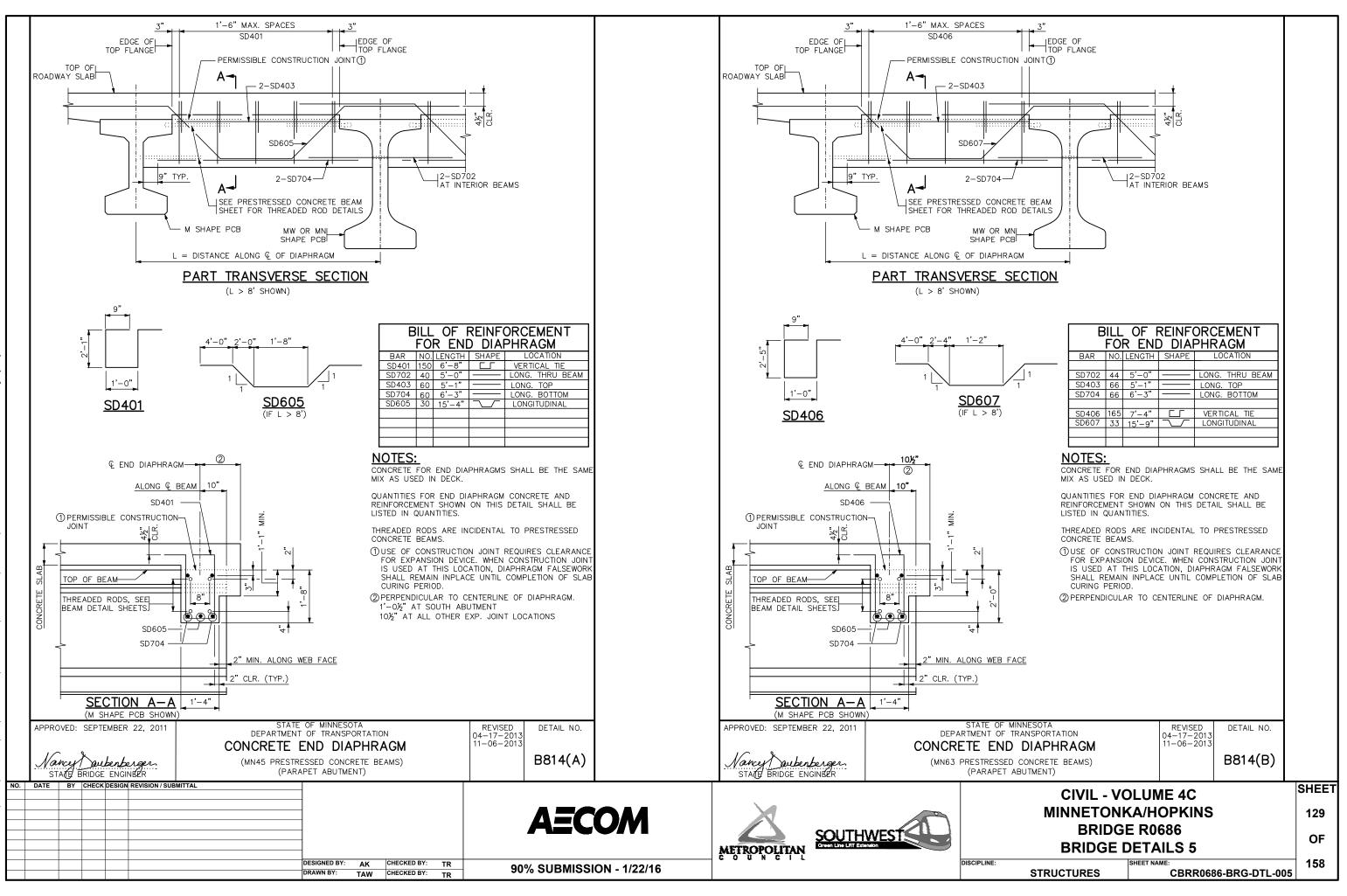
ITOP OF

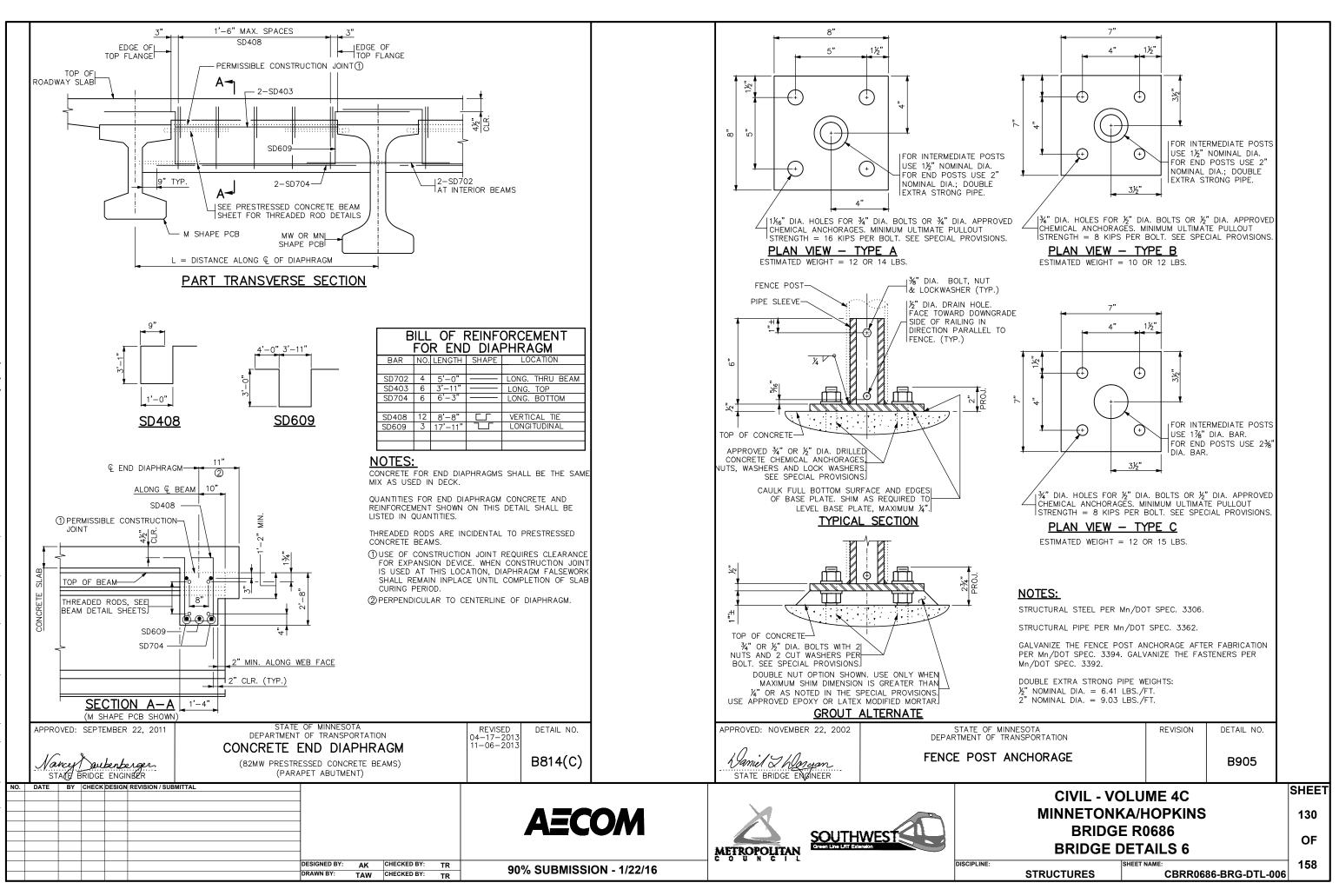
BRIDGE

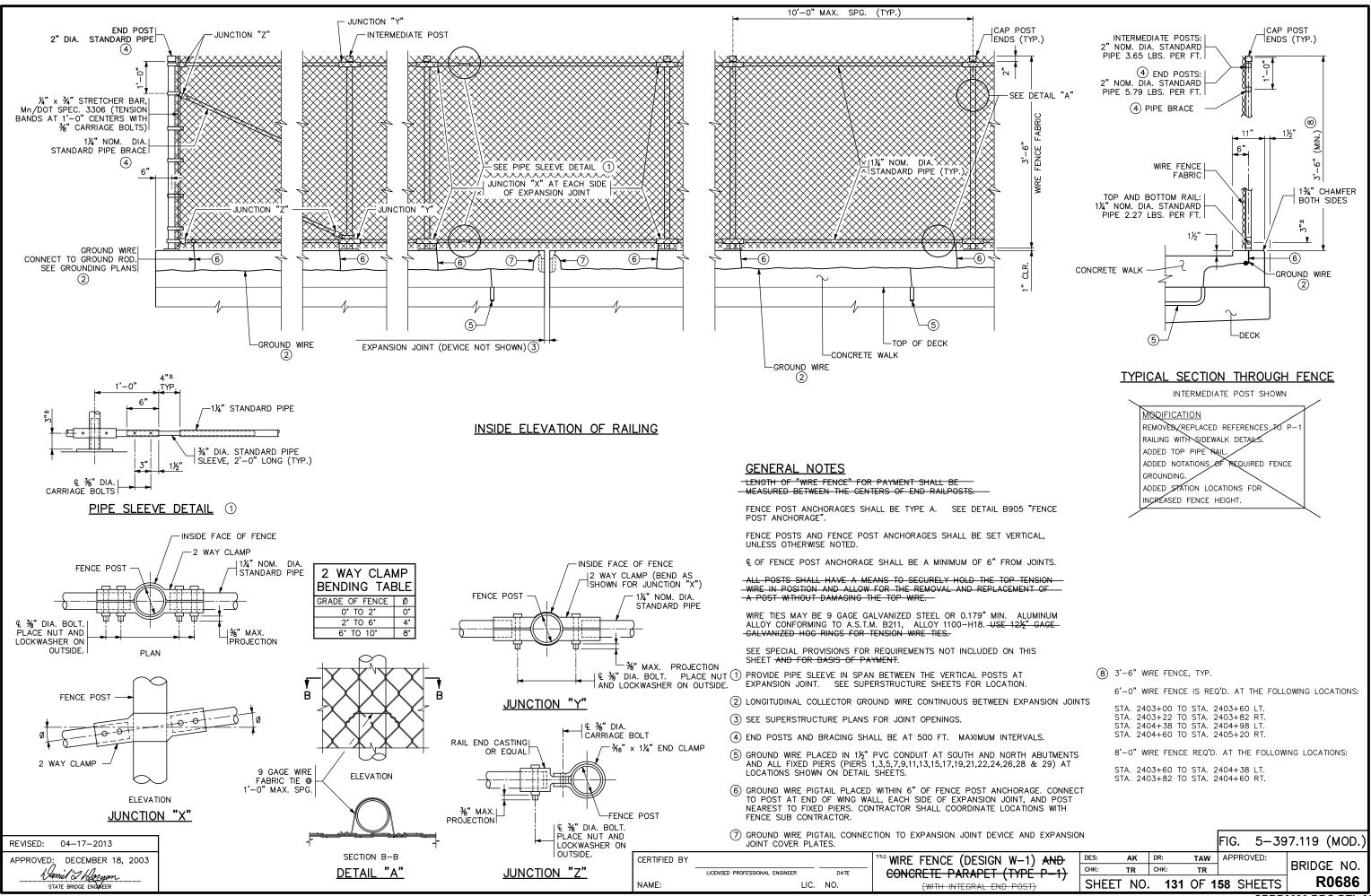
SEAT



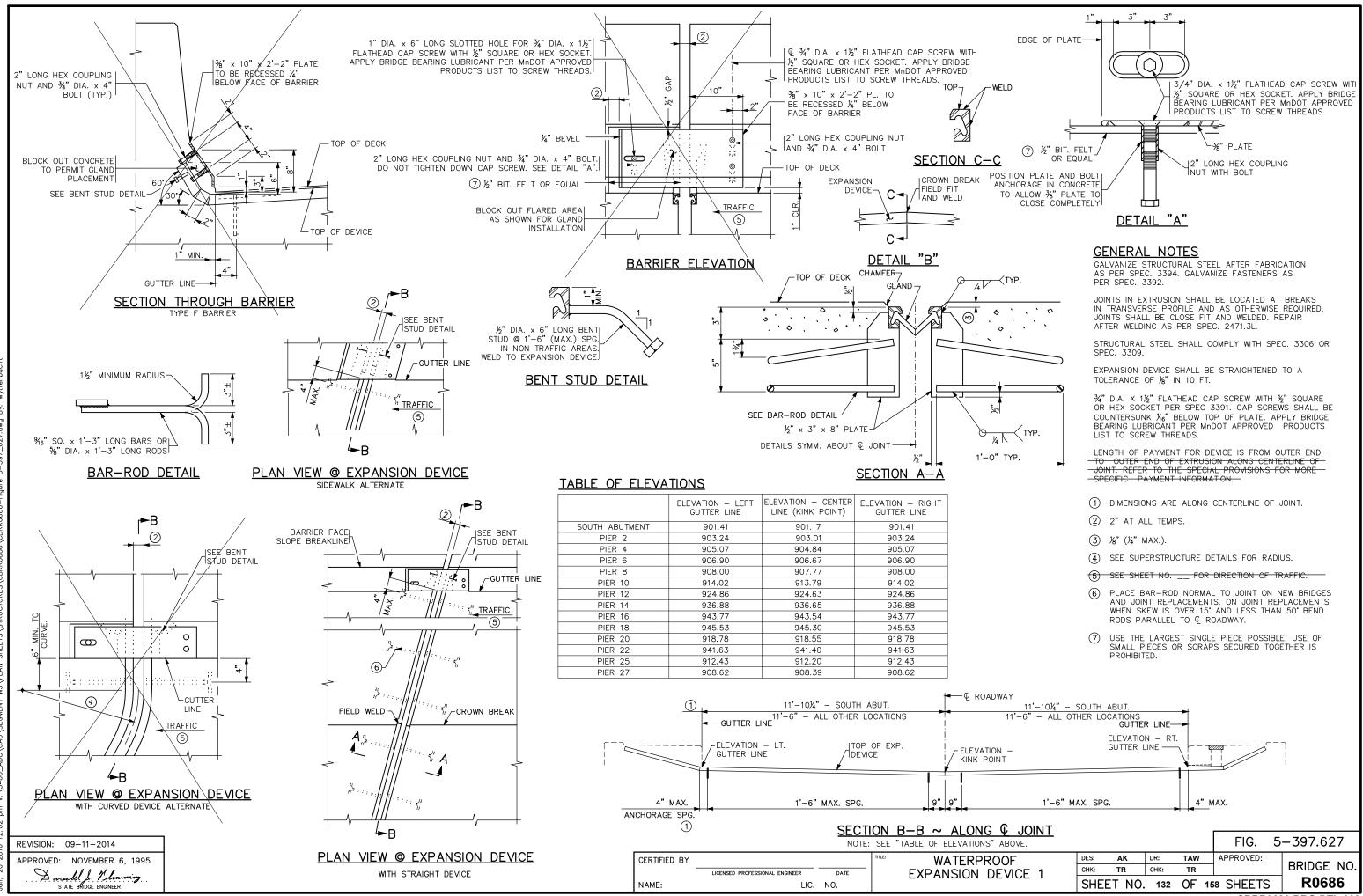






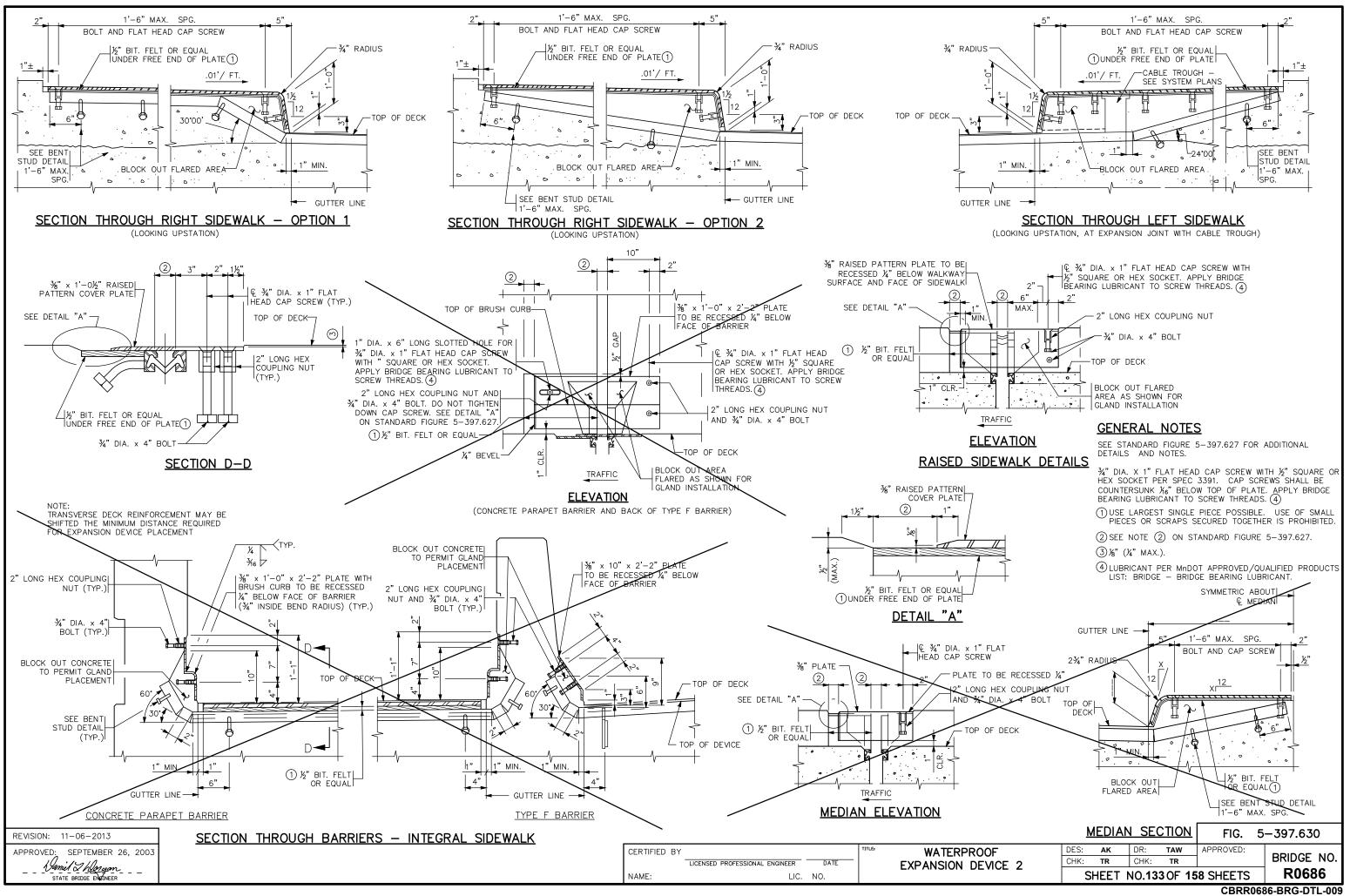


CBRR0686-BRG-DTL-007



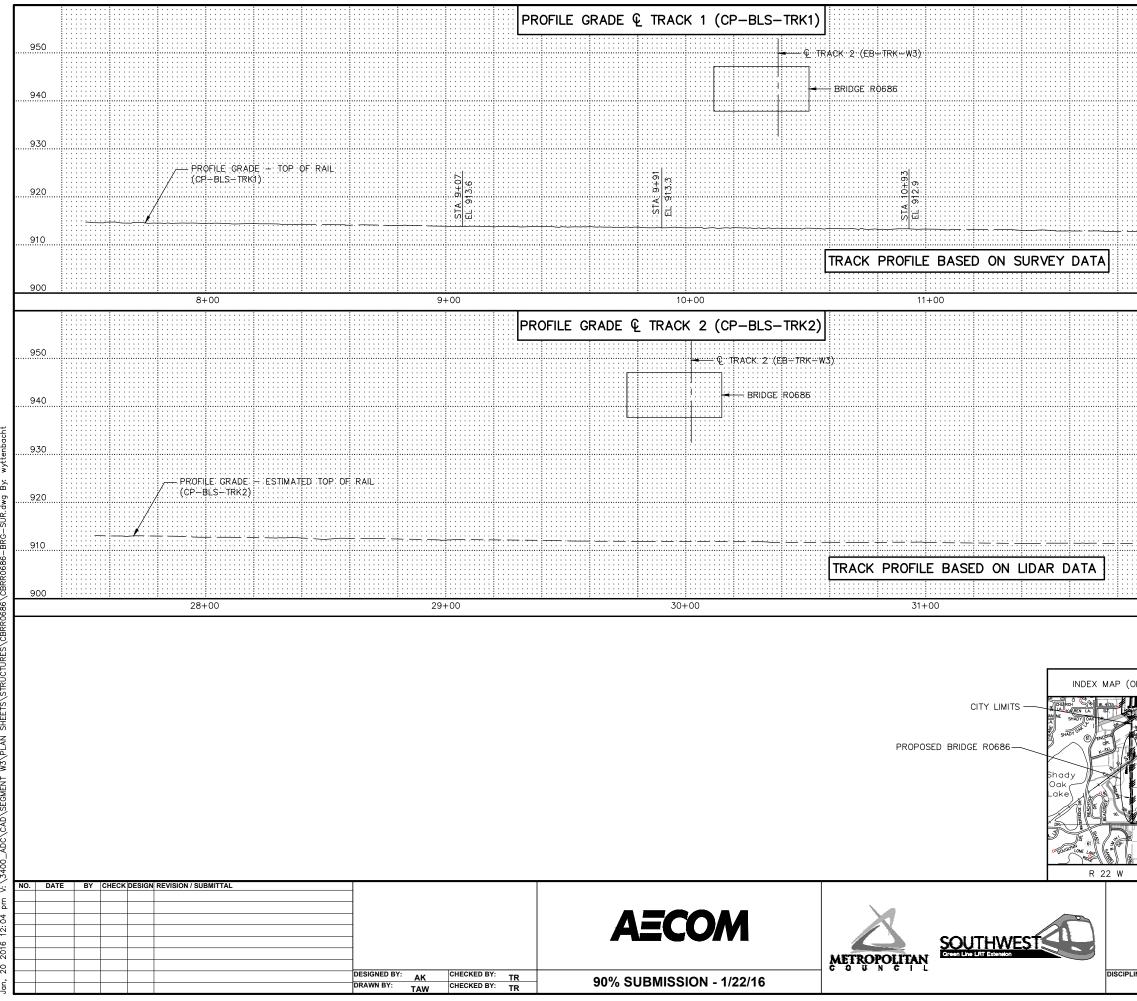
I1'-10¼" - SOUTH ABUT. 11'-6" - ALL OTHER LOCATIONS GUTTER LINE ELEVATION - RT. GUTTER LINE T									
1'-6" MAX. SPG.									
<b>Ç<u>JOINT</u></b> ABOVE.					FIG.	5-39	97.627		
OF EVICE 1	DES: CHK:	AK TR	DR: CHK:	TAW TR	APPROVED:	BR	IDGE NO.		
	SHEI	ET NO.	132	OF 15	8 SHEETS		R0686		

CBRR0686-BRG-DTL-008

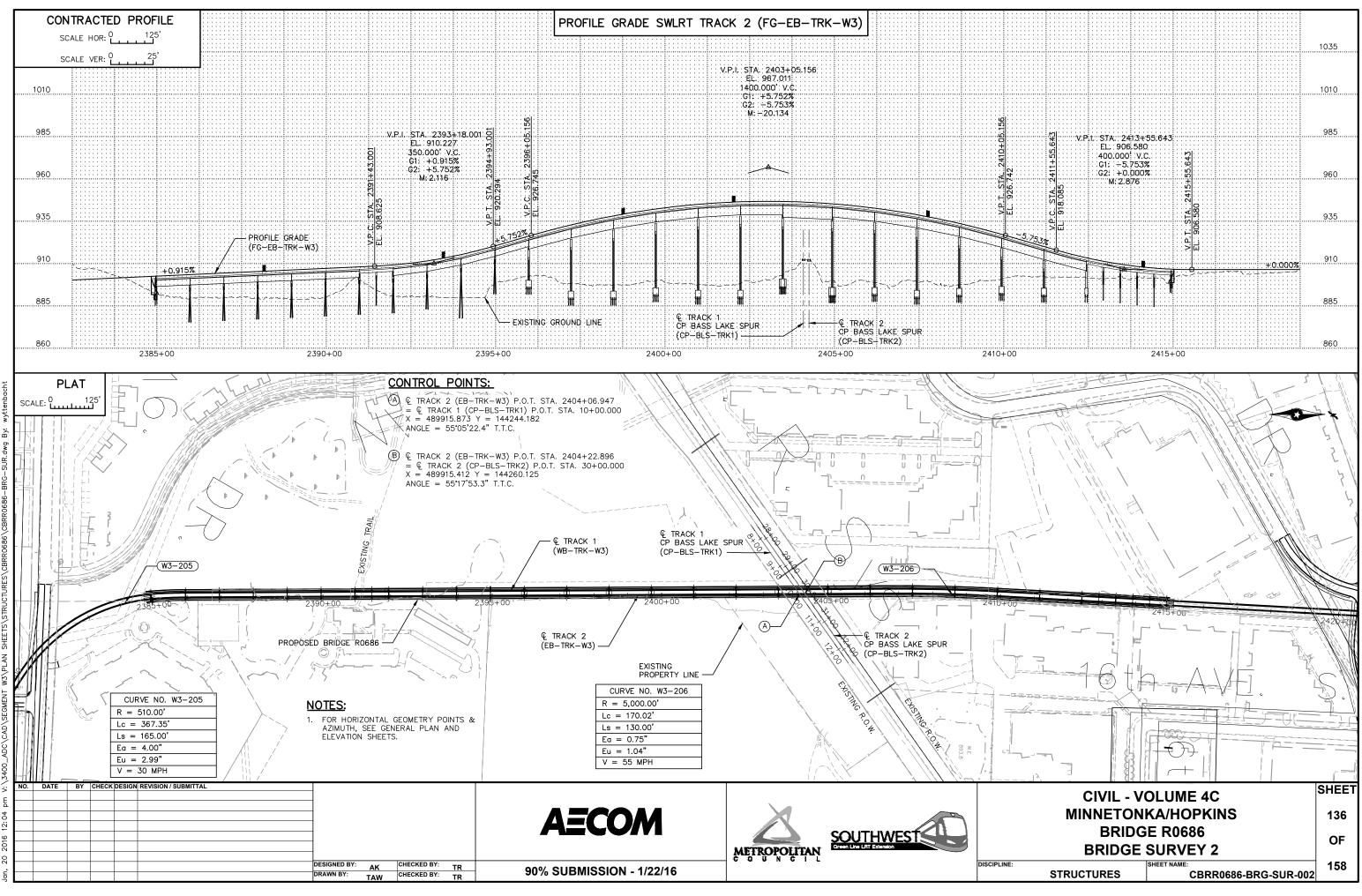


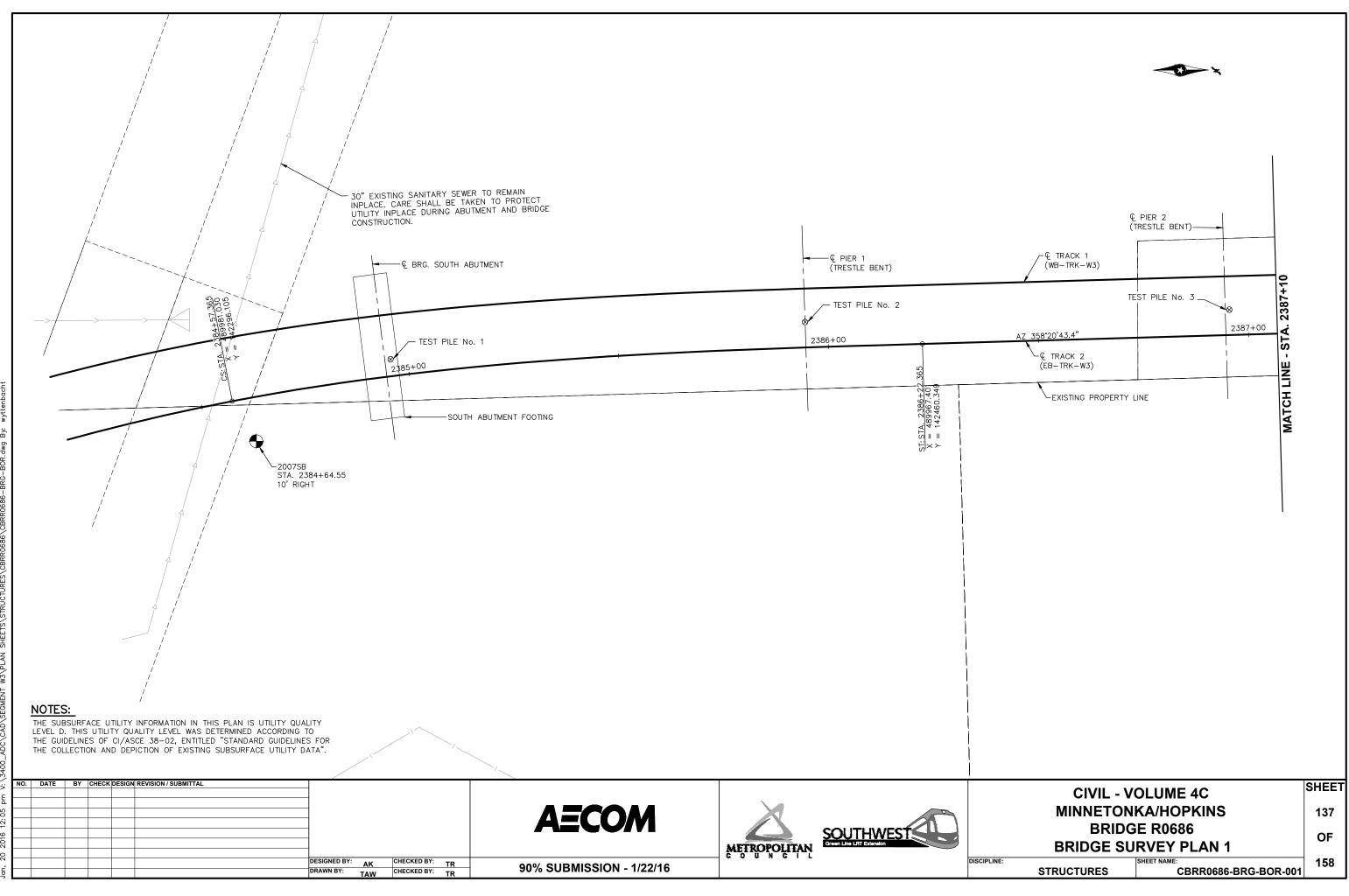
CON	CRETE WEARING COURSE	PAINT_SYSTEM	<u>OTH</u>	ER ITEMS ①
LOW SLUMP		Mn/DOT SPECIFICATION NUMBER2478 OR 2479 OR OTHER	_ (1) UTILITIES ADDED DURING CONSTRUCTION	N AND SPECIALTY ITEMS.
OTHER	TYPE OR MANUFACTURER	MANUFACTURERNAME AND ADDRESS (CITY, STATE)	_ FINAL QUANTITIES ENTERED ON SCHEDULE C	DF QUANTITIES: YES NO
	EXPANSION JOINTS	PRIME COAT		
		INTERMEDIATE COAT	_	
JOINT MANUFACTURER		Mn/DOT MATERIAL SPECIFICATION NUMBER		
MANUFACTURER'S IDENTIFICATION	MFR'S No. AND/OR LETTER DESIGNATION FOR JOINT USED	Mn/DOT MATERIAL SPECIFICATION NUMBER COLOR		
GLAND MANUFACTURER	NAME AND ADDRESS (CITY, STATE)	PLAN QUALITY		
SIZE OF GLAND		RATE 1 (AGREE), 2 (NEUTRAL), OR 3 (DISAGREE, PLEASE COMMENT BELOW)		
MANUFACTURER'S IDENTIFICATION	MFR'S No. AND/OR LETTER DESIGNATION FOR GLAND USED	DIMENSIONING AND DETAILING ADEQUATELY DESCRIBED REQUIRED CONSTRUCTION. BAR LISTS AND QUANTITIES WERE TYPICALLY COMPLETE AND FREE OF ERRORS.		
FI AS	STOMERIC BEARING PADS	SCALE OF DRAWINGS AND OVERALL LEGIBILITY OF LINES AND TEXT WAS GOOD. (SB) SPECIAL PROVISIONS ADEQUATELY DESCRIBED SPECIAL WORK AND PAYMENT.		OF SIGNIFICANT <u>LT CHANGES</u>
		СОММЕНТS:		
PAD MANUFACTURER	NAME AND ADDRESS (CITY, STATE)		-	
SP	ECIAL SURFACE FINISH		-	
SYSTEM:	COLOR:		-	
FINISHING ROA	ADWAY FACES OF BARRIER RAILING	NUMBER OF BRIDGE SUPPLEMENTAL AGREEMENTS: COST: \$	-	
ТҮРЕ:	COLOR:	LIST SIGNIFICANT ERRORS OR OMISSIONS IN PLAN DETAILS OR PAY QUANTITIES IN THE SPACE PROVIDED AT RIGHT.		
<u>AN</u>	NTI-GRAFFITI COATING	BRIDGE REMOVAL / BRIDGE OPENING		
MANUFACTURER	NAME AND ADDRESS (CITY, STATE)	NUMBER OF AND DATE OLD BRIDGE WAS REMOVED (IF APPLICABLE):		
PRODUCT NAME:	LOCATION:	BRIDGE NUMBER DATE REMOVED		
		DATE NEW BRIDGE WAS OPENED TO TRAFFIC	_	
		NOTIFY THE BRIDGE OFFICE BRIDGE MANAGEMENT UNIT WITH THIS INFORMATION AS SOON AS POSSIBLE. (651) $366-4557$		
			THE AS-BUILT INFORMATIO	N WAS ADDED TO THE PLAN BY:
			INSPECTOR(S) SIGNA	TURE DATE
			CHECKED BY:	
			PROJECT ENGINEER/SU AT THE TIME OF THE FINAL, THIS COMPLE SUBMITTED TO THE BRIDGE OFFICE – ATTN:	JPERVISOR SIGNATURE DATE IED AS-BUILT BRIDGE DATA SHEET MUST BE REGIONAL CONSTRUCTION ENGINEER (MS610).
REVISION: 10-28-2008		T DETAILS	L	FIG. 5–397.900
APPROVED: SEPTEMBER 26, 2003 Vanuel & hloryom STATE BRIDGE ENGINEER		I DE TAILS IEEDED)	TITLE: DES: AS-BUILT BRIDGE DATA CHK: SHEET	DR:         APPROVED:         BRIDGE NO.           CHK:         R0686
STATE BRIDGE ENGINEER				CBRR0686-BRG-DTL-010

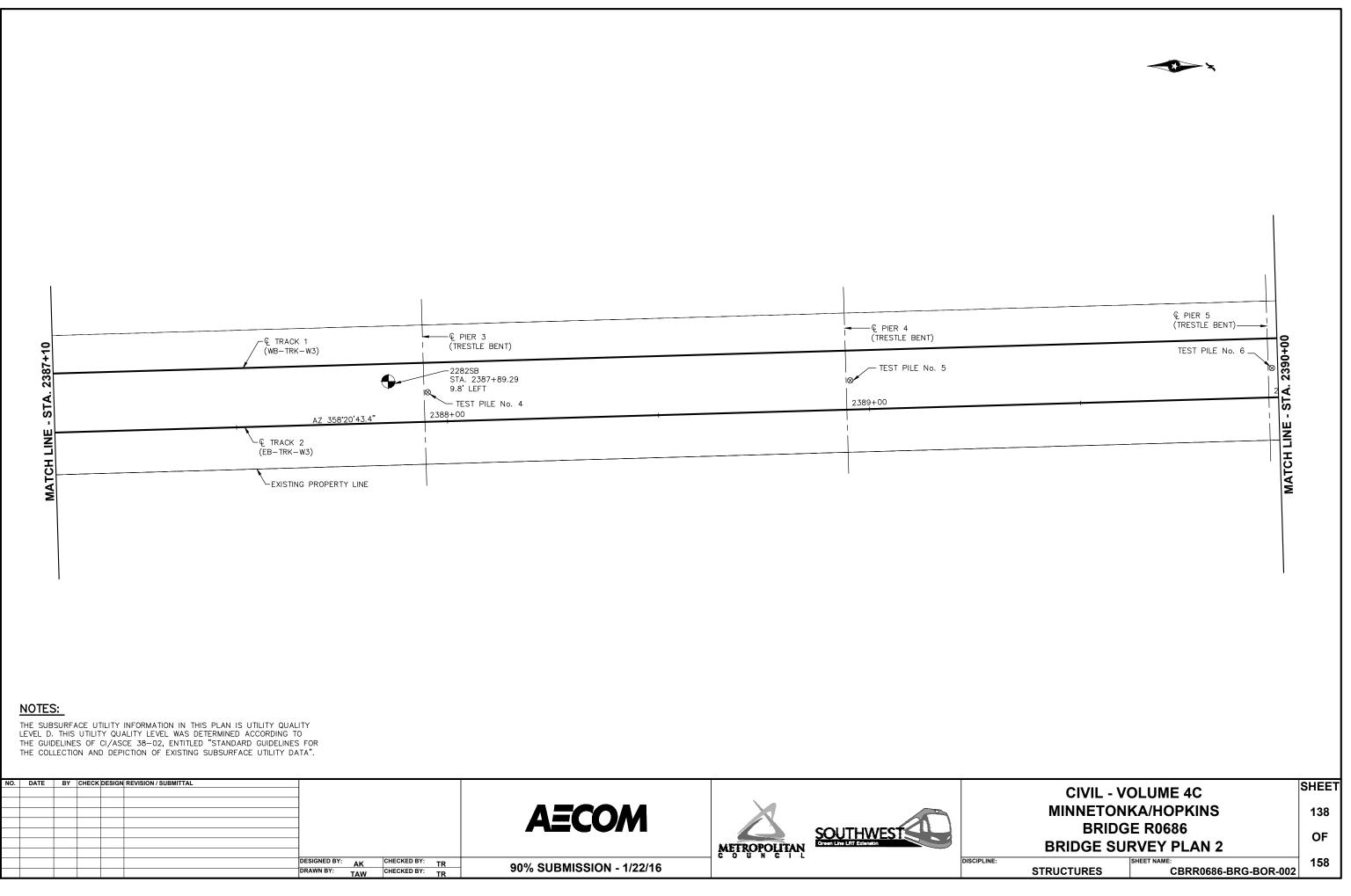
CBRR0686-BRG-DTL-010

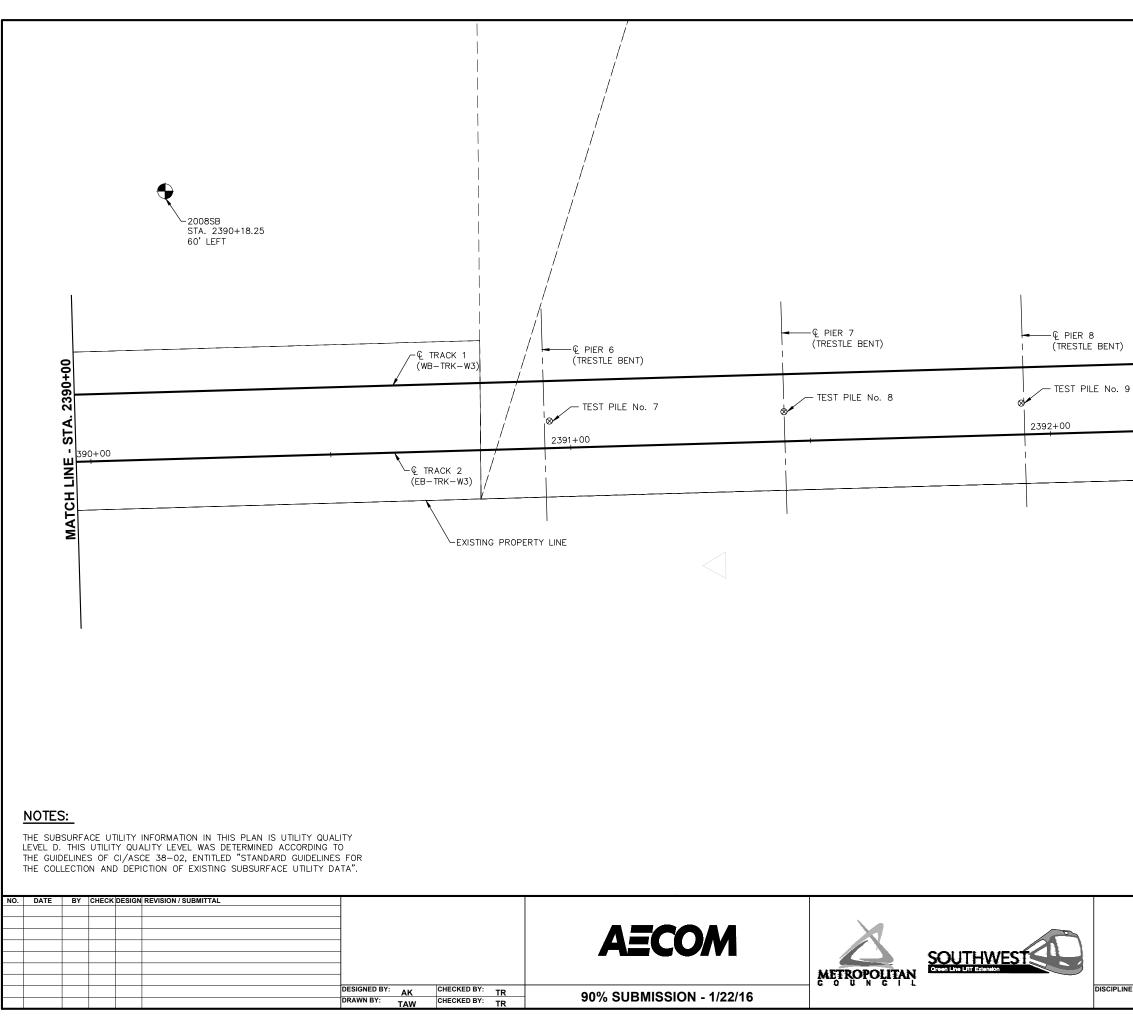


		·				
		CATION ENGINEER'S OBSERVATION	NS			
950		L FEATURES: WATERFALLS, DAMS, FLOODS, ICI , SLIDING BANKS, RECREATIONAL BOATING.	Ξ,			
	(PARTIC WITHOU	BRIDGES OR COLVERTS OVER THE SAME STREA CULARLY STRUCTURES WHICH CARRY HIGH WATI IT OVERFLOW OF ROADWAY) : GIVEN LOCATION, 1, HEIGHT ABOVE HIGH WATER, CROSS-SECTION	ER TYPE,			
930		ENT HIGHWATER ELEVATION				
	4.0THER SURVE	DATA: APPROX. VELOCITY OF WATER AT TIME Y.	76			
920 	HYDR	AULIC ENGINEERS RECOMMENDAT				
910		DATE: XX-XX-XXXX DITCH DESIGNATION: XXX REA: XXX SQ. MI.				
	MAX FLOOD	ON RECORD: XXX C.F.S. (XX-XX-XX)				
900 12+00	MAXIMUM OE	SSERVED NIGHWATER ELEVATION: XXX.X FT.				
950	HEADW DESIGN TOTAL	DD (XX TR. FREQ.): XXX C.F. <i>S.</i> ATER ELEVATION: XXXX F7. MEAN VELOCITY THROUGH STRUCTURE: X.X F.F STAGE INCREASE: XX FT. EMBER AT OR ABOVE ELEVATION: XXX.X FT	P.S.			
		AREA REQUIRED BELOW ELEV. XXX.X = XXX SQ. T ANGLES TO CHANNEL				
940	HEADW. TOTAL	D (100 /R. FREQ.): XXX C.F.S. ATER ELEVATION: XXXX FT. STAGE INCREASE: X.X FT. FELOCITY THROUGH STRUCTURE: X.X F.P.S.				
930	FLOWLINE EL	EVATION: XXX FT. SKEW ANGLE: XX				
	ESTIMATED F (500 OR OT	PRELIMINARY TOTAL SCOUR AT PIER EL. XXX.X YR.FREQ.)				
920	SCOU	R-CONFIRMATION RECOMMENDAT	ION			
		DATE: XX-XX-XXXX				
910	SCOUR CODE	R AT PIER EL. XXX.XX (500 OR OT YR. FREQ.) : OBTAIN FROM HYDRAULIC ENGINEER				
		/EY SHEETS MADE FROM SURVEY AND /ETRIC MAPPING.				
900 32+00	MONUMENT NAME: CONTROL POINT 6 BENCHMARK ELEVATION (NAVD88): 932.956 NORTHING (HEN. COUNTY COORDINATES NAD83(2007)): 142016.680 EASTING (HEN. COUNTY COORDINATES NAD83(2007)): 489989.960 MONUMENT DESCRIPTION: CAST IRON MONUMENT					
DNE SQ. MI.)	NORTHING (H EASTING (HE	ELEVATION (NAVD88): 919.385 IEN. COUNTY COORDINATES NAD83(2007)): 14	7263.069 996.864			
sth st. 2		BRIDGE SURVEY				
	∠ \	1 MI NORTH OF JCT. TH 61 & TH 62 I MINNETONKA	Ν			
WAGON WHEEL RD.	111	SOUTHWEST LIGHT RAIL OVER CP RAIL AND W	ETLANDS			
		SEC 26 T 117 R 22				
The second second		CITY OF MINNETONKA HENNEPIN CO	UNTY			
BRIDGE R0686						
		VOLUME 40	SHEET			
N		VOLUME 4C DNKA/HOPKINS	135			
			OF			
		SE SURVEY 1	158			
SIRU	JUNES					

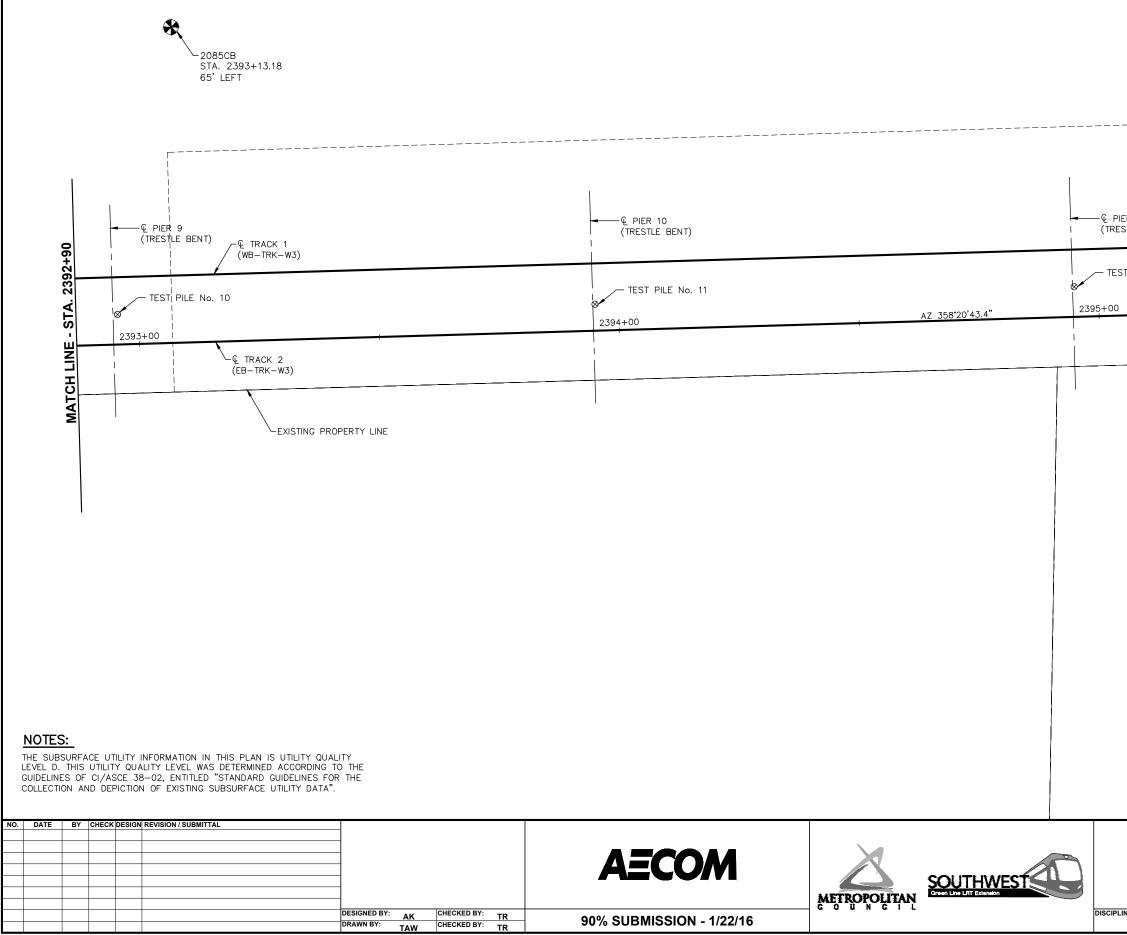




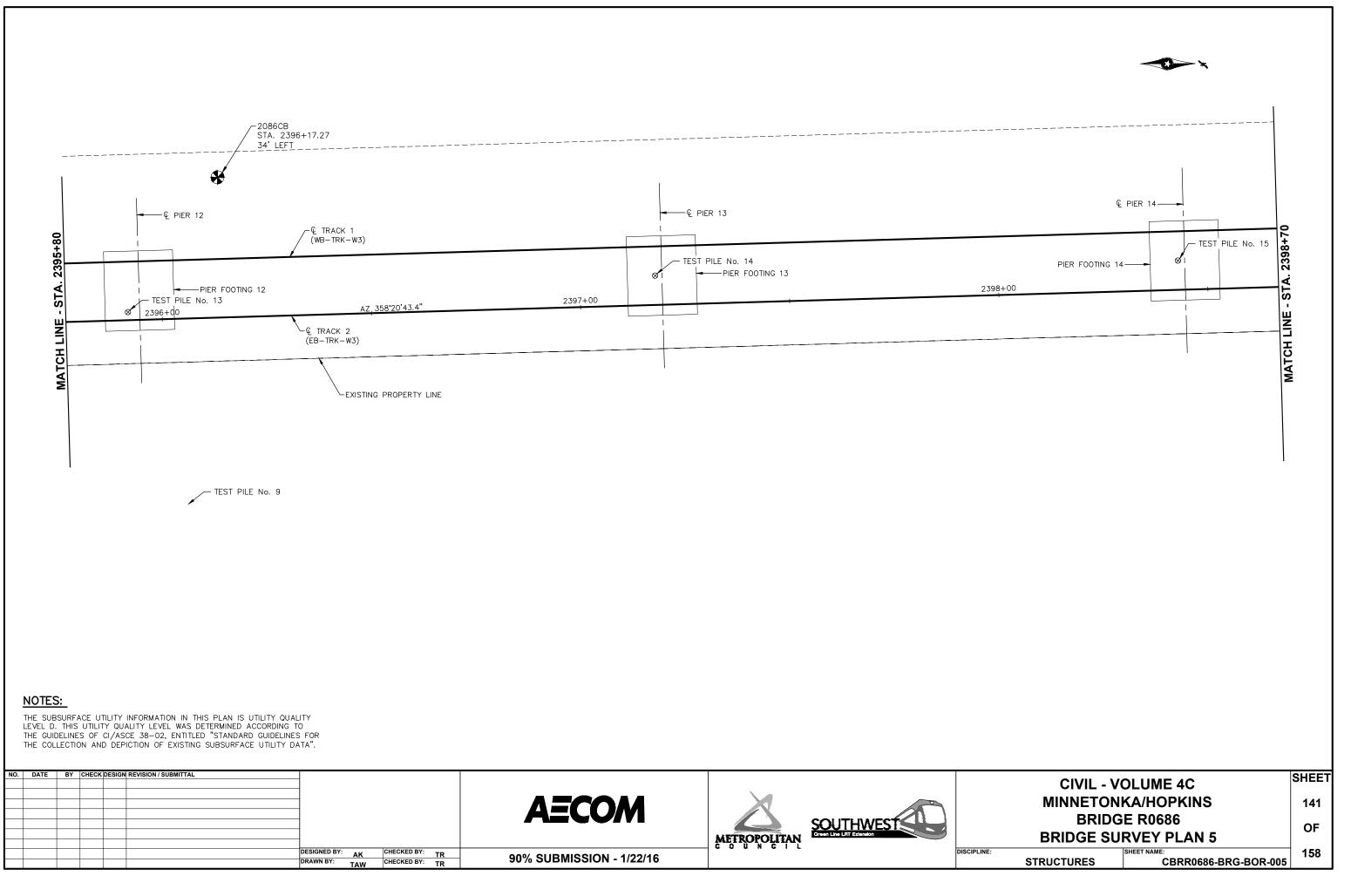


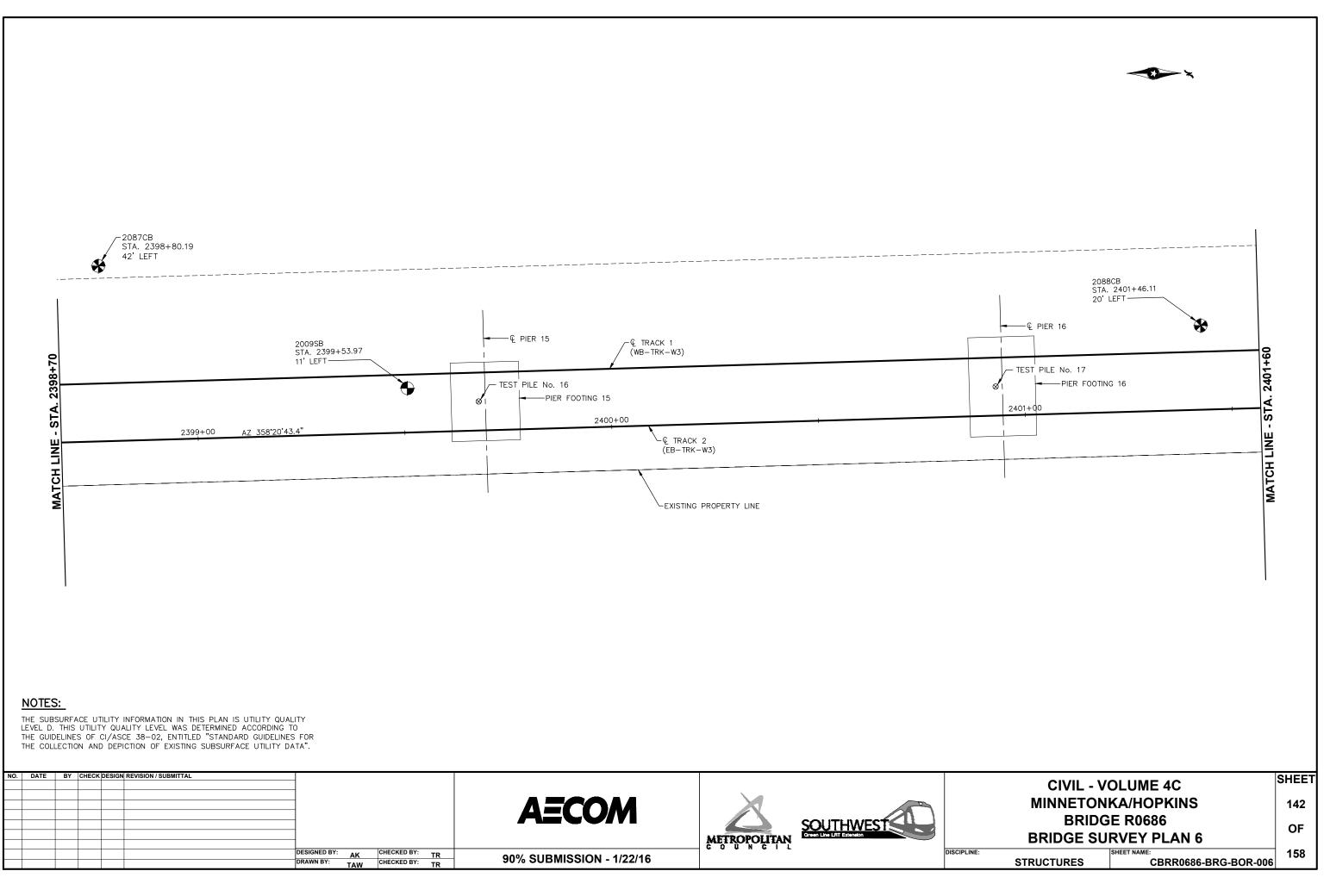


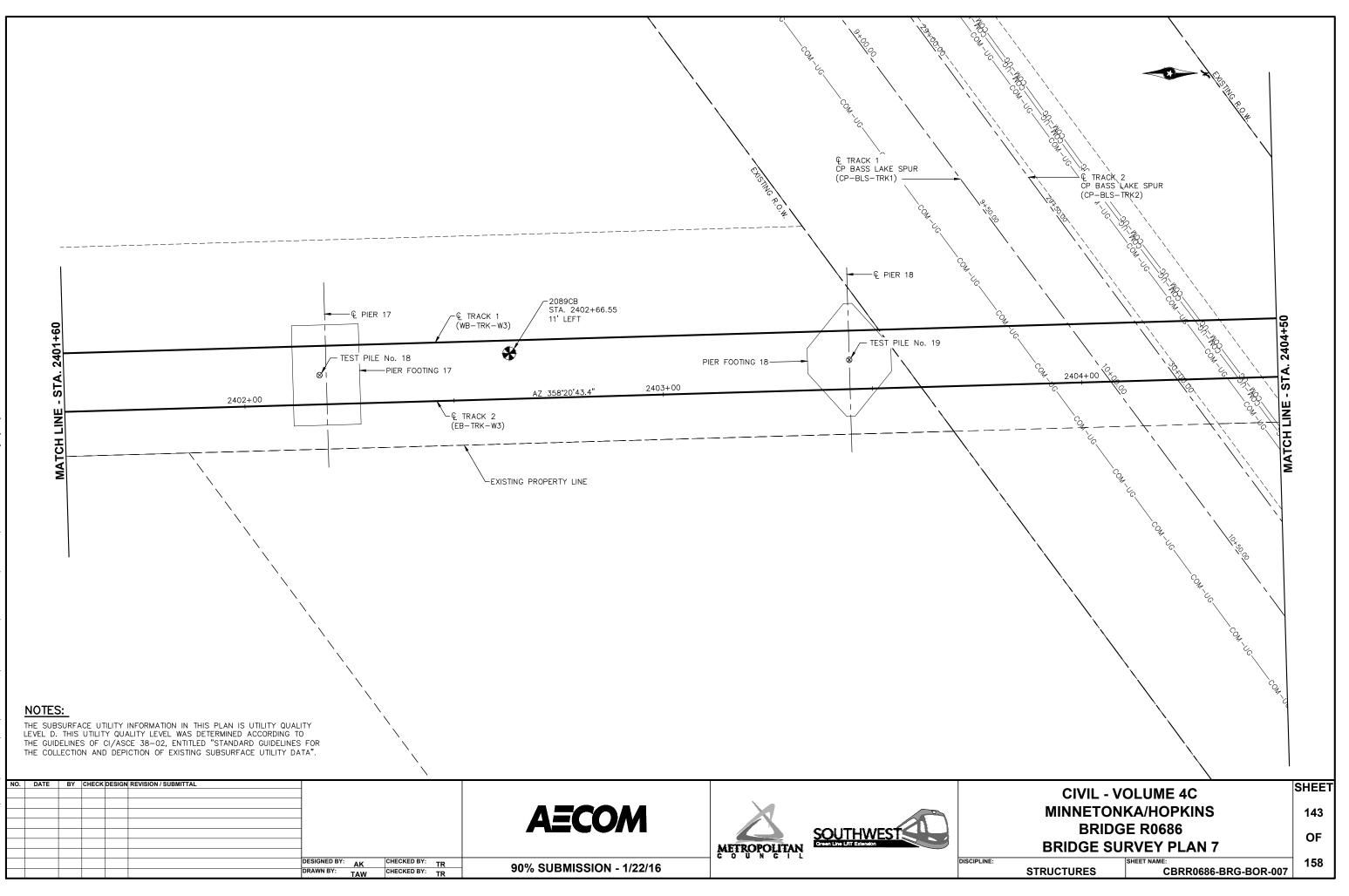
2084CB STA. 2392+34.05 79' LEFT	<b>3</b>
9 AZ 358"20'43.4"	MATCH LINE - STA. 2392+90
CIVIL - VOLU MINNETONKA/H BRIDGE RI BRIDGE SURVE	OPKINS 139 686 OF 7 PLAN 3

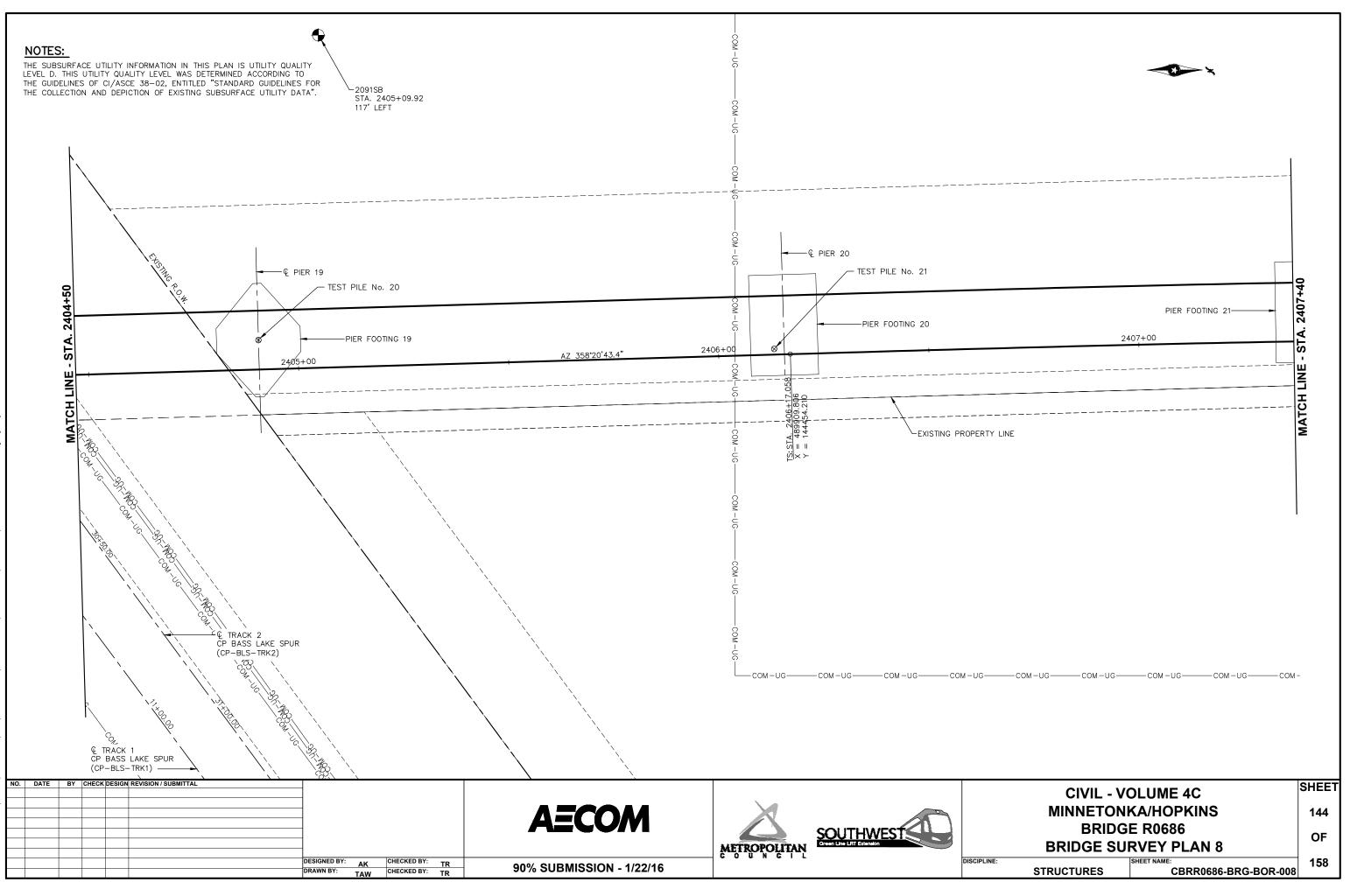


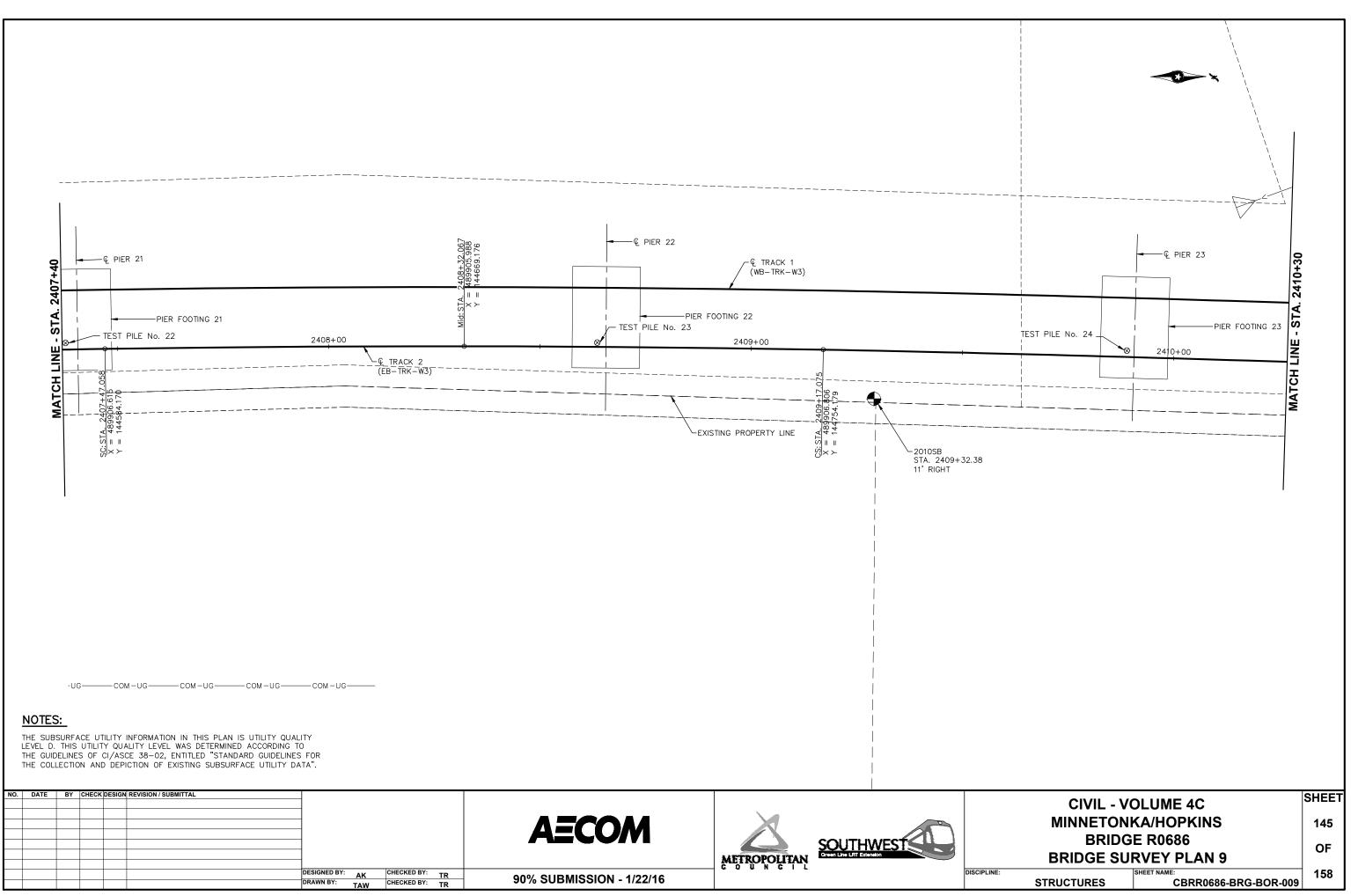
IER 11 ISTLE BENT) ST PILE No. 12		MATCH LINE - 51 A. 2393700
	OLUME 4C KA/HOPKINS	SHEET 140
		OF
LINE:	RVEY PLAN 4	158
STRUCTURES	CBRR0686-BRG-BOR-004	



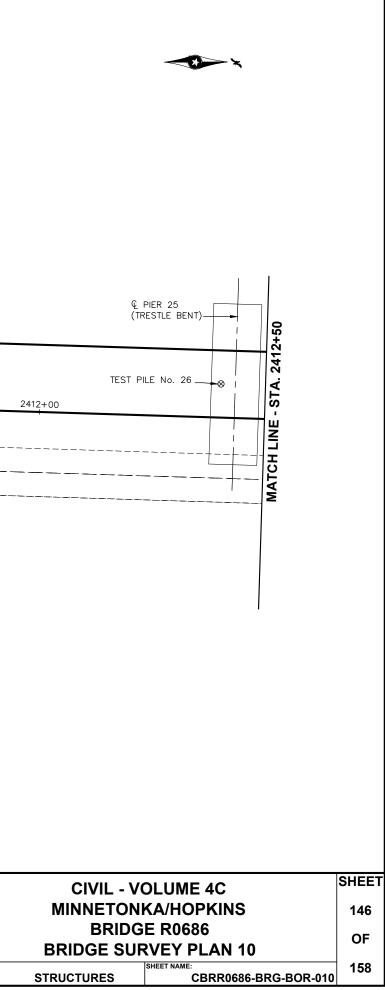




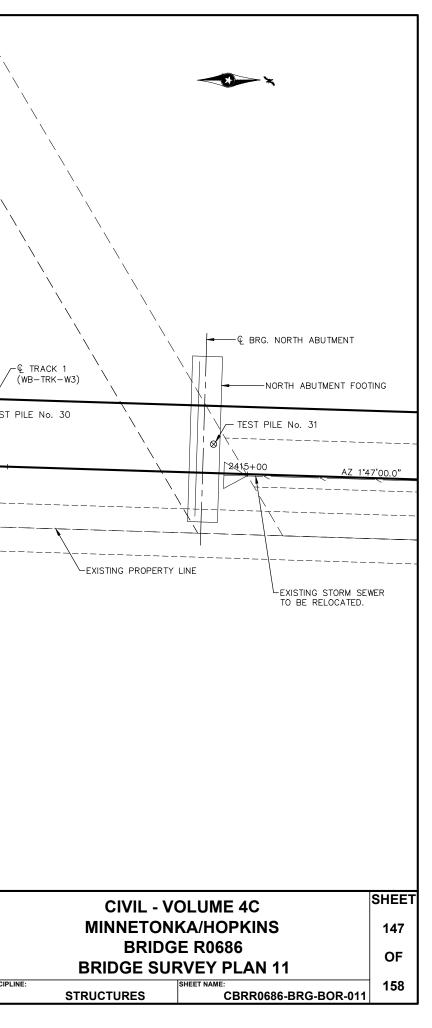


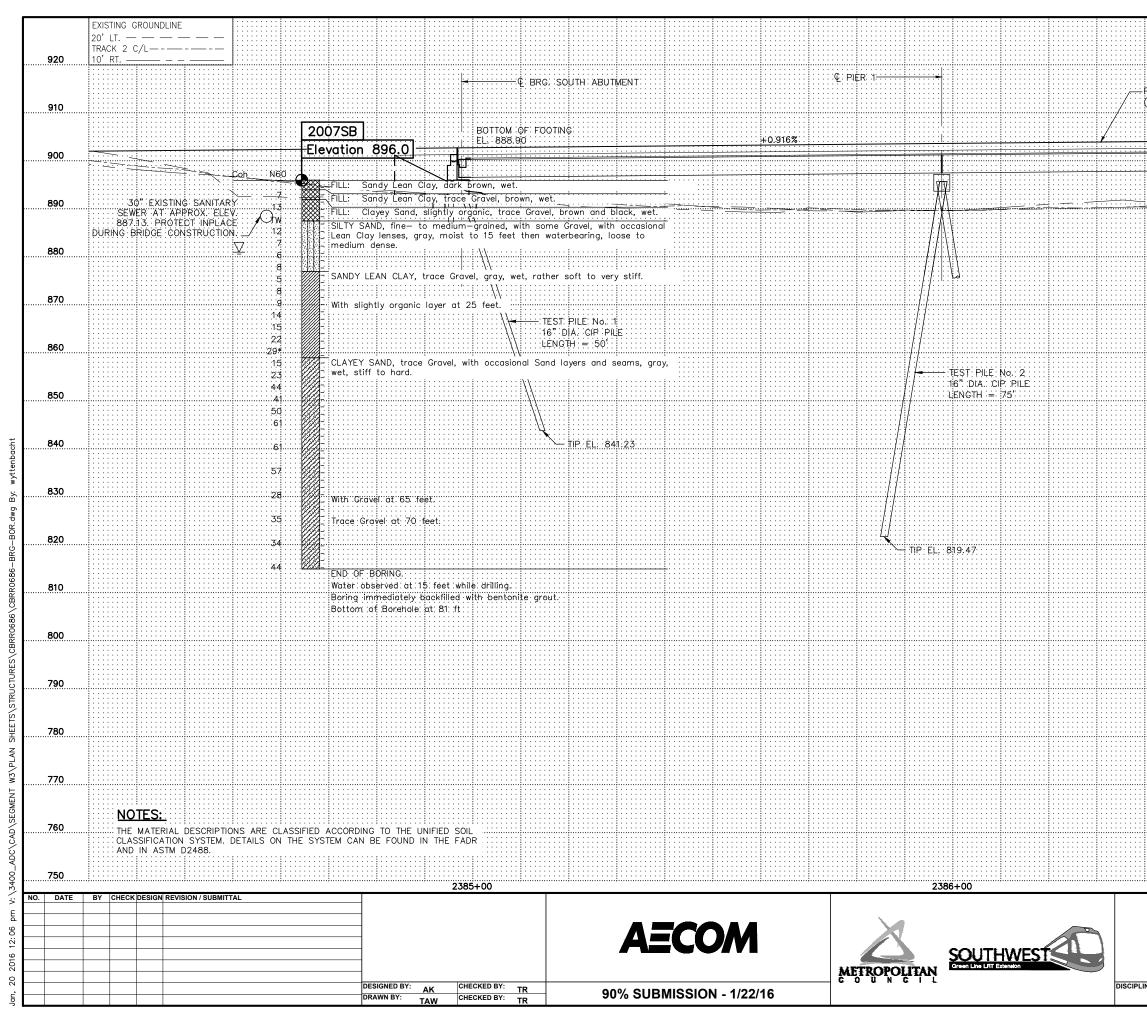


			A					
		2410+30		−€ TRACK 1 (WB−TRK−W3)		-& PIER 24		
R.dwg By: wyttenbacht		MATCH LINE - STA. 2 ST:STA 2410 47.075 X = 448940.289 X = 444884 - 240	AZ 1'47	2411+00		PIER FOOTING 24	-& TRACK 2 (EB-TRK-W3)	)
לללטביאטר לראט לפרטאבווו אט לראוו אחבוש אינופווטענוו.	NOTES: THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUA LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING	LITY						
2016 12:06 pm V:\3400_ADC\C	LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINE THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY D	S FOR		AECON			HWEST	
Jan, 20 2			ED BY: TR ED BY: TR	90% SUBMISSION - 1/22	2/16			DISCIPL

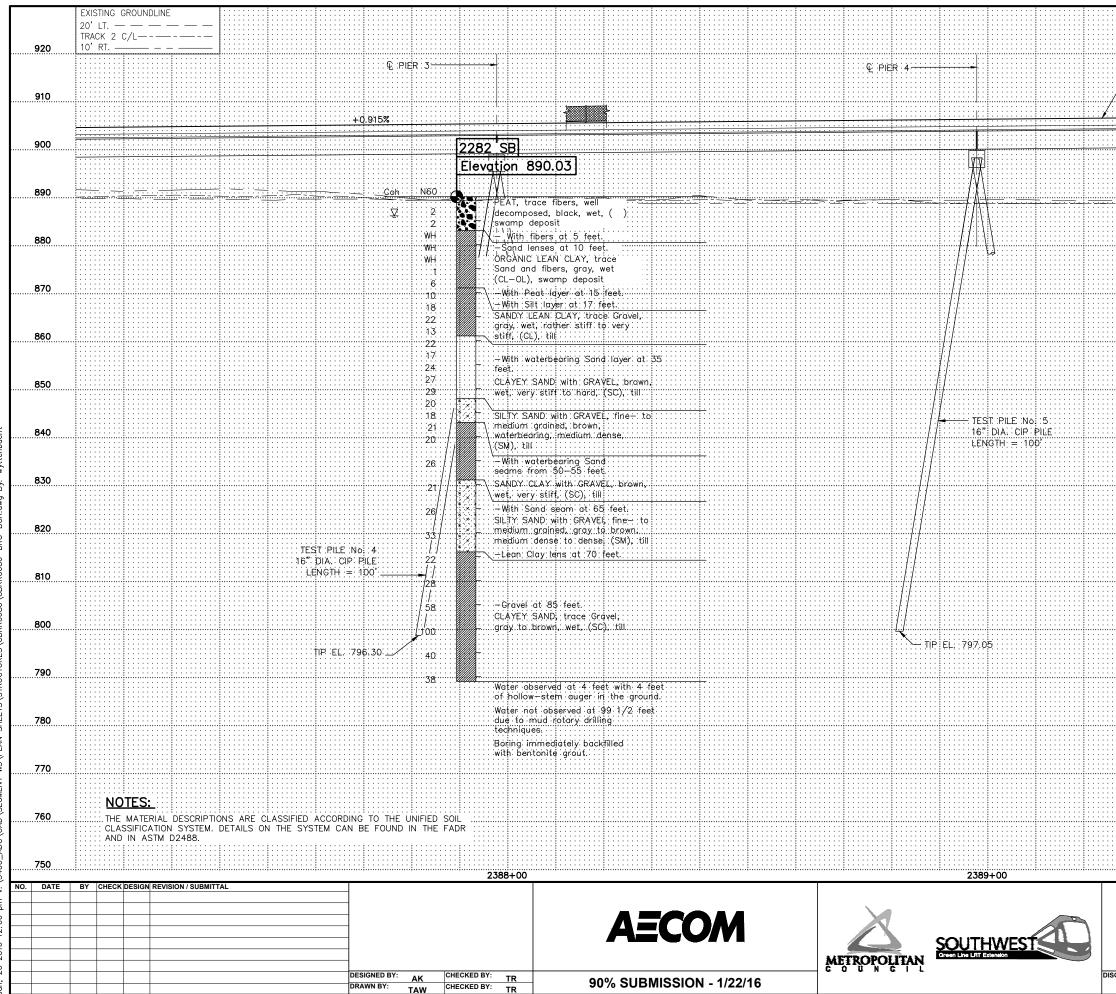


			0		1						
			. 2412+50	€ PIER 26 (TRESTLE BENT)——		€ PIER 27 (TRESTLE BEI	NT)	€ PIER 28 (TRESTLE BENT		© pier 29 ∖ (trestle bent)	-
			VE - STA.		TEST PILE	No. 27	TEST PILE No.	28	TEST PILE No. 29	\ 	TES
			ATCH LINE	AZ 1*47'00.0"	2413+00			-Q_TRACK 2	2414+00		*
			MA					(ĒB-TRK-W3)		\ 	 
THE LEVE THE	GUIDELIN	NES OF	CI/ASCI	FORMATION IN THIS PLAN IS UTILITY QUAL ITY LEVEL WAS DETERMINED ACCORDING T 38-02, ENTITLED "STANDARD GUIDELINES TION OF EXISTING SUBSURFACE UTILITY DA	S FOR						
NO. D	ATE B	Y CHEC		REVISION / SUBMITTAL	-						
					-		AEC	MO	<u>s</u>		
					DESIGNED BY: AK DRAWN BY: TAW	CHECKED BY: TR CHECKED BY: TR	90% SUBMISSIC	DN - 1/22/16			DISCI





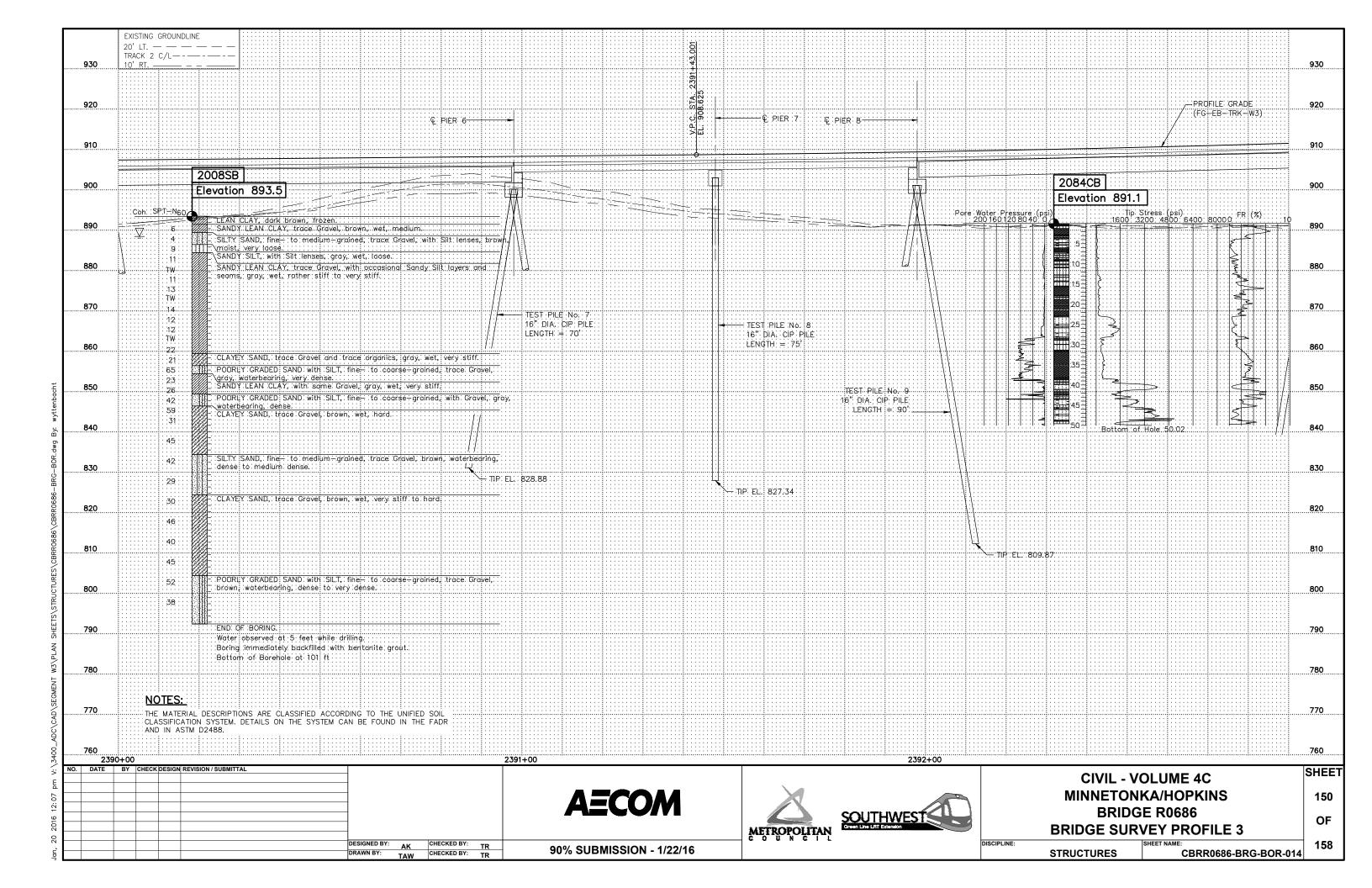
		920		
PROFILE : GRADE: (FG-EB-TRK-W3)		910		
		900		
		890		
		880		
		870		
		870		
		860		
TEST PILE	No: 3			
16": DIA : CIF LENGTH	P. PILE = 85 <sup>1</sup>	850		
		840		
		830		
		820		
	TIP-EL: 810:55	810		
		800		
		790		
		780		
		780		
		770		
		760		
<u></u>	2387+00	750		
CIVIL - VOLUME 4C				
	E R0686 VEY PROFILE 1	OF		
	SHEET NAME: CBRR0686-BRG-BOR-012	158		
UTRUCTURED		I		

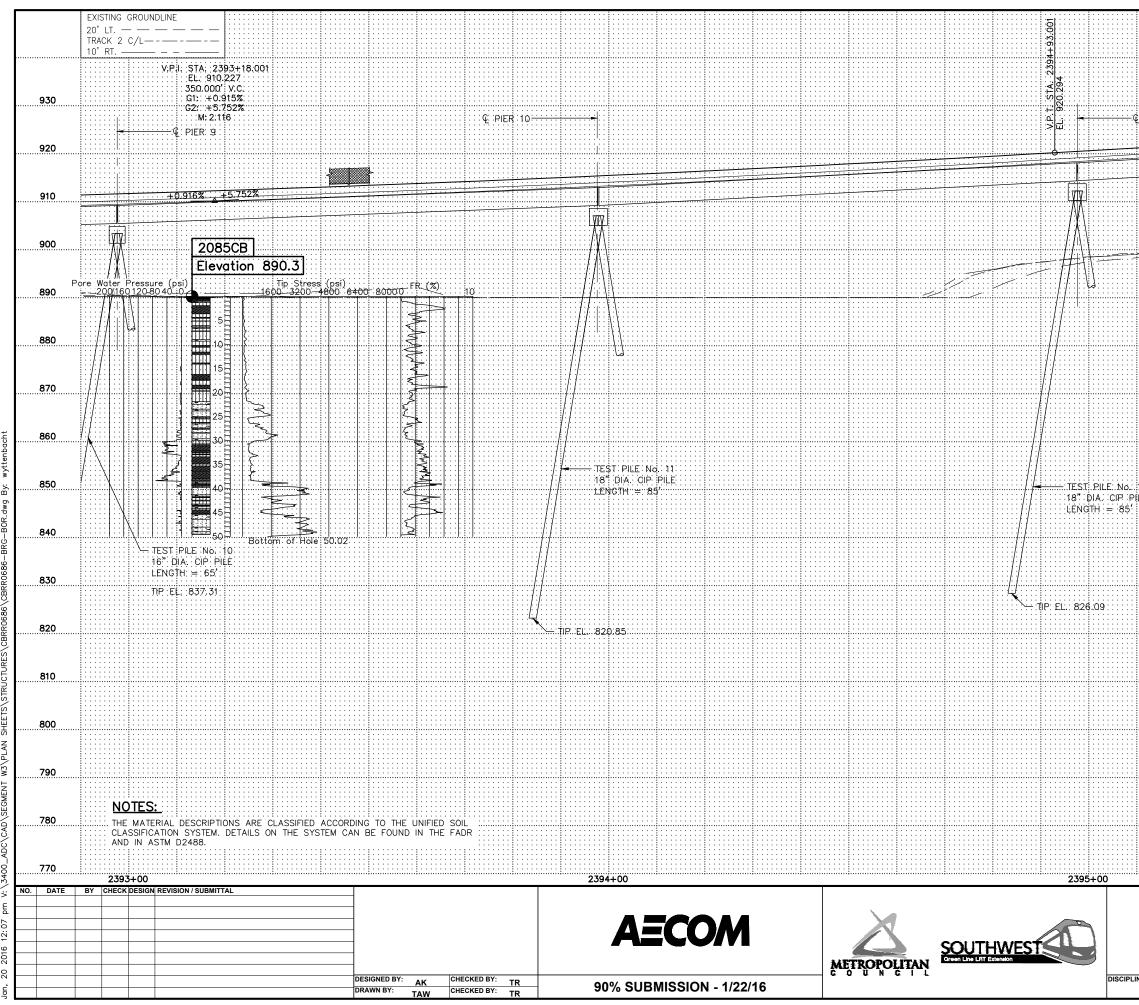


20 2016 12:06 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBRR0686\CBRR0686-BRC

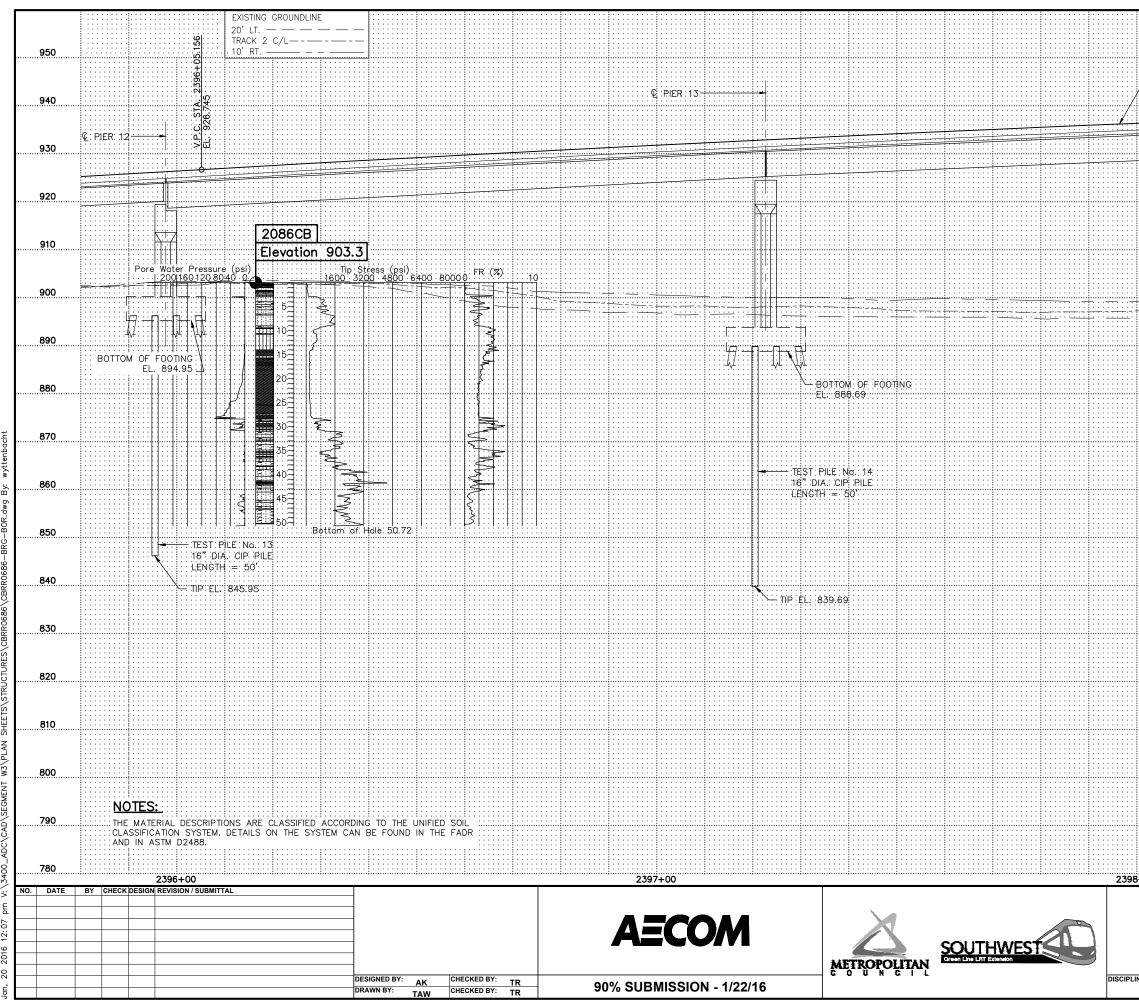
DISCIPLIN

	920			
	910			
	900			
<u> </u>	890			
	880			
	870			
	860			
TEST∵PILE: Nø.: 6. 16" :DIA.: CIP: PILE LENGTH = :75'	850			
	840			
	830			
TIP: EL: 823.13	820			
	810			
	800			
	790			
	780			
	770			
	760			
2390+00	750 SHEET			
MINNETONKA/HOPKINS				
BRIDGE R0686 BRIDGE SURVEY PROFILE 2				
NE: STRUCTURES STRUCTURES CBRR0686-BRG-BOR-013	158			

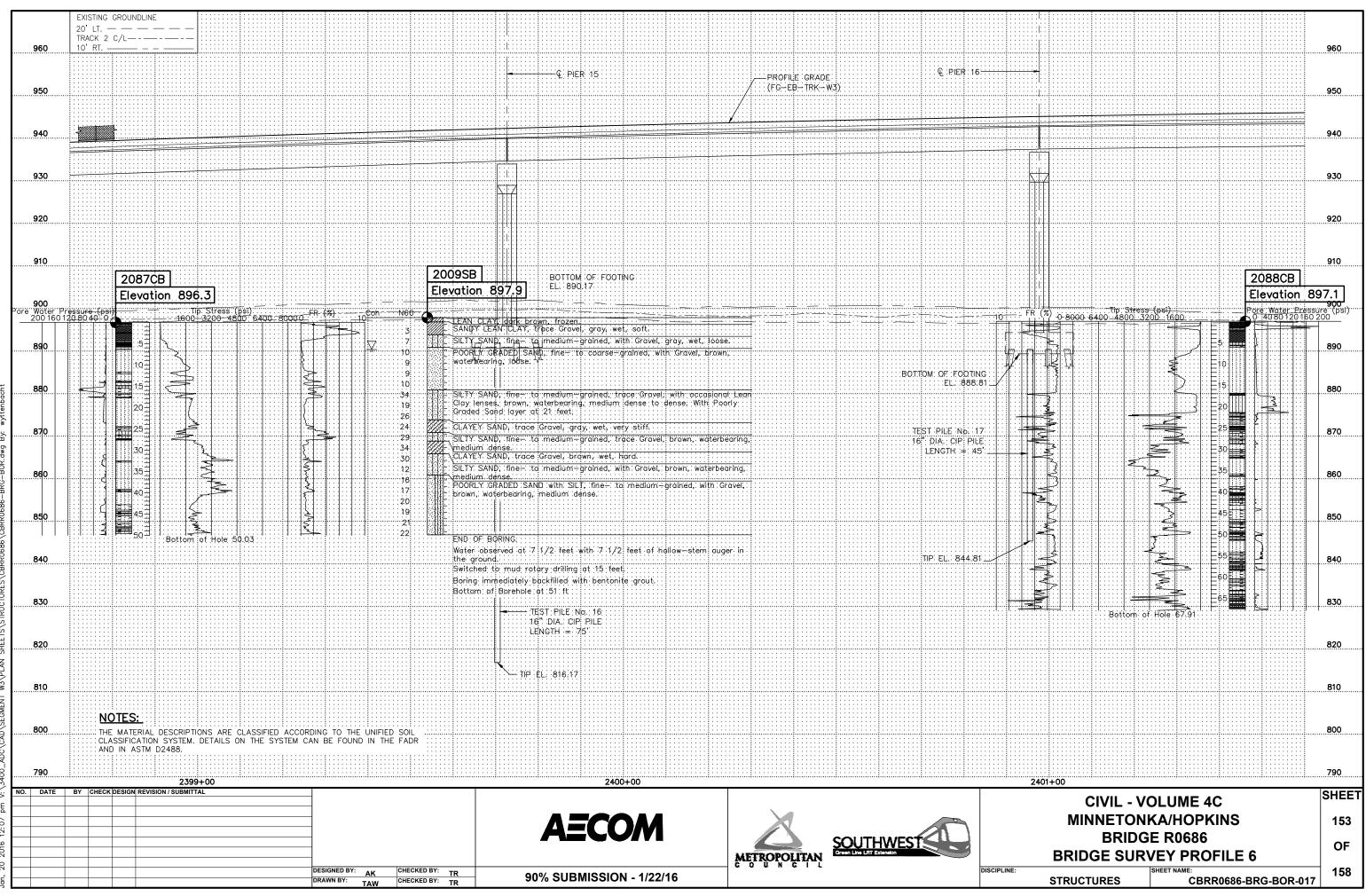




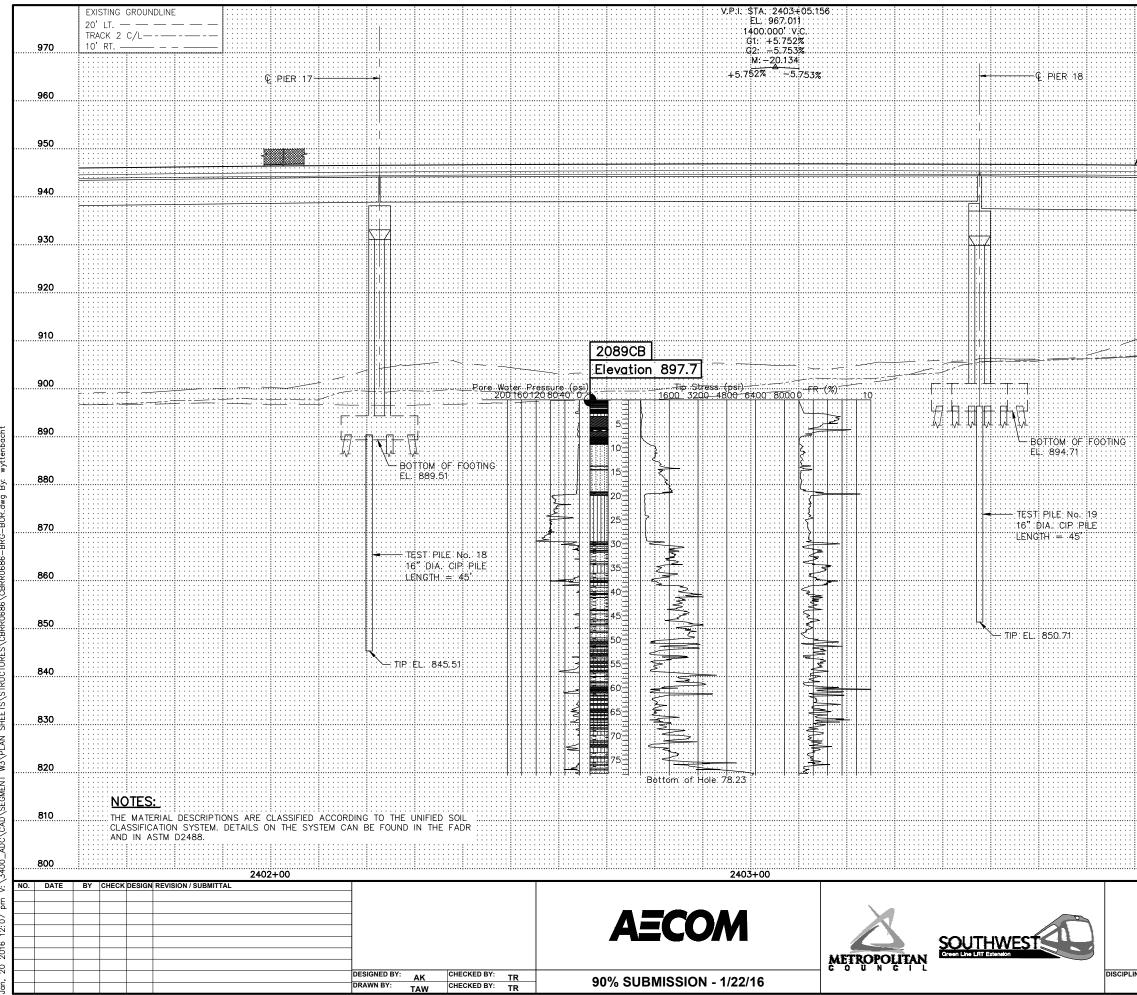
PROFILE: GRADE 	930			
2 PIER: 11.	920			
	910			
	900			
	890			
	880			
	870			
	860			
12	850			
ίμε	840			
	830			
	820			
	810			
	800			
	790			
	780			
	770			
CIVIL - VOLUME 4C MINNETONKA/HOPKINS				
BRIDGE SURVEY PROFILE 4				
INE: STRUCTURES STRUCTURES CBRR0686-BRG-BC	DR-015			



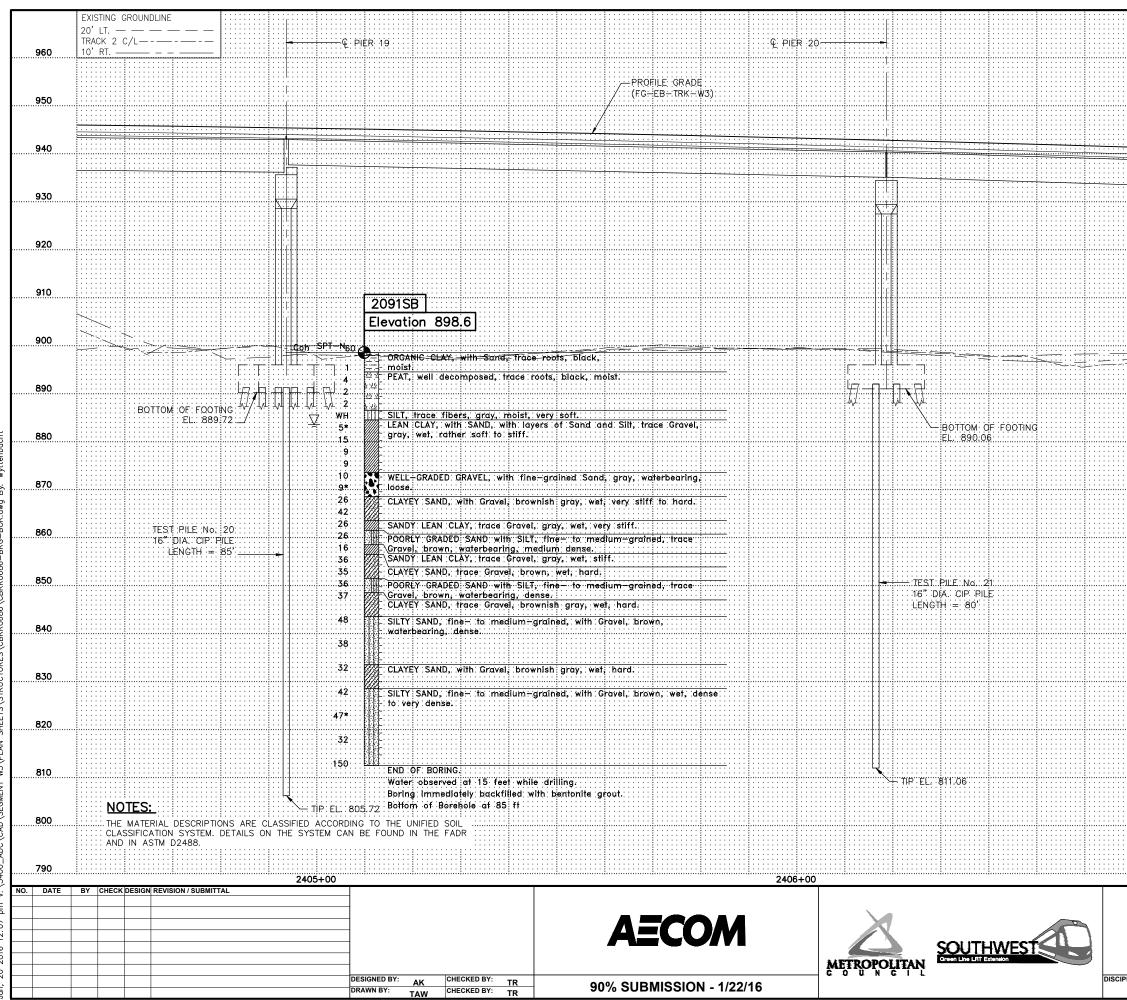
	950			
, — PROFILE: GRADE (FG÷EB÷TRK÷₩3): € :PIER 14	0.40			
	940			
	930			
	920			
	910			
	900			
	890			
BOTTOM :OF: FQOTING: : //:	880			
TEST. PILE: No.: 15 :	970			
167. DIA: CIP. PILE LENGTH = :45	870			
	860			
	850			
TIP-EL: 844.90	840			
	830			
	820			
	810			
	800			
	800			
	790			
	780			
CIVIL - VOLUME 4C	SHEET			
MINNETONKA/HOPKINS				
BRIDGE R0686 BRIDGE SURVEY PROFILE 5	OF			
NE: STRUCTURES SHEET NAME: CBRR0686-BRG-BOR-016	158			



sn, 20 2016 12:07 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBRR0686\CBRR0686-BRG-BRG-BOR.dwg By

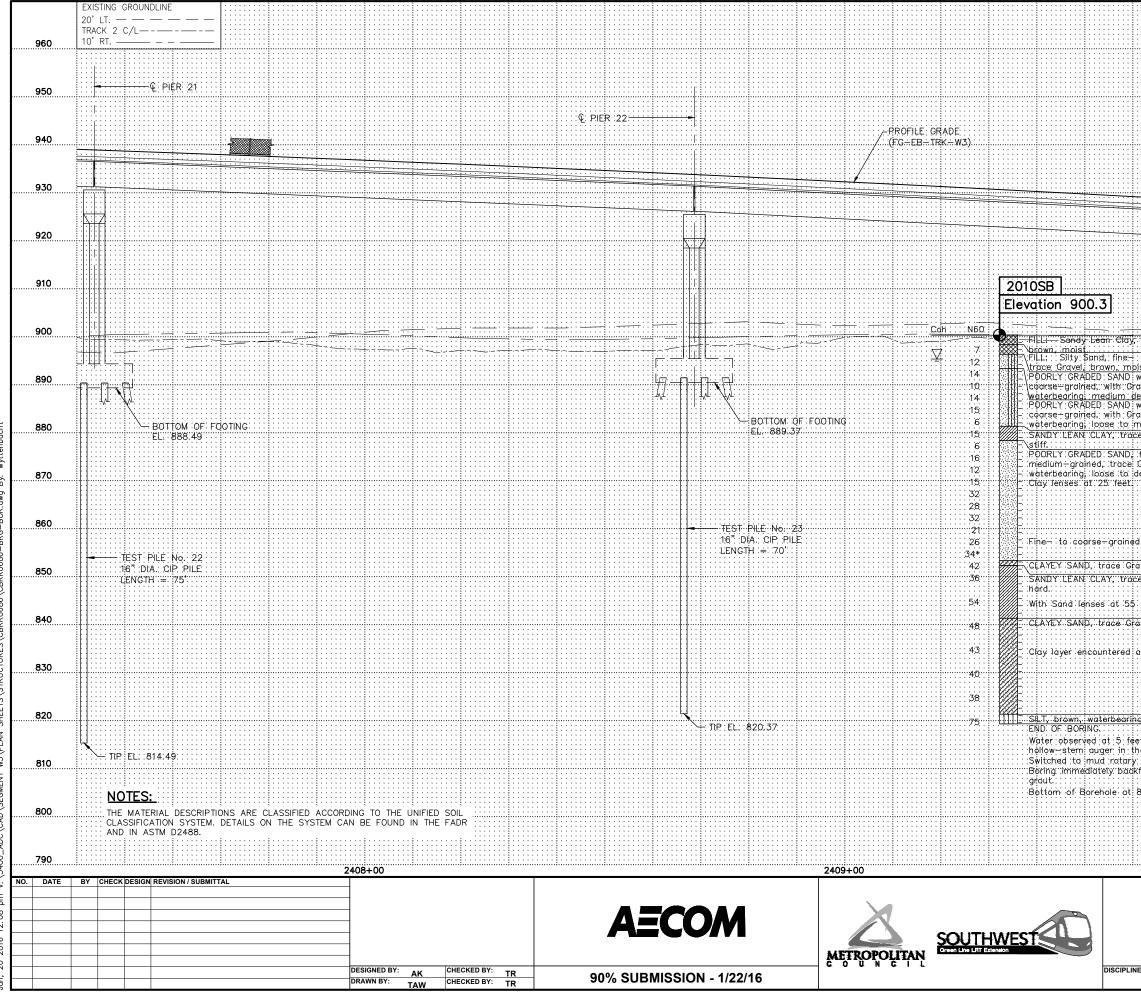


	970 960				
(FC-EB-TRK-W3)	950 940				
	930 920				
	910 900				
	890				
	880 870				
	860 850				
	840 830				
	820 810				
2404+00 CIVIL - VOLUME 4C MINNETONKA/HOPKINS					
MINNETONKA/HOPKINS BRIDGE R0686 BRIDGE SURVEY PROFILE 7					



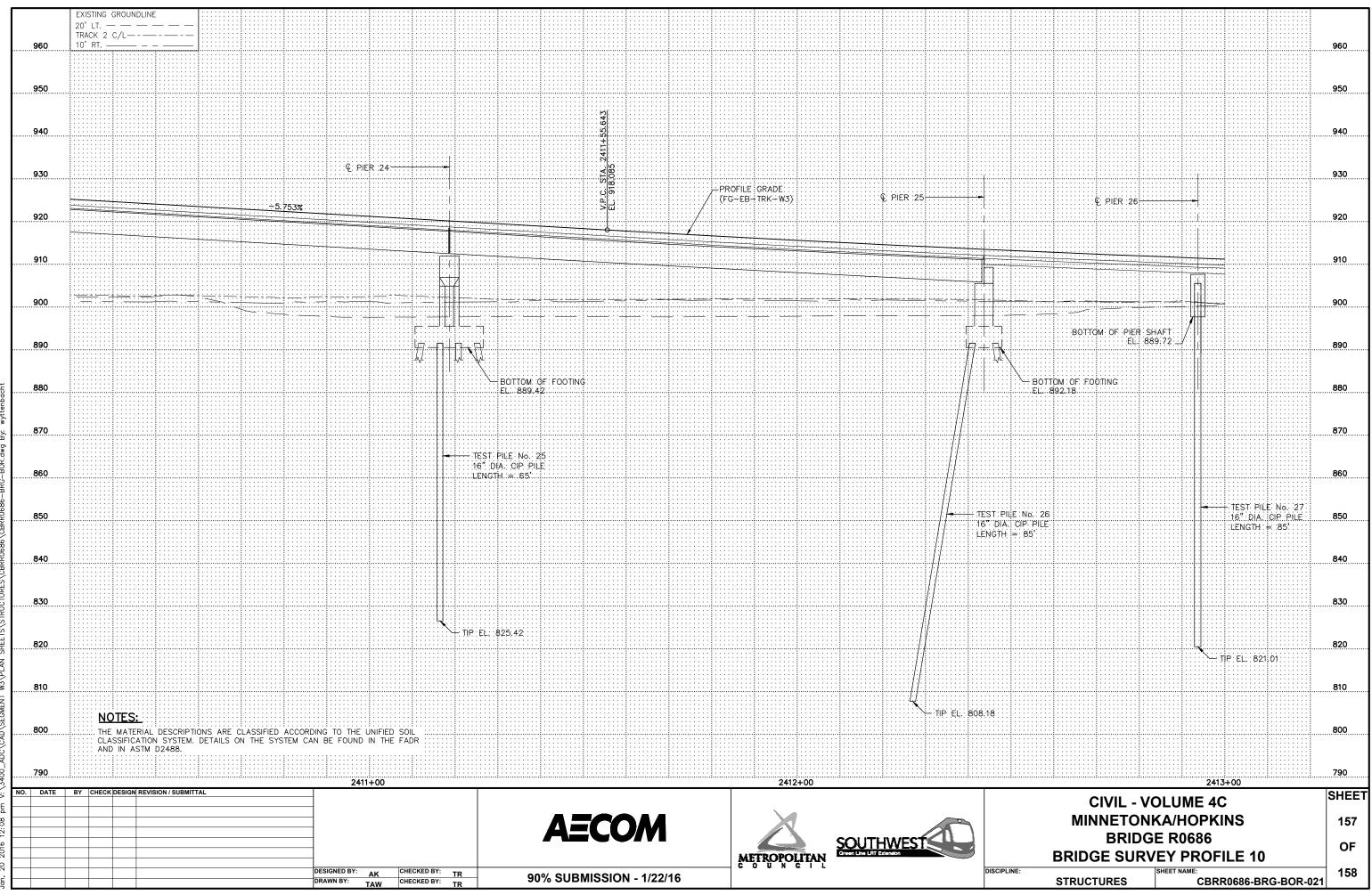
DISCIPLIN

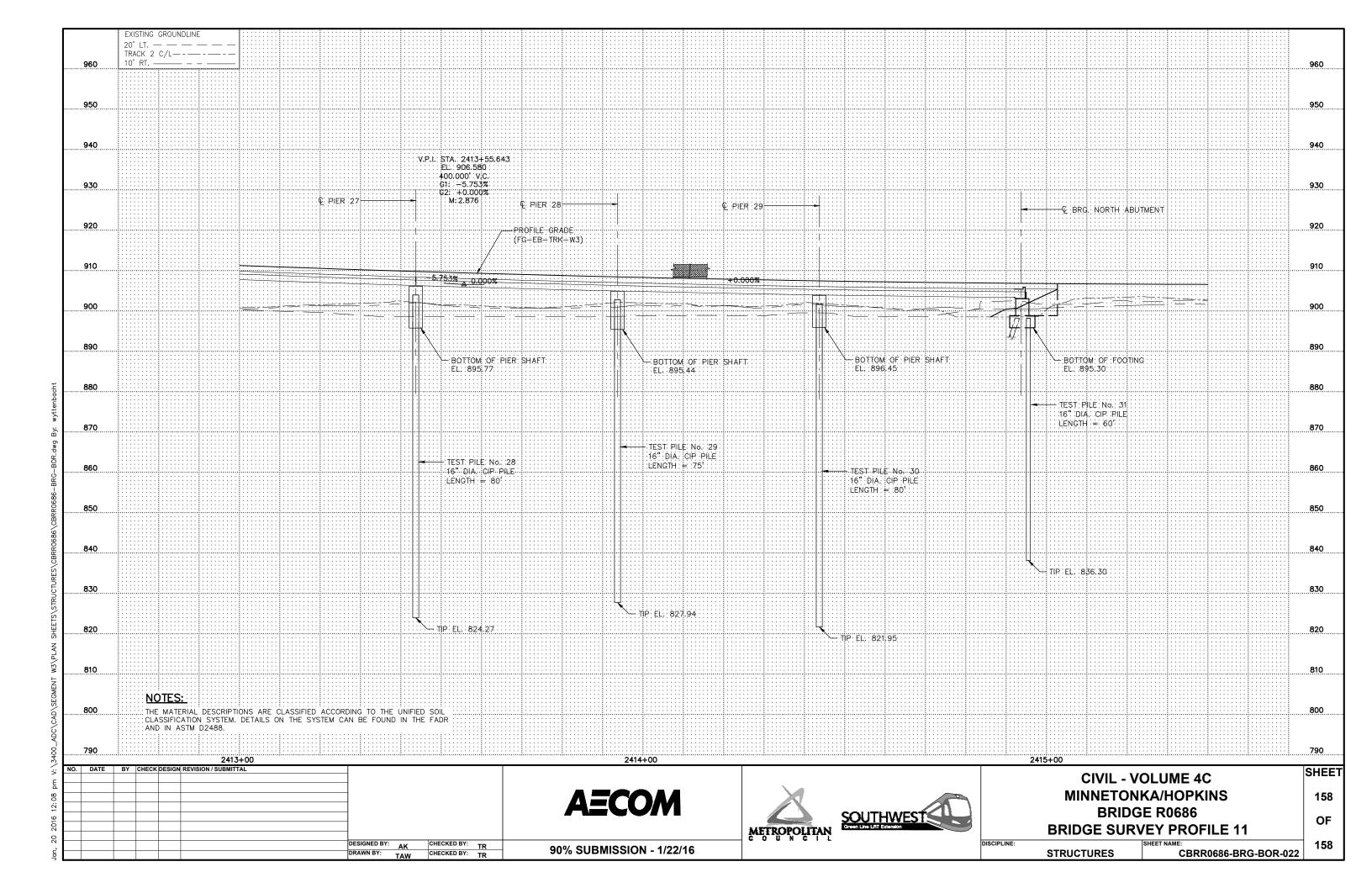
		960			
		950			
		940			
		930			
		920			
		910			
		900			
	Г <sup></sup>	890			
	Ø-				
		880			
		870			
		860			
		850			
		840			
		830			
		820			
		810			
		800			
2407+	00	790			
CIVIL - VOLUME 4C					
MINNETONKA/HOPKINS BRIDGE R0686					
BRIDGE SUP	<b>RVEY PROFILE 8</b>	OF 158			
STRUCTURES STRUCTURES					

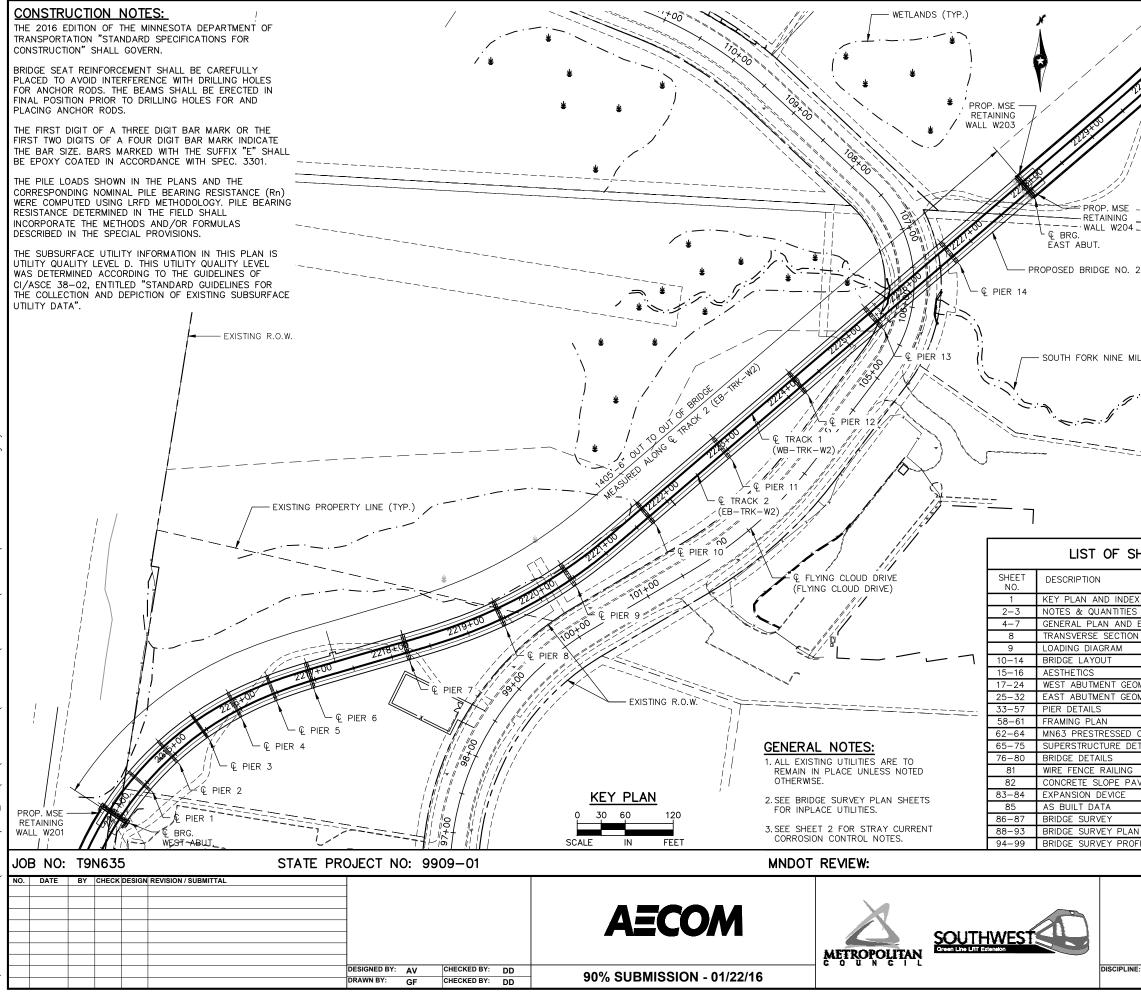


a. 20 2016 12:08 pm V:\3400 ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBRR0686\CBRR0686-BRG-BRG-BORdwa Bv

		960		
	ω			
	05:15	950		
	+0+			
	.T. STA: 2410+05.156 926.742	940		
©: PIER :23				
		930		
		920		
	7	910		
		900		
; trace Grever, dark				
pist. with :SILT; fine— :to		890		
ravel, brown, <u>(,/</u>				
avith SILI; inne⊢ to ravel, brown, medium dense.	BOTTOM: OF FOOTING EL: 890.71	880		
ce Gravel, gray, wet,				
.finé-: to Gravel, brown, dénsé. With: Sandy Léan		870		
	·······TEST PILE No. 24 16" DIA. CIP. PILE LENGTH :≑: 65':			
ed∶at∶42∶feet.				
avel, brown, wet, hard.				
ce Gravel, brown, wet,		. 850		
5 feet.				
avel, brown, wet, hard.		840		
at 65 feet.				
		830		
~	└── TIP_EL: 826.71			
ng, very dense		820		
et with 5 feet of the ground				
y: drilling: at : 15: feet. kfilled :with bentonite		810		
81: ft				
		800		
	2410+00	790		
		SHEET		
CIVIL - VOLUME 4C MINNETONKA/HOPKINS				
	E R0686	156 OF		
BRIDGE SURVEY PROFILE 9				
	SHEET NAME: CBRR0686-BRG-BOR-020	158		
STRUCTURES				







/ //8//	DESIGN DATA	
/ <b>//</b> //	2014 AASHTO LRFD BRIDGE DESIGN SPECIFICATI EDITION AND SUBSEQUENT INTERIM SPECS. THR	
	METRO LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 4.0).	
Ê.	LOAD AND RESISTANCE FACTOR DESIGN METHOD	D.
	LRV & MV LOAD DIAGRAM SHOWN ON SHEET 9	OF 99.
/  /  /  /	MATERIAL DESIGN PROPERTIES: REINFORCED CONCRETE: f'c = 4000 PSI, n = 8 fy = 60000 PSI	
	PRESTRESSED CONCRETE:	
	f'c = 9000 PSI, n = 1 fpu = 270 KSI 0.6" DIAMETER LOW RELAXATION STR	
	0.75 fpu FOR INITIAL PRESTRESS	AND3
	DESIGN SPEED: OVER = 25/55 MPH (LRT) UNDER = 30 MPH	
27C07	APPROXIMATE DECK AREA: 47,200 SQ. FT.	
IILE CREEK		
ú		
,		
BHEETS		
X		
S ELEVATION		
N		
	BRIDGE NO. 27C07	
OMETRICS OMETRICS	SOUTHWEST LIGHT RAIL OVER FLYING CLOUD	
	0.5 MI NORTHEAST OF THE INTERSECTION OF AND VALLEY VIEW ROAD IN EDEN PRAIRI	TH 212 E
CONCRETE BEAM DETAILS	100' & 125' PRESTRESSED CONCRETE BEAM 50' SLAB SPANS	
ETAILS	32'-6" RAILWAY 0'-0'-0" SKEW	
AVING	BRIDGE ID NO 501 BRIDGE & 209 APPRO KEY PLAN	ACH
	SEC 12 T 116N R 22W	
N	CITY OF EDEN PRAIRIE HENNEPIN COL	JNTY
DFILE	APPROVED:	
	STATE BRIDGE ENGINEER	DATE
	- VOLUME 4C	SHEET
	MILE CREEK	1
		OF
IE:	AN AND INDEX	99
STRUCTURES	CBR27C07-BRG-KEY-001	

### STRAY CURRENT CORROSION CONTROL NOTES

- BLACK REINFORCING STEEL IN THE DECK AND PLINTH BLOCKS SHALL BE MADE ELECTRICALLY CONTINUOUS WITHIN THE DECK AND PLINTH BLOCKS AND WITH RESPECT TO EACH OTHER. SEE SHEET E0-SYS-CORR-DTL-001.
- ALL BLACK HORIZONTAL REBARS IN THE ABUTMENT FOOTINGS SHALL BE MADE ELECTRICALLY CONTINUOUS WITHIN FOOTING. STEEL SHELLS OF CIP PILES IN ABUTMENT FOOTINGS SHALL BE MADE ELECTRICALLY CONTINUOUS WITH WELDED 2. BLACK REBAR IN FOOTING. SEE DETAILS ON SHEETS E0-SYS-CORR-DTL-001 AND 008 AND DETAIL 2 ON SHEET E0-SYS-CORR-DTL-013.
- EPOXY COATED REBAR IN PIER CAPS AND COLUMNS, ABUTMENT WALLS AND WINGWALLS AND PRECAST BEAMS SHALL BE SECURED USING NON-METALLIC OR 3. NON-METALLIC COATED TIES. EPOXY COATED REBAR IN PIER CAPS AND PRECAST BEAMS SHALL BE ELECTRICALLY ISOLATED FROM BLACK REBAR IN THE DECK.
- THE BEARINGS AT PIERS 6 THROUGH 14 AND AT EACH ABUTMENT SHALL PROVIDE ELECTRICAL ISOLATION OF THE STEEL ELEMENTS IN THE DECK FROM 4. STEEL ELEMENTS IN THE PIER CAPS.
- BONDING CABLES SHALL BE INSTALLED ACROSS ALL EXPANSION TYPE JOINTS 5. LOCATED IN THE DECK. SEE DETAILS ON SHEET EO-SYS-CORR-DTL-001. DO NOT INSTALL BOND CABLES ACROSS JOINTS THAT HAVE STRAY CURRENT BOND TEST STATIONS INSTALLED ACROSS THEM. SUFFICIENT SLACK SHALL BE AVAILABLE IN THE CABLES THAT SPAN THE EXPANSION JOINT TO ACCOUNT FOR MOVEMENT OF THE JOINT.
- LONGITUDINAL REBAR IN TRANSITION SLAB SHALL BE MADE ELECTRICALLY CONTINUOUS WITHIN SLAB. END TRANSVERSE COLLECTOR BARS SHALL BE WELDED TO ALL LONGITUDINAL REBARS AT EACH END AND IN EACH REBAR LAYER OF THE TRANSITION SLAB. TOP AND BOTTOM REBAR LAYERS SHALL BE WELDED TOGETHER USING 1/2" X 2" STEEL STRAPS INSTALLED 2 PER TRACK AT EACH END OF TRANSITION SLAB. #1/0 AWG CABLES (2 PER TRACK) SHALL BE WELDED TO END TRANSVERSE COLLECTOR BAR NEAREST ABUTMENT AND TERMINATED IN JUNCTION BOX ALONG BRIDGE THAT HOUSES WIRES FROM WELDED BLACK REBAR IN DECK SLAB AND FROM THE GROUND ROD ARRAY. SEE DETAIL 4 ON SHEET E0-SYS-CORR-DTL-012. SUFFICIENT SLACK SHALL AVAILABLE IN THE CABLES THAT SPAN THE EXPANSION JOINT TO ACCOUNT FOR MOVEMENT OF THE JOINT.
- INSTALL STRAY CURRENT BOND TEST STATION ALONG BRIDGE HOUSING TWO 7. #1/0 AWG CABLES FROM WELDED BLACK REBAR IN DECK SLAB, TWO #1/0 AWG CABLES FROM WELDED REBAR IN TRANSITION SLAB, ONE 250 MCM CABLE FROM GROUND ROD ARRAY AT BASE OF ABUTMENT AND TWO #22 CABLES FROM SILVER/SILVER CHLORIDE REFERENCE ELECTRODE EMBEDDED IN DECK SLAB. SEE DÉTAIL 1 ON SHEET E0-SYS-CORR-DTL-002 AND DETAIL 4 ON SHEET EO-SYS-CORR-DTL-012. SEE NOTE 10. SUFFICIENT SLACK SHALL BE AVAILABLE IN THE CABLES THAT SPAN THE EXPANSION JOINT TO ACCOUNT FOR MOVEMENT OF THE JOINT.
- INSTALL STRAY CURRENT BOND TEST STATION ALONG BRIDGE HOUSING TWO 8. #1/0 AWG CABLES FROM EACH TRANSVERSE COLLECTOR BAR ON EACH SIDE OF THE EXPANSION JOINT IN THE DECK SLAB. SEE DETAIL 2 ON SHEET E0-SYS-CORR-DTL-003 AND DETAIL 1 ON SHEET E0-SYS-CORR-DTL-012. SEE NOTE 10. SUFFICIENT SLACK SHALL BE AVAILABLE IN THE CABLES THAT SPAN THE EXPANSION JOINT TO ACCOUNT FOR MOVEMENT OF THE JOINT.
- INSTALL STRAY CURRENT TEST STATION ON NORTH AND SOUTH SIDES OF EACH 9. ABUTMENT HOUSING TWO 1/0 AWG CABLES FROM ELECTRICALLY CONTINUOUS REBAR AND CORNER PILES IN FOOTING AND ONE #14 AWG HMWPE CABLE FROM COPPER/COPPER SULFATE REFERENCE CELL. SEE NOTE 10. SEE DETAIL 4 ON SHEET E0-SYS-CORR-DTL-003 AND DETAIL 2 ON SHEET E0-SYS-CORR-DTL-013. REFERENCE CELL SHALL BE INSTALLED IN SOIL WITHIN 1-FOOT OF PILE AND 1-FOOT BELOW BOTTOM OF FOOTING.
- 10. ALL STRAY CURRENT TEST STATIONS SHALL BE INSTALLED AT LOCATIONS WHERE THEY WILL BE ACCESSIBLE AFTER COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND DURING REVENUE OPERATIONS OF THE LRT SYSTEM.
- 11. INSTALL STRAY CURRENT GROUND ROD ARRAY NEAR BASE OF ABUTMENT. GROUND ROD ARRAY SHOULD EXHIBIT A MAXIMUM RESISTANCE TO EARTH OF 25 OHMS. USE 250 MCM THWN CABLE TO INTERCONNECT GROUND RODS AND AS GROUND CABLE BETWEEN STRAY CURRENT TEST STATIONS AT ENDS OF BRIDGE STRUCTURE. 250 MCM CABLE SHALL RUN INSIDE 2" SCH 80 PVC CONDUIT THAT IS EMBEDDED WITHIN ABUTMENT. SEE DETAILS 3 AND 4 ON SHEET E0-SYS-CORR-DTL-013.

NO.	DATE E	BY CI	IECK DESIGN	REVISION / SUBMITTAL	-							SHEET
					-			×		CIVIL -	/OLUME 4C	
										NINE M	ILE CREEK	2
							AELUM			BDID	GE 27C07	
									SOUTHWEST			OF
					-			METROPOLITAN	Green Line LRT Extension	STRAY CURRENT/COP	RROSION CONTROL NOTE	
								COUNCIL		DISCIPLINE:		
						CHECKED BY: IKS	90% SUBMISSION - 01/22/16					99
					DRAWN BY: GF	CHECKED BY: JPJ/DD				STRUCTURES	CBR27C07-BRG-GPE-001	

12.

14.

NO SPECIAL STRAY CURRENT CORROSION CONTROL MEASURES ARE REQUIRED IN REGARD TO MSE WALLS W201, W203 AND W204.

THE CONCRETE/SOIL INTERFACE ALONG EACH STEEL SLEEVE FOR THE CIP PILES UNDER THE FOOTINGS FOR THE EAST AND WEST ABUTMENTS AND PIERS 1 THROUGH 14 SHALL BE COATED WITH A DIELECTRIC COATING OR HEAT SHRINK SLEEVE. THE COATING SHALL EXTEND INTO THE CONCRETE FOOTING AT LEAST 6-INCHES AND EXTEND A MINIMUM OF 18-INCHES INTO THE SOIL ALONG THE EXTERNAL PILE SURFACE BELOW THE BOTTOM OF THE FOOTING. A COATING OR SLEEVE IS ONLY REQUIRED AT PIERS WHERE THE PIER CAP/STEEL PILE SHELL INTERFACE WILL BE BURIED BY SOIL OR IN VERY CLOSE PROXIMITY (6-INCHES OR LESS) TO FINAL GRADE ELEVATION.

AT PIERS 1 THROUGH 5 MAINTAIN ELECTRICAL ISOLATION OF WELDED BLACK REBAR IN THE DECK FROM EPOXY COATED REBAR IN THE PIER CAPS. MAINTAIN ELECTRICAL ISOLATION OF THE EPOXY COATED REBAR IN THE PIER CAPS FROM THE STEEL SHELLS OF THE CIP PILES. WITHIN THE PIER CAPS ELECTRICALLY INTERCONNECT THE STEEL SHELLS OF THE CIP PILES USING TWO INSULATED #1/0 AWG CABLES. SEE DETAIL 2 ON SHEET EO-SYS-CORR-DTL-008, BUT USE TWO#1/0 AWG BONDING CABLES INSTEAD OF ONE PILE-TO-PILE BONDING PILE AND DO NOT BOND THE PILE SHELLS TO THE EPOXY COATED REBAR IN THE PIER CAPS.IF THE STEEL PILE SHELLS WILL NOT BE ACCESSIBLE AFTER CONSTRUCTION AND DURING OPERATION OF THE LRT LINE, THEN THERMITE WELD TWO #1/0 AWG TEST WIRES ONTO ONE OF THE END PILE SHELLS (SEE DETAIL 2 ON SHEET EO-SYS-CORR-DTL-008) AND TERMINATE THE TEST WIRES IN AN ABOVE GRADE STRAY CURRENT TEST STATION MOUNTED ONTO THE PIER CAP OR PILE SHELL (SEE DETAIL 4 ON SHEET E0-SYS-CORR-DTL-003). A COPPER/COPPER SULFATE REFERENCE CELL SHALL ALSO BE INSTALLED WITHIN 1-FOOT OF THE END PILE AT ADEPTH OF 3-FEET BELOW FINAL GRADE ELEVATION.

	SCHEDULE C	OF QUANTITIES		
SPEC. SECTION(3)	ITEM		UNIT	QUANTITY
_	BRIDGE 27C07		LUMP SUM	LS

	COMPONENT ITEM SUMMARY (BRID	GE 270	:07)
SPEC SECTION (3)	COMPONENT ITEM	UNIT (2)	QUANTITY (2)
2401	SUPERSTRUCTURE EXCAVATION (4)	CU YD	4,253
2401	SUPERSTRUCTURE CONCRETE (1G52)	CU YD	642
2401	SUPERSTRUCTURE CONCRETE (3B52)	CU YD	785
2401	SUPERSTRUCTURE CONCRETE (3Y42)	CU YD	477
2401	SUPERSTRUCTURE CONCRETE (3YHPC)	CU YD	2,228
2401	REINFORCEMENT BARS	POUND	478,159
2401	REINFORCEMENT BARS (EPOXY COATED)	POUND	114,454
3741	ELASTOMERIC BEARING PAD	EA	36
2402	WATERPROOF EXPANSION DEVICE	LF	235
2402	FIXED BEARING ASSEMBLY TYPE F1	EA	40
2402	EXPANSION BEARING ASSEMBLY TYPE E1	EA	36
2405	PRESTRESSED CONCRETE BEAMS 63MN	LF	4,468
2405	DIAPHRAGM FOR TYPE 63MN PRESTRESSED BEAMS	LF	743
2411	ARCHITECTURAL CONCRETE TEXTURE (BOARD FORM)	SF	1,282
2411	ARCHITECTURAL CONCRETE TEXTURE (LIMESTONE)	SF	8,918
2411	ARCHITECTURAL CONCRETE TEXTURE (STRIATED RELIEF)	SF	168
2452	CIP CONCRETE PILING DRIVEN 12"	LF	1,230
2452	CIP CONCRETE PILING DRIVEN 16"	LF	14,775
2452	CIP CONCRETE PILING DELIVERED 12"	LF	1,230
2452	CIP CONCRETE PILING DELIVERED 16"	LF	14,775
2452	CIP CONCRETE TEST PILE 65 FT LONG 12"	EA	2
2452	CIP CONCRETE TEST PILE 60 FT LONG 16"	EA	3
2452	CIP CONCRETE TEST PILE 70 FT LONG 16"	EA	2
2452	CIP CONCRETE TEST PILE 75 FT LONG 16"	EA	1
2452	CIP CONCRETE TEST PILE 85 FT LONG 16"	EA	1
2452	CIP CONCRETE TEST PILE 90 FT LONG 16"	EA	1
2452	CIP CONCRETE TEST PILE 95 FT LONG 16"	EA	2
2452	CIP CONCRETE TEST PILE 105 FT LONG 16"	EA	4
2557	WIRE FENCE DESIGN	LF	2,811

## SCHEDULE OF QUANTITIES AND COMPONENT ITEM SUMMARY NOTES

- (1) TWO BENCHMARKS ARE REQUIRED, LOCATED AT THE SOUTHEAST CORNER AND SOUTHWEST CORNER OF THE BRIDGE. STATE WILL FURNISH DISK. BEND PRONGS OUTWARD TO ANCHOR DISK TO CONCRETE. BOTTOM OF DISK TOP TO BE PLACED FLUSH WITH CONCRETE.
- (2) QUANTITIES LISTED FOR THE COMPONENT ITEMS OF THE LUMP SUM BR 27C07 ITEM ARE FOR INFORMATION PURPOSES. ANY ADDITIONAL ITEMS OR CHANGES IN QUANTITIES REQUIRED SHALL BE PROVIDED BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION.
- (3) MEASUREMENT AND PAYMENT FOR COMPONENT ITEMS SHALL BE PART OF THE LUMP SUM PAYMENT FOR BR 27C07. REFER TO MNDOT STANDARD SPECIFICATION OR SPECIAL PROVISION FOR TECHNICAL SPECIFICATION REQUIREMENTS FOR ALL PROVISION OTHER THAN MEASUREMENT & PAYMENT REQUIREMENTS.
- (4) STRUCTURE EXCAVATIONS INCLUDE TEMPORARY SUPPORT EXCAVATION.

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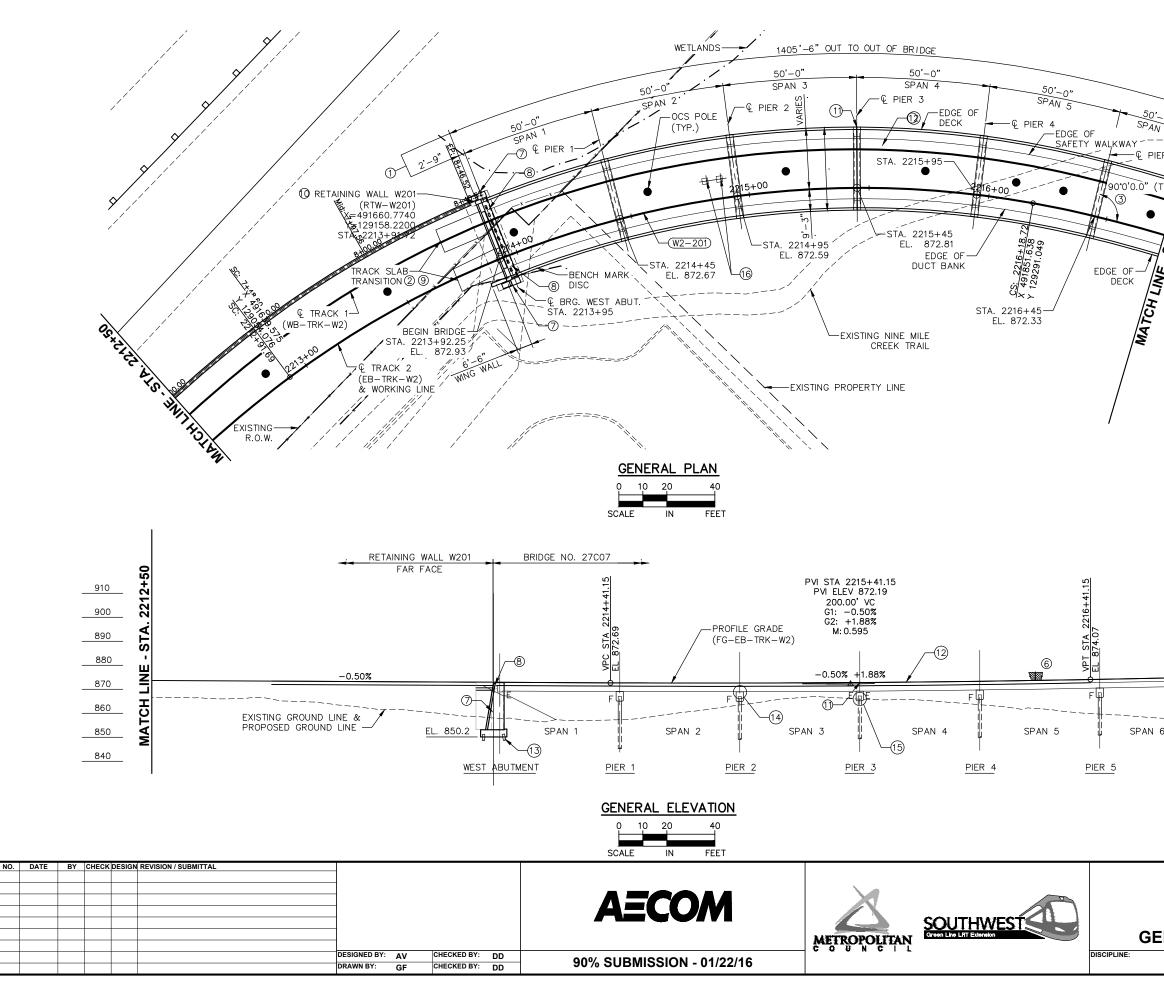
**PLAN** 

GMENT W2/

N/SF

8 2016 11:28 am F								AECOM	METROPOLITAN	SOUTHWEST Crean Ling Lift Extension	
÷.				DESIGNED BY:		CHECKED BY:		90% SUBMISSION - 01/22/16			DISCIPL
Jan				DRAWN BY:	GF	CHECKED BY:	DD	90% SUBINISSION - 01/22/16			

	CIVIL - VOLUME 4C						
	NINE MILE CREEK						
		GE 27C07	OF				
	SCHEDULE OF QUANTITIES						
LINE:	STRUCTURES	CBR27C07-BRG-GPE-002	99				



		/	1
50'-0' SPAN 6 WAY	, , 5_	1	
"0'0.0" (TYF	216+75		
OF	N T		
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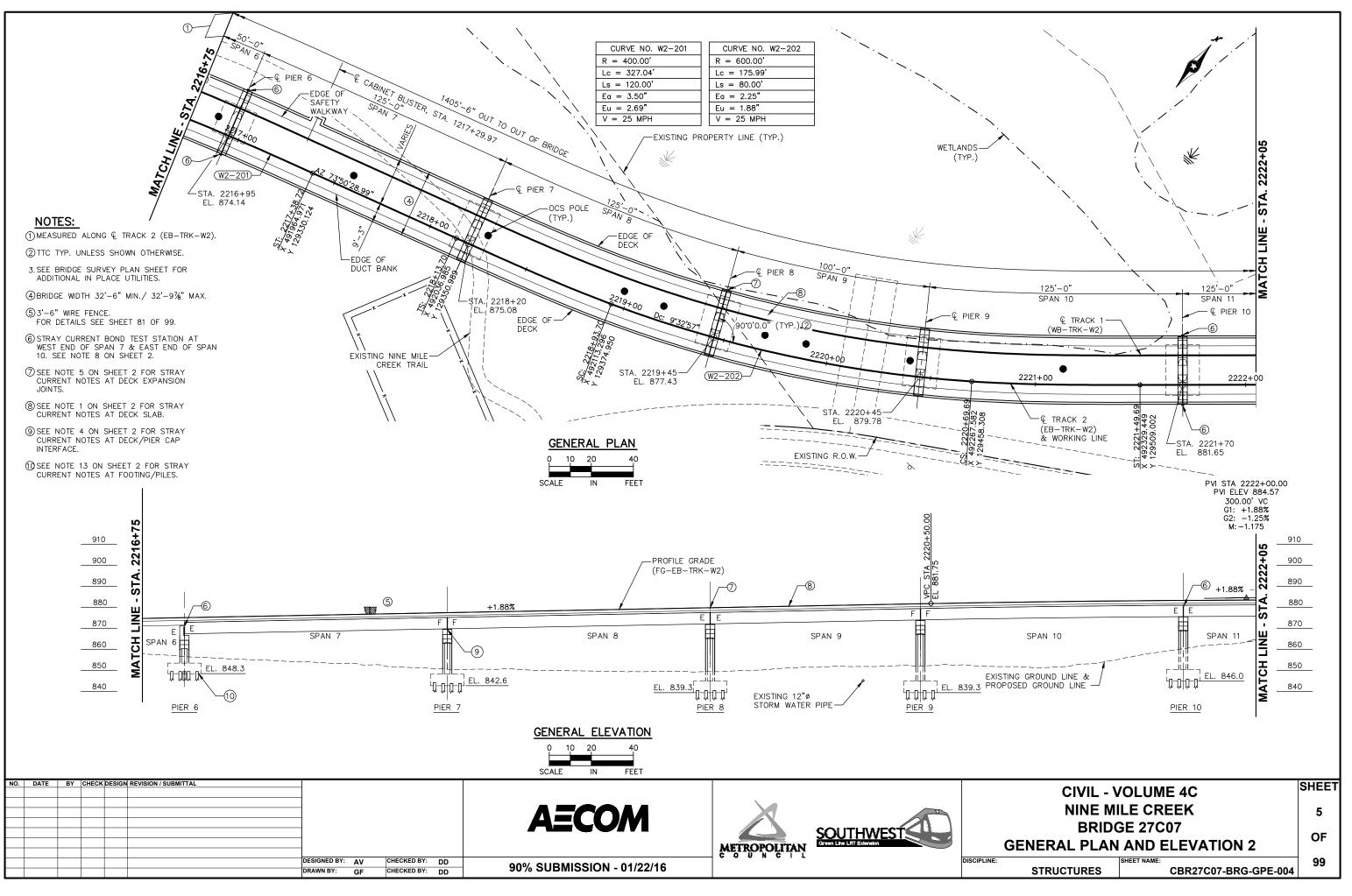
CURVE NO. W2-201
R = 400.00'
Lc = 327.04'
Ls = 120.00'
Ea = 3.50"
Eu = 2.69"
V = 25 MPH

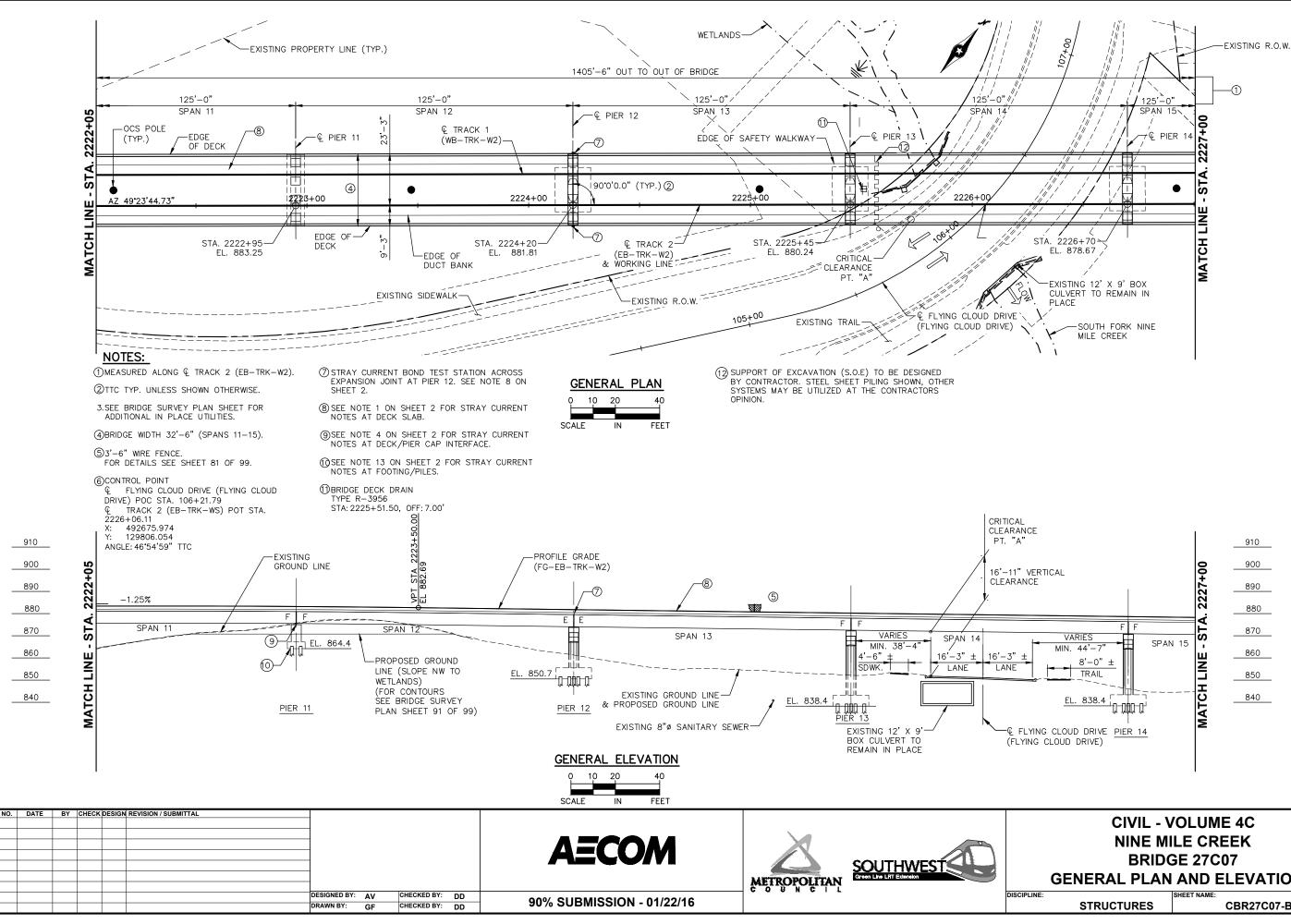
### NOTES:

MEASURED ALONG € TRACK 2 (EB-TRK-W2).

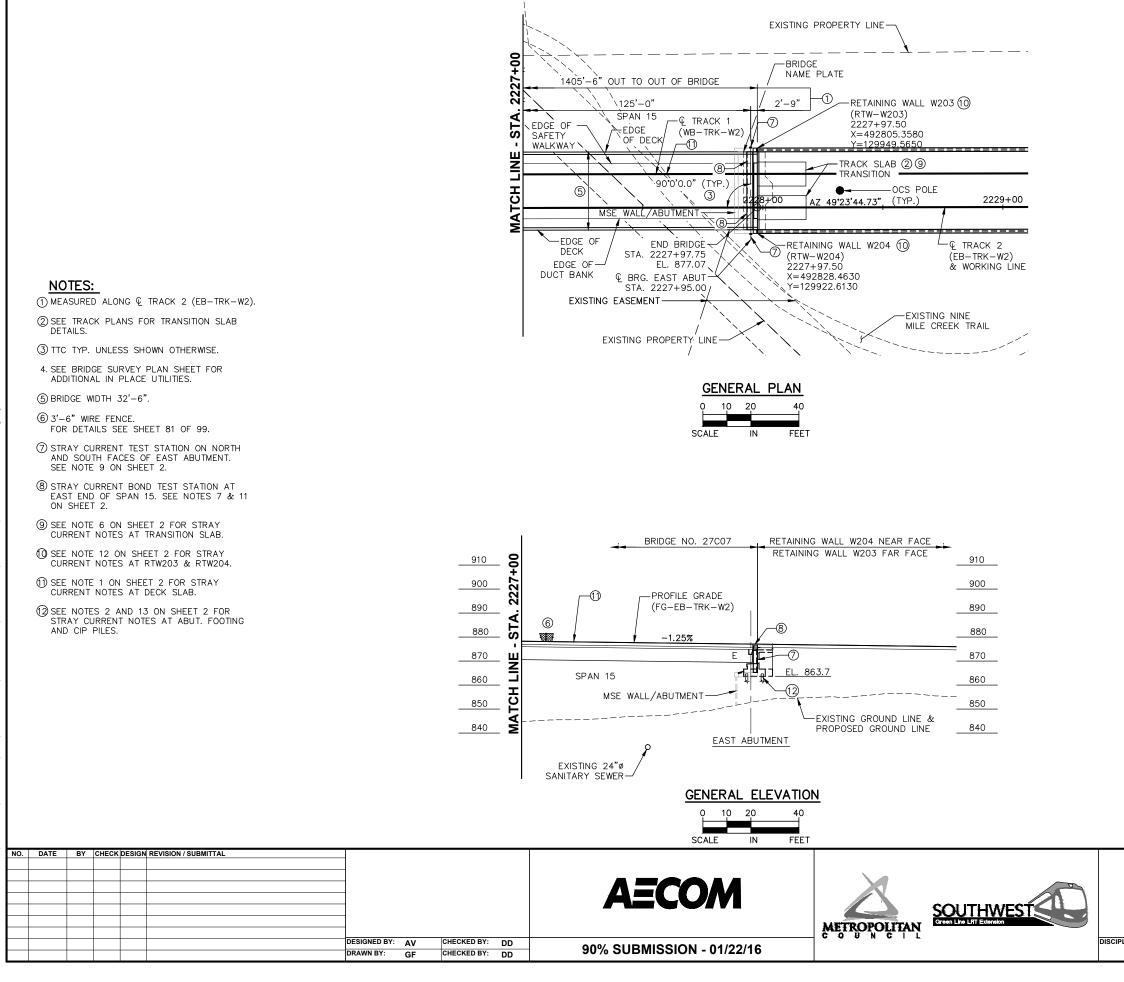
- ② SEE TRACK PLANS FOR TRANSITION SLAB DETAILS.
- (3) TTC TYP. UNLESS SHOWN OTHERWISE.
- 4. SEE BRIDGE SURVEY PLAN SHEET FOR ADDITIONAL IN PLACE UTILITIES.
- (5) BRIDGE WIDTH 32'-7%" MIN. / 35'-0%" MAX.
- 6 3'-6" WIRE FENCE. FOR DETAILS SEE SHEET 81 OF 99.
- ⑦STRAY CURRENT TEST STATION ON NORTH AND SOUTH FACES OF WEST ABUTMENT. SEE NOTE 9 ON SHEET 2.
- (8) STRAY CURRENT BOND TEST STATION AT WEST END OF SPAN 1. SEE NOTES 7 & 11 ON SHEET 2.
- 9 SEE NOTE 6 ON SHEET 2 FOR STRAY CURRENT NOTES AT TRANSITION SLAB.
- OSEE NOTE 12 ON SHEET 2 FOR STRAY CURRENT NOTES AT RTW201.
- (1) SEE NOTE 5 ON SHEET 2 FOR STRAY CURRENT NOTES AT DECK EXPANSION JOINTS.
- 12 SEE NOTE 1 ON SHEET 2 FOR STRAY CURRENT NOTES AT DECK SLAB.
- 13SEE NOTES 2 AND 13 ON SHEET 2 FOR STRAY CURRENT NOTES AT ABUT. FOOTING AND CIP PILES.
- (1) SEE NOTES 14 ON SHEET 2 FOR STRAY CURRENT NOTES AT DECK/PIER SHELL INTERFACES.
- (5) SEE NOTES 13 ON SHEET 2 FOR STRAY CURRENT NOTES AT PIER CAP/PILES/SOIL INTERFACE.
- (©BRIDGE DECK DRAIN TYPE R-3956 STA: 2214+83.15, OFF: 8.25' STA: 2214+89.15, OFF: 8.25'

CIVIL - VOLUME 4C SHEET NINE MILE CREEK 4 BRIDGE 27C07 GENERAL PLAN AND ELEVATION 1 99

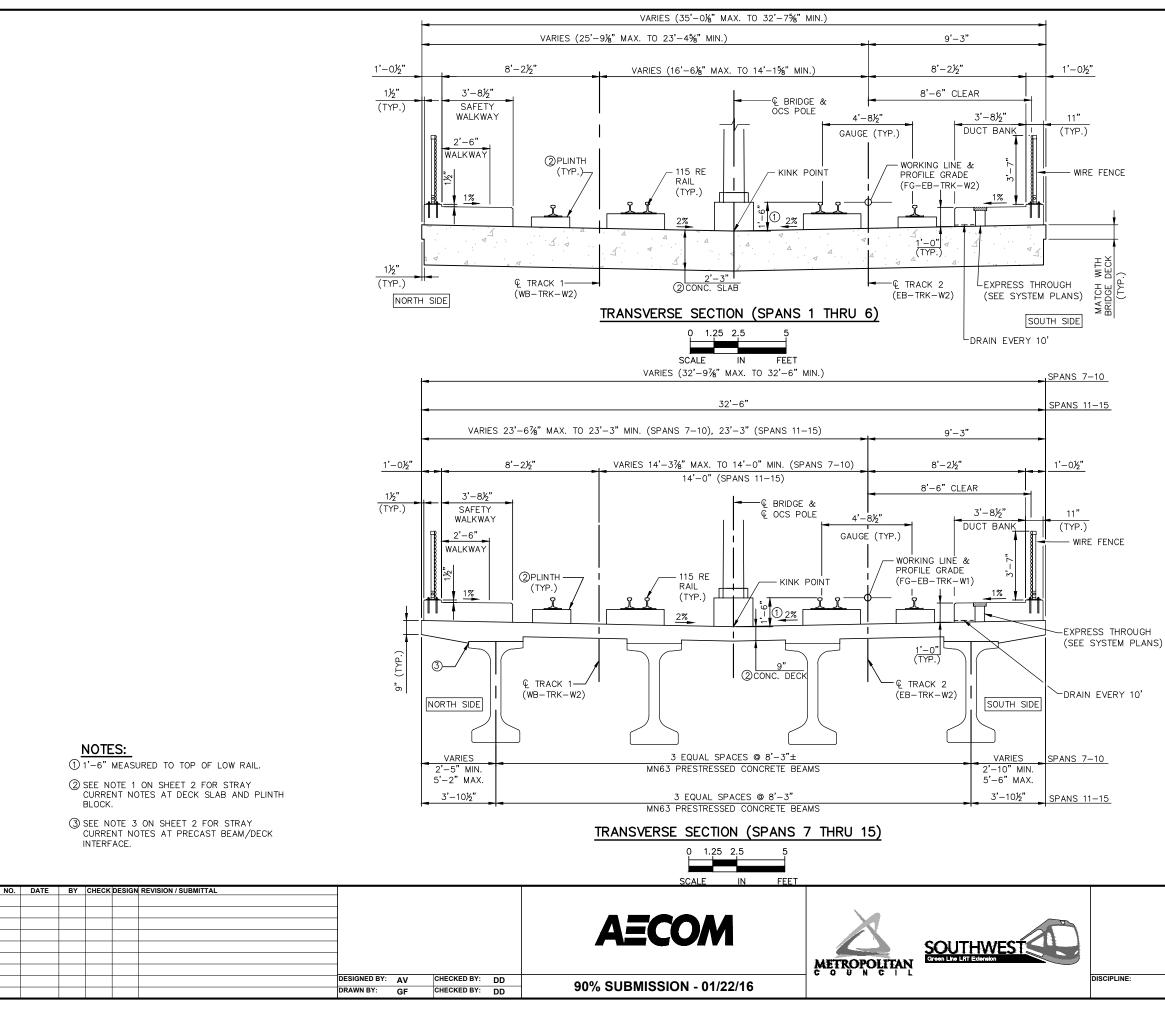




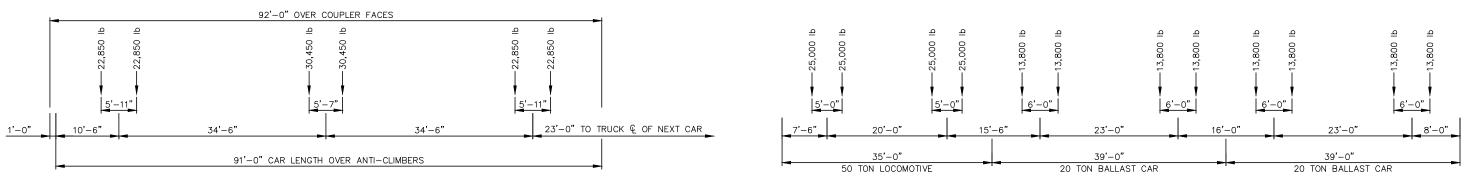
SHEET 6 OF **GENERAL PLAN AND ELEVATION 3** 99 CBR27C07-BRG-GPE-005



CIVIL - VOLUME 4C       SHEET         NINE MILE CREEK       7         BRIDGE 27C07       OF         GENERAL PLAN AND ELEVATION 4       99			
GENERAL PLAN AND ELEVATION 4	NINE MI BRIDO	ILE CREEK GE 27C07	7
	INE:	SHEET NAME:	99



SHEET **CIVIL - VOLUME 4C** NINE MILE CREEK 8 **BRIDGE 27C07** OF **TRANSVERSE SECTION** SHEET NAME 99 **STRUCTURES** CBR27C07-BRG-GPE-007



## LIGHT RAIL VEHICLE LOADING DIAGRAM

### NOTES:

T. THE LRT TRAIN SHALL CONSIST OF EITHER ONE, TWO OR THREE CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.

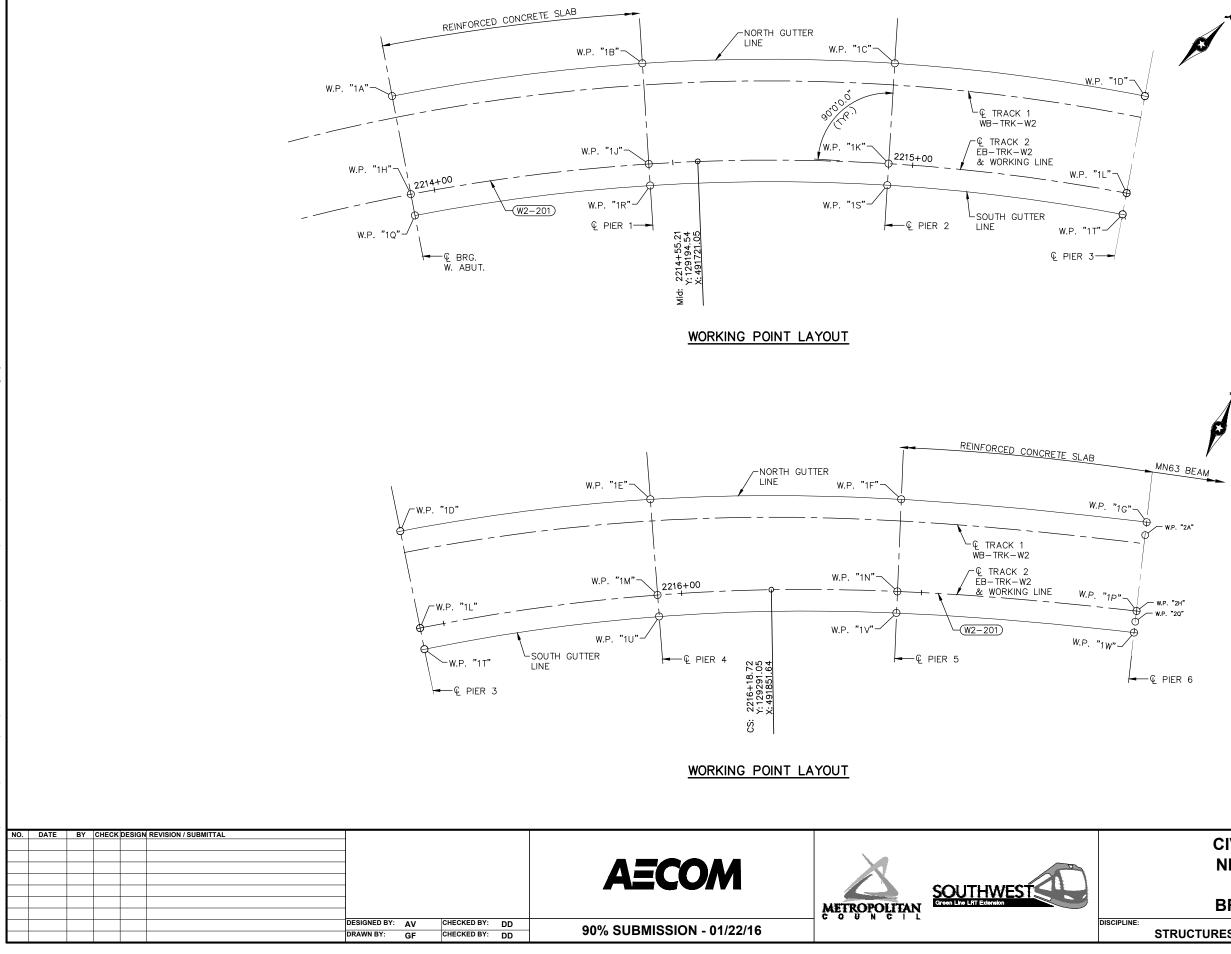
## NOTES:

THE MAINTENANCE TRAIN SHALL CONSIST OF ONE LOCOMOTIVE AND ONE, TWO, THREE OR FOUR BALLAST CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.

2. WEIGHT OF EMPTY BALLAST CAR IS 15,000 POUNDS.

NO.	DATE	BY C	HECK DES	3N REVISION / SUBMITTAL	_						CIVIL - V	OLUME 4C	SHEET
					_							LE CREEK	9
					_			AECOM				E 27C07	
									METROPOLITAN			<b>B</b> DIAGRAM	OF
									COUNCIL	DISCIPLINE:		SHEET NAME:	
					DESIGNED BY: AV	-		90% SUBMISSION - 01/22/16		DISCIPLINE:			99
					DRAWN BY: GF	CHECKED BY:	DD	30 /0 COBMICCION - 01/22/10			STRUCTURES	CBR27C07-BRG-GPE-008	

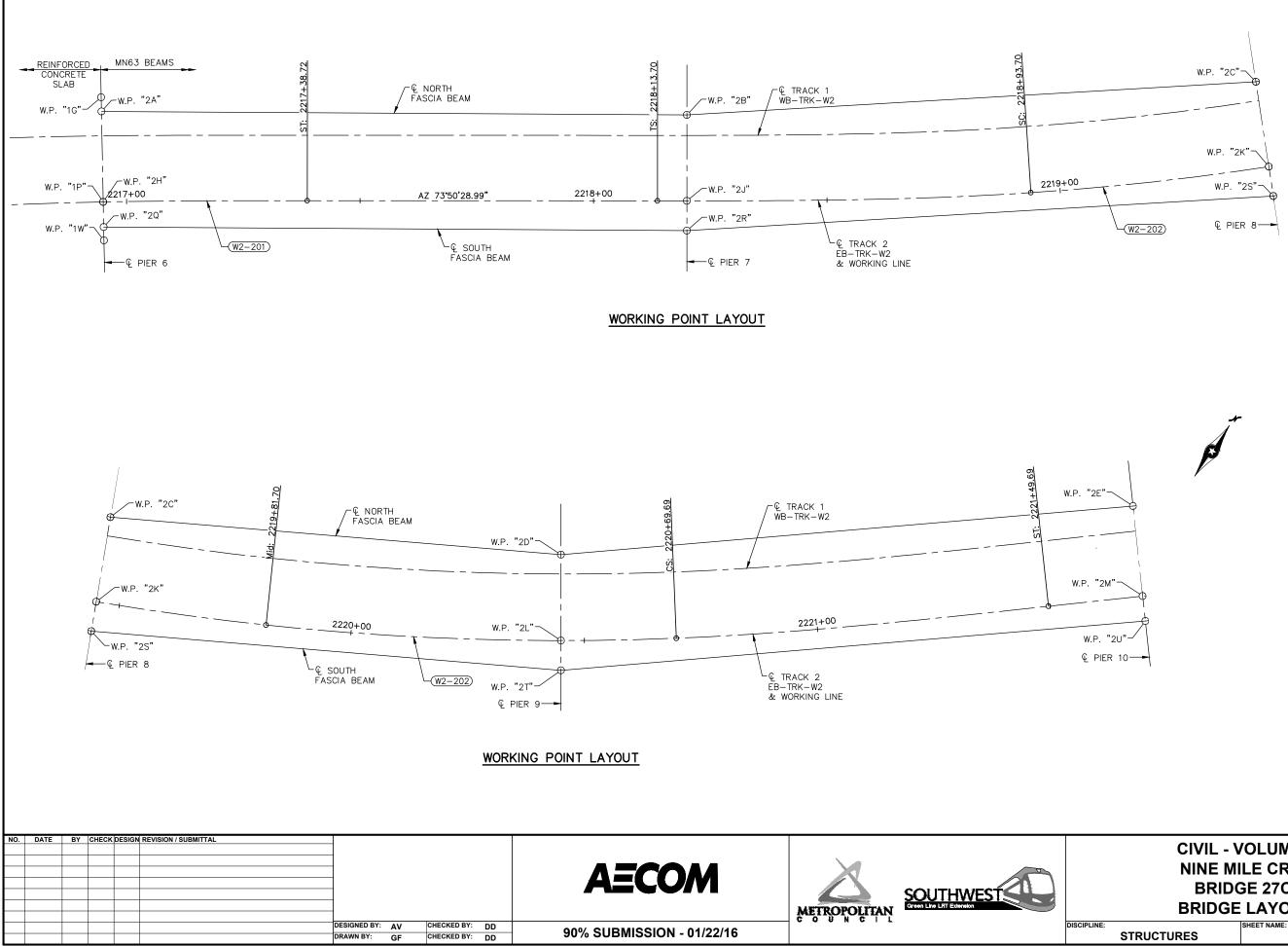
# MAINTENANCE TRAIN LOADING DIAGRAM



CURVE NO. W2-201						
R = 400.00'						
Lc = 327.04'						
Ls = 120.00'						
Ea = 3.50"						
Eu = 2.69"						
V = 25 MPH						

CURVE NO. W2-201
R = 400.00'
Lc = 327.04'
Ls = 120.00'
Ea = 3.50"
Eu = 2.69"
V = 25 MPH

	CIVIL - VOLUME 4C						
	NINE MILE CREEK						
	_	E 27C07	OF				
		LAYOUT 1	•				
INE:	STRUCTURES	CBR27C07-BRG-SUP-012	99				

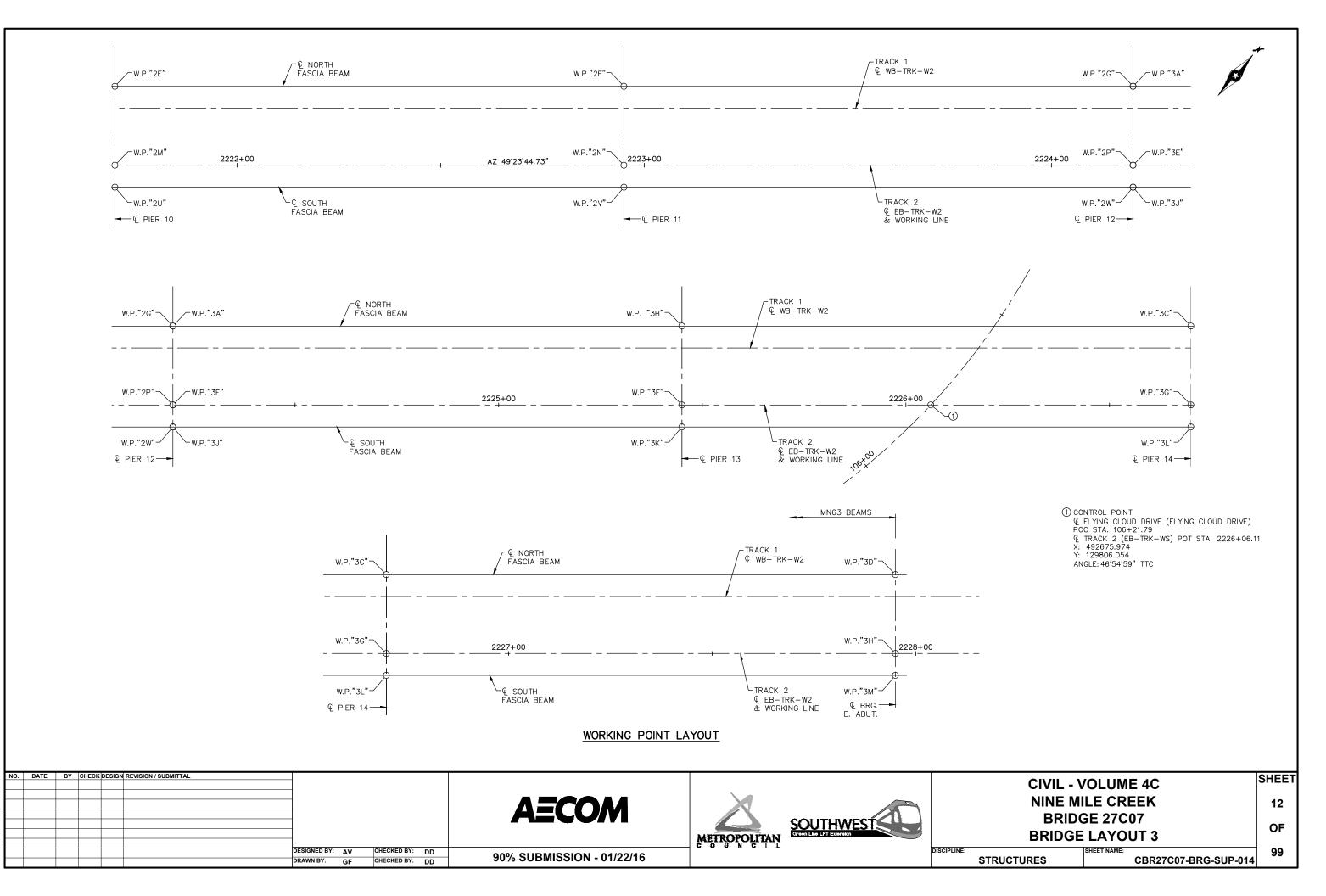


CURVE NO. W2-201
R = 400.00'
Lc = 327.04'
Ls = 120.00'
Ea = 3.50"
Eu = 2.69"
V = 25 MPH

CURVE NO. W2-202
R = 600.00'
Lc = 175.99'
Ls = 80.00'
Ea = 2.25"
Eu = 1.88"
V = 25 MPH

CURVE NO. W2-202
R = 600.00'
Lc = 175.99'
Ls = 80.00'
Ea = 2.25"
Eu = 1.88"
V = 25 MPH

	CIVIL - V	OLUME 4C	SHEET						
	NINE MI		11						
		GE 27C07	OF						
	BRIDGE LAYOUT 2								
INE:	STRUCTURES	CBR27C07-BRG-SUP-013	99						



																									TOP OF SLAB	TOP OF S TO BR. SE		IDGE EAT
INT	STATION		Y-COORDINATE	1A	1B	1C	1D	1E	1F	1G	1H	1J	1K	1L	1M	1N	1P	1Q	1R	1S	1T	1U	1V	1 W	ELEV.	ELEV.	EL	EV.
A	2213+95.00	491666.999	129158.230		52.58						20.82	55.32	104.40						56.90	104.83					871.67	2.84		8.84
В	2214+45.00	491698.332	129200.455			52.59					55.40	21.01						57.00		57.00	104.90				871.43	2.58		8.85
С	2214+95.00	491734.881	129238.264				52.56				104.43		20.93		104.43			104.87	56.96		56.96				871.35	2.57	86	8.77
D	2215+45.00	491776.006	129270.996					52.50				104.32	55.22	20.58	55.22	104.32			104.74	56.79		56.79	104.77		871.56	2.85	86	8.71
Ξ	2215+95.00	491820.977	129298.094						52.28				104.13	54.96	19.97	54.94	103.94			104.53	56.49		56.49	104.54		2.58	86	9.50
F	2216+45.00	491868.818	129319.185							51.35				103.78	54.53	19.19	54.26				104.15	56.02		55.88	872.88	2.57	87	0.30
3	2216+95.00	491917.514	129335.474												103.02	53.90	18.64					103.44	55.45		873.81	2.83	87	0.98
H	2213+95.00	491684.418	129146.831									49.97						4.50	49.89	99.28					871.58	2.75	86	8.83
J	2214+45.00	491714.337	129186.851										49.97					49.89	4.50	49.89	99.28				871.34	2.49	86	8.85
<	2214+95.00	491749.012	129222.829											49.97				99.28	49.89	4.50	49.89	99.28			871.26	2.49	86	8.77
L	2215+45.00	491787.902	129254.203												49.97				99.28	49.89	4.50	49.89	99.32		871.47	2.76	86	8.71
М	2215+95.00	491830.400	129280.483													49.97				99.28	49.89	4.50	49.92	99.59	871.98	2.48	86	9.50
N	2216+45.00	491875.820	129301.318														49.99				99.29	49.90	4.50	50.05	872.79	2.48	87	0.31
Ρ	2216+95.00	491923.056	129317.677								1	1					1					99.45	50.01	4.50	873.72	2.75		0.97
Q	2213+95.00	491688.184	129144.367						1					1			1		49.41					1	871.67	2.84		8.84
R	2214+45.00	491717.766	129183.937																	49.41					871.43	2.58		8.85
S	2214+95.00	491752.051	129219.510																		49.41				871.35	2.57		8.77
	2215+45.00	491790.504	129250.531																			49.41			871.56	2.85		8.71
J	2215+95.00	491832.524	129276.515										-										49.44		872.07	2.58		9.50
v	2216+45.00	491877.462	129297.129														1							49.67		2.50		0.30
w	2216+95.00	491924.395	129313.381																					10.07	873.81	2.83		0.98
								1	[	DIMENS	SIONS	BETWE	EN WO		POIN	TS (F	Г.)			1								
									[		SIONS	BETWE	EN WO		FOIN	TS (F	Т.)								TOP OF	TOP OF DECK TO		
OINT	STATION	X-COORDINATI		- 24	28	20	2D	2F										20	28	25	2T	211	21	2₩	DECK	DECK TO BR. SEAT	SEAT	POIN
		X-COORDINATI		E 2A		2C	2D	2E	[ 2F	DIMENS 2G	2H	2J	2К	2L	POIN 2M	TS (F <sup>-</sup>	Г.) 2р	2Q	2R 127.94	2S 251.64	2T	2U	2V	2W	DECK ELEV.	DECK TO BR. SEAT ELEV.	SEAT ELEV.	
2A	2216+95.0	491917.295	129336.176	<u> </u>	2B 125.38			2E			2H 19.37	2J 126.83	2K 250.30	2L	2M					251.64			2V	2W	DECK ELEV. 873.83	DECK TO BR. SEAT ELEV. 6.60	SEAT ELEV. 867.22	2A
2A	2216+95.0 2218+20.0	491917.295           492037.914	129336.176 129370.391	E 2A				2E			2H 19.37 126.38	2J 126.83 18.37	2K 250.30 125.13	2L ) 5 222.12	2M	2N		127.18	127.94	251.64	223.86			2W	DECK ELEV. 873.83 876.16	DECK TO BR. SEAT ELEV. 6.60 6.44	SEAT ELEV. 867.22 869.72	2A 2B
2A 2B	2216+95.0	491917.295           492037.914	129336.176	<u> </u>				2E			2H 19.37 126.38	2J 126.83	2K 250.30 125.13	2L ) 5 222.12	2M	2N			127.94	251.64	223.86			2W	DECK ELEV. 873.83 876.16 878.50	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60	SEAT ELEV. 867.22 869.72 871.90	2A 2B 2C-
2A 2B 2C	2216+95.0 2218+20.0 2219+45.0	0         491917.295           0         492037.914           0         492152.971	129336.176 129370.391 129411.186	E 2A					2F		2H 19.37 126.38	2J 126.83 18.37 124.50	2K 250.30 125.13 18.37	2L ) 5 222.12 100.04	2M	2N	2P	127.18	127.94 125.96	251.64 126.80	223.86	222.75			DECK ELEV. 873.83 876.16 878.50 878.50	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55	SEAT           ELEV.           867.22           869.72           871.90           871.95	2A 2B 2C- 2C-
2A 2B 2C 2D	2216+95.0 2218+20.0 2219+45.0 2220+45.0	0         491917.295           0         492037.914           0         492152.971           0         492237.117	129336.176 129370.391 129411.186 129459.088	<u> </u>				2E	2F	2G	2H 19.37 126.38	2J 126.83 18.37	2K 250.30 125.13 18.37 100.04	2L ) 5 222.12 100.04 + 18.38	2M 221.70 124.88	2N	2P	127.18	127.94 125.96	251.64 126.80 101.91	223.86 101.91	222.75 125.95	249.42		DECK ELEV. 873.83 876.16 878.50 878.50 880.38	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44	SEAT ELEV.867.22869.72871.90871.95873.95	2A 2B 2C- 2C- 2D
2A 2B 2C 2D 2E	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2221+70.0	0         491917.295           0         492037.914           0         492152.971           0         492237.117           0         492332.256	129336.176 129370.391 129411.186 129459.088 129536.927	<u> </u>					2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50	2K 250.30 125.13 18.37	2L 222.12 100.04 18.38 125.82	2M 221.70 124.88 19.37	2N 248.88 126.49	2P	127.18	127.94 125.96	251.64 126.80 101.91	223.86 101.91 127.43	222.75 125.95	249.42 127.43	251.22	DECK ELEV. 873.83 876.16 878.50 878.50 880.38 2 882.00	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60	SEAT           ELEV.           867.22           869.72           871.90           871.95           873.95           875.40	2A 2B 2C- 2C- 2D 2E
2A 2B 2C 2D 2E	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2221+70.0 2222+95.0	0         491917.295           0         492037.914           0         492152.971           0         492237.117           0         492332.256           0         492427.159	129336.176 129370.391 129411.186 129459.088 129536.927 129618.281	E 2A					2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50	2K 250.30 125.13 18.37 100.04	2L ) 5 222.12 100.04 + 18.38	2M 221.70 124.88 19.37 126.49	2N 248.88 126.49 19.37	2P 250.75 126.49	127.18	127.94 125.96	251.64 126.80 101.91	223.86 101.91 127.43	222.75 125.95 127.43	249.42	251.22	DECK ELEV. 873.83 876.16 878.50 878.50 880.38 882.00 882.00 881.97	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60 6.44	SEAT           ELEV.           867.22           869.72           871.90           871.95           873.95           875.40           875.53	2A 2B 2C- 2C- 2D 2E 2F
2A 2B 2C 2D 2E 2F	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2221+70.0	0         491917.295           0         492037.914           0         492152.971           0         492237.117           0         492332.256           0         492427.159	129336.176 129370.391 129411.186 129459.088 129536.927	E 2A					2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50	2K 250.30 125.13 18.37 100.04	2L 222.12 100.04 18.38 125.82	2M 221.70 124.88 19.37 126.49	2N 248.88 126.49	2P 250.75 126.49	127.18	127.94 125.96	251.64 126.80 101.91	223.86 101.91 127.43	222.75 125.95 127.43	249.42 127.43	251.22	DECK ELEV. 873.83 876.16 878.50 878.50 880.38 880.38 882.00 881.97 880.56	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60 6.44 6.60	SEAT         ELEV.         867.22         869.72         871.90         871.95         873.95         875.40         875.53         873.95	2A 2B 2C- 2D 2D 2E 2F 2G-
2A 2B 2C 2D 2E 2F 2G	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2221+70.0 2222+95.0 2222+95.0	0         491917.295           0         492037.914           0         492152.971           0         492237.117           0         492332.256           0         492427.159           0         492522.062	129336.176           129370.391           129411.186           129459.088           129536.927           129618.281           129699.634	E 2A					2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50 221.31	2K 250.30 125.13 18.37 100.04 222.96	2L 222.12 100.04 18.38 125.82	2M 221.70 124.88 19.37 126.49	2N 248.88 126.49 19.37	2P 250.75 126.49	127.18 248.71	127.94 125.96 222.78	251.64 126.80 101.91 224.68	223.86 101.91 127.43 251.50	222.75 125.95 127.43	249.42	251.22	DECK ELEV. 873.83 876.16 878.50 878.50 880.38 880.38 882.00 5 881.97 880.56 880.56	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60 6.44	SEAT           ELEV.           867.22           869.72           871.90           871.95           873.95           875.40           875.53	2A 2B 2C- 2D 2E 2F 2G- 2G-
2A 2B 2C 2D 2E 2F 2G 2H	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2221+70.0 2222+95.0 2222+95.0 2224+20.0 2216+95.0	0         491917.295           0         492037.914           0         492152.971           0         492237.117           0         492332.256           0         492427.159           0         492522.062           0         491923.056	129336.176           129370.391           129411.186           129459.088           129536.927           129618.281           129699.634           129317.677	E 2A					2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50	2K 250.30 125.13 18.37 100.04 222.96	2L 222.12 100.04 18.38 125.82 250.35	2M 221.70 124.88 19.37 126.49	2N 248.88 126.49 19.37	2P 250.75 126.49	127.18 248.71	127.94 125.96 222.78 125.15	251.64 126.80 101.91 224.68 250.61	223.86 101.91 127.43 251.50	222.75 125.95 127.43 251.22	249.42	251.22	DECK ELEV. 873.83 876.16 878.50 878.50 880.38 882.00 5 881.97 880.56 880.56 880.56 873.72	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60 6.44 6.60	SEAT         ELEV.         867.22         869.72         871.90         871.95         873.95         875.40         875.53         873.95	2A 2B 2C- 2D 2E 2F 2G- 2G- 2G-
2A 2B 2C 2D 2E 2F 2G 2H 2J	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2221+70.0 2222+95.0 2222+95.0 2224+20.0 2216+95.0 2218+20.0	0         491917.295           0         492037.914           0         492152.971           0         492237.117           0         492332.256           0         492427.159           0         492522.062           0         491923.056           0         492043.036	129336.176           129370.391           129411.186           129459.088           129536.927           129618.281           129699.634           129317.677           129352.744	E 2A					2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50 221.31	2K 250.30 125.13 18.37 100.04 222.96	2L 222.12 100.04 18.38 125.82 250.35 250.35	2M 221.70 124.88 19.37 126.49	2N 248.88 126.49 19.37	2P 250.75 126.49	127.18 248.71 5.37 125.02	127.94 125.96 222.78 125.15 6.38	251.64 126.80 101.91 224.68 250.61 125.61	223.86 101.91 127.43 251.50 225.12	222.75 125.95 127.43 251.22	249.42 127.43 127.43	251.22	DECK ELEV. 873.83 876.16 878.50 880.38 880.38 882.00 5 881.97 880.56 880.56 880.56 880.56 873.72 876.07	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60 6.44 6.60	SEAT         ELEV.         867.22         869.72         871.90         871.95         873.95         875.40         875.53         873.95	2A 2B 2C- 2D 2E 2F 2G- 2G- 2G- 2H 2J
2A 2B 2C 2D 2E 2F 2G 2H 2J 2K	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2221+70.0 2222+95.0 2224+20.0 2216+95.0 2218+20.0 2219+45.0	0         491917.295           0         492037.914           0         492152.971           0         492237.117           0         492332.256           0         492427.159           0         492522.062           0         491923.056           0         492043.036           0         492160.701	129336.176           129370.391           129411.186           129459.088           129536.927           129618.281           129699.634           129317.677           129352.744           129394.516	E 2A					2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50 221.31	2K 250.30 125.13 18.37 100.04 222.96	2L 222.12 100.04 18.38 125.82 250.35	2M 221.70 124.88 19.37 126.49 250.75	2N 248.88 126.49 19.37 126.49	2P 250.75 126.49	127.18 248.71 5.37 125.02	127.94 125.96 222.78 125.15 6.38 125.40	251.64 126.80 101.91 224.68 250.61 125.61 6.38	223.86 101.91 127.43 251.50 225.12 100.62	222.75 125.95 127.43 251.22 224.72	249.42 127.43 127.43	251.22	DECK ELEV. 873.83 876.16 878.50 880.38 880.38 882.00 881.97 880.56 880.56 880.56 880.56 873.72 876.07 878.42	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60 6.44 6.60	SEAT         ELEV.         867.22         869.72         871.90         871.95         873.95         875.40         875.53         873.95	2A 2B 2C- 2D 2E 2F 2G- 2G- 2G- 2H 2J 2K
2A 2B 2C 2D 2E 2F 2G 2H 2J 2K 2L	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2221+70.0 2222+95.0 2222+95.0 2224+20.0 2216+95.0 2218+20.0 2219+45.0 2220+45.0	0         491917.295           0         492037.914           0         492152.971           0         492237.117           0         492332.256           0         492427.159           0         492522.062           0         491923.056           0         492043.036           0         492160.701           0         492247.505	129336.176           129370.391           129411.186           129459.088           129536.927           129618.281           129699.634           129317.677           129394.516           129443.931	E 2A					2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50 221.31	2K 250.30 125.13 18.37 100.04 222.96	2L 222.12 100.04 18.38 125.82 250.35 250.35	2M 221.70 124.88 19.37 126.49	2N 248.88 126.49 19.37 126.49	2P 250.75 126.49 19.37	127.18 248.71 5.37 125.02	127.94 125.96 222.78 125.15 6.38 125.40	251.64 126.80 101.91 224.68 250.61 125.61 6.38 100.62	223.86 101.91 127.43 251.50 225.12 100.62 6.37	222.75 125.95 127.43 251.22 224.72 125.21	249.42 127.43 127.43 250.04	251.22	DECK ELEV. 873.83 876.16 878.50 880.38 880.38 882.00 5 881.97 880.56 880.56 880.56 873.72 876.07 878.42 880.30	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60 6.44 6.60	SEAT         ELEV.         867.22         869.72         871.90         871.95         873.95         875.40         875.53         873.95	2A 2B 2C- 2D 2E 2F 2G- 2G- 2G- 2H 2J 2K 2J
2A 2B 2C 2D 2E 2F 2G 2H 2J 2K 2L 2M	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2221+70.0 2222+95.0 2224+20.0 2216+95.0 2218+20.0 2219+45.0 2220+45.0 2220+45.0	0         491917.295           0         492037.914           0         492152.971           0         492237.117           0         4924332.256           0         492427.159           0         492522.062           0         491923.056           0         492160.701           0         492247.505           0         492447.505	129336.176           129370.391           129411.186           129459.088           129536.927           129618.281           129699.634           129317.677           129394.516           129443.931           129522.217	E 2A					2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50 221.31	2K 250.30 125.13 18.37 100.04 222.96	2L 222.12 100.04 18.38 125.82 250.35 250.35	2M 221.70 124.88 19.37 126.49 250.75	2N 248.88 126.49 19.37 126.49	2P 250.75 126.49 19.37	127.18 248.71 5.37 125.02	127.94 125.96 222.78 125.15 6.38 125.40	251.64 126.80 101.91 224.68 250.61 125.61 6.38 100.62	223.86 101.91 127.43 251.50 225.12 100.62 6.37 125.58	222.75 125.95 127.43 251.22 224.72 125.21 5.38	249.42 127.43 127.43 250.04 125.12	251.22	DECK ELEV. 873.83 876.16 878.50 880.38 880.38 882.00 5 881.97 880.56 880.56 880.56 873.72 876.07 878.42 880.30 5 881.89	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60 6.44 6.60	SEAT         ELEV.         867.22         869.72         871.90         871.95         873.95         875.40         875.53         873.95	2A 2B 2C- 2D 2E 2F 2G- 2G- 2G- 2H 2J 2K 2L 2M
2A 2B 2C 2D 2E 2F 2G 2H 2J 2K 2L 2M 2N	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2222+95.0 2222+95.0 2224+20.0 2216+95.0 2218+20.0 2219+45.0 2229+45.0 2220+45.0 2221+70.0 2222+95.0	0         491917.295           0         492037.914           0         492152.971           0         492237.117           0         492332.256           0         492427.159           0         492522.062           0         492043.036           0         492160.701           0         492247.505           0         492247.505           0         492344.866           0         492439.769	129336.176           129370.391           129411.186           129459.088           129536.927           129618.281           129699.634           129317.677           129394.516           12944.3931           129522.217           129603.571	E 2A					2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50 221.31	2K 250.30 125.13 18.37 100.04 222.96	2L 222.12 100.04 18.38 125.82 250.35 250.35	2M 221.70 124.88 19.37 126.49 250.75	2N 248.88 126.49 19.37 126.49	2P 250.75 126.49 19.37	127.18 248.71 5.37 125.02	127.94 125.96 222.78 125.15 6.38 125.40	251.64 126.80 101.91 224.68 250.61 125.61 6.38 100.62	223.86 101.91 127.43 251.50 225.12 100.62 6.37 125.58	222.75 125.95 127.43 251.22 224.72 125.21 5.38 125.12	249.42 127.43 127.43 250.04 125.12 5.38	251.22 127.43 250.00 125.12	DECK ELEV. 873.83 876.16 878.50 880.38 880.38 882.00 881.97 880.56 880.56 880.56 873.72 876.07 878.42 880.30 881.89 881.86	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60 6.44 6.60	SEAT         ELEV.         867.22         869.72         871.90         871.95         873.95         875.40         875.53         873.95	2A 2B 2C- 2D 2E 2F 2G- 2G- 2H 2J 2K 2L 2M 2N
2A 2B 2C 2D 2E 2F 2G 2H 2J 2K 2L 2M 2N 2P	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2222+95.0 2222+95.0 2224+20.0 2216+95.0 2218+20.0 2219+45.0 2229+45.0 2221+70.0 2221+70.0 2222+95.0 2222+95.0	0         491917.295           0         492037.914           0         492152.971           0         492237.117           0         492332.256           0         492427.159           0         492522.062           0         492043.036           0         49247.505           0         49247.505           0         49243.4866           0         49243.769	129336.176           129370.391           129411.186           129459.088           129536.927           129618.281           129699.634           129317.677           129394.516           12944.3931           129522.217           129603.571           129684.925	E 2A					2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50 221.31	2K 250.30 125.13 18.37 100.04 222.96	2L 222.12 100.04 18.38 125.82 250.35 250.35	2M 221.70 124.88 19.37 126.49 250.75	2N 248.88 126.49 19.37 126.49	2P 250.75 126.49 19.37	127.18 248.71 5.37 125.02	127.94 125.96 222.78 125.15 6.38 125.40 224.84	251.64 126.80 101.91 224.68 250.61 125.61 6.38 100.62 225.29	223.86 101.91 127.43 251.50 225.12 100.62 6.37 125.58	222.75 125.95 127.43 251.22 224.72 125.21 5.38	249.42 127.43 127.43 250.04 125.12 5.38	251.22 127.43 250.00 125.12	DECK ELEV. 873.83 876.16 878.50 880.38 880.38 882.00 881.97 880.56 880.56 873.72 876.07 878.42 880.30 5 881.89 881.86 880.45	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60 6.44 6.60 6.71	SEAT ELEV. 867.22 871.90 871.95 873.95 873.95 875.40 875.53 873.95 873.85 873.85 473.85 873.85 873.85 873.85	POIN 2A 2B 2C- 2D 2E 2G- 2G- 2J 2K 2L 2M 2N 2N 2N 2N 20 20 20 20 20 20 20 20 20 20 20 20 20
2A 2B 2C 2D 2E 2F 2G 2H 2J 2K 2L 2M 2N 2P 2Q	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2222+95.0 2222+95.0 2224+20.0 2216+95.0 2218+20.0 2219+45.0 2220+45.0 2221+70.0 2222+95.0 2222+95.0 2224+20.0 2216+95.0	0         491917.295           0         492037.914           0         492152.971           0         492132.256           0         492427.159           0         492522.062           0         4926427.159           0         492522.062           0         49247.159           0         492522.062           0         492160.701           0         492247.505           0         492439.769           0         492534.671           0         492534.671	129336.176           129370.391           129411.186           129459.088           129536.927           129618.281           129699.634           129317.677           129394.516           12944.3931           129522.217           129603.571           129684.925           129312.546	E 2A					2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50 221.31	2K 250.30 125.13 18.37 100.04 222.96	2L 222.12 100.04 18.38 125.82 250.35 250.35	2M 221.70 124.88 19.37 126.49 250.75	2N 248.88 126.49 19.37 126.49	2P 250.75 126.49 19.37	127.18 248.71 5.37 125.02	127.94 125.96 222.78 125.15 6.38 125.40	251.64 126.80 101.91 224.68 250.61 125.61 6.38 100.62 225.29	223.86 101.91 127.43 251.50 225.12 100.62 6.37 125.58 250.57	222.75 125.95 127.43 251.22 224.72 125.21 5.38 125.12	249.42 127.43 127.43 250.04 125.12 5.38	251.22 127.43 250.00 125.12	DECK ELEV. 873.83 876.16 878.50 880.38 880.38 882.00 881.97 880.56 880.56 873.72 876.07 878.42 880.30 5 881.89 881.86 880.45 880.45	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60 6.44 6.60 6.71	SEAT       ELEV.       867.22       869.72       871.90       873.95       875.40       875.53       873.95       873.95       873.85       973.85       973.85       973.85       973.85       973.85       973.85       973.85       973.85       973.85       973.85       973.85       973.85       973.85       973.85       973.85       973.85       973.85       973.85       973.85       973.85       973.85       974.85       975.95       975.95       975.95       975.95       975.95       975.95       975.95       975.95       975.95       975.95       975.95       975.95       975.95       975.95       975.95       975.95       975.95       975.95       975.95       975.95       975.95       975.95       975.95       975.95       975.95       97	2A 2B 2C 2D 2E 2G 2G- 2H 2J 2J 2X 2L 2M 2N 2N 2P 2Q
OIN1 2A 2B 2C 2D 2E 2F 2G 2J 2G 2J 2K 2J 2Q 2N 2Q 2Q 2R	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2222+95.0 2222+95.0 2224+20.0 2216+95.0 2218+20.0 2219+45.0 2229+45.0 2221+70.0 2222+95.0 2222+95.0 2224+20.0	0         491917.295           0         492037.914           0         492152.971           0         492132.256           0         492427.159           0         492522.062           0         4926427.159           0         492522.062           0         49247.159           0         492522.062           0         492160.701           0         492247.505           0         492439.769           0         492534.671           0         492534.671	129336.176           129370.391           129411.186           129459.088           129536.927           129618.281           129699.634           129317.677           129394.516           12944.3931           129522.217           129603.571           129684.925	E 2A					2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50 221.31	2K 250.30 125.13 18.37 100.04 222.96	2L 222.12 100.04 18.38 125.82 250.35 250.35	2M 221.70 124.88 19.37 126.49 250.75	2N 248.88 126.49 19.37 126.49	2P 250.75 126.49 19.37	127.18 248.71 5.37 125.02	127.94 125.96 222.78 125.15 6.38 125.40 224.84	251.64 126.80 101.91 224.68 250.61 125.61 6.38 100.62 225.29	223.86 101.91 127.43 251.50 225.12 100.62 6.37 125.58 250.57	222.75 125.95 127.43 251.22 224.72 125.21 5.38 125.12	249.42 127.43 127.43 250.04 125.12 5.38	251.22 127.43 250.00 125.12	DECK ELEV. 873.83 876.16 878.50 880.38 880.38 882.00 881.97 880.56 880.56 873.72 876.07 878.42 880.30 5 881.89 5 881.89 5 881.86 880.45 880.45	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60 6.44 6.60 6.71 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SEAT       B67.22       869.72       871.90       873.95       875.40       875.53       873.95       873.85       873.85       973.85       873.85       873.85       873.85       867.23       867.23       869.76	2A 2B 2C 2D 2E 2F 2G 2H 2J 2J 2X 2L 2M 2N 2N 2P 2Q 2Q 2R
2A 2B 2C 2D 2E 2F 2G 2H 2J 2K 2L 2M 2N 2P 2Q	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2222+95.0 2222+95.0 2224+20.0 2216+95.0 2218+20.0 2219+45.0 2220+45.0 2221+70.0 2222+95.0 2222+95.0 2224+20.0 2216+95.0	0         491917.295           0         492037.914           0         492152.971           0         492133.256           0         492427.159           0         492427.159           0         492427.159           0         492427.159           0         492427.159           0         492427.550           0         492160.701           0         492247.505           0         492439.769           0         492534.671           0         492534.671           0         492044.812	129336.176           129370.391           129411.186           129459.088           129536.927           129618.281           129699.634           129317.677           129394.516           12944.3931           129522.217           129603.571           129684.925           129312.546						2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50 221.31	2K 250.30 125.13 18.37 100.04 222.96	2L 222.12 100.04 18.38 125.82 250.35 250.35	2M 221.70 124.88 19.37 126.49 250.75	2N 248.88 126.49 19.37 126.49	2P 250.75 126.49 19.37	127.18 248.71 5.37 125.02	127.94 125.96 222.78 125.15 6.38 125.40 224.84	251.64 126.80 101.91 224.68 250.61 125.61 6.38 100.62 225.29	223.86 101.91 127.43 251.50 225.12 100.62 6.37 125.58 250.57	222.75 125.95 125.95 251.22 251.22 224.72 125.21 5.38 125.12 250.06	249.42 127.43 127.43 250.04 125.12 5.38	251.22 127.43 250.00 125.12	DECK ELEV. 873.83 876.16 878.50 880.38 880.38 882.00 881.97 880.56 880.56 880.56 873.72 876.07 878.42 880.30 5 881.89 881.86 880.45 880.45 880.45 873.83	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60 6.71	SEAT       B67.22       867.23       871.90       873.95       875.40       875.53       873.95       873.95       873.85       973.85       873.85       873.85       873.85       867.23       869.76       869.76       871.94	2A 2B 2C- 2D 2E 2G- 2G- 2J 2G- 2J 2K 2J 2K 2U 2N 2N 2N 2Q 2Q 2R 2S-
2A 2B 2C 2D 2E 2F 2G 2H 2J 2K 2L 2M 2N 2P 2Q 2R 2S	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2222+95.0 2222+95.0 2224+20.0 2216+95.0 2218+20.0 2219+45.0 2221+70.0 2222+95.0 2222+95.0 2224+20.0 2216+95.0 2218+20.0 2218+20.0	0         491917.295           0         492037.914           0         492152.971           0         492152.971           0         492237.117           0         492332.256           0         492522.062           0         492522.062           0         492522.062           0         492522.062           0         492160.701           0         492247.505           0         492247.505           0         492247.505           0         4922439.769           0         492534.671           0         492534.671           0         492163.383           0         492163.383	129336.176           129370.391           129411.186           129459.088           129536.927           129618.281           129699.634           129352.744           129394.516           12952.217           129603.571           129603.571           129634.925           129443.931           129522.217           129603.571           129684.925           129346.622           129388.732	E 2A					2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50 221.31	2K 250.30 125.13 18.37 100.04 222.96	2L 222.12 100.04 18.38 125.82 250.35 250.35	2M 221.70 124.88 19.37 126.49 250.75	2N 248.88 126.49 19.37 126.49	2P 250.75 126.49 19.37	127.18 248.71 5.37 125.02	127.94 125.96 222.78 125.15 6.38 125.40 224.84	251.64 126.80 101.91 224.68 250.61 125.61 6.38 100.62 225.29	223.86 101.91 127.43 251.50 225.12 100.62 6.37 125.58 250.57	222.75 125.95 127.43 251.22 224.72 125.21 5.38 125.12 250.06	249.42 127.43 127.43 250.04 125.12 5.38 125.12	251.22 127.43 250.00 125.12	DECK ELEV. 873.83 876.16 878.50 880.38 880.38 880.36 880.56 880.56 880.56 873.72 876.07 878.42 880.30 5 881.89 881.89 881.86 880.45 881.85 880.45 881.85	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60 6.71 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	SEAT       B67.22       869.72       871.90       871.95       873.95       875.40       875.53       873.95       873.95       873.85       9       873.85       873.85       873.85       867.23       869.76       869.76       871.94	2A 2B 2C- 2D 2E 2G- 2G- 2J 2K 2J 2K 2L 2M 2N 2N 2P 2Q 2R 2S- 2S-
2A 2B 2C 2D 2E 2F 2G 2H 2J 2K 2L 2M 2N 2P 2Q 2R 2R 2S 2T	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2222+95.0 2222+95.0 2224+20.0 2216+95.0 2218+20.0 2219+45.0 2221+70.0 2222+95.0 2224+20.0 2216+95.0 2216+95.0 2218+20.0 2218+20.0 2219+45.0 2220+45.0	0         491917.295           0         492037.914           0         492152.971           0         492237.117           0         492332.256           0         492522.062           0         492522.062           0         492522.062           0         492522.062           0         492522.062           0         492522.062           0         49247.505           0         492160.701           0         492247.505           0         492344.866           0         492534.671           0         492534.671           0         492163.383           0         492163.383           0         492251.110	129336.176           129370.391           129470.391           129411.186           129459.088           129536.927           129618.281           129699.634           129352.744           129394.516           129443.931           12952.217           129603.571           129684.925           129346.622           129388.732           129438.673						2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50 221.31	2K 250.30 125.13 18.37 100.04 222.96	2L 222.12 100.04 18.38 125.82 250.35 250.35	2M 221.70 124.88 19.37 126.49 250.75	2N 248.88 126.49 19.37 126.49	2P 250.75 126.49 19.37	127.18 248.71 5.37 125.02	127.94 125.96 222.78 125.15 6.38 125.40 224.84	251.64 126.80 101.91 224.68 250.61 125.61 6.38 100.62 225.29	223.86 101.91 127.43 251.50 225.12 100.62 6.37 125.58 250.57	222.75 125.95 125.95 251.22 251.22 224.72 125.21 5.38 125.12 250.06	249.42 127.43 127.43 250.04 125.12 5.38 125.12	251.22 127.43 250.00 125.12 5.37	DECK ELEV. 873.83 876.16 878.50 880.38 880.38 882.00 881.97 880.56 880.56 880.56 873.72 876.07 878.42 880.30 881.89 881.89 881.86 880.45 881.83 881.85 885.45 873.83	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60 6.71 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	SEAT       BG7.22       869.72       871.90       873.95       875.40       875.53       873.95       873.95       873.95       873.85       873.85       873.85       873.85       867.23       867.23       869.76       871.94       872.00       873.99	2A 2B 2C 2D 2E 2G 2H 2J 2J 2K 2L 2M 2N 2P 2Q 2R 2Q 2R 2S 2S 2T
2A 2B 2C 2C 2F 2G 2H 2J 2K 2L 2M 2N 2P 2Q 2R 2Q 2R 2S 2T 2U	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2221+70.0 2222+95.0 2222+95.0 2224+20.0 2216+95.0 2218+20.0 2219+45.0 2222+95.0 2222+95.0 2224+20.0 2216+95.0 2218+20.0 2219+45.0 2220+45.0 2220+45.0	0         491917.295           0         492037.914           0         492152.971           0         492152.971           0         492237.117           0         492332.256           0         492427.159           0         492522.062           0         492522.062           0         492522.062           0         492160.701           0         492247.505           0         492247.505           0         492344.866           0         492534.671           0         492163.383           0         492163.383           0         492251.110           0         492254.8364	129336.176           129370.391           129470.391           129411.186           129459.088           129536.927           129618.281           129699.634           129352.744           129394.516           129443.931           12952.217           129603.571           129684.925           129346.622           129388.732           129518.136						2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50 221.31	2K 250.30 125.13 18.37 100.04 222.96	2L 222.12 100.04 18.38 125.82 250.35 250.35	2M 221.70 124.88 19.37 126.49 250.75	2N 248.88 126.49 19.37 126.49	2P 250.75 126.49 19.37	127.18 248.71 5.37 125.02	127.94 125.96 222.78 125.15 6.38 125.40 224.84	251.64 126.80 101.91 224.68 250.61 125.61 6.38 100.62 225.29	223.86 101.91 127.43 251.50 225.12 100.62 6.37 125.58 250.57	222.75 125.95 127.43 251.22 224.72 125.21 5.38 125.12 250.06	249.42 127.43 127.43 250.04 125.12 5.38 125.12	251.22 127.43 250.06 125.12 5.37	DECK ELEV. 873.83 876.16 878.50 880.38 880.38 880.36 880.56 880.56 873.72 876.07 878.42 880.30 5 881.89 881.89 881.86 880.45 881.89 881.86 880.45 881.89 881.85 881.85 885.45 875.55 880.43 882.00	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60 6.71 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	SEAT       BG7.22       869.72       871.90       871.95       873.95       875.40       875.53       873.95       873.95       873.95       873.85       873.85       873.85       873.85       867.23       869.76       869.76       871.94       872.00       873.99       875.40	2A 2B 2C 2D 2E 2G 2H 2J 2J 2K 2L 2M 2N 2P 2Q 2R 2S 2S 2S 2T 2U
2A 2B 2C 2D 2E 2F 2G 2H 2J 2K 2L 2M 2N 2P 2Q 2R 2R 2S 2T	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2222+95.0 2222+95.0 2224+20.0 2216+95.0 2218+20.0 2219+45.0 2221+70.0 2222+95.0 2224+20.0 2216+95.0 2216+95.0 2218+20.0 2218+20.0 2219+45.0 2220+45.0	0         491917.295           0         492037.914           0         492152.971           0         492237.117           0         492332.256           0         492522.062           0         492522.062           0         492522.062           0         492522.062           0         492522.062           0         492522.062           0         49247.505           0         492160.701           0         492247.505           0         492344.866           0         492534.671           0         492163.383           0         492163.383           0         492251.110           0         492348.364	129336.176           129370.391           129470.391           129411.186           129459.088           129536.927           129618.281           129699.634           129352.744           129394.516           129443.931           12952.217           129603.571           129684.925           129346.622           129388.732           129438.673	E 2A					2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50 221.31	2K 250.30 125.13 18.37 100.04 222.96	2L 222.12 100.04 18.38 125.82 250.35 250.35	2M 221.70 124.88 19.37 126.49 250.75	2N 248.88 126.49 19.37 126.49	2P 250.75 126.49 19.37	127.18 248.71 5.37 125.02	127.94 125.96 222.78 125.15 6.38 125.40 224.84	251.64 126.80 101.91 224.68 250.61 125.61 6.38 100.62 225.29	223.86 101.91 127.43 251.50 225.12 100.62 6.37 125.58 250.57	222.75 125.95 127.43 251.22 224.72 125.21 5.38 125.12 250.06	249.42 127.43 127.43 250.04 125.12 5.38 125.12	251.22 127.43 250.06 125.12 5.37	DECK ELEV. 873.83 876.16 878.50 880.38 880.38 880.36 880.56 880.56 873.72 876.07 878.42 880.30 878.42 880.30 881.89 881.89 881.86 880.45 881.85 875.55 878.55 880.43 882.00 881.97	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60 6.71 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	SEAT       BG7.22       869.72       871.90       873.95       875.40       875.53       873.95       873.95       873.95       873.95       873.95       873.95       873.95       873.95       873.95       873.95       873.95       873.95       873.95       873.95       873.95       867.23       869.76       871.94       872.00       873.99       875.40       875.53	2A 2B 2C- 2D 2E 2G- 2H 2J 2J 2K 2L 2M 2N 2P 2Q 2R 2S- 2S- 2S- 2T 2U 2V
2A 2B 2C 2D 2E 2F 2G 2H 2J 2K 2J 2K 2J 2N 2P 2Q 2R 2Q 2R 2S 2T 2U	2216+95.0 2218+20.0 2219+45.0 2220+45.0 2221+70.0 2222+95.0 2222+95.0 2224+20.0 2216+95.0 2218+20.0 2219+45.0 2220+45.0 2224+20.0 2216+95.0 2216+95.0 2218+20.0 2219+45.0 2220+45.0 2220+45.0	0         491917.295           0         492037.914           0         492152.971           0         492133.256           0         492427.159           0         492427.159           0         492427.159           0         492427.159           0         492427.159           0         492427.159           0         492427.555           0         49243.036           0         49243.056           0         49243.036           0         49244.866           0         49243.9769           0         492534.671           0         492163.383           0         492163.383           0         492251.110           0         492348.364           0         492443.267	129336.176           129370.391           129470.391           129411.186           129459.088           129536.927           129618.281           129699.634           129352.744           129394.516           129443.931           12952.217           129603.571           129684.925           129346.622           129388.732           129518.136	E 2A					2F	2G	2H 19.37 126.38 248.20	2J 126.83 18.37 124.50 221.31	2K 250.30 125.13 18.37 100.04 222.96	2L 222.12 100.04 18.38 125.82 250.35 250.35	2M 221.70 124.88 19.37 126.49 250.75	2N 248.88 126.49 19.37 126.49	2P 250.75 126.49 19.37	127.18 248.71 5.37 125.02	127.94 125.96 222.78 125.15 6.38 125.40 224.84	251.64 126.80 101.91 224.68 250.61 125.61 6.38 100.62 225.29	223.86 101.91 127.43 251.50 225.12 100.62 6.37 125.58 250.57	222.75 125.95 127.43 251.22 224.72 125.21 5.38 125.12 250.06	249.42 127.43 127.43 250.04 125.12 5.38 125.12	251.22 127.43 250.06 125.12 5.37	DECK ELEV. 873.83 876.16 878.50 880.38 880.38 880.36 880.56 880.56 873.72 876.07 878.42 880.30 5 881.89 881.89 881.86 880.45 881.89 881.86 880.45 881.89 881.85 881.85 885.45 875.55 880.43 882.00	DECK TO BR. SEAT ELEV. 6.60 6.44 6.60 6.55 6.44 6.60 6.44 6.60 6.71 	SEAT       BG7.22       867.22       871.90       871.95       873.95       875.40       875.53       873.95       873.95       873.95       873.95       873.95       873.95       873.95       873.95       873.95       873.95       873.95       867.23       869.76       867.23       867.23       867.23       867.23       871.94       872.00       873.99       875.40       875.53       873.95	224 20 20 20 20 20 20 20 20 20 20 20 20 20

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL								
						1							
						1				AELOM			
						1						SOUTHWEST	
											METROBOLITAN	Green Line LRT Extension	
												)	
						DESIGNED BY:		CHECKED BY:		90% SUBMISSION - 01/22/16			DISCIPLINE
						DRAWN BY:	GF	CHECKED BY:	DD	90% SUBINISSION - 01/22/16			

Jan,

# CIVIL - VOLUME 4C NINE MILE CREEK BRIDGE 27C07 BRIDGE LAYOUT 4

SHEET NAME:

SHEET

13 OF

99

STRUCTURES

CBR27C07-BRG-SUP-015

	DIMENSIONS BETWEEN WORKING POINTS (FT.)																		
POINT	STATION	X-COORDINATE	Y-COORDINATE	3A	3B	3C	3D	3E	3F	3G	ЗН	ЗJ	ЗK	3L	3M	TOP OF DECK ELEV.	TOP OF DECK TO BR. SEAT ELEV.	BRIDGE SEAT ELEV.	POINT
3A	2224+20.00	492522.062	129699.634		125.00			19.37	126.49	250.75			127.43			880.56	6.60	873.95	3A-W
0/1	2221120100	1020221002	1200001001		120.00				120110	2001/0			12,110			880.56	6.71	873.85	3A-E
3B	2225+45.00	492616.965	129780.988			125.00		126.49	19.37	126.49	250.75	127.43		127.43	251.22	878.99	6.44	872.55	3B
3C	2226+70.00	492711.867	129862.342				125.00	250.75	126.49	19.37	126.49	251.22	127.43		127.43	877.42	6.44	870.99	3C
3D	2227+95.00	492806.770	129943.696						250.75	126.49	19.37		251.22	127.43		875.86	6.71	869.15	3D
3E	2224+20.00	492534.671	129684.925						125.00			5.38	125.12	250.06		880.45			3E
3F	2225+45.00	492629.574	129766.278							125.00		125.12	5.38	125.12	250.06	878.88			3F
3G	2226+70.00	492724.477	129847.632								125.00	250.06	125.12	5.38	125.12	877.32			3G
ЗH	2227+95.00	492819.380	129928.986										250.06	125.12	5.38	875.75			ЗH
3J	2224+20.00	492538.170	129680.844										125.00			880.56	6.71	873.85	3J
ЗK	2225+45.00	492633.073	129762.197											125.00		878.99	6.44	872.55	ЗK
3L	2226+70.00	492727.975	129843.551												125.00	877.42	6.44	870.99	3L
3M	2227+95.00	492822.878	129924.905													875.86	6.71	869.15	ЗM

TOP OF SLAE	3 TO BRID	)ge seat ( <i>f</i>	ALONG WO	RKING LINE)
	SLAB THICKNESS (ft.)	FILLET (ft.)	BEARING HEIGHT (ft.)	TOTAL (ft.)
WEST ABUTMENT	2.25	0.42	0.083	2.75
PIER 1	2.25	0.17	0.063	2.49
PIER 2	2.25	0.17	0.063	2.49
PIER 3	2.25	0.43	0.083	2.76
PIER 4	2.25	0.17	0.063	2.48
PIER 5	2.25	0.16	0.063	2.48
PIER 6 W	2.25	0.42	0.083	2.75

	TOP OF DI	ECK TO	BRIDGE	SEAT	
	DECK THICKNESS (ft.)	STOOL HEIGHT (ft.)	BEAM HEIGHT (ft.)	BEARING HEIGHT (ft.)	TOTAL (ft.)
PIER 6 E	0.75	0.167	5.25	0.44	6.60
PIER 7	0.75	0.167	5.25	0.27	6.44
PIER 8 W	0.75	0.167	5.25	0.44	6.60
PIER 8 E	0.75	0.167	5.25	0.39	6.55
PIER 9	0.75	0.167	5.25	0.27	6.44
PIER 10 W	0.75	0.167	5.25	0.44	6.60
PIER 10 E	0.75	0.167	5.25	0.44	6.60
PIER 11	0.75	0.167	5.25	0.27	6.44
PIER 12 W	0.75	0.167	5.25	0.44	6.60
PIER 12 E	0.75	0.167	5.25	0.54	6.71

ТС	P OF DE	СК ТО	BRIDG	e seat	
	DECK THICKNESS (ft.)	FILLET (ft.)	BEAM HEIGHT (ft.)	BEARING HEIGHT (ft.)	TOTAL (ft.)
PIER 12 W	0.75	0.167	5.25	0.44	6.60
PIER 12 E	0.75	0.167	5.25	0.54	6.71
PIER 13	0.75	0.167	5.25	0.27	6.44
PIER 14	0.75	0.167	5.25	0.27	6.44
EAST ABUTMENT	0.75	0.167	5.25	0.54	6.71

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL								
										AELOMI			
												SOUTHWEST	
											METRODOLETAN	Green Line LRT Extension	
											METROPOLITAN		1
						DESIGNED BY: AV		CHECKED BY:		00% SUDMISSION 04/22/46			DISCIPLINE:
						DRAWN BY: GF	C	CHECKED BY:	DD	90% SUBMISSION - 01/22/16			1

# CIVIL - VOLUME 4C NINE MILE CREEK BRIDGE 27C07 BRIDGE LAYOUT 5

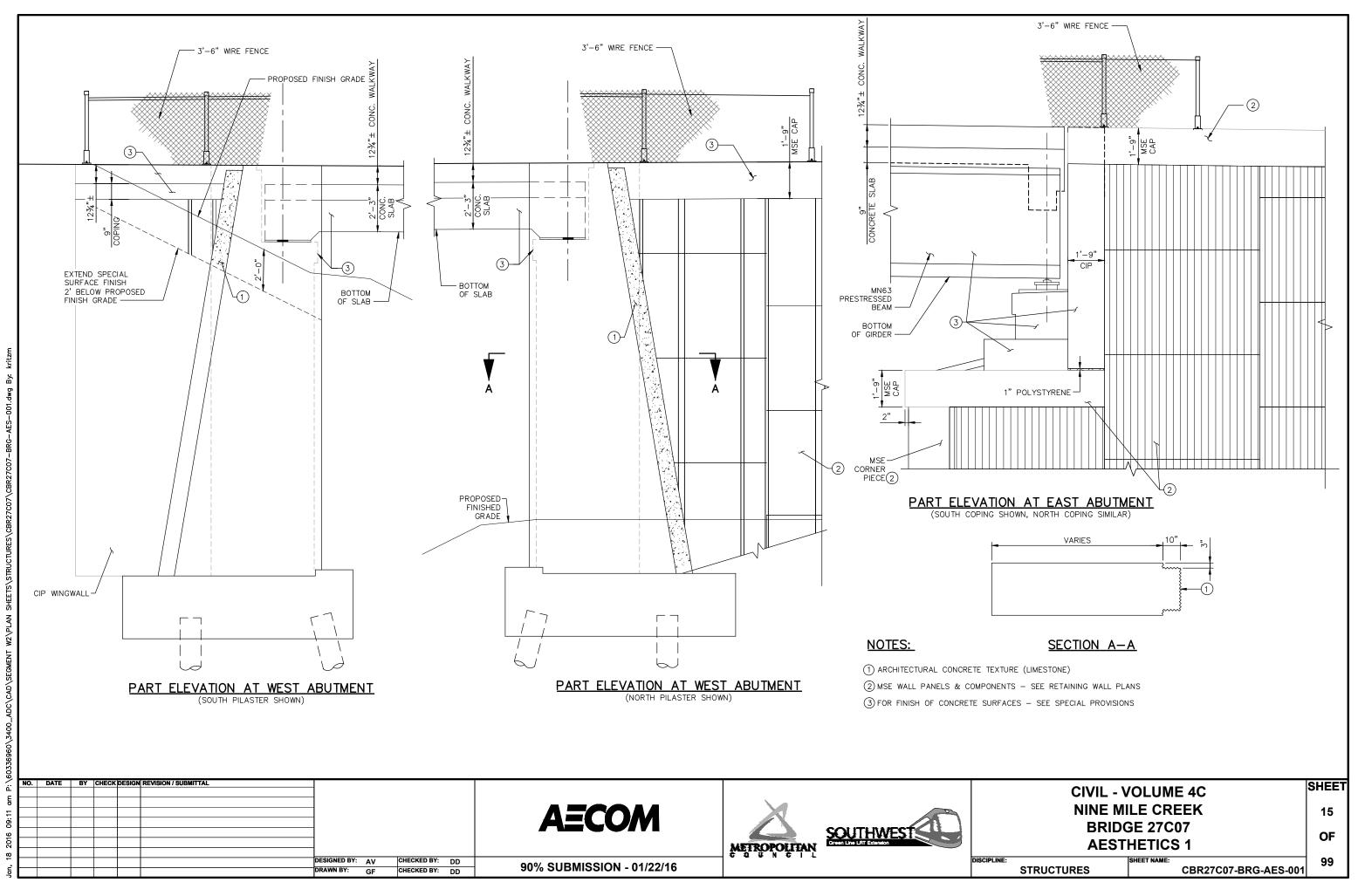
SHEET

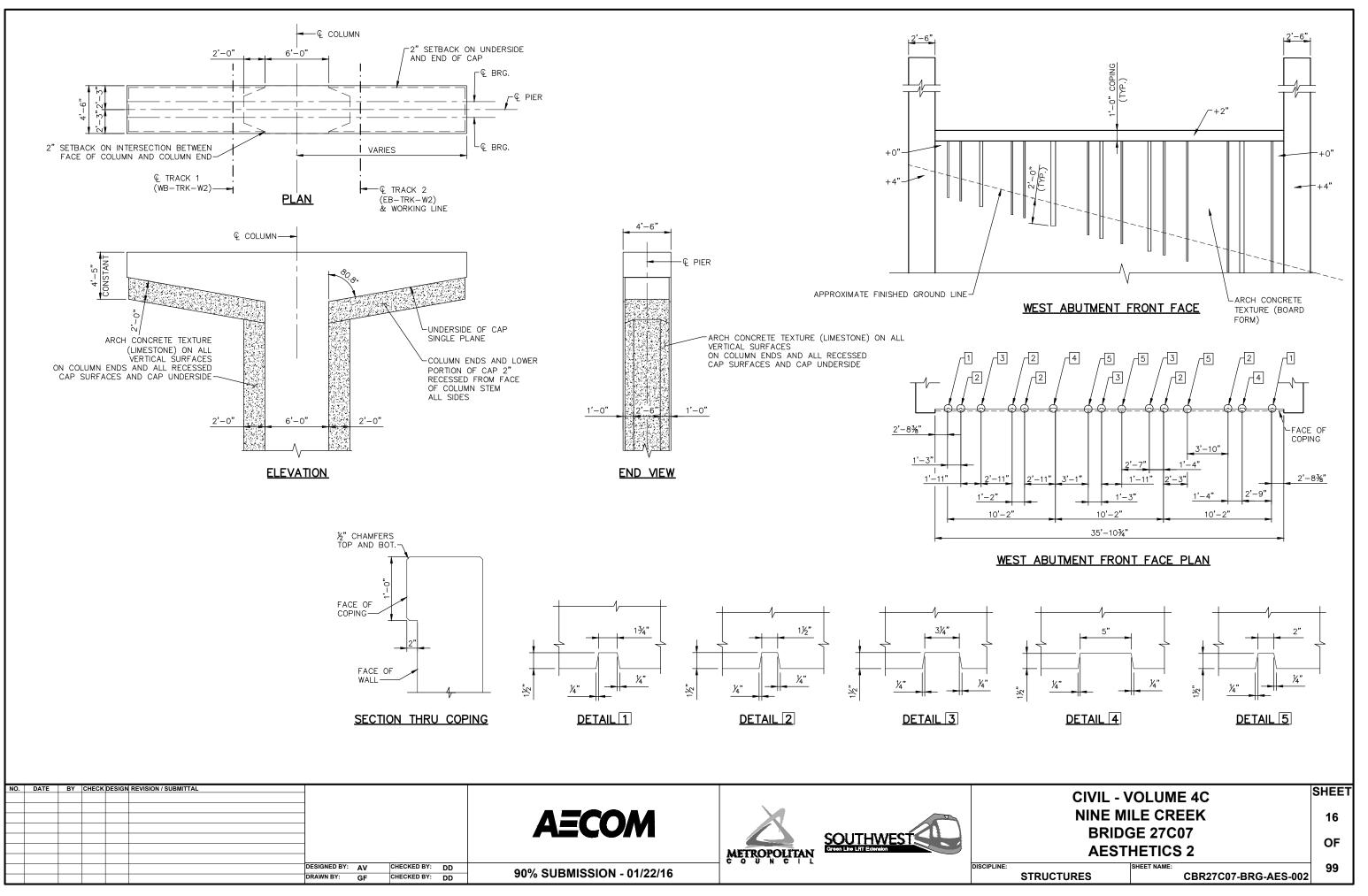
OF

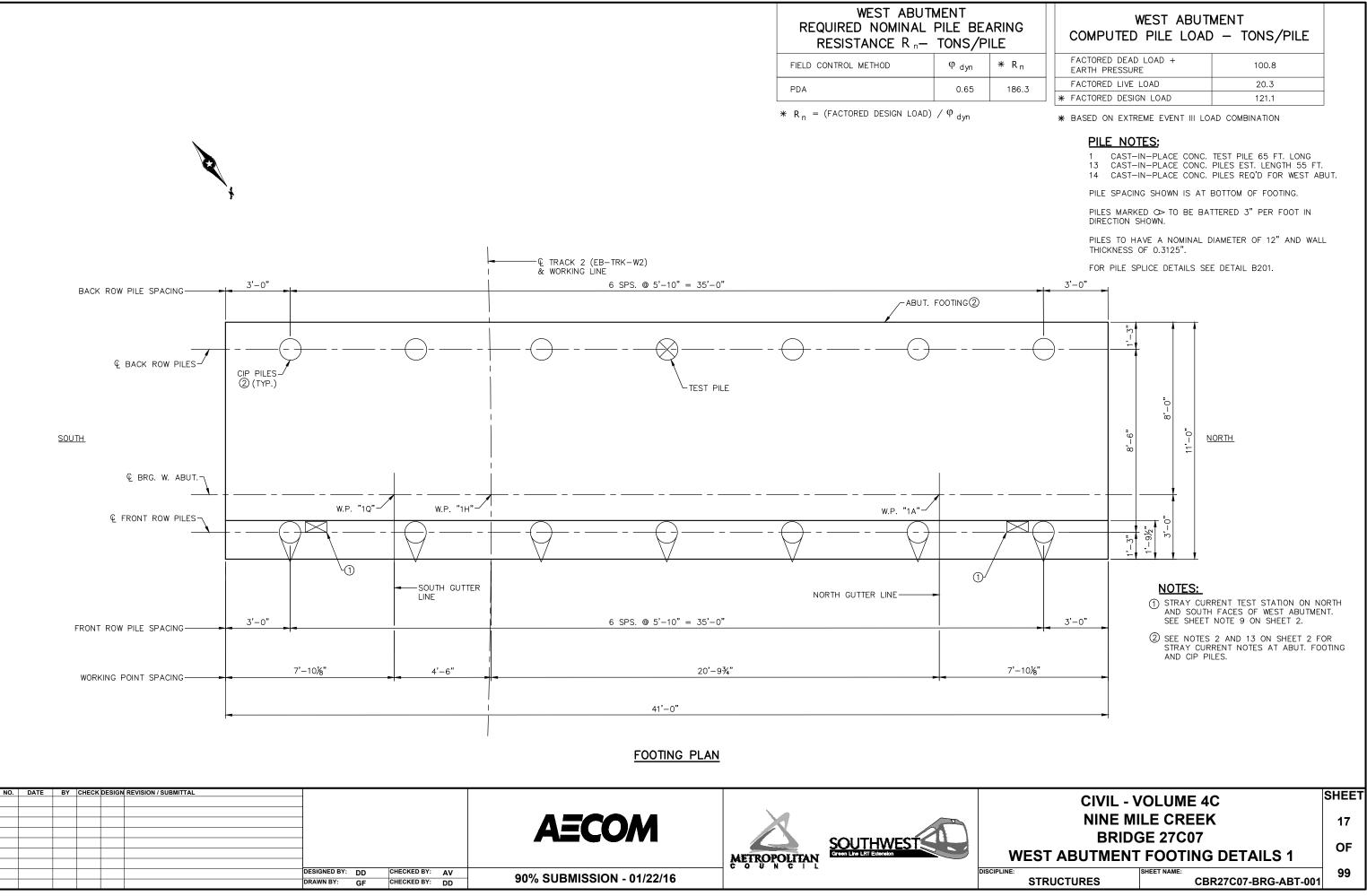
99

STRUCTURES

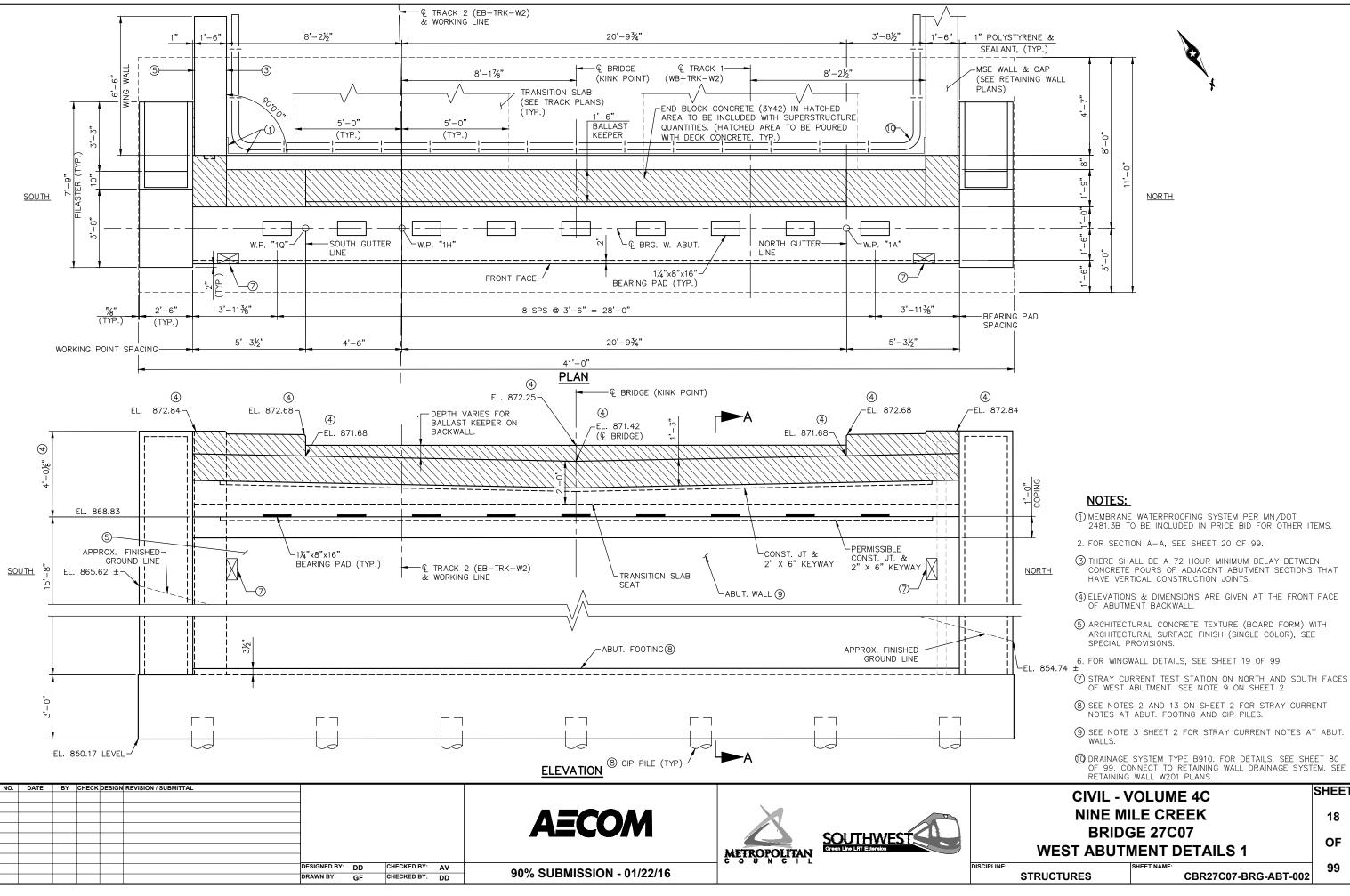
CBR27C07-BRG-SUP-016



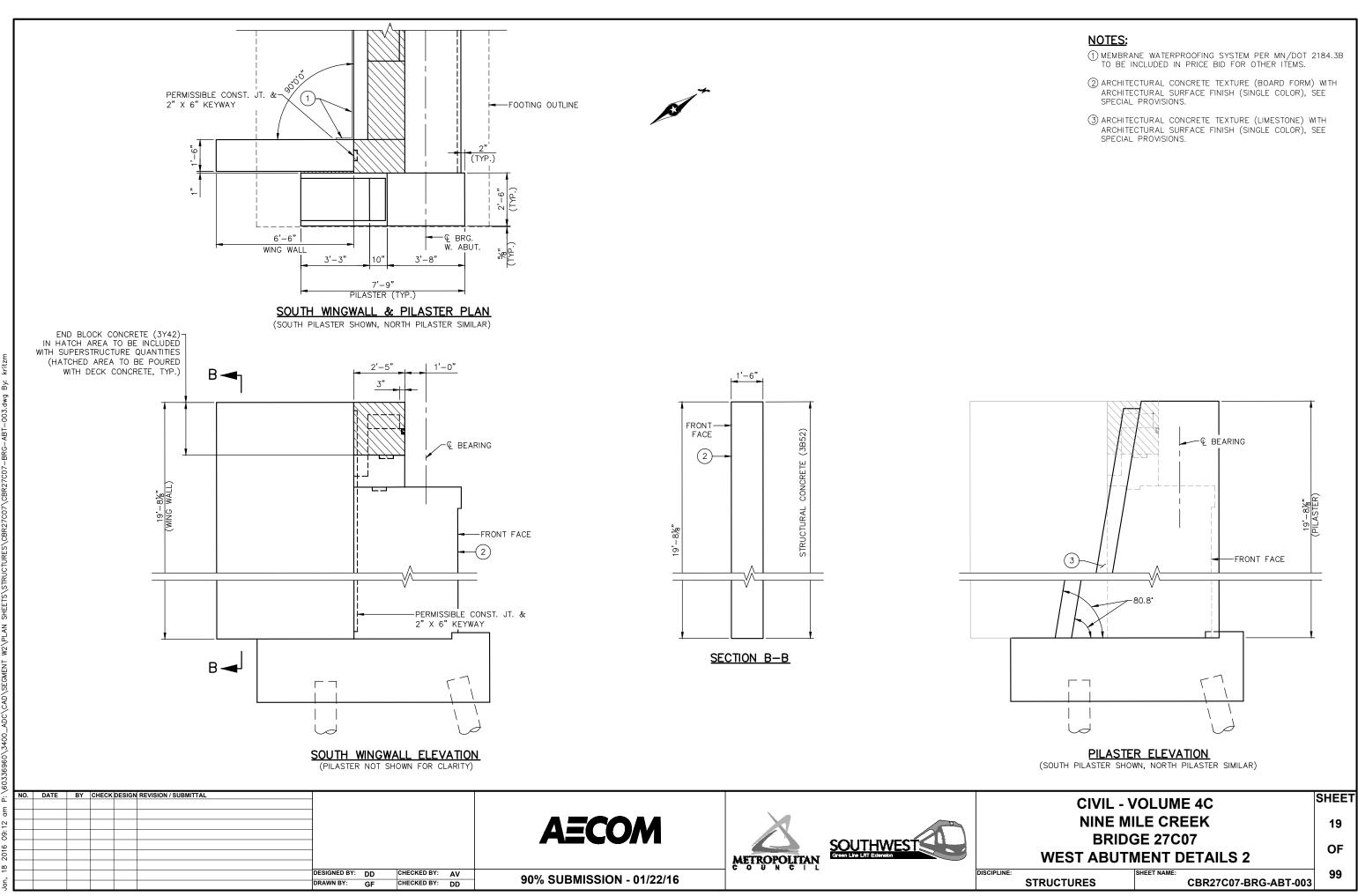


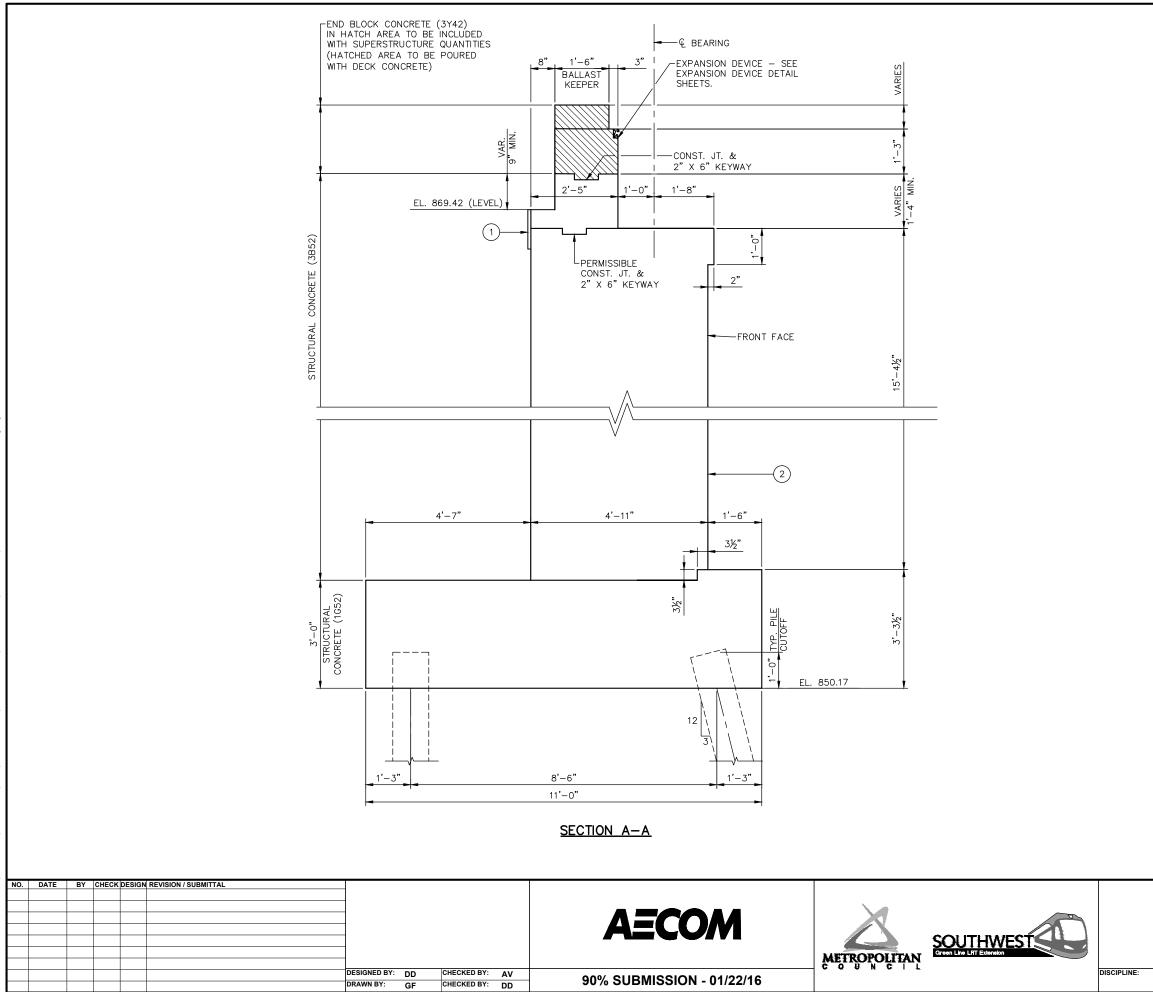


	R n	
1	96 3	

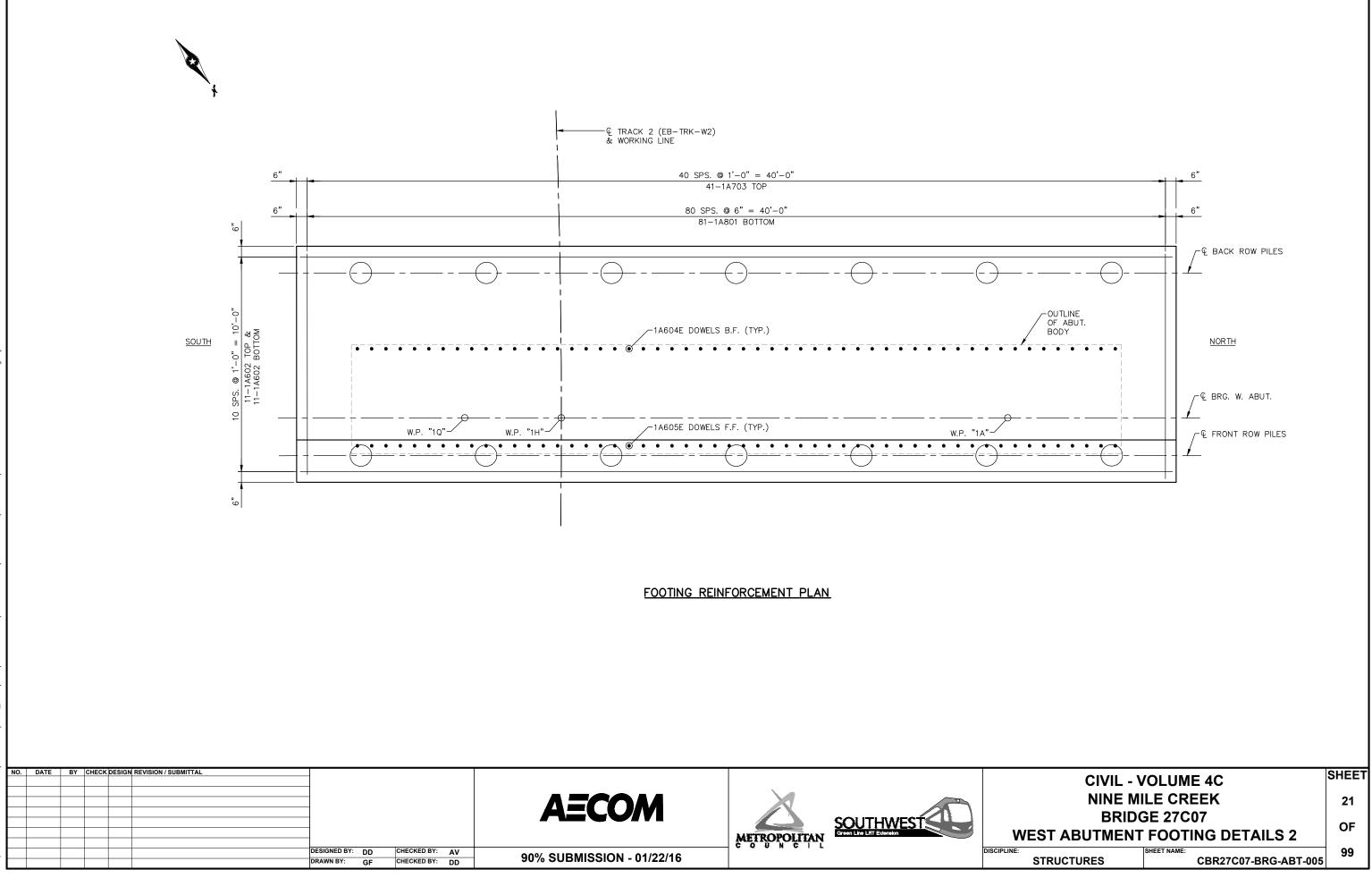


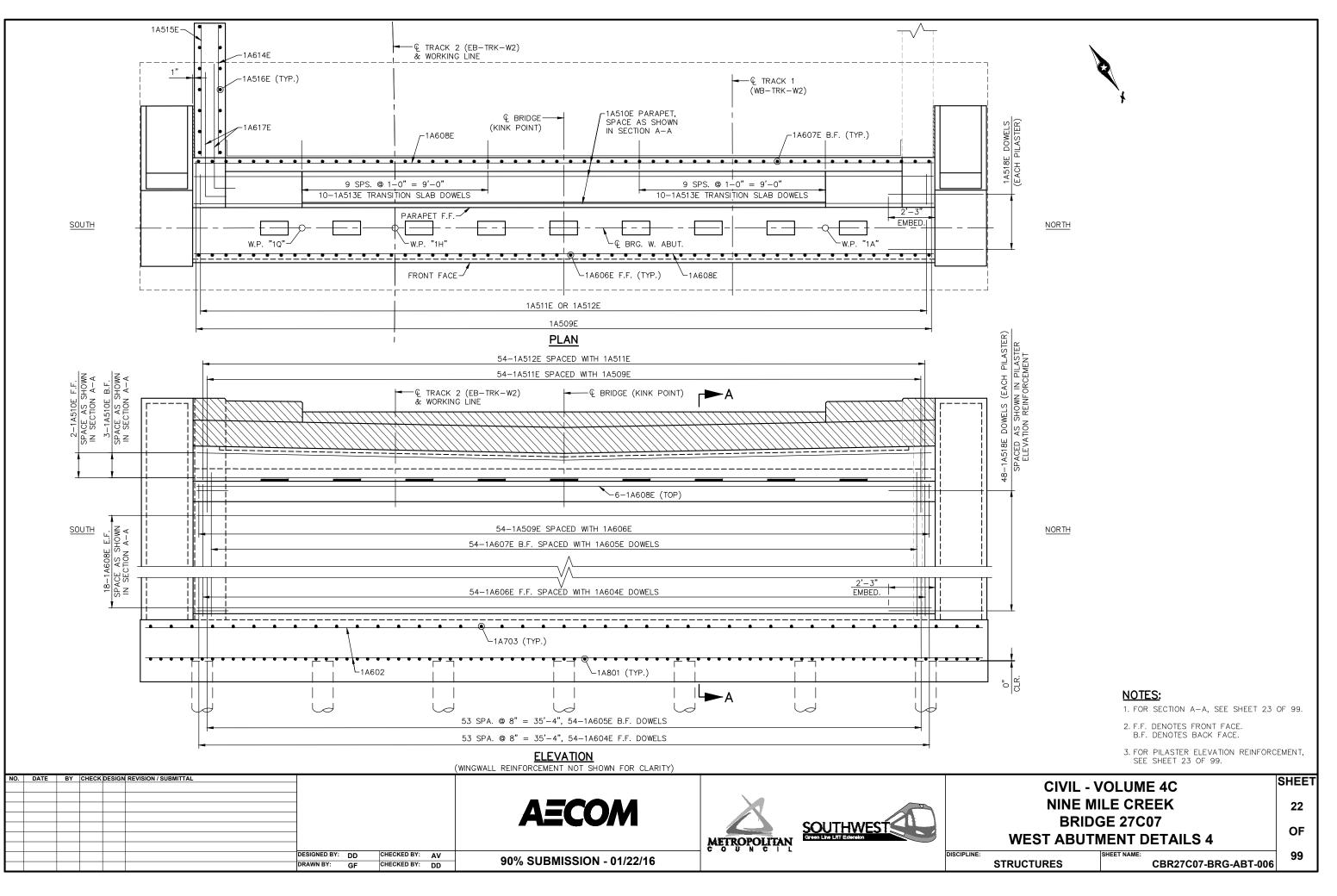
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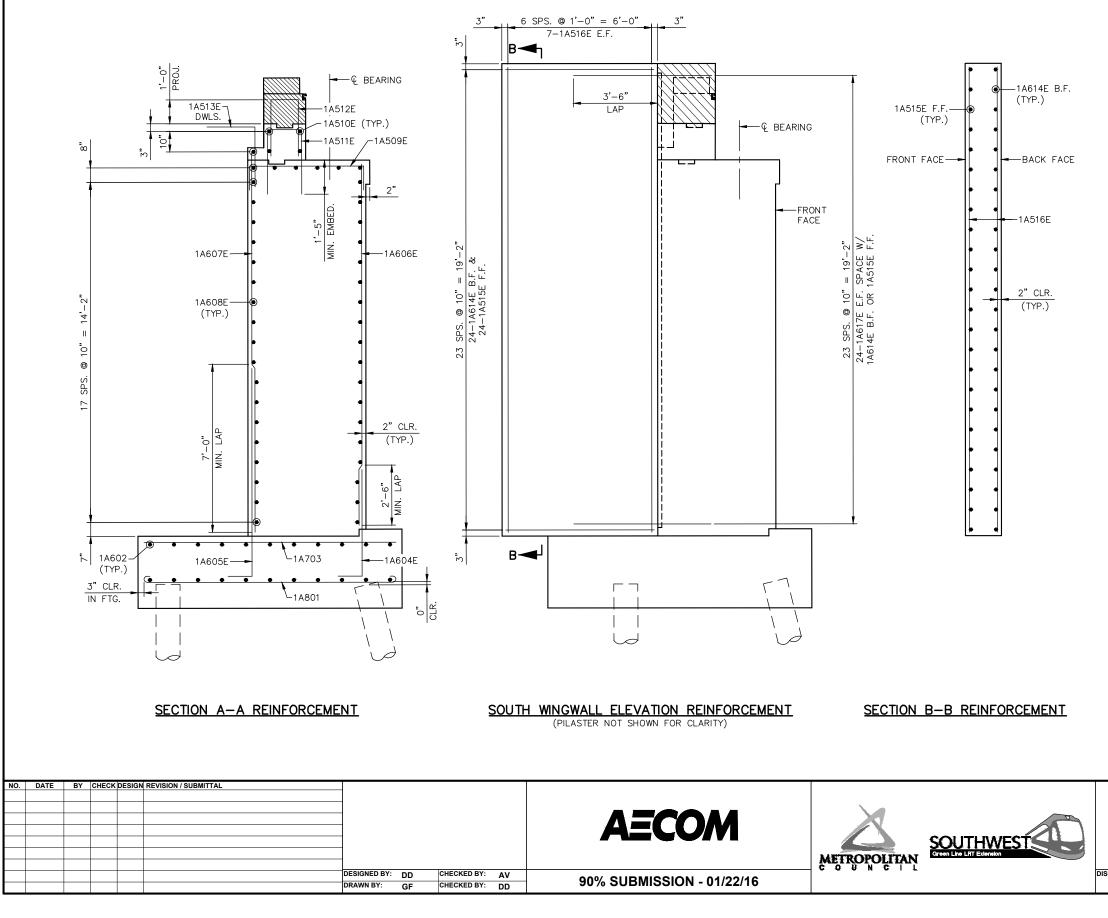


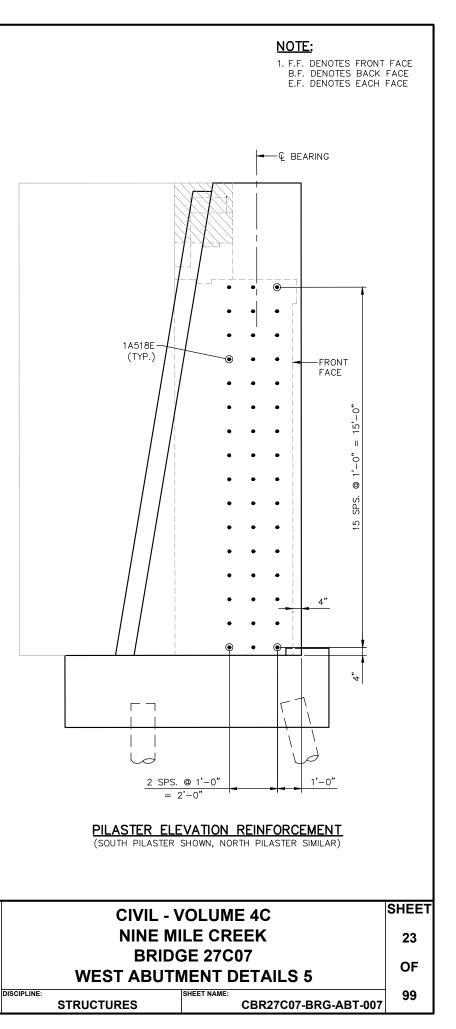


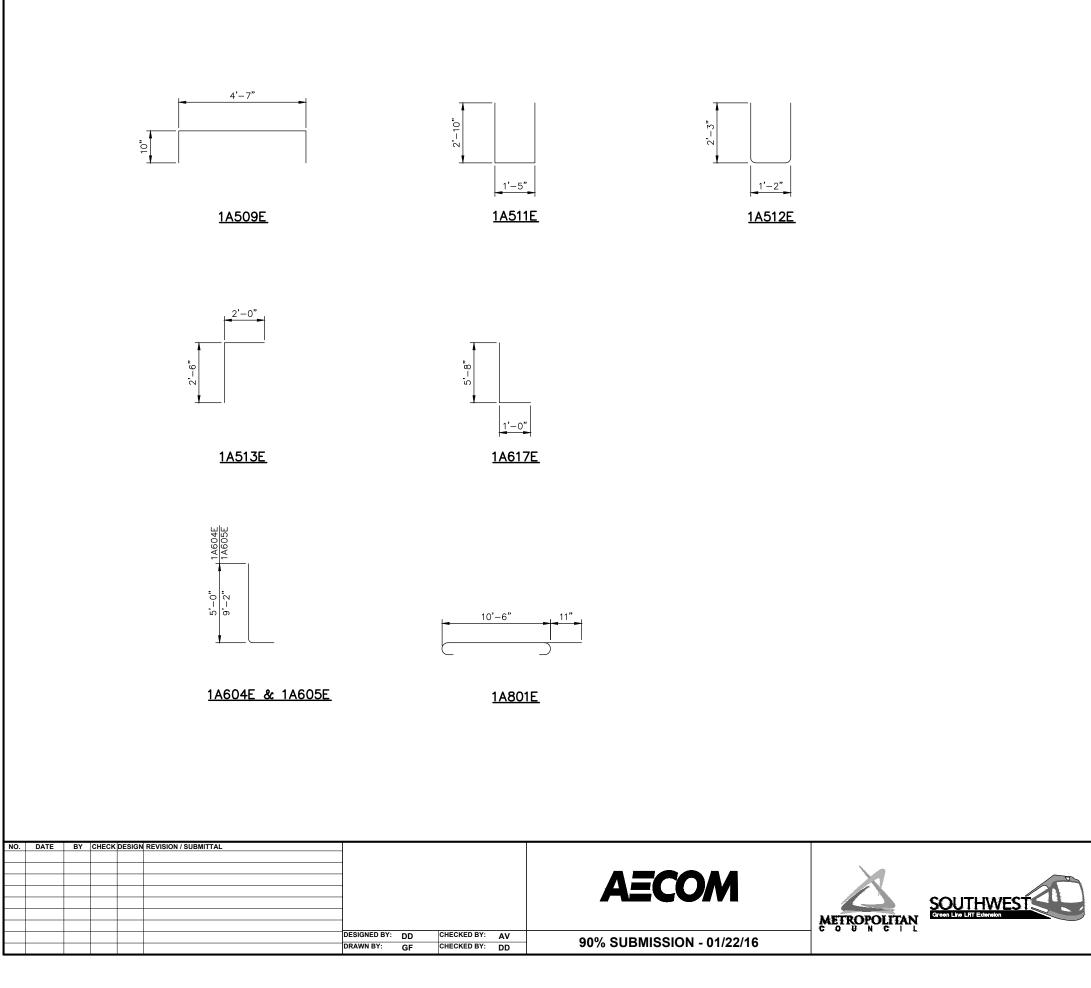
TO BE INCLUDED	ERPROOFING SYSTEM PER MN/DOT 2481.3B IN PRICE BID FOR OTHER ITEMS. CONCRETE TEXTURE (BOARD FORM) WITH SURFACE FINISH (SINGLE COLOR), SEE ONS.	
CIVIL - V	OLUME 4C	SHEET
		20
	GE 27C07 MENT DETAILS 3	OF
STRUCTURES	SHEET NAME: CBR27C07-BRG-ABT-004	99











BILL	OF REIN	VF ORCEI	MENIF	OR WEST ABUTMENT		
BAR	NO.	LENGTH	SHAPE	LOCATION		
1A801	81	12'-4"	$\frown$	FOOTING		
1A602	22	40'-6"		FOOTING		
1A703	41	10'-6"		FOOTING		
1A604E	54	6'-0"		VERTICAL DOWEL F.F.		
1A605E	54	10'-2"		VERTICAL DOWEL B.F.		
1A606E	54	15'-0"		STEM VERTICAL F.F.		
1A607E	54	15'-8"		STEM VERTICAL B.F.		
1A608E	42	35'-6"		STEM HORIZONTAL		
1A509E	54	6'-3"		STEM TIE		
1A510E	5	35'-6"		BACKWALL HORIZONTAL		
1A511E	54	7'-1"		BACKWALL TIE		
1A512E	54	5'-8"		TOP TIE		
1A513E	20	4'-6"		PEDESTAL TIE		
1A614E	24	6'-2"		WINGWALL HORIZONTAL B.F.		
1A515E	24	6'-2"		WINGWALL HORIZONTAL F.F.		
1A516E	14	19'-4"		WINGWALL VERTICAL		
1A617E	48	6'-8"		WINGWALL TIE		
1A518E	96	4'-6"		PILASTER DOWEL		

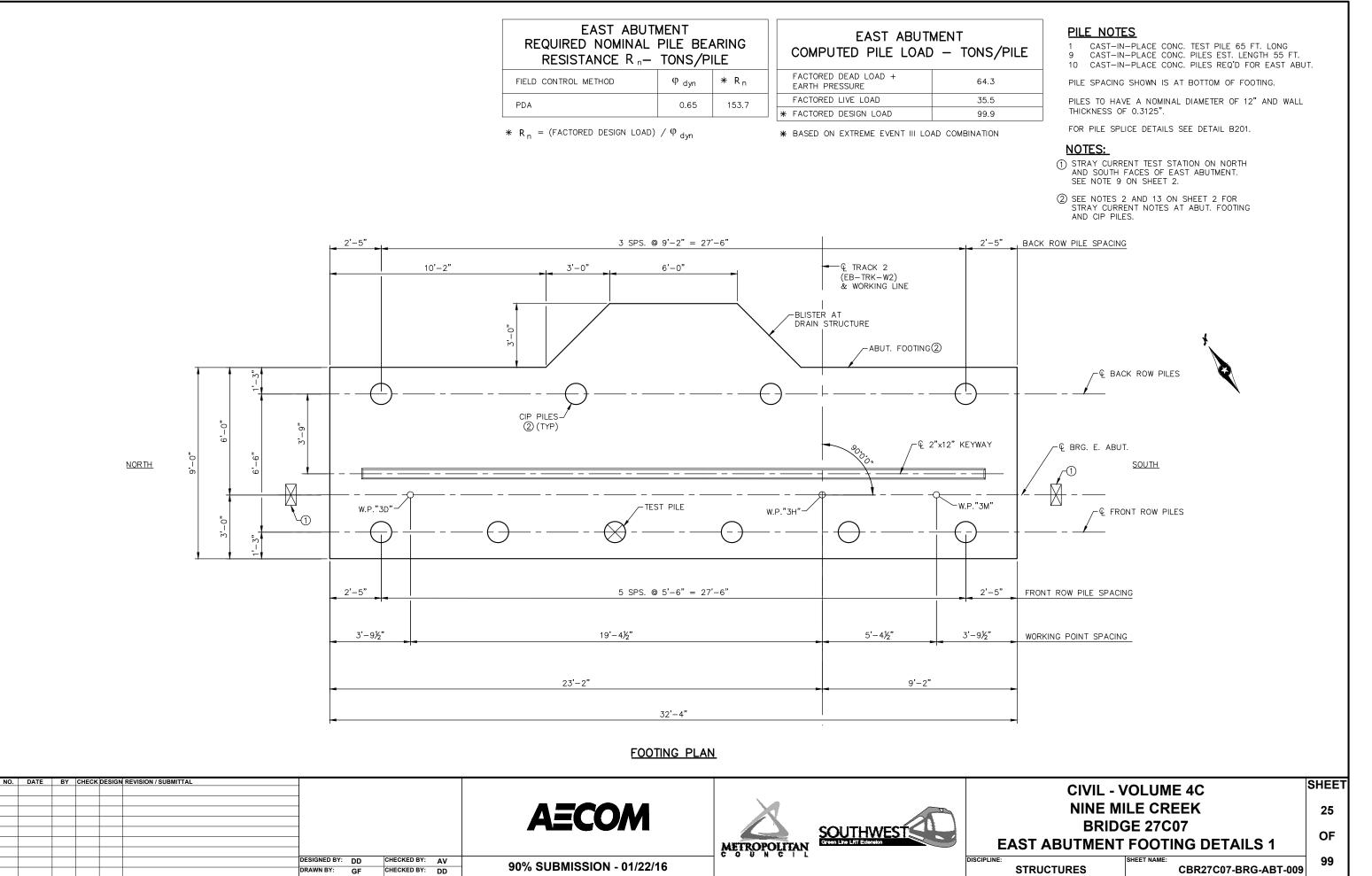
	CIVIL - VOLUME 4C				
	NINE MILE CREEK				
	BRIDGE 27C07				
WEST ABUTMENT DETAILS 6					
	DISCIPLINE: SHEET NAME:				
	STRUCTURES CBR27C07-BRG-ABT-008	•••			

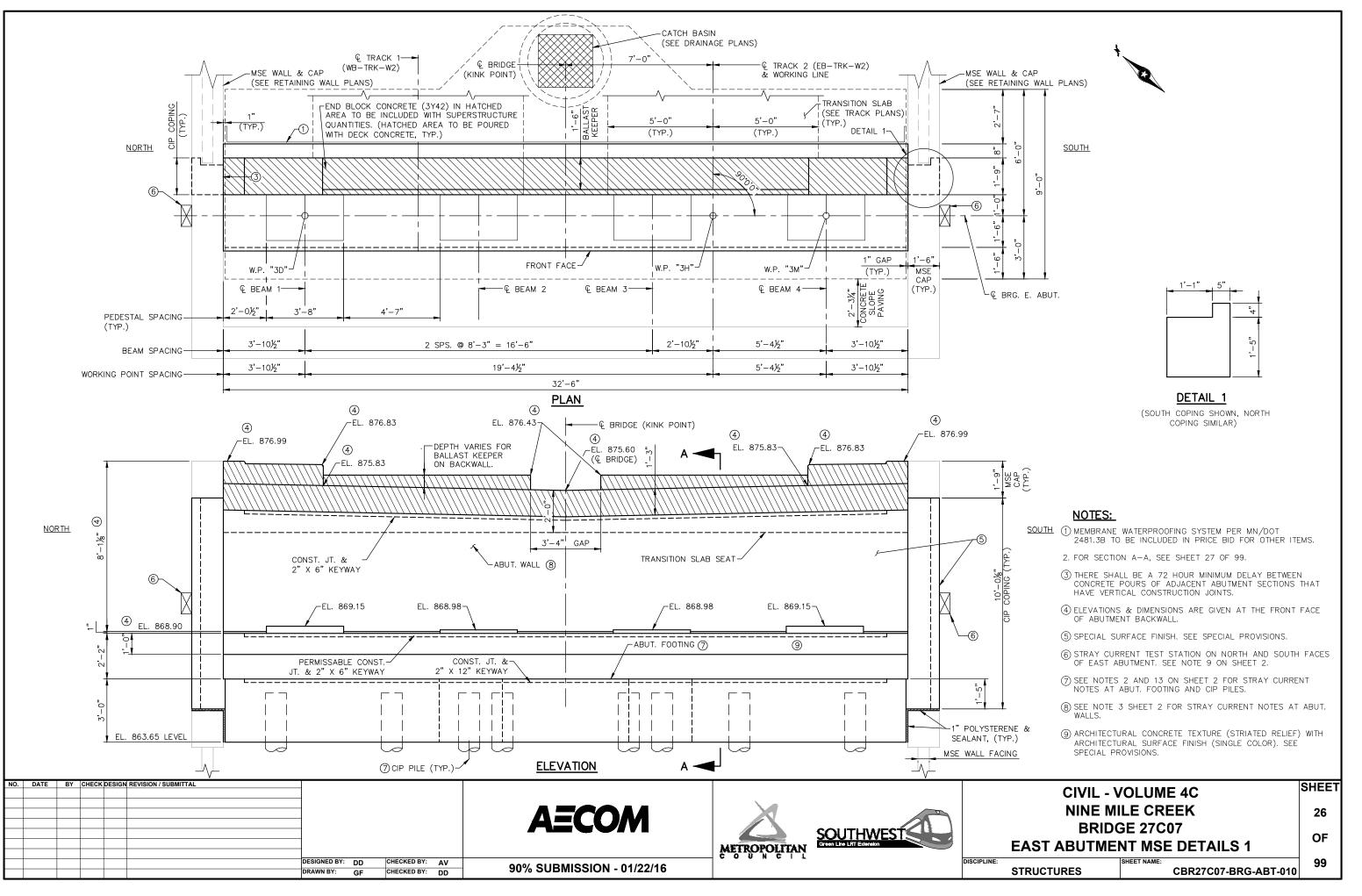
## EAST ABUTMENT RESISTANCE R - TONS/PILE

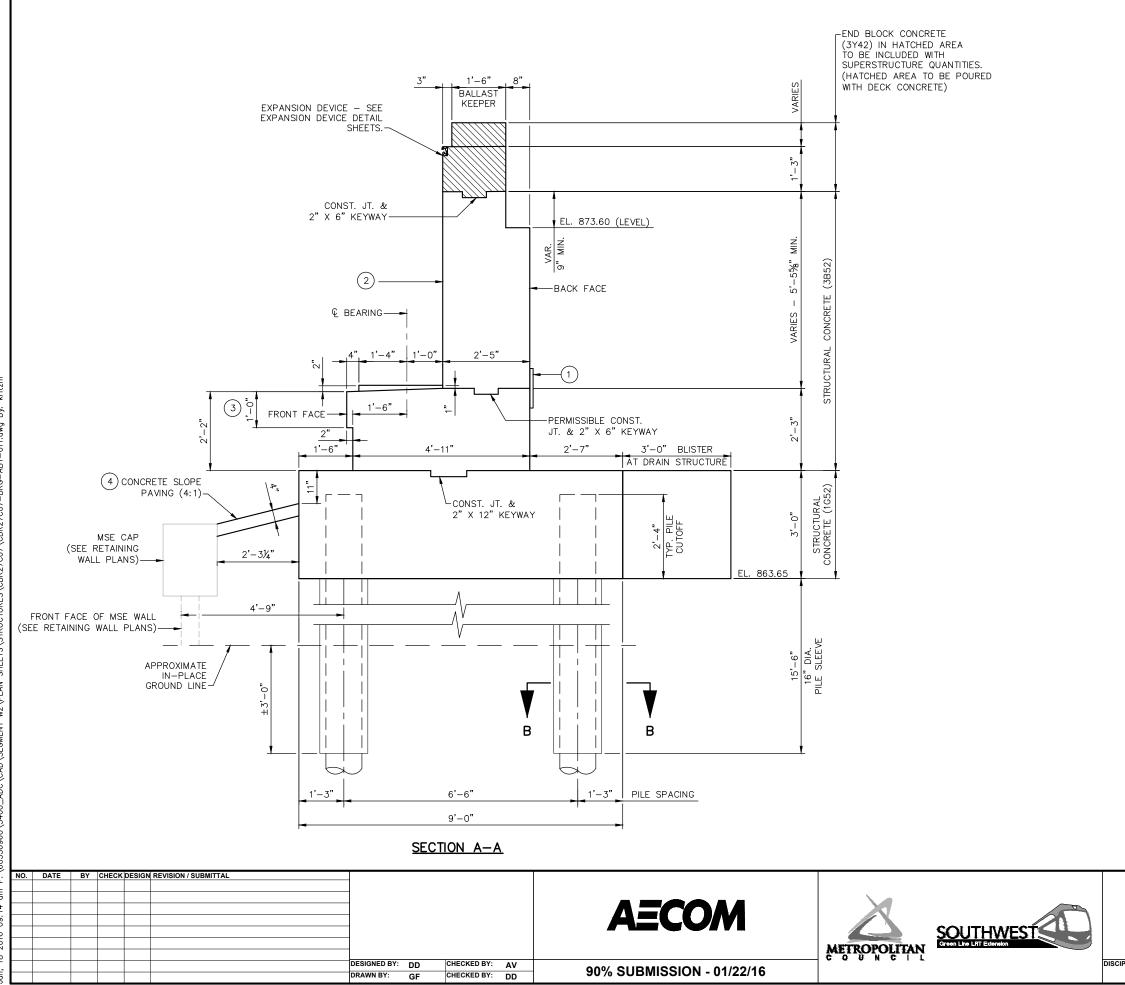
FIELD CONTROL METHOD	φ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	153.7

EAST ABUTMENT

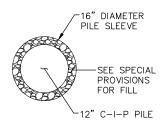
FACTORED DEAD LOAD + EARTH PRESSURE	64.3
FACTORED LIVE LOAD	35.5
* FACTORED DESIGN LOAD	99.9







DISCIPLINE

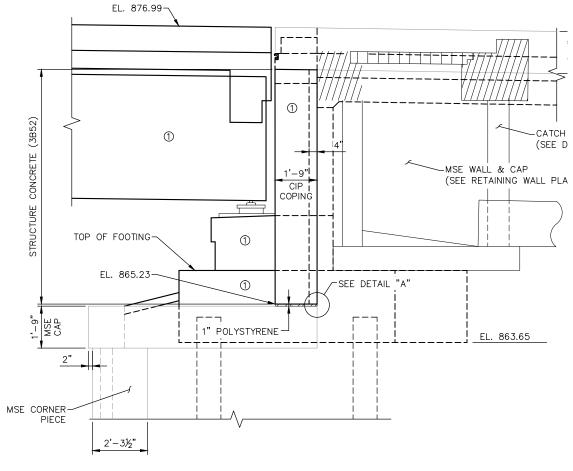


### SECTION B-B

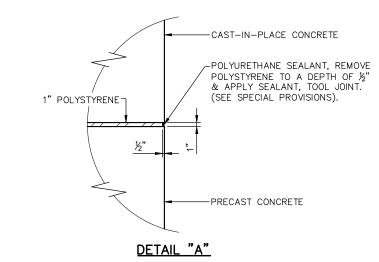
### NOTES:

- 1 MEMBRANE WATERPROOFING SYSTEM PER MN/DOT 2481.3B, TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
- (2) SPECIAL SURFACE FINISH. SEE SPECIAL PROVISIONS.
- (3) ARCHITECTURAL CONCRETE TEXTURE (STRIATED RELIEF) WITH ARCHITECTURAL SURFACE FINISH (SINGLE COLOR). SEE SPECIAL PROVISIONS.
- (4) FOR CONCRETE SLOPE PAVING DETAILS, SEE SHEET 82 OF 99.

	CIVIL - VOLUME 4C			
	NINE MI	LE CREEK	27	
	BRIDGE 27C07			
	EAST ABUTMENT MSE DETAILS 2			
E:	STRUCTURES	SHEET NAME: CBR27C07-BRG-ABT-011	99	



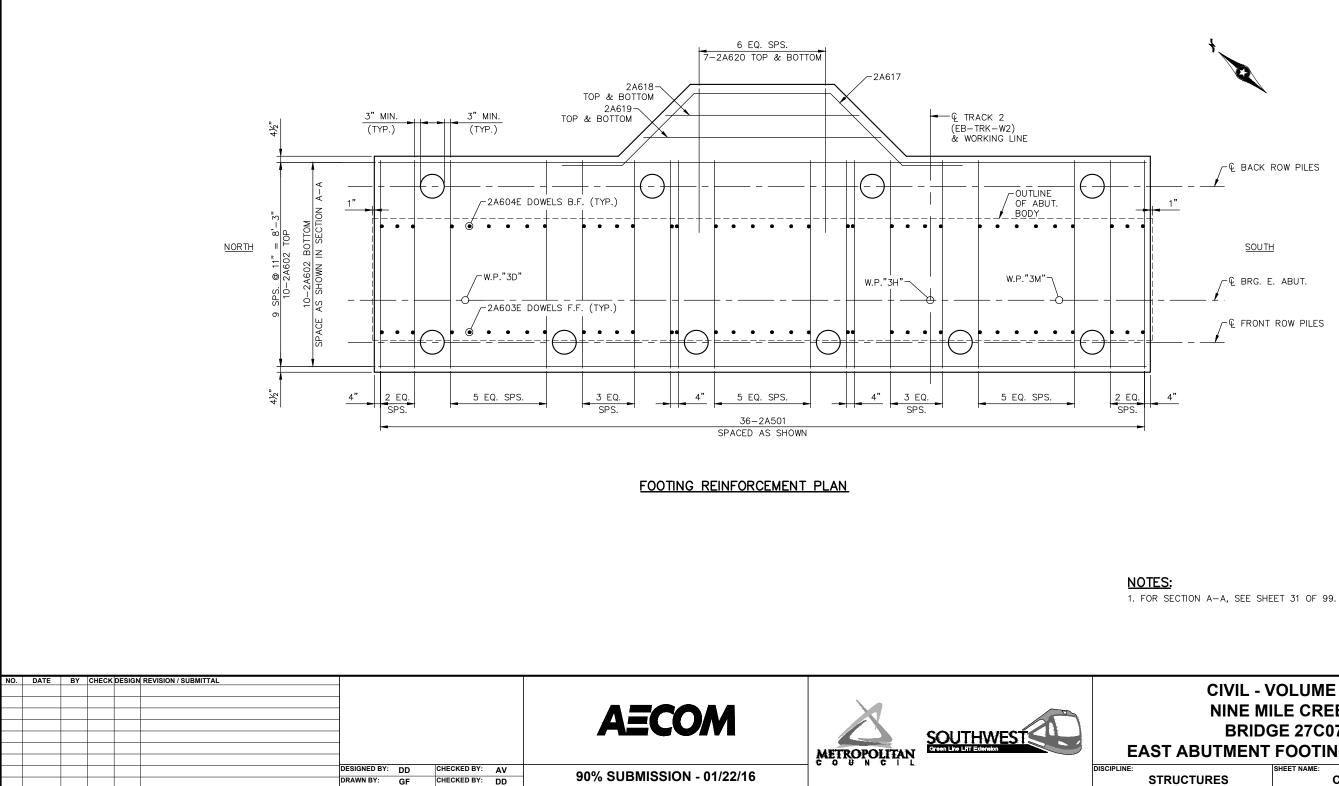
COPING ELEVATION (SOUTH COPING SHOWN, NORTH COPING SIMILAR)



9									
á:	IO. DATE	BY CHEC	KDESIGN	REVISION / SUBMITTAL	-			CIVIL - VOLUME 4C	SHEET
4 an					-			NINE MILE CREEK	28
1- 1-					-	AECOM		BRIDGE 27C07	20
016 (					-		SOUTHWEST		OF
8 20					-			EAST ABUTMENT MSE DETAILS 3	
-					DESIGNED BY: DD CHECKED BY: AV	90% SUBMISSION - 01/22/16			99 <b>9</b> 9
Ρ					DRAWN BY: GF CHECKED BY: DD			STRUCTURES CBR27C07-BRG-A	BI-V12

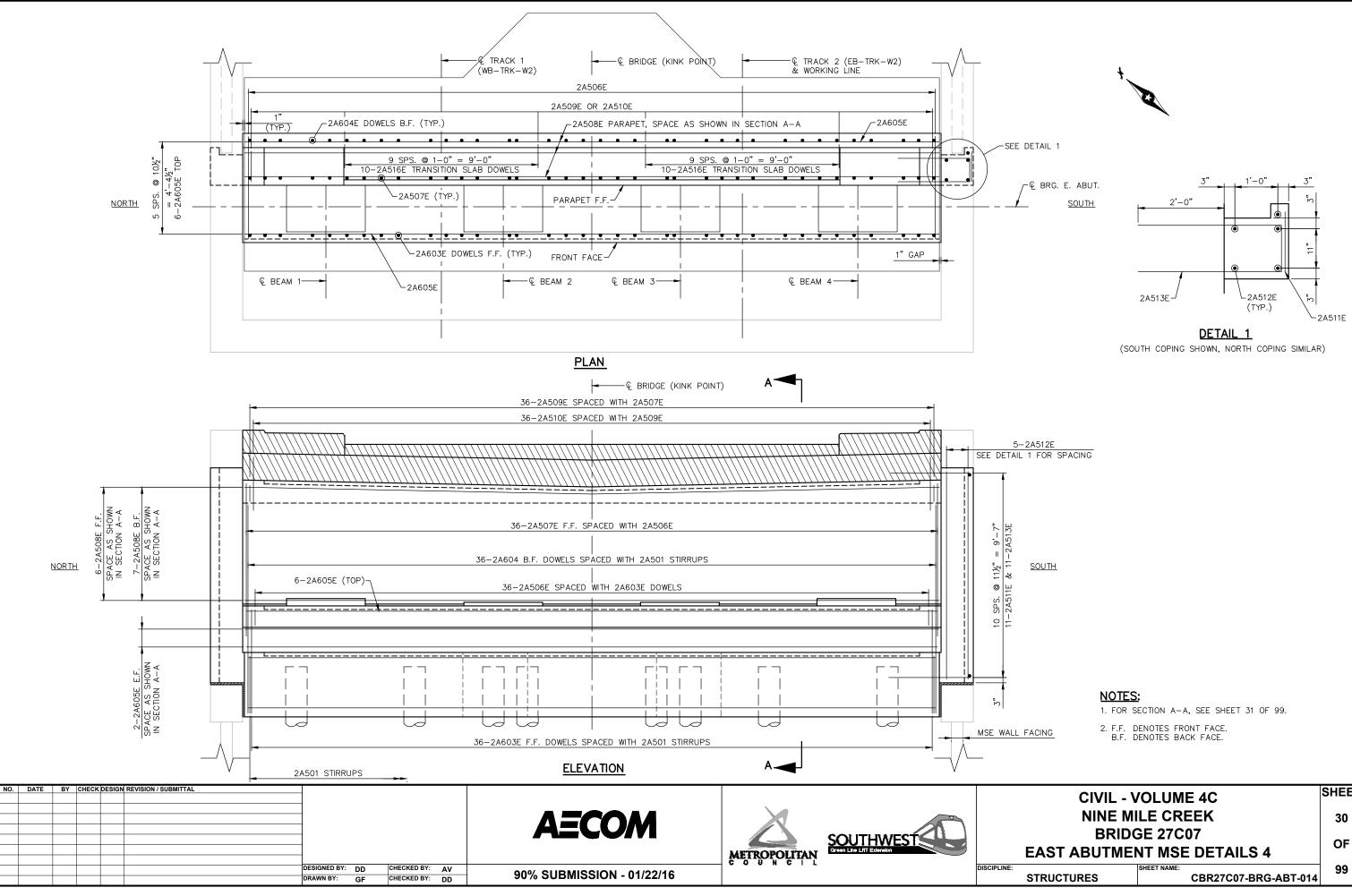
(1) SPECIAL SURFACE FINISH. SEE SPECIAL PROVISIONS.

NOTES:



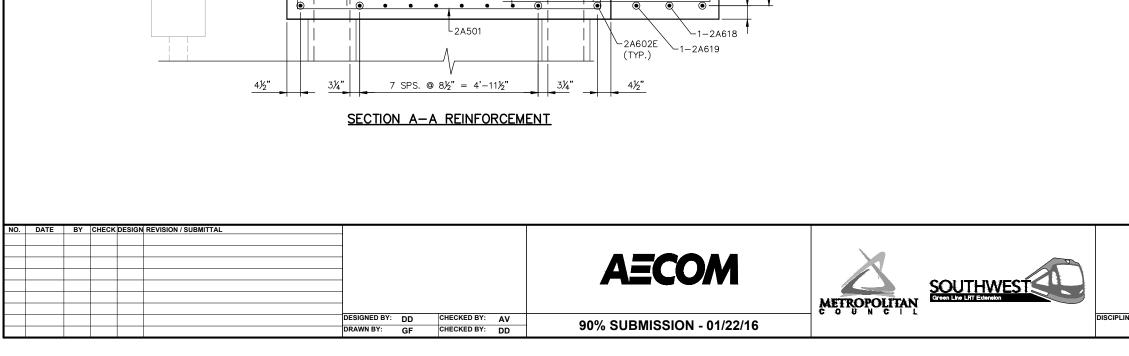
AN

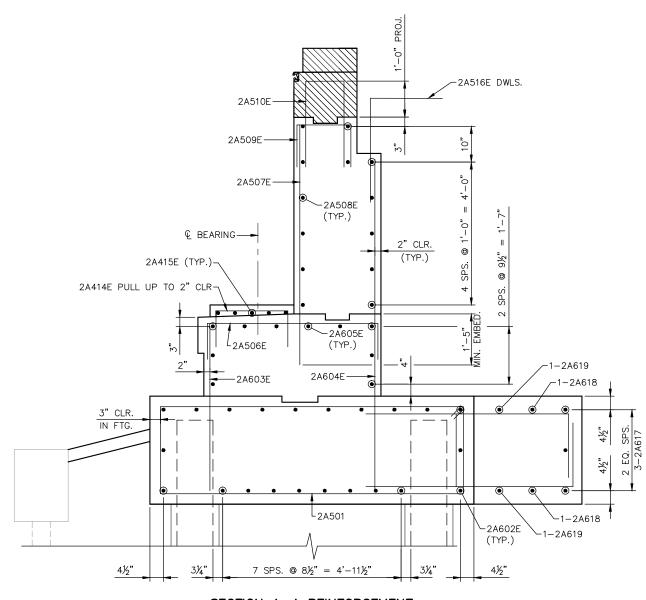
CIVIL - VOLUME 4C				
NINE MILE CREEK				
BRIDGE 27C07				
EAST ABUTMENT FOOTING DETAILS 2				
INE: SHEET NAME:				
STRUCTURES CBR27C07-BRG-ABT-013				



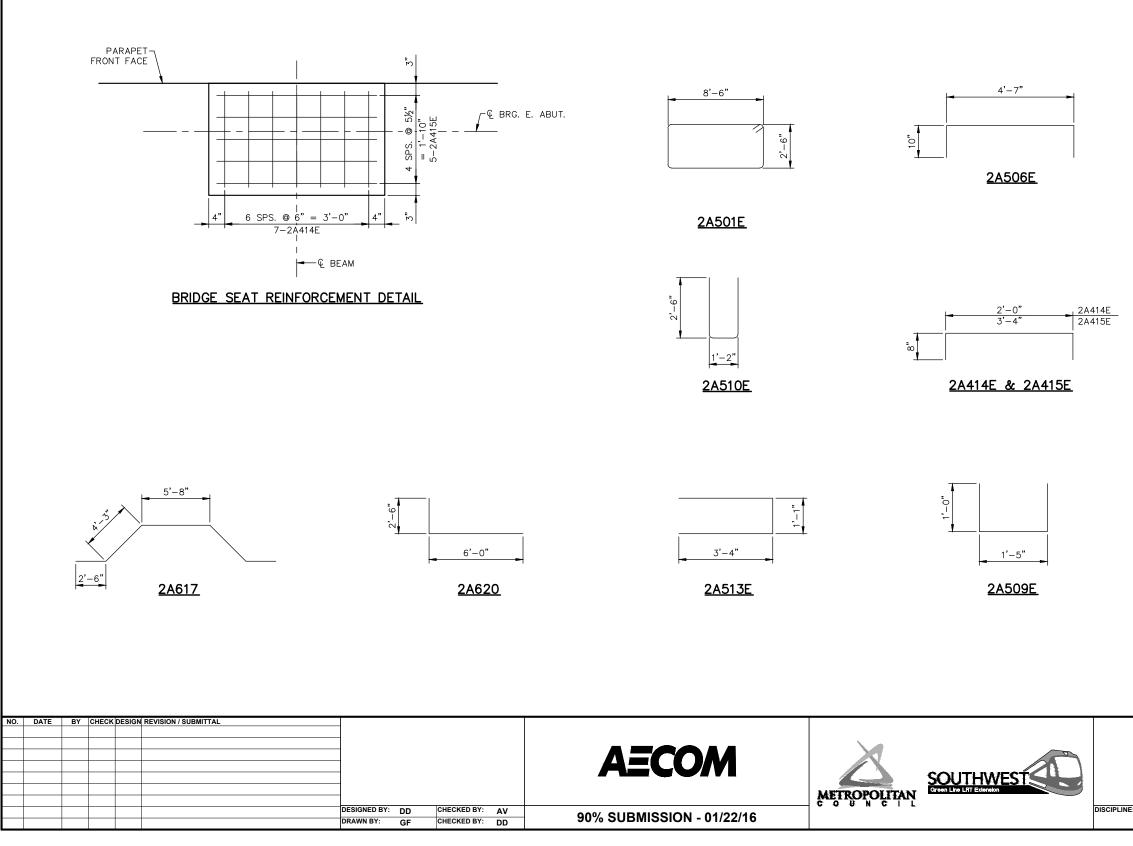


	CIVIL - V	OLUME 4C	SHEET	
	NINE MI	LE CREEK	30	
	BRIDGE 27C07			
	EAST ABUTMENT MSE DETAILS 4			
INE:	STRUCTURES	CBR27C07-BRG-ABT-014	99	

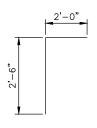




	CIVIL - VOLUME 4C					
	NINE MILE CREEK					
	BRIDGE 27C07					
	EAST ABUTMENT MSE DETAILS 5					
INE:	STRUCTURES	CBR27C07-BRG-ABT-015	99			



BILL OF REINFORCEMENT FOR EAST ABUTMENT					
BAR	NO.	LENGTH	SHAPE	LOCATION	
2A501	36	22'-11"		FOOTING	
2A602	20	32'-0"		FOOTING	
2A603E	36	4'-9"		FOOTING VERTICAL DOWEL F.F.	
2A604E	36	9'-8"		FOOTING VERTICAL DOWEL B.F.	
2A605E	10	32'-2"		STEM HORIZONTAL	
2A506E	36	6'-3"		STEM TIE	
2A507E	36	7'-0"		BACKWALL VERTICAL F.F.	
2A508E	13	32'-2"		BACKWALL HORIZONTAL	
2A509E	36	3'-5"		BACKWALL TIE	
2A510E	36	6'-2"		TOP TIE	
2A511E	22	1'-5"		COPING HORIZONTAL	
2A512E	10	9'-8"		COPING VERTICAL	
2A513E	22	7'-9"		COPING TIE	
2A414E	28	3'-4"		BRIDGE SEAT	
2A415E	20	4'-8"		BRIDGE SEAT	
2A516E	20	4'-6"		TRANSITION SLAB DOWEL	
2A617	3	19'-2"	$\sim$	FOOTING	
2A618	2	8'-7"		FOOTING	
2A619	2	10'-5"		FOOTING	
2A620	14	8'-6"		FOOTING	



<u>2A516E</u>

	CIVIL - VOLUME 4C		
	NINE MILE CREEK		
	BRIDGE 27C07		
	EAST ABUTMENT MSE DETAILS 6		
IE:			99
	STRUCTURES	CBR27C07-BRG-ABT-016	

	PIERS 1	& 2	
REQUIRED	NOMINAL	PILE	BEARING
RESISTA	ANCE $R_n$ —	TON	S/PILE

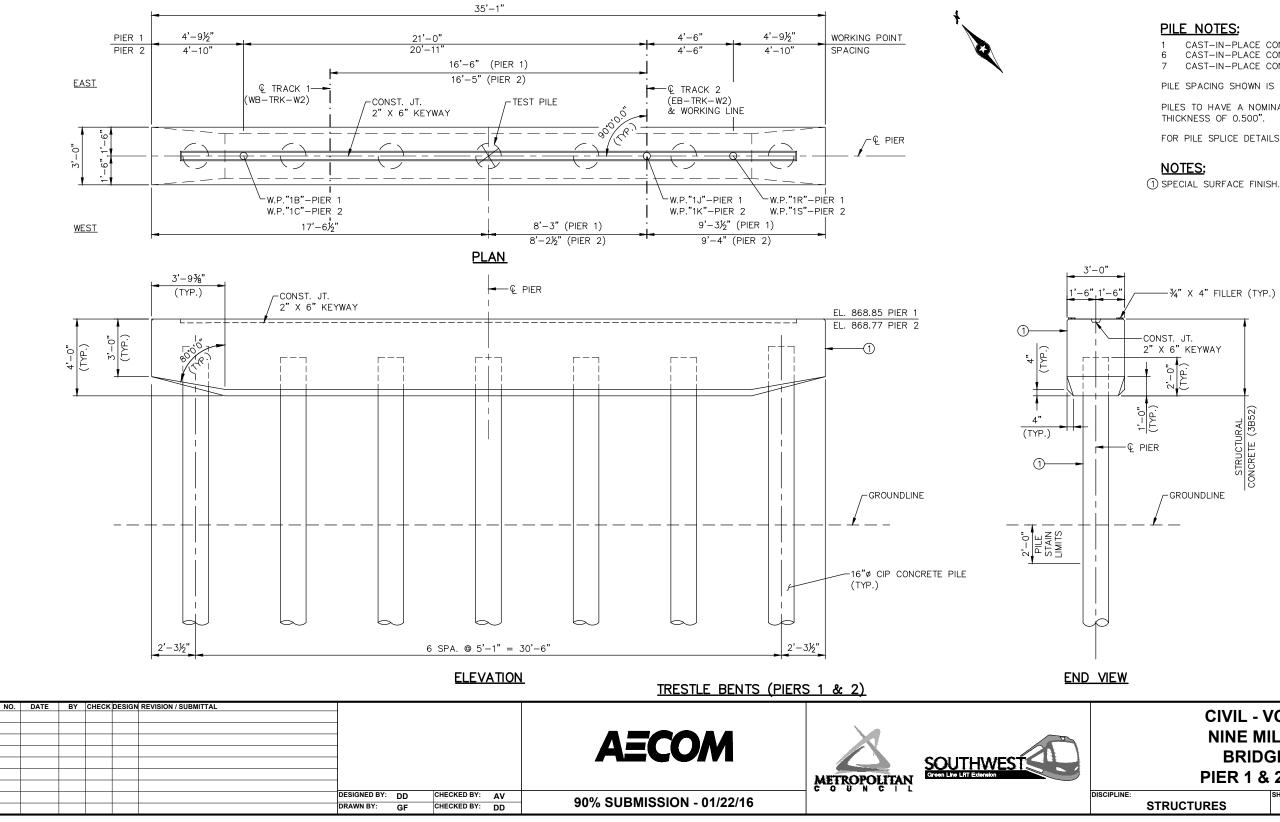
L			
	FIELD CONTROL METHOD	φ <sub>dyn</sub>	* R <sub>n</sub>
	PDA	0.65	163.2

### PIERS 1 & 2 COMPUTED PILE LOAD - TONS/PILE

	FACTORED	DEAD LOAD	78.9	
	FACTORED	LIVE LOAD	21.3	
	FACTORED	OVERTURNING	6.0	
*	FACTORED	DESIGN LOAD	106.1	

\* R \_n = (FACTORED DESIGN LOAD) /  $\phi_{dyn}$ 

\* BASED ON STRENGTH V LOAD COMBINATION



CAST-IN-PLACE CONC. TEST PILE 95 FT. LONG. CAST-IN-PLACE CONC. PILES EST. LENGTH 85 FT. 7 CAST-IN-PLACE CONC. PILES REQ'D FOR EACH PIER.

PILE SPACING SHOWN IS AT THE BOTTOM OF CAP.

PILES TO HAVE A NOMINAL DIAMETER OF 16" AND WALL

FOR PILE SPLICE DETAILS SEE DETAIL B201.

<u>w</u>		
CIVIL - VOLUME 4C		
NINE MILE CREEK		
BRIDGE 27C07 PIER 1 & 2 DETAILS		
STRUCTURES	SHEET NAME: CBR27C07-BRG-PIR-001	99

PIER 3		
REQUIRED NOMINAL PILE BEARING		
RESISTANCE $R_n$ – TONS/PILE		

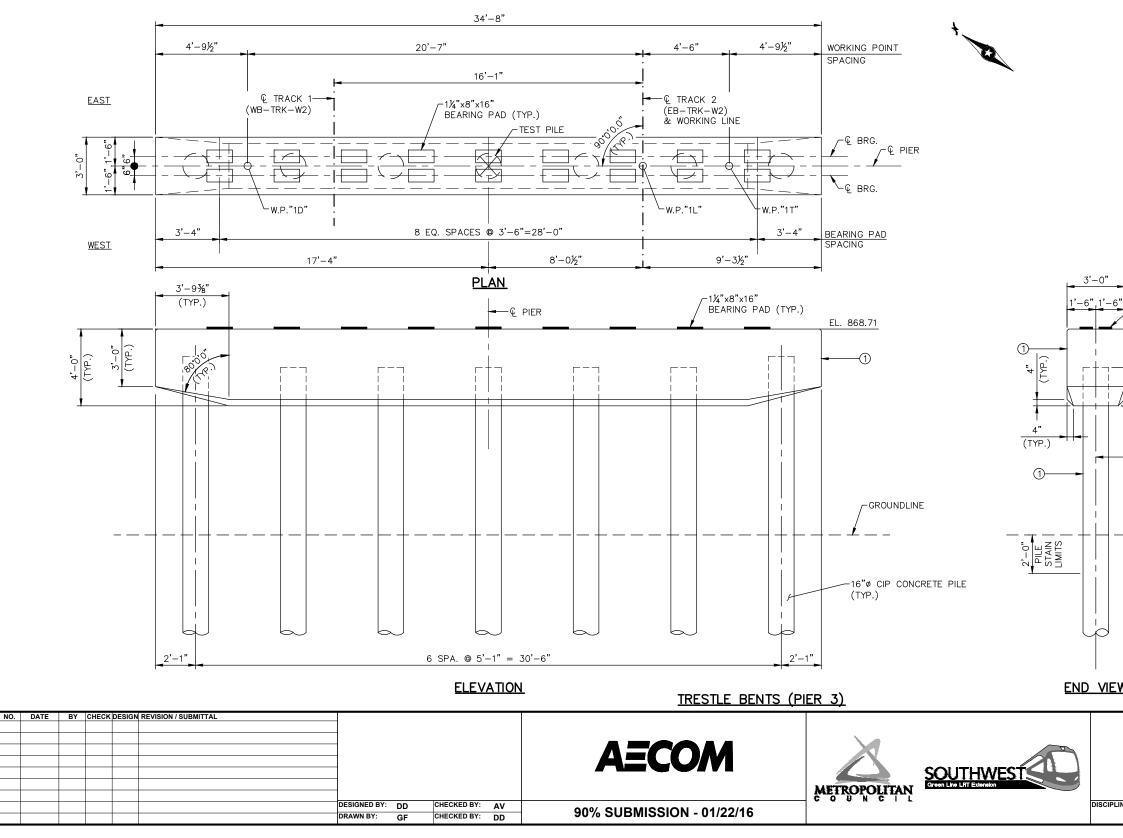
FIELD CONTROL METHOD	φ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	129.1

\* R  $_{\text{n}}$  = (factored design load) /  $\phi$   $_{\text{dyn}}$ 

PIER 3 COMPUTED PILE LOAD - TONS/PILE

	FACTORED	DEAD LOAD	56.8	
	FACTORED	LIVE LOAD	20.7	
	FACTORED	OVERTURNING	6.3	
*	FACTORED	DESIGN LOAD	83.9	

\* BASED ON STRENGTH V LOAD COMBINATION



### PILE NOTES:

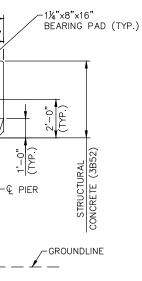
CAST-IN-PLACE CONC. TEST PILE 75 FT. LONG. CAST-IN-PLACE CONC. PILES EST. LENGTH 65 FT. 6 CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 3. 7

PILE SPACING SHOWN IS AT THE BOTTOM OF CAP.

PILES TO HAVE A NOMINAL DIAMETER OF 16" AND WALL THICKNESS OF 0.500".

FOR PILE SPLICE DETAILS SEE DETAIL B201.

### NOTES:



CIVIL - V	OLUME 4C	SHEET
NINE MILE CREEK		
BRIDGE 27C07 PIER 3 DETAILS		
		99
	NINE MI BRIDO PIER 3	NINE MILE CREEK BRIDGE 27C07 PIER 3 DETAILS

PIER 4		
REQUIRED NOMINAL PILE BEARING		
RESISTANCE R - TONS/PILE		

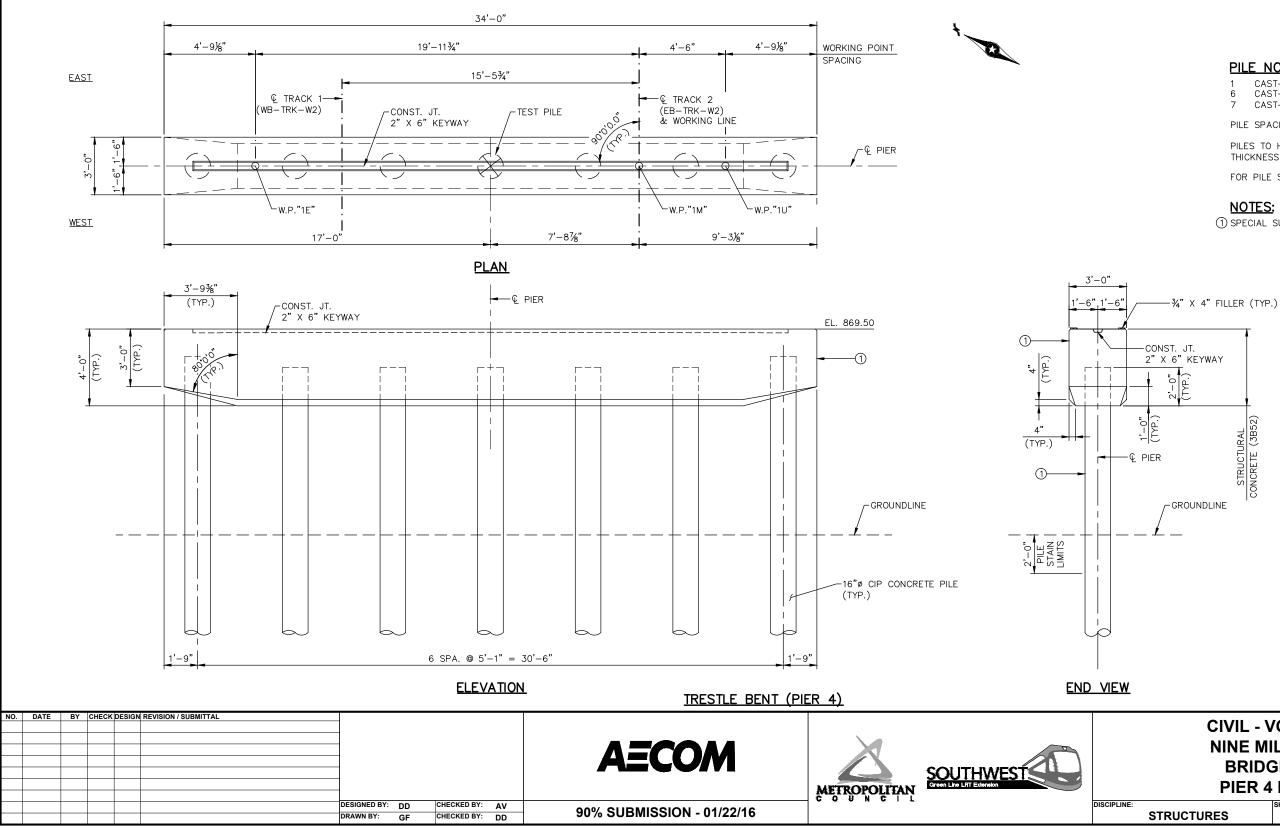
### × R<sub>n</sub> FIELD CONTROL METHOD φ<sub>dyn</sub> PDA 0.65 163.2

### \* R $_{\rm n}$ = (FACTORED DESIGN LOAD) / $\phi$ $_{\rm dyn}$

PIERS 4 COMPUTED PILE LOAD - TONS/PILE

FACTORED DEAD LOAD	78.9
FACTORED LIVE LOAD	21.3
FACTORED OVERTURNING	6.0
* FACTORED DESIGN LOAD	106.1

\* BASED ON STRENGTH V LOAD COMBINATION



### PILE NOTES:

1	CAST-IN-PLACE	CONC.	TEST PILE 70 FT. LONG.
6	CAST-IN-PLACE	CONC.	PILES EST. LENGTH 60 FT.
7	CAST-IN-PLACE	CONC.	PILES REQ'D FOR PIER 4.

PILE SPACING IS SHOWN AT THE BOTTOM OF CAP.

PILES TO HAVE A NOMINAL DIAMETER OF 16" AND WALL THICKNESS OF 0.500".

FOR PILE SPLICE DETAILS SEE DETAIL B201.

	CIVIL - V	OLUME 4C	SHEET
	NINE MILE CREEK		
	BRIDGE 27C07 PIER 4 DETAILS		
INE:	STRUCTURES	SHEET NAME: CBR27C07-BRG-PIR-003	99

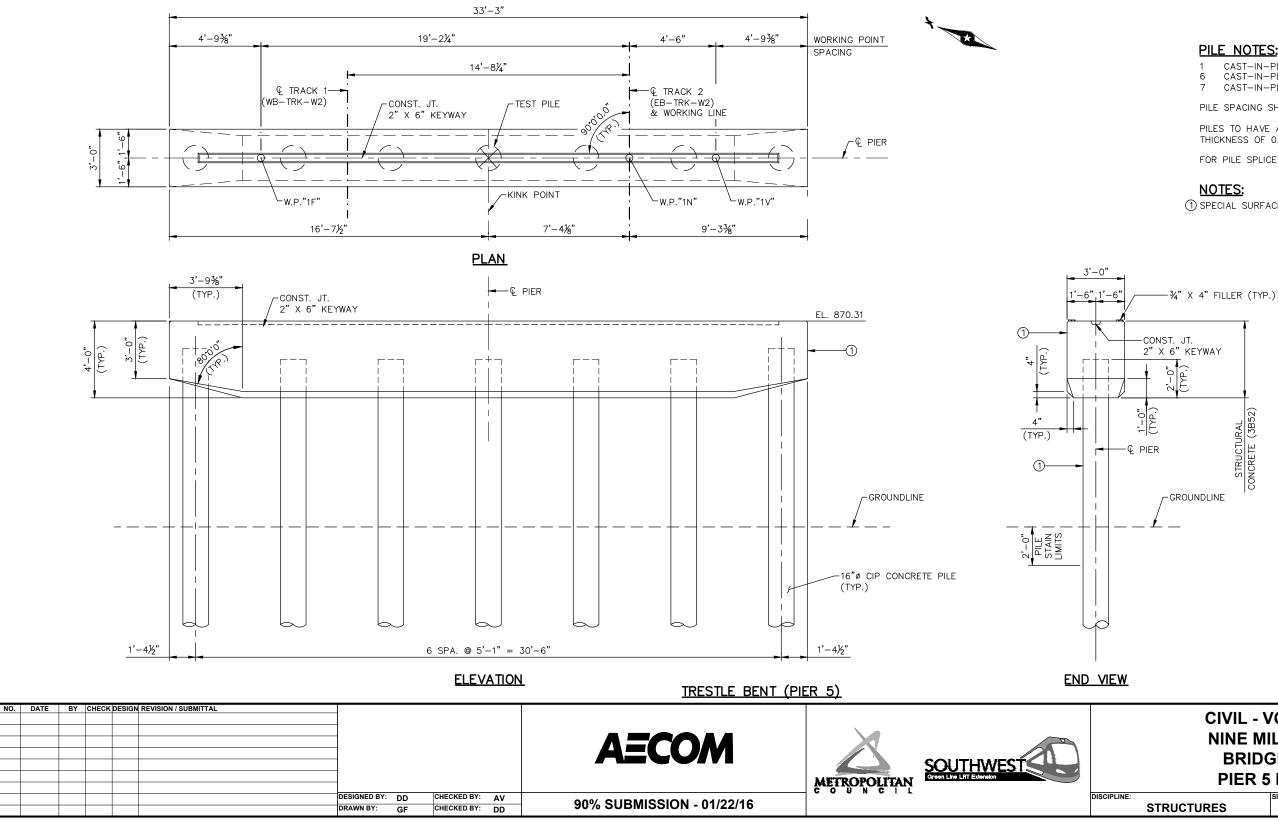
PIER 5 REQUIRED NOMINAL RESISTANCE R "-	PILE BEA	
FIELD CONTROL METHOD	φ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	163.2

\* R  $_{\rm n}$  = (FACTORED DESIGN LOAD) /  $\phi$   $_{\rm dyn}$ 

### PIER 5 COMPUTED PILE LOAD - TONS/PILE FACTORED DEAD LOAD

78.9 FACTORED LIVE LOAD 21.3 FACTORED OVERTURNING 6.0 \* FACTORED DESIGN LOAD 106.1

\* BASED ON STRENGTH V LOAD COMBINATION



### PILE NOTES:

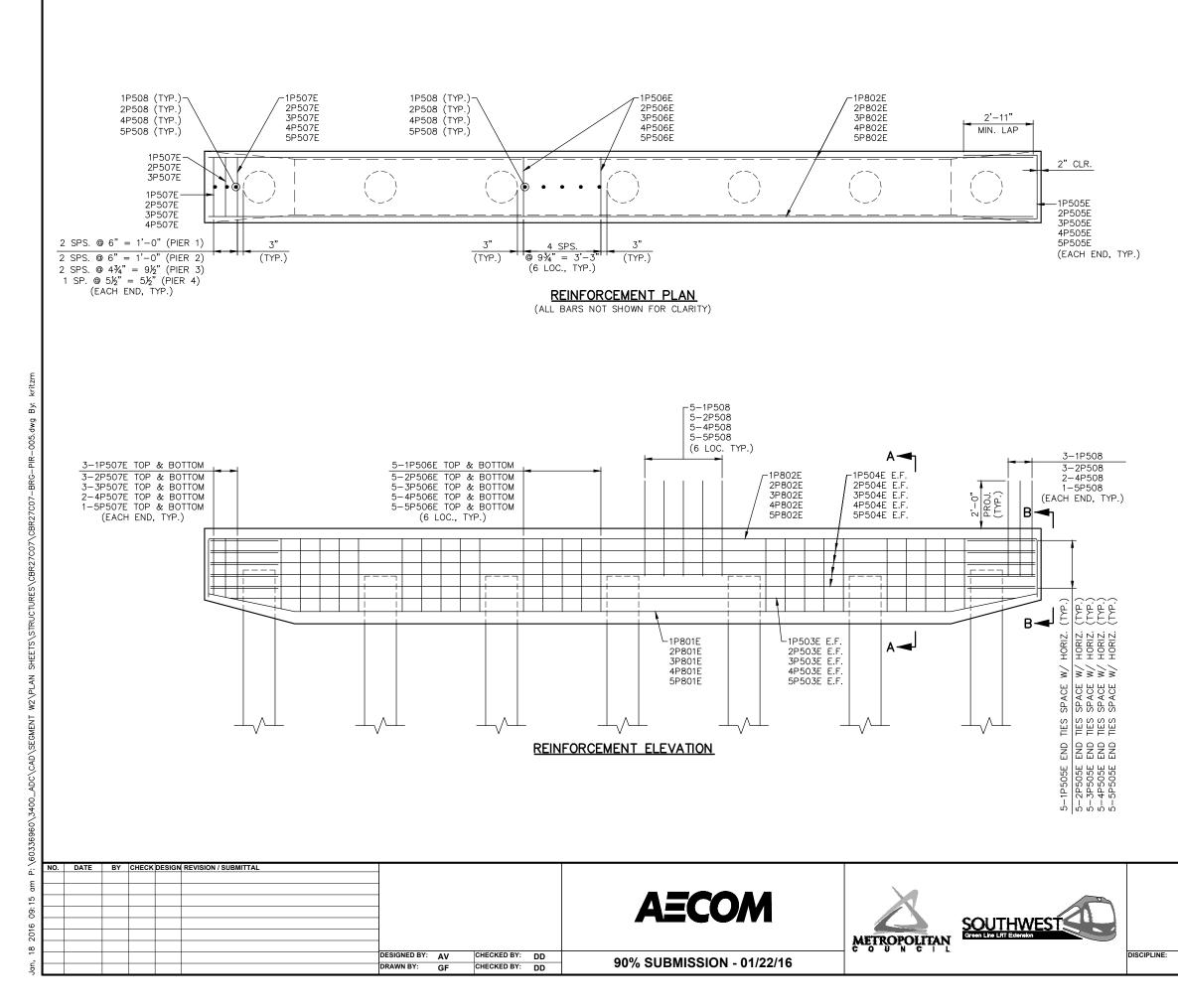
CAST-IN-PLACE CONC. TEST PILE 90 FT. LONG. CAST-IN-PLACE CONC. PILES EST. LENGTH 80 FT. CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 5.

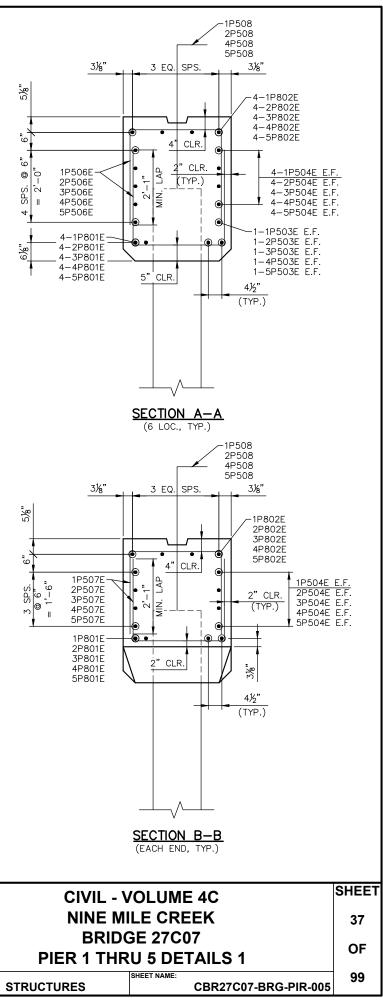
PILE SPACING SHOWN IS AT THE BOTTOM OF CAP.

PILES TO HAVE A NOMINAL DIAMETER OF 16" AND WALL THICKNESS OF 0.500".

FOR PILE SPLICE DETAILS SEE DETAIL B201.

CIVIL - VOLUME 4C			SHEET
	NINE MILE CREEK		
	BRIDGE 27C07		
.INE:			
	STRUCTURES	CBR27C07-BRG-PIR-004	





$12^{*} \underbrace{7^{*}-6^{*}}_{5^{*}-8^{*}} \underbrace{12^{*}}_{5^{*}-8^{*}} \underbrace{12^{*}}_{5^{*}$	100945 % 20094F "20094F "20094	IPSO8. 2P508. 4P508 & 5P508         IPSO8. 2P508. 4P508 & 5P508
NO.         DATE         BY         CHECK  DESIGN  REVISION / SUBMITTAL           Image: Submit and the submit	DESIGNED BY: DD CHECKED BY: AV DRAWN BY: GF CHECKED BY: DD 90% SUBMISSION - 01/22/16	METROPOLITAN METROPOLITAN Oren Lin Entendon

BAR			SHAPE	OR PIER 1
1P801E	4	34'-11"	V /	CAP HORIZ.
1P802E	4	39'-7"		CAP HORIZ.
1P503E	2	33'-0"		CAP HORIZ.
1P504E	8	34'-9"		CAP HORIZ.
1P505E	10	8'-6"		CAP END
1P506E	60	8'-0"		CAP STIRRUP
1P507E	12	7'-6"		CAP STIRRUP
1P508	36	4'-10"		CAP TIE
11 300	50	4 - 10		
BILL	OF REI	NFORCE	MENT F	OR PIER 2
BAR	NO.	LENGTH	SHAPE	LOCATION
2P801E	4	34'-11"		CAP HORIZ.
2P802E	4	39'-7"		CAP HORIZ.
2P503E	2	33'-0"		CAP HORIZ.
2P504E	8	34'-9"		CAP HORIZ.
2P505E	10	8'-6"		CAP END
2P505E 2P506E	60	8'-0"		CAP END
2P506E 2P507E	12	8 –0 7'–6"		CAP STIRRUP
2P507E 2P508	36	4'-10"		CAP STIRRUP CAP TIE
2F300	- 30	4 - 10		CAP IIE
BILL	OF REI		MENT F	OR PIER 3
BAR	NO.	LENGTH	SHAPE	LOCATION
3P801E	4	34'-6"		CAP HORIZ.
3P802E	4	39'-2"		CAP HORIZ.
3P503E	2	39-2 32'-6"		CAP HORIZ.
3P504E	8	32-8 34'-4"		CAP HORIZ.
3P505E	10	34 - 4 8'-6"		CAP HORIZ.
3P506E	60	8'-0"		CAP END
3P506E 3P507E	12	8 –0 7'–6"		CAP STIRRUP
BILL	OF REI	NFORCE	MENT F	OR PIER 4
BILL bar	OF REI NO.	NFORCE length	MENT F	OR PIER 4 LOCATION
BAR 4P801E	NO.	LENGTH		LOCATION
BAR 4P801E 4P802E	NO. 4	LENGTH 33'-10"	SHAPE	LOCATION CAP HORIZ.
BAR 4P801E 4P802E 4P503E	NO. 4 4	LENGTH 33'-10" 38'-6"	SHAPE	LOCATION CAP HORIZ. CAP HORIZ.
BAR 4P801E 4P802E 4P503E 4P504E	NO. 4 4 2	LENGTH 33'-10" 38'-6" 31'-10"	SHAPE	LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ.
BAR 4P801E 4P802E 4P503E 4P504E 4P505E	NO. 4 4 2 8	LENGTH 33'-10" 38'-6" 31'-10" 33'-8"	SHAPE	LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP HORIZ.
BAR 4P801E 4P802E 4P503E 4P504E 4P505E 4P506E	NO. 4 4 2 8 10	LENGTH 33'-10" 38'-6" 31'-10" 33'-8" 8'-6" 8'-0" 7'-6"	SHAPE	LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP END
BAR 4P801E 4P802E 4P503E 4P504E 4P505E 4P506E	NO. 4 4 2 8 10 60	LENGTH 33'-10" 38'-6" 31'-10" 33'-8" 8'-6" 8'-0"	SHAPE	LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP END CAP STIRRUP
BAR 4P801E 4P802E 4P503E 4P504E 4P505E 4P506E 4P507E 4P508	NO. 4 2 8 10 60 8 34	LENGTH 33'-10" 38'-6" 31'-10" 33'-8" 8'-6" 8'-0" 7'-6" 4'-10"	SHAPE	LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP STIRRUP CAP STIRRUP CAP STIRRUP CAP TIE
BAR 4P801E 4P802E 4P503E 4P504E 4P505E 4P506E 4P507E 4P508 BILL	NO. 4 4 2 8 10 60 8 34 OF REI	LENGTH 33'-10" 38'-6" 31'-10" 33'-8" 8'-6" 8'-0" 7'-6" 4'-10" NFORCE	SHAPE	LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP END CAP STIRRUP CAP STIRRUP CAP TIE
BAR 4P801E 4P802E 4P503E 4P503E 4P505E 4P505E 4P507E 4P508 BILL BAR	NO. 4 4 2 8 10 60 8 34 OF REI NO.	LENGTH 33'-10" 38'-6" 31'-10" 33'-8" 8'-6" 8'-0" 7'-6" 4'-10" NFORCE LENGTH	SHAPE	LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP END CAP STIRRUP CAP STIRRUP CAP TIE OR PIER 5 LOCATION
BAR 4P801E 4P802E 4P503E 4P503E 4P505E 4P505E 4P507E 4P508 BILL BAR 5P801E	NO. 4 4 2 8 10 60 8 34 OF REI	LENGTH 33'-10" 38'-6" 31'-10" 33'-8" 8'-6" 8'-0" 7'-6" 4'-10" NFORCE LENGTH 33'-1"	SHAPE	LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP END CAP STIRRUP CAP STIRRUP CAP TIE OR PIER 5 LOCATION CAP HORIZ.
BAR 4P801E 4P802E 4P503E 4P503E 4P505E 4P505E 4P507E 4P507E 5P801E 5P802E	NO. 4 4 2 8 10 60 8 34 OF REI NO. 4 4	LENGTH 33'-10" 38'-6" 31'-10" 33'-8" 8'-6" 8'-0" 7'-6" 4'-10" NFORCE LENGTH 33'-1" 37'-9"	SHAPE	LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP END CAP STIRRUP CAP STIRRUP CAP TIE OR PIER 5 LOCATION CAP HORIZ. CAP HORIZ.
BAR 4P801E 4P503E 4P503E 4P505E 4P505E 4P507E 4P507E 4P507E 5P801E 5P802E 5P503E	NO. 4 4 2 8 10 60 8 34 OF REI NO. 4 4 4 2	LENGTH 33'-10" 38'-6" 31'-10" 33'-8" 8'-6" 8'-0" 7'-6" 4'-10" NFORCE LENGTH 33'-1" 37'-9" 31'-1"	SHAPE	LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP END CAP STIRRUP CAP STIRRUP CAP STIRRUP CAP TIE OR PIER 5 LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ.
BAR 4P801E 4P503E 4P503E 4P505E 4P505E 4P507E 4P507E 4P507E 5B1LL BAR 5P801E 5P802E 5P503E 5P504E	NO. 4 4 2 8 10 60 8 34 OF REI NO. 4 4 4 2 8	LENGTH 33'-10" 38'-6" 31'-10" 33'-8" 8'-6" 8'-0" 7'-6" 4'-10" NFORCE LENGTH 33'-1" 37'-9" 31'-1" 32'-11"	SHAPE	LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP END CAP STIRRUP CAP STIRRUP CAP STIRRUP CAP TIE OR PIER 5 LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ.
BAR 4P801E 4P503E 4P503E 4P505E 4P505E 4P505E 4P507E 4P507E 5B1LL BAR 5P801E 5P802E 5P503E 5P503E 5P505E	NO. 4 4 2 8 10 60 8 34 OF REI NO. 4 4 4 2 8 10	LENGTH 33'-10" 38'-6" 31'-10" 33'-8" 8'-6" 8'-0" 7'-6" 4'-10" NFORCE LENGTH 33'-1" 37'-9" 31'-1" 32'-11" 8'-6"	SHAPE	LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP END CAP STIRRUP CAP STIRRUP CAP STIRRUP CAP TIE OR PIER 5 LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP END
BAR 4P801E 4P503E 4P503E 4P505E 4P505E 4P505E 4P507E 4P507E 5B1LL BAR 5P801E 5P802E 5P503E 5P505E 5P505E 5P506E	NO. 4 4 2 8 10 60 8 34 OF REI NO. 4 4 4 2 8 10 60	LENGTH 33'-10" 38'-6" 31'-10" 33'-8" 8'-6" 8'-0" 7'-6" 4'-10" NFORCE LENGTH 33'-1" 37'-9" 31'-1" 32'-11" 8'-6" 8'-0"	SHAPE	LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP END CAP STIRRUP CAP STIRRUP CAP STIRRUP CAP TIE OR PIER 5 LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP END CAP STIRRUP
BAR 4P801E 4P503E 4P503E 4P505E 4P505E 4P507E 4P507E 5P802E 5P801E 5P802E 5P503E 5P505E 5P505E 5P507E	NO. 4 4 2 8 10 60 8 34 OF REI NO. 4 4 4 2 8 10 60 4	LENGTH 33'-10" 38'-6" 31'-10" 33'-8" 8'-6" 8'-0" 7'-6" 4'-10" NFORCE LENGTH 33'-1" 37'-9" 31'-1" 32'-11" 8'-6" 8'-0" 7'-6"	SHAPE	LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP END CAP STIRRUP CAP STIRRUP CAP STIRRUP OR PIER 5 LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP END CAP STIRRUP CAP STIRRUP
BAR 4P801E 4P503E 4P503E 4P505E 4P505E 4P505E 4P507E 4P507E 5B1LL BAR 5P801E 5P802E 5P503E 5P505E 5P505E 5P506E	NO. 4 4 2 8 10 60 8 34 OF REI NO. 4 4 4 2 8 10 60	LENGTH 33'-10" 38'-6" 31'-10" 33'-8" 8'-6" 8'-0" 7'-6" 4'-10" NFORCE LENGTH 33'-1" 37'-9" 31'-1" 32'-11" 8'-6" 8'-0"	SHAPE	LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP END CAP STIRRUP CAP STIRRUP CAP STIRRUP CAP TIE OR PIER 5 LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP END CAP STIRRUP
BAR 4P801E 4P802E 4P503E 4P505E 4P505E 4P507E 4P507E 4P507E 5B1LL BAR 5P801E 5P802E 5P503E 5P505E 5P505E 5P507E	NO. 4 4 2 8 10 60 8 34 OF REI NO. 4 4 4 2 8 10 60 4	LENGTH 33'-10" 38'-6" 31'-10" 33'-8" 8'-6" 8'-0" 7'-6" 4'-10" NFORCE LENGTH 33'-1" 37'-9" 31'-1" 32'-11" 8'-6" 8'-0" 7'-6"	SHAPE	LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP END CAP STIRRUP CAP STIRRUP CAP STIRRUP CAP TIE OR PIER 5 LOCATION CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP HORIZ. CAP END CAP STIRRUP CAP STIRRUP

CIVIL - VOLUME 4C NINE MILE CREEK BRIDGE 27C07 PIER 1 THRU 5 DETAILS 2

38 OF

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SHEET

STRUCTURES

CBR27C07-BRG-PIR-006

### PIER 6 REQUIRED NOMINAL PILE BEARING RESISTANCE R – TONS/PILE

FIELD CONTROL METHOD	φ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	171.1

\* R <sub>n</sub> = (FACTORED DESIGN LOAD) /  $\phi_{dyn}$ 

PIER 6 COMPUTED PILE LOAD	
FACTORED DEAD LOAD	68.8
FACTORED LIVE LOAD	20.9
FACTORED OVERTURNING	21.4
* FACTORED DESIGN LOAD	111.2

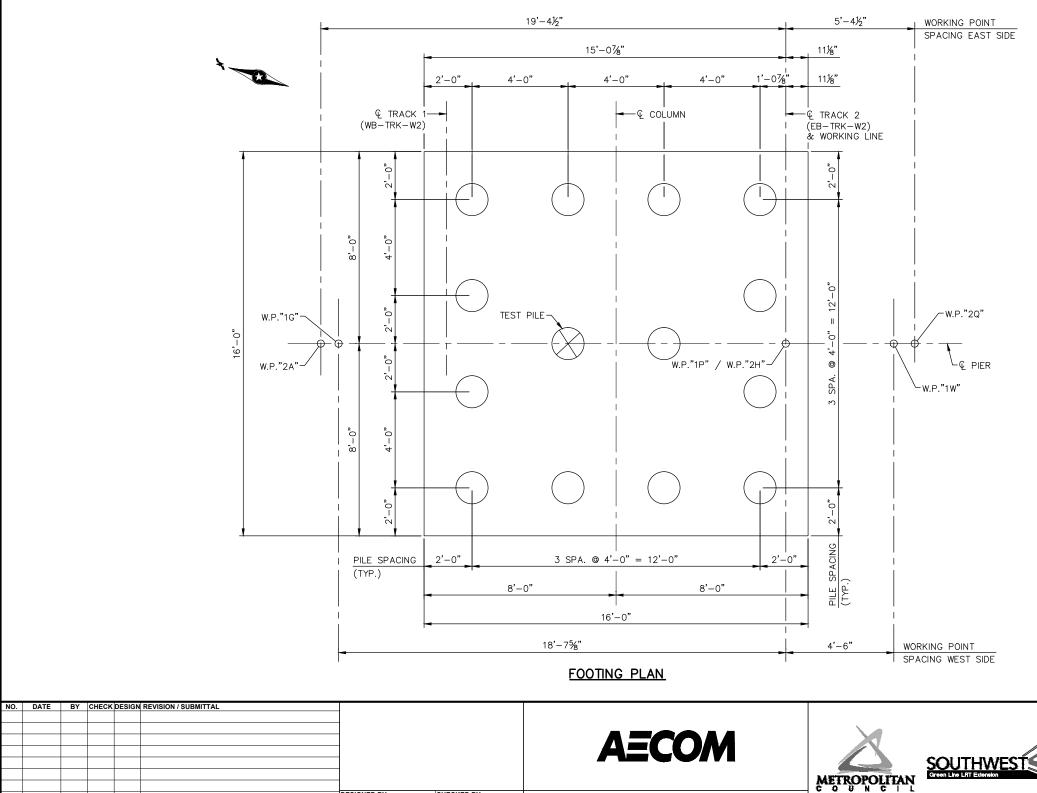
\* BASED ON STRENGTH V LOAD COMBINATION

DESIGNED BY: DD

DRAWN BY: GF

CHECKED BY: AV

CHECKED BY: DD



90% SUBMISSION - 01/22/16

DISCIPLIN

### PILE NOTES

1 CAST-IN-PLACE CONC. TEST PILE 85 FT. LONG. 13 CAST-IN-PLACE CONC. PILES EST. LENGTH 75 FT.

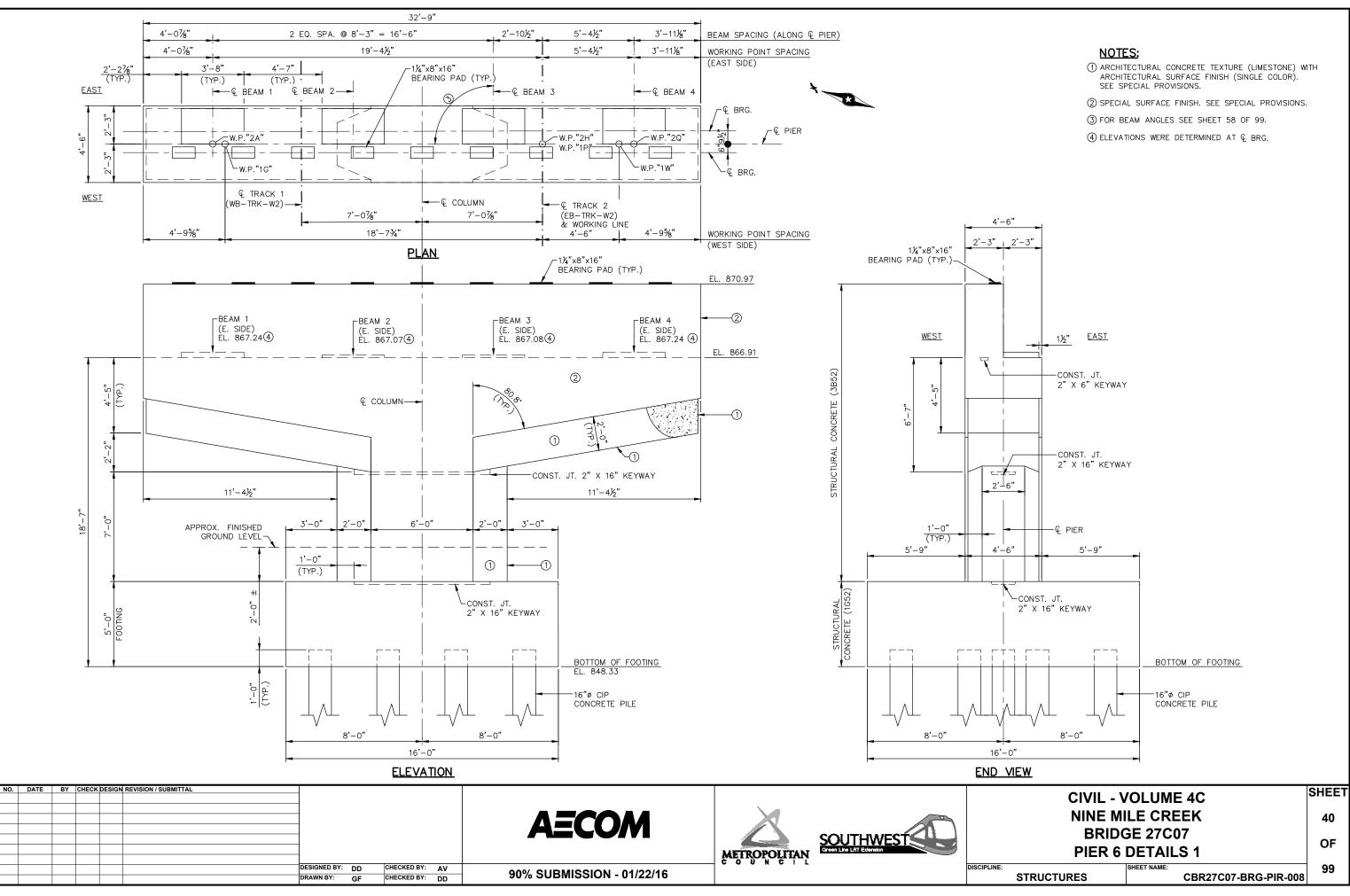
13 CAST-IN-PLACE CONC. PILES EST. LENGTH 75 FT. 14 CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 6.

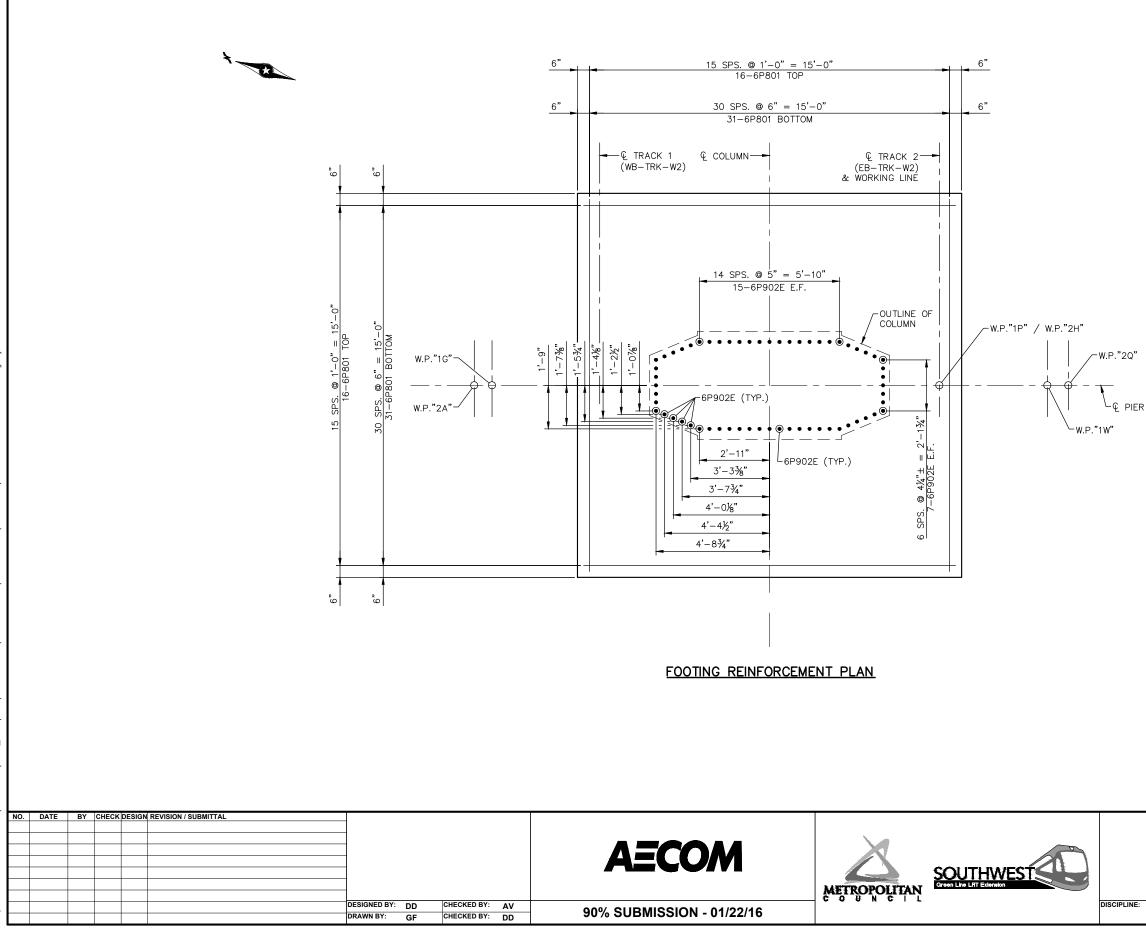
PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES TO HAVE A NOMINAL DIAMETER OF 16" AND WALL THICKNESS OF 0.3125".

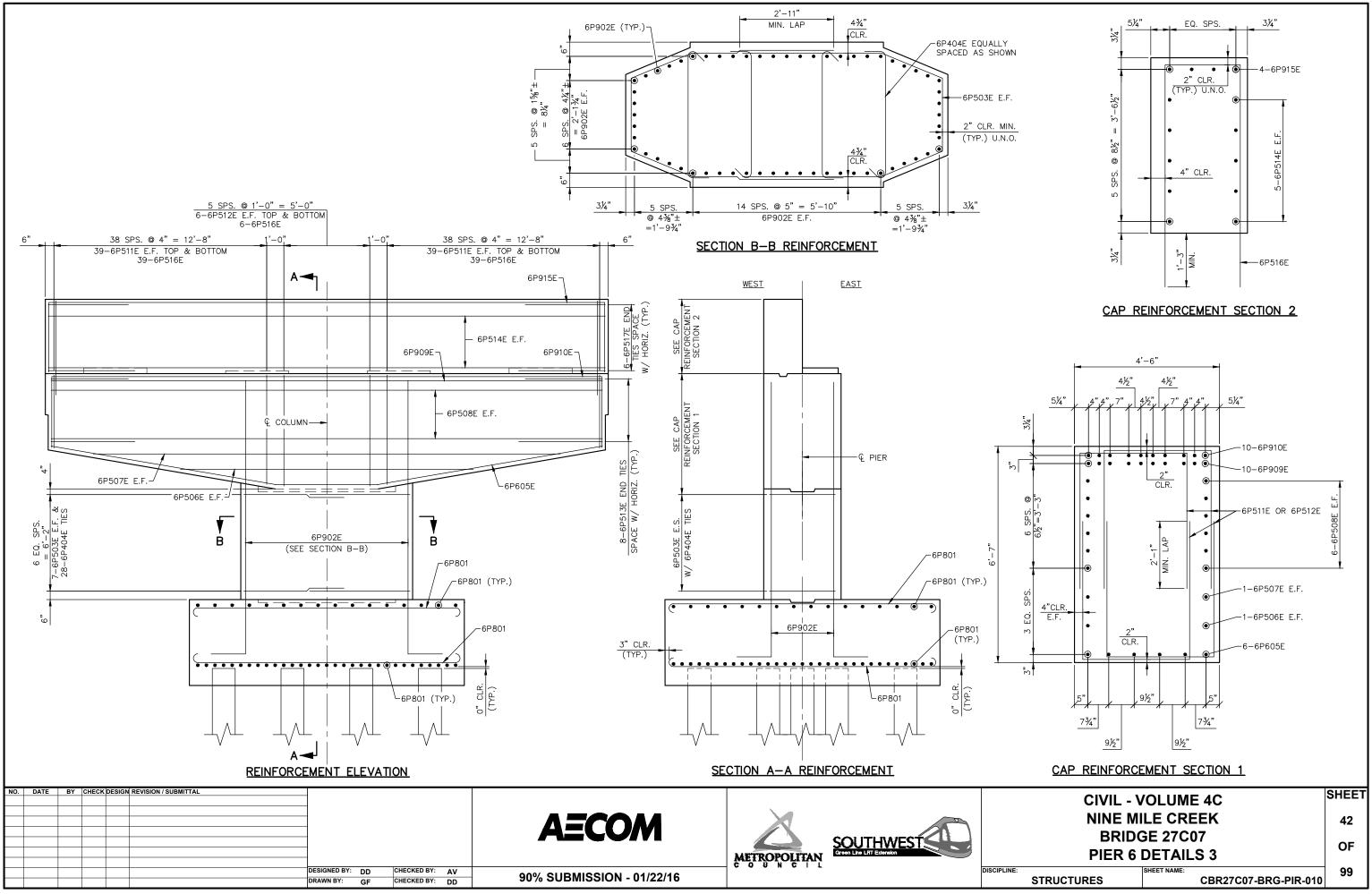
FOR PILE SPLICE DETAILS SEE DETAIL B201.

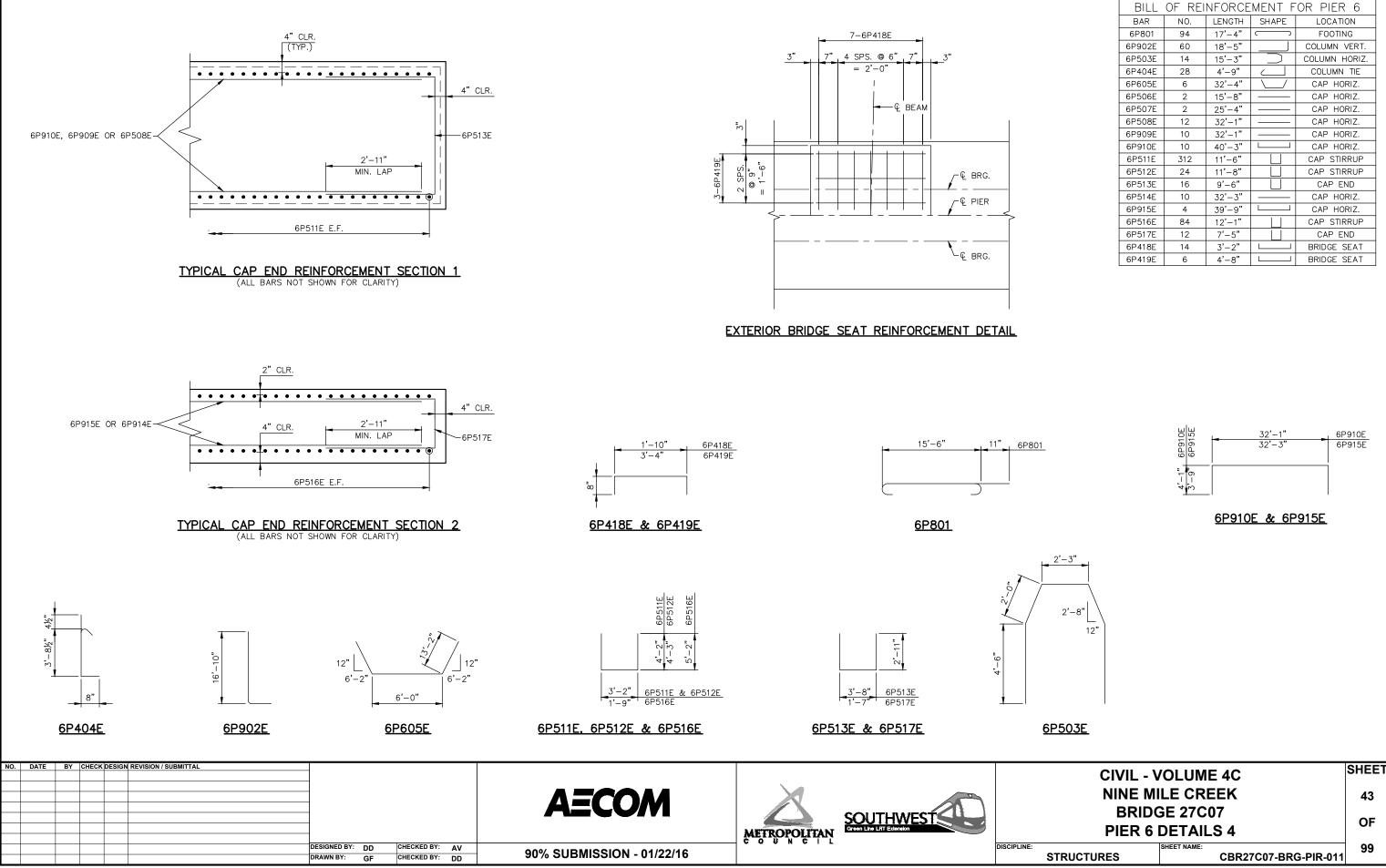
CIVIL - VOLUME 4C			
NINE MILE CREEK			
BRIDGE 27C07			
PIER 6 FOOTING DETAILS			
	SHEET NAME: CBR27C07-BRG-PIR-007	99	



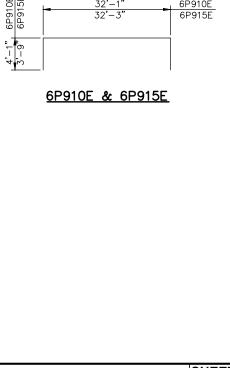


CIVIL - VOLUME 4C NINE MILE CREEK BRIDGE 27C07 PIER 6 DETAILS 2 VE: STRUCTURES SHEET NAME: CBR27C07-BRG-PIR-009





BILL OF REINFORCEMENT FOR PIER 6				
BAR	NO.	LENGTH	SHAPE	LOCATION
6P801	94	17'-4"		FOOTING
6P902E	60	18'-5"		COLUMN VERT.
6P503E	14	15'-3"	$\square$	COLUMN HORIZ.
6P404E	28	4'-9"		COLUMN TIE
6P605E	6	32'-4"		CAP HORIZ.
6P506E	2	15'-8"		CAP HORIZ.
6P507E	2	25'-4"		CAP HORIZ.
6P508E	12	32'-1"		CAP HORIZ.
6P909E	10	32'-1"		CAP HORIZ.
6P910E	10	40'-3"		CAP HORIZ.
6P511E	312	11'-6"		CAP STIRRUP
6P512E	24	11'-8"		CAP STIRRUP
6P513E	16	9'-6"		CAP END
6P514E	10	32'-3"		CAP HORIZ.
6P915E	4	39'-9"		CAP HORIZ.
6P516E	84	12'-1"		CAP STIRRUP
6P517E	12	7'-5"		CAP END
6P418E	14	3'-2"		BRIDGE SEAT
6P419E	6	4'-8"		BRIDGE SEAT



### PIERS 7–10 REQUIRED NOMINAL PILE BEARING RESISTANCE R – TONS/PILE

FIELD CONTROL METHOD	φ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	185.8

\* R \_n = (FACTORED DESIGN LOAD) /  $\Phi_{dyn}$ 

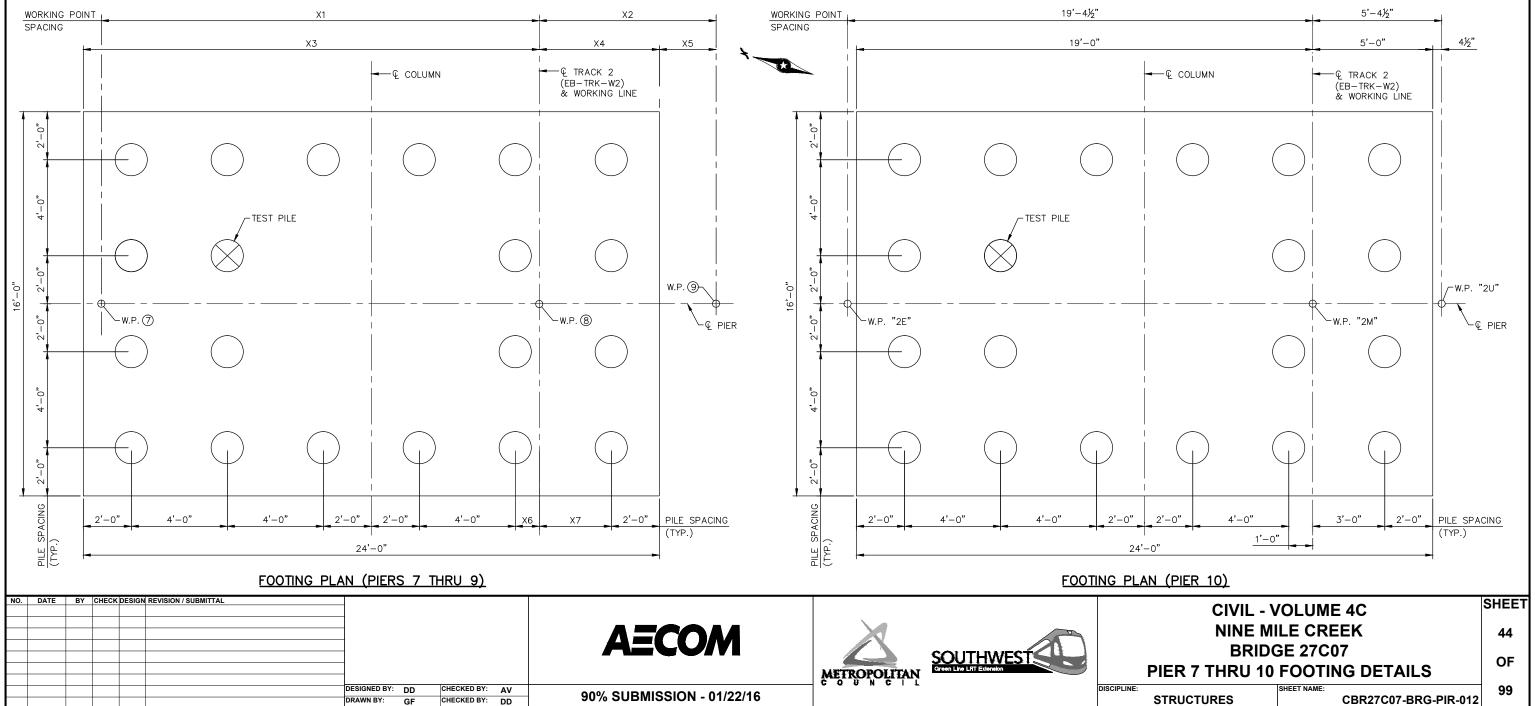
	PIEF	RS 7–10	
COMPUTED	PILE	LOAD -	TONS/PILE

FACTORED DEAD LOAD	62.9
FACTORED LIVE LOAD	17.7
FACTORED OVERTURNING	40.2
* FACTORED DESIGN LOAD	120.8

\* BASED ON STRENGTH V LOAD COMBINATION

### DIMENSION TABLE

DIMENSION TABLE								
	DISTANCE							
	"X1"	"X2"	"X3"	"X4"	"X5"	"X6"	"X7"	
PIER 7	18'-4½"	6'-4½"	19'-0"	5'-0"	1'-4½"	1'-0"	3'-0"	
PIER 8	18'-4½"	6'-4½"	19'-1¾"	4'-6"	1'-10½"	1'-1¾"	2'-10%"	
PIER 9	18'-4½"	6'-4½"	19'–1½"	4'-10½'	1'-6"	1'-1½"	2'-10%"	



PILE NOTES

THICKNESS OF 0.3125".

1 19

CAST-IN-PLACE CONC. TEST PILE 105 FT. LONG. CAST-IN-PLACE CONC. PILES EST. LENGTH 95 FT.

20 CAST-IN-PLACE CONC. PILES REQ'D FOR EACH PIER.

PILES TO HAVE A NOMINAL DIAMETER OF 16" AND WALL

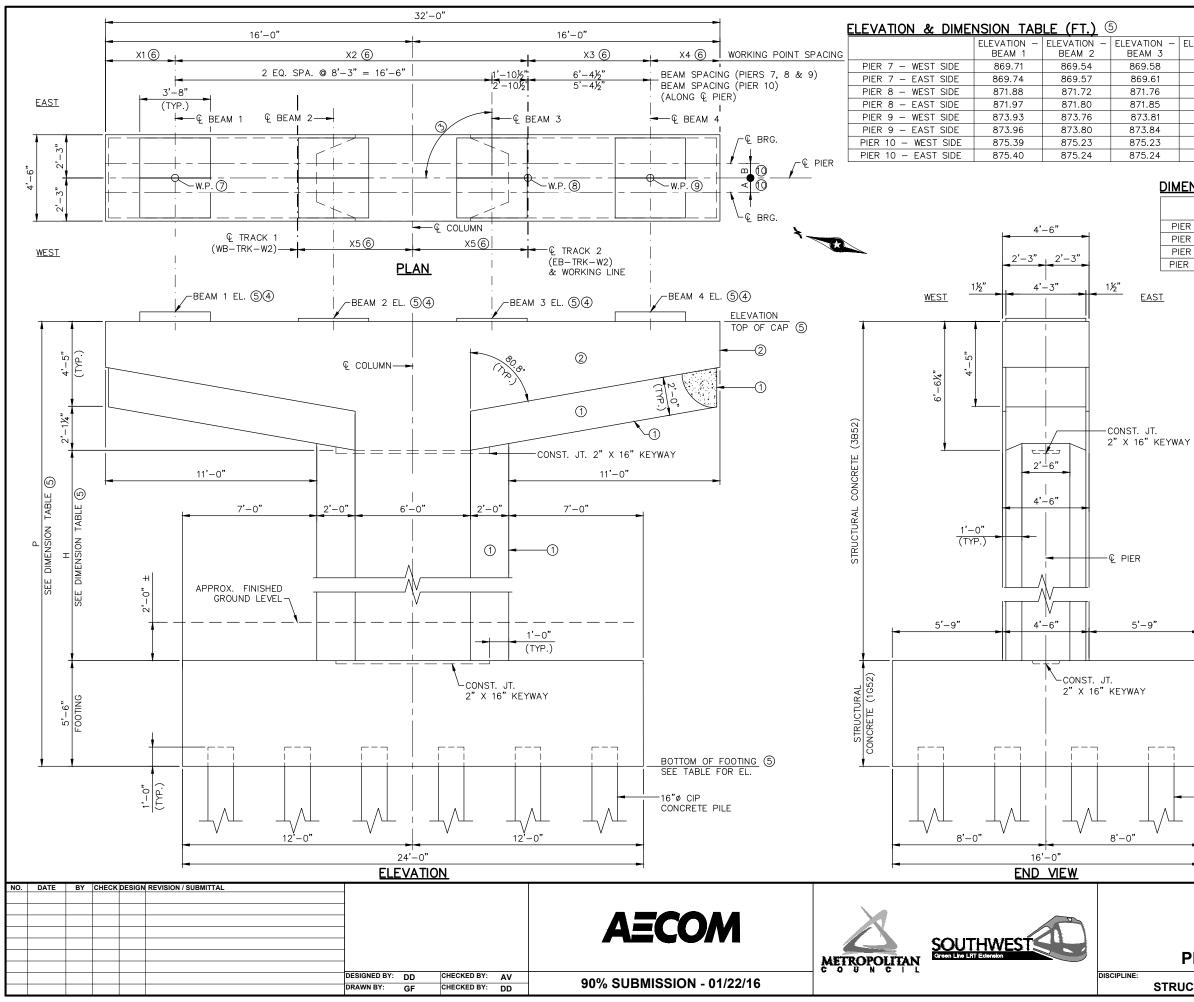
PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

FOR PILE SPLICE DETAILS SEE DETAIL B201.

Z



	WORKING POINT (7)	WORKING POINT 8	WORKING POINT 9
PIER 7	"2B"	"2J"	"2R"
PIER 8	"2C"	"2K"	"2S"
PIER 9	"2D"	"2L"	"2T"



EVATION -	ELEVATION -	ELEVATION -	COLUMN	PIER HT.	ELEV. – BOTTOM	
BEAM 3	BEAM 4	TOP OF CAP	HT. "H"	"P"	OF FOOTING	
869.58	869.75	869.37	14.75	26.77	842.60	
869.61	869.77	009.57	14.75	20.77	042.00	
871.76	871.93	871.55	20.25	32.27	839.28	
871.85	872.01	0/1.55	20.25	52.27	039.20	
873.81	873.97	873.60	22.25	34.27	839.33	
873.84	874.01	875.00	22.25	34.27	039.33	
875.23	875.39	875.06	17.00	29.02	846.04	
875.24	875.40	075.00	17.00	29.02	040.04	

### **DIMENSION TABLE** 6

	DISTANCE "X1"	DISTANCE "X2"	DISTANCE "X3"	DISTANCE "X4"	DISTANCE "X5"
PIER 7	4'-7½"	18'-4½"	6'-4½"	2'-7½"	7'-0"
PIER 8	4'-9¼"	18'-4½"	6'-4½"	2'-5¾"	7 <b>'</b> -7 <u>%</u> "
PIER 9	4'-9"	18'-4½"	6'-4½"	2'-6"	7 <b>'</b> -7 <u>%</u> "
PIER 10	3'-7½"	19'-4½"	5'-4½"	3'-7½"	7'-0"

<u>EAST</u>

### WORKING POINTS TABLE

	WORKING POINT (7)	WORKING POINT (8)	WORKING POINT (9)
PIER 7	"2B"	"2J"	"2R"
PIER 8	"2C"	"2K"	"2S"
PIER 9	"2D"	"2L"	"2T"
PIER 10	"2E"	"2M"	"2U"

DISTANCE

"B"

10"

10½"

10½"

9"

### DIMENSION TABLE 10

DISTANCE

"A"

9¼"

10½"

10½"

9½"

PIER 7 PIER 8

NOTES:

PIER 9

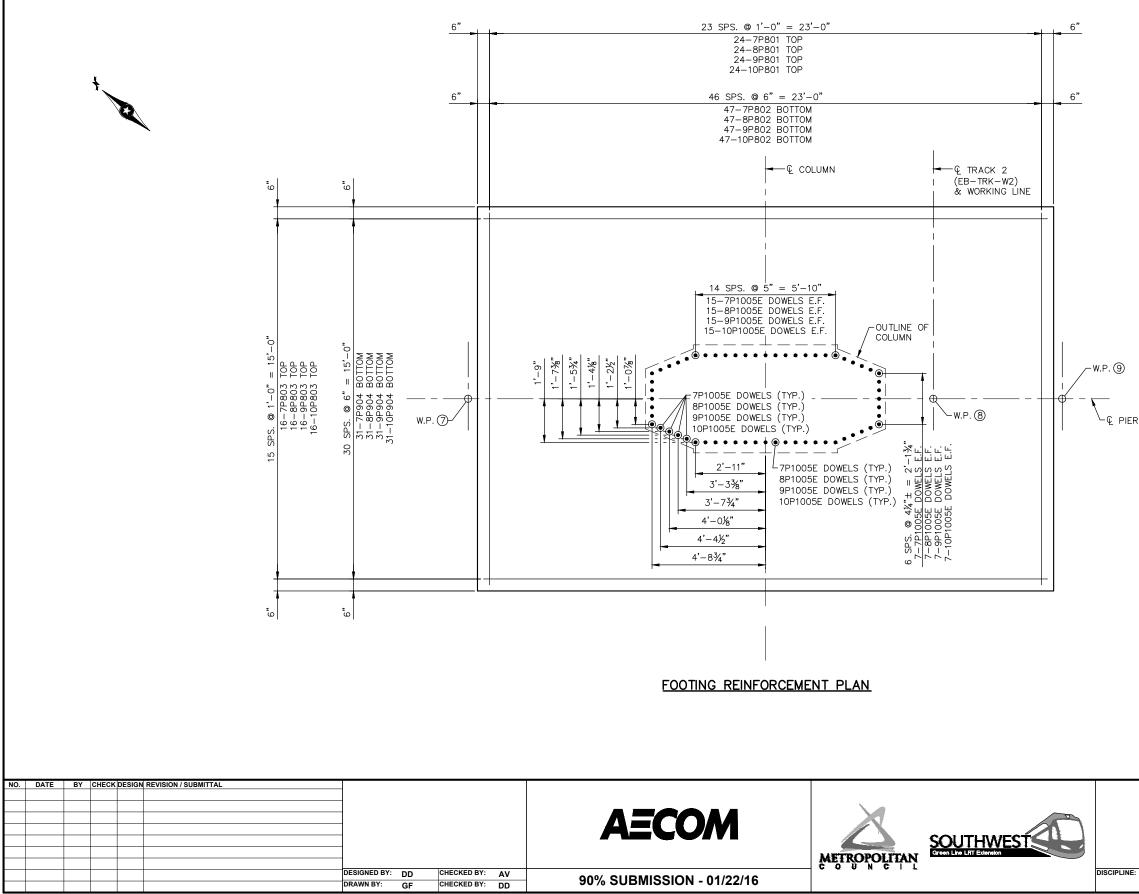
PIER 10

- () ARCHITECTURAL CONCRETE TEXTURE (LIMESTONE) WITH ARCHITECTURAL SURFACE FINISH (SINGLE COLOR). SEE SPECIAL PROVISIONS.
- (2) SPECIAL SURFACE FINISH. SEE SPECIAL PROVISIONS.
- (3) FOR BEAM ANGLES SEE SHEETS 58 AND 59 OF 99.
- (4) ELEVATIONS WERE DETERMINED AT & BRG.

# BOTTOM OF FOOTING (5) SEE TABLE FOR EL.

16"ø CIP CONCRETE PILE

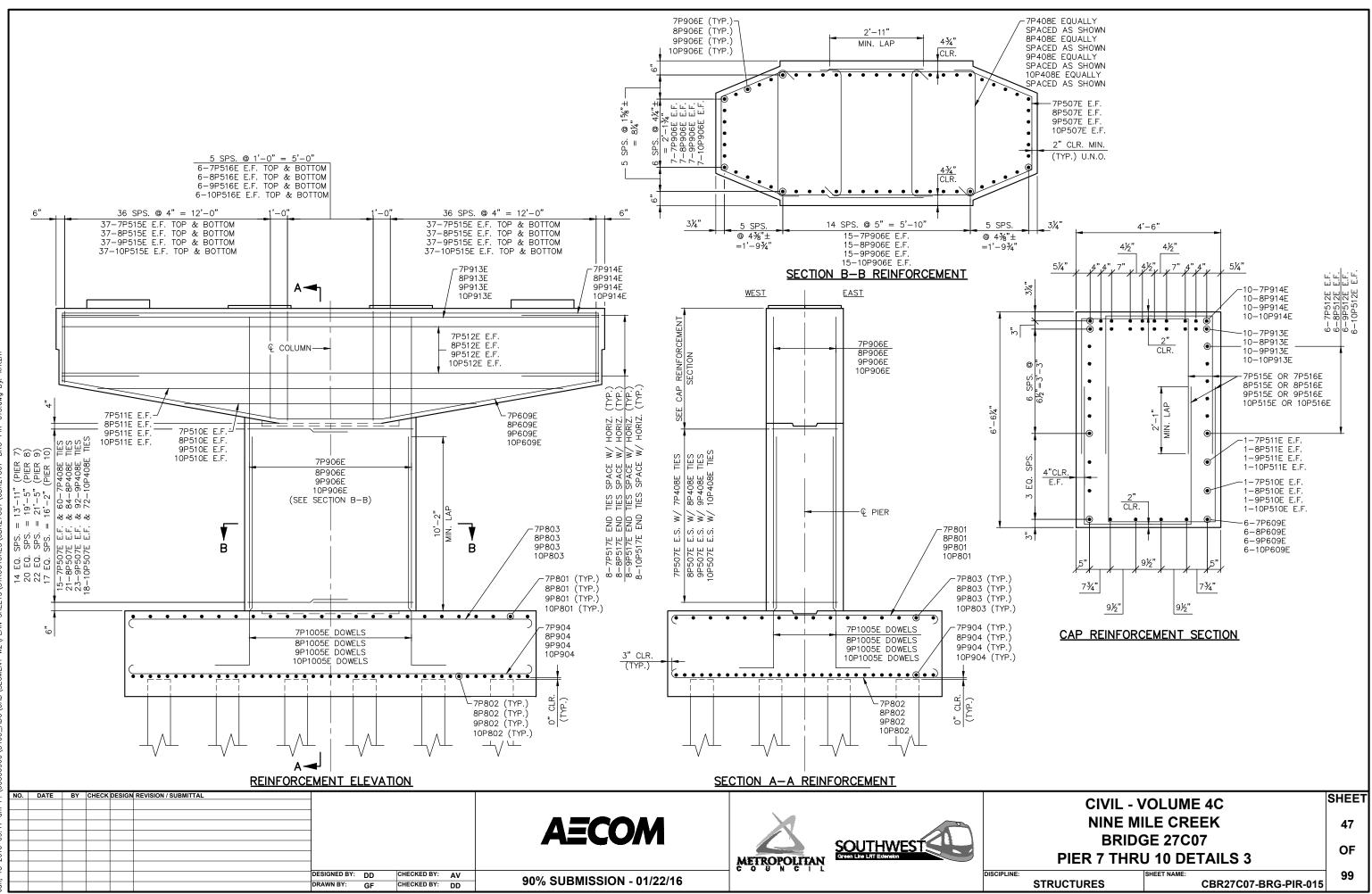
### SHEET **CIVIL - VOLUME 4C** NINE MILE CREEK 45 **BRIDGE 27C07** OF PIER 7 THRU 10 DETAILS 1 SHEET NAME 99 CBR27C07-BRG-PIR-013 STRUCTURES

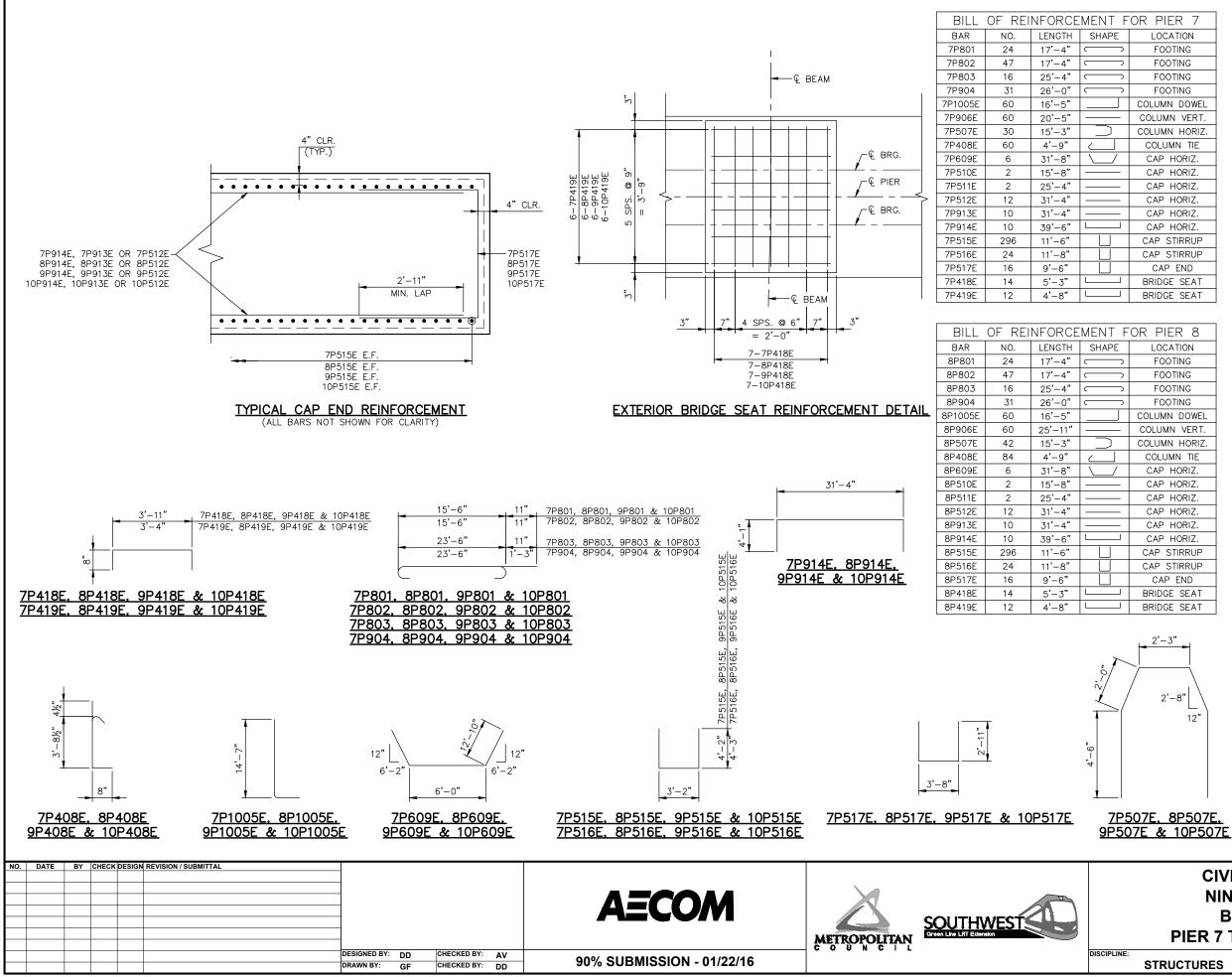


### WORKING POINTS TABLE

	WORKING	WORKING	WORKING
	POINT 🔿	POINT (8)	POINT (9)
PIER 7	"2B"	"2J"	"2R"
PIER 8	"2C"	"2K"	"2S"
PIER 9	"2D"	"2L"	"2T"
PIER 10	"2E"	"2M"	"2U"

SHEET **CIVIL - VOLUME 4C** NINE MILE CREEK 46 BRIDGE 27C07 OF PIER 7 THRU 10 DETAILS 2 SHEET NAME: 99 CBR27C07-BRG-PIR-014 STRUCTURES





F	FOR PIER 7   BILL OF REINFORCEMENT FOR PIER 9							
	LOCATION	BAR	NO.	LENGTH	SHAPE	LOCATION		
۲ ר	FOOTING	9P801	24	17'-4"		FOOTING		
٦ ר	FOOTING	9P802	47	17'-4"	$\frown$	FOOTING		
۲ ر	FOOTING	9P803	16	25'-4"		FOOTING		
h	FOOTING	9P904	31	26'-0"		FOOTING		
	COLUMN DOWEL	9P1005E	60	16'-5"		COLUMN DOWEL		
-	COLUMN VERT.	9P906E	60	27'-11"		COLUMN VERT.		
	COLUMN HORIZ.	9P507E	46	15'-3"	$\Box$	COLUMN HORIZ.		
	COLUMN TIE	9P408E	92	4'-9"		COLUMN TIE		
	CAP HORIZ.	9P609E	6	31'-8"		CAP HORIZ.		
-	CAP HORIZ.	9P510E	2	15'-8"		CAP HORIZ.		
	CAP HORIZ.	9P511E	2	25'-4"		CAP HORIZ.		
	CAP HORIZ.	9P512E	12	31'-4"		CAP HORIZ.		
-	CAP HORIZ.	9P913E	10	31'-4"		CAP HORIZ.		
l	CAP HORIZ.	9P914E	10	39'-6"		CAP HORIZ.		
	CAP STIRRUP	9P515E	296	11'-6"		CAP STIRRUP		
	CAP STIRRUP	9P516E	24	11'-8"		CAP STIRRUP		
	CAP END	9P517E	16	9'-6"		CAP END		
1	BRIDGE SEAT	9P418E	14	5'-3"		BRIDGE SEAT		
J	BRIDGE SEAT	9P419E	12	4'-8"		BRIDGE SEAT		
F	OR PIER 8	BILL	OF REIN	NFORCE	MENT F	DR PIER 10		
	LOCATION	BAR	NO.	LENGTH	SHAPE	LOCATION		
J	FOOTING	10P801	24	17'-4"	J	FOOTING		
C	FOOTING	10P802	47	17'-4"	$\square$	FOOTING		
S	FOOTING	10P803	16	25'-4"	J	FOOTING		
J	FOOTING	10P904	31	26'-0"	$\overline{}$	FOOTING		
	COLUMN DOWEL	10P1005E	60	16'-5"		COLUMN DOWEL		
-	COLUMN VERT.	10P906E	60	22'-11"		COLUMN VERT.		
	COLUMN HORIZ.	10P507E	36	15'-3"	$\supset$	COLUMN HORIZ.		
	COLUMN TIE	10P408E	72	4'-9"		COLUMN TIE		
	CAP HORIZ.	9P609E	6	31'-8"		CAP HORIZ.		
-	CAP HORIZ.	10P510E	2	15'-8"		CAP HORIZ.		
-	CAP HORIZ.	10P511E	2	25'-4"		CAP HORIZ.		
-	CAP HORIZ.	10P512E	12	31'-4"		CAP HORIZ.		
-	CAP HORIZ.	10P913E	10	31'-4"		CAP HORIZ.		
]	CAP HORIZ.	10P914E	10	39'-6"		CAP HORIZ.		
	CAP STIRRUP	10P515E	296	11'-6"		CAP STIRRUP		
	CAP STIRRUP	10P516E	24	11'-8"		CAP STIRRUP		
	CAP END	10P517E	16	9'-6"		CAP END		
l	BRIDGE SEAT	10P418E	14	5'-3"		BRIDGE SEAT		
l	BRIDGE SEAT	10P419E	12	4'-8"		BRIDGE SEAT		

CIVIL - VOLUME 4C	SHEET			
NINE MILE CREEK				
BRIDGE 27C07				
PIER 7 THRU 10 DETAILS 4				
INE: SHEET NAME: CBR27C07-BRG-PIR-016	99			

### PIER 11 REQUIRED NOMINAL PILE BEARING RESISTANCE R \_ TONS/PILE

FIELD CONTROL METHOD	φ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	162.5

\* R<sub>n</sub> = (FACTORED DESIGN LOAD) /  $\phi_{dyn}$ 

PIER 11 COMPUTED PILE LOAD	
FACTORED DEAD LOAD	63.1
FACTORED LIVE LOAD	18.6

23.8

105.6

\* BASED ON STRENGTH V LOAD COMBINATION

FACTORED OVERTURNING

\* FACTORED DESIGN LOAD

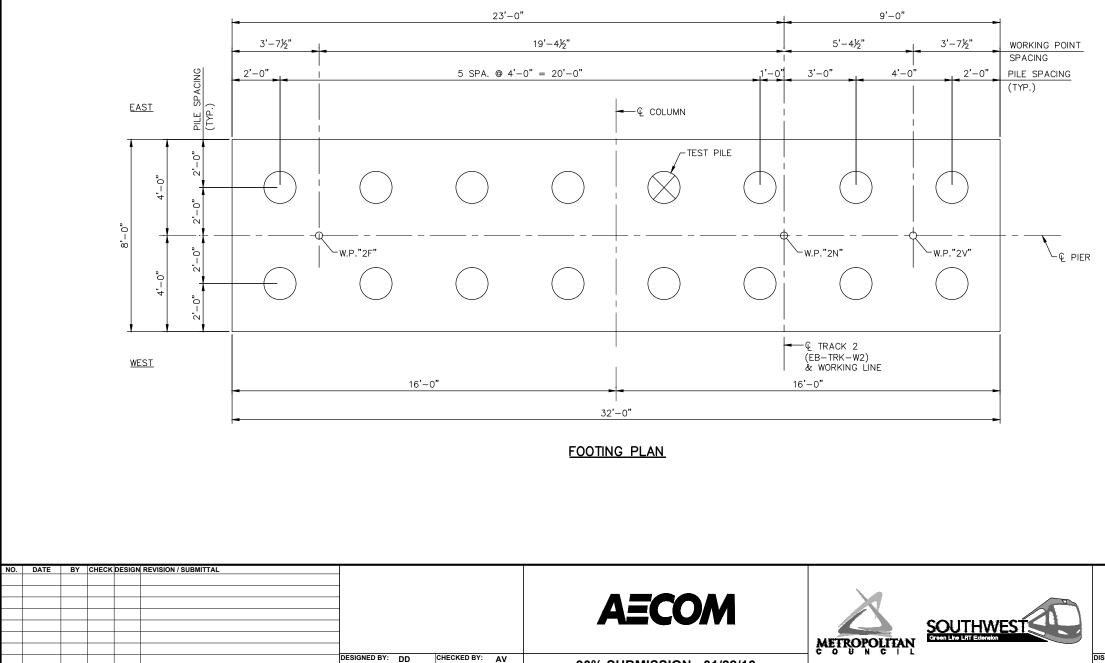
### PILE NOTES

1 CAST-IN-PLACE CONC. TEST PILE 70 FT. LONG. 15 CAST-IN-PLACE CONC. PILES EST. LENGTH 60 FT. 16 CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 11.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES TO HAVE A NOMINAL DIAMETER OF 16" AND WALL THICKNESS OF 0.3125".

FOR PILE SPLICE DETAILS SEE DETAIL B201.



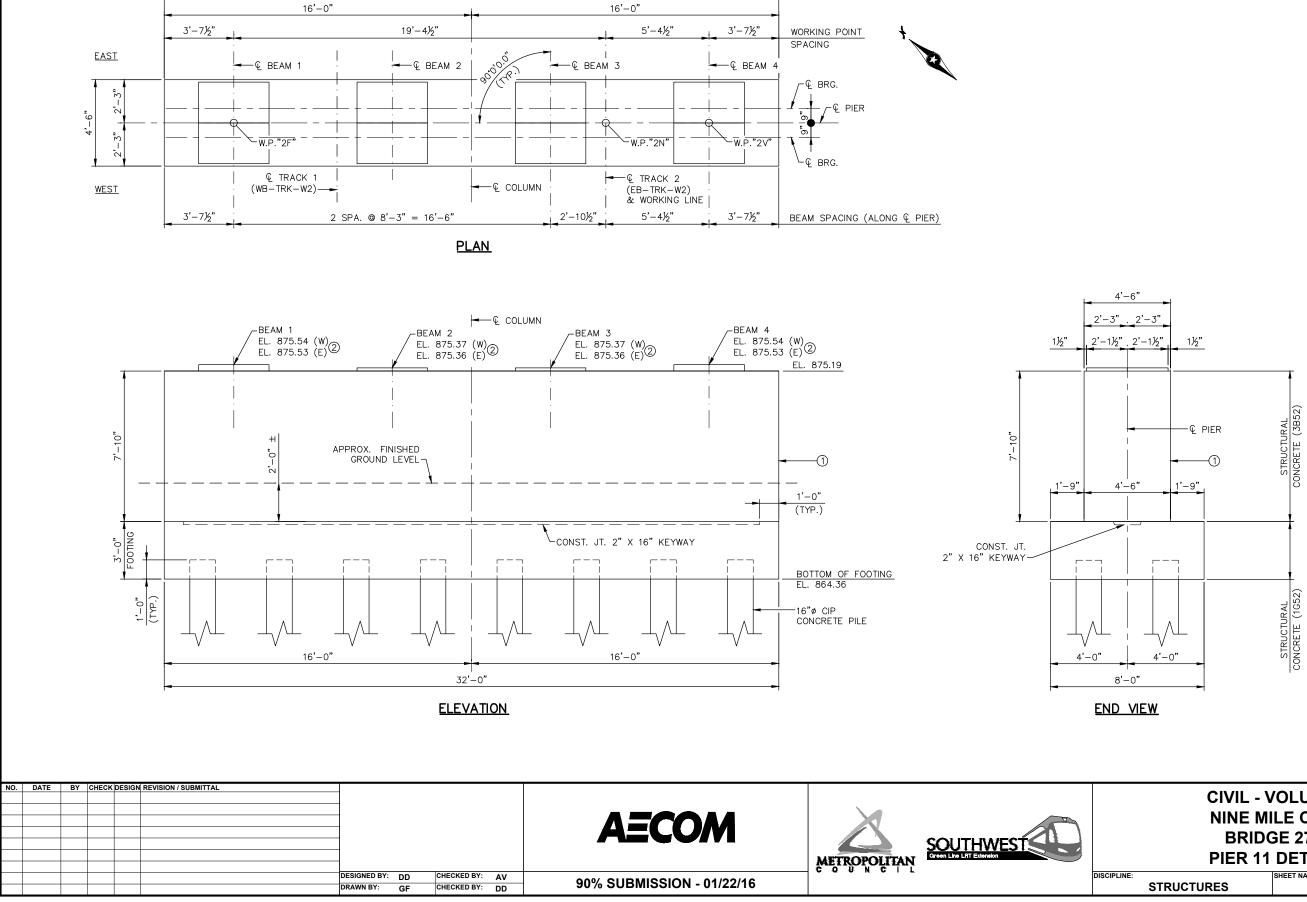
CHECKED BY: DD

DRAWN BY: GF

90% SUBMISSION - 01/22/16

DISCIPLIN

	CIVIL - VOLUME 4C				
	NINE MILE CREEK				
BRIDGE 27C07					
PIER 11 FOOTING DETAILS					
LINE:	INE: STRUCTURES CBR27C07-BRG-PIR-017				



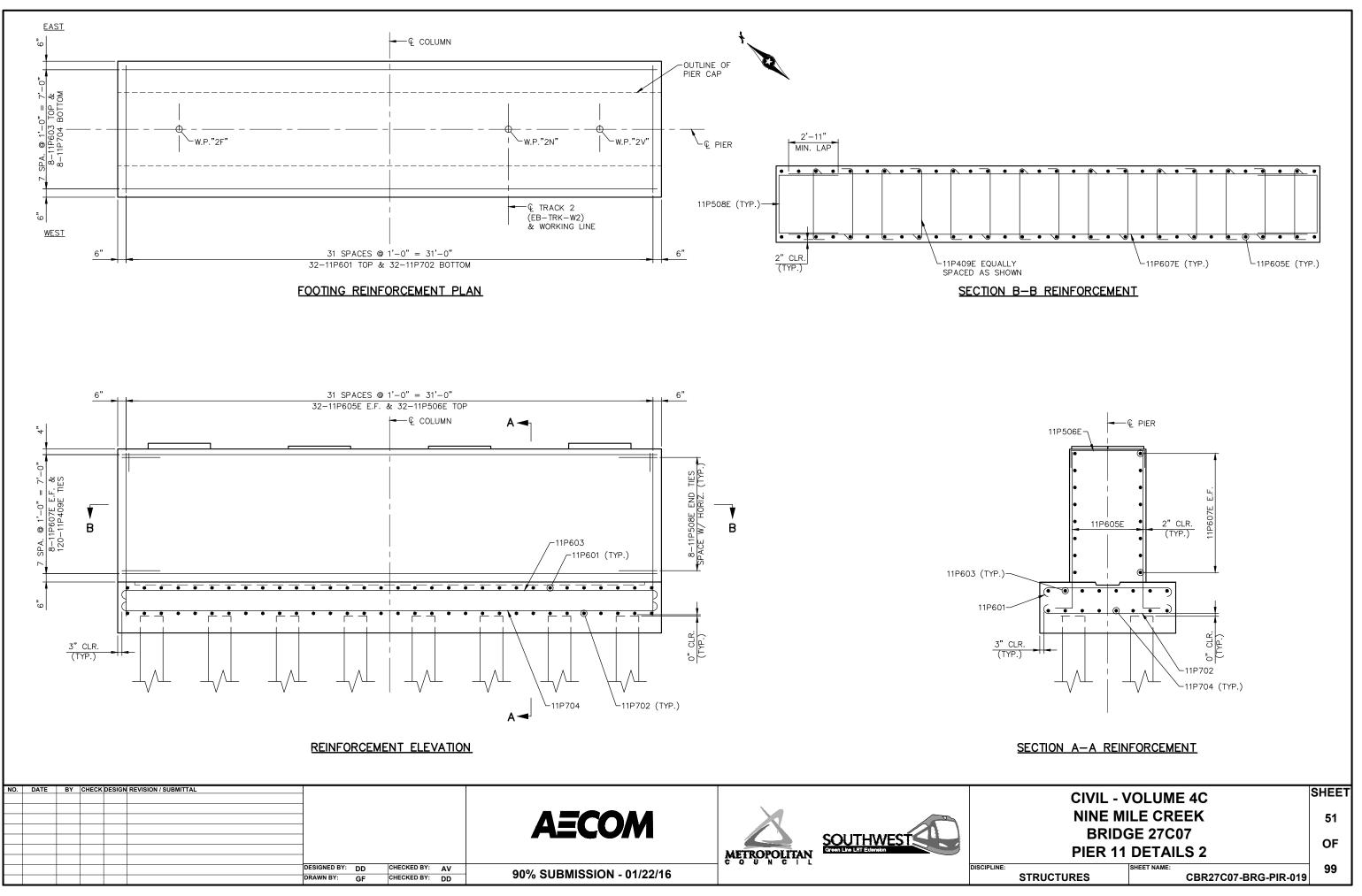
32'-0"

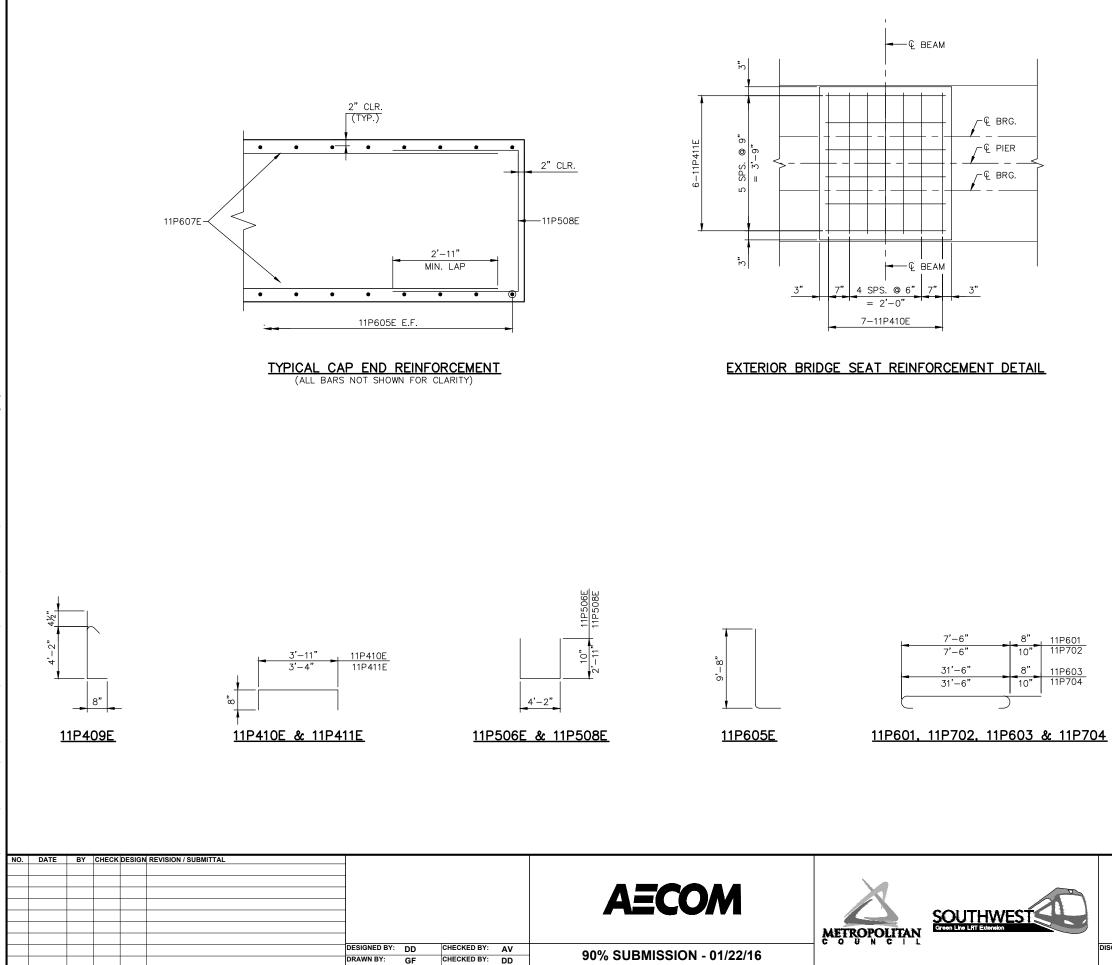
116 09:18 am P:\60336960\3400\_ADC\CAD\SEGMENT W2\PLAN SHEETS\STRUCTURES\CBR27C07\CBR27C07-BRG-PIR-018.dwg

### NOTES:

SPECIAL SURFACE FINISH. SEE SPECIAL PROVISIONS.
 ELEVATIONS WERE DETERMINED AT & BRG.

SHEET
50
OF
99





SHFFTS\S1 **PLAN** 

DISCIPLINE

BILL OF REINFORCEMENT FOR PIER 11				
BAR	NO.	LENGTH	SHAPE	LOCATION
11P601	32	8'-10"	$\left( \begin{array}{c} \\ \end{array} \right)$	FOOTING
11P702	32	9'-2"	$\frown$	FOOTING
11P603	8	32'-10"	$\bigcap$	FOOTING
11P704	8	33'-2"		FOOTING
11P605E	64	10'-8"		COLUMN DOWEL
11P506E	32	5'-10"		COLUMN TOP
11P607E	16	31'-8"		COLUMN HORIZ.
11P508E	16	10'-0"		COLUMN END
11P409E	120	5'-2 1/2"		COLUMN TIE
14P410E	14	5'-3"		BRIDGE SEAT
11P411E	12	4'-8"		BRIDGE SEAT

	CIVIL - V	OLUME 4C	SHEET
	NINE MI	LE CREEK	52
	BRIDO	GE 27C07	OF
	PIER 11	DETAILS 3	01
NE:		SHEET NAME:	99
	STRUCTURES	CBR27C07-BRG-PIR-020	-

## PIER 12-14 REQUIRED NOMINAL PILE BEARING RESISTANCE R \_ TONS/PILE

		-
FIELD CONTROL METHOD	φ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	202.8

\* R <sub>n</sub> = (FACTORED DESIGN LOAD) /  $\phi_{dyn}$ 

	PIEF	R 12–14	
COMPUTED	PILE	LOAD -	TONS/PILE

FACTORED DEAD LOAD	72.6
FACTORED LIVE LOAD	18.4
FACTORED OVERTURNING	40.9
* FACTORED DESIGN LOAD	131.8

\* BASED ON STRENGTH V LOAD COMBINATION

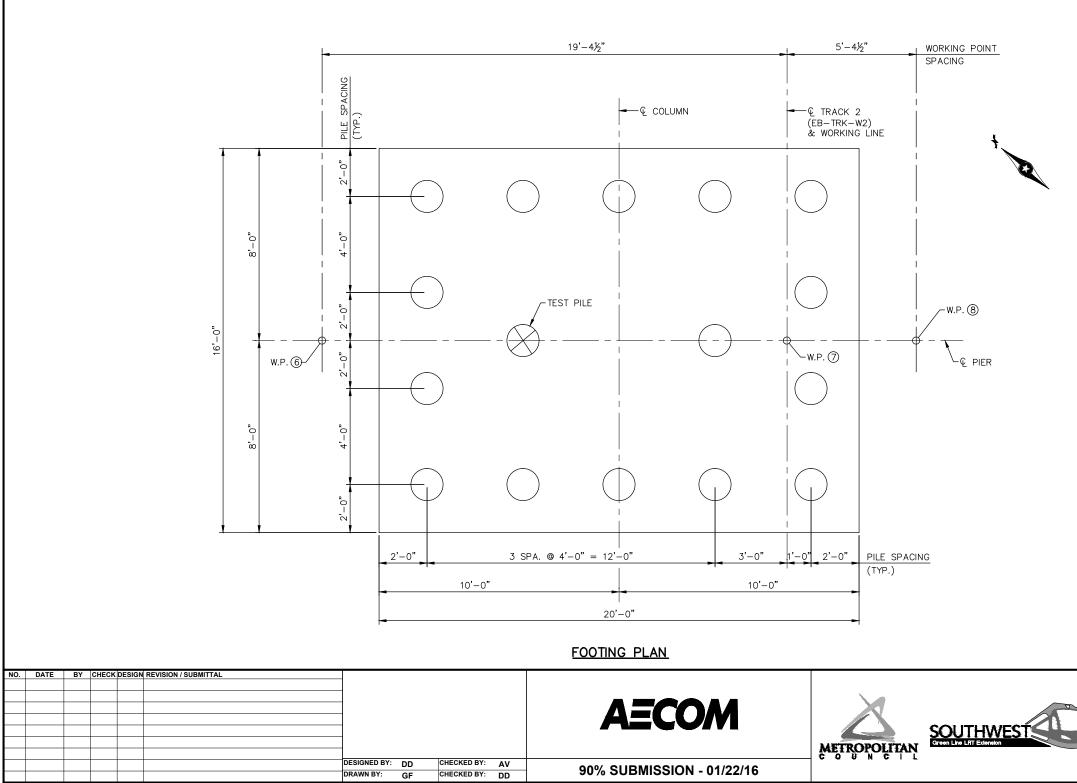
## PILE NOTES

1 CAST-IN-PLACE CONC. TEST PILE 60 FT. LONG. 15 CAST-IN-PLACE CONC. PILES EST. LENGTH 50 FT. 16 CAST-IN-PLACE CONC. PILES REQ'D FOR EACH PIER.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES TO HAVE A NOMINAL DIAMETER OF 16" AND WALL THICKNESS OF 0.3125".

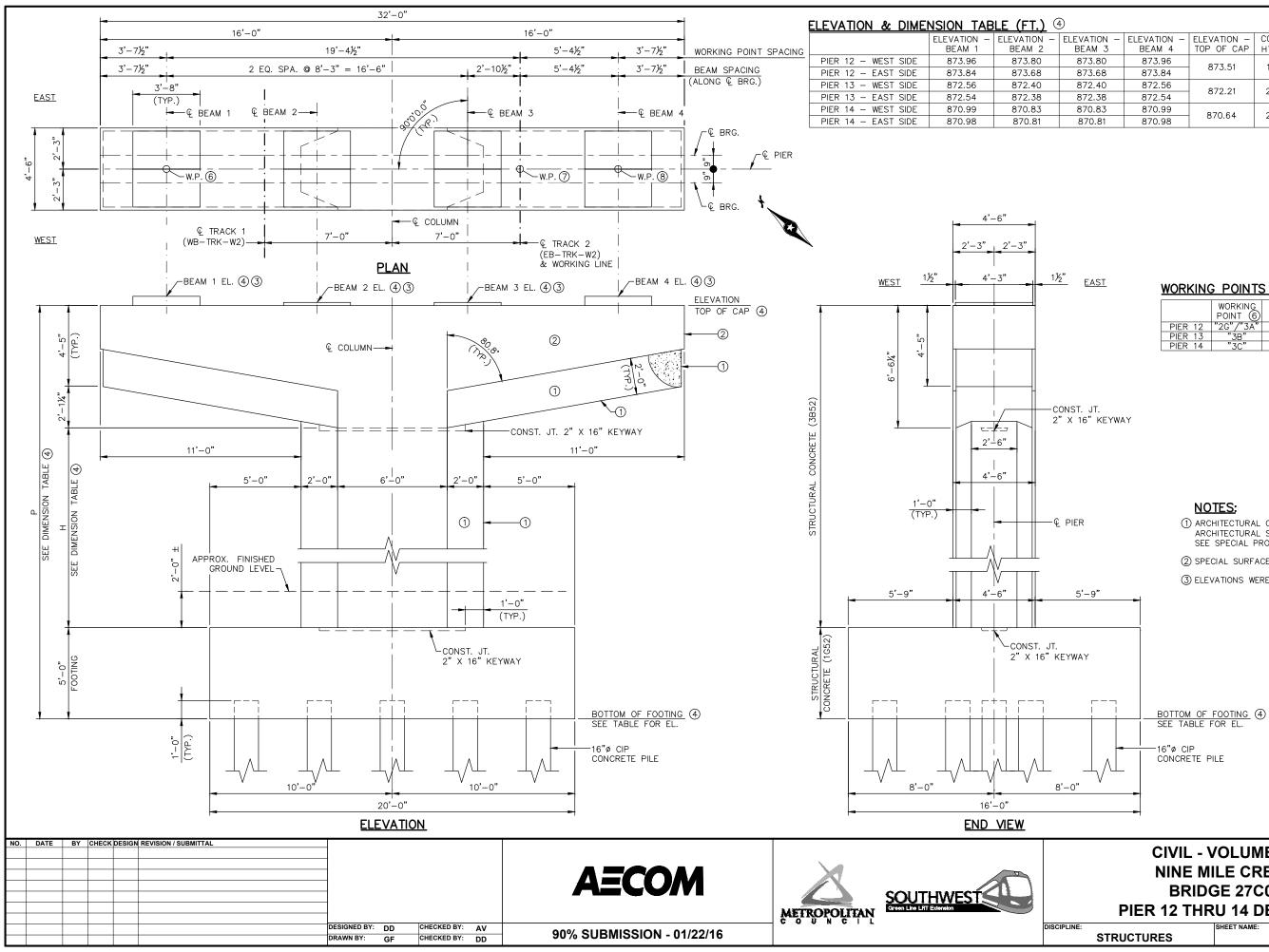
FOR PILE SPLICE DETAILS SEE DETAIL B201.



### WORKING POINTS TABLE

	WORKING POINT 6	WORKING POINT (7)	WORKING POINT 8
PIER 12	"2G"/"3A"	"2P"/"3E"	"2W"/"3J"
PIER 13	"3B"	"3F"	"3K"
PIER 14	"3C"	"3G"	"3L"

CIVIL - V	OLUME 4C	SHEET
NINE MI	LE CREEK	53
	GE 27C07 FOOTING DETAILS	OF
STRUCTURES	CBR27C07-BRG-PIR-021	99



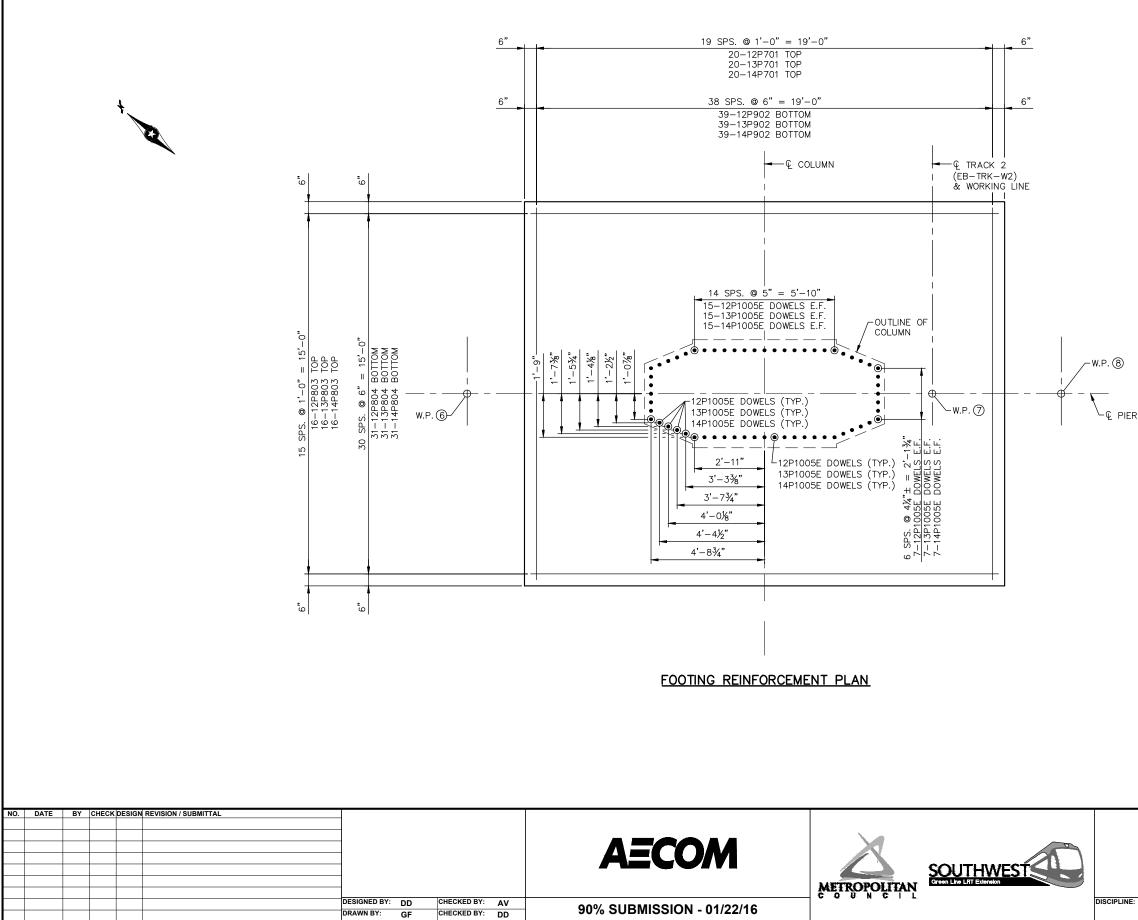
EVATION         ELEVATION         ELEVATION         ELEVATION         COLUMN TOP OF CAP         PIER HT. HT. "H"         ELEV.         BOTTOM OF FOOTING           873.80         873.96         873.51         11.25         22.77         850.74           872.40         872.56         872.21         22.25         33.77         838.44						
873.68 873.84 873.51 11.25 22.77 850.74 872.40 872.56						
873.68 873.84	873.80	873.96	973 51	11 25	22.77	950 74
872.40 872.56 872.21 22.25 33.77 838.44	873.68	873.84	875.51	11.25 2	22.77	830.74
	872.40	872.56	972.21	22.25	33 77	979 //
872.38 872.54 872.21 22.23 35.77 858.44	872.38	872.54	072.21	22.25	55.77	030.44
870.83 870.99 870.64 20.75 32.27 838.37	870.83	870.99	970 64	20.75	70.07	070 77
870.81 870.98 870.84 20.75 32.27 838.57	870.81	870.98	070.04	20.75	52.27	000.07

### WORKING POINTS TABLE

	WORKING POINT 6	WORKING POINT (7)	WORKING POINT (8)
PIER 12	"2G"/"3A"	"2P"/"3E"	"2W"/"3J"
PIER 13	"3B"	"3F"	"3K"
PIER 14	"3C"	"3G"	"3L"

- () ARCHITECTURAL CONCRETE TEXTURE (LIMESTONE) WITH ARCHITECTURAL SURFACE FINISH (SINGLE COLOR). SEE SPECIAL PROVISIONS.
- 0 Special surface finish. See special provisions.
- ③ ELEVATIONS WERE DETERMINED AT € BRG.

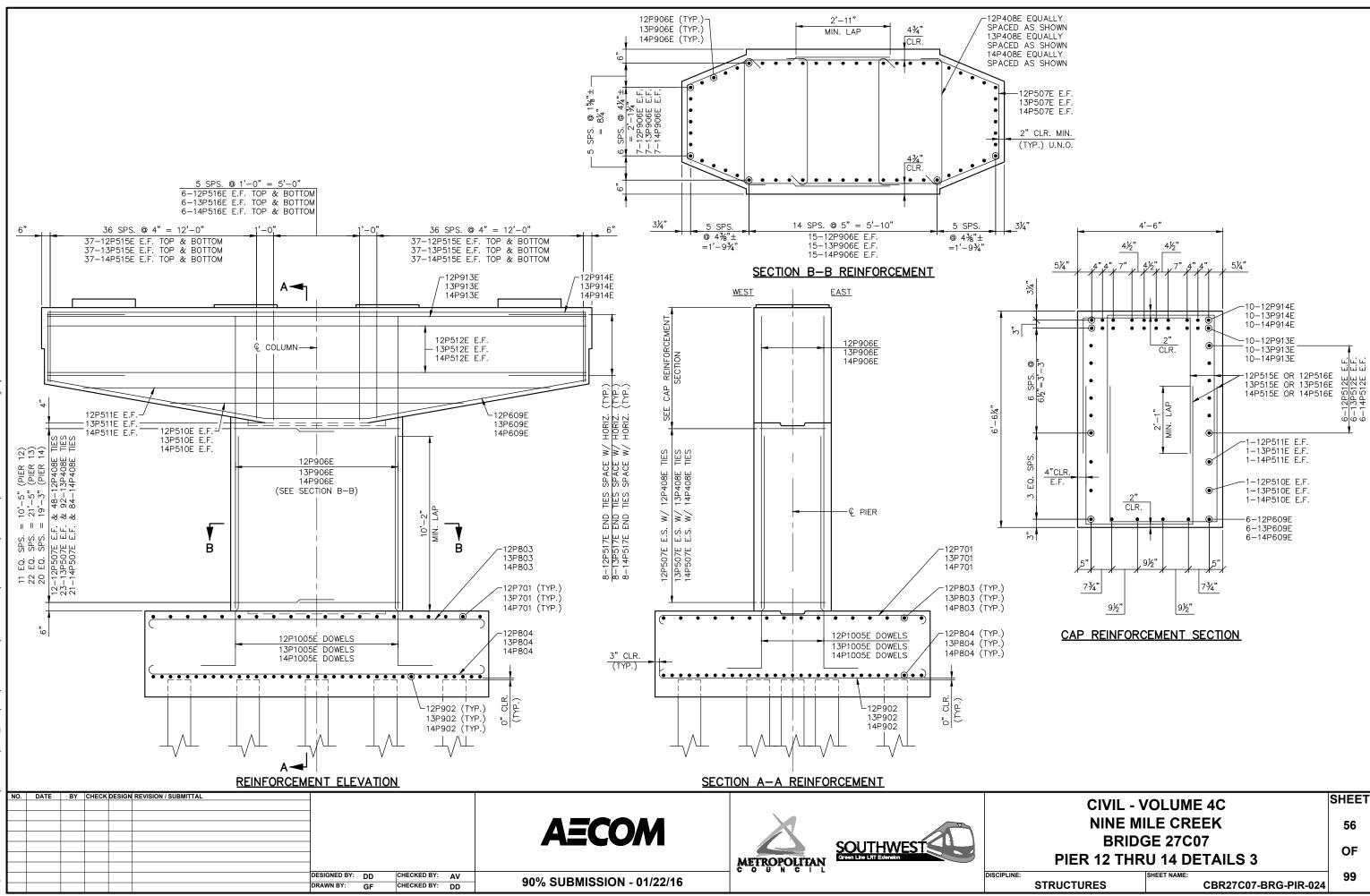
	CIVIL - V	OLUME 4C	SHEET	
	NINE MI	LE CREEK	54	
	BRIDO	GE 27C07	05	
	PIER 12 THR	U 14 DETAILS 1	OF	
NE:		SHEET NAME:	99	
	STRUCTURES	CBR27C07-BRG-PIR-022		



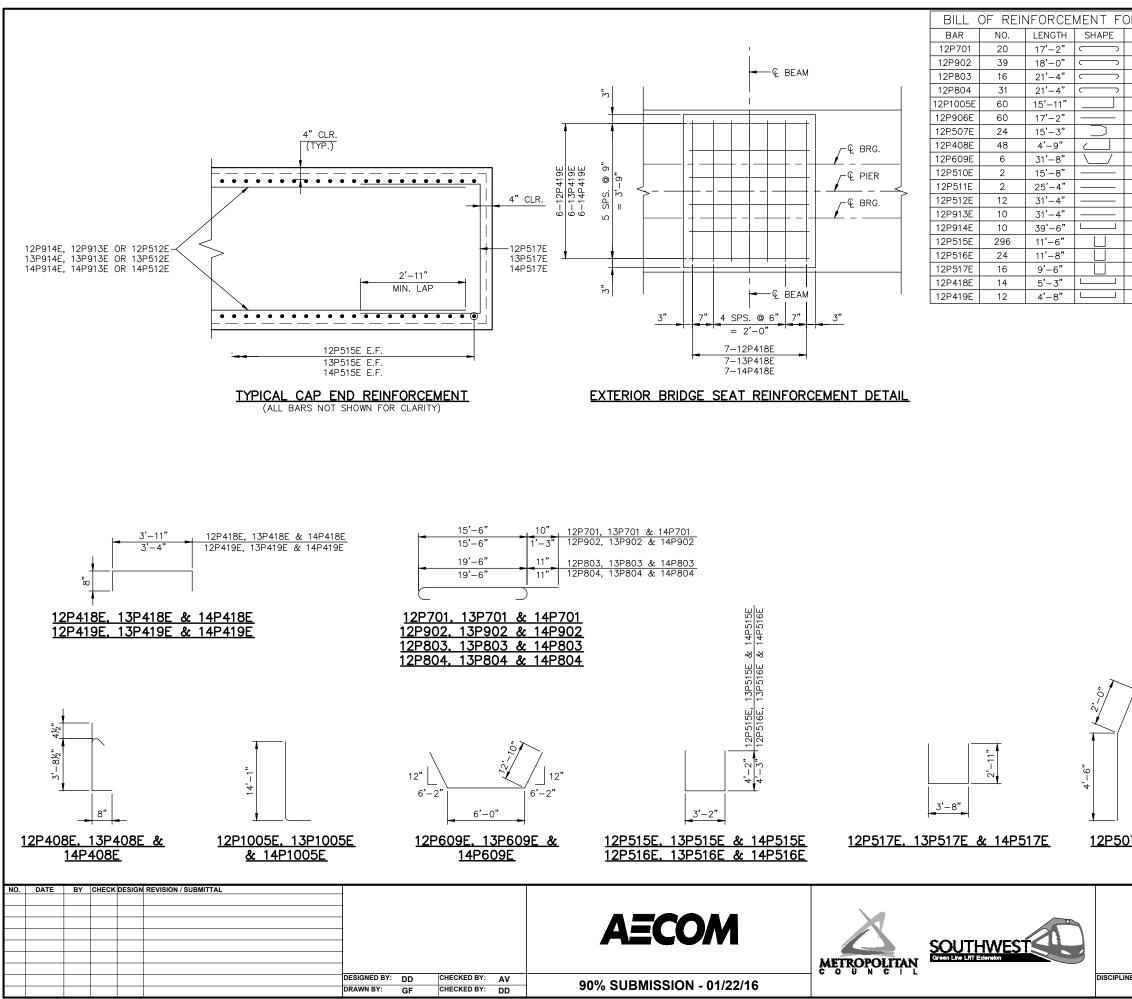
### WORKING POINTS TABLE

	WORKING POINT 6	WORKING POINT (7)	WORKING POINT 8
PIER 12	"2G"/"3A"	"2P"/"3E"	"2W"/"3J"
PIER 13	"3B"	"3F"	"3K"
PIER 14	"3C"	"3G"	"3L"

CIVIL - VOLUME 4C	SHEET
NINE MILE CREEK	55
BRIDGE 27C07	
PIER 12 THRU 14 DETAILS 2	
STRUCTURES CBR27C07-BRG-PIR-023	99



CIVIL - V	OLUME 4C	SHEET					
NINE MILE CREEK							
BRIDGE 27C07							
PIER 12 THRU 14 DETAILS 3							
STRUCTURES	SHEET NAME: CBR27C07-BRG-PIR-024	99					



	I						
07E. 13P507E & 14P507E	<u>12P914E, 13P914E &amp; 14P91</u>	<u>4E</u>					
CIVIL - VOLUME 4C							
NINE MI	LE CREEK	57					
	GE 27C07 U 14 DETAILS 4	OF					
	SHEET NAME: CBR27C07-BRG-PIR-025	99					

31'-4"

14P902	39	18'-0"	$\frown$	FOOTING
14P803	16	21'-4"	$\bigcirc$	FOOTING
14P804	31	21'-4"	$\frown$	FOOTING
14P1005E	60	15'–11"		COLUMN DOWEL
14P906E	60	26'-5"		COLUMN VERT.
14P507E	42	15'-3"	$\bigcap$	COLUMN HORIZ.
14P408E	84	4'-9"		COLUMN TIE
14P609E	6	31'-8"		CAP HORIZ.
14P510E	2	15'-8"		CAP HORIZ.
14P511E	2	25'-4"		CAP HORIZ.
14P512E	12	31'-4"		CAP HORIZ.
14P913E	10	31'-4"		CAP HORIZ.
14P914E	10	39'-6"		CAP HORIZ.
14P515E	296	11'-6"		CAP STIRRUP
14P516E	24	11'-8"		CAP STIRRUP
14P517E	16	9'-6"		CAP END
14P418E	14	5'-3"		BRIDGE SEAT
14P419E	12	4'-8"		BRIDGE SEAT

17'-2"

FOOTING

14P701

20

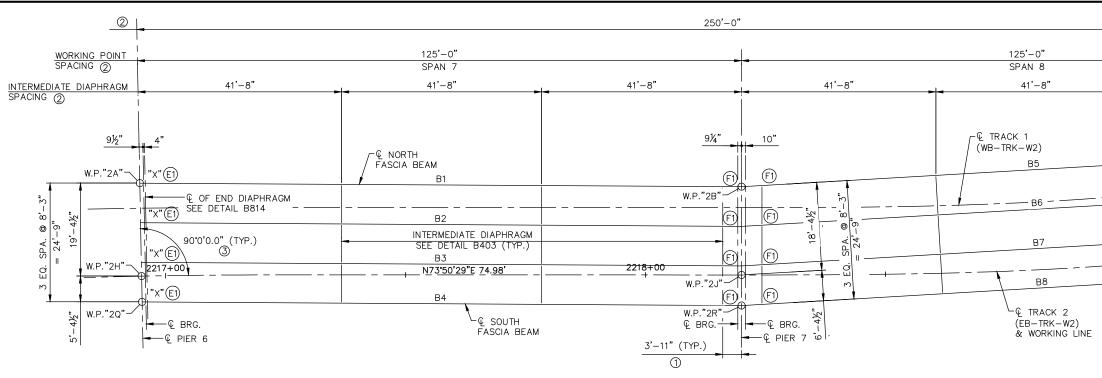
R PIER 12
LOCATION
FOOTING
FOOTING
FOOTING
FOOTING
COLUMN DOWEL
COLUMN VERT.
COLUMN HORIZ.
COLUMN TIE
CAP HORIZ.
CAP STIRRUP
CAP STIRRUP
CAP END
BRIDGE SEAT
BRIDGE SEAT

2'-3"

2'-8"

12

BILL	OF REIN	IFORCE	MENT F	OR PIER 13
BAR	NO.	LENGTH	SHAPE	LOCATION
13P701	20	17'-2"	$\frown$	FOOTING
13P902	39	18'-0"	$\frown$	FOOTING
13P803	16	21'-4"	$\frown$	FOOTING
13P804	31	21'-4"	$\frown$	FOOTING
13P1005E	60	15'–11"		COLUMN DOWEL
13P906E	60	28'-2"		COLUMN VERT.
13P507E	46	15'-3"	$\square$	COLUMN HORIZ.
13P408E	92	4'-9"		COLUMN TIE
13P609E	6	31'-8"		CAP HORIZ.
13P510E	2	15'-8"		CAP HORIZ.
13P511E	2	25'-4"		CAP HORIZ.
13P512E	12	31'-4"		CAP HORIZ.
13P913E	10	31'-4"		CAP HORIZ.
13P914E	10	39'-6"		CAP HORIZ.
13P515E	296	11'-6"		CAP STIRRUP
13P516E	24	11'-8"		CAP STIRRUP
13P517E	16	9'-6"		CAP END
13P418E	14	5'-3"		BRIDGE SEAT
13P419E	12	4'-8"		BRIDGE SEAT
BILL	OF REI	VFORCE	MENT	OR PIER 14
BAR	NO.	LENGTH	SHAPE	LOCATION



FRAMING PLAN

ANGLES FROM CL BEAM TANGENT TO CL SUBSTRUCTURE											
BEAM NO.	CL PIER 6	CL PIER 7	CL PIER 8								
B1	88°32'13"	90°20'44"									
B2	88°32'09"	90°20'48"									
B3	88°32'05"	90°20'53"									
B4	88°32'01"	90°20'57"									
B5		93°20'25"	95°21'16"								
B6		93°21'02"	95°20'39"								
B7		93°21'38"	95°20'03"								
B8		93°22'13"	95° 19'28"								

BEAM ANGLE TABLE

### NOTES:

① MEASURED PERPENDICULAR FROM € OF PIER TO € OF DIAPHRAGM.

② MEASURED ALONG € OF TRACK 2 (€ EB-TRK-W2).

(3) TTC TYP. UNLESS SHOWN OTHERWISE.

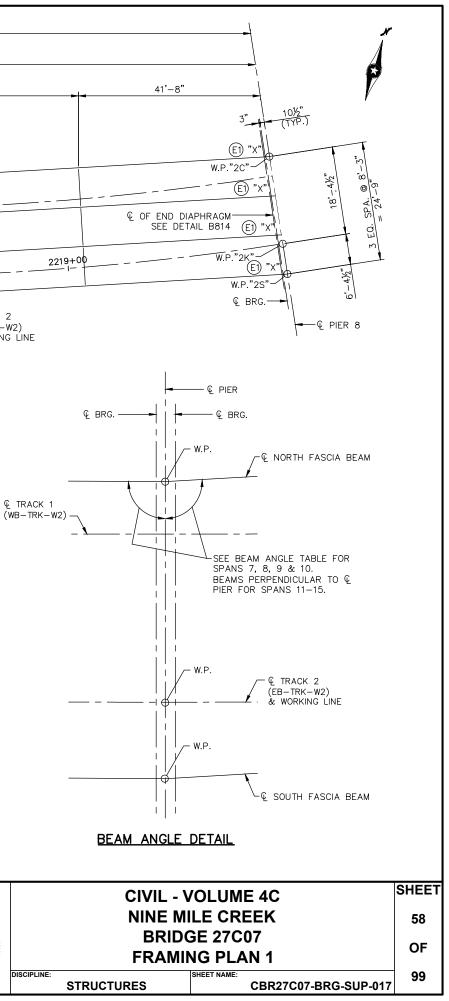
"X" = MARKS END OF BEAM.

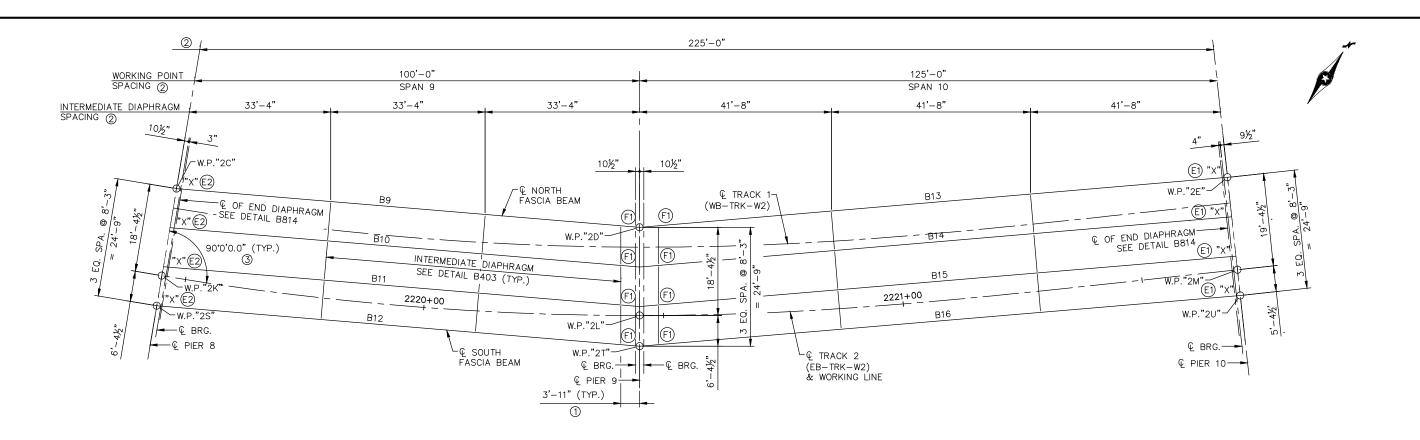
(E) (E) (E) (E) = EXPANSION CURVED PLATE BEARING ASSEMBLY. SEE DETAIL B311.

(F1) = FIXED CURVED PLATE BEARING ASSEMBLY. SEE DETAIL B310.

NO. DATE BY CHECK DESIGN REVISION / SUBMITTA AECOM METROPOLITAN DESIGNED BY: AV CHECKED BY: DD DISCIPLINE: 90% SUBMISSION - 01/22/16 DRAWN BY: CHECKED BY: DD GF

€ TRACK 1





### FRAMING PLAN

ANGLES FROM CL BEAM TANGENT TO CL SUBSTRUCTURE										
CL PIER 8	CL PIER 9	CL PIER 10								
94°46'29"	94°46'29"									
94°46'29"	94°46'29"									
94°46'29"	94°46'29"									
94°46'29"	94°46'29"									
	94°51'44"	91°18'56"								
	94°50'59"	91°19'42"								
	94°50'13"	91°20'27"								
	94°49'29"	91°21'11"								
	CL PIER 8 94°46'29" 94°46'29" 94°46'29"	CL PIER 8         CL PIER 9           94°46'29"         94°46'29"           94°46'29"         94°46'29"           94°46'29"         94°46'29"           94°46'29"         94°46'29"           94°46'29"         94°46'29"           94°50'144"         94°50'59"           94°50'13"         94°50'13"								

### BEAM ANGLE TABLE

### NOTES:

() Measured perpendicular from  ${\mathbb Q}$  of Pier to  ${\mathbb Q}$  of diaphragm.

② MEASURED ALONG € OF TRACK 2 (€ EB-TRK-W2).

(3) TTC TYP. UNLESS SHOWN OTHERWISE.

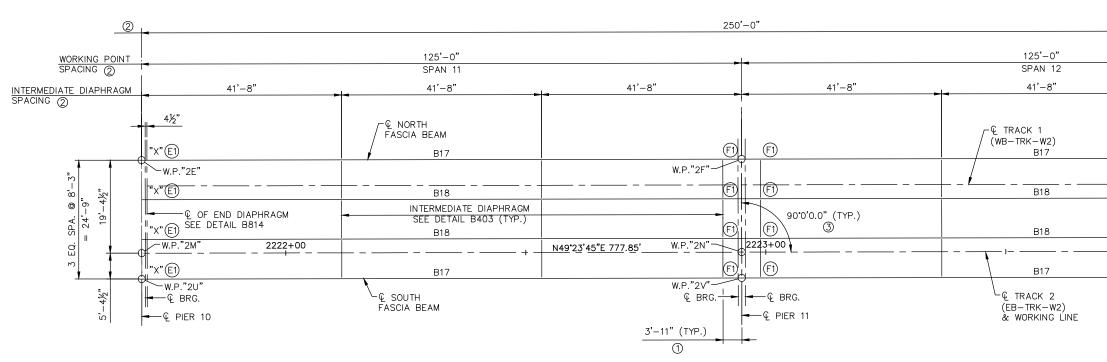
4. SEE SHEET 58 OF 99 FOR BEAM ANGLE DETAIL.

"X" = MARKS END OF BEAM.

(E)(E2)(E3) = EXPANSION CURVED PLATE BEARING ASSEMBLY. SEE DETAIL B311.

(F1) = FIXED CURVED PLATE BEARING ASSEMBLY. SEE DETAIL B310.

0. DATE	BY	CHECK	CK DESIGN REVISION / SUBMITTAL		AECOM	NINE M BRID	VOLUME 4C IILE CREEK GE 27C07 NG PLAN 2	SHEET 59 OF
				DESIGNED BY: AV CHECKED BY: DD DRAWN BY: GF CHECKED BY: DD	90% SUBMISSION - 01/22/16		SHEET NAME: CBR27C07-BRG-SUP-018	99



FRAMING PLAN

### <u>NOTES:</u>

① MEASURED PERPENDICULAR FROM € OF PIER TO € OF DIAPHRAGM.

② MEASURED ALONG € OF TRACK 2 (€ EB-TRK-W2).

(3) TTC TYP. UNLESS SHOWN OTHERWISE.

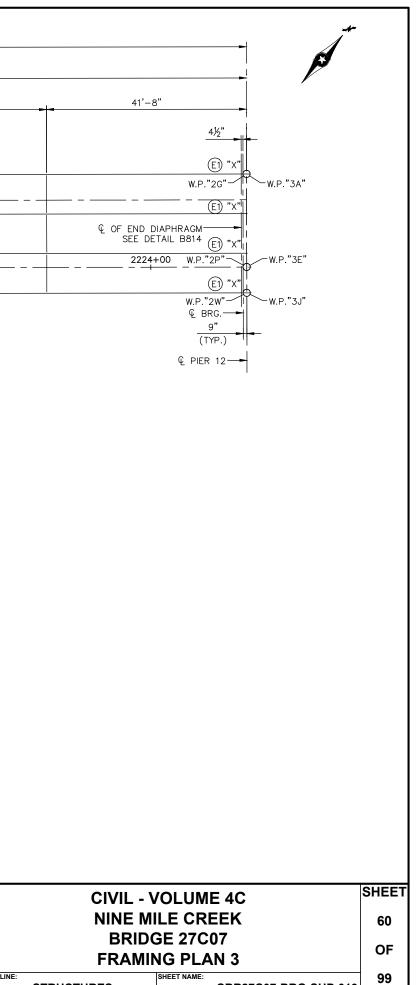
4. SEE SHEET 58 OF 99 FOR BEAM ANGLE DETAIL.

"X" = MARKS END OF BEAM.

(E)(E2)(E3) = EXPANSION CURVED PLATE BEARING ASSEMBLY. SEE DETAIL B311.

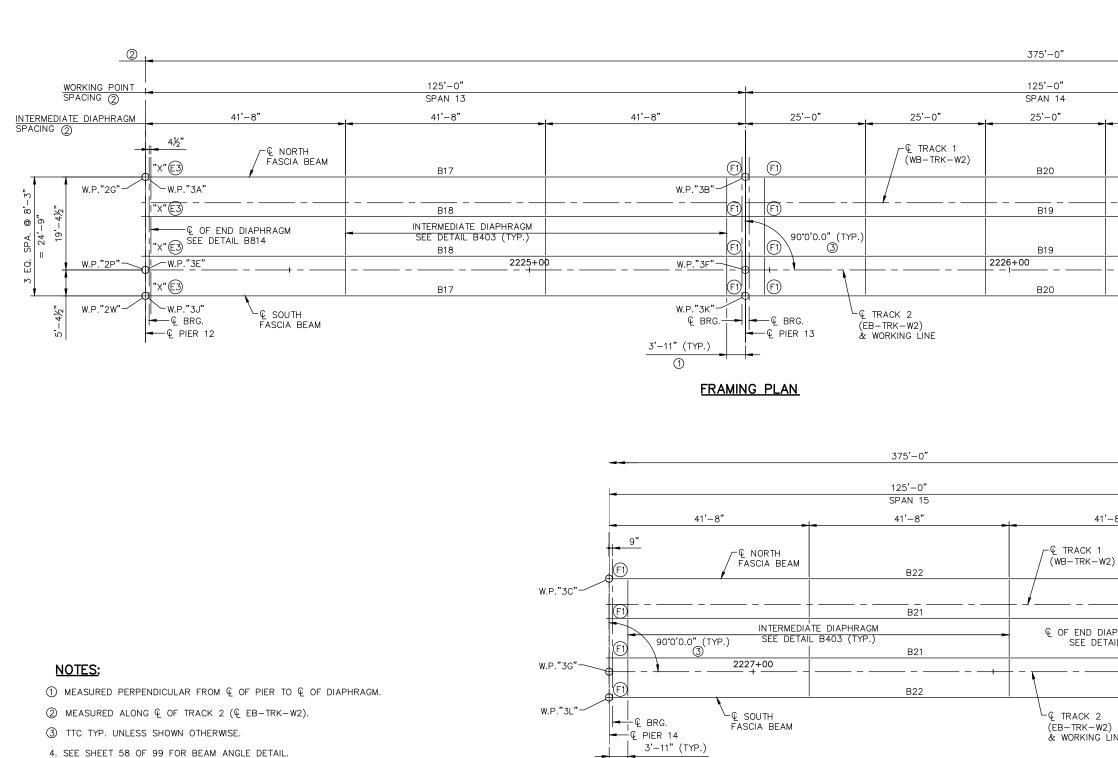
(F1) = FIXED CURVED PLATE BEARING ASSEMBLY. SEE DETAIL B310.

·Γ	NO.	DATE	BY	CHECK DESIGN REVISION / SUBMITTAL								
5												
3												
; -									AECOM			
2 -												
ξŀ											Green Line LRT Extension	
i –	_									METROPOLITAN		
. F					DESIGNED BY:	AV	CHECKED BY:	DD				DISCIP
5					DRAWN BY:	GF	CHECKED BY:	DD	90% SUBMISSION - 01/22/16			
									•	1		



STRUCTURES

CBR27C07-BRG-SUP-019



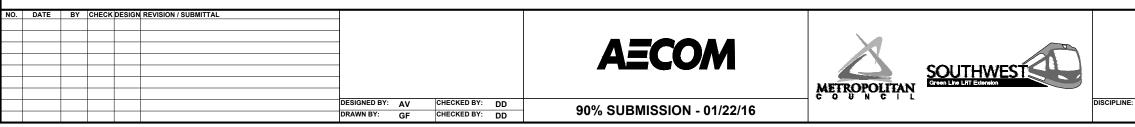
(3) TTC TYP. UNLESS SHOWN OTHERWISE.

4. SEE SHEET 58 OF 99 FOR BEAM ANGLE DETAIL.

"X" = MARKS END OF BEAM.

(E) (E) (E) (E) = EXPANSION CURVED PLATE BEARING ASSEMBLY. SEE DETAIL B311.

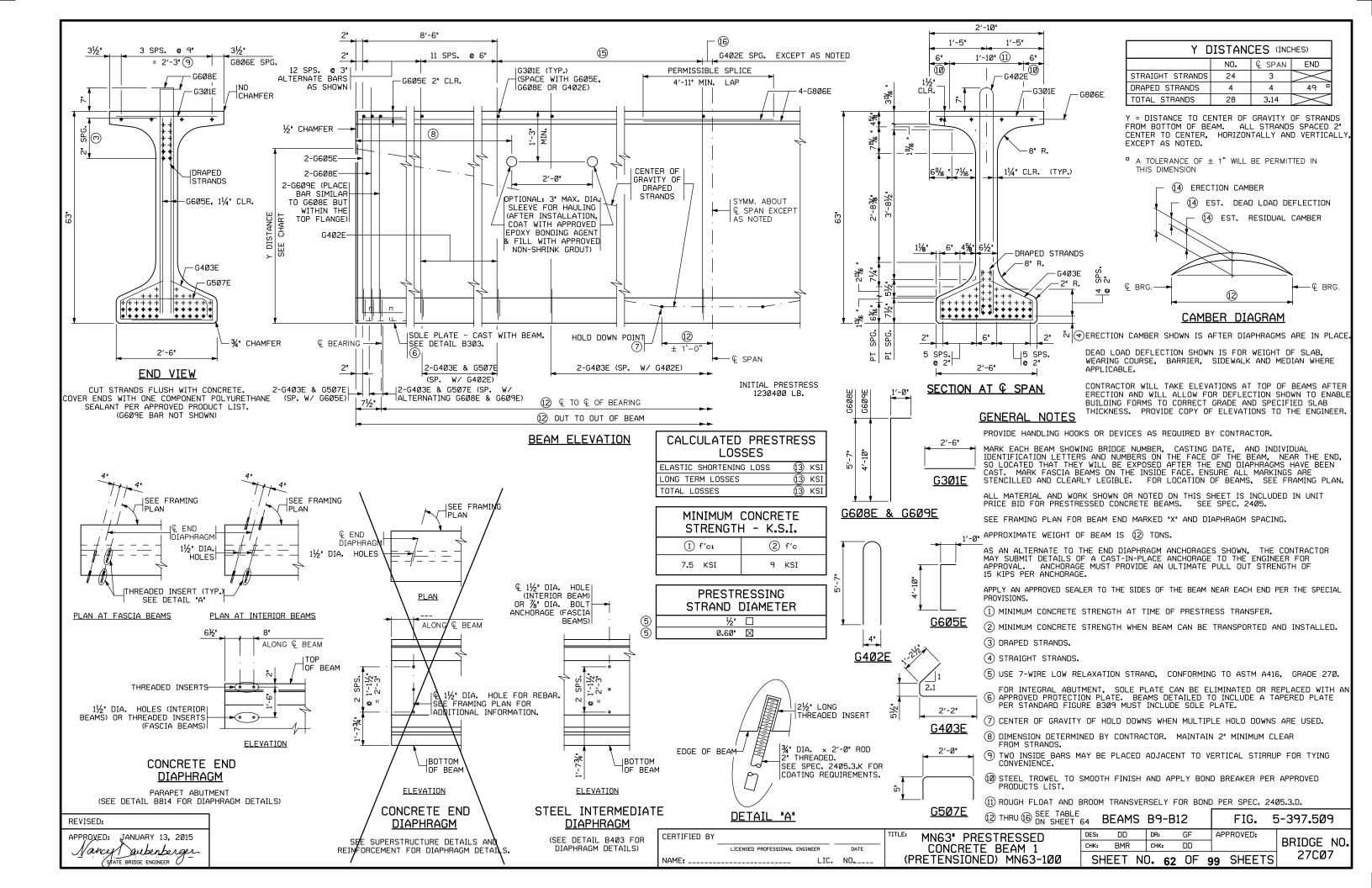
(F1) = FIXED CURVED PLATE BEARING ASSEMBLY. SEE DETAIL B310.

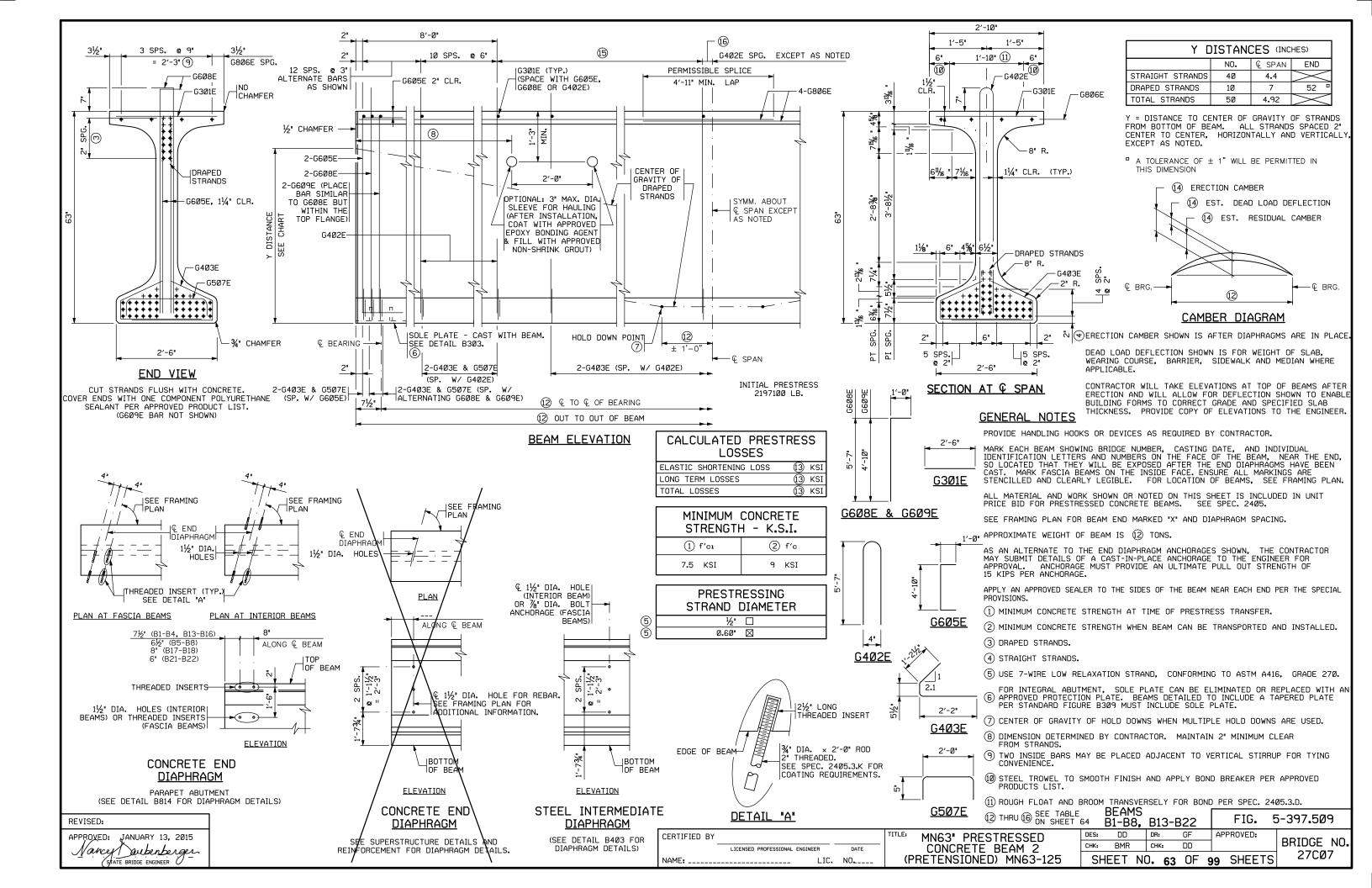


1

FRAMING PLAN

-0"	/	
-0"	<b>_</b> _	
N 14 −0"	25'-0" 25'-0"	
	9" _ 1	
	(TYP.) - (TYP.) (F1)	
20	W.P."3C"	
 19		
19	W.P."3G"	
- — — 20		
	W.P."3L"	
	© BRG.──- © PIER 14 ──-	
	!	
	<b></b> _	
	41'-8"	
-0. тр.	ACK 1	
(WB-	(E3)"x"	
	W.P. "3D"-1	
	$\frac{W.P."3H}{2228+00}$	
€ TRA		
(EB-T & WO	TRK−W2) [ ] IRKING LINF € BRG. — []	
	E. ABUT.   2½"	
	<del>-</del> -1 <del>+</del> -	
	CIVIL - VOLUME 4C	SHEET
	NINE MILE CREEK	61
	BRIDGE 27C07	OF
	FRAMING PLAN 4	99
	STRUCTURES CBR27C07-BRG-SUP-020	33

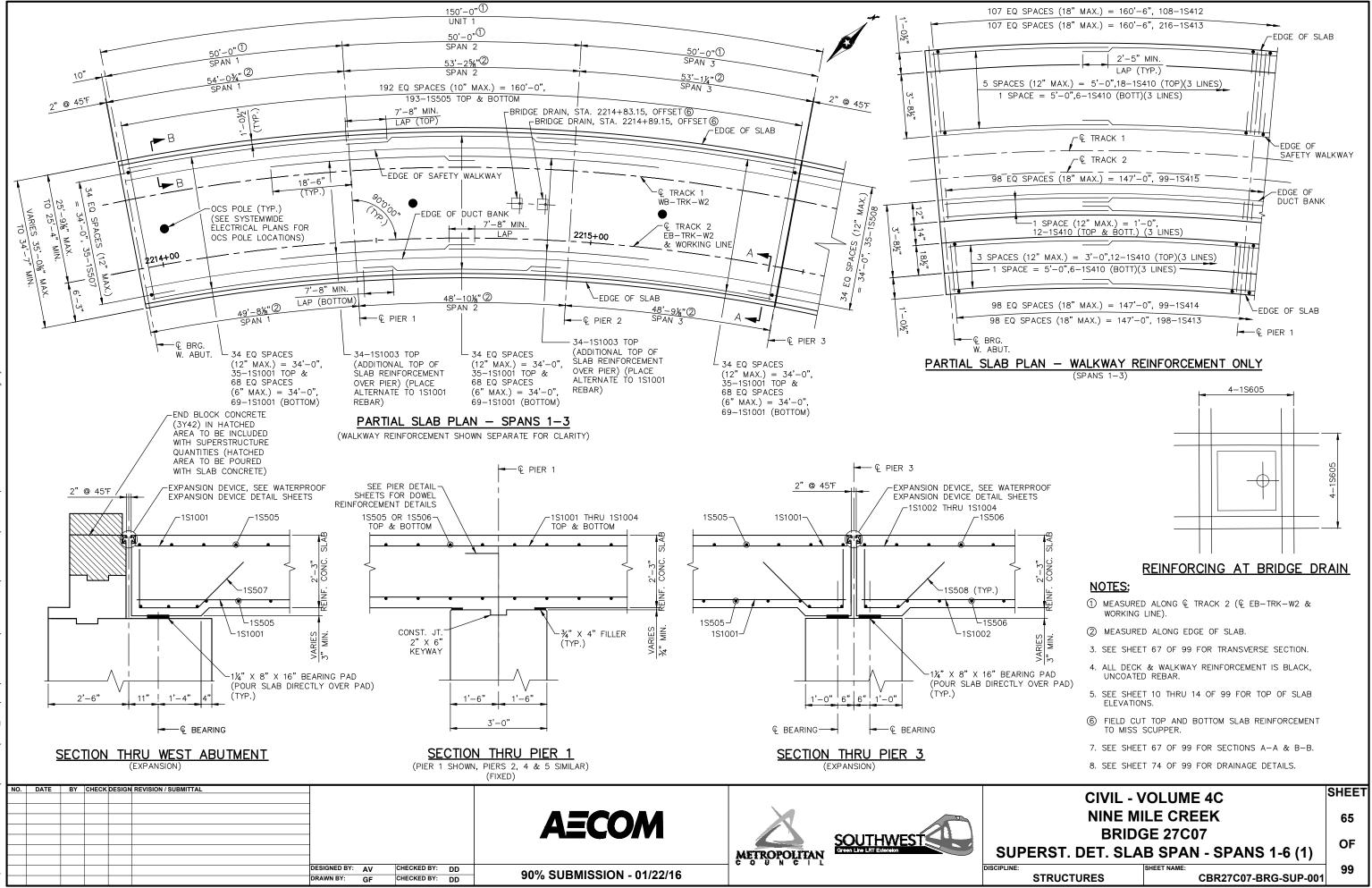


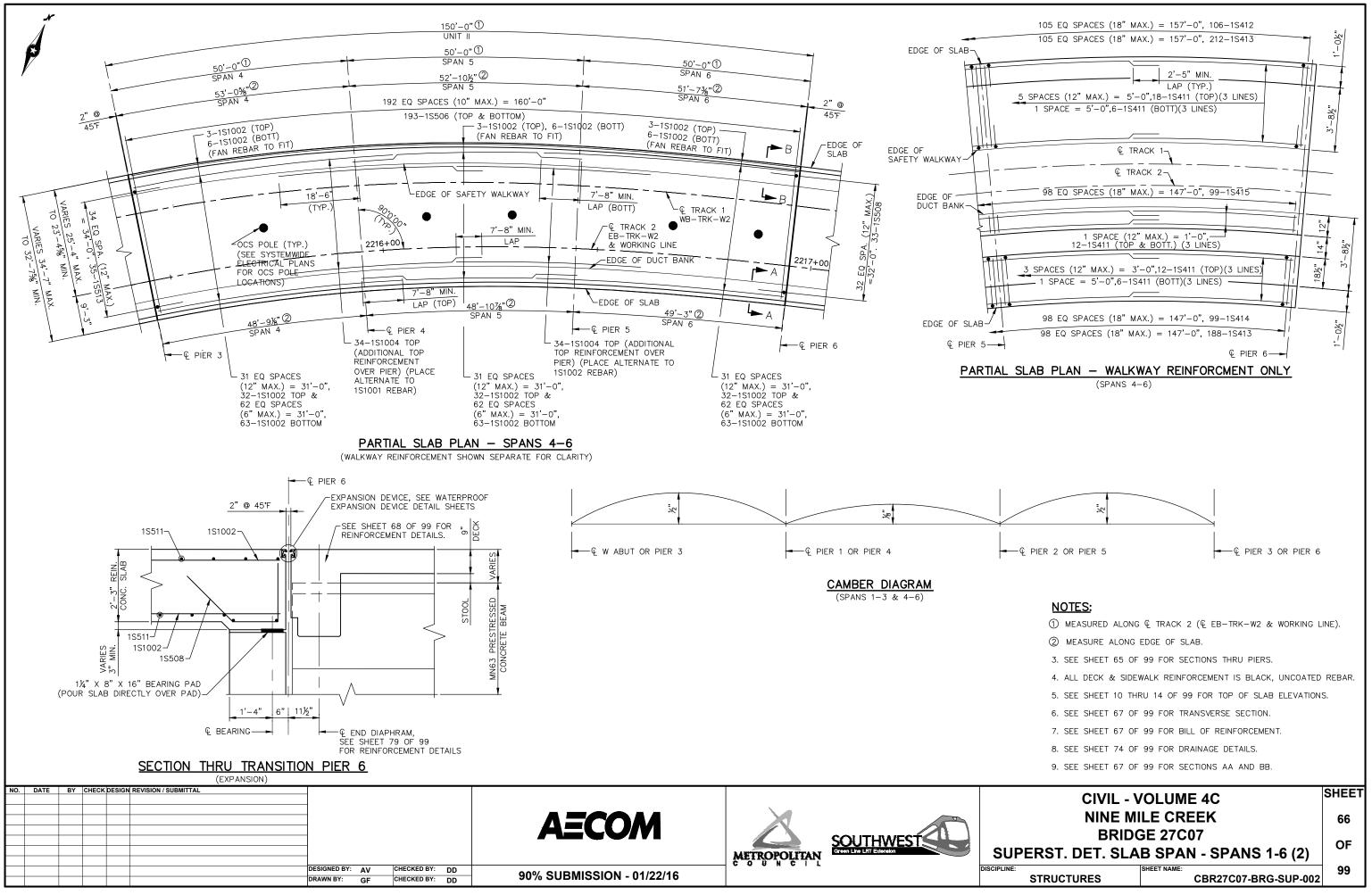


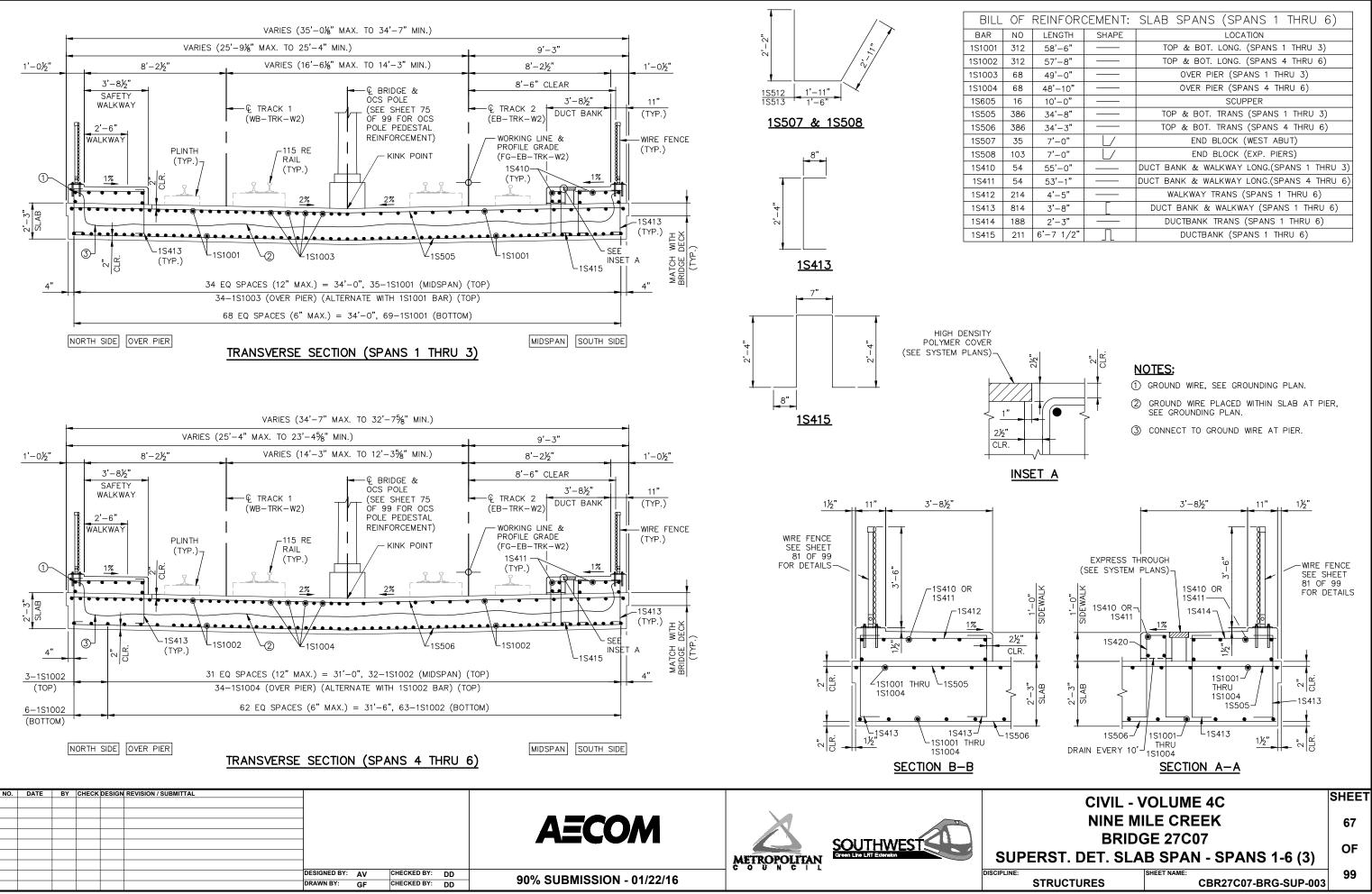
PRESTRESSED BEAM INFORMATION (2)					CALCULATED F	RESTRESSED LO	SSES 🔞		CAMBER	14	15	16
BEAM NO.	CL TO CL OF BRG. (FT)	OUT TO OUT OF BEAM (FT)	WEIGHT (TONS)	HOLD DOWN POINT (FT)	ELASTIC SHORTENING LOSS (KSI)	LONG TERM LOSSES (KSI)	TOTAL LOSSES (KSI)	INITIAL TOTAL CAMBER (IN)	EST. DEAD LOAD DEFLECTION (IN)	EST. RESIDUAL CAMBER (IN)	STIRRUP SPACING	GIRDER DIMENSION
B1	123.816	125.066	54.34	12.51	24.5	24.8	49.3	5 1/4"	3 3/8"	1 7/8"	46 SPS. @ 1'-2" = 53'-8"	8 3/8"
B2	123.655	124.905	54.27	12.49	24.5	24.8	49.3	5 1/4"	3 3/8"	1 7/8"	46 SPS. @ 1'-2" = 53'-8"	7 3/8"
B3	123.494	124.744	54.20	12.47	24.5	24.8	49.3	5 1/4"	3 3/8"	1 7/8"	46 SPS. @ 1'-2" = 53'-8"	6 1/2"
B4	123.333	124.583	54.13	12.46	24.6	24.8	49.3	5 1/4"	3 3/8"	1 7/8"	46 SPS. @ 1'-2" = 53'-8"	5 1/2"
B5	120.361	121.611	52.84	12.16	24.9	24.8	49.6	5 1/4"	3 3/8"	1 7/8"	48 SPS. @ 1'-1" = 52'-0"	7 5/8"
B6	121.612	122.862	53.38	12.29	24.7	24.8	49.5	5 1/4"	3 3/8"	1 7/8"	45 SPS. @ 1'-2" = 52'-6"	9 1/8"
B7	122.862	124.112	53.93	12.41	24.6	24.8	49.4	5 1/4"	3 3/8"	1 7/8"	46 SPS. @ 1'-2" = 53'-8"	2 5/8"
B8	124.113	125.363	54.47	12.54	24.5	24.8	49.3	5 1/4"	3 3/8"	1 7/8"	50 SPS. @ 1'-1" = 54'-2"	4 1/8"
В9	95.069	96.319	41.85	9.63	15.9	17.9	33.8	2 1/4"	1 3/8"	7/8"	36 SPS. @ 1'-1" = 39'-0"	5 7/8"
B10	96.443	97.693	42.45	9.77	15.7	17.9	33.7	2 1/4"	1 3/8"	7/8"	34 SPS. @ 1'-2" = 39'-8"	6 1/8"
B11	97.816	99.066	43.04	9.91	15.6	17.9	33.6	2 1/4"	1 3/8"	7/8"	37 SPS. @ 1'-1" = 40'-1"	9 3/8"
B12	99.189	100.439	43.64	10.04	15.5	17.9	33.5	2 1/4"	1 3/8"	7/8"	35 SPS. @ 1'-2" = 40'-10"	8 5/8"
B13	121.254	122.504	53.23	12.25	24.8	24.8	49.5	5 1/4"	3 3/8"	1 7/8"	45 SPS. @ 1'-2" = 52'-6"	7"
B14	122.142	123.392	53.61	12.34	24.7	24.8	49.5	5 1/4"	3 3/8"	1 7/8"	49 SPS. @ 1'-1" = 53'-1"	5 3/8"
B15	123.031	124.281	54.00	12.43	24.6	24.8	49.4	5 1/4"	3 3/8"	1 7/8"	46 SPS. @ 1'-2" = 53'-8"	3 11/16"
B16	123.920	125.170	54.39	12.52	24.5	24.8	49.3	5 1/4"	3 3/8"	1 7/8"	46 SPS. @ 1'-2" = 53'-8"	9"
B17	123.500	124.750	54.20	12.48	24.5	24.8	49.3	5 1/4"	3 3/8"	1 7/8"	46 SPS. @ 1'-2" = 53'-8"	6 1/2"
B18	123.500	124.750	54.20	12.48	24.5	24.8	49.3	5 1/4"	3 3/8"	1 7/8"	46 SPS. @ 1'-2" = 53'-8"	6 1/2"
B19	123.500	124.750	54.20	12.48	24.5	24.8	49.3	5 1/4"	3 3/8"	1 7/8"	46 SPS. @ 1'-2" = 53'-8"	6 1/2"
B20	123.500	124.750	54.20	12.48	24.5	24.8	49.3	5 1/4"	3 3/8"	1 7/8"	46 SPS. @ 1'-2" = 53'-8"	6 1/2"
B21	123.500	124.750	54.20	12.48	24.5	24.8	49.3	5 1/4"	3 3/8"	1 7/8"	46 SPS. @ 1'-2" = 53'-8"	6 1/2"
B22	123.500	124.750	54.20	12.48	24.5	24.8	49.3	5 1/4"	3 3/8"	1 7/8"	46 SPS. @ 1'-2" = 53'-8"	6 1/2"

). DATE	BY	CHECK	K DESIGN REVISION / SUBMITTAL						
								SOUTHWEST	
							METROPOLITANI C	areen Line LRT Extension	MN
						00% SURMISSION 01/22/16			DISCIPLI
				DRAWN BY: GF	CHECKED BY: DD	90% SUBINISSION - 01/22/16			
	. DATE	. DATE BY	DATE BY CHEC	Image: Constraint of the second sec	Image: Constraint of the second sec	Image:	AECOM		AECOM METROPOLITAN DESIGNED BY: DD CHECKED BY: AV DOW SUBMISSION 04/22/46

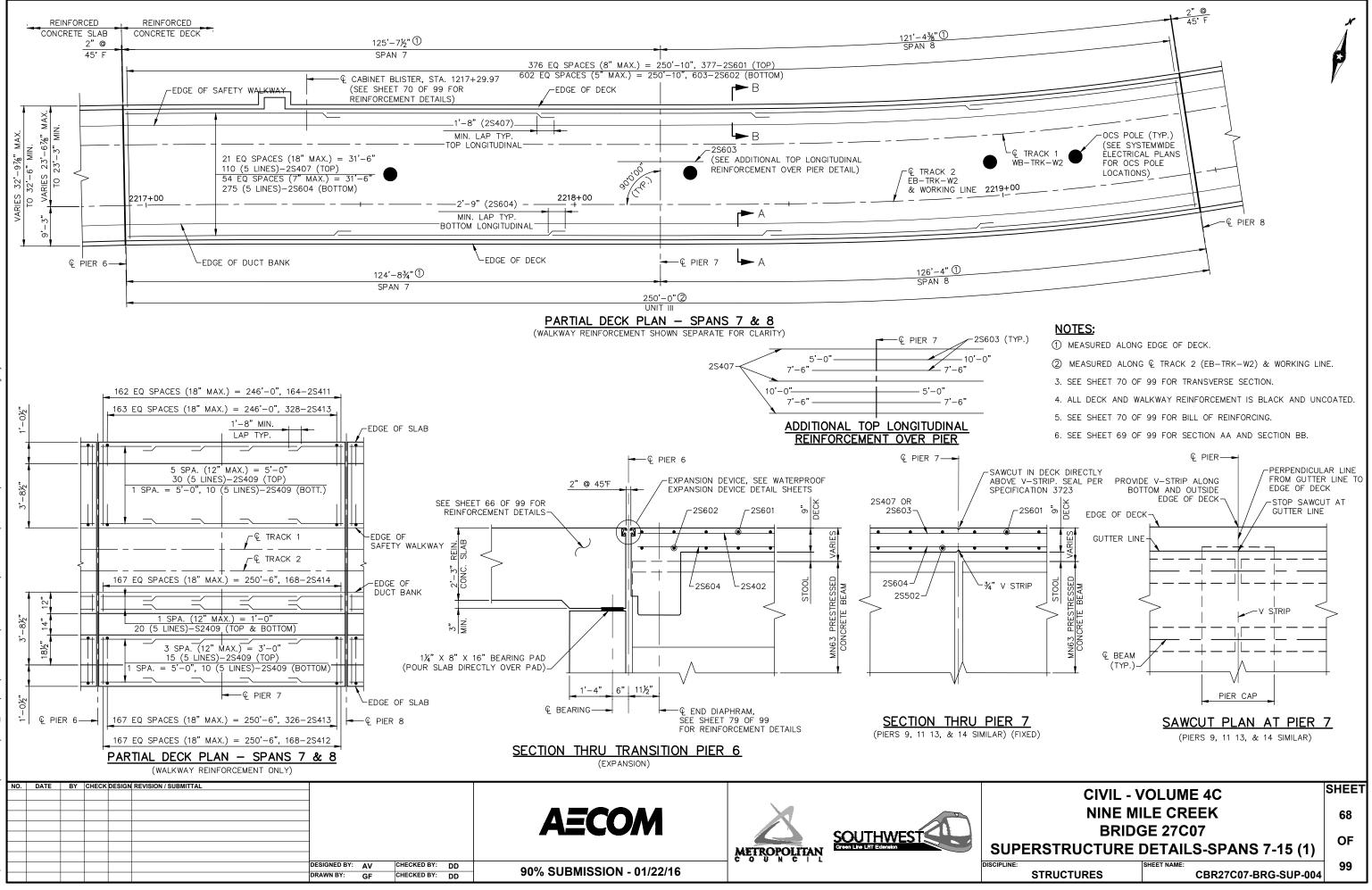
# CIVIL - VOLUME 4C NINE MILE CREEK BRIDGE 27C07 N63 PRESTRESSED CONC. BEAM DETAILS INE: STRUCTURES SHEET NAME: CBR27C07-BRG-PCB-003

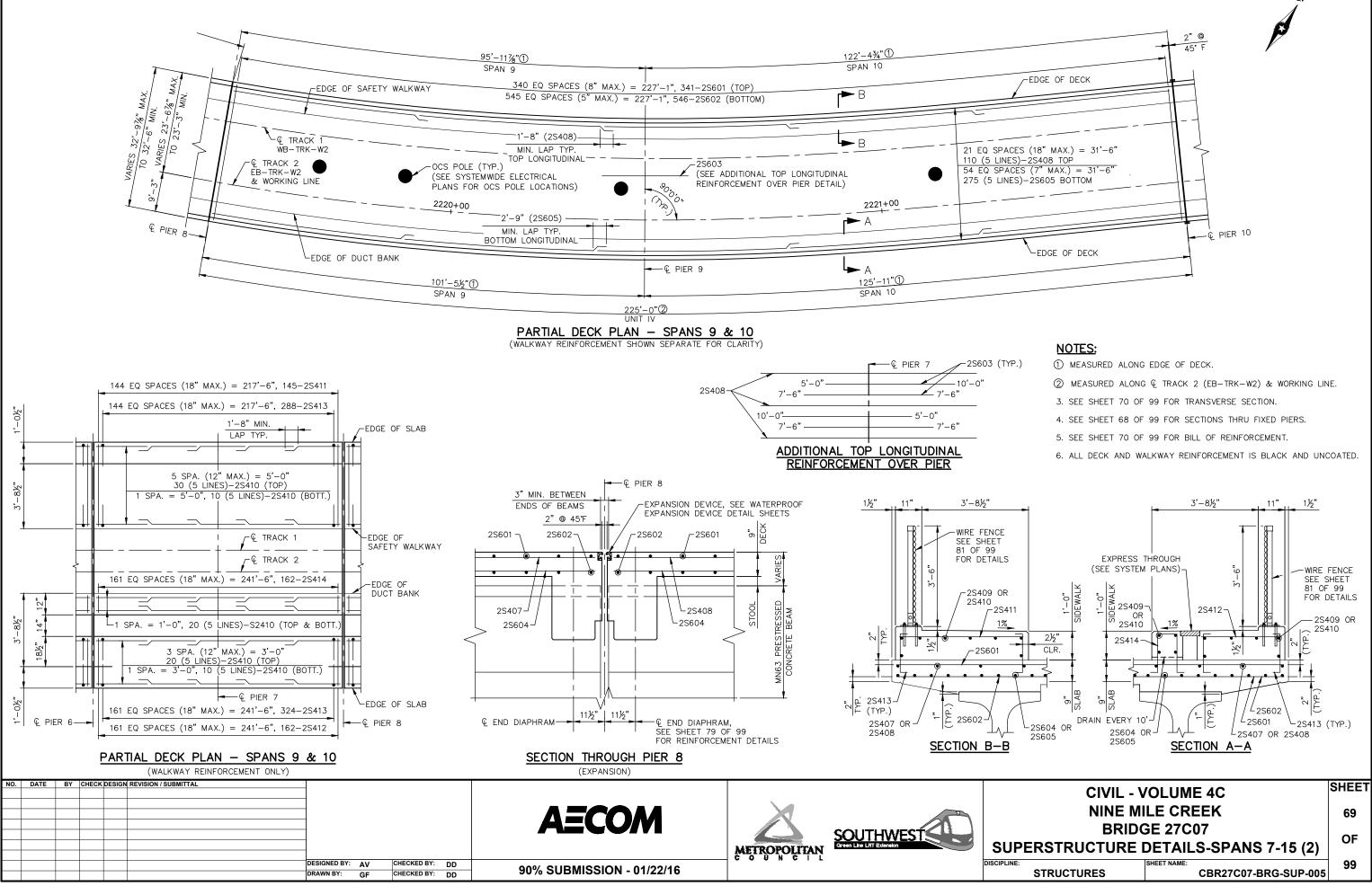


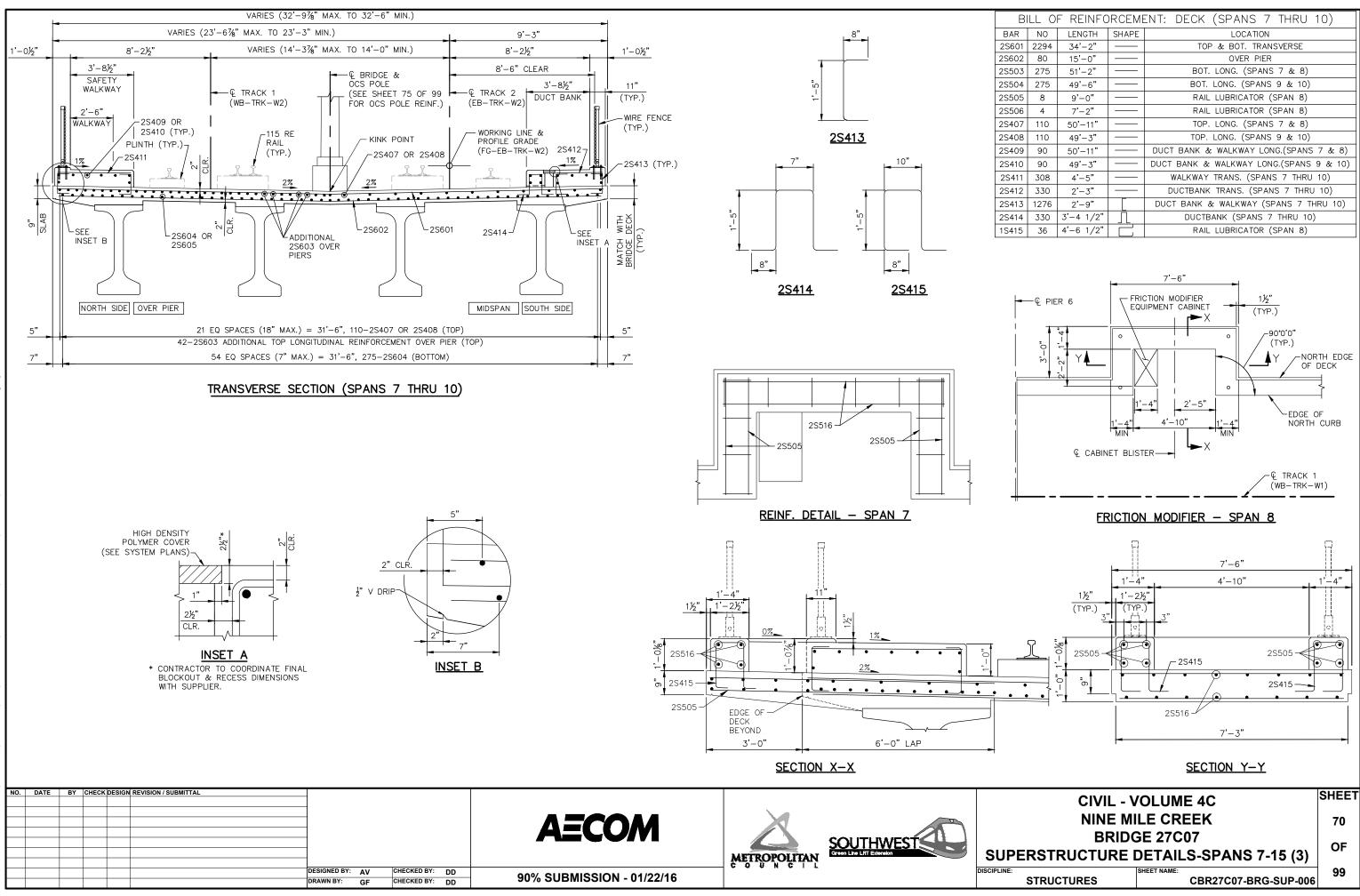




OF	REINFORCEMENT:		SLAB SPANS (SPANS 1 THRU 6)
NO	LENGTH	SHAPE	LOCATION
312	58'-6"		TOP & BOT. LONG. (SPANS 1 THRU 3)
312	57'-8"		TOP & BOT. LONG. (SPANS 4 THRU 6)
68	49'-0"		OVER PIER (SPANS 1 THRU 3)
68	48'-10"		OVER PIER (SPANS 4 THRU 6)
16	10'-0"		SCUPPER
386	34'-8"		TOP & BOT. TRANS (SPANS 1 THRU 3)
386	34'-3"		TOP & BOT. TRANS (SPANS 4 THRU 6)
35	7'-0"		END BLOCK (WEST ABUT)
103	7'-0"		END BLOCK (EXP. PIERS)
54	55'-0"		DUCT BANK & WALKWAY LONG.(SPANS 1 THRU 3)
54	53'-1"		DUCT BANK & WALKWAY LONG.(SPANS 4 THRU 6)
214	4'-5"		WALKWAY TRANS (SPANS 1 THRU 6)
814	3'-8"		DUCT BANK & WALKWAY (SPANS 1 THRU 6)
188	2'-3"		DUCTBANK TRANS (SPANS 1 THRU 6)
211	6'-7 1/2"	Л	DUCTBANK (SPANS 1 THRU 6)

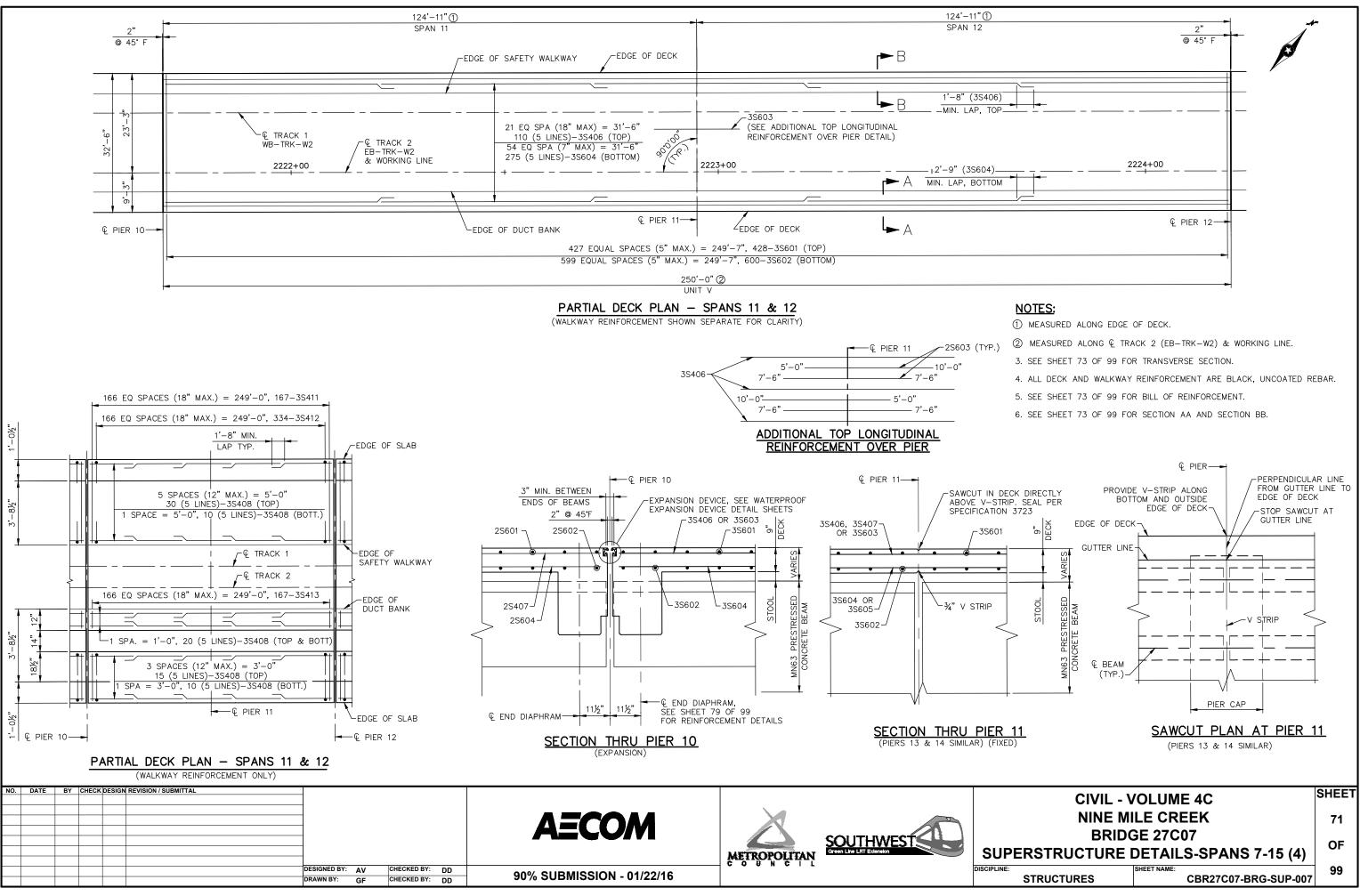


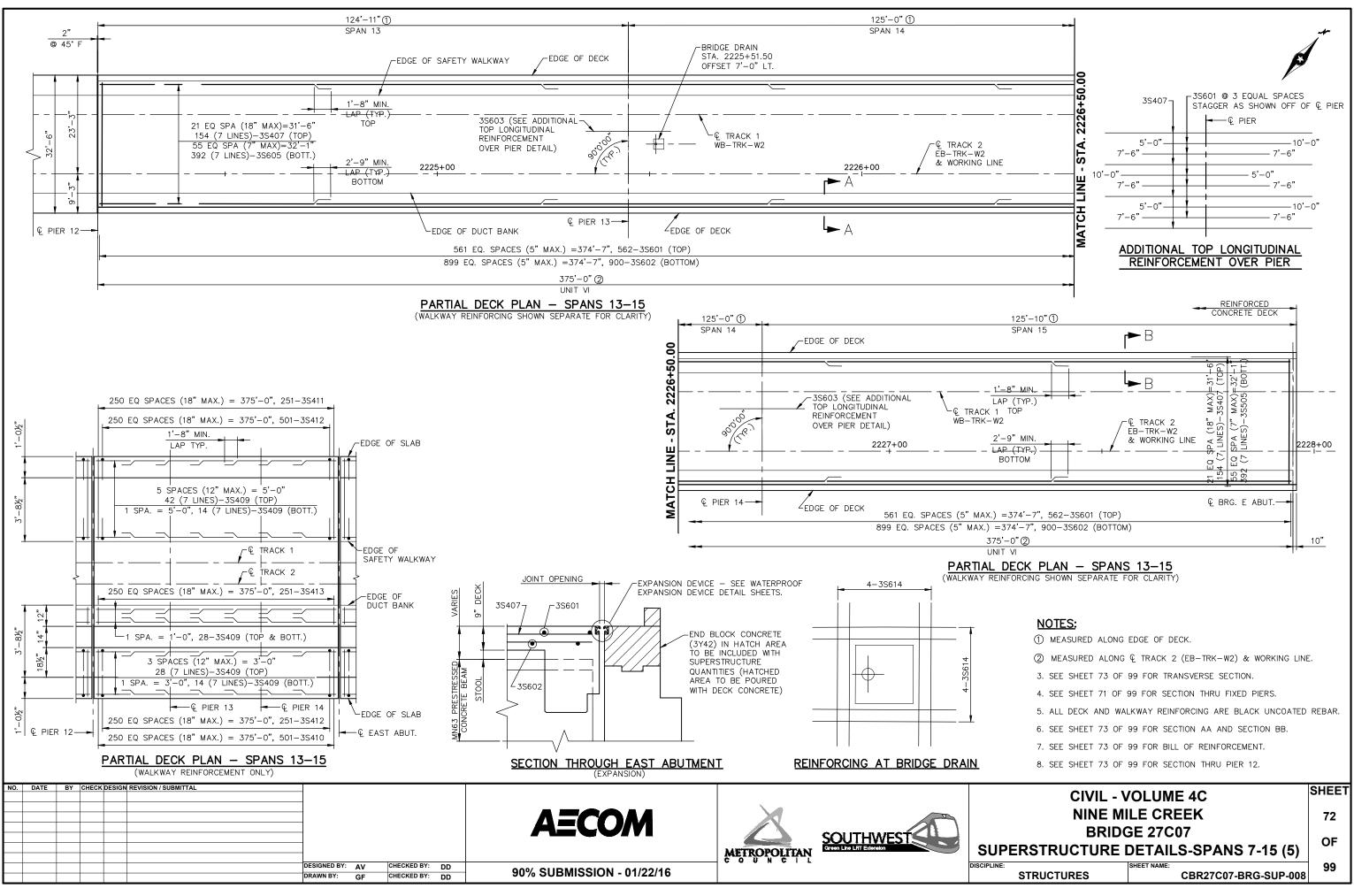


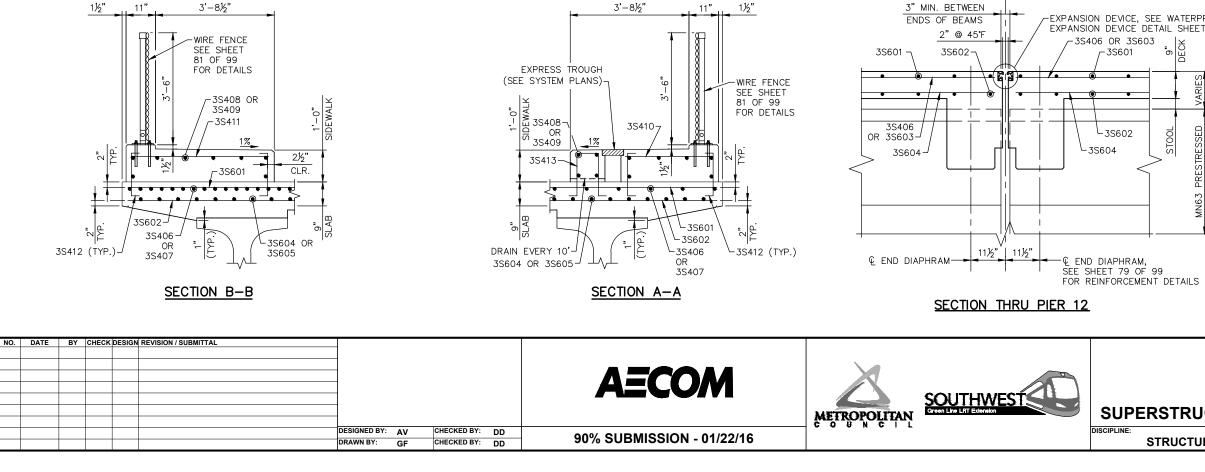


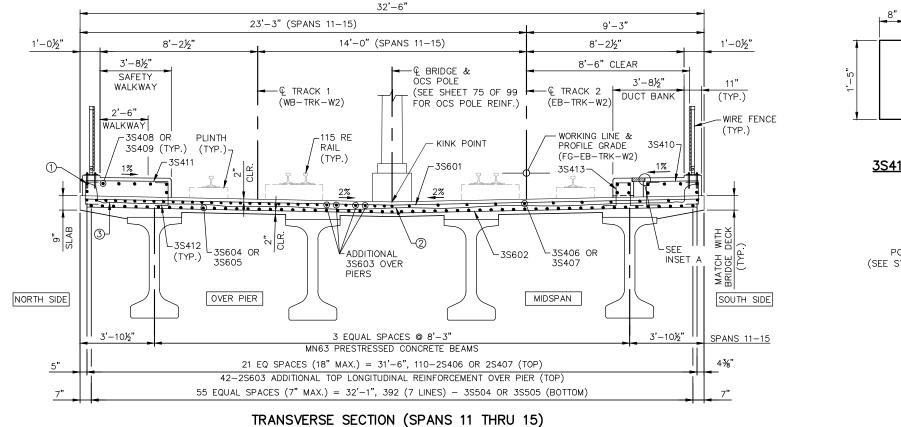
BILL OF REINFORCEMENT: DECK (SPANS 7 THRU 10)					
BAR	NO	LENGTH	SHAPE	LOCATION	
2S601	2294	34'-2"		TOP & BOT. TRANSVERSE	
2S602	80	15'-0"		OVER PIER	
2S503	275	51'-2"		BOT. LONG. (SPANS 7 & 8)	
2S504	275	49'-6"		BOT. LONG. (SPANS 9 & 10)	
2S505	8	9'-0"		RAIL LUBRICATOR (SPAN 8)	
2S506	4	7'-2"		RAIL LUBRICATOR (SPAN 8)	
2S407	110	50'-11"		TOP. LONG. (SPANS 7 & 8)	
2S408	110	49'-3 <b>"</b>		TOP. LONG. (SPANS 9 & 10)	
2S409	90	50'-11"		DUCT BANK & WALKWAY LONG.(SPANS 7 & 8)	
2S410	90	49'-3"		DUCT BANK & WALKWAY LONG.(SPANS 9 & 10)	
2S411	308	4'-5"		WALKWAY TRANS. (SPANS 7 THRU 10)	
2S412	330	2'-3"		DUCTBANK TRANS. (SPANS 7 THRU 10)	
2S413	1276	2'-9"		DUCT BANK & WALKWAY (SPANS 7 THRU 10)	
2S414	330	3'-4 1/2"	Ū	DUCTBANK (SPANS 7 THRU 10)	
S415	36	4'-6 1/2"		RAIL LUBRICATOR (SPAN 8)	

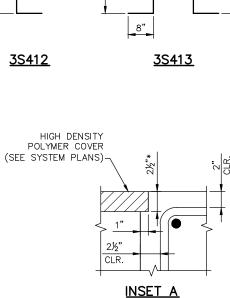
CIVIL - VOLUME 4C						
NINE MILE CREEK						
BRIDGE 27C07						
IPERSTRUCTURE DETAILS-SPANS 7-15 (3)						
E: STRUCTURES CBR27C07-BRG-SUP-006						









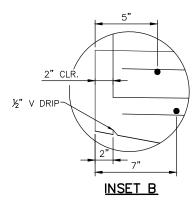


-@ PIER 12

BILL OF REINFORCEMENT: DECK							
BAR	NO	LENGTH	SHAPE	LOCATION			
3S601	3000	32'-0"		TOP AND BOT. TRANS.			
3S602	132	15'-0"		OVER PIER			
3S603	8	10'-0"		SCUPPER			
3S504	280	52'-6"		BOT. LONG.			
3S505	392	56'-4"		BOT. LONG.			
3S406	110	52'-0"		TOP LONG.			
3S407	154	55'-9"		TOP LONG.			
3S408	90	52'-0"		SIDEWALK LONG.			
3S409	70	55'-9"		SIDEWALK LONG.			
3S410	416	2'-1"		SIDEWALK TRANS.			
3S411	416	3'-3"		SIDEWALK TRANS.			
3S412	1670	2'-4"		SIDEWALK DOWEL			
3S413	418	4'-9 1/2"		SIDEWALK DOWEL			



7½"



\* CONTRACTOR TO COORDINATE FINAL BLOCKOUT & RECESS DIMENSIONS WITH SUPPLIER.

-EXPANSION DEVICE, SEE WATERPROOF EXPANSION DEVICE DETAIL SHEETS 9" DECK

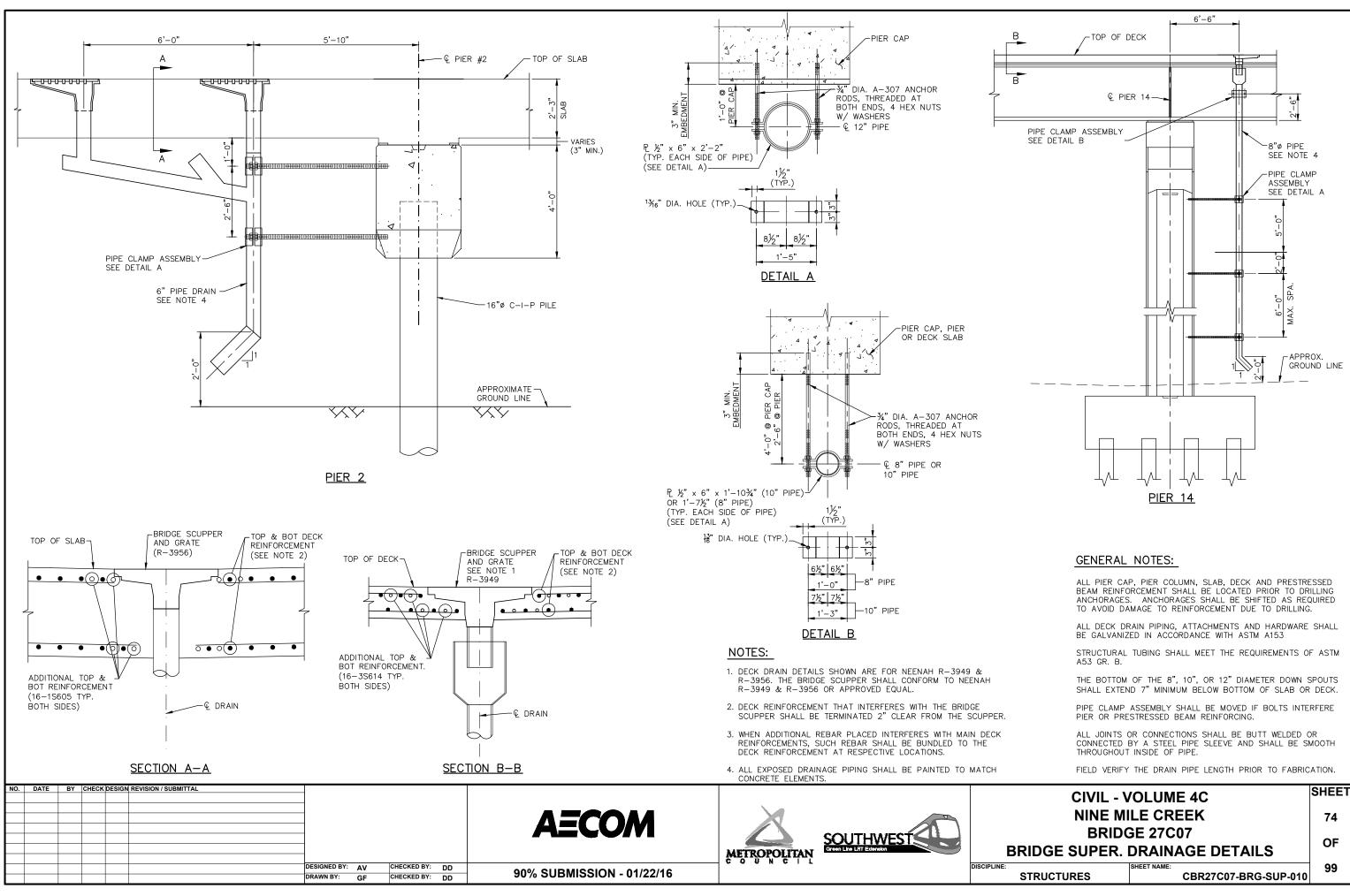
STOO

AN63 PRESTRESSI CONCRETE BEAM

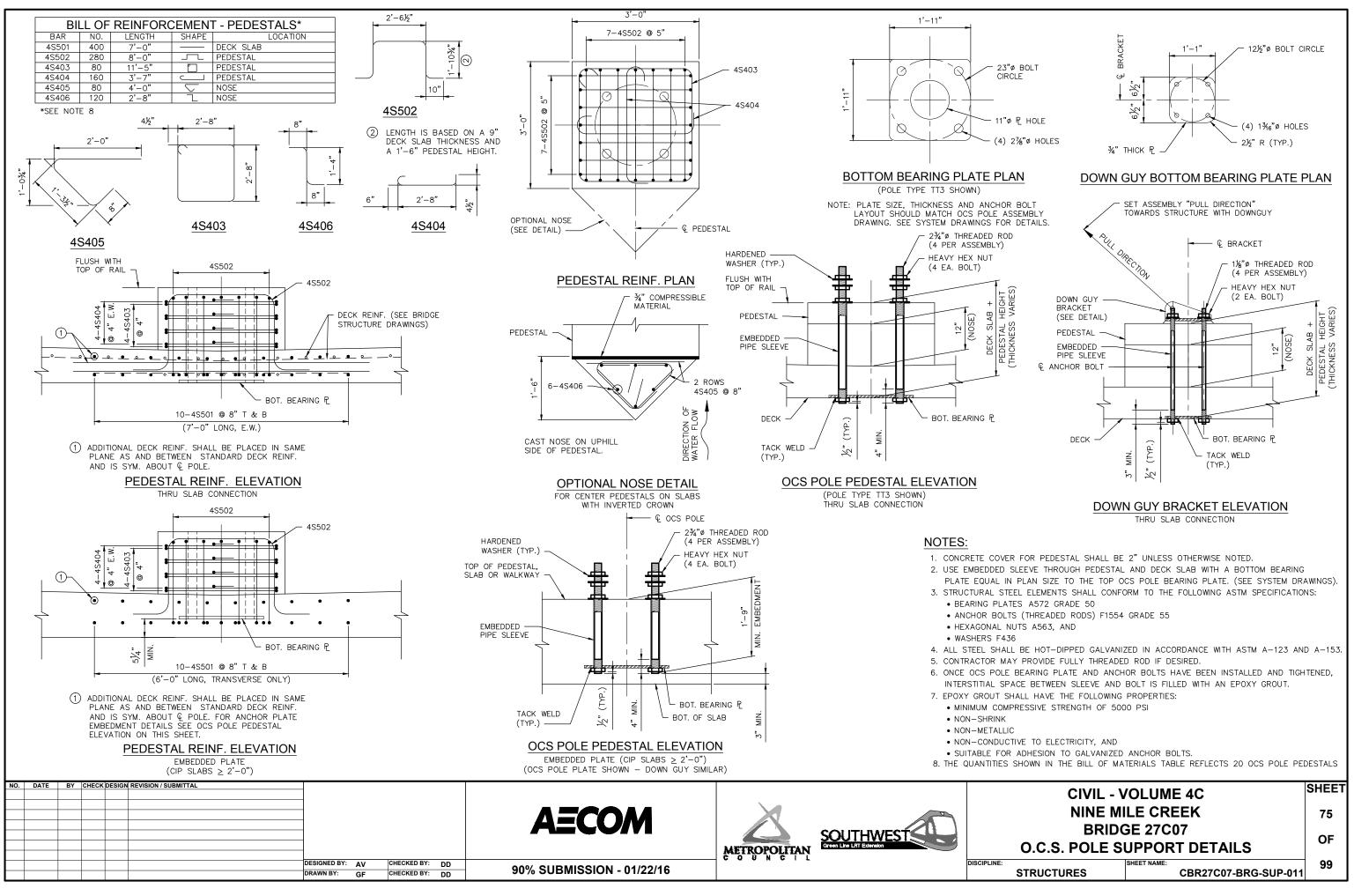
# NOTES:

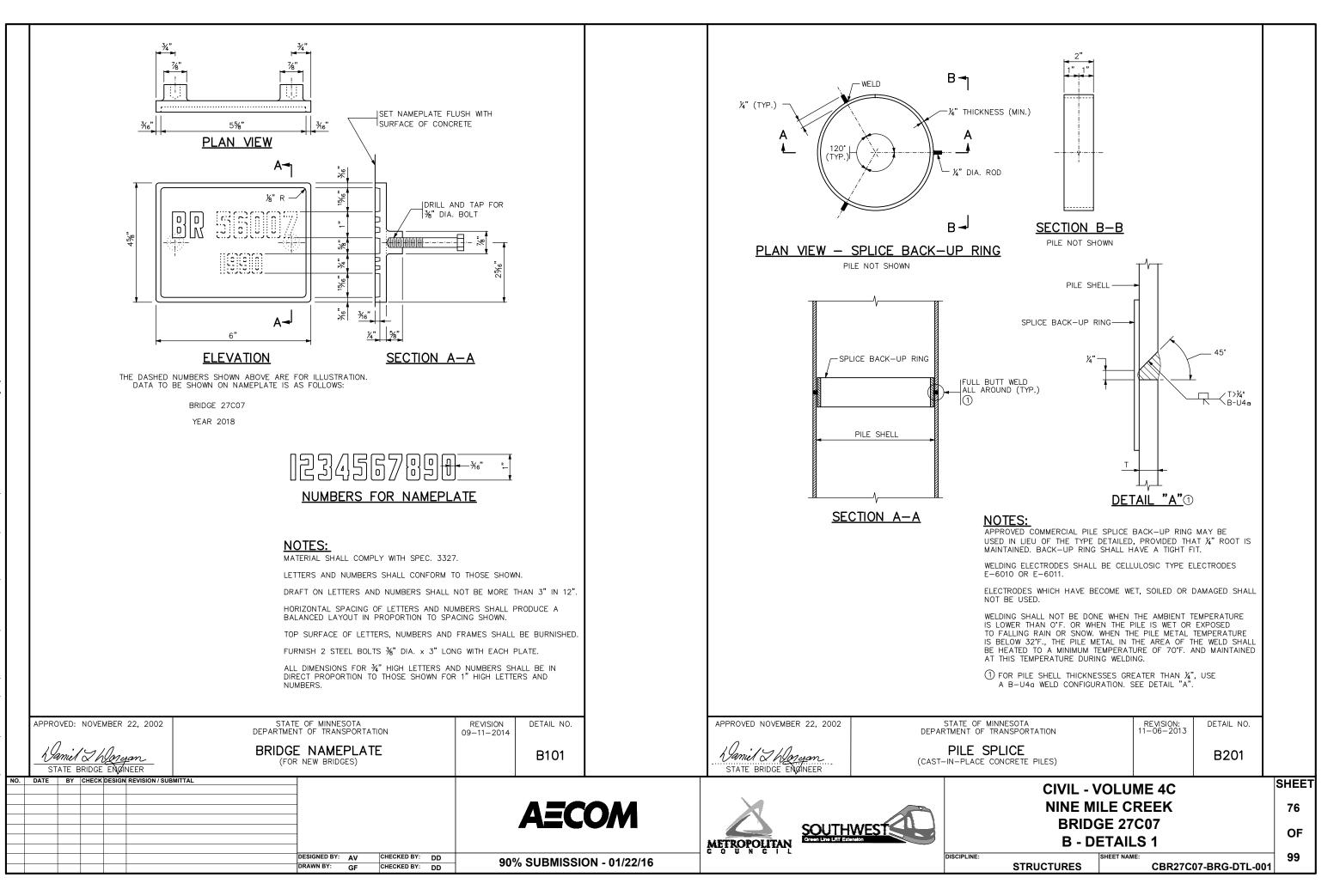
- (1) GROUND WIRE, SEE GROUNDING PLAN.
- (2) GROUND WIRE PLACED WITHIN SLAB AT PIER, SEE GROUNDING PLAN.
- (3) CONNECT TO GROUND WIRE AT PIER.

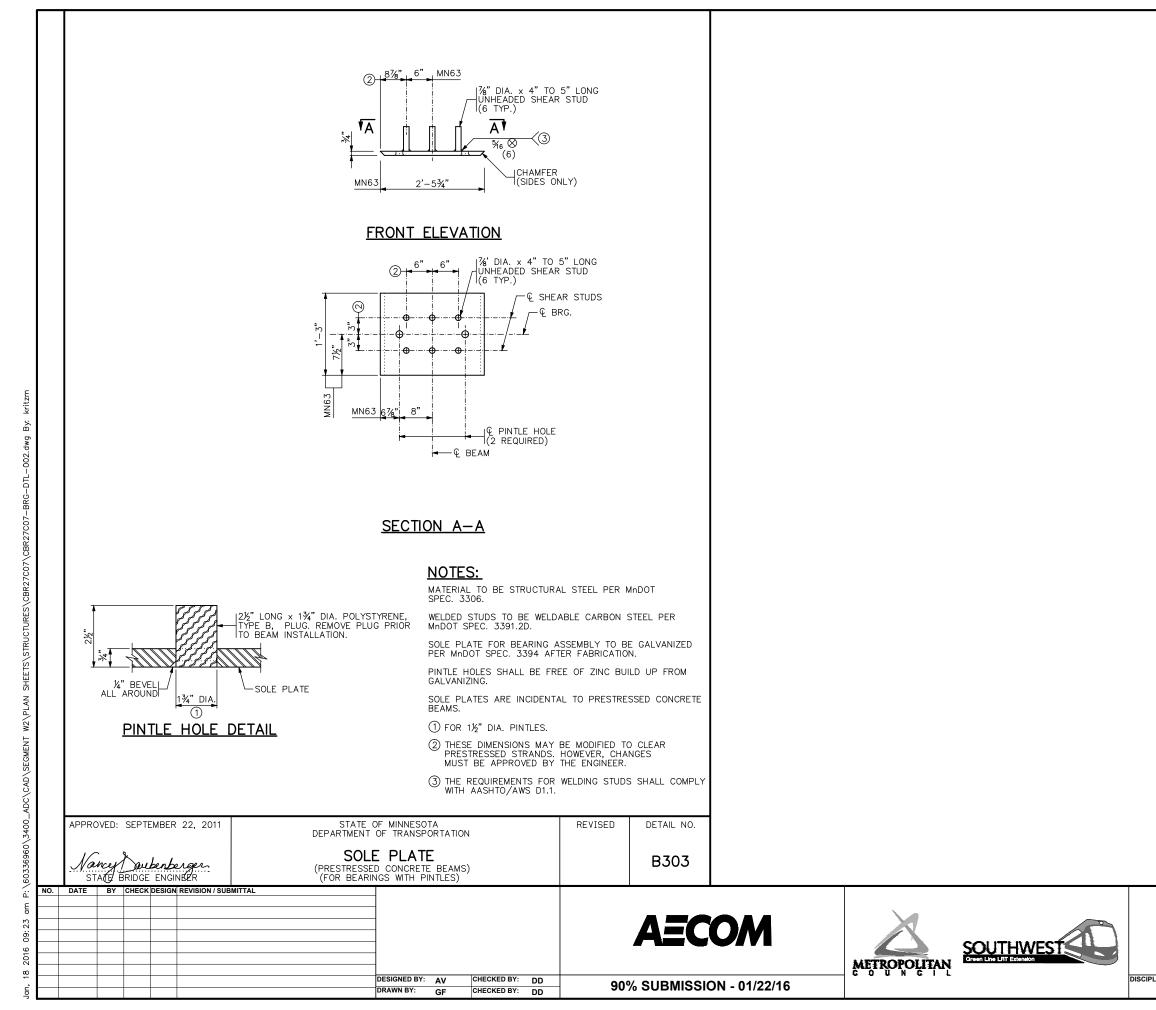
<b>CIVIL - VOLUME 4C</b>					
NINE MILE CREEK					
BRIDGE 27C07					
IPERSTRUCTURE DETAILS-SPANS 7-15 (6)					
	SHEET NAME: CBR27C07-BRG-SUP-009	99			



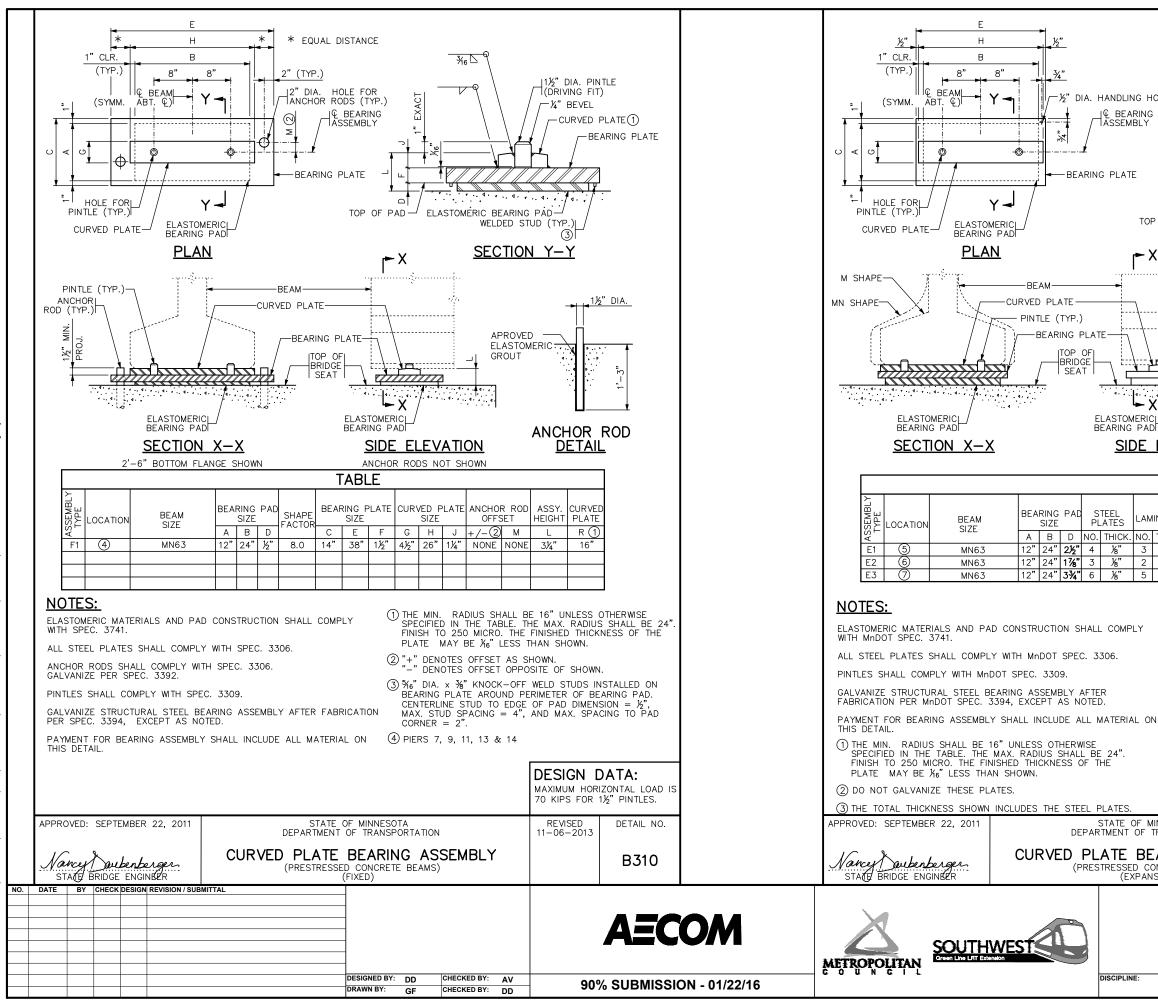
CIVIL - VOLUME 4C						
NINE MILE CREEK						
BRIDGE 27C07 BRIDGE SUPER. DRAINAGE DETAILS						
STRUCTURES CBR27C07-BRG-SUP-010						







CIVIL - VOLUME 4C						
NINE MILE CREEK						
BRIDGE 27C07						
B - DETAILS 2	OF					
NE: STRUCTURES SHEET NAME: CBR27C07-BRG-DTL-002	99					



DISCIPLINE:

н

8"

Y 🚽

-**O**- ·

BEAM

-CURVED PLATE

PINTLE (TYP.)

BEARING PA

SIZE

12" 24" **2½"** 4 ½"

12" 24" **17⁄8"** 3

PLATES

1⁄8"

BEARING PLATE

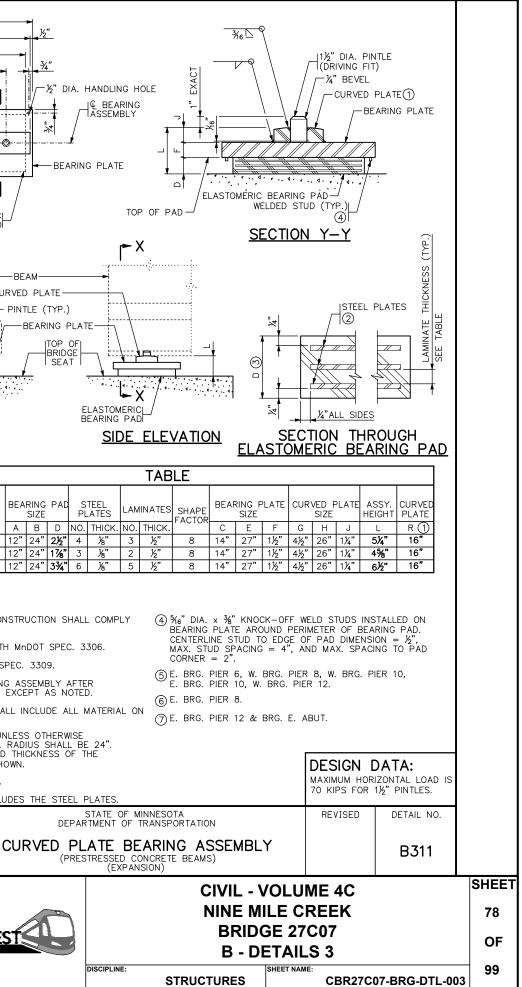
ITOP OF

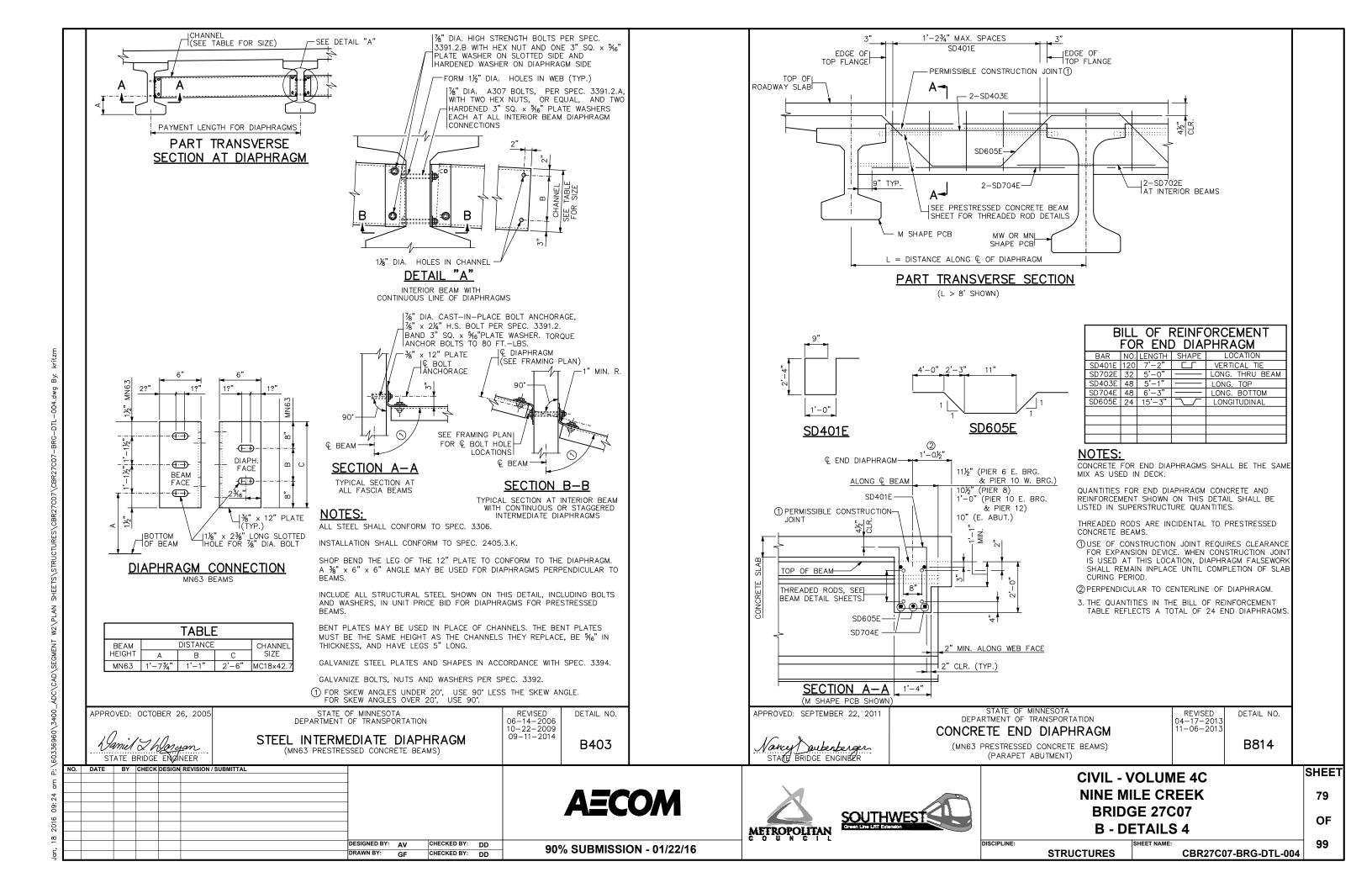
BRIDGE

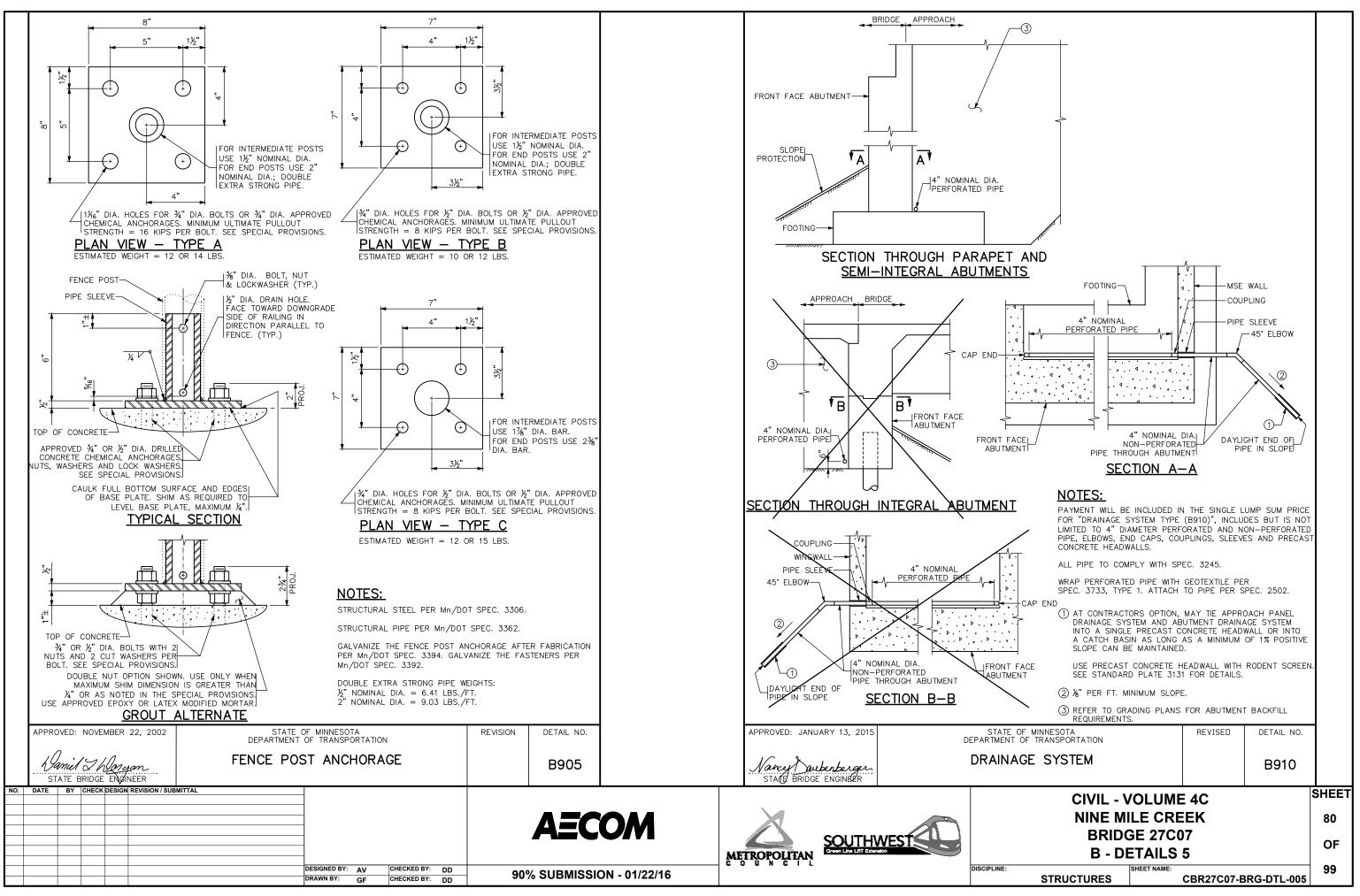
SEAT

1/2"

-16'







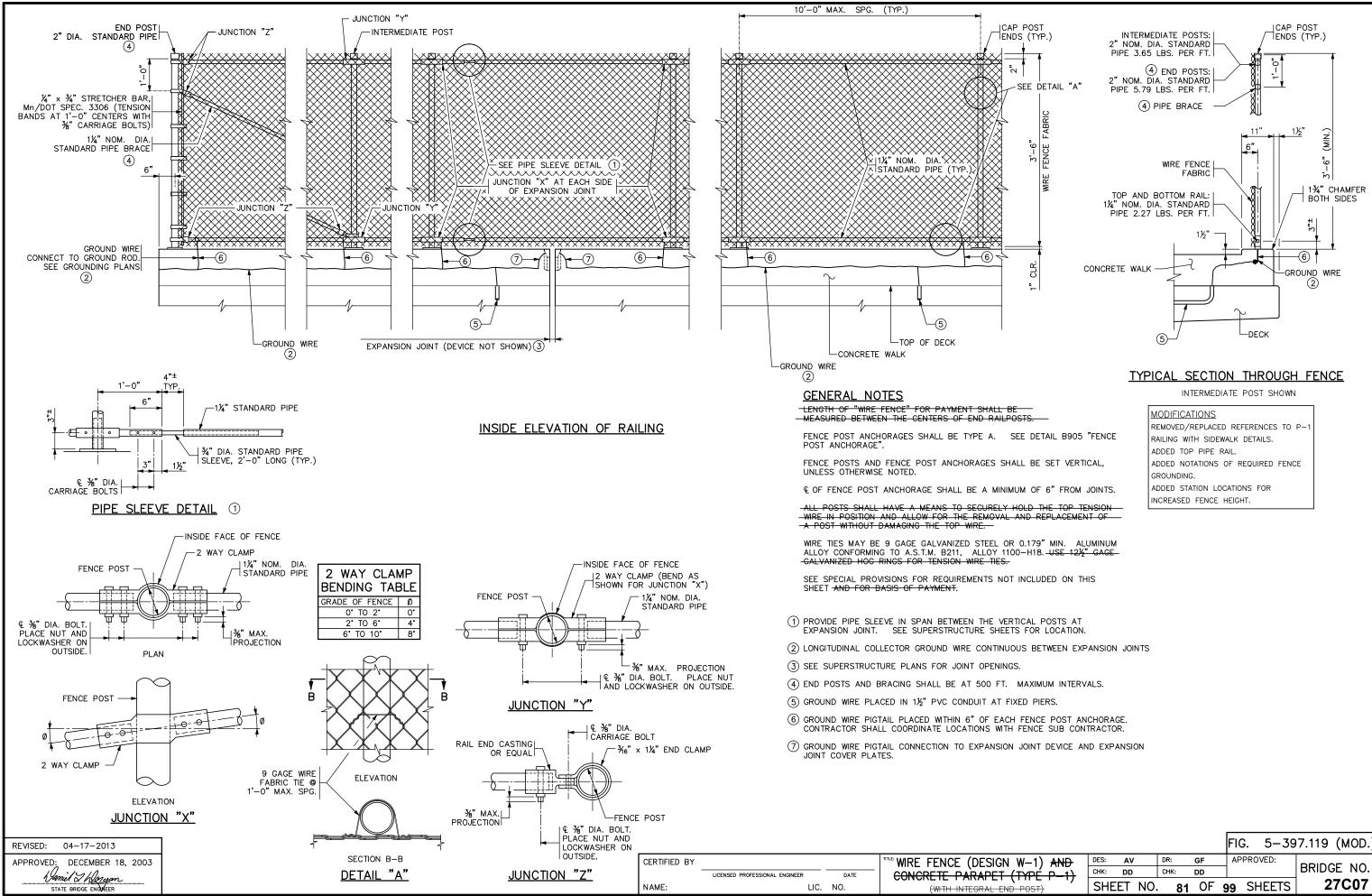
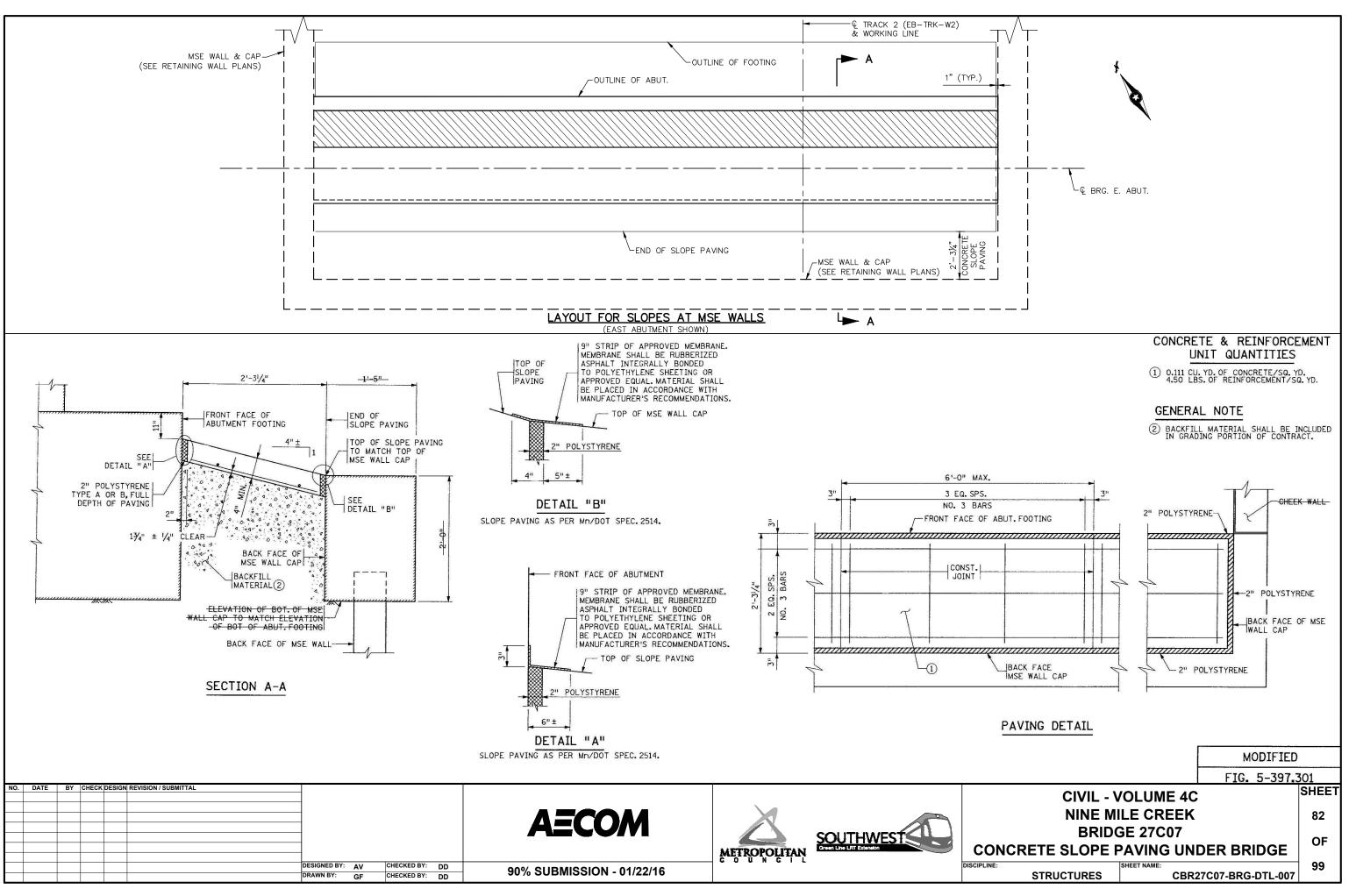
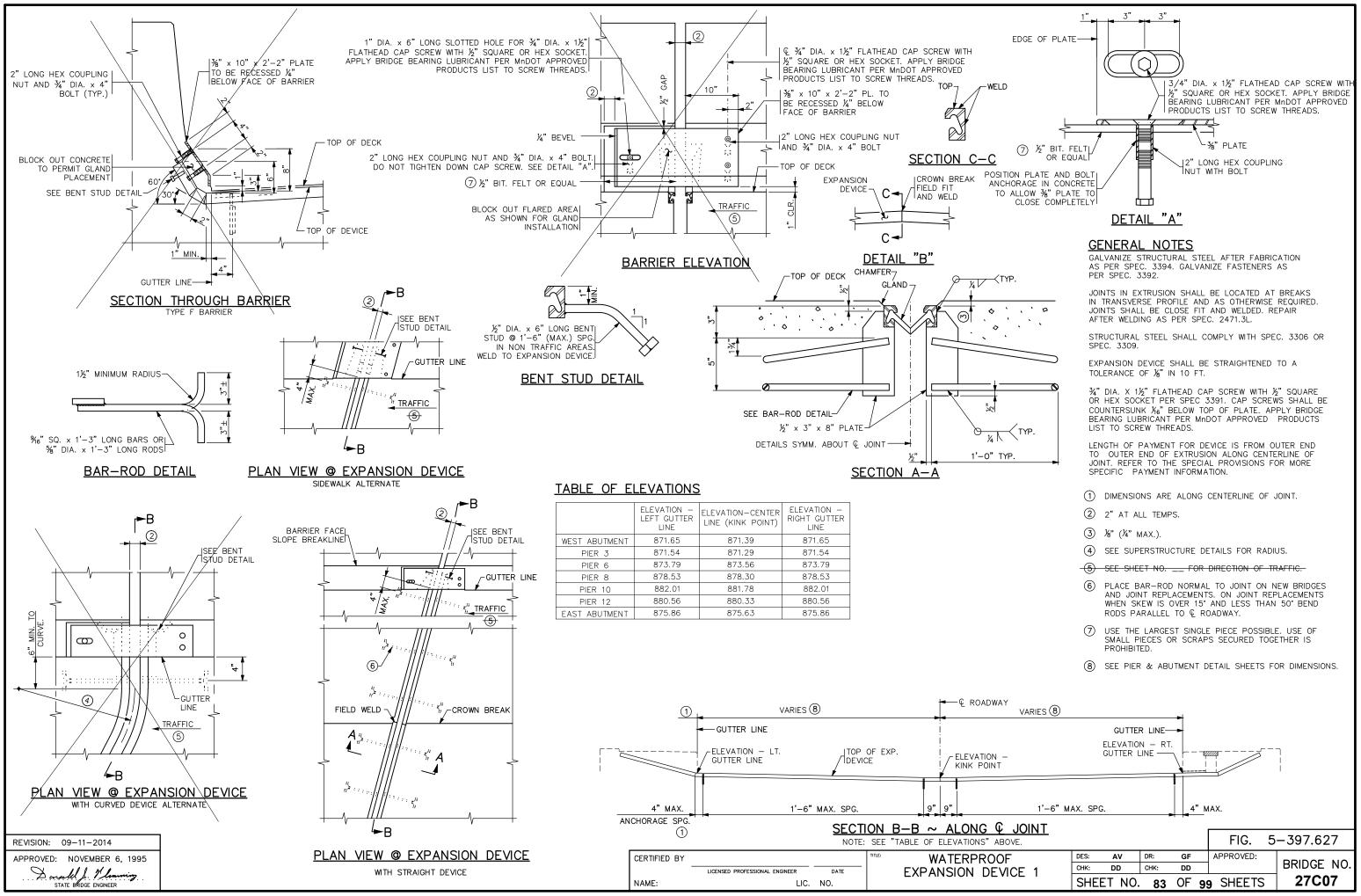


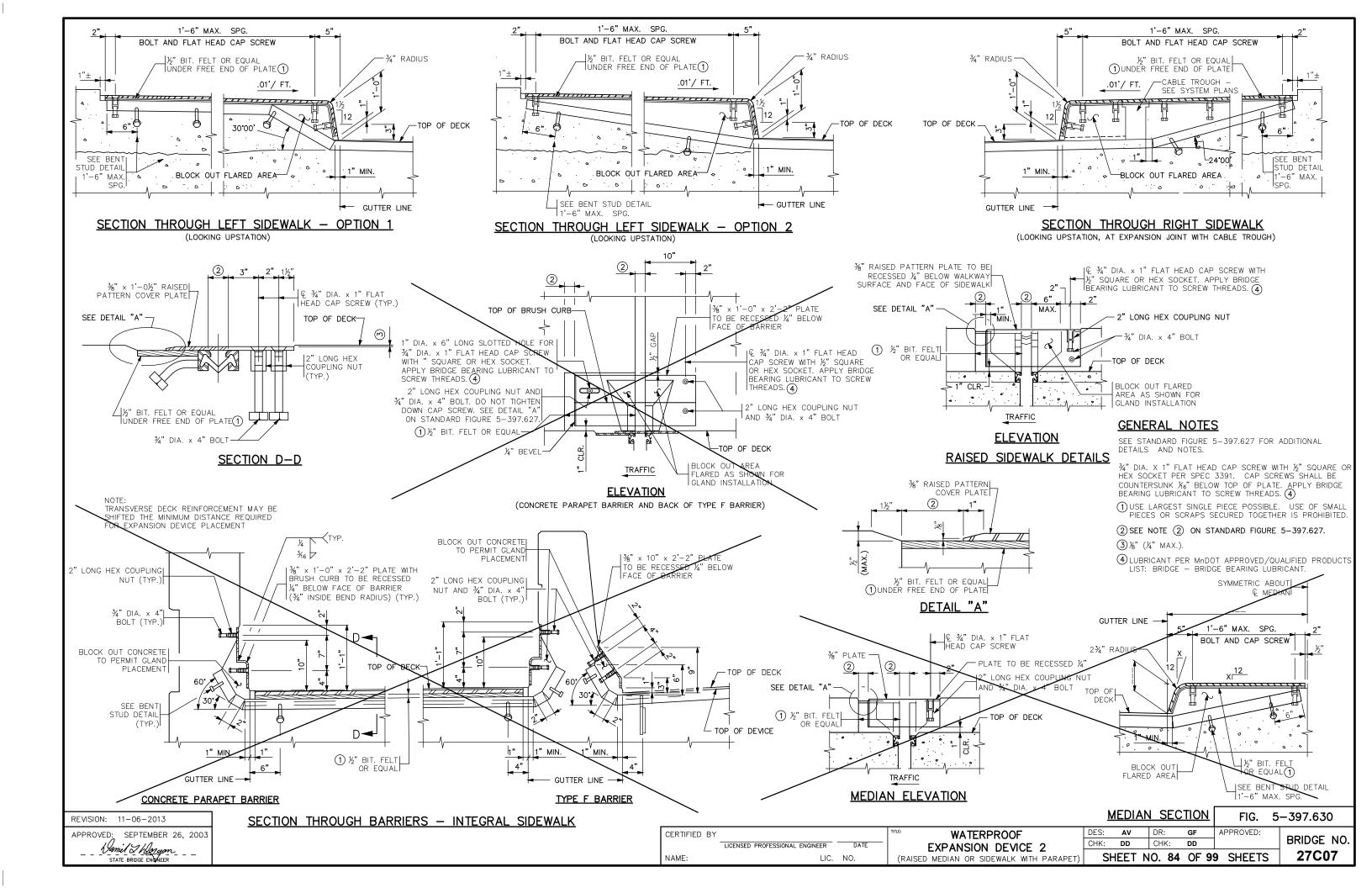
FIG. 5-397.119 (MOD.)

W—1) <del>AND</del>	DES:	AV	DR:	GF	AF	PROVED:	
$\frac{1}{1} \frac{1}{1} \frac{1}{1}$	CHK:	DD	CHK:	DD			BRIDGE NO.
-POST)	SHE	ET NO	81	OF	99	SHEETS	27C07

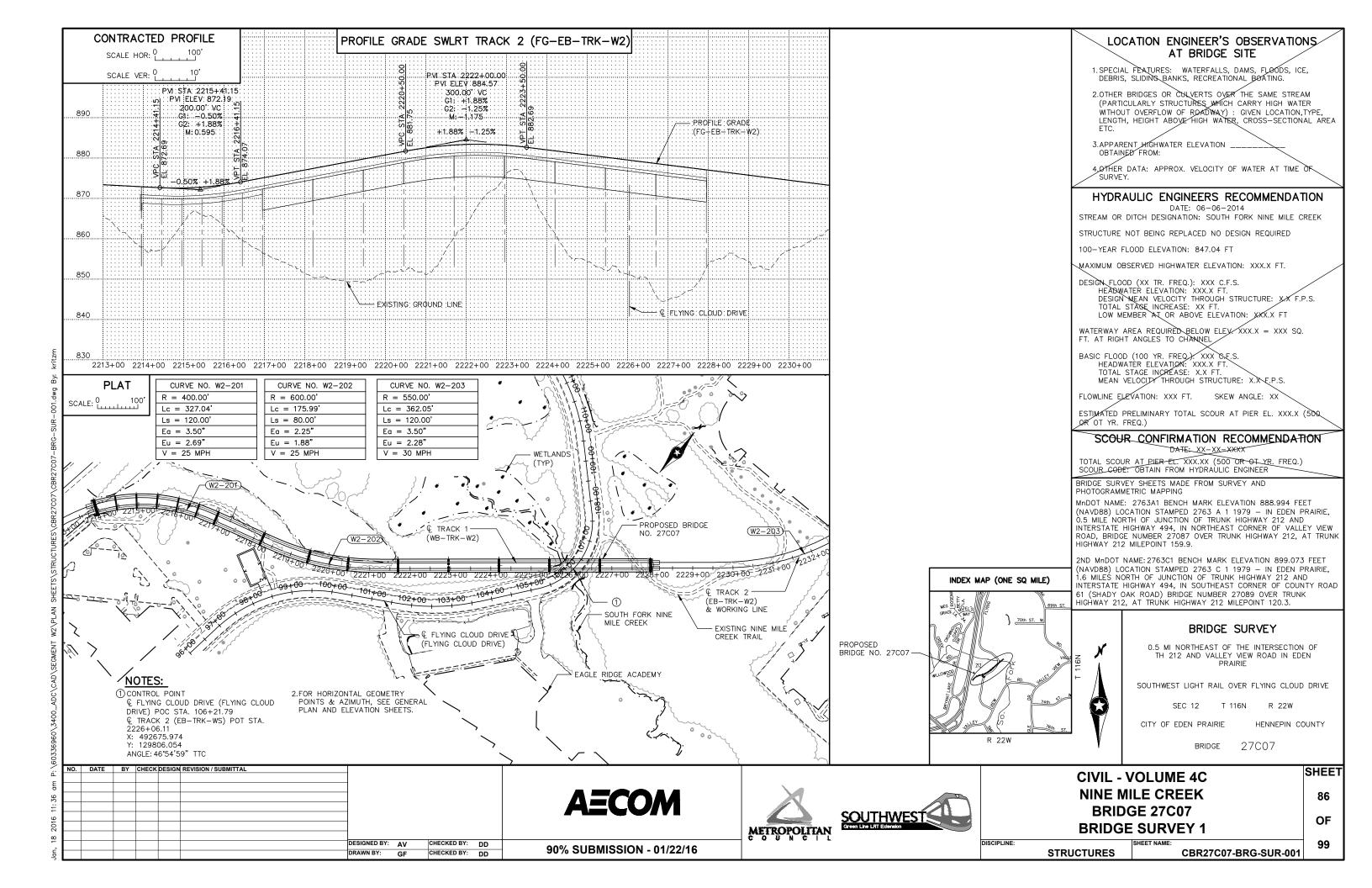


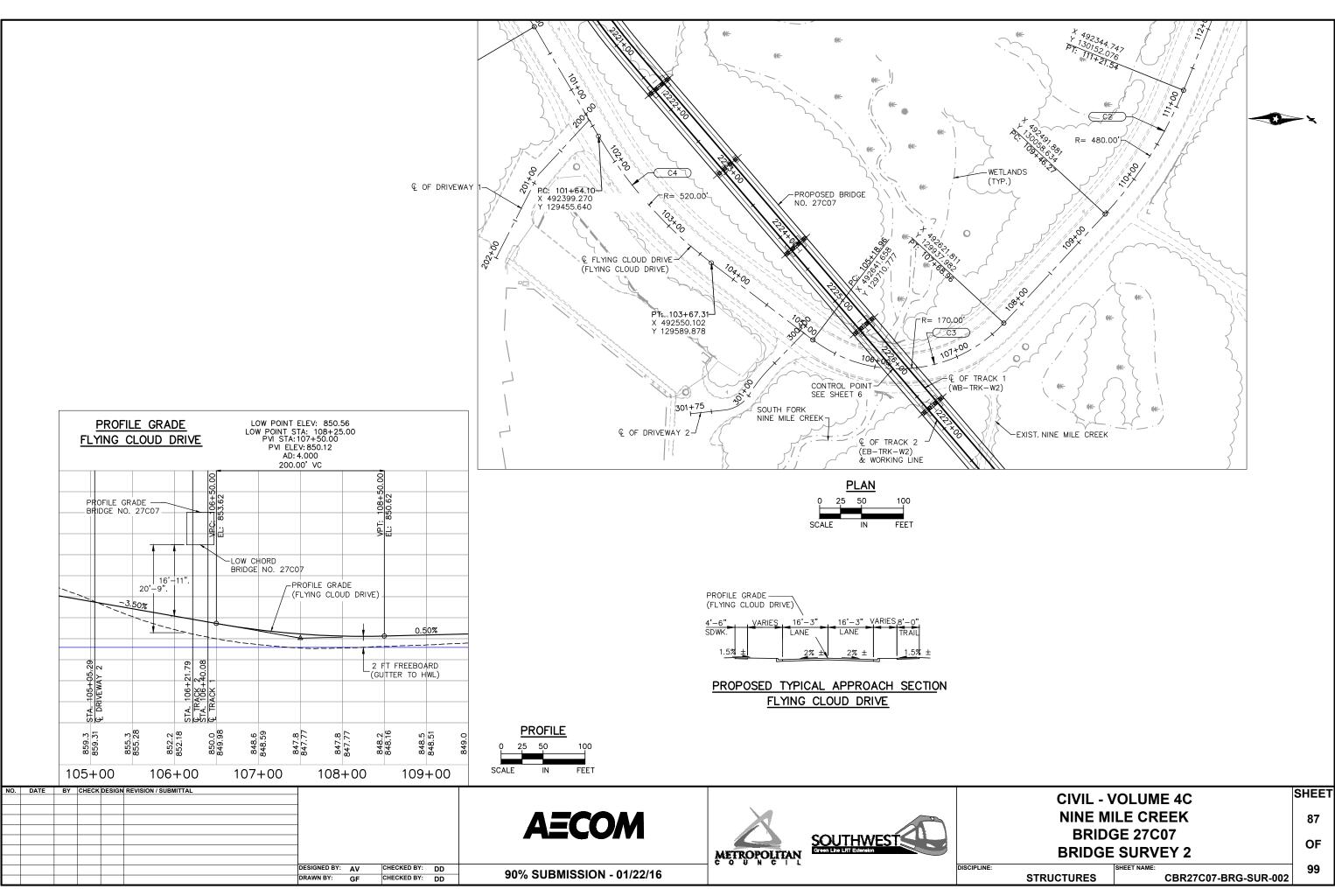


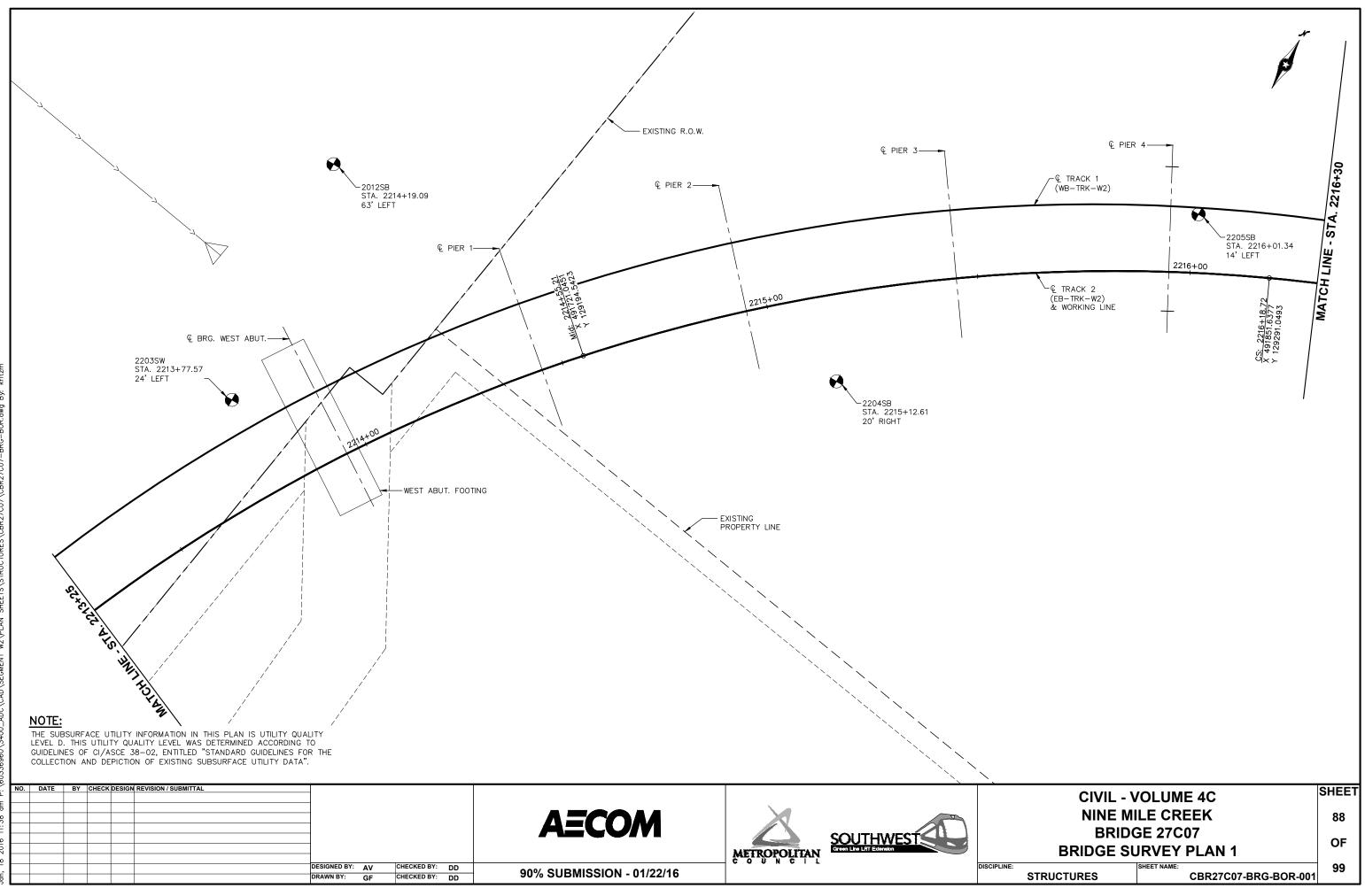
WAY VA	RIES 🛞							
			GUTTE	r line—	•			
N — NT			LEVATIO SUTTER L					
	1'-6" M	AX. SPG.			4" M	IAX.		
<u>Ç</u> JO	NT							
ABOVE.						FIG.	5	-397.627
OF		DES:	AV	DR:	GF	APPROVED:		
EVICE	1	снк:	DD	снк:	DD			BRIDGE NO.
		SHEE	T NO.	83	OF 9	SHEETS		27C07

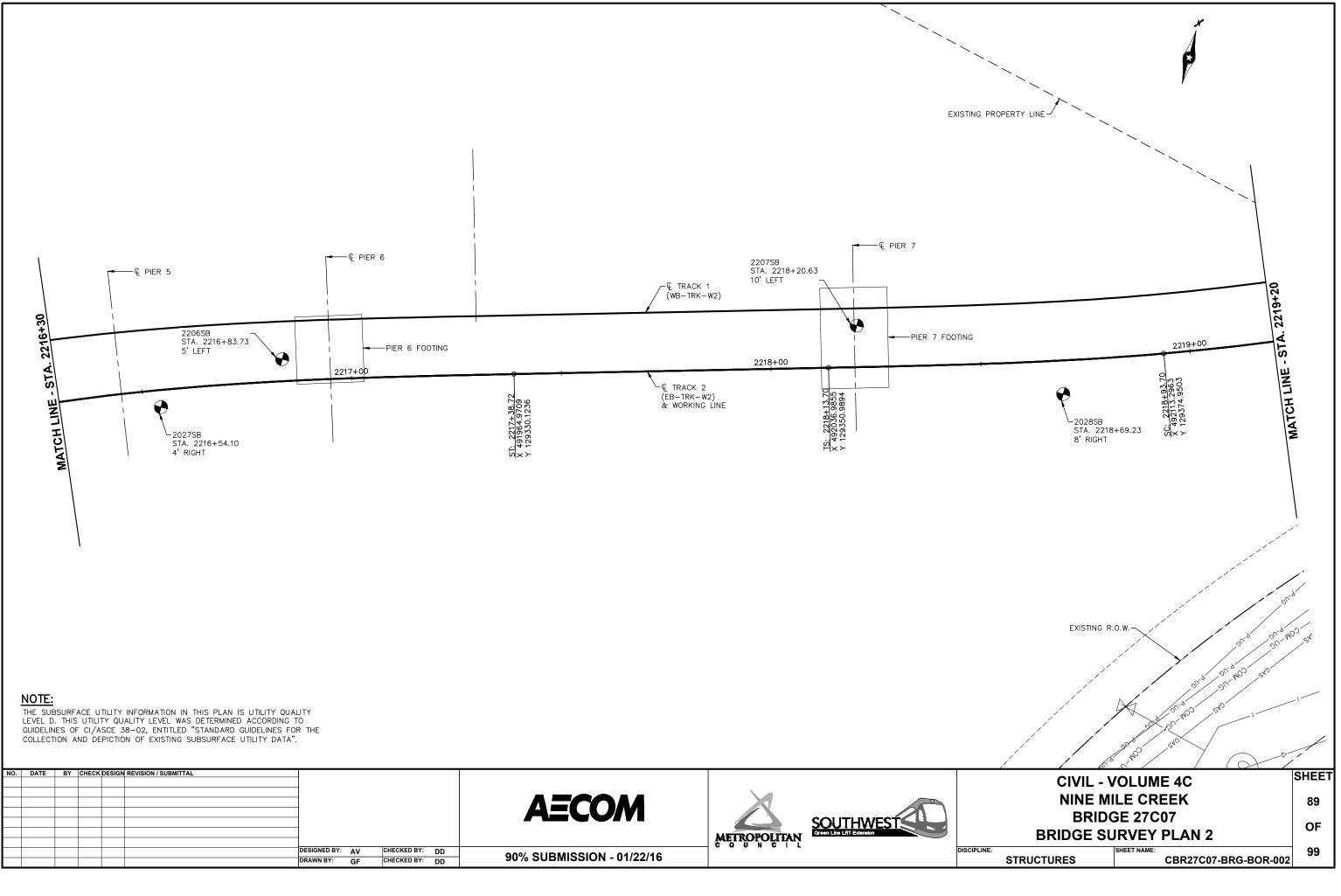


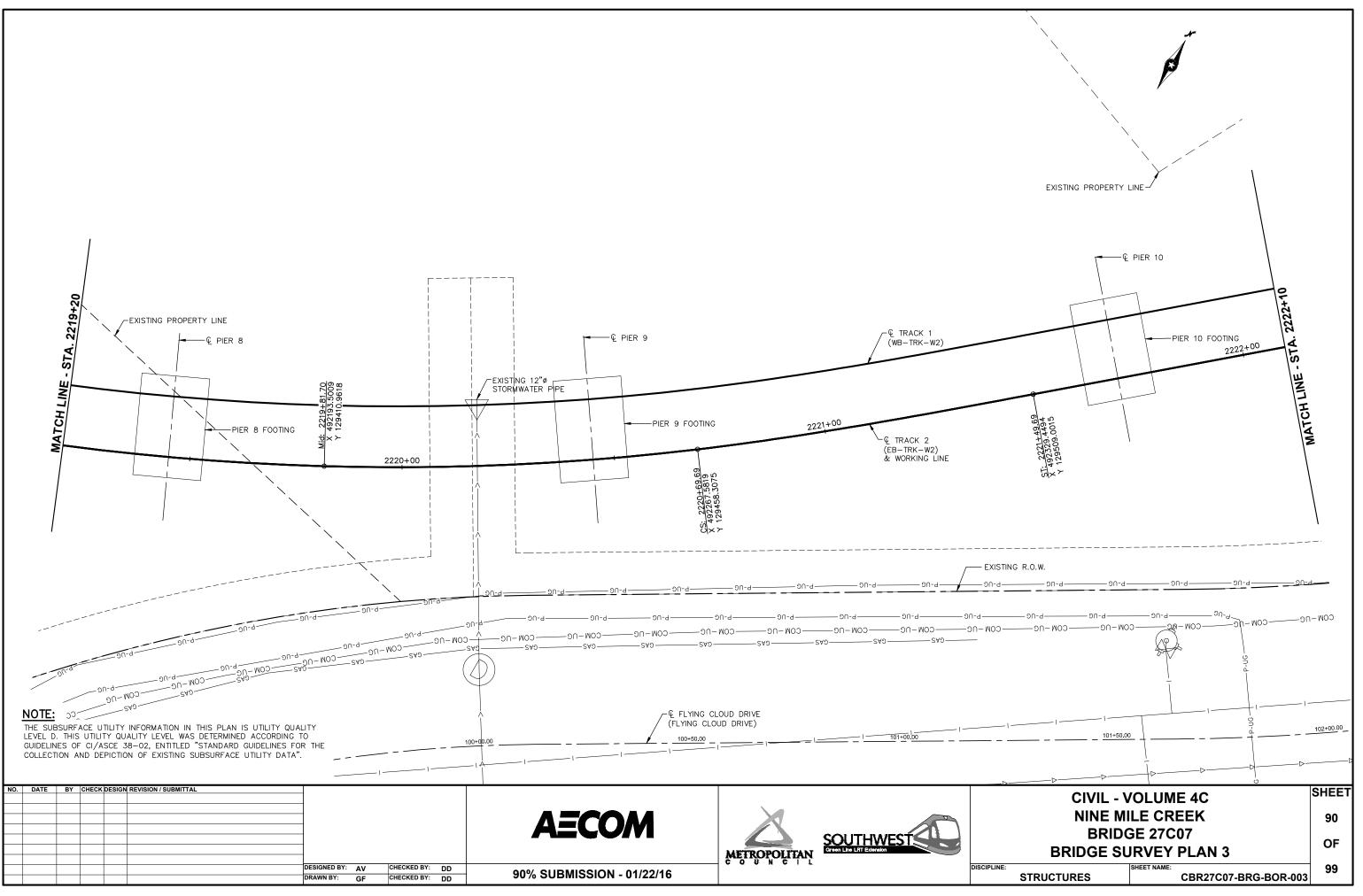
CONCRETE WEARING COURSE	PAINT SYSTEM	OTHER ITEMS ①
LOW SLUMP	Mn/DOT SPECIFICATION NUMBER	(1) UTILITIES ADDED DURING CONSTRUCTION AND SPECIALTY ITEMS.
OTHER	MANUFACTURERNAME AND ADDRESS (CITY, STATE)	FINAL QUANTITIES ENTERED ON SCHEDULE OF QUANTITIES: YES NO
EXPANSION JOINTS	PRIME COAT	
JOINT MANUFACTURER	INTERMEDIATE COAT	
MANUFACTURER'S IDENTIFICATION	FINISH COAT	
GLAND MANUFACTURERNAME AND ADDRESS (CITY, STATE) SIZE OF GLAND	PLAN QUALITY RATE 1 (AGREE), 2 (NEUTRAL), OR 3 (DISAGREE, PLEASE COMMENT BELOW)	
MANUFACTURER'S IDENTIFICATION	DIMENSIONING AND DETAILING ADEQUATELY DESCRIBED REQUIRED CONSTRUCTION. BAR LISTS AND QUANTITIES WERE TYPICALLY COMPLETE AND FREE OF ERRORS. SCALE OF DRAWINGS AND OVERALL LEGIBILITY OF LINES AND TEXT WAS GOOD. (SB) SPECIAL PROVISIONS ADEQUATELY DESCRIBED SPECIAL WORK AND PAYMENT.	
ELASTOMERIC BEARING PADS	(SB) SPECIAL PROVISIONS ADEQUATELY DESCRIBED SPECIAL WORK AND PATMENT.	<u>AS-BUILT CHANGES</u>
PAD MANUFACTURERNAME AND ADDRESS (CITY, STATE)	COMMENTS:	
SPECIAL SURFACE FINISH		
SYSTEM: COLOR:		
FINISHING ROADWAY FACES OF BARRIER RAILING	NUMBER OF BRIDGE SUPPLEMENTAL AGREEMENTS: COST: \$	_
TYPE: COLOR:	LIST SIGNIFICANT ERRORS OR OMISSIONS IN PLAN DETAILS OR PAY QUANTITIES IN THE SPACE PROVIDED AT RIGHT.	
ANTI-GRAFFITI COATING	BRIDGE REMOVAL / BRIDGE OPENING	
MANUFACTURER	NUMBER OF AND DATE OLD BRIDGE WAS REMOVED (IF APPLICABLE):	
PRODUCT NAME: LOCATION:	BRIDGE NUMBER DATE REMOVED	_
	DATE NEW BRIDGE WAS OPENED TO TRAFFIC	
		THE AS-BUILT INFORMATION WAS ADDED TO THE PLAN BY:
		INSPECTOR(S) SIGNATURE DATE DATE
		CHECKED BY:
REVISION: 10-28-2008		SUBMITTED TO THE BRIDGE OFFICE - ATTN: REGIONAL CONSTRUCTION ENGINEER (MS610). FIG. 5-397.900
APPROVED: SEPTEMBER 26, 2003	LT_DETAILS NEEDED)	TITLE:     DES: AV     DR: GF     APPROVED:       AS-BUILT BRIDGE DATA     CHK: DD     CHK: DD     BRIDGE NO.       SHEET NO. 85 OF 99 SHEETS     27C07

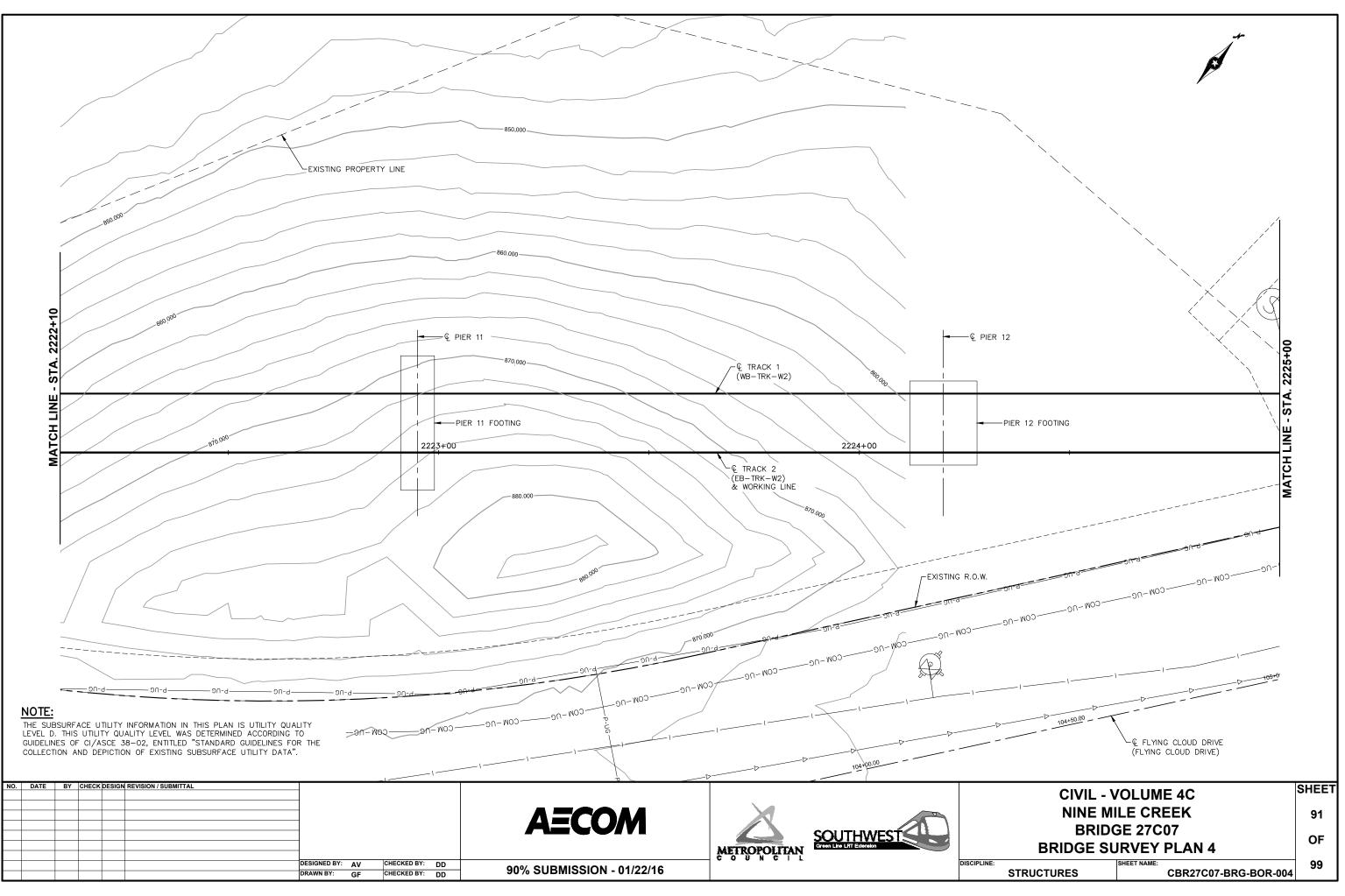


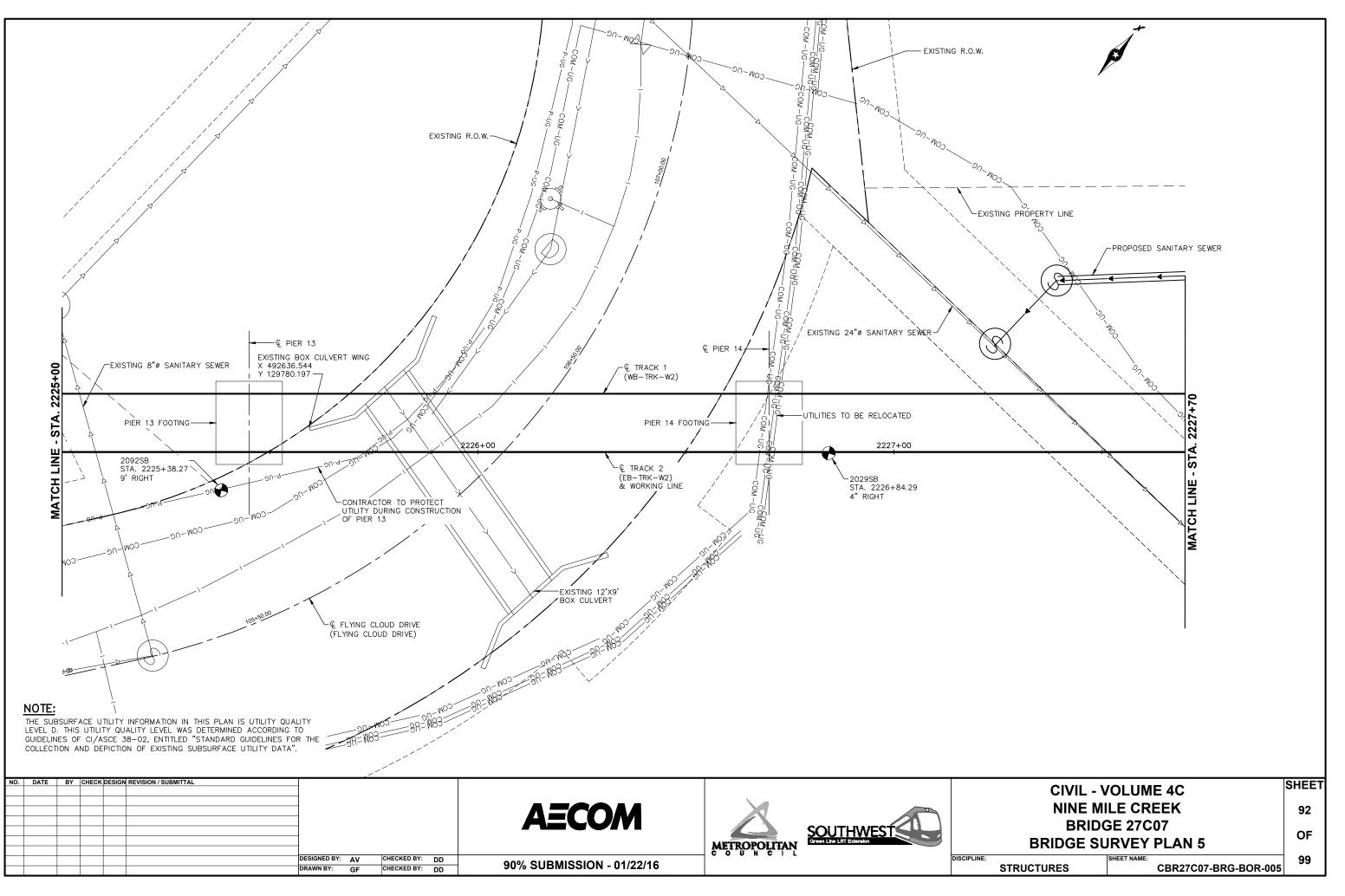


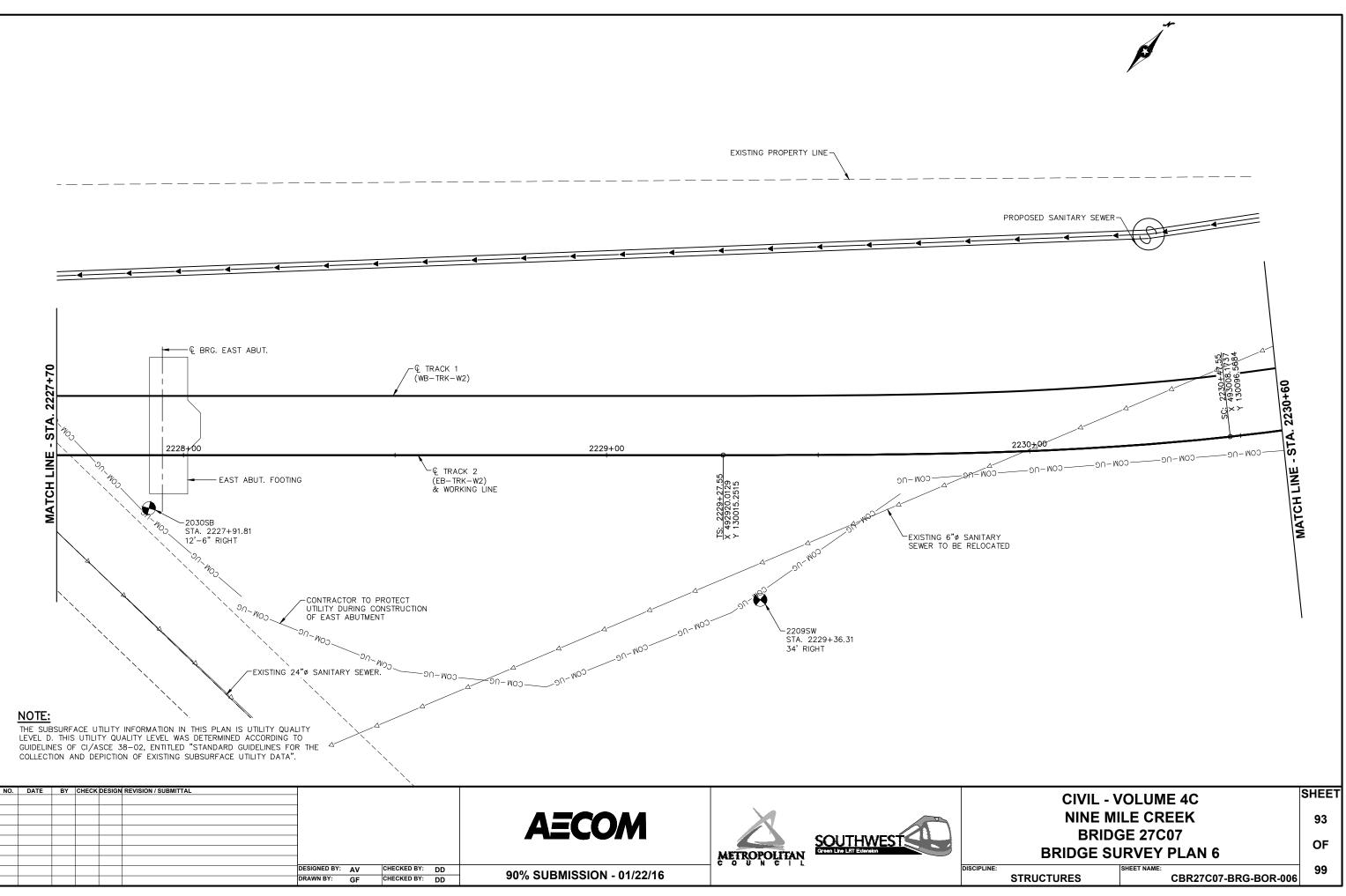










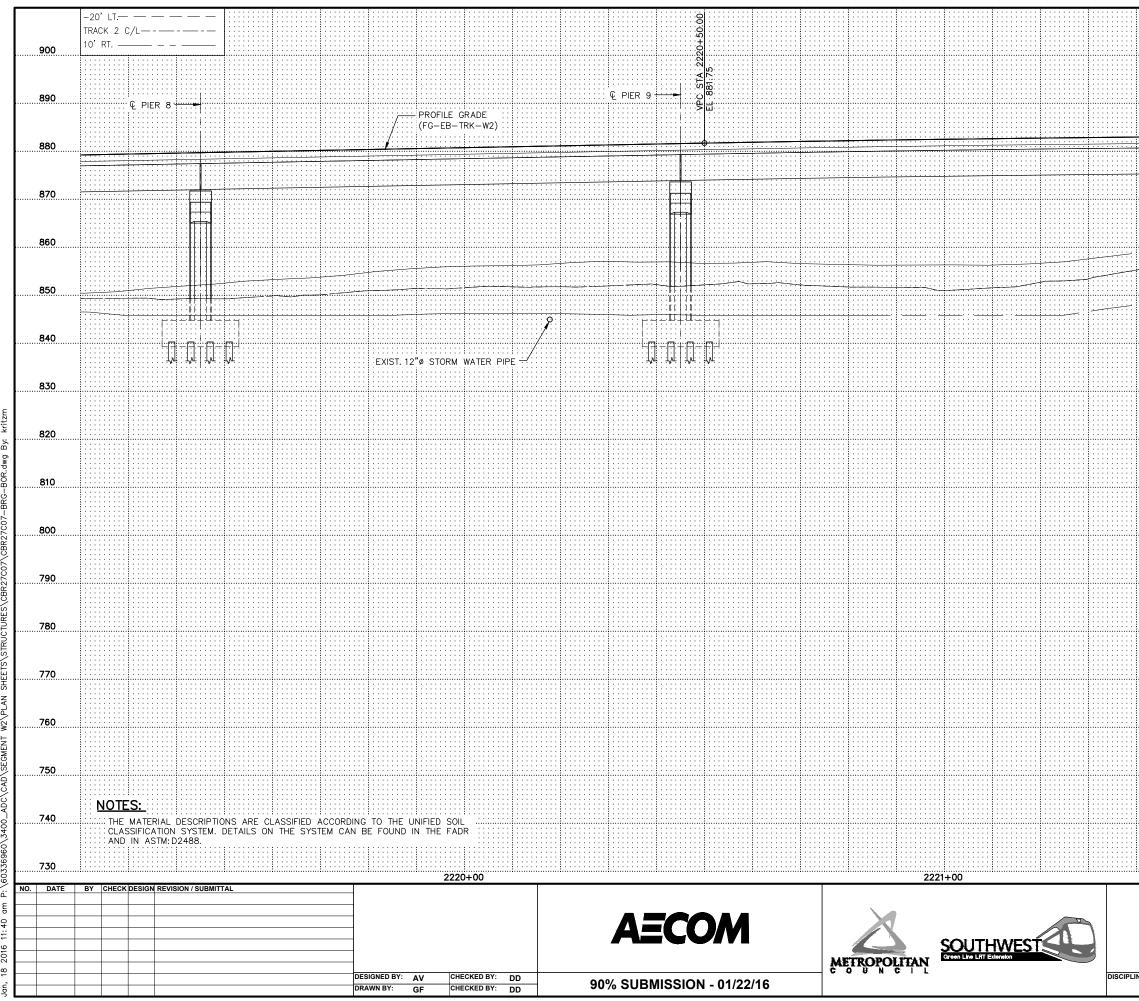


	-20' LT.— — — — — — — — — — — — — — — — — — —		<u></u>			PM : STA: 2215+41.15 PM : ELÉV: 872.19
890			51.h. 2224			200:00' VC G1: ⊢0.50% G2: +1.88% M: 0.595
880		÷€ BRG. WEST ABUT.	9000 + € PIER 1		2204 SB ation 869.6	PROFILE GRADE (FG-EB-TRK-W2)
870		[2012 SB]	<b>b</b>		CahN60	-0.50% +1.88%
860	Elevation 858.9	Elevation	856.7		40 41 27 32	Htrace roots, dark brown, mbist (SM), topsoil fill POORLY CRADED SAND with SILT, fine to medium-grained, Itrace
950	12 12 12 12 10 10 10 10 10 10 10 10 10 10		ayey Sand, inder raats, dark brown, moist. ty Sand, finet to medium-grained, trace		20 12 16	Gravel, brown, moist, (SPHSM), fill SILTY SAND, fine- to imedium-grained, with Gravel, dark
850	Z B CLAYEY SAND, trace Gravel, brow	The second seco	ty: Sand, fine+ : to medium-grain <u>ed, trace</u> i <u>th Clay incluisions, dark gray and</u> brown; iii ayey: Sand, itace : Gravel; dark brown: and	L.		tbrown and brown, mbist, (LGM), fill SILTY SAND, fine- to medium-grained, with Gravel, with
840	TW 12 12 12 12 12 12 12 12 12 12	10 10 Gravel, da 16 Vaterbear	ty Sand, fine- to medium-grained, trace ark brown, moist to 10 feet then ring. ND, fine- to coarse-grained, trace Gravel,		5 7 16	\ frequent layers of Lean Clay, dark gray, moist, (SM); fill SANDY LEAN CLAY, trace Gravel;
830	SILTY SAND, fine- to 12 15 15 15 15 15 15 15 15 15 15		lenses and seams, brown, waterbearing, medium dense. AN CLAY, trace Gravel, gray, wet, stiff to		10 29 19 18	gray, wet, (CL), fill ORGANIC SILT, with fibers, black, wet (OH), swomp depasit
800	16 17 17 18 18 18 18 19 19 10 10 10 10 10 10 10 10 10 10 10 10 10		GRADED SAND, fine- to coorse-grained,		52 44 21	PEAT, well-decomposed, black, wet, (PT), swamp deposit PODRLY GRADED SAND, fine- to medium-grained, gray, black,
820	22. 19. 21. 21. 5ANDY LEAN CLAY, trace Gravel, brown and gray, wet, rather stiff, (ÇL), till	15: 15: 15: 15: 15: 15: 15: 15: 15: 15:	ivel, "gray," waterbepring," medium "dense.		35 × × +	Waterbearing, medium dense, (SP), outwash POORLY GRADED SAND with SILT,
810	20 19 19 19 19 19 19 19 10 10 10 10 10 10 10 10 10 10	2121	EAN CLAY, trace Gravel, gray, wet, very GRADED SAND, fine- to medium-grained,		18	fine— to medium-grained, gray, waterbearing, medium, (SP-SM). outwash
800	with lenses of Silty Sand, gray, wet, stiff to very stiff, (CL), till SILTY CLAY, trace Gravel, gray,	20. PORLY ( - PORLY ( - trace Gro - 32	ivel, gray, waterbepring, medium dense to			SILTY SAND, fine- to medium-grained, with Gravel, brown, waterbearing, very dense
	18 18 17 17 17 17 17 17 17 17 17 17	grdy, wat	ND,, fine- to medium⊹grained, trace Gravel, erbearing, dense. SAND, trace Cravel, gray, wet, dense.		15	to dense, (SM), till SANDY LEAN CLAY, trace Gravel, brown and gray, wet, very stiff
790	35 gray, wet, very stiff, (CL), till CLAYEY, SAND, trace Gravel, gray, wet hard (SC) till	47: SILTY SAU	ND,: fine-: to:medium∺grained; trace:Gravel; erbearing,:dense.:		21	( <u>CL)</u> , till SILTY SAND, fine— to medium—grained, with Gravel, gray,
780	10 SANDY LEAN CLAY, trace Gravel, 16 with lenses of Silty Sand, gray, wet, rather stiff to stiff; (CL), ti	54: CLAYEY S	SAND,: trace: Gravel, : gray, :wet,: dense :to : : : :		47	waterbearing, dense, (SM), till SANDY LEAN CLAY, trace Gravel, gray, wet, rather stiff to hard, \(CL), till
770	9 POORLY GRADED \$AND, fine+: to medium-grained, brownish		EAN CLAY, trace Gravel, gray, wet, hard.		*	SILTY SAND, fine- tá SILTY SAND, fine- tá medium-grained, trace Gravel, tgray: waterbearing; dense to very
	igray, ; waterbearing, loose to medium dense, (SP), butwash Water observed at 14 feet	45.				dense, (SM), till Water observed at 22 feet while drilling.
760	while drilling. Water dobserved of 15 feet with 90 feet of hallaw-stem auger in the ground.		of Borehole: at: 96 ft			Boring immediately backfilled with bentanite grout
750	Boring: immediately: backfilled with bentonite grout.					
740						
	NOTES:					
730	THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCOR CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM C. AND IN ASTM: D2488.	DING TO THE UNIFIED SOIL				
720		2214+00			2215+00	
NO. DATE	BY CHECK DESIGN REVISION / SUBMITTAL					
			AECON		$\Delta$	SOUTHWEST
		DESIGNED BY: AV CHECKED BY: DD DRAWN BY: GF CHECKED BY: DD	90% SUBMISSION - 01/	22/16	METROPOLITAN	Green Line LRT Extension
			-			

	890				
3 € PIER 4	880				
<u> </u>					
2205 SB	870				
Elevation 861.1					
Coh N60	860				
38 II trace Gravel and roots, brown, 26 maist, (SM), topsoll fill					
18	850				
15 \brown, moist, (SM), fill					
4* \\brown, moist, (SC), fill	840				
4 19 4 19 4 6 19 6 19 6 19 19 19 19 19 19 19 19 19 19					
15 15 15 15 15 15 15 15 15 15	830				
12 PEAT, with fibers, with wood					
13	820				
63 POORLY GRADED SAND; fine- to 63 Sector fine- to 68 Sector fill waterbearing; (SP), swamp deposit					
70 ORGANIC SILT: with shells and	810				
57 POORLY GRADED SAND, fine-: to					
medium-grained, trace Gravel, gray, waterbearing, very dense,	800				
Gravel, with Gravel, with Gravel, with Gravel, with	790				
57					
SILT with SAND, gray, wet, dense, (ML), till	790				
	780				
32 and cobbles, gray, waterbearing,					
39	770				
SILTY SAND, fine- to					
medium-grained, with Gravel, reddish	760				
Water observed at 15 feet while drilling					
Boring immediately backfilled with bentonite grout.	750				
	740				
	730				
2216+00	720				
CIVIL - VOLUME 4C	SHEET				
NINE MILE CREEK	94				
BRIDGE 27C07	OF				
BRIDGE SURVEY PROFILE 1	99				
INE: STRUCTURES CBR27C07-BRG-BOR-007					

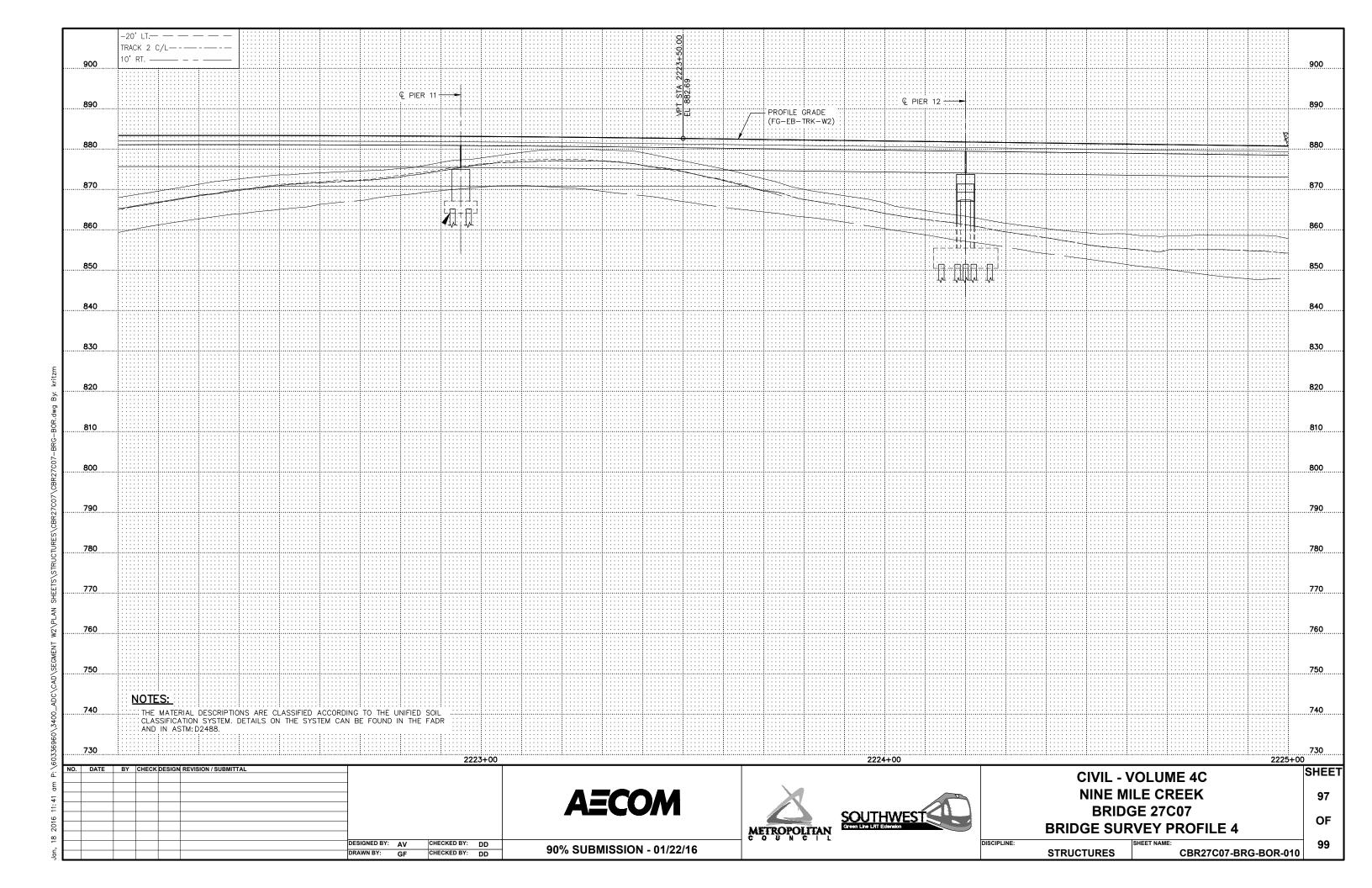
890	-20' LT.— — — — — — — — — — — — — — — — — — —		
880	€ PIER 5 € PIER 6 + + + + + + + + + + + + + + + + + +	PROFILE GRADE (FG-EB-TRK-W2)	€ PIER 7
870	2027 SB Elevation 859.3 2206 SB 1 Elevation 856.4		[2207 SB]
850		160	Elevation 849.6
	10 10 - ↓ <u>EAN CLAY, brown, moist</u> - ↓ <u>EAN CLAY, brown, moist</u> - ↓ - ↓ - ↓ - ↓ - ↓ - ↓ - ↓ - ↓	4 SILTY SAND, fine- to 2 → medium-grained, trace Gravel, 1 → brown, moist, (SM), fill	<u>Cob</u> <u>N60   //</u> SkLTY SAND, fine-grained 25 Gravel and roots, dark b ind brown, moist, (SM), ind brown, moist, (SM), ind brown, slightly orgo
840	Z       PiLt: Clayey Sand; fine- ta medium-grained;         3       Y         Y       Trace Gravel, brown, wet.         TW       Y         Sand: lenses at 12 feet.         Size         Filt: Poorly Graded Sand with Silt; fine- to         G         Filt: Poorly Graded Sand with Silt; fine- to         G         Markettary         Filt: Poorly Graded Sand; with: Lean; Clay: lenses.at 15.         G         Filt: Gray, waterbearing.         Filt: PEAT; with fibers and roots, black, wet.	13       CLAYEY SAND, trace Gravel, brown         12       and: dark; brown; moist; to 9: 1/2         13       reet; then wet; (SC); fill;         14       SANDY LEAN CLAY; trace;         15       Gravel, light; gray; wet; (CE); fill;         16       SULTY SAND; fine— to         17       SULTY SAND; fine— to         17       Gravel, waterbearing; (SM); fill;	Y <sup>4</sup> 5 <sup>4</sup> / <sup>4</sup> Sönd, trace Grävel, dark ∑ 8 6 2 2 2 4 4 PEAT, black and dark gr 2 4 4 2 4 4 4 4 4 4 4 4 4 4 4 4 4
820	5 TW Trace of fibers at 25 feet. Occasional Sand lenses. 6 ORGANIC LEAN: CLAY, with fibers and shells, 3 June - black, wet 5 Occasional layers of Peat. 13 Occasional layers of Peat.	12       PEAT: trace roats, with fibers,         9       black; wet; (PT); swamp deposit         11       PORLY GRADED SAND, fine- to         7       medium-grained, trace shells,         4       Odrk gray and black, waterbearing,         10       F); swamp deposit	2 2 2 3 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5
800	7 - Cravel, gray, waterbearing. SILT: trace roats and organics, gray, waterbearing: 22: SILTY SAND, fine- to medium-grained, with Cravel, gray, to 60 feet then brown.	39 25 25 25 25 25 24 25 25 24 25 24 25 25 25 24 25 25 25 25 25 25 25 25 25 25	22 PDORLY GRADED SAND 21 A File- to medium-graine 31* Gravel, gray, waterbearn 27 V medium dense, (SP-SM) 20 × 5
790	47 - SILTY CLAY, with Silt layers, gray, wet, hard. - POORLY GRADED SAND, fine- to coarse-grained, - with Gravel, gray, waterbearing, very dense. - SANDY LEAN CLAY, trace Gravel, gray, wet, - very stiff.	71	40 40 51 51 51 51 52 51 52 52 52 52 52 52 52 52 52 52
780	24 27 CLAYEY SAND, fine- to medium-groined, with Sand lenses from 85 to 95 feet, gray, wet. 5t	18       -       SLT with SAND, gray, waterbearing, very dense; (Mt), till         40       -       SLTY SAND, fine- to medium-grained, with Gravel, gray and brown, waterbearing, medium dense, (SM), till         56       -       -         56       -       -         SANDY LEAN CLAY, trace Gravel, gray,       -	SANDY LEAN CLAY, trac gray, weth, rether stiff, ( SLTY SAND, fine- to riedium-grained, trace ( frequent layers of Lean 
760	18	<ul> <li>42 ************************************</li></ul>	
750	36 SILTY SAND, fine- to medium-grained, with Cravel, brown, waterbearing, medium dense to dense. 26 END: OF BORING,	25	15 SANDY LEAN CLAY, trac with occasional Sandy S gray to 110 feet then re brown; wet; medium to 28
	OTES:       Water observed at 15 feet with 15 feet of hollow-stem ouger in the ground;         OTES:       Boring immediately backfilled with bentonite grout.         Bottom of Borehole at 121 ft       Bottom of Borehole at 121 ft         THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM: D2488.	7 SANDY LEAN CLAY, trace Gravel, wet, medium to stiff, (CL), tili Water observed at 9.1/2 feet while drilling, Boring immediately backfilled with bentonite grout.	28 SILT, with SAND, groy, w very_dense, (ML), till 
	2217+00	AECOM	2218+00 710 * Water observed of 114 fe Boring immediately back
		KED BY:         DD           KED BY:         DD           90% SUBMISSION - 01/22/16	

		890
		880
		870
		870
	· <u>·······</u> ····························	
	2028 SB	860
	Elevation 850.6	
<u>Coh</u> N60	KKL LEAN: CLAY, dork brown; moist	850
ied, tráce 15 brown 15 ), fill	. FILL: Sandy Lean Clay, trace Gravel, brown,	
ganic, with 4	FILL: Organic: Cldy, with Peat ldyers, with	840
, fill	:FILL: Lean: Clay, with Silty Sand lenses, gray,	
gray, moist TW	, PEAT; with fibers, block, wet.	830
PT), swamp 6* Z	₩	
TW	: wet. : Peàt ànd: Sand Ilayers: at: 27; feet.	
7 roots, 15	····ELASTIC:SILT,:gray,:wet,:lease	820
ana biack, 16	- medium-grained, with Gravel, gray,	
22 23 with SILT, 20	C :POORLY:GRADED:SAND:with :SILT, : fine∺ :to : Coarse÷grained, with :Gravet, : brown,	810
ing, dense to 31	1017 : waterbearing, medium: dense: to: dense	
vi), outwash 25 21	1210 - Stor : Fine: grained. at: 50. feet. with . occasional. Lean	800
	Clay lenses.	
Gravel, with	SANDY. LEAN. CLAY, . trace. Gravel,gray,wet,	790
and Lean 12 g, dense,	- rather stiff to very stiff.	
ice Gravel,		780
(CL); till 19		
Gravel, with 19 Clay, gray,		
	Waterbearing: Sand: layer: at: 80: feet:	770
23	- :Silty Sand: layer from :84: to: 86: feet.	
		760
	: Silty Sand: layer at 94 feet.	
ice Gravel;		750
Silt lenses, reddish		
o very stiff, 23*		
11		730
waterbearing,	END: OF :BORING: Boring immediately backfilled with bentonite grout.	
feetwhiledrilling ckfilled with bentonit	Bottom of Borehole at 121 ft	720
	e grout. 2219+00 CIVIL - VOLUME 4C	SHEET
	NINE MILE CREEK	95
ľ	BRIDGE 27C07	
BRID	GE SURVEY PROFILE 2	OF
	TURES CBR27C07-BRG-BOR-008	99
511(00		



Z Ś 00

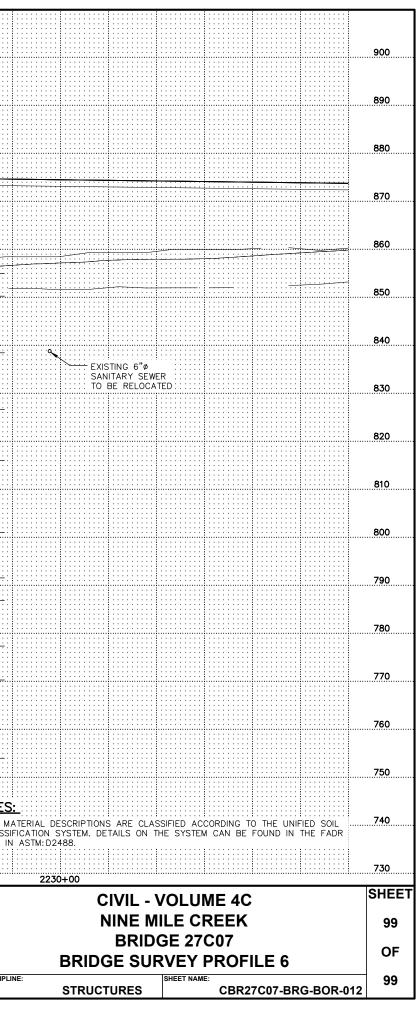
PVI STA 2222+00.00 PVI ELEV 884.57					
300.00' VC 61: +1.88% 62: -1.25% M: -1.175	900				
€ PIER 10	890				
+1.88% -1.25%	880				
	870				
	860				
	850				
	840				
	830				
	820 810				
	800				
	790				
	780				
	770				
	760				
	750				
	740				
CIVIL - VOLUME 4C NINE MILE CREEK					
BRIDGE 27C07 BRIDGE SURVEY PROFILE 3	OF				
INE: STRUCTURES STRUCTURES CBR27C07-BRG-BOR-009					

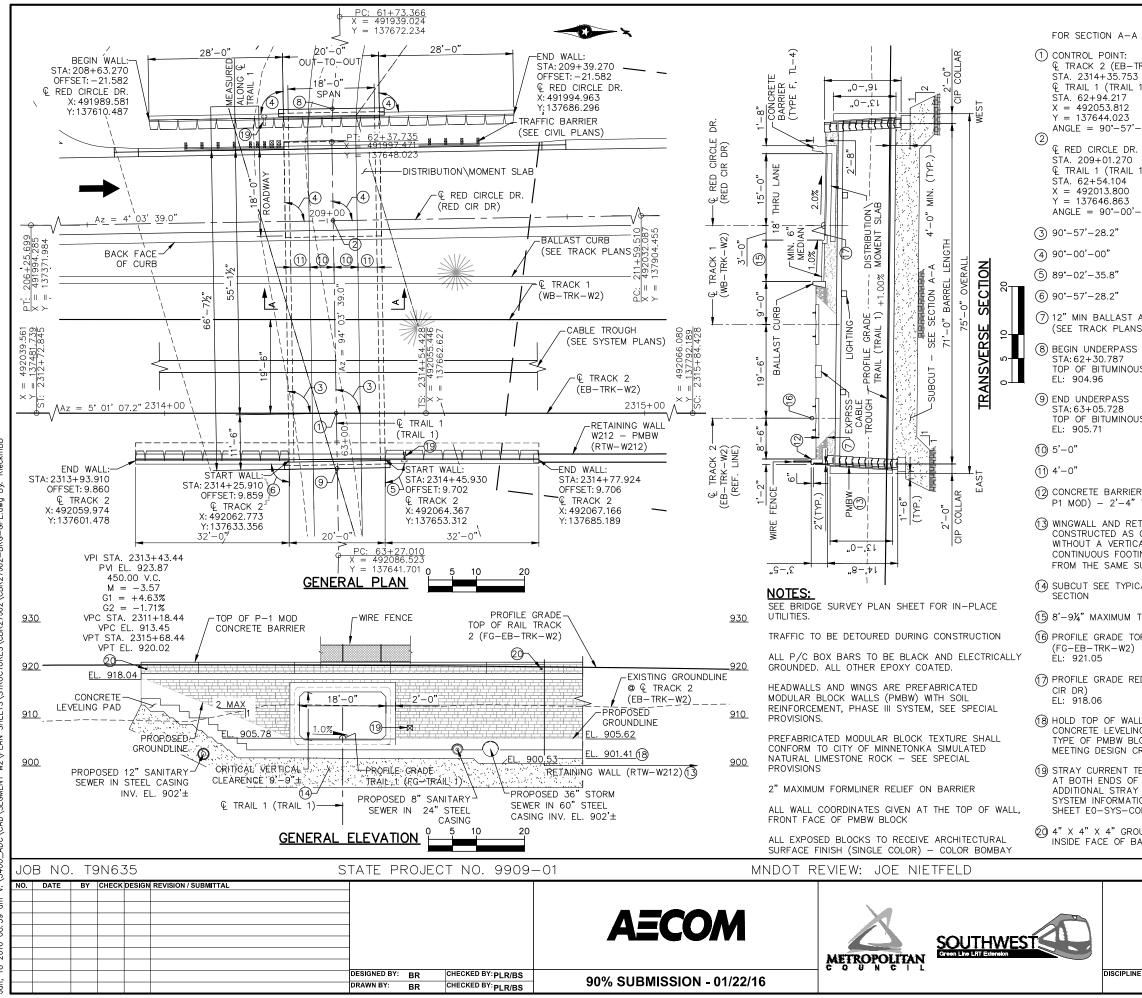


900	-20' LT				
		2 PIER 13		© PIER 14+	₹ <b>X</b> Ø
870 860		2092SB Elevation 855.2	€ FLYING CLOUD DRIVE (FLYING CLOUD DRIVE)		
		N60 Sity Sand, tree roots, dark brown, 16. 30. 18. 19. 10. 10. 10. 10. 10. 10. 10. 10	(SP−SM), fill	2029SB Elevation	
840 830	EXISTING 8″ø SANITARY SEWER	<ul> <li>Silty Sand, fine to medium-grained, with Gravel,</li> <li>Silty Sand, fine to medium-grained, with Gravel,</li> <li>moist. (SM), fill</li> <li>Sandy Lean: Clay, trace: Gravel, gray and black ind</li> <li>Sindy Lean: Clay, trace: Gravel, gray and black ind</li> </ul>	oist. (CL), fli		Y, dark brown, moist, an Clay, with Gravel, b ty:Sand, fine-:to:med Y, with fibers, gray, w SRADED:SAND, fine-:to
820 8820 8820 810		9 10 10 11 11 16 16 18 24 18 24 10 10 10 10 10 10 10 10 10 10	ilight.gray, wet.to	g CLAYEY S 11 CLAYEY S	ZAN CLAY, trace Grave SAND, fine- to medium dense:
800 800		23 ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	m to rather stiff.	17 25 SANDY.LE	SRADED: SAND,fine ing, . medium . dense EAN: CLAY,fraceGrave
790 780 780		33 37 37 37 37 37 37 37 37 37	stiff: (CL), till:	ground. Boring in	spring. served at 15 feet with imediately backfilled wi if Borehole at 51 ft
770		<ul> <li>34 SILTY SAND; fine – :to :medium + grained, reddish br</li> <li>(SM), till</li> <li>47</li> <li>41</li> </ul>			
760 750		48 SILTY SAND, fine— to medium—grained, with freque 48 reddish brown, wet, dense: (SM), till 48 Water observed at 15 feet while drilling Boring then sealed with bentonite grout;			
740 730 22	NOTES: THE MATERIAL DESCRIPTIO CLASSIFICATION SYSTEM. I AND IN ASTM: D2488.	Boring: then: sealed: with bentonite: grout:	2226+00	222	7+00
		AL	<b>AECOM</b> 90% SUBMISSION - 01/22/16	METROPOLITAN BETROPOLITAN Crean Line Litt Extension	DISCIPLI

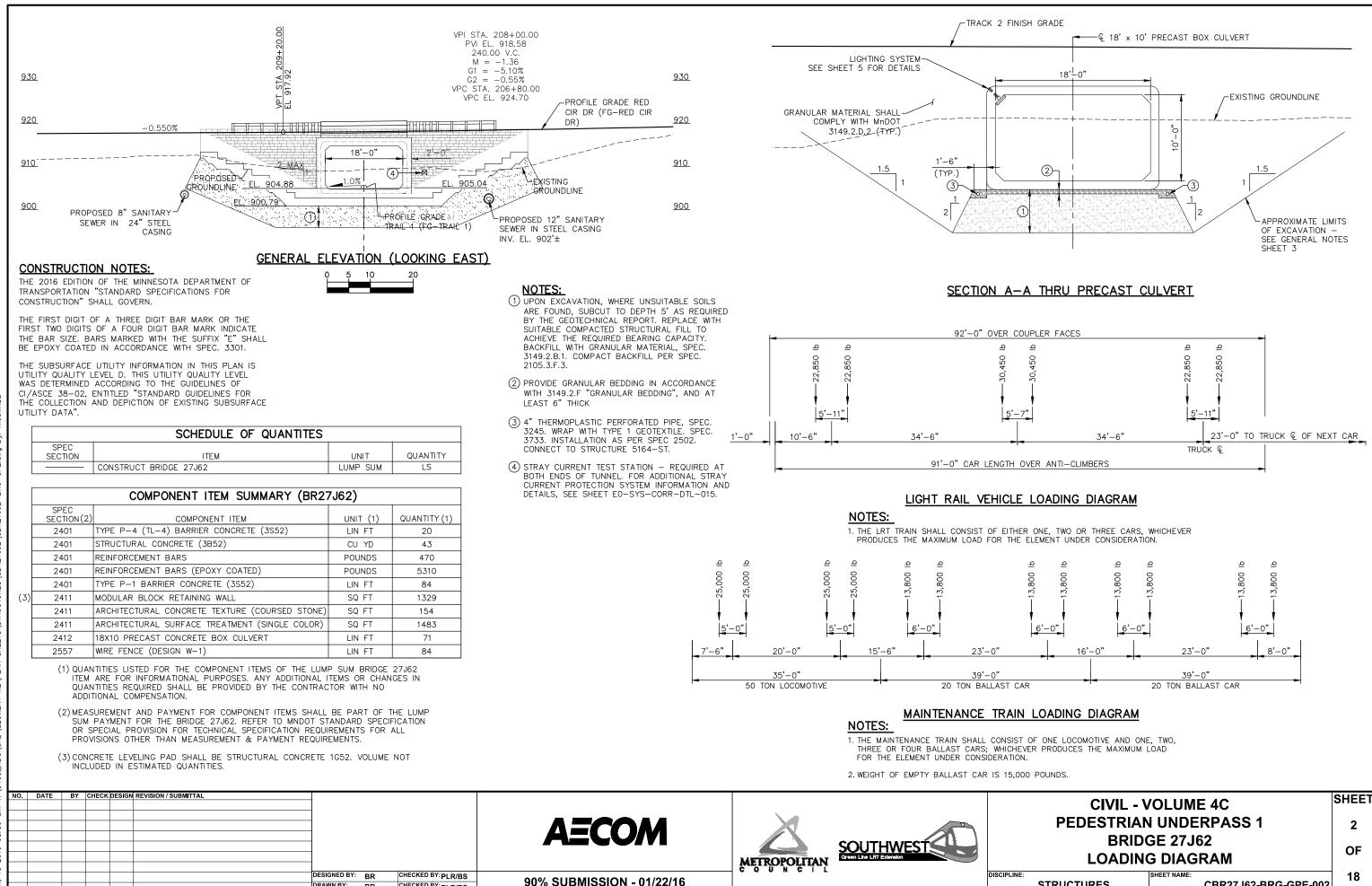
	900 890			
PROFILE GRADE (FG-EB-TRK-W2) -1.25%	880			
	870			
	860			
rwon; moiŧt:	850 840			
lium⊹grained, with Gravel, brown, moist. O <del></del> EXISTING 24″ø SANITARY SEWER o codrse-grained, with Gravel, brown, waterbearing,	830			
I, :gray, :wet. :rather :stlff. h∹grained, trace :of Gravel, brown, wet,	820			
o coarse-grained, with Gravel, brown,	810 800			
15 feet of hollow-stem auger in the	790			
th bentariite: grout.	780			
	770			
	750			
	740			
CIVIL - VOLUME 4C	730 SHEET			
NINE MILE CREEK BRIDGE 27C07 BRIDGE SUBVEY BROEILE 5				
BRIDGE SURVEY PROFILE 5	OF			

	LT.— — — — — — < 2 C/L— - — - —			
900 <sup>10' R'</sup>	,			
890				
		General Control Contro Control Control Control Control Control Control Control Control Co		
880				
870				
860				2209SW Elevation 855.0
		2030SB	Got	N60
850		Elevation 846.2		6
	Coh N60	SILTY SAND, fine— to medium—grained, dark brown, dry.		15 SILTY SAND, fine to 9 medium-grained, with Gravel,
840	10	E FliL: Poorly Graded Sand, fine- ito medium-grained, with Gravel, brown, moist		32 12 12 12 12 12 12 12 12 12 1
	111	SANDY LEAN CLAY, trace Gravel, gray, wet, rather stiff to stiff.	₽:	
830	14 			9 waterbearing, loose to medium 6 dense, (SP), outwash
				14 SANDY LEAN CLAY trace Grovel
820	22	CLAYEY SAND, fine— to medium-grained, with Gravel, gray and brown, wet,		g
	38	2. Oddasional Lean Clay and Silty Sand lenses.		24. 28
810		N- POORLY GRADED SAND with SILT, fine- to medium-argined, with occasional		30 48
	43. 30	1 - Cley lenses, with Grovel, brown, medium dense to very dense.		36
800		CLAYEY SAND, fine— to medium—grained, with Gravel, brown, waterbearing, very dense. SILTY SAND, fine— to medium—grained, with Gravel, brown, waterbearing,		39. POORLY GRADED SAND, fine- to medium-grained, with Gravel,
790	36.	de medium dense to dense.		37. (SP), putwash
	21			67 G7 G7 G7 G7 G7 G7 G7 G7 G7 G
780	42			trace: Gravel,
	21.	74- 29- CLAYEY SAND, fine— to medium—grained, with Gravel, brown, waterbearing, medi	um:	27. Very dense, (SP), outwash CLAYEY SAND, trace Gravel, brown, wet, very stiff to hard. (SC), till
770		- dense to dense.		20 *** wet, very stiff to hard, (SC), till 28 ///
		- SANDY LEAN CLAY, trace Gravel, gray, wet, very stiff.		POORLY GRADED SAND, fine- to
760				brown, waterbearing, medium 36
		- POORLY GRADED SAND, fine- to medium-groined, with Grovel, brown and gray, - waterbearing, medium dense to dense.		36 Water observed at 20 feet with
750				20. feet. of hollow-stem auger in the ground.
	41	END OF BORING. Water abserved at 22 1/2 feet with 22 1/2 feet.		Switched to mud rotory drilling at 25 feet.
740		Baring immediately backfilled with bentonite grout.		Switched back to hollow-stem auger drilling at 60 feet due to subsurface conditions.
730		Battom of Borehole at 101 ft		Boring immediately backfilled with bentonite grout
	CHECK DESIGN REVISION /	2228+00 SUBMITTAL	2229+00	
			AECOM	
		DESIGNED BY: AV CHECKED BY: DD DRAWN BY: GF CHECKED BY: DD	90% SUBMISSION - 01/22/16	





	DESIGN DATA				
A SEE SHEET 2	2014 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 7TH EDITION AND 2015 INTERIM.				
-TRK-W2) 53	METRO LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 4.0)				
1)	LOAD AND RESISTANCE FACTOR DESIGN METHOD				
·	HL-93 LIVE LOAD (RED CIRCLE DRIVE)				
"-28.2"	LRV & MV LOAD DIAGRAM SHOWN ON SHEET	2			
R. (RED CIR DR)	RISE = 10'-0"				
L 1) )'-00"	$\begin{array}{llllllllllllllllllllllllllllllllllll$				
F AND 8" MIN SUBBALLAST	ANGLE INTERNAL FRICTION = 30.00DEG fy = 60000 P.S.I. REINFORCEMENT BARS fy = 65000 P.S.I. STEL FAPPIC				
NS)	fy = 65000 P.S.I. STEEL FABRIC f'c = 5000 P.S.I. CONCRETE DESIGN SPEED OVER: 40 MPH (LRT)				
S	25 MPH (LRT) 25 MPH (RED CIRCL	E DR.)			
DUS					
	NO.         DESCRIPTION           1         GENERAL PLAN AND ELEVATION				
DUS	2 LOADING DIAGRAM				
	3 REINFORCED WALL SECTION 4 PRECAST CONCRETE BARREL DETAIL:	2			
	5 CULVERT DETAILS				
	6 CIP COLLAR DETAILS				
ER (TYPE,	7-8 HEADWALL DETAILS				
" TALL	9 DISTRIBUTION SLAB DETAIL 10 CONCRETE BARRIER DETAIL				
RETAINING WALL TO BE S ONE CONTINUOUS WALL	11 WIRE FENCE AND CONCRETE PARAPE	T			
ICAL JOINT WITH ONE DTING. (BLOCK SHALL BE	12 CONCRETE PARAPET DETAIL				
SUPPLIER FOR BOTH)	13 BRIDGE DETAILS 14 AS-BUILT BRIDGE DATA				
PICAL REINFORCED WALL	15–16 BRIDGE SURVEY				
	17 BRIDGE SURVEY PLAN				
TO 8'-5¼" MINIMUM	18 BRIDGE SURVEY PROFILE				
TOP OF RAIL TRACK 2	2040 PROJECTED TRAFFIC VOLU				
	ROADWAY OVER ROADWAY 5200 AADT N/				
RED CIRCLE DR. (FG-RED	680 DHV N/				
	105 ADTT N/				
ALL ELEVATION, BOTTOM OF ING PAD ADJUSTED PER BLOCK USED, WHILE	BRIDGE NO. 27J62				
CRITERIA.	SOUTHWEST LRT OVER TRAIL 1 0.6 MI. W OF JCT. T.H. 62/T.H. 169 IN MINNETONKA				
TEST STATION - REQUIRED DF TUNNEL. FOR AY CURRENT PROTECTION TION AND DETAILS, SEE CORR-DTL-015.	18' X 10' BOX CULVERT 0'-57'-28.2" SKEW BRIDGE I.D. NO. 113				
ROUNDING TEST BOX -	_ GENERAL PLAN AND ELEVATION				
BARRIER	SEC 36 T117N R22W CITY OF MINNETONKA HENNEPIN COU				
	VOLUME 40	SHEET			
PEDESTRI	- VOLUME 4C AN UNDERPASS 1	1			
	IDGE 27J62 AN AND ELEVATION	OF			
	SHEET NAME: CBR27J62-BRG-GPE-001	18			



CHECKED BY: PLR/BS

DRAWN BY:

BR

		SHEET		
CIVIL - VOLUME 4C				
PEDESTRIAN UNDERPASS 1				
		2		
BRIDGE 27J62				
LOADING DIAGRAM				
SHEET NAME:				
STRUCTURES CBR27J62-BRG-GPE-002				



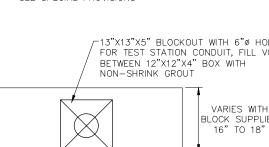
THE SECTION SHOWN IS REPRESENTATIVE WALL SECTION. THE WALL HEIGHTS AND ELEVATIONS, TOE SLOPES, AND BACK SLOPES VARY ACCORDING TO THE ELEVATION PLAN.

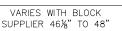
ALL WORK AND MATERIALS SHALL COMPLY WITH ALL STATE, COUNTY, AND CITY REGULATIONS AND CODES AS WELL AS OSHA STANDARDS.

INSPECT EXCAVATION SLOPES FOR ACTIVE SEEPAGE AND PLACE ADDITIONAL DRAINS WHERE SEEPAGE OCCURS.

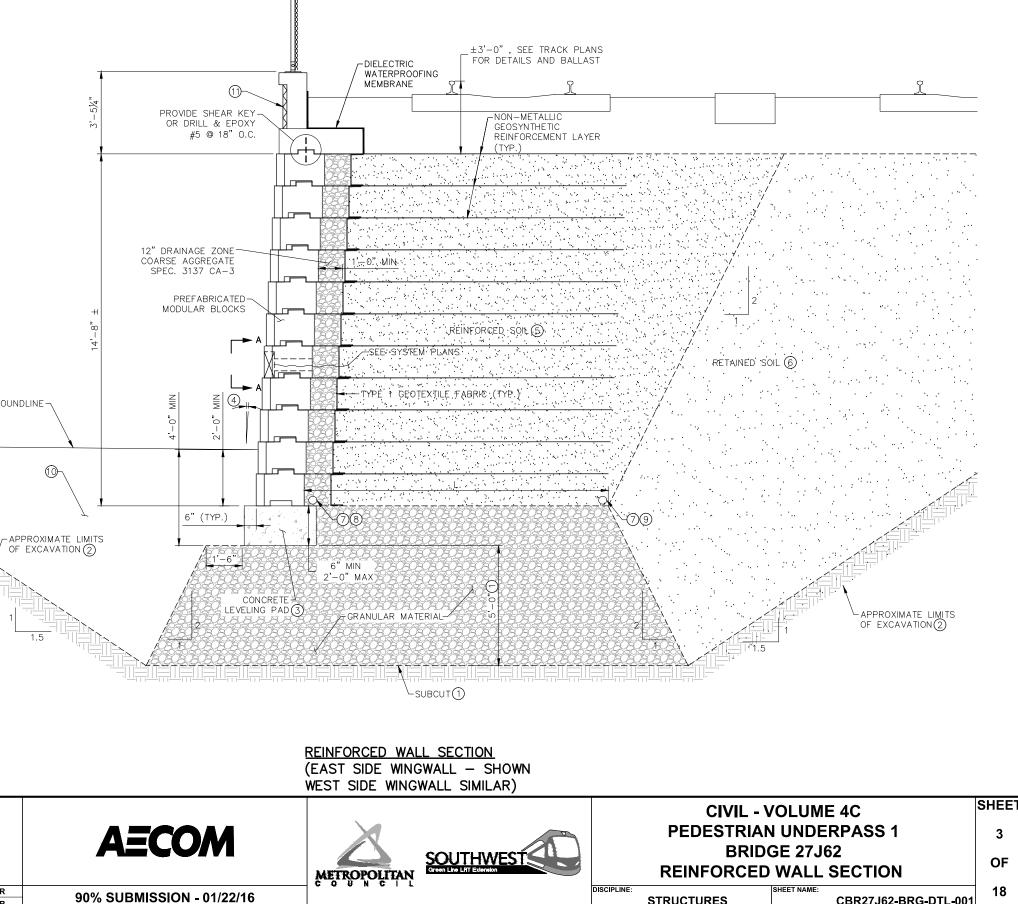
DO NOT BRING HEAVY COMPACTION OR PAVING EQUIPMENT WITHIN 3' OF THE BACK OF THE RETAINING WALL.

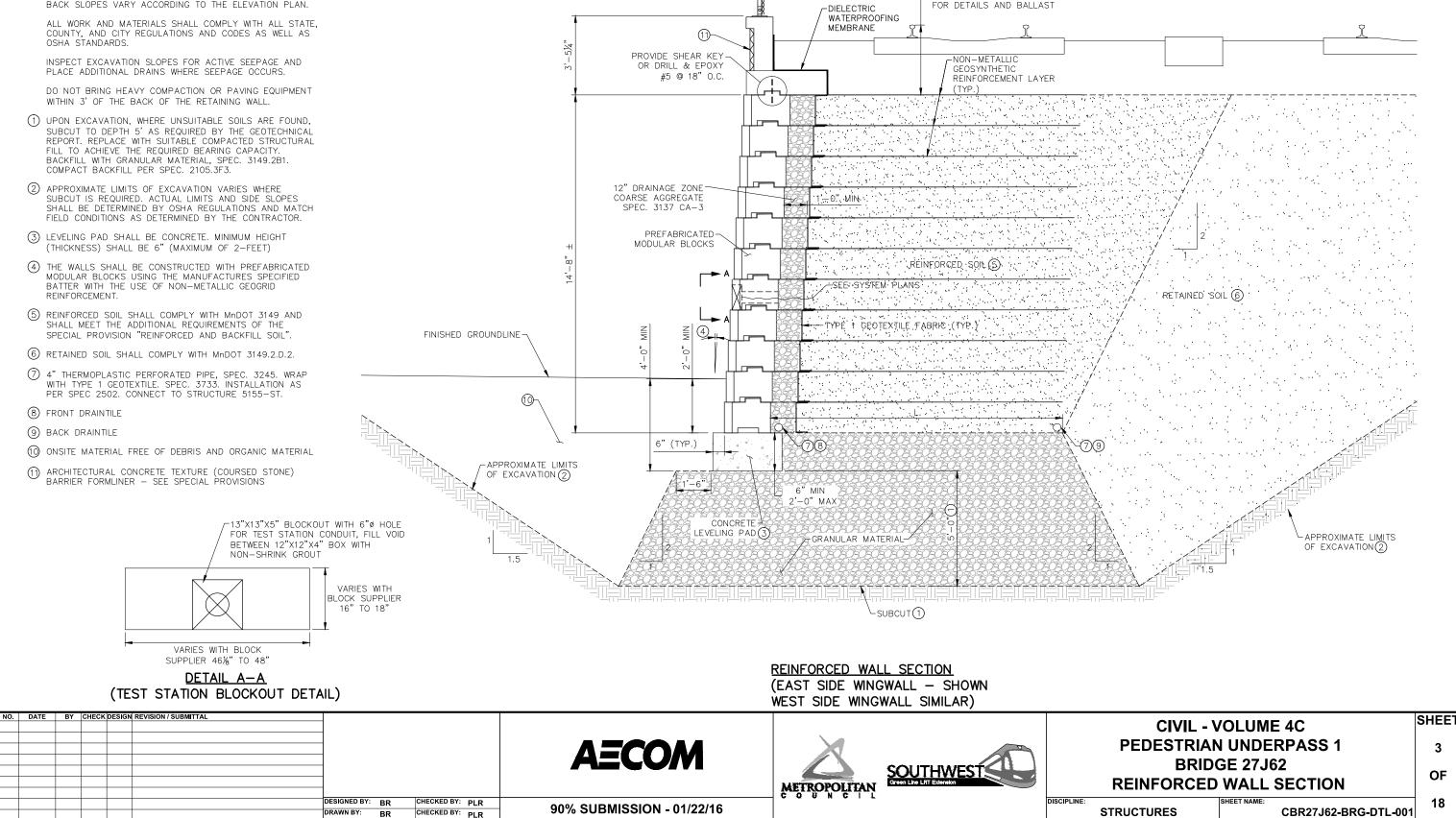
- (1) UPON EXCAVATION, WHERE UNSUITABLE SOILS ARE FOUND, SUBCUT TO DEPTH 5' AS REQUIRED BY THE GEOTECHNICAL REPORT. REPLACE WITH SUITABLE COMPACTED STRUCTURAL FILL TO ACHIEVE THE REQUIRED BEARING CAPACITY. BACKFILL WITH GRANULAR MATERIAL, SPEC. 3149.281 COMPACT BACKFILL PER SPEC. 2105.3F3.
- (2) APPROXIMATE LIMITS OF EXCAVATION VARIES WHERE SUBCUT IS REQUIRED. ACTUAL LIMITS AND SIDE SLOPES SHALL BE DETERMINED BY OSHA REGULATIONS AND MATCH FIELD CONDITIONS AS DETERMINED BY THE CONTRACTOR.
- (3) LEVELING PAD SHALL BE CONCRETE. MINIMUM HEIGHT (THICKNESS) SHALL BE 6" (MAXIMUM OF 2-FEET)
- THE WALLS SHALL BE CONSTRUCTED WITH PREFABRICATED MODULAR BLOCKS USING THE MANUFACTURES SPECIFIED BATTER WITH THE USE OF NON-METALLIC GEOGRID 4 REINFORCEMENT.
- 5 REINFORCED SOIL SHALL COMPLY WITH MnDOT 3149 AND SHALL MEET THE ADDITIONAL REQUIREMENTS OF THE SPECIAL PROVISION "REINFORCED AND BACKFILL SOIL".
- 6 RETAINED SOIL SHALL COMPLY WITH MnDOT 3149.2.D.2.
- (7) 4" THERMOPLASTIC PERFORATED PIPE, SPEC. 3245. WRAP WITH TYPE 1 GEOTEXTILE. SPEC. 3733. INSTALLATION AS PER SPEC 2502. CONNECT TO STRUCTURE 5155-ST.
- (8) FRONT DRAINTILE
- (9) BACK DRAINTILE
- 1 ONSITE MATERIAL FREE OF DEBRIS AND ORGANIC MATERIAL
- (1) ARCHITECTURAL CONCRETE TEXTURE (COURSED STONE) BARRIER FORMLINER SEE SPECIAL PROVISIONS

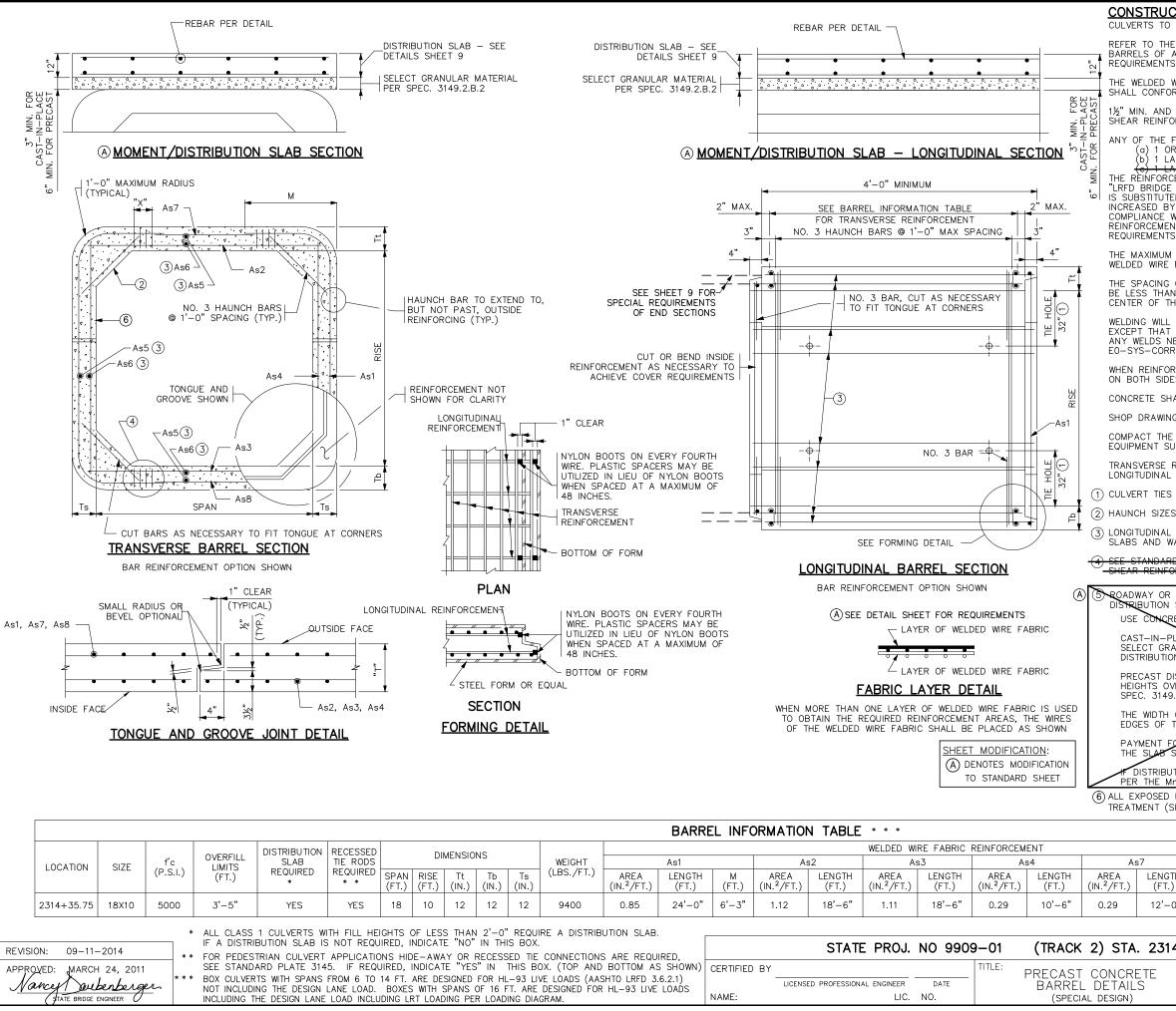




(TEST STATION BLOCKOUT DETAIL)







# CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER SPEC. 2412 EXCEPT AS NOTED.

REFER TO THE GENERAL PLAN AND ELEVATION SHEET FOR THE DISTANCE BETWEEN BARRELS OF ADJACENT BOXES AND TO STANDARD FIGURE 5-395.115 FOR MATERIAL REQUIREMENTS FOR FILL BETWEEN ADJACENT BOXES.

THE WELDED WIRE FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

 $1 \style{20}$  min. and 2" max. concrete cover on all reinforcement, including shear reinforcement, except for tongue and groove detail.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED: (a) 1 OR 2 LAYERS OF WELDED WIRE FABRIC OR (b) 1 LAYER OF WELDED WIRE FABRIC AND 1 LAYER OF REINFORCEMENT BARS OR (c) 1 LAYER OF REINFORCEMENT BARS.

THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS." IF BAR REINFORCEMENT IS SUBSTITUTED FOR WELDED WIRE FABRIC, THE AREA OF REINFORCEMENT SHALL BE INCREASED BY 8%, AND CONTRACTOR SHALL SUBMIT DESIGN CALCULATIONS VERIFYING COMPLIANCE WITH AASHTO 5.7.3.4 "CONTROL OF CRACKING BY DISTRIBUTION OF REINFORCEMENT". SEE CORROSION PROTECTION DETAILS FOR WELDED GROUNDING REQUIREMENTS.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 6. THE MAXIMUM WELDED WIRE FABRIC SIZE SHALL BE A W23 PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR WELDED WIRE FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC AND ANY WELDS NEEDED FOR CORROSION CONTROL IS ACCEPTABLE SEE SHEET E0-SYS-CORR-DTL-015.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX NO. 3W82 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER SPEC. 3238.2.A IS REQUIRED.

COMPACT THE FIRST 1.5' (LOOSE) OF FILL ABOVE THE BOX WITH LIGHT COMPACTION EQUIPMENT SUCH AS PLATE COMPACTORS OR WALK BEHIND ROLLERS.

TRANSVERSE REINFORCEMENT IS PARALLEL TO THE CULVERT SPAN LONGITUDINAL REINFORCEMENT IS PERPENDICULAR TO THE CULVERT SPAN.

(1) CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE SHEET 5.

(2) HAUNCH SIZES ARE TO BE 12" VERTICAL, 12" HORIZONTAL ON ALL BOX SIZES.

 $(\underline{3})$  longitudinal reinforcement denoted as as5 and as6 must be placed in all slabs and walls and must be 0.06 sq. in./ft. min.

FANDARD PLATE NO. 3007 FOR SHEAR REINFORCEMENT OPTIONS. THE MAXIMUM-REINFORCEMENT SPACING IN THE LONGITUDINAL DIRECTION SHALL BE 6".-

ROADWAY OR SHOULDER FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB.

CONCRETE MIX 3Y43 FOR THE DISTRIBUTION SLAB.

CAST-IN-PLACE DISTRIBUTION SLABS SHALL BE 6" THICK. PROVIDE 3" MINIMUM SELECT GRANULAR MATERIAL PER SPEC. 3149.2.B.2 BETWEEN BARREL AND DISTRIBUTION SLAB.

PRECAST DISTRIBUTION SLABS SHALL BE 6" THICK AND MAY BE USED FOR FILL HEIGHTS OVER 1'-O". PROVIDE 6" MONTONIA SELECT GRANULAR MATERIAL PER SPEC. 3149.2.B.2 BETWEEN BARREL AND DISTRIBUTION SLAB.

THE WIDTH OF THE DISTBUTION SLAB SHALL EXTEND BETWEEN THE OUTSIDE EDGES OF THE SHOULDERS UNLESS DIRECTED BY THE ENGINEER.

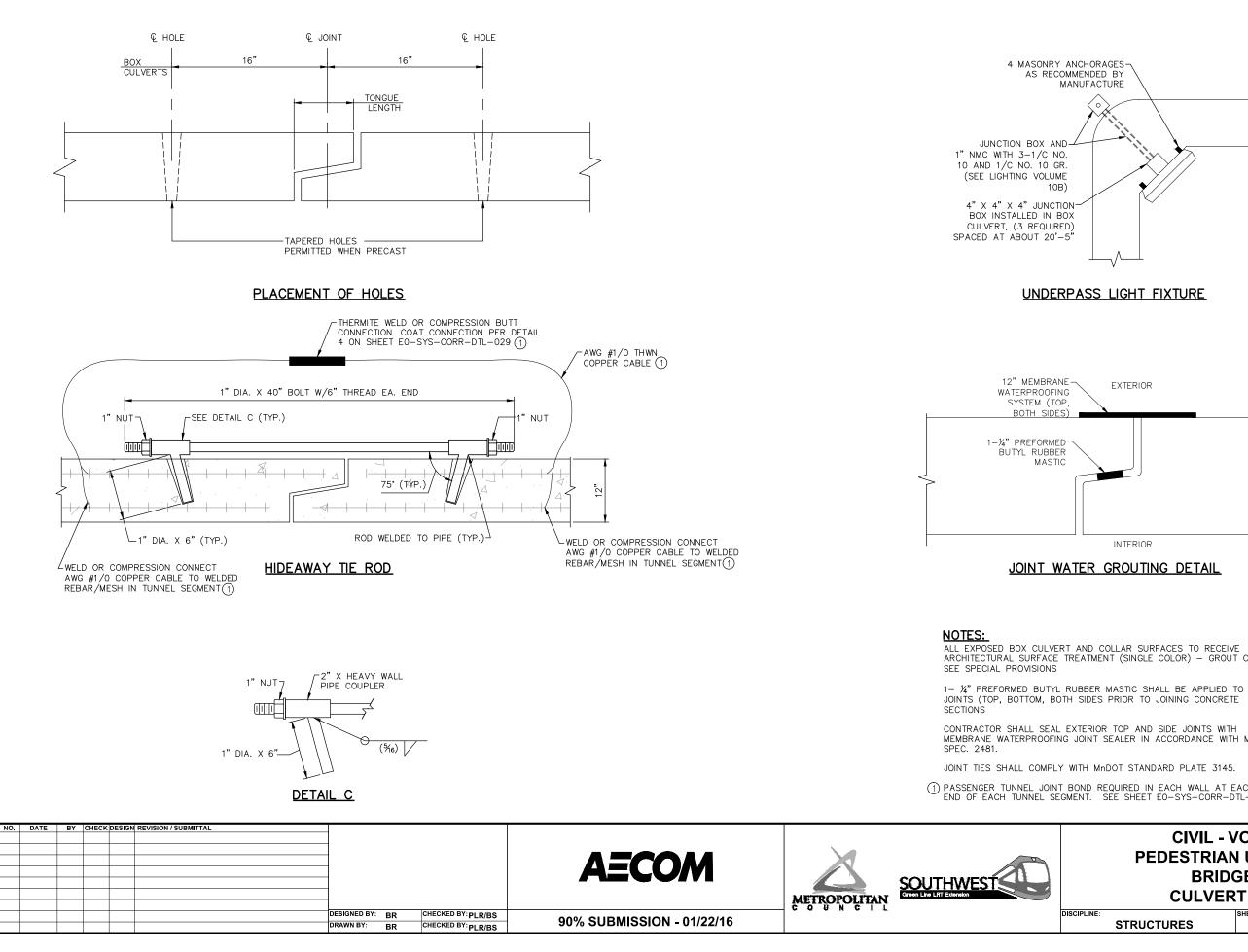
PAYMENT FOR THE DISTRIBUTION SLAB AND SELECT GRANULAR MATERIAL BENEATH THE SLAB SHALL BE CONSIDERED INCIDENTAL.

T DISTRIBUTION SLAB IS USED AS PAVEMENT SURFACE IT MUST BE REDESIGNED PER THE MNDOT PAVEMENT DESIGN MANUAL.

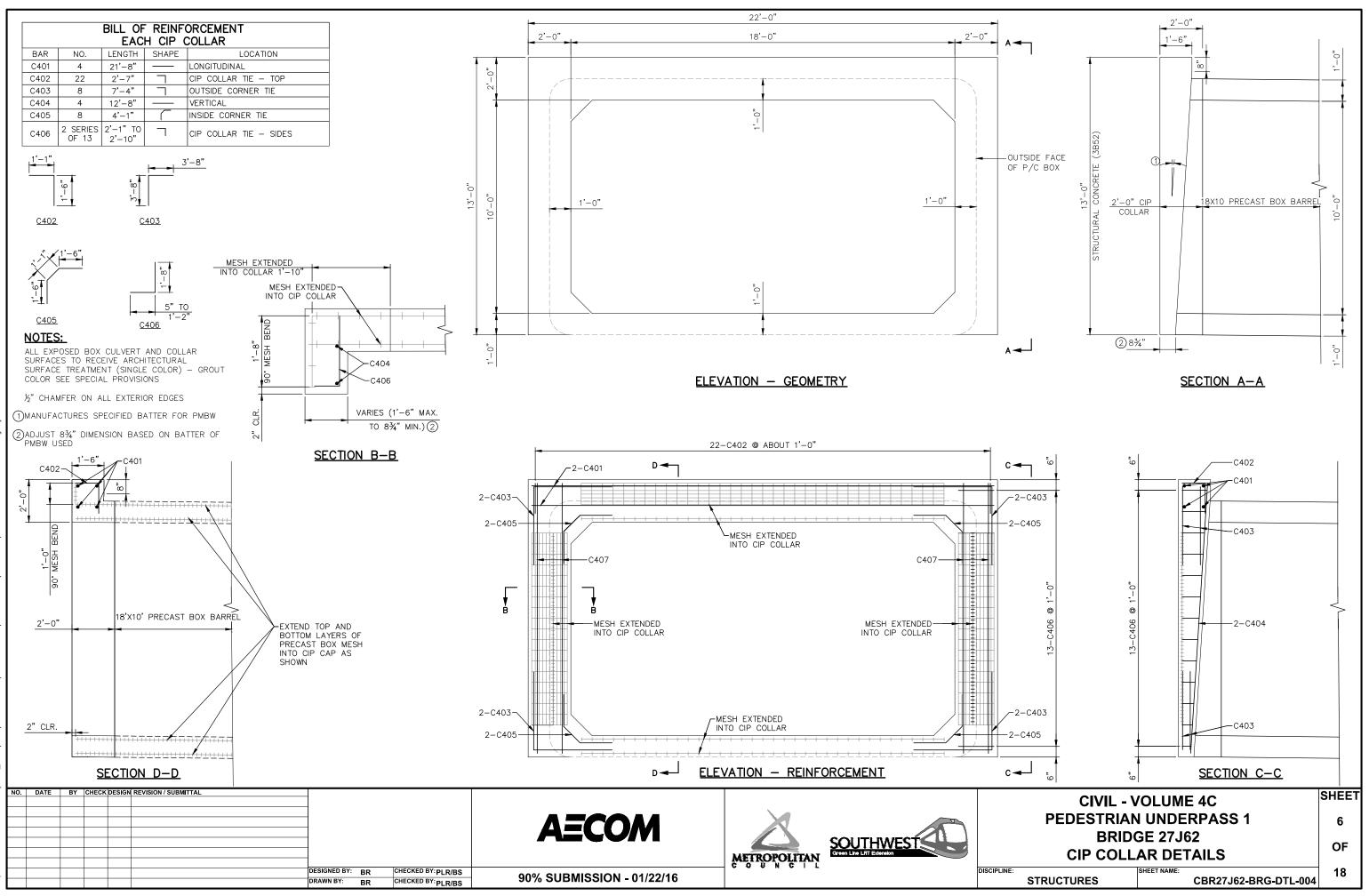
(6) ALL EXPOSED BOX CULVERT SURFACES TO RECEIVE ARCHITECTURAL SURFACE TREATMENT (SINGLE COLOR) - GROUT COLOR SEE SPECIAL PROVISIONS

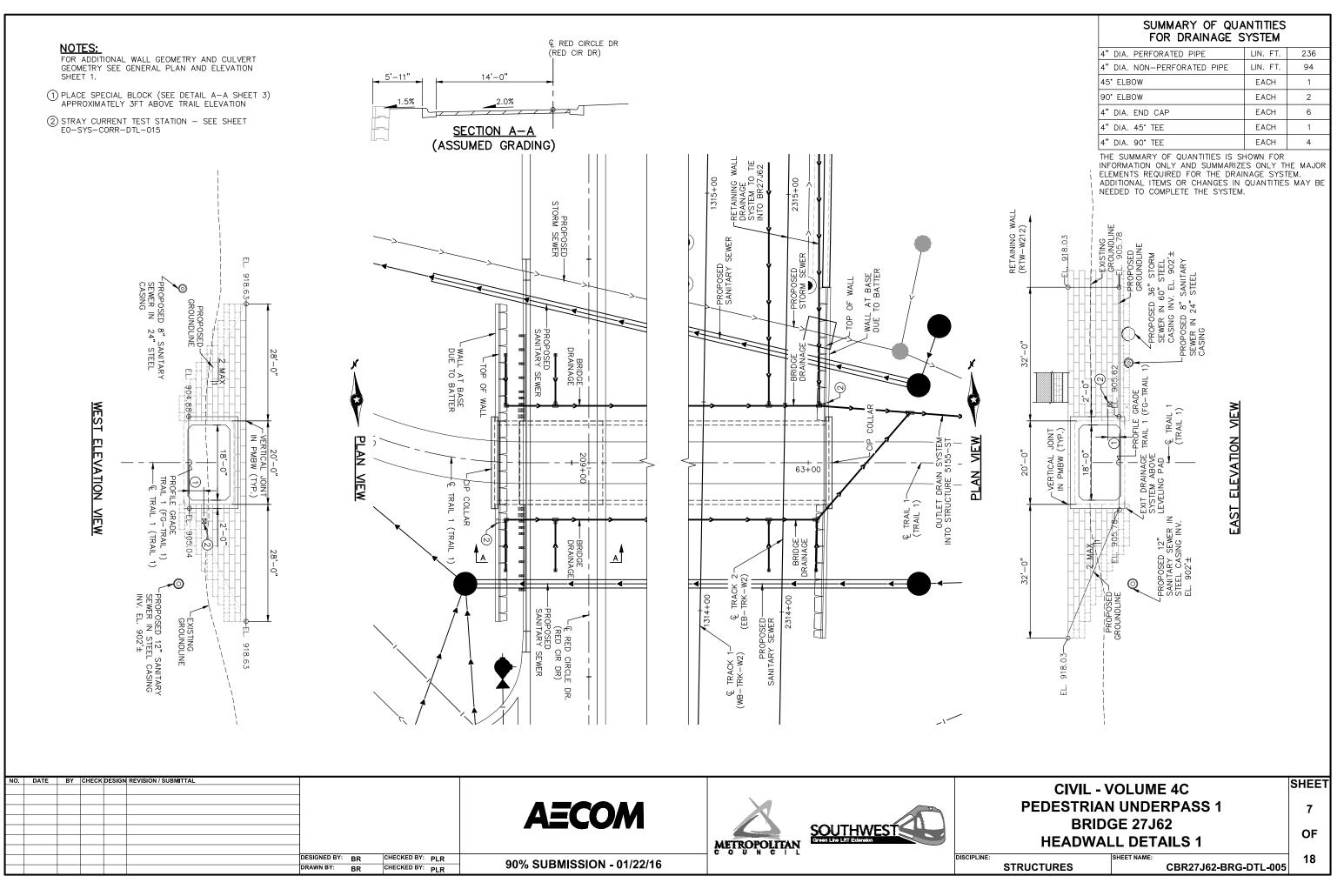
				(4) S⊦	EAR REINFOR	CEMENT
As7 As8			TOP AN	D BOTTOM OF	BARREL	
	LENGTH (FT.)	AREA (IN. <sup>2</sup> /FT.)	LENGTH (FT.)	AREA (IN. <sup>2</sup> /FT.)	MAX. SPG. (IN.)	X (IN.)
	12'-0"	0.29	12'-0"			

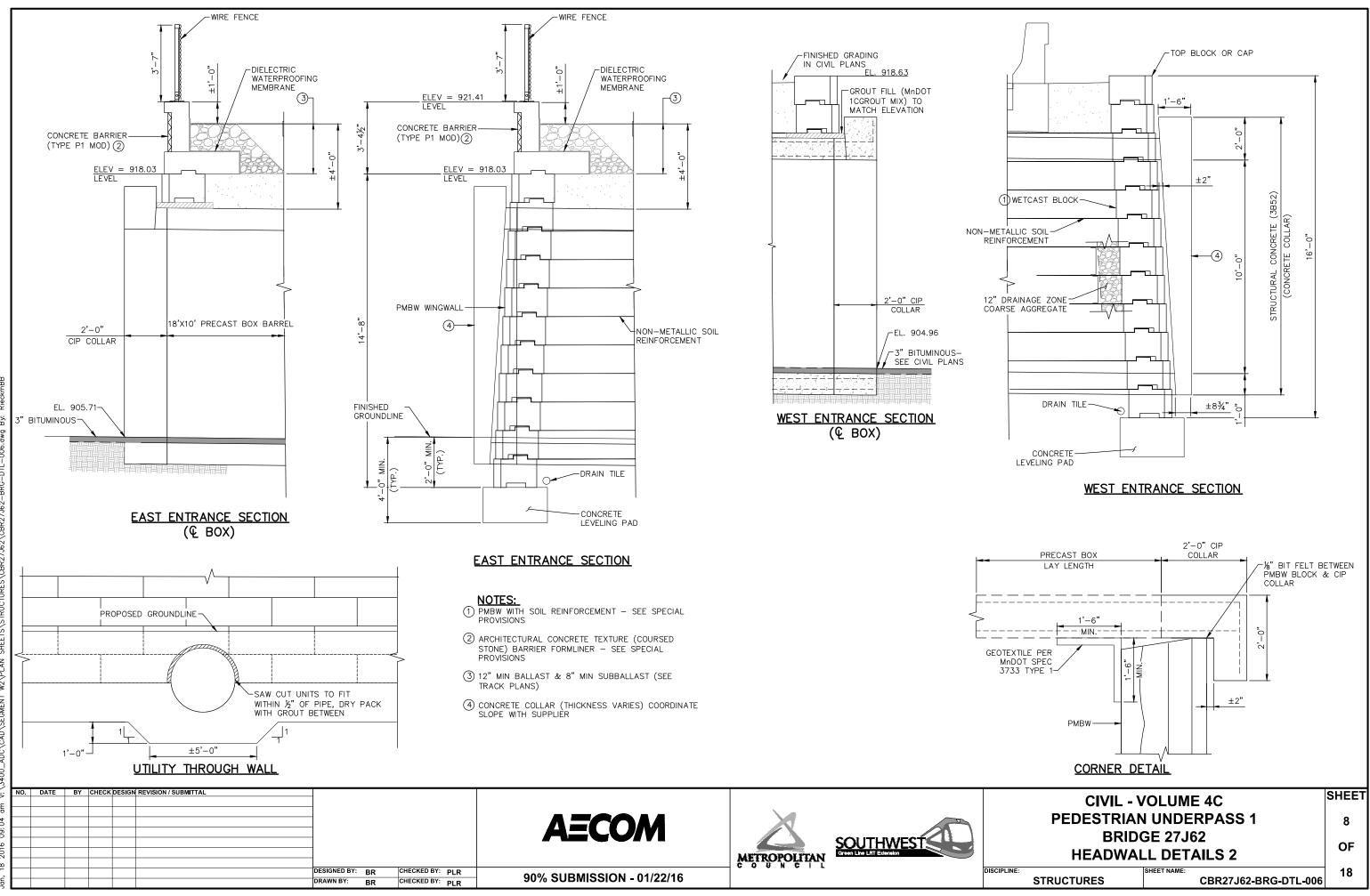
. 2314+35	.75	FIG.	5-395.101(E	B) (MOD)
ETE S	DES: BR CHK: PLR/BS	DR: BR CHK: PLR	APPROVED:	BRIDGE NO.
3	SHEET N	0. 4 OF	18 SHEETS	27J62



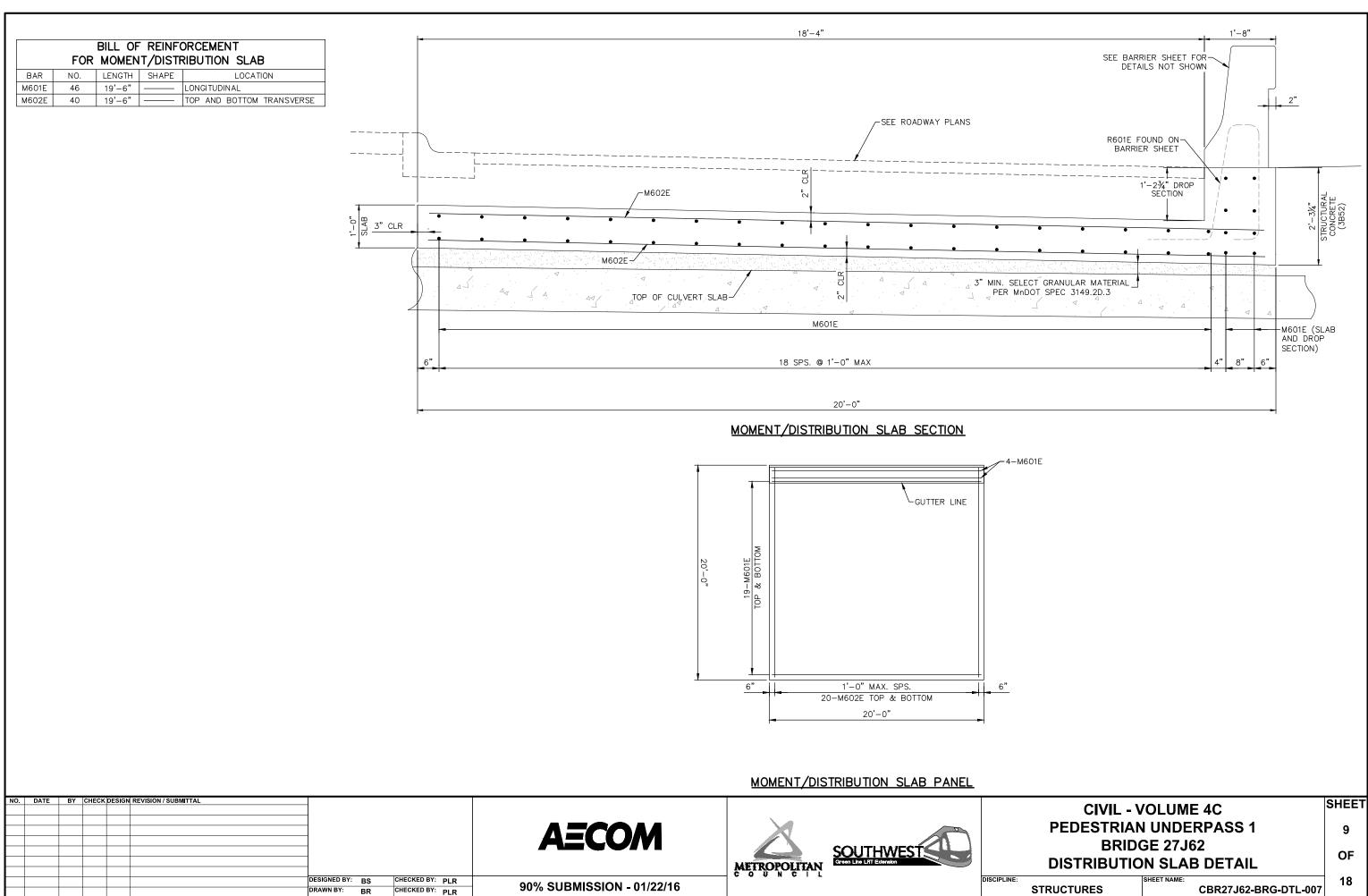
INTERIOR	
R GROUTING DETAIL	
ID COLLAR SURFACES TO RECEIVE TMENT (SINGLE COLOR) – GROUT COLOR	
BER MASTIC SHALL BE APPLIED TO ALL DES PRIOR TO JOINING CONCRETE	
RIOR TOP AND SIDE JOINTS WITH NT SEALER IN ACCORDANCE WITH MnDOT	
H MnDOT STANDARD PLATE 3145. D REQUIRED IN EACH WALL AT EACH T. SEE SHEET EO-SYS-CORR-DTL-015.	
CIVIL - VOLUME 4C	SHEET
PEDESTRIAN UNDERPASS 1 BRIDGE 27J62 CULVERT DETAILS	5 OF
INE: STRUCTURES SHEET NAME: CBR27J62-BRG-DTL-003	18





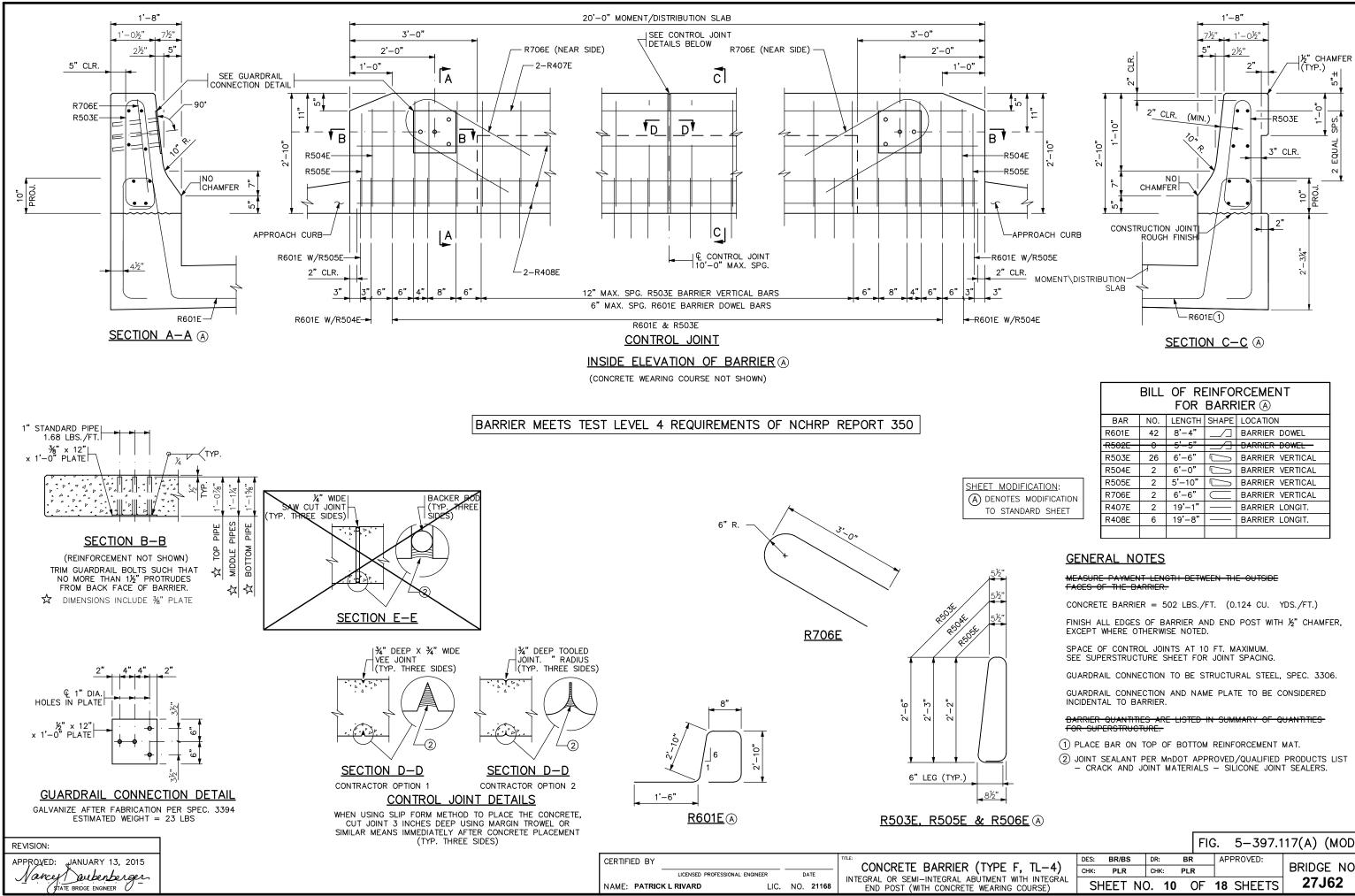


Jan, 18 2016 09:04 am V:\3400\_ADC\CAD\SEGMENT W2\PLAN SHEETS\STRUCTURES\CBR27J62\CBR27J62-BRG-DTL-006.dwg E



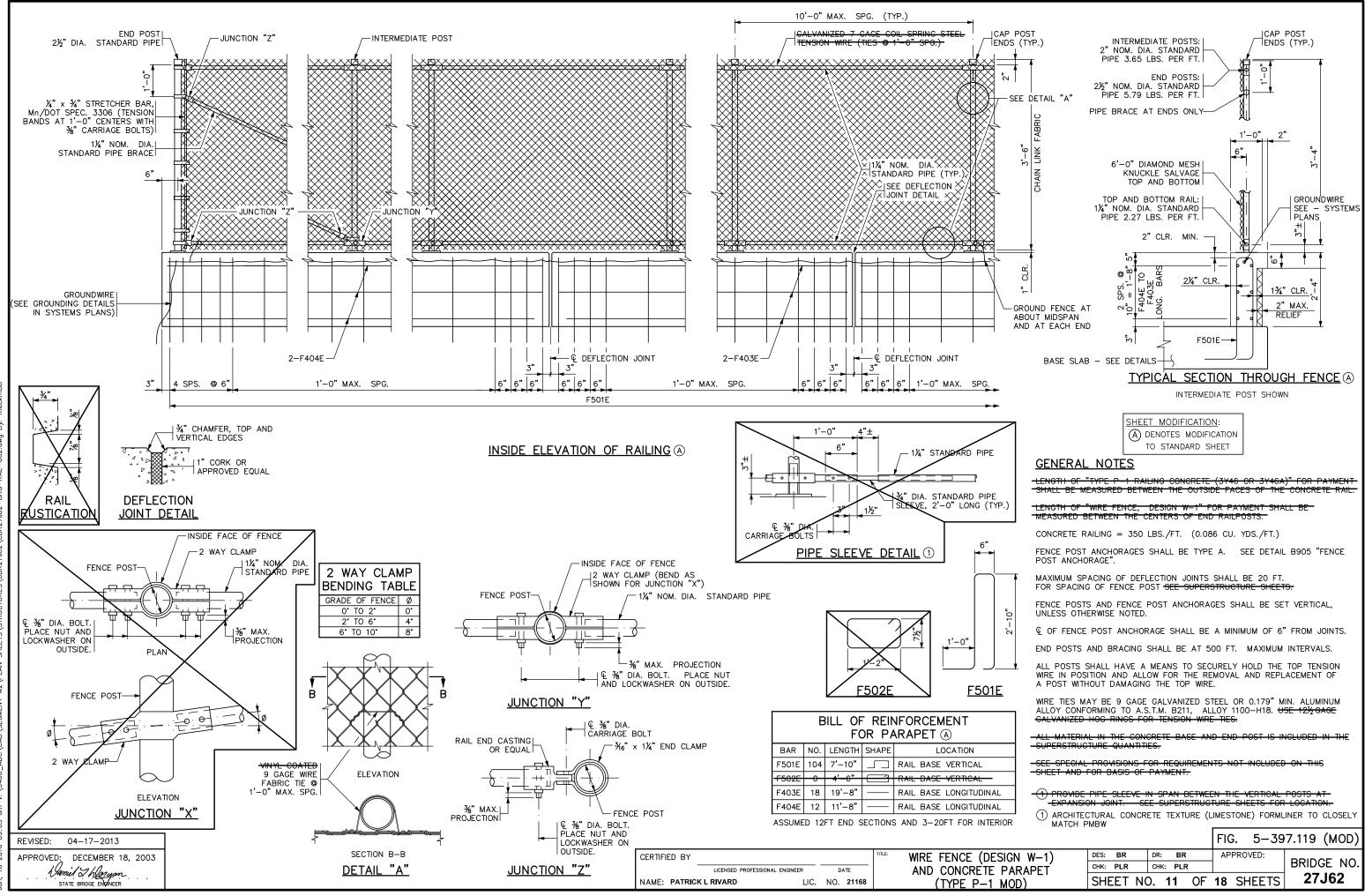
CBR27J62-BRG-DTL-007 STRUCTURES

18

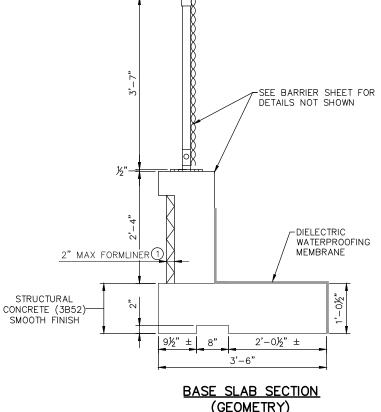


BILL OF REINFORCEMENT FOR BARRIER (A)							
BAR	NO.	LENGTH	SHAPE	LOCATION			
R601E	42	8'-4"		BARRIER DOWEL			
<del>-R502E</del>	0	<del>5'-5"</del>		BARRIER DOWEL			
R503E	26	6'-6"		BARRIER VERTICAL			
R504E	2	6'-0"	Ũ	BARRIER VERTICAL			
R505E	2	5'-10"	Ũ	BARRIER VERTICAL			
R706E	2	6'-6"	$\square$	BARRIER VERTICAL			
R407E	2	19'–1"		BARRIER LONGIT.			
R408E	6	19'-8"		BARRIER LONGIT.			

				FIC	G. 5–397.1	17(A) (MOD)
PE F, TL-4)	DES: CHK:	BR/BS PLR	DR: CHK:	BR PLR	APPROVED:	BRIDGE NO.
NT WITH INTEGRAL RING COURSE)	S⊦	IEET N	0. 10	OF	18 SHEETS	27J62

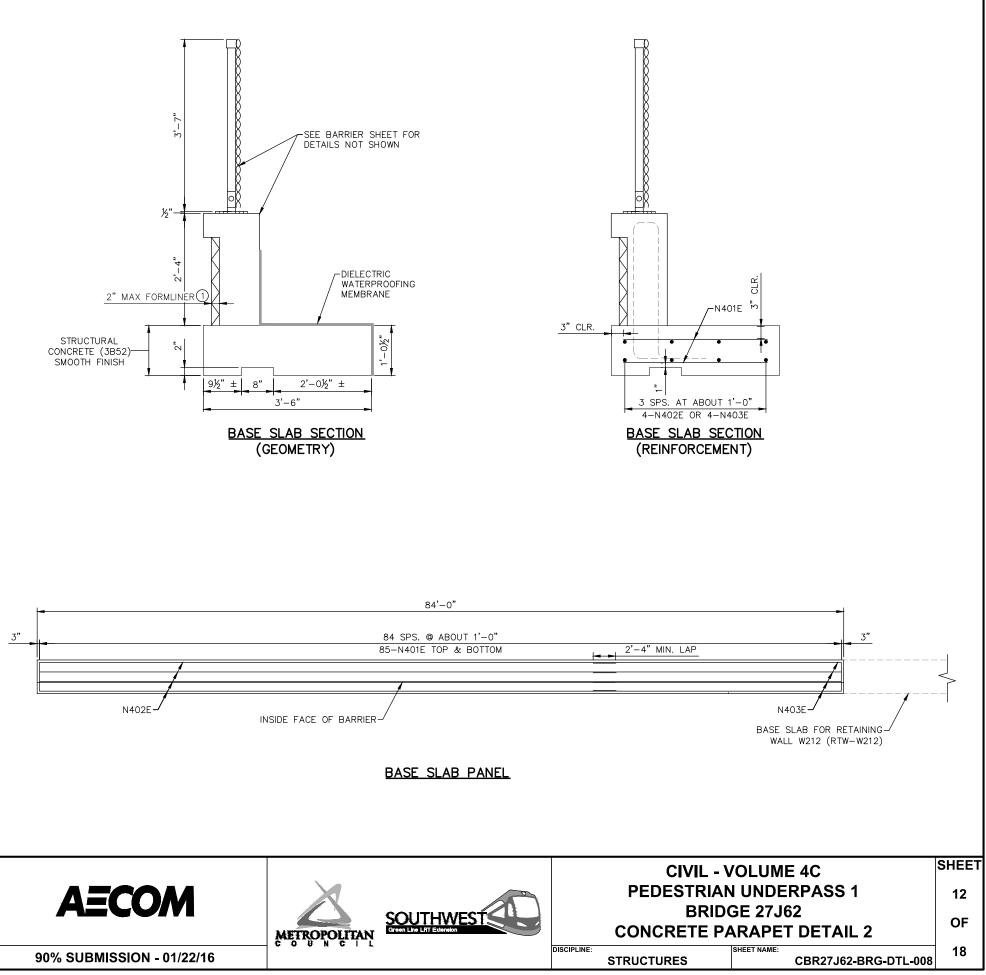


BILL OF REINFORCEMENT FOR BASE SLAB						
BAR	NO.	LENGTH	SHAPE	LOCATION		
N401E	170	3'-0"		TRANSVERSE		
N402E	8	60'-0"		LONGITUDINAL		
N403E	8	25'-11"		LONGITUDINAL		



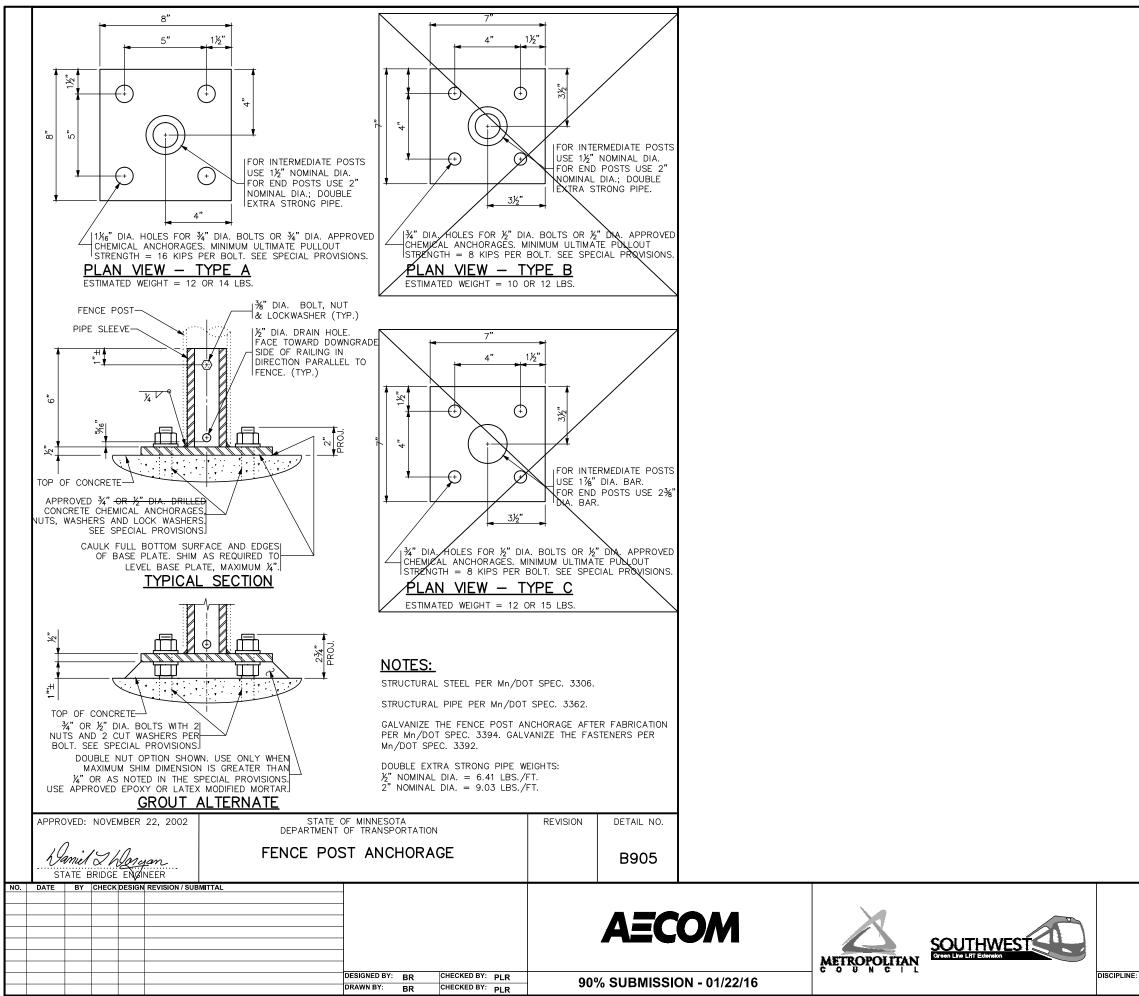
# NOTES:

ARCHITECTURAL CONCRETE TEXTURE (COURSED STONE) BARRIER FORMLINER – SEE SPECIAL PROVISIONS





	0. D4	TE B	BY CHEC	K DESIGN REVISION / SUBMITTAL						T
					_					
					_					
					-					
_					-				SOUTHWEST	
					-			METROPOLITAN	Green Line LRT Extension	
_								COUNCIL		DISCIP
					DESIGNED BY: BR	CHECKED BY: PLR	90% SUBMISSION - 01/22/16			DISCIP
					DRAWN BY: BR	CHECKED BY: PLR	30 /0 30 DIVII33ION = 0 1/22/10			

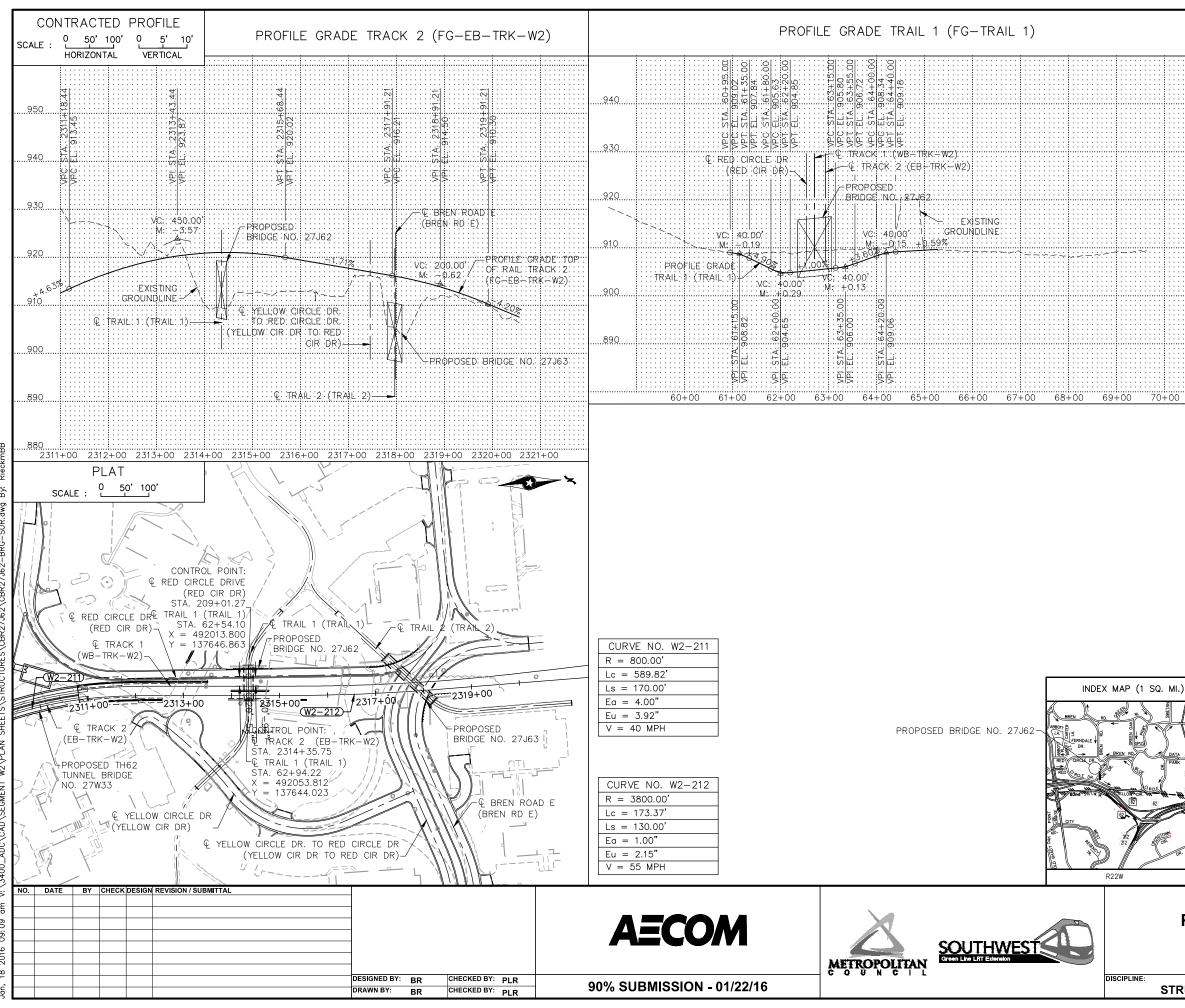


Z

PEDESTRIAN UNDERPASS 1 13 BRIDGE 27J62					
BRIDGE 27J62		CIVIL - V	OLUME 4C	SHEET	
		BRIDGE 27J62			
BRIDGE DETAILS		•••			
STRUCTURES SHEET NAME: CBR27J62-BRG-BDTL	8:			18	

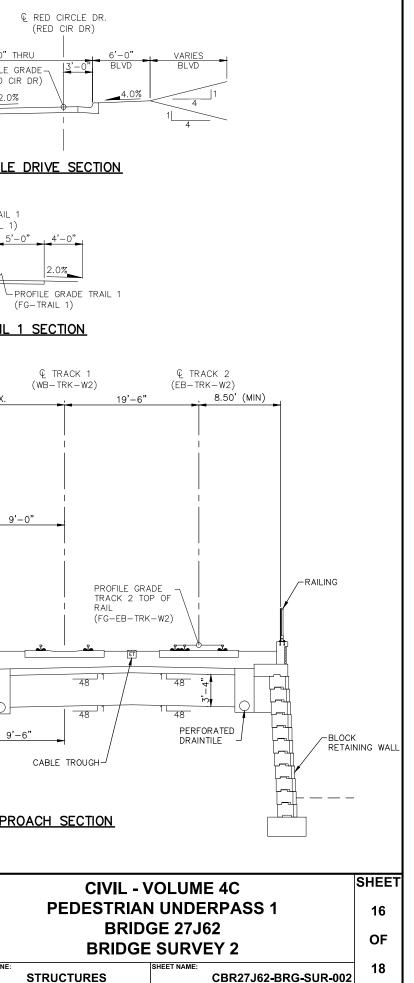
CONCRETE WEARING COURSE	PAINT SYSTEM	OTHER ITEMS ①
LOW SLUMP	Mn/DOT SPECIFICATION NUMBER2478 OR 2479 OR OTHER	(1) UTILITIES ADDED DURING CONSTRUCTION AND SPECIALTY ITEMS.
OTHER	MANUFACTURERNAME AND ADDRESS (CITY, STATE)	FINAL QUANTITIES ENTERED ON SCHEDULE OF QUANTITIES: YES $\Box$ NO $\Box$
EXPANSION JOINTS	PRIME COAT	
JOINT MANUFACTURER	INTERMEDIATE COAT	
MANUFACTURER'S IDENTIFICATION	FINISH COAT	
GLAND MANUFACTURERNAME AND ADDRESS (CITY, STATE)	PLAN QUALITY RATE 1 (AGREE), 2 (NEUTRAL), OR 3 (DISAGREE, PLEASE COMMENT BELOW)	
MANUFACTURER'S IDENTIFICATION		
MFR'S No. AND/OR LETTER DESIGNATION FOR GLAND USED	DIMENSIONING AND DETAILING ADEQUATELY DESCRIBED REQUIRED CONSTRUCTION. BAR LISTS AND QUANTITIES WERE TYPICALLY COMPLETE AND FREE OF ERRORS. SCALE OF DRAWINGS AND OVERALL LEGIBILITY OF LINES AND TEXT WAS GOOD. (SB) SPECIAL PROVISIONS ADEQUATELY DESCRIBED SPECIAL WORK AND PAYMENT.	SUMMARY OF SIGNIFICANT AS-BUILT CHANGES
ELASTOMERIC BEARING PADS	 COMMENTS:	AS-BOILT CHANGES
PAD MANUFACTURERNAME AND ADDRESS (CITY, STATE)	COMIMENTS	
SPECIAL SURFACE FINISH		
SYSTEM: COLOR:		
FINISHING ROADWAY FACES OF BARRIER RAILING	NUMBER OF BRIDGE SUPPLEMENTAL AGREEMENTS: COST: \$	
TYPE: COLOR:	LIST SIGNIFICANT ERRORS OR OMISSIONS IN PLAN DETAILS OR PAY QUANTITIES IN THE SPACE PROVIDED AT RIGHT.	
ANTI-GRAFFITI COATING	BRIDGE REMOVAL / BRIDGE OPENING	
MANUFACTURER	NUMBER OF AND DATE OLD BRIDGE WAS REMOVED (IF APPLICABLE):	
PRODUCT NAME: LOCATION:	BRIDGE NUMBER DATE REMOVED	
	DATE NEW BRIDGE WAS OPENED TO TRAFFIC	
	AS FOSSIBLE. (051) 500-4557	
		THE AS-BUILT INFORMATION WAS ADDED TO THE PLAN BY:
		INSPECTOR(S) SIGNATURE DATE DATE
		CHECKED BY:
EVISION: 10-28-2008	DETAILS	FIG. 5–397.900
PPROVED: SEPTEMBER 26, 2003 (AS N		AS-BUILT BRIDGE DATA DES: DR: APPROVED: BRIDGE NO. CHK: CHK: CHK: BRIDGE NO. SHEET NO. 14 OF 18 SHEETS 27J62

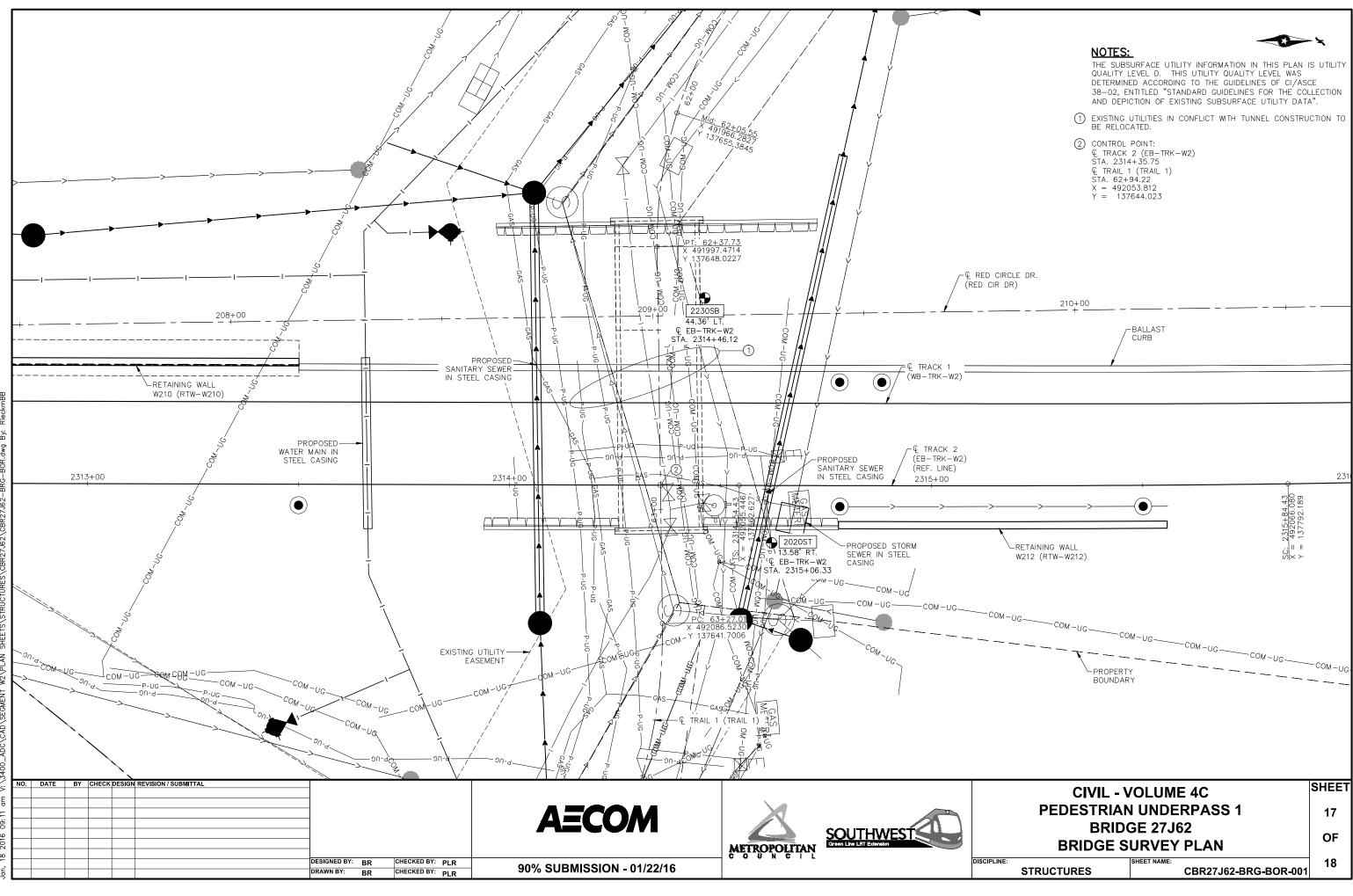
BB



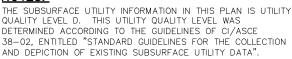
LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE EATURES: WATERFALLS, DAMS, FLOOD 1. SPECIAÌ DEBRIS, SLIDING BANKS, RECREATIONAL BOAT 2. OTHER BRIDGES OR CULVERTS OVER SAME STREAM (PARTICULARLY STRUCTORES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROAD άΥ): GIVEN LOCATION, TYPE, LENGTH, HEIGHT ABOVE HUGH WATER, CROSS-SECTIONAL AREA FTC 3. APPARENT HIGHWATER ELEVATION OBTAINED 4. OTHER DATA: APPROX. VELOCITY OF WATER AT TIME **URVEY** HYDRAULIC ENGINEERS RECOMMENDATION DATE: XX-XX-XXXX OR DITCH DESIGNATION: XXX TRFA DRAINAGE AREA: XXX SQ. MI MAX FLOOD ON RECORD: XXX C.F.S. (XX-XX-XX) MAXIMUM OBSERVED HIGHWATER ELEVATION: XXX.X FT. DESIGN FLOOD (XX TR NED) XXX CI HEADWATER ELEVATION XXX.X F DESIGN MEAN VELOCITY STRUCTURE: X.X F.P.S. TOTAL STAGE INCREASE: 🕅 LOW MEMBER AT OR ABOV EVATION: XXX.X FT WATERWAY AREA REQUIRED BELOW ELEN XXX.X = XXX SQ. FT. AT RIGHT ANGLES TO CHANNEL BASIC FLOOD (100 🌶 FREQ.): XXX C.F.S. 70+00 HEADWATER ELEVATION: XXX.X FT. TOTAL STAGE INCREASE: X.X FT MEAN VELOCITY THROUGH STRUCTURE: X.X F.F ELEVATION: XXX FT. SKEW ANGLE: XX FLOWLINE/ STMATED PRELIMINARY TOTAL SCOUR AT PIER EL. XXX.X (5 YR.FREQ.) SCOUR CONFIRMATION RECOMMENDATION XXXX TOTAL SCOUR AT FREQ.) XXX.XX OBTAIN FROM HYDRAÙLIC ENGINEEF BRIDGE SURVEY SHEETS MADE FROM SURVEY PERFORMED BY RANI ENGINEERING MNDOT NAME: 2773A NORTHING (HEN. COUNTY COORDINATES): 137082.117 EASTING (HEN. COUNTY COORDINATES): 490527.817 BENCHMARK ELEVATION (NAVD88): 963.180 MONUMENT DESCRIPTION: B.M. DISK IN BRIDGE ABUTMENT LOCATION: IN EDEN PRAIRIE, 1.1 MILES EAST ALONG T.H. HWY 62 FROM JCT. OF T.H. 62 & 1-494 MONUMENT NAME: CONTROL POINT 6 NORTHING (HEN. COUNTY COORDINATES): 142016.680 EASTING (HEN. COUNTY COORDINATES): 489989.960 BENCHMARK ELEVATION (NAVD88): 932.956 MONUMENT DESCRIPTION: CAST IRON MONUMENT LOCATION: 0.2 MILES EAST ALONG SMETANA ROAD FROM JCT. OF SMETANA ROAD & NOLAN DR BRIDGE SURVEY 0.6 MILES WEST OF JCT. T.H. 62 AND T.H. 169 PEDESTRIAN UNDERPASS UNDER SOUTHWEST LIGHT RAII TRACKS SEC 36 T 117 N R 22 W CITY OF MINNETONKA HENNEPIN COUNTY BRIDGE 27J62 SHEE **CIVIL - VOLUME 4C PEDESTRIAN UNDERPASS 1** 15 **BRIDGE 27J62** OF **BRIDGE SURVEY 1** SHEET NAME 18 STRUCTURES CBR27J62-BRG-SUR-001

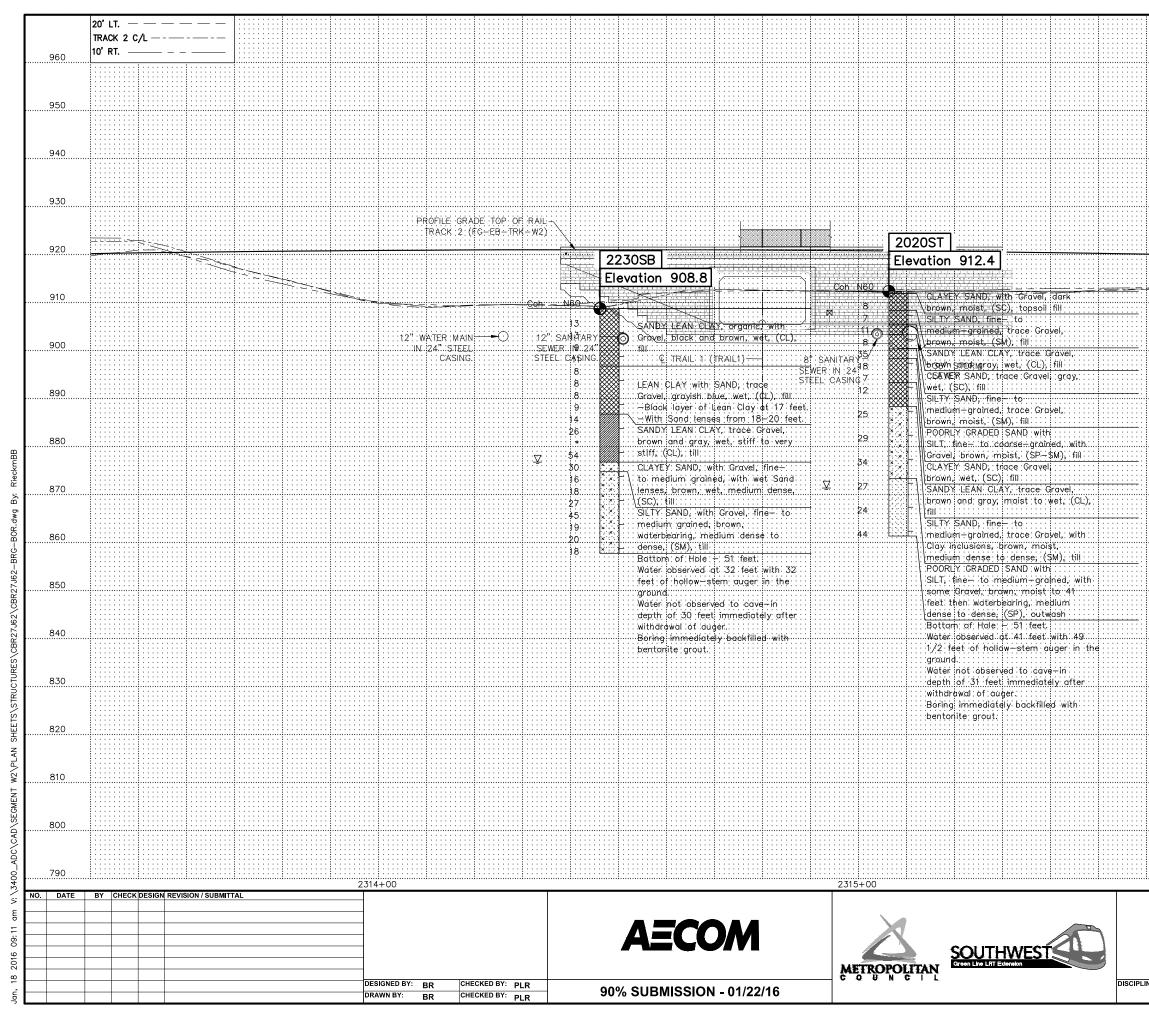
	· · · · · · · · · · · · · · · · · · ·	_E DR (FG-RED CIR DR)	ILE GRADE RED CIRC	PROFILE		
VARIES 6'-0" 18 BLVD BLVD PR( (FG-			C: 51A. 206+80.00 20. EL. 924.70 1. 51A. 208+00.00 1. 51A. 208+00.00	y 1 1 1 2 1 0 *	VC: 90:00"	<u>940</u> 9 <u>30</u>
TYPICAL RED CIF	95ED E. NO: 27J63 XISTING ROUNDLINE		SS SS SS SS SS SS SS SS SS SS	T EL 936.17	C: STA. 203+65.0 C: EL 938.74 514.:204+16.00 514.:204+16.00 E. 938.47 T: STA. 204+55.0	920
Q (TF 4'-0" 2.0% 1.0%	RAIL:2::: AL:2):	PROPOSED: BRIDGE: NO: 27J62:				910 900
TYPICAL TR		+00 210+00 211+00 212+00	+00 207+00 208+00 209	205+00 206+00	204+00 2	
<u>− 16'−0"</u>						
BALLAST CURB						
1 1 1.5 PERFORATED DRAINTILE						
TYPICAL TRACK A						
			NTTAL	ESIGN REVISION / SUBMITTAL	ATE BY CHECK DESIG	NO. DAT
	AECOM					
	90% SUBMISSION - 01/22/16	DESIGNED BY: BR CHECKED BY: PLR DRAWN BY: BR CHECKED BY: PLR				



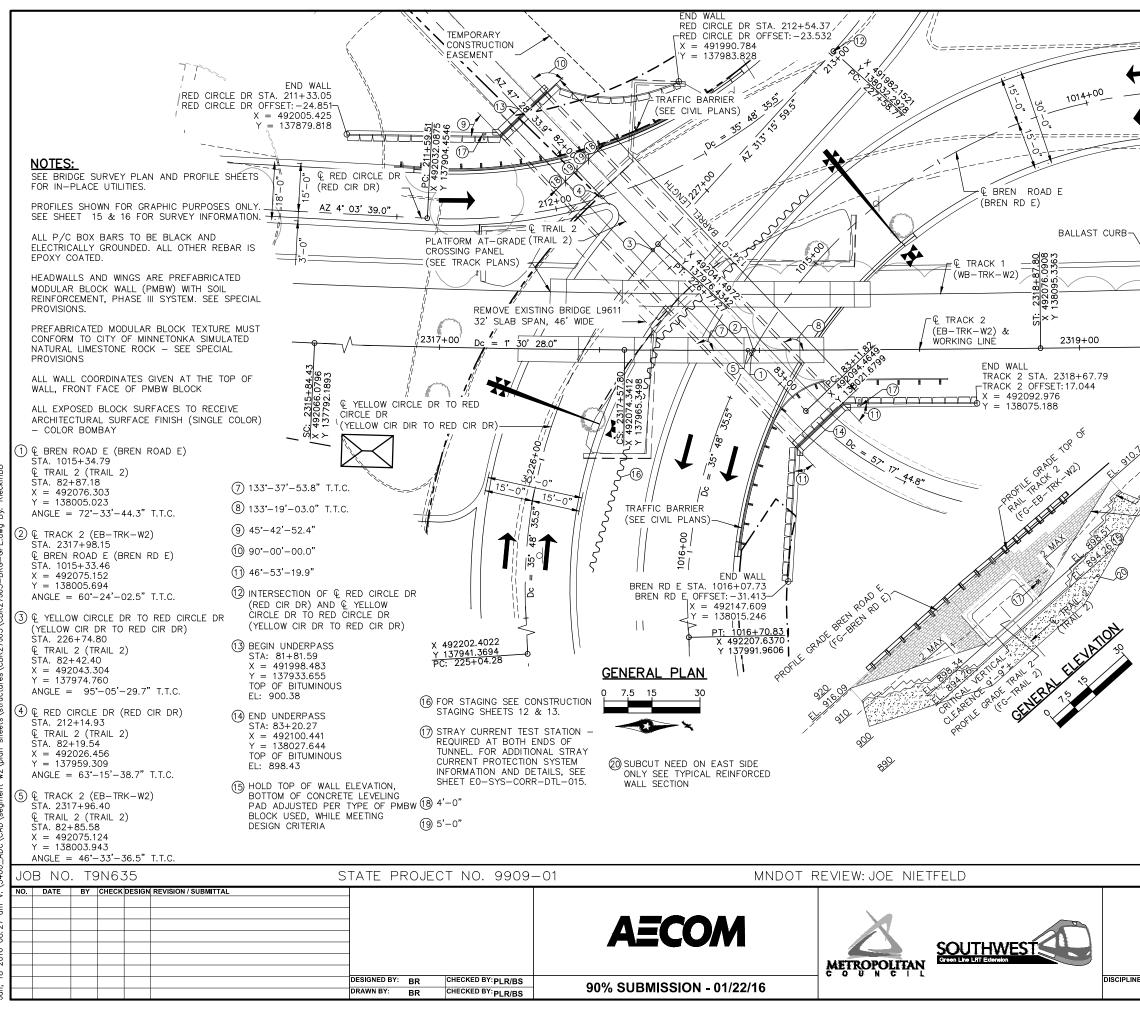




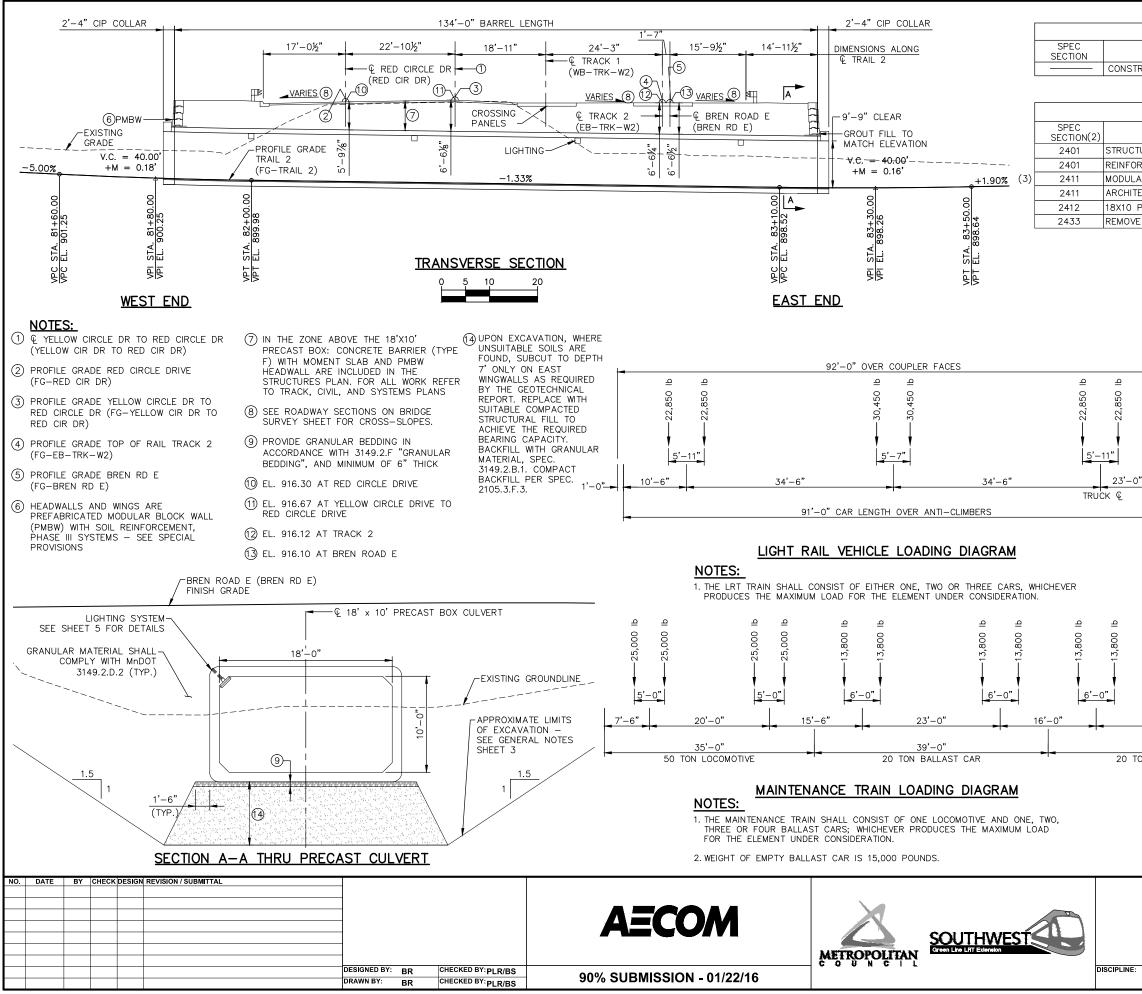




	930 920 920 910 900
	890 880 880 870
	860 850 840
	830 820 810
	800 790 2316+00
PEDESTRIA BRID	VOLUME 4C SHEI N UNDERPASS 1 18 GE 27J62 OF RVEY PROFILE 18



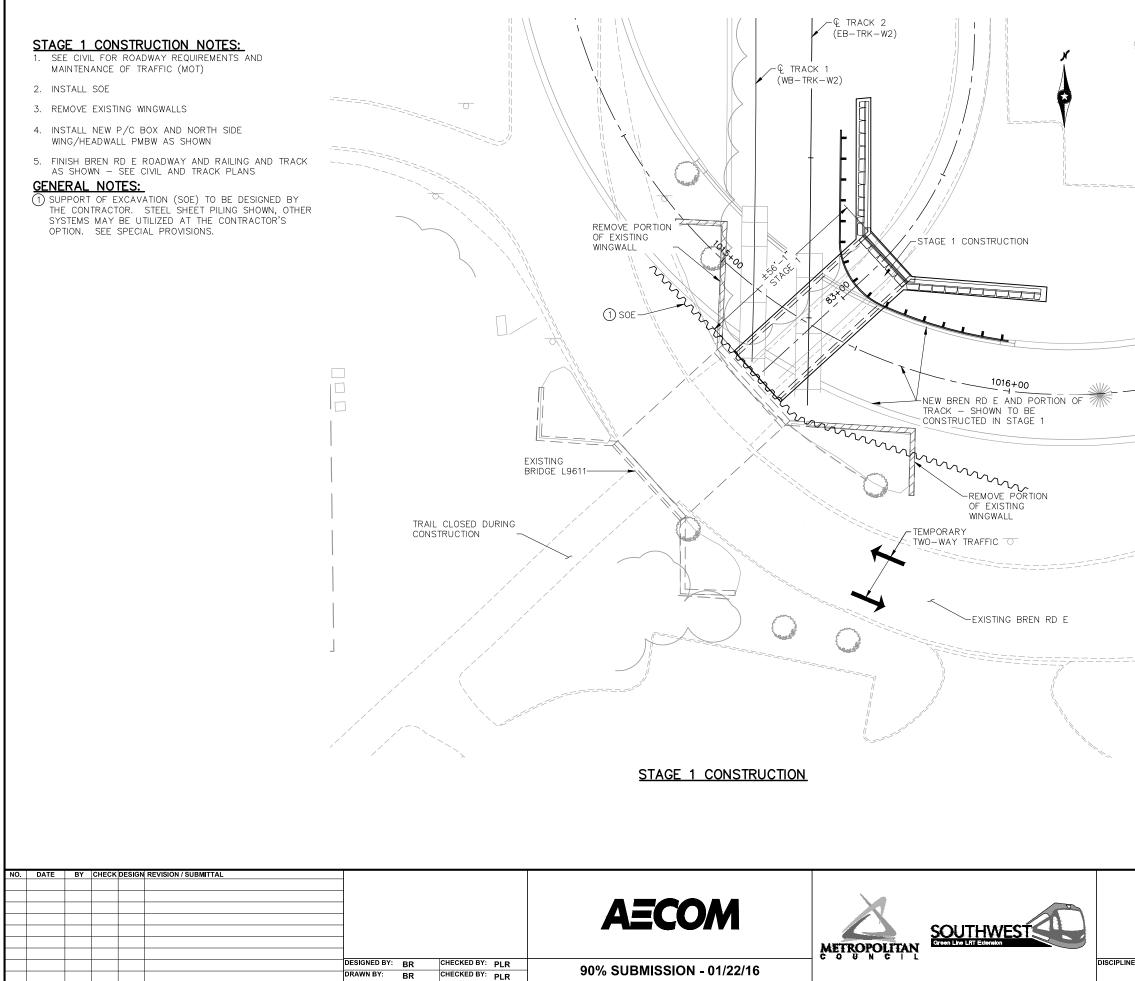
	DESIGN DATA				
	2014 AASHTO LRFD BRIDGE DESIGN SPECIFICA 7TH EDITION AND CURRENT INTERIMS	TIONS			
	METRO LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 4.0)				
<b>@</b>	LOAD AND RESISTANCE FACTOR DESIGN METHOD				
==-00887 ==	HL-93 LIVE LOAD (ROADWAY)				
013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 013+6 000000000000000000000000000000000000	LRV & MV LOAD DIAGRAM SHOWN ON SHEET	2			
4919 <u>C: 10</u>	RISE = 10'-0" SPAN = 18'-0"				
×≻⅊	SKEW ANGLE = VARIES MINIMUM DESIGN FILL HEIGHT = 2'-6"				
	• MAXIMUM DESIGN FILL HEIGH = 6'-6" UNIT WEIGHT FILL = 120.0LBS/	CU.FT.			
Λ	ANGLE INTERNAL FRICTION = 30.00DEG fy = 60000 P.S.I. REINFORCEMENT BARS				
	fy = 65000  P.S.I. STEEL FABRIC f'c = 5000  P.S.I. CONCRETE				
	DESIGN SPEED: 55 MPH (LRT) 25 MPH (ALL ROADS)				
v	LIST OF SHEETS				
	NO.         DESCRIPTION           1         GENERAL PLAN AND ELEVATION				
-	2 LOADING DIAGRAM				
<i>o</i> v	3–4 CONSTRUCTION STAGING PLAN 5 REINFORCED WALL SECTION				
9 <u>1</u> /	6 PRECAST CONCRETE BARREL DETAIL	S			
all all all	7 CULVERT DETAILS				
_ <u>9</u> 99	8-11         CIP COLLAR DETAILS           12-13         HEADWALL DETAILS				
9 / 4 gg/	14 AS-BUILT BRIDGE DATA				
GRADI	15–16 BRIDGE SURVEY 17 BRIDGE SURVEY PLAN				
STINGEDINE	18 BRIDGE SURVEY PROFILE				
A CINC RADE BED	2040 PROJECTED TRAFFIC VOLUMES				
, Q.	BREN ROAD EAST RED CIRCLE DI ROADWAY OVER ROADWAY OV				
	AADT 7000 5200				
	DHV 800 680				
	ADTT 140 105				
	YELLOW CIRCLE DRIVE TO RED CIRCLE D	RIVE			
	ROADWAY_OVER AADT 2500				
	DHV 350				
	ADTT 50				
	BRIDGE NO. 27J63				
	SOUTHWEST LRT OVER TRAIL 2 0.6 MI. W OF JCT. T.H. 62/T.H. 169 IN MINNI	ETONKA			
	134'-O" BOX CULVERT RED CIRCLE DRIVE, YELLOW CIRCLE DRIVE 1 CIRCLE DRIVE, BREN ROAD EAST, AND LRT TRAIL 2				
	BRIDGE I.D. NO. 113				
	GENERAL PLAN AND ELEVAT	ION			
	SEC 36 T117N R22W CITY OF MINNETONKA HENNEPIN COL	INTY			
CIVII	- VOLUME 4C	SHEET			
	AN UNDERPASS 2	1			
	IDGE 27J63	'			
	AN AND ELEVATION	OF			
STRUCTURES	SHEET NAME: CBR27J63-BRG-GPE-001	18			



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SCHEDULE OF QUANTITES	1	
ITEM	UNIT	QUANTITY
NSTRUCT BRIDGE 27J63	LUMP SUM	LS
	•	
		1
COMPONENT ITEM SUMMARY (BR2	7J63)	
COMPONENT ITEM	UNIT (1)	QUANTITY(1)
UCTURAL CONCRETE (3B52)	CU YD	17
NFORCEMENT BARS	POUNDS	430
DULAR BLOCK RETAINING WALL	SQ FT	2047
CHITECTURAL SURFACE TREATMENT (SINGLE COLOR)	SQ FT	2047
10 PRECAST CONCRETE BOX CULVERT	LIN FT	134
IOVE BRIDGE L9611	EACH	1
(1) QUANTITIES LISTED FOR THE CON SUM BRIDGE 27J63 ITEM ARE FO ANY ADDITIONAL ITEMS OR CHAN SHALL BE PROVIDED BY THE CO COMPENSATION.	OR INFORMATION	AL PURPOSES. TIES REQUIRED
(2) MEASUREMENT AND PAYMENT FO PART OF THE LUMP SUM PAYME REFER TO MNDOT STANDARD SP PROVISION FOR TECHNICAL SPEC ALL PROVISIONS OTHER THAN MI REQUIREMENTS.	NT FOR THE BR ECIFICATION OR IFICATION REQU	RIDGE 27J63. SPECIAL IREMENTS FOR
(3) CONCRETE LEVELING PAD SHALL 1G52. VOLUME NOT INCLUDED IN		
CONSTRUCTI THE 2016 EDITIO DEPARTMENT OF SPECIFICATIONS GOVERN.	N OF THE MINN TRANSPORTATIO	ESOTA DN "STANDARD
	DIGITS OF A FO THE BAR SIZE. ( "E" SHALL BE	BARS MARKED EPOXY COATED
THE SUBSURFAC PLAN IS UTILITY QUALITY LEVEL V THE GUIDELINES "STANDARD GUID AND DEPICTION ( DATA".	QUALITY LEVEL WAS DETERMINED OF CI/ASCE 38 ELINES FOR THE	D. THIS UTILITY ACCORDING TO -02, ENTITLED
23'-0" 8'-0"		
0 TON BALLAST CAR		

<b>CIVIL - VOLUME 4C</b>				
PEDESTRIAN UNDERPASS 2				
BRIDGE 27J63				
LOADING DIAGRAM				
STRUCTURES	SHEET NAME: CBR27J63-BRG-GPE-002	18		



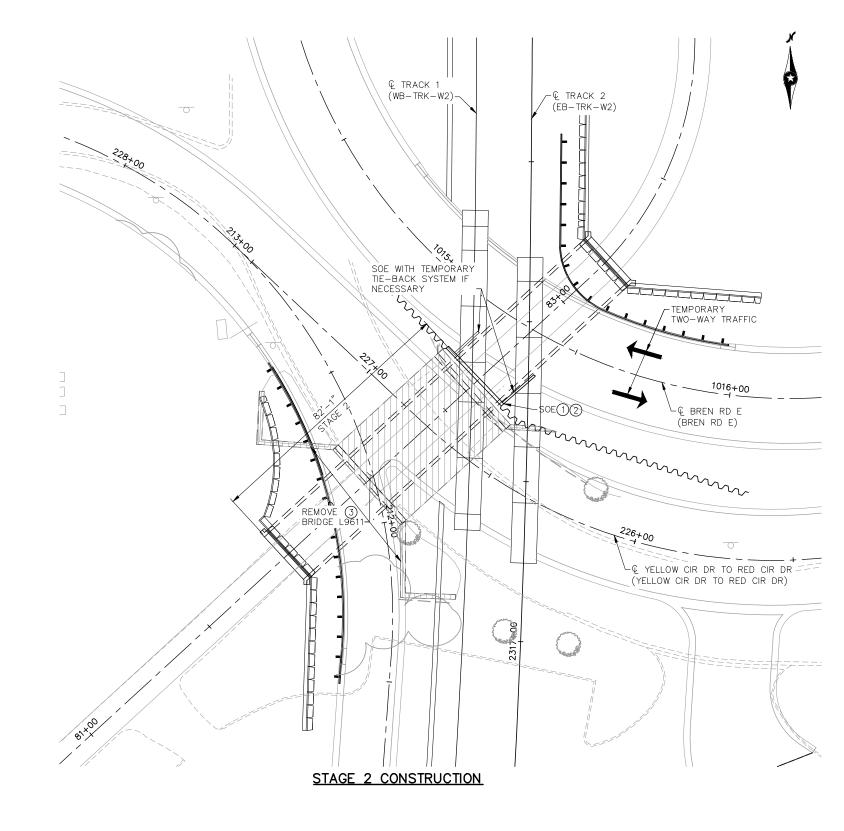
+ -									
- <del>0</del> -									
	SHEET								
CIVIL - VOLUME 4C PEDESTRIAN UNDERPASS 2 BRIDGE 27J63									
INE: STRUCTURES SHEET NAME: CBR27J63-BRG-DTL-0	18 11								

# STAGE 2 CONSTRUCTION NOTES:

- 1. TEMPORARY TWO-WAY TRAFFIC ON BREN RD E
- 2 PROVIDE WALER AND NEW SOE OVER STAGE I CULVERT
- (3) REMOVE EXISTING BRIDGE L9611 INCLUDING SOUTH WINGWALLS.
- 2. INSTALL NEW P/C BOX AND SOUTH SIDE WING/HEADWALL PMBW AS SHOWN
- FINISH GRADING YELLOW CIR DR TO RED CIR DR AND RED CIRCLE DRIVE AND TRACK – SEE CIVIL AND TRACK PLANS
- 4. REMOVE SOE AND COMPLETE GRADING

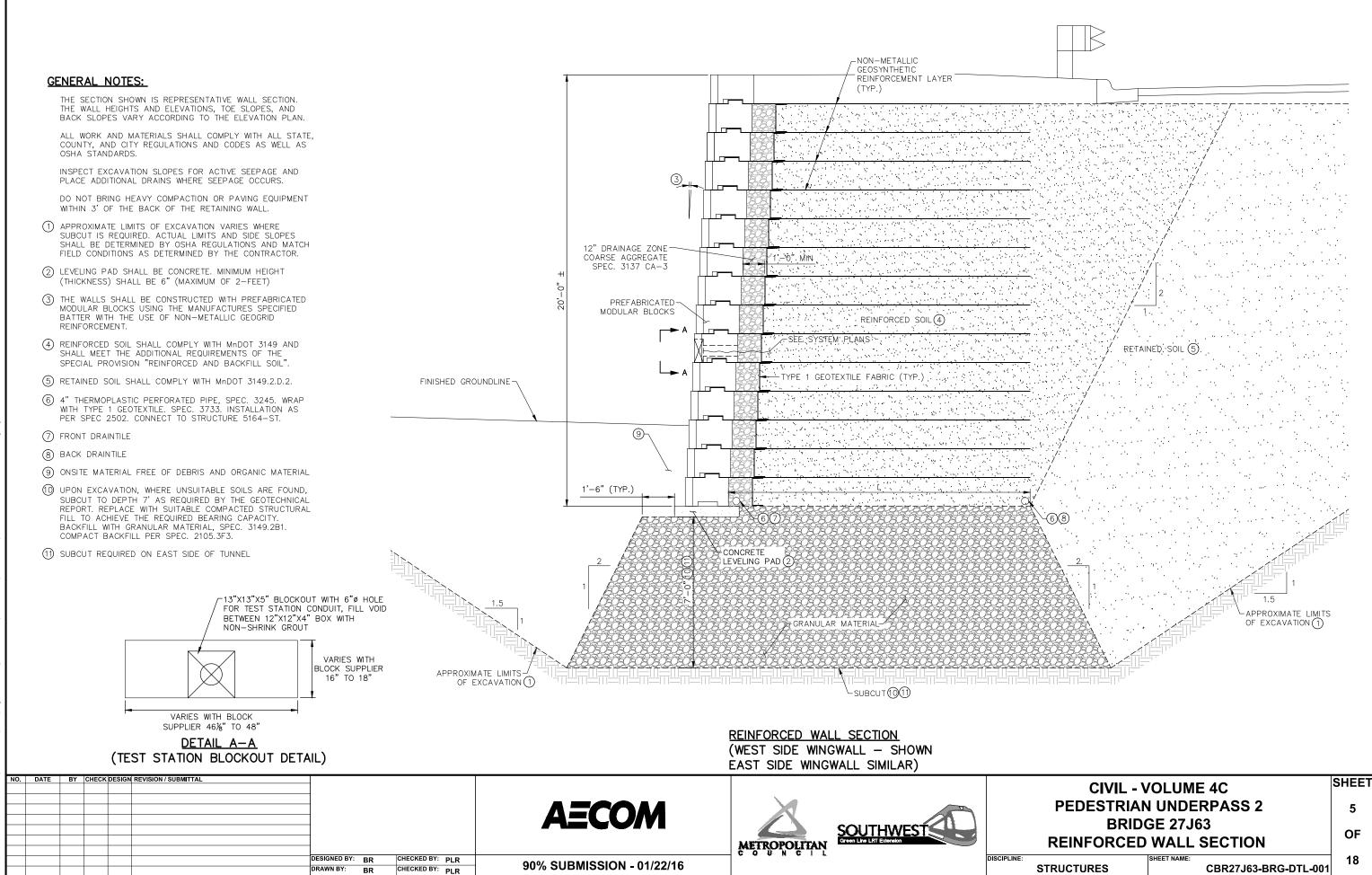
### GENERAL NOTES:

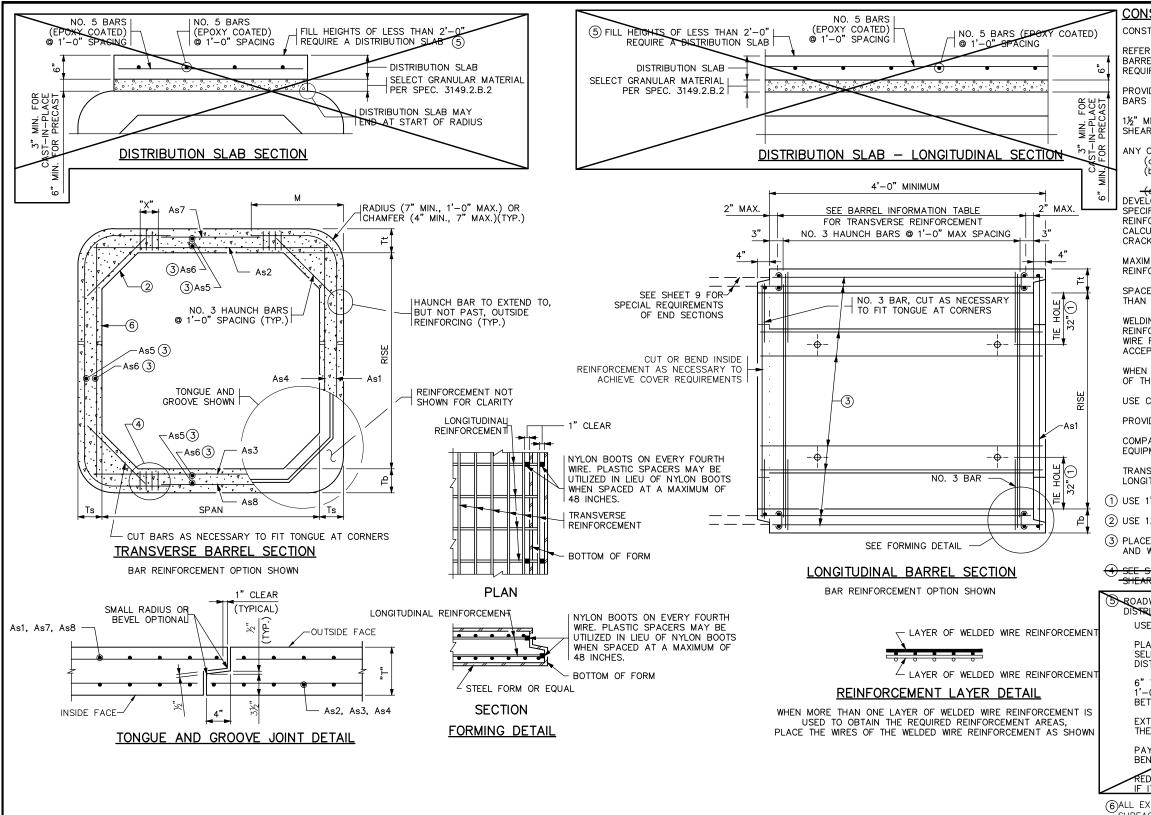
(1) SUPPORT OF EXCAVATION (SOE) TO BE DESIGNED BY THE CONTRACTOR. STEEL SHEET PILING SHOWN, OTHER SYSTEMS MAY BE UTILIZED AT THE CONTRACTOR'S OPTION. SEE SPECIAL PROVISIONS.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL						
								AELOMI			
										SOUTHWEST	
									LAPTROBOL TTANT	Green Line LRT Extension	
						1			METROPOLITAN		
						DESIGNED BY: BR	CHECKED BY: PLR				DISCIP
						DRAWN BY: BR	CHECKED BY: PLR	90% SUBMISSION - 01/22/16			

CIVIL - VOLUME 4C									
PEDESTRIAN UNDERPASS 2									
BRIDGE 27J63									
CONSTRUCTION STAGING PLAN 2									
IPLINE: SHEET NAME:	18								
STRUCTURES CBR27J63-BRG-DTL-012	2								





	BARREL INFORMATION TABLE * * *																											
			fc	OVERFILL	OVERFILL	DISTRIBUTION SLAB	RECESSED TIE RODS					WEIGHT		WELDED WRE REINFORCEMENT         (4) SHEAR REINFORCEMENT           As1         As2         As3         As4         As7         As8         TOP AND BOTTOM OF BARREL														
	LOCATION	SIZE	(P.S.I.)	LIMITS (FT.)	REQUIRED		SPAN (FT.)	RISE (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)	(LBS./FT.)	AREA (IN. <sup>2</sup> /FT.)	As1 LENGTH (FT.)	M (FT.)	AREA (IN. <sup>2</sup> /FT.)	LENGTH (FT.)	AREA (IN. <sup>2</sup> /FT.)	MAX. SPG. (IN.)	X (IN.)								
	2317+96.40	18X10	5000	6'-6"	NO	YES	18	10	12	12	12	9500	1.19	25'-10"	7'-2"	1.43	18'-6"	1.48	18'-6"	0.29	10'-6"	0.29	12'-0"	0.29	12'-0"			
REVISI	* ALL CLASS 1 CULVERTS WITH FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. IF A DISTRIBUTION SLAB IS NOT REQUIRED, INDICATE "NO" IN THIS BOX. STATE PROJ. NO 9909-01 TRACK 2 STA. 2317+96.40 FIG. 5-395.101(B) (MOD)																											
APPRO	VED: MARCH	24, 2011	***	SEE STAND BOX CULVER	STRIAN CULVER DARD PLATE 31 RTS WITH SPANS	45. IF REG FROM 6 TO	UIRED, 14 FT.	INDICA ARE D	TE "YE ESIGNED	S"IN FOR H	THIS B L-93 L	OX. (TOP AN VE LOADS (A)	D BOTTOM A ASHTO LRFD 3	AS SHOWN 3.6.2.1)	CERTIFIED		NSED PROFESSION		DATE	TITLE:	PRECAST	CONCRE	ĘTE	DES: CHK: F	BR DR PLR/BS CH	: BR K: PLR/BS	APPROVED:	BRIDGE N
N0	STATE BRIDGE E	enberg Engineer	en		ING THE DESIGN								R HL-93 LIV	E LOADS	NAME: PA	TRICK L RIV			NO.21168			L DETAIL AL DESIGN)	5	SH	EET NO.	6 OF	18 SHEETS	27J63

### CONSTRUCTION NOTES

CONSTRUCT CULVERTS PER SPEC. 2412 EXCEPT AS NOTED.

REFER TO THE GENERAL PLAN AND ELEVATION SHEET FOR THE DISTANCE BETWEEN BARRELS OF ADJACENT BOXES AND TO STANDARD FIGURE 5-395.115 FOR MATERIAL REQUIREMENTS FOR FILL BETWEEN ADJACENT BOXES.

PROVIDE WELDED WIRE REINFORCEMENT, SHEAR REINFORCEMENT AND REINFORCEMENT BARS PER THE APPLICABLE REQUIREMENTS OF AASHTO M259

1%" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED: (a) 1 OR 2 LAYERS OF WELDED WIRE REINFORCEMENT OR (b) 1 LAYER OF WELDED WIRE REINFORCEMENT AND 1 LAYER OF REINFORCEMENT BARS OR

REINFORCEMENT BARS.

DEVELOP REINFORCEMENT IN ACCORDANCE WITH AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WELDED WIRE REINFORCEMENT, INCREASE THE AREA OF REINFORCEMENT BY 8%, AND SUBMIT DESIGN CALCULATIONS VERIFYING COMPLIANCE WITH AASHTO 5.7.3.4. "CONTROL OF CRACKING BY DISTRIBUTION OF REINFORCEMENT".

MAXIMUM SIZE OF REINFORCEMENT BARS IS NO. 6. THE MAXIMUM WELDED WIRE REINFORCEMENT SIZE IS W23 PER LAYER (MAXIMUM OF 2 LAYERS).

SPACE CENTER TO CENTER OF TRANSVERSE WIRES NOT LESS THAN 2" NOR MORE THAN 4". SPACE CENTER TO CENTER OF LONGITUDINAL WIRES NOT MORE THAN 8".

WELDING IS NOT PERMITTED ON REINFORCEMENT BARS OR WELDED WIRE REINFORCEMENT, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE REINFORCEMENT AND ANY WLEDS NEEDED FOR CORROSION CONTROL IS ACCEPTABLE SEE SHEET E0-SYS-CORR-DTL-015

WHEN REINFORCEMENT IS CUT, PLACE ADDITIONAL REINFORCEMENT ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

USE CONCRETE MIX NO. 3W82 WITH NO CALCIUM CHLORIDE ALLOWED.

PROVIDE SHOP DRAWING APPROVAL PER SPEC. 3238.2.A.

COMPACT THE FIRST 1.5' (LOOSE) OF FILL ABOVE THE BOX WITH LIGHT COMPACTION EQUIPMENT SUCH AS PLATE COMPACTORS OR WALK BEHIND ROLLERS.

TRANSVERSE REINFORCEMENT IS PARALLEL TO THE CULVERT SPAN LONGITUDINAL REINFORCEMENT IS PERPENDICULAR TO THE CULVERT SPAN.

(1) USE 1" DIAMETER CULVERT TIES. SEE SHEET 5 FOR CONNECTION DETAILS.

(2) USE 12" VERTICAL, 12" HORIZONTAL HAUNCHES ON ALL BOX SIZES.

(3) PLACE LONGITUDINAL REINFORCEMENT DENOTED AS As5 AND As6 IN ALL SLABS AND WALLS WITH A MINIMUM OF 0.06 SQ. IN./FT.

SEE STANDARD PLATE NO. 3007 FOR SHEAR REINFORCEMENT OPTION SHEAR REINFORCEMENT SPACING IN THE LONGITUDINAL DIRECTION IS 6".

ROADWAY OR SHOULDER FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A RIBUTION SLAB.

USE CONCRETE MIX 3S52 FOR THE DISTRIBUTION SLAB.

PLACE 6" THICK CAST-IN-PLACE DISTRIBUTION SLABS. PROVIDE 3" MINIMUM SELECT GRANULAR MATERIAL PER SPEC. 3149.2.B.2 BETWEEN BARREL AND DISTRIBUTION SLAB.

6" THICK PRECAST DISTRIBUTION SLABS MAY BE USED FOR FILL HEIGHTS OVER 1'-0". PROVIDE 6" MINIMUM SELECT SPANULAR MATERIAL PER SPEC. 3149.2.B.2 BETWEEN BARREL AND DISTRIBUTION SLAB.

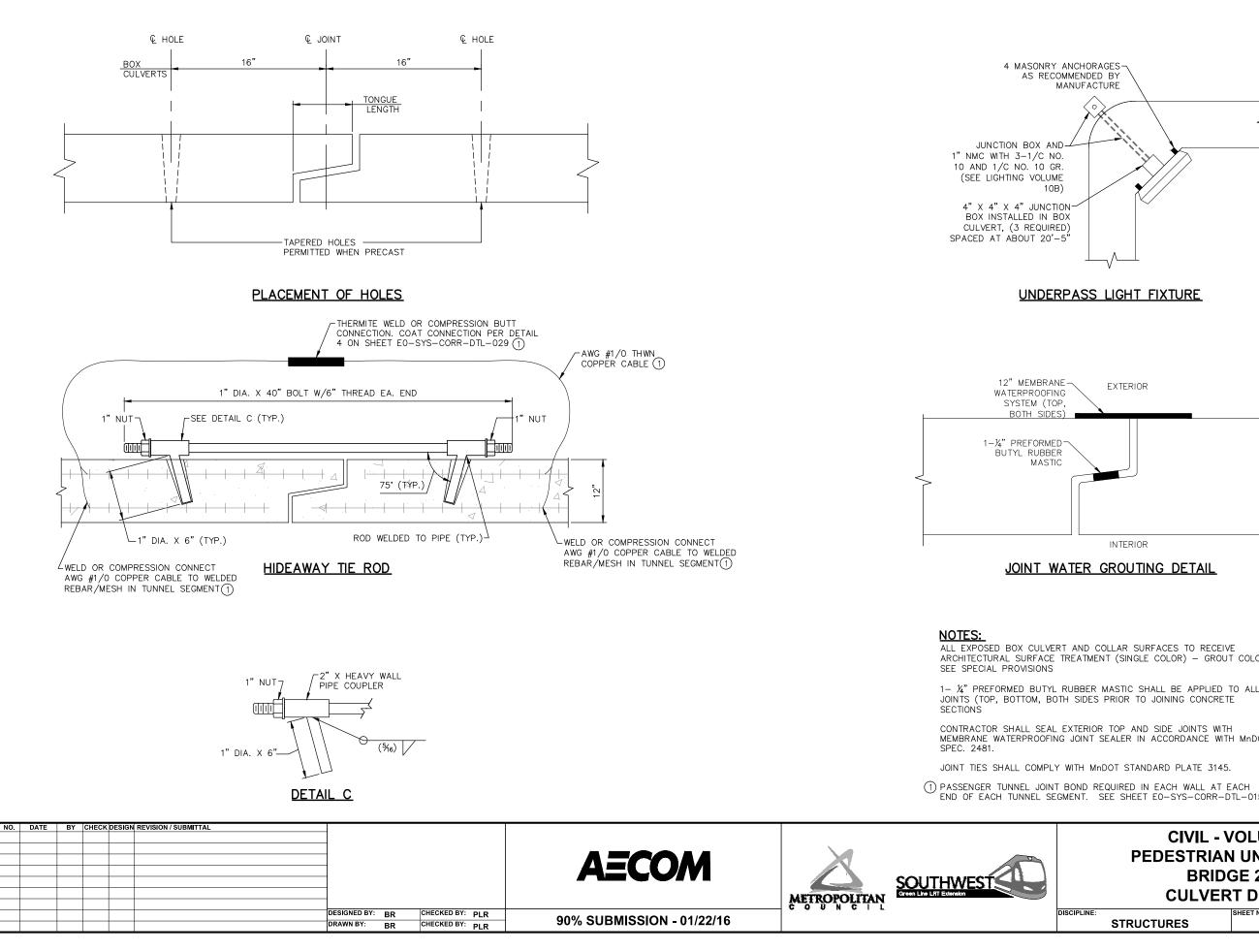
EXTEND THE WIDTH OF THE DISTRIBUTION SLAB TO THE OUTSIDE EDGES OF THE ROADWAY SHOULDERS UNLESS DIRECTED BY THE ENGINEER.

PAYMENT FOR THE DISTRIBUTION SLAB AND SELECT GRANULAR MATERIAL BENEATH THE SLAB IS CONSIDERED INCIDENTAL.

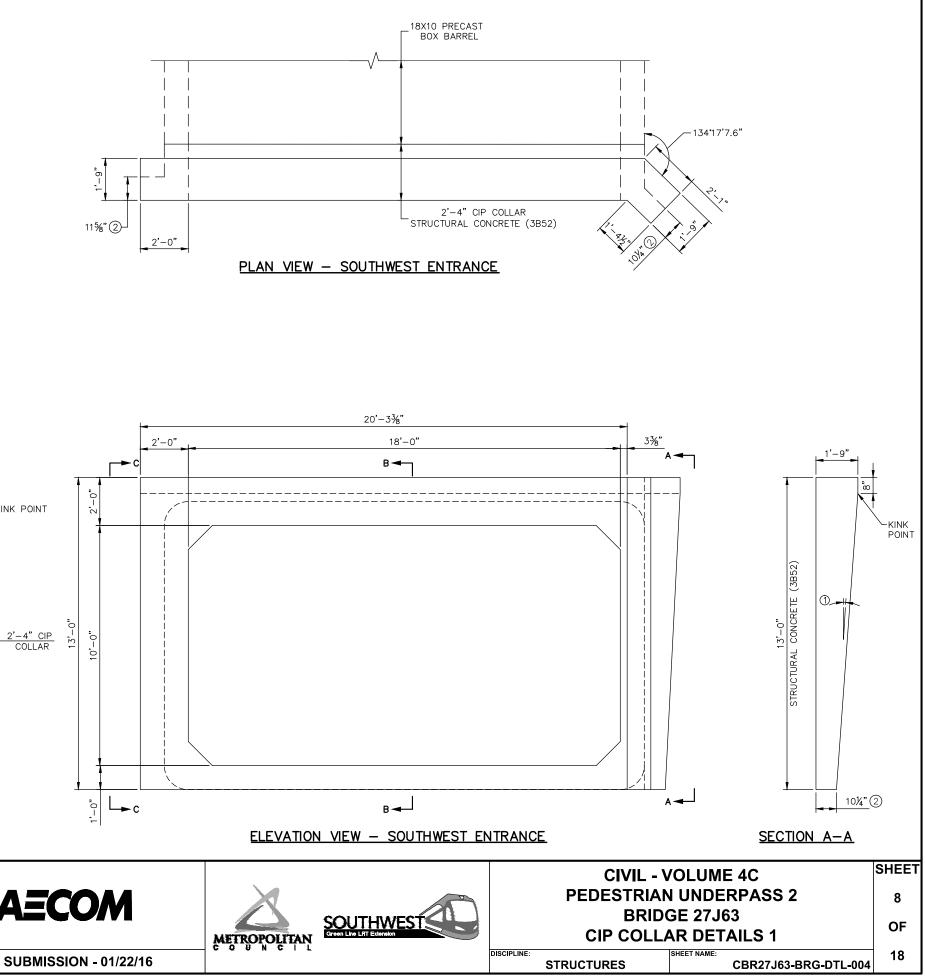
REDESIGN THE DISTRIBUTION SLAB PER THE MODOT PAVEMENT DESIGN MAN IF IT IS USED AS PAVEMENT SURFACE.

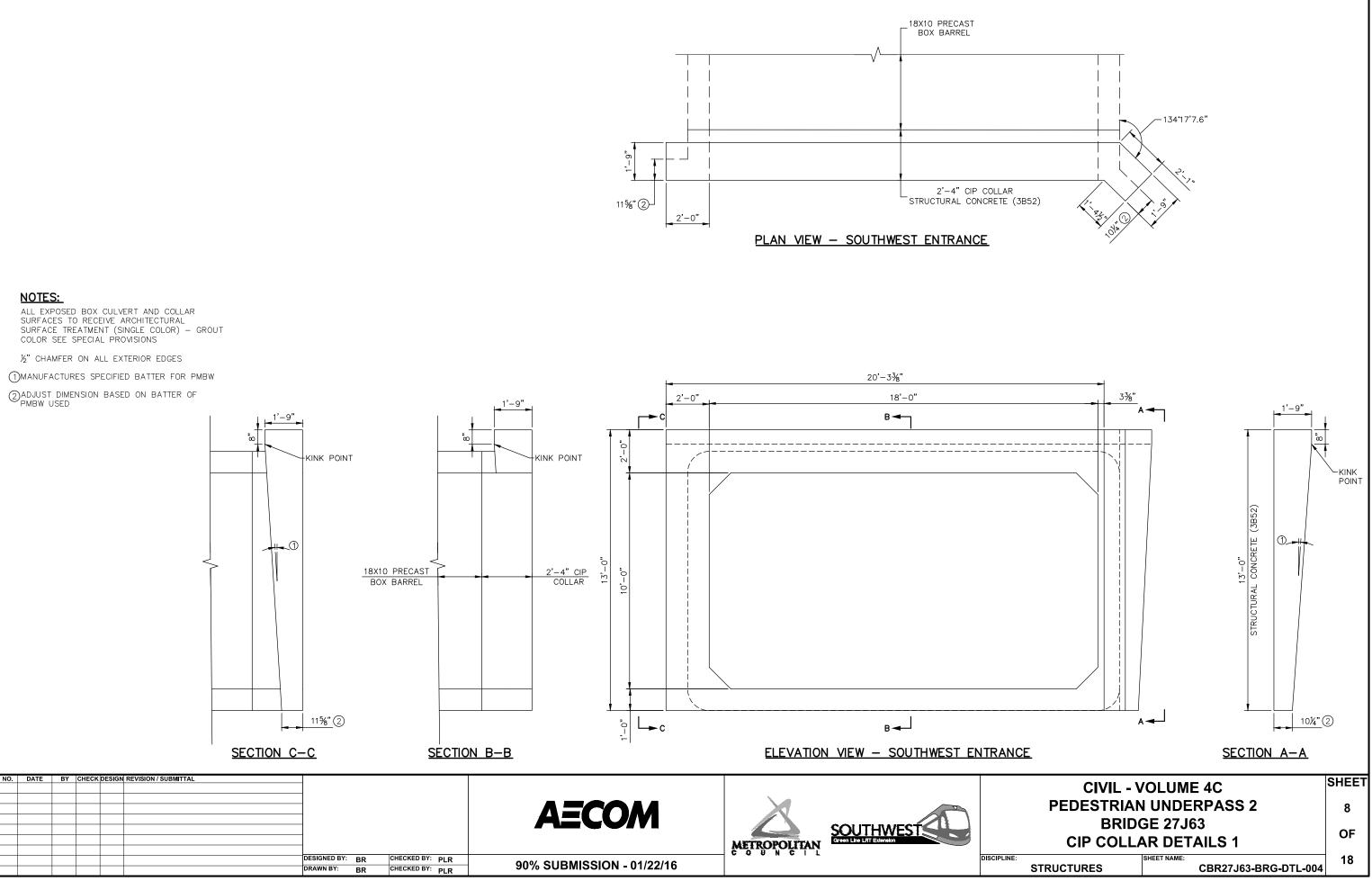
(6)ALL EXPOSED BOX CULVERT AND COLLAR SURFACES TO RECEIVE ARCHITECTURAL SURFACE TREATMENT (SINGLE COLOR) - GROUT COLOR SEE SPECIAL PROVISIONS

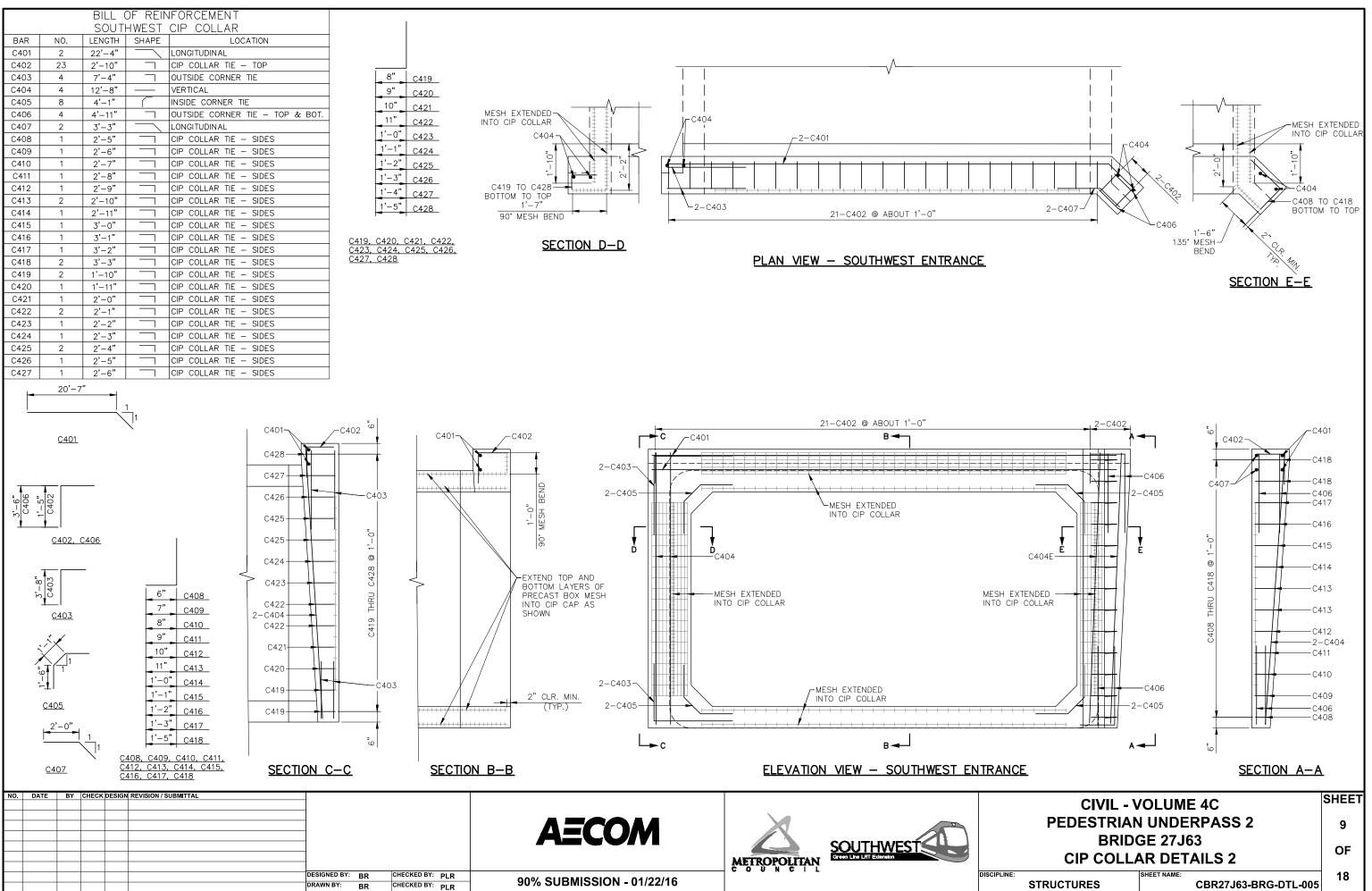
2317+96.4	0			FIG. 5-395.101(B) (MOD)								
TE	DES: CHK:	BR PLR/BS	DR: CHK:	BR PLR/BS	APPROVED:	BRIDGE NO.						
ر	S	HEET N	0. (	6 OF	18 SHEETS	27J63						



SS LIGHT FIXTURE		
EXTERIOR		
	I	
R GROUTING DETAIL		
ID COLLAR SURFACES TO RECEIVE TMENT (SINGLE COLOR) — GROUT CC	DLOR	
BER MASTIC SHALL BE APPLIED TO A DES PRIOR TO JOINING CONCRETE	ALL	
RIOR TOP AND SIDE JOINTS WITH NT SEALER IN ACCORDANCE WITH Mr	nDOT	
H MnDOT STANDARD PLATE 3145.		
D REQUIRED IN EACH WALL AT EACH T. SEE SHEET EO-SYS-CORR-DTL-		
CIVIL - VO	LUME 4C	SHEET
PEDESTRIAN U		7
BRIDGE CULVERT		OF
	CBR27J63-BRG-DTL-003	18
		Ø







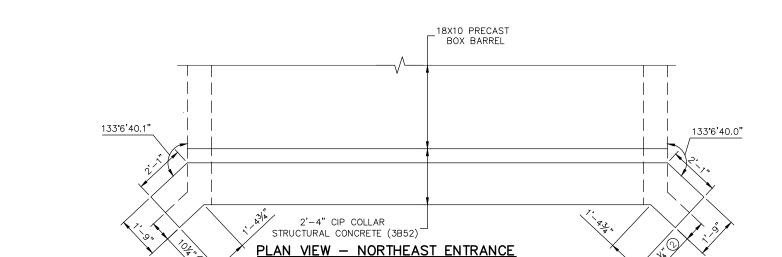
18X10 PRECAST 2'-4" CIP 0 1'-0" 1'-0" BOX BARREL COLLAR Ĉ "C NOTES: ALL EXPOSED BOX CULVERT AND COLLAR SURFACES TO RECEIVE ARCHITECTURAL SURFACE TREATMENT (SINGLE COLOR) – GROUT COLOR SEE SPECIAL PROVISIONS ▲◀┛ в∢∟ Ĉ 1  $\case 2$  Chamfer on all exterior edges ELEVATION VIEW - NORTHEAST ENTRANCE ()MANUFACTURES SPECIFIED BATTER FOR PMBW SECTION B-B (2) ADJUST 10¼" DIMENSION BASED ON BATTER OF PMBW USED NO. DATE BY CHECK DESIGN REVISION / SUBMITTAI AECOM SOUTHWEST METROPOLITAN DESIGNED BY: BR CHECKED BY: PLR 90% SUBMISSION - 01/22/16 DRAWN BY: BR CHECKED BY: PLR

3%"

1'-9"

KINK POINT

ŵ



18'-0"

ò 1

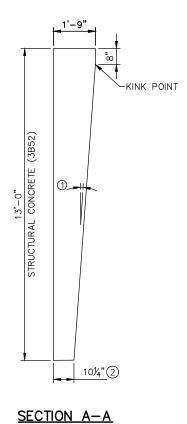
B 🖛

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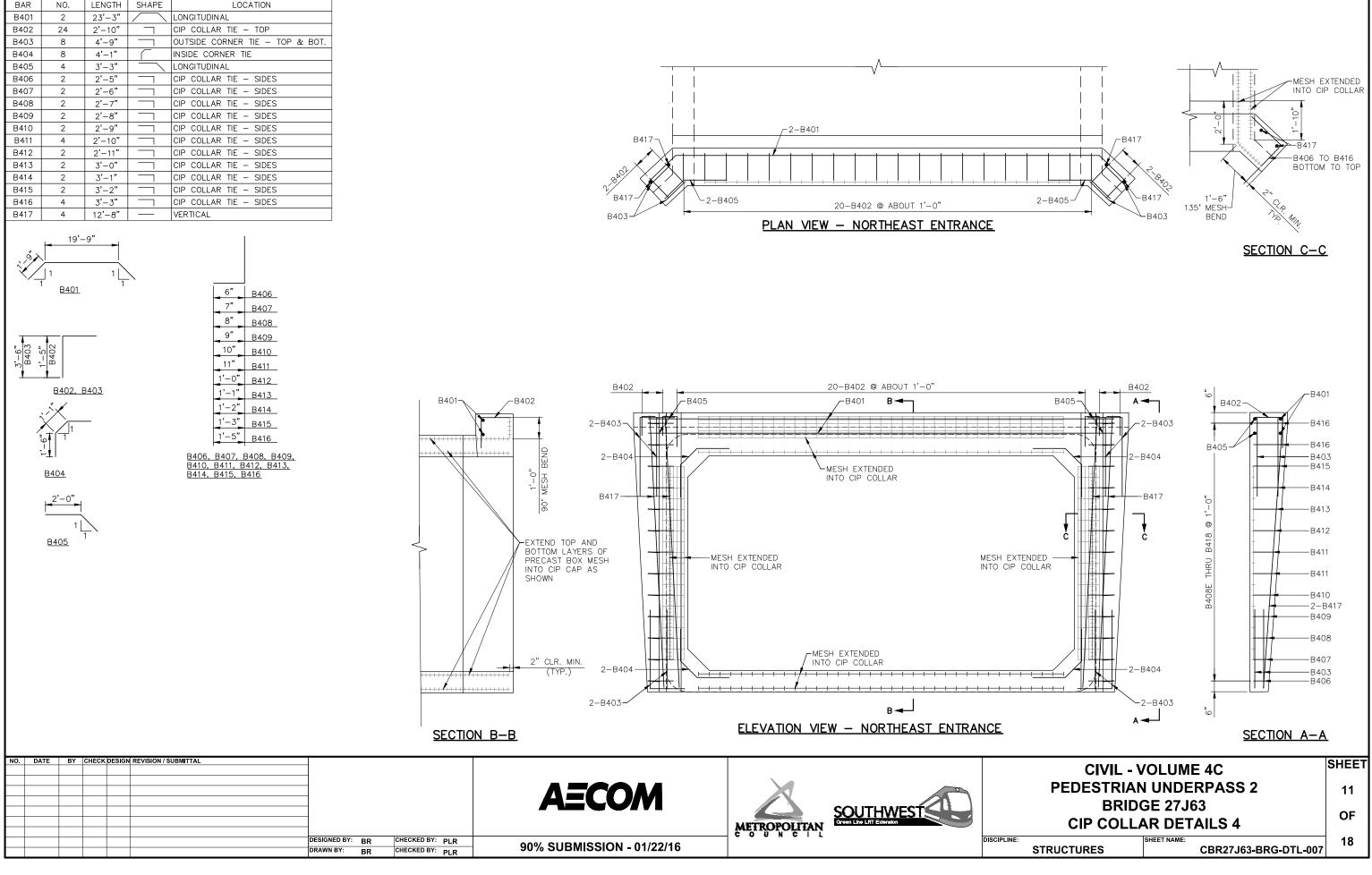
DISCIPLINE:

3%"

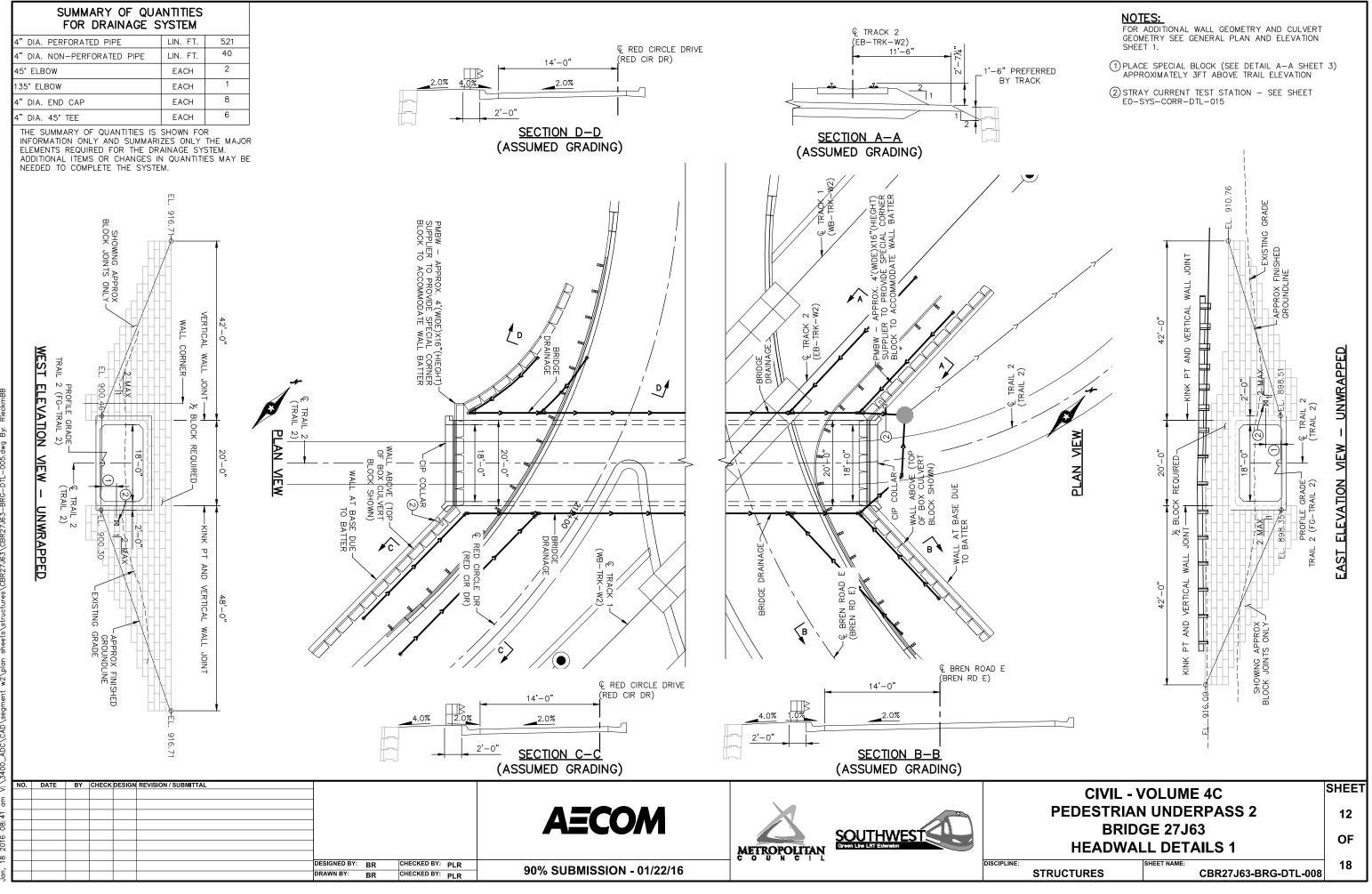
A 🗲



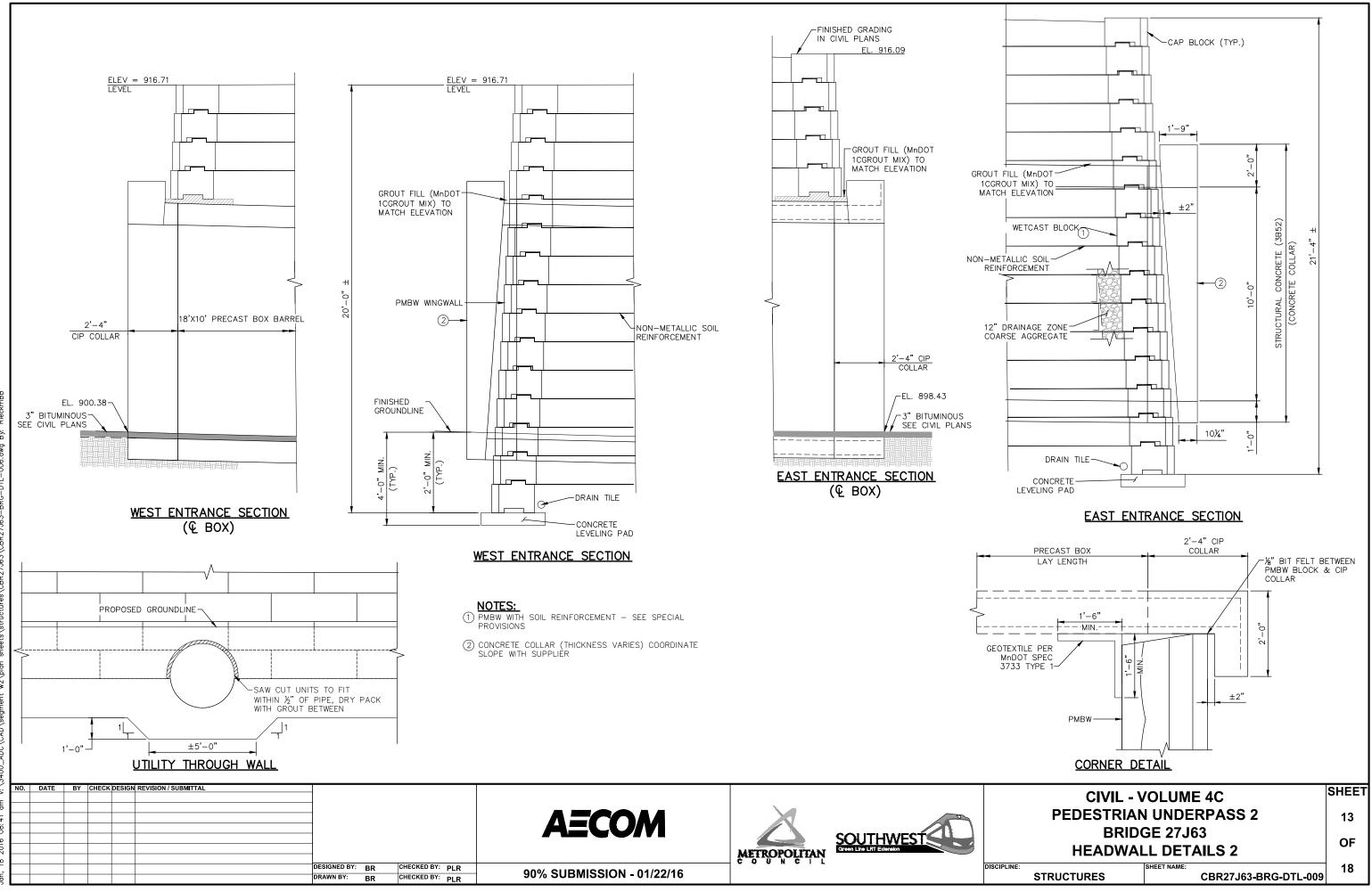
CIVIL - V	CIVIL - VOLUME 4C					
PEDESTRIAN UNDERPASS 2						
BRIDGE 27J63						
CIP COLLAR DETAILS 3						
STRUCTURES	SHEET NAME: CBR27J63-BRG-DTL-006	18				



BILL OF REINFORCEMENT NORTHEAST CIP COLLAR

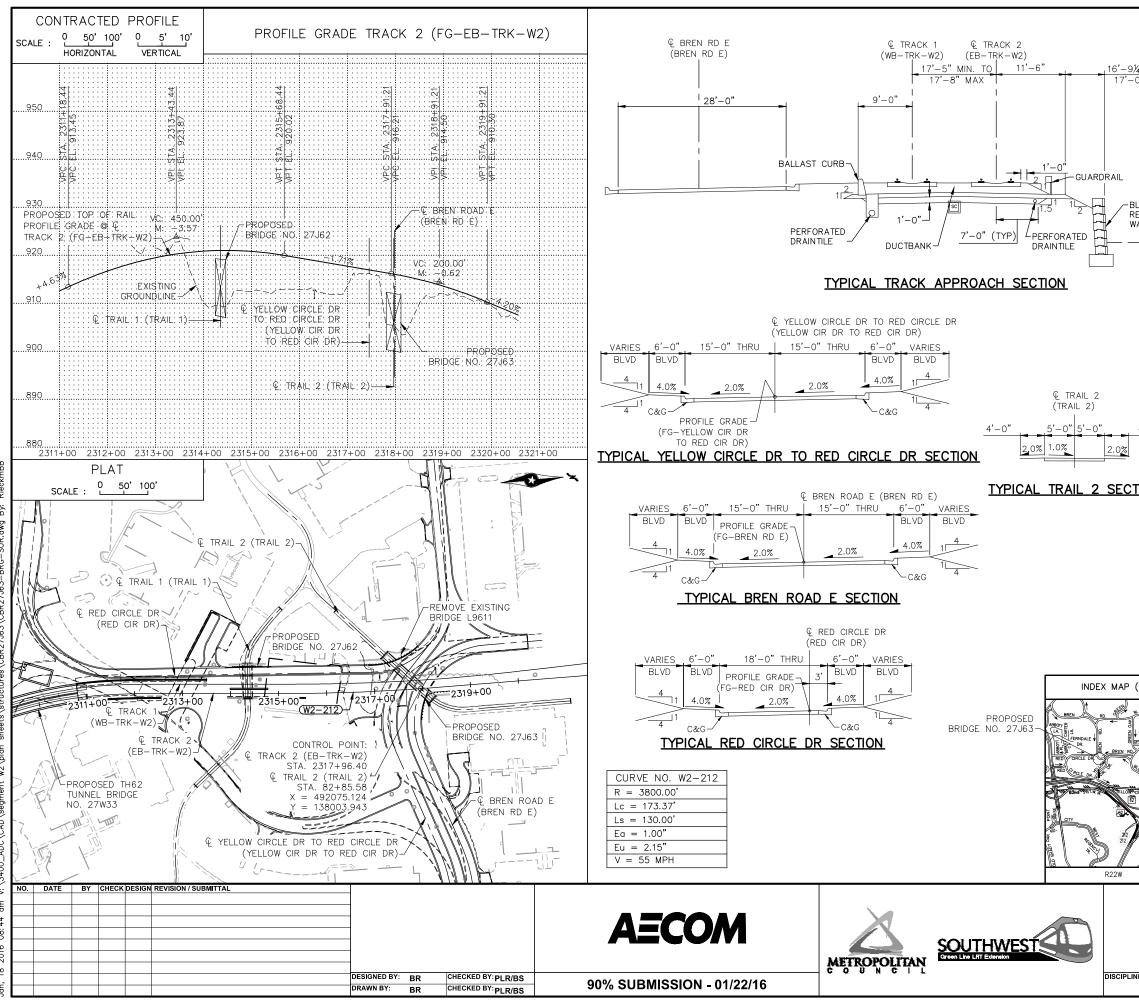


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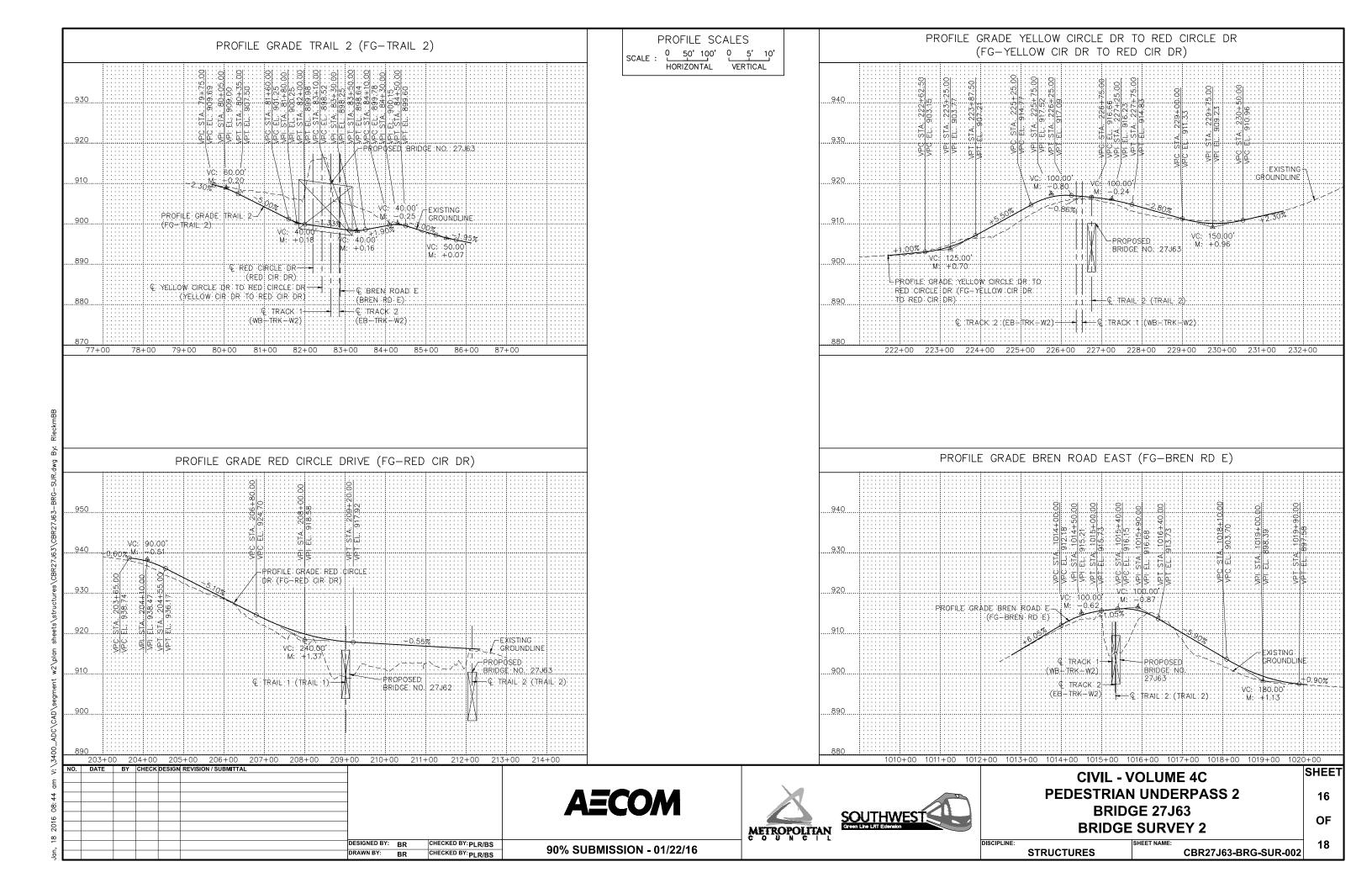


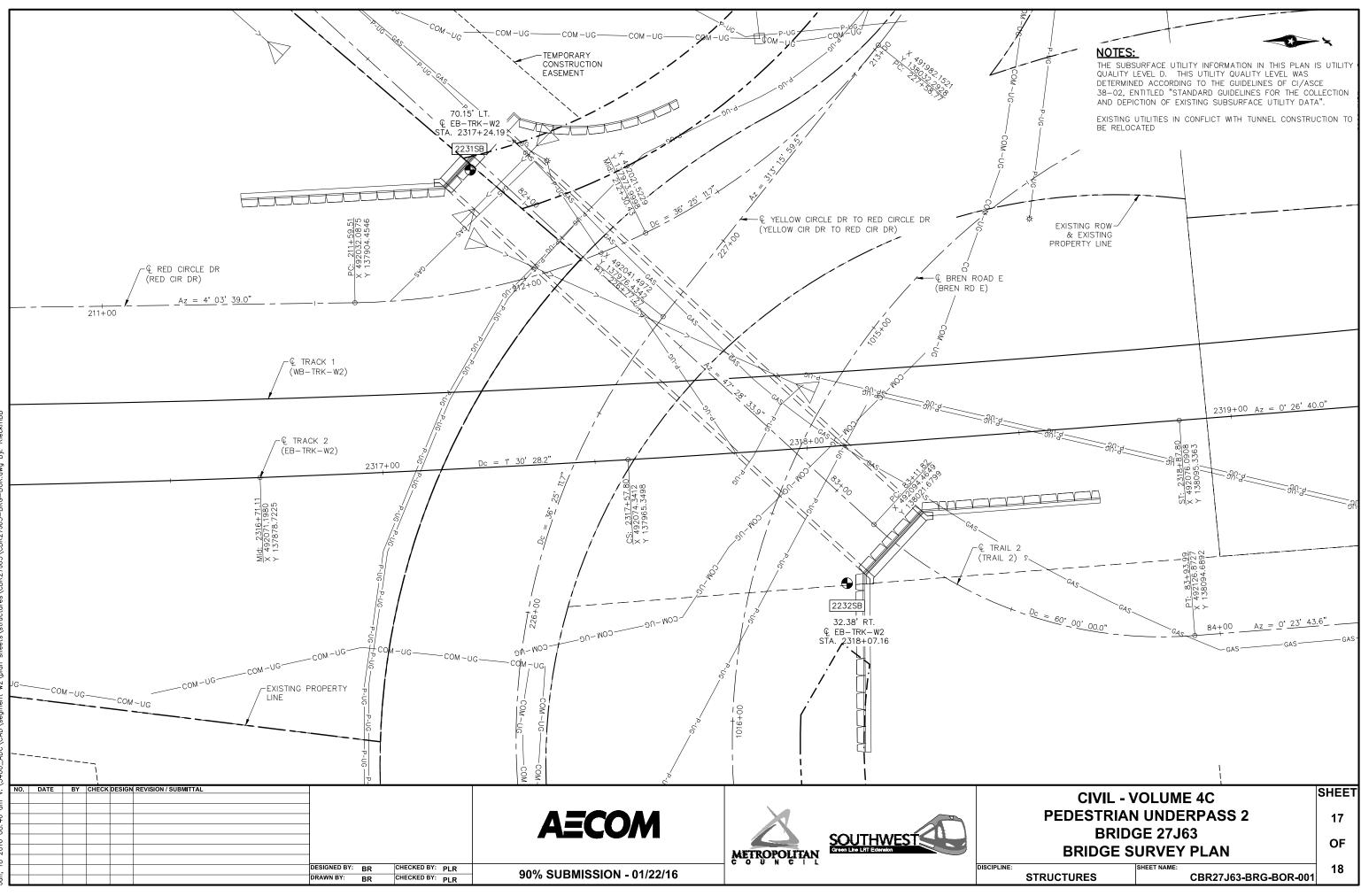
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CONCRETE WEARING COURSE	PAINT SYSTEM	OTHER ITEMS ①
	Mn/DOT SPECIFICATION NUMBER2478 OR 2479 OR OTHER	(1) UTILITIES ADDED DURING CONSTRUCTION AND SPECIALTY ITEMS.
TYPE OR MANUFACTURER	MANUFACTURERNAME AND ADDRESS (CITY, STATE)	FINAL QUANTITIES ENTERED ON SCHEDULE OF QUANTITIES: YES NO
EXPANSION JOINTS	PRIME COAT	
JOINT MANUFACTURER	INTERMEDIATE COAT	
MANUFACTURER'S IDENTIFICATION	FINISH COAT	
GLAND MANUFACTURERNAME AND ADDRESS (CITY, STATE)	PLAN QUALITY RATE 1 (AGREE), 2 (NEUTRAL), OR 3 (DISAGREE, PLEASE COMMENT BELOW)	
MANUFACTURER'S IDENTIFICATION		
MFR'S No. AND/OR LETTER DESIGNATION FOR GLAND USED	DIMENSIONING AND DETAILING ADEQUATELY DESCRIBED REQUIRED CONSTRUCTION. BAR LISTS AND QUANTITIES WERE TYPICALLY COMPLETE AND FREE OF ERRORS. SCALE OF DRAWINGS AND OVERALL LEGIBILITY OF LINES AND TEXT WAS GOOD. (SB) SPECIAL PROVISIONS ADEQUATELY DESCRIBED SPECIAL WORK AND PAYMENT.	SUMMARY OF SIGNIFICANT AS-BUILT CHANGES
ELASTOMERIC BEARING PADS		
PAD MANUFACTURERNAME AND ADDRESS (CITY, STATE)	COMMENTS:	
SPECIAL SURFACE FINISH		
SYSTEM: COLOR:		
FINISHING ROADWAY FACES OF BARRIER RAILING	NUMBER OF BRIDGE SUPPLEMENTAL AGREEMENTS: COST: \$	
TYPE: COLOR:	LIST SIGNIFICANT ERRORS OR OMISSIONS IN PLAN DETAILS OR PAY QUANTITIES IN THE SPACE PROVIDED AT RIGHT.	
ANTI-GRAFFITI COATING	BRIDGE REMOVAL / BRIDGE OPENING	
MANUFACTURER	NUMBER OF AND DATE OLD BRIDGE WAS REMOVED (IF APPLICABLE):	
PRODUCT NAME: LOCATION:	BRIDGE NUMBER DATE REMOVED	
	DATE NEW BRIDGE WAS OPENED TO TRAFFIC	
	NOTIFY THE BRIDGE OFFICE BRIDGE MANAGEMENT UNIT WITH THIS INFORMATION AS SOON AS POSSIBLE. (651) $366-4557$	
		THE AS-BUILT INFORMATION WAS ADDED TO THE PLAN BY:
		INSPECTOR(S) SIGNATURE DATE
		CHECKED BY:
		AT THE TIME OF THE FINAL, THIS COMPLETED AS-BUILT BRIDGE DATA SHEET MUST BE SUBMITTED TO THE BRIDGE OFFICE - ATTN: REGIONAL CONSTRUCTION ENGINEER (MS610).
EVISION: 10-28-2008 PPROVED: SEPTEMBER 26, 2003	DETAILS	FIG.         5-397.900           DES:         DR:         APPROVED:
(AS NI 	EEDED)	AS-BUILT BRIDGE DATA CHK: CHK: CHK: BRIDGE NO. SHEET NO. 14 OF 18 SHEETS 27J63

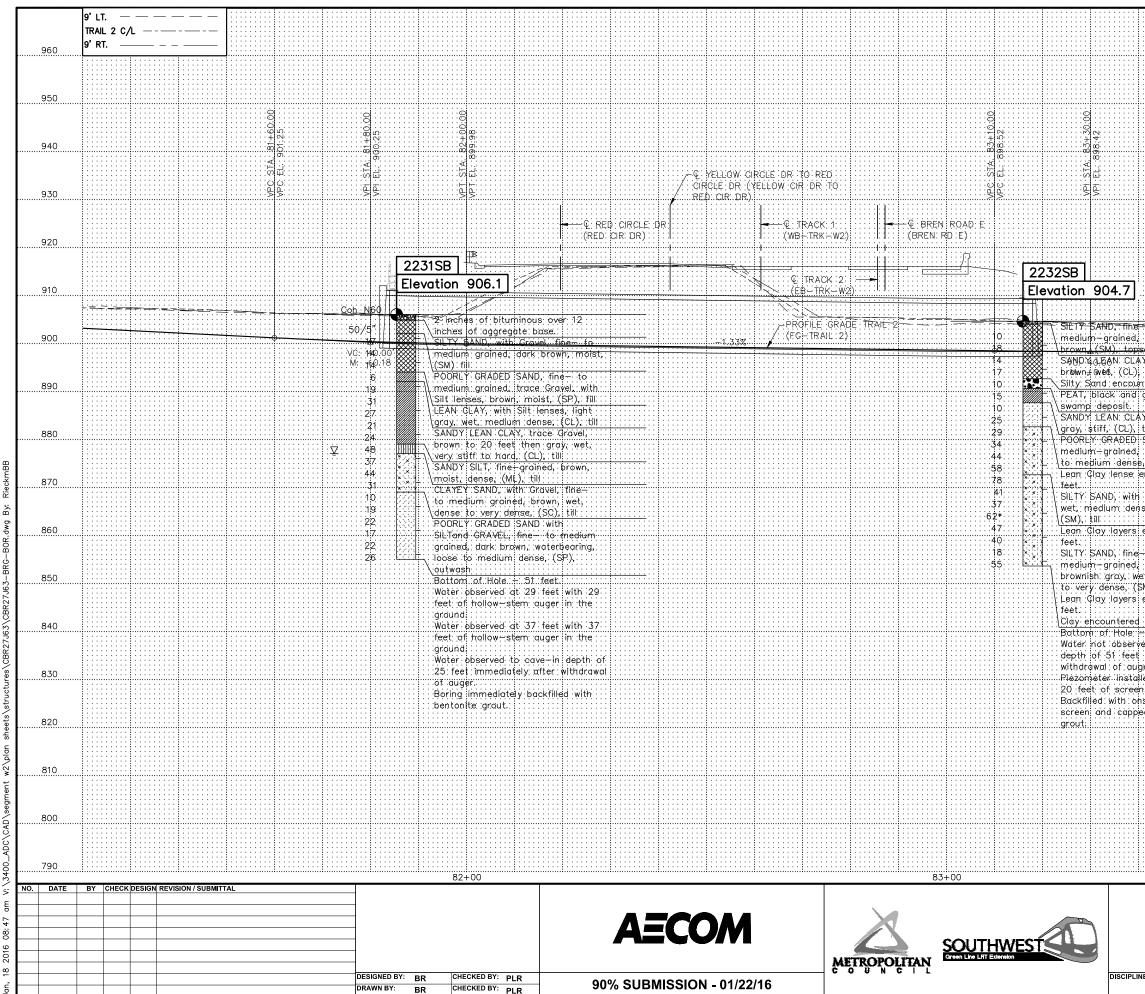


	-		
	LO	CATION ENGINEER'S OBSERVATIO	NS
	1. SPECIAL DEBRIS,	AT BRIDGE SITE REATURES: WATERFALLS, DAMS, FLOODS, IC SLIDING BANKS, RECREATIONAL BOATURC.	E,
9 <u>¼" min. to</u> -0½" max.	(PARTIC WITHOUT	BRIDGES OR CULVERTS OVER THE SAME STREA ULARLY STRUCTORES WHICH CARRY HIGH WAT OVERFLOW OF ROADWAY) : GIVEN LOCATION, HEIGHT ABOVE HIGH WATER, CROSS-SECTION	ER TYPF
	3. APPARE	NT HIGHWATER ELEVATION	
		DATA: APPROX. VELOCITY OF WATER AT TIME	₩
	K hydr	AULIC ENGINEERS RECOMMENDA	rion 🗡
BLOCK RETAINING		DATE: XX-XX-XXXX DITCH DESIGNATION: XXX	
WALL		REA: XXX SQ. MI.	
_			
		ON RECORD: XXX C.F.S. (XX-XX-XX)	
		BSERVED HIGHWATER ELEVATION: XXX.X FT.	
	HEADW DESIGN TOTAL	DD (XX TR. FREQ.): XXX C.F.S. ATER ELEVATION: XXXX FT MEAN VELOCITY HROUGH STRUCTURE: X.X F STAGE INCREASE: XX FT. EMBER AT OR ABOVE ELEVATION: XXX.X FT	.P.S.
	WATERWAY , FT. AT RIGH	AREA REQUIRED BELOW ELEN XXX.X = XXX S T ANGLES TO CHANNEL	ຊ.
4'-0"	HEADW. TOTAL	D (100 XR. FREQ.): XXX C.F.S. ATER LEVATION: XXXX FT. STACE INCREASE: X.X FT. VLOCITY THROUGH STRUCTURE: X.X F.P.S	
+ 0	FLOWLINE EL	Evation: XXX ft. skew angle: XX	
	ESTMATED F	PRELIMINARY TOTAL SCOUR AT PIER EL. XXX.X )	(500 OR
<u>TION</u>	SCOL	R CONFIRMATION RECOMMENDAT	TON
		UR <u>AT PIER EL. XXX.XX (500 OR OT YR.</u> FREG DE: OBTAIN FROM HYDRAULIC ENGINEER	Q.)
		EL OBTAIN FROM FIDRAULIC ENGINEER	ANI
	EASTING (HEI BENCHMARK MONUMENT D LOCATION: IN	: 2773A EN. COUNTY COORDINATES): 137082.117 N. COUNTY COORDINATES): 490527.817 ELEVATION (NAVD88): 963.180 ESCRIPTION: B.M. DISK IN BRIDGE ABUTMENT EDEN PRAIRE, 1.1 MILES EAST ALONG T.H. HWY ( F T.H. 62 & I-494	52
	NORTHING (H EASTING (HEI	IAME: CONTROL POINT 6 EN. COUNTY COORDINATES): 142016.680 N. COUNTY COORDINATES): 489989.960	
(1 SQ. MI.)	MONUMENT D	ELEVATION (NAVD88): 932.956 ESCRIPTION: CAST IRON MONUMENT 2 MILES EAST ALONG SMETANA ROAD FROM JCT. O AD & NOLAN DR	F
Real Real	<b>v</b>	BRIDGE SURVEY	
		0.6 MILES WEST OF JCT. T.H. 62 AND T.H	. 169
	17N	PEDESTRIAN UNDERPASS UNDER SOUTHWEST L TRACKS	IGHT RAIL
62	F 👩	SEC 36 T 117 N R 22 W	
V. W		CITY OF MINNETONKA HENNEPIN CC	
8 OR. 189	V	BRIDGE 27J63	UNTI
	CIVIL -	VOLUME 4C	SHEET
PED	ESTRIA	N UNDERPASS 2	15
		DGE 27J63	OF
	BRIDG	E SURVEY 1	
STRUCTU	JRES	SHEET NAME: CBR27J63-BRG-SUR-001	18

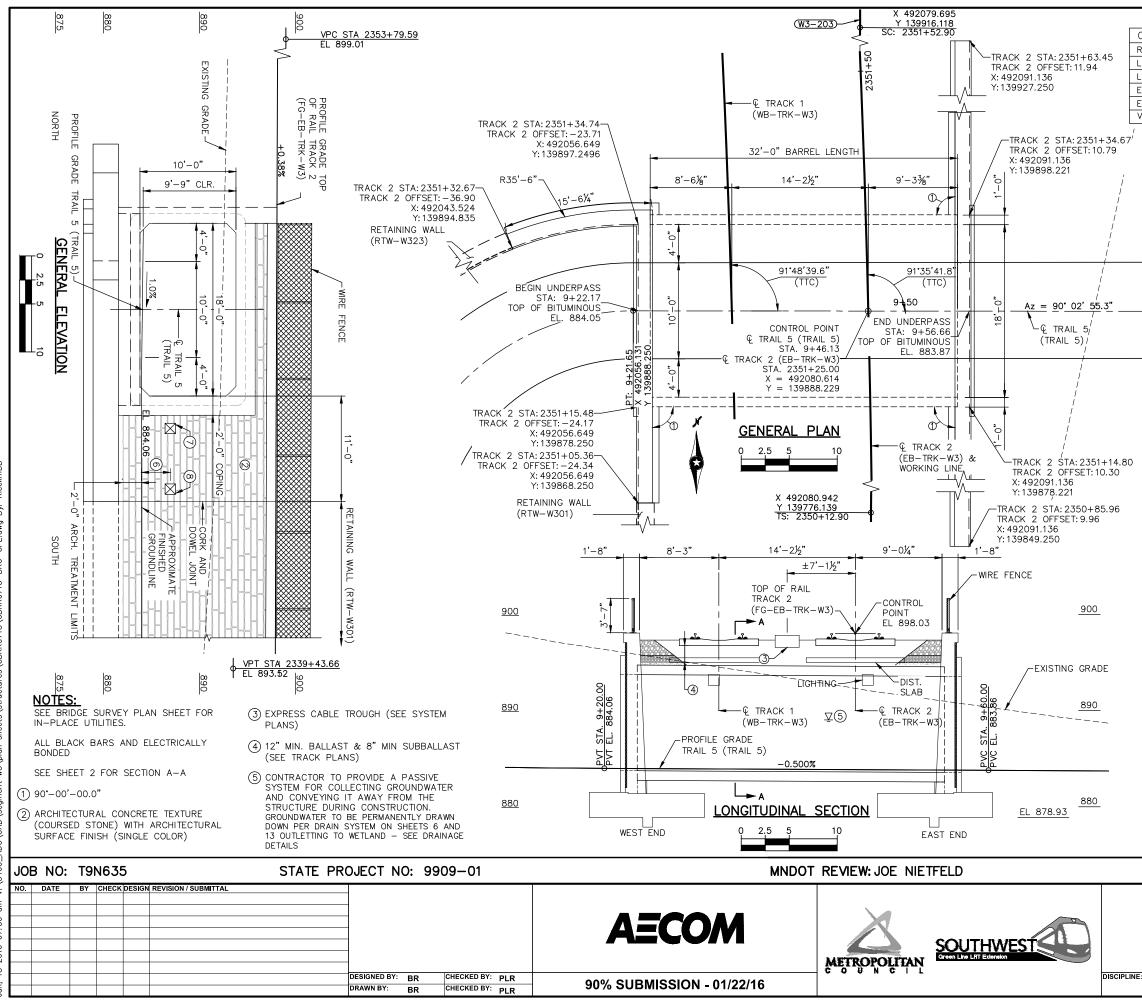




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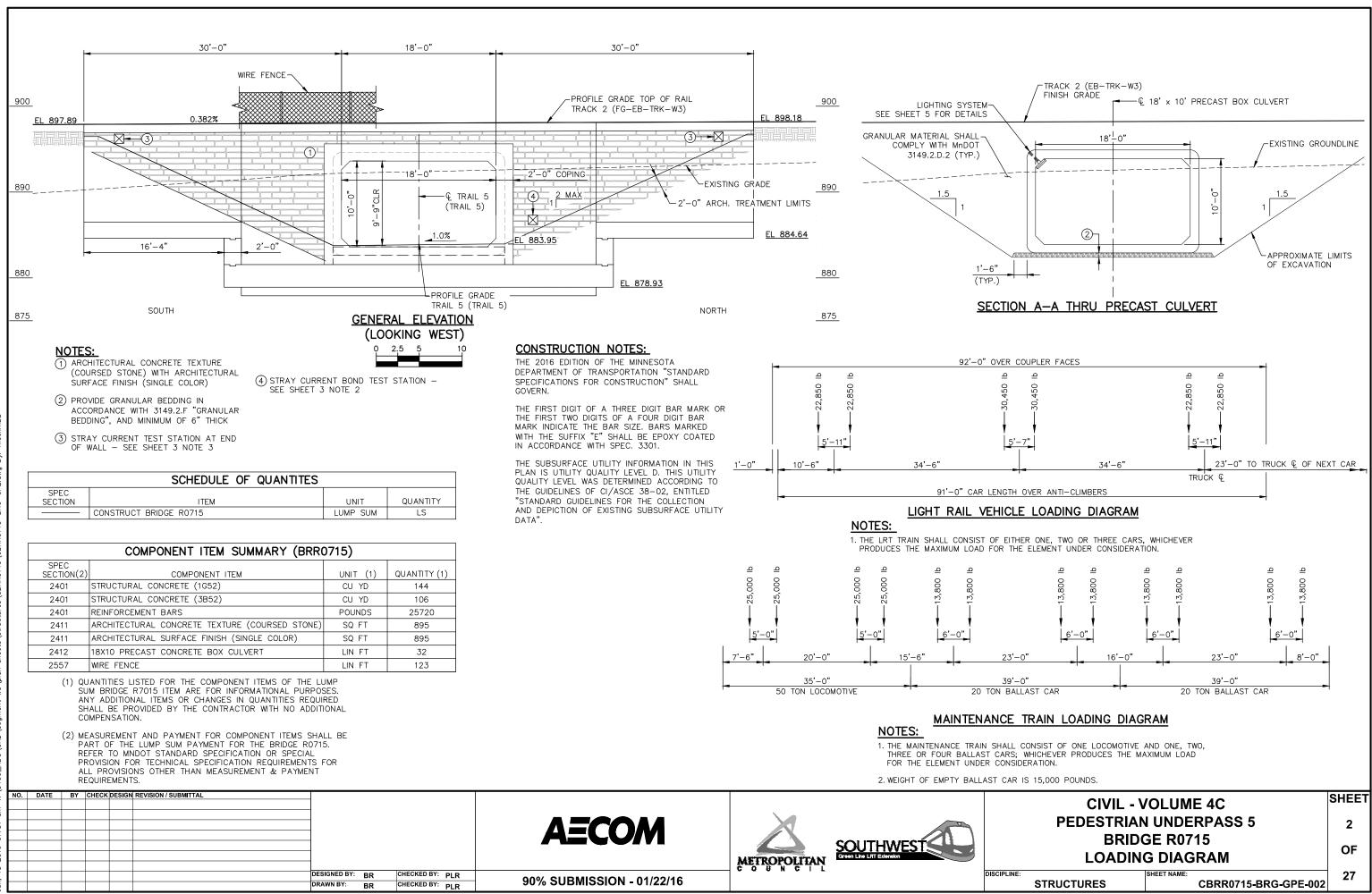


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		950
:64 :64		940
PT STA. 83+50.0		
a a a b a b a b a b a b a b a b a b a b		930
		920 910
<del>: 16</del>		900
sail fill . Y, with Gravel. fill . ntered at 7 feet.		890
gröy, wet (PT), Y, with :Grovet, till:		880
SAND; fineto :brown; wet; Ibose e; (SP); oùtwash encounteréd: at: 26		870
Gravel, brown, ise to very dense, encountered at 38		860
- to with Gravel; et, medlum dense:		850
SM), till encountered at 46 at 50 feet.		840
-∵51∵feet; red. to: cave÷in immediately∵after ger;		830
led.at.50.feet.with n. nsite soil ebove ed with bentonite		820
		810
		800
		790
		SHEET
BRID	I UNDERPASS 2 GE 27J63	18 OF
	RVEY PROFILE SHEET NAME: CBR27J63-BRG-BOR-002	18



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	DESIGN DATA						
CURVE NO. W3-203	AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS EDITION, 2014 WITH 2015 INTERIM REVISIONS	, 7TH					
R = 1400.00' $Lc = 1052.18'$	METRO LIGHT RAIL TRANSIT DESIGN CRITERIA						
Ls = 140.00'	(REVISION 4.0)						
Ea = 3.00" Eu = 2.73"	LOAD AND RESISTANCE FACTOR DESIGN METH	LOAD AND RESISTANCE FACTOR DESIGN METHOD					
V = 45 MPH	LRV & MV LOAD DIAGRAM SHOWN ON SHEET	2					
/	RISE = 10'-0"						
6 3'-0" FROM F 7 STRAY CURRE SEE SHEET 3	SPAN =       18'-0"         SKEW ANGLE (TRACK 2) =       1'35'42"         MINIMUM DESIGN FILL HEIGHT =       2'-0"         MAXIMUM DESIGN FILL HEIGHT =       2'-0"         WINIW WEIGHT FILL =       120.0LBS/         ANGLE INTERNAL FRICTION =       30.00DEG         fy = 60000 P.S.I. REINFORCEMENT BARS       fy = 65000 P.S.I. STEEL FABRIC         f'c = 5000 P.S.I. STEEL FABRIC       f'c = 5000 P.S.I. CONCRETE         DESIGN SPEED OVER: 45 MPH (LRT)       LIST OF SHEETS         SHEET       DESCRIPTION         NO.       1       GENERAL PLAN AND ELEVATION         2       LOADING DIAGRAM         3       CORROSION CONTROL NOTES         4       PRECAST CONCRETE BARREL DETAIL         5       CULVERT DETAILS 1-3         6-8       EAST END DETAILS 1-3         9-12       EAST END REINFORCEMENT 1-4         13-15       WEST END REINFORCEMENT 1-4         13-15       WEST END REINFORCEMENT         21       WIRE FENCE DETAIL         22       BRIDGE DUETAILS         23       AS-BUILT BRIDGE DATA         24-25       BRIDGE SURVEY 1-2         26       BRIDGE SURVEY PROFILE         DNTINUED):       PROPOSED GRADE (TYP.)         NT BON						
	BRIDGE NO. R0715						
	SOUTHWEST LIGHT RAIL OVER TRAIL 5 0.1 MI. N. OF INTERSECTION OF BREN ROAD BREN ROAD E						
	32'-0" BOX CULVERT 1°-35'-42" SKEW						
	ID NO 113 GENERAL PLAN AND ELEVAT	<u>ION</u>					
	SEC 12 T 116N R 22W CITY OF MINNETONKA HENNEPIN COU	JNTY					
CIVII	- VOLUME 4C	SHEET					
	IAN UNDERPASS 5	4					
	IDGE R0715	1					
	LAN AND ELEVATION	OF					
	SHEET NAME:	27					
STRUCTURES	CBRR0715-BRG-GPE-001						



### STRAY CURRENT AND CORROSION CONTROL NOTES

1. SEE SHEET EO-SYS-CORR-DTL-015 FOR ELECTRICAL CONTINUITY REQUIREMENTS FOR REINFORCING STEEL ELEMENTS IN TUNNEL SEGMENTS.

2. INSTALL STRAY CURRENT TEST STATION HOUSING TWO #1/0 COPPER CABLES FROM WELDED REBAR IN PRECAST TUNNEL SEGMENTS (WHITE INSULATION), TWO #1/0 COPPER CABLES FROM WELDED REBAR IN EAST TUNNEL WALL (BLACK INSULATION), TWO #4 AWG CABLES FROM WELDED REBAR IN DISTRIBUTION SLAB AND TWO #22 WIRES FROM REFERENCE ELECTRODE EMBEDDED IN EAST TUNNEL WALL FOOTING. SEE DETAIL 1 ON SHEET E0-SYS-CORR-DTL-016.

3. INSTALL STRAY CURRENT TEST STATION HOUSING TWO #1/0 COPPER CABLES FROM WELDED REBAR IN WALL AND TWO #22 WIRES FROM REFERENCE ELECTRODE EMBEDDED IN WALL FOOTING. SEE DETAIL 1 ON SHEET E0-SYS-CORR-DTL-022.

4. INSTALL STRAY CURRENT BOND TEST STATION HOUSING TWO #1/0 COPPER CABLES FROM WELDED REBAR IN TUNNEL WALL, TWO #1/0 COPPER CABLES FROM WELDED REBAR IN RTW W301 AND TWO PAIRS OF #22 WIRES FROM REFERENCE ELECTRODES EMBEDDED IN WALL FOOTINGS. SEE DETAIL 1 ON SHEET E0-SYS-CORR-DTL-017.

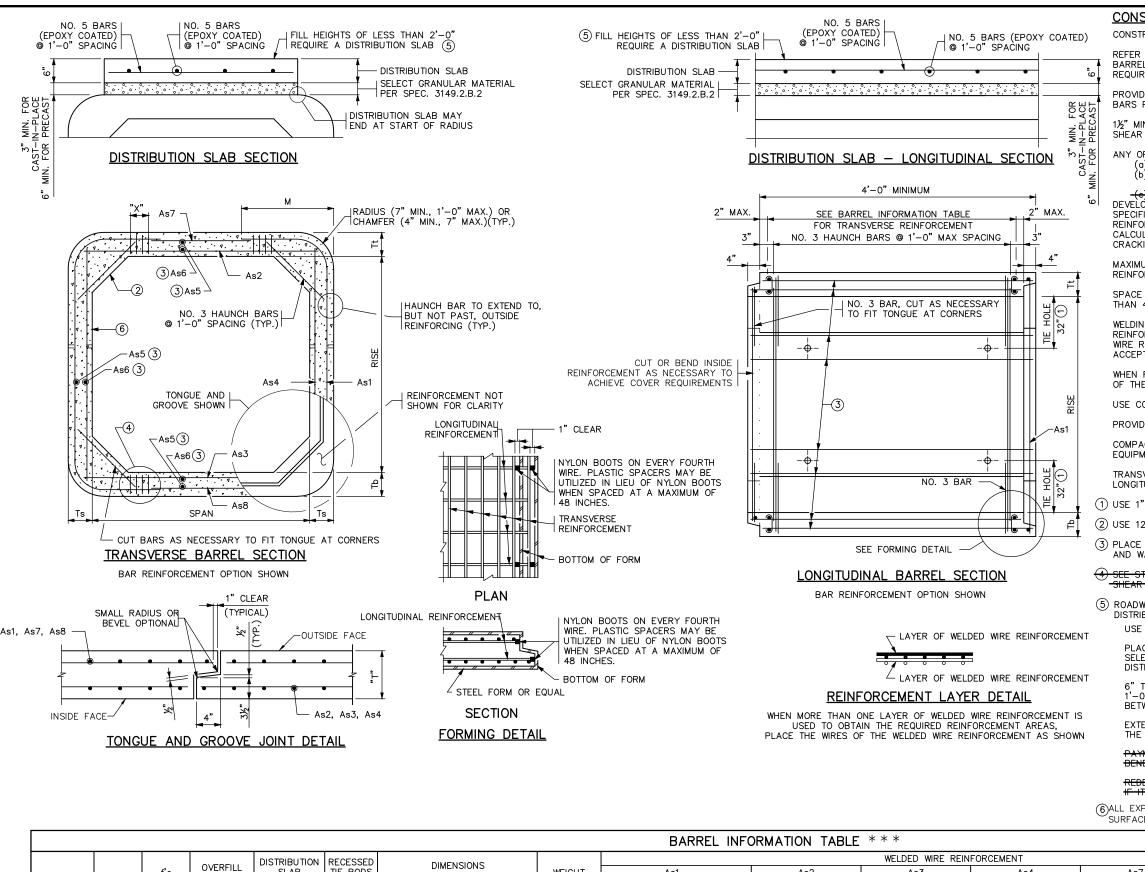
5. REBAR IN EAST AND WEST TUNNEL WALLS AND FOOTINGS SHALL BE MADE ELECTRICALLY CONTINUOUS. SEE DETAIL 1 ON SHEET E0-SYS-CORR-DTL-022

6. ASSURE ELECTRICAL ISOLATION OF EPOXY COATED REBAR IN RTW W323 FROM WELDED REBAR IN TUNNEL WALL.

7. MAINTAIN ELECTRICAL ISOLATION OF WELDED REBAR IN TUNNEL WALL FROM WELDED REBAR IN RTW W301.

N	D. DATE	BY	CHECK	ESIGN	REVISION / SUBMITTAL	_					
										SOUTHWEST	
									METRODOLITAN	Green Line LRT Extension	
									METROPOLITAN		
						DESIGNED BY: JPJ	CHECKED BY: IKS				DISCIPLIN
						DRAWN BY: BR	CHECKED BY: PLR	90% SUBMISSION - 01/22/16			
_											

	CIVIL - VOLUME 4C					
	PEDESTRIAN UNDERPASS 5					
	BRIDGE R0715					
_						
E:	STRUCTURES	CBRR0715-BRG-GPE-003	27			



SLAB RODS WFIGHT As1 As2 As3 As4 LOCATION SIZE LIMITS REQUIRED REQUIRED (P.S.I.) (LBS./FT.) Τt SPAN RISE Tb Ts AREA LENGTH ARFA LENGTH AREA LENGTH AREA LENGTH AREA (FT.) \* \* (FT.) (FT.) (IN.) (IN.) (IN.) IN.<sup>2</sup>/FT.) (FT.) (FT.) (IN.<sup>2</sup>/FT.) (FT.) (IN.<sup>2</sup>/FT.) (FT.) IN.<sup>2</sup>/FT. (FT.) (IN.<sup>2</sup>/FT.) 10 12 12 12 24'-00" 6'-3" 18'-6" 18'-6" 10'-6" 5000 3' - 0''YES 18 9400 1.10 0.29 2351+25.00 18X10 YES 0.85 1.09 0.29 \* ALL CLASS 1 CULVERTS WITH FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. IF A DISTRIBUTION SLAB IS NOT REQUIRED, INDICATE "NO" IN THIS BOX. NO 9909-01 TRACK 2 STA. STATE PROJ. REVISION: 10-09-2015 \*\* FOR PEDESTRIAN CULVERT APPLICATIONS HIDE-AWAY OR RECESSED TIE CONNECTIONS ARE REQUIRED, SEE STANDARD PLATE 3145. IF REQUIRED, INDICATE "YES" IN THIS BOX. (TOP AND BOTTOM AS SHOWN APPROVED: CERTIFIED BY MARCH 24, 2011 PRECAST CONCRE BOX CULVERTS WITH SPANS FROM 6 TO 14 FT. ARE DESIGNED FOR HL-93 LIVE LOADS (AASHTO LRFD 3.6.2.1) LICENSED PROFESSIONAL ENGINEER DATE BARREL DETAIL Nancest Jubenberger NOT INCLUDING THE DESIGN LANE LOAD. BOXES WITH SPANS OF 16 FT. ARE DESIGNED FOR HL-93 LIVE LOADS NAME: PATRICK L RIVARD LIC. NO.21168 STATE BRIDGE ENGINEER INCLUDING THE DESIGN LANE LOAD AND LRT LOADING PER LOADING DIAGRAM. (SPECIAL DESIGN)

# CONSTRUCTION NOTES

CONSTRUCT CULVERTS PER SPEC. 2412 EXCEPT AS NOTED.

REFER TO THE GENERAL PLAN AND ELEVATION SHEET FOR THE DISTANCE BETWEEN BARRELS OF ADJACENT BOXES AND TO STANDARD FIGURE 5-395.115 FOR MATERIAL REQUIREMENTS FOR FILL BETWEEN ADJACENT BOXES.

PROVIDE WELDED WIRE REINFORCEMENT, SHEAR REINFORCEMENT AND REINFORCEMENT BARS PER THE APPLICABLE REQUIREMENTS OF AASHTO M259.

 $1 \ensuremath{\mathcal{L}}^{\prime\prime}$  min. and 2" max. concrete cover on all reinforcement, including shear reinforcement, except for tongue and groove detail.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED: (a) 1 OR 2 LAYERS OF WELDED WIRE REINFORCEMENT OR (b) 1 LAYER OF WELDED WIRE REINFORCEMENT AND 1 LAYER OF REINFORCEMENT BARS OR (c) 1 LAYER OF REINFORCEMENT BARS

DEVELOP REINFORCEMENT IN ACCORDANCE WITH AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WELDED WIRE REINFORCEMENT, INCREASE THE AREA OF REINFORCEMENT BY 8%, AND SUBMIT DESIGN CALCULATIONS VERIFYING COMPLIANCE WITH AASHTO 5.7.3.4. "CONTROL OF CRACKING BY DISTRIBUTION OF REINFORCEMENT".

MAXIMUM SIZE OF REINFORCEMENT BARS IS NO. 6. THE MAXIMUM WELDED WIRE REINFORCEMENT SIZE IS W23 PER LAYER (MAXIMUM OF 2 LAYERS).

SPACE CENTER TO CENTER OF TRANSVERSE WIRES NOT LESS THAN 2" NOR MORE THAN 4". SPACE CENTER TO CENTER OF LONGITUDINAL WIRES NOT MORE THAN 8".

WELDING IS NOT PERMITTED ON REINFORCEMENT BARS OR WELDED WIRE REINFORCEMENT, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE REINFORCEMENT AND ANY WLEDS NEEDED FOR CORROSION CONTROL IS ACCEPTABLE SEE SHEET E0-SYS-CORR-DTL-015.

WHEN REINFORCEMENT IS CUT, PLACE ADDITIONAL REINFORCEMENT ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

USE CONCRETE MIX NO. 3W82 WITH NO CALCIUM CHLORIDE ALLOWED.

PROVIDE SHOP DRAWING APPROVAL PER SPEC. 3238.2.A.

COMPACT THE FIRST 1.5' (LOOSE) OF FILL ABOVE THE BOX WITH LIGHT COMPACTION EQUIPMENT SUCH AS PLATE COMPACTORS OR WALK BEHIND ROLLERS.

TRANSVERSE REINFORCEMENT IS PARALLEL TO THE CULVERT SPAN. LONGITUDINAL REINFORCEMENT IS PERPENDICULAR TO THE CULVERT SPAN.

1 USE 1" DIAMETER CULVERT TIES. SEE SHEET 5 FOR CONNECTION DETAILS.

2 USE 12" VERTICAL, 12" HORIZONTAL HAUNCHES ON ALL BOX SIZES.

 $(\underline{3})$  place longitudinal reinforcement denoted as as5 and As6 in all slabs and walls with a minimum of 0.06 sq. in./ft.

SEE STANDARD PLATE NO. 3007 FOR SHEAR REINFORCEMENT OPTIONS. THE MAXIMUM SHEAR REINFORCEMENT SPACING IN THE LONGITUDINAL DIRECTION IS 6".-

(5) ROADWAY OR SHOULDER FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB.

USE CONCRETE MIX 3S52 FOR THE DISTRIBUTION SLAB.

PLACE 6" THICK CAST-IN-PLACE DISTRIBUTION SLABS. PROVIDE 3" MINIMUM SELECT GRANULAR MATERIAL PER SPEC. 3149.2.B.2 BETWEEN BARREL AND DISTRIBUTION SLAB.

6" THICK PRECAST DISTRIBUTION SLABS MAY BE USED FOR FILL HEIGHTS OVER 1'-0". PROVIDE 6" MINIMUM SELECT GRANULAR MATERIAL PER SPEC. 3149.2.B.2 BETWEEN BARREL AND DISTRIBUTION SLAB.

EXTEND THE WIDTH OF THE DISTRIBUTION SLAB TO THE OUTSIDE EDGES OF THE ROADWAY SHOULDERS UNLESS DIRECTED BY THE ENGINEER.

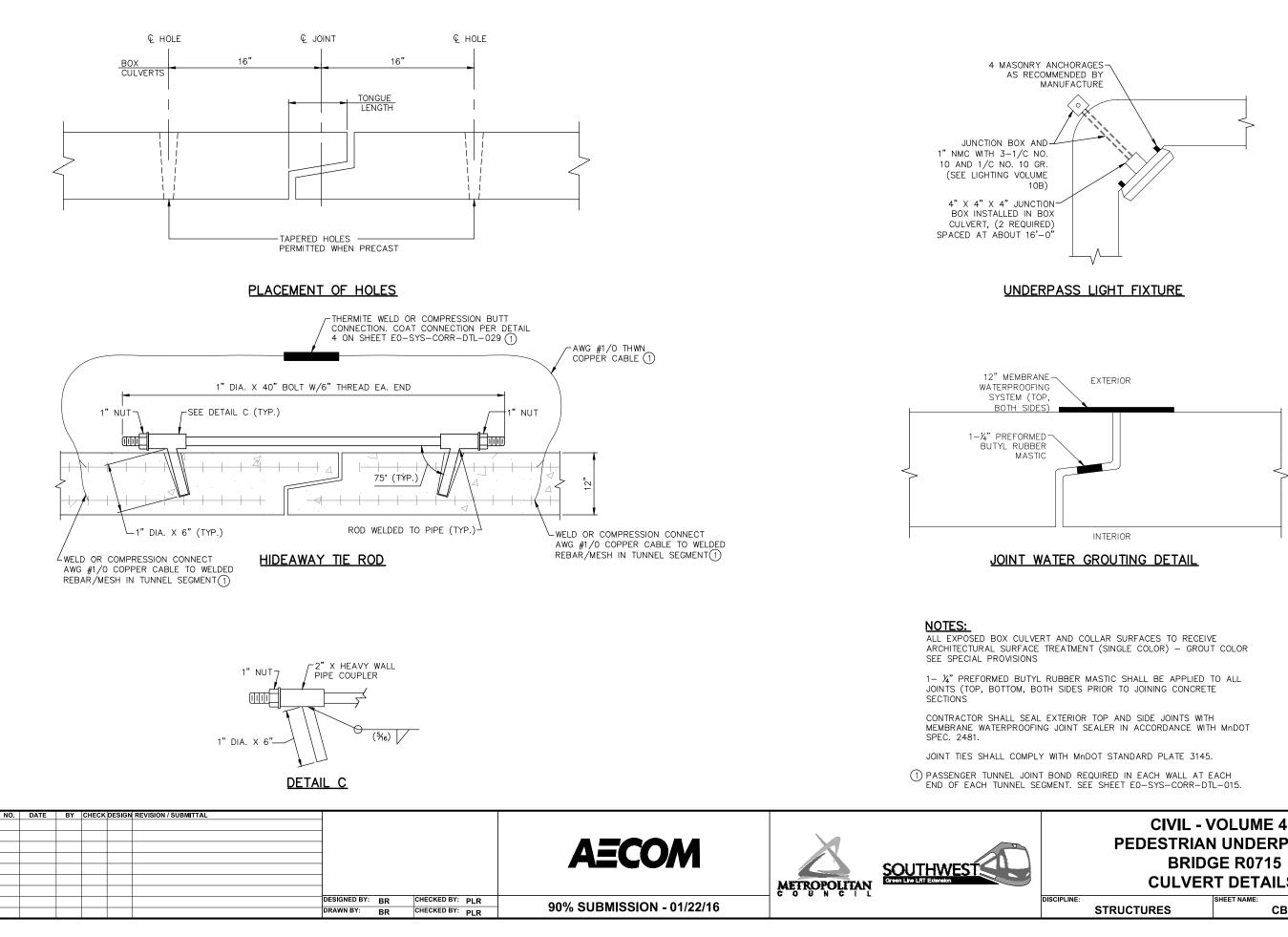
PAYMENT FOR THE DISTRIBUTION SLAD AND SELECT GRANULAR MATERIAL-BENEATH THE SLAD IS CONSIDERED INCIDENTAL.

REDESIGN THE DISTRIBUTION SLAD PER THE MINDOT PAVEMENT DESIGN MANUAL IF IT IS USED AS PAVEMENT SURFACE.

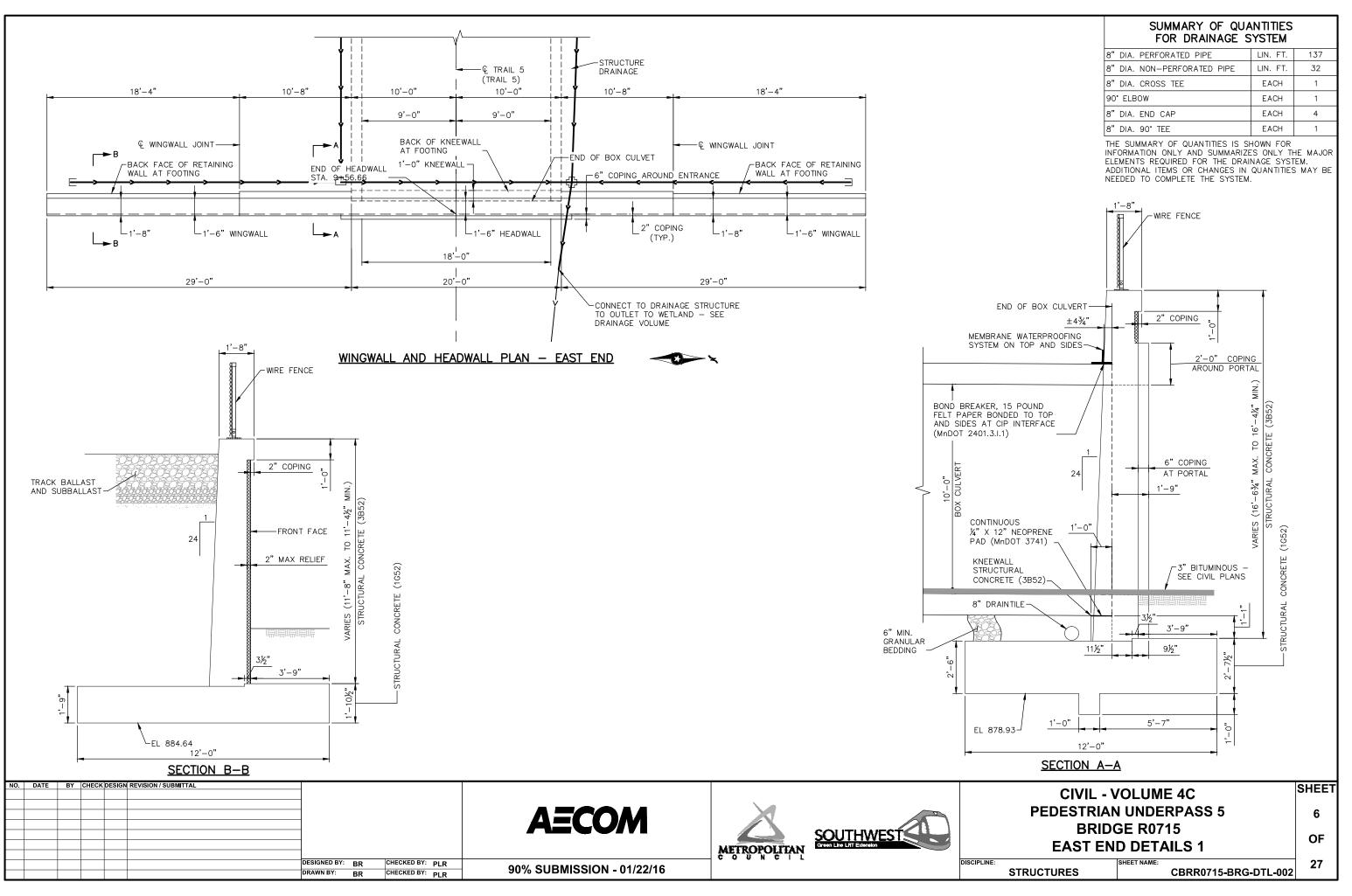
6 all exposed box culvert and collar surfaces to receive architectural surface treatment (single color) – grout color see special provisions

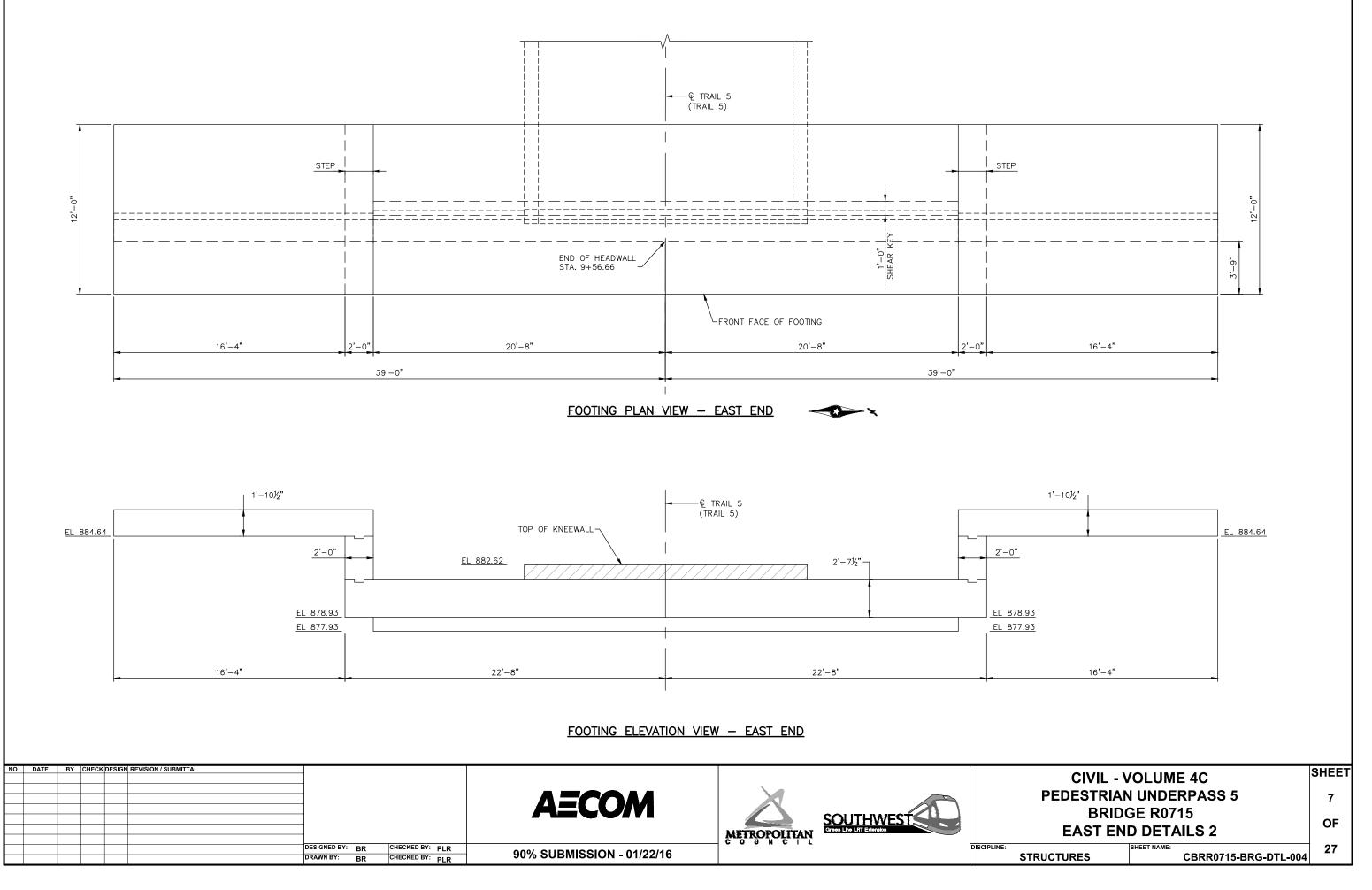
			(4) S⊦	EAR REINFOR	CEMENT
s7	As	s8	TOP AN	D BOTTOM OF	BARREL
LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN. <sup>2</sup> /FT.)	MAX. SPG. (IN.)	X (IN.)
12'-0"	0.29	12'-0"			

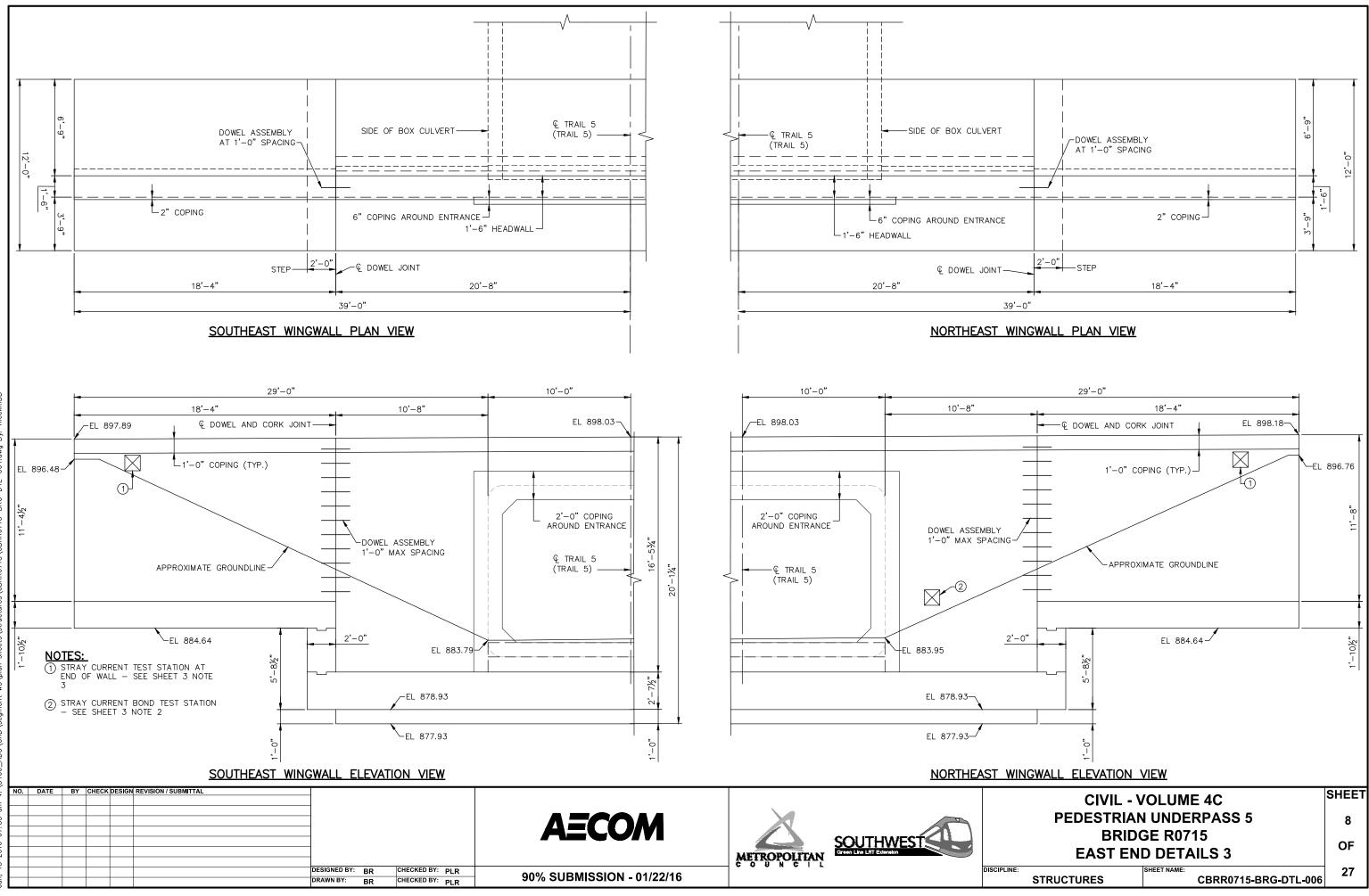
2353+25.0	0				F	FIG.	5-	-395.101(8	B) (MOD)
ETE S	DES: CHK:	BR PLR		DR: CHK:	B	R LR		PPROVED:	BRIDGE NO.
3	S	HEET	N	Э.	4	OF	27	SHEETS	R0715

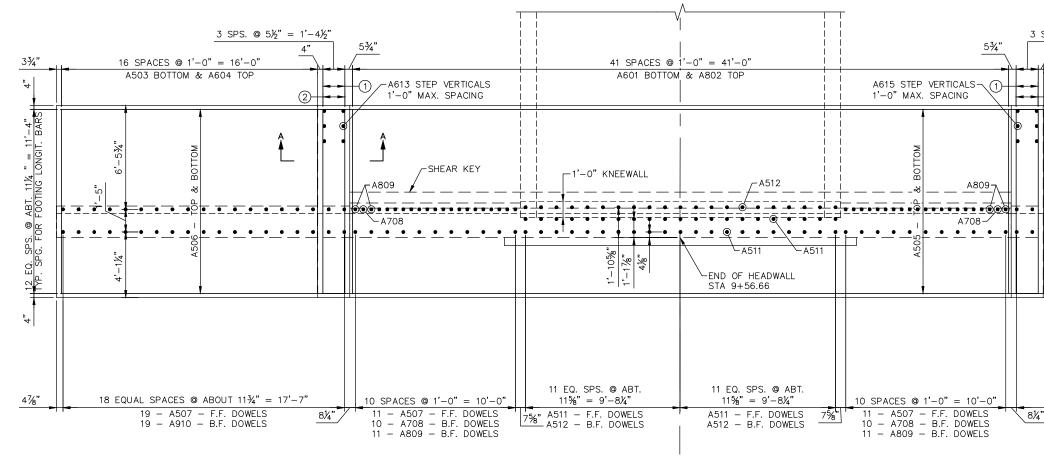


ER MASTIC SHALL BE APPLIED T JES PRIOR TO JOINING CONCRETE		
RIOR TOP AND SIDE JOINTS WITH IT SEALER IN ACCORDANCE WITH	I MnDOT	
MnDOT STANDARD PLATE 3145.		
) REQUIRED IN EACH WALL AT EA . SEE SHEET EO-SYS-CORR-DTL		
CIVIL - V	OLUME 4C	SHEET
PEDESTRIAN	UNDERPASS 5	5
BRIDG	SE R0715	05
CULVER	T DETAILS	OF
	T DETAILS SHEET NAME: CBRR0715-BRG-DTL-012	0F 27









FOOTING REINFORCEMENT - WEST END

# NOTES:

F.F. DENOTES FRONT FACE

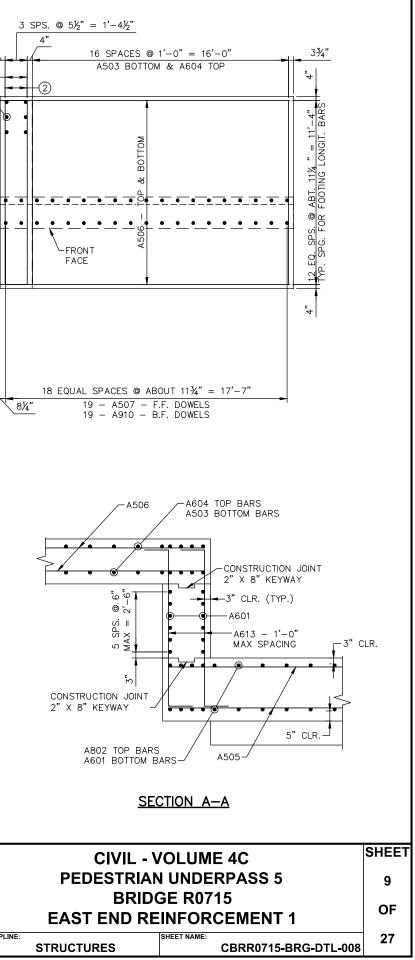
B.F. DENOTES BACK FACE

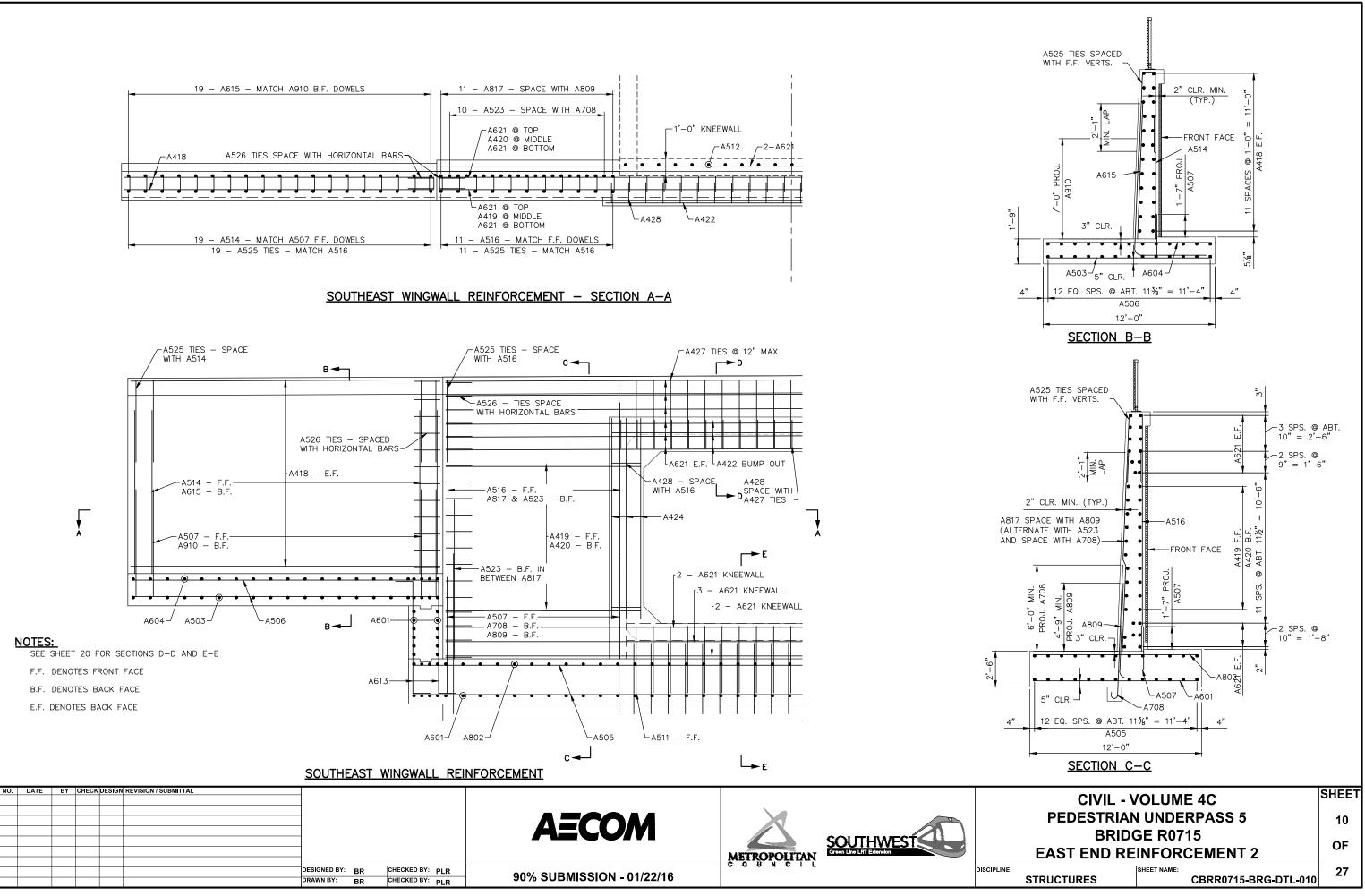
E.F. DENOTES BACK FACE

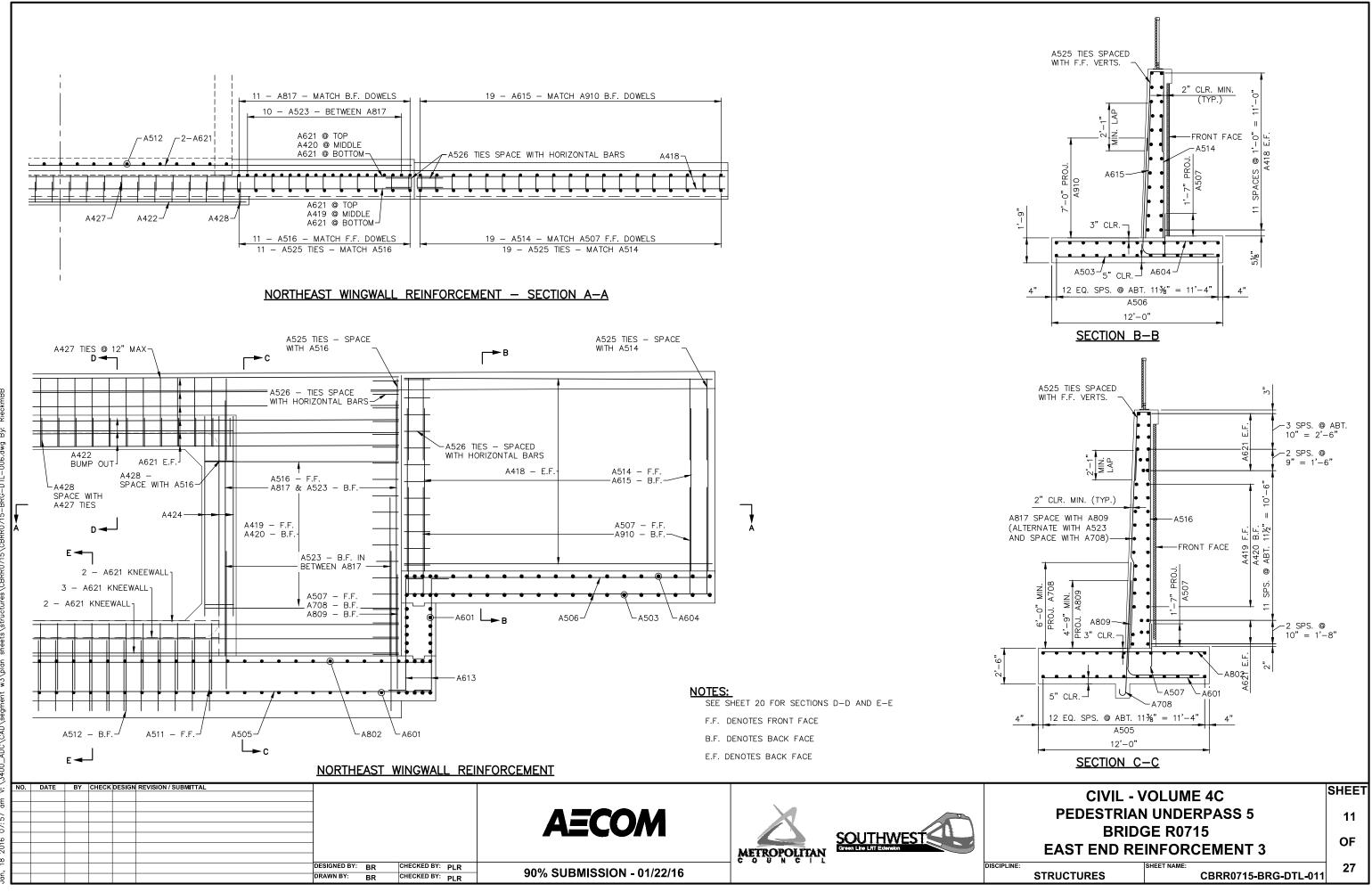
(1) A601 BOTTOM & A802 TOP (LOWER FOOTING)

(2) A503 BOTTOM & A604 TOP (UPPER FOOTING)

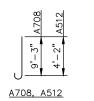
SOUTHWEST
A HIGH O DO Y STALLY CROWLING LT EMONON
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8 90% SUBMISSION - 01/22/16
DBY: PL



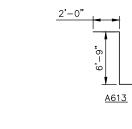


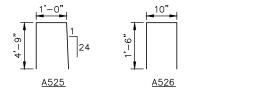


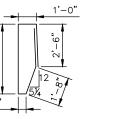
BILL OF REINFORCEMENT EAST HEADWALL						
BAR	NO.	LENGTH	SHAPE	LOCATION		
A601	74	11'-6"		EAST FTG BOTTOM TRANSVERSE		
A802	50	11'-6"		EAST FTG. – TOP TRANSVERSE		
A503	42	11'-6"		EAST FTG BOTTOM TRANSVERSE		
A604	42	11'-6"		EAST FTG. – TOP TRANSVERSE		
A505	26	44'-10"		EAST FTG. – LONGITUDINAL		
A506	52	17'-10"		EAST FTG. – LONGITUDINAL		
A507	60	3'-0"		EAST FTG FF DOWELS		
A708	20	10'-2"		EAST FTG BF DOWELS		
A809	22	12'-0"		EAST FTG BF DOWELS		
A910	38	13'-3"		EAST FTG BF DOWELS		
A511	42	4'-9"		KNEEWALL - FF DOWELS		
A512	21	5'-0"	L	KNEEWALL – BF DOWELS		
A613	26	10'-9"		EAST FTG. – STEP VERTICAL		
A514	38	9'-7"		VERTICAL		
A615	38	10'-2"		VERTICAL		
A516	22	14'-2"		VERTICAL		
A817	22	14'-2"		VERTICAL		
A418	48	18'-0"		HORIZONTAL		
A419	20	11'-4"		HORIZONTAL		
A420	20	10'-4"		HORIZONTAL		
A621	19	41'-0"		HORIZONTAL		
A422	3	21'-8"		HORIZONTAL		
A523	18	9'-3"		VERTICAL		
A424	6	11'-8"		VERTICAL - ENTRANCE		
A525	60	10'-6"		TOP TIES		
A526	64	3'-10"		HORIZONTAL - WALL JOINT TIES		
A427	20	11'-9"		HEADWALL TOP TIE		
A428	40	4'-0"		BUMP OUT TIE		









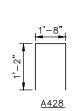


\511

3'-11"

<u>A511</u>

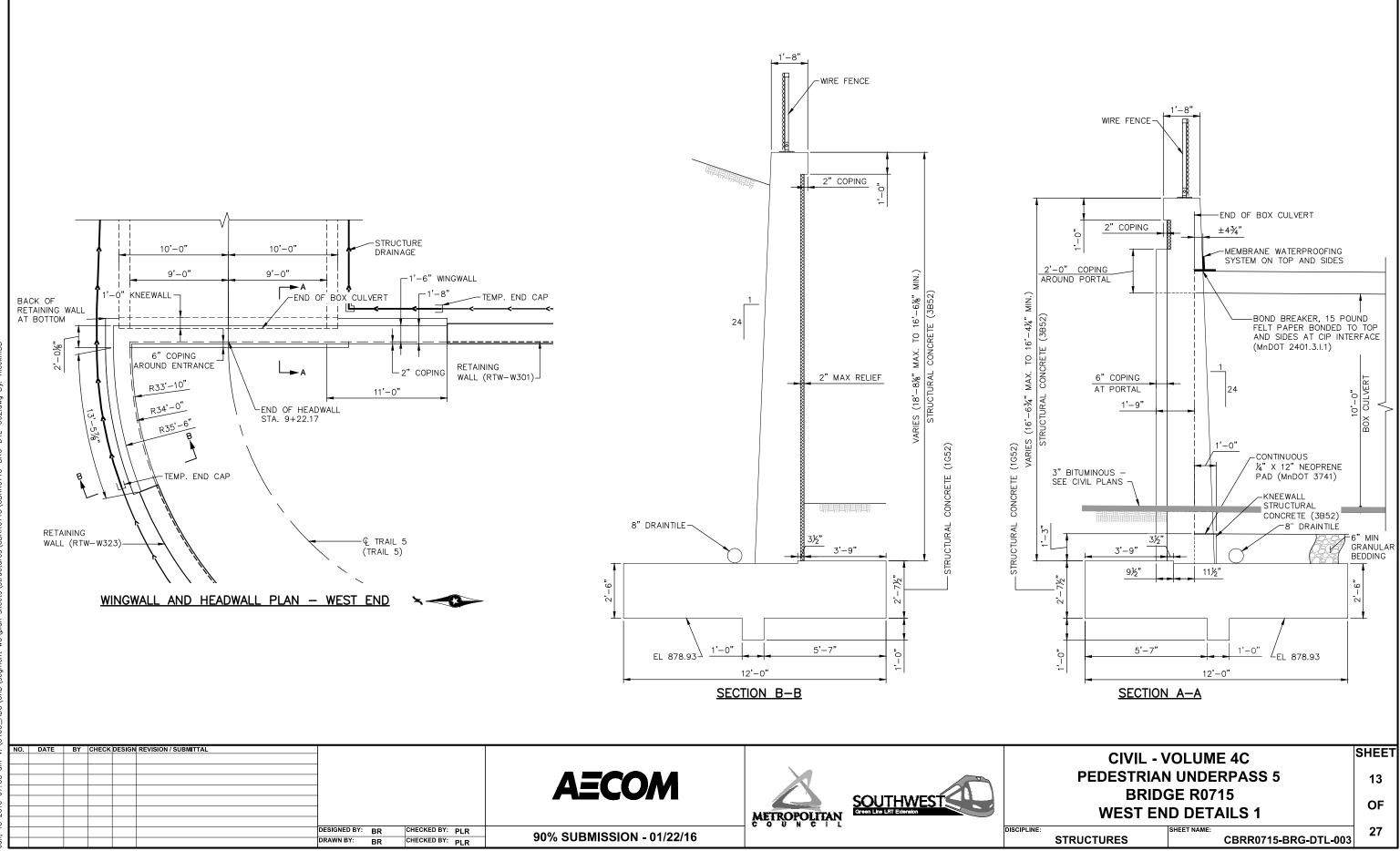
<u>A427</u>

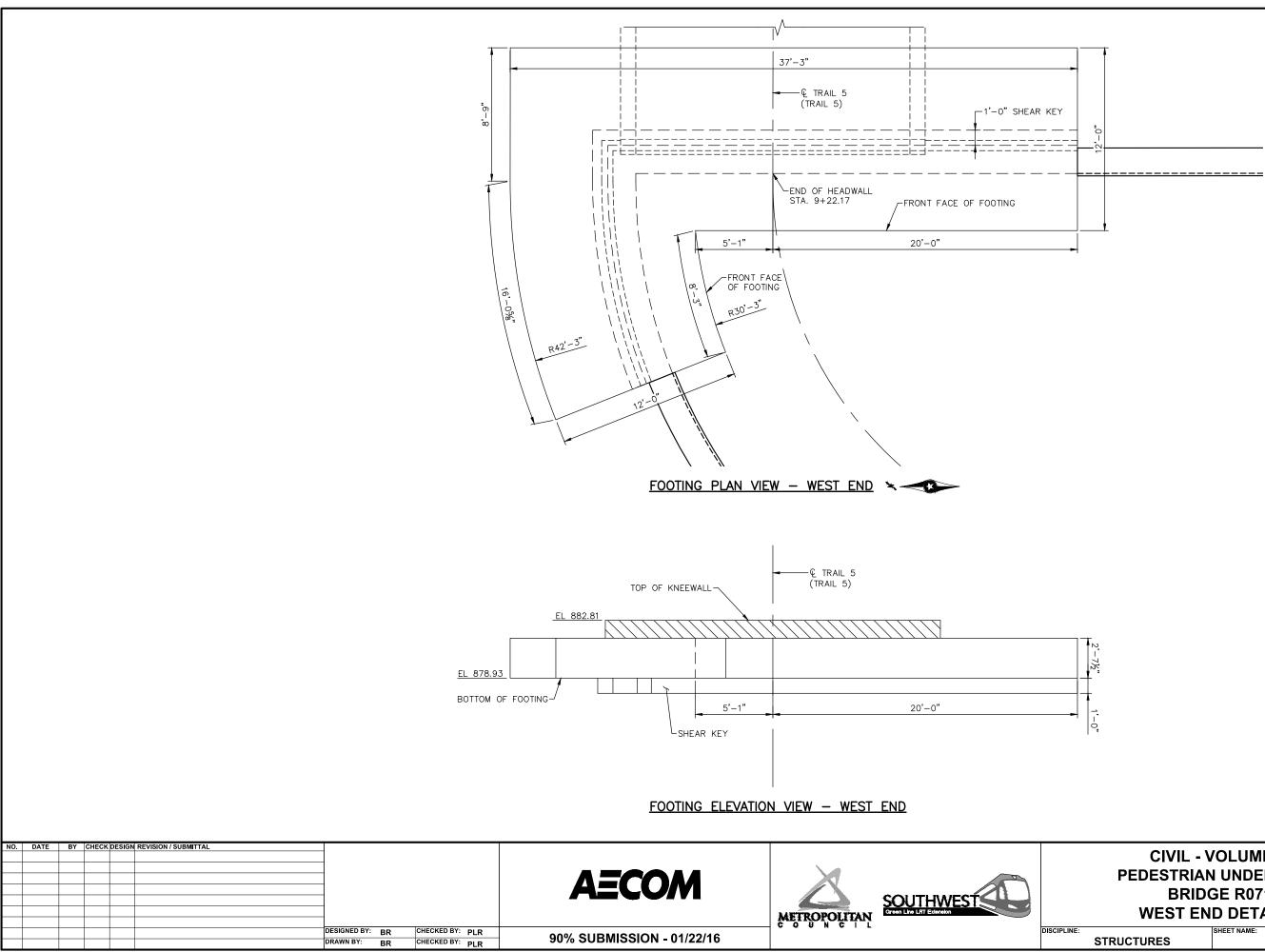


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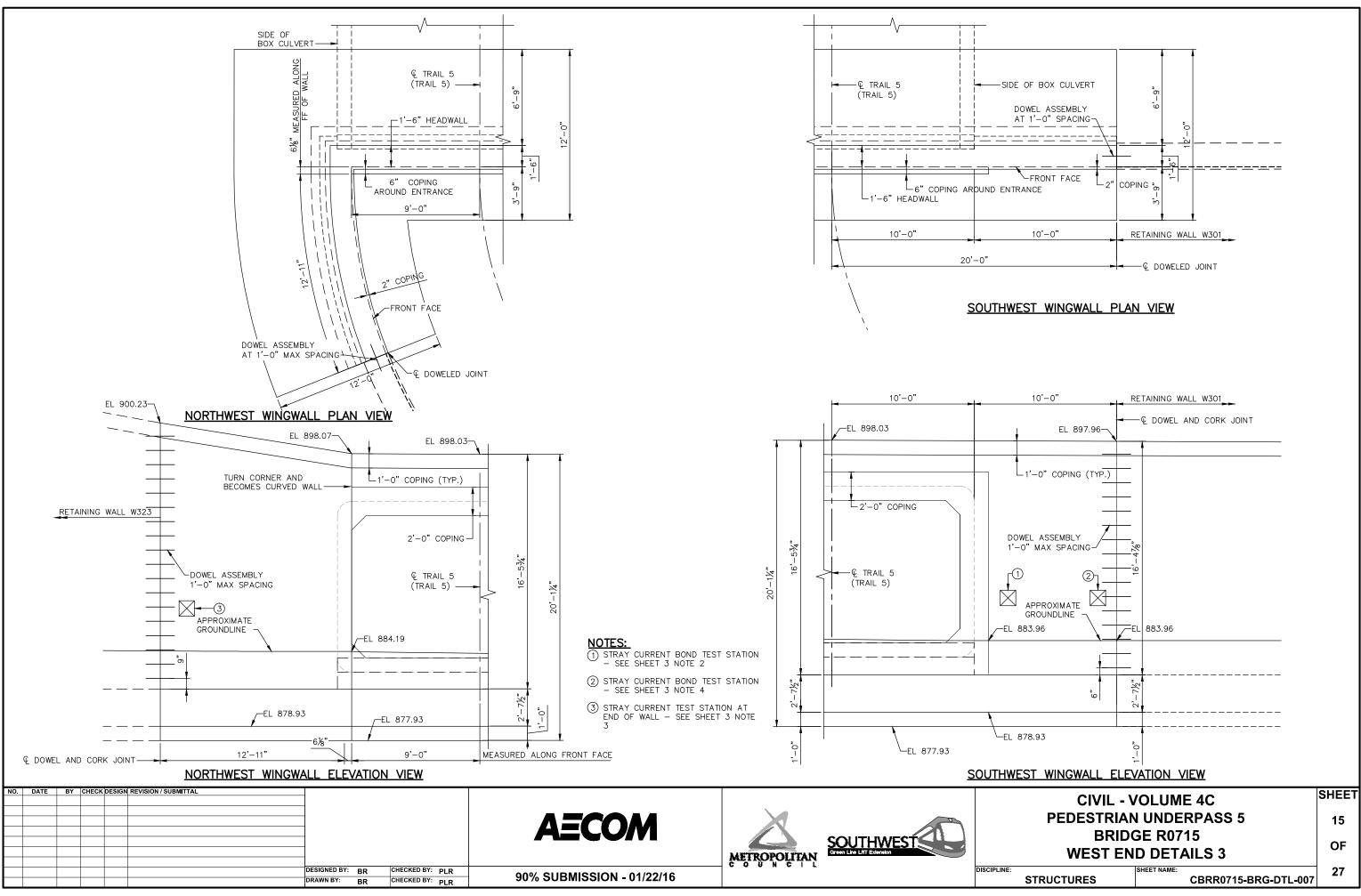


	CIVIL - VOLUME 4C						
	PEDESTRIAN UNDERPASS 5						
	BRIDGE R0715						
	EAST END REINFORCEMENT 4						
E:		CBRR0715-BRG-DTL-016	27				





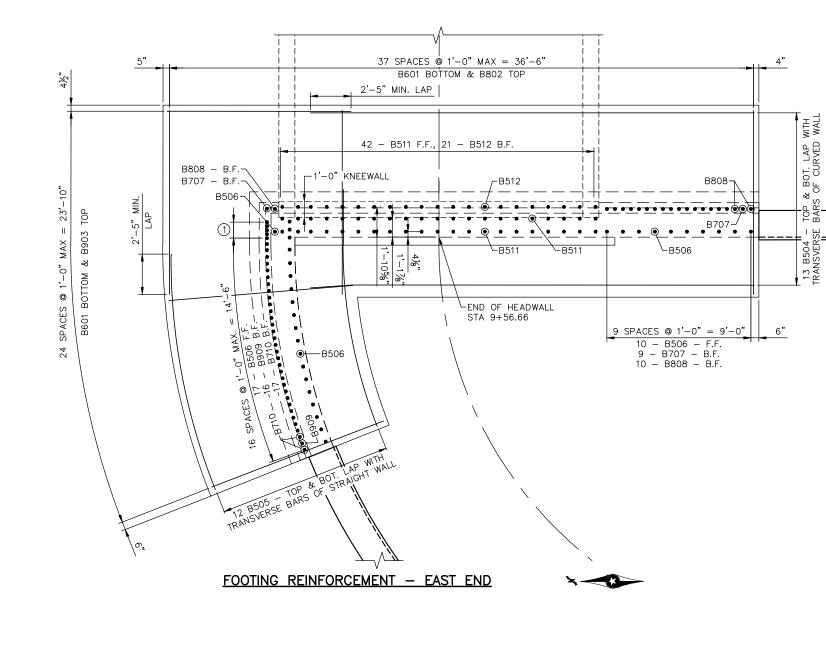
CIVIL - VOLUME 4C					
PEDESTRIAN UNDERPASS 5					
BRIDGE R0715					
WEST END DETAILS 2					
STRUCTURES CBRR0715-BRG-DTL-005	27				

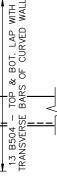


NOTES: F.F. DENOTES FRONT FACE B.F. DENOTES BACK FACE E.F. DENOTES BACK FACE

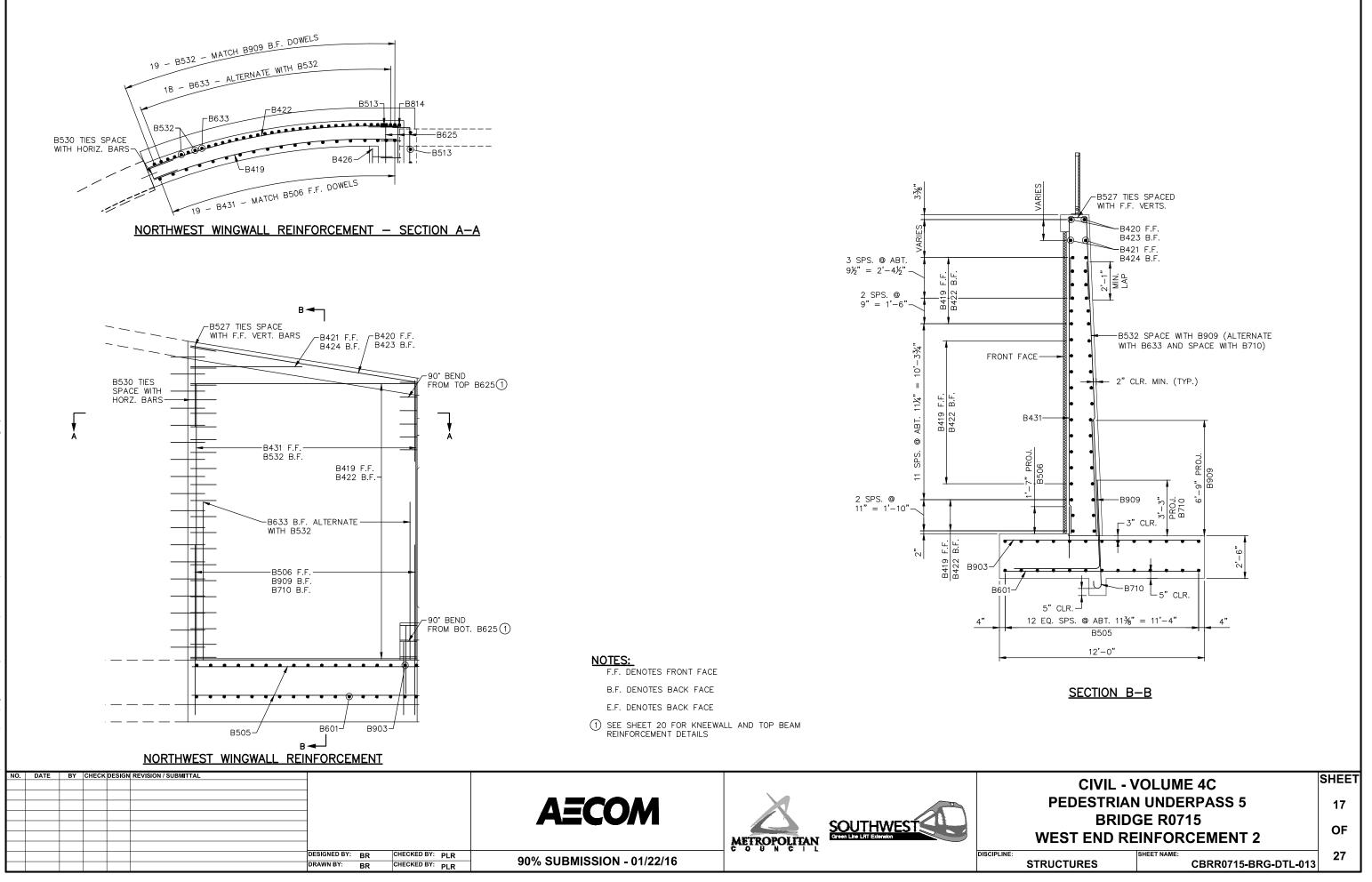
(1) 2 SPACES (0) 6'' = 1'-0''B506 F.F., B909 B.F., B710 B.F.

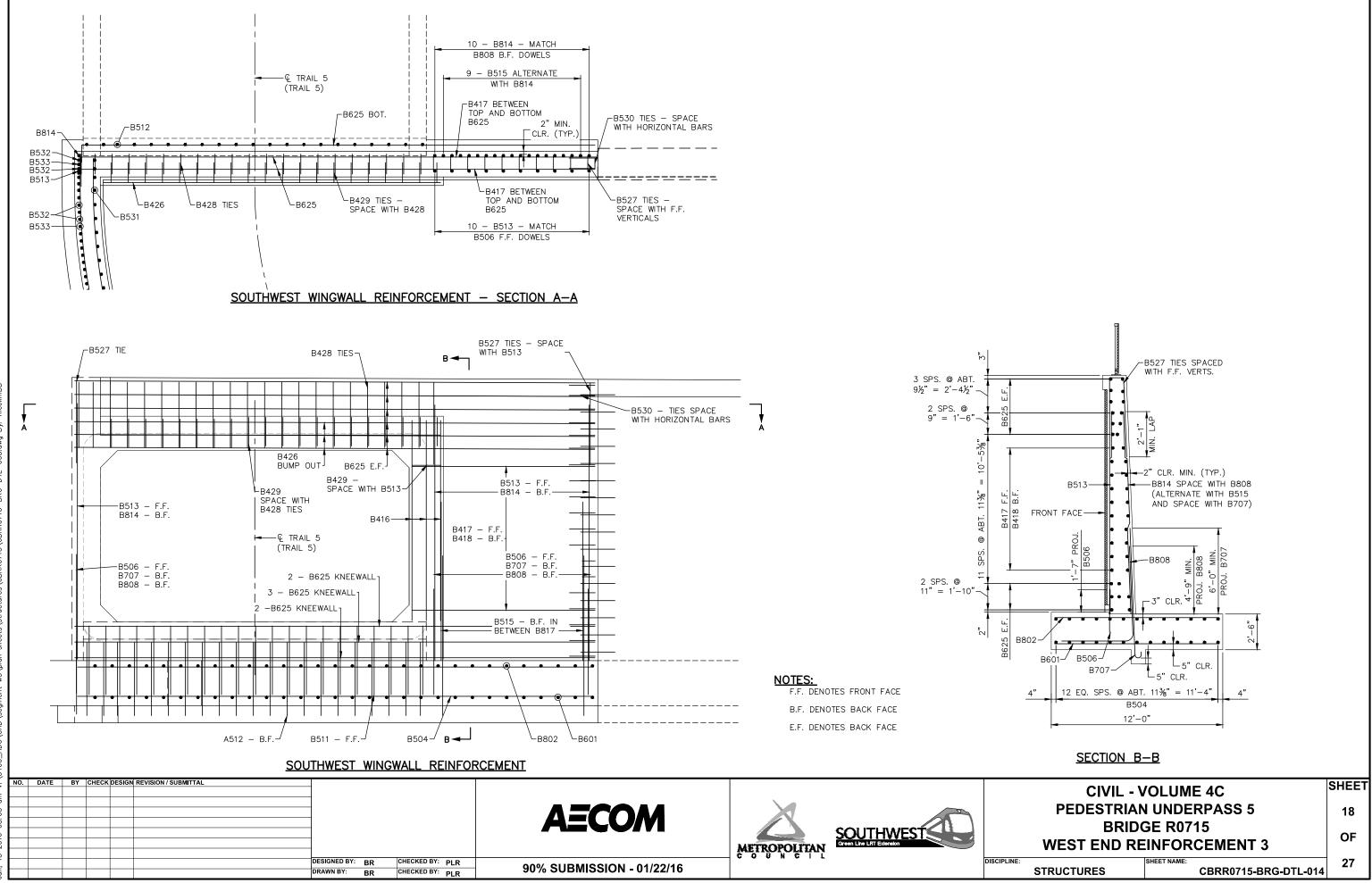
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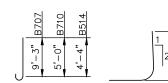
CIVIL - VOLUME 4C				
PEDESTRIAN	PEDESTRIAN UNDERPASS 5			
BRIDO	GE R0715	OF		
WEST END RE	INFORCEMENT 1			
STRUCTURES	SHEET NAME: CBRR0715-BRG-DTL-009	27		





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	BILL OF REINFORCEMENT WEST HEADWALL					
BAR	NO.	LENGTH	SHAPE	LOCATION		
B601	63	11'-6"		WEST FTG BOTTOM TRANSVERSE		
B802	38	11'-6"		WEST FTG TOP TRANSVERSE		
B903	25	11'-6"		WEST FTG. – TOP TRANSVERSE		
B504	26	27'-9"		WEST FTG LONGITUDINAL		
B505	24	15'–1"		WEST FTG. – LONGITUDINAL		
B506	30	3'-0"		WEST FTG FF DOWELS		
B707	10	10'-2"	L	WEST FTG BF DOWELS		
B808	11	12'-0"		WEST FTG BF DOWELS		
B909	18	14'-6"		WEST FTG BF DOWELS		
B710	19	5'-10"	L	WEST FTG BF DOWELS		
B511	42	5'-11"		KNEEWALL - FF DOWELS		
B512	21	5'-2"		KNEEWALL – BF DOWELS		
B513	11	14'-2"		VERTICAL		
B814	11	14'-2"		VERTICAL		
B515	9	9'-3"		VERTICAL		
B416	3	11'-8"		VERTICAL - ENTRANCE		
B417	10	10'-8"		HORIZONTAL		
B418	10	10'-8"		HORIZONTAL		
B419	19	14'-6"		HORIZONTAL		
B420	1	14'-9"		HORIZONTAL		
B421	1	6'-6"		HORIZONTAL		
B422	19	15'-0"		HORIZONTAL		
B423	1	15'-1"		HORIZONTAL		
B424	1	6'-7"		HORIZONTAL		
B625	19	31'-0"		HORIZONTAL		
B426	3	21'-8"		HORIZONTAL		
B527	29	10'-6"		TOP TIES		
B428	21	11'-9"		HEADWALL TOP TIE		
B429	19	4'-0"		BUMP OUT TIE		
B530	40	3'-10"		HORIZONTAL - WALL JOINT TIES		
B431	19	16'-2"		VERTICAL		
B532	19	16'-2"		VERTICAL		
B633	18	9'-3"		VERTICAL		



808



<u>B707, B710, B514</u> <u>B808, B909</u>

.9-

1'-0"

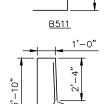
<u>B527</u>

30'-0" <u>B625</u>

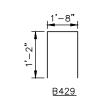
24

<u>⊢10"</u>⊢

<u>B530</u>



<u>B428</u>

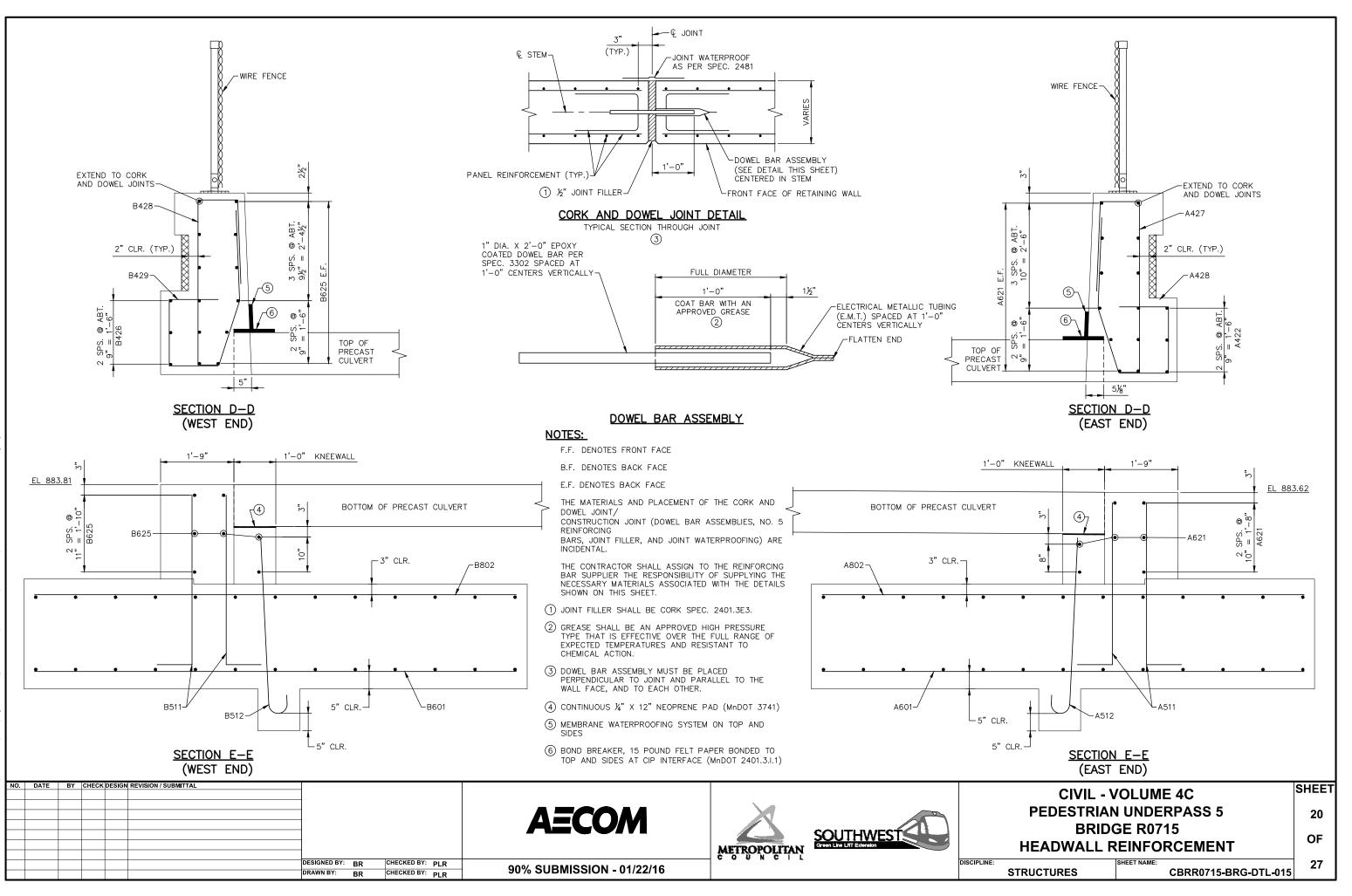


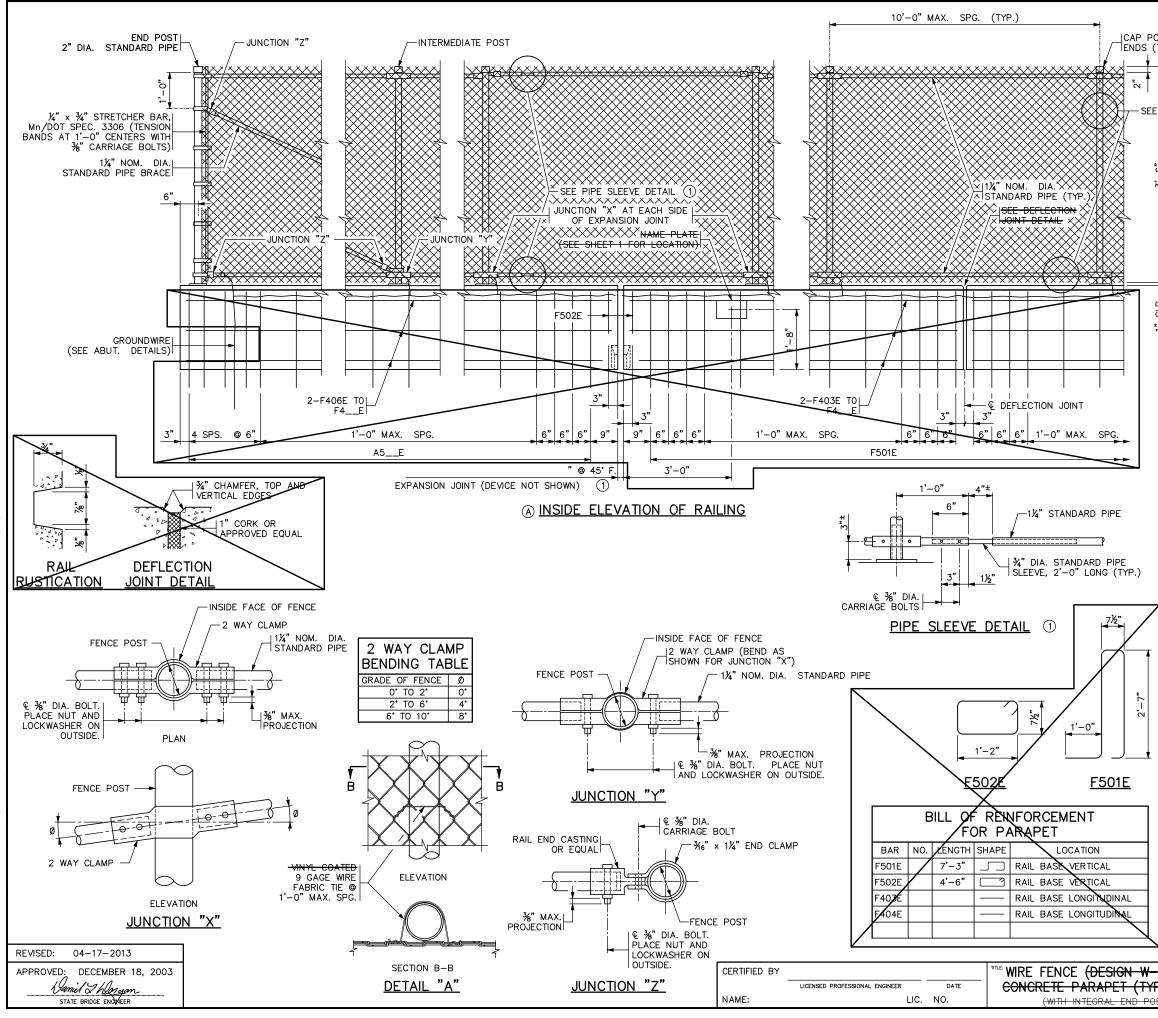
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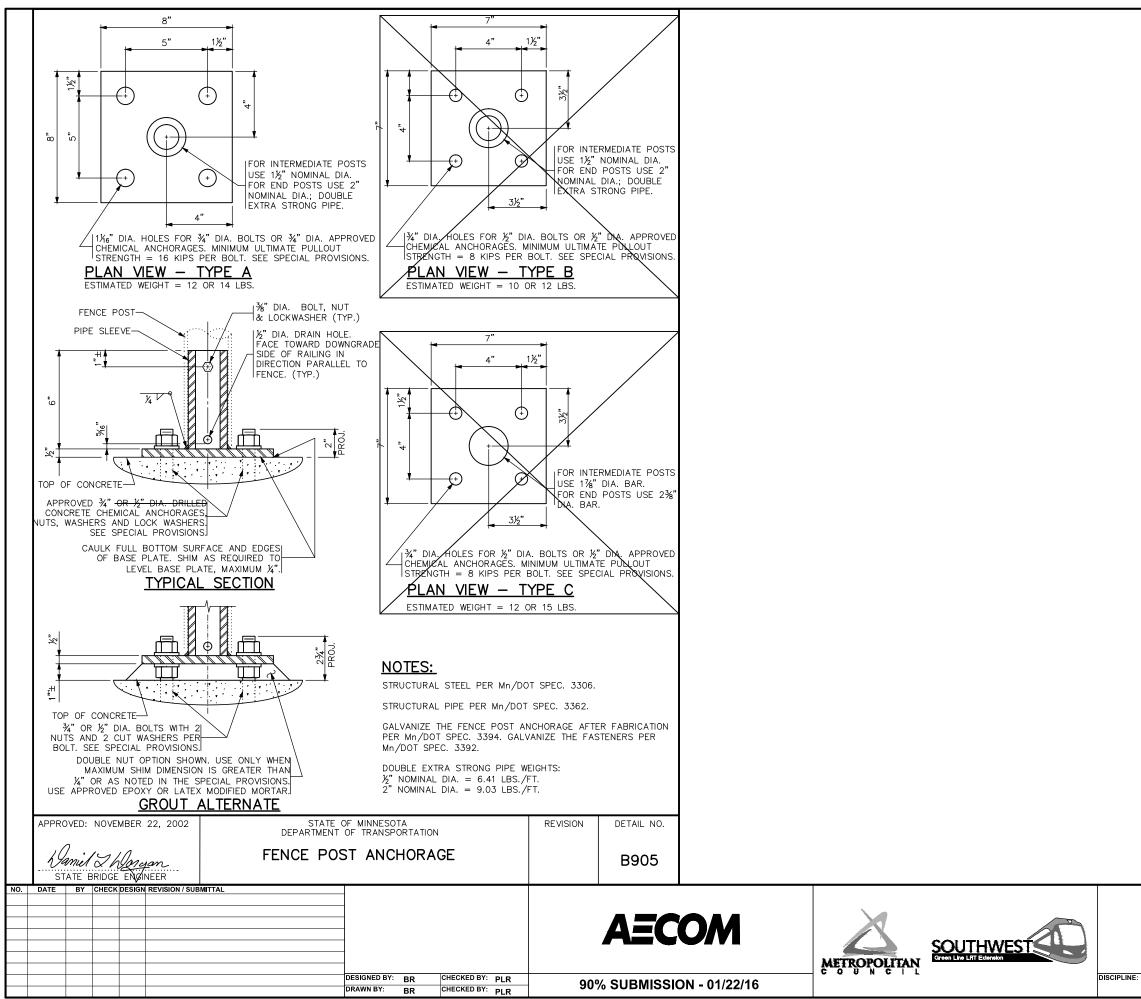
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						-						Green Line LRT Extension	
						-					METROPOLITAN		
											C Q U N C I L		
						DESIGNED BY:	BR	CHECKED BY: P	PLR	90% SUBMISSION - 01/22/16			DISCIPLINE
						DRAWN BY:	BR	CHECKED BY: F	PLR	90% SUDIVIISSION - 01/22/10			

CIVIL - VOLUME 4C					
PEDESTRIAN UNDERPASS 5					
BRIDGE R0715					
WEST END REINFORCEMENT 4					
STRUCTURES STRUCTURES CBRR0715-BRG-DTL	017 27				





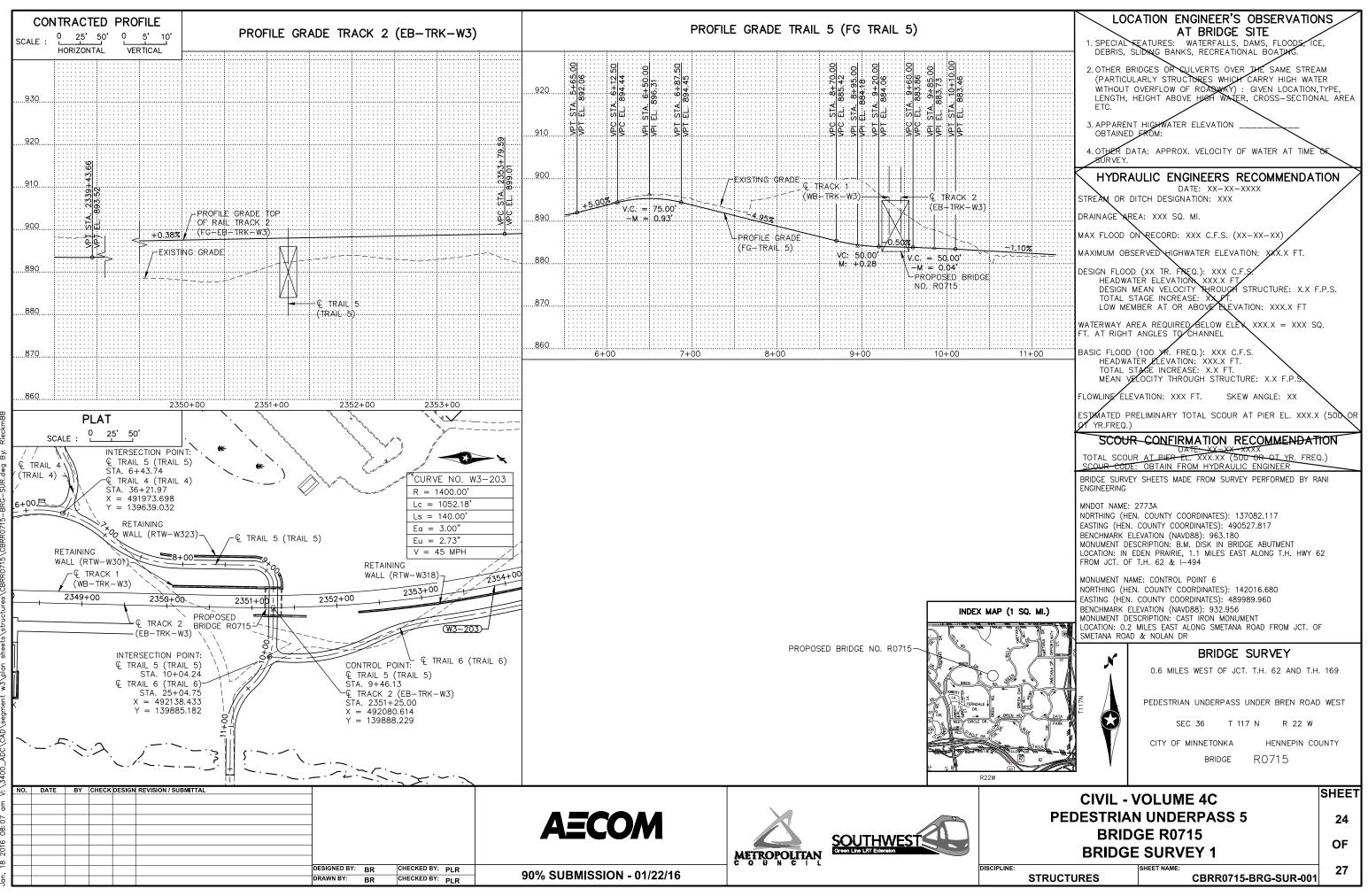
	2" NOM. D PIPE 3.65 2" NOM. D	EDIATE POSTS: DIA. STANDARD LBS. PER FT. END POSTS: DIA. STANDARD LBS. PER FT. ENDS ONLY		POST (TYP.)
3'-6" CHAIN LINK FABRIC	TOP AND 1¼" NOM. D	FENCE FABRIC — BOTTOM RAIL:   IA. STANDARD   LBS. PER FT.   2"CLR. MIN. —		"- "4 " " " " " " " " " " " " " " " " "
1" CLR.	$\begin{array}{c} \begin{array}{c} 2 \\ 3^{n} \\ \hline \end{array} \\ \end{array} \\ \begin{array}{c} 3^{n} \\ \hline \end{array} \\ \end{array} \\ \begin{array}{c} 2 \\ \hline \end{array} \\ \begin{array}{c} 3^{n} \\ \hline \end{array} \\ \begin{array}{c} 1 \\ 1 \\ \hline \end{array} \\ \begin{array}{c} 0 \\ 1 \\ \hline \end{array} \\ \begin{array}{c} 0 \\ 0 \\ \hline \end{array} \\ \begin{array}{c} 0 \\ 0 \\ 0 \\ \end{array} \\ \begin{array}{c} 0 \\ 0 \\ 0 \\ \end{array} \\ \begin{array}{c} 0 \\ 0 \\ 0 \\ \end{array} \\ \begin{array}{c} 0 \\ 0 \\ 0 \\ \end{array} \\ \begin{array}{c} 0 \\ 0 \\ 0 \\ \end{array} \\ \begin{array}{c} 0 \\ 0 \\ 0 \\ \end{array} \\ \begin{array}{c} 0 \\ 0 \\ 0 \\ \end{array} \\ \begin{array}{c} 0 \\ 0 \\ 0 \\ 0 \\ \end{array} \\ \begin{array}{c} 0 \\ 0 \\ 0 \\ 0 \\ \end{array} \\ \begin{array}{c} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ \end{array} \\ \begin{array}{c} 0 \\ 0 \\ 0 \\ 0 \\ \end{array} \\ \begin{array}{c} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ \end{array} \\ \begin{array}{c} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ \end{array} \\ \begin{array}{c} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ \end{array} \\ \begin{array}{c} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ \end{array} \\ \begin{array}{c} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 $	INTERMEDI.		8 <u>34</u> 834 6
-SEE CONCI -REINFORCE LENGTH OF SHALL BE-	MEASURED BET		È FACES OF THE	<u>VENSION, -</u> <del>7 FOR PAYMENT</del> <del>CONCRETE RAIL.</del>
CONCRETE FENCE POS POST ANCI MAXIMUM ( FOR SPACI SUPERSTRU FENCE POS UNLESS OT Q OF FENC	RAILING = 350 ST ANCHORAGES HORAGE". SPACING OF DEF NG OF FENCE F JCTURE SHEETS STS AND FENCE HERWISE NOTED E POST ANCHOI	LBS./FT. (0.086 SHALL BE TYPE CLECTION JOINTS ( COST, JOINTS AN T POST ANCHORAG	<del>S CU. YDS./FT.)</del> A. SEE DETAIL <del>SHALL BE 20 FT.</del> D ELECTRICAL GR ES SHALL BE SE <sup>-</sup> A MINIMUM OF 6"	<del>ounds, see</del> i vertical, from joints.
ALL POSTS WIRE IN PO A POST WI WIRE TIES ALLOY CON GALVANIZE ALL MATER SUPERSTRU -SUPERSTRU -SUPERSTRU -SUPERSTRU -SUPERSTRU -SUPERSTRU	SHALL HAVE / DSITION AND AL THOUT DAMAGIN MAY BE 9 GAG IFORMING TO A. D HOG RINGS F NAL IN THE CON JCTURE QUANTI AL PROVISIONS- D FOR DASIS OF DE PIPE SLEEVE	A MEANS TO SECT LOW FOR THE REP IC THE TOP WIRE. E GALVANIZED ST S.T.M. B211, ALL OR TENSION WIRE NCRETE BASE ANE THES. FOR REQUIREMENT	URELY HOLD THE MOVAL AND REPL - EEL OR 0.179" MI .OY 1100-H18. TIES. - END POST IS IN IS NOT INCLUDED IN THE VERTICAL	TOP TENSION ACEMENT OF N. ALUMINUM USE 12½GAGE CLUDED IN THE ON THIS POSTS AT
- <u>-1) AND</u> (PE_P-1) ⊕ST)	des: br Chk: plr SHEET NC	DR: ВR СНК: PLR	FIG. 5-39 APPROVED:	



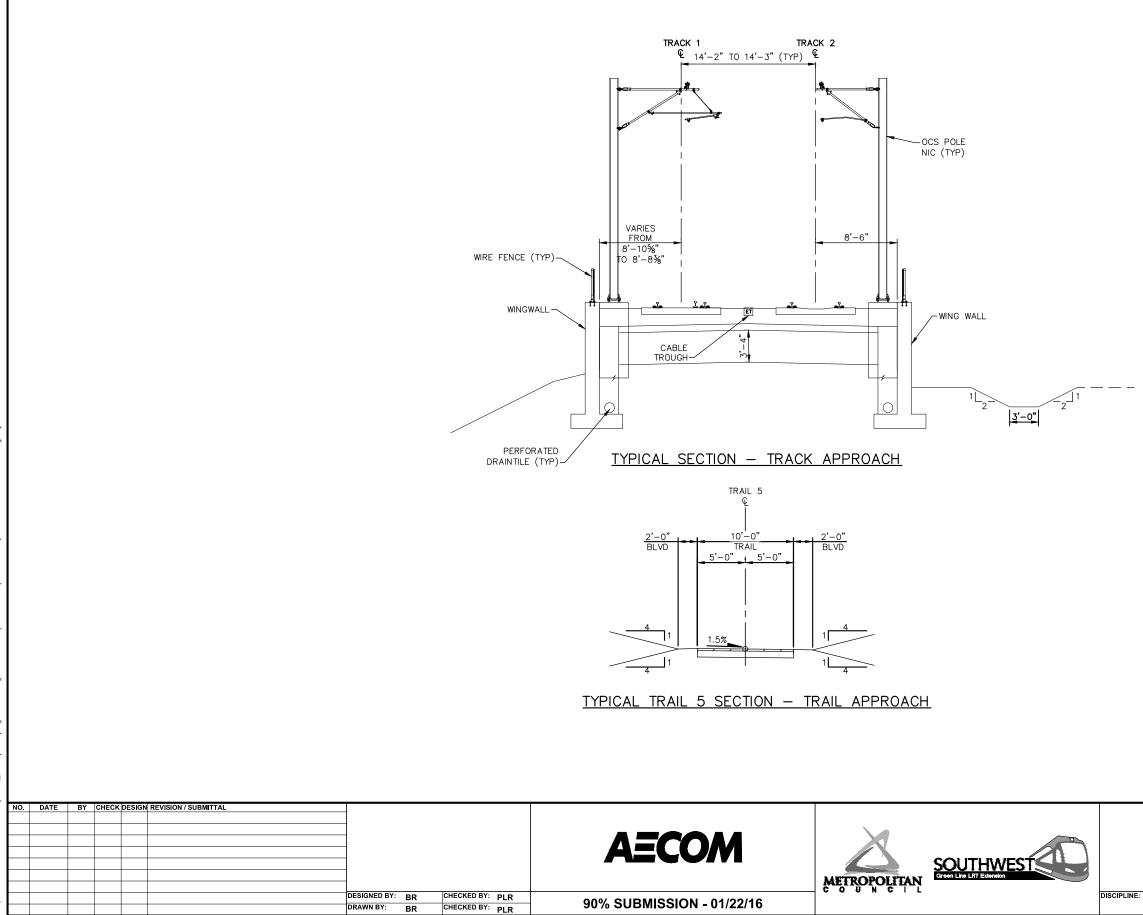
	CIVIL - VOLUME 4C					
	PEDESTRIAN UNDERPASS 5					
	BRIDGE R0715					
	BRIDGE DETAILS					
:	STRUCTURES	SHEET NAME: CBRR0715-BRG-BDTL	27			

CONCRETE WEARING COURSE	PAINT SYSTEM	OTHER ITEMS ①
LOW SLUMP	Mn/DOT SPECIFICATION NUMBER2478 OR 2479 OR OTHER	(1) UTILITIES ADDED DURING CONSTRUCTION AND SPECIALTY ITEMS.
OTHER	MANUFACTURERNAME AND ADDRESS (CITY, STATE)	FINAL QUANTITIES ENTERED ON SCHEDULE OF QUANTITIES: YES NO
EXPANSION JOINTS	PRIME COAT	
JOINT MANUFACTURER	INTERMEDIATE COAT	
MANUFACTURER'S IDENTIFICATION	FINISH COAT	
GLAND MANUFACTURERNAME AND ADDRESS (CITY, STATE)	PLAN QUALITY RATE 1 (AGREE), 2 (NEUTRAL), OR 3 (DISAGREE, PLEASE COMMENT BELOW)	
MANUFACTURER'S IDENTIFICATION		
MFR'S No. AND/OR LETTER DESIGNATION FOR GLAND USED	DIMENSIONING AND DETAILING ADEQUATELY DESCRIBED REQUIRED CONSTRUCTION. BAR LISTS AND QUANTITIES WERE TYPICALLY COMPLETE AND FREE OF ERRORS. SCALE OF DRAWINGS AND OVERALL LEGIBILITY OF LINES AND TEXT WAS GOOD. (SB) SPECIAL PROVISIONS ADEQUATELY DESCRIBED SPECIAL WORK AND PAYMENT.	SUMMARY OF SIGNIFICANT AS-BUILT CHANGES
ELASTOMERIC BEARING PADS	 COMMENTS:	AS-BOILT CHANGES
PAD MANUFACTURERNAME AND ADDRESS (CITY, STATE)		
SPECIAL SURFACE FINISH		
SYSTEM: COLOR:		
FINISHING ROADWAY FACES OF BARRIER RAILING	NUMBER OF BRIDGE SUPPLEMENTAL AGREEMENTS: COST: \$	
TYPE: COLOR:	LIST SIGNIFICANT ERRORS OR OMISSIONS IN PLAN DETAILS OR PAY QUANTITIES IN THE SPACE PROVIDED AT RIGHT.	
ANTI-GRAFFITI COATING	BRIDGE REMOVAL / BRIDGE OPENING	
MANUFACTURER	NUMBER OF AND DATE OLD BRIDGE WAS REMOVED (IF APPLICABLE):	
PRODUCT NAME: LOCATION:	BRIDGE NUMBER DATE REMOVED	
	DATE NEW BRIDGE WAS OPENED TO TRAFFIC	
		THE AS-BUILT INFORMATION WAS ADDED TO THE PLAN BY:
		INSPECTOR(S) SIGNATURE DATE
		CHECKED BY:
EVISION: 10-28-2008 AS-BUIL	T_DETAILS	FIG. 5–397.900
PPROVED SEPTEMBER 26 2003	EEDED)	AS-BUILT BRIDGE DATA DES: DR: APPROVED: BRIDGE NO. SHEET NO. 23 OF 27 SHEETS R0715

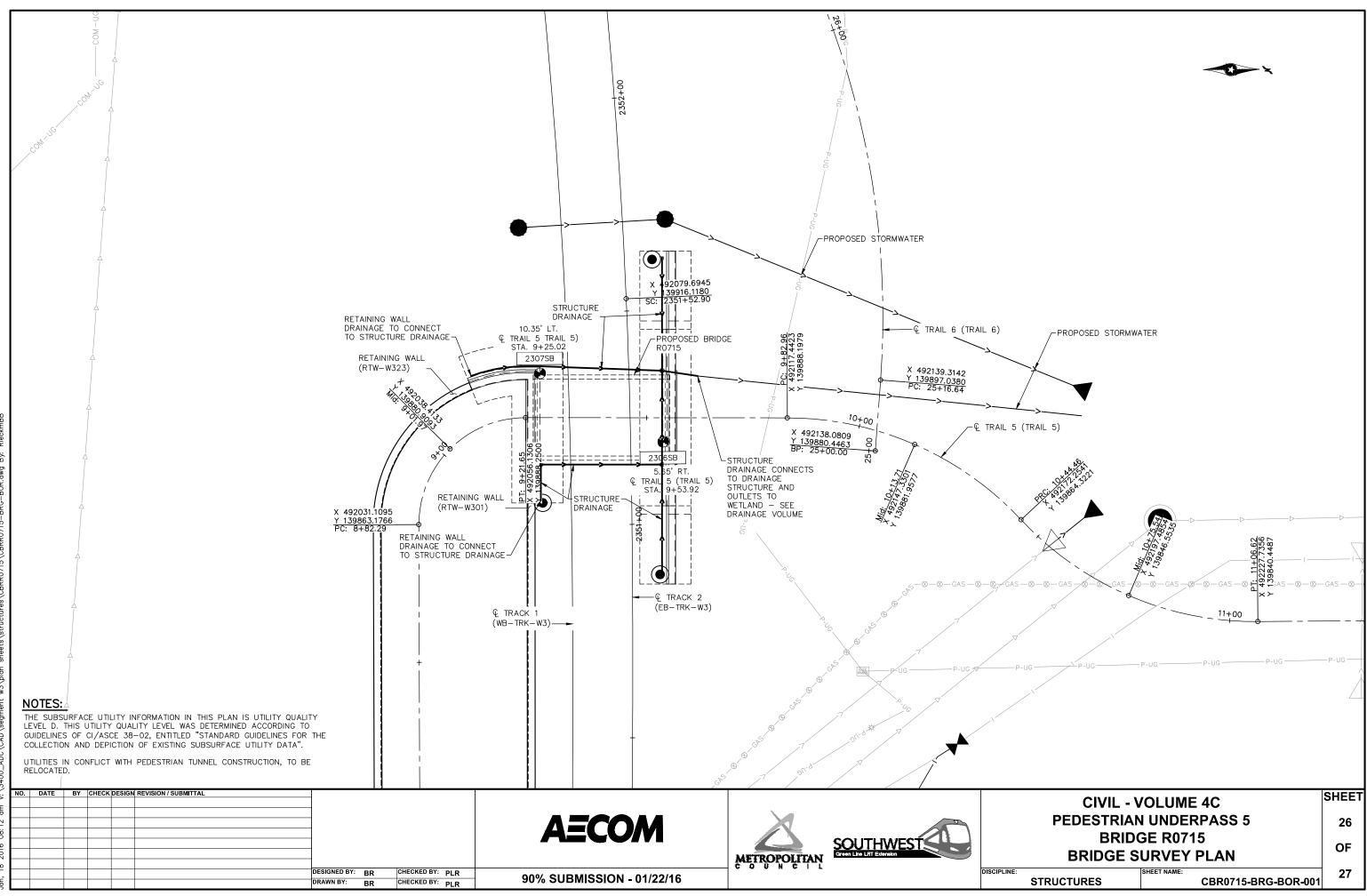
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	CIVIL - VOLUME 4C					
	PEDESTRIAN UNDERPASS 5					
	BRIDGE R0715 BRIDGE SURVEY 2					
:	STRUCTURES	SHEET NAME: CBRR0715-BRG-SUR-002	27			



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