METROPOLITAN COUNCIL

SOUTHWEST
Green Line LRT Extension

CIVIL CONSTRUCTION

VOLUME 5
TUNNELS

PLAN PACKAGE INDEX / 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	

* TO BE SUBMITTED AT A LATER DATE
▲ SUBMITTED AT 75%, NOT INCLUDED IN 90%

THE PROPOSED SOUTHWEST LRT PROJECT IS NOT FINAL BUT IS STILL UNDER ENVIRONMENTAL REVIEW AND THE PROJECT IS SUBJECT TO CHANGE. THESE PLANS ARE NOT FINAL.

THE COUNCIL, THROUGH THE DEVELOPMENT OF THESE PLANS, DOES NOT INTEND THAT THEY WILL PREJUDICE OR COMPROMISE ANY STATE OR FEDERAL ENVIRONMENTAL REVIEW OR OTHER LEGAL REQUIREMENTS. THESE PLANS DO NOT LIMIT THE PROJECT DESIGN ALTERNATIVES OR MITIGATIVE MEASURES THAT THE COUNCIL MAY UNDERTAKE IF THE PROPOSED SWLRT PROJECT PROCEEDS TO CONSTRUCTION.

THE COUNCIL WILL NOT TAKE FINAL ACTION ON THIS MATTER UNLESS THE COUNCIL PROCEEDS WITH THE PROJECT AFTER THE FTA'S RECORD OF DECISION AND THE COUNCIL'S DETERMINATION OF ADEQUACY.

90% SUBMISSION
DATE : 01/22/16

AECOM

CIVIL CONSTRUCTION

SHT #	SHEET NAME	SHEET DESCRIPTION	STATION	STATION	REV
		VOLUME 5 - TUNNELS			
1	00-GEN-CVR-001	COVER SHEET			
2	00-GEN-IDX-001	VOLUME INDEX OF PLAN SHEETS			
3	W0-GEN-KEY-001	GENERAL KEY MAP SHEET 1			
4	E0-GEN-KEY-002	GENERAL KEY MAP SHEET 2			
5	00-GEN-NTS-001	GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS SHEET 1			
6	00-GEN-NTS-002	GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS SHEET 2			
		TH 62 TUNNEL (BRIDGE 27W33) STRUCTURES			
7	W2-STU-TUN-TH62-GPE-KEY-001	KEY PLAN			
8	W2-STU-TUN-TH62-SUR1	TUNNEL SURVEY SHEET 1			
9	W2-STU-TUN-TH62-SUR2	TUNNEL SURVEY SHEET 2			
10	W2-STU-TUN-TH62-TAB	TUNNEL SURVEY SHEET 3			
11	W2-STU-TUN-TH62-GPE-001	GENERAL PLAN AND ELEVATION SHEET 1			
12	W2-STU-TUN-TH62-GPE-002	GENERAL PLAN AND ELEVATION SHEET 2			
13	W2-STU-TUN-TH62-TYP-001	TYPICAL SECTION - GEOMETRY			
14	W2-STU-TUN-TH62-TYP-TTS-001	TUNNEL PORTALS - GEOMETRY			
15	W2-CIV-STG-001-NAR	STAGING PLAN - NARRATIVE AND NOTES			
16	W2-CIV-STG-001-TAB	STAGING PLAN - TEMP. ALIGNMENT TAB			
17	W2-CIV-STG-001-1	STAGING PLAN - STAGE 1			
18	W2-CIV-STG-001-2	STAGING PLAN - STAGE 1			
19	W2-CIV-STG-002-1	STAGING PLAN - STAGE 2			
20	W2-CIV-STG-002-2	STAGING PLAN - STAGE 2			
21	W2-STU-TUN-TH62-WPL	WORKING POINT LAYOUT			
22	W2-STU-TUN-TH62-TYP-RNF-001	TYPICAL SECTION - REINFORCEMENT			
23	W2-STU-TUN-TH62-DTL-MIS-001	MISCELLANEOUS STRUCTURAL DETAILS SHEET 1			
24	W2-STU-TUN-TH62-DTL-MIS-002	MISCELLANEOUS STRUCTURAL DETAILS SHEET 2			
25	W2-STU-TUN-TH62-DTL-WTP-001	WATERPROOFING			
26	W2-STU-TUN-TH62-BDT-001	TUNNEL DETAILS SHEET 1			
27	W2-STU-TUN-TH62-BDT-002	TUNNEL DETAILS SHEET 2			
28	W2-STU-TUN-TH62-BOR-001	BORINGS SHEET 1			
29	W2-STU-TUN-TH62-BOR-002	BORINGS SHEET 2			
30	W2-STU-TUN-TH62-BOR-003	BORINGS SHEET 3			
31	W2-STU-TUN-TH62-BOR-004	BORINGS SHEET 4			
32	W2-STU-TUN-TH62-BOR-005	BORINGS SHEET 5			
33	W2-STU-TUN-TH62-BOR-006	BORINGS SHEET 6			
34	W2-STU-TUN-TH62-SOE-CRI-001	TEMPORARY EXCAVATION SUPPORT DESIGN CRITERIA			
35	W2-STU-TUN-TH62-SOE-001	SUGGESTED EXCAVATION SUPPORT PLAN AND ELEVATION SHEET 1			
36	W2-STU-TUN-TH62-SOE-002	SUGGESTED EXCAVATION SUPPORT PLAN AND ELEVATION SHEET 2			
37	W2-STU-TUN-TH62-SOE-003	SUGGESTED EXCAVATION SUPPORT PLAN AND ELEVATION SHEET 3			
38	W2-STU-TUN-TH62-SOE-TYP-001	SUGGESTED EXCAVATION SUPPORT SECTIONS			
39	W2-STU-TUN-TH62-SOE-DTL-001	SUGGESTED EXCAVATION SUPPORT DETAILS			
40	W2-STU-TUN-TH62-SOE-DTL-002	SUGGESTED EXCAVATION SUPPORT DETAILS			
41	W2-STU-TUN-TH62-GEI-001	GEOTECHNICAL INSTRUMENTATION SHEET 1			
42	W2-STU-TUN-TH62-GEI-002	GEOTECHNICAL INSTRUMENTATION SHEET 2			
43	W2-STU-TUN-TH62-GEI-003	GEOTECHNICAL INSTRUMENTATION SHEET 3			
		KENILWORTH TUNNEL (BRIDGE 27C15) STRUCTURES			
44	E3-STU-TUNN-TUNK-KEY-001	KEY PLAN			
45	E3-STU-TUN-TUNK-GPE-001	GENERAL PLAN AND ELEVATION SHEET 1			
46	E3-STU-TUN-TUNK-GPE-002	GENERAL PLAN AND ELEVATION SHEET 2			
47	E3-STU-TUN-TUNK-GPE-003	GENERAL PLAN AND ELEVATION SHEET 3			
48	E3-STU-TUN-TUNK-GPE-004	GENERAL PLAN AND ELEVATION SHEET 4			
49	E3-STU-TUN-TUNK-GPE-005	GENERAL PLAN AND ELEVATION SHEET 5			
50	E3-STU-TUN-TUNK-GPE-006	GENERAL PLAN AND ELEVATION SHEET 6			
51	E3-STU-TUN-TUNK-TYP-RTS-001	RUNNING TUNNEL SECTION - GEOMETRY			
52	E3-STU-TUN-TUNK-TYP-TTS-001	TRANSITION TUNNEL SECTION - GEOMETRY SHEET 1			
53	E3-STU-TUN-TUNK-TYP-TTS-002	TRANSITION TUNNEL SECTION - GEOMETRY SHEET 2			
54	E3-STU-TUN-TUNK-TYP-JFN-001	TUNNEL SECTION AT JET FAN LOCATION -GEOMETRY			
55	E3-STU-TUN-TUNK-TYP-BTG-001	BOAT SECTION - GEOMETRY			
56	E3-STU-TUN-TUNK-TYP-PTL-001	TUNNEL PORTALS - GEOMETRY SHEET 1			
57	E3-STU-TUN-TUNK-TYP-PTL-002	TUNNEL PORTALS - GEOMETRY SHEET 2			
58	E3-STU-TUN-TUNK-TYP-SEC-001	TUNNEL SECTIONS SHEET 1			
59	E3-STU-TUN-TUNK-TYP-002	TUNNEL SECTIONS SHEET 2			
60	E3-STU-TUN-TUNK-TYP-003	TUNNEL SECTIONS SHEET 3			
61	E3-STU-TUN-TUNK-TYP-004	TUNNEL SECTIONS SHEET 4			
62	E3-STU-TUN-TUNK-TYP-005	TUNNEL SECTIONS SHEET 5			
63	E3-STU-TUN-TUNK-WPL-001	WORKING POINT LAYOUT SHEET 1			
64	E3-STU-TUN-TUNK-WPL-002	WORKING POINT LAYOUT SHEET 2			
65	E3-STU-TUN-TUNK-WPL-003	WORKING POINT LAYOUT SHEET 3			
66	E3-STU-TUN-TUNK-WPL-003	WORKING POINT LAYOUT SHEET 4			
67	E3-STU-TUN-TUNK-WPL-003	WORKING POINT LAYOUT SHEET 5			
68	E3-STU-TUN-TUNK-TYP-RTR-001	TUNNEL REINFORCEMENT SHEET 1			
69	E3-STU-TUN-TUNK-TYP-TTR-001	TUNNEL REINFORCEMENT SHEET 2			
70	E3-STU-TUN-TUNK-TYP-TTR-002	TUNNEL REINFORCEMENT SHEET 3			
71	E3-STU-TUN-TUNK-TYP-JFR-001	TUNNEL REINFORCEMENT SHEET 4			
72	E3-STU-TUN-TUNK-TYP-BTR-001	TUNNEL REINFORCEMENT SHEET 5			
73	E3-STU-TUN-TUNK-BDT-001	TUNNEL DETAILS			
74	E3-STU-TUN-TUNK-DTL-WTP-001	WATERPROOFING SHEET 1			
75	E3-STU-TUN-TUNK-DTL-WTP-002	WATERPROOFING SHEET 2			
76	E3-STU-TUN-TUNK-BOR- 001	BORINGS SHEET 1			
77	E3-STU-TUN-TUNK-BOR-002	BORINGS SHEET 2			
78	E3-STU-TUN-TUNK-BOR-003	BORINGS SHEET 3			
79	E3-STU-TUN-TUNK-BOR-004	BORINGS SHEET 4			
80	E3-STU-TUN-TUNK-BOR-005	BORINGS SHEET 5			
81	E3-STU-TUN-TUNK-BOR-006	BORINGS SHEET 6			
82	E3-STU-TUN-TUNK-BOR-007	BORINGS SHEET 7			
83	E3-STU-TUN-TUNK-BOR-008	BORINGS SHEET 8			
84	E3-STU-TUN-TUNK-BOR-009	BORINGS SHEET 9			
85	E3-STU-TUN-TUNK-BOR-010	BORINGS SHEET 10			
86	E3-STU-TUN-TUNK-SOE-CRI-001	TEMPORARY EXCAVATION SUPPORT DESIGN CRITERIA			
87	E3-STU-TUN-TUNK-SOE-001	SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 1			
88	E3-STU-TUN-TUNK-SOE-002	SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 2			
89	E3-STU-TUN-TUNK-SOE-003	SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 3			
90	E3-STU-TUN-TUNK-SOE-004	SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 4			
91	E3-STU-TUN-TUNK-SOE-005	SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 5			
92	E3-STU-TUN-TUNK-SOE-006	SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 6			
93	E3-STU-TUN-TUNK-SOE-007	SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 7			
94	E3-STU-TUN-TUNK-SOE-008	SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 8			
95	E3-STU-TUN-TUNK-SOE-009	SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 9			
96	E3-STU-TUN-TUNK-SOE-010	SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 10			
97	E3-STU-TUN-TUNK-SOE-TYP-001	SUGGESTED EXCAVATION SUPPORT SECTIONS SHEET 1			
98	E3-STU-TUN-TUNK-SOE-TYP-002	SUGGESTED EXCAVATION SUPPORT SECTIONS SHEET 2			
99	E3-STU-TUN-TUNK-SOE-SEQ-001	SUGGESTED EXCAVATION SUPPORT CONSTRUCTION STAGING SHEET 1			
100	E3-STU-TUN-TUNK-SOE-SEQ-002	SUGGESTED EXCAVATION SUPPORT CONSTRUCTION STAGING SHEET 2			
101	E3-STU-TUN-TUNK-SOE-DTL-001	SUGGESTED EXCAVATION SUPPORT DETAILS SHEET 1			
102	E3-STU-TUN-TUNK-SOE-DTL-002	SUGGESTED EXCAVATION SUPPORT DETAILS SHEET 2			
103	E3-STU-TUN-TUNK-SOE-DTL-003	SUGGESTED EXCAVATION SUPPORT DETAILS SHEET 3			
104	E3-STU-TUN-TUNK-GEI-001	GEOTECHNICAL INSTRUMENTATION SHEET 1			
105	E3-STU-TUN-TUNK-GEI-002	GEOTECHNICAL INSTRUMENTATION SHEET 2			
106	E3-STU-TUN-TUNK-GEI-003	GEOTECHNICAL INSTRUMENTATION SHEET 3			
107	E3-STU-TUN-TUNK-GEI-004	GEOTECHNICAL INSTRUMENTATION SHEET 4			
108	E3-STU-TUN-TUNK-GEI-005	GEOTECHNICAL INSTRUMENTATION SHEET 5			
109	E3-STU-TUN-TUNK-GEI-006	GEOTECHNICAL INSTRUMENTATION SHEET 6			
110	E3-STU-TUNK-DTL-JFN-001	KENILWORTH TUNNEL JET FAN SUPPORT DETAILS			
111	E3-STU-TUNK-DTL-JFN-002	KENILWORTH TUNNEL JET FAN SUPPORT DETAILS			
		ARCHITECTURE			
112	00-ARC-TYP-001	CROSS PASSAGE DOORS			
113	-	NOT USED			
		TH 62 TUNNEL (BRIDGE 27W33) DRAINAGE			
114	00-STM-TUN-NTS-001	PLUMBING GENERAL NOTES, ABBREVIATIONS & SYMBOLS			
115	W2-STM-TH62-GPE-001	TUNNEL DRAINAGE - PLAN AND PROFILE	2300+00	2314+00	
116	W2-STM-TH62-DTL-001	TUNNEL DRAINAGE - SECTIONS & DETAILS			
117	W2-STM-TH62-SCH-001	TUNNEL DRAINAGE - MATERIAL SCHEDULE			
		KENILWORTH TUNNEL (BRIDGE 27C15) DRAINAGE			
118	E3-STM-TUNK-GPE-001	TUNNEL DRAINAGE - PLAN & PROFILE	2771+00	2784+00	
119	E3-STM-TUNK-GPE-002	TUNNEL DRAINAGE - PLAN & PROFILE	2784+00	2798+00	
120	E3-STM-TUNK-GPE-003	TUNNEL DRAINAGE - PLAN & PROFILE	2798+00	2805+00	
121	E3-STM-TUNK-DTL-001	TUNNEL DRAINAGE - SECTIONS & DETAILS			
122	E3-STM-TUNK-DTL-002	TUNNEL DRAINAGE - BOAT SECTIONS & DETAILS			
123	E3-STM-TUNK-SCH-001	TUNNEL DRAINAGE - MATERIAL SCHEDULE			
		TH 62 TUNNEL (BRIDGE 27W33) SYSTEMS & FIRE PROTECTION			
124	00-FLS-TUN-DTL-001	FIRE LIFE SAFETY - GENERAL DETAILS			
125	W2-SYS-TH62-PLN-001	SYSTEMS NICHES AND SLEEVES PLAN - SHEET 1			
126	W2-SYS-TH62-PLN-002	SYSTEMS NICHES AND SLEEVES PLAN - SHEET 2			
127	W2-SYS-TH62-DTL-001	SYSTEMS SLEEVE AND NICHE DETAILS			
128	W2-FLS-TH62-SCT-001	FIRE LIFE SAFETY TYPICAL SECTION AND DETAILS SHEET 1			
129	W2-FLS-TH62-SCT-002	FIRE LIFE SAFETY TYPICAL SECTION AND DETAILS SHEET 2			
130	W2-FLS-TH62-SCT-003	FIRE LIFE SAFETY TYPICAL SECTION AND DETAILS SHEET 3			
		KENILWORTH TUNNEL (BRIDGE 27C15) SYSTEMS & FIRE PROTECTION			
131	E3-SYS-TUNK-PLN-001	SYSTEMS SLEEVE AND NICHE PLAN - SHEET 1			
132	E3-SYS-TUNK-PLN-002	SYSTEMS SLEEVE AND NICHE PLAN - SHEET 2			
133	E3-SYS-TUNK-PLN-003	SYSTEMS SLEEVE AND NICHE PLAN - SHEET 3			
134	E3-SYS-TUNK-PLN-004	SYSTEMS SLEEVE AND NICHE PLAN - SHEET 4			
135	E3-SYS-TUNK-PLN-005	SYSTEMS SLEEVE AND NICHE PLAN - SHEET 5			
136	E3-SYS-TUNK-SCT-001	SYSTEMS SLEEVE AND NICHE SECTION			
137	E3-SYS-TUNK-DTL-001	SYSTEMS SLEEVE AND NICHE DETAILS - SHEET 1			
138	E3-SYS-TUNK-DTL-002	SYSTEMS SLEEVE AND NICHE DETAILS - SHEET 2			
139	E3-SYS-TUNK-DTL-003	SYSTEMS SLEEVE AND NICHE DETAILS - SHEET 3			
140	E3-SYS-TUNK-DTL-004	SYSTEMS SLEEVE AND NICHE DETAILS - SHEET 4			
141	E3-SYS-TUNK-DTL-005	SYSTEMS SLEEVE AND NICHE DETAILS - SHEET 5			
142	E3-SYS-TUNK-DTL-006	SYSTEMS SLEEVE AND NICHE DETAILS - SHEET 6			
143	E3-SYS-TUNK-DTL-007	SYSTEMS SLEEVE AND NICHE DETAILS - SHEET 7			
144	E3-FLS-TUNK-SCT-001	FIRE LIFE SAFETY TYPICAL SECTIONS AND DETAILS SHEET 1			
145	E3-FLS-TUNK-SCT-002	FIRE LIFE SAFETY TYPICAL SECTIONS AND DETAILS SHEET 2			
146	E3-FLS-TUNK-SCT-003	FIRE LIFE SAFETY TYPICAL SECTIONS AND DETAILS SHEET 3			
147	E3-FLS-TUNK-SCT-004	FIRE LIFE SAFETY TYPICAL SECTIONS AND DETAILS SHEET 4			
148	E3-FLS-TUNK-SCT-005	FIRE LIFE SAFETY TYPICAL SECTIONS AND DETAILS SHEET 5			

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

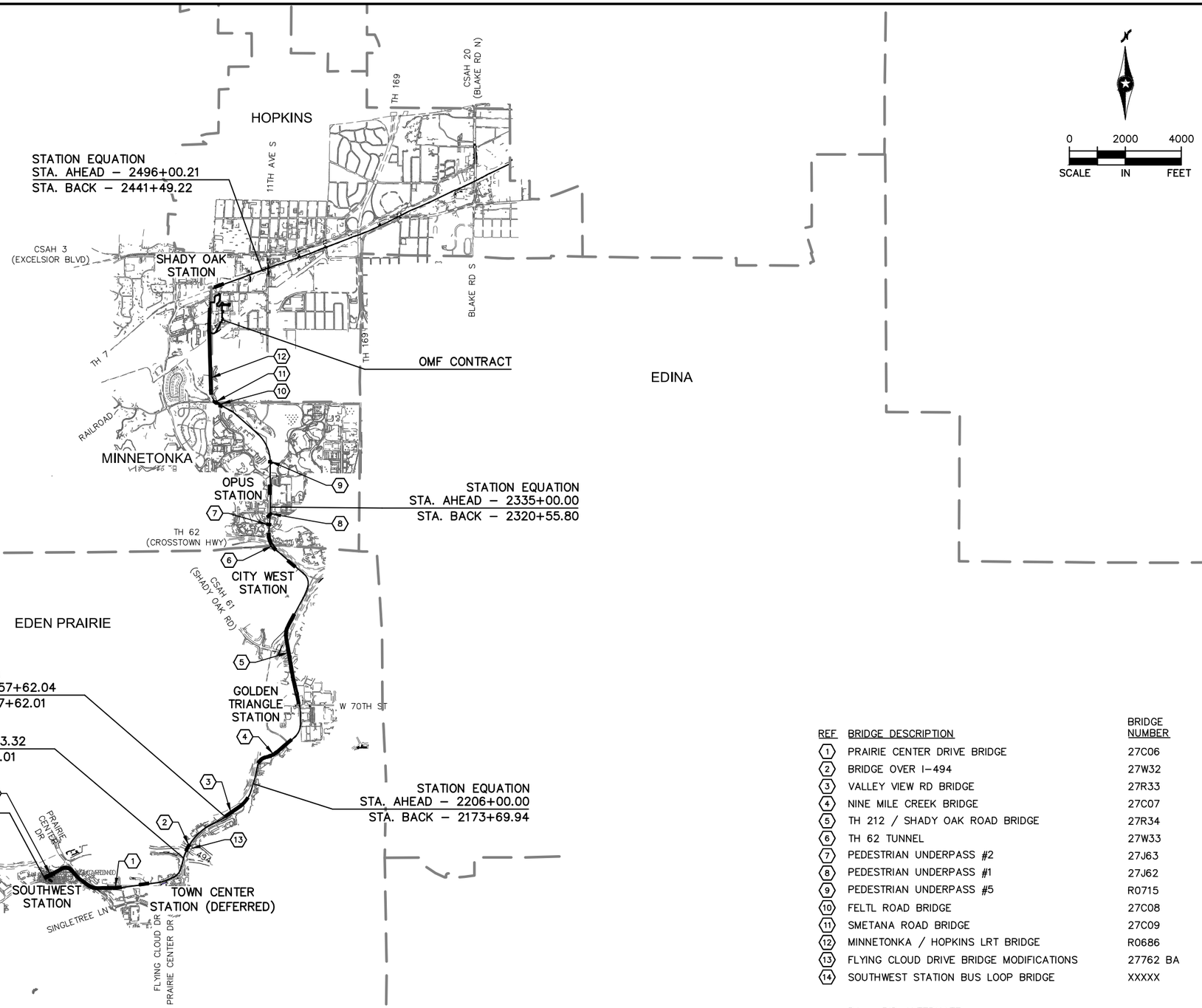
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
GENERAL
VOLUME INDEX OF PLAN SHEETS

DISCIPLINE: GENERAL

SHEET NAME: 00-GEN-IDX-001

SHEET 2 OF 148



REF	BRIDGE DESCRIPTION	BRIDGE NUMBER
1	PRAIRIE CENTER DRIVE BRIDGE	27C06
2	BRIDGE OVER I–494	27W32
3	VALLEY VIEW RD BRIDGE	27R33
4	NINE MILE CREEK BRIDGE	27C07
5	TH 212 / SHADY OAK ROAD BRIDGE	27R34
6	TH 62 TUNNEL	27W33
7	PEDESTRIAN UNDERPASS #2	27J63
8	PEDESTRIAN UNDERPASS #1	27J62
9	PEDESTRIAN UNDERPASS #5	R0715
10	FELTL ROAD BRIDGE	27C08
11	SMETANA ROAD BRIDGE	27C09
12	MINNETONKA / HOPKINS LRT BRIDGE	R0686
13	FLYING CLOUD DRIVE BRIDGE MODIFICATIONS	27762 BA
14	SOUTHWEST STATION BUS LOOP BRIDGE	XXXXX

BA – BID ALTERNATE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

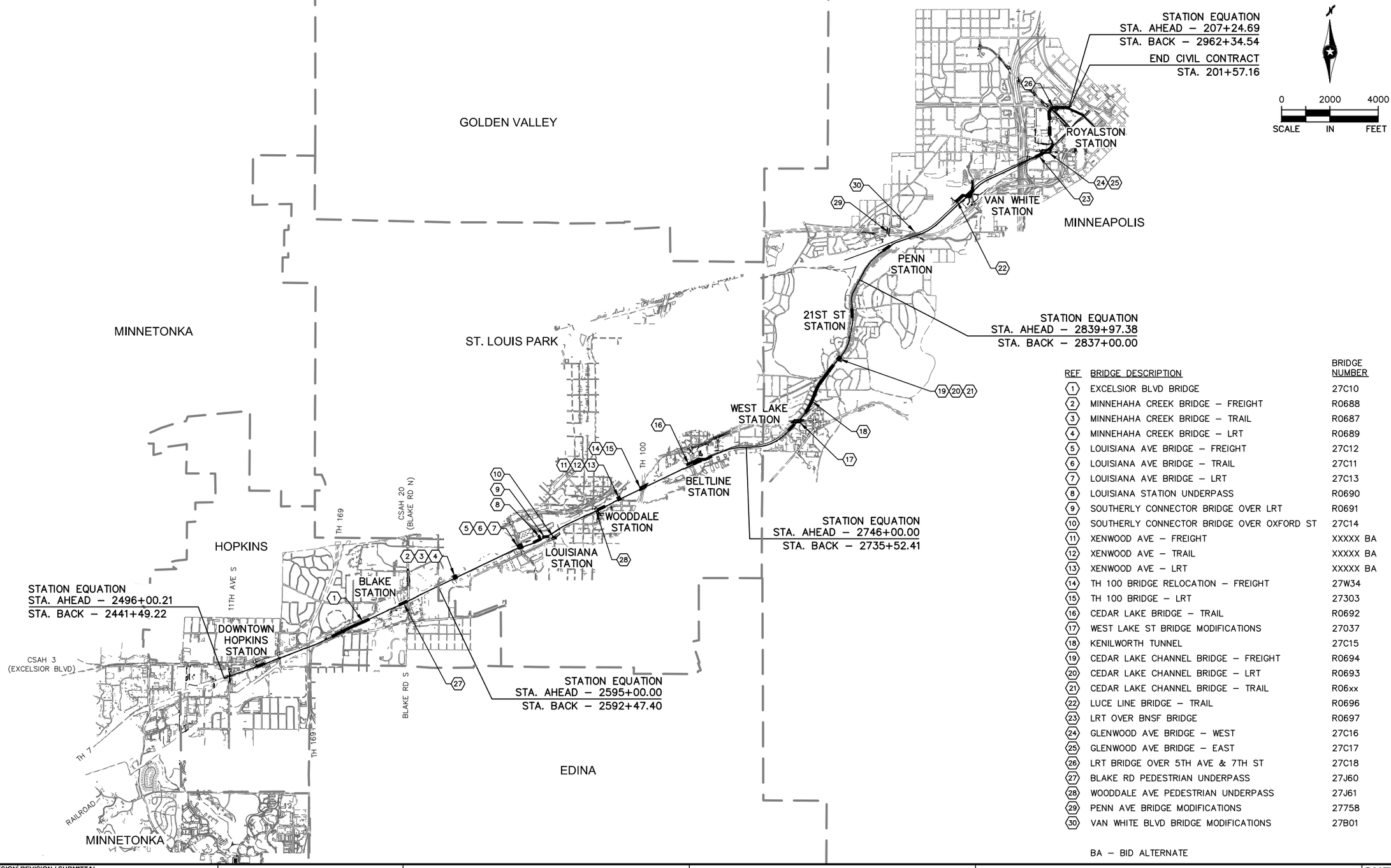
CIVIL - VOLUME 5
GENERAL
KEY MAP
SHEET 1

DISCIPLINE: GENERAL

SHEET NAME: W0-GEN-KEY-001

SHEET 3 OF 148

Jan, 16 2016 04:06 pm V:\3400_ADC\CAD\CAD MANAGEMENT\DRAWING LIST\COVER SHEETS 90%\W0-GEN-KEY.dwg By: V-KriewaMR



REF	BRIDGE DESCRIPTION	BRIDGE NUMBER
1	EXCELSIOR BLVD BRIDGE	27C10
2	MINNEHAHA CREEK BRIDGE – FREIGHT	R0688
3	MINNEHAHA CREEK BRIDGE – TRAIL	R0687
4	MINNEHAHA CREEK BRIDGE – LRT	R0689
5	LOUISIANA AVE BRIDGE – FREIGHT	27C12
6	LOUISIANA AVE BRIDGE – TRAIL	27C11
7	LOUISIANA AVE BRIDGE – LRT	27C13
8	LOUISIANA STATION UNDERPASS	R0690
9	SOUTHERLY CONNECTOR BRIDGE OVER LRT	R0691
10	SOUTHERLY CONNECTOR BRIDGE OVER OXFORD ST	27C14
11	XENWOOD AVE – FREIGHT	XXXXX BA
12	XENWOOD AVE – TRAIL	XXXXX BA
13	XENWOOD AVE – LRT	XXXXX BA
14	TH 100 BRIDGE RELOCATION – FREIGHT	27W34
15	TH 100 BRIDGE – LRT	27303
16	CEDAR LAKE BRIDGE – TRAIL	R0692
17	WEST LAKE ST BRIDGE MODIFICATIONS	27037
18	KENILWORTH TUNNEL	27C15
19	CEDAR LAKE CHANNEL BRIDGE – FREIGHT	R0694
20	CEDAR LAKE CHANNEL BRIDGE – LRT	R0693
21	CEDAR LAKE CHANNEL BRIDGE – TRAIL	R06xx
22	LUCE LINE BRIDGE – TRAIL	R0696
23	LRT OVER BNSF BRIDGE	R0697
24	GLENWOOD AVE BRIDGE – WEST	27C16
25	GLENWOOD AVE BRIDGE – EAST	27C17
26	LRT BRIDGE OVER 5TH AVE & 7TH ST	27C18
27	BLAKE RD PEDESTRIAN UNDERPASS	27J60
28	WOODDALE AVE PEDESTRIAN UNDERPASS	27J61
29	PENN AVE BRIDGE MODIFICATIONS	27758
30	VAN WHITE BLVD BRIDGE MODIFICATIONS	27B01

BA – BID ALTERNATE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
GENERAL
KEY MAP
SHEET 2

DISCIPLINE: GENERAL

SHEET NAME: E0-GEN-KEY-002

SHEET 4 OF 148

SYMBOLS

- PROPOSED DIRECTIONAL LANE USE
- EXISTING DIRECTIONAL LANE USE
- FLASHER (FREIGHT & PEDESTRIAN)
- CROSSING GATE (FREIGHT & LRT)
- CANTILEVER SIGNAL
- RAIL TURNOUT
- RAIL CROSSOVER (DOUBLE)
- RAIL CROSSOVER (SINGLE)
- POINT OF SWITCH (PS)
- OCS POLE FOUNDATION
- RAIL LUBRICATOR
- POINT OF INTERSECTION (PI)
- W2–200 — RAILROAD CURVE NUMBER
- ACCESSIBLE PEDESTRIAN CURB RAMP (DESIGN VARIES)
- HANDICAP PARKING STALL
- TACTILE WARNING STRIP
- TPSS BUILDING (TPSS–SW###) – NIC
  TUNNEL SYSTEMS HOUSE (TSY–SW###) – NIC
- SIGNAL / COMMUNICATION HOUSE – NIC
- STORM SEWER MANHOLE
- STORM SEWER CATCH BASIN
- STORM SEWER FLARED END SECTION
- STORM SEWER CLEAN–OUT
- STORM SEWER PUMP STATION
- DTXX / INV XXX.XX — DRAINTILE ID
- XXXX – ST — STORM SEWER STRUCTURE ID
- C / E — BUS SHELTER
- ROADWAY / PEDESTRIAN LIGHT

LINETYPES

- ROADWAY ℄
- TRACK ℄ (LRT)
- TRACK ℄ (FRT)
- RETAINING WALL
- BALLAST CURB
- TUNNEL WALL
- FENCE
- EX ROW
- PROP ROW
- PROP TCE
- PROP PE
- FENCE / RAILING
- ID — ID — FREIGHT INTRUSION DETECTION
- CONCRETE CURB AND GUTTER
- TRAIL (WIDTH VARIES)
- SIDEWALK
- DRIVEWAY
- BRIDGE
- SAWCUT
- DELINEATED WETLAND
- BMP (NWL) WATER EDGE
- PROPOSED FLOODPLAIN MITIGATION AREA
- SILT FENCE
- BALE BARRIER
- STORM SEWER
- CASING PIPE
- PIPE REMOVAL
- STRUCTURE REMOVAL
- FLOATING SILT FENCE
- SUPER DUTY SILT FENCE
- CONSTRUCTION LIMITS
- ROCK WEEPER
- DIVERSION DITCH
- OVERLAND FLOW
- CROSSWALK
- STOP BAR
- MEDIAN NOSE
- EP-EP-18 — WETLAND 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.

Jan, 18 2016 07:44 am V:\3400_ADC\CAD\CAD MANAGEMENT\DRAWING LIST\COVER SHEETS 90%\CIV-GEN-NTS.dwg By: V-KriewaMR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
GENERAL
NOTES, ABBREVIATIONS, AND SYMBOLS
SHEET 1

DISCIPLINE: GENERAL

SHEET NAME: 00-GEN-NTS-001

SHEET 5 OF 148

ABBREVIATIONS

3-2 (EG)	SIGNAL HEAD NUMBER (PHASE 3, NO. 2)
AD	ALGEBRAIC DIFFERENCE
AVE	AVENUE
AWF	ADVANCE WARNING FLASHER
BA	BID ALTERNATE
BGN	BEGIN
BP	BEGINNING POINT
BVCE	BEGINNING VERTICAL CURVE ELEVATION
BVCS	BEGINNING VERTICAL CURVE STATION
BLVD	BOULEVARD
BMP	BEST MANAGEMENT PRACTICE
BNSF	BURLINGTON NORTHERN SANTA FE RAILWAY
C&G	CURB AND GUTTER
℄	CENTERLINE
CB	CATCH BASIN
CE	CLEARANCE ENVELOPE
CIR	CIRCLE
CO	DRAINTILE CLEANOUT STRUCTURE
CP	CANADIAN PACIFIC
CPRAIL	CANADIAN PACIFIC RAILWAY
CS	CURVE TO SPIRAL
CSAH	COUNTY STATE AID HIGHWAY
D&U	DRAINAGE AND UTILITY
DF	DIRECT FIXATION
DR	DRIVE
DT	DRAINTILE
DTL	DETAIL
DWY	DRIVEWAY
E	EAST
Ea	ACTUAL SUPERELEVATION (INCHES)
EB	EAST BOUND
EL or ELEV	ELEVATION
EP	ENDING POINT
ESMT	EASEMENT
Eu	UNBALANCED SUPERELEVATION (INCHES)
EVCE	ENDING VERTICAL CURVE ELEVATION
EVCS	ENDING VERTICAL CURVE STATION
EVP	EMERGENCY VEHICLE PRE-EMPTION
EX	EXISTING
FES	FLARED END SECTION
FYA	FLASHING YELLOW ARROW
GR RD	GROUND ROD
GRN	GREEN INDICATION
HCRRA	HENNEPIN COUNTY REGIONAL RAILROAD AUTHORITY
INL	BRIDGE DRAIN INLET
INS GR	INSULATED GROUND
IP	INPLACE
LED	LIGHT EMITTING DIODE
LH	LEFT HAND
LN	LANE
LRCI	LOCALLY REQUESTED CAPITAL INVESTMENT
LRT	LIGHT RAIL TRANSIT
LRV	LIGHT RAIL VEHICLE
LT	LEFT
LUM	LUMINAIRE
L_c	CURVE LENGTH (FEET)
L_s	SPIRAL LENGTH (FEET)
MIN	MINIMUM
MPH	MILES PER HOUR
MPLS	CITY OF MINNEAPOLIS
MPRB	MINNEAPOLIS PARK AND RECREATION BOARD
N	NORTH
NB	NORTH BOUND
NIC	NOT IN CONTRACT
NO	NUMBER
NWL	NORMAL WATER LINE
OCS	OUTLET CONTROL SYSTEM
OCS	OVERHEAD CONTACT SYSTEM
OMF	OPERATIONS AND MAINTENANCE FACILITY
OH	OVERHEAD
P1-1 (EG)	PEDESTRIAN HEAD (PHASE 1, NO. 1)
PB2-1 (EG)	PUSHBUTTON (PHASE 2, NO. 1)
PC	POINT OF CURVE
PE	PERMANENT EASEMENT
PED	PEDESTRIAN
PITO	POINT OF INTERSECTION OF TURNOUT
PKWY	PARKWAY
POB	POINT OF BEGINNING
POE	POINT OF ENDING
POT	POINT ON TANGENT
PROP	PROPOSED
PS	POINT OF SWITCH
PT	POINT OF TANGENT
PVI	POINT OF VERTICAL INTERSECTION
R	RADIUS (FEET)
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RL	RAIL LUBRICATOR
r	RATE OF CHANGE VERTICAL CURVE
RH	RIGHT HAND
ROW	RIGHT OF WAY
RT	RIGHT
S	SOUTH
SB	SOUTH BOUND
SC	SPIRAL TO CURVE
SIG-COMM	SIGNAL COMMUNICATION
SOP	SOURCE OF POWER
ST	STREET
ST	SPIRAL TO TANGENT
ST	STORM MANHOLE STRUCTURE
STA	STATION
TCE	TEMPORARY CONSTRUCTION EASEMENT
TH	TRUNK HIGHWAY
THRU	THROUGH
TOR	TOP OF RAIL
TPSS	TRACTION POWER SUBSTATION
TRK	TRACK
TS	TANGENT TO SPIRAL
TYP	TYPICAL
UG	UNDERGROUND
V	DESIGN VELOCITY (MPH)
VC	VERTICAL CURVE
VDE	VEHICLE DYNAMIC ENVELOPE
W	WEST
WB	WEST BOUND
WLK	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 TRAIL CONNECTION
MIDTOWN GREENWAY	MIDTOWN GREENWAY/EAST OF KENILWORTH TRAIL CONNECTION
TRAIL A	KENILWORTH TRAIL (SECONDARY)/BETWEEN CEDAR-ISLES CHANNEL AND 21ST STREET STATION
TRAIL B	KENILWORTH TRAIL (SECONDARY)/BETWEEN 21ST STREET STATION AND PENN STATION
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 RD)
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 RD)
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	CONNECTOR TRAIL TO LUCE LINE REGIONAL TRAIL WEST OF LIGHT RAIL
TRAIL W	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
TRAIL Z	12' CONNECTOR TRAIL FROM CEDAR LAKE REGIONAL TRAIL TO WOODDALE AVE S
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

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
GENERAL
NOTES, ABBREVIATIONS, AND SYMBOLS
SHEET 2

DISCIPLINE: GENERAL

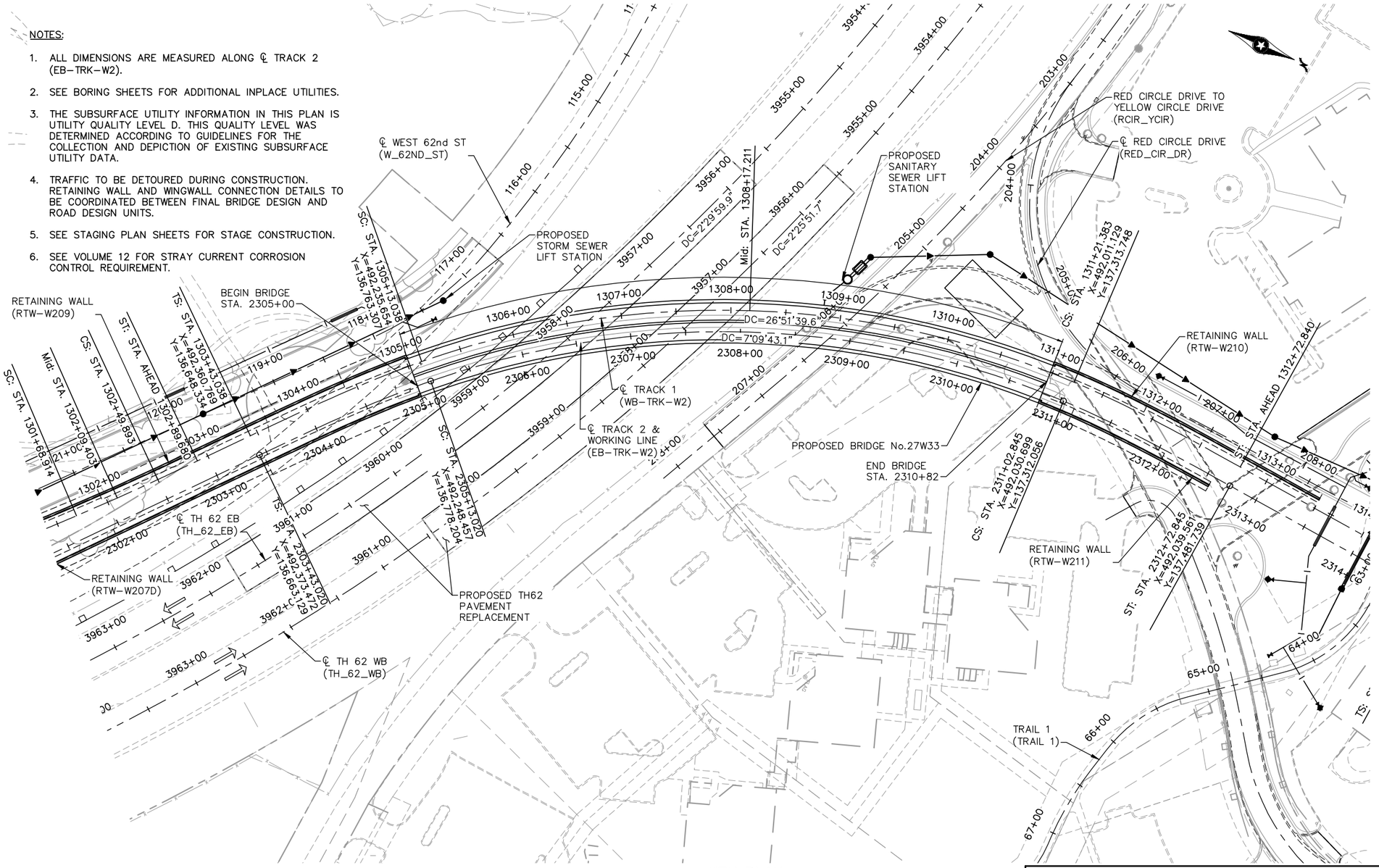
SHEET NAME: 00-GEN-NTS-002

SHEET 6 OF 148

Jan, 16 2016 04:08 pm V:\3400_ADC\CAD\CAD MANAGEMENT\DRAWING LIST\COVER SHEETS 90%\CIV-GEN-NTS.dwg By: V-KriewaMR

NOTES:

1. ALL DIMENSIONS ARE MEASURED ALONG ℄ TRACK 2 (EB–TRK–W2).
2. SEE BORING SHEETS FOR ADDITIONAL INPLACE UTILITIES.
3. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA.
4. TRAFFIC TO BE DETOURED DURING CONSTRUCTION. RETAINING WALL AND WINGWALL CONNECTION DETAILS TO BE COORDINATED BETWEEN FINAL BRIDGE DESIGN AND ROAD DESIGN UNITS.
5. SEE STAGING PLAN SHEETS FOR STAGE CONSTRUCTION.
6. SEE VOLUME 12 FOR STRAY CURRENT CORROSION CONTROL REQUIREMENT.



KEY PLAN

0 25 50 100
HORIZONTAL SCALE IN FEET

DESIGN DATA

2014 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 7TH EDITION AND 2015 INTERIMS

METRO LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 4.0)

LOAD AND RESISTANCE FACTOR DESIGN METHOD HL–93

MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 5000 PSI n = 8
fy = 60000 PSI
CONCRETE FOR MUD SLAB AND WATERPROOFING PROTECTION:
f'c = 3000 PSI

DESIGN SPEED: OVER = 60 MPH (TH 62)
UNDER = 50 MPH (LRT)

DESIGN FILL HEIGHT: MIN 5'; MAX 12'
UNIT WEIGHT FILL: 120 PCF

APPROXIMATE DECK AREA 22,989 SQ.FT.

LIST OF SHEETS

PROPOSED TYPE OF STRUCTURE

STRUCTURE:
TWO CELL CIP CONCRETE TUNNEL DIRECT FIXATION TRACK

REBAR:
EPOXY COATED

SUBSTRUCTURE:
CIP CONCRETE BASE SLAB SUPPORTED ON PREPARED SUBGRADE

DEPTH OF STRUCTURE:
17'–9" TOP OF INVERT SLAB TO BOTTOM OF ROOF SLAB

AESTHETICS LEVEL B

BRIDGE NO. 27W33

TUNNEL STRUCTURE UNDER TH 62
1.4 MI. EAST OF JCT. TH 62 AND T.H. 494 IN EDEN PRAIRIE

TWO CELL CIP CONCRETE TUNNEL
(2) 15'–9" ROADWAYS
0°–0'–0" SKEW

BRIDGE I.D. NO. 117

PRELIMINARY BRIDGE PLAN

SEC 36 T 117 N R 22 W
CITY OF EDEN PRAIRIE HENNEPIN COUNTY

APPROVED: _____
STATE BRIDGE ENGINEER DATE

FUTURE PROJECTED TRAFFIC VOLUMES

ROADWAY UNDER	ROADWAY OVER
N.A.	A.D.T. 31,500 VPD
N.A.	D.H.V. 2,150(EB) AND 2,225(WB), (BOTH =4,375)
N.A.	A.D.T.T. 40,000 VPD

ROAD DESIGN UNIT: VICTOR VASAS
BRIGE DESIGN UNIT: PAUL KETS LESON

JOB NO. T9N635 STATE PROJECT NO. 9909–01 MNDOT REVIEW: DAN PRATHER

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
KEY PLAN

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-GPE-KEY-001

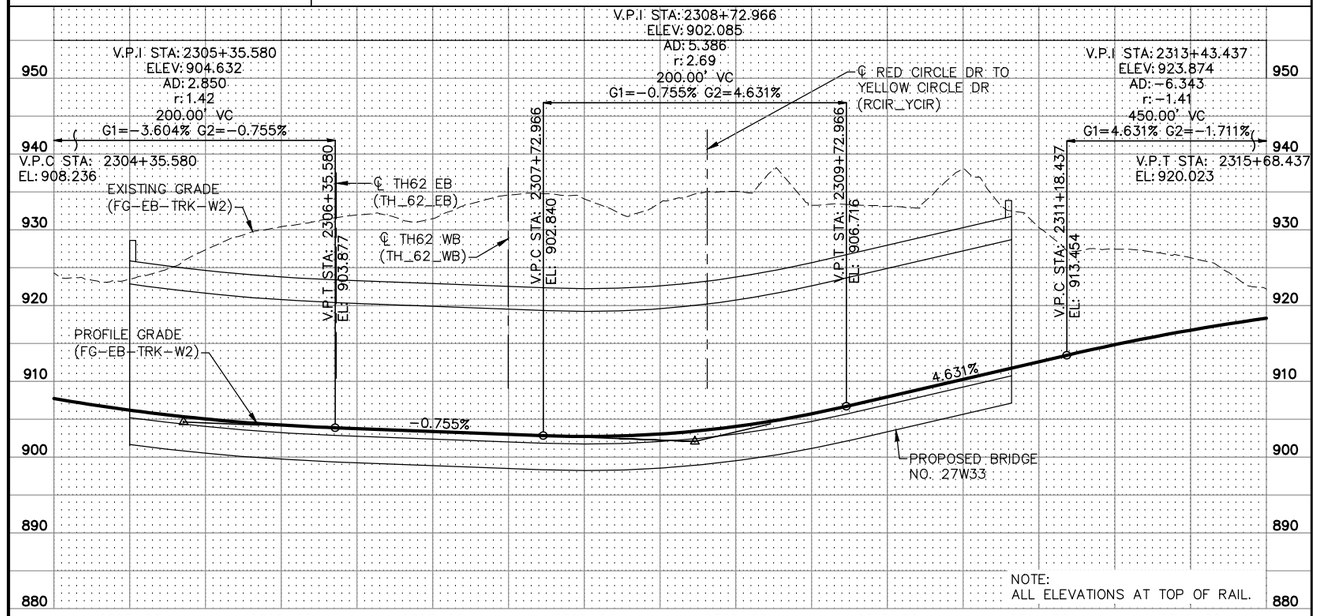
SHEET 7 OF 148

Jan, 17 2016 04:12 pm \\Nadtc2fp001\swirt\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\STRUCTURES\W2-STU-TUN-TH62\W2-STU-TUN-TH62-GPE-KEY-001.dwg By: YuB1

CONTRACTED PROFILE

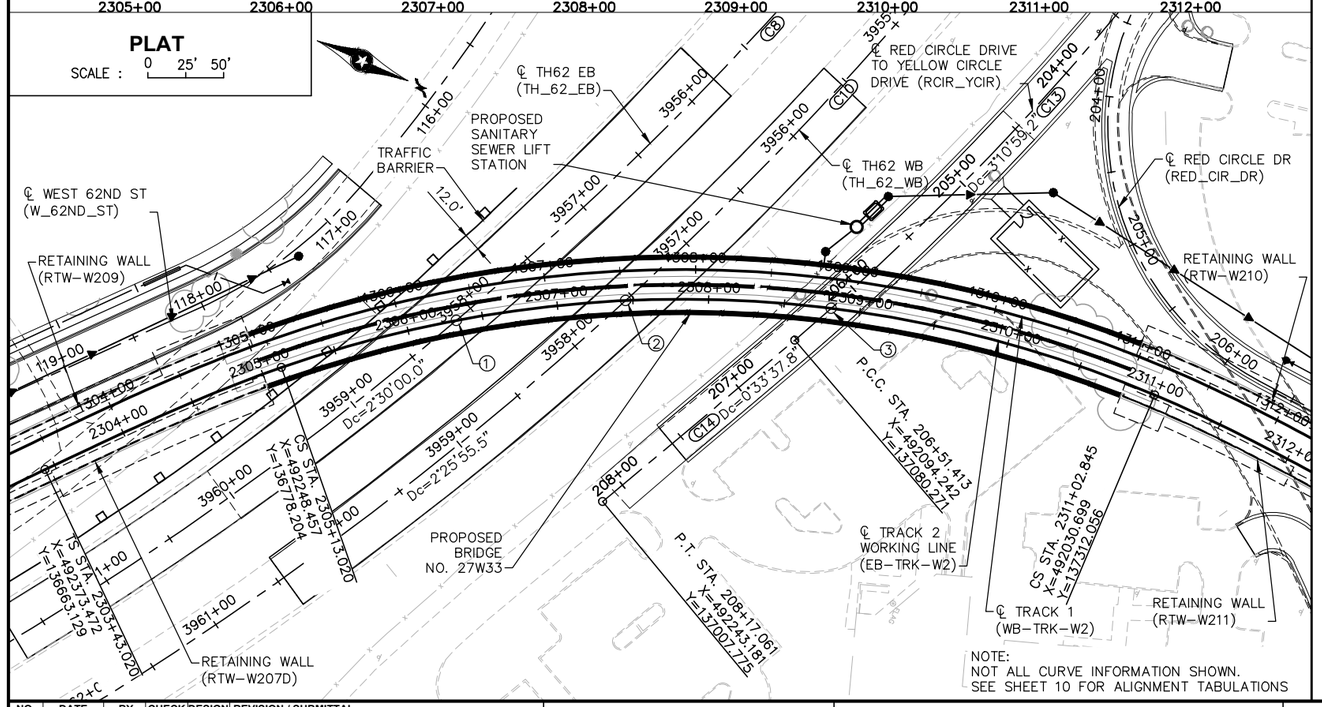
SCALE : 0 25' 50' 0 5' 10'

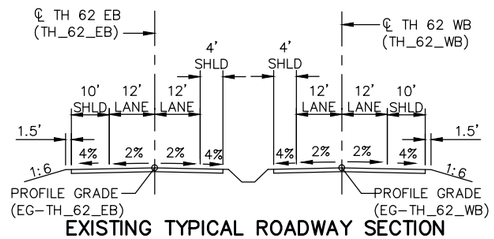
PROFILE GRADE SWLRT TRACK 2 (FG–EB–TRK–W2)



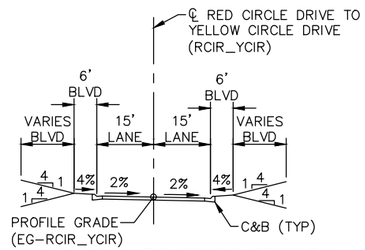
PLAT

SCALE : 0 25' 50'





EXISTING TYPICAL ROADWAY SECTION TH62



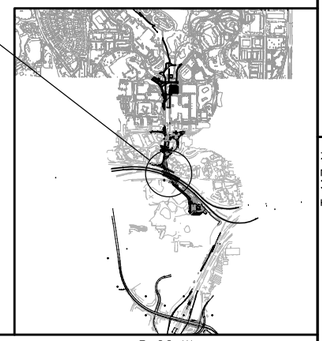
EXISTING TYPICAL ROADWAY SECTION RED CIRCLE TO YELLOW CIRCLE DRIVE

NOTES

① CONTROL POINT
℄ TRACK 2 (EB–TRK–W2) P.O.C. STA. 2306+32.75=
℄ TH 62 EB (TH_62_EB) P.O.C. STA. 3958+12.13
X = 492173.139
Y = 136871.132
ANGLE: 29°48'26.8" TTC

② CONTROL POINT
℄ TRACK 2 (EB–TRK–W2) P.O.C. STA. 2307+45.26=
℄ TH 62 WB (TH_62_WB) P.O.C. STA. 3957+54.89
X = 492115.733
Y = 136967.784
ANGLE: 40°12'49.6"

③ CONTROL POINT
℄ TRACK 2 (EB–TRK–W2) P.O.C. STA. 2308+81.103=
℄ RED CIRCLE DRIVE TO YELLOW CIRCLE DRIVE (RCIR_YCIR) P.O.C. STA. 206+19.498
X = 492065.312
Y = 137093.751
ANGLE: 48°34'1.6"



STATE PROJECT NO. 9909–01

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.
2. OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY) : GIVEN LOCATION,TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS–SECTIONAL AREA ETC.
3. APPARENT HIGHWATER ELEVATION _____ OBTAINED FROM:
4. OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE: XX–XX–XXXX

STREAM OR DITCH DESIGNATION: XXX

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. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
DESIGN MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.
TOTAL STAGE INCREASE: XX.X FT.
LOW MEMBER AT OR ABOVE ELEVATION: XXX.X FT

WATERWAY AREA REQUIRED BELOW ELEV. XXX.X = XXX SQ. FT. AT RIGHT ANGLES TO CHANNEL

BASIC FLOOD (100 YR. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
TOTAL STAGE INCREASE: X.X FT.
MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.

FLOWLINE ELEVATION: XXX FT. SKEW ANGLE: XX

ESTIMATED PRELIMINARY TOTAL SCOUR AT PIER EL. XXX.X (500 OR OT YR.FREQ.)

SCOUR CONFIRMATION RECOMMENDATION

DATE: XX–XX–XXXX

TOTAL SCOUR AT PIER EL. XXX.XX (500 OR OT YR. FREQ.)
SCOUR CODE: OBTAIN FROM HYDRAULIC ENGINEER

BRIDGE SURVEY SHEETS MADE FROM PHTOTGRAMMETRIC MAPPING

1ST BENCH MARK
MNDOT NAME: 2773 A
APPROX. NORTHING (HEN. COUNTY COORDINATES): 137082.117
APPROX. EASTING (HEN. COUNTY COORDINATES): 490527.817
BENCHMARK ELEVATION (NAVD88): 963.180

2ND BENCH MARK
MNDOT NAME: 2773 F
APPROX. NORTHING (HEN. COUNTY COORDINATES): 135659.858
APPROX. EASTING (HEN. COUNTY COORDINATES): 493993.897
BENCHMARK ELEVATION (NAVD88): 954.066

T 117 N

BRIDGE SURVEY

1.4 MI EAST OF THE INTERSECTION T.H. 62 AND T.H. 494
IN EDEN PRAIRIE

SOUTHWEST LRT UNDER TH62

SEC 36 T 117 N R 22 W

CITY OF EDEN PRAIRIE HENNEPIN COUNTY

BRIDGE 27W33

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc. METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 5
TUNNEL UNDER TH62
BRIDGE 27W33
TUNNEL SURVEY SHEET 1

DISCIPLINE: CIVIL
SHEET NAME: W2-STU-TUN-TH62-SUR1

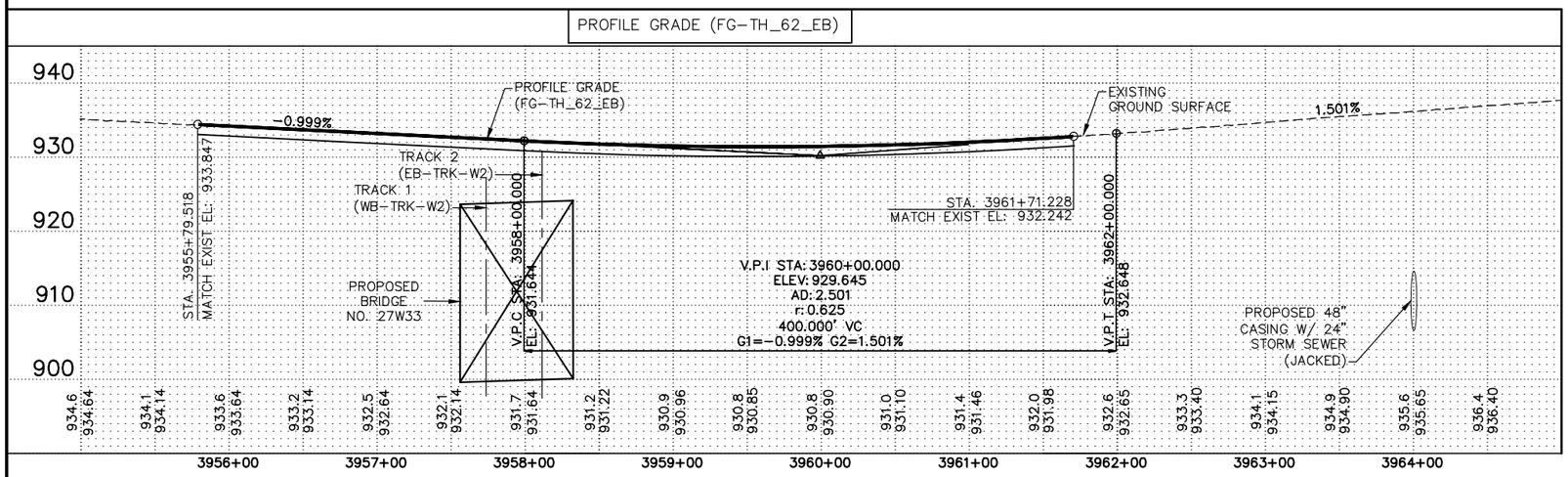
SHEET 8 OF 148

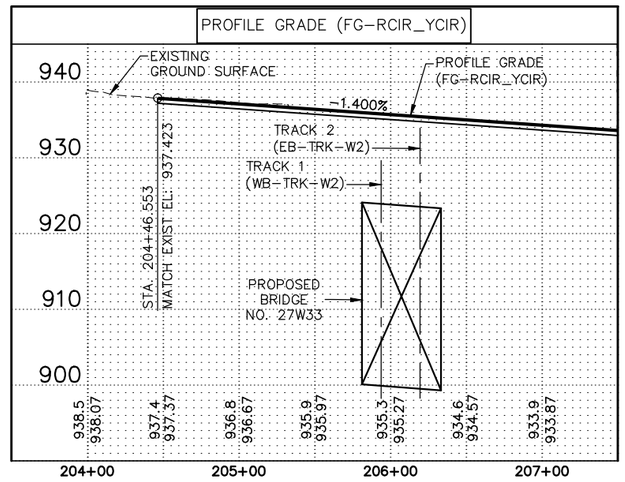
Jan, 20 2016 02:36 pm v:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\CIVIL\TH62 TUNNEL\W2-STU-TUNL-TH62-SUR1.dwg By: akruger

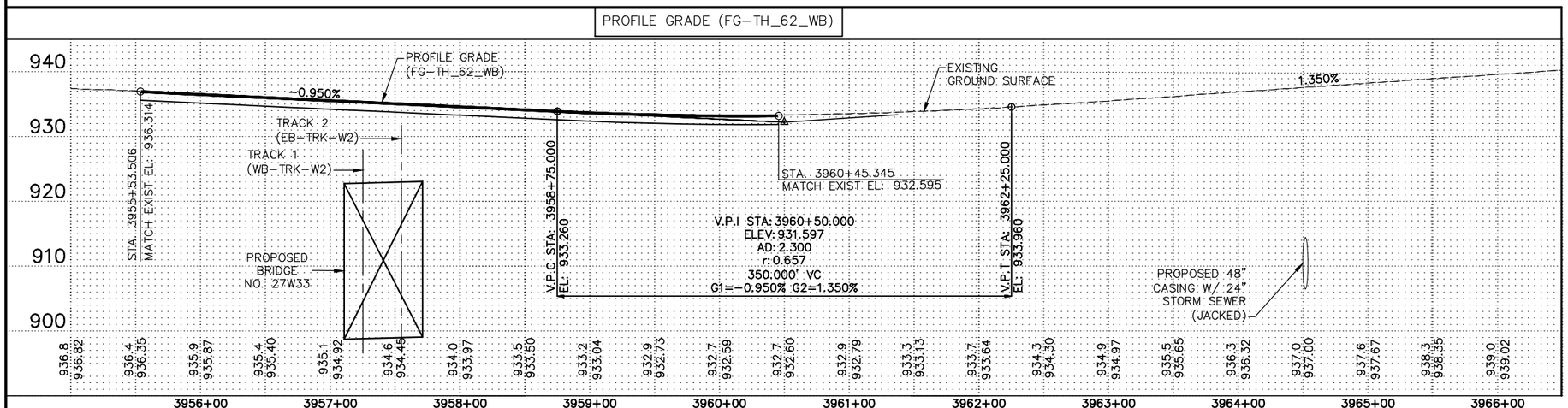
CONTRACTED PROFILE

SCALE HOR: 0 50'

SCALE VER: 0 10'







NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TUNNEL UNDER TH62
BRIDGE 27W33
TUNNEL SURVEY SHEET 2

DISCIPLINE: CIVIL

SHEET NAME: W2-STU-TUN-TH62-SUR2

SHEET 9 OF 148

Jan. 20 2016 02:36 pm V:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\CIVIL\TH62 TUNNEL\W2-STU-TUNL-TH62-SUR2.dwg By: dkruger

ALIGNMENT DATA
TH 62 EB (TH_62_EB)

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES Y	BEGINNING COORDINATES X	ENDING COORDINATES Y	ENDING COORDINATES X	AZIMUTH
L7	3942+00.000	3945+06.160							306.160	137045.178	490598.197	137081.987	490902.137	83°05'41.0"
C8	3945+06.160	3965+25.500	3956+02.480		51°07'45.0"	2°30'00.005"	2291.830	1096.320	2045.165	137081.987	490902.137	136449.152	492776.148	83°05'41.0" 134°13'26.0"
L8	3965+25.500	3972+45.440							719.940	136449.152	492776.148	135947.020	493292.072	134°13'26.0"
C9	3972+45.440	3984+25.996	3979+24.492		70°50'00.0"	5°59'59.992"	954.930	679.052	1180.556	135947.020	493292.072	135777.557	494385.820	134°13'26.0" 63°23'26.0"
L9	3984+25.996	3985+00.000							74.004	135777.557	494385.820	135810.704	494451.986	63°23'26.0"

ALIGNMENT DATA
TH 62 WB (TH_62_WB)

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES Y	BEGINNING COORDINATES X	ENDING COORDINATES Y	ENDING COORDINATES X	AZIMUTH
L10	3942+00.000	3945+06.160							306.160	137108.714	490590.503	137145.523	490894.442	83°05'41.0"
C10	3945+06.160	3965+25.500	3956+33.095		51°07'45.0"	2°25'55.505"	2355.830	1126.935	2102.277	137145.523	490894.442	136495.016	492820.786	83°05'41.0" 134°13'26.0"
L11	3965+25.500	3967+76.000							250.500	136495.016	492820.786	136320.301	493000.299	134°13'26.0"
C11	3967+76.000	3977+22.880	3972+92.466		56°48'46.0"	5°59'59.992"	954.930	516.466	946.880	136320.301	493000.299	136072.650	493874.459	134°13'26.0" 77°24'40.0"
L12	3977+22.880	3978+00.000							77.120	136072.650	493874.459	136089.459	493949.725	77°24'40.0"

ALIGNMENT DATA
RED CIR DR TO YELLOW CIR DR (RCIR_YCIR)

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES Y	BEGINNING COORDINATES X	ENDING COORDINATES Y	ENDING COORDINATES X	AZIMUTH
C12	200+00.000	201+90.741	200+95.393		3°03'51.1"	1°36'23.294"	3566.563	95.393	190.741	137254.251	491469.491	137223.447	491657.705	97°45'45.1" 100°49'36.2"
C13	201+90.741	206+51.413	204+22.343		14°39'49.2"	3°10'59.156"	1800.000	231.602	460.672	137223.447	491657.705	137080.271	492094.242	100°49'36.2" 115°29'25.4"
C14	206+51.413	208+17.061	207+34.239		0°55'42.4"	0°33'37.795"	10222.286	82.826	165.648	137080.271	492094.242	137007.775	492243.181	115°29'25.4" 116°25'07.8"

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

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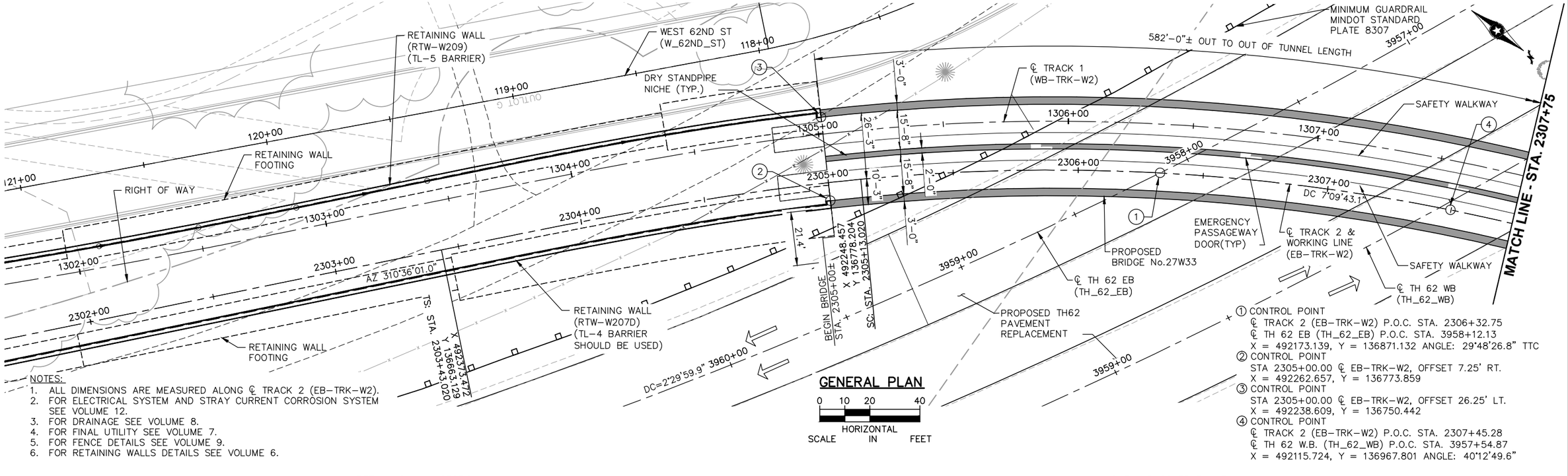
METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TUNNEL UNDER TH62
BRIDGE 27W33
TUNNEL SURVEY SHEET 3

DISCIPLINE: CIVIL

SHEET NAME: W2-STU-TUN-TH62-TAB

SHEET 10 OF 148



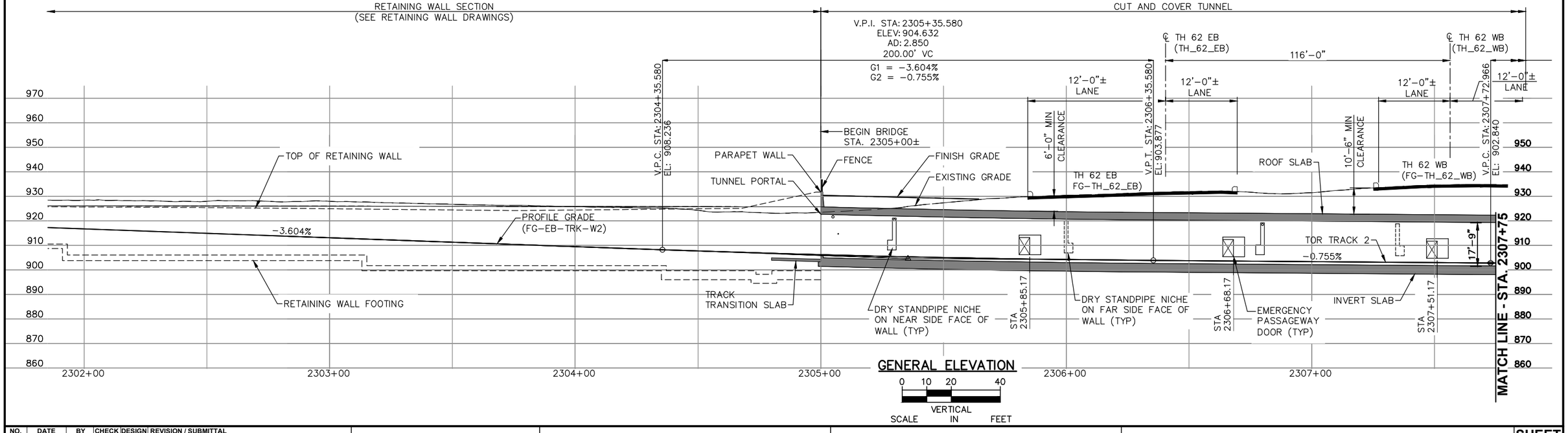
NOTES:
1. ALL DIMENSIONS ARE MEASURED ALONG ℄ TRACK 2 (EB-TRK-W2).
2. FOR ELECTRICAL SYSTEM AND STRAY CURRENT CORROSION SYSTEM SEE VOLUME 12.
3. FOR DRAINAGE SEE VOLUME 8.
4. FOR FINAL UTILITY SEE VOLUME 7.
5. FOR FENCE DETAILS SEE VOLUME 9.
6. FOR RETAINING WALLS DETAILS SEE VOLUME 6.

① CONTROL POINT
℄ TRACK 2 (EB-TRK-W2) P.O.C. STA. 2306+32.75
℄ TH 62 EB (TH_62_EB) P.O.C. STA. 3958+12.13
X = 492173.139, Y = 136871.132 ANGLE: 29°48'26.8" TTC

② CONTROL POINT
STA 2305+00.00 ℄ EB-TRK-W2, OFFSET 7.25' RT.
X = 492262.657, Y = 136773.859

③ CONTROL POINT
STA 2305+00.00 ℄ EB-TRK-W2, OFFSET 26.25' LT.
X = 492238.609, Y = 136750.442

④ CONTROL POINT
℄ TRACK 2 (EB-TRK-W2) P.O.C. STA. 2307+45.28
℄ TH 62 W.B. (TH_62_WB) P.O.C. STA. 3957+54.87
X = 492115.724, Y = 136967.801 ANGLE: 40°12'49.6"



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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

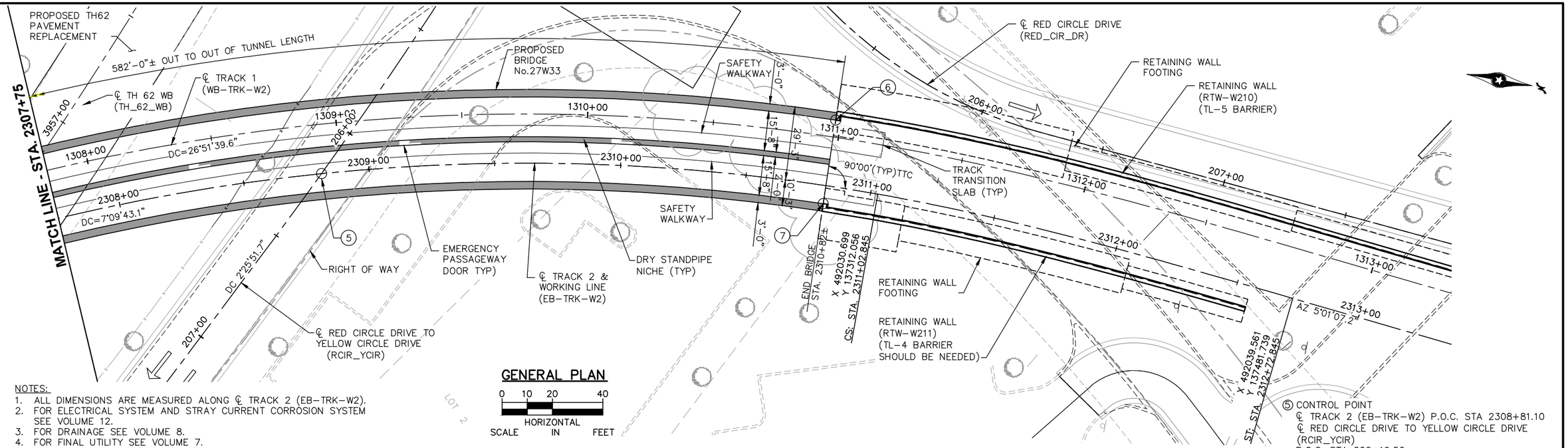
CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
GENERAL PLAN AND ELEVATION
SHEET 1

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-GPE-001

SHEET 11 OF 148

Jan, 18 2016 08:46 pm V:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\STRUCTURES\W2-STU-TUN-TH62\W2-STU-TUN-TH62-GPE-001.dwg By: YuB1



GENERAL PLAN

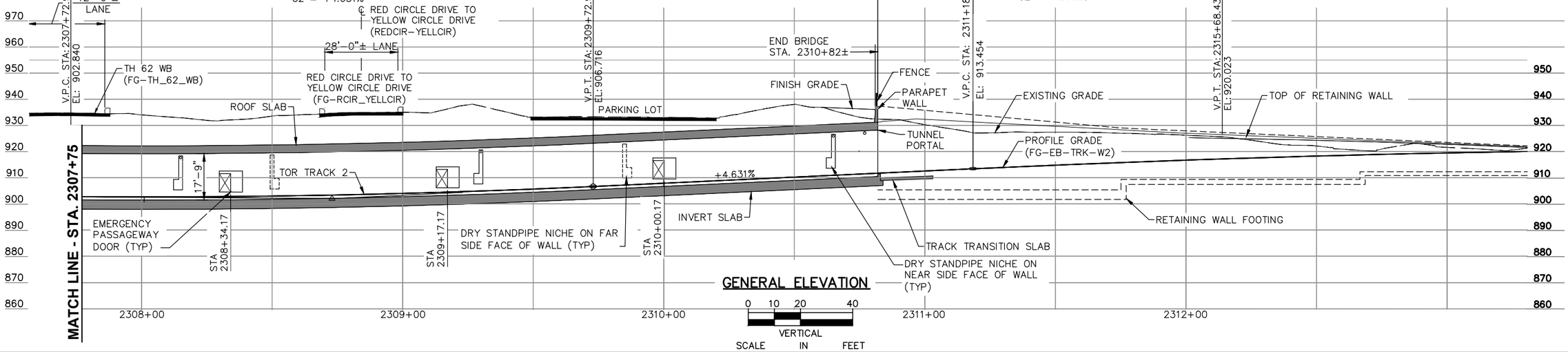
0 10 20 40
HORIZONTAL SCALE IN FEET

NOTES:
1. ALL DIMENSIONS ARE MEASURED ALONG ℄ TRACK 2 (EB-TRK-W2).
2. FOR ELECTRICAL SYSTEM AND STRAY CURRENT CORROSION SYSTEM SEE VOLUME 12.
3. FOR DRAINAGE SEE VOLUME 8.
4. FOR FINAL UTILITY SEE VOLUME 7.
5. FOR FENCE DETAILS SEE VOLUME 9.
6. FOR RETAINING WALLS DETAILS SEE VOLUME 6.

⑤ CONTROL POINT
℄ TRACK 2 (EB-TRK-W2) P.O.C. STA 2308+81.10
℄ RED CIRCLE DRIVE TO YELLOW CIRCLE DRIVE (RCIR_YCIR)
P.O.C. STA 206+19.50
X = 492065.312, Y = 137093.751
ANGLE: 48°34'31.6" TTC

⑥ CONTROL POINT
STA 2310+82.00 ℄ EB-TRK-W2
OFFSET 26.25' LT.
X = 492005.086, Y = 137290.075

⑦ CONTROL POINT
STA 2310+82.00 ℄ EB-TRK-W2
OFFSET 7.25' RT.
X = 492038.602, Y = 137291.546



GENERAL ELEVATION

0 10 20 40
VERTICAL SCALE IN FEET

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
GENERAL PLAN AND ELEVATION
SHEET 2

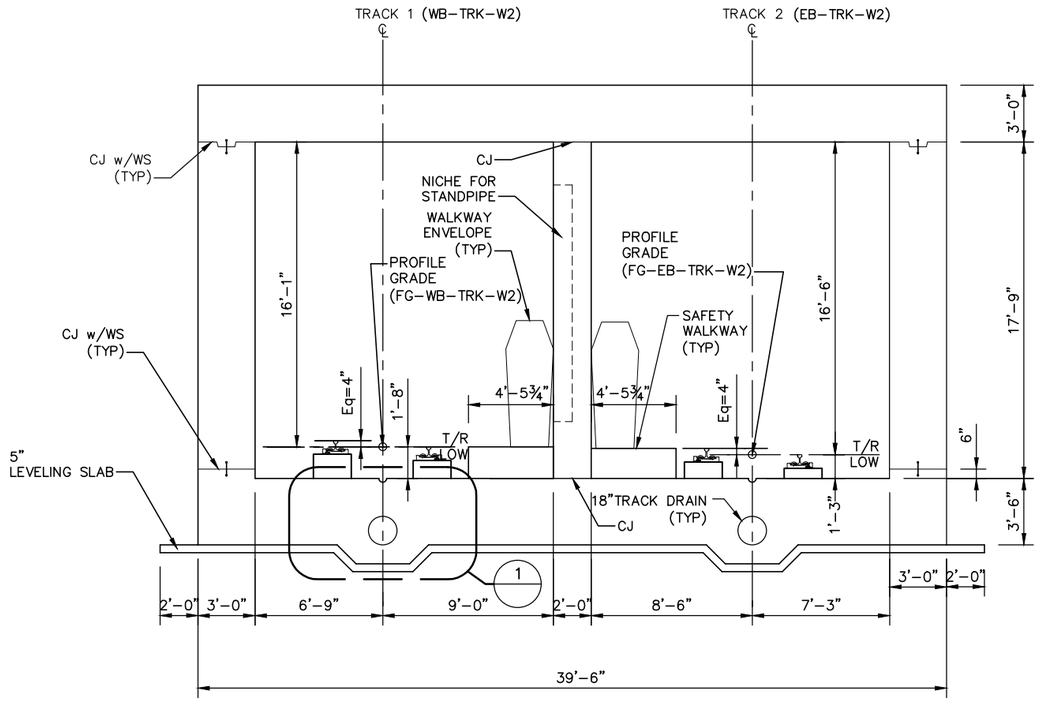
DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-GPE-002

SHEET 12 OF 148

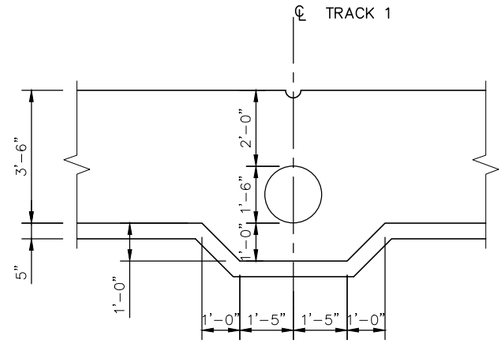
NOTES:

1. FOR WATERPROOFING DETAILS, SEE WATERPROOFING DRAWING.
2. FOR TEMPORARY SUPPORT OF EXCAVATION, SEE SUGGESTED SUPPORT OF EXCAVATION DRAWINGS.
3. FOR ELECTRICAL SYSTEM AND STRAY CURRENT CORROSION SYSTEM SEE VOLUME 12.
4. FOR DRAINAGE SYSTEM SEE DRAINAGE SHEETS.
5. TRACK 1 AND TRACK 2 PROFILES DIFFERS, SEE TRACK PLANS.
6. FOR WALKWAY DETAILS SEE MISCELLANEOUS STRUCTURAL REINFORCEMENT DRAWINGS.



TYPICAL TUNNEL CROSS SECTION LOOKING UPSTATION– GEOMETRY FROM STA. 2305+00 TO STA. 2310+82

0 2 4 8
HORIZONTAL SCALE IN FEET



1 DETAIL
SCALE: 1/2"= 1'-0"

0 2' 4'
SCALE

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AECOM

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

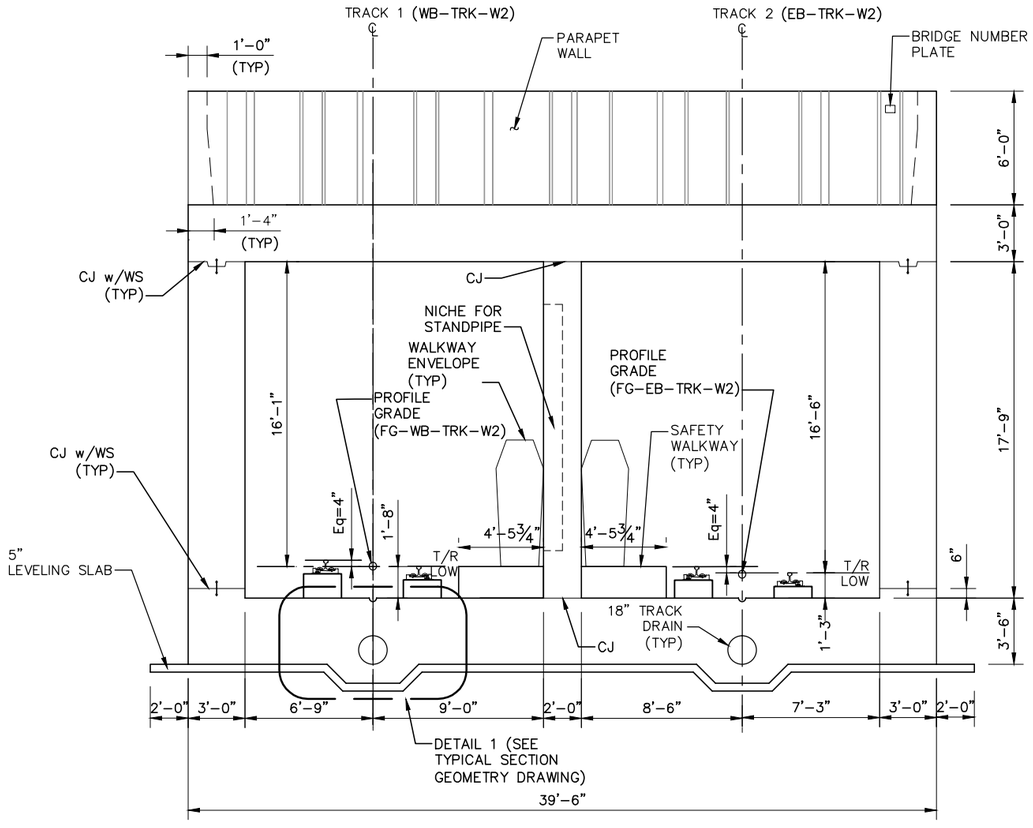
CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
TYPICAL SECTION GEOMETRY

DISCIPLINE: STRUCTURES
SHEET NAME: W2-STU-TUN-TH62-TYP-001

SHEET 13 OF 148

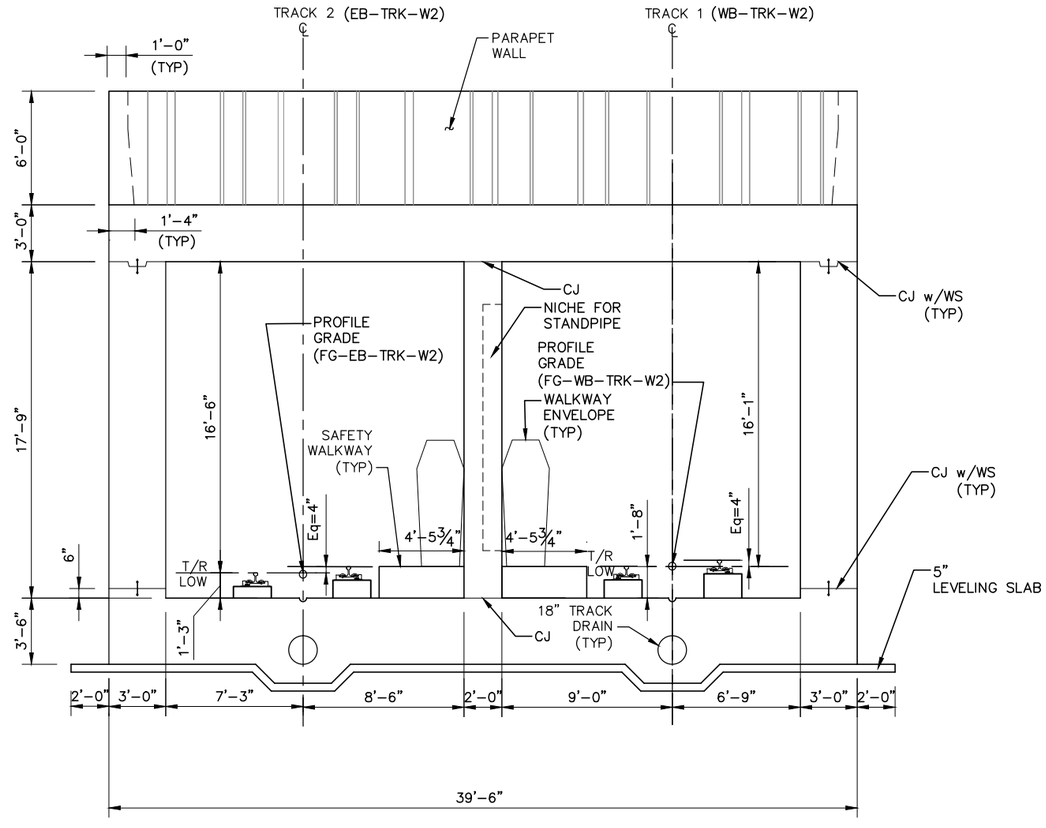
NOTES:

1. FOR WATERPROOFING DETAILS, SEE WATERPROOFING DRAWING.
2. FOR TEMPORARY SUPPORT OF EXCAVATION, SEE SUGGESTED SUPPORT OF EXCAVATION DRAWINGS.
3. FOR ELECTRICAL SYSTEM AND STRAY CURRENT CORROSION SYSTEM SEE VOLUME 12.
4. FOR DRAINAGE SYSTEM SEE DRAINAGE SHEETS.
5. TRACK 1 AND TRACK 2 PROFILES DIFFERS, SEE TRACK PLANS.
7. FOR BRIDGE NAME PLATE DETAILS SEE SHEET W2STU-TUN-TUNK-BDT-001.
8. FOR SURFACE OF PARAPET WALL SEE SHEET W2STU-TUN-TUNK-BDT-002.
9. FOR WALKWAY DETAILS SEE MISCELLANEOUS STRUCTRURAL REINFORCEMENT SHEETS.



SOUTH PORTAL LOOKING UPSTATION – GEOMETRY
STA. 2305+00

0 2 4 8
HORIZONTAL SCALE IN FEET



NORTH PORTAL LOOKING DOWNSTATION – GEOMETRY
STA. 2310+82

0 2 4 8
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
TUNNEL PORTALS
GEOMETRY

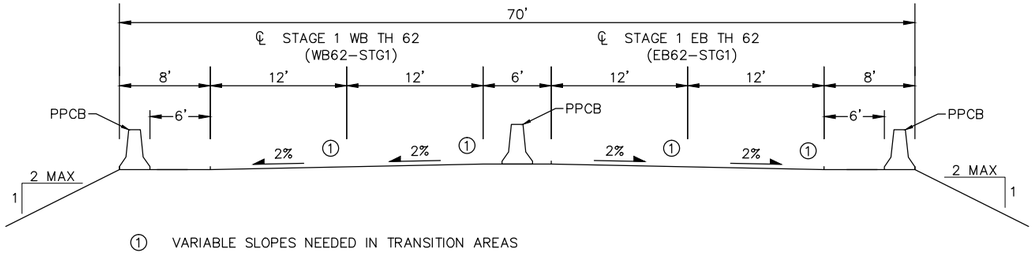
DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-TYP-TTS-001

SHEET 14 OF 148

GENERAL TRAFFIC CONTROL NOTES:

1. ALL TRAFFIC CONTROL DEVICES, TEMPORARY LANE CLOSURE ARRANGEMENTS AND PROCEDURES, SHALL CONFORM TO REQUIREMENTS OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.
2. NO SIGNAGE IS SHOWN, THE CONTRACTOR IS TO PROVIDE TEMPORARY SIGNAGE WITHIN THE TRAFFIC CONTROL PLAN. ADDITIONALLY, IF THE CONTRACTOR DECIDES TO PERFORM THE CONSTRUCTION WORK IN A SEQUENCE OTHER THAN SHOWN IN THIS TRAFFIC CONTROL PLAN, THE CONTRACTOR SHALL PROVIDE COMPLETE REVISED TRAFFIC CONTROL PLANS TO BE APPROVED BY THE ENGINEER.
3. ALL TRAFFIC THRU LANES SHALL BE A MINIMUM OF 12 FEET IN WIDTH UNLESS NOTED OTHERWISE.
4. THE CONTRACTOR SHALL MAINTAIN A 2 FOOT MINIMUM CLEAR DISTANCE BETWEEN THE EDGE OF THE TRAVEL LANE AND THE NEAREST EDGE OF ANY ADJACENT TRAFFIC CONTROL DEVICE (PORTABLE PRECAST CONCRETE BARRIER (PPCB), DRUMS, BARRICADES, ETC.) UNLESS NOTED OTHERWISE.
5. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".



① VARIABLE SLOPES NEEDED IN TRANSITION AREAS

TYPICAL SECTION A-A
(DURING TUNNEL CONSTRUCTION)
SEE SHEET NO. 17 AND 19 FOR SECTION A-A LOCATION

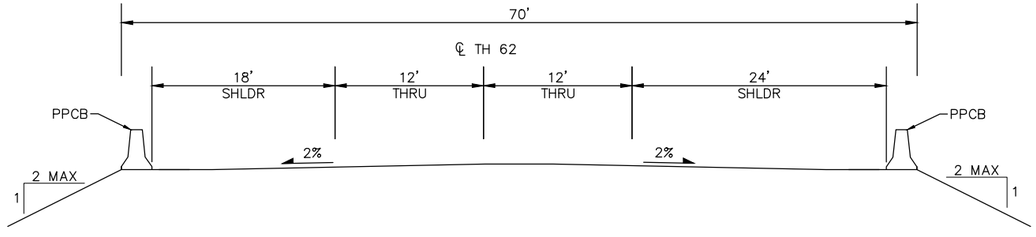
STAGING NARRATIVE:

STAGE 1

1. CONSTRUCT TEMPORARY PAVEMENT ON SOUTH SIDE OF ROADWAY. CONSTRUCT TEMPORARY PAVEMENT IN MEDIAN AREA (TO BE USED FOR BOTH STAGE 1 AND STAGE 2).
2. SHIFT EB AND WB TRAFFIC ONTO TEMPORARY PAVEMENT; BYPASS SPEED OF 55 MPH.
3. PLACE TEMPORARY SHORING FOR TUNNEL EXCAVATION.
4. CONSTRUCT NORTHERLY PORTION OF LRT TUNNEL.
5. INSTALL PROPOSED STORM SEWER TO THE EXTENT POSSIBLE IN STAGE 1.
6. INSTALL SANITARY SEWER LIFT STATION.
7. CONSTRUCT TEMPORARY PAVEMENT ON NORTH SIDE OF ROADWAY.
8. OVER WINTER: SHIFT WB TRAFFIC TO TEMPORARY BYPASS ON NORTH SIDE; RESTRIPE EB. TEMPORARY BYPASS AND SHIFT EB TRAFFIC ON TEMPORARY BYPASS ON SOUTH SIDE.

STAGE 2

1. SHIFT EB AND WB TRAFFIC ONTO TEMPORARY PAVEMENT ON NORTH SIDE; BYPASS SPEED OF 55 MPH.
2. PLACE TEMPORARY SHORING FOR TUNNEL EXCAVATION.
3. CONSTRUCT REMAINDER OF LRT TUNNEL.
4. INSTALL REMAINDER OF PROPOSED STORM SEWER. COMPLETE REMOVALS OF EXISTING STORM SEWER NOT PART OF PERMANENT CONFIGURATION.
5. REPAIR PERMANENT SECTIONS OF EB TH 62.
6. SHIFT EB TH 62 TO PERMANENT EB LANES.
7. REPAIR PERMANENT SECTIONS OF WB TH 62.
8. SHIFT WB TH 62 TO PERMANENT WB LANES.
9. SHIFT EB AND WB TRAFFIC ONTO PERMANENT ALIGNMENT.
10. REMOVE TEMPORARY PAVEMENT AND RESTORE DISTURBED AREAS.
11. INSTALL PERMANENT GUARDRAIL ALONG EB TH 62.



TYPICAL SECTION A-A
(DURING WINTER)
EB TH 62 SHOWN (WB SIMILAR)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TUNNEL UNDER TH62
BRIDGE 27W33
STAGING PLAN - NARRATIVE & NOTES

DISCIPLINE: CIVIL
SHEET NAME: W2-CIV-STG-001-NAR

SHEET 15 OF 148

Jan, 20 2016 02:37 pm V:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\CIVIL\TH62 TUNNEL\W2-CIV-STG-001.dwg By: akruger

ALIGNMENT DATA
STAGE 1 – E.B. T.H. 62 (EB62–STG1)

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES Y	BEGINNING COORDINATES X	ENDING COORDINATES Y	ENDING COORDINATES X	AZIMUTH
C1	10+00.000	14+89.179	12+47.310		20°47'32.0"	4°15'01.543"	1348.000	247.310	489.179	137094.671	491317.643	136978.119	491789.975	93°27'54.7" 114°15'26.7"
L1	14+89.179	21+65.156							675.977	136978.119	491789.975	136700.403	492406.269	114°15'26.7"
C2	21+65.156	26+43.102	24+06.664		20°18'53.1"	4°15'01.543"	1348.000	241.508	477.946	136700.403	492406.269	136431.690	492798.497	114°15'26.7" 134°34'19.8"

ALIGNMENT DATA
STAGE 1 – W.B. T.H. 62 (WB62–STG1)

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES Y	BEGINNING COORDINATES X	ENDING COORDINATES Y	ENDING COORDINATES X	AZIMUTH
C3	110+00.000	115+84.020	112+96.665		24°49'24.1"	4°15'01.543"	1348.000	296.665	584.020	137163.040	491149.477	137044.089	491716.600	89°26'02.6" 114°15'26.7"
L2	115+84.020	124+54.041							870.021	137044.089	491716.600	136686.652	492509.806	114°15'26.7"
C4	124+54.041	129+11.135	126+84.803		19°25'42.5"	4°15'01.543"	1348.000	230.763	457.094	136686.652	492509.806	136432.458	492887.067	114°15'26.7" 133°41'09.2"

ALIGNMENT DATA
STAGE 2 – E.B. T.H. 62 (EB62–STG1)

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES Y	BEGINNING COORDINATES X	ENDING COORDINATES Y	ENDING COORDINATES X	AZIMUTH
L3	60+00.000	63+88.549							388.549	137097.397	491261.104	137083.463	491649.404	92°03'18.3"
C5	63+88.549	74+61.494	69+55.262		45°36'17.1"	4°15'01.543"	1348.000	566.713	1072.945	137083.463	491649.404	136644.250	492597.451	92°03'18.3" 137°39'35.4"
L4	74+61.494	76+16.846							155.352	136644.250	492597.451	136529.420	492702.085	137°39'35.4"
C6	76+16.846	76+89.490	76+53.177		3°05'15.6"	4°15'01.543"	1348.000	36.331	72.644	136529.420	492702.085	136477.069	492752.436	137°39'35.4" 134°34'19.8"
L5	76+89.490	77+46.127							56.637	136477.069	492752.436	136437.321	492792.782	134°34'19.8"

ALIGNMENT DATA
STAGE 2 – W.B. T.H. 62 (WB62–STG2)

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES Y	BEGINNING COORDINATES X	ENDING COORDINATES Y	ENDING COORDINATES X	AZIMUTH
L6	160+00.000	162+98.436							298.436	137141.869	491489.663	137101.943	491785.416	97°41'17.5"
C7	162+98.436	171+05.356	167+13.834		33°33'03.2"	4°09'28.418"	1378.000	415.398	806.920	137101.943	491785.416	136772.539	492509.445	97°41'17.5" 131°14'20.7"
L7	171+05.356	174+03.791							298.436	136772.539	492509.445	136575.809	492733.859	131°14'20.7"

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TUNNEL UNDER TH62
BRIDGE 27W33
STAGING PLAN - TEMP. ALIGNMENT TAB

DISCIPLINE: CIVIL

SHEET NAME: W2-CIV-STG-001-TAB

SHEET 16 OF 148

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LEGEND	
	PERMANENT CONSTRUCTION
	TEMPORARY PAVEMENT
	TRAFFIC LOCATION AND DIRECTION
	IMPACT ATTENUATOR
	EXISTING ROADWAYS
	TEMPORARY PORTABLE PRECAST CONCRETE BARRIER / MNDOT STD. PLATE 8337
	REFLECTORIZED DRUMS 25 FT SPACING
	TEMPORARY SHORING
	PROPOSED STORM SEWER CONSTRUCTION
	PROPOSED SANITARY SEWER CONSTRUCTION
	PROPOSED TRAFFIC BARRIER

NOTES: TEMPORARY TRAFFIC SIGNS NOT SHOWN
SEE SHEET 15 FOR SECTION A-A

RETAINING WALL

PROPOSED SANITARY SEWER LIFT STATION

EXISTING 24" RCP

P.C. STA. 110+00.000
X=491149.477
Y=137163.040

℄ WB62-STG1
(WB62-STG1)

7°1'48"C

C3

WB BYPASS
SPEED:
55 MPH

1:15

15.0'

P.T. STA. 115+84.020
X=491716.600
Y=137044.089

38.7'

115+00

110+00

12.0'

6.0'

120+00

C2

A

C1

EB BYPASS
SPEED:
55 MPH

4°15'C

℄ EB62-STG1
(EB62-STG1)

5°38'24"C

P.C. STA. 10+00.000
X=491317.643
Y=137094.671

P.T. STA. 14+89.18
X=491789.975
Y=136978.119

IMPACT ATTENUATOR
(60 MPH)

L1

RETAINING WALL

0 25 50 100

MATCH LINE - SHEET 18

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TUNNEL UNDER TH62
BRIDGE 27W33
STAGING PLAN - STAGE 1

DISCIPLINE: CIVIL

SHEET NAME: W2-CIV-STG-001-1

SHEET 17 OF 148

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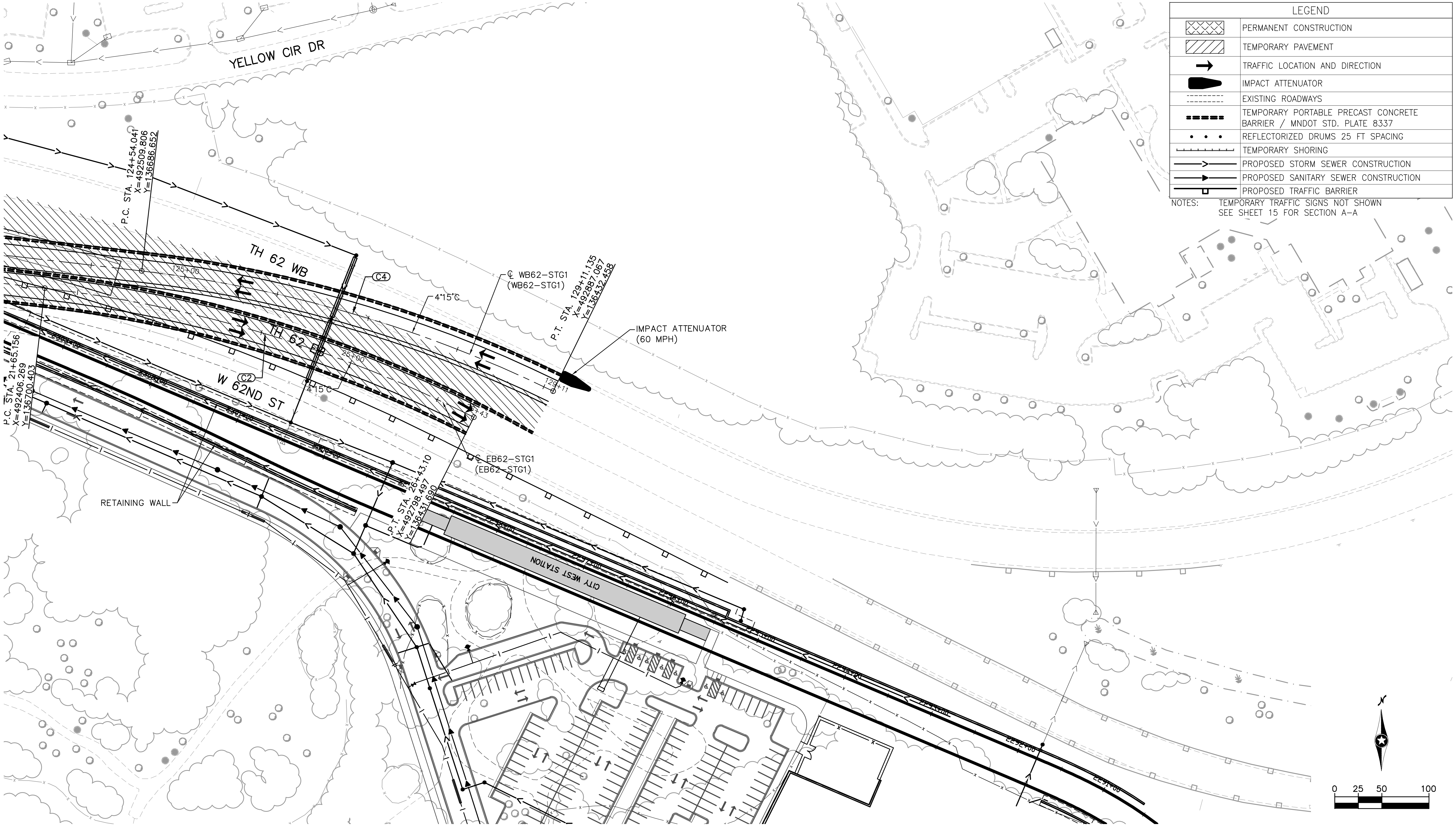
MATCH LINE - SHEET 17



LEGEND	
⊠	PERMANENT CONSTRUCTION
▨	TEMPORARY PAVEMENT
→	TRAFFIC LOCATION AND DIRECTION
⬬	IMPACT ATTENUATOR
- - - -	EXISTING ROADWAYS
▬ ▬ ▬	TEMPORARY PORTABLE PRECAST CONCRETE BARRIER / MNDOT STD. PLATE 8337
• • •	REFLECTORIZED DRUMS 25 FT SPACING
┴┴┴┴	TEMPORARY SHORING
—>—	PROPOSED STORM SEWER CONSTRUCTION
—▶—	PROPOSED SANITARY SEWER CONSTRUCTION
—□—	PROPOSED TRAFFIC BARRIER

NOTES: TEMPORARY TRAFFIC SIGNS NOT SHOWN
SEE SHEET 15 FOR SECTION A-A

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

SRF Consulting Group, Inc.

90% SUBMISSION - 01/22/16

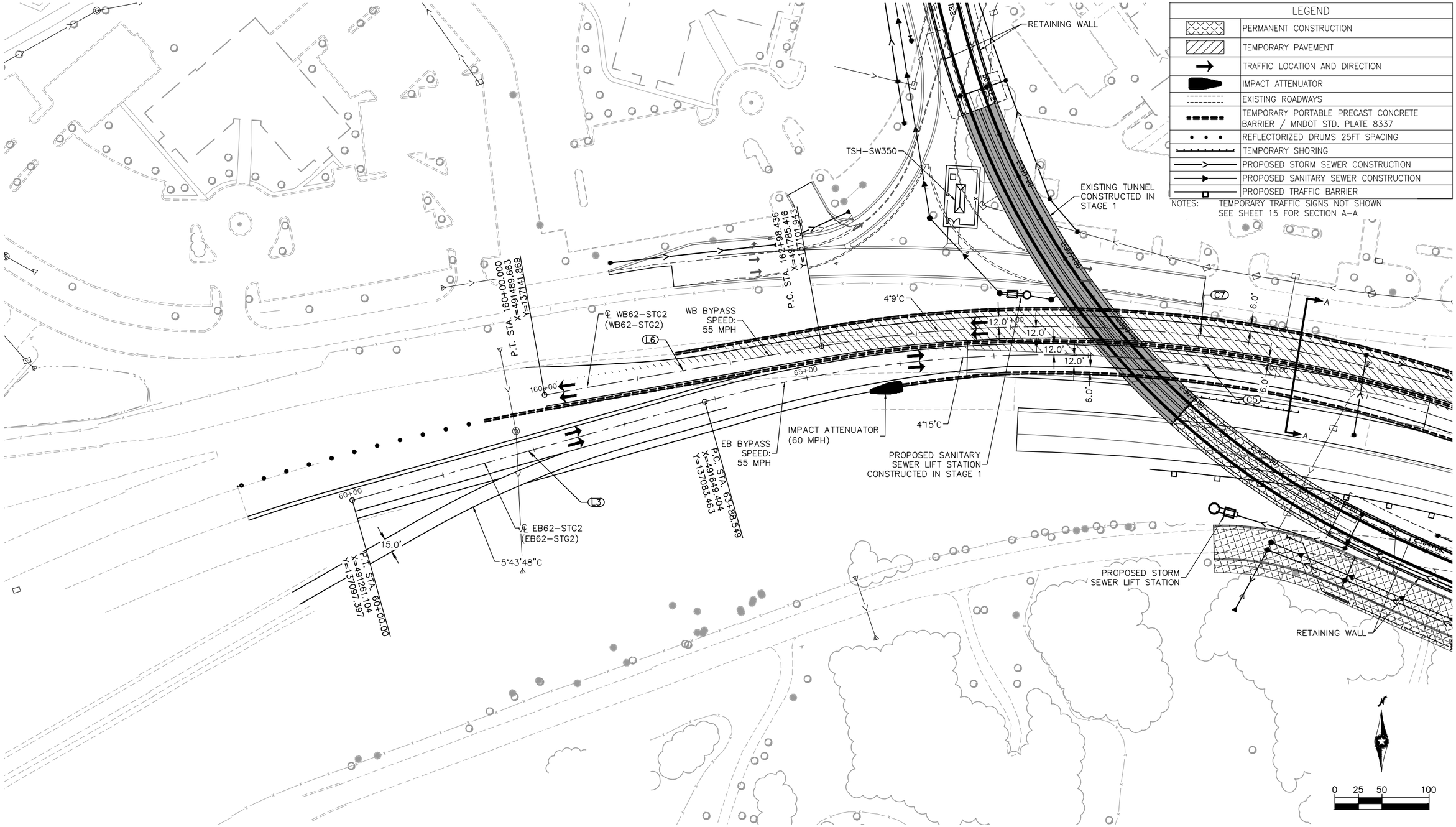
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TUNNEL UNDER TH62
BRIDGE 27W33
STAGING PLAN - STAGE 1

DISCIPLINE: **CIVIL**

SHEET NAME: **W2-CIV-STG-001-2**



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

SRF Consulting Group, Inc.

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

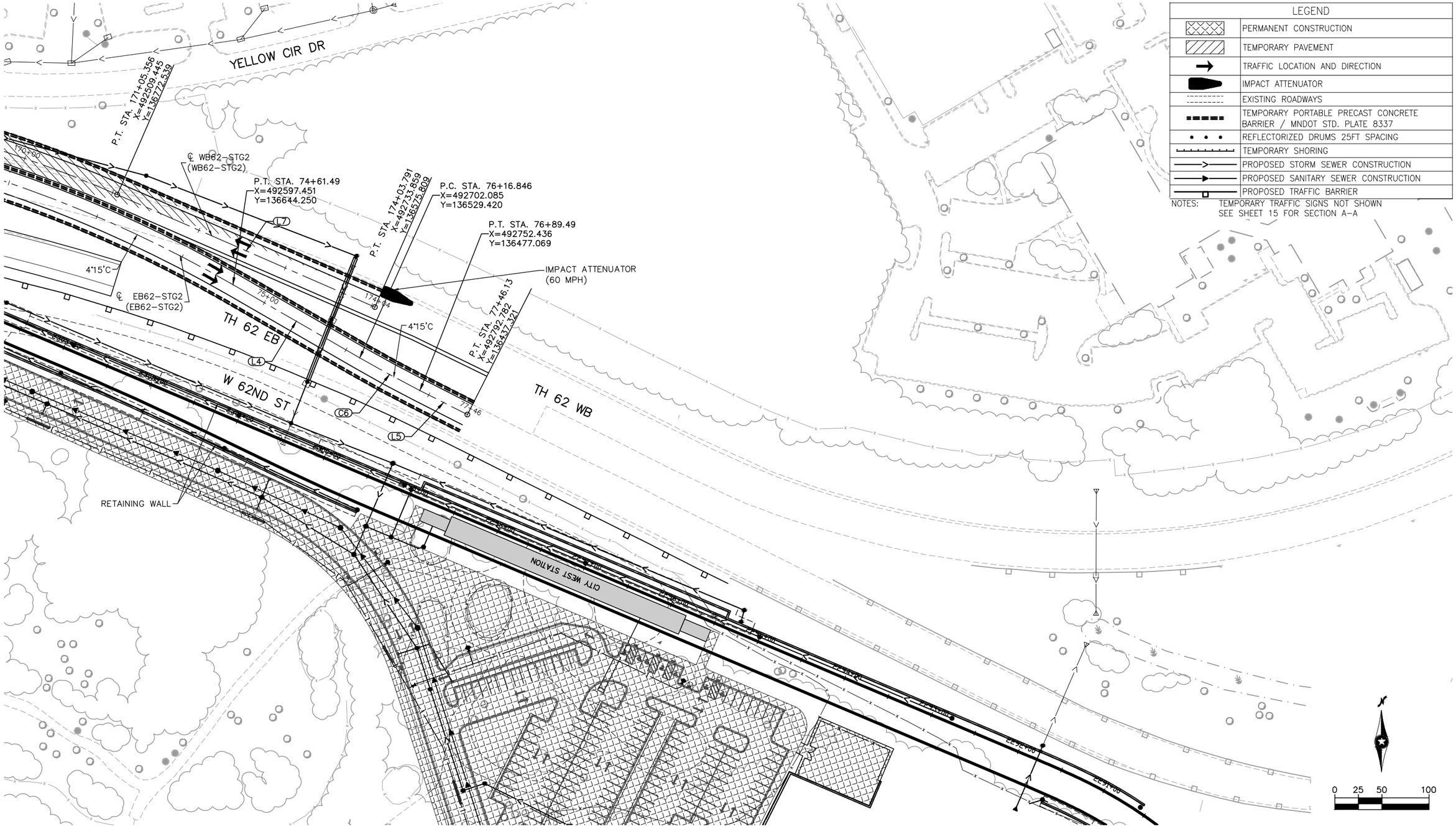
CIVIL - VOLUME 5
TUNNEL UNDER TH62
BRIDGE 27W33
STAGING PLAN - STAGE 2

DISCIPLINE: CIVIL

SHEET NAME: W2-CIV-STG-002-1

SHEET 19 OF 148

Jan. 20 2016 02:39 pm v:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\CIVIL\TH62 TUNNEL\W2-CIV-STG-002.dwg By: akruger



Jan. 20 2016 02:39 pm V:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\CIVIL\TH62 TUNNEL\W2-CIV-STG-002.dwg By: akruger

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL

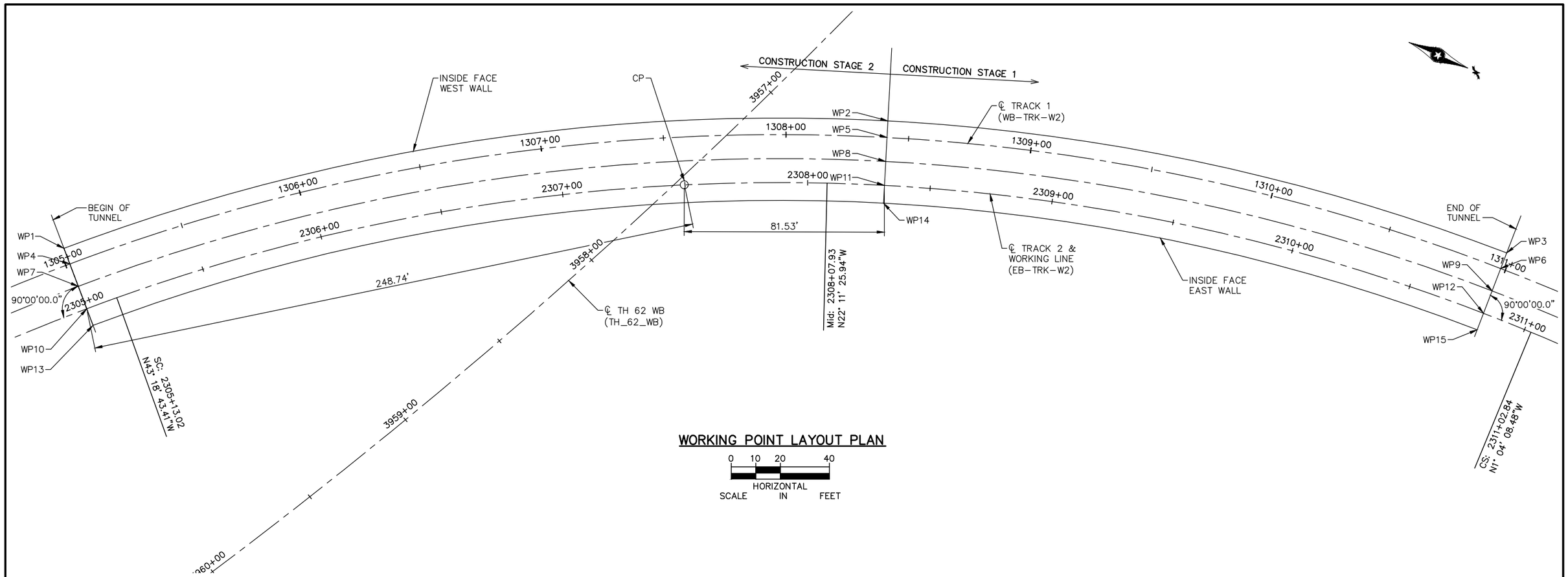
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TUNNEL UNDER TH62
BRIDGE 27W33
STAGING PLAN - STAGE 2

DISCIPLINE: CIVIL

SHEET NAME: W2-CIV-STG-002-2

SHEET 20 OF 148



WORKING POINT LAYOUT PLAN

0 10 20 40

HORIZONTAL SCALE IN FEET

DIMENSIONS BETWEEN WORKING POINTS																		
POINT	STATION	X-COORDINATE	Y-COORDINATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2305+00.00	492238.61	136750.44	-	339.78	587.97	6.78	338.45	585.60	16.54	336.77	582.29	26.32	335.36	579.14	33.57	334.88	576.89
2	2308+31.32	492056.6578	137037.40	339.78	-	257.86	338.45	6.78	256.89	336.80	16.56	255.80	335.36	26.34	255.08	334.49	33.60	254.79
3	2310+82.00	492005.09	137290.05	587.97	259.86	-	585.59	256.89	6.76	582.29	255.80	16.54	579.13	255.08	26.29	576.88	254.79	33.54
4	2305+00.00	492243.47	136755.17	6.78	338.45	585.60	-	336.99	583.15	9.76	335.12	579.74	19.54	333.53	576.49	26.79	332.52	574.17
5	2308+31.32	492063.00	137039.77	338.45	6.78	256.89	336.99	-	255.75	335.12	9.79	254.41	333.53	19.57	253.44	332.52	26.83	252.96
6	2310+82.00	492011.84	137290.35	585.60	256.89	6.76	583.15	255.75	-	579.14	254.41	9.78	576.49	253.44	19.54	574.17	252.96	26.79
7	2305+00.00	492250.6336	136762.15	16.54	336.77	582.29	9.76	335.12	579.75	-	332.98	576.20	9.78	331.11	572.80	17.03	329.90	570.37
8	2308+31.32	492072.15	137043.19	336.77	16.56	255.80	335.12	9.79	254.93	332.98	-	252.70	331.11	9.78	251.36	329.90	17.04	250.61
9	2310+82.00	492021.85	137290.80	582.29	255.80	16.54	579.74	254.41	9.78	576.20	252.70	-	572.79	251.36	9.75	570.36	250.61	17.00
10	2305+00.00	492257.46	136768.80	26.32	335.36	579.13	19.54	333.53	576.49	9.78	331.11	572.79	-	328.96	569.25	7.25	327.55	566.71
11	2308+31.32	492081.30	137046.61	335.36	26.34	255.08	333.53	19.57	253.44	331.11	9.78	251.36	328.96	-	249.65	327.55	7.26	248.63
12	2310+82.00	492031.36	137291.22	579.14	255.08	26.29	576.49	253.44	19.54	572.80	251.36	9.75	569.25	248.63	-	566.71	248.24	7.25
13	2305+00.00	492262.66	136773.86	33.57	334.49	576.88	26.79	332.52	574.17	17.03	329.90	570.36	7.25	327.55	566.71	-	325.98	564.09
14	2308+31.32	492088.09	137049.15	334.50	33.60	254.40	332.52	26.83	252.57	329.90	17.04	250.22	327.55	7.26	248.24	325.98	-	247.01
15	2310+82.00	492038.60	137291.55	576.89	254.79	33.54	574.17	252.96	26.79	570.37	250.61	17.00	566.71	248.63	7.25	564.09	247.39	-

NOTES:

1. ALL DISTANCES ARE STRAIGHT LINE HORIZONTAL DISTANCES.

CONTROL POINT CP:
℄ TRACK2 (EB–TRK–W2) P.O.C. STA. 2707+49.76
℄ TH 62 WB (TH_62_WB) P.O.C. STA. 486+80.41
X=492113.725, Y=136971.808, ANGLE: 40°12'49.6"

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TUNNEL UNDER TH62 BRIDGE (27W33)
WORKING POINT LAYOUT

DISCIPLINE: STRUCTURES

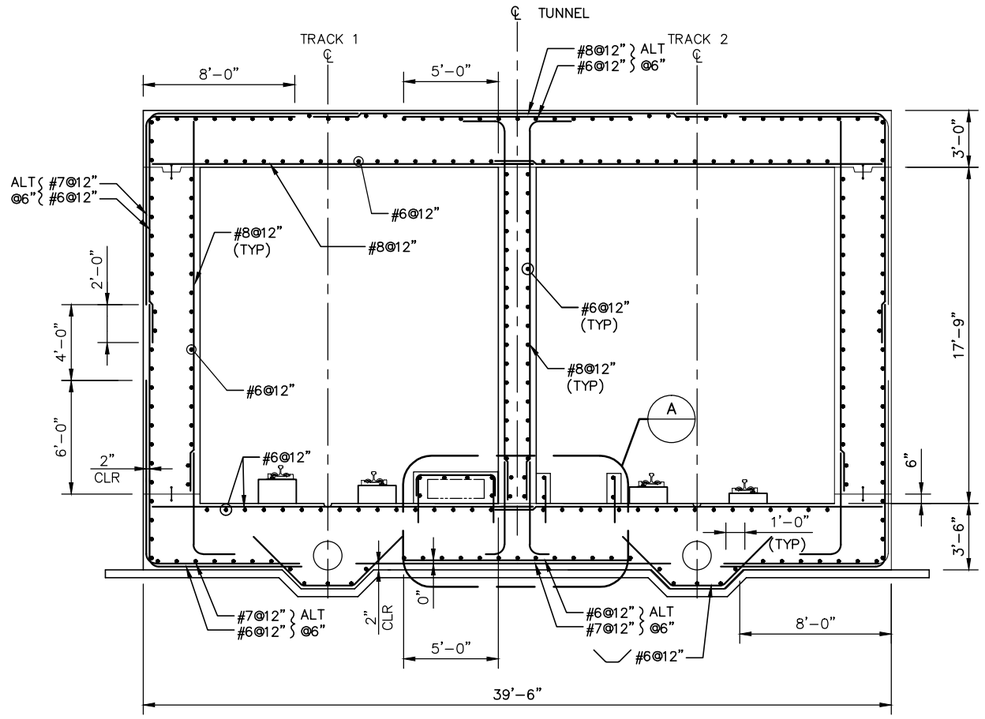
SHEET NAME: W2-STU-TUN-TH62-WPL

SHEET 21 OF 148

Jan, 16 2016 03:04 pm V:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\STRUCTURES\W2-STU-TUN-TH62\W2-STU-TUN-TH62-WPL.dwg By: YuB1

NOTES:

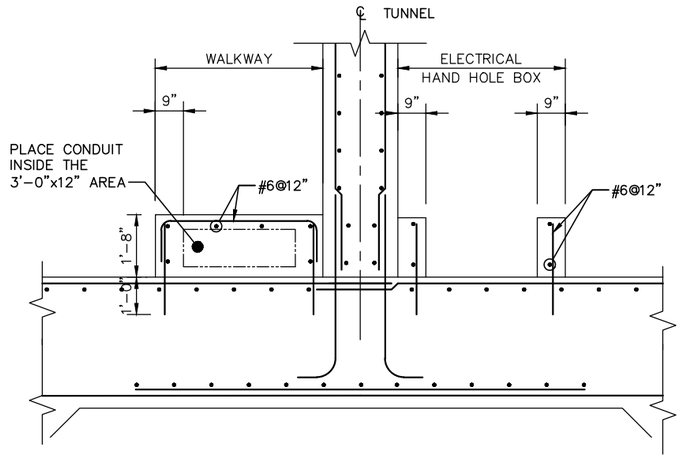
1. FOR WATERPROOFING DETAILS, SEE WATERPROOFING DRAWING.
2. FOR TEMPORARY SUPPORT OF EXCAVATION, SEE SUGGESTED SUPPORT OF EXCAVATION DRAWINGS.
3. FOR ELECTRICAL SYSTEM AND STRAY CURRENT CORROSION SYSTEM SEE VOLUME 12.
4. FOR DRAINAGE SYSTEM SEE DRAINAGE SHEETS.
5. TRACK 1 AND TRACK 2 PROFILES DIFFERS, SEE TRACK PLANS.



TYPICAL TUNNEL CROSS SECTION LOOKING UPSTATION
REINFORCEMENT FROM STA. 2305+00 TO STA. 2310+82

SCALE:SCALE: 1/4"=1–0"

0 4' 8'
SCALE



A WALKWAY REINFORCING – DETAIL

SCALE: 1/2"= 1'–0"

0 2' 4'
SCALE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

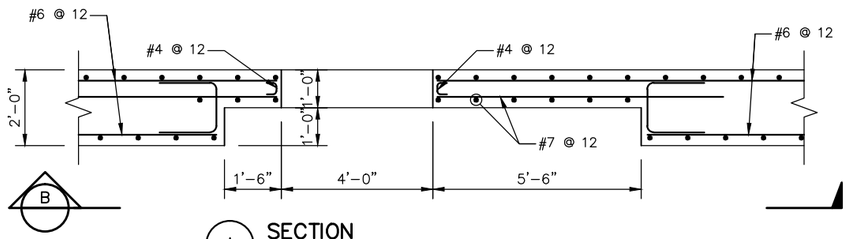
CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
TYPICAL SECTION
REINFORCEMENT

DISCIPLINE: STRUCTURES

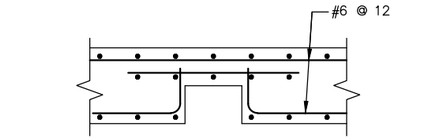
SHEET NAME: W2-STU-TUN-TH62-TYP-RNF-001

SHEET 22 OF 148

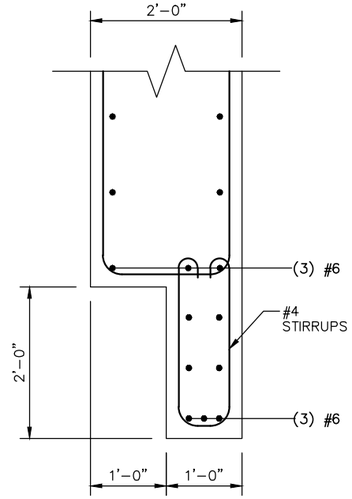
Jan, 17 2016 08:13 pm \\Nadtc2fp001\swirt\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\STRUCTURES\W2-STU-TUN-TH62\W2-STU-TUN-TH62-TYP-RNF-001.dwg By: YuB1



A SECTION
SCALE: 1/2" = 1'-0"
0 2' 4'
SCALE



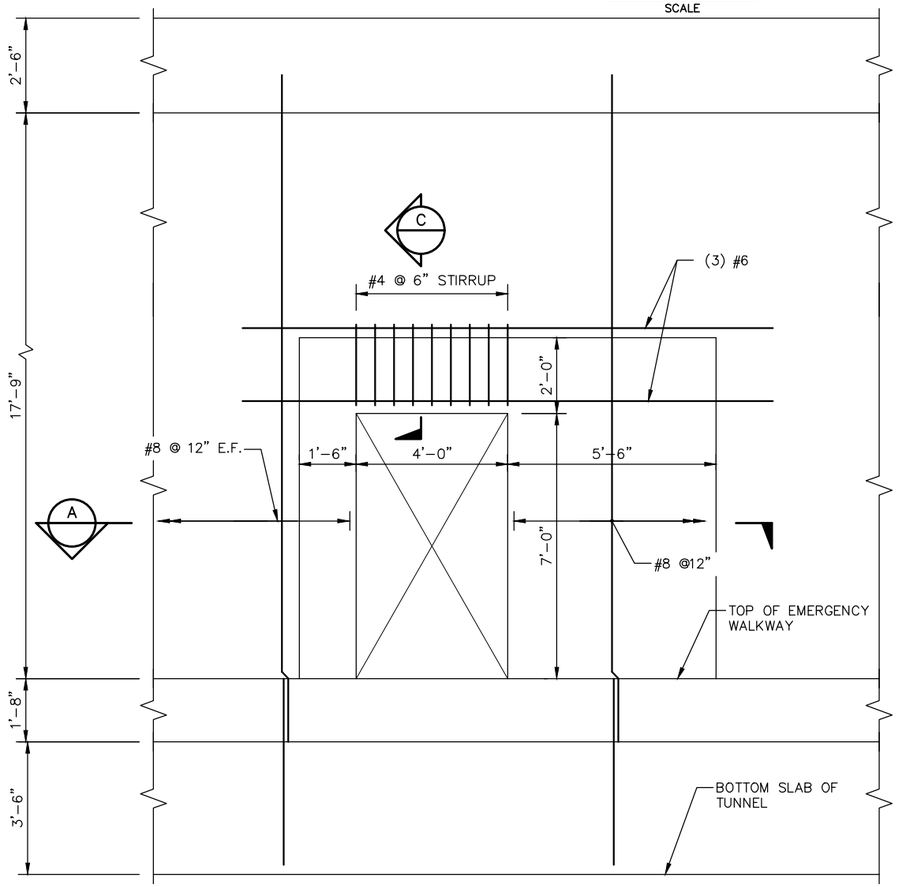
D DETAIL
SCALE: 1/2" = 1'-0"
0 2' 4'
SCALE



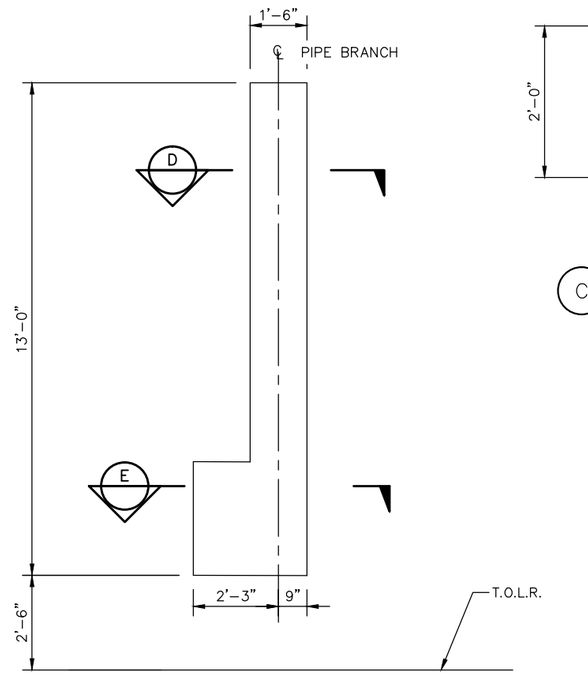
C DETAIL
SCALE: 1" = 1'-0"
0 1' 2'
SCALE

NOTES:

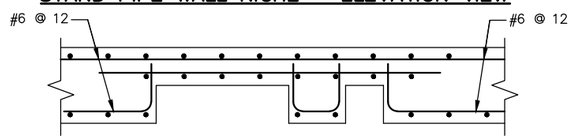
1. FOR LOCATION OF NICHES AND CROSS PASSAGES SEE DRAINAGE SHEETS.



B ELEVATION
SCALE: 1/2" = 1'-0"
0 2' 4'
SCALE



STAND PIPE WALL NICHE – ELEVATION VIEW



E SECTION
SCALE: 1/2" = 1'-0"
0 2' 4'
SCALE

EMERGENCY CROSS PASSAGE DETAILS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
MISCELLANEOUS STRUCTURAL DETAILS
SHEET 1

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-DTL-MIS-001

SHEET 23 OF 148

Jan, 18 2016 05:23 pm V:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\STRUCTURES\W2-STU-TUN-TH62\W2-STU-TUN-TH62-DTL-MIS-001.dwg By: nietersg

NOTES:

1. FOR LOCATION OF NICHES AND CROSS PASSAGES SEE DRAINAGE SHEETS.
2. FOR TEMPORARY SUPPORT OF EXCAVATION, SEE SUGGESTED SUPPORT OF EXCAVATION DRAWINGS.
3. FOR ELECTRICAL SYSTEM AND STRAY CURRENT CORROSION SYSTEM SEE VOLUME 12.
4. FOR DRAINAGE SYSTEM SEE DRAINAGE SHEETS.
5. TRACK 1 AND TRACK 2 PROFILES DIFFERS, SEE TRACK PLANS.

SOUTH PORTAL PARAPET – PLAN VIEW

SCALE: 1/4"=1-0"

0 4' 8'

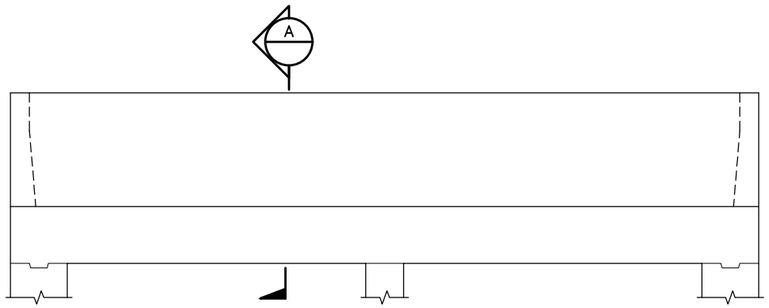
SCALE

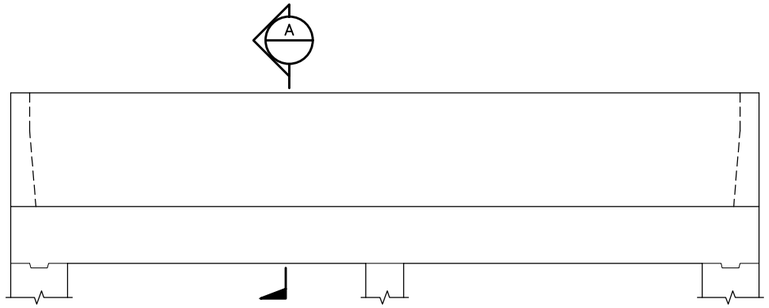
NORTH PORTAL PARAPET – PLAN VIEW

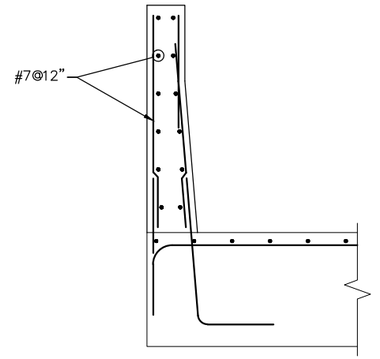
SCALE: 1/4"=1-0"

0 4' 8'

SCALE







A SECTION

SCALE: 1/2"= 1'-0"

0 2' 4'

SCALE

SOUTH PORTAL PARAPET – GEOMETRY

SCALE: 1/4"=1-0"

0 4' 8'

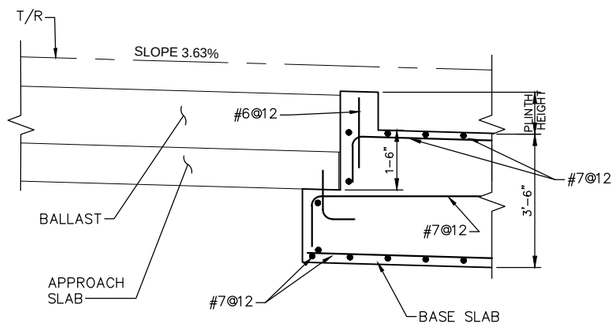
SCALE

NORTH PORTAL PARAPET – GEOMETRY

SCALE: 1/4"=1-0"

0 4' 8'

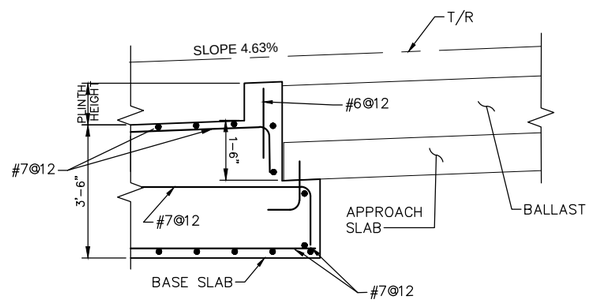
SCALE



SOUTH PORTAL PARAPET – DETAIL

SCALE: 1/2"=1-0"

0 2' 4'



NORTH PORTAL PARAPET – DETAIL

SCALE: 1/2"=1-0"

0 2' 4'

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

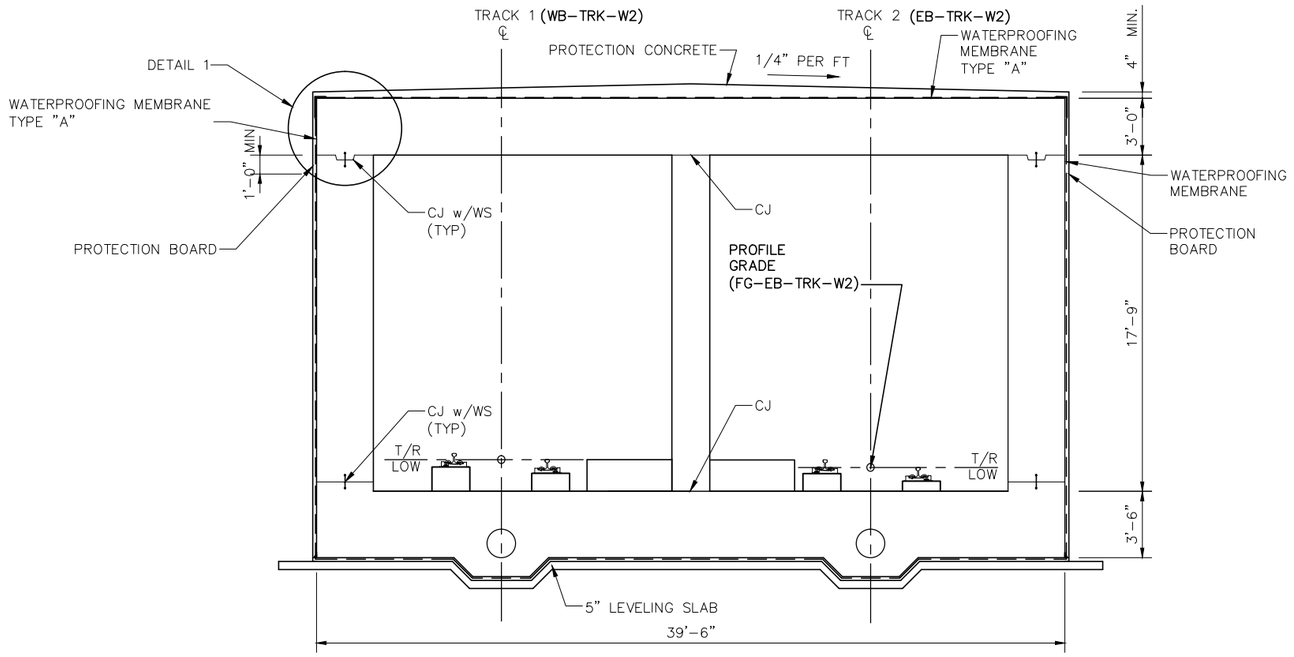
CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
MISCELLANEOUS STRUCTURAL DETAILS
SHEET 2

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-DTL-MIS-002

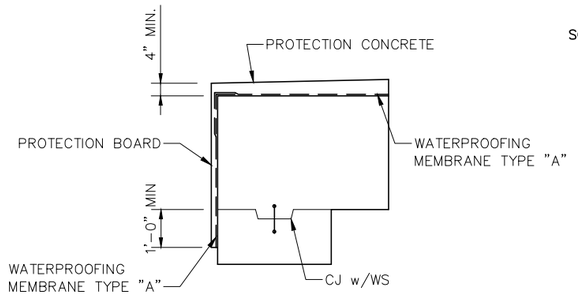
SHEET 24 OF 148

Jan, 18 2016 05:02 pm V:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\STRUCTURES\W2-STU-TUN-TH62\W2-STU-TUN-TH62-DTL-MIS-002.dwg By: mercuriellof



TYPICAL TUNNEL SECTION – WATERPROOFING

0 2 4 8
SCALE IN FEET



DETAIL 1
TOP SLAB WATERPROOFING
NO SCALE

NOTES:

1. TYPE "A" TO BE PLACED AFTER CONCRETE POUR.
2. INSTALL PROTECTION BOARD FLUSH WITH OUTSIDE OF WATERPROOFING IN ACCORDANCE WITH MANUFACTURER'S SYSTEM.
3. WATERPROOFING MATERIALS, PROCEDURES AND CONSTRUCTION METHODS SHALL CONFORM TO THE TECHNICAL SPECIFICATIONS AND MANUFACTURER'S REQUIREMENTS.
4. PRIOR TO INSTALLATION OF WATERPROOFING SYSTEM, CONCRETE SURFACE IS TO BE PREPARED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. SURFACES SHALL BE FREE OF VOIDS, SPALLED AREAS, LOOSE AGGREGATE AND SHARP PROTRUSIONS.
5. PROTECTION BOARD AS SPECIFIED IS TYPICAL FOR ALL INSTALLATIONS EXCEPT WHERE A CONCRETE SLAB IS PLACED OVER THE MEMBRANE.
6. SPLICE LENGTH AND LAP TAPE SIZE WILL VARY DEPENDING UPON PRODUCT SELECTED.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

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METROPOLITAN COUNCIL

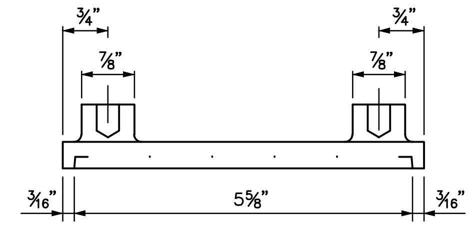
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL BRIDGE (27W33)
WATERPROOFING

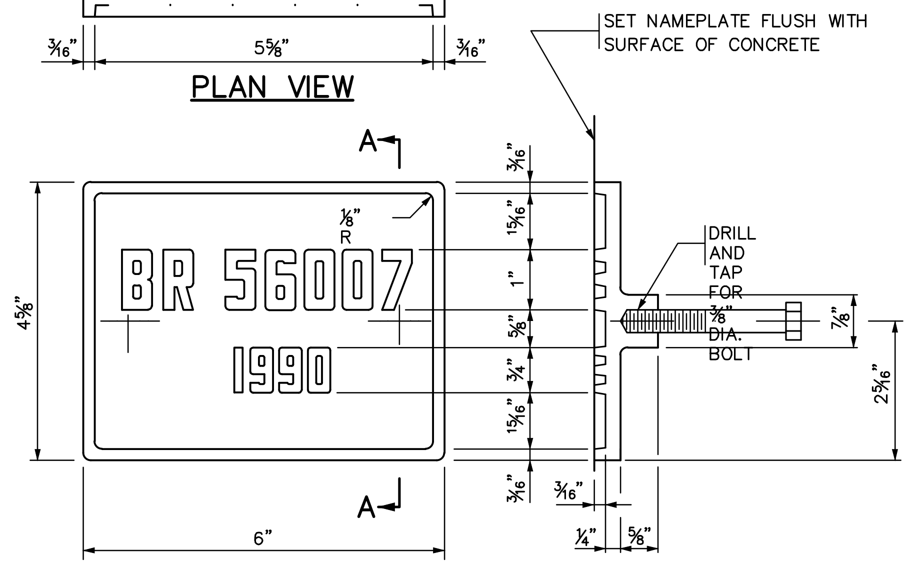
DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-DTL-WTP-001

SHEET 25 OF 148



PLAN VIEW



ELEVATION

SECTION A-A

THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION.
DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

BRIDGE 27W33

YEAR 2020

NUMBERS FOR NAMEPLATE

NOTES:

MATERIAL SHALL COMPLY WITH SPEC. 3327.

LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.

DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".

HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.

TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.

FURNISH 2 STEEL BOLTS ⅜" DIA. x 3" LONG WITH EACH PLATE.

ALL DIMENSIONS FOR ¾" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR 1" HIGH LETTERS AND NUMBERS.

APPROVED: NOVEMBER 22, 2002 Daniel L Dorgan STATE BRIDGE ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION BRIDGE NAMEPLATE (FOR NEW BRIDGES)	REVISION 09-11-2014	DETAIL NO. B101

NOTES:

1. FOR LOCATION OF BRIDGE NAME PLATE SEE SHEET W2-STU-TUN-TH62-TTS-001.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION 01/22/16

METROPOLITAN COUNCIL

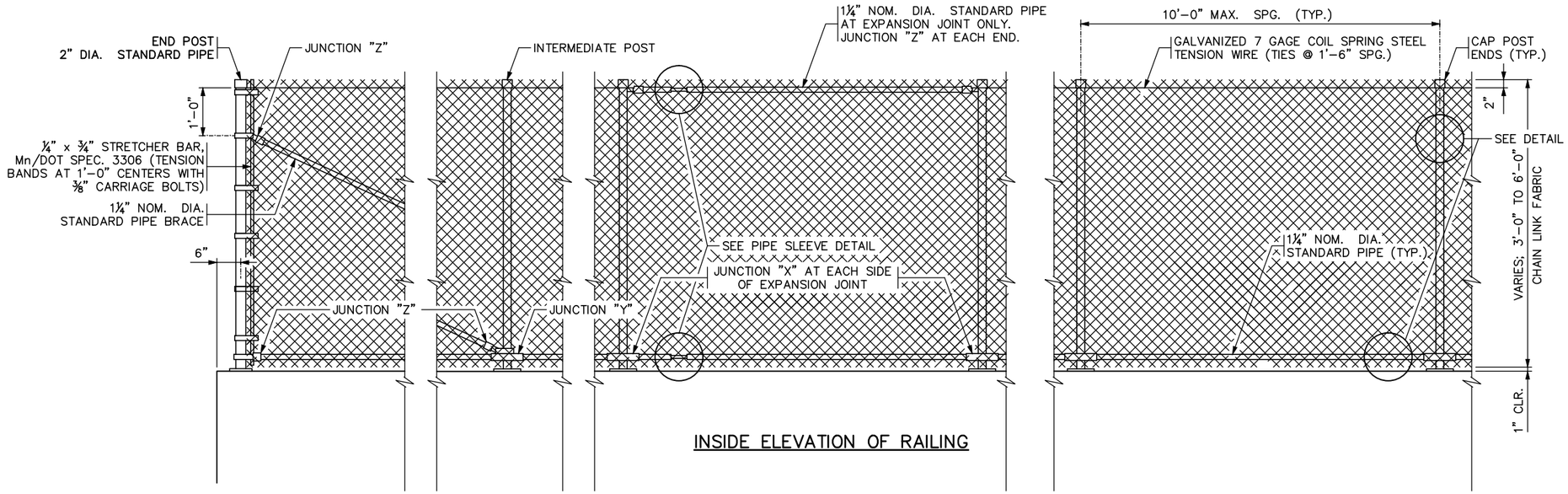
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
TUNNEL DETAILS
SHEET 1

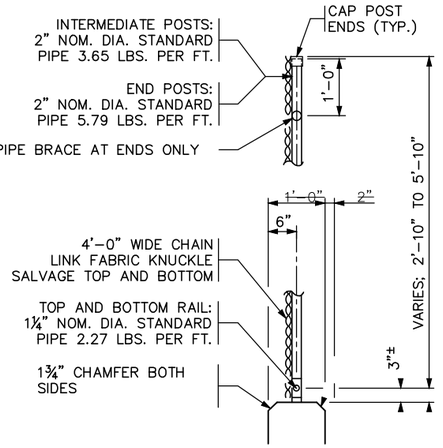
DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-BDT-001

SHEET 26 OF 148

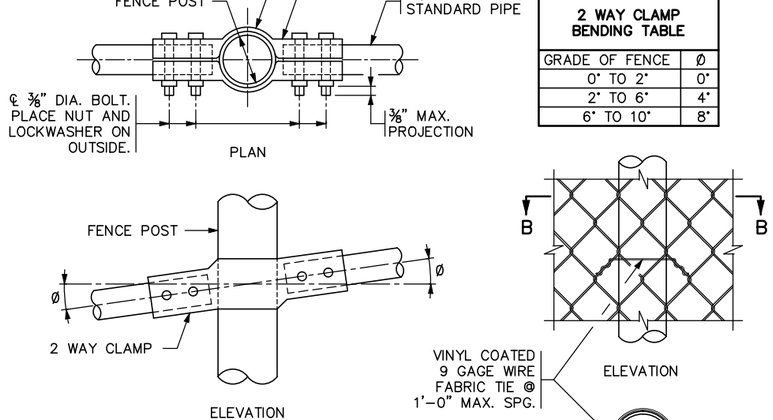


INSIDE ELEVATION OF RAILING



TYPICAL SECTION THROUGH FENCE

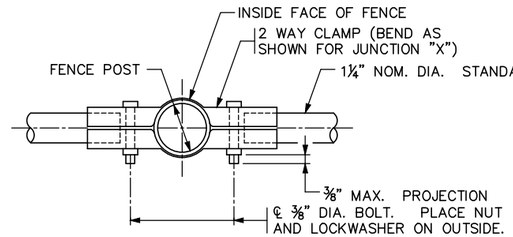
INTERMEDIATE POST SHOWN



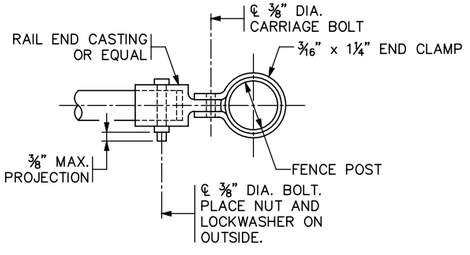
JUNCTION "X"

2 WAY CLAMP BENDING TABLE	
GRADE OF FENCE	Ø
0° TO 2°	0°
2° TO 6°	4°
6° TO 10°	8°

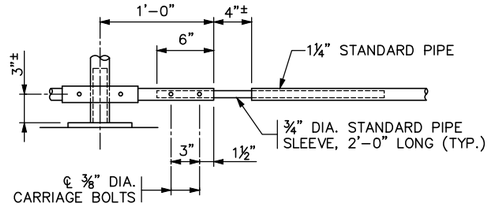
DETAIL "A"



JUNCTION "Y"



JUNCTION "Z"



PIPE SLEEVE DETAIL

GENERAL NOTES

FENCE POST ANCHORAGES SHALL BE TYPE A.

FENCE POSTS AND FENCE POST ANCHORAGES SHALL BE SET VERTICAL, UNLESS OTHERWISE NOTED.

℄ OF FENCE POST ANCHORAGE SHALL BE A MINIMUM OF 6" FROM JOINTS.

ALL POSTS SHALL HAVE A MEANS TO SECURELY HOLD THE TOP TENSION WIRE IN POSITION AND ALLOW FOR THE REMOVAL AND REPLACEMENT OF A POST WITHOUT DAMAGING THE TOP WIRE.

WIRE TIES TO BE 9 GAGE GALVANIZED STEEL OR 0.179" MIN. ALUMINUM ALLOY CONFORMING TO A.S.T.M. B211, ALLOY 1100-H18. USE 12½ GAGE GALVANIZED HOG RINGS FOR TENSION WIRE TIES.

SEE VOLUME 12 FOR FENCE GROUNDING DETAILS (ELE-SITE-DTL-600).

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

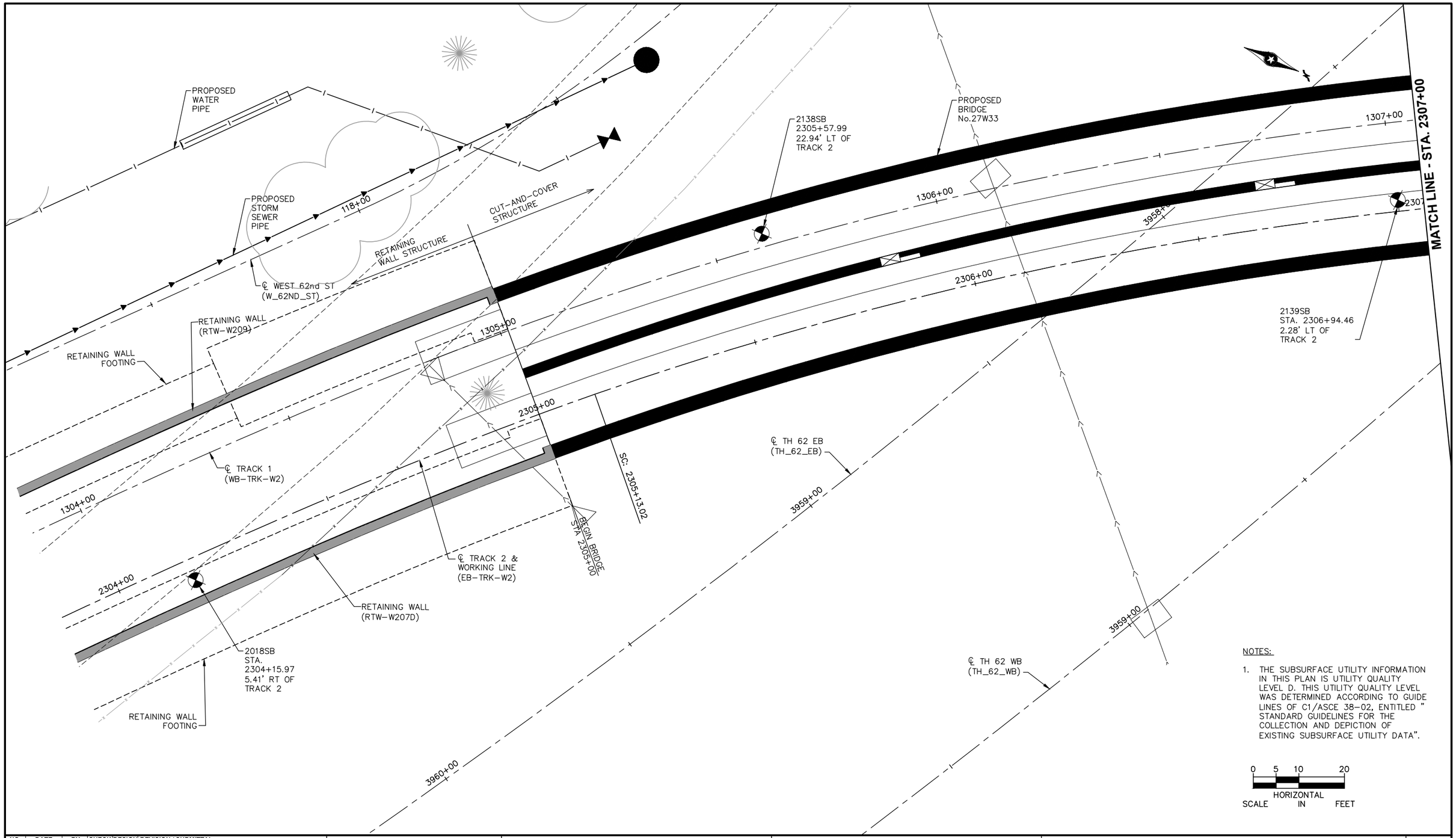
CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
TUNNEL DETAILS
SHEET 2

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-BDT-002

SHEET 27 OF 148

Jan, 18 2016 11:21 am v:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\STRUCTURES\W2-STU-TUN-TH62\W2-STU-TUN-TH62-BDT-002.dwg By: mercurielliof



NOTES:

1. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDE LINES OF C1/ASCE 38-02, ENTITLED " STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

0 5 10 20
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

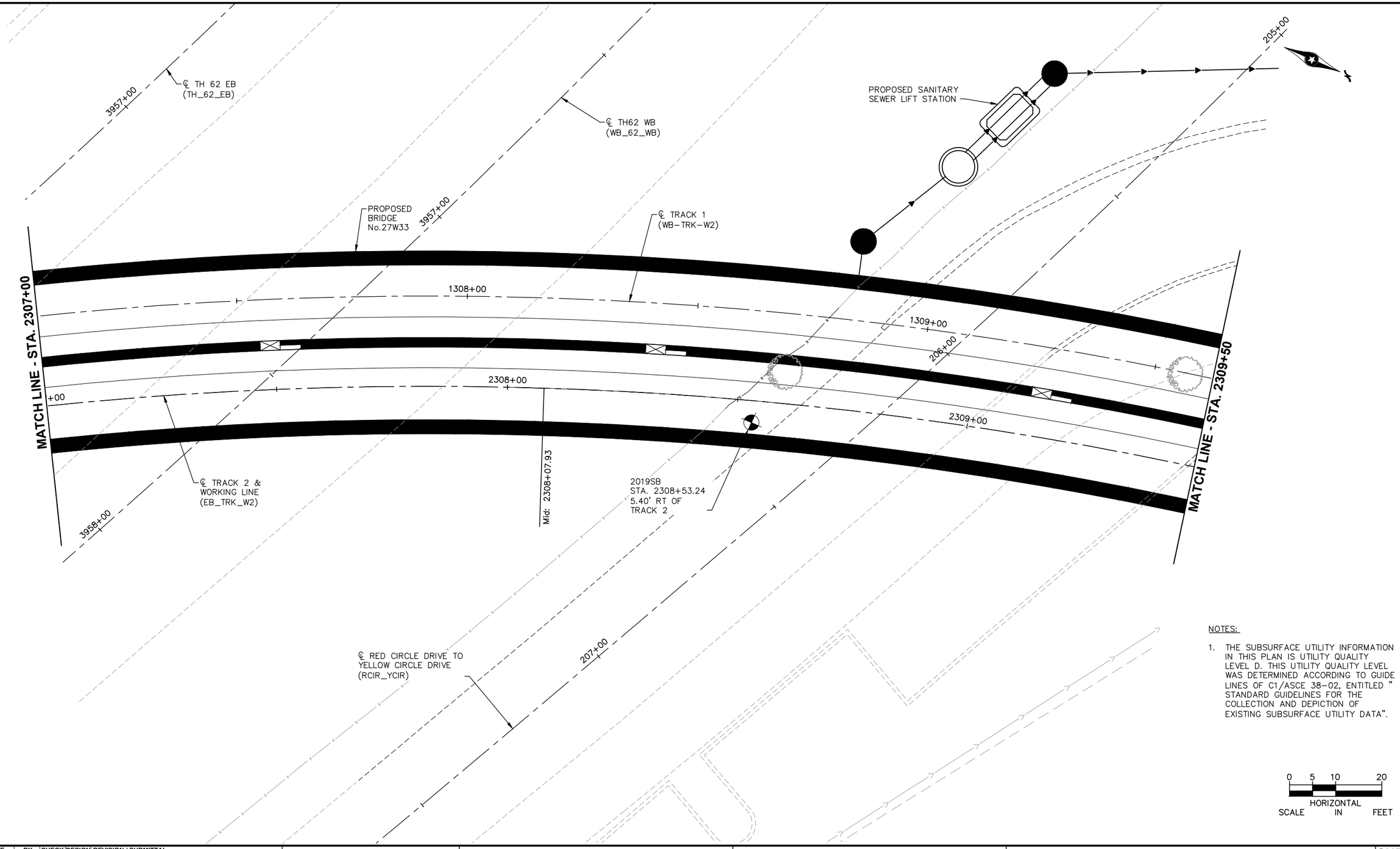
CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
BORINGS
SHEET 1

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-BOR-001

SHEET 28 OF 148

Jan, 17 2016 04:36 pm v:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\STRUCTURES\W2-STU-TUN-TH62\W2-STU-TUN-TH62-BOR-001.dwg By: YuB1



NOTES:

1. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDE LINES OF C1/ASCE 38-02, ENTITLED " STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

0 5 10 20
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

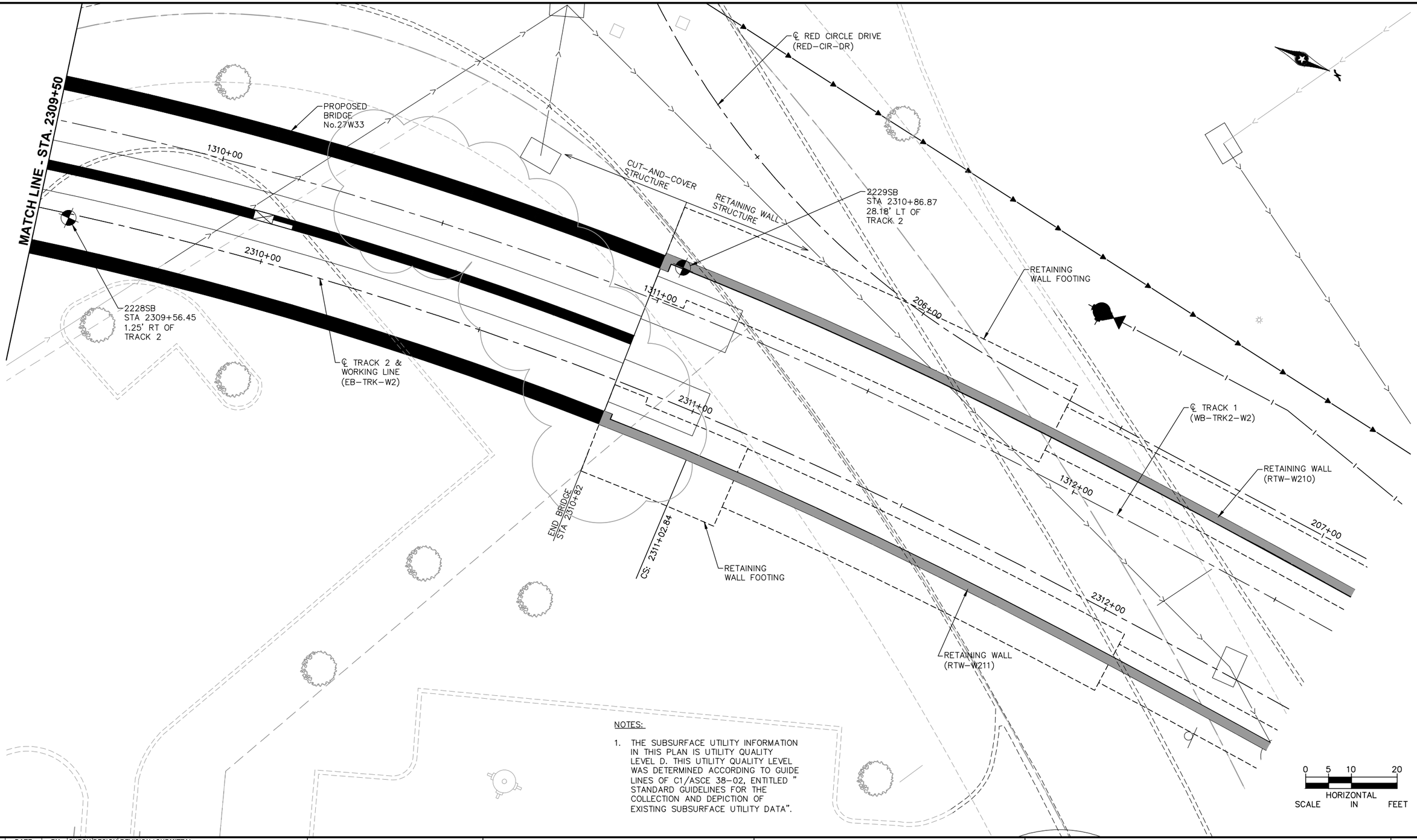
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
BORINGS
SHEET 2

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-BOR-002

SHEET 29 OF 148



NOTES:

1. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDE LINES OF CI/ASCE 38-02, ENTITLED " STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

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METROPOLITAN COUNCIL

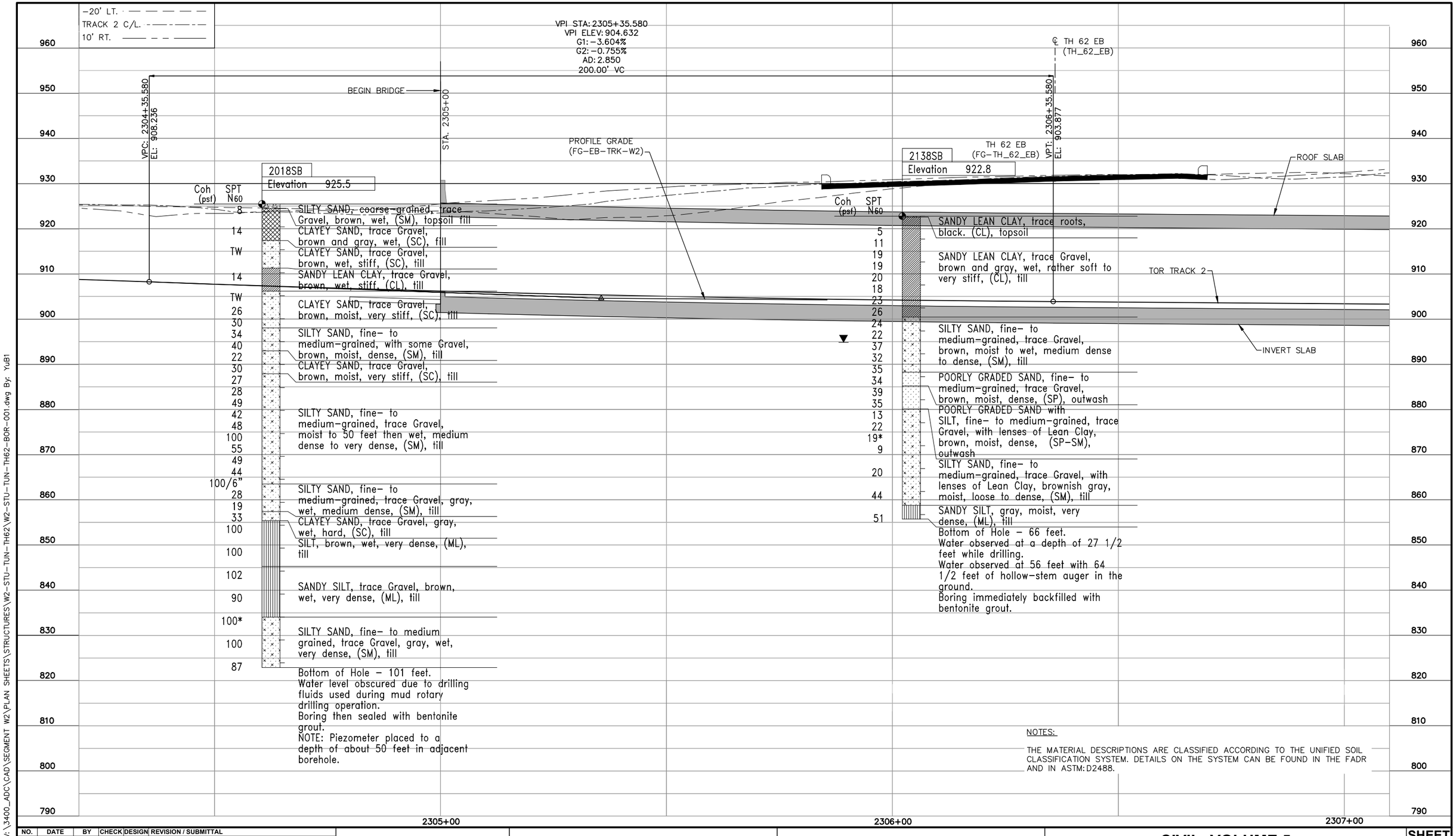
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
BORINGS
SHEET 3

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-BOR-003

SHEET 30 OF 148



NOTES:

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.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL- VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
BORINGS
SHEET 4

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-BOR-004

SHEET 31 OF 148

Jan, 17 2016 04:53 pm V:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\STRUCTURES\W2-STU-TUN-TH62\W2-STU-TUN-TH62-BOR-001.dwg By: YuB1

-20' LT.
TRACK 2 C/L.
10' RT.

℄ TH62 WB
(TH_62_WB)

TH 62 WB
(FG-TH_62_WB)

VPC: 2307+72.966
EL: 902.840

PROFILE GRADE
(FG-EB-TRK-W2)

VPI STA: 2308+72.966
VPI ELEV: 902.085
200.00' VC
G1: -0.755%
G2: 4.631%
M: 1.157

℄ RED CIRCLE TO YELLOW CIRCLE DRIVE
(RCIR_YCIR)

YELLOW CIRCLE DRIVE
(FG-REDCIR_YELLCIR)

VPT: 2309+72.966
EL: 906.716

PARKING LOT

ROOF SLAB

TOR TRACK 2

INVERT SLAB

2139SB
Elevation 931.0

Coh (psf)	SPT N60	
		SANDY LEAN CLAY, trace roots, dark brown and black, moist, (CL), topsoil
	20	SANDY LEAN CLAY, trace Gravel, brown and gray, wet, very stiff to hard, (CL), till
	32	
	107*	
	43	SILTY SAND, fine- to medium-grained, with Gravel, with lenses of Lean Clay, brown, moist, dense, (SM), till
	36	POORLY GRADED SAND with SILT, fine- to medium-grained, brown, moist, dense, (SP-SM), outwash
	41	SILTY SAND, fine- to medium grained, brown, moist, dense, (SM), till
	40	POORLY GRADED SAND, fine- to medium-grained, trace Gravel, brown, moist, dense, (SP), outwash
	34	SILTY SAND, fine- to medium-grained, trace Gravel, with lenses of Lean Clay, brown, moist,**
	56	SILT, brown, wet, very dense, (ML), till
	28	POORLY GRADED SAND with SILT, fine- to medium-grained, brown, wet, very dense, (SP-SM), outwash
	17	Bottom of Hole - 71 feet.
	55	Water observed at a depth of 60 feet while drilling.
	52	Water observed at 58 feet with 69 1/2 feet of hollow-stem auger in the ground.
	120	Boring immediately backfilled with bentonite grout.

2019SB
Elevation 934.4

Coh (psf)	SPT N60	
	8	CLAYEY SAND, with Gravel, brown, moist, (SC), topsoil fill
	12	CLAYEY SAND, with Sand inclusions, brown, moist, (SC), fill
	56	SANDY LEAN CLAY, trace Gravel, with Silt lenses and seams, brown, moist, rather stiff, (CL), till
	38	SILTY SAND, fine- to medium-grained, trace Gravel, cobbles at 10 feet, brown, moist,
	47	very dense, (SM), till
	24	SILTY SAND, fine-grained, with
	32	some Gravel, with occasional Clay
	31	lenses and seams, brown, moist,
	30	dense, (SM), till
	77	SILTY SAND, fine- to medium-grained, trace Gravel, with
	45	Sand lenses, brown, wet, medium
	34	dense to dense, (SM), till
	61	SILTY SAND, fine- to coarse-grained, with Gravel, brown,
	25	moist, medium dense to very
	27	dense, (SM), till
	23	SILTY SAND, trace Gravel, with
	23	occasional Clay lenses and seams,
	17	brown, moist, medium dense to
	30	very dense, (SM), till
	40	CLAYEY SAND, trace Gravel,
	15	brown, moist, very stiff, (SC), till
	TW	SILTY SAND, fine-grained, brown,
	61	wet, medium dense, (SM), till
	13	SANDY SILT, fine-grained, brown,
	60	wet, dense, (ML), till
	48	CLAYEY SAND, trace Gravel, gray,
	96	wet, stiff, (SC), till
		SANDY SILT, fine-grained, with
	82	Sand lenses and seams, brow, wet,
		very dense, (ML), till
	87	SILTY SAND, fine-grained, brown,
		waterbearing, medium dense, (SM),
	100	till
		SANDY SILT, with occasional Sand
	80	lenses and seams, brown, wet, very
		dense, (ML), till
		SILTY SAND, fine-grained, brown,
		waterbearing, dense to very dense,
		(SM), till
		Bottom of Hole - 101 feet.
		Water observed at 61 feet with 64 1/2 feet of hollow-stem auger in the ground.
		Water observed at 55 1/2 feet when rechecked 30 minutes after withdrawal of the auger.
		Boring then sealed with bentonite grout.
		NOTE: Piezometer placed to a depth of about 50 feet in adjacent borehole.

960 950 940 930 920 910 900 890 880 870 860 850 840 830 820 810 800 790

2308+00 2309+00 2310+00

NOTES:

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.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST
Green Line LRT Extension

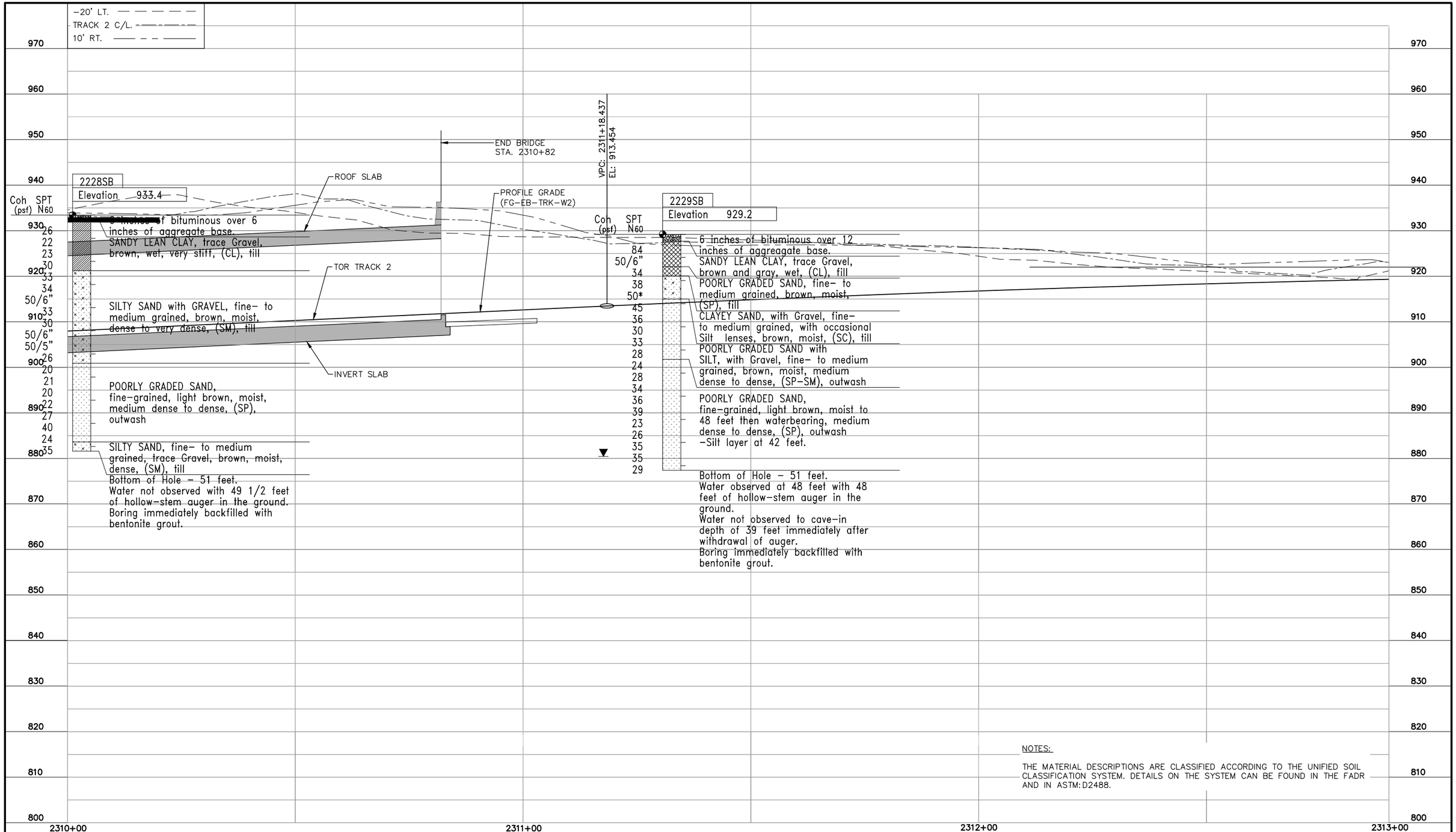
CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
BORINGS
SHEET 5

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-BOR-005

SHEET 32 OF 148

Jan, 17 2016 05:00 pm V:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\STRUCTURES\W2-STU-TUN-TH62\W2-STU-TUN-TH62-BOR-001.dwg By: YuB1



NOTES:

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
BORINGS
SHEET 6

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-BOR-006

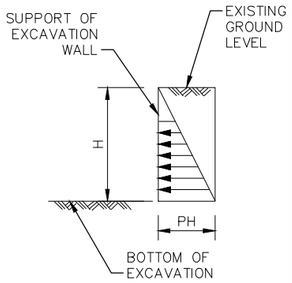
SHEET 33 OF 148

MINIMUM DESIGN LATERAL PRESSURE FOR SUPPORT OF EXCAVATION ABOVE BOTTOM OF EXCAVATION

DUE TO SOIL AND WATER

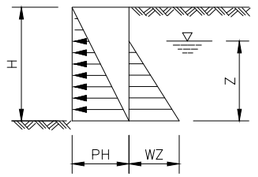
CANTILEVER WALL SYSTEMS

DEWATERED



P=45

NOT DEWATERED

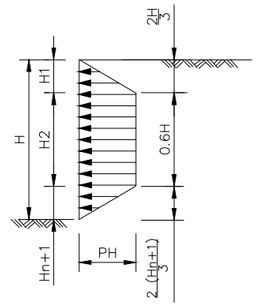


P=45

WZ=62.4

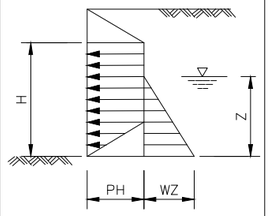
ANCHORED SYSTEMS

DEWATERED



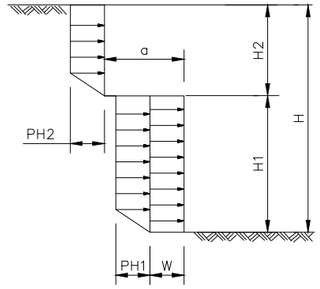
P=0.65 Ka γ H

NOT DEWATERED



P=USE VALUES SPECIFIED FOR DEWATERED CASE

W=62.4



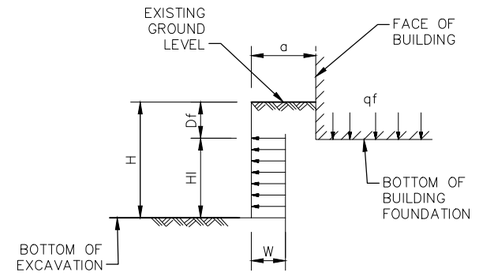
DUE TO BENCH EXCAVATION

1. THE DESIGN PRESSURE (P) TO BE DETERMINED FOR SPECIFIC CONFIGURATION.
2. THE SURCHARGE (W) FROM THE UPPER BENCH MAY BE NEGLECTED IF THE WIDTH OF THE BENCH (a) IS GREATER THAN HEIGHT OF THE LOWER EXCAVATION (H1).

GENERAL NOTES:

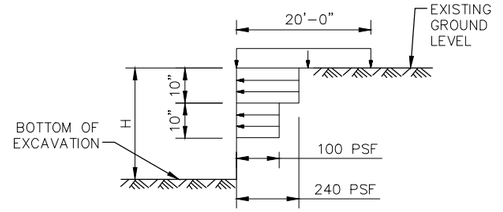
1. VALUES SHOWN FOR PRESSURE GRADIENTS P, W, Pp & Pp' ARE IN POUNDS PER SQUARE FOOT PER FOOT OF DEPTH.
2. VALUES FOR DISTANCES ARE IN FEET.
3. ANCHOR LEVELS ARE NOT SHOWN; THE DIAGRAMS SHOWN ABOVE "FOR SUPPORT OF EXCAVATION ABOVE BOTTOM OF EXCAVATION" ARE APPLICABLE TO MULTIPLE-ANCHORED SYSTEMS.
4. LATERAL SURCHARGE PRESSURE FROM TRAFFIC & CONSTRUCTION EQUIPMENT IS BASED ON AN ASSUMED TRAFFIC SURFACE SURCHARGE OF 600 PSF ACTING OVER THE TRAFFIC LANES. FOR MORE SEVERE CONSTRUCTION EQUIPMENT LOADING, SPECIAL ANALYSIS MUST BE PERFORMED.
5. ALL VALUES GIVEN FOR LATERAL PRESSURES ARE MINIMUM. INCREASE, AS REQUIRED, TO SUIT ACTUAL CONDITIONS ENCOUNTERED IN THE FIELD. INCREASED LATERAL LOAD DUE TO ADVERSE BEDDING CONDITION SHOULD BE CONSIDERED.

DUE TO SURCHARGE, EARTHQUAKE AND BUILDINGS

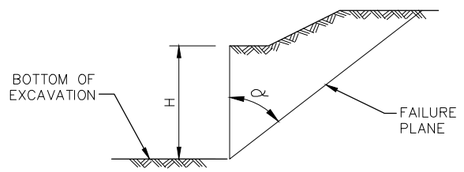


PRESSURES (W) DUE TO BUILDING FOUNDATION ARE TO BE DETERMINED BY THE CONTRACTOR ON A CASE-BY-CASE BASIS. CONTRACTOR SHALL DETERMINE BUILDING FOUNDATION PRESSURE (qf), DISTANCE FROM THE EXCAVATION (a), AND DEPTH OF FOUNDATION (Df) BY EXAMINATION OF EXISTING PLANS AND BY ON-SITE FIELD INSPECTION. PRESSURES USED FOR DESIGN SHALL BE SUBJECT TO APPROVAL BY ENGINEER.

TRAFFIC AND CONSTRUCTION EQUIPMENT



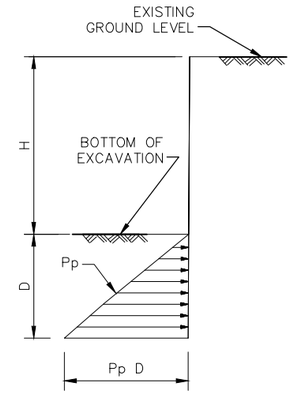
EMBANKMENT



ANGLE "α" FOR FAILURE PLANE SHALL BE DETERMINED BY THE CULMANN GRAPHICAL METHOD; SEE "SOIL MECHANICS IN ENGINEERING PRACTICE" 3RD. ED. BY TERZAGHI PECK & MASRI. ALL SURCHARGES AFFECTING AND WITHIN THE FAILURE PLANE SHALL BE CONSIDERED IN ESTIMATING LATERAL LOAD.

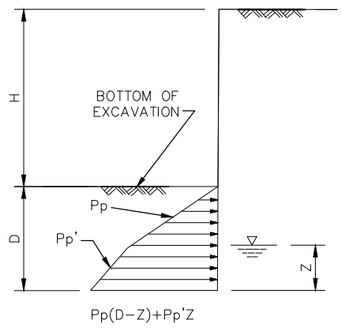
DESIGN PASSIVE RESISTANCE

RETAINED DEWATERED



Pp=300 FOR EMBEDMENT IN SOIL, 3 KSF MAXIMUM PRESSURE

RETAINED, NOT DEWATERED



Pp=300 FOR EMBEDMENT IN SOIL, 3 KSF MAXIMUM PRESSURE

Pp=210

NOTES:

A. FOR SOLDIER PILE AND LAGGING EXCAVATION SUPPORT SYSTEMS, ACTIVE PRESSURE ABOVE THE SUBGRADE ELEVATION IS TO BE APPLIED TO THE FULL PANEL WIDTH FROM CENTER TO CENTER OF SOLDIER PILE AND BELOW SUBGRADE IT IS TO BE APPLIED TO THE WIDTH OF THE SOLDIER PILE OR ENCASEMENT PASSIVE RESISTANCE TAKEN AS ACTING ON 1.5 X DIAMETER FOR CIRCULAR SOLDIER PILE CONCRETE ENCASEMENT.

B. FOR HORIZONTALLY CONTINUOUS WALLS, BOTH ACTIVE AND PASSIVE PRESSURES AS SHOWN ON THIS DRAWING SHALL BE APPLIED ON A ONE FOOT LENGTH OF WALL BASIS.

C. MINIMUM PENETRATIONS FOR PASSIVE RESISTANCE:
VERTICAL RESISTING ELEMENTS OF SUPPORT OF EXCAVATION WALL SYSTEMS SHALL SATISFY THE MINIMUM PENETRATION DEPTH OUTLINED AS FOLLOWS UNLESS ANALYSIS SHOWS SMALLER PENETRATION CAN BE USED.

1. BELOW BOTTOM OF EXCAVATION DEEPER THAN 40 FEET
   12 FEET FOR SOLDIER PILES
   8 FEET FOR CONTINUOUS WALL SYSTEMS.
2. BELOW BOTTOM OF EXCAVATION LESS THAN 40 FEET
   10 FEET FOR SOLDIER PILES
   7 FEET FOR CONTINUOUS WALL SYSTEMS.
3. BELOW BOTTOM OF EXCAVATION LESS THAN 20 FEET
   8 FEET FOR SOLDIER PILES
   6 FEET FOR CONTINUOUS WALL SYSTEMS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

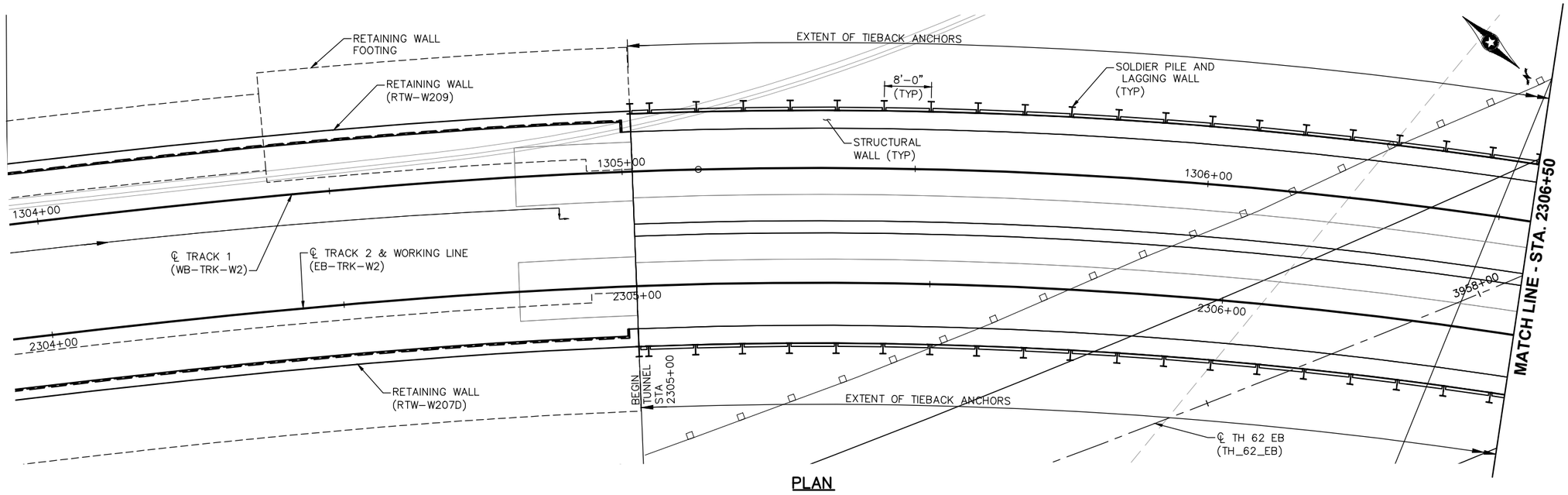
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
TEMPORARY EXCAVATION SUPPORT DESIGN CRITERIA

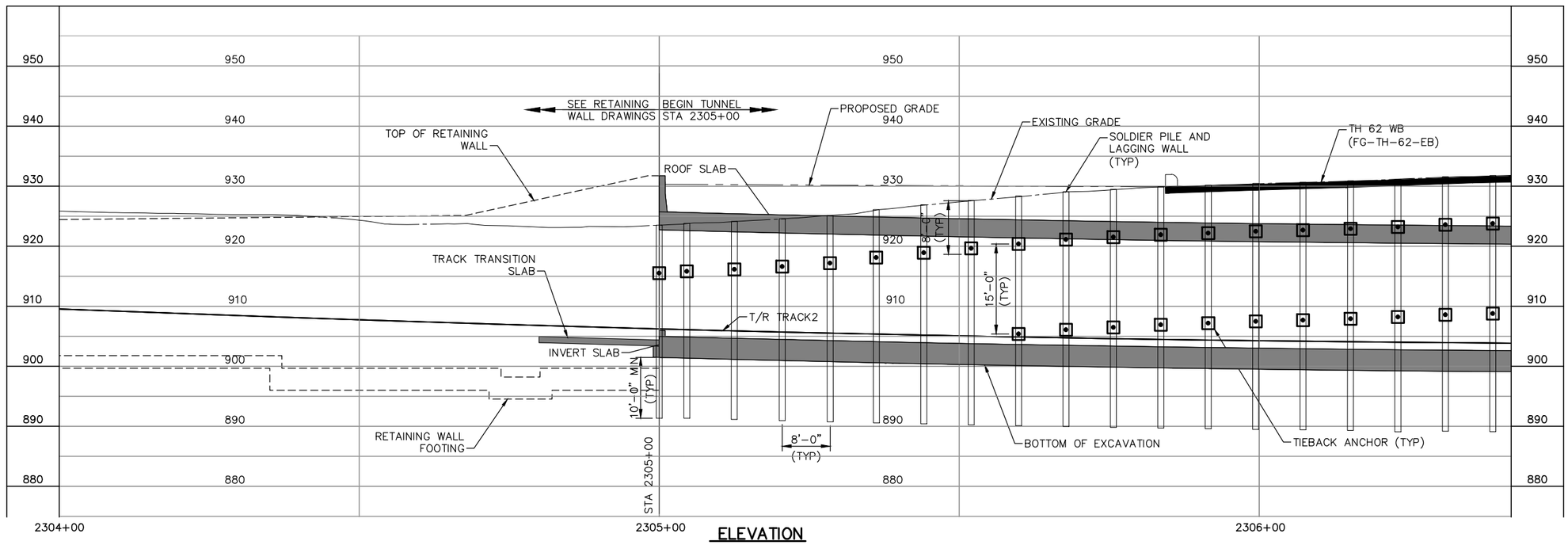
DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-SOE-CRI-001

SHEET 34 OF 148



PLAN



ELEVATION

NOTES

1. SEE STAGING PLAN SHEETS FOR STAGE CONSTRUCTION.
2. TRAFFIC TO BE MAINTAINED DURING CONSTRUCTION.

0 5 10 20
VERTICAL SCALE IN FEET

0 5 10 20
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

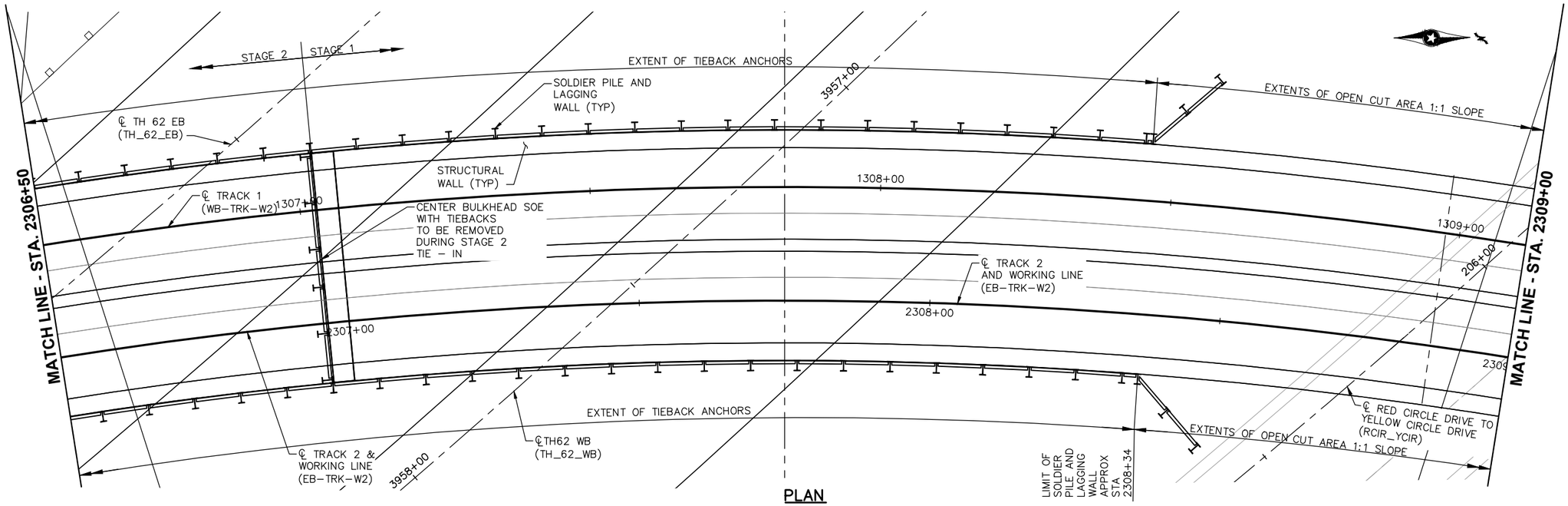
CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
SUGGESTED EXCAVATION SUPPORT PLAN AND ELEVATION SHEET 1

DISCIPLINE: STRUCTURES

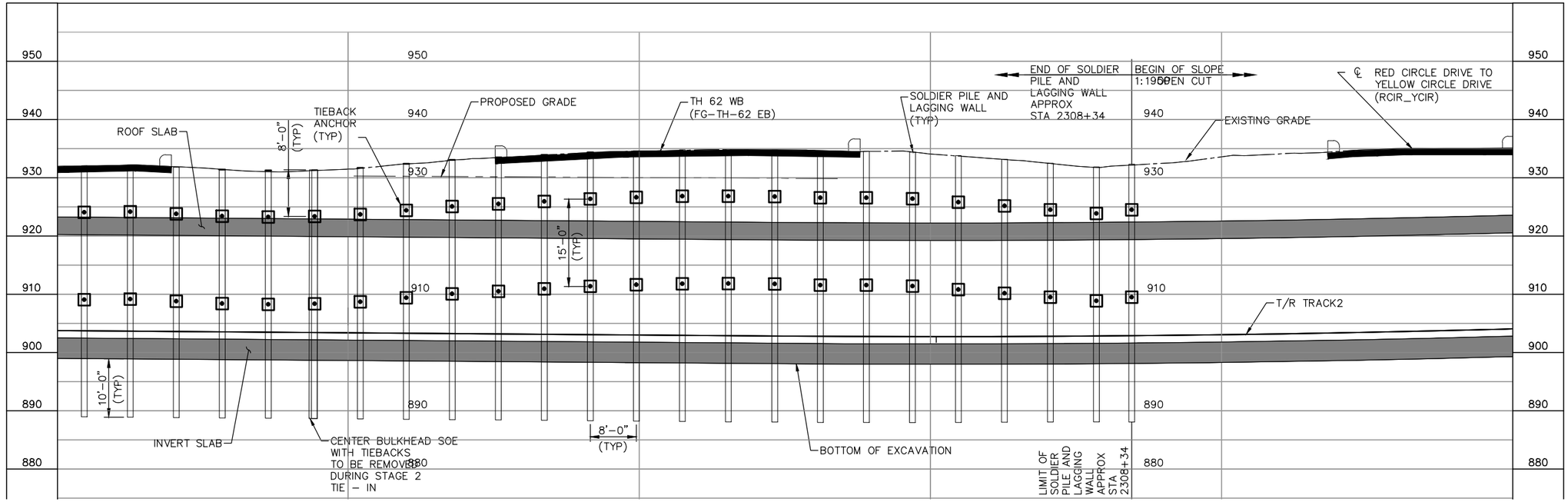
SHEET NAME: W2-STU-TUN-TH62-SOE-001

SHEET 35 OF 148

Jan, 19 2016 12:44 pm C:\Users\YuB1\Documents\PDF\W2-STU-TUN-TH62-SOE-001.dwg By: YuB1



PLAN



ELEVATION

NOTES

1. SEE STAGING PLAN SHEETS FOR STAGE CONSTRUCTION.
2. TRAFFIC TO BE MAINTAINED DURING CONSTRUCTION.

0 5 10 20
VERTICAL SCALE IN FEET

0 5 10 20
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

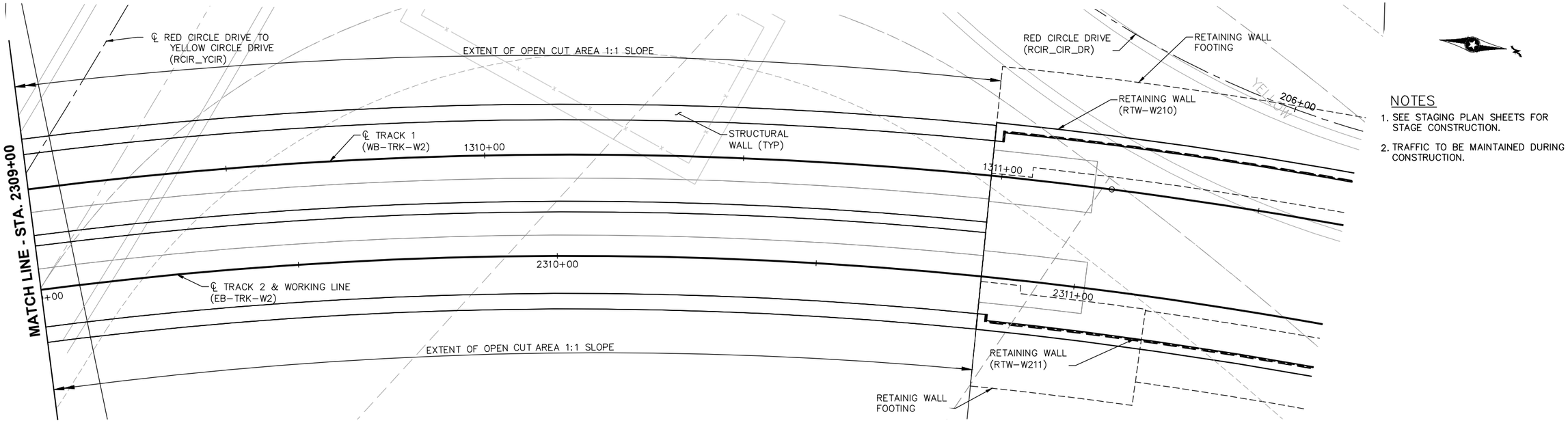
CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
SUGGESTED EXCAVATION SUPPORT PLAN AND ELEVATION SHEET 2

DISCIPLINE: STRUCTURES

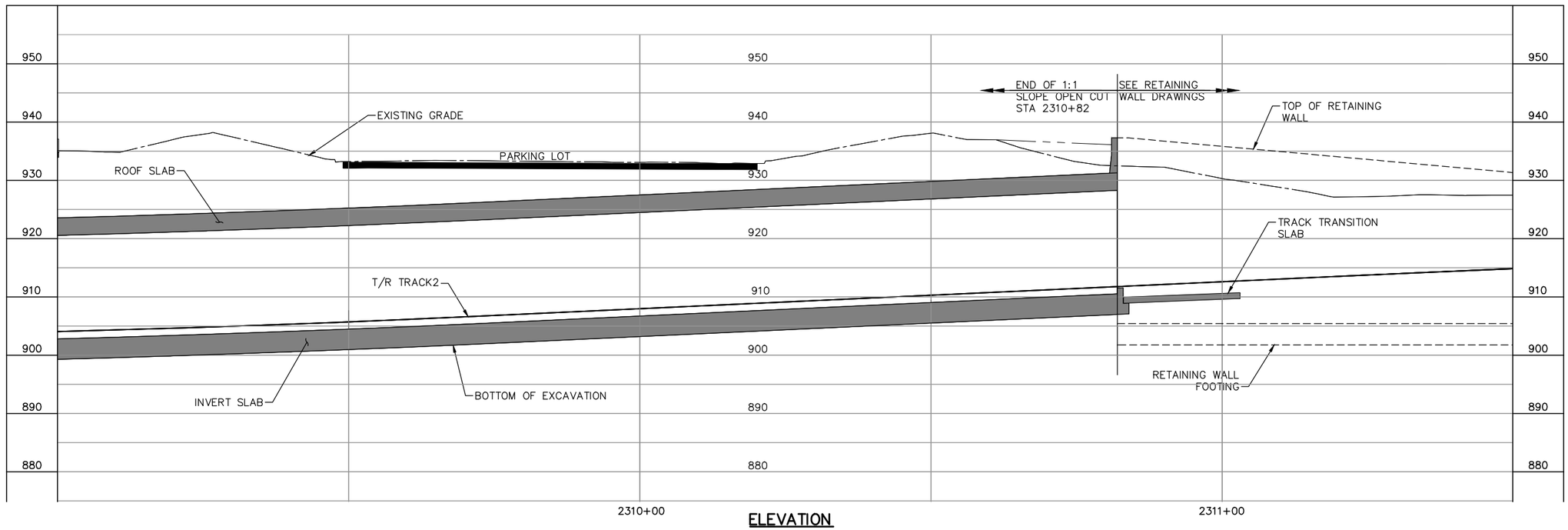
SHEET NAME: W2-STU-TUN-TH62-SOE-002

SHEET 36 OF 148

Jan. 19 2016 12:43 pm C:\Users\YuBI\Documents\PDF\W2-STU-TUN-TH62-SOE-001.dwg By: YuBI



PLAN



ELEVATION

NOTES

1. SEE STAGING PLAN SHEETS FOR STAGE CONSTRUCTION.
2. TRAFFIC TO BE MAINTAINED DURING CONSTRUCTION.

0 5 10 20
VERTICAL SCALE IN FEET

0 5 10 20
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
SUGGESTED EXCAVATION SUPPORT PLAN AND ELEVATION SHEET 3

DISCIPLINE: STRUCTURES

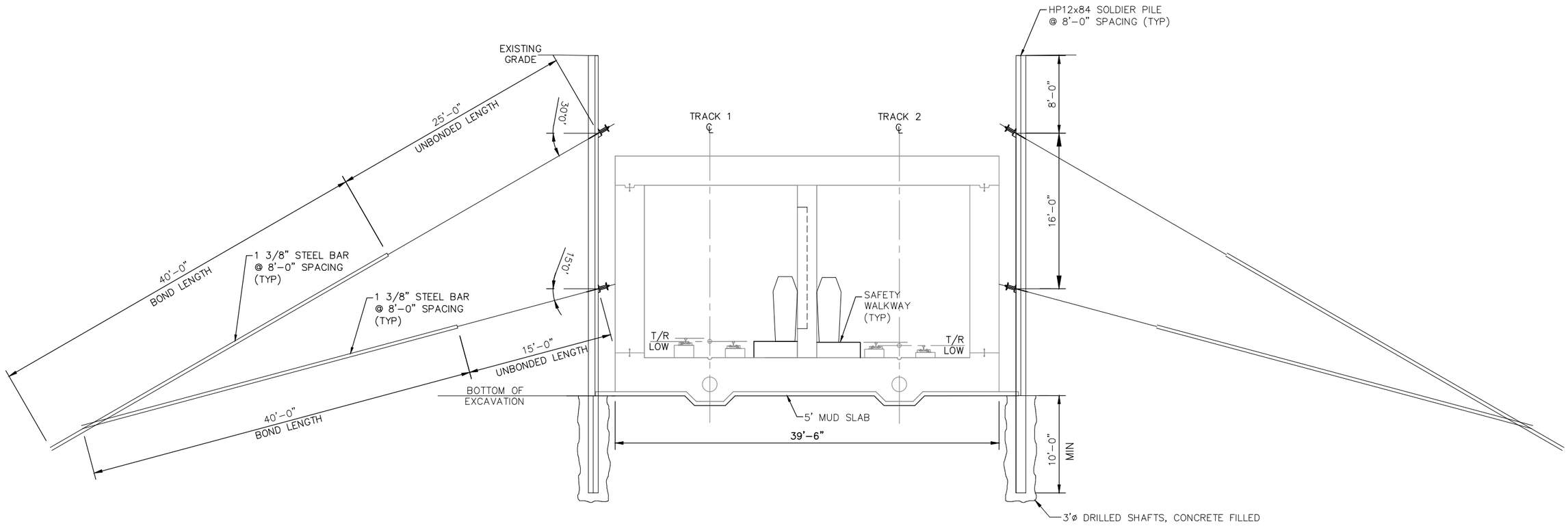
SHEET NAME: W2-STU-TUN-TH62-SOE-003

SHEET 37 OF 148

Jan, 19 2016 12:41 pm C:\Users\YuB1\Documents\PDF\W2-STU-TUN-TH62-SOE-001.dwg By: YuB1

NOTES

1. SOLDIER PILES TO BE CUT AT THE ROOF ELEVATION AFTER CONSTRUCTION OF THE TUNNEL.



TYPICAL TUNNEL CROSS SECTION LOOKING UPSTATION– TEMPORARY SUPPORT OF EXCAVATION

0 2 4 8
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

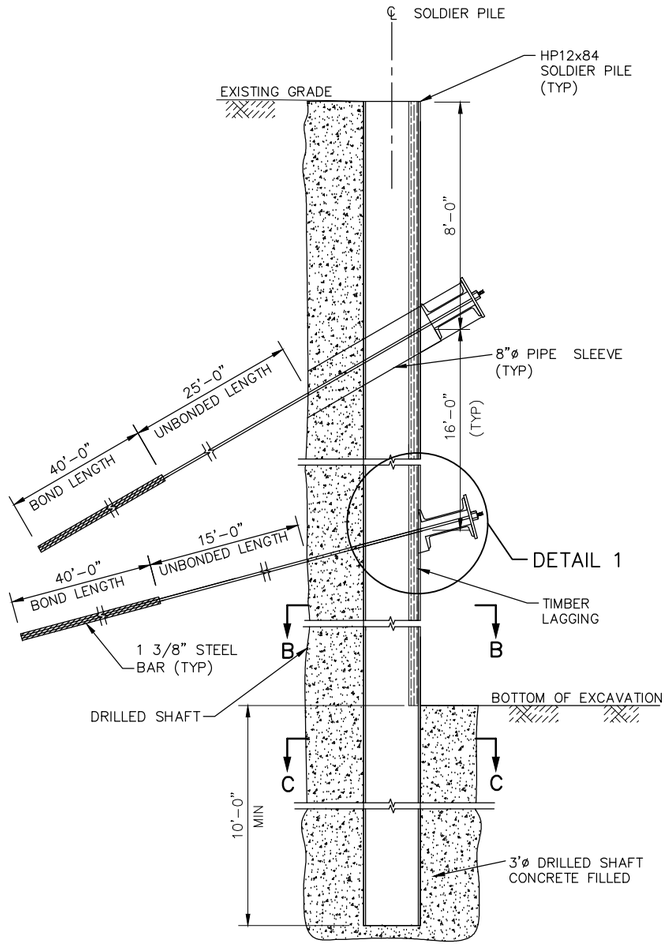
CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
SUGGESTED EXCAVATION SUPPORT SECTIONS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-SOE-TYP-001

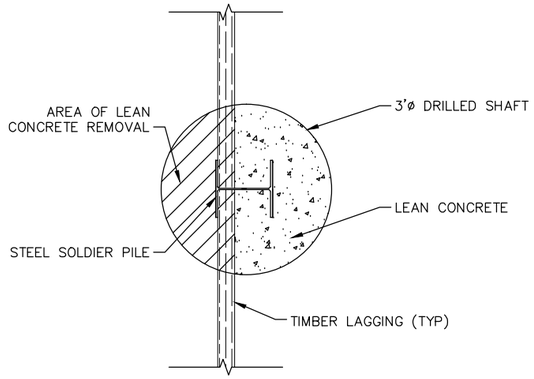
SHEET 38 OF 148

Jan. 17 2016 06:54 pm v:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\STRUCTURES\W2-STU-TUN-TH62\W2-STU-TUN-TH62-SOE-TYP-001.dwg By: YuB1



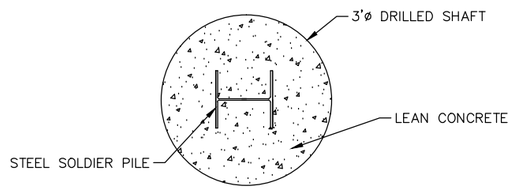
SECTION A–A

0 1 2 3 4 5
HORIZONTAL
SCALE IN FEET



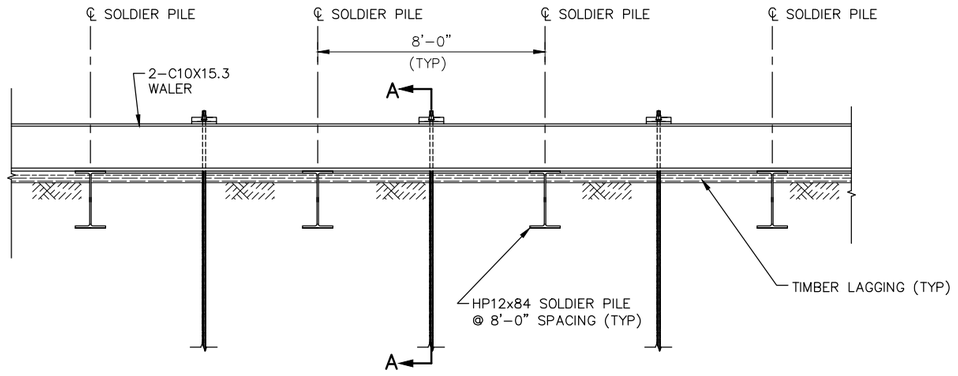
SECTION B

0 1 2 3 4 5
HORIZONTAL
SCALE IN FEET



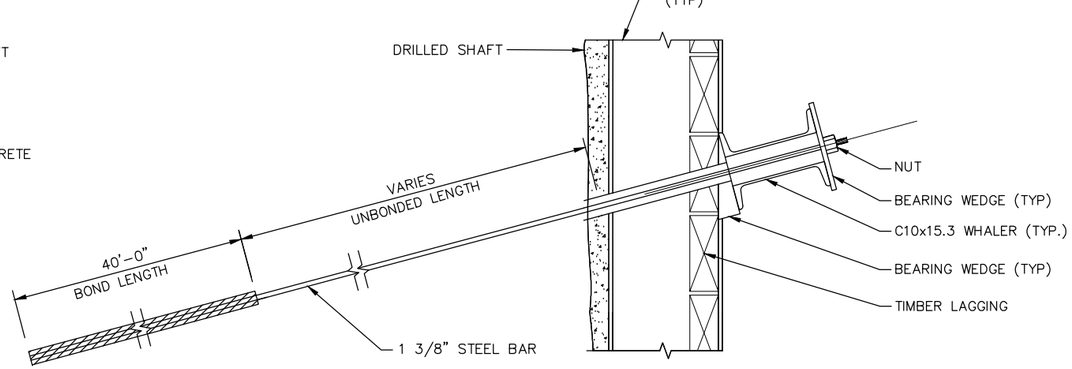
SECTION C

0 1 2 3 4 5
HORIZONTAL
SCALE IN FEET



PLAN – SOLDIER PILE WALL

0 1 2 3 4 5
HORIZONTAL
SCALE IN FEET



DETAIL 1

0 1 2
HORIZONTAL
SCALE IN FEET

NOTES

1. LAGGING SHALL BE TIMBER OR SHOTCRETE.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

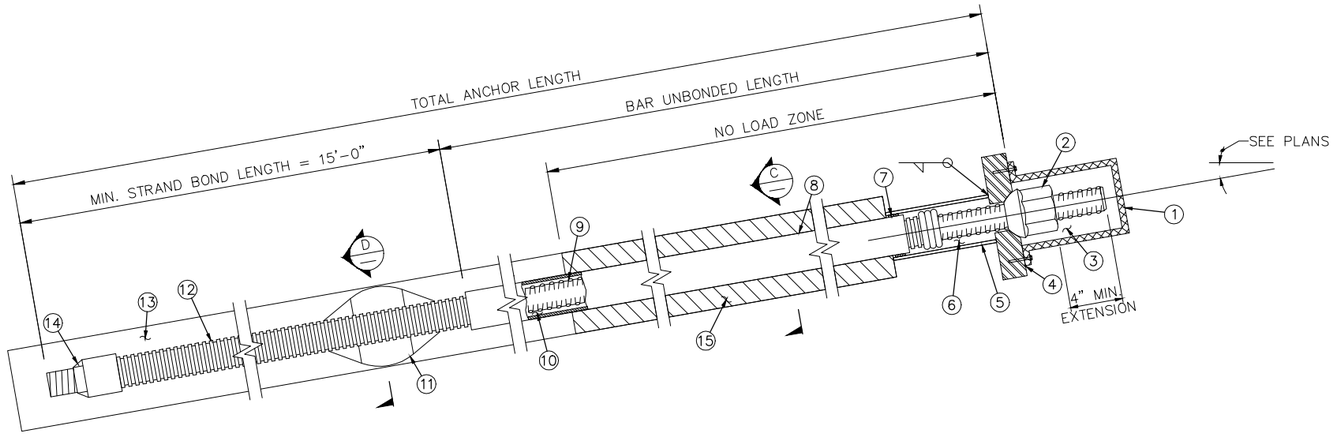
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
SUGGESTED EXCAVATION SUPPORT DETAILS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-SOE-DTL-001

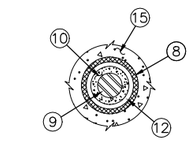
SHEET 39 OF 148



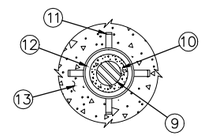
1. ANCHORAGE COVER
2. NUT
3. ANTICORROSION GREASE*
4. BEARING PLATE TRUMPET
5. ANTICORROSION GREASE
6. SEAL
7. SMOOTH PVC BOND BREAKER
8. BAR
9. ENCAPSULATION GROUT
10. CENTRALIZERS
11. CORRUGATED PVC
12. ANCHOR GROUT
13. END CAP
14. NONSTRUCTURAL FILLER

* USE GROUT IF ANCHORAGE COVER IS EXPOSED

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



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



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

NOTES
1. LAGGING SHALL BE TIMBER OR SHOTCRETE.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
SUGGESTED EXCAVATION SUPPORT DETAILS

DISCIPLINE: STRUCTURES
SHEET NAME: W2-STU-TUN-TH62-SOE-DTL-002

SHEET 40 OF 148

Jan, 17 2016 01:43 pm v:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\STRUCTURES\W2-STU-TUN-TH62\W2-STU-TUN-TH62-SOE-DTL-002.dwg By: YuB1

GENERAL NOTES

1. CONTRACTOR TO VERIFY NUMBER OF STRUCTURES AND UTILITIES TO BE PROTECTED, DETERMINE ADDITIONAL PROTECTION MEASURES, AS NECESSARY.
2. GROUND SURFACE SETTLEMENT REFERENCE ARRAYS REQUIRED AT 100 FEET MAXIMUM SPACING ALONG SUPPORT WALLS FOR CUT AND COVER EXCAVATIONS. ADJUST INSTRUMENTATION LOCATION FOR ADJACENT BUILDINGS AND STRUCTURES.
3. BUILDING SETTLEMENT REFERENCE POINTS REQUIRED FOR BUILDING PORTIONS LOCATED WITHIN LIMITS OF SETTLEMENT TROUGH.

GEOTECHNICAL INSTRUMENTATION LEGEND

SYMBOL	GEOTECHNICAL INSTRUMENTATION
	INCLINOMETER
	GROUND SETTLEMENT REFERENCE POINT

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL

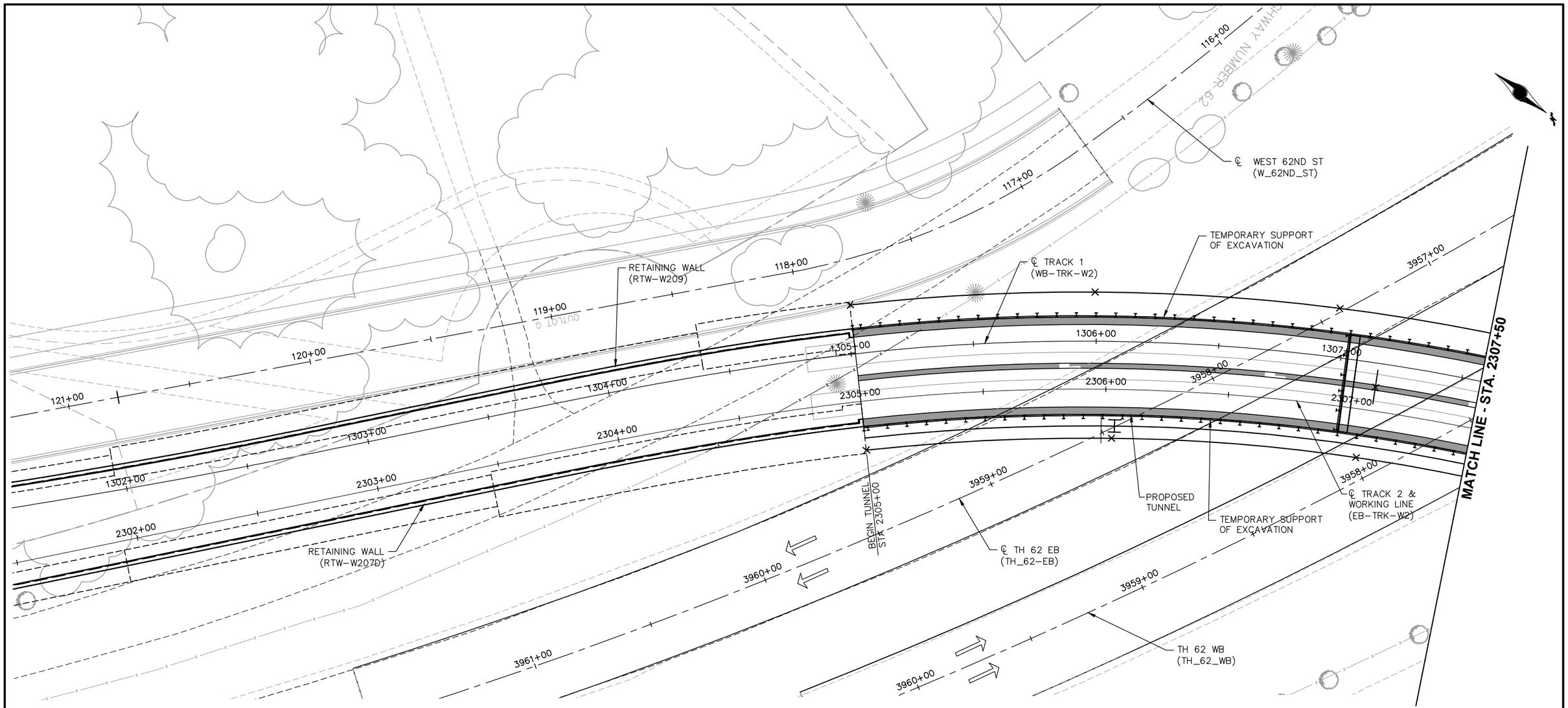
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
GEOTECHNICAL INSTRUMENTATION
SHEET 1

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-GEI-001

SHEET 41 OF 148



PLAN

0 10 20 40

HORIZONTAL SCALE IN FEET

NOTES:

1. FOR NOTES AND LEGEND, SEE GEOTECHNICAL INSTRUMENTATION NOTES AND LEGEND SHEET.
2. SEE STAGING PLAN SHEETS FOR STAGE CONSTRUCTION.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL

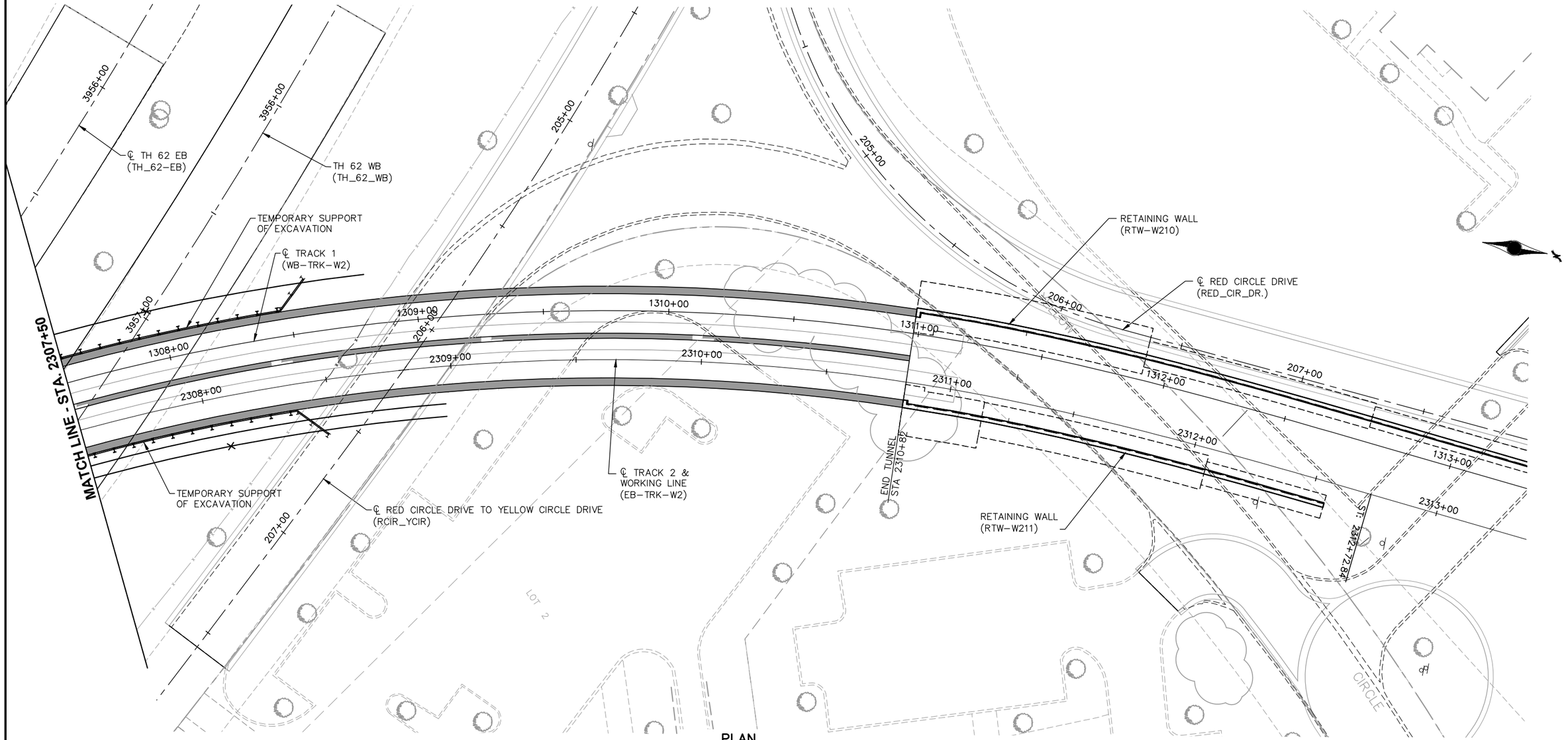
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
GEOTECHNICAL INSTRUMENTATION
SHEET 2

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-GEI-002

SHEET 42 OF 148



PLAN

0 10 20 40

HORIZONTAL SCALE IN FEET

NOTES:

1. FOR NOTES AND LEGEND, SEE SHEET 27.
2. SEE SHEETS 11–14 FOR STAGE CONSTRUCTION.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
GEOTECHNICAL INSTRUMENTATION
SHEET 3

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUN-TH62-GEI-003

SHEET 43 OF 148

Jan. 17 2016 03:39 pm v:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\STRUCTURES\W2-STU-TUN-TH62\W2-STU-TUN-TH62-GEI-001.dwg By: YuB1

DESIGN DATA

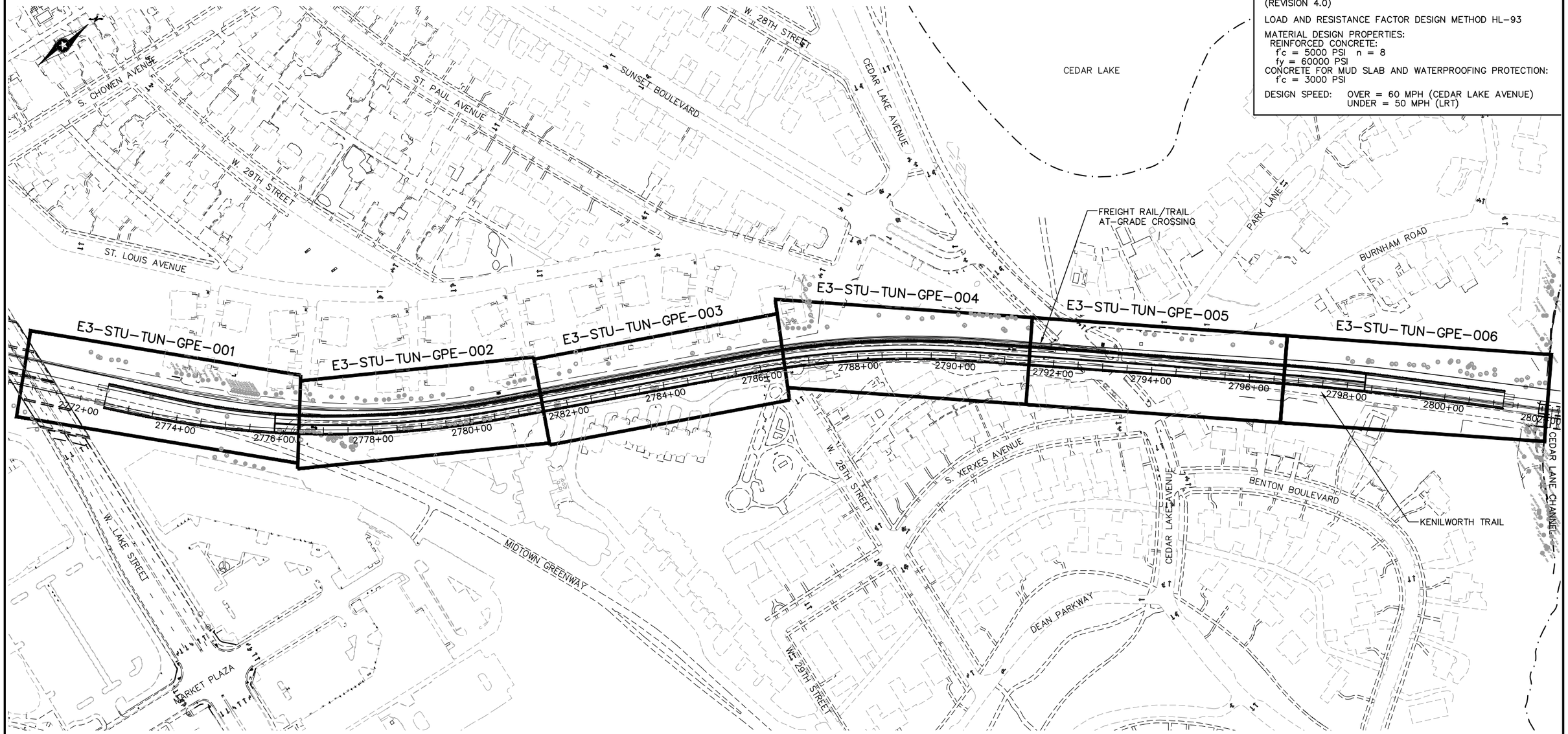
2014 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 7TH EDITION AND 2015 INTERIMS

METRO LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 4.0)

LOAD AND RESISTANCE FACTOR DESIGN METHOD HL-93

MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 5000 PSI n = 8
fy = 60000 PSI
CONCRETE FOR MUD SLAB AND WATERPROOFING PROTECTION:
f'c = 3000 PSI

DESIGN SPEED: OVER = 60 MPH (CEDAR LAKE AVENUE)
UNDER = 50 MPH (LRT)



KEY PLAN

0 50 100 200

SCALE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

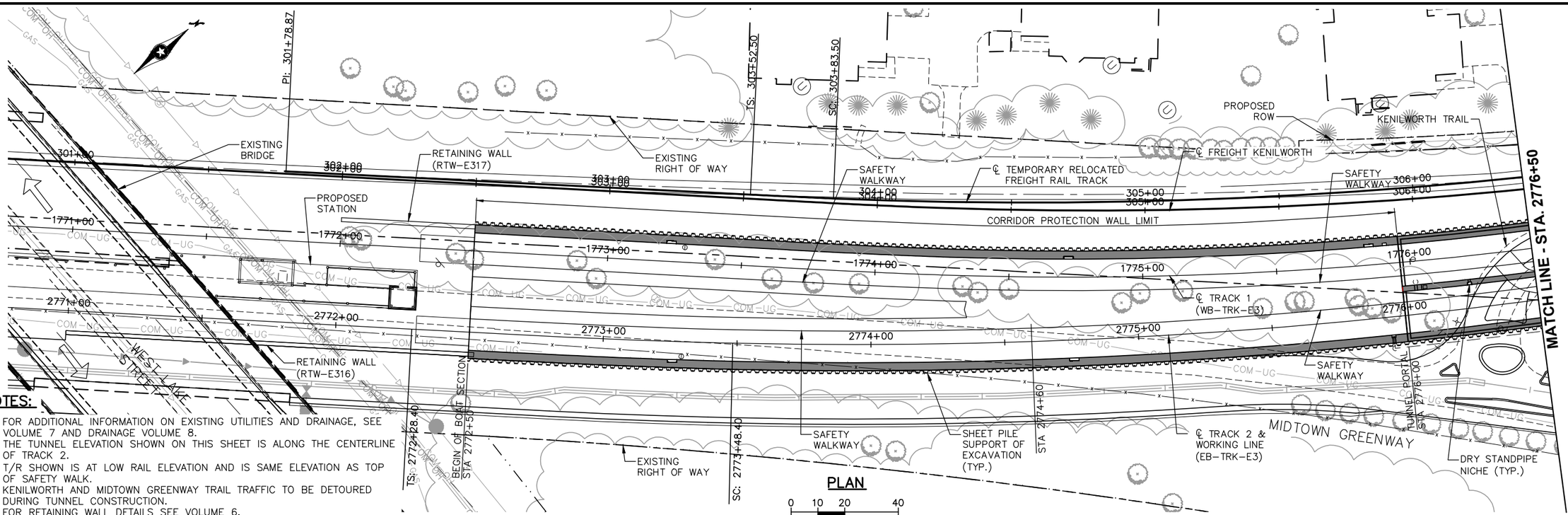
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
KEY PLAN

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-KEY-001

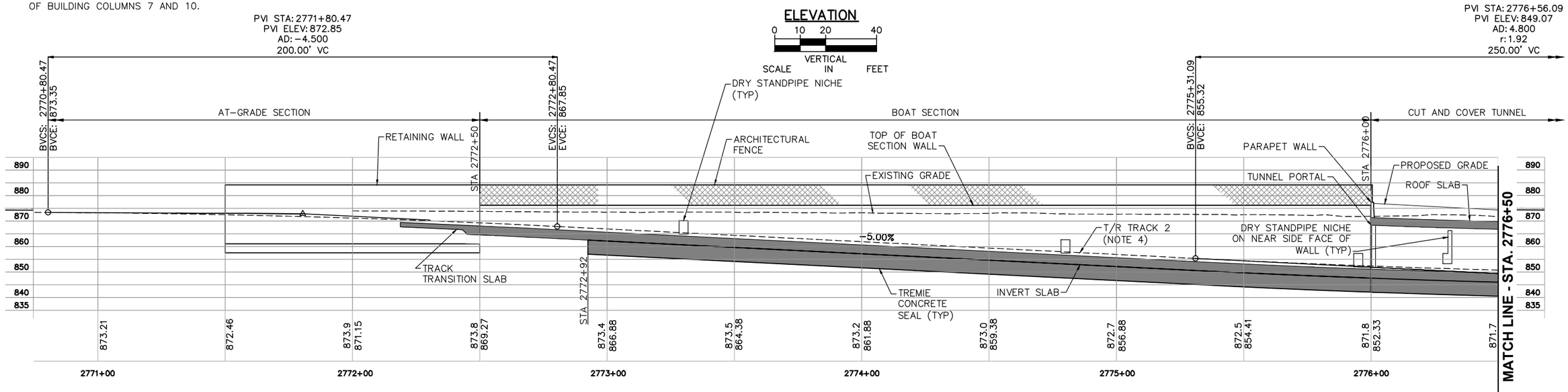
SHEET 44 OF 148

Jan. 17 2016 02:44 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-KEY-PLN.dwg By: mercurielof



NOTES:

1. FOR ADDITIONAL INFORMATION ON EXISTING UTILITIES AND DRAINAGE, SEE VOLUME 7 AND DRAINAGE VOLUME 8.
2. THE TUNNEL ELEVATION SHOWN ON THIS SHEET IS ALONG THE CENTERLINE OF TRACK 2.
3. T/R SHOWN IS AT LOW RAIL ELEVATION AND IS SAME ELEVATION AS TOP OF SAFETY WALK.
4. KENILWORTH AND MIDTOWN GREENWAY TRAIL TRAFFIC TO BE DETOURED DURING TUNNEL CONSTRUCTION.
5. FOR RETAINING WALL DETAILS SEE VOLUME 6.
6. FOR ELECTRICAL SYSTEM AND STRAY CURRENT SYSTEM SEE VOLUME 12.
7. FOR ARCHITECTURAL FENCE DETAILS SEE VOLUME 9.
8. FOR STAND PIPE NICHES SEE SYSTEMS SHEETS IN VOLUME 5.
9. SEE REINFORCEMENT SHEETS FOR DETAILS OF TUNNEL WALL IN PROXIMITY OF BUILDING COLUMNS 7 AND 10.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

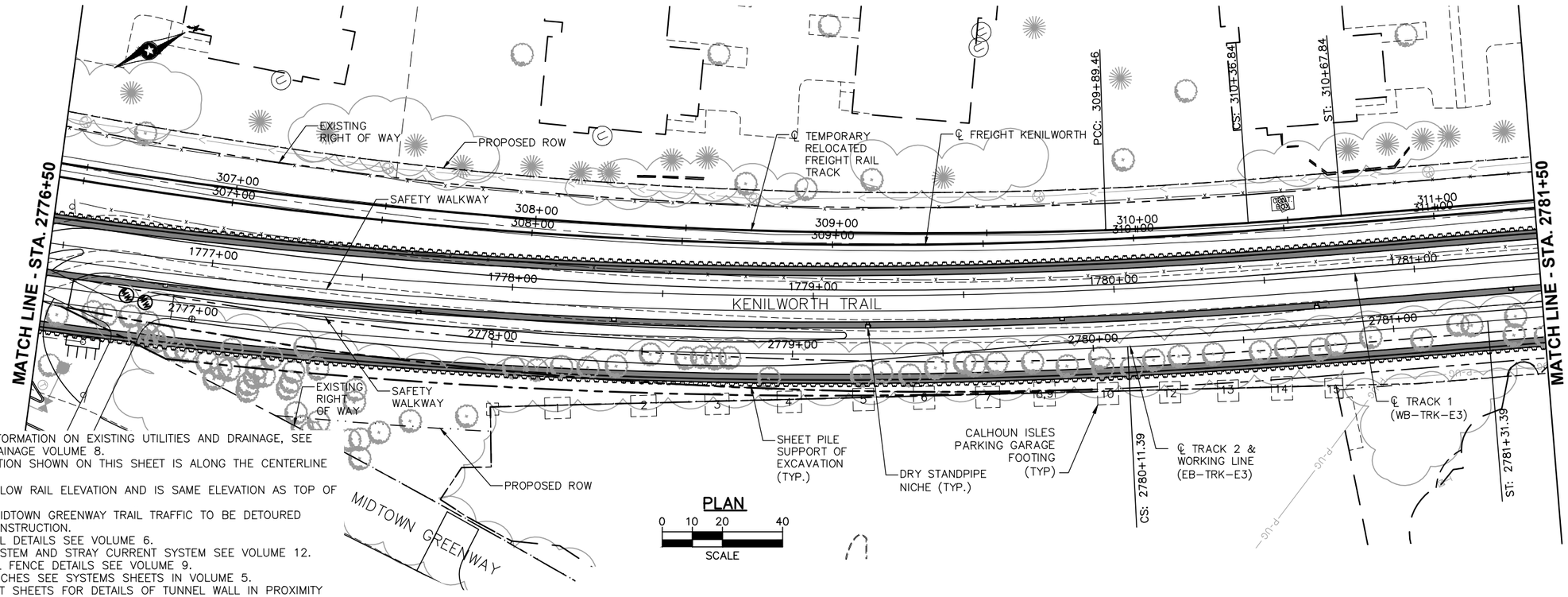
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
GENERAL PLAN AND ELEVATION
SHEET 1

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-GPE-001

SHEET 45 OF 148

Jan, 20 2016 06:24 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUNN-GPE.dwg By: YuB1



NOTES:

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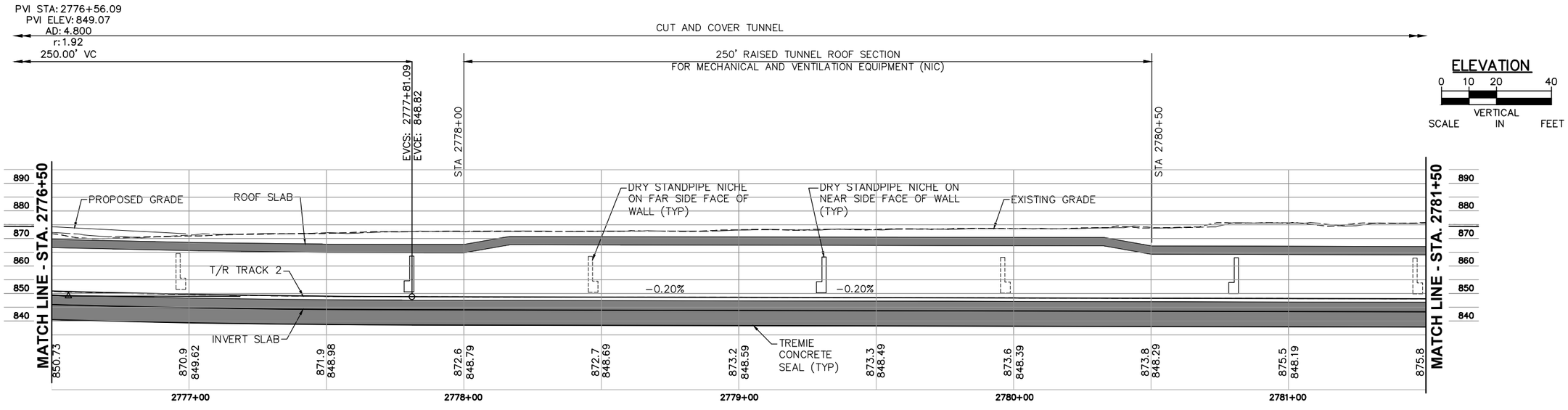


NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

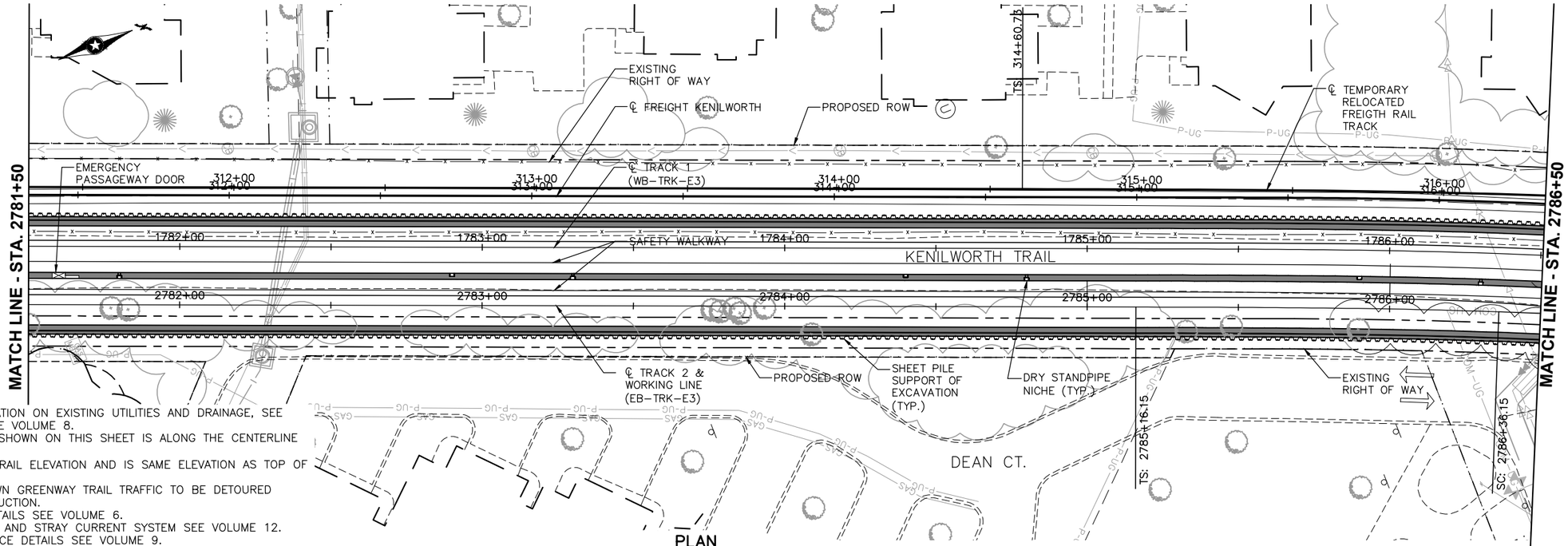
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
GENERAL PLAN AND ELEVATION
SHEET 2

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-GPE-002

SHEET 46 OF 148



PLAN

0 10 20 40

SCALE

NOTES:

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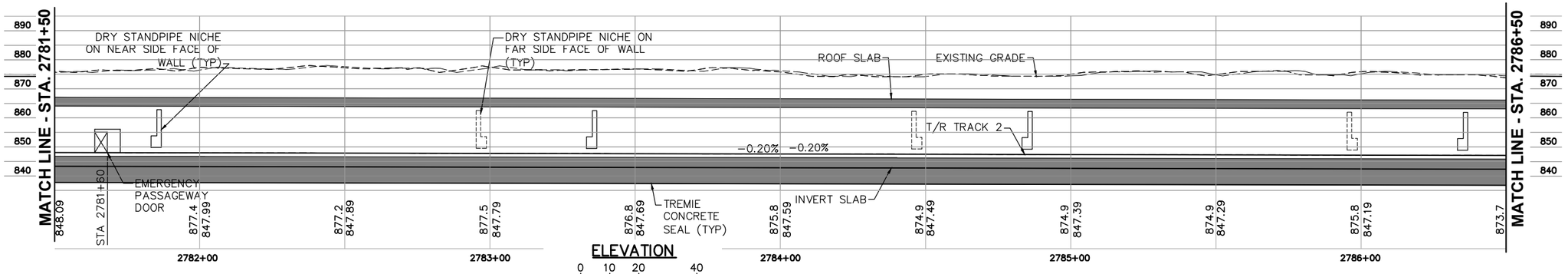
8. FOR STAND PIPE NICHES SEE SYSTEMS SHEETS IN VOLUME 5.
9. SEE REINFORCEMENT SHEETS FOR DETAILS OF TUNNEL WALL IN PROXIMITY OF BUILDING COLUMNS 7 AND 10.

CUT AND COVER TUNNEL

EB-TRK-E3



ELEVATION

0 10 20 40

SCALE VERTICAL IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

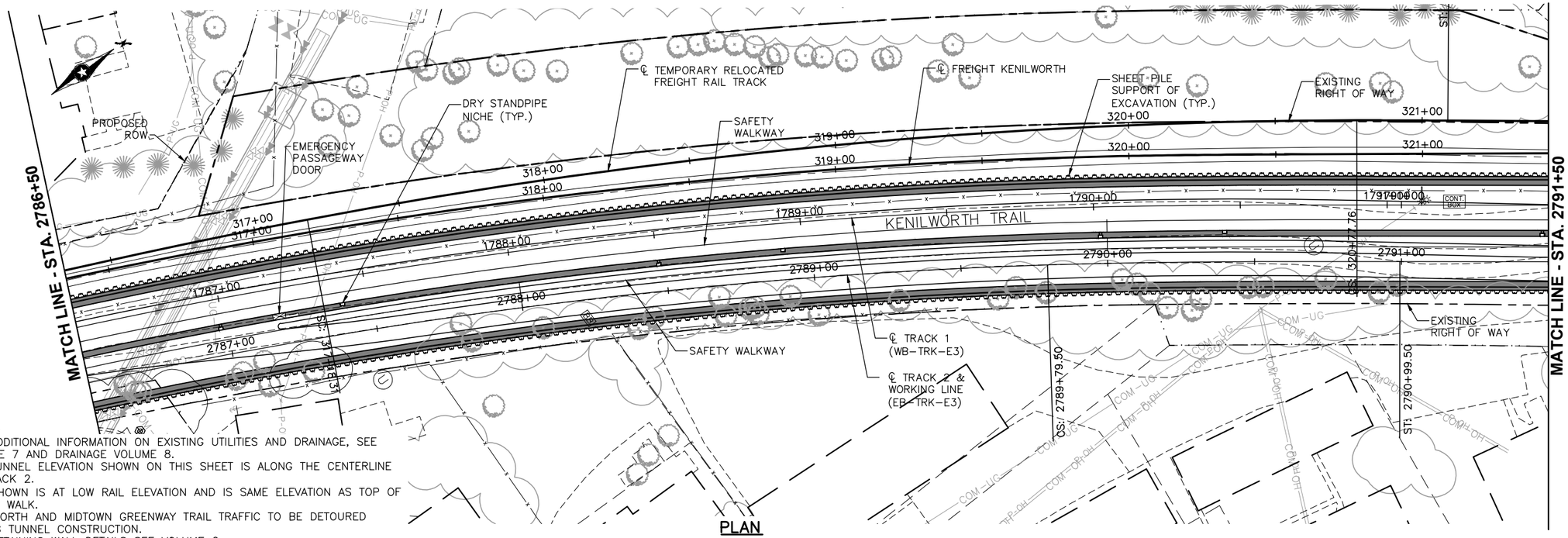
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
GENERAL PLAN AND ELEVATION
SHEET 3

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-GPE-003

SHEET 47 OF 148

Jan, 20 2016 06:00 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUNN-GPE.dwg By: YuBI



PLAN

0 10 20 40

SCALE

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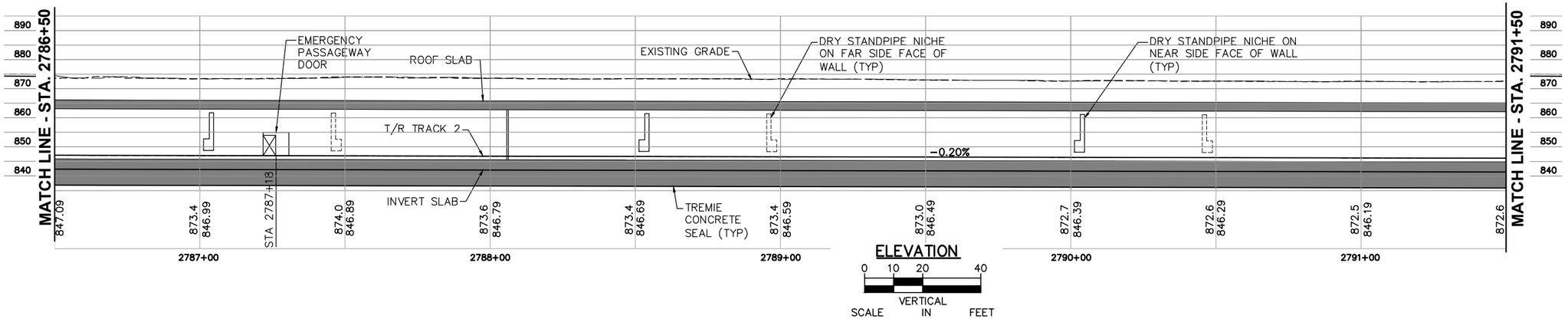
CUT AND COVER TUNNEL



ELEVATION

0 10 20 40

SCALE VERTICAL IN FEET

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
GENERAL PLAN AND ELEVATION
SHEET 4

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-GPE-004

SHEET 48 OF 148

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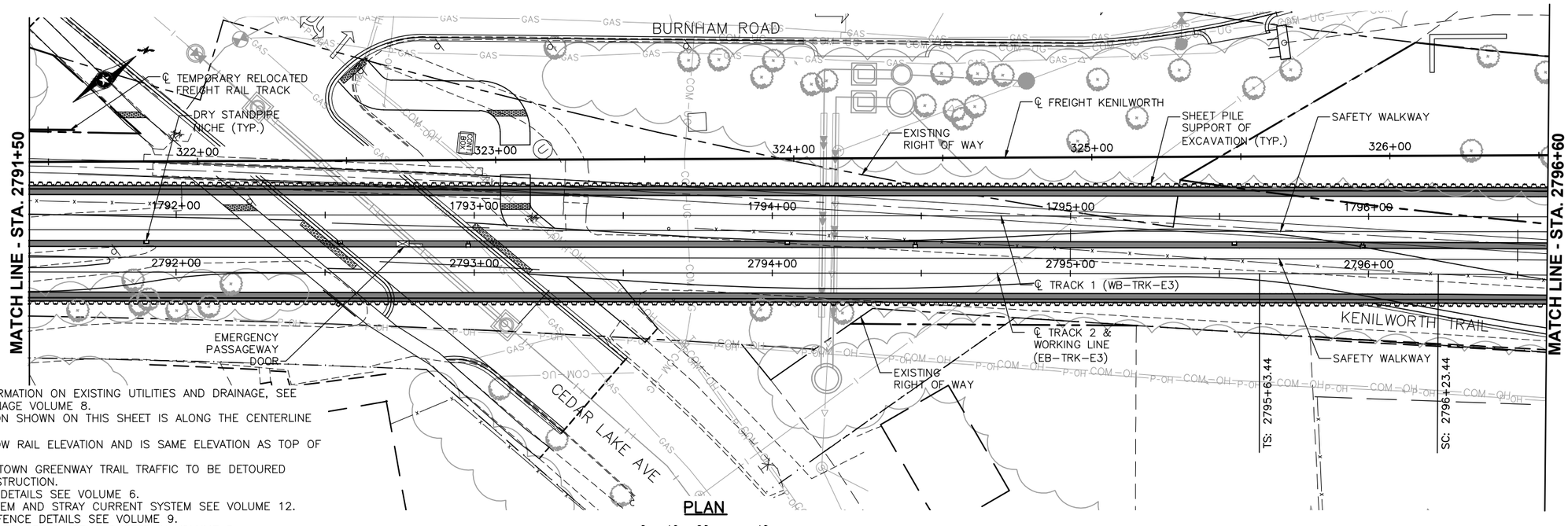

PLAN

0 10 20 40

SCALE

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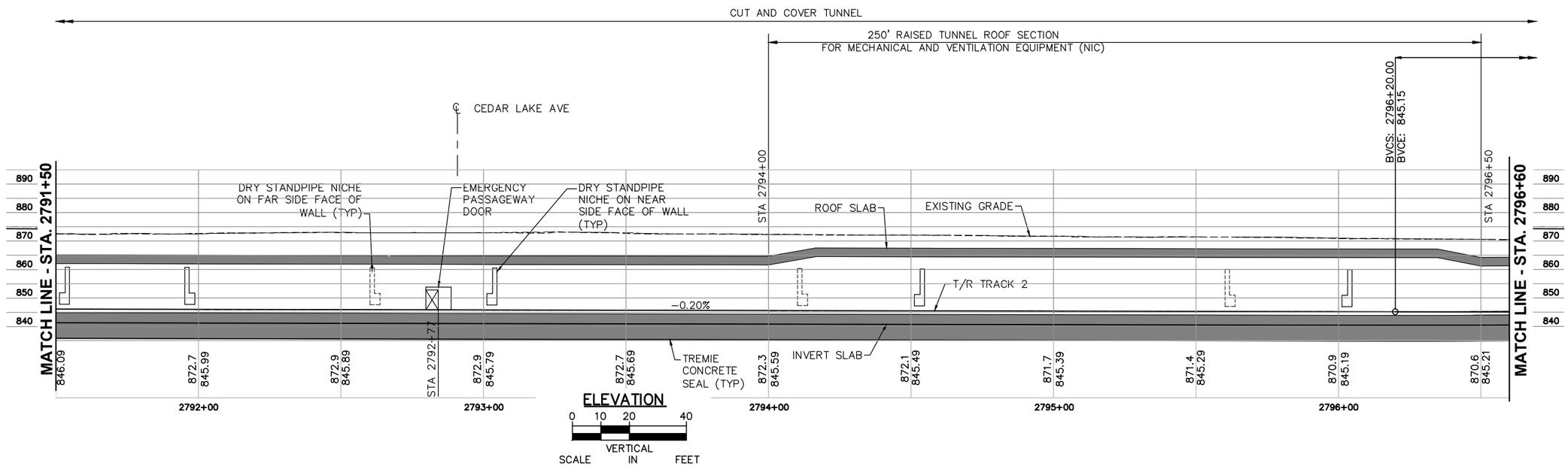

ELEVATION

0 10 20 40

SCALE VERTICAL IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

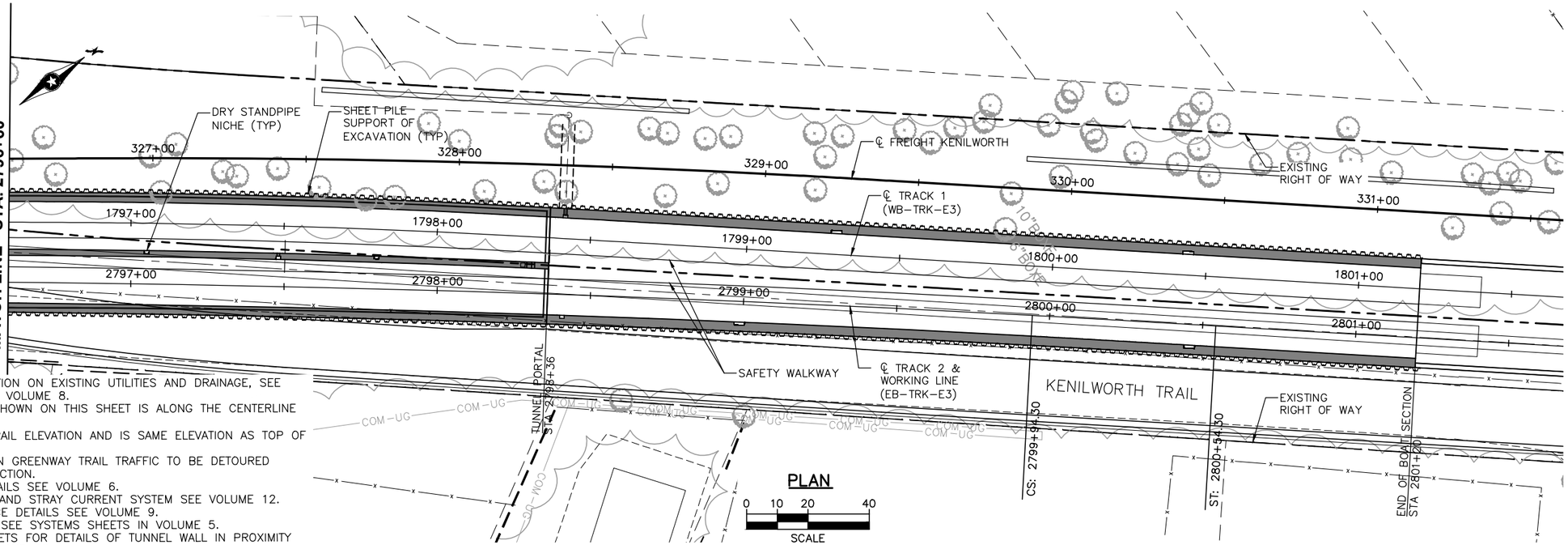
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
GENERAL PLAN AND ELEVATION
SHEET 5

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-GPE-005

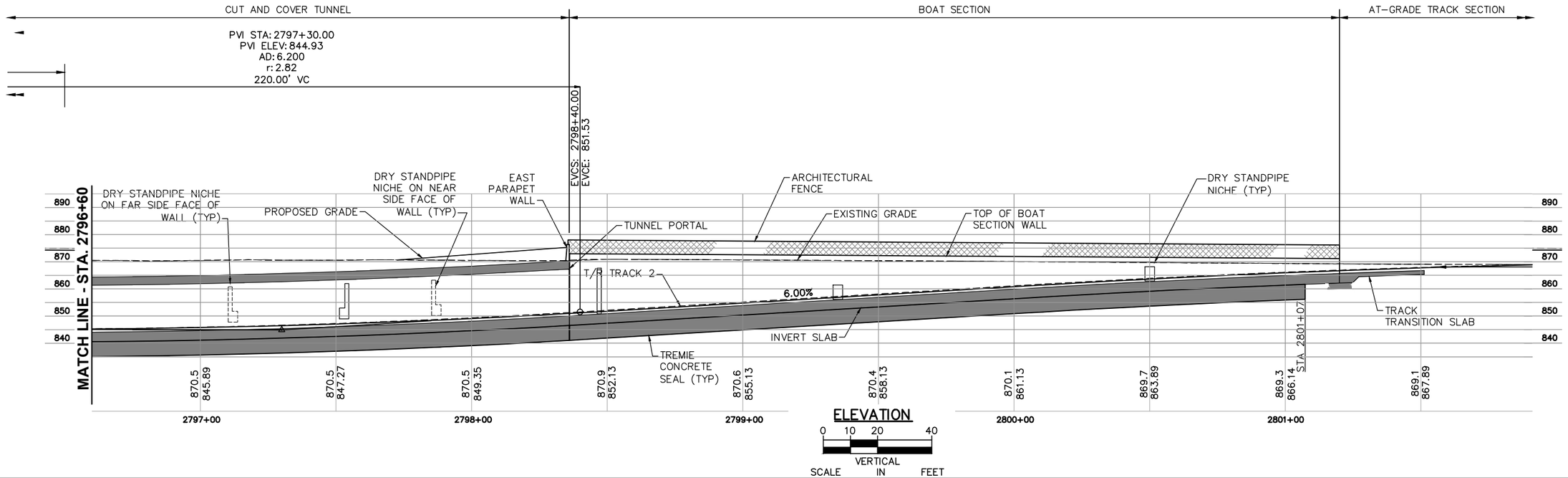
SHEET 49 OF 148

Jan, 20 2016 06:19 pm v:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-GPE.dwg By: YuB1



NOTES:

1. FOR ADDITIONAL INFORMATION ON EXISTING UTILITIES AND DRAINAGE, SEE VOLUME 7 AND DRAINAGE VOLUME 8.
2. THE TUNNEL ELEVATION SHOWN ON THIS SHEET IS ALONG THE CENTERLINE OF TRACK 2.
3. T/R SHOWN IS AT LOW RAIL ELEVATION AND IS SAME ELEVATION AS TOP OF SAFETY WALK.
4. KENILWORTH AND MIDTOWN GREENWAY TRAIL TRAFFIC TO BE DETOURED DURING TUNNEL CONSTRUCTION.
5. FOR RETAINING WALL DETAILS SEE VOLUME 6.
6. FOR ELECTRICAL SYSTEM AND STRAY CURRENT SYSTEM SEE VOLUME 12.
7. FOR ARCHITECTURAL FENCE DETAILS SEE VOLUME 9.
8. FOR STAND PIPE NICHES SEE SYSTEMS SHEETS IN VOLUME 5.
9. SEE REINFORCEMENT SHEETS FOR DETAILS OF TUNNEL WALL IN PROXIMITY OF BUILDING COLUMNS 7 AND 10.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

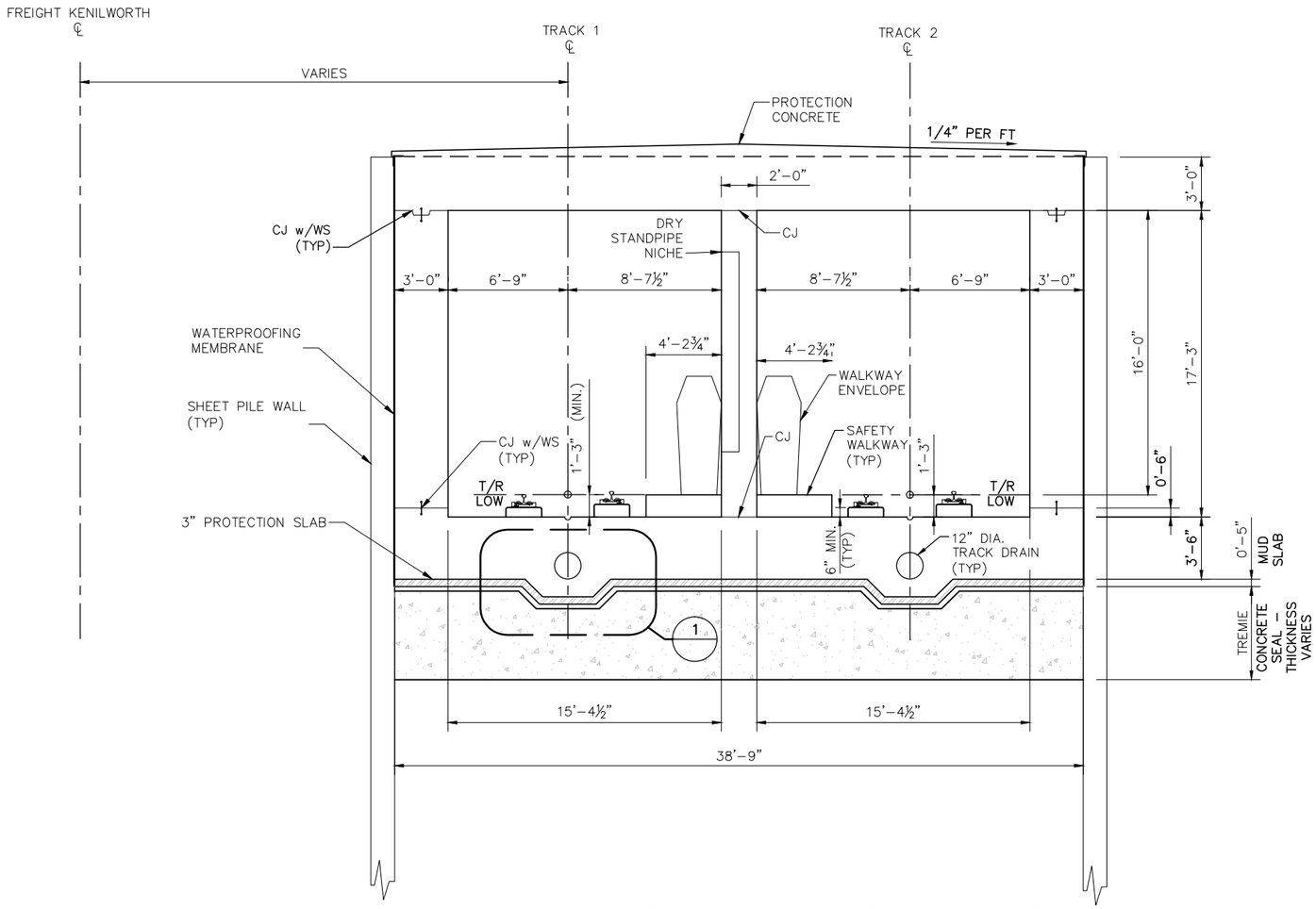
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
GENERAL PLAN AND ELEVATION
SHEET 6

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-GPE-006

SHEET 50 OF 148

Jan, 20 2016 06:21 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUNN-GPE.dwg By: YuB1

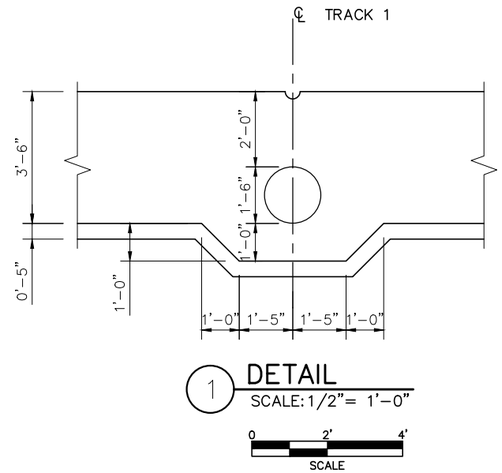


TYPICAL TUNNEL CROSS SECTION LOOKING UPSTATION – GEOMETRY
1 – FROM STA 2777+01.00 TO STA 2778+00.00
2 – FROM STA 2780+50.00 TO STA 2794.00.00
3 – FROM STA 2796+50.00 TO STA 2796+53.36

0 2 4 8
HORIZONTAL SCALE IN FEET

NOTES:

1. FOR WATERPROOFING DETAILS, SEE WATERPROOFING SHEETS.
2. FOR TEMPORARY EXCAVATION SUPPORT SECTION, SEE SUGGESTED EXCAVATIONS SUPPORT SHEETS.
3. FOR ELECTRICAL SYSTEM AND STRAY CURRENT CORROSION SYSTEM SEE VOLUME 12
4. REMOVE SHEET PILE TO 5' BELOW GRADE WHEN TUNNEL CONSTRUCTION IS COMPLETE
5. FOR WALKWAY DETAILS SEE MISCELLANEOUS STRUCTURAL REINFORCEMENT SHEETS.



1 DETAIL
SCALE: 1/2"= 1'–0"

0 2' 4'
SCALE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

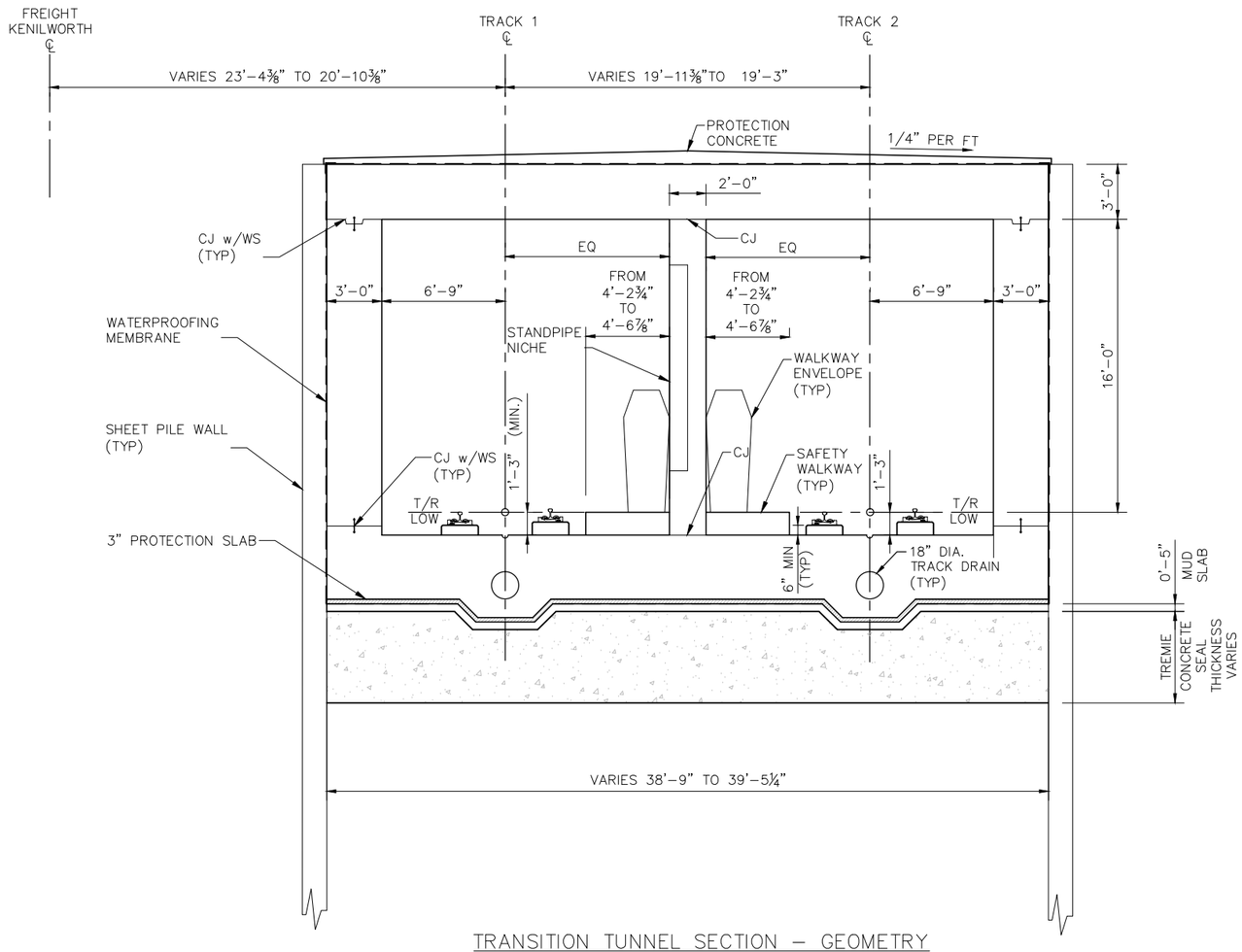
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
RUNNING TUNNEL SECTION GEOMETRY

DISCIPLINE: STRUCTURES
SHEET NAME: E3-STU-TUN-TUNK-TYP-RTS-001

SHEET 51 OF 148



TRANSITION TUNNEL SECTION – GEOMETRY
FROM STA 2776+00 TO STA 2777+01

0 2 4 8
HORIZONTAL
SCALE IN FEET

NOTES:

1. FOR WATERPROOFING DETAILS, SEE WATERPROOFING SHEETS.
2. FOR TEMPORARY EXCAVATION SUPPORT SECTION, SEE SUGGESTED EXCAVATIONS SUPPORT SHEETS.
3. FOR ELECTRICAL SYSTEM AND STRAY CURRENT CORROSION SYSTEM SEE VOLUME 12
4. REMOVE SHEET PILE TO 5' BELOW GRADE WHEN TUNNEL CONSTRUCTION IS COMPLETE
5. FOR WALKWAY DETAILS SEE MISCELLANEOUS STRUCTURAL REINFORCEMENT SHEETS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

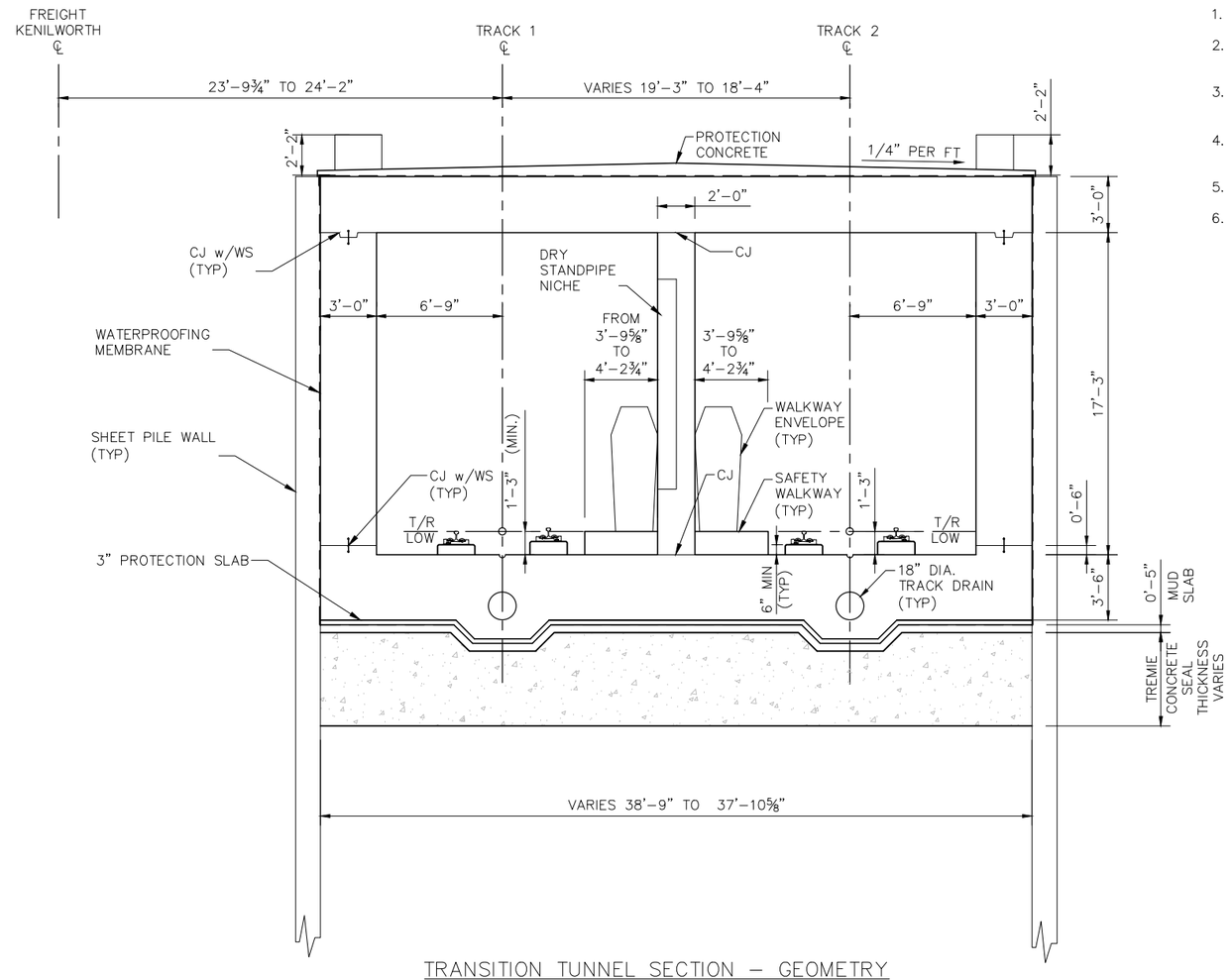
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TRANSITION TUNNEL SECTION - GEOMETRY
SHEET 1

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-TYP-TTS-001

SHEET 52 OF 148



TRANSITION TUNNEL SECTION – GEOMETRY
FROM STA 2796+53.36 TO STA 2798+36.06

0 2 4 8
HORIZONTAL
SCALE IN FEET

NOTES:

1. FOR WATERPROOFING DETAILS, SEE WATERPROOFING SHEETS.
2. FOR TEMPORARY EXCAVATION SUPPORT SECTION, SEE SUGGESTED EXCAVATIONS SUPPORT SHEETS.
3. FOR ELECTRICAL SYSTEM AND STRAY CURRENT CORROSION SYSTEM SEE VOLUME 12
4. REMOVE SHEET PILE TO 5' BELOW GRADE WHEN TUNNEL CONSTRUCTION IS COMPLETE
5. FOR WALKWAY DETAILS SEE MISCELLANEOUS STRUCTURAL REINFORCEMENT SHEETS.
6. FOR DETAILS OF CURB WALL, SEE URBAN DESIGN AND LANDSCAPING SHEETS VOLUME 9.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TRANSITION TUNNEL SECTION - GEOMETRY
SHEET 2

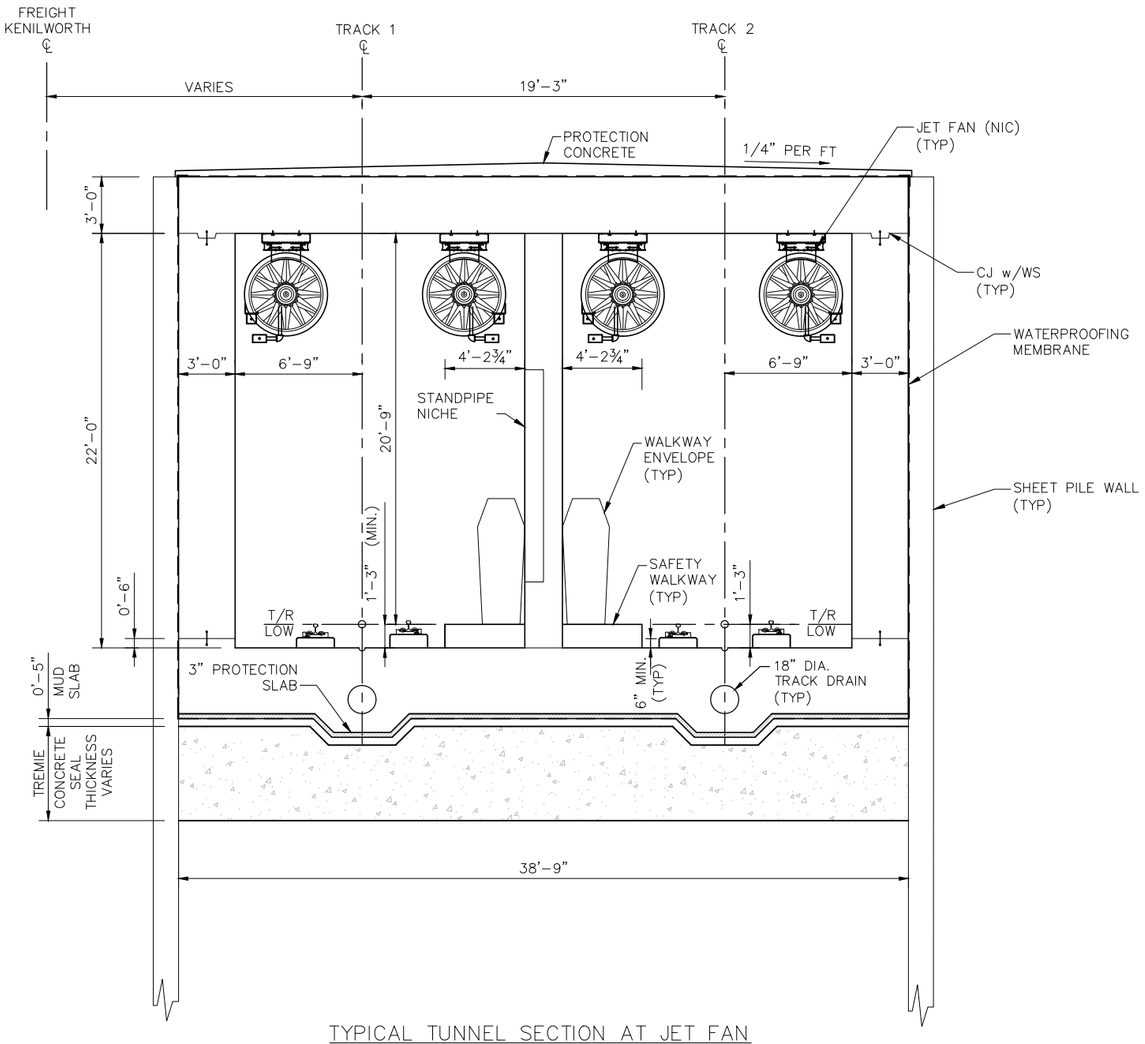
DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-TYP-TTS-002

SHEET 53 OF 148

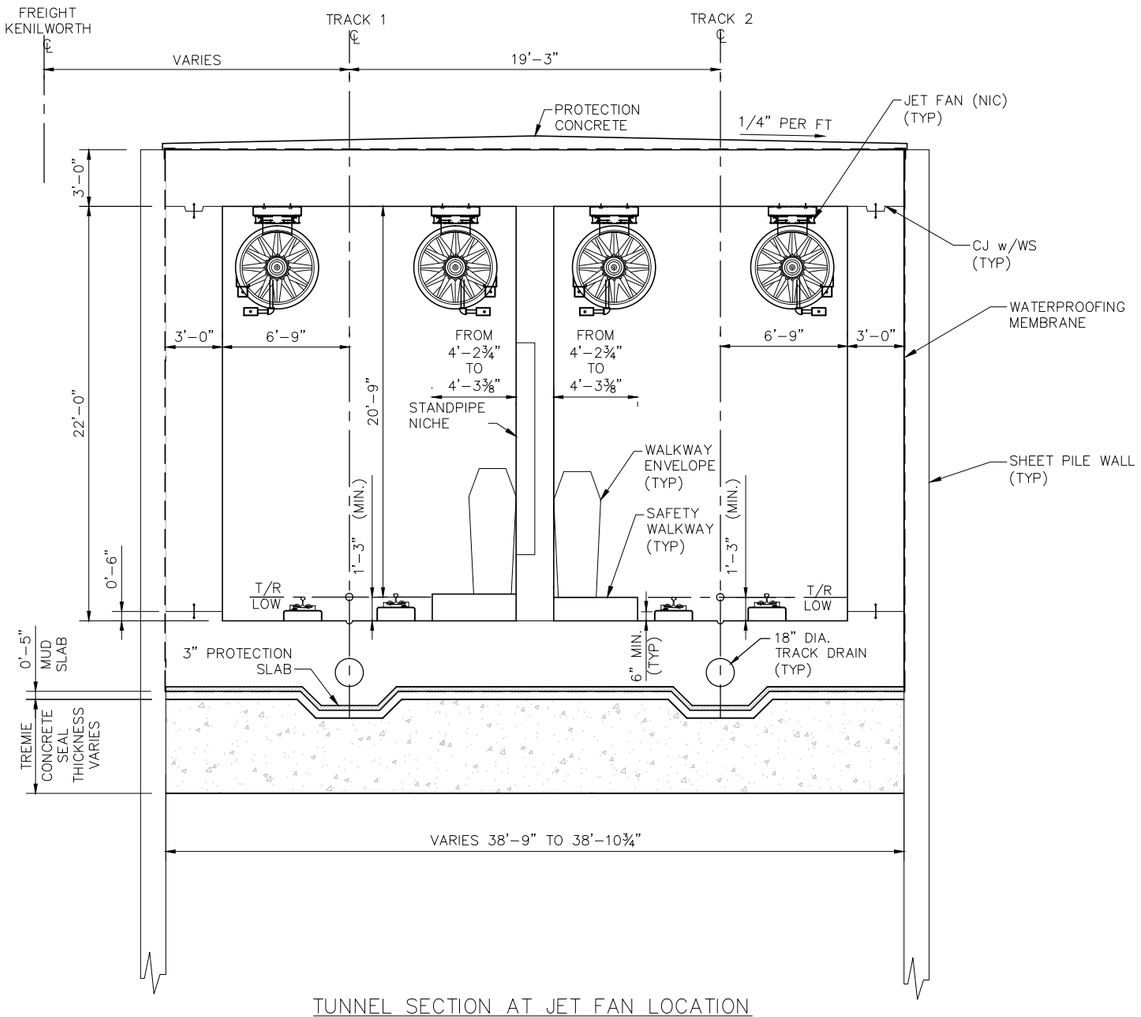
NOTES:

1. FOR WATERPROOFING DETAILS, SEE WATERPROOFING SHEETS.
2. FOR TEMPORARY EXCAVATION SUPPORT SECTION, SEE SUGGESTED EXCAVATIONS SUPPORT SHEETS.
3. FOR ELECTRICAL SYSTEM AND STRAY CURRENT CORROSION SYSTEM SEE VOLUME 12
4. REMOVE SHEET PILE TO 5' BELOW GRADE WHEN TUNNEL CONSTRUCTION IS COMPLETE
5. FOR WALKWAY DETAILS SEE MISCELLANEOUS STRUCTURAL REINFORCEMENT SHEETS.



TYPICAL TUNNEL SECTION AT JET FAN
STA 2778+00.00 TO STA 2780+50.00

SCALE HORIZONTAL IN FEET 0 2 4 8



TUNNEL SECTION AT JET FAN LOCATION
STA 2794+00.00 TO STA 2796+50.00

SCALE HORIZONTAL IN FEET 0 2 4 8

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL SECTION AT JET FAN LOCATION GEOMETRY

DISCIPLINE: STRUCTURES

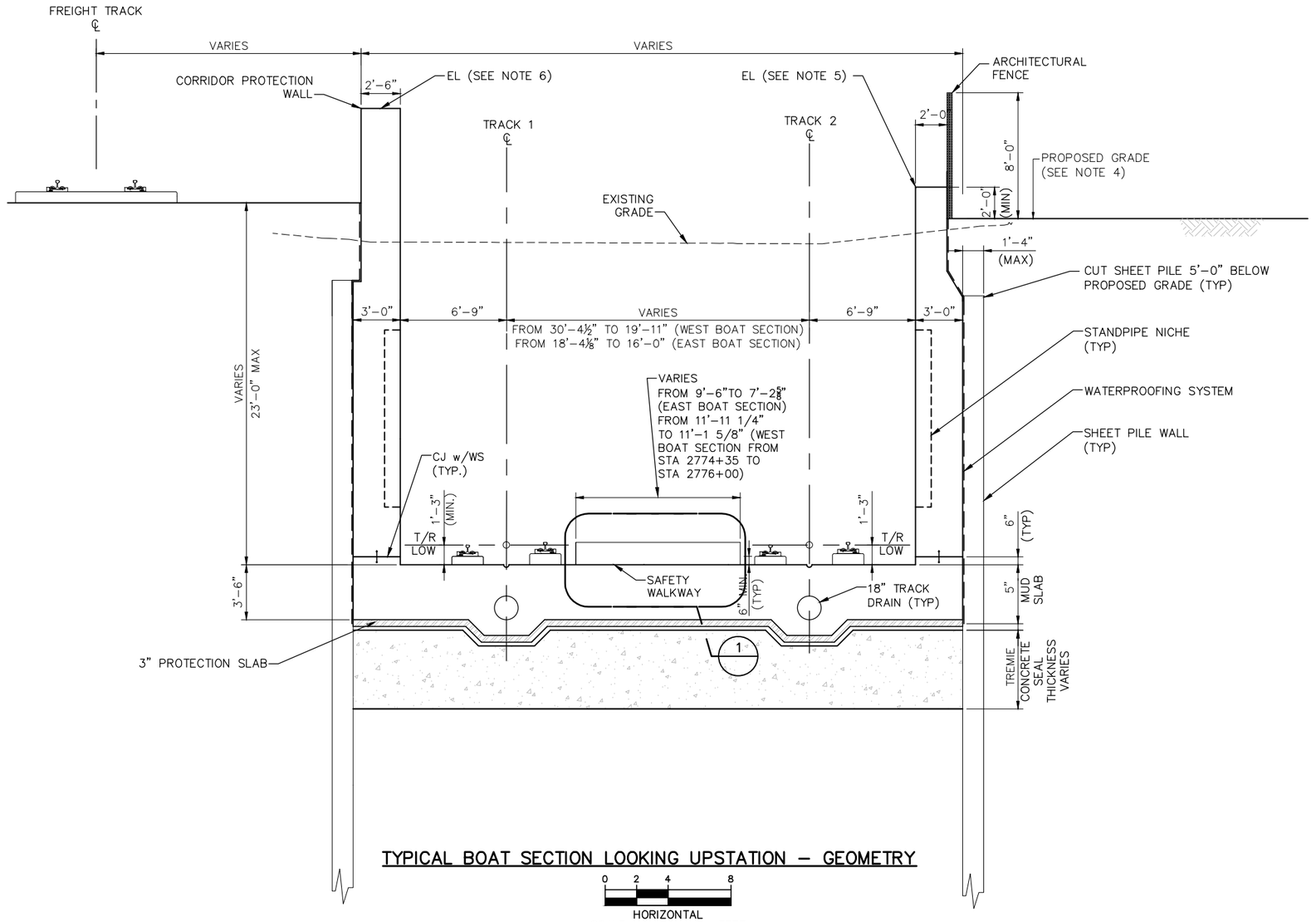
SHEET NAME: E3-STU-TUN-TUNK-TYP-JFN-001

SHEET 54 OF 148

Jan, 18 2016 09:58 am V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-TYP-JFN-001.dwg By: mercuriellof

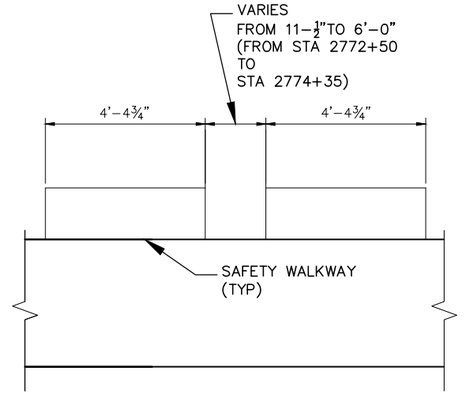
NOTES:

1. FOR WATERPROOFING DETAILS, SEE WATERPROOFING SHEETS.
2. FOR TEMPORARY EXCAVATION SUPPORT SECTION, SEE SUGGESTED EXCAVATIONS SUPPORT SHEETS.
3. FOR ELECTRICAL SYSTEM AND STRAY CURRENT CORROSIONS SYSTEM SEE VOLUME 12
4. REMOVE SHEET PILE TO 5' BELOW GRADE WHEN TUNNEL CONSTRUCTION IS COMPLETE
5. FOR WALKWAY DETAILS SEE REINFORCEMENT SHEETS.
6. FOR PROPOSED GRADE, SEE CIVIL SHEETS, VOLUME 2.
7. FOR TOP OF WALL ELEVATION, SEE CIVIL SHEETS, VOLUME 2.
8. THE TOP OF CORRIDOR PROTECTION WALL ELEVATION AT EAST AND WEST BOAT SECTIONS ARE RESPECTIVELY 877.68 AND 878.76.
9. FOR ARCHITECTURAL FENCE DETAILS AND AESTHETIC TREATMENT OF RETAINING WALL SEE URBAN DESIGN AND LANDSCAPING SHEET, VOLUME 9.



TYPICAL BOAT SECTION LOOKING UPSTATION – GEOMETRY

0 2 4 8
HORIZONTAL SCALE IN FEET



1 DETAIL – SPLIT WALKWAY
SCALE: 1/2"= 1'–0"

0 2' 4'
SCALE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

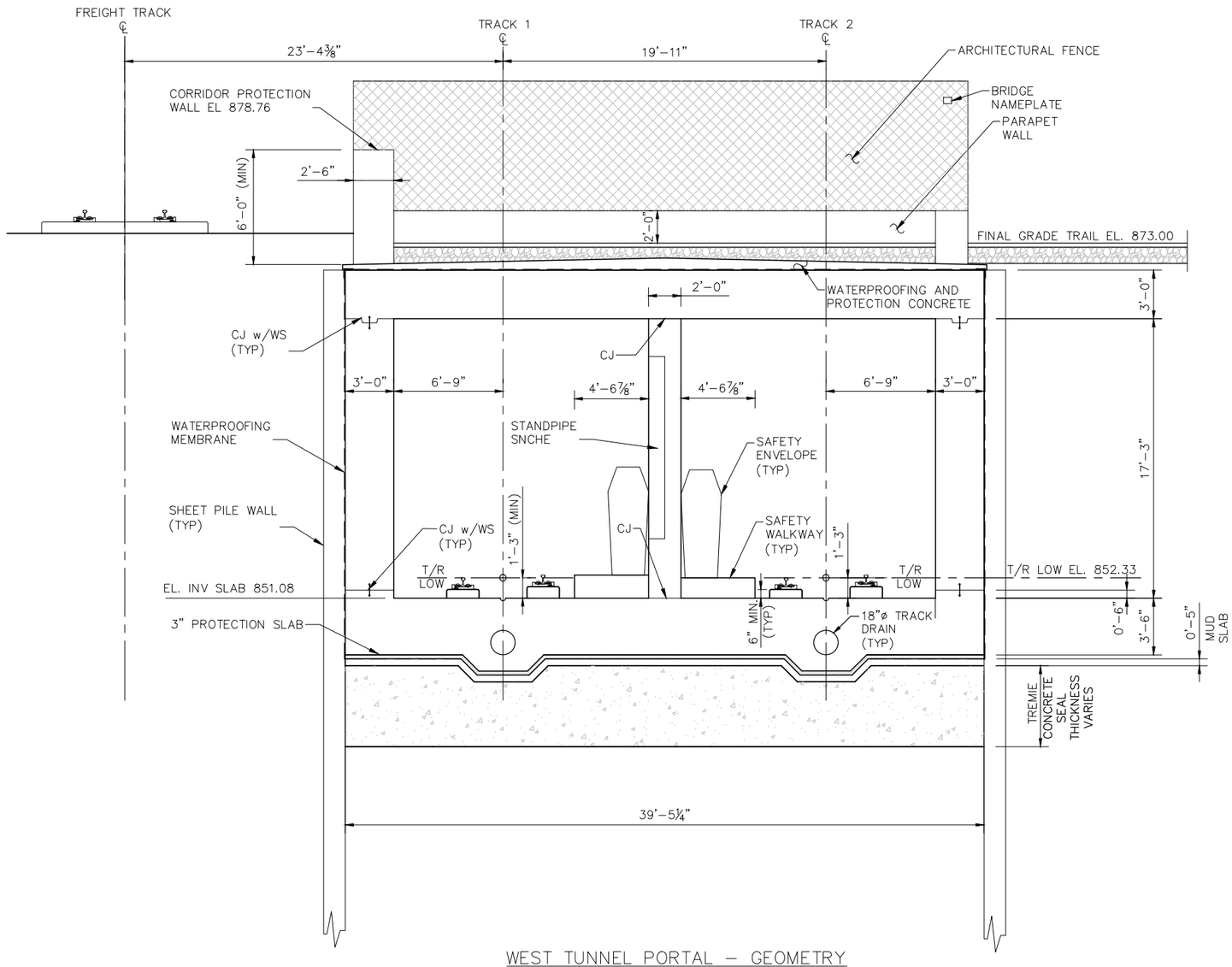
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
BOAT SECTION
GEOMETRY

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-TYP-BTG-001

SHEET 55 OF 148

Jan, 18 2016 10:29 am v:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-TYP-BTG-001.dwg By: mercurieliof



WEST TUNNEL PORTAL – GEOMETRY
STA 2776+00

0 2 4 8
HORIZONTAL SCALE IN FEET

NOTES:

1. FOR WATERPROOFING DETAILS, SEE WATERPROOFING SHEETS.
2. FOR TEMPORARY EXCAVATION SUPPORT SECTION, SEE SUGGESTED EXCAVATIONS SUPPORT SHEETS.
3. FOR ELECTRICAL SYSTEM AND STRAY CURRENT CORROSION SYSTEM SEE VOLUME 12
4. REMOVE SHEET PILE TO 5' BELOW GRADE WHEN TUNNEL CONSTRUCTION IS COMPLETE
5. FOR WALKWAY DETAILS SEE MISCELLANEOUS STRUCTURAL REINFORCEMENT SHEETS.
6. FOR ARCHITECTURAL FENCE DETAILS, AND AESTHETIC TREATMENT OF PARAPET WALL, SEE URBAN DESIGN AND LANDSCAPING SHEETS, VOLUME 9.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

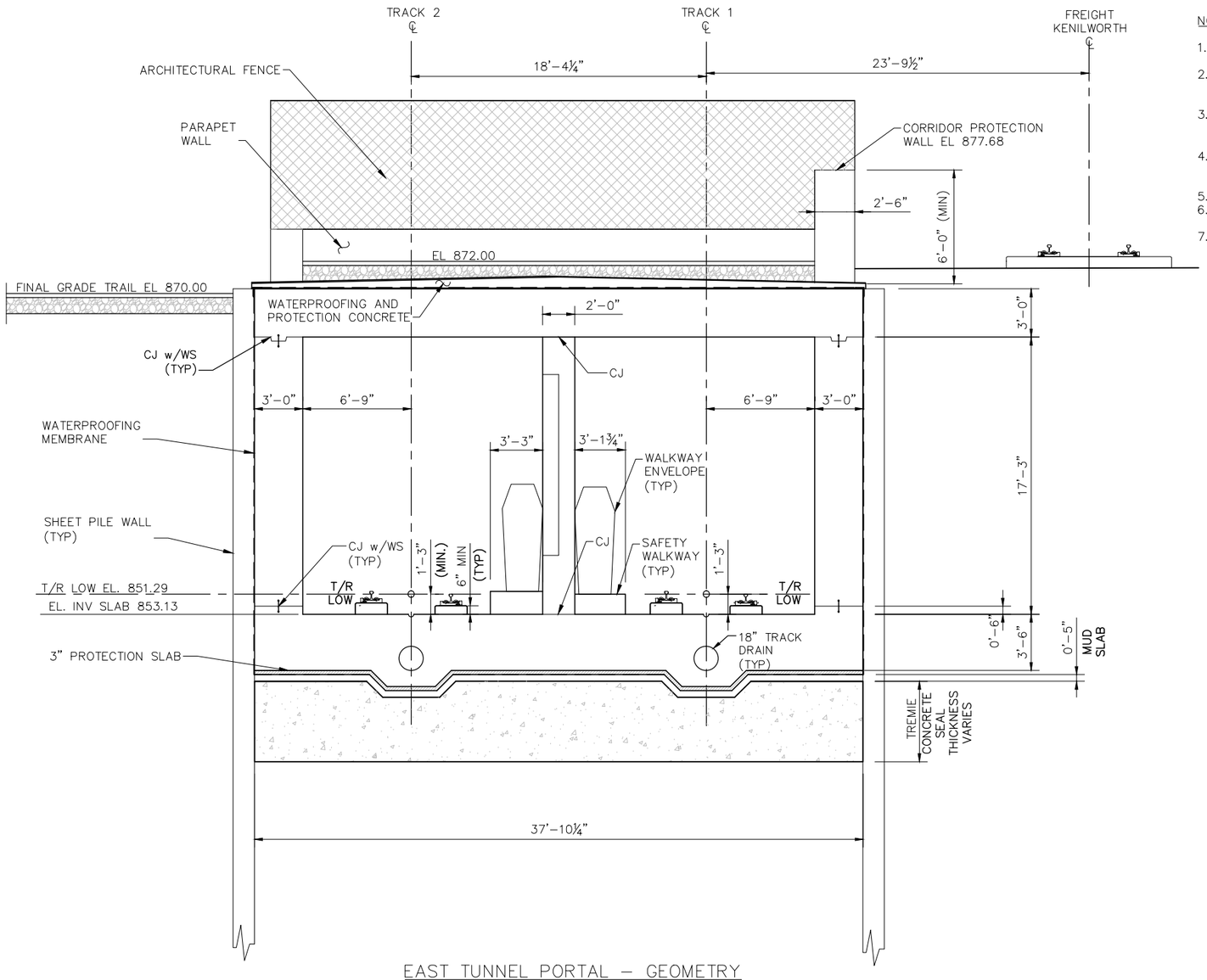
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL PORTALS - GEOMETRY
SHEET 1

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-TYP-PTL-001

SHEET 56 OF 148



EAST TUNNEL PORTAL – GEOMETRY
STA 2798+36.0 (LOOKING DOWNSTATION)

0 2 4 8
HORIZONTAL SCALE IN FEET

NOTES:

1. FOR WATERPROOFING DETAILS, SEE WATERPROOFING SHEETS.
2. FOR TEMPORARY EXCAVATION SUPPORT SECTION, SEE SUGGESTED EXCAVATIONS SUPPORT SHEETS.
3. FOR ELECTRICAL SYSTEM AND STRAY CURRENT CORROSION SYSTEM SEE VOLUME 12
4. REMOVE SHEET PILE TO 5' BELOW GRADE WHEN TUNNEL CONSTRUCTION IS COMPLETE
5. FOR WALKWAY DETAILS SEE MISCELLANEOUS STRUCTURAL
6. REINFORCEMENT SHEETS.
7. FOR ARCHITECTURAL FENCE DETAILS, AND AESTHETIC TREATMENT OF PARAPET WALL, SEE URBAN DESIGN AND LANDSCAPING SHEETS, VOLUME 9.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

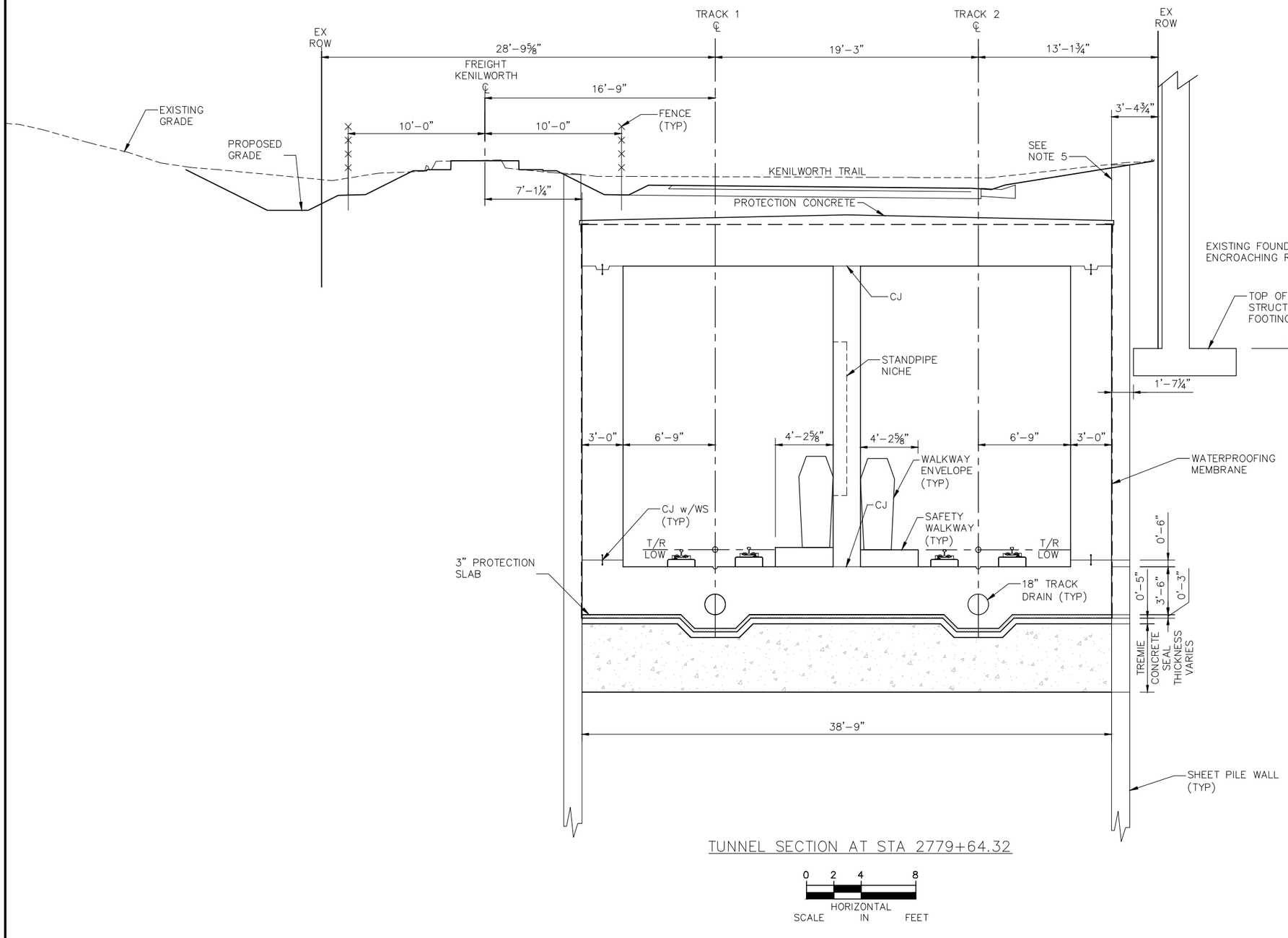
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL PORTALS - GEOMETRY
SHEET 2

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-TYP-PTL-002

SHEET 57 OF 148



TUNNEL SECTION AT STA 2779+64.32

0 2 4 8
HORIZONTAL SCALE IN FEET

NOTES:

1. FOR WATERPROOFING DETAILS, SEE WATERPROOFING SHEETS.
2. FOR TEMPORARY EXCAVATION SUPPORT SECTION, SEE SUGGESTED EXCAVATIONS SUPPORT SHEETS.
3. FOR ELECTRICAL SYSTEM AND STRAY CURRENT CORROSION SYSTEM SEE VOLUME 12
4. REMOVE SHEET PILE TO 5' BELOW GRADE WHEN TUNNEL CONSTRUCTION IS COMPLETE
5. FOR WALKWAY DETAILS SEE MISCELLANEOUS STRUCTURAL REINFORCEMENT SHEETS.
6. THE LOCATION AND SIZE OF THE EXISTING FOOTING SHOWN ON THIS DRAWING IS APPROXIMATE. CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND SIZE PRIOR TO CONSTRUCTION.
7. EXPOSE FOOTING BEFORE DRIVING SHEET PILES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

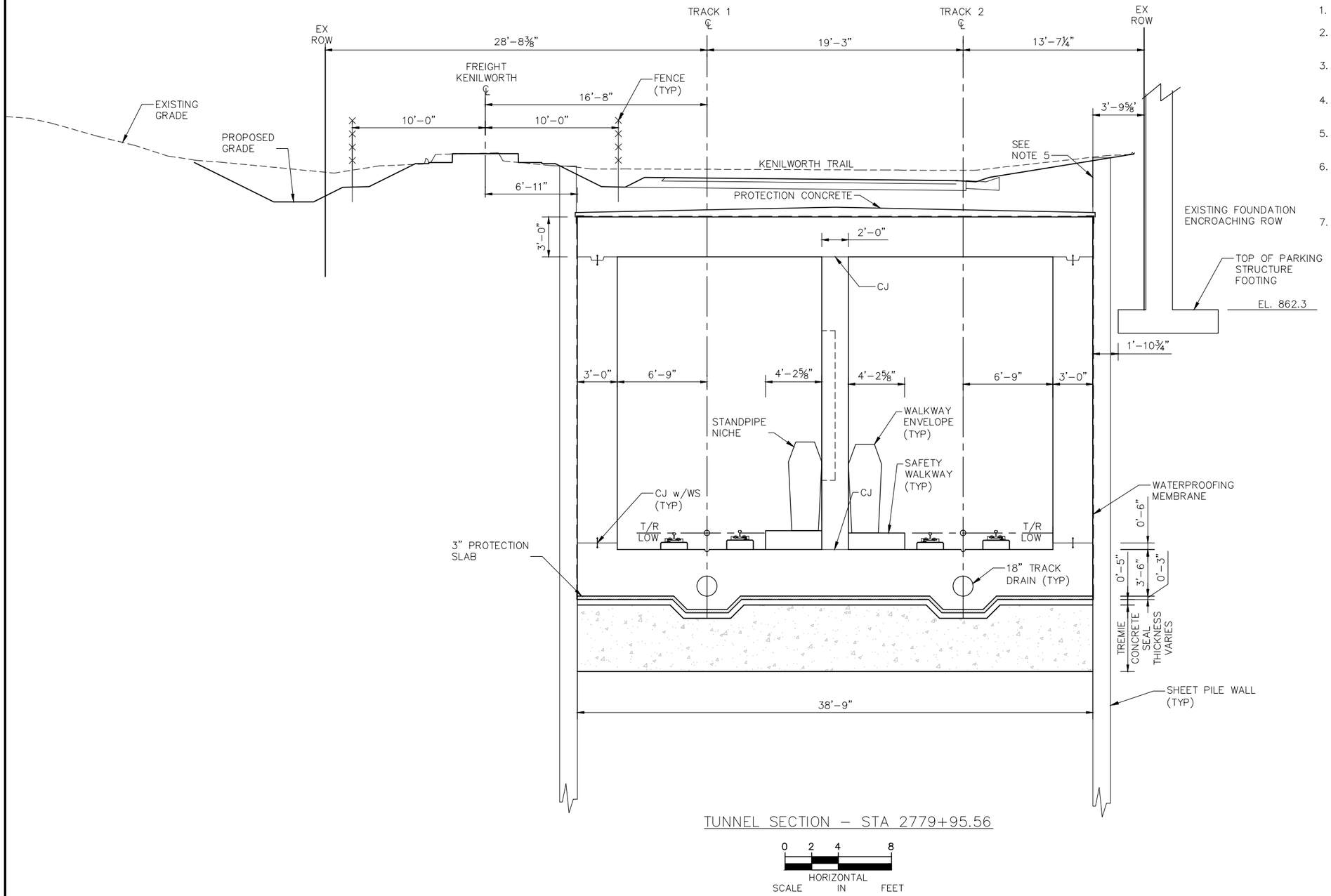
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL SECTIONS
SHEET 1

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-TYP-SEC-001

SHEET 58 OF 148



NOTES:

1. FOR WATERPROOFING DETAILS, SEE WATERPROOFING SHEETS.
2. FOR TEMPORARY EXCAVATION SUPPORT SECTION, SEE SUGGESTED EXCAVATIONS SUPPORT SHEETS.
3. FOR ELECTRICAL SYSTEM AND STRAY CURRENT CORROSION SYSTEM SEE VOLUME 12
4. REMOVE SHEET PILE TO 5' BELOW GRADE WHEN TUNNEL CONSTRUCTION IS COMPLETE
5. FOR WALKWAY DETAILS SEE MISCELLANEOUS STRUCTURAL REINFORCEMENT SHEETS.
6. THE LOCATION AND SIZE OF THE EXISTING FOOTING SHOWN ON THIS DRAWING IS APPROXIMATE. CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND SIZE PRIOR TO CONSTRUCTION.
7. EXPOSE FOOTING BEFORE DRIVING SHEET PILES.

TUNNEL SECTION – STA 2779+95.56

0 2 4 8
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

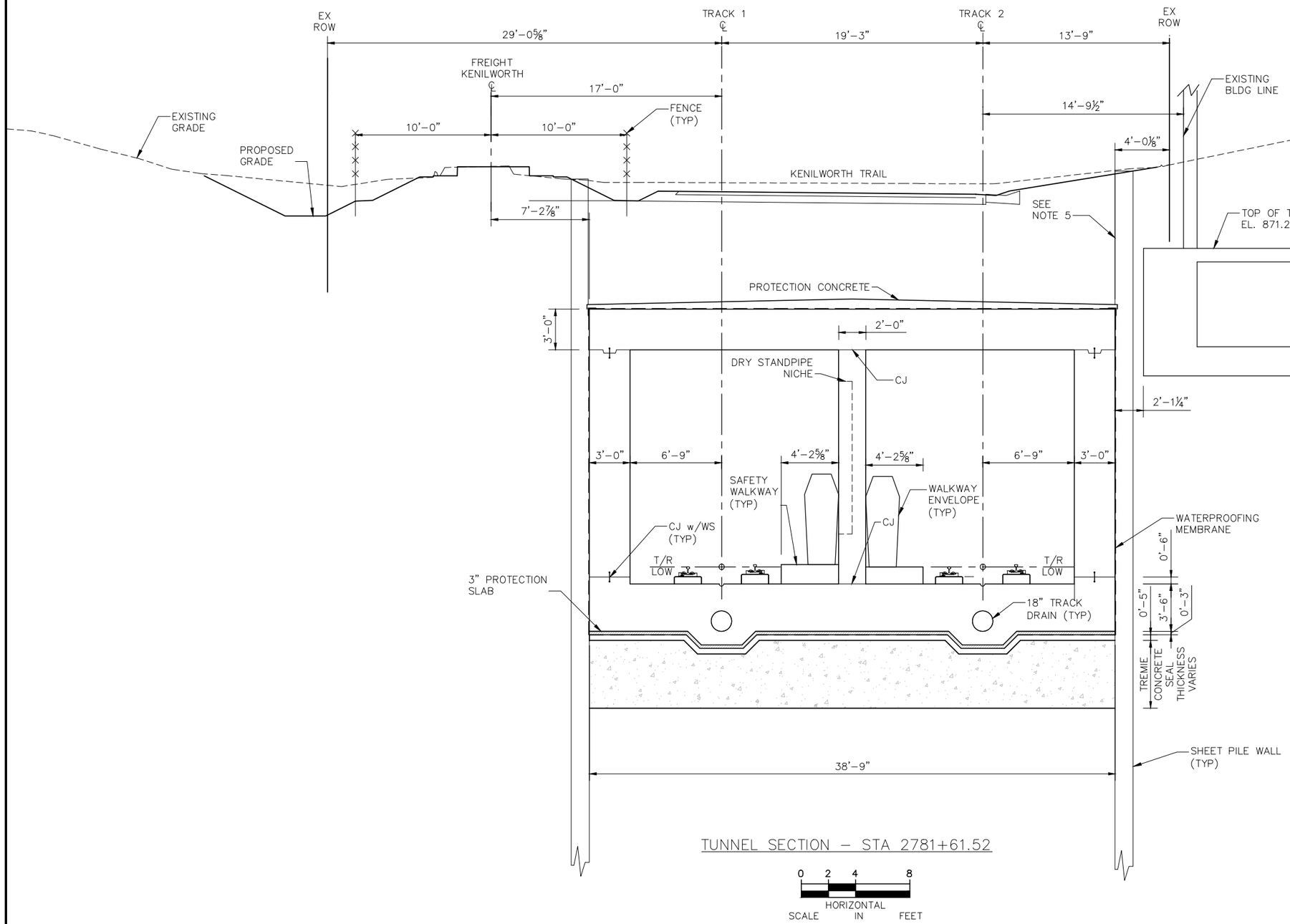
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL SECTIONS
SHEET 2

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-TYP-002

SHEET 59 OF 148

Jan. 17 2016 09:18 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-TYP-SEC-002.dwg By: mercurielliof



TUNNEL SECTION – STA 2781+61.52

0 2 4 8
HORIZONTAL SCALE IN FEET

NOTES:

1. FOR WATERPROOFING DETAILS, SEE WATERPROOFING SHEETS.
2. FOR TEMPORARY EXCAVATION SUPPORT SECTION, SEE SUGGESTED EXCAVATIONS SUPPORT SHEETS.
3. FOR ELECTRICAL SYSTEM AND STRAY CURRENT CORROSION SYSTEM SEE VOLUME 12
4. REMOVE SHEET PILE TO 5' BELOW GRADE WHEN TUNNEL CONSTRUCTION IS COMPLETE
5. FOR WALKWAY DETAILS SEE MISCELLANEOUS STRUCTURAL REINFORCEMENT SHEETS.
6. THE LOCATION AND SIZE OF THE EXISTING FOOTING SHOWN ON THIS DRAWING IS APPROXIMATE. CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND SIZE PRIOR TO CONSTRUCTION.
7. EXPOSE FOOTING BEFORE DRIVING SHEET PILES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

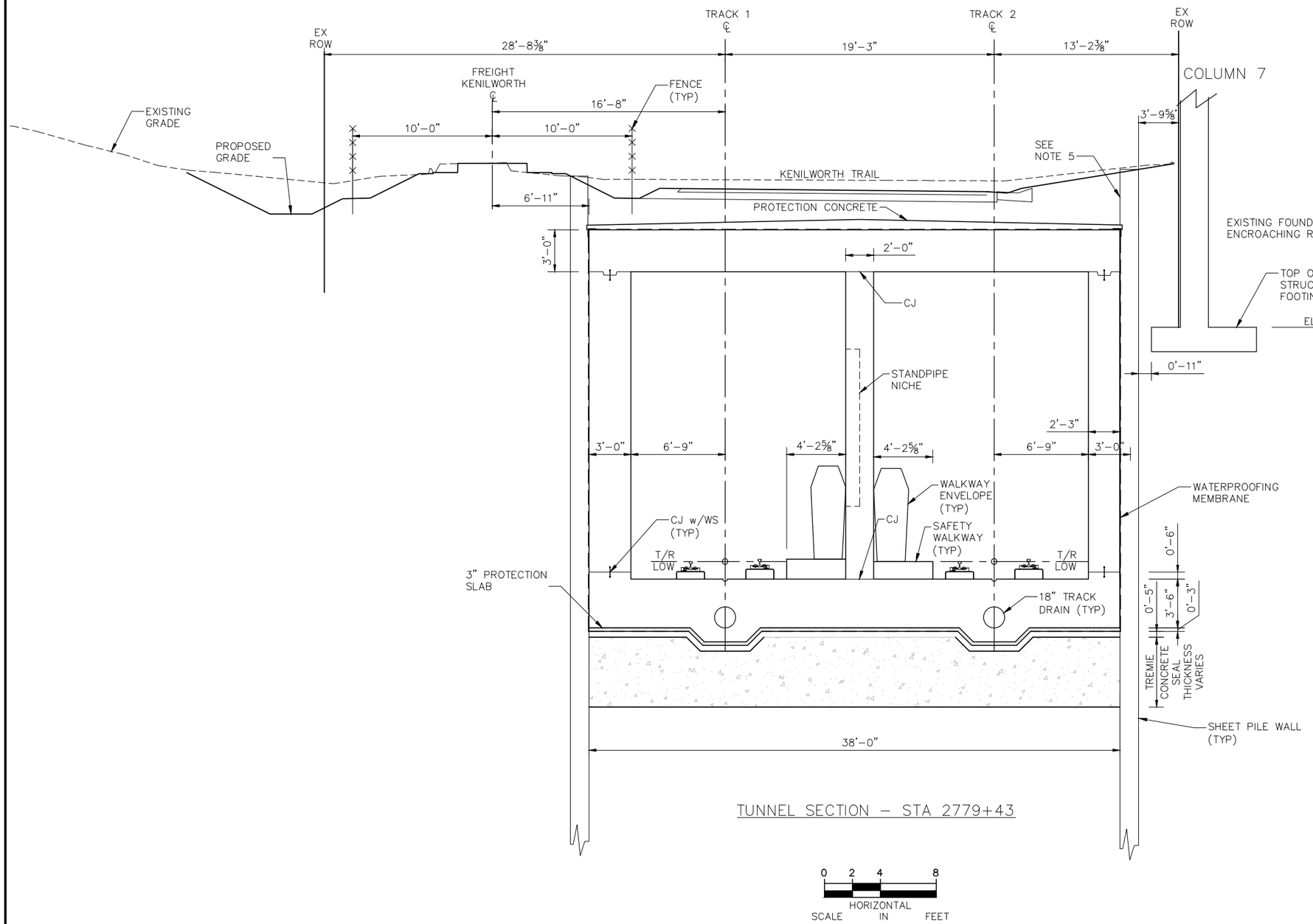
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL SECTIONS
SHEET 3

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-TYP-003

SHEET 60 OF 148

Jan, 17 2016 09:24 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-TYP-SEC-003.dwg By: mercuriellof



TUNNEL SECTION – STA 2779+43

0 2 4 8
HORIZONTAL SCALE IN FEET

NOTES:

1. FOR WATERPROOFING DETAILS, SEE WATERPROOFING SHEETS.
2. FOR TEMPORARY EXCAVATION SUPPORT SECTION, SEE SUGGESTED EXCAVATIONS SUPPORT SHEETS.
3. FOR ELECTRICAL SYSTEM AND STRAY CURRENT CORROSION SYSTEM SEE VOLUME 12
4. REMOVE SHEET PILE TO 5' BELOW GRADE WHEN TUNNEL CONSTRUCTION IS COMPLETE
5. FOR WALKWAY DETAILS SEE MISCELLANEOUS STRUCTURAL REINFORCEMENT SHEETS.
6. THE LOCATION AND SIZE OF THE EXISTING FOOTING SHOWN ON THIS DRAWING IS APPROXIMATE. CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND SIZE PRIOR TO CONSTRUCTION.
7. EXPOSE FOOTING BEFORE DRIVING SHEET PILES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

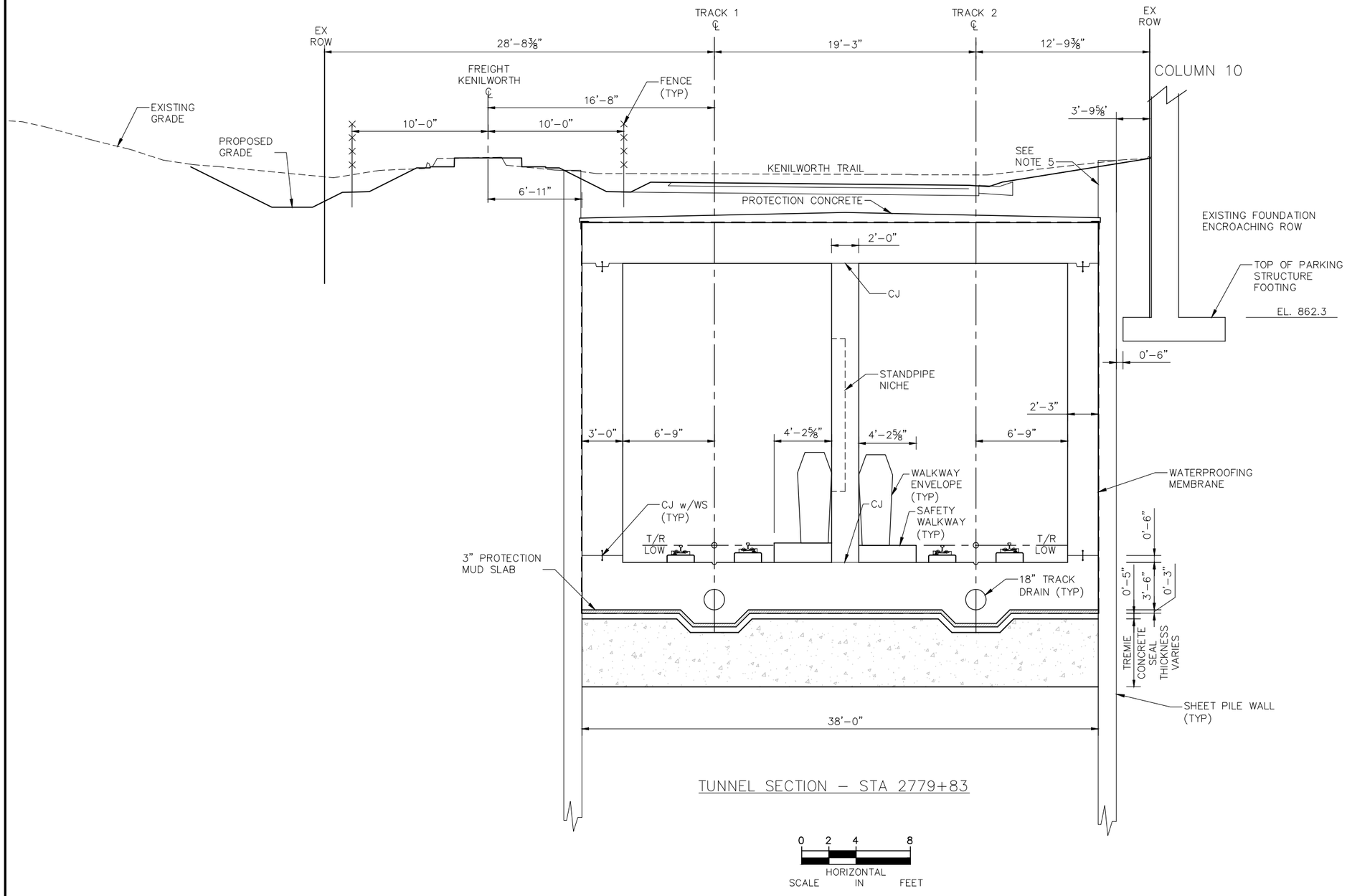
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL SECTIONS
SHEET 4

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-TYP-004

SHEET 61 OF 148

Jan, 18 2016 08:59 am v:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-TYP-SEC-004.dwg By: mercuriellof



TUNNEL SECTION – STA 2779+83

0 2 4 8
HORIZONTAL SCALE IN FEET

NOTES:

1. FOR WATERPROOFING DETAILS, SEE WATERPROOFING SHEETS.
2. FOR TEMPORARY EXCAVATION SUPPORT SECTION, SEE SUGGESTED EXCAVATIONS SUPPORT SHEETS.
3. FOR ELECTRICAL SYSTEM AND STRAY CURRENT CORROSION SYSTEM SEE VOLUME 12
4. REMOVE SHEET PILE TO 5' BELOW GRADE WHEN TUNNEL CONSTRUCTION IS COMPLETE
5. FOR WALKWAY DETAILS SEE MISCELLANEOUS STRUCTURAL REINFORCEMENT SHEETS.
6. THE LOCATION AND SIZE OF THE EXISTING FOOTING SHOWN ON THIS DRAWING IS APPROXIMATE. CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND SIZE PRIOR TO CONSTRUCTION.
7. EXPOSE FOOTING BEFORE DRIVING SHEET PILES.

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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

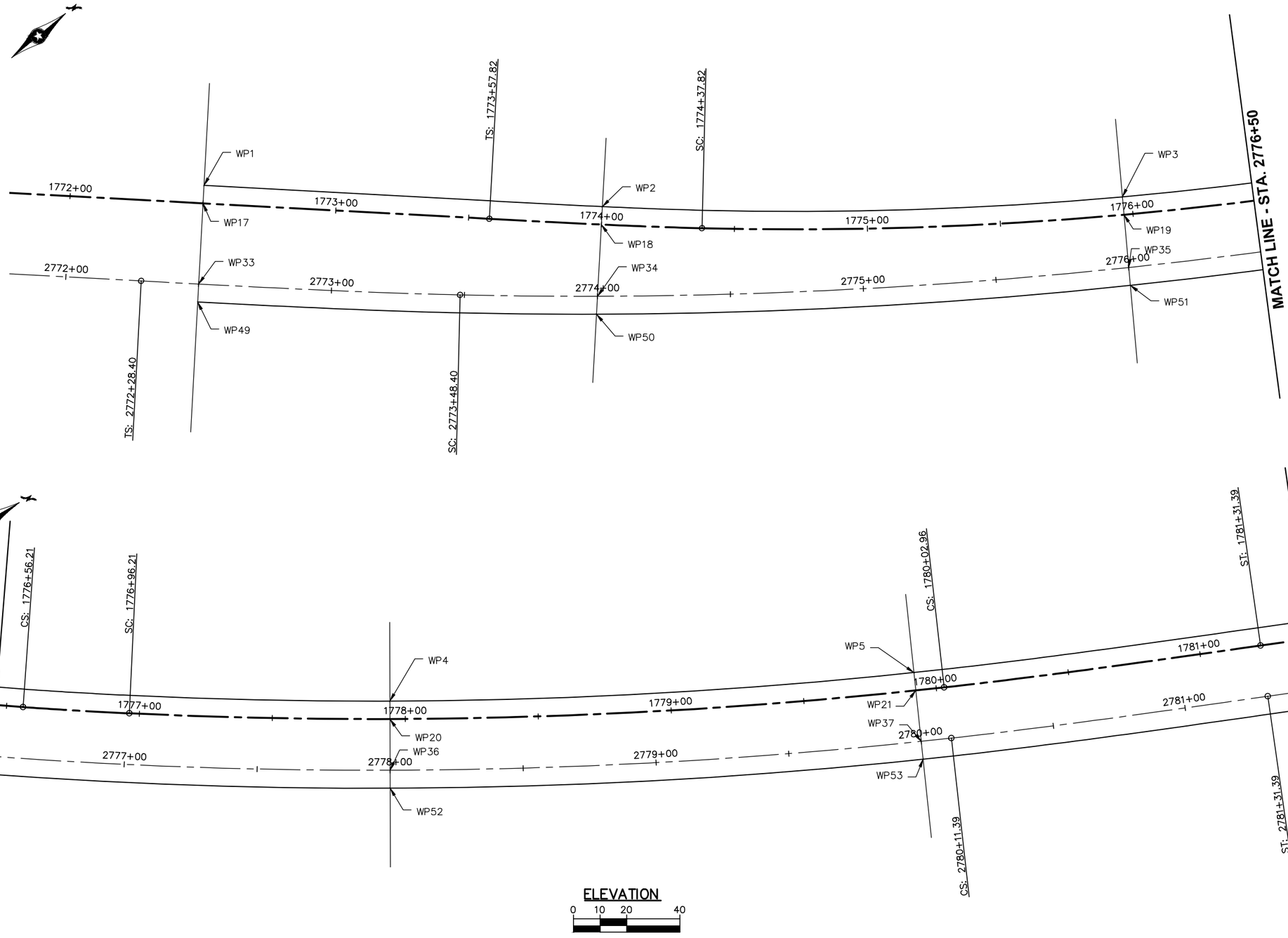
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL SECTIONS
SHEET 5

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-TYP-005

SHEET 62 OF 148



NOTES:

1. ALL DISTANCES ARE STRAIGHT LINE HORIZONTAL DISTANCES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

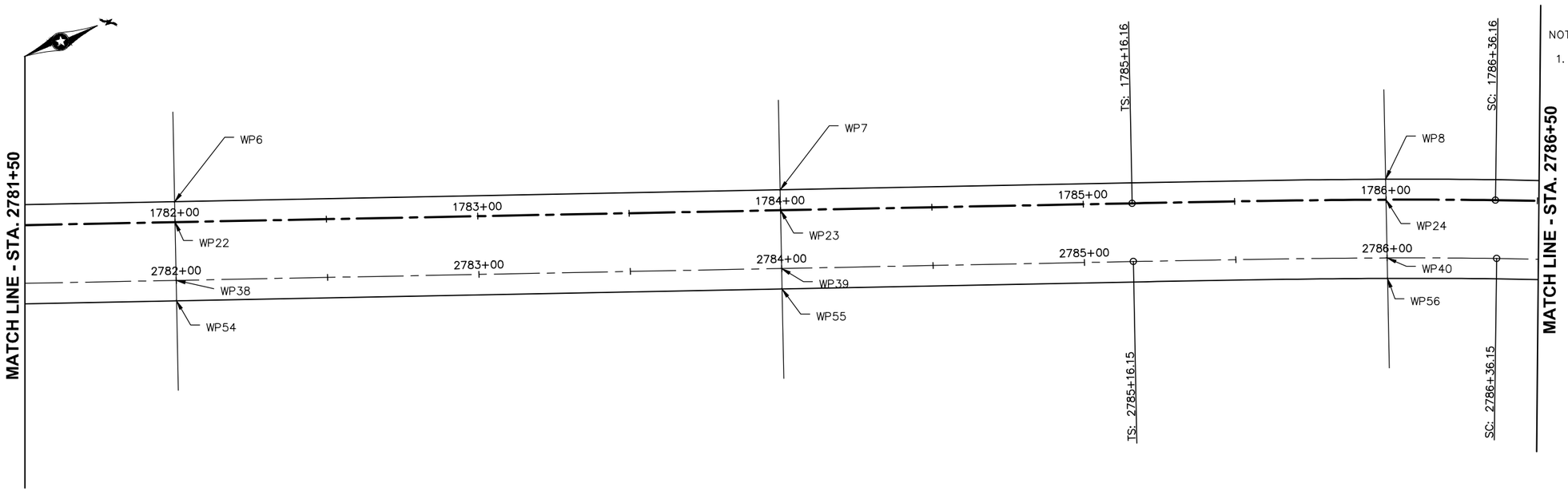
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
WORKING POINT LAYOUT
SHEET 1

DISCIPLINE: STRUCTURES

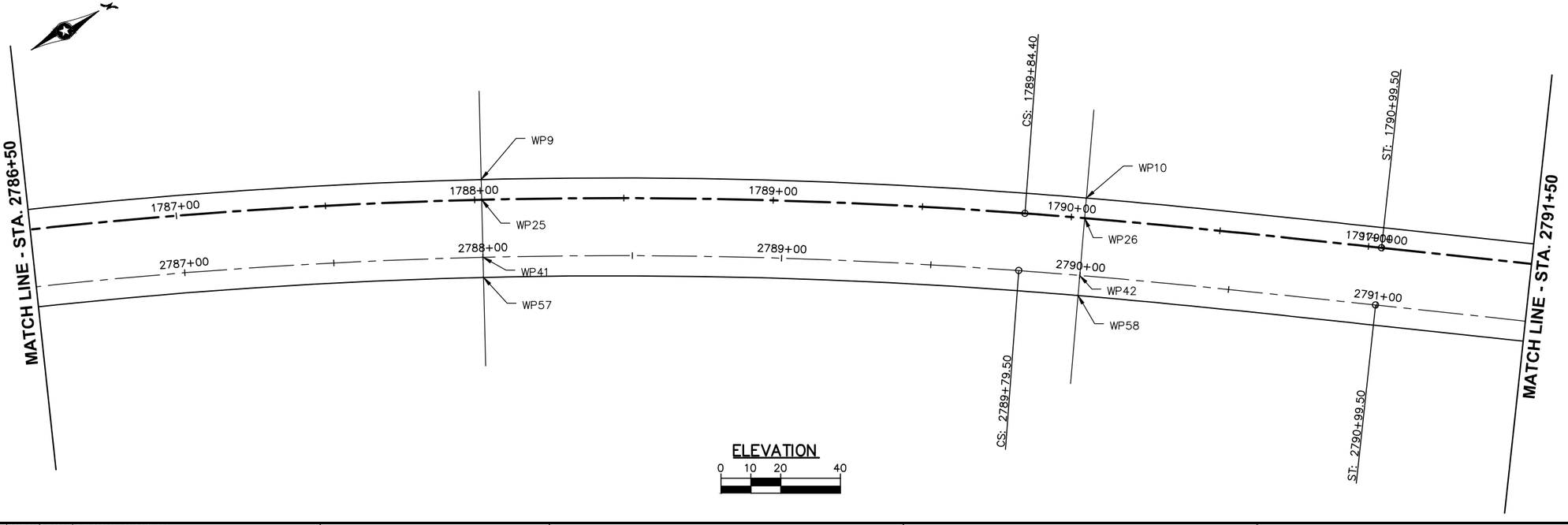
SHEET NAME: E3-STU-TUN-TUNK-WPL-001

SHEET 63 OF 148



NOTES:

1. ALL DISTANCES ARE STRAIGHT LINE HORIZONTAL DISTANCES.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

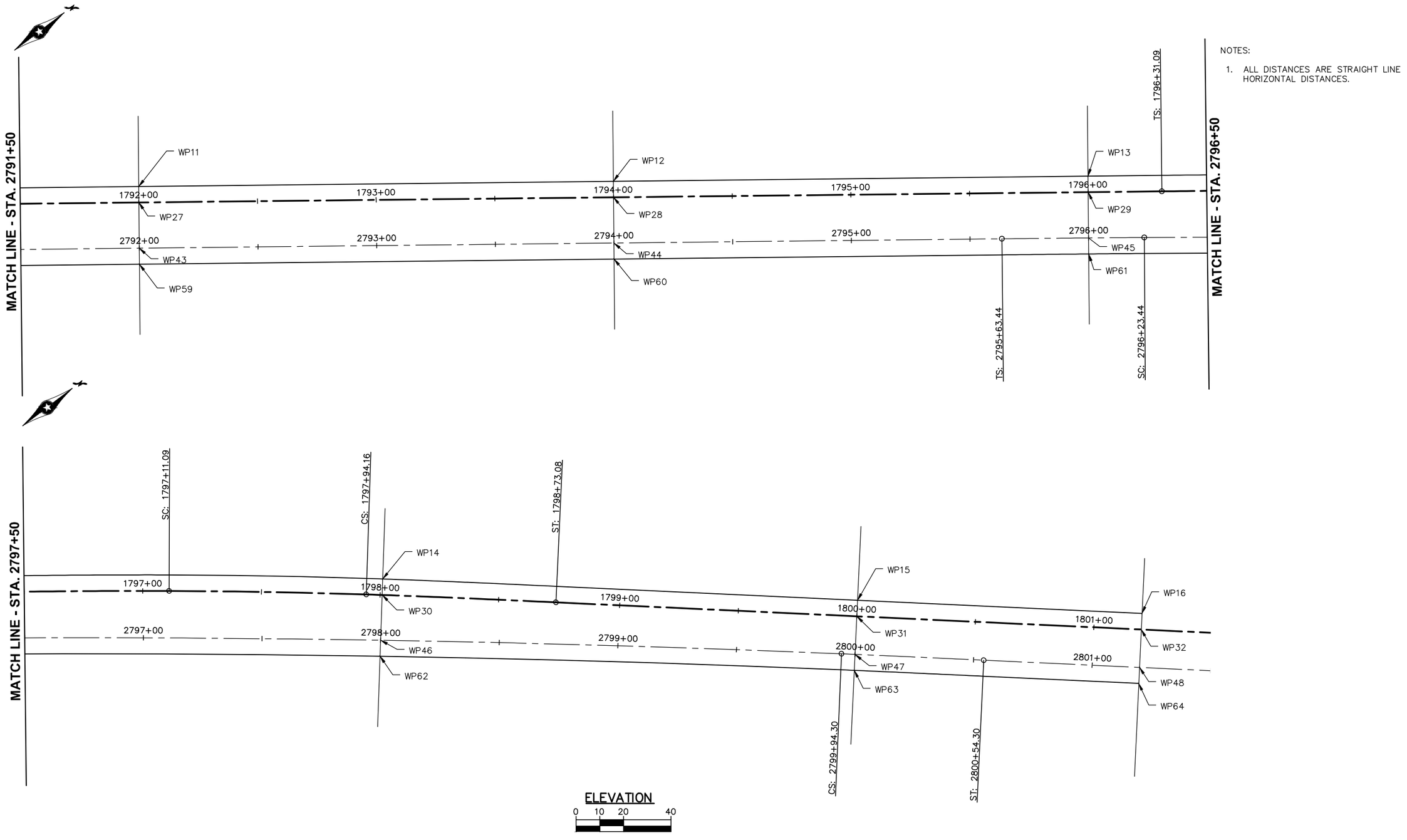
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
WORKING POINT LAYOUT
SHEET 2

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-WPL-002

SHEET 64 OF 148



NOTES:

1. ALL DISTANCES ARE STRAIGHT LINE HORIZONTAL DISTANCES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
WORKING POINT LAYOUT
SHEET 3

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-WPL-003

SHEET 65 OF 148

Jan, 18 2016 10:32 am C:\Users\nietersg\appdata\local\temp\AcPublish_4868\E3-STU-TUN-TUNK-WPL-001.dwg By: nietersg

				DIMENSIONS BETWEEN WORKING POINTS																																	
POINT	STATION	X-COORDINATE	Y-COORDINATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
1	2772+50	515620.35	157491.90	-	149.97	345.27	540.27	734.33	929.09	1126.05	1323.99	1526.69	1729.18	1928.53	2127.43	2326.52	2526.61	2725.10	2844.09	6.75	150.12	346.02	541.38	735.74	930.41	1127.14	1324.91	1526.73	1728.52	1927.79	2126.76	2325.90	2525.76	2724.24	2843.30	37.12	153.70
2	2774+00	515725.89	157598.45	149.97	-	195.52	391.35	586.67	782.92	981.05	1179.86	1382.86	1585.01	1783.80	1982.25	2180.98	2380.73	2578.85	2697.65	150.13	6.75	196.11	392.22	587.82	783.97	981.90	1180.57	1382.70	1584.19	1782.91	1981.45	2180.25	2379.79	2577.90	2696.78	154.52	33.71
3	2776+00	515853.15	157746.89	345.27	195.52	-	196.71	393.43	591.32	790.63	990.25	1193.34	1394.85	1592.81	1790.65	1988.91	2188.26	2385.95	2504.59	345.61	196.13	6.75	197.20	394.18	592.00	791.14	990.66	1192.93	1393.82	1591.76	1789.71	1988.07	2187.21	2384.92	2503.59	348.78	200.80
4	2778+00	515960.05	157912.02	540.27	391.35	196.71	-	197.26	395.99	595.84	795.77	998.71	1199.68	1397.10	1594.59	1792.63	1991.82	2189.38	2307.91	541.00	392.32	197.26	6.75	197.72	396.37	596.09	795.96	998.13	1198.53	1395.96	1593.59	1791.75	1990.74	2188.32	2306.95	545.28	397.47
5	2780+00	516049.25	158087.96	734.33	586.67	393.43	197.26	-	199.04	399.04	599.04	801.82	1002.53	1199.84	1397.37	1595.51	1794.83	1992.59	2111.24	735.42	588.03	394.27	197.72	6.75	199.21	399.12	599.10	801.15	1001.34	1198.70	1396.39	1594.64	1793.79	1991.58	2110.33	741.06	594.22
6	2782+00	516124.88	158272.07	929.09	782.92	591.32	395.99	199.04	-	200.00	400.00	602.79	803.72	1001.50	1199.51	1398.08	1597.83	1796.09	1915.02	930.50	784.59	592.44	396.66	199.35	6.75	200.11	400.06	602.16	802.61	1000.46	1198.64	1397.34	1596.90	1795.19	1914.22	937.44	791.82
7	2784+00	516199.40	158457.67	1126.05	981.05	790.63	595.84	399.04	200.00	-	200.00	402.88	604.24	802.74	1001.40	1200.50	1400.74	1599.58	1718.88	1127.69	982.90	791.90	596.60	399.31	200.11	6.75	200.13	402.34	603.28	801.88	1000.70	1199.92	1399.97	1598.83	1718.17	1135.50	990.84
8	2786+00	516274.32	158643.10	1323.99	1179.86	990.25	795.77	599.04	400.00	200.00	-	203.10	405.22	604.74	804.14	1003.78	1204.52	1403.97	1523.52	1325.77	1181.86	991.61	796.57	599.30	400.05	200.10	6.75	202.84	404.54	604.16	803.68	1003.43	1203.95	1403.41	1523.05	1334.18	1190.21
9	2788+00	516362.64	158825.99	1526.69	1382.86	1193.34	998.71	801.82	602.79	402.88	203.10	-	202.73	403.08	602.97	802.92	1003.95	1203.83	1323.60	1528.53	1384.89	1194.68	999.45	801.96	602.67	402.69	202.75	6.75	202.48	402.85	602.81	802.80	1003.58	1203.45	1323.29	1537.14	1393.30
10	2790+00	516470.27	158997.79	1729.18	1585.01	1394.85	1199.68	1002.53	803.72	604.24	405.22	202.73	-	200.62	400.62	600.62	801.73	1001.78	1121.64	1730.98	1586.97	1396.08	1200.25	1002.45	803.33	603.72	404.45	202.47	6.75	200.69	400.65	600.63	801.48	1001.51	1121.43	1739.36	1595.07
11	2792+00	516588.88	159159.59	1928.53	1783.80	1592.81	1397.10	1199.84	1001.50	802.74	604.74	403.08	200.62	-	200.00	400.00	601.12	801.20	921.08	1930.25	1785.65	1593.89	1397.47	1199.53	1000.85	801.93	603.67	402.52	200.60	6.75	200.10	400.04	600.89	800.96	920.91	1938.24	1793.30
12	2794+00	516707.74	159320.45	2127.43	1982.25	1790.65	1594.59	1397.37	1199.51	1001.40	804.14	602.97	400.62	200.00	-	200.00	401.13	601.24	721.14	2129.08	1983.98	1791.61	1594.82	1396.89	1198.68	1000.40	802.91	602.31	400.53	200.13	6.75	200.09	400.93	601.05	721.03	2136.74	1991.29
13	2796+00	516826.59	159481.30	2326.52	2180.98	1988.91	1792.63	1595.51	1398.08	1200.50	1003.78	802.92	600.62	400.00	200.00	-	201.14	401.33	521.26	2328.11	2182.67	1989.78	1792.75	1594.92	1397.13	1199.39	1002.50	802.20	600.51	400.07	200.13	6.75	201.05	401.24	521.23	2335.49	2189.68
14	2798+00	516948.56	159641.23	2526.61	2380.73	2188.26	1991.82	1794.83	1597.83	1400.74	120.52	1003.95	801.73	601.12	401.13	201.14	-	200.27	320.23	2528.15	2382.36	2189.04	1991.84	1794.13	1596.77	1399.53	1203.11	1003.18	801.59	601.14	401.15	201.18	6.75	200.38	320.34	2535.26	2389.05
15	2800+00	517076.37	159795.42	2725.10	2578.85	2385.95	2189.38	1992.59	1796.09	1599.58	1403.97	1203.83	1001.78	801.20	601.24	401.33	200.27	-	119.96	2726.57	2580.40	2386.64	2189.29	1991.77	1794.91	1598.26	1402.47	1202.97	1001.56	801.12	601.13	401.16	200.32	6.75	120.19	2733.36	2586.76
16	2801+20	517153.06	159887.67	2844.09	2697.65	2504.54	2307.91	2111.24	1915.02	1718.82	1523.52	1323.60	1121.64	921.08	721.14	521.26	320.23	119.96	-	2845.52	2699.16	2505.17	2307.77	2110.36	1913.79	1717.45	1521.98	1322.70	1121.38	920.96	720.99	521.05	320.23	120.15	6.75	2852.14	2705.35
17	2772+50	515625.15	157487.15	6.75	150.13	345.61	540.99	735.42	930.50	1127.69	1325.77	1528.53	1730.98	1930.25	2129.08	2328.11	2528.15	2726.57	2845.52	-	149.97	346.23	542.03	736.76	931.96	1128.73	1326.66	1528.54	1730.29	1929.46	2128.38	2327.46	2527.27	2725.69	2844.72	30.37	152.36
18	2774+00	515730.71	157593.72	150.12	6.75	196.13	392.35	588.03	784.59	982.93	1181.86	1384.89	1586.97	1785.65	1984.01	2182.67	2382.36	2580.40	2699.16	147.97	-	196.48	393.11	589.11	785.59	983.73	1182.53	1384.70	1586.12	1784.72	1983.17	2181.93	2381.39	2579.43	2698.27	153.04	27.00
19	2776+00	515858.57	157742.87	346.02	196.11	6.75	197.26	394.27	592.44	791.90	991.61	1194.68	1396.08	1593.89	1791.61	1989.78	2189.04	2386.64	2505.17	346.23	196.45	-	197.51	394.91	593.04	792.36	991.97	1194.23	1395.02	1592.79	1790.63	1988.89	2187.97	2385.58	2504.21	348.82	200.26
20	2778+00	515965.91	157908.66	541.38	392.22	197.20	6.75	197.72	396.66	596.66	796.57	999.45	1200.25	1397.47	1594.82	1792.75	1991.84	2189.29	2307.77	542.03	393.11	197.51	-	197.95	396.92	596.77	796.71	998.82	1199.06	1396.28	1593.77	1791.82	1990.73	2188.21	2306.79	545.94	397.77
21	2780+00	516055.42	158085.22	735.73	587.82	394.18	197.72	6.75	199.35	399.31	599.30	801.96	1002.45	1199.53	1396.89	1594.92	1794.13	1991.77	2110.36	736.76	589.11	394.91	197.95	-	199.29	399.28	599.28	801.23	1001.21	1198.34	1395.87	1594.03	1793.06	1990.74	2109.43	741.14	595.00
22	2782+00	516131.15	158269.55	930.41	783.97	592.00	396.37	199.21	6.75	200.11	400.05	602.67	803.33	1000.85	1198.68	1397.13	1596.77	1794.91	1913.79	931.77	785.59	593.04	396.92	199.29	-	200.00	400.00	601.96	802.16	999.75	1197.78	1396.35	1595.81	1793.99	1912.96	938.49	792.62
23	2784+00	516205.66	158455.16	1127.14	981.90	791.14	596.09	399.12	200.11	6.75	200.10	402.69	603.72	801.93	1000.40	1199.39	1399.53	1598.26	1717.45	1128.73	983.73	792.36	596.77	399.28	200.00	-	200.00	402.05	602.68	801.02	999.65	1198.77	1398.72	1597.49	1716.77	1136.37	991.46
24	2786+00	516280.58	158640.59	1324.91	1180.57	990.66	795.96	599.10	400.06	200.13	6.75	202.75	404.45	603.67	802.91	1002.46	1203.11	1402.47	1521.98	1326.66	1182.53	991.97	796.71	599.28	400.00	200.00	-	202.27	403.66	602.99	802.42	1002.04	1202.51	1401.87	1521.47	1334.93	1190.73
25	2788+00	516368.55	158822.73	1526.73	1382.70	1192.93	998.13	801.15	602.16	402.34	202.84	6.75	202.47	402.52	602.31	802.20	1003.18	1202.97	1322.70	1528.54	1384.70	1194.23	998.82	801.23	601.96	402.05	202.27	-	202.00	402.18	602.07	802.02	1002.76	1202.56	1322.37	1537.02	1392.99
26	2790+00	516475.79	158993.91	1728.52	1584.19	1393.82	1198.53	1001.34	802.61	603.28	404.54	202.48	6.75	200.60	400.53	600.51	801.59	1001.56	1121.38	1730.29	1586.12	1395.02	1199.06	1001.21	802.16	602.68	403.66	202.00	-	200.45	400.45	600.45	801.27	1001.24	1121.14	1738.57	1594.11
27	2792+00	516594.30	159155.57	1927.77	1782.89	1591.74	1395.94	1198.68	1000.45	801.88	604.16	402.85	200.69	6.75	200.13	400.07	601.14	801.12	920.96	1929.46	1784.72	1592.79	1396.28	1198.34	999.75	801.02	603.01	402.18	200.45	-	200.00	399.98	600.83	800.83	920.75	1937.35	1792.27
28	2794+00	516713.15	159316.41	2126.76	1981.45	1789.71	1593.59	1396.39	1198.64	1000.70	803.70	602.81	400.65	200.10	6.75	200.13	401.15	601.13	720.99	2128.38	1983.19	1790.65	1593.79	1395.88	1197.78	999.67	802.42	602.07	400.45	200.00	-	200.00	400.83	600.87	720.81	2135.95	1990.39
29	2796+00	516832.00	159477.26	2325.90	2180.25	1988.07	1791.75	1594.66	1397.34	1199.92	1003.43	802.80	600.63	400.04	200.10	6.75	201.16	401.16	521.05	2327.47	2181.93	1988.91	1791.84	1594.03	1396.35	1198.77	1002.06	802.02	600.45	400.02	200.02	-	200.84	400.95	520.93	2334.77	2188.82
30	2798+00	516953.80	159636.98	2525.76	2379.79	2187.72	1990.74	1793.79	1596.90	1399.97	1203.95	1003.58	801.48	600.89	400.93	201.05	6.75	200.32	320.23	2527.27	2381.39	2187.97	1990.73	1793.06	1595.81	1398.72	1202.51	1002.76	801.27	600.83	400.83	200.84	-	200.19	320.19	2534.31	2388.01
31	2800+00	517081.56	159791.11	2724.24	2577.90	2384.92	2188.32	1991.58	1795.19	1598.83	1403.41	1203.45	1001.51	800.96	601.05	401.24	200.38	6.75	120.15	2725.69	2579.43	2385.58	2188.21	1990.74	1793.99	1597.49	1401.87	1202.56	1001.24	800.85	600.87	400.95	200.19	-	120.00	2732.41	2585.73
32	2801+20	517158.28	159883.38	2843.30	2696.78	2503.59	2306.95	2110.33	1914.22	1718.17	1523.05	1323.29	1121.43	920.91	721.03	521.23	320.34	120.19	6.75	2844.72	2698.27	2504.21	2306.79	2109.43	1912.96	1716.77	1521.47	1322.37	1121.14	920.77	720.82	520.93	320.19	120.00	-	2851.27	2704.40
33	2772+50	515646.70	157465.76	37.12	154.52	348.78	545.28	741.06	937.44	1135.50	1334.18	1537.14	1739.36	1938.24	2136.74	2335.49	2535.26	2733.36	2852.14	30.37	153.04	348.82	545.94	741.14	938.49	1136.37	1334.93	1537.02	1738.57	1937.37	2135.95	2334.77	2534.31	2732.41	2851.27	-	150.01
34	2774+00	515749.83	157574.65	153.70	33.75	200.81	397.47	594.22	791.83	990.84	1190.21	1393.30	1595.07	1793.30	1991.29	2189.65	2389.05	2586.76	2705.35	152.36	27.00	200.26	397.77	595.00	792.62	991.46	1190.73	1392.99	1594.11	1792.29	1990.37	2188.82	2388.01	2585.73	2851.27	150.01	-
35	2776+00	515874.56	157731.00	348.98	199.18	26.67	200.19	397.41	596.17	795.97	995.86	1198.85	1399.87	1597.23	1794.58	1992.47	2191.46	2388.76	2507.14	348.81	198.88	19.92	1997.77	397.72	596.56	796.26	996.10	1198.29	1398.72	1596.07	1793.55	1991.53	2190.33	2387.65	2506.13	349.67	199.97
36	2778+00	515982.61	157899.09	545.01	393.34	199.82	26.00	200.28	399.19	599.17	799.16	1001.78	1202.07	1398.72	1595.64	1793.23	1992.01	2189.15	2307.46	545.42	395.90	199.48	19.25	199.86	399.13	599.13	799.13	1001.03	1200.77	1397.46	1594.53	1792.25	1990.85	2188.01	2306.42	548.28	399.28
37	2780+00	516073.02	158077.40	740.07	591.51	396.96	200.28	26.00	201.47	400.73	600.46	802.67	1002.47	1198.86	1395.72	1593.37	1792.25	1989.56	2107.98	740.93	592.59	397.36	199.86	19.25	200.76	400.37	600.23	801.79	1001.11	1197.56	1394.62	1592.38	1791.11	1988.46	2106.98	745.55	597.63
38	2782+00	516149.01	158262.38	934.41	787.30	594.37	398.07	200.94	26.00	201.68	400.81	602.74	802.52	999.24	1196.53	1394.59	1593.90	1791.70	1910.41	935.64	788.76	595.19	398.30	200.37	19.25	200.92	400.44	601.82	801.19	998.03	1195.52	1393.72	1592.86	1790.71	1909.52	941.76	795.15
39	2784+00	516223.52	158447.98	1130.45	984.55	792.92	597.23	399.99	201.68	26.00	201.62	402.80	602.64	799.92	997.82	119.42	1396.25	1594.66	1713.69	1131.93	986.26	793.97	597.69	399.83	200.92	19.25	200.88	401.83	601.39	798.83	996.96	1195.70	1395.36	1593.80	1712.93	1139.07	993.49
40	2786+00	516298.36	158633.46	1327.73	1182.79	992.09	796.83	599.69	400.87	201.74	26.01	202.99	402.85	601.01	799.70	998.92	1199.31	1398.36	1517.72	1329.39	1184.65	993.27	797.41	599.66	400.48	200.97	19.26	201.87	401.75	600.14	799.05	998.39	1198.59	1397.68	1517.14	1337.24	1192.43
41	2788+00	516385.40	158813.42	1526.99	1382.43	1191.96	996.72	799.56	600.77	401.44	203.34	26.00	202.97	401.55	600.82	800.45	1001.22	1200.74	1320.34	1528.72	1384.33	1193.16	997.27	799.48	600.36	400.82	202.13	19.25	201.86	400.89	600.37	800.11	1000.67	1200.21	1319.91	1536.83	1392.26
42	2790+00	516491.53	158982.82	1726.78	1581.99	1391.06	1195.44	998.19	799.75	600.93	403.22	202.99	26.00	201.81	400.92	600.62	801.49	1001.18	1120.89	1728.48	1583.84	1392.17	1195.86	997.94	799.14	600.12	402.02	201.87	19.25	201.01	400.51	600.35	801.02	1000.73	1120.52	1736.43	1591.52
43	2792+00	516609.77	159144.12	1925.79	1780.52	1588.92	1392.89	1195.66	997.77	799.74	602.93	402.82	202.15	26.00	201.74	400.90	601.61	801.21	920.90	1927.42	1782.28	1589.89	1393.15	1195.21	996.95	798.71	601.57	401.83	201.26	19.25	200.94	400.48	601.08	800.76	920.55	1935.02	1789.56
44	2794+00	516728.63	159304.97	2124.95	1979.30	1787.18	1590.90	1393.78	1196.39	998.98	802.76	602.78	401.36	201.63	26.00	201.74	401.82	601.24	720.91	2126.51	1980.98	1788.04	1591.02	1393.18	1195.42	997.82	801.32	601.82	400.84	200.89	19.25	200.96	401.19	600.76	720.55	2133.81	1987.92
45	2796+00	516847.49	159465.81	2324.25	2178.29	1985.79	1789.35	1592.36	1395.40	1198.47	1002.67	802.76	601.10	400.79	201.63	26.02	202.47	401.30	520.91	2325.76	2179.91	1986.57	1789.37	1591.66	1394.32	1197.22	1001.17	801.82	600.70	400.42	200.89	19.27	201.51	400.77	520.55	2332.81	2186.58
46	2798+00	516968.61	159624.96	2523.44	2377.21	2184.36	1987.81	1790.98	1594.43	1397.95	1202.53	1002.77	801.05	600.63	400.98	202.01	25.82	201.66	320.99	2524.91	2378.76	2185.06	1987.74	1790.18	1593.26	1396.62	1200.99	1001.83	800.69	600.38	400.57	201.17	19.07	200.90	320.55	2531.72	2385.17
47	2800+00	517093.91	159780.84	2722.24	2575.71	2382.53	2185.90	1989.26	1793.15	1597.16	1402.21	1202.70	1001.04	800.62	600.91	401.48	201.53	22.81	122.11	2723.65	2577.21	2383.15	2185.74	1988.37	1791.90	1595.75	1400.60	1201.72	1000.67	800.37	600.55	400.93	200.81	16.06	121.07	2730.20	2583.34
48	2801+20	517170.58	159873.15	2841.40	2694.70	2501.33	2304.65	2108.15	1912.32	1716.62	1521.94	1322.62	1121.02	920.62	720.91	521.42	321.06	122.14	22.75	2842.78	2696.15	2501.90	2304.44	2107.20	1911.01	1715.16	1520.30	1321.61	1120.63	920.34	720.54	520.93	320.58	121.06	16.00	2849.16	2702.12
49	2772+50	515651.50	157461.01	43.87	156.29	349.84	546.46	742.48	939.10	1137.34	1336.14	1539.13	1741.29	1940.07	2138.49	2337.18	2536.88	2734.91	2853.66	37.12	154.52	349.75	547.04	743.50	940.11	1138.17	1336.85	1538.98	1740.47	1939.18	2137.68	2336.44	2535.91	2733.94	2852.77	6.75	150.32
50	2774+00	515754.65	157569.92	155.32	40.51	202.53	399.03	595.95	793.78	992.93	1192.39	1395.48	1597.17	1795.27	1993.17	2191.45	2390.77	2588.40	2706.94	153.70	33.76	201.77	399.22	596.65	794.51	993.51	1192.87	1395.14	1596.18	1794.24	1992.24	2190.60	2389.71	2587.35	2705.97	150.01	6.76
51	2776+00	515879.99	157726.99	350.26	200.68	33.42	201.60	398.68	597.56	797.44	997.37	1200.31	1401.20	1598.40	1795.62	1993.40	2192.30	2389.50	2507.83	349.96	200.15	26.67	200.96	398.87	597.87	797.67	997.56	1199.72	1400.02	1597.21	1794.56	1992.44	2191.15	2388.37	2506.79	350.24	200.34
52	2778+00	515988.47	157895.74	546.43	396.64	201.17	32.75	201.60	400.30	600.22	800.17	1002.69	1202.77	1399.23	1595.98	1793.45	1992.12	2189.14	2307.39	546.76	397.09	200.61	26.00	200.96	400.12	600.10	800.09	1001.89	1201.44	1397.92	1594.84	1792.44	1990.93	2187.98	2306.34	549.26	400.02
53	2780+00	516079.18	158074.66	741.70	592.95	398.15	201.60	32.75	202.64	401.44	601.01	803.03	1002.57	1198.70	1395.38	1592.88	1791.65	1988.82	2107.18	742.51	593.95	398.44	200.96	26.00	201.71	400.97	600.70	802.09	1001.16	1197.36	1394.22	1591.87	1790.48	1987.70	2106.17	746.85	598.69
54	2782+00	516155.28	158259.87	935.90	788.57	595.34	398.89	201.98	32.75	202.66	401.30	602.91	802.35	998.76	1195.84	1393.76	1592.95	1790.63	1909.27	937.09	789.98	596.09	399.01	201.18	26.00	201.68	400.81	601.91	800.96	997.49	1194.78	1392.86	1591.88	1789.61	1908.35	943.00	796.15
55	2784+00	516229.79	158445.47	1131.68	985.57	793.65	597.77	400.51	202.66	32.75	202.59	403.05	602.41	799.33	997.01	1195.46	1395.17	1593.45	1712.41	1133.13	987.23	794.64	598.16	400.23	201.68	26.00	201.62	401.97	601.08	798.20	996.08	1194.70	1394.24	1592.56	1711.63	1140.09	994.29
56	2786+00	516304.72	158630.90	1328.79	1183.64	992.67	797.24	600.05	401.38	202.74	32.76	203.51	402.51	600.22	798.68	997.76	1198.04	1396.98	1516.29	1330.41	1185.46	993.81	797.76	599.94	400.87	201.74	26.00	202.17	401.29	599.28	797.97	997.19	1197.29	1396.29	1515.67	1338.11	1193.10
57	2788+00	516391.31	158810.15	1527.14	1382.39	1191.70	996.31	799.11	600.43	401.34	203.94	32.75	203.58	401.43	600.44	799.94	1000.61	1200.03	1319.58	1528.84	1384.27	1192.86	996.82	798.97	599.94	400.61	202.51	26.00	202.24	400.65	599.91	799.55	1000.02	1199.46	1319.11	1536.82	1392.07
58	2790+00	516497.05	158978.93	1726.22	1581.27	1390.16	1194.43	997.17	798.85	600.26	402.97	203.61	32.75	202.66	401.28	600.81	801.57	1001.14	1120.78	1727.90	1583.10	1391.23	1194.82	996.88	798.18	599.37	401.66	202.27	26.00	201.63	400.76	600.46	801.03	1001.64	1120.38	1735.73	1590.67
59	2792+00	516615.18	159140.08	1925.14	1779.74	1587.98	1391.88	1194.67	996.91	799.10	602.64	403.02	203.09	32.75	202.73	401.41	601.91	801.35	920.98	1926.75	1781.47	1588.92	1392.10	1194.18	996.04	798.01	601.20	401.92	201.98	26.00	201.72	400.90	601.31	800.84	920.57	1934.24	1788.65
60	2794+00	516734.04	159300.93	2124.35	1978.59	1786.34	1590.01	1392.92	1195.67	998.46	802.54	602.91	401.83	202.60	32.75	202.73	402.28	601.43	721.00	2125.90	1980.25	1787.18	1590.11	1392.29	1194.66	997.26	801.04	601.88	401.19	201.63	26.00	201.74	401.53	600.87	720.58	2133.11	1987.10
61	2796+00	516852.90	159461.77	2323.70	2177.64	1985.03	1788.56	1591.61	1394.78	1198.04	1002.49	802.86	601.40	401.27	202.61	32.77	203.36	401.57	521.00	2325.20	2179.24	1985.79	1788.55	1590.88	1393.67	1196.75	1000.95	801.86	600.93	400.79	201.63	26.02	202.18	400.93	520.58	2332.16	2185.83
62	2798+00	516973.85	159620.71	2522.65	2376.33	2183.39	1986.81	1790.03	1593.60	1397.30	1202.10	1002.57	801.01	600.69	401.22	202.78	32.58	202.57	321.53	2524.10	2377.87	2184.07	1986.72	1789.20	1592.41	1395.93	1200.52	1001.58	800.59	600.34	400.69	201.72	25.83	201.59	320.95	2530.83	2384.20
63	2800+00	517099.10	159776.52	2721.56	2474.95	2381.69	2185.03	1988.45	1792.47	1596.64	1401.88	1202.58	1000.92	800.58	600.98	401.77	202.40	29.56	123.55	2722.95	2576.42	2382.29	2184.85	1987.53	1791.18	1595.20	1400.24	1201.56	1000.50	800.25	600.54	401.11	201.45	22.81	122.15	2729.43	2582.49
64	2801+20	517175.74	159868.81	2840.58	2693.81	2500.36	2303.68	2107.23	1911.51	1715.97	1521.48	1322.35	1120.87	920.54	720.92	521.60	321.56	123.53	29.50	2841.94	2695.24	2500.92	2303.45	2106.26	1910.18	1714.49	1519.81	1321.30	1120.44	920.21	720.49	521.01	320.94	122.10	22.75	2848.26	2701.15

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
WORKING POINT LAYOUT
SHEET 4

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-WPL-003

				DIMENSIONS BETWEEN WORKING POINTS																														
POINT	STATION	X-COORDINATE	Y-COORDINATE	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
1	2772+50	515620.35	157491.90	153.70	348.98	545.01	740.07	934.41	1130.45	1327.73	1526.99	1726.78	1925.79	2124.95	2324.24	2523.44	2722.24	2814.40	43.87	155.32	350.18	546.43	741.70	935.90	1131.68	1328.79	1527.14	1726.22	192514.00	2124.35	2323.70	2522.65	2721.56	2840.58
2	2774+00	515725.89	157598.45	33.71	199.18	395.34	591.51	787.30	984.55	1182.79	1382.43	1581.99	1780.54	1979.30	2178.29	2377.21	2575.72	2694.70	156.29	40.51	200.68	396.64	592.95	788.57	985.57	1183.64	1382.39	1581.27	1779.73	1978.58	2177.64	2376.33	2574.82	2693.81
3	2776+00	515853.15	157746.89	200.80	26.67	199.82	396.96	594.37	792.92	992.09	1191.97	1391.06	1588.94	1787.18	1985.81	2184.36	2382.53	2501.33	349.04	202.53	33.42	201.17	398.15	595.34	793.65	992.67	1191.70	1390.16	1587.98	1786.34	1985.03	2183.39	2381.56	2500.36
4	2778+00	515960.05	157912.02	397.47	200.19	26.00	200.28	398.07	597.23	796.83	996.72	1195.44	1392.89	1590.90	1789.37	1987.81	2185.89	2304.65	546.46	399.03	201.68	32.75	201.60	398.89	597.77	797.24	996.31	1194.43	1391.88	1590.01	1788.56	1986.81	2184.91	2303.68
5	2780+00	516049.25	158087.96	594.22	397.41	200.28	26.00	200.94	399.99	599.69	799.56	998.19	1195.66	1393.78	1592.36	1790.98	1989.26	2108.15	742.48	595.95	398.68	201.60	32.75	201.98	400.51	600.05	799.11	997.17	1194.67	1392.92	1591.61	1790.03	1988.33	2107.23
6	2782+00	516124.88	158272.07	791.82	596.17	399.19	201.47	26.00	201.68	400.87	600.77	799.75	997.77	1196.39	395.40	1594.43	1793.15	1912.32	939.10	793.78	597.56	400.30	202.64	32.75	202.66	401.38	600.43	798.85	996.91	1195.67	1394.78	1593.60	1792.34	1911.54
7	2784+00	516199.40	158457.67	990.84	795.97	599.17	400.73	201.68	26.00	201.74	401.44	600.93	799.74	998.98	1198.47	1397.95	1597.16	1716.62	1137.34	992.93	797.44	600.22	401.44	202.66	32.75	202.74	401.34	600.26	799.10	998.46	1198.04	1397.30	1596.64	1715.97
8	2786+00	516274.32	158643.10	1190.21	995.86	799.16	600.46	400.82	201.62	26.00	203.34	403.22	602.93	802.76	1002.67	1202.53	1402.20	1521.94	1336.14	1192.39	997.37	800.17	601.01	401.30	202.59	32.76	203.94	402.97	602.64	802.54	1002.49	699.54	1401.75	1521.48
9	2788+00	516362.64	158825.99	1393.30	1198.93	1001.78	802.67	602.74	402.80	202.99	26.00	202.99	402.82	602.78	802.76	1002.77	1202.70	1322.61	1539.13	1395.48	1200.31	1002.69	803.03	602.91	403.05	203.51	32.75	203.61	403.02	602.91	802.86	1002.57	1202.45	1322.35
10	2790+00	516470.27	158997.79	1595.07	1399.87	1202.07	1002.47	802.52	602.64	402.86	202.97	26.00	202.15	401.36	601.00	801.05	1001.04	1121.02	1741.29	1597.17	1401.28	1202.77	1002.57	802.35	602.41	402.51	203.58	32.75	203.09	401.83	601.40	801.01	1000.92	1120.87
11	2792+00	516588.88	159159.59	1793.30	1597.23	1398.72	1198.86	999.24	799.92	601.01	401.55	201.81	26.00	201.63	400.81	600.63	800.62	920.62	1940.07	1795.27	1598.48	1399.23	1198.70	998.76	799.33	600.22	401.43	202.66	32.75	202.60	401.27	600.69	800.58	920.54
12	2794+00	516707.74	159320.45	1991.29	1794.58	1595.64	1395.72	1196.53	997.82	799.70	600.82	400.92	201.74	26.00	201.65	400.98	600.91	720.91	2138.49	1993.17	1795.70	1595.98	1395.38	1195.84	997.01	798.68	600.44	401.28	202.73	32.75	202.60	401.22	600.98	720.92
13	2796+00	516826.59	159481.30	2189.68	1992.47	1793.23	1593.37	1394.59	1196.42	998.92	800.45	600.62	400.90	201.74	26.02	202.01	401.48	521.42	2337.18	2191.45	1993.48	1793.45	1592.88	1393.76	1195.46	997.76	799.94	600.81	401.41	202.73	32.77	202.78	401.77	521.60
14	2798+00	516948.56	159641.23	2389.05	2191.46	1992.01	1792.25	1593.90	1396.25	1199.31	1001.22	801.49	601.61	401.82	202.45	25.82	201.53	321.06	2536.88	2390.77	2192.30	1992.12	1791.65	1592.95	1395.17	1198.04	1000.61	801.57	601.91	402.28	203.36	32.58	202.53	321.56
15	2800+00	517076.37	159795.42	2586.76	2388.76	2189.15	1989.56	1791.70	1594.66	1398.36	1200.74	1001.18	801.19	601.24	401.30	201.66	22.81	122.14	2734.91	2588.40	2389.50	2189.14	1988.82	1790.63	1593.45	1396.98	1200.03	1001.14	801.35	601.43	401.57	202.57	29.56	123.53
16	2801+20	517153.06	159887.67	2705.35	2507.14	2307.46	2107.98	1910.41	1713.69	1517.73	1320.34	1120.88	920.90	720.91	520.91	320.99	122.11	22.75	2853.66	2706.94	2507.83	2307.39	2107.18	1909.27	1712.41	1516.29	1319.58	1120.78	920.98	721.00	521.03	321.53	123.42	29.50
17	2772+50	515625.15	157487.15	152.36	348.81	545.42	740.93	935.85	1131.93	1329.39	1528.72	1728.48	1927.42	2126.51	2325.76	2524.91	2723.65	2842.78	37.12	153.70	349.88	546.76	742.51	937.09	1133.13	1330.41	1528.84	1727.90	1926.75	2125.90	2325.20	2524.10	2722.83	2841.98
18	2774+00	515730.71	157593.72	27.00	198.88	395.90	592.59	788.76	986.26	1184.64	1384.33	1583.84	1782.28	1980.98	2179.91	2378.76	2577.21	2696.15	154.52	33.76	200.15	397.09	593.95	789.98	987.23	1185.46	1384.27	1583.10	1781.47	1980.25	2179.24	2377.87	2576.30	2695.24
19	2776+00	515858.57	157742.87	200.26	19.91	199.48	397.36	595.19	793.97	993.27	1193.16	1392.17	1589.89	1788.04	1986.57	2185.06	2383.15	2501.90	349.75	201.77	26.67	200.61	398.44	596.09	794.64	993.82	1192.86	1391.23	1588.92	1787.18	1985.79	2184.07	2382.16	2500.92
20	2778+00	515965.91	157908.66	397.77	199.77	19.25	199.86	398.30	597.60	797.41	997.28	1195.86	1393.15	1591.02	1789.37	1987.74	2185.74	2304.44	547.04	399.22	200.96	26.00	200.96	399.01	598.16	797.76	996.82	1194.82	1392.10	1590.11	1788.55	1986.72	2184.73	2303.45
21	2780+00	516055.42	158085.22	595.00	397.72	199.86	19.25	200.37	399.83	599.66	799.48	997.94	1195.21	1393.18	1591.66	1790.18	1988.37	2107.20	743.50	596.65	398.87	200.96	26.00	201.18	400.23	599.94	798.97	996.88	1194.18	1392.29	1590.88	1789.20	1987.41	2106.26
22	2782+00	516131.15	158269.55	792.62	596.56	399.13	200.76	19.25	200.92	400.48	600.36	799.14	996.95	1195.42	1394.32	1593.26	1791.90	1911.01	940.11	794.51	597.87	400.12	201.71	26.00	201.68	400.87	599.94	798.18	996.04	1194.66	1393.67	1592.41	1791.06	1910.18
23	2784+00	516205.66	158455.16	991.46	796.26	599.13	400.37	200.92	19.25	200.97	400.82	600.12	798.71	997.82	1197.22	1396.62	1595.75	1715.16	1138.17	993.51	797.75	600.10	400.97	201.68	26.00	201.74	400.61	599.37	798.01	997.26	1196.75	1395.93	1595.07	1714.49
24	2786+00	516280.58	158640.59	1190.73	996.10	799.13	600.23	400.44	200.88	19.26	202.13	402.02	601.57	801.32	1001.17	1200.99	1400.60	1520.30	1336.85	1192.87	997.65	800.09	600.70	400.81	201.62	26.00	202.51	401.66	601.20	801.04	1000.95	1200.52	1400.11	1519.81
25	2788+00	516368.55	158822.73	1392.99	1198.29	1001.03	801.79	601.82	401.83	201.87	19.25	201.87	401.83	601.82	801.82	1001.83	1201.72	1321.61	1538.98	1395.14	1199.72	1001.89	802.09	601.91	401.97	202.17	26.00	202.27	401.92	601.88	801.86	1001.58	1201.43	1321.30
26	2790+00	516475.79	158993.91	1594.11	1398.72	1200.77	1001.11	801.19	601.39	401.75	201.86	19.25	201.26	400.84	600.69	800.69	1000.67	1120.63	1740.47	1596.18	1400.02	1201.44	1001.16	800.96	601.08	401.29	202.24	26.00	201.98	401.19	600.93	800.59	1000.50	1120.44
27	2792+00	516594.30	159155.57	1792.27	1596.05	1397.45	1197.56	998.03	798.85	600.14	400.89	201.01	19.25	200.89	400.43	600.36	800.35	920.34	1939.16	1794.22	1597.19	1397.92	1197.36	997.51	798.20	599.28	400.65	201.64	26.00	201.63	400.79	600.34	800.25	920.21
28	2794+00	516713.15	159316.41	1990.39	1793.55	1594.53	1394.62	1195.52	996.96	799.05	600.37	400.51	200.96	19.25	200.91	400.57	600.55	720.54	2137.68	1992.24	1794.56	1594.84	1394.24	1194.80	996.10	797.97	599.91	400.76	201.74	26.00	201.63	400.69	600.54	720.49
29	2796+00	516832.00	159477.26	2188.82	1991.53	1792.25	1592.40	1393.72	1195.70	998.39	800.11	600.35	400.50	200.96	19.27	201.17	400.93	520.91	2336.44	2190.60	1992.44	1792.44	1591.89	1392.86	1194.70	997.19	799.55	600.46	400.90	201.74	26.02	201.72	401.11	521.01
30	2798+00	516953.80	159636.98	2388.01	2190.74	1990.85	1791.11	1592.86	1395.36	1198.59	1000.67	801.02	601.08	401.19	201.51	19.07	200.81	320.58	2535.91	2389.71	2191.23	1990.93	1790.48	1591.88	1394.24	1197.29	1000.02	801.03	601.31	401.53	202.18	25.83	201.45	320.94
31	2800+00	517081.56	159791.11	2585.73	2387.65	2188.01	1988.46	1790.71	1593.80	1397.68	1200.21	1000.73	800.76	600.74	400.77	200.90	16.06	121.06	2733.94	2587.35	2388.46	2187.99	1987.70	1789.61	1592.56	1396.26	1199.46	1000.64	800.84	600.87	400.93	201.59	22.81	122.10
32	2801+20	517158.28	159883.38	2704.40	2506.13	2306.42	2106.98	1909.52	1712.93	1517.14	1319.91	1120.52	920.55	720.55	520.55	320.55	121.07	16.00	2852.77	2705.97	2506.88	2306.34	2106.17	1908.35	1711.63	1515.67	1319.11	1120.38	920.57	720.58	520.58	320.95	122.15	22.75
33	2772+50	515646.70	157465.76	150.01	349.67	548.28	745.55	941.76	1139.07	1337.23	1536.83	1736.43	1935.02	2133.81	2332.81	2531.72	2730.20	2849.16	6.75	150.01	350.15	549.26	746.85	943.00	1140.09	1338.11	1536.82	1735.73	1934.24	2133.11	2332.16	2530.83	2729.30	2848.26
34	2774+00	515749.83	157574.65	-	199.97	399.28	597.63	795.15	993.49	1192.43	1392.26	1591.52	1789.56	1987.92	2186.58	2385.17	2583.34	2702.12	150.32	6.76	200.26	400.02	598.69	796.15	994.29	1193.10	1392.07	1590.67	1788.65	1987.10	2185.83	2384.20	2582.36	2701.15
35	2776+00	515874.56	157731.00	199.97	-	199.83	399.22	598.08	797.40	997.02	1196.91	1395.60	1592.92	1790.74	1989.00	2187.25	2385.09	2503.70	350.22	200.81	6.75	200.28	399.96	598.75	797.91	997.43	1196.50	1394.57	1591.86	1789.80	1988.15	2186.19	2384.05	2502.66
36	2778+00	515982.61	157899.09	399.28	199.83	-	199.91	399.59	599.44	799.37	999.12	1197.27	1394.05	1591.53	1789.57	1987.67	2185.40	2303.95	549.14	400.40	200.37	6.75	200.37	399.97	599.69	799.56	998.53	1196.12	1392.91	1590.53	1788.68	1986.58	2184.33	2302.90
37	2780+00	516073.02	158077.40	597.63	399.22	199.91	-	199.99	399.99	599.98	799.57	997.47	1194.13	1391.66	1589.80	1788.03	1985.94	2104.61	746.74	599.07	400.05	200.37	6.75	200.16	400.07	600.05	798.90	996.28	1193.00	1390.68	1588.94	1786.99	1984.92	2103.60
38	2782+00	516149.01	158262.38	795.15	598.08	399.59	199.99	-	200.00	400.00	599.60	797.71	994.85	1192.85	1391.43	1590.08	1788.45	1907.40	943.25	796.89	599.18	400.26	200.29	6.75	200.11	400.07	598.97	796.60	993.81	1191.99	1390.69	1589.15	1787.54	1906.51
39	2784+00	516223.52	158447.98	993.49	797.40	599.44	399.99	200.00	-	200.00	399.68	598.23	796.09	994.74	1193.85	1392.99	1591.88	1711.15	1140.76	995.41	798.73	600.19	400.26	200.11	6.75	200.13	399.15	597.26	795.23	994.05	1193.27	1392.22	1591.12	1710.40
40	2786+00	516298.36	158633.46	1192.43	997.02	799.37	599.99	400.00	200.00	-	199.90	399.20	598.09	797.50	997.14	1196.78	1396.18	1515.77	1339.07	1194.47	998.36	800.17	600.25	400.05	200.10	6.75	199.64	398.52	597.51	797.06	996.79	1196.20	1395.61	1515.20
41	2788+00	516385.40	158813.42	1392.26	1196.91	999.12	799.57	599.60	399.68	199.90	-	199.90	399.61	599.50	799.45	999.37	1199.12	1318.92	1538.71	1394.32	1198.23	999.85	799.71	599.48	399.50	199.55	6.75	199.65	399.38	599.35	799.33	999.00	1198.73	1318.52
42	2790+00	516491.53	158982.82	1591.52	1395.60	1197.27	997.47	797.71	598.23	399.20	199.90	-	199.98	399.98	599.98	799.97	999.85	1119.73	1738.26	1593.51	1396.81	1197.84	997.39	797.32	597.71	398.43	199.64	6.75	200.05	400.01	599.99	799.71	999.56	1119.43
43	2792+00	516609.77	159144.12	1789.56	1592.92	1394.05	1194.13	994.85	796.09	598.09	399.61	199.98	-	200.00	400.00	600.00	799.90	919.80	1936.77	1791.44	1593.97	1394.42	1193.83	994.20	795.28	597.01	399.05	199.96	6.75	200.10	400.04	599.76	799.63	919.53
44	2794+00	516728.63	159304.97	1987.92	1790.74	1591.53	1391.66	1192.85	994.74	797.50	599.50	399.98	200.00	-	200.00	400.00	599.92	719.85	2135.49	1989.71	1791.68	1591.76	1391.19	1192.02	993.75	796.26	598.84	399.89	200.13	6.75	200.10	399.80	599.70	719.62
45	2796+00	516847.49	159465.81	2186.58	1989.00	1789.57	1589.80	1391.43	1193.85	997.14	799.45	599.98	400.00	200.00	-	200.01	399.97	519.93	2334.43	2188.30	1989.84	1789.69	1589.21	1390.47	1192.73	995.81	798.73	599.87	400.07	200.13	6.75	199.92	399.83	519.78
46	2798+00	516968.61	159624.96	2385.17	2187.25	1987.67	1788.03	1590.08	1392.99	1196.78	999.37	799.97	600.00	400.00	200.01	-	199.99	319.99	2533.28	2386.82	2188.01	1987.69	1787.33	1589.02	1391.78	1195.37	998.59	799.83	600.02	400.03	200.05	6.75	200.00	319.94
47	2800+00	517093.91	159780.84	2583.34	2385.10	2185.40	1985.94	1788.45	1591.88	1396.19	1199.12	999.85	799.90	599.92	399.97	199.99	-	120.00	2731.70	2584.92	2385.77	2185.32	1985.13	1787.29	1590.57	1394.70	1198.28	999.65	799.85	599.85	399.86	200.14	6.75	120.15
48	2801+20	517170.58	159873.15	2702.12	2503.70	2303.95	2104.61	1907.40	1711.15	1515.77	1318.92	1119.73	919.80	719.85	519.93	319.99	120.00	-	2850.62	2703.65	2504.32	2303.82	2103.74	1906.18	1709.79	1514.23	1318.04	1119.50	919.71	719.73	519.76	320.05	120.19	6.75
49	2772+50	515651.50	157461.01	150.32	350.22	549.14	746.74	943.25	1140.76	1339.07	1538.71	1738.26	1936.77	2135.49	2334.43	2533.28	2731.70	2850.62	-	150.01	350.66	550.04	747.98	944.44	1141.75	1339.91	1538.67	1737.54	1935.97	2134.76	2333.76	2532.38	2730.78	2849.71
50	2774+00	515754.65	157569.92	6.76	200.81	400.40	599.07	796.89	995.41	1194.47	1394.32	1593.51	1791.44	1989.71	2188.30	2386.82	2584.92	2703.65	150.01	-	200.87	401.03	600.07	797.83	996.17	1195.10	1394.10	1592.63	1790.51	1988.87	2187.53	2385.83	2583.92	2702.66
51	2776+00	515879.99	157726.99	200.34	6.75	200.37	400.05	599.18	798.65	998.36	1198.23	1396.81	1593.97	1791.68	1989.84	2188.01	2385.77	2504.32	350.66	200.96	-	200.60	400.68	599.78	799.10	998.72	1197.78	1395.75	1592.89	1790.72	1988.98	2186.93	2384.70	2503.26
52	2778+00	515988.47	157895.74	400.02	200.28	6.75	200.37	400.26	600.19	800.16	999.85	1197.84	1394.42	1591.78	1789.69	1987.69	2185.32	2303.82	550.04	401.03	200.60	-	200.60	400.53	600.37	800.30	999.22	1196.65	1393.25	1590.74	1788.78	1986.58	2184.23	2302.74
53	2780+00	516079.18	158074.66	598.69	399.96	200.37	6.75	200.29	400.26	600.24	799.71	997.39	1193.83	1391.19	1589.20	1787.33	1985.13	2103.74	747.98	600.07	400.68	200.60	-	200.23	400.23	600.23	798.99	996.16	1192.65	1390.18	1588.32	1786.26	1984.08	2102.72
54	2782+00	516155.28	158259.87	796.15	598.75	399.97	200.16	6.75	200.11	400.05	599.48	797.32	994.20	1192.02	1390.47	1589.02	1787.29	1906.18	944.44	797.83	599.78	400.52	200.24	-	200.00	400.00	598.77	796.15	993.12	1191.12	1389.70	1588.07	1786.35	1905.27
55	2784+00	516229.79	158445.47	994.29	797.91	599.69	400.07	200.11	6.75	200.10	399.50	597.71	795.28	993.75	1192.73	1391.78	1590.57	1709.79	1141.75	996.17	799.10	600.37	400.23	200.00	-	200.00	398.85	596.67	794.36	993.02	1192.12	1390.98	1589.78	1709.01
56	2786+00	516304.72	158630.90	1193.10	997.43	799.56	600.05	400.07	200.13	6.75	199.55	398.43	597.01	796.26	995.81	1195.37	1394.70	1514.23	1339.91	1195.10	998.72	800.30	600.23	400.00	200.00	-	199.07	397.64	596.36	795.77	995.42	1194.76	1394.10	1513.67
57	2788+00	516391.31	158810.15	1392.07	1196.50	998.53	798.90	598.97	399.15	199.65	6.75	199.64	399.05	598.83	798.73	998.59	1198.28	1318.04	1538.67	1394.10	1197.78	999.22	798.99	598.77	398.85	199.07	-	199.17	398.71	598.60	798.55	998.18	1197.85	1317.61
58	2790+00	516497.05	158978.93	1590.67	1394.57	1196.12	996.28	796.60	597.26	398.52	199.65	6.75	199.96	399.89	599.87	799.83	999.65	1119.50	1737.54	1592.63	1395.75	1196.65	996.16	796.15	596.67	397.64	199.17	-	199.81	399.81	599.81	799.51	999.31	1119.15
59	2792+00	516615.18	159140.08	1788.65	1591.86	1392.91	1193.00	993.81	795.23	597.52	399.38	200.05	6.75	200.13	400.07	600.02	799.85	919.71	1935.97	1790.51	1592.89	1393.25	1192.65	993.12	794.36	596.36	398.71	199.81	-	200.00	400.00	599.71	799.53	919.39
60	2794+00	516734.04	159300.93	1987.10	1789.80	1590.53	1390.68	1191.99	994.05	797.06	599.35	400.01	200.10	6.75	200.13	400.03	599.85	719.73	2134.76	1988.87	1790.72	1590.74	1390.18	1191.12	993.02	795.77	598.60	399.81	200.00	-	200.00	399.71	599.55	719.44
61	2796+00	516852.90	159461.77	2185.83	1988.15	1788.68	1588.94	1390.69	1193.27	996.79	799.33	599.99	400.04	200.10	6.75	200.05	399.86	519.76	2333.76	2187.53	1989.06	1788.78	1588.32	1389.70	1192.12	995.42	798.55	599.81	400.00	200.00	-	199.72	399.60	519.52
62	2798+00	516973.85	159620.71	2384.20	2186.19	1986.59	1786.99	1589.15	1392.22	1196.21	999.00	799.71	599.76	399.80	199.92	6.75	200.14	320.05	2532.38	2385.83	2186.93	1986.58	1786.26	1588.07	1390.98	1194.76	998.18	799.51	599.71	399.71	199.72	-	199.92	319.86
63	2800+00	517099.10	159776.52	2582.49	2384.17	2184.46	1985.04	1787.66	1591.24	1395.74	1198.85	999.56	799.63	599.70	399.83	200.00	6.75	120.19	2730.91	2584.05	2384.83	2184.36	1984.21	1786.48	1589.91	1394.22	1197.98	999.31	799.53	599.55	399.60	199.92	-	119.96
64	2801+20	517175.74	159868.81	2701.15	2502.66	2302.90	2103.61	1906.51	1710.40	1515.20	1318.52	1119.43	919.53	719.62	519.78	319.94	120.15	6.75	2849.71	2702.66	2503.27	2302.74	2102.72	1905.27	1709.01	1513.63	1317.61	1119.15	919.39	719.44	519.52	319.86	119.96	-

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

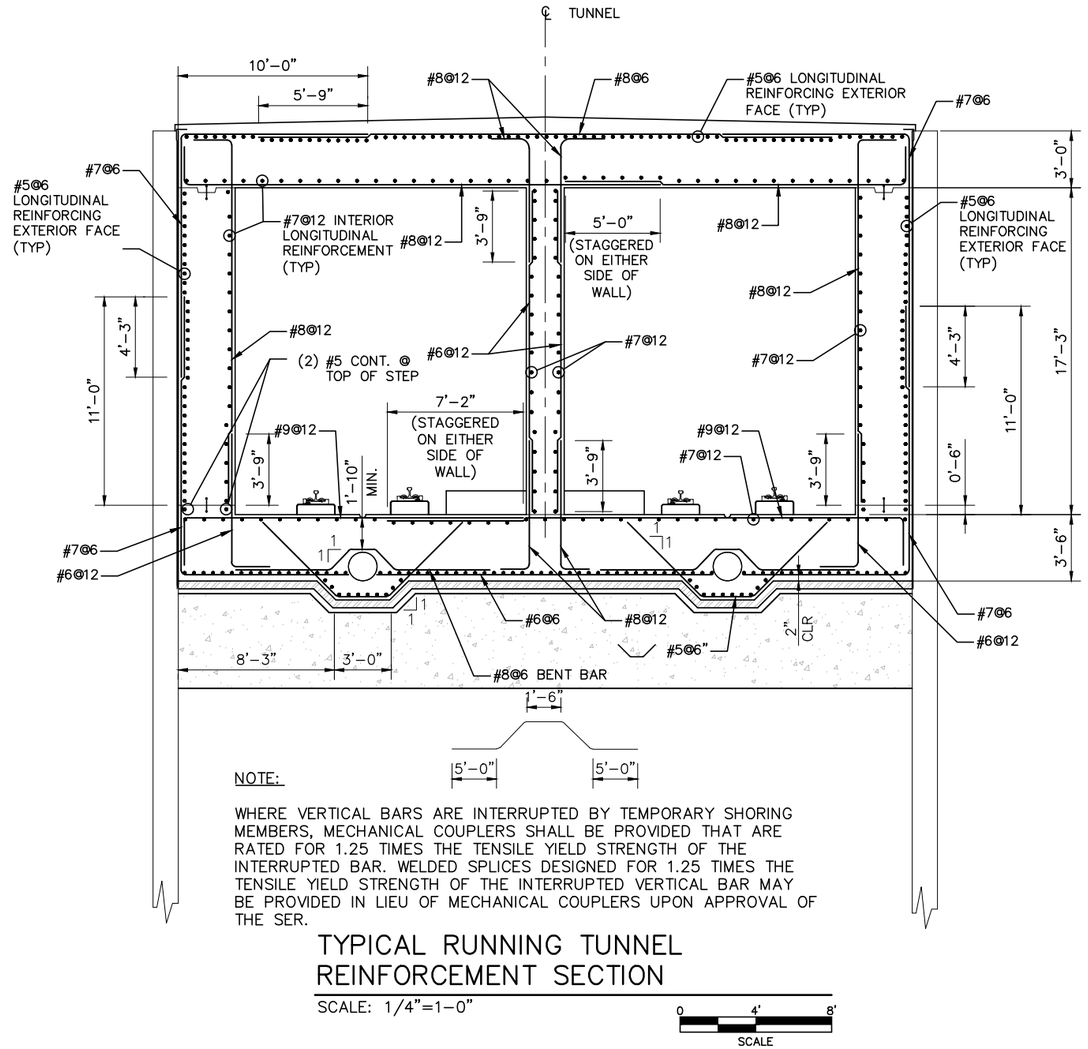
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
WORKING POINT LAYOUT
SHEET 5

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-WPL-003

SHEET 67 OF 148

Jan, 16 2016 08:09 pm V: \3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-WPL-001.dwg By: mercuriellof



NOTE:

WHERE VERTICAL BARS ARE INTERRUPTED BY TEMPORARY SHORING MEMBERS, MECHANICAL COUPLERS SHALL BE PROVIDED THAT ARE RATED FOR 1.25 TIMES THE TENSILE YIELD STRENGTH OF THE INTERRUPTED BAR. WELDED SPLICES DESIGNED FOR 1.25 TIMES THE TENSILE YIELD STRENGTH OF THE INTERRUPTED VERTICAL BAR MAY BE PROVIDED IN LIEU OF MECHANICAL COUPLERS UPON APPROVAL OF THE SER.

TYPICAL RUNNING TUNNEL REINFORCEMENT SECTION

SCALE: 1/4"=1–0"

0 4' 8'
SCALE

STRAY CURRENT CONTROL NOTES FOR KENILWORTH TUNNEL

1. ALL LAP SPLICES IN THE LONGITUDINAL REBARS IN BOTH FACES OF WALLS AND BOTH LAYERS OF ROOF AND INVERT SLAB OF TUNNEL AND ALL LAP SPLICES IN LONGITUDINAL REBARS IN BOTH FACES OF WALLS AND BOTH LAYERS OF INVERT SLAB OF RETAINED CUT SECTION SHALL BE WELDED PER DETAILS ON SHEET E0–SYS–CORR–DTL–001 AND 002. SEE SHEET E0–SYS–CORR–DTL–020 AND 021.
2. BOND CABLES AND BONDING NOTCHES SHALL BE INSTALLED ACROSS ALL EXPANSION/CONTRACTION TYPE JOINTS IN WALLS AND SLABS PER DETAILS ON E0–SYS–CORR–DTL–001, 020 AND 021. INSTALL ONE BOND CABLE/NOTCH IN EACH EXTERIOR WALL, ONE BOND CABLE/NOTCH PER TRACKWAY IN THE ROOF AND TWO BOND CABLE/NOTCHES PER TRACKWAY IN THE FLOOR SLAB.
3. ADDITIONAL TRANSVERSE REBARS SHALL BE INSTALLED ON EACH SIDE OF EXPANSION/CONTRACTION TYPE JOINTS IN WALLS AND ROOF AND INVERT SLABS PER DETAILS ON SHEET E0–SYS–CORR–DTL–001.
4. INSTALL STRAY CURRENT BOND TEST STATION AS SHOWN IN DETAIL 3 ON SHEET E0–SYS–CORR–DTL–017 AND DETAIL 3 ON SHEET E0–SYS–CORR–DTL–003 AT END OF U–WALL CONSTRUCTION.
5. INSTALL STRAY CURRENT TEST STATION AS SHOWN ON SHEET E0–SYS–CORR–DTL–020 AND DETAIL 4 ON SHEET E0–SYS–CORR–DTL–003.
6. MAINTAIN ELECTRICAL ISOLATION OF THE WELDED REBAR IN U–WALL AND THE WELDED REBAR IN ADJACENT RTW–E316 AND RTW–E317.
7. FOR STRAY CURRENT CORROSION SYSTEM, SEE VOLUME 12.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

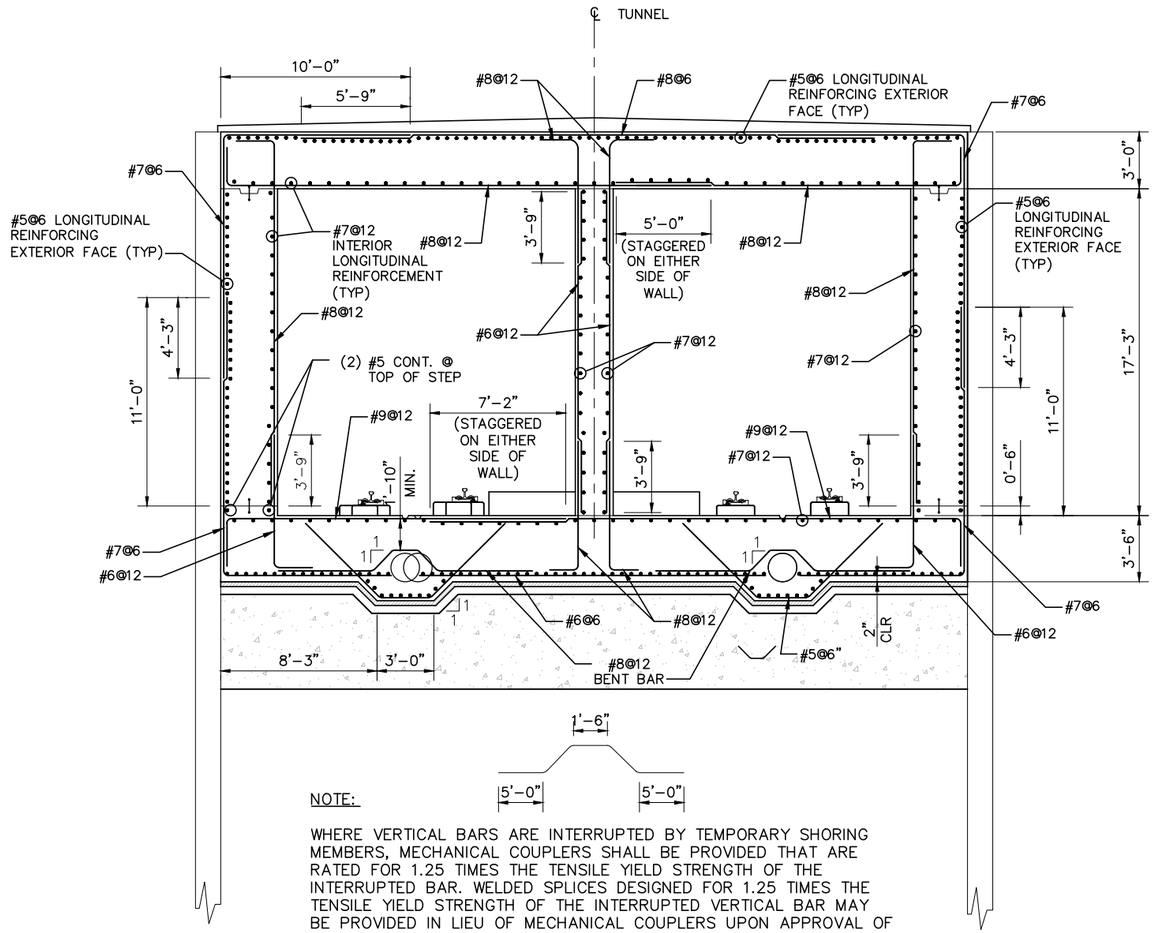
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL REINFORCEMENT
SHEET 1

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-TYP-RTR-001

SHEET 68 OF 148



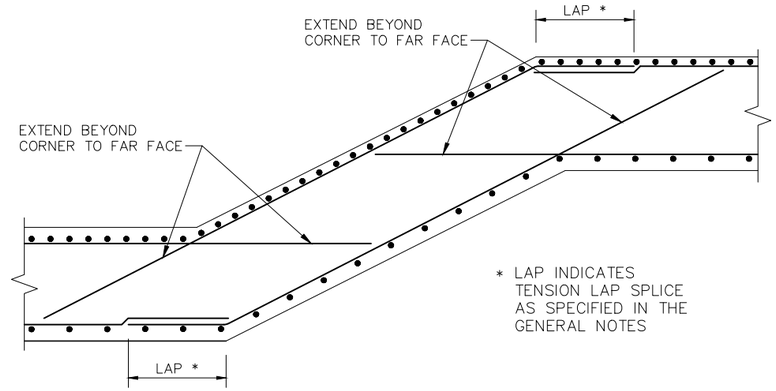
NOTE:

WHERE VERTICAL BARS ARE INTERRUPTED BY TEMPORARY SHORING MEMBERS, MECHANICAL COUPLERS SHALL BE PROVIDED THAT ARE RATED FOR 1.25 TIMES THE TENSILE YIELD STRENGTH OF THE INTERRUPTED BAR. WELDED SPLICES DESIGNED FOR 1.25 TIMES THE TENSILE YIELD STRENGTH OF THE INTERRUPTED VERTICAL BAR MAY BE PROVIDED IN LIEU OF MECHANICAL COUPLERS UPON APPROVAL OF THE SER.

TRANSITION TUNNEL REINFORCEMENT SECTION

SCALE: 1/4"=1-0"

0 4' 8'
SCALE



TYPICAL TOP SLAB STEP

SCALE: 1/2"=1-0"

0 2' 4'
SCALE

STRAY CURRENT CONTROL NOTES FOR KENILWORTH TUNNEL

1. ALL LAP SPLICES IN THE LONGITUDINAL REBARS IN BOTH FACES OF WALLS AND BOTH LAYERS OF ROOF AND INVERT SLAB OF TUNNEL AND ALL LAP SPLICES IN LONGITUDINAL REBARS IN BOTH FACES OF WALLS AND BOTH LAYERS OF INVERT SLAB OF RETAINED CUT SECTION SHALL BE WELDED PER DETAILS ON SHEET E0-SYS-CORR-DTL-001 AND 002. SEE SHEET E0-SYS-CORR-DTL-020 AND 021.
2. BOND CABLES AND BONDING NOTCHES SHALL BE INSTALLED ACROSS ALL EXPANSION/CONTRACTION TYPE JOINTS IN WALLS AND SLABS PER DETAILS ON E0-SYS-CORR-DTL-001, 020 AND 021. INSTALL ONE BOND CABLE/NOTCH IN EACH EXTERIOR WALL, ONE BOND CABLE/NOTCH PER TRACKWAY IN THE ROOF AND TWO BOND CABLE/NOTCHES PER TRACKWAY IN THE FLOOR SLAB.
3. ADDITIONAL TRANSVERSE REBARS SHALL BE INSTALLED ON EACH SIDE OF EXPANSION/CONTRACTION TYPE JOINTS IN WALLS AND ROOF AND INVERT SLABS PER DETAILS ON SHEET E0-SYS-CORR-DTL-001.
4. INSTALL STRAY CURRENT BOND TEST STATION AS SHOWN IN DETAIL 3 ON SHEET E0-SYS-CORR-DTL-017 AND DETAIL 3 ON SHEET E0-SYS-CORR-DTL-003 AT END OF U-WALL CONSTRUCTION.
5. INSTALL STRAY CURRENT TEST STATION AS SHOWN ON SHEET E0-SYS-CORR-DTL-020 AND DETAIL 4 ON SHEET E0-SYS-CORR-DTL-003.
6. MAINTAIN ELECTRICAL ISOLATION OF THE WELDED REBAR IN U-WALL AND THE WELDED REBAR IN ADJACENT RTW-E316 AND RTW-E317.
7. FOR STRAY CURRENT CORROSION SYSTEM, SEE VOLUME 12.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

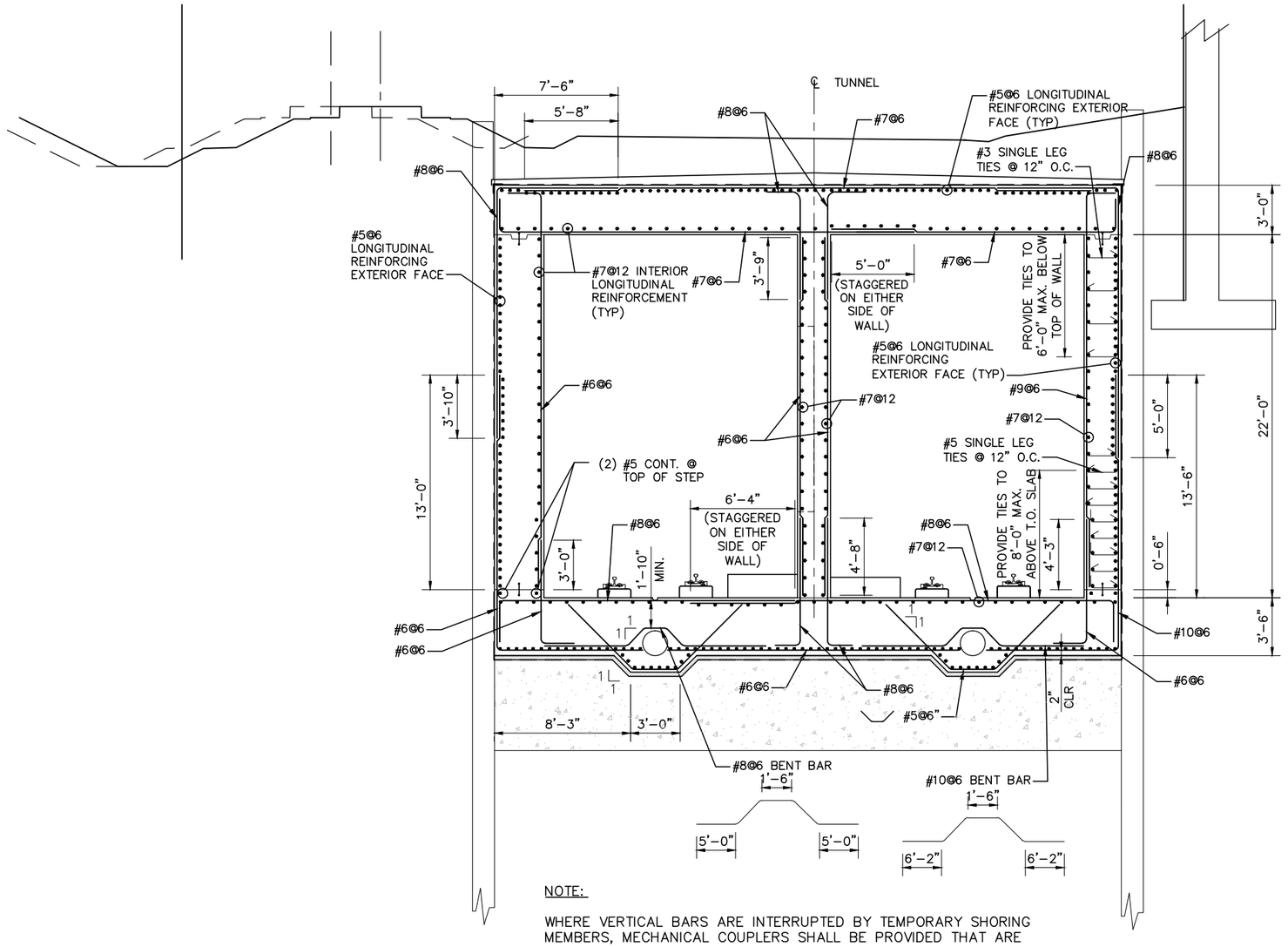
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL REINFORCEMENT
SHEET 2

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-TYP-TTR-001

SHEET 69 OF 148

Jan, 17 2016 09:06 pm \\Nadtc2fp001\swirt\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-TYP-TTR-001.dwg By: YuB1



NOTE:

WHERE VERTICAL BARS ARE INTERRUPTED BY TEMPORARY SHORING MEMBERS, MECHANICAL COUPLERS SHALL BE PROVIDED THAT ARE RATED FOR 1.25 TIMES THE TENSILE YIELD STRENGTH OF THE INTERRUPTED BAR. WELDED SPLICES DESIGNED FOR 1.25 TIMES THE TENSILE YIELD STRENGTH OF THE INTERRUPTED VERTICAL BAR MAY BE PROVIDED IN LIEU OF MECHANICAL COUPLERS UPON APPROVAL OF THE SER.

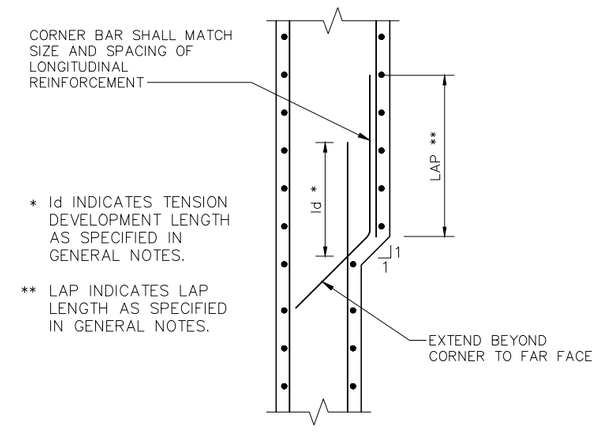
REINFORCEMENT AT JET FAN ADJACENT TO EXISTING BUILDING

SCALE: 1/4"=1-0"

0 4' 8'
SCALE

STRAY CURRENT CONTROL NOTES FOR KENILWORTH TUNNEL

1. ALL LAP SPLICES IN THE LONGITUDINAL REBARS IN BOTH FACES OF WALLS AND BOTH LAYERS OF ROOF AND INVERT SLAB OF TUNNEL AND ALL LAP SPLICES IN LONGITUDINAL REBARS IN BOTH FACES OF WALLS AND BOTH LAYERS OF INVERT SLAB OF RETAINED CUT SECTION SHALL BE WELDED PER DETAILS ON SHEET E0-SYS-CORR-DTL-001 AND 002. SEE SHEET E0-SYS-CORR-DTL-020 AND 021.
2. BOND CABLES AND BONDING NOTCHES SHALL BE INSTALLED ACROSS ALL EXPANSION/CONTRACTION TYPE JOINTS IN WALLS AND SLABS PER DETAILS ON E0-SYS-CORR-DTL-001, 020 AND 021. INSTALL ONE BOND CABLE/NOTCH IN EACH EXTERIOR WALL, ONE BOND CABLE/NOTCH PER TRACKWAY IN THE ROOF AND TWO BOND CABLE/NOTCHES PER TRACKWAY IN THE FLOOR SLAB.
3. ADDITIONAL TRANSVERSE REBARS SHALL BE INSTALLED ON EACH SIDE OF EXPANSION/CONTRACTION TYPE JOINTS IN WALLS AND ROOF AND INVERT SLABS PER DETAILS ON SHEET E0-SYS-CORR-DTL-001.
4. INSTALL STRAY CURRENT BOND TEST STATION AS SHOWN IN DETAIL 3 ON SHEET E0-SYS-CORR-DTL-017 AND DETAIL 3 ON SHEET E0-SYS-CORR-DTL-003 AT END OF U-WALL CONSTRUCTION.
5. INSTALL STRAY CURRENT TEST STATION AS SHOWN ON SHEET E0-SYS-CORR-DTL-020 AND DETAIL 4 ON SHEET E0-SYS-CORR-DTL-003.
6. MAINTAIN ELECTRICAL ISOLATION OF THE WELDED REBAR IN U-WALL AND THE WELDED REBAR IN ADJACENT RTW-E316 AND RTW-E317.
7. FOR STRAY CURRENT CORROSION SYSTEM, SEE VOLUME 12.



* ld INDICATES TENSION DEVELOPMENT LENGTH AS SPECIFIED IN GENERAL NOTES.

** LAP INDICATES LAP LENGTH AS SPECIFIED IN GENERAL NOTES.

TYPICAL WALL STEP

SCALE: 1/2"=1-0"

0 2' 4'
SCALE

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

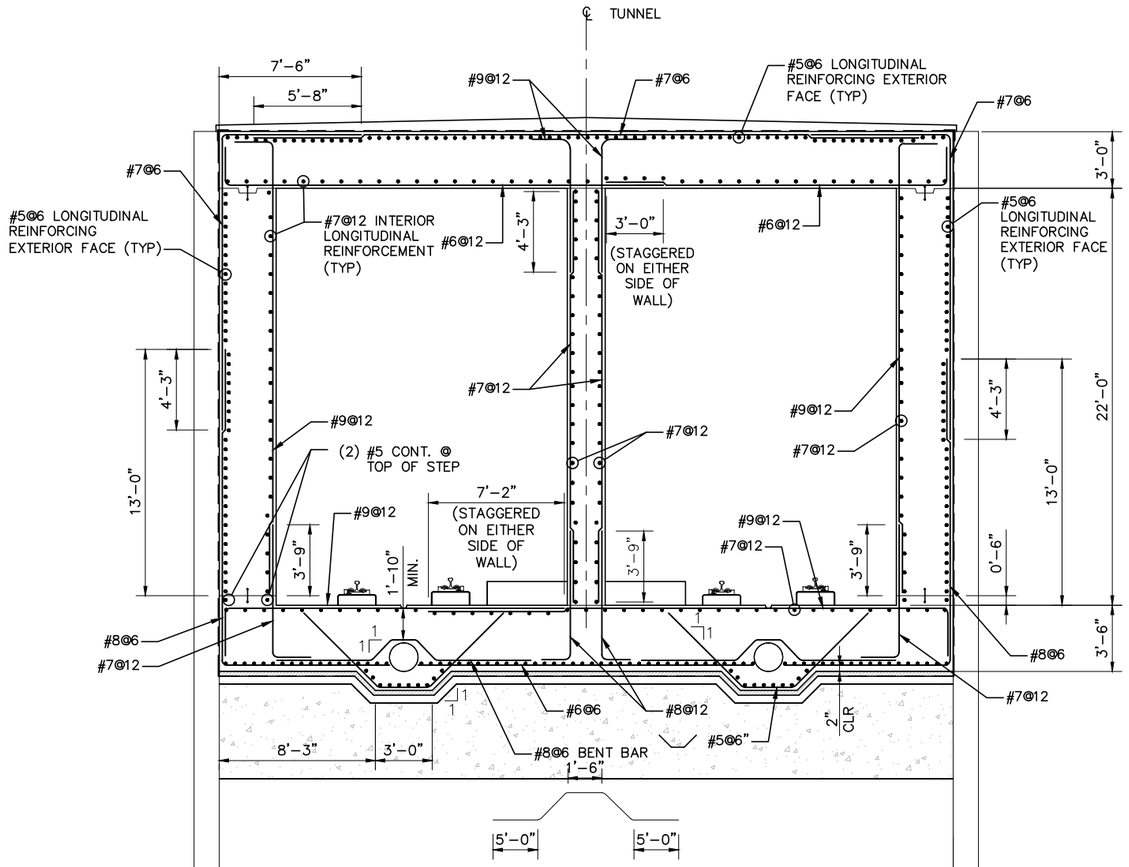
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL REINFORCEMENT
SHEET 3

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-TYP-TTR-002

SHEET 70 OF 148

Jan, 17 2016 09:07 pm \\Nadtc2fp001\swirt\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-TYP-TTR-002.dwg By: YuB1



NOTE:

WHERE VERTICAL BARS ARE INTERRUPTED BY TEMPORARY SHORING MEMBERS, MECHANICAL COUPLERS SHALL BE PROVIDED THAT ARE RATED FOR 1.25 TIMES THE TENSILE YIELD STRENGTH OF THE INTERRUPTED BAR. WELDED SPLICES DESIGNED FOR 1.25 TIMES THE TENSILE YIELD STRENGTH OF THE INTERRUPTED VERTICAL BAR MAY BE PROVIDED IN LIEU OF MECHANICAL COUPLERS UPON APPROVAL OF THE SER.

TYPICAL TUNNEL REINFORCEMENT SECTION AT JET FAN

SCALE: 1/4"=1-0"

0 4' 8'
SCALE

STRAY CURRENT CONTROL NOTES FOR KENILWORTH TUNNEL

1. ALL LAP SPLICES IN THE LONGITUDINAL REBARS IN BOTH FACES OF WALLS AND BOTH LAYERS OF ROOF AND INVERT SLAB OF TUNNEL AND ALL LAP SPLICES IN LONGITUDINAL REBARS IN BOTH FACES OF WALLS AND BOTH LAYERS OF INVERT SLAB OF RETAINED CUT SECTION SHALL BE WELDED PER DETAILS ON SHEET E0-SYS-CORR-DTL-001 AND 002. SEE SHEET E0-SYS-CORR-DTL-020 AND 021.
2. BOND CABLES AND BONDING NOTCHES SHALL BE INSTALLED ACROSS ALL EXPANSION/CONTRACTION TYPE JOINTS IN WALLS AND SLABS PER DETAILS ON E0-SYS-CORR-DTL-001, 020 AND 021. INSTALL ONE BOND CABLE/NOTCH IN EACH EXTERIOR WALL, ONE BOND CABLE/NOTCH PER TRACKWAY IN THE ROOF AND TWO BOND CABLE/NOTCHES PER TRACKWAY IN THE FLOOR SLAB.
3. ADDITIONAL TRANSVERSE REBARS SHALL BE INSTALLED ON EACH SIDE OF EXPANSION/CONTRACTION TYPE JOINTS IN WALLS AND ROOF AND INVERT SLABS PER DETAILS ON SHEET E0-SYS-CORR-DTL-001.
4. INSTALL STRAY CURRENT BOND TEST STATION AS SHOWN IN DETAIL 3 ON SHEET E0-SYS-CORR-DTL-017 AND DETAIL 3 ON SHEET E0-SYS-CORR-DTL-003 AT END OF U-WALL CONSTRUCTION.
5. INSTALL STRAY CURRENT TEST STATION AS SHOWN ON SHEET E0-SYS-CORR-DTL-020 AND DETAIL 4 ON SHEET E0-SYS-CORR-DTL-003.
6. MAINTAIN ELECTRICAL ISOLATION OF THE WELDED REBAR IN U-WALL AND THE WELDED REBAR IN ADJACENT RTW-E316 AND RTW-E317.
7. FOR STRAY CURRENT CORROSION SYSTEM, SEE VOLUME 12.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

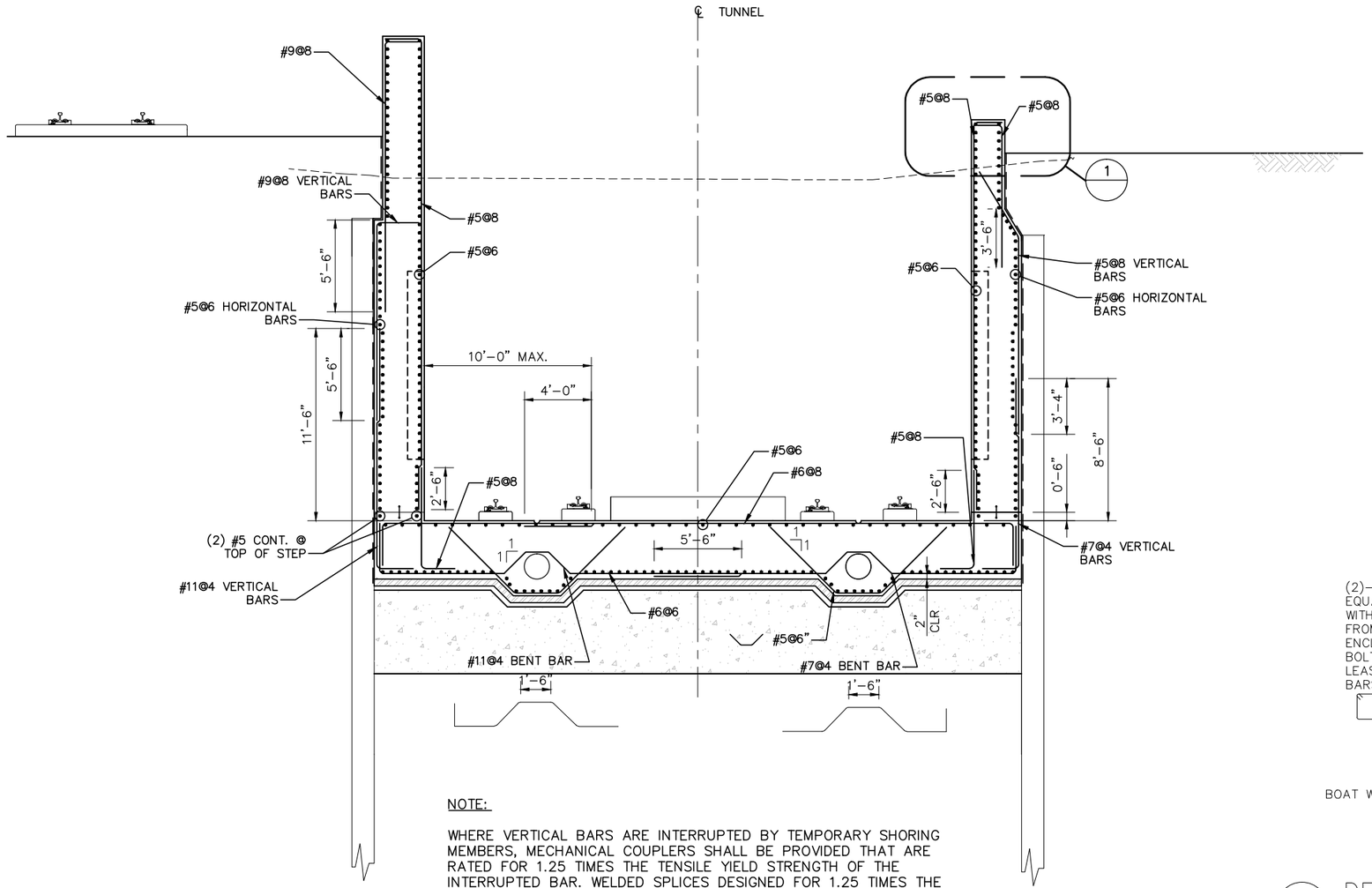
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL REINFORCEMENT
SHEET 4

DISCIPLINE: STRUCTURES
SHEET NAME: E3-STU-TUN-TUNK-TYP-JFR-001

SHEET 71 OF 148



NOTE:

WHERE VERTICAL BARS ARE INTERRUPTED BY TEMPORARY SHORING MEMBERS, MECHANICAL COUPLERS SHALL BE PROVIDED THAT ARE RATED FOR 1.25 TIMES THE TENSILE YIELD STRENGTH OF THE INTERRUPTED BAR. WELDED SPLICES DESIGNED FOR 1.25 TIMES THE TENSILE YIELD STRENGTH OF THE INTERRUPTED VERTICAL BAR MAY BE PROVIDED IN LIEU OF MECHANICAL COUPLERS UPON APPROVAL OF THE SER.

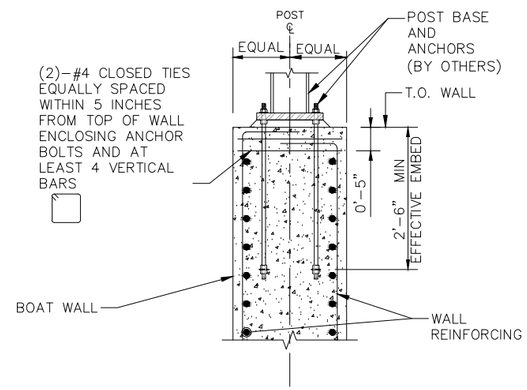
APPROACH U BOAT TUNNEL REINFORCEMENT SECTION

SCALE: 1/4"=1-0"

0 4' 8'
SCALE

STRAY CURRENT CONTROL NOTES FOR KENILWORTH TUNNEL

1. ALL LAP SPLICES IN THE LONGITUDINAL REBARS IN BOTH FACES OF WALLS AND BOTH LAYERS OF ROOF AND INVERT SLAB OF TUNNEL AND ALL LAP SPLICES IN LONGITUDINAL REBARS IN BOTH FACES OF WALLS AND BOTH LAYERS OF INVERT SLAB OF RETAINED CUT SECTION SHALL BE WELDED PER DETAILS ON SHEET E0-SYS-CORR-DTL-001 AND 002. SEE SHEET E0-SYS-CORR-DTL-020 AND 021.
2. BOND CABLES AND BONDING NOTCHES SHALL BE INSTALLED ACROSS ALL EXPANSION/CONTRACTION TYPE JOINTS IN WALLS AND SLABS PER DETAILS ON E0-SYS-CORR-DTL-001, 020 AND 021. INSTALL ONE BOND CABLE/NOTCH IN EACH EXTERIOR WALL, ONE BOND CABLE/NOTCH PER TRACKWAY IN THE ROOF AND TWO BOND CABLE/NOTCHES PER TRACKWAY IN THE FLOOR SLAB.
3. ADDITIONAL TRANSVERSE REBARS SHALL BE INSTALLED ON EACH SIDE OF EXPANSION/CONTRACTION TYPE JOINTS IN WALLS AND ROOF AND INVERT SLABS PER DETAILS ON SHEET E0-SYS-CORR-DTL-001.
4. INSTALL STRAY CURRENT BOND TEST STATION AS SHOWN IN DETAIL 3 ON SHEET E0-SYS-CORR-DTL-017 AND DETAIL 3 ON SHEET E0-SYS-CORR-DTL-003 AT END OF U-WALL CONSTRUCTION.
5. INSTALL STRAY CURRENT TEST STATION AS SHOWN ON SHEET E0-SYS-CORR-DTL-020 AND DETAIL 4 ON SHEET E0-SYS-CORR-DTL-003.
6. MAINTAIN ELECTRICAL ISOLATION OF THE WELDED REBAR IN U-WALL AND THE WELDED REBAR IN ADJACENT RTW-E316 AND RTW-E317.
7. FOR STRAY CURRENT CORROSION SYSTEM, SEE VOLUME 12.
8. ALL CAST-IN OCS POLE BASE ANCHORS SHALL HAVE 2'-6" MINIMUM EFFECTIVE EMBEDMENT TO WALLS AND BOAT SLAB. ANCHOR LENGTHS SHALL BE INCREASED TO ACCOUNT FOR THICKNESS OF CURBS OR PADS PLACED ON TOP OF SLAB WHERE APPLICABLE.



1 DETAIL OCS POLE BASE AT WALL SUPPORT
(NTS)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL

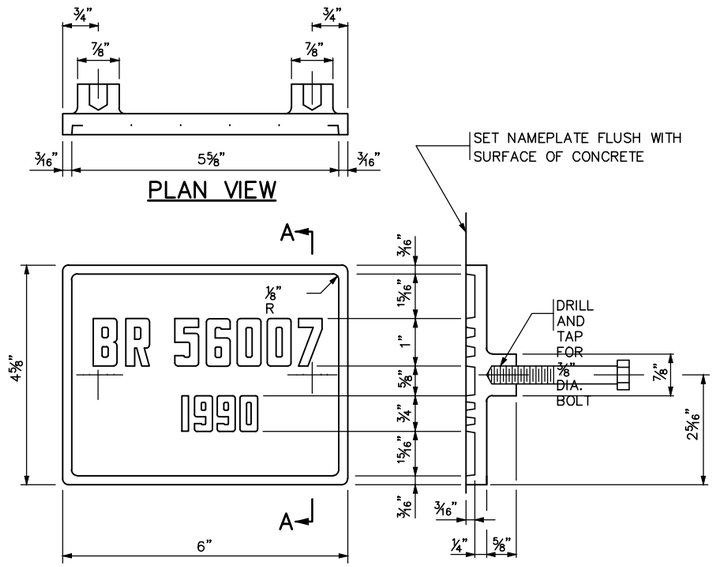
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL REINFORCEMENT
SHEET 5

DISCIPLINE: STRUCTURES
SHEET NAME: E3-STU-TUN-TUNK-TYP-BTR-001

SHEET 72 OF 148

Jan. 18 2016 04:39 pm v:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-TYP-BTR-001.dwg By: mercuriellof



PLAN VIEW

ELEVATION

SECTION A–A

THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION.
DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

BRIDGE 27C15

YEAR 2020

NUMBERS FOR NAMEPLATE

NOTES:

MATERIAL SHALL COMPLY WITH SPEC. 3327.

LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.

DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".

HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.

TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.

FURNISH 2 STEEL BOLTS ⅜" DIA. x 3" LONG WITH EACH PLATE.

ALL DIMENSIONS FOR ¾" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR 1" HIGH LETTERS AND NUMBERS.

APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Daniel L Worgan STATE BRIDGE ENGINEER	BRIDGE NAMEPLATE (FOR NEW BRIDGES)	09–11–2014	B101

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

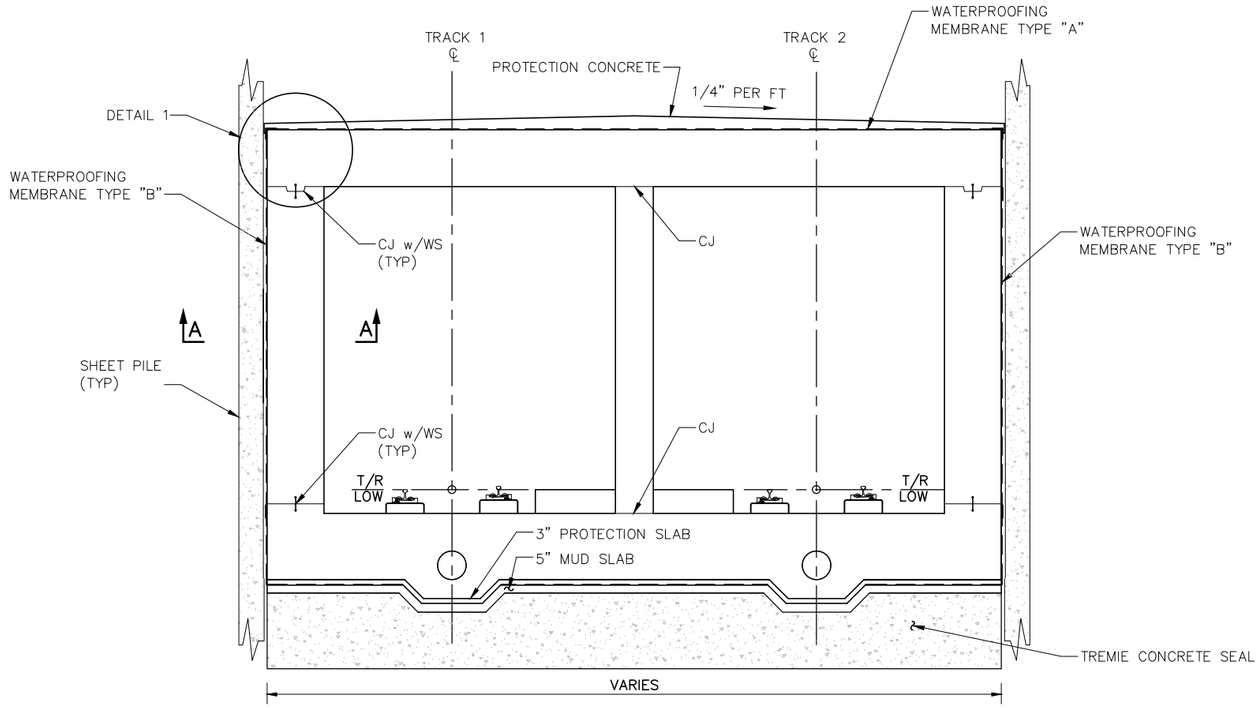
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL DETAILS

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-BDT-001

SHEET 73 OF 148

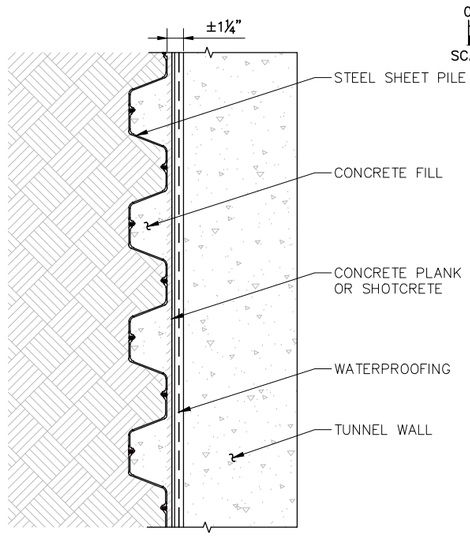
Jan, 16 2016 07:00 pm v:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-BDT-001.dwg By: mercurielliof



TYPICAL TUNNEL CROSS SECTION – WATERPROOFING

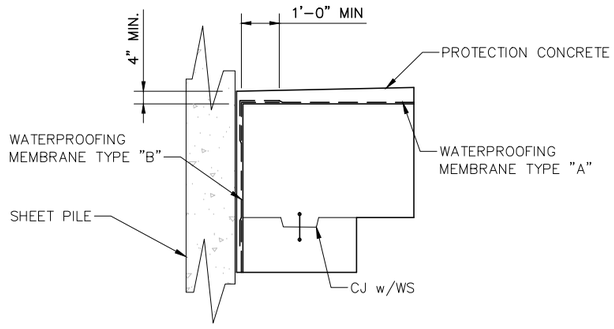
NOTES:

1. TYPE "A" TO BE PLACED AFTER CONCRETE POUR. TYPE "B" IS FOR BLINDSIDE APPLICATION PRIOR TO CONCRETE POUR. SEE WATERPROOFING SPECIFICATION.
2. WATERPROOFING MATERIALS, PROCEDURES AND CONSTRUCTION METHODS SHALL CONFORM TO THE TECHNICAL SPECIFICATIONS AND MANUFACTURER'S REQUIREMENTS.
3. PRIOR TO INSTALLATION OF WATERPROOFING SYSTEM, CONCRETE SURFACE IS TO BE PREPARED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. SURFACES SHALL BE FREE OF VOIDS, SPALLED AREAS, LOOSE AGGREGATE AND SHARP PROTRUSIONS.
4. SPLICE LENGTH AND LAP TAPE SIZE WILL VARY DEPENDING UPON PRODUCT SELECTED.



SECTION A–A
NO SCALE

0 2 4 6
SCALE IN FEET



DETAIL 1
TOP SLAB WATERPROOFING
NO SCALE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
WATERPROOFING
SHEET 1

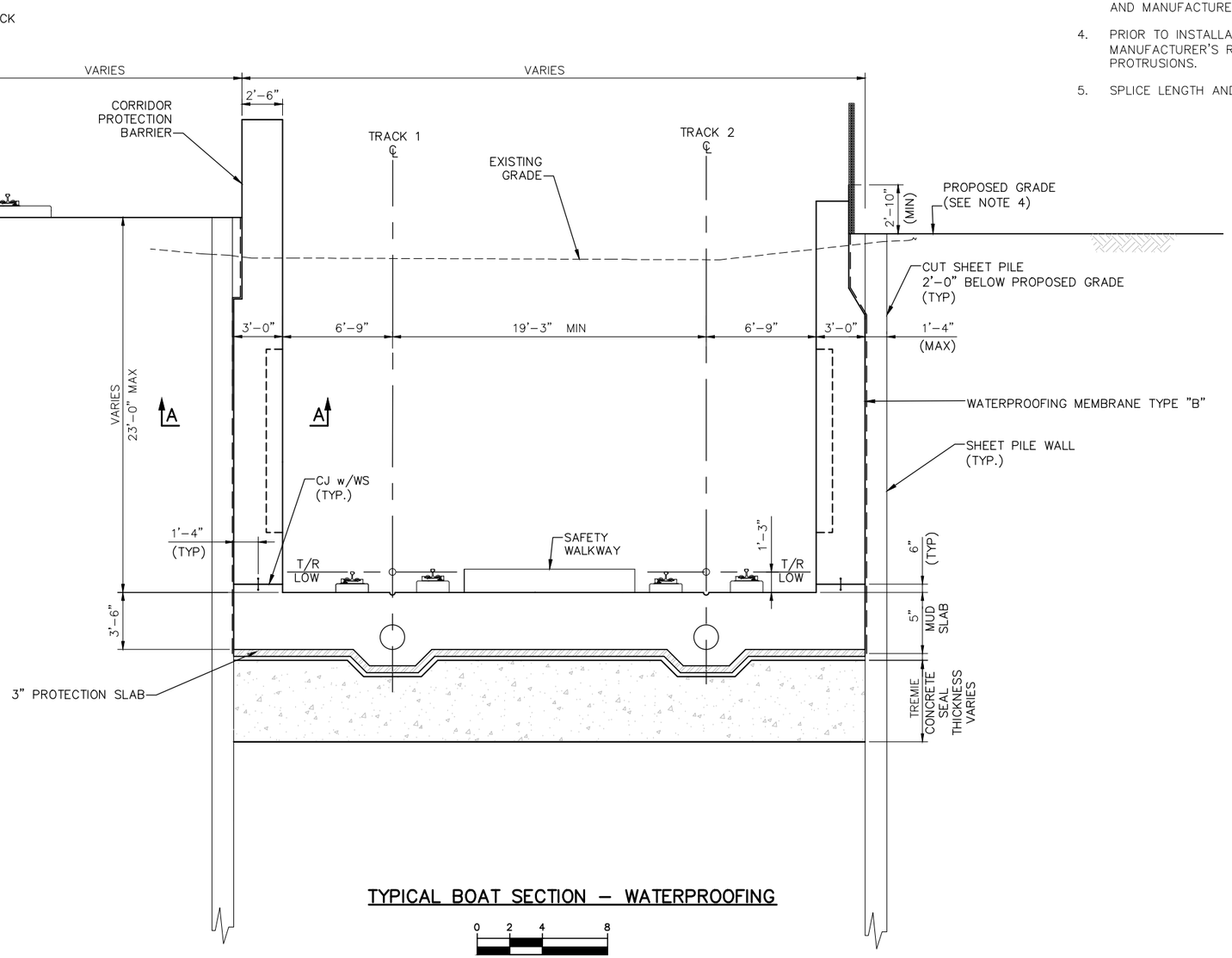
DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-DTL-WTP-001

SHEET 74 OF 148

NOTES:

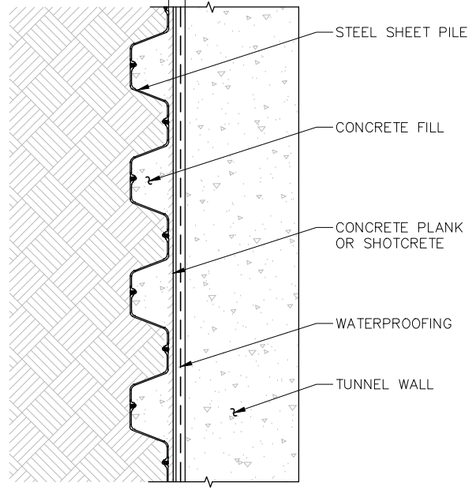
1. FOR GENERAL NOTES, SEE SHEETS 7 AND 8.
2. TYPE "A" TO BE PLACED AFTER CONCRETE POUR. TYPE "B" IS FOR BLINDSIDE APPLICATION PRIOR TO CONCRETE POUR. SEE WATERPROOFING SPECIFICATION.
3. WATERPROOFING MATERIALS, PROCEDURES AND CONSTRUCTION METHODS SHALL CONFORM TO THE TECHNICAL SPECIFICATIONS AND MANUFACTURER'S REQUIREMENTS.
4. PRIOR TO INSTALLATION OF WATERPROOFING SYSTEM, CONCRETE SURFACE IS TO BE PREPARED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. SURFACES SHALL BE FREE OF VOIDS, SPALLED AREAS, LOOSE AGGREGATE AND SHARP PROTRUSIONS.
5. SPLICE LENGTH AND LAP TAPE SIZE WILL VARY DEPENDING UPON PRODUCT SELECTED.



TYPICAL BOAT SECTION – WATERPROOFING

0 2 4 8

HORIZONTAL SCALE IN FEET



SECTION A–A
NOT TO SCALE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

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METROPOLITAN COUNCIL

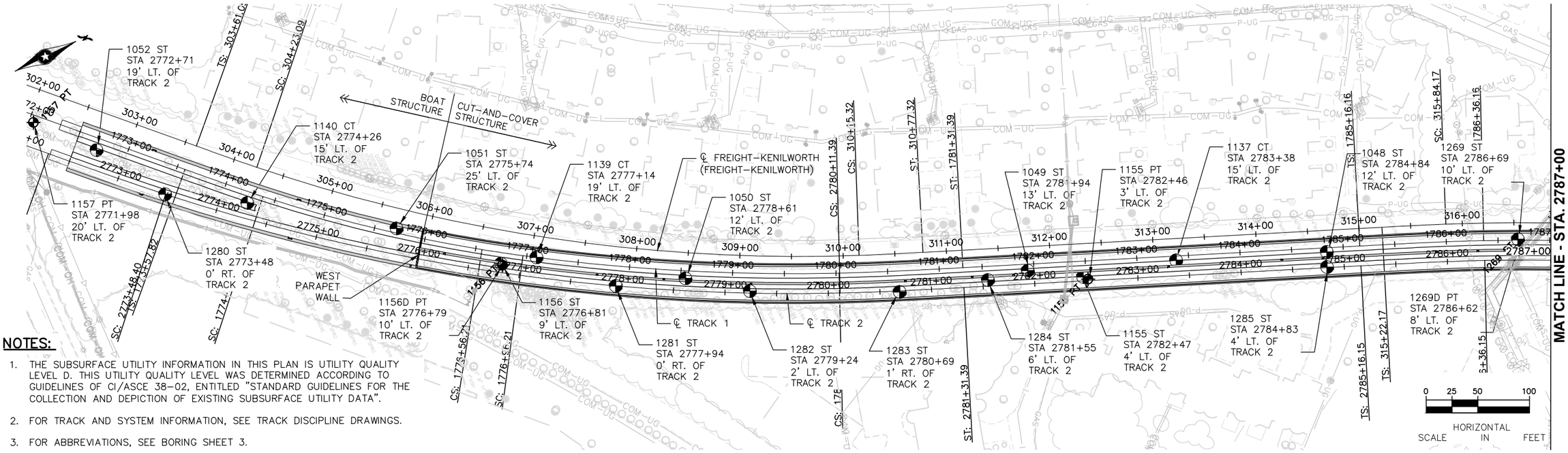
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
WATERPROOFING
SHEET 2

DISCIPLINE: STRUCTURES

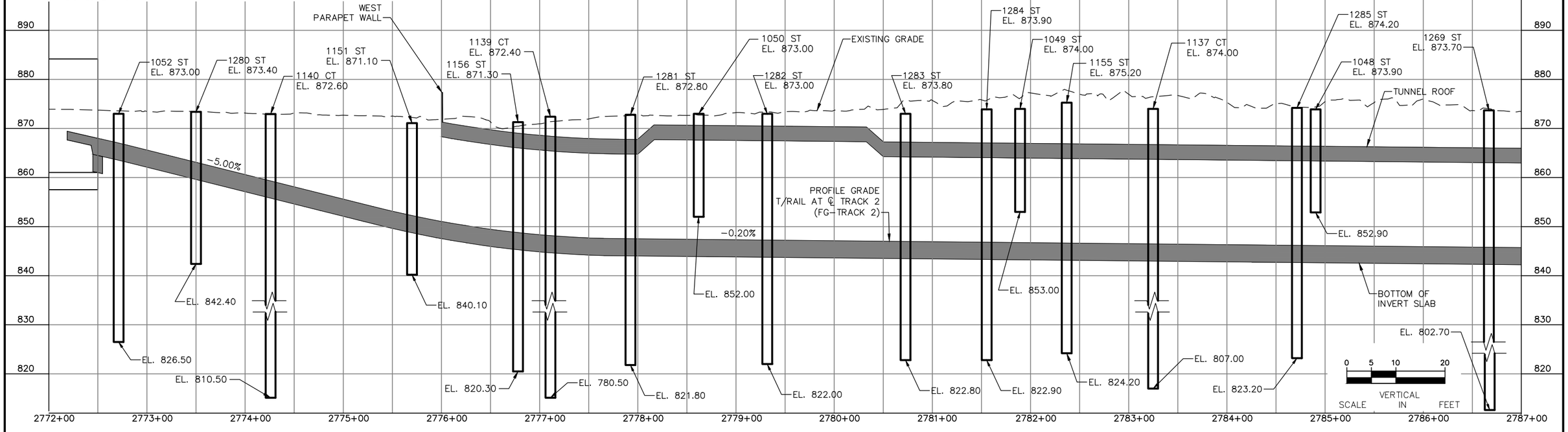
SHEET NAME: E3-STU-TUN-TUNK-DTL-WTP-002

SHEET 75 OF 148



NOTES:

1. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
2. FOR TRACK AND SYSTEM INFORMATION, SEE TRACK DISCIPLINE DRAWINGS.
3. FOR ABBREVIATIONS, SEE BORING SHEET 3.
4. PIEZOMETERS LOCATED WITHIN THE TUNNEL EXCAVATION FOOTPRINT TO BE ABANDONED BY AET PRIOR TO EXCAVATION.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

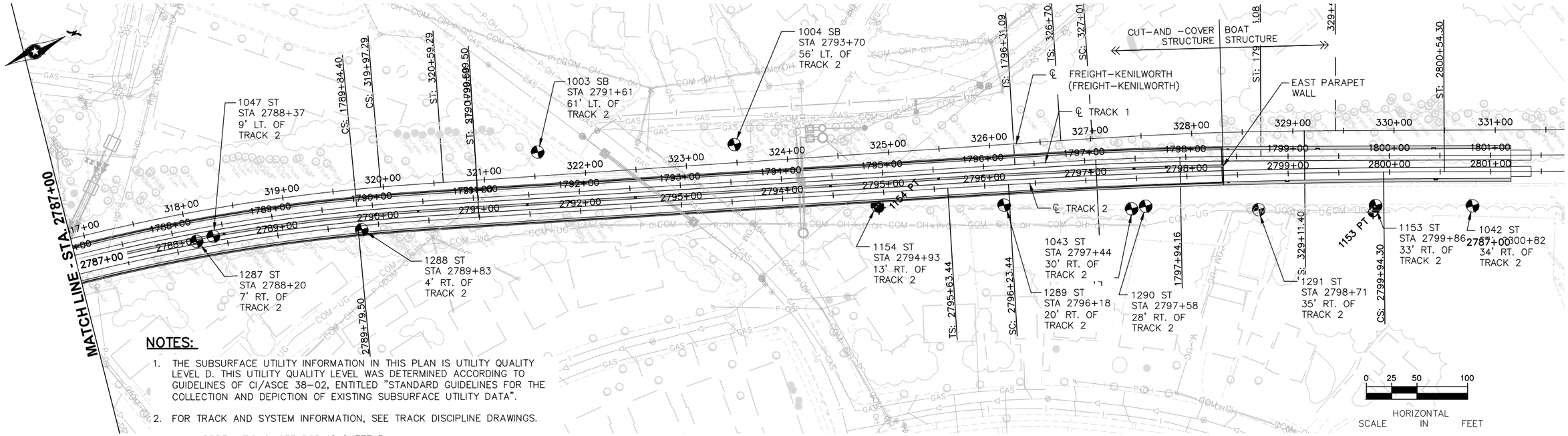
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
BORINGS
SHEET 1

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-BOR-001

SHEET 76 OF 148

Jan, 15 2016 05:46 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-BOR-001.dwg By: YuB1



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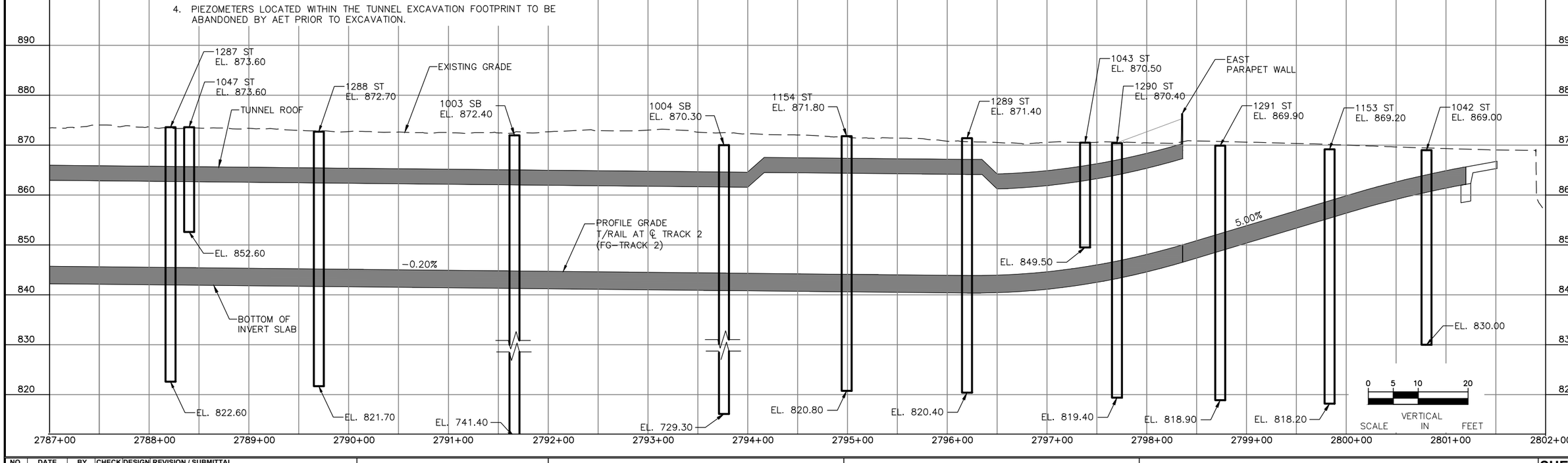

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
BORINGS
SHEET 2

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-BOR-002

SHEET 77 OF 148

Jan, 15 2016 08:22 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-BOR-002.dwg By: YuB1

ABBREVIATIONS – FIRST DESIGNATOR

S – STANDARD PENETRATION TEST BORING
C – CORE PENETRATION TEST BORING
P – PIEZOMETER

SECOND DESIGNATOR

T – TRACK
B – BRIDGE

1052 ST
Elevation 873.0
STA. 2772+71

TOP OF BOAT SECTION WALL

INVERT SLAB

Coh	N60	
	6	Clayey sand, a little gravel, dark brown (A–6) fill
	4	Sand, a little gravel and lean clay, trace roots, light grayish brown (A–1–b) fill
	3	
	6	Sand, a little gravel and sandy lean clay, brown, a little grayish brown (A–3) fill
	8	
	8	Sand with silt and gravel, black (A–3) fill
	4	Clayey sand, a little gravel, trace roots, dark brown (A–2–4) fill
	4	Sapric peat, a little sand, pieces of wood, black (A–8) fill
	4	
	15	SAPRIC PEAT, black (PT) (A–8) swamp deposits
	8	SANDY LEAN CLAY, slightly organic, trace roots, black, soft (CL) (A–6) alluvium
	8	SILTY SAND WITH GRAVEL, brownish gray, wet, very loose, lenses of clayey sand (SM) (A–2–4) alluvium
	15	SILTY SAND, fine grained, brownish gray, wet, medium dense (SM) (A–4) alluvium
	16	
	17	SILTY CLAY, brownish gray, firm (CL–ML) (A–4) alluvium
	14	SILT WITH SAND, brownish gray, lenses of silty clay (ML) (A–4) alluvium
	15	
		LEAN CLAY, brownish gray, firm, laminations of fat clay (CL) (A–4) alluvium
		SILTY SAND, fine grained, brownish gray, wet, medium dense (SM) (A–4) alluvium
		LEAN CLAY, brownish gray, a little dark brown, gray, stiff, laminations of fat clay (CL/CH) (A–7–6) alluvium
		LEAN CLAY, brownish gray, a little light brownish gray, stiff, laminations of silt (CL/CH) (A–7–6) alluvium END OF BORING

1280 ST
Elevation 873.4
STA. 2773+48

TOP OF BOAT SECTION WALL

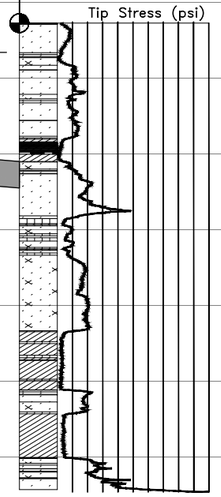
INVERT SLAB

Coh	SPT	
	15	3.5" Bituminois pavement
	18	GRAVELLY SILTY SAND, brown, A–1–b, fill
	11	SILTY SAND, a little gravel, pieces of conrete, ashes/cinders, black, a little dark brown, A–2–4, fill
	8	
	12	
	11	SAND WITH SILT, a little gravel and clayey sand, brown, a little dark brown, A–1–b, fill
	16	
	24	SILTY SAND, a little gravel, brown and dark brown, A–1–b, fill
	17	
	5	SAND, a little gravel, brown, A–1–b, fill
	7	SAND WITH SILT AND GRAVEL, a little gravel, silty sand and clayey sand, brownish gray, A–1–b, fill
	12	
	12	GRAVEL WITH SAND, brownish gray, A–1–a, fill
		SAPRIC PEAT (PT) A–8, swamp deposit
		CLAYEY SAND, with organic fines, a little gravel, trace roots, black, firm (SC) A–6, alluvium
		LEAN CLAY, a little gravel, gray, a little brown, firm, laminations of sand (CL) A–6, alluvium
		SAND WITH SILT AND GRAVEL, medium grained, grayish brown, waterbearing, medium dense (SP–SM) A–1–b, alluvium
		GRAVELLY SAND WITH SILT, medium grained, grayish brown, waterbearing, medium ense (SM) A–1–b, alluvium
		Bottom of Hole – 31'

1140 CT
Elevation 872.6
STA. 2774+26

TOP OF BOAT SECTION WALL

INVERT SLAB



NOTES:

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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
BORINGS
SHEET 3

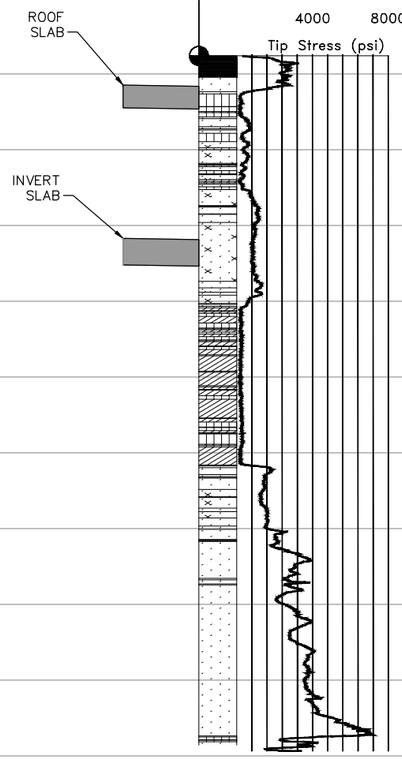
DISCIPLINE: STRUCTURES
SHEET NAME: E3-STU-TUN-TUNK-BOR-003

SHEET 78 OF 148

1156 ST
Elevation 871.3
STA. 2776+81

Coh	N60	
	15	Sand with silt and gravel, a little clayey sand with organic fines, trace roots, brown and dark brown (A-1-b, A-6) fill
ROOF SLAB	24	Silty sand with gravel, a little ashes/cinders, black (A-1-b) fill
	8	
	9	Clayey sand with gravel, possible cobbles, brown (A-2-6) fill
	7	LEAN CLAY, trace roots, brown mottled, firm to stiff, laminations of silt (CL) (A-4) alluvium
	4	
INVERT SLAB	5	SILTY CLAY, trace roots, brown mottled, soft, laminations of silt (CL-ML) (A-4) alluvium
	9	SILT, gray and brown, wet, loose (ML) (A-4) alluvium
	9	SAND WITH SILT, fine grained, brown mottled, waterbearing, loose (SP-SM) (A-3) alluvium
	8	
	5	SANDY SILT, brown mottled, wet, loose (ML) (A-4) alluvium
	4	
	5	SILT WITH SAND, gray, wet, loose (ML) (A-4) alluvium
	3	
	4	
	5	
	6	FAT CLAY, gray, soft to firm, laminations of silt (CH) (A-7-6) alluvium
	5	
	4	
	12	
	7	SAND WITH SILT, medium to fine grained, gray, waterbearing, medium dense to loose (SP-SM) (A-1-b) alluvium END OF BORING

1139 CT
Elevation 872.4
STA. 2777+14



1281 ST
Elevation 872.8
STA. 2777+94

Coh	SPT	
	18	SILTY SAND, a little gravel, pieces of wood, dark brown, A-2-4, fill
ROOF SLAB	23	
	27	SILTY SAND WITH GRAVEL, apparent cobbles, trace roots, dark grayish brown, A-1-b, fill
	12	
	14	SAND WITH SILT AND GRAVEL, light grayish brown, a little dark brown, A-1-b, fill
	11	
INVERT SLAB	11	SILTY CLAY, a little gravel, trace roots, light grayish brown and brown mottled, stiff (CL-ML) A-4, alluvium
	4	
	5	
	5	SILTY SAND, trace roots, fine grained, grayish brown, a little brown and dark gray, waterbearing, medium dense (SM) A-2-4, alluvium
	14	
	15	
	17	SANDY SILT, a little gravel, grayish brown, a little brown, wet, very loose (ML) A-4, alluvium
	19	
	20	SILTY CLAY, gray, soft, laminations of silt and lean clay (CL-ML) A-4, alluvium
	14	LEAN CLAY, gray, firm (CL) A-6, alluvium
	10	
	6	SILTY SAND, fine grained, gray, waterbearing, medium dense (SM) A-2-4, alluvium
	7	
	8	SILTY SAND, fine grained, gray, waterbearing, medium dense, lenses and laminations of sand with silt and sandy silt (SM/ML) A-4, alluvium
	15	
		SAND WITH SILT, fine grained, gray, waterbearing, medium dense, lenses and laminations of silty sand (SP-SM) A-3, alluvium
		SILTY SAND, fine grained, gray, waterbearing, medium dense, lenses and laminations of lean clay with sand (SM) A-2-4, alluvium
		SILT, gray, stiff (ML) A-4, alluvium
		LEAN CLAY, gray, firm (CL) A-6, alluvium
		SILTY CLAY, gray, wet, firm, laminations of silt, lean clay, fat clay and sand (CL-ML) A-4, alluvium

Bottom of Hole – 51'

ABBREVIATIONS – FIRST DESIGNATOR

S – STANDARD PENETRATION TEST BORING
C – CORE PENETRATION TEST BORING
P – PIEZOMETER

SECOND DESIGNATOR

T – TRACK
B – BRIDGE

NOTES:

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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

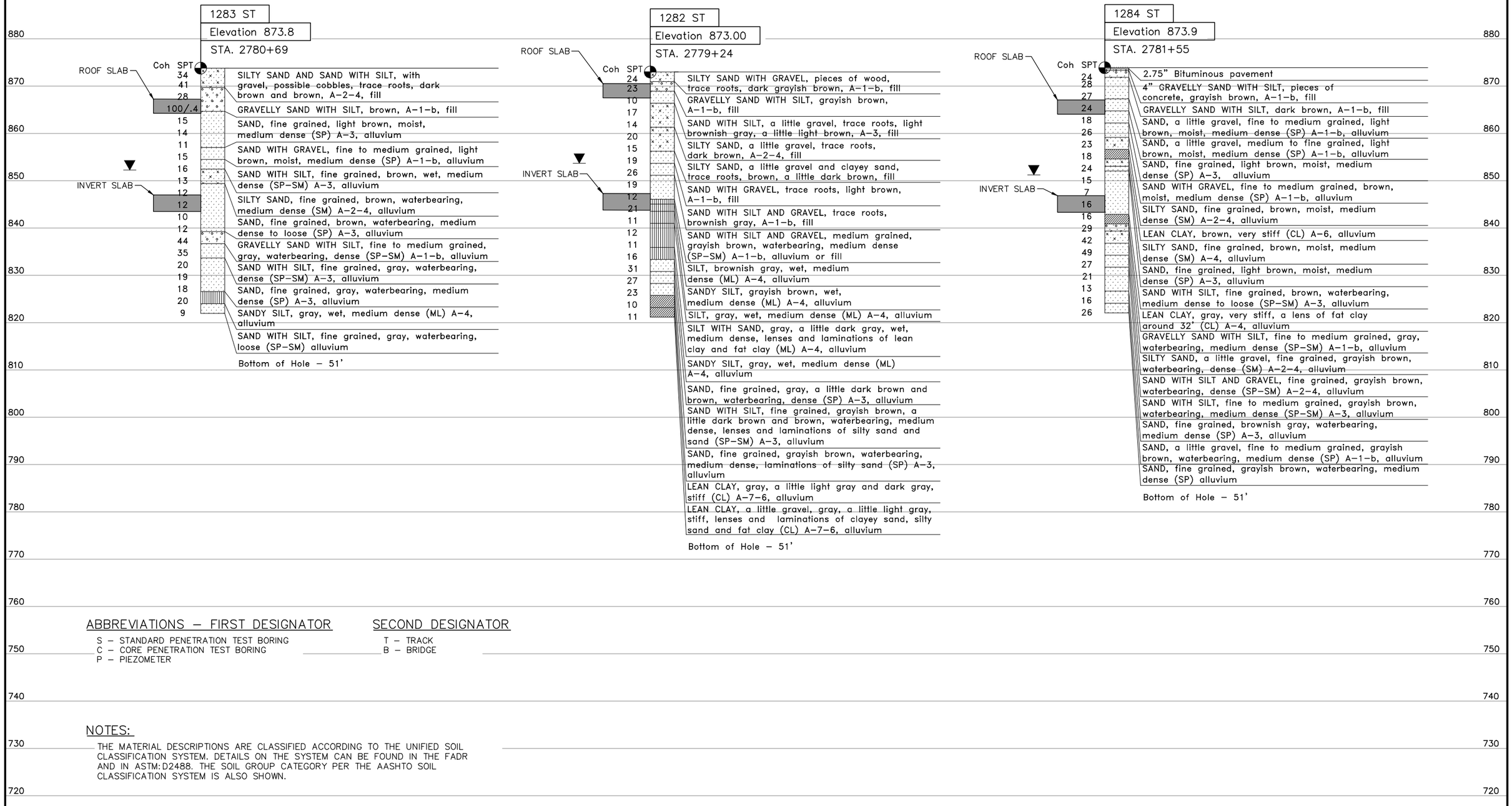
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
BORINGS
SHEET 4

DISCIPLINE: STRUCTURES
SHEET NAME: E3-STU-TUN-TUNK-BOR-004

SHEET 79 OF 148

Jan, 15 2016 08:28 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-BOR-004.dwg By: YuB1



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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
BORINGS
SHEET 5

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-BOR-005

SHEET 80 OF 148

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1155 ST
Elevation 875.2
STA. 2782+46

Coh	N60	
	28	Silty sand with organic fines, possible cobbles, trace roots, dark brown (A-2-4) fill
	15	Sand with silt, a little gravel, trace roots, light brown (A-3) fill
	25	Silty sand with gravel, trace roots, dark brown (A-1-b) fill
	75/ 9	Gravelly silty sand, possible cobbles, grayish brown (A-1-b) fill
	38	SAND WITH SILT, fine grained, light grayish brown, a little light brown, moist, dense, a lens of silt (SP-SM) (A-3) alluvium or fill
	32	
	19	SILTY SAND, fine grained, light brown, moist, medium dense, a lens of silt (SM) (A-2-4) alluvium
	17	SILT, light brown, moist, medium dense, laminations of silty sand (ML) (A-4) alluvium
	20	LEAN CLAY, brown, very stiff, laminations of silty sand (CL) (A-4) alluvium
	18	SAND, fine to medium grained, light brown, moist to waterbearing, medium dense to loose (SP) (A-3) alluvium
	8	
	2	SAND, fine grained, light brown, waterbearing, very loose to medium dense (SP) (A-3) alluvium
	15	
	11	LEAN CLAY, brownish, gray, stiff, laminations of silt (CL) (A-7-6) alluvium
	29	SILTY CLAY, brownish gray, very stiff (CL-ML) (A-4) alluvium
	42	SAND, fine grained, grayish brown, waterbearing, dense (SP) (A-3) alluvium
	27	SAND, fine to medium grained, grayish brown, a little brown, waterbearing, medium dense, laminations of silty sand around 42½ (SP) (A-3) alluvium
	21	
	25	SILTY SAND, fine grained, grayish brown, wet, medium dense, laminations of sand with silt (SM) (A-2-4) alluvium
	27	SAND, a little gravel, fine to medium grained, brownish gray, waterbearing, medium dense (SP) (A-1-b) alluvium
	22	SAND, medium grained, brownish gray, waterbearing, medium dense (SP) (A-1-b) alluvium
		END OF BORING

ROOF SLAB

INVERT SLAB

1137 CT
Elevation 874.0
STA. 2783+38

4000 8000
Tip Stress (psi)

ROOF SLAB

INVERT SLAB

1285 ST
Elevation 874.2
STA. 2784+83

Coh	SPT	
	8	SILTY SAND WITH GRAVEL, pieces of concrete, trace roots, dark brown, A-1-b, fill
	25	
	23	SAND WITH GRAVEL, medium to fine grained, light brown, moist, medium dense (SP) A-1-b, alluvium
	20	
	15	SAND, a little gravel, fine to medium grained, light brown, moist, medium dense (SP) A-3, alluvium
	15	
	10	SAND WITH GRAVEL, fine to medium grained, light brown, moist, medium dense (SP) A-1-b, alluvium
	24	
	14	SAND, a little gravel, fine to medium grained, light brown, moist, medium dense (SP) A-3, alluvium
	11	
	19	SANDY SILT, brown, moist to wet, medium dense to loose (ML) A-4, alluvium
	14	SAND, fine grained, light brown, moist, medium dense (SP) A-3, alluvium
	21	
	30	SAND, a little gravel, fine to medium grained, light brown, moist, medium dense (SP) A-3, alluvium
	16	
	84	SAND, fine grained, brown, waterbearing, medium dense (SP) A-3, alluvium
	42	
	22	SAND, a little gravel, medium to fine grained, brownish gray, waterbearing, medium dense (SP) A-1-b, alluvium
	27	
	22	SAND WITH SILT, fine grained, brown, waterbearing, medium dense (SP-SM) A-3, alluvium
	26	SILT, brown, wet, medium dense (ML) A-4, alluvium
		SAND, fine grained, brown, waterbearing, very dense (SP) A-3 alluvium
		SAND, fine to medium grained, brown, waterbearing, dense (SP) A-3 alluvium
		SAND WITH SILT, fine grained, dark brown, waterbearing, medium dense (SP-SM) A-3, alluvium
		SAND, fine to medium grained, brown, waterbearing, medium dense (SP) A-3, alluvium

Bottom of Hole – 51'

ROOF SLAB

INVERT SLAB

890 880 870 860 850 840 830 820 810 800 790 780 770 760 750 740 730 720

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SECOND DESIGNATOR

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B – BRIDGE

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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

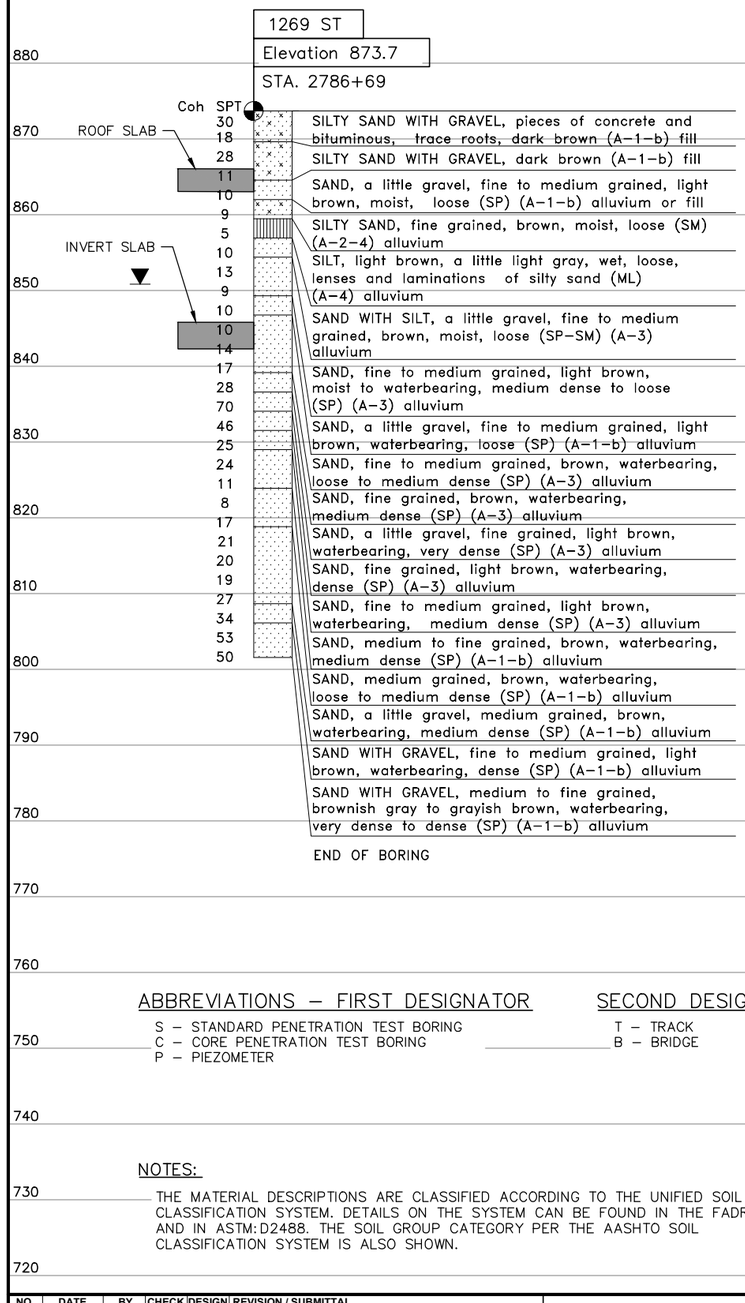
SOUTHWEST Green Line LRT Extension

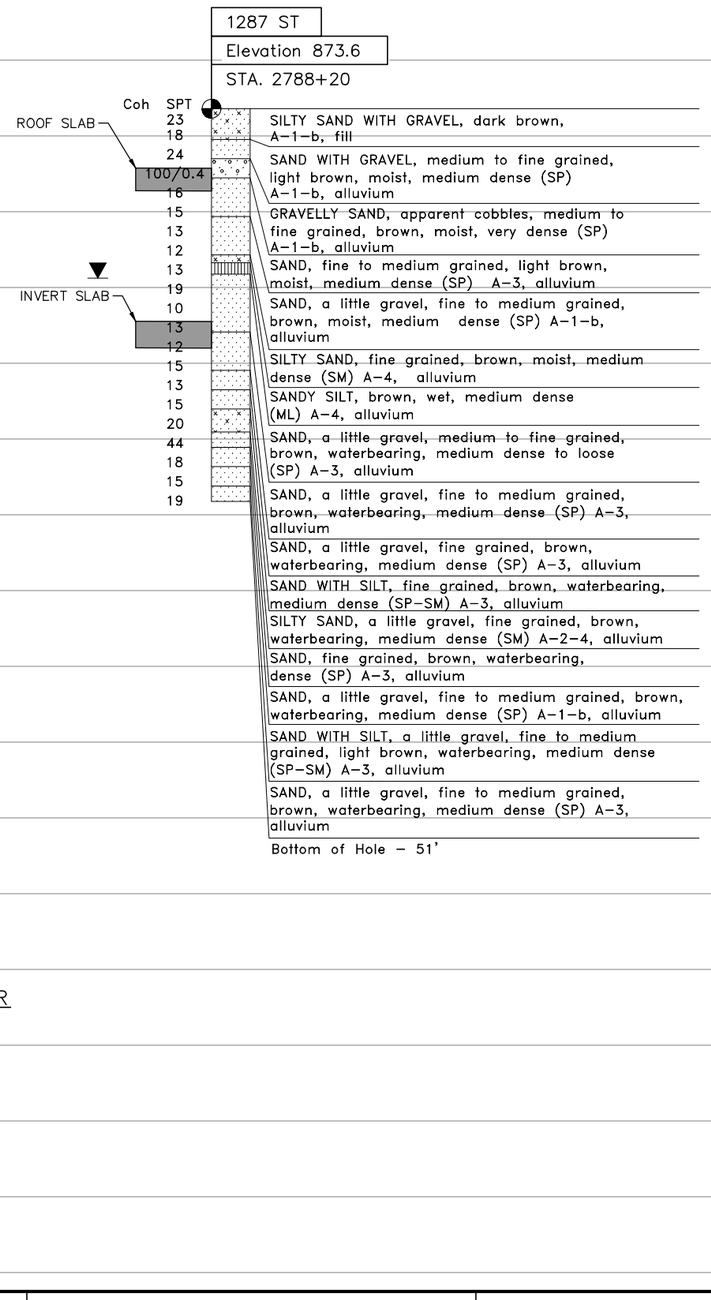
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
BORINGS
SHEET 6

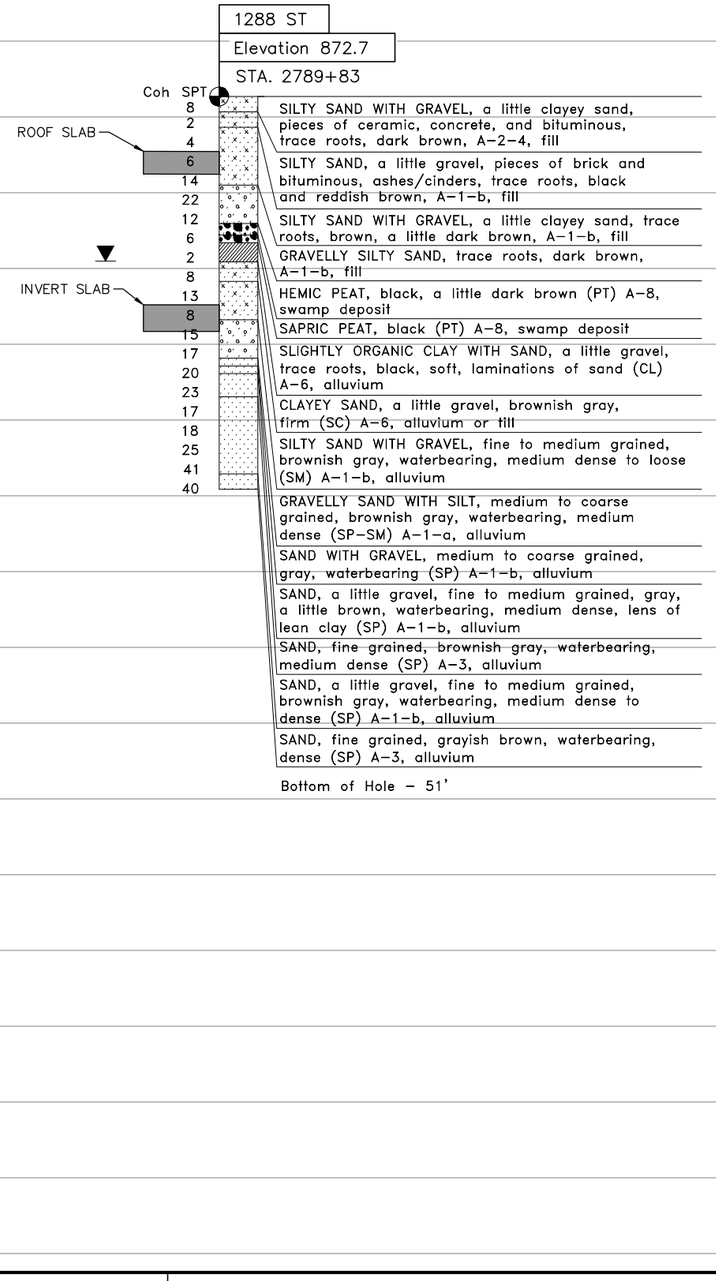
DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-BOR-006

SHEET 81 OF 148







ABBREVIATIONS – FIRST DESIGNATOR

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P – PIEZOMETER

SECOND DESIGNATOR

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AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
BORINGS
SHEET 7

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-BOR-007

SHEET 82 OF 148

1003 SB
Elevation 872.4
STA. 2791+61

Coh	N60	
		Silty sand with organic fines, trace roots, dark brown, frozen (A–2–4) fill
ROOF SLAB	11	Mixture of silty sand and clayey sand, with gravel, trace roots, dark brown and black, frozen to 1.5' (A–2–4) fill
	11	Silty sand, a little gravel and ashes/cinders, pieces of glass, dark brown (A–2–4) fill
	23	Silty sand with gravel, pieces of glass, brown (A–2–4) fill
	8	SAND WITH SILT AND GRAVEL, fine to medium grained, light
	7	grayish brown, moist, medium dense (SP–SM) (A–1–b) alluvium
	15	or fill
	20	SAND WITH SILT, a little gravel, medium grained, grayish
INVERT SLAB	15	brown, moist, loose (SP–SM) (A–1–b) alluvium
	12	SAND WITH SILT, a little gravel, fine to medium grained, light
	13	brownish gray, moist, loose, laminations of clayey sand (SP–SM)
	15	(A–3) alluvium
	14	SAND WITH SILT AND GRAVEL, medium to fine grained,
	12	grayish brown to light grayish brown, moist, medium dense
	19	(SP–SM) (A–1–b) alluvium
	15	SAND, fine grained, light brown, moist to waterbearing, medium
	27	dense (SP) (A–3) alluvium
	21	SAND, a little gravel, medium to fine grained, brownish gray to
	21	gray, waterbearing, medium dense (SP) (A–1–b) alluvium
	22	SAND WITH SILT, fine grained, brownish gray, waterbearing,
		medium dense (SP–SM) (A–3) alluvium
	11	SANDY SILT, brownish gray, wet, medium dense (ML) (A–4)
		alluvium
	31	SILTY CLAY, brownish gray, stiff (CL–ML) (A–4) alluvium
		SAND WITH GRAVEL, medium grained, brownish gray,
	17	waterbearing, medium dense, a lens of fine grained sand (SP)
		(A–1–b) alluvium
	17	SAND, a little gravel, medium to fine grained, brownish gray,
		waterbearing, medium dense (SP) (A–1–b) alluvium
	30	SAND, fine to medium grained, grayish brown, waterbearing,
		medium dense (SP) (A–3) alluvium
	34	SAND, a little gravel, fine grained, grayish brown, waterbearing,
		medium dense (SP) (A–3) alluvium
	26	SAND, a little gravel, medium to fine grained, brownish gray,
		waterbearing, medium dense to dense (SP) (A–1–b) alluvium
	26	SAND, a little gravel, medium grained, brownish gray,
		waterbearing, medium dense (SP) (A–1–b) alluvium
	32	SAND, fine to medium grained, brownish gray, waterbearing,
		medium dense to dense (SP) (A–3) alluvium
	37	SAND, a little gravel, medium to fine grained, brownish gray,
		waterbearing, medium dense (SP) (A–1–b) alluvium
		SAND, apparent cobbles and gravel at 94', medium grained,
		brownish gray, waterbearing, medium dense to dense, lenses of
		medium to fine grained sand (SP) (A–1–b) alluvium
		SAND WITH GRAVEL, medium to fine grained, brownish gray,
	35	waterbearing, dense, a lens of fine to medium grained (SP)
		(A–1–b) alluvium
		SAND WITH GRAVEL, apparent cobbles at 114', medium to
		fine grained, brownish gray, waterbearing, dense, a lens of fine
		to medium grained (SP) (A–1–b) alluvium
	65	GRAVELLY SAND, apparent cobbles at 123', medium grained,
		brownish gray, waterbearing, very dense (SP) (A–1–b) alluvium
	63	GRAVELLY SAND, apparent cobbles, medium to coarse
		grained, dark brownish gray, waterbearing, very dense (SP)
		(A–1–b) alluvium
		END OF BORING

1004 SB
Elevation 870.3
STA. 2793+70

Coh	N60	
		Gravelly silty sand, a little lean clay, trace roots, dark brown, a little black, frozen to 1.5' (A–1–b) fill
ROOF SLAB	24	Gravelly sand with silt, apparent cobbles, light brown to light
	22	brownish gray (A–1–b) fill
	15	Sand with silt, a little gravel, light brownish gray (A–1–b) fill
	16	SAND, a little gravel, medium grained, light brown, moist,
	22	medium dense (SP) (A–1–b) alluvium
	20	SAND WITH SILT AND GRAVEL, fine to medium grained, light
	18	brownish gray, moist, medium dense (SP–SM) (A–3) alluvium
		SILT, brown, moist, medium dense, laminations of sandy silt
INVERT SLAB	17	(ML) (A–4) alluvium
	12	SAND, fine grained, brown, moist, medium dense, lenses of
	18	sand with silt (SP) alluvium
	20	SAND, a little gravel, medium to fine grained, brown,
	18	waterbearing, medium dense (SP) (A–1–b) alluvium
	20	SAND, a little gravel, fine to medium grained, brown,
	17	waterbearing, medium dense (SP) (A–3) alluvium
	26	SAND, fine grained, light brown to brown, waterbearing,
	23	medium dense (SP) (A–3) alluvium
	18	SILT, brownish gray to brown, wet, medium dense (ML)
	20	alluvium
	32	SAND, a little gravel, medium grained, grayish brown,
	30	waterbearing, medium dense (SP) (A–1–b) alluvium
		SAND, a little gravel, medium grained, grayish brown,
	62	alluvium
		SAND, fine to medium grained, grayish brown, waterbearing,
	29	medium dense (SP) (A–3) alluvium
		SAND, fine grained, brown, waterbearing, very dense (SP) (A–3)
	24	alluvium
		SAND, a little gravel, fine to medium grained, brown to grayish
	29	brown, waterbearing, medium dense (SP) (A–3) alluvium
		SAND, a little gravel, medium to fine grained, brownish gray,
	23	waterbearing, medium dense, lenses of fine to medium grained
		sand (SP) (A–1–b) alluvium
	26	
	16	SAND, medium grained, brownish gray, waterbearing, medium
	25	dense, lenses of fine to medium grained sand (SP) (A–1–b)
	26	alluvium
	37	SAND WITH GRAVEL, apparent cobble at 98', fine to medium
		grained, brownish gray, waterbearing, dense (SP) (A–1–b)
		alluvium
	18	SAND, medium grained, brownish gray, waterbearing, medium
		dense, lenses of fine to medium grained sand (SP) (A–1–b)
	12	alluvium
		SAND WITH GRAVEL, medium grained, brownish gray,
		waterbearing, medium dense (SP) (A–1–b) alluvium
	15	
		GRAVEL WITH SAND, apparent cobbles, brownish gray,
	44	waterbearing, dense (GP) (A–1–a) alluvium or colluvium
		END OF BORING

1154 ST
Elevation 871.8
STA. 2794+93

Coh	N60	
	25	Clayey sand with organic fines, a little gravel, trace roots, black
	28	(A–2–6) fill
ROOF SLAB	26	Gravelly silty sand, pieces of wood, trace roots, brown (A–1–b) fill
	26	GRAVELLY SAND WITH SILT, fine to medium grained, brown,
	33	moist, medium dense (SP–SM) (A–1–b) alluvium
	47	SAND WITH SILT AND GRAVEL, fine to medium grained,
	20	grayish brown, moist, medium dense (SP–SM) alluvium
	19	SAND WITH SILT AND GRAVEL, fine to medium grained,
	27	brown to grayish brown, moist, dense (SP–SM) (A–1–b) alluvium
		SAND, fine grained, light brown, a little brown, moist, medium
INVERT SLAB	21	dense, laminations of silt (SP) (A–3) alluvium
	29	SAND, a little gravel, fine to medium grained, light brown, moist,
	23	medium dense, laminations of silt (SP) (A–3) alluvium
	21	SAND, a little gravel, medium grained, light brown,
	26	waterbearing, medium dense (SP) (A–1–b) alluvium
	23	GRAVELLY SAND, medium grained, light brown, waterbearing,
	64	medium dense (SP) (A–1–b) alluvium
	68	SAND WITH SILT, fine grained, brown to gray, waterbearing,
	49	medium dense (SP–SM) (A–3) alluvium
	57	SANDY SILT, gray to grayish brown, wet, very dense (ML) (A–4)
	23	alluvium
	13	SAND, fine grained, grayish brown, waterbearing, dense (SP)
		(A–3) alluvium
		SILTY CLAY, grayish brown, hard (CL–ML) (A–4) alluvium
		SAND, fine to medium grained, brown, waterbearing, medium
		dense (SP) (A–3) alluvium
		SAND WITH GRAVEL, medium to coarse grained, brown,
		waterbearing, medium dense (SP) (A–1–b) alluvium
		END OF BORING

NOTES:

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. THE SOIL GROUP CATEGORY PER THE AASHTO SOIL CLASSIFICATION SYSTEM IS ALSO SHOWN.

ABBREVIATIONS – FIRST DESIGNATOR

S – STANDARD PENETRATION TEST BORING
C – CORE PENETRATION TEST BORING
P – PIEZOMETER

SECOND DESIGNATOR

T – TRACK
B – BRIDGE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

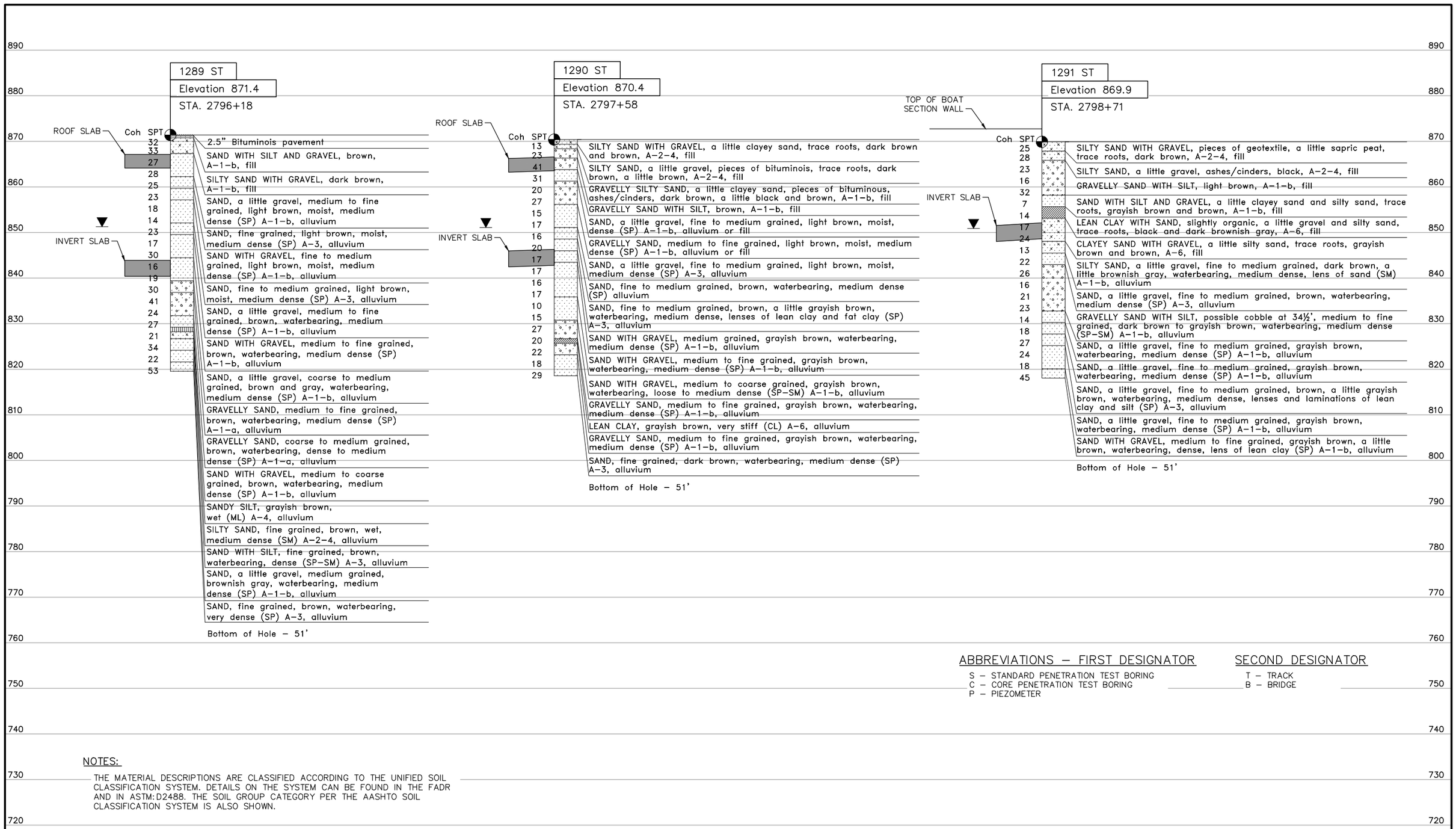
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
BORINGS
SHEET 8

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-BOR-008

SHEET 83 OF 148



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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
BORINGS
SHEET 9

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-BOR-009

SHEET 84 OF 148

1153 ST

Elevation 869.2

STA. 2799+86

TOP OF BOAT SECTION WALL

INVERT SLAB

Coh	N60	
	9	Gravelly silty sand, pieces of concrete, trace roots, dark brown (A–1–b) fill
	8	Sand with silt, a little gravel, silty sand and ashes/cinders, dark brown, a little black, fill
	13	Gravelly sand with silt, brown (A–1–b) fill
	24	Silty sand with gravel, brown (A–1–b) fill
	9	Gravelly sand with silt, a little clayey sand, brown (A–1–b) fill
	12	Clayey sand, a little gravel, dark brown (A–6) fill
	9	Gravelly sand with silt, a little hemic peat, brown, a little dark brown (A–1–b) fill
	3	ORGANIC CLAY, black, soft (OH) (A–8) swamp deposits
	▼13	SANDY LEAN CLAY WITH GRAVEL, dark brownish gray, stiff (CL) (A–7–6) till
	12	GRAVELLY SAND WITH SILT, gray, medium dense, a lens of silty sand (SP–SM) (A–1–b) alluvium
	21	GRAVEL WITH SILT AND SAND, gray, waterbearing, medium dense (GP–GM) alluvium
	22	GRAVELLY SAND, medium grained, gray, waterbearing, medium dense (SP) alluvium
	19	SAND WITH SILT, a little gravel, medium to fine grained, dark gray, waterbearing, medium dense (SP–SM) (A–1–b) alluvium
	28	GRAVEL WITH SILT AND SAND, gray, waterbearing, medium dense to dense (GP–GM) (A–1–b) alluvium
	36	
	27	SAND, a little gravel, medium to fine grained, brown, waterbearing, medium dense (SP) (A–1–b) alluvium
	27	SAND WITH GRAVEL, medium to coarse grained, dark gray, waterbearing, medium dense (SP) (A–1–b) alluvium
	26	SAND, a little gravel, medium to fine grained, light brown, waterbearing, medium dense, laminations of lean clay (SP) (A–1–b) alluvium
	26	SAND WITH GRAVEL, medium grained, brown, waterbearing, medium dense (SP) (A–1–b) alluvium
	36	SAND, a little gravel, medium to fine grained, brown, a little gray, waterbearing, dense, lenses of lean clay (SP) (A–1–b) alluvium
	27	SAND, fine grained, grayish brown, waterbearing, medium dense, laminations of medium grained sand (SP) (A–3) alluvium END OF BORING

ABBREVIATIONS – FIRST DESIGNATOR

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C – CORE PENETRATION TEST BORING
P – PIEZOMETER

SECOND DESIGNATOR

T – TRACK
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NOTES:

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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
BORINGS
SHEET 10

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-BOR-010

SHEET 85 OF 148

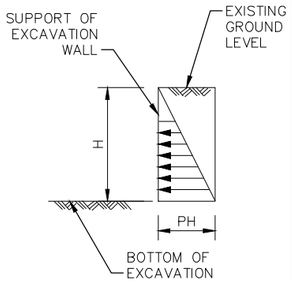
Jan, 16 2016 12:30 pm \\Nadtc2fp001\swlrt\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-BOR-010.dwg By: YuB1

MINIMUM DESIGN LATERAL PRESSURE FOR SUPPORT OF EXCAVATION ABOVE BOTTOM OF EXCAVATION

DUE TO SOIL AND WATER

CANTILEVER WALL SYSTEMS

DEWATERED



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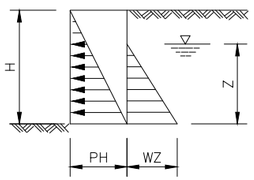
NOT DEWATERED



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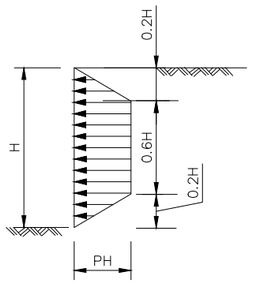
P=62.4

BRACED WALL SYSTEMS

DEWATERED



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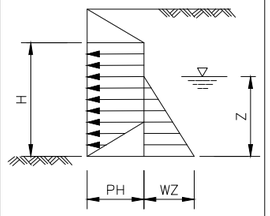
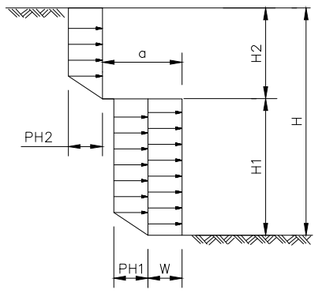


P=USE VALUES SPECIFIED FOR DEWATERED CASE

W=62.4



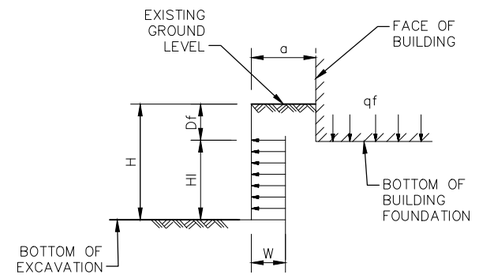
DUE TO BENCH EXCAVATION

1. THE DESIGN PRESSURE (P) TO BE DETERMINED FOR SPECIFIC CONFIGURATION.
2. THE SURCHARGE (W) FROM THE UPPER BENCH MAY BE NEGLECTED IF THE WIDTH OF THE BENCH (a) IS GREATER THAN HEIGHT OF THE LOWER EXCAVATION (H1).

GENERAL NOTES:

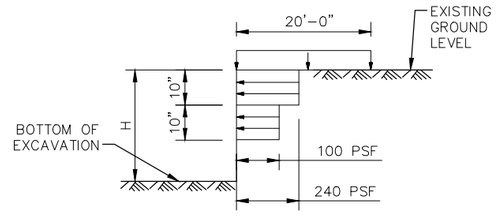
1. VALUES SHOWN FOR PRESSURE GRADIENTS P, W, Pp & Pp' ARE IN POUNDS PER SQUARE FOOT PER FOOT OF DEPTH.
2. VALUES FOR DISTANCES ARE IN FEET.
3. BRACE LEVELS ARE NOT SHOWN; THE DIAGRAMS SHOWN ABOVE "FOR SUPPORT OF EXCAVATION ABOVE BOTTOM OF EXCAVATION" ARE APPLICABLE TO MULTIPLE-BRACED SYSTEMS.
4. LATERAL SURCHARGE PRESSURE FROM TRAFFIC & CONSTRUCTION EQUIPMENT IS BASED ON AN ASSUMED TRAFFIC SURFACE SURCHARGE OF 600 PSF ACTING OVER THE TRAFFIC LANES. FOR MORE SEVERE CONSTRUCTION EQUIPMENT LOADING, SPECIAL ANALYSIS MUST BE PERFORMED.
5. ALL VALUES GIVEN FOR LATERAL PRESSURES ARE MINIMUM. INCREASE, AS REQUIRED, TO SUIT ACTUAL CONDITIONS ENCOUNTERED IN THE FIELD. INCREASED LATERAL LOAD DUE TO ADVERSE BEDDING CONDITION SHOULD BE CONSIDERED.
6. PRELOADING OF BRACED SHORING SYSTEM IS REQUIRED. PRELOADING OF BRACED SHORING MINIMUM OF 60% OF THE STRUT ULTIMATE LOAD GIVEN ON THE DRAWINGS.

DUE TO SURCHARGE, EARTHQUAKE AND BUILDINGS

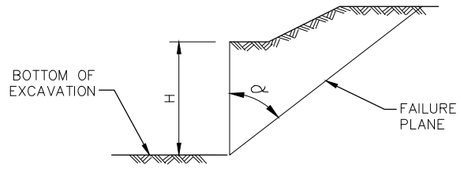


PRESSURES (W) DUE TO BUILDING FOUNDATION ARE TO BE DETERMINED BY THE CONTRACTOR ON A CASE-BY-CASE BASIS. CONTRACTOR SHALL DETERMINE BUILDING FOUNDATION PRESSURE (qf), DISTANCE FROM THE EXCAVATION (a), AND DEPTH OF FOUNDATION (Df) BY EXAMINATION OF EXISTING PLANS AND BY ON-SITE FIELD INSPECTION. PRESSURES USED FOR DESIGN SHALL BE SUBJECT TO APPROVAL BY ENGINEER.

TRAFFIC AND CONSTRUCTION EQUIPMENT



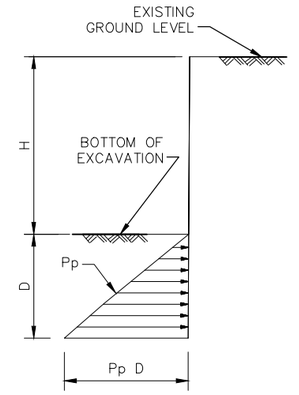
EMBANKMENT



ANGLE "α" FOR FAILURE PLANE SHALL BE DETERMINED BY THE CULMANN GRAPHICAL METHOD; SEE "SOIL MECHANICS IN ENGINEERING PRACTICE" 3RD. ED. BY TERZAGHI PECK & MASRI. ALL SURCHARGES AFFECTING AND WITHIN THE FAILURE PLANE SHALL BE CONSIDERED IN ESTIMATING LATERAL LOAD.

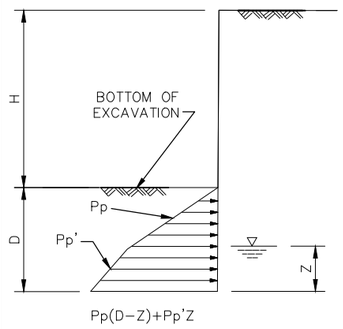
DESIGN PASSIVE RESISTANCE

RETAINED DEWATERED



Pp=300 FOR EMBEDMENT IN SOIL, 3 KSF MAXIMUM PRESSURE

RETAINED, NOT DEWATERED



Pp=180 FOR EMBEDMENT IN SOIL, 3 KSF MAXIMUM PRESSURE

NOTES:

A. FOR CANTILEVER SHEETING DESIGN THE PENETRATION FOUND BY USING DIAGRAMS ABOVE SHALL BE INCREASED BY 20%.

B. FOR HORIZONTALLY CONTINUOUS WALLS, BOTH ACTIVE AND PASSIVE PRESSURES AS SHOWN ON THIS DRAWING SHALL BE APPLIED ON A ONE FOOT LENGTH OF WALL BASIS.

C. MINIMUM PENETRATIONS FOR PASSIVE RESISTANCE:
VERTICAL RESISTING ELEMENTS OF SUPPORT OF EXCAVATION WALL SYSTEMS SHALL SATISFY THE MINIMUM PENETRATION DEPTH OUTLINED AS FOLLOWS UNLESS ANALYSIS SHOWS SMALLER PENETRATION CAN BE USED.

1. BELOW BOTTOM OF EXCAVATION DEEPER THAN 40 FEET
   12 FEET FOR SOLDIER PILES
   8 FEET FOR CONTINUOUS WALL SYSTEMS.
2. BELOW BOTTOM OF EXCAVATION LESS THAN 40 FEET
   10 FEET FOR SOLDIER PILES
   7 FEET FOR CONTINUOUS WALL SYSTEMS.
3. BELOW BOTTOM OF EXCAVATION LESS THAN 20 FEET
   8 FEET FOR SOLDIER PILES
   6 FEET FOR CONTINUOUS WALL SYSTEMS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TEMPORARY EXCAVATION SUPPORT DESIGN CRITERIA

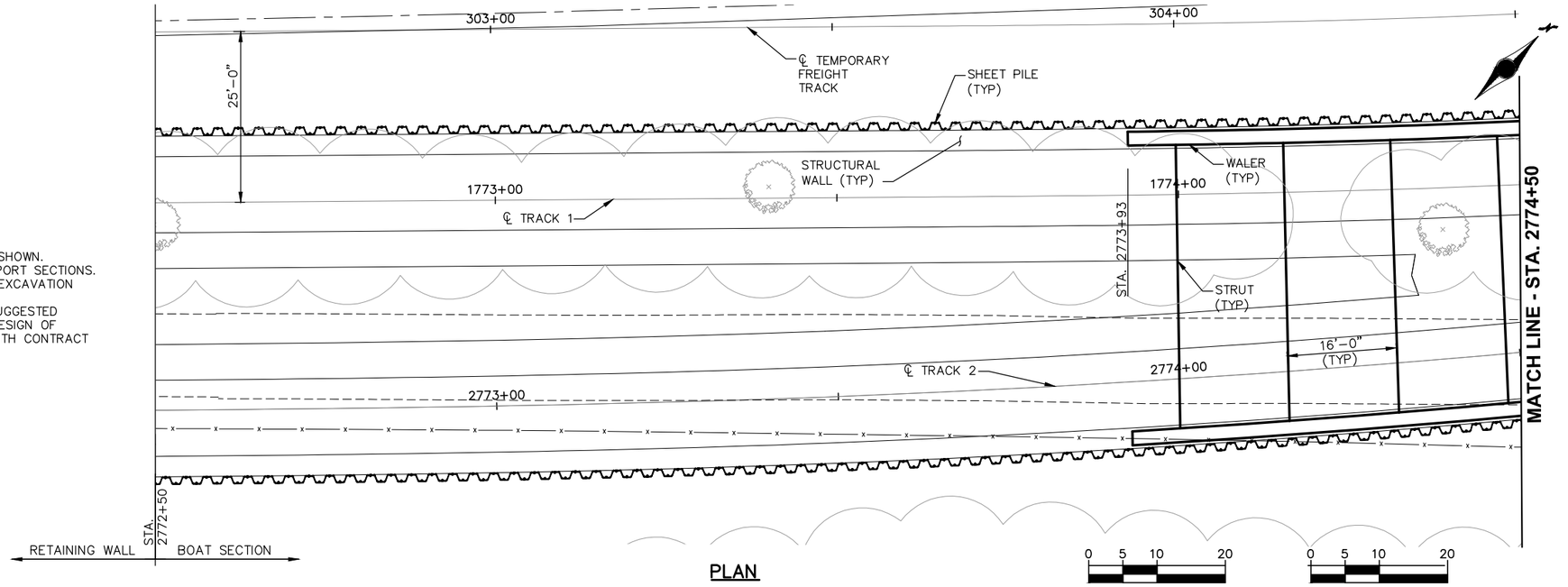
DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-SOE-CRI-001

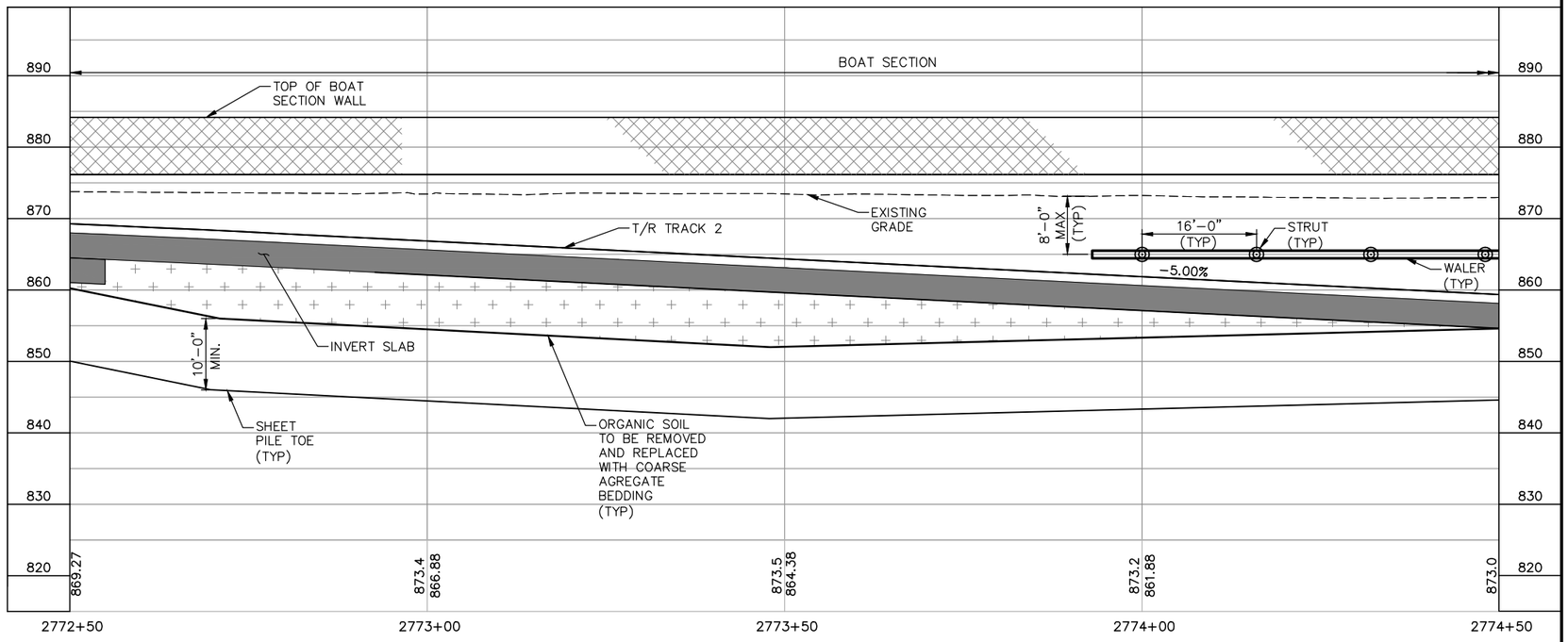
SHEET 86 OF 148

NOTES:

1. THE WEST WALL EXCAVATION SUPPORT ELEVATION IS SHOWN.
2. FOR STRUT VERTICAL SPACING, SEE EXCAVATION SUPPORT SECTIONS.
3. FOR EXCAVATION SUPPORT DETAILS, SEE SUGGESTED EXCAVATION SUPPORT DETAILS SHEETS.
4. EXCAVATION SUPPORT SHOWN ON THIS DRAWING IS SUGGESTED ONLY. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF TEMPORARY EXCAVATION SUPPORT IN ACCORDANCE WITH CONTRACT DOCUMENTS.



PLAN



ELEVATION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

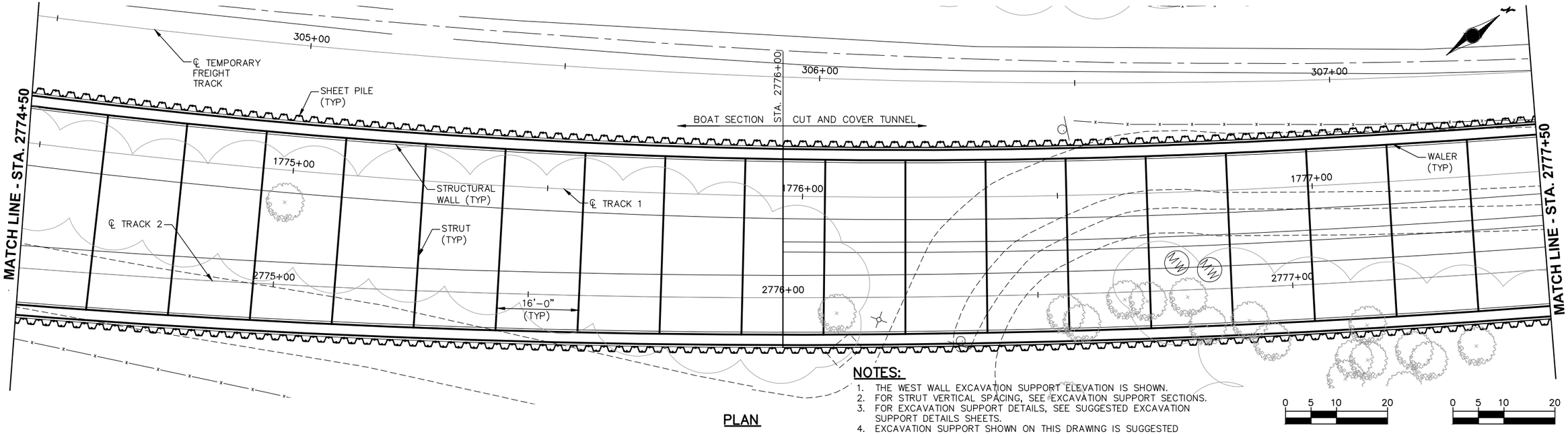
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 1

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-SOE-001

SHEET 87 OF 148

Jan, 15 2016 01:56 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-SOE-001.dwg By: D'AlvaJ



PLAN

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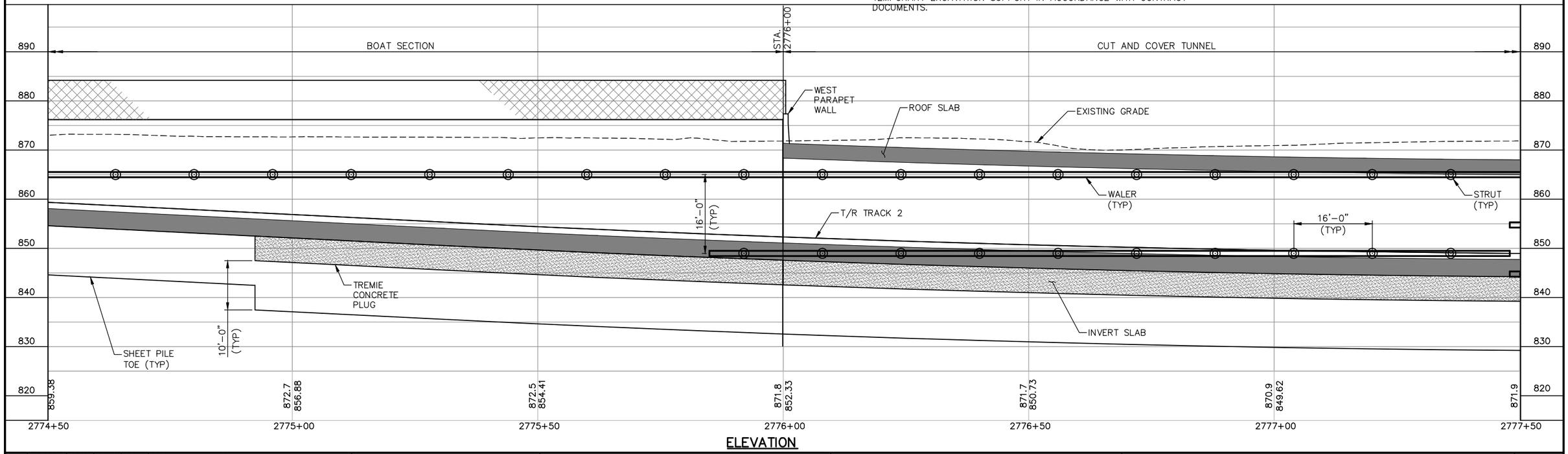

ELEVATION

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 2

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-SOE-002

SHEET 88 OF 148

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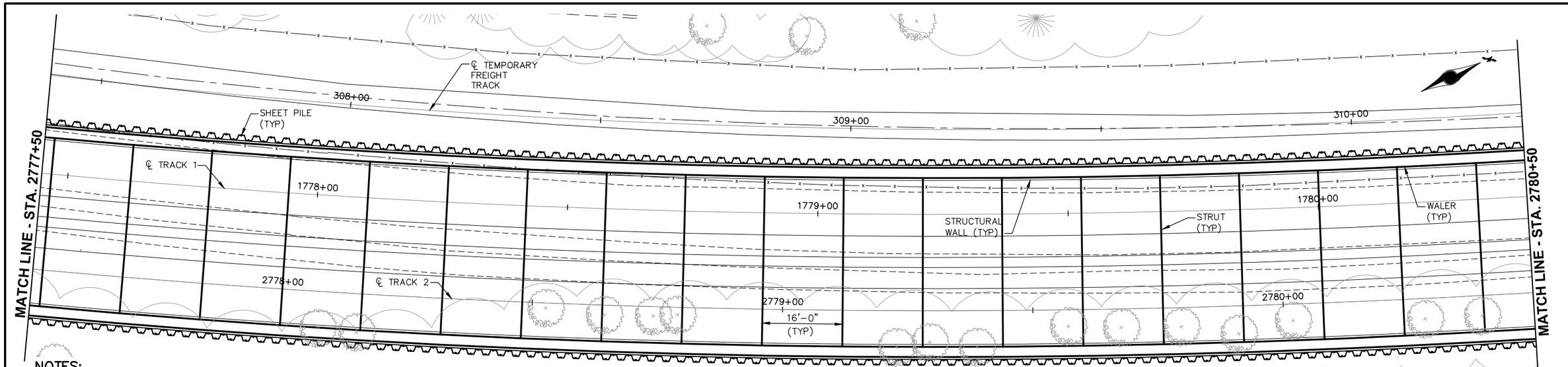

PLAN

NOTES:

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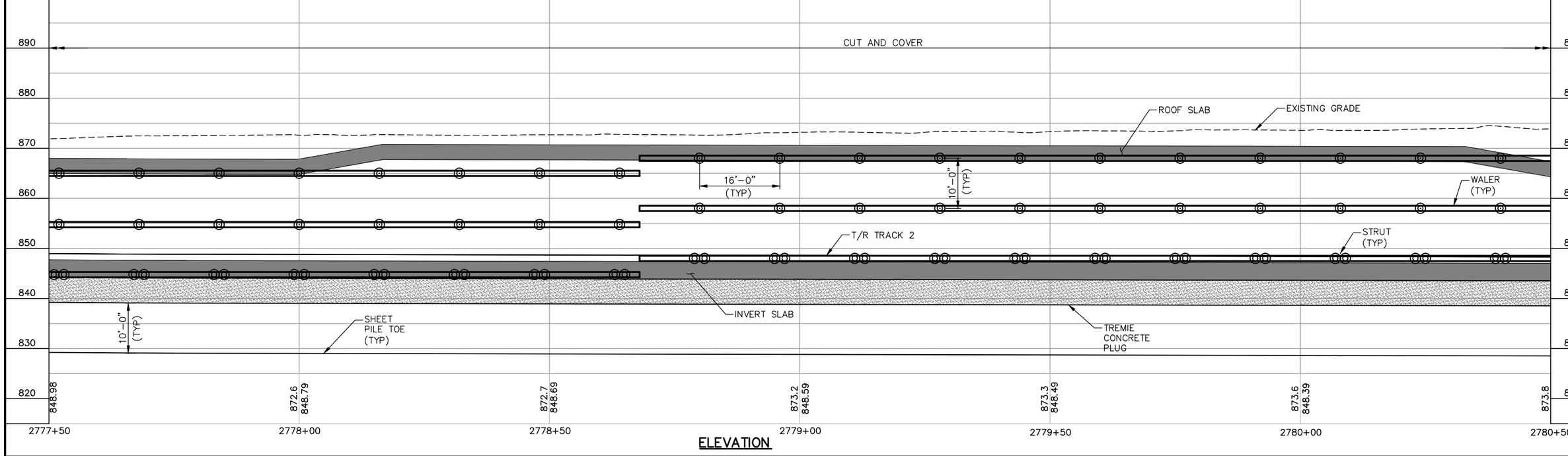
4. EXCAVATION SUPPORT SHOWN ON THIS DRAWING IS SUGGESTED ONLY. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF TEMPORARY EXCAVATION SUPPORT IN ACCORDANCE WITH CONTRACT DOCUMENTS.



ELEVATION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 3

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-SOE-003

SHEET 89 OF 148

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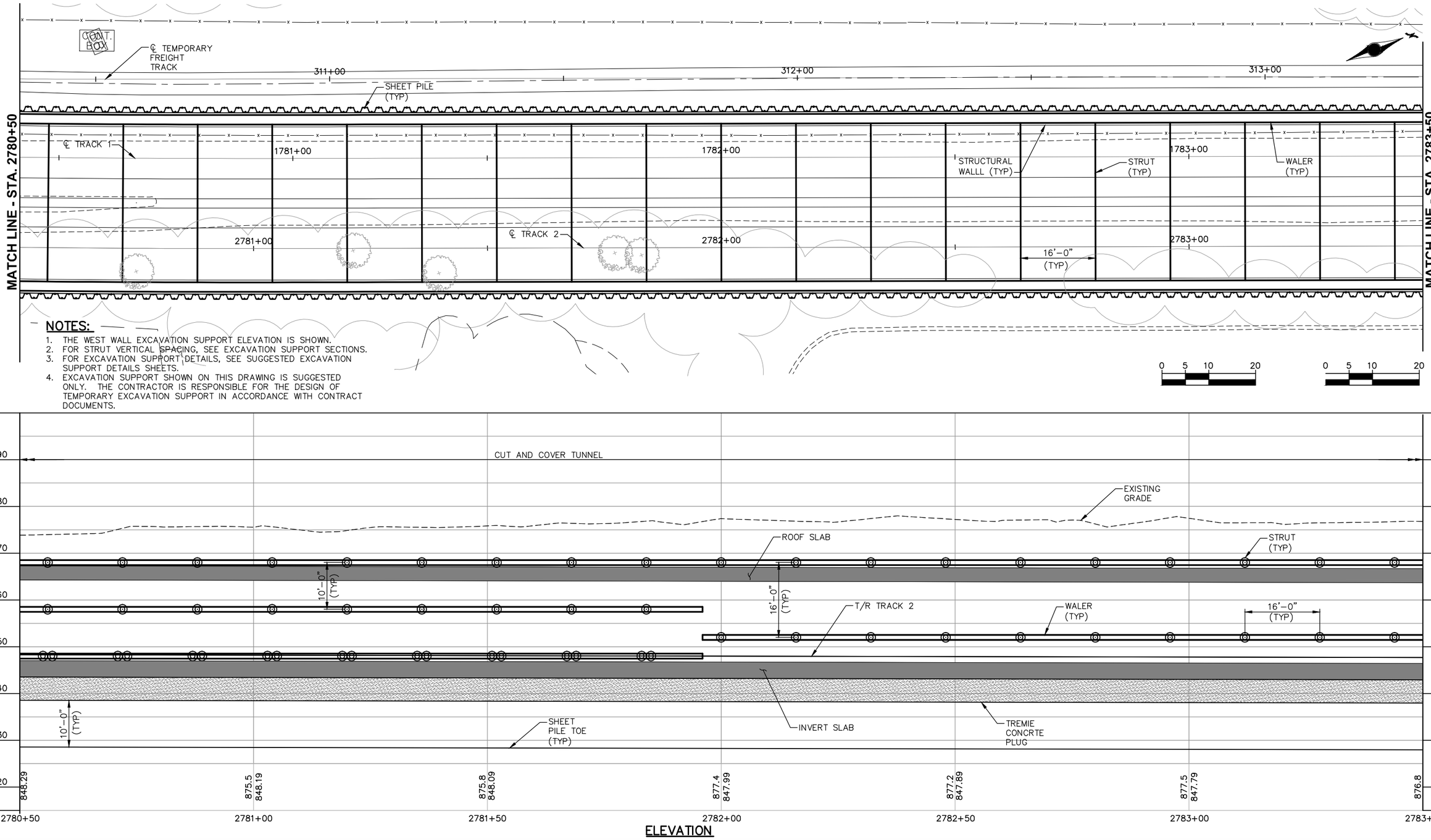

NOTES:

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ELEVATION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 4

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-SOE-004

SHEET 90 OF 148

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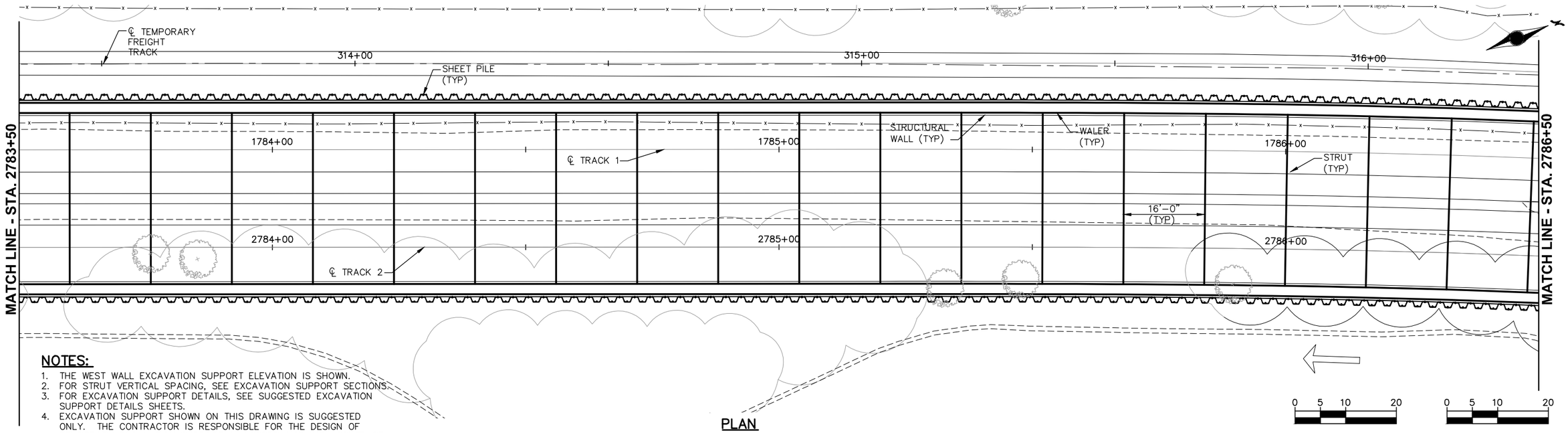

PLAN

NOTES:

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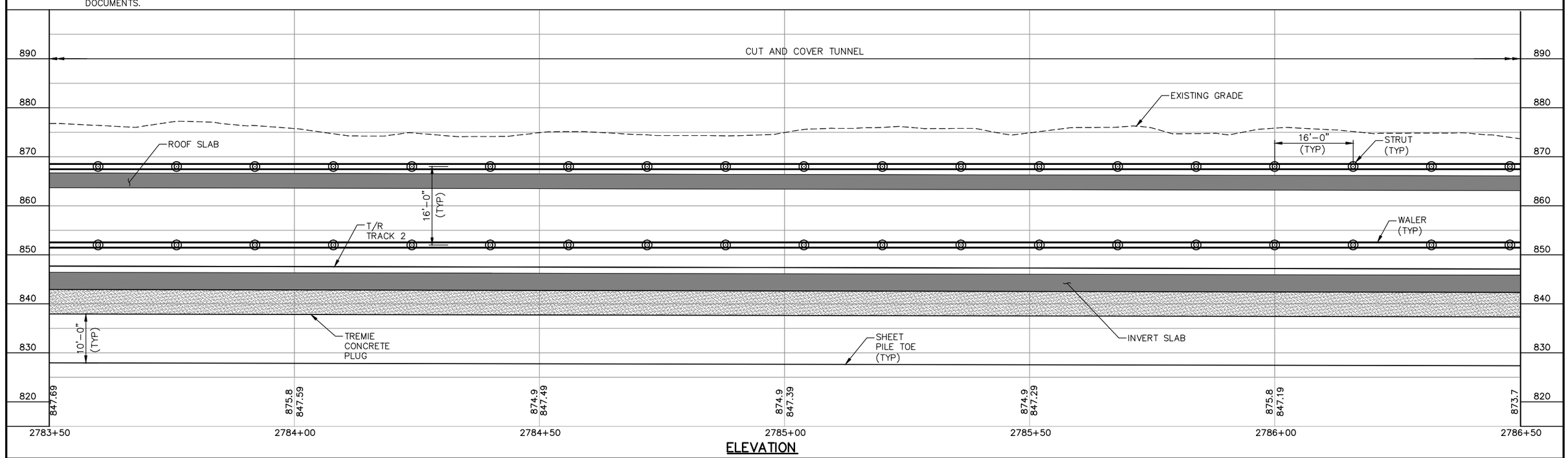
3. FOR EXCAVATION SUPPORT DETAILS, SEE SUGGESTED EXCAVATION SUPPORT DETAILS SHEETS.
4. EXCAVATION SUPPORT SHOWN ON THIS DRAWING IS SUGGESTED ONLY. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF TEMPORARY EXCAVATION SUPPORT IN ACCORDANCE WITH CONTRACT DOCUMENTS.



ELEVATION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

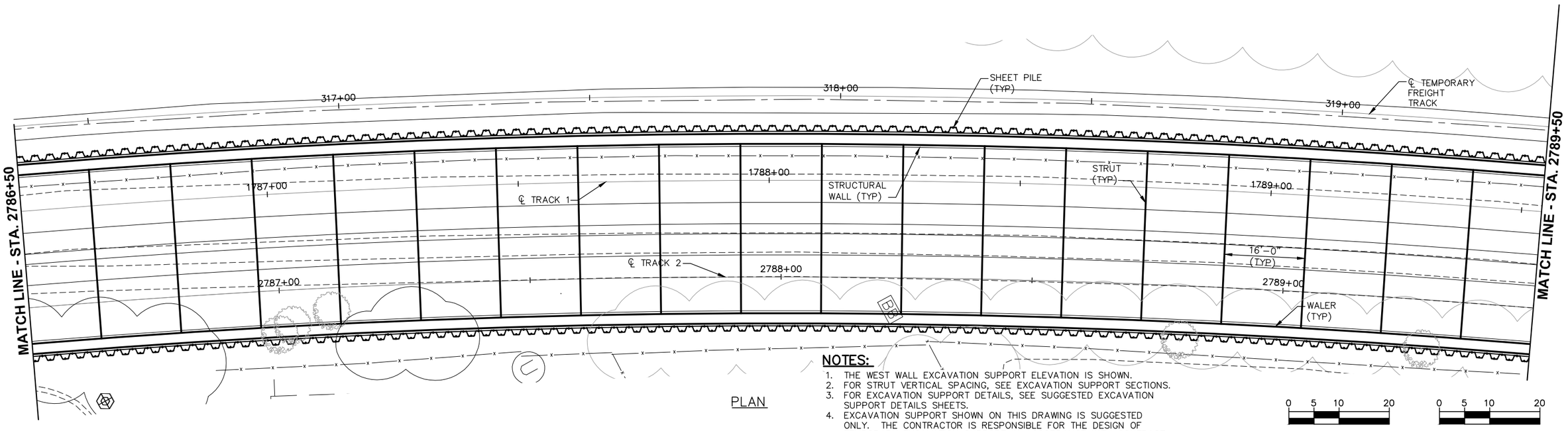
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 5

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-SOE-005

SHEET 91 OF 148

Jan, 15 2016 02:05 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-SOE-001.dwg By: D'AlvaJ

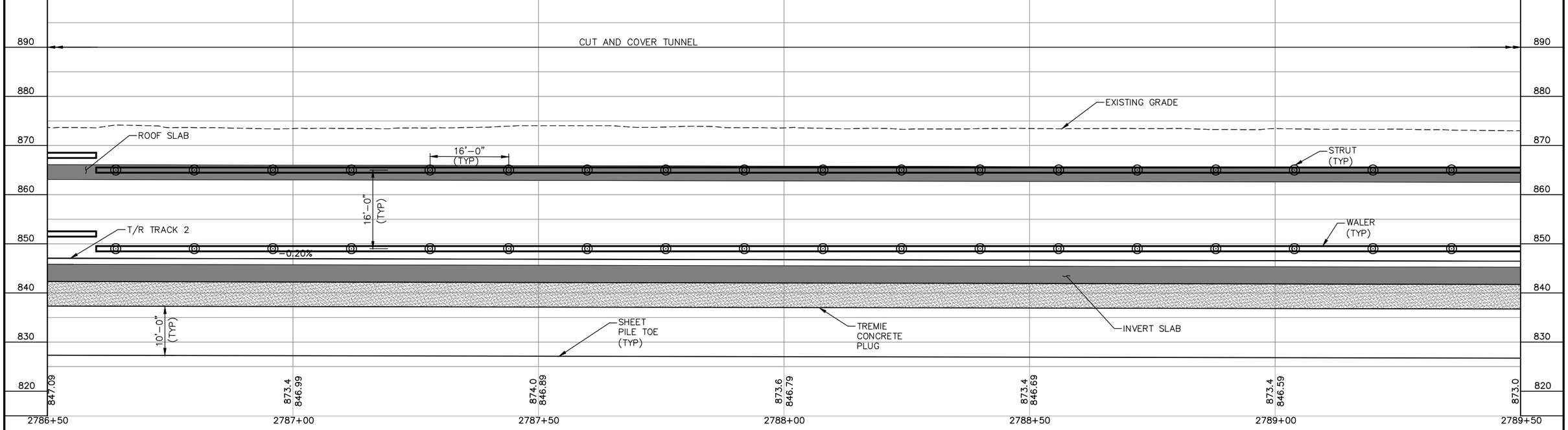


PLAN

NOTES:

1. THE WEST WALL EXCAVATION SUPPORT ELEVATION IS SHOWN.
2. FOR STRUT VERTICAL SPACING, SEE EXCAVATION SUPPORT SECTIONS.
3. FOR EXCAVATION SUPPORT DETAILS, SEE SUGGESTED EXCAVATION SUPPORT DETAILS SHEETS.
4. EXCAVATION SUPPORT SHOWN ON THIS DRAWING IS SUGGESTED ONLY. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF TEMPORARY EXCAVATION SUPPORT IN ACCORDANCE WITH CONTRACT DOCUMENTS.

0 5 10 20 0 5 10 20



ELEVATION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

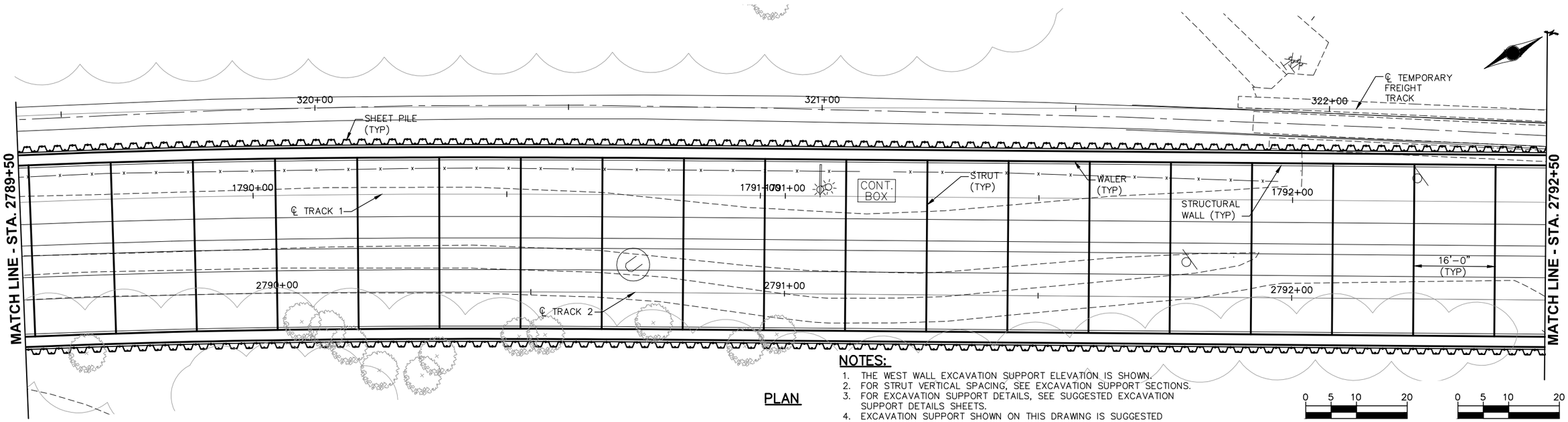
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 6

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-SOE-006

SHEET 92 OF 148

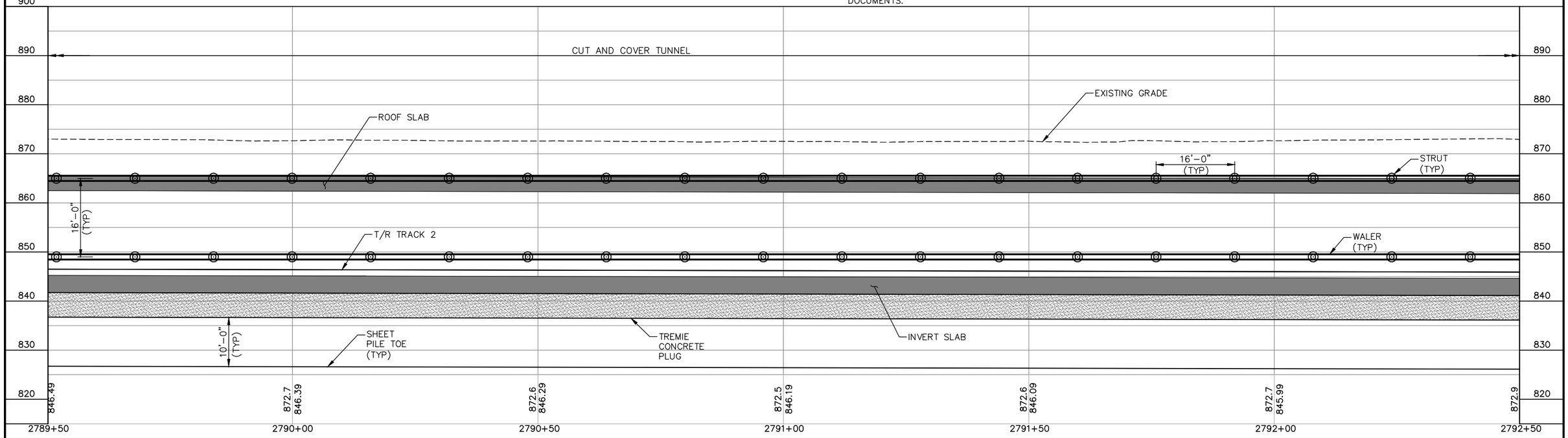
Jan, 15 2016 02:07 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-SOE-001.dwg By: D'AlvaJ



PLAN

NOTES:

1. THE WEST WALL EXCAVATION SUPPORT ELEVATION IS SHOWN.
2. FOR STRUT VERTICAL SPACING, SEE EXCAVATION SUPPORT SECTIONS.
3. FOR EXCAVATION SUPPORT DETAILS, SEE SUGGESTED EXCAVATION SUPPORT DETAILS SHEETS.
4. EXCAVATION SUPPORT SHOWN ON THIS DRAWING IS SUGGESTED ONLY. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF TEMPORARY EXCAVATION SUPPORT IN ACCORDANCE WITH CONTRACT DOCUMENTS.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

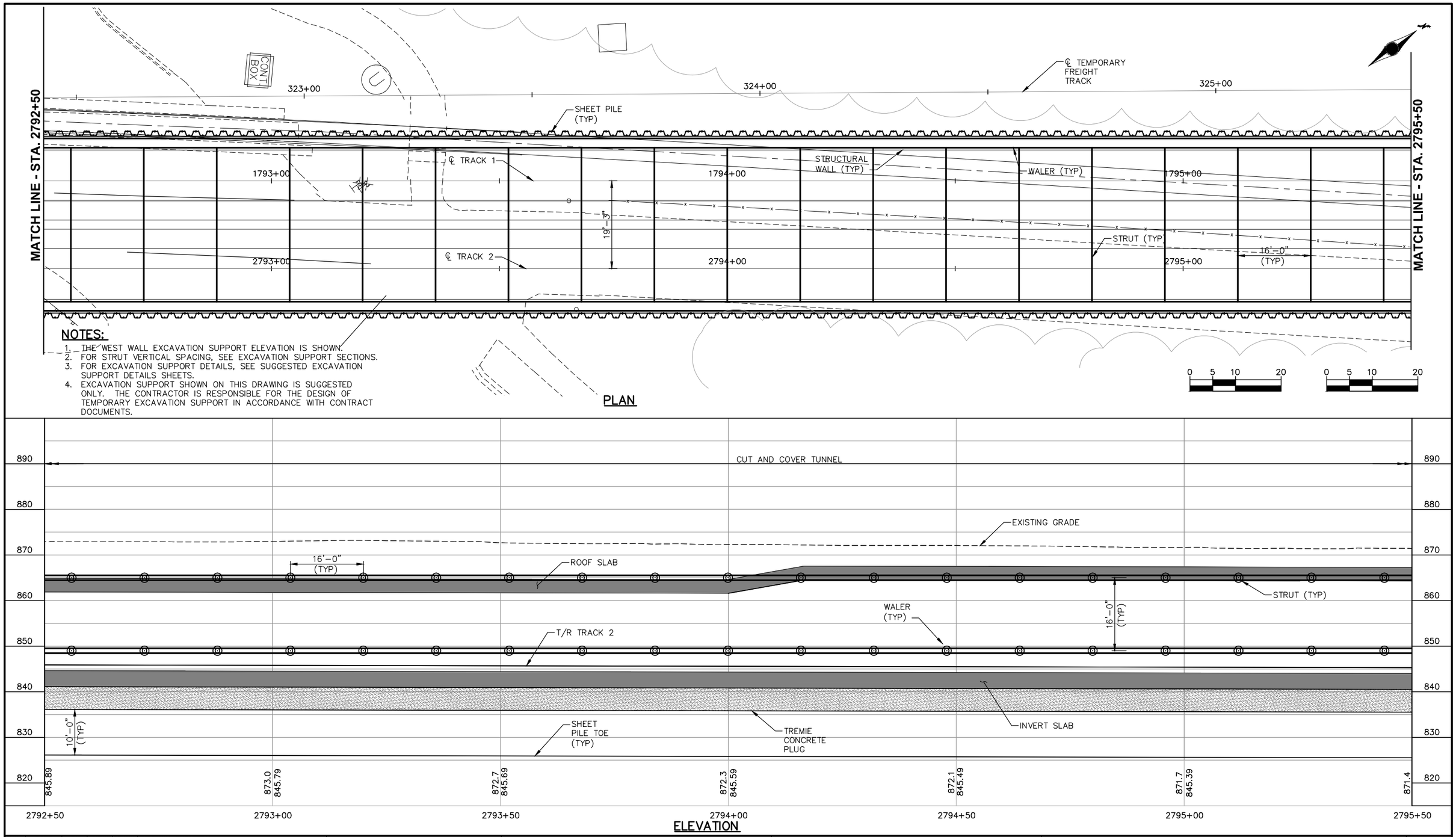
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 7

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-SOE-007

SHEET 93 OF 148

Jan, 15 2016 02:09 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-SOE-001.dwg By: D'AlvaJ



NOTES:

1. THE WEST WALL EXCAVATION SUPPORT ELEVATION IS SHOWN.
2. FOR STRUT VERTICAL SPACING, SEE EXCAVATION SUPPORT SECTIONS.
3. FOR EXCAVATION SUPPORT DETAILS, SEE SUGGESTED EXCAVATION SUPPORT DETAILS SHEETS.
4. EXCAVATION SUPPORT SHOWN ON THIS DRAWING IS SUGGESTED ONLY. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF TEMPORARY EXCAVATION SUPPORT IN ACCORDANCE WITH CONTRACT DOCUMENTS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

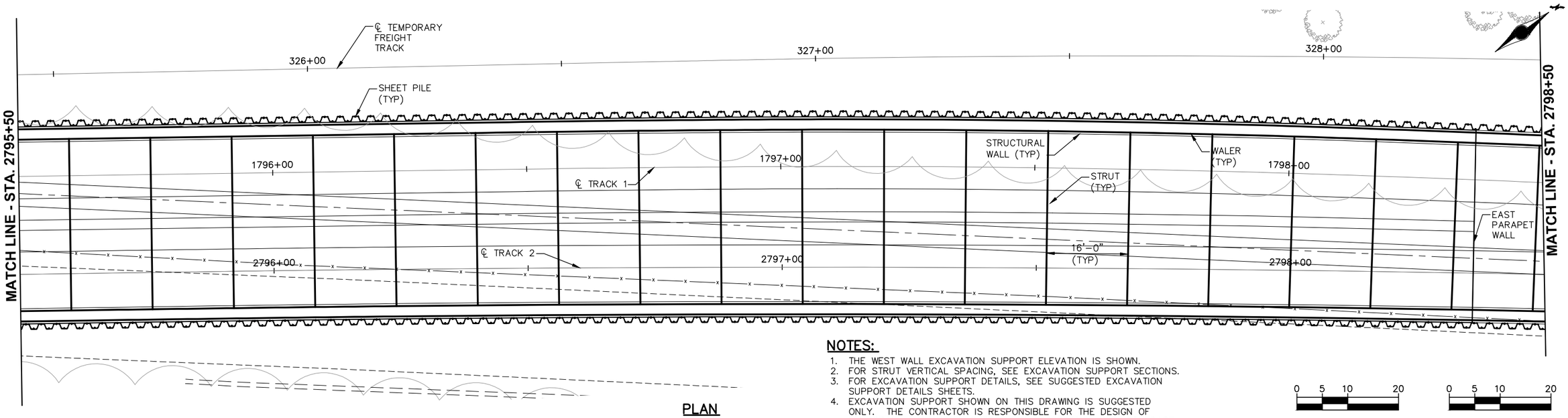
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 8

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-SOE-008

SHEET 94 OF 148



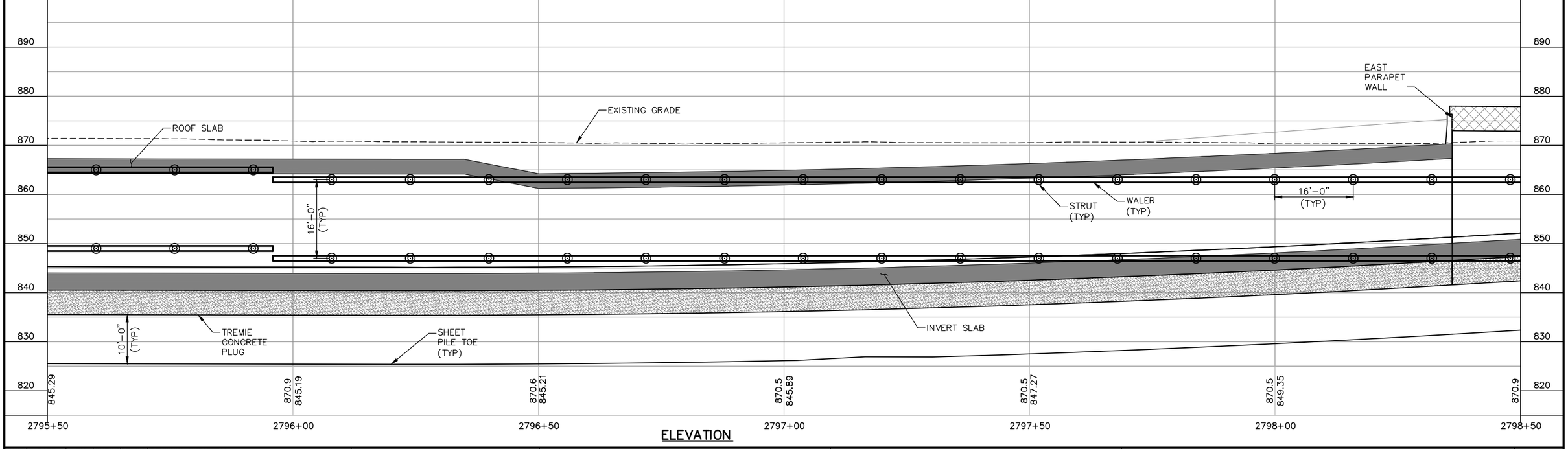
PLAN

NOTES:

1. THE WEST WALL EXCAVATION SUPPORT ELEVATION IS SHOWN.
2. FOR STRUT VERTICAL SPACING, SEE EXCAVATION SUPPORT SECTIONS.
3. FOR EXCAVATION SUPPORT DETAILS, SEE SUGGESTED EXCAVATION SUPPORT DETAILS SHEETS.
4. EXCAVATION SUPPORT SHOWN ON THIS DRAWING IS SUGGESTED ONLY. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF TEMPORARY EXCAVATION SUPPORT IN ACCORDANCE WITH CONTRACT DOCUMENTS.

0 5 10 20

0 5 10 20



ELEVATION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

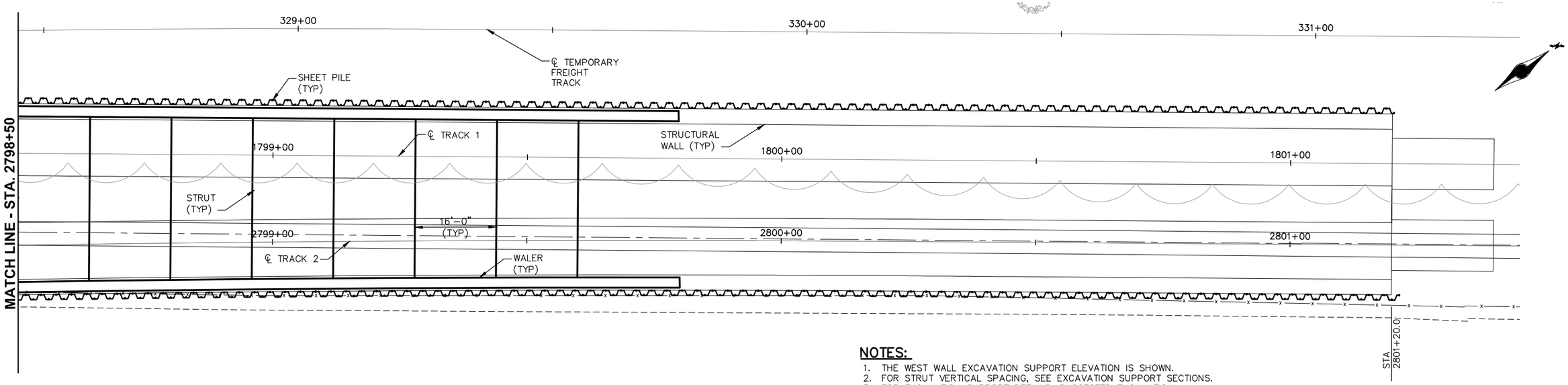
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 9

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-SOE-009

SHEET 95 OF 148

Jan, 15 2016 02:13 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-SOE-001.dwg By: D'AlvaJ

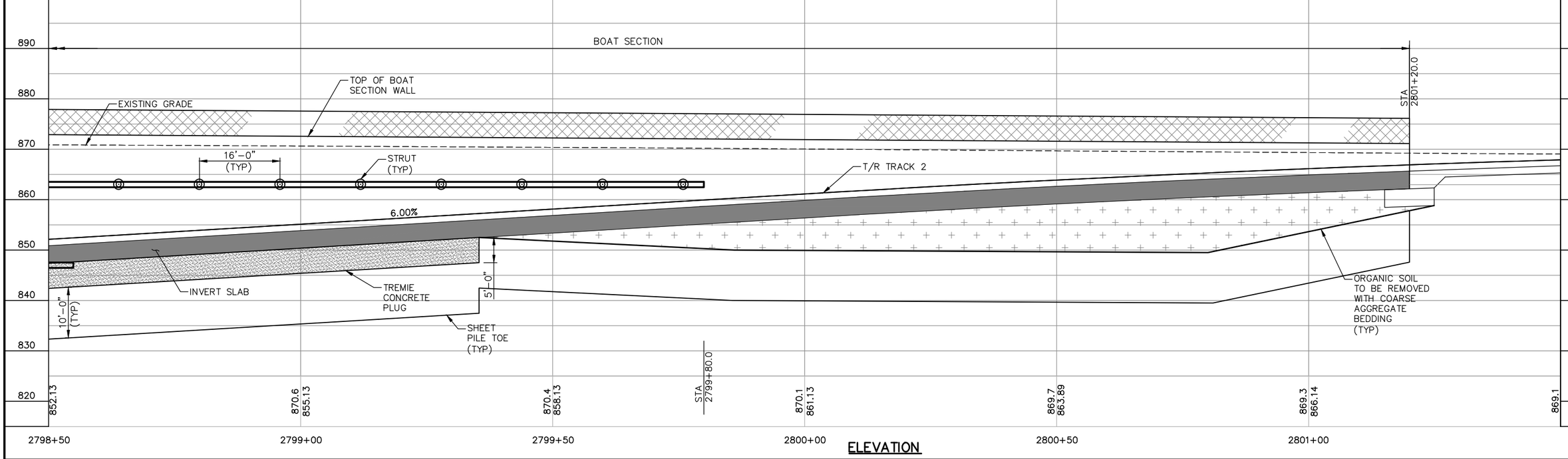


NOTES:

1. THE WEST WALL EXCAVATION SUPPORT ELEVATION IS SHOWN.
2. FOR STRUT VERTICAL SPACING, SEE EXCAVATION SUPPORT SECTIONS.
3. FOR EXCAVATION SUPPORT DETAILS, SUGGESTED EXCAVATION SUPPORT DETAILS SHEETS.
4. EXCAVATION SUPPORT SHOWN ON THIS DRAWING IS SUGGESTED ONLY. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF TEMPORARY EXCAVATION SUPPORT IN ACCORDANCE WITH CONTRACT DOCUMENTS.

0 5 10 20 0 5 10 20

PLAN



ELEVATION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SUGGESTED EXCAVATION SUPPORT PLAN AND PROFILE SHEET 10

DISCIPLINE: STRUCTURES

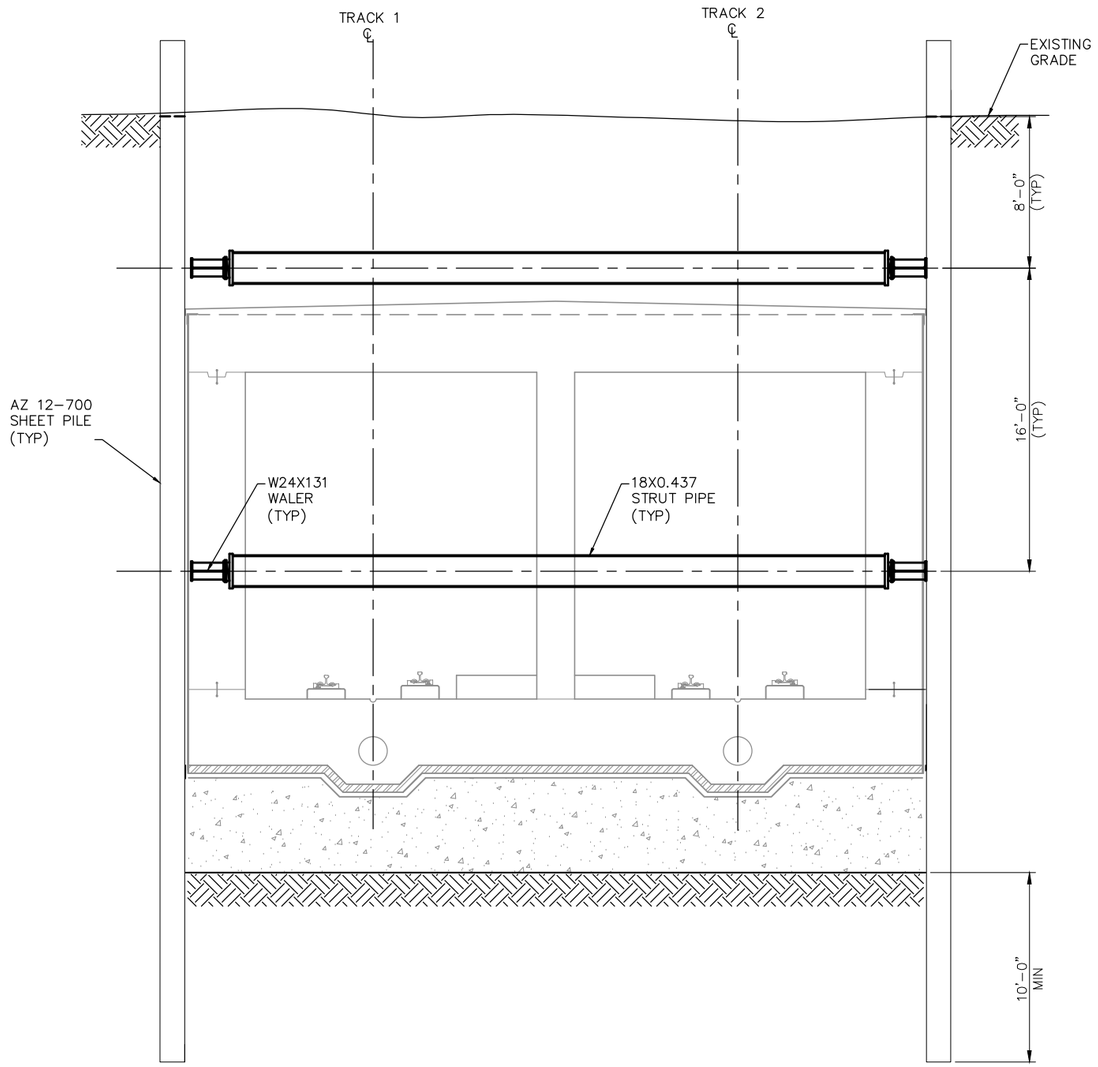
SHEET NAME: E3-STU-TUN-TUNK-SOE-010

SHEET 96 OF 148

Jan, 15 2016 02:15 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-SOE-001.dwg By: D'AlvaJ

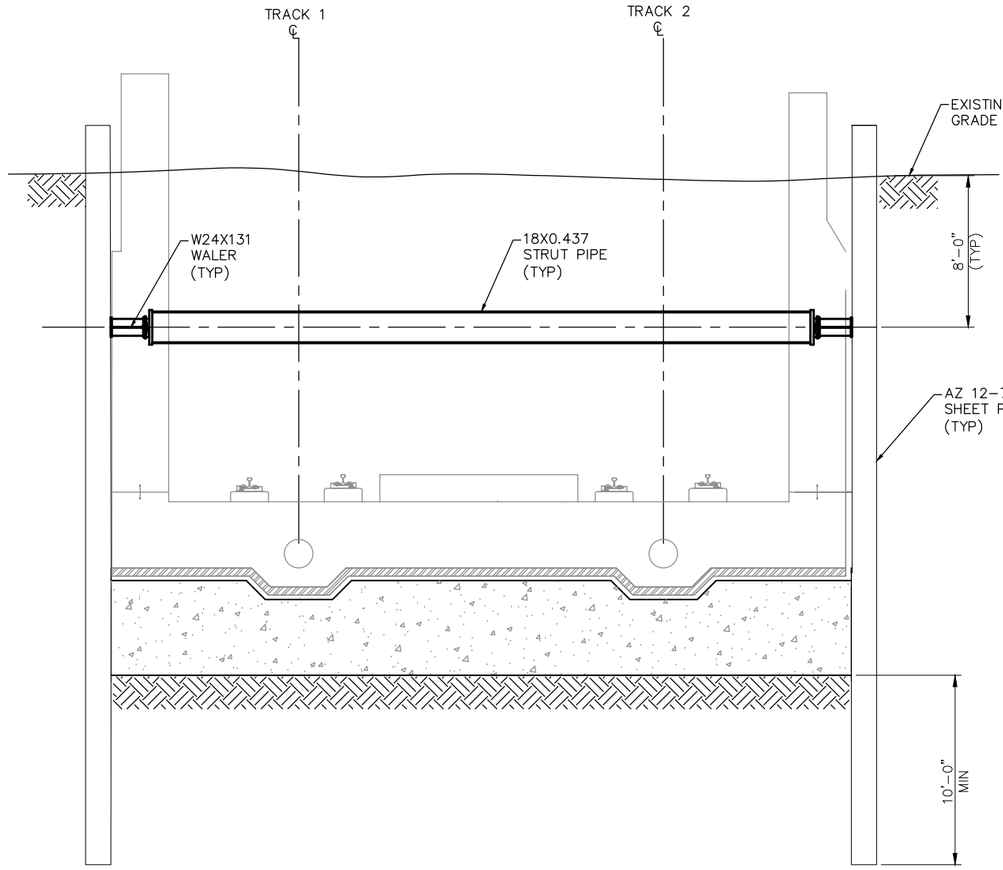
NOTES

1. FOR STRUT CONFIGURATION, SEE PLAN AND PROFILE.



TYPICAL TUNNEL TRANSVERSE SECTION SUPPORT OF EXCAVATION
FROM STA 2776+00 TO STA 2777+60
FROM STA 2782+50 TO STA 2798+36

0 2 4 8
HORIZONTAL SCALE IN FEET



TYPICAL BOAT SECTION SUPPORT OF EXCAVATION

0 2 4 8
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SUGGESTED EXCAVATION SUPPORT SECTIONS SHEET 1

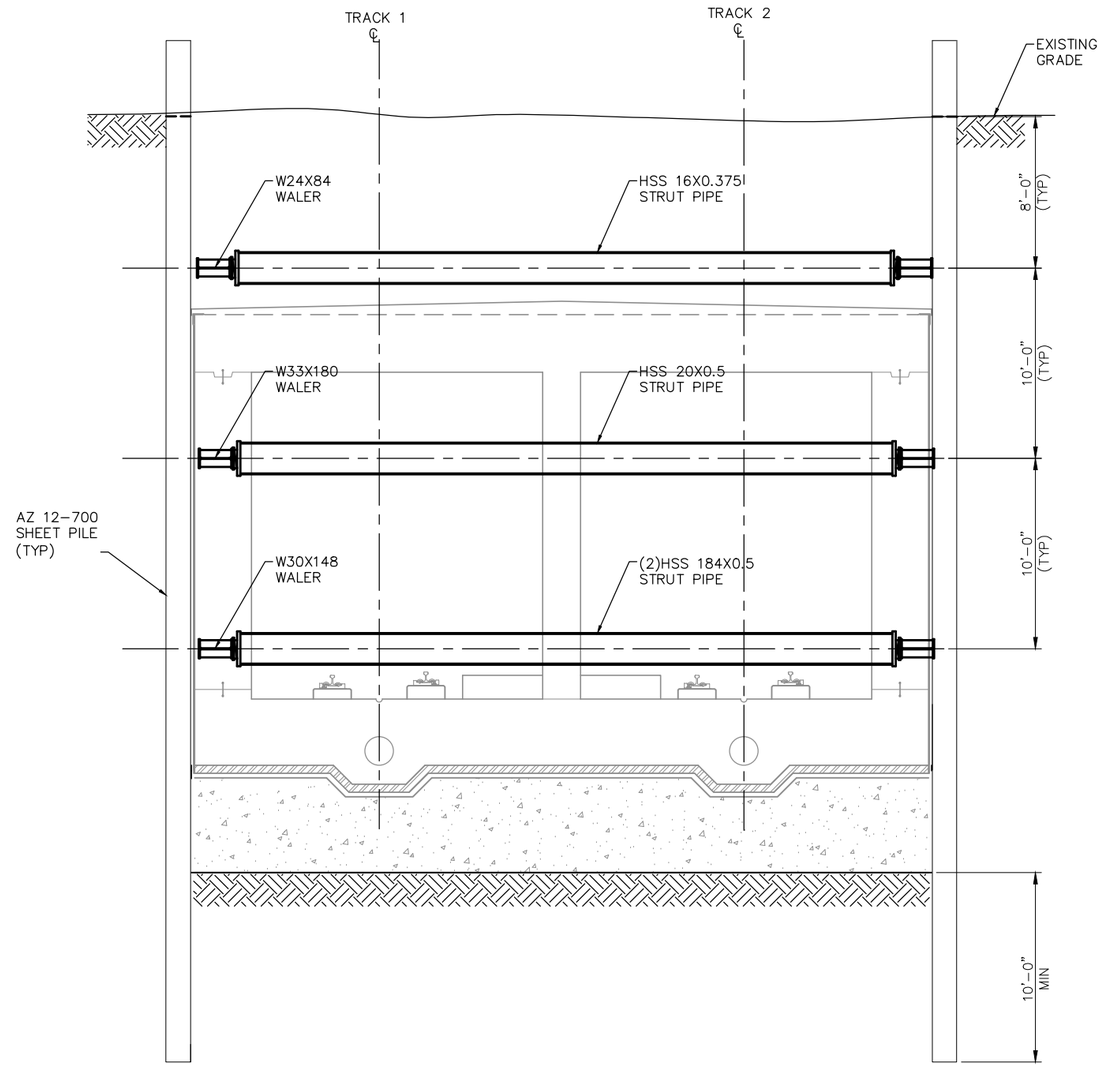
DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-SOE-TYP-001

SHEET 97 OF 148

NOTES

1. FOR STRUT CONFIGURATION, SEE PLAN AND PROFILE.



TYPICAL TUNNEL TRANSVERSE SECTION SUPPORT OF EXCAVATION

0 2 4 8
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

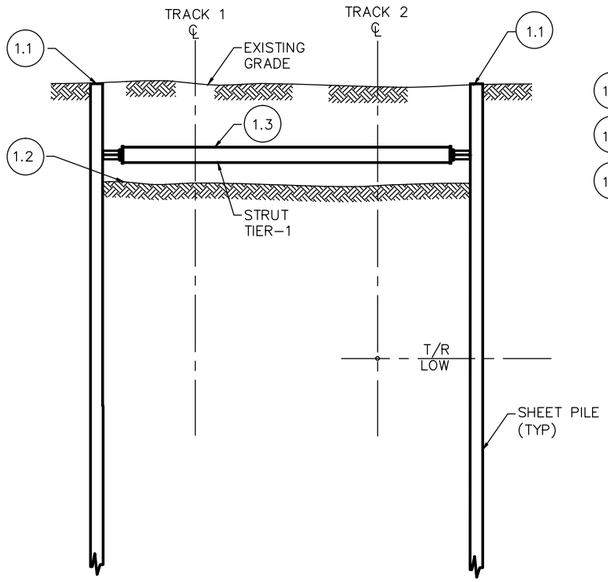
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SUGGESTED EXCAVATION SUPPORT SECTIONS SHEET 2

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-SOE-TYP-002

SHEET 98 OF 148

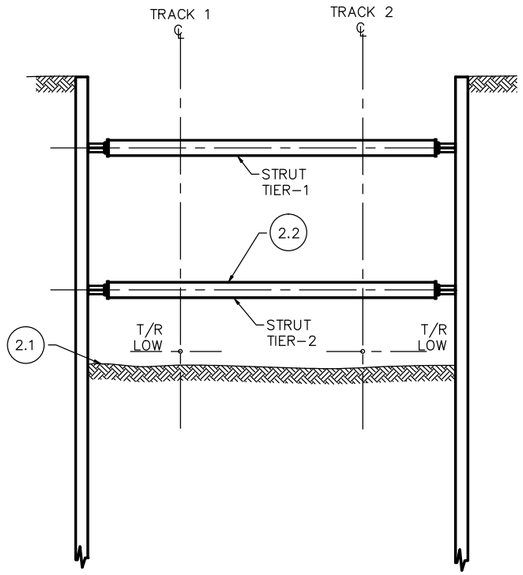


1.1 INSTALL SHEET PILES

1.2 EXCAVATE TO LEVEL SHOWN

1.3 INSTALL WALES AND STRUTS FOR TIER–1

STAGE 1



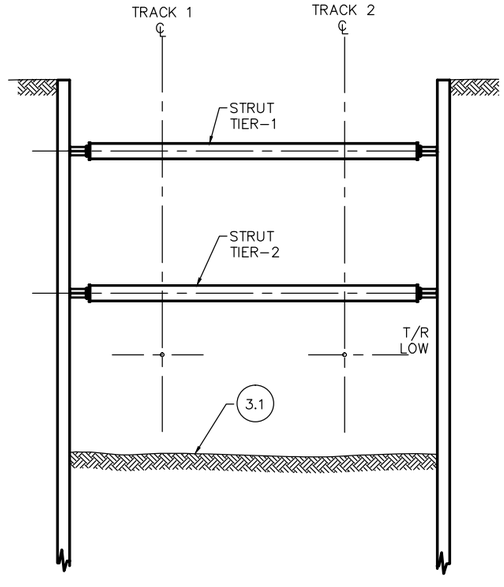
2.1 EXCAVATE TO LEVEL SHOWN

2.2 INSTALL WALES AND STRUTS FOR TIER–2

NOTES

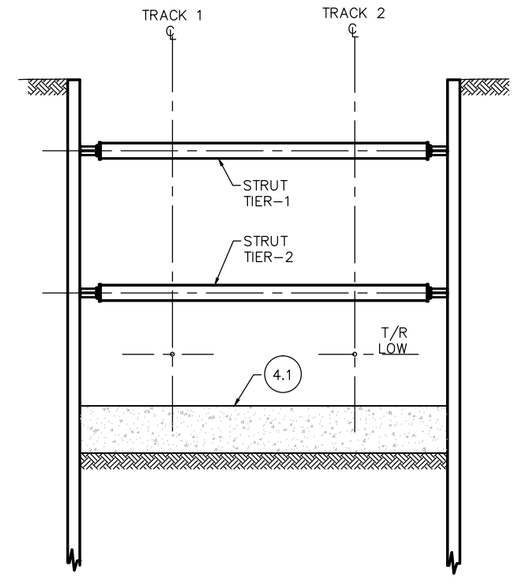
1. FOR PRECISE LOCATION OF OF STRUTS, SEE SOE PLAN AND PROFILE.
2. FOR THE THIRD LEVEL OF STRUTS AN ADDITIONAL CONSTRUCTION PHASE IS REQUIRED.

STAGE 2



3.1 EXCAVATE TO BOTTOM OF EXCAVATION

STAGE 3



4.1 CONSTRUCT TREMIE CONCRETE PLUG

STAGE 4

0 4 8 16

HORIZONTAL

SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

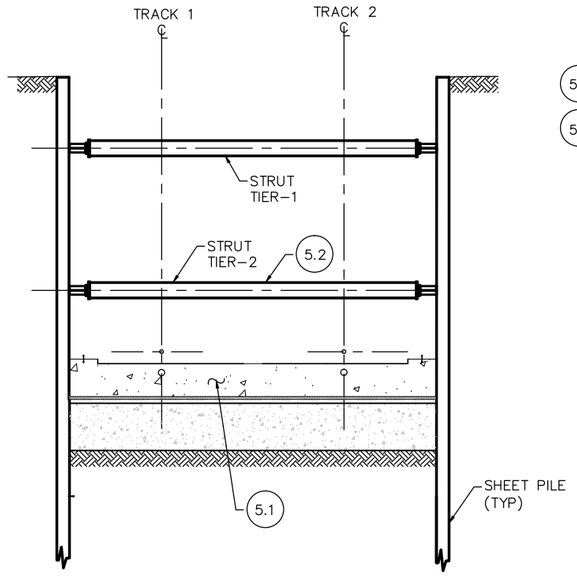
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SUGGESTED EXCAVATION SUPPORT CONSTRUCTION STAGING SHEET 1

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-SOE-SEQ-001

SHEET 99 OF 148

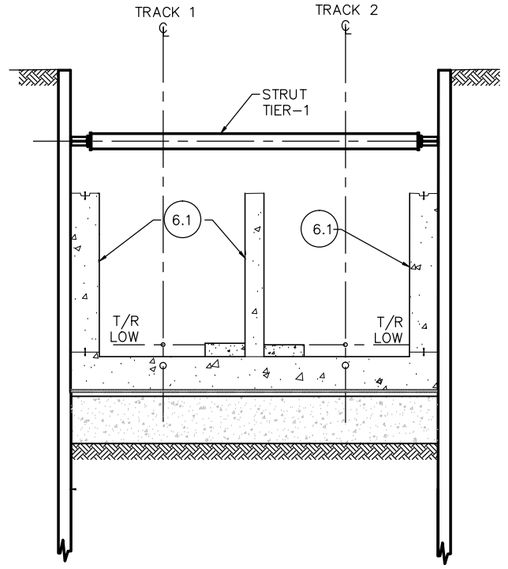
Jan, 16 2016 07:56 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-SOE-SEQ-001.dwg By: mercuriellof



5.1 CONSTRUCT BASE SLAB

5.2 REMOVE STRUT TIER–2

STAGE 5

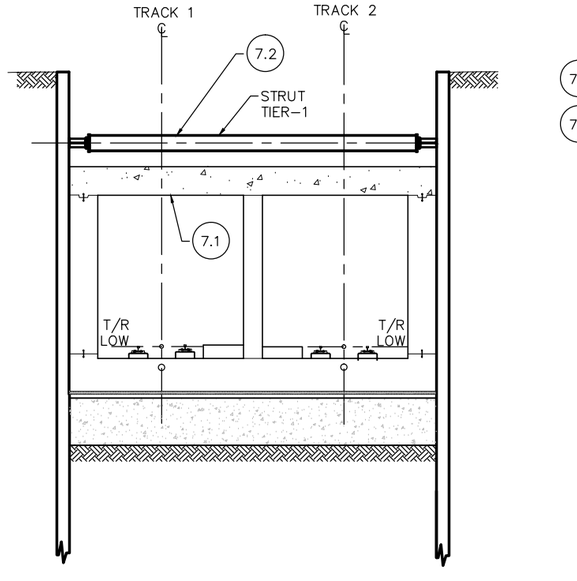


6.1 CONSTRUCT STRUCTURAL WALL

NOTES

1. FOR PRECISE LOCATION OF OF STRUTS, SEE SOE PLAN AND PROFILE.
2. FOR THE THIRD LEVEL OF STRUTS AN ADDITIONAL CONSTRUCTION PHASE IS REQUIRED.

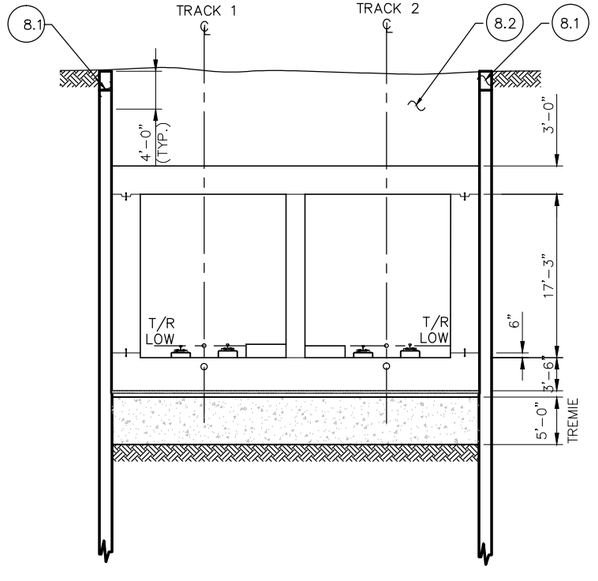
STAGE 6



7.1 CONSTRUCT ROOF SLAB

7.2 REMOVE STRUT TIER–1

STAGE 7



8.1 CUT SHEET PILES 2 FEET BELOW PROPOSED GRADE

8.2 BACKFILL OVER ROOF SLAB

STAGE 8

0 4 8 16

HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

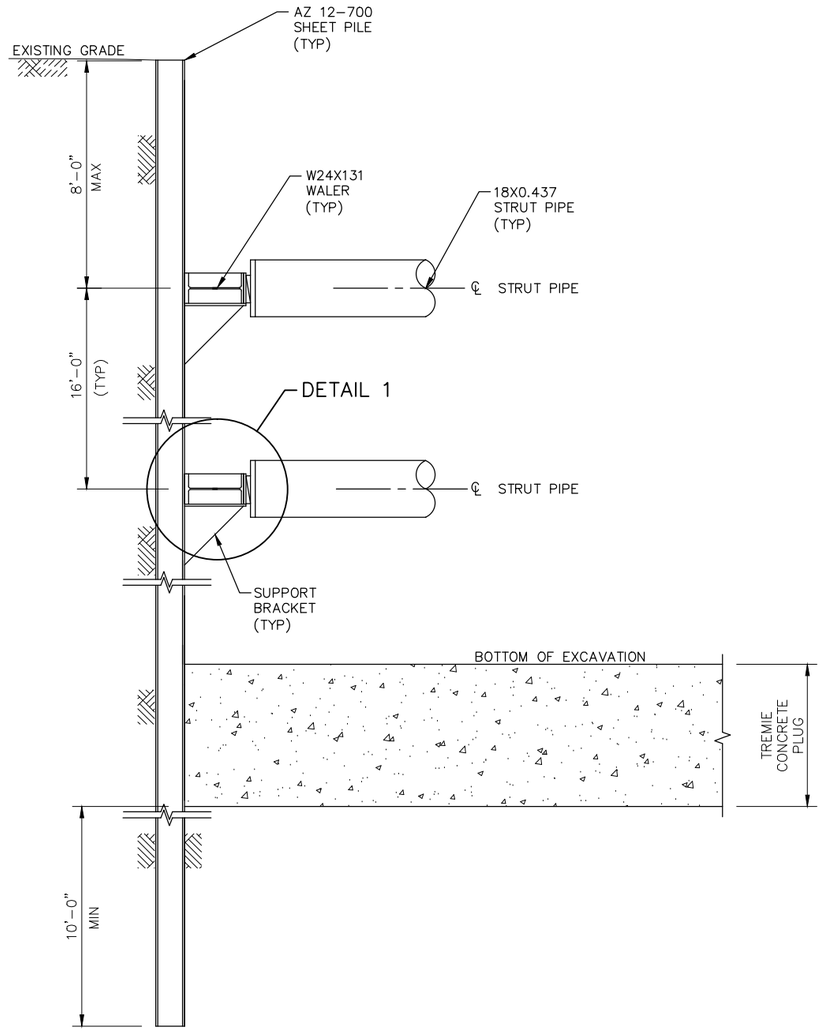
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SUGGESTED EXCAVATION SUPPORT CONSTRUCTION STAGING SHEET 2

DISCIPLINE: STRUCTURES

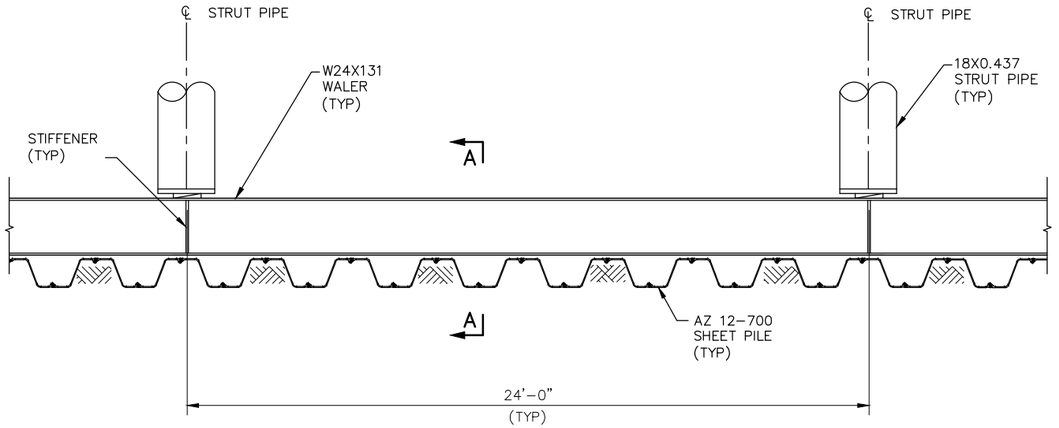
SHEET NAME: E3-STU-TUN-TUNK-SOE-SEQ-002

SHEET 100 OF 148



SECTION A–A

0 1 2 3 4 5
HORIZONTAL
SCALE IN FEET



PLAN – SHEET PILE WALL DETAIL

0 1 2 3 4 5
HORIZONTAL
SCALE IN FEET

DETAIL 1

0 1 2
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

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METROPOLITAN COUNCIL

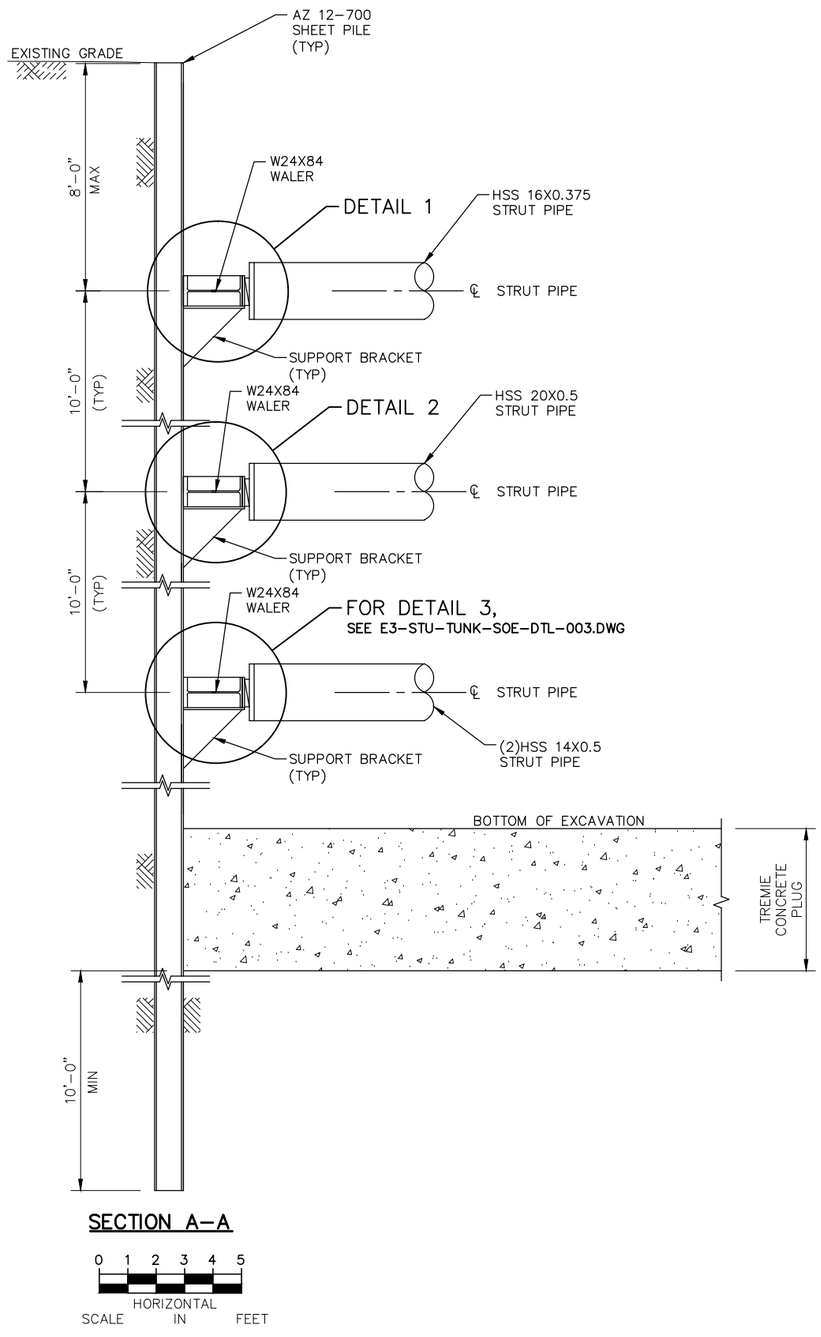
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SUGGESTED EXCAVATION SUPPORT DETAILS SHEET 1

DISCIPLINE: STRUCTURES

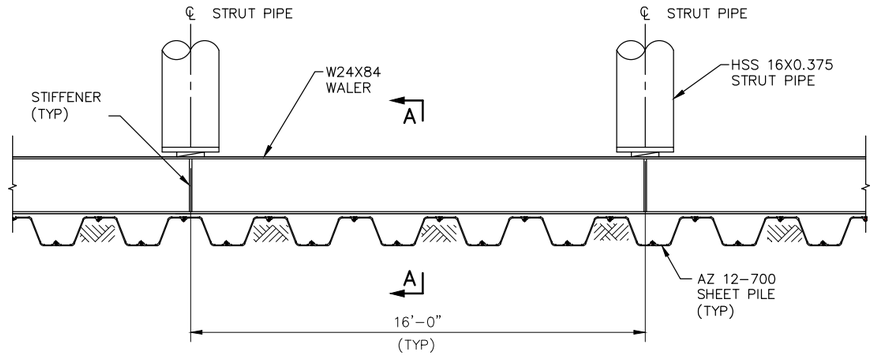
SHEET NAME: E3-STU-TUN-TUNK-SOE-DTL-001

SHEET 101 OF 148



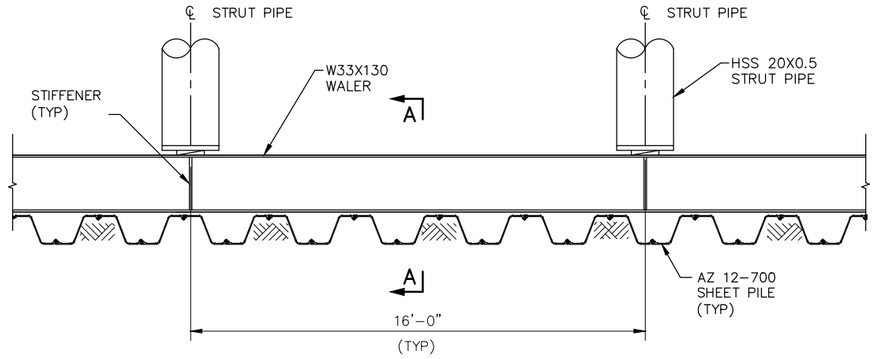
SECTION A–A

0 1 2 3 4 5
HORIZONTAL
SCALE IN FEET



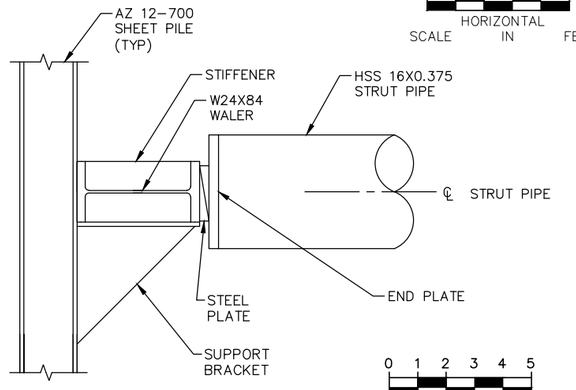
PLAN – SHEET PILE WALL DETAIL LEVEL 1

0 1 2 3 4 5
HORIZONTAL
SCALE IN FEET



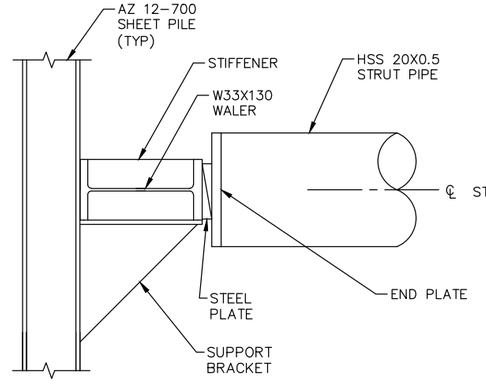
PLAN – SHEET PILE WALL DETAIL LEVEL 2

0 1 2 3 4 5
HORIZONTAL
SCALE IN FEET



DETAIL 1

0 1 2 3 4 5
HORIZONTAL
SCALE IN FEET



DETAIL 2

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

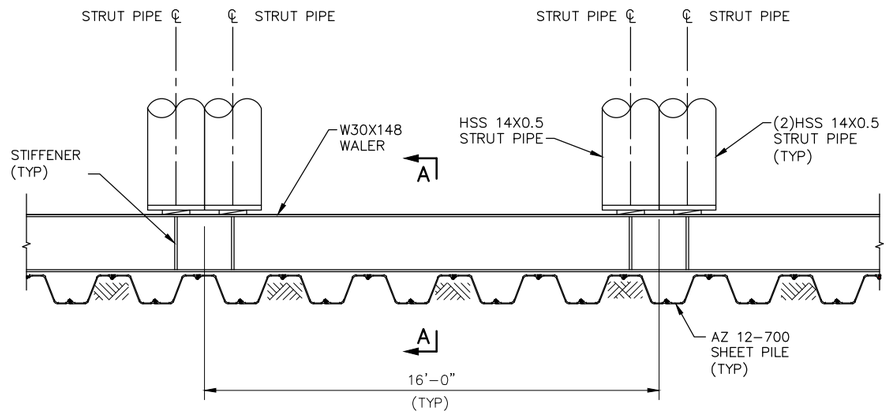
SOUTHWEST
Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SUGGESTED EXCAVATION SUPPORT DETAILS SHEET 2

DISCIPLINE: STRUCTURES

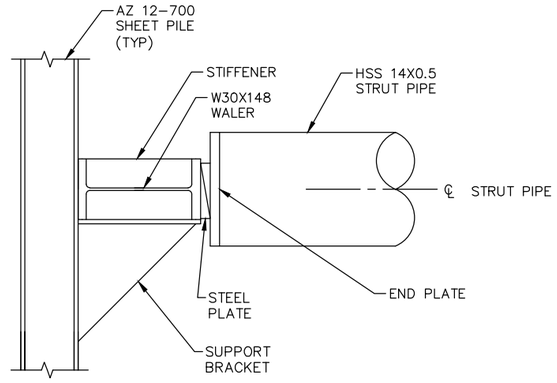
SHEET NAME: E3-STU-TUN-TUNK-SOE-DTL-002

SHEET 102 OF 148

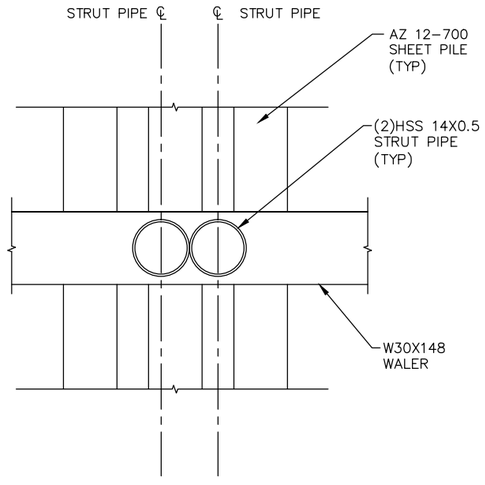


PLAN – SHEET PILE WALL DETAIL LEVEL 3

0 1 2 3 4 5
HORIZONTAL
SCALE IN FEET



DETAIL 3



SECTION A–A

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

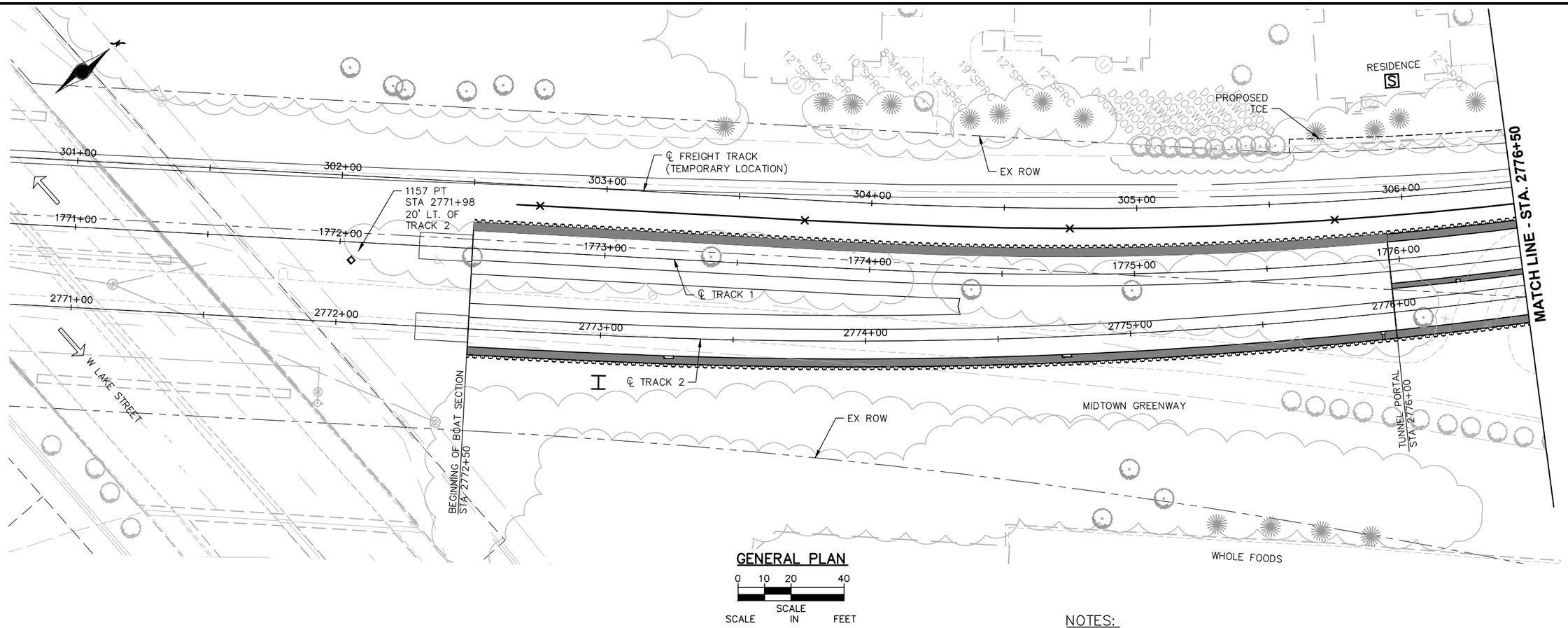
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SUGGESTED EXCAVATION SUPPORT DETAILS SHEET 3

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-SOE-DTL-003

SHEET 103 OF 148

Jan, 16 2016 07:43 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-SOE-DTL



GENERAL PLAN

0 10 20 40

SCALE IN FEET

LEGEND:

- I — INCLINOMETER AT 400' SPACING
- ✳ — GROUND SETTLEMENT REFERENCE POINT AT 100' MAXIMUM SPACING
- [S] — DEFORMATION MONITORING POINT FOR STRUCTURES
- ⊕ — EXISTING PIEZOMETER

NOTES:

1. CONTRACTOR TO VERIFY NUMBER OF STRUCTURES AND UTILITIES TO BE PROTECTED, AND DETERMINE ADDITIONAL PROTECTION MEASURES, AS NECESSARY.
2. GROUND SURFACE SETTLEMENT REFERENCE ARRAYS REQUIRED AT 100 FEET MAXIMUM SPACING ALONG SUPPORT WALLS FOR CUT AND COVER EXCAVATIONS. ADJUST INSTRUMENTATION LOCATION FOR ADJACENT BUILDINGS AND STRUCTURES.
3. BUILDING SETTLEMENT REFERENCE POINTS REQUIRED FOR BUILDING PORTIONS.
4. TILTMETER SHALL BE USED ON STRUCTURES REQUIRING PROTECTIVE MEASURES AGAINST SETTLEMENT INDUCED DAMAGES AS IDENTIFIED BY THE PRECONSTRUCTION SURVEY.
5. AT LOCATIONS WHERE [S] IS INDICATED, A MINIMUM OF THREE DEFORMATION MONITORING POINTS AT CORNER OF THE BUILDING STRUCTURE SHALL BE INSTALLED FOR EACH STRUCTURE TO MONITOR POTENTIAL SETTLEMENT AND ANGULAR DISTORTION.
6. EXISTING PIEZOMETERS WITHIN 100 FEET OF THE CENTERLINE EXCAVATION SHALL BE MONITORED.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

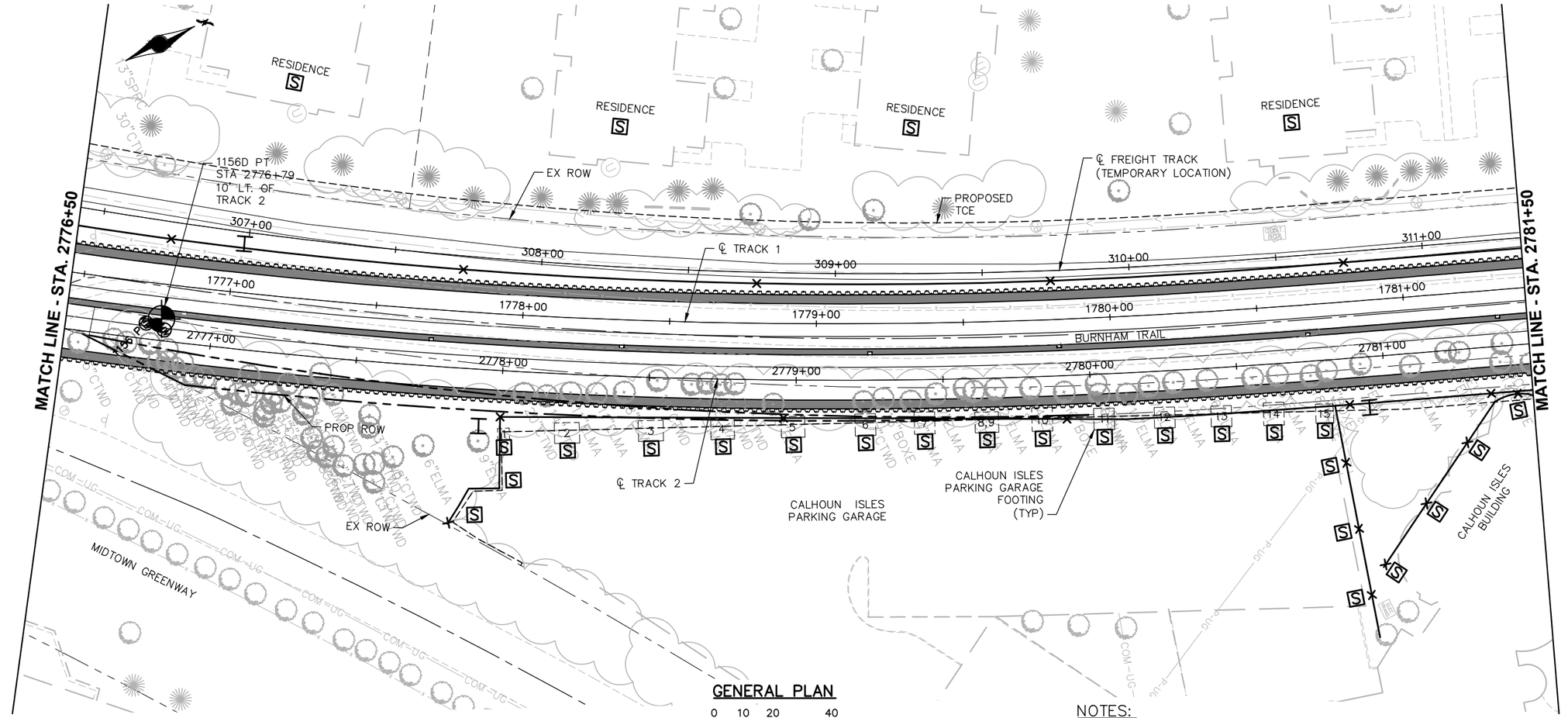
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
GEOTECHNICAL INSTRUMENTATION
SHEET 1

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-GEI-001

SHEET 104 OF 148

Jan, 16 2016 06:41 pm v:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-GEI.dwg By: mercurielliof



GENERAL PLAN

SCALE IN FEET: 0 10 20 40

LEGEND:

- I — INCLINOMETER AT 400' SPACING
- ✳ — GROUND SETTLEMENT REFERENCE POINT AT 100' MAXIMUM SPACING
- [S] — DEFORMATION MONITORING POINT FOR STRUCTURES
- ⊕ — EXISTING PIEZOMETER

NOTES:

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

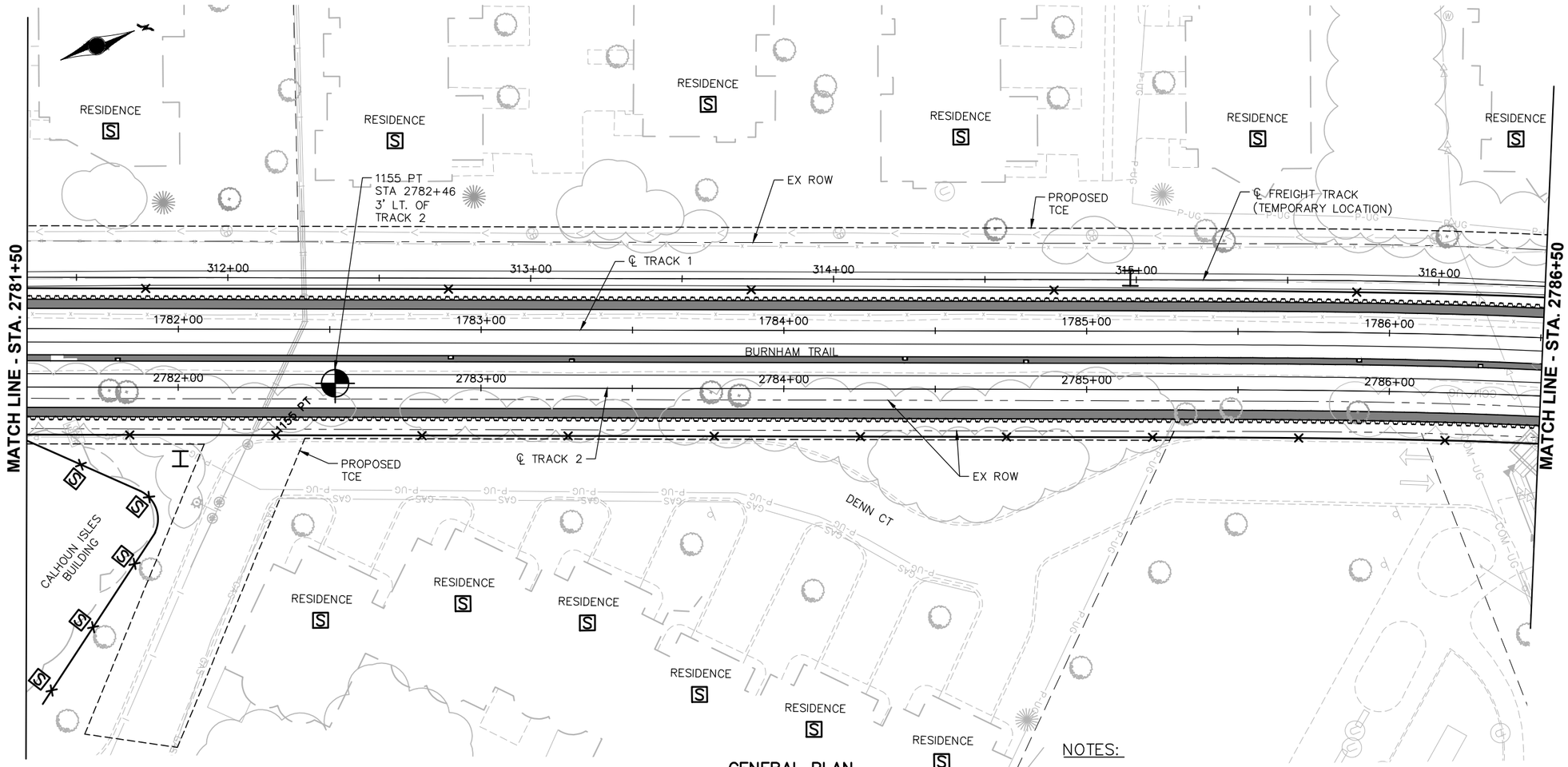
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
GEOTECHNICAL INSTRUMENTATION
SHEET 2

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-GEI-002

SHEET 105 OF 148

Jan. 21 2016 10:22 am V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-GEI.dwg By: YuB1



GENERAL PLAN

0 10 20 40

SCALE IN FEET

LEGEND:

- I — INCLINOMETER AT 400' SPACING
- ✳ — GROUND SETTLEMENT REFERENCE POINT AT 100' MAXIMUM SPACING
- [S] — DEFORMATION MONITORING POINT FOR STRUCTURES
- ⊕ — EXISTING PIEZOMETER

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90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

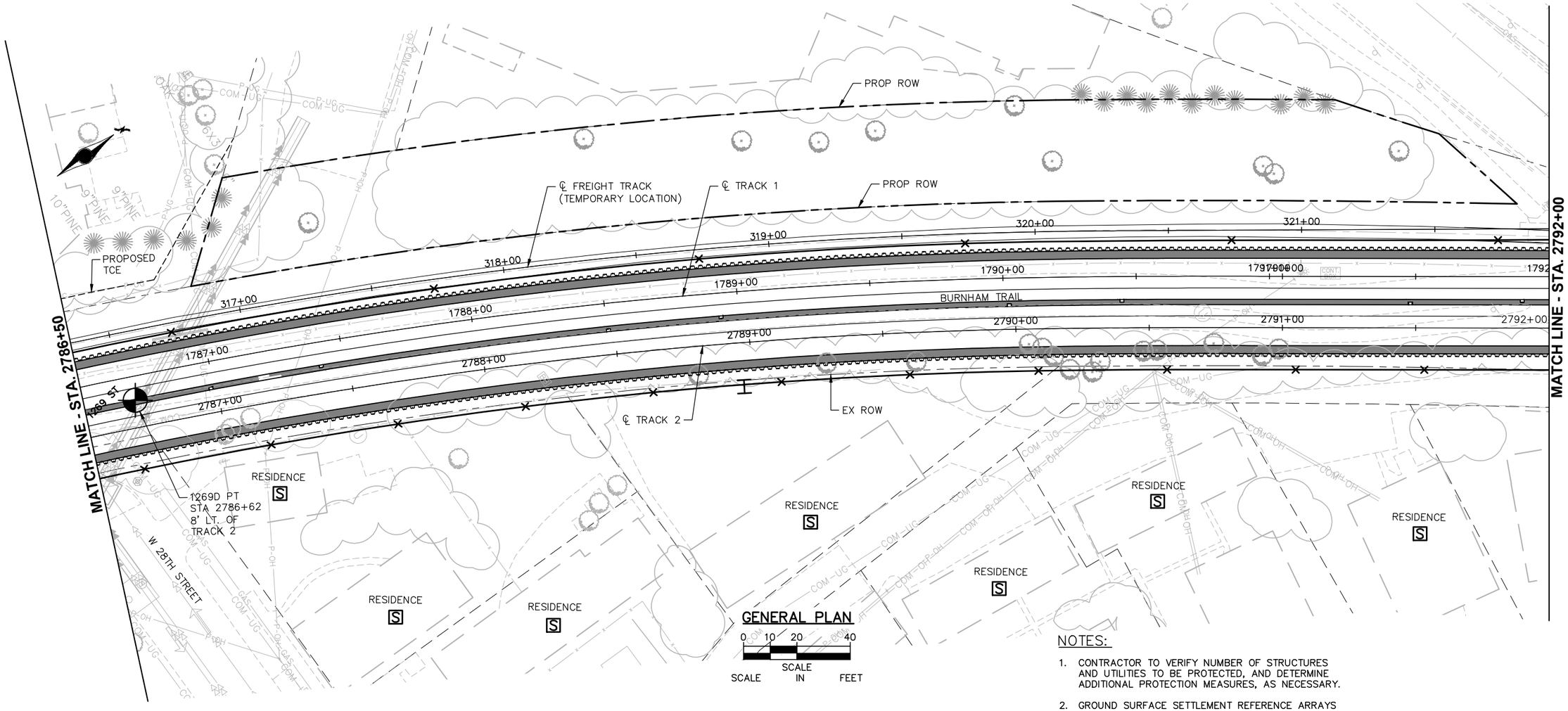
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
GEOTECHNICAL INSTRUMENTATION
SHEET 3

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-GEI-003

SHEET 106 OF 148



LEGEND:

- I — INCLINOMETER AT 400' SPACING
- ✳ — GROUND SETTLEMENT REFERENCE POINT AT 100' MAXIMUM SPACING
- [S] — DEFORMATION MONITORING POINT FOR STRUCTURES
- ⊕ — EXISTING PIEZOMETER

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90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

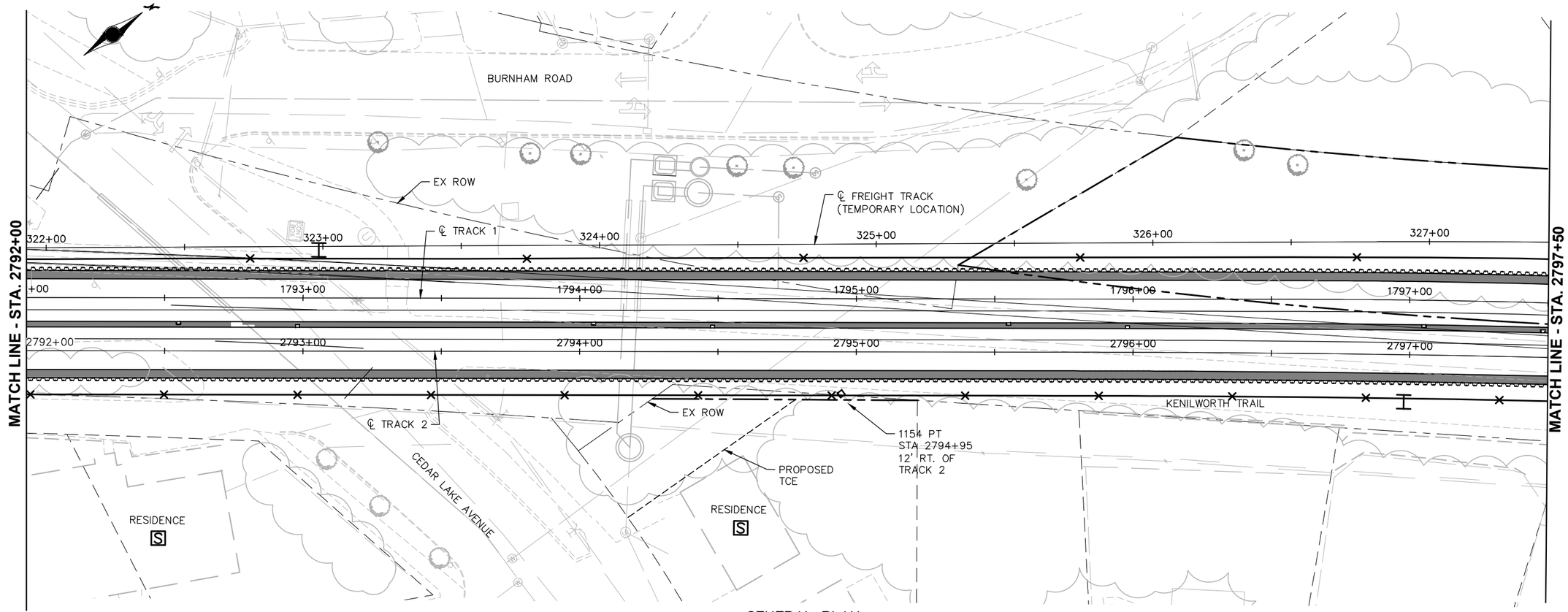
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
GEOTECHNICAL INSTRUMENTATION
SHEET 4

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-GEI-004

SHEET 107 OF 148

Jan, 15 2016 08:02 pm v:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-GEI.dwg By: YuB1



GENERAL PLAN

SCALE IN FEET: 0 10 20 40

LEGEND:

- INCLINOMETER AT 400' SPACING
- GROUND SETTLEMENT REFERENCE POINT AT 100' MAXIMUM SPACING
- [S] DEFORMATION MONITORING POINT FOR STRUCTURES
- EXISTING PIEZOMETER

NOTES:

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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

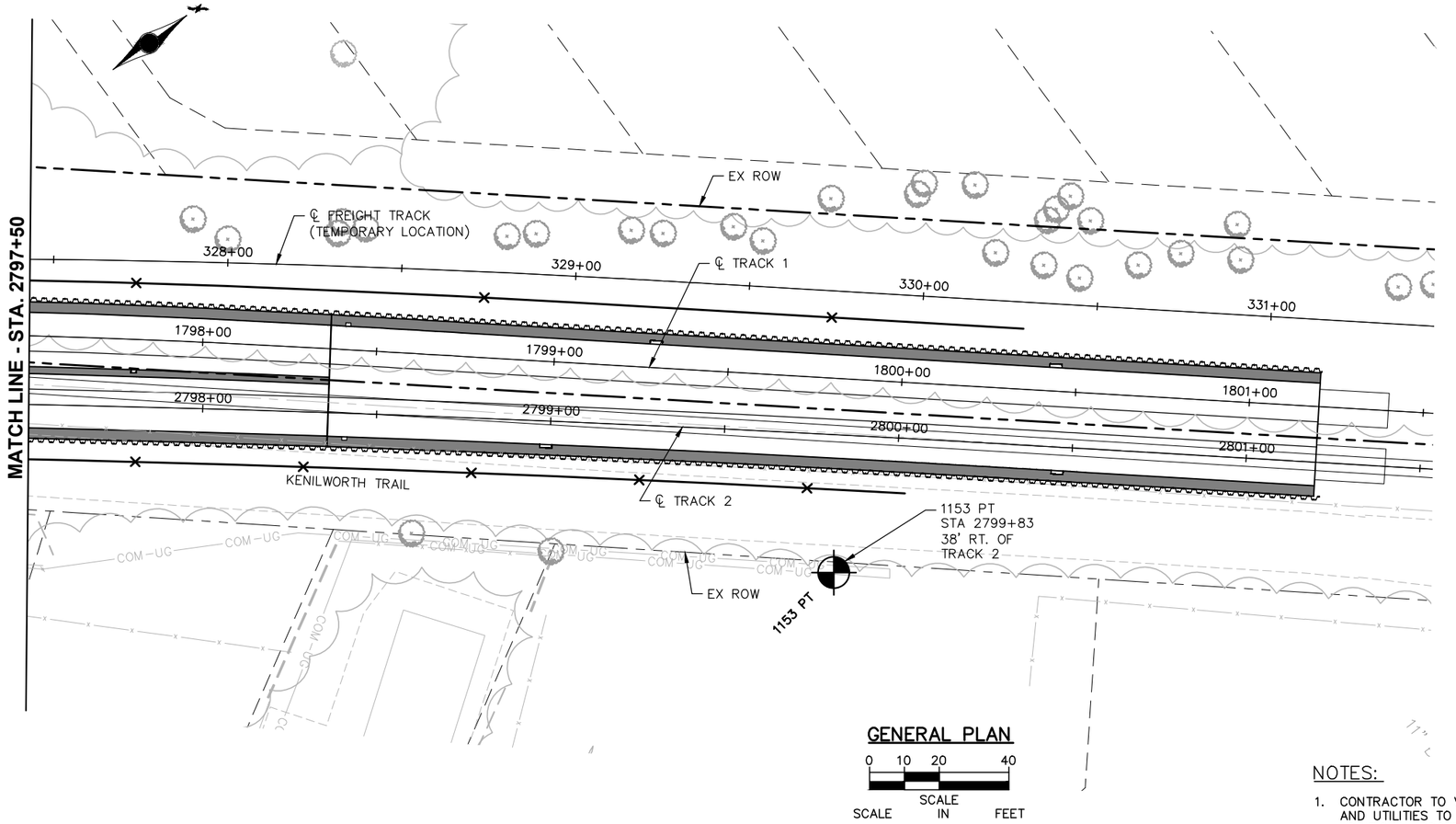
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
GEOTECHNICAL INSTRUMENTATION
SHEET 5

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-GEI-005

SHEET 108 OF 148



GENERAL PLAN

0 10 20 40

SCALE

SCALE IN FEET

LEGEND:

- I — INCLINOMETER AT 400' SPACING
- ✳ — GROUND SETTLEMENT REFERENCE POINT AT 100' MAXIMUM SPACING
- [S] — DEFORMATION MONITORING POINT FOR STRUCTURES
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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

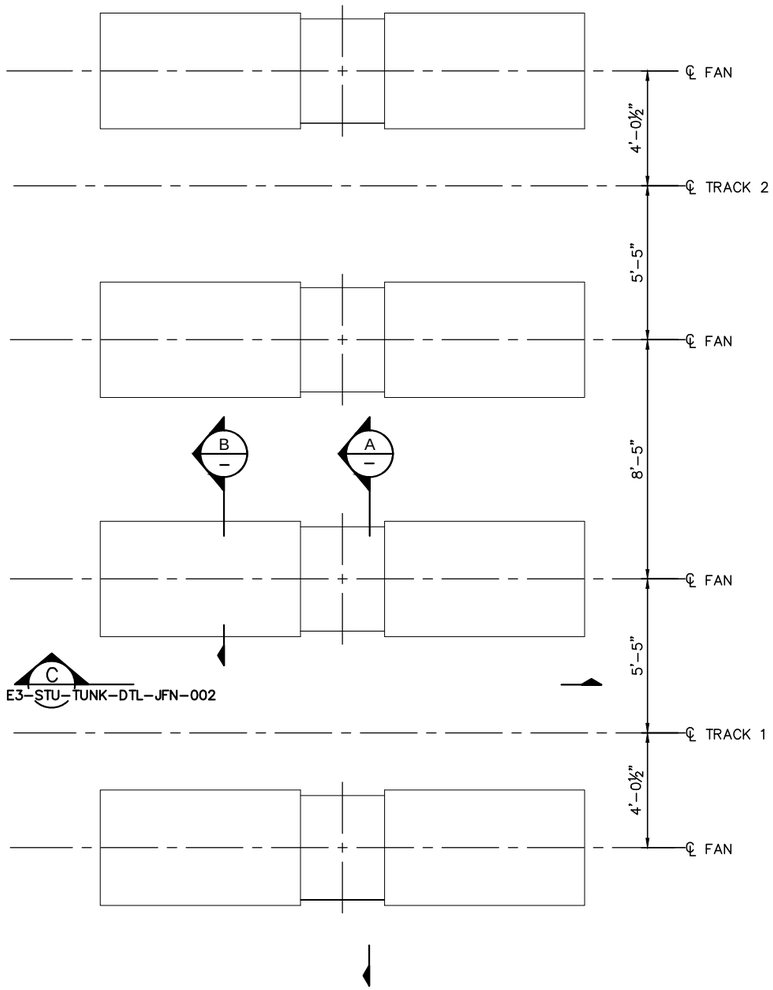
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
GEOTECHNICAL INSTRUMENTATION
SHEET 6

DISCIPLINE: STRUCTURES

SHEET NAME: E3-STU-TUN-TUNK-GEI-006

SHEET 109 OF 148

Jan, 15 2016 08:07 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\STRUCTURES\E3-STU-TUN\E3-STU-TUN-TUNK-GEI.dwg By: YuB1

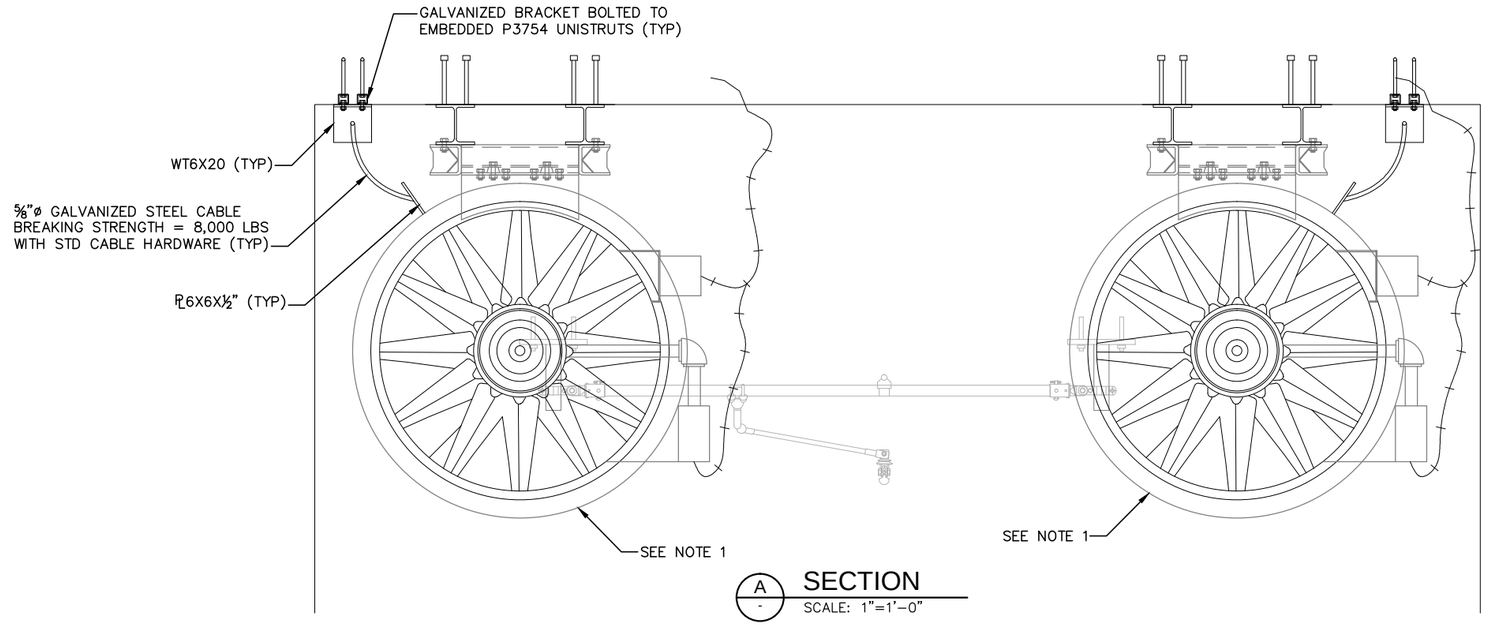


PLAN
SCALE: 3/8"=1'-0"

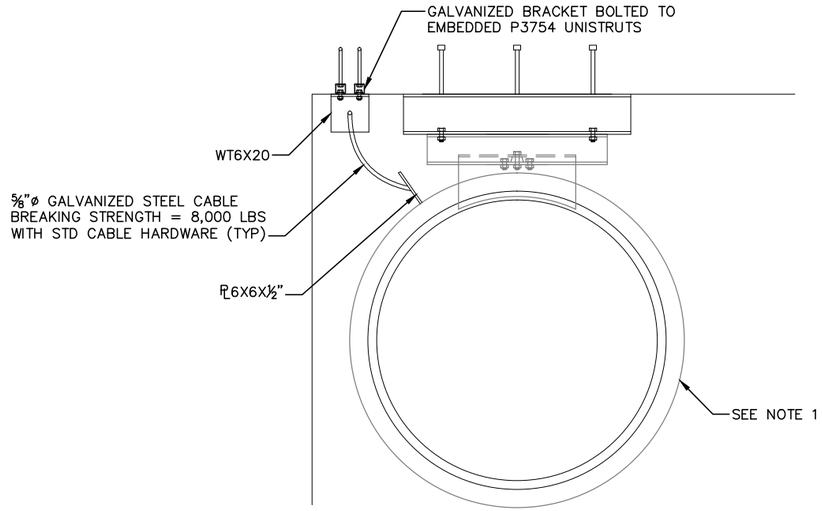
FOR LOCATION SEE DRAWING E3-TUV-TUNK-PLN-001 & 002
SYSTEMS AND TUNNEL FACILITIES VOL. 6

NOTES:

1. JET FANS ARE SHOWN FOR REFERENCE ONLY AND NOT IN CONTRACT FOR THIS PACKAGE.



A
SECTION
SCALE: 1"=1'-0"



B
SECTION
SCALE: 1"=1'-0"

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL
JET FAN SUPPORT DETAILS

DISCIPLINE: STRUCTURAL

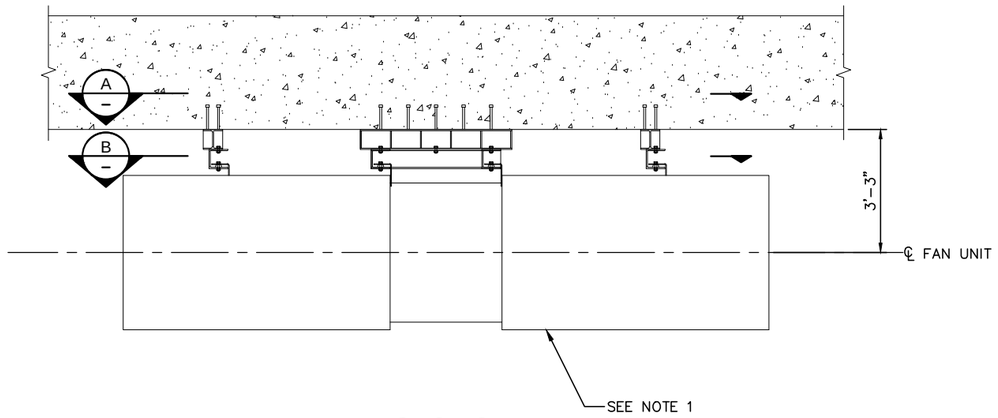
SHEET NAME: E3-STU-TUNK-DTL-JFN-001

SHEET 110 OF 148

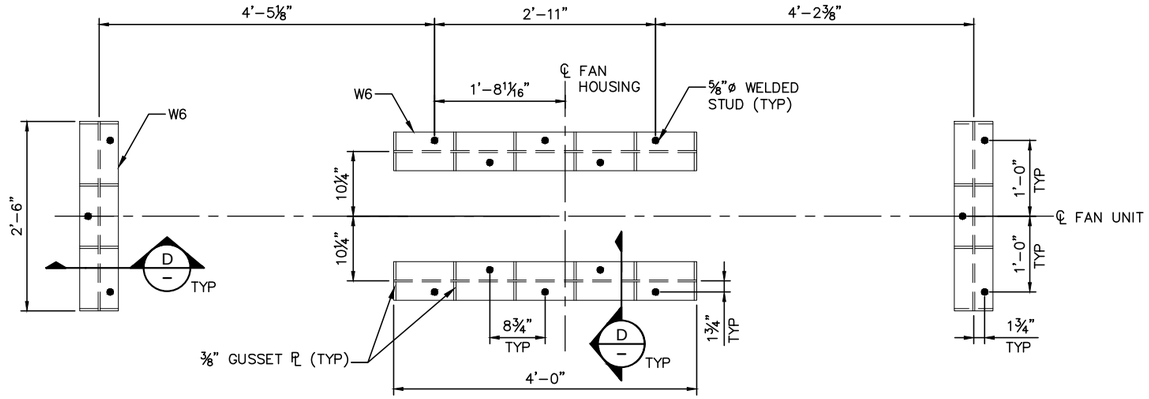
Jan, 15 2016 11:29 am V:\3400_ADC\CAD\OVERALL\PLAN SHEETS\STRUCTURAL\E3-STU-TUNK-DTL.dwg By: grahamk1

NOTES:

1. JET FANS ARE SHOWN FOR REFERENCE ONLY AND NOT IN CONTRACT FOR THIS PACKAGE.

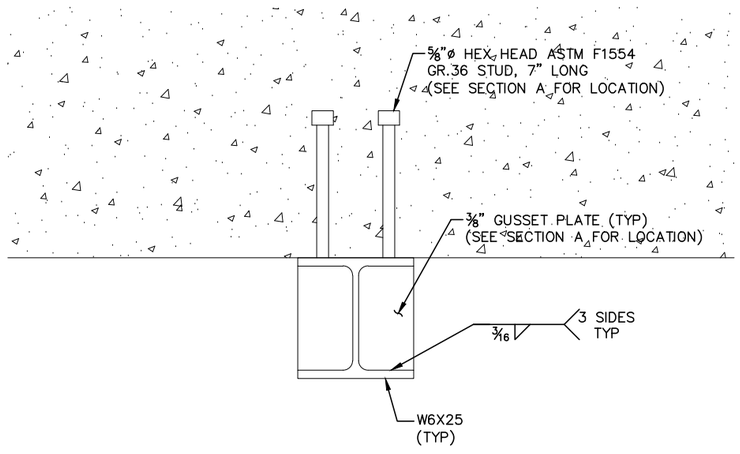


C SECTION
SCALE: 1/2"=1'-0"

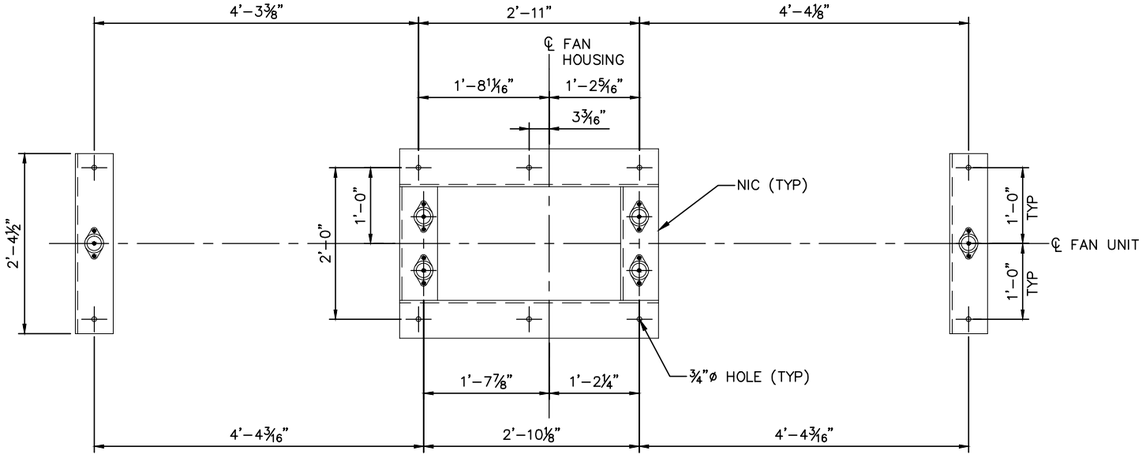


DETAIL OF TUNNEL EMBEDDED MEMBERS

A SECTION
SCALE: 1"=1'-0"



D SECTION
SCALE: 3"=1'-0"



CONNECTION HOLE LOCATION ON FAN UNIT

B SECTION
SCALE: 1"=1'-0"

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

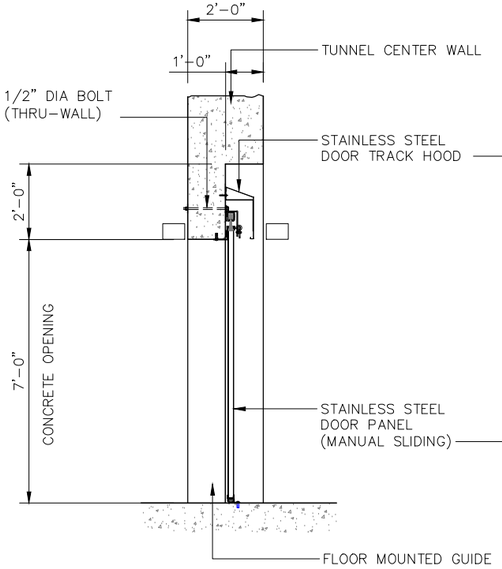
CIVIL - VOLUME 5
KENILWORTH TUNNEL
JET FAN SUPPORT DETAILS

DISCIPLINE: STRUCTURAL

SHEET NAME: E3-STU-TUNK-DTL-JFN-002

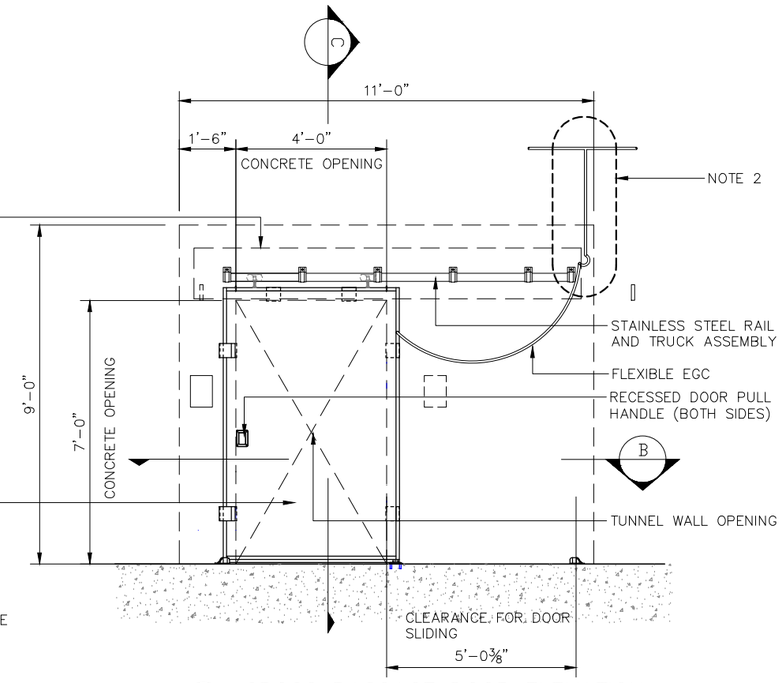
SHEET 111 OF 148

Jan, 15 2016 11:29 am V:\3400_ADC\CAD\OVERALL\PLAN SHEETS\STRUCTURAL\E3-STU-TUNK-DTL.dwg By: grahamk1



C CROSS PASSAGE DOOR SECTION

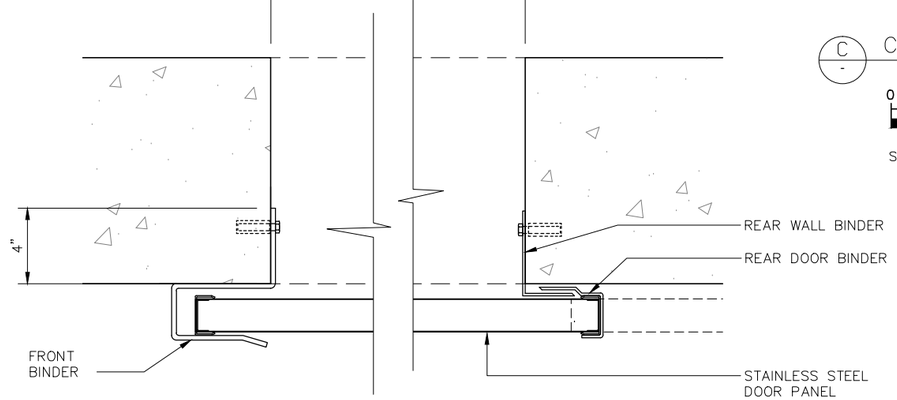
0 1 2 4
HORIZONTAL
SCALE 1/2 IN = 1 FOOT



A CROSS PASSAGE DOOR ELEVATION

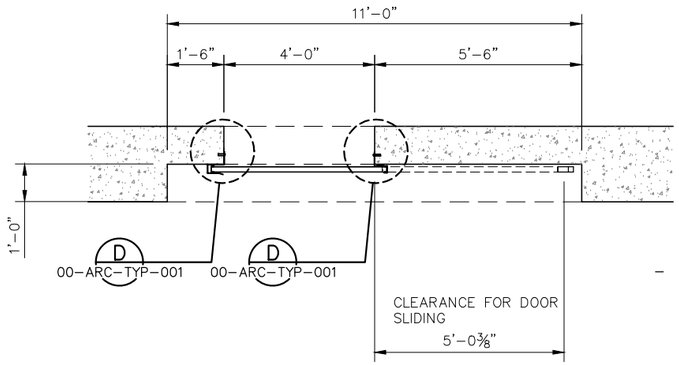
0 1 2 4
HORIZONTAL
SCALE 1/2 IN = 1 FOOT

GENERAL NOTES:
1. TYPE: 304 STAINLESS STEEL CONSTRUCTION A LABEL UL RATED FIRE RATED DOOR
2. CROSS PASSAGE DOOR, RAIL TRACK AND TRACK HOOD SHALL BE BONDED TO TUNNEL EGC



D DOOR JAMB DETAILS

0 1 2 4
HORIZONTAL
SCALE 3 IN = 1 FOOT



B CROSS PASSAGE DOOR PLAN

0 1 2 4
HORIZONTAL
SCALE 1/2 IN = 1 FOOT

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
KENILWORTH TUNNEL (BRIDGE 27C15)
CROSS PASSAGE DOORS

DISCIPLINE: ARCHITECTURE

SHEET NAME: 00-ARC-TYP-001

SHEET 112 OF 148

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. MAINTAIN A MINIMUM 1'–10" COVER FOR ALL PROPOSED STORM DRAINS EMBEDDED IN THE TUNNEL SLAB.
3. INVERT OF PIPE EMBEDDED IN THE TUNNEL SLAB SHALL BE A MINIMUM 8" FROM THE BOTTOM OF SLAB.
4. HEAT TRACER WIRE SHALL BE INSTALLED IN THE TH62 TUNNEL PER THE ELECTRICAL PLANS LOCATED IN VOLUME 12, "SYSTEMS."

ABBREVIATIONS

AWWA	AMERICAN WATER WORKS ASSOCIATION
DI	DRAINAGE INLET
EB	EAST BOUND
EL	ELEVATION
EX/EXIST	EXISTING
IE	INVERT ELEVATION
LI	LINEAR
LT	LEFT
NTS	NOT TO SCALE
PROP	PROPOSED
STA	STATION
TOR	TOP OF RAIL
TRK	TRACK
VAR	VARIES
WB	WEST BOUND

PLAN SYMBOLS

PROPOSED STORM DRAIN

PROPOSED DRAINAGE INLET

PROPOSED CAP

GENERAL SYMBOLS

A / - SECTION NOT TO SCALE — SECTION A

1 / XXXX — DETAIL No. 1 ON XXXX = SHEET NO.

1 DETAIL SCALE: NTS — DETAIL No. 1 (WHERE INDICATED OR SHOWN)

(1) — SHEET NOTES

(XX) — KEY NOTES

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL

SOUTHWEST

CIVIL - VOLUME 5
PLUMBING GENERAL NOTES, ABBREVIATIONS & SYMBOLS

DISCIPLINE: PLUMBING

SHEET NAME: 00-STM-TUN-NTS-001

SHEET 114 OF 148

NOTES

1. THIS PLAN ACCURATE FOR DRAINAGE WORK ONLY.
2. ALL PLUMBING LAYOUT IS BASED ON THE "TRACK 2" CONTROL LINE. SEE TRACK PLANS FOR ALIGNMENT DATA.
3. ALL PVC PIPE SHALL BE PER SPECIFICATION SECTION 224720 "TRACK DRAINAGE."
4. TRACK 1 PROFILE DIFFERS FROM TRACK 2, SEE TRACK PLANS FOR PROFILE INFORMATION.

DI-2 WB
STA: 2307+00, 19.54' LT
GRATE EL 901.97
IE THROUGH 900.31

DI-3 WB
STA: 2308+01, 19.54' LT
GRATE EL 901.31
IE THROUGH 899.50

DI-4 WB
STA: 2308+76, 19.54' LT
GRATE EL 902.07
IE THROUGH 899.14

STORM DRAIN STUB
SEE UTILITY PLANS
STA. 2308+76.00, 35.00' LT
IE (OUT)=898.98

DI-5 WB
STA: 2309+75, 19.54' LT
GRATE EL 905.39

DI-1 WB
STA: 2306+00, 19.54' LT
GRATE EL 902.82

BEGIN TH62 TUNNEL
SEE STRUCTURE PLANS

END TH62 TUNNEL
SEE TRACK PLANS

RETAINING WALL
SEE STRUCTURE PLANS

RETAINING WALL
SEE STRUCTURE PLANS

℄ TRACK 1
(WB-TRK-W2)

DI-1 EB
STA: 2306+00
GRATE EL 902.82

DI-2 EB
STA: 2307+00
GRATE EL 901.97
IE THROUGH 900.31

DI-3 EB
STA: 2308+01
GRATE EL 901.31
IE THROUGH 899.50

DI-4 EB
STA: 2308+76
GRATE EL 902.07
IE THROUGH 899.24

DI-5 EB
STA: 2309+75
GRATE EL 905.39

℄ TRACK 2
(EB-TRK-W2)

YELLOW CIRCLE DR.

TH62

RETAINING WALL
SEE STRUCTURE PLANS

2300+00 2301+00 2302+00 2303+00 2304+00 2305+00 2306+00 2307+00 2308+00 2309+00 2310+00 2311+00 2312+00 2313+00 2314+00

0 5.0 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET

TOP OF WALL
EX GRADE
TOR ℄ TRACK 2
PROP FLOW LINE
-3.60%
-0.75%
4.63%

DI-1 EB STA: 2306+00, 0.00' GRATE EL 902.82
DI-2 EB STA: 2307+00, 0.00' GRATE EL 901.97 IE THROUGH 900.31
DI-3 EB STA: 2308+01, 0.00' GRATE EL 901.31 IE THROUGH 899.50
DI-4 EB STA: 2308+76, 0.00' GRATE EL 902.07 IE THROUGH 899.24
DI-5 EB STA: 2309+75, 0.00' GRATE EL 905.39

100.0 LF OF 12" PVC @ 0.85%
101.0 LF OF 12" PVC @ 0.80%
75.0 LF OF 12" PVC @ 0.35%
99.0 LF OF 12" PVC @ 4.54%
BOTTOM OF TUNNEL SLAB

EX GRADE EL
TOR EL

940 930 920 910 900 890 880

923.55 931.4 922.78 928.6 921.68 928.5 920.26 927.8 918.53 928.4 916.73 928.0 914.93 928.0 913.12 926.8 911.32 925.8 909.52 924.3 907.73 923.5 906.21 927.4 905.04 930.4 904.24 932.0 903.77 931.5 903.39 934.6 903.01 934.1 902.73 933.6 903.06 935.1 904.05 933.2 905.72 933.1 907.97 938.1 910.28 930.3 912.60 927.5 914.85 926.3 916.76 922.2 918.33 921.7 919.54 923.0 920.40 910.2 920.91 909.6

2300+00 2301+00 2302+00 2303+00 2304+00 2305+00 2306+00 2307+00 2308+00 2309+00 2310+00 2311+00 2312+00 2313+00 2314+00

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

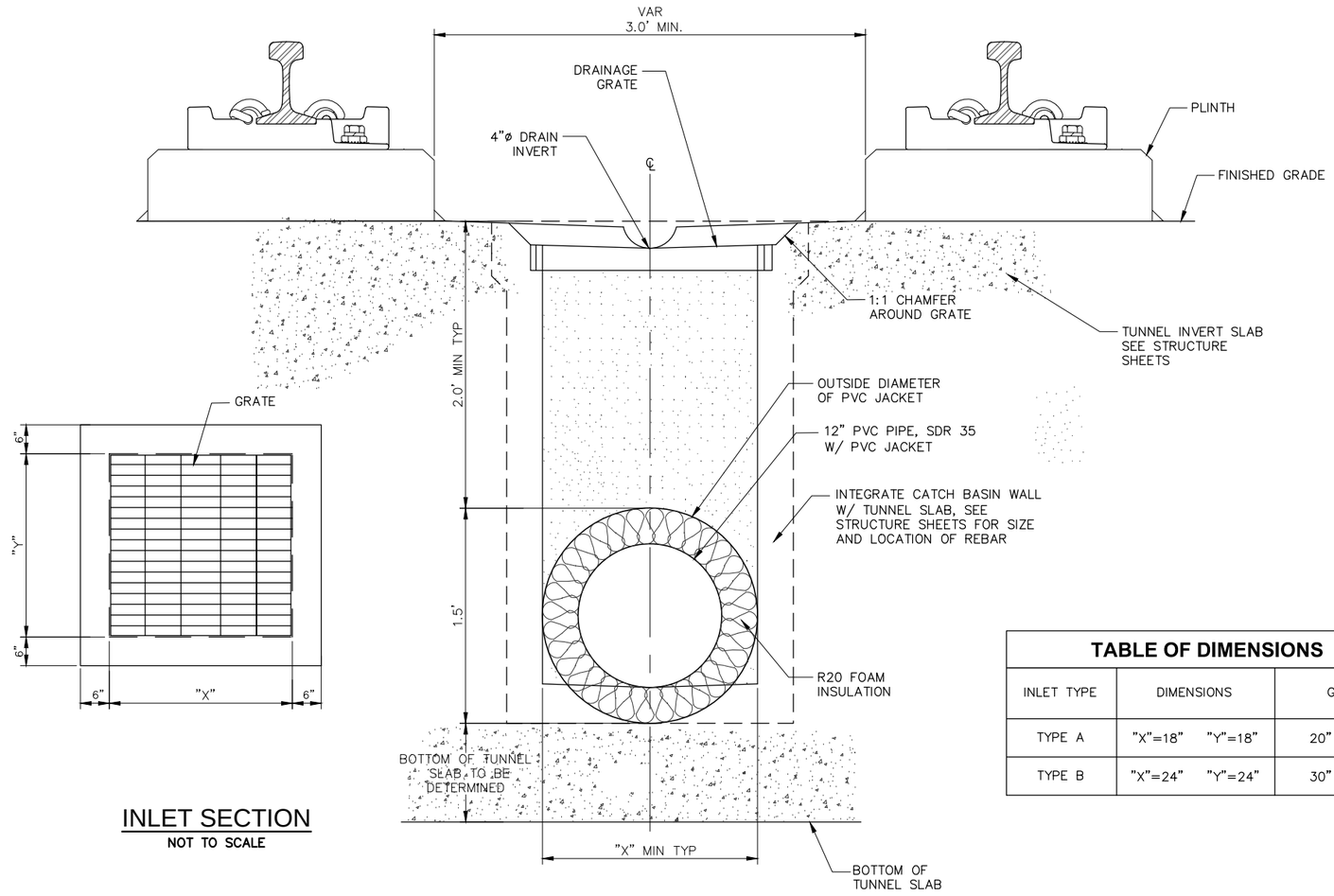
CIVIL - VOLUME 5
TUNNEL DRAINAGE (BRIDGE 27W33)
TUNNEL DRAINAGE - PLAN AND PROFILE
STA. 2300+00 TO STA. 2314+00

DISCIPLINE: PLUMBING

SHEET NAME: W2-STM-TH62-GPE-001

SHEET 115 OF 148

Jan. 18 2016 12:00 pm V:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\TUN DRAINAGE\W2-STM-TH62-GPE-001.dwg By: tangj



INLET SECTION
NOT TO SCALE

TABLE OF DIMENSIONS		
INLET TYPE	DIMENSIONS	GRATE
TYPE A	"X"=18" "Y"=18"	20" X 20"
TYPE B	"X"=24" "Y"=24"	30" X 30"

1 - TUNNEL DRAINAGE INLET
NOT TO SCALE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL

SOUTHWEST
Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
TUNNEL DRAINAGE
SECTIONS & DETAILS

DISCIPLINE: PLUMBING

SHEET NAME: W2-STM-TH62-DTL-001

SHEET 116 OF 148

TH62 TUNNEL DRAINAGE INLET SCHEDULE							
Structure ID	Description	Detail No.	Inlet Type	Detail Sheet No.	Station	Grate Elevation	Sump Elevation
DI–1 EB	Tunnel Drainage inlet	1	Type A	1	2306+00.00'	902.82'	901.16
DI–1 WB	Tunnel Drainage inlet	1	Type A	1	2306+00.00'	902.82'	901.16
DI–2 EB	Tunnel Drainage inlet	1	Type A	1	2307+00.00'	901.97'	900.31
DI–2 WB	Tunnel Drainage inlet	1	Type A	1	2307+00.00'	901.97'	900.31
DI–3 EB	Tunnel Drainage inlet	1	Type A	1	2308+01.00'	901.31'	899.50
DI–3 WB	Tunnel Drainage inlet	1	Type A	1	2308+01.00'	901.31'	899.50
DI–4 EB	Tunnel Drainage inlet	1	Type B	1	2308+76.00'	902.07'	899.24
DI–4 WB	Tunnel Drainage inlet	1	Type B	1	2308+76.00'	902.07'	899.14
DI–5 EB	Tunnel Drainage inlet	1	Type A	1	2309+75.00'	905.39'	903.73
DI–5 WB	Tunnel Drainage inlet	1	Type A	1	2309+75.00'	905.39'	903.73
	TOTAL	TYPE A (18"X18" DRAINAGE INLETS) = 10EA					

TH62 TUNNEL DRAINAGE STUB SCHEDULE							
Structure ID	Description	Detail No.	Inlet Type	Detail Sheet No.	Station	Grate Elevation	Sump Elevation
CAP 2308+76	Tunnel Drain Stub	NA	NA	NA	2308+76.00'	NA	Inv El= 898.99

TH62 PIPE SCHEDULE								
Name	Start Structure	End Structure	Description	Inner Diameter	Slope	Begin Invert Elevation	End Invert Elevation	Length
D12–1 EB	DI–1 EB	DI–2 EB	12" PVC, ASTM D3034	12"	0.85%	901.16'	900.31'	100.00'
D12–2 EB	DI–2 EB	DI–3 EB	12" PVC, ASTM D3034	12"	0.80%	900.31'	899.50'	101.00'
D12–3 EB	DI–3 EB	DI–4 EB	12" PVC, ASTM D3034	12"	0.35%	899.50'	899.24'	75.00'
D12–4 EB	DI–4 EB	DI–5 EB	12" PVC, ASTM D3034	12"	4.54%	899.24'	903.73'	99.00'
D12–1 WB	DI–1 WB	DI–2 WB	12" PVC, ASTM D3034	12"	0.83%	901.16'	900.31'	102.44'
D12–2 WB	DI–2 WB	DI–3 WB	12" PVC, ASTM D3034	12"	0.78%	900.31'	899.50'	103.47'
D12–3 WB	DI–3 WB	DI–4 WB	12" PVC, ASTM D3034	12"	0.47%	899.50'	899.14'	76.83'
D12–4 WB	DI–4 WB	DI–5 WB	12" PVC, ASTM D3034	12"	4.53%	899.14'	903.73'	101.42'
D18–1 STUB	DI–4 EB	DI–4 WB	12" PVC, ASTM D3034	18"	0.50%	899.24'	899.14'	19.54'
D18–2 STUB	DI–4 WB	CAP 2308+76	12" PVC, ASTM D3034	18"	1.00%	899.14'	898.99'	15.46'
			TOTAL	12" ø PVC, ASTM D3034 = 798LF				

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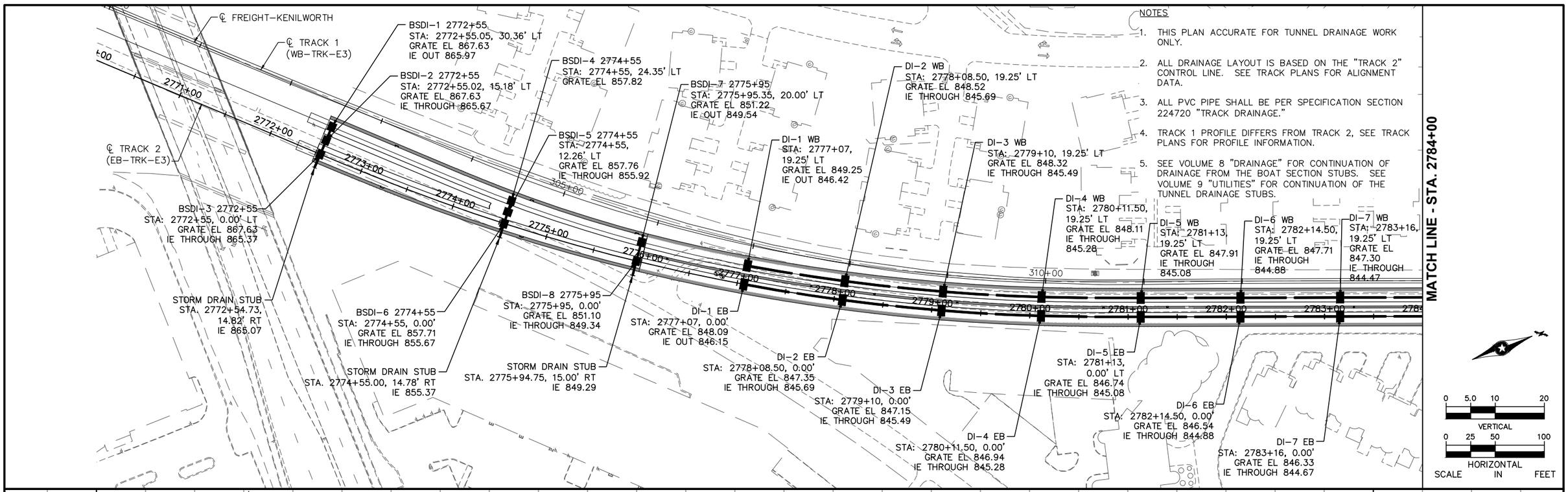
METROPOLITAN COUNCIL

SOUTHWEST

CIVIL - VOLUME 5
TH 62 TUNNEL (BRIDGE 27W33)
TUNNEL DRAINAGE
MATERIAL SCHEDULE

DISCIPLINE: PLUMBING

SHEET NAME: W2-STM-TH62-SCH-001



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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL DRAINAGE - PLAN AND PROFILE
STA. 2771+00 TO STA. 2784+00

DISCIPLINE: PLUMBING

SHEET NAME: E3-STM-TUNK-GPE-001

SHEET 118 OF 148

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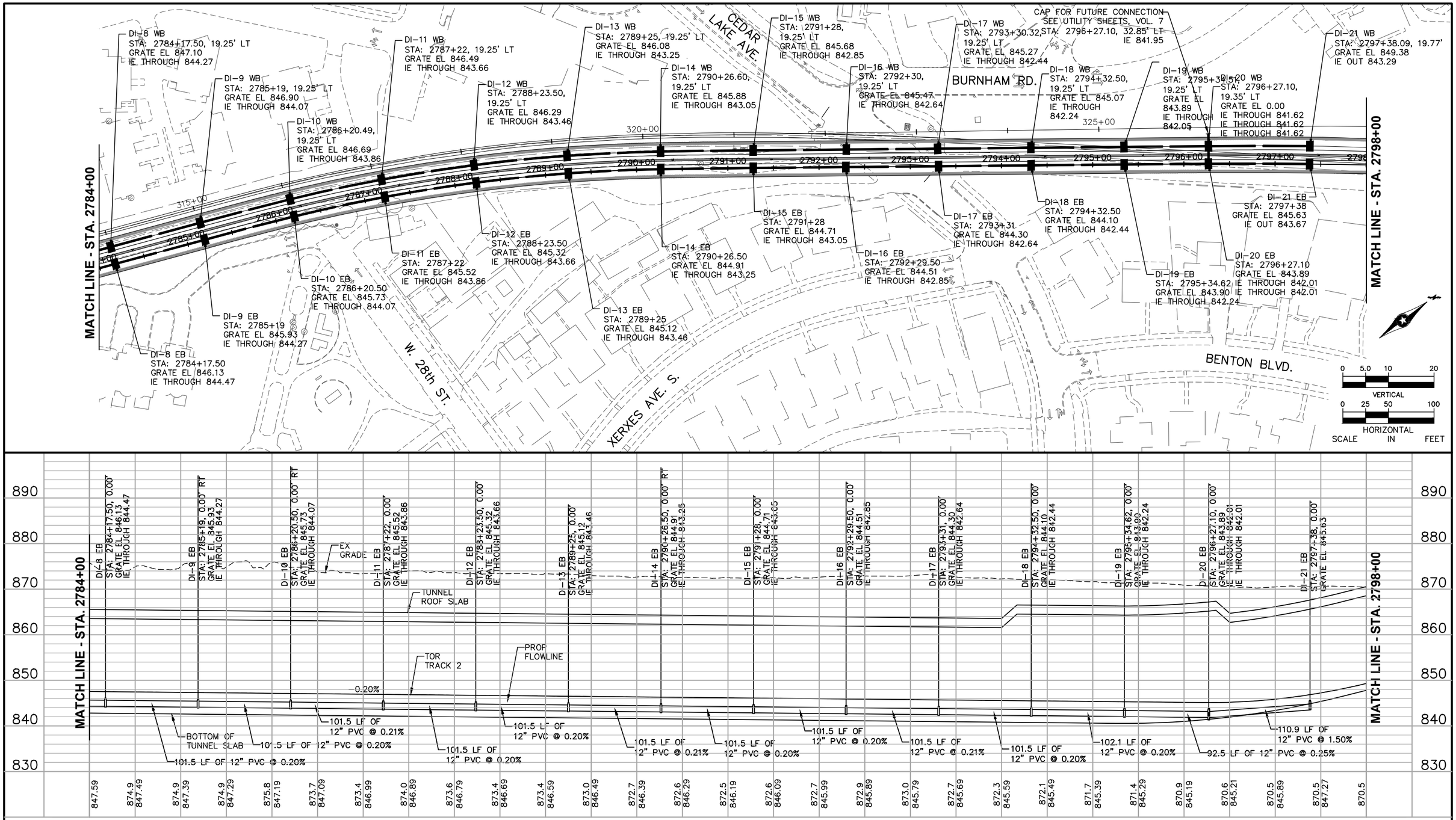


NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

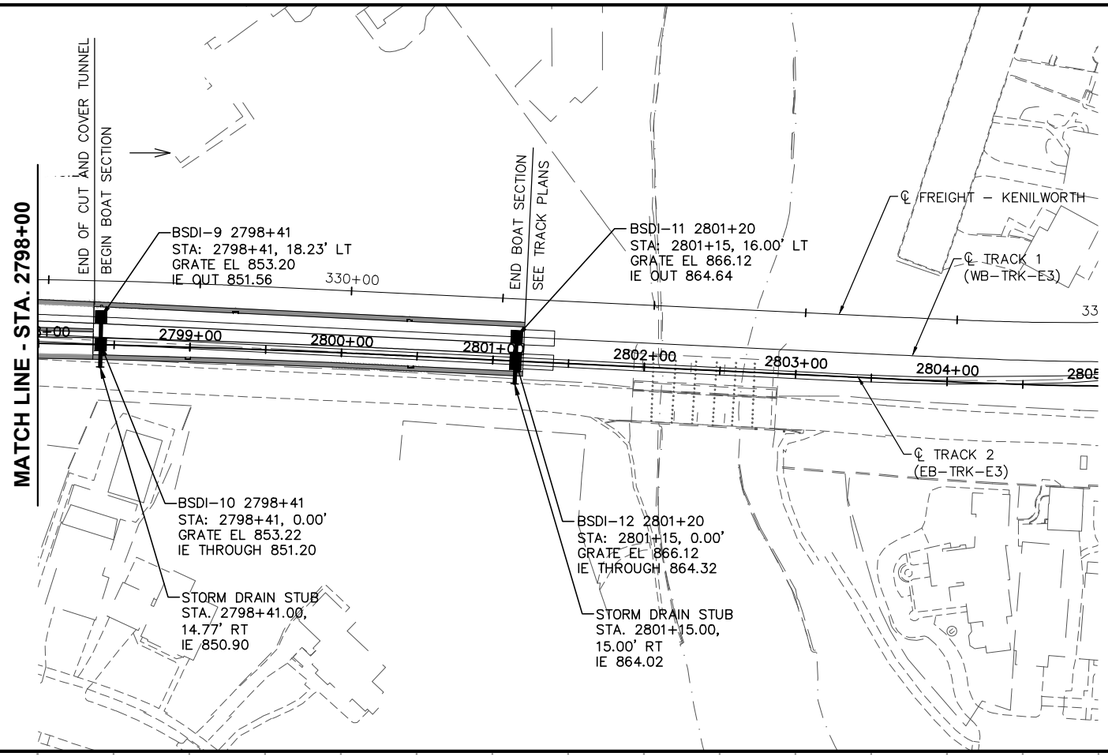
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL DRAINAGE - PLAN AND PROFILE
STA. 2784+00 TO STA. 2798+00

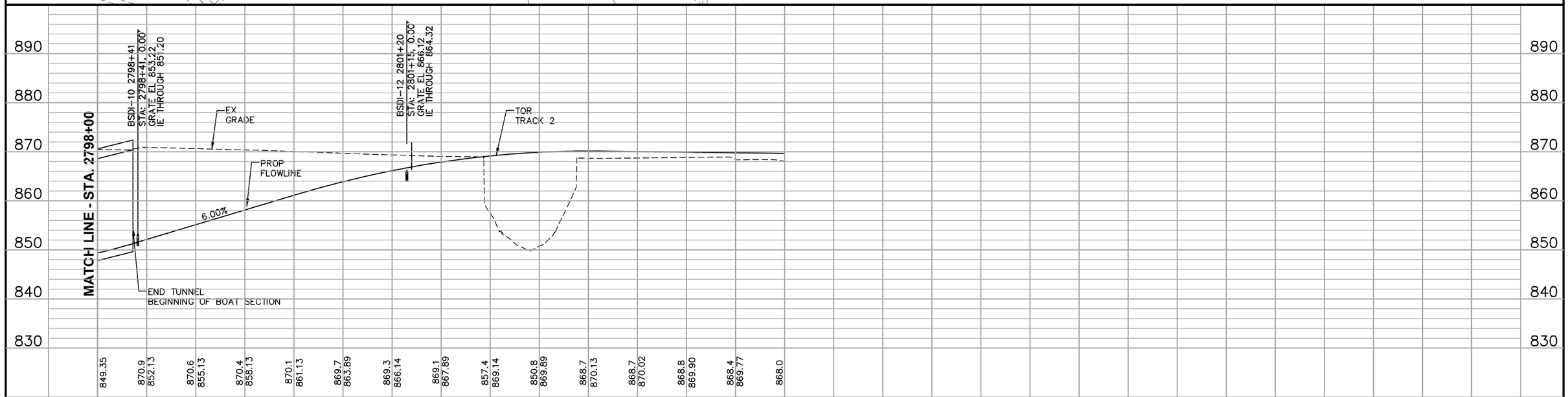
DISCIPLINE: PLUMBING

SHEET NAME: E3-STM-TUNK-GPE-002

SHEET 119 OF 148

Jan. 18 2016 12:44 pm V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\TUN DRAINAGE\E3-STM-TUNK-GPE.dwg By: tangj





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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL DRAINAGE - PLAN AND PROFILE
STA. 2798+00 TO STA. 2805+00

DISCIPLINE: PLUMBING

SHEET NAME: E3-STM-TUNK-GPE-003

SHEET 120 OF 148

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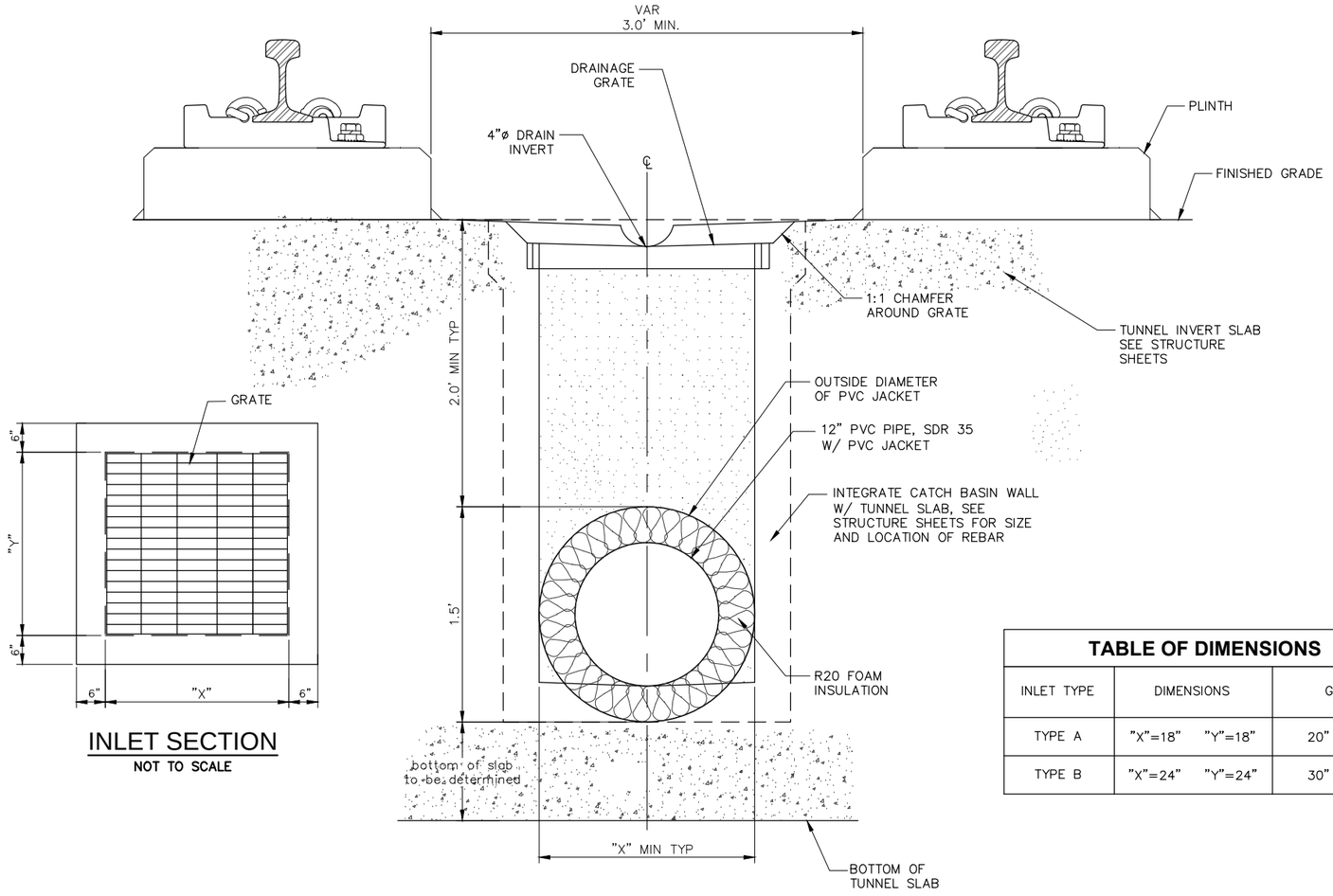

INLET SECTION
NOT TO SCALE

TABLE OF DIMENSIONS		
INLET TYPE	DIMENSIONS	GRATE
TYPE A	"X"=18" "Y"=18"	20" X 20"
TYPE B	"X"=24" "Y"=24"	30" X 30"

1 - TUNNEL DRAINAGE INLET
NOT TO SCALE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

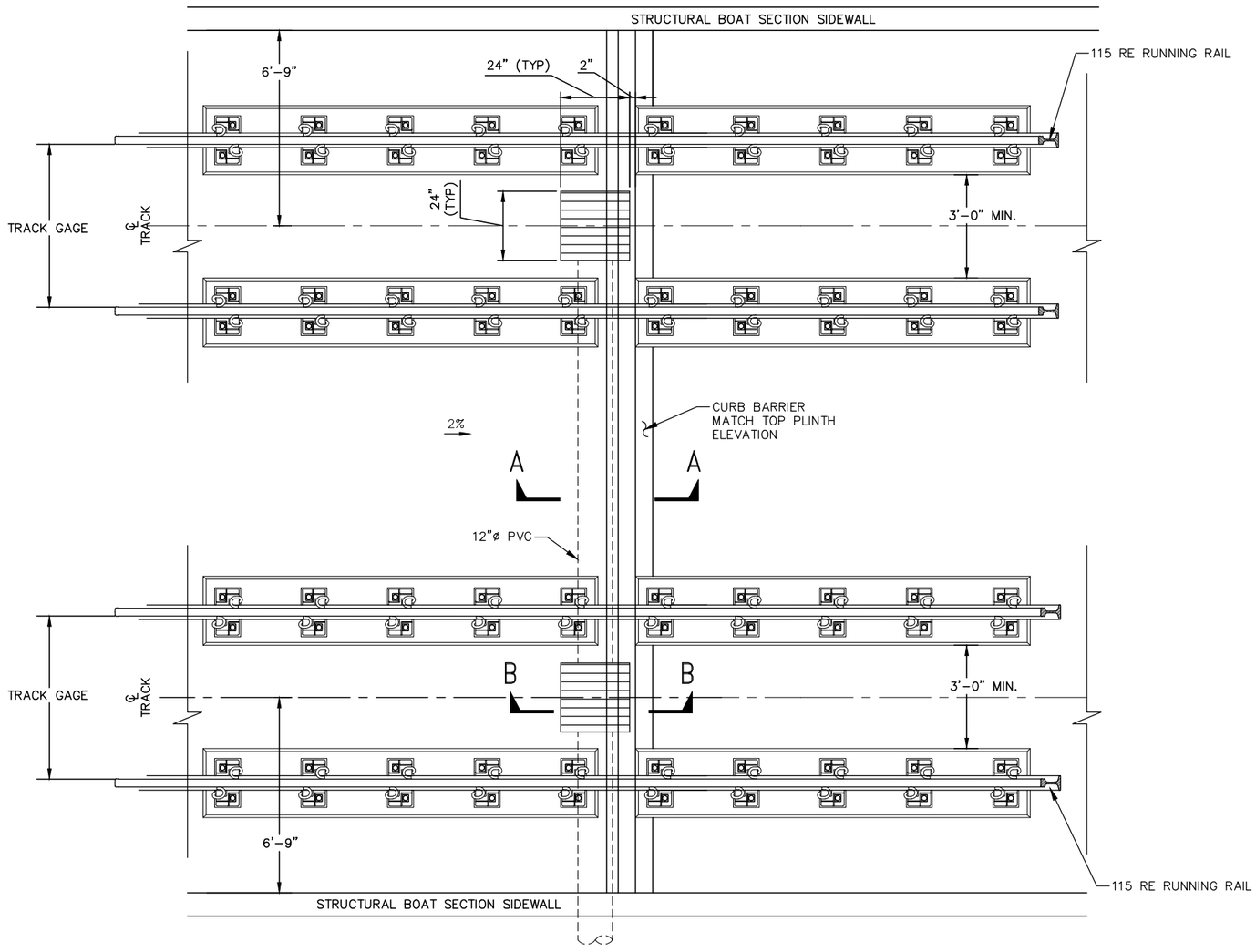
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL DRAINAGE
SECTIONS & DETAILS

DISCIPLINE: PLUMBING

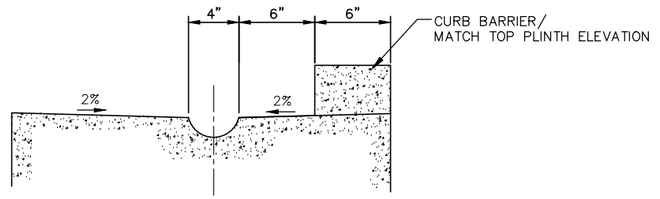
SHEET NAME: E3-STM-TUNK-DTL-001

SHEET 121 OF 148

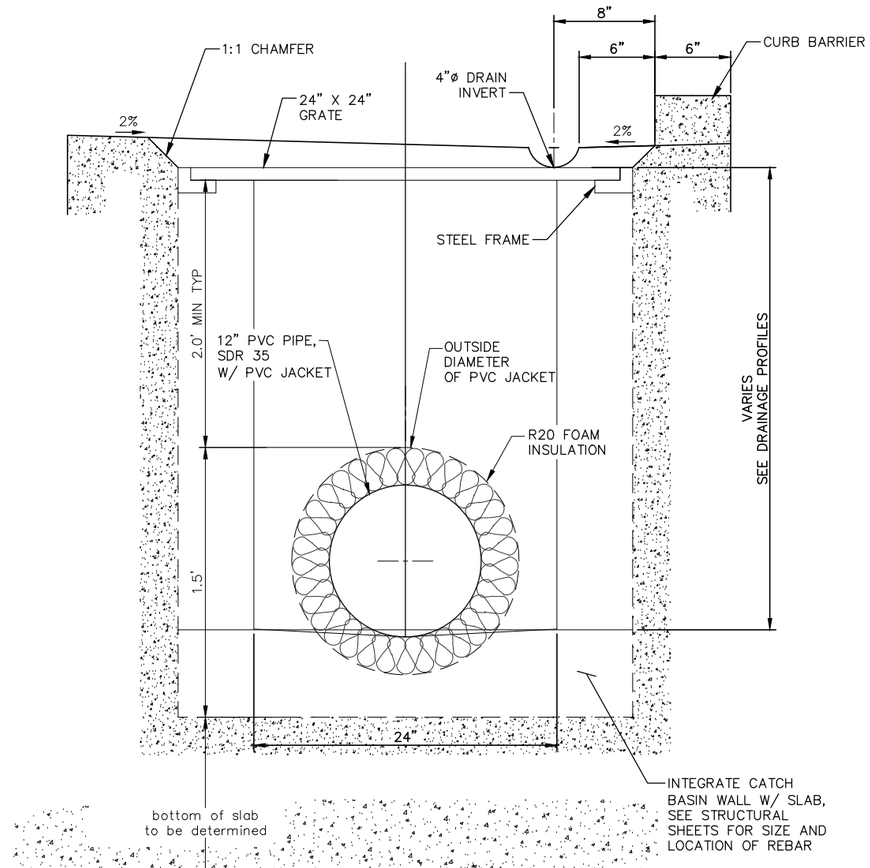
Jan, 18 2016 12:45 pm v:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\TUN DRAINAGE\E3-STM-TUNK-DTL-001.dwg By: tangj



1 / - BOAT SECTION DRAINAGE INLET
NOT TO SCALE



SECTION A–A
NTS



SECTION B–B
NTS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL DRAINAGE
BOAT SECTION & DETAILS

DISCIPLINE: PLUMBING

SHEET NAME: E3-STM-TUNK-DTL-002

SHEET 122 OF 148

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KENILWORTH BOAT SECTION DRAINAGE SCHEDULE

Name	Description	Detail No.	Detail Sheet No.	Station	Grate Elevation	Sump Elevation
BSDI–1 2772+55	24" X 24" Drainage Inlet	1	1	2772+55.05'	867.63'	865.97'
BSDI–2 2772+55	24" X 24" Drainage Inlet	1	1	2772+55.02'	867.63'	865.67'
BSDI–3 2772+55	24" X 24" Drainage Inlet	1	1	2772+55.00'	867.63'	865.37'
CAP 2772+55	Storm Drain Stub	NA	NA	2772+54.73'		865.07'
BSDI–4 2774+55	24" X 24" Drainage Inlet	1	1	2774+55.00'	857.82'	856.16'
BSDI–5 2774+55	24" X 24" Drainage Inlet	1	1	2774+55.00'	857.76'	855.92'
BSDI–6 2774+55	24" X 24" Drainage Inlet	1	1	2774+55.00'	857.71'	855.67'
CAP 2774+55	Storm Drain Stub	NA	NA	2798+41.00'		855.37'
BSDI–7 2775+95	24" X 24" Drainage Inlet	1	1	2775+95.35'	851.22'	849.54'
BSDI–8 2775+95	24" X 24" Drainage Inlet	1	1	2775+95.00'	851.10'	849.34'
CAP 2775+95	Storm Drain Stub	NA	NA	2775+95.00'		849.19'
BSDI–9 2798+41	24" X 24" Drainage Inlet	1	1	2798+41.00'	853.20'	851.56'
BSDI–10 2798+41	24" X 24" Drainage Inlet	1	1	2798+41.00'	853.22'	851.20'
CAP 2798+41	Storm Drain Stub	NA	NA	2798+41.00'		850.90'
BSDI–11 2801+20	24" X 24" Drainage Inlet	1	1	2801+15.00'	866.12'	864.64'
BSDI–12 2801+20	24" X 24" Drainage Inlet	1	1	2801+15.00'	866.12'	864.32'
CAP 2801+20	Storm Drain Stub	NA	NA	2801+15.00'		864.02'
	TOTAL	24" X 24" INLETS = 12 EA				

KENILWORTH TUNNEL DRAINAGE SCHEDULE

Structure ID	Description	Detail No.	Inlet Type	Detail Sheet No.	Station	Grate Elevation	Sump Elevation
DI–1 EB	Tunnel Drainage Inlet	1	Type A	2	2777+07.00'	848.09'	846.15'
DI–1 WB	Tunnel Drainage Inlet	1	Type A	2	2777+07.00'	849.25'	846.42'
DI–2 EB	Tunnel Drainage Inlet	1	Type A	2	2778+08.50'	847.35'	845.69'
DI–2 WB	Tunnel Drainage Inlet	1	Type A	2	2778+08.50'	848.52'	845.69'
DI–3 EB	Tunnel Drainage Inlet	1	Type A	2	2779+10.00'	847.15'	845.49'
DI–3 WB	Tunnel Drainage Inlet	1	Type A	2	2779+10.00'	848.32'	845.49'
DI–4 EB	Tunnel Drainage Inlet	1	Type B	2	2780+11.50'	846.94'	845.28'
DI–4 WB	Tunnel Drainage Inlet	1	Type B	2	2780+11.50'	848.11'	845.28'
DI–5 EB	Tunnel Drainage Inlet	1	Type A	2	2781+13.00'	846.74'	845.08'
DI–5 WB	Tunnel Drainage Inlet	1	Type A	2	2781+13.00'	847.91'	845.08'
DI–6 EB	Tunnel Drainage Inlet	1	Type A	2	2782+14.50'	846.54'	844.88'
DI–6 WB	Tunnel Drainage Inlet	1	Type A	2	2782+14.50'	847.71'	844.88'
DI–7 EB	Tunnel Drainage Inlet	1	Type A	2	2783+16.00'	846.33'	844.67'
DI–7 WB	Tunnel Drainage Inlet	1	Type A	2	2783+16.00'	847.30'	844.47'
DI–8 EB	Tunnel Drainage Inlet	1	Type B	2	2784+17.50'	846.13'	844.47'
DI–8 WB	Tunnel Drainage Inlet	1	Type B	2	2784+17.50'	847.10'	844.27'
DI–9 EB	Tunnel Drainage Inlet	1	Type A	2	2785+19.00'	845.93'	844.27'
DI–9 WB	Tunnel Drainage Inlet	1	Type A	2	2785+19.00'	846.90'	844.07'
DI–10 EB	Tunnel Drainage Inlet	1	Type A	2	2786+20.50'	845.73'	844.07'
DI–10 WB	Tunnel Drainage Inlet	1	Type A	2	2786+20.50'	846.69'	843.86'
DI–11 EB	Tunnel Drainage Inlet	1	Type A	2	2787+22.00'	845.52'	843.86'
DI–11 WB	Tunnel Drainage Inlet	1	Type A	2	2787+22.00'	846.49'	843.66'
DI–12 EB	Tunnel Drainage Inlet	1	Type B	2	2788+23.50'	845.32'	843.66'
DI–12 WB	Tunnel Drainage Inlet	1	Type B	2	2788+23.50'	846.29'	843.46'
DI–13 EB	Tunnel Drainage Inlet	1	Type A	2	2789+25.00'	845.12'	843.46'
DI–13 WB	Tunnel Drainage Inlet	1	Type A	2	2789+25.00'	846.08'	843.25'
DI–14 EB	Tunnel Drainage Inlet	1	Type A	2	2790+26.50'	844.91'	843.25'
DI–14 WB	Tunnel Drainage Inlet	1	Type A	2	2790+26.50'	845.88'	843.05'
DI–15 EB	Tunnel Drainage Inlet	1	Type A	2	2791+28.00'	844.71'	843.05'
DI–15 WB	Tunnel Drainage Inlet	1	Type A	2	2791+28.00'	845.68'	842.85'
DI–16 EB	Tunnel Drainage Inlet	1	Type B	2	2792+29.50'	844.51'	842.85'
DI–16 WB	Tunnel Drainage Inlet	1	Type B	2	2792+29.50'	845.47'	842.64'
DI–17 EB	Tunnel Drainage Inlet	1	Type A	2	2793+31.00'	844.30'	842.64'
DI–17 WB	Tunnel Drainage Inlet	1	Type A	2	2793+31.00'	845.27'	842.44'
DI–18 EB	Tunnel Drainage Inlet	1	Type A	2	2794+32.50'	844.10'	842.44'
DI–18 WB	Tunnel Drainage Inlet	1	Type A	2	2794+32.50'	845.07'	842.24'
DI–19 EB	Tunnel Drainage Inlet	1	Type B	2	2795+34.62'	843.90'	842.24'
DI–19 WB	Tunnel Drainage Inlet	1	Type B	2	2795+34.62'	843.89'	842.05'
CAP 2795+35	Tunnel Drain Stub	NA		2	2795+34.42'		841.90'
DI–20 EB	Tunnel Drainage Inlet	1	Type A	2	2796+36.50'	844.99'	842.75'
DI–20 WB	Tunnel Drainage Inlet	1	Type A	2	2796+36.50'	846.14'	843.31'
DI–21 EB	Tunnel Drainage Inlet	1	Type A	2	2797+38.00'	848.21'	846.55'
DI–21 WB	Tunnel Drainage Inlet	1	Type A	2	2797+38.00'	849.38'	846.45'
	TOTAL	TYPE A (18" X 18" DRAINAGE INLETS) = 32 EA TYPE B (24" X 24" DRAINAGE INLETS) = 10 EA					

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

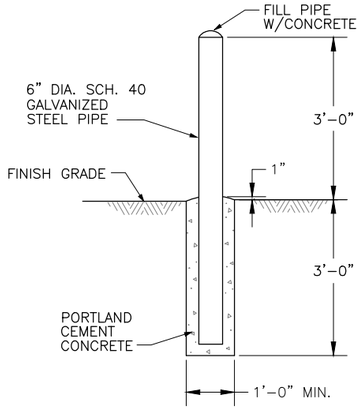
SOUTHWEST

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
TUNNEL DRAINAGE
MATERIAL SCHEDULE

DISCIPLINE: PLUMBING

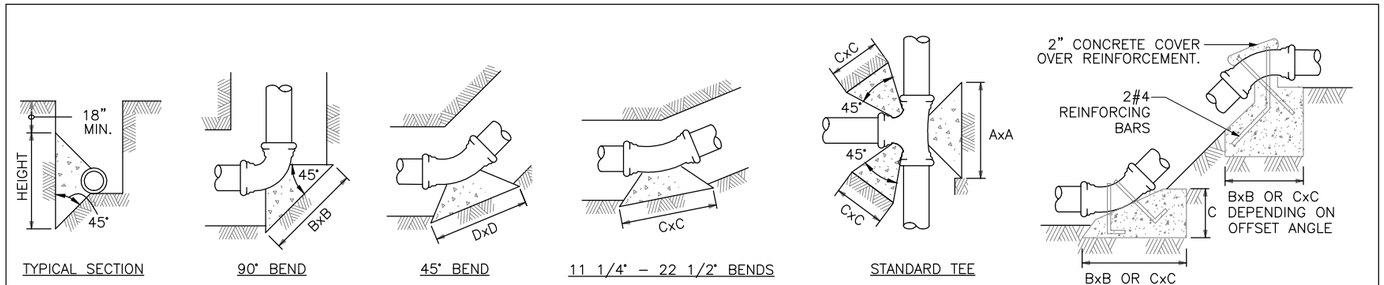
SHEET NAME: E3-STM-TUNK-SCH-001

SHEET 123 OF 148



GUARD POST

1 DETAIL
SCALE: NTS

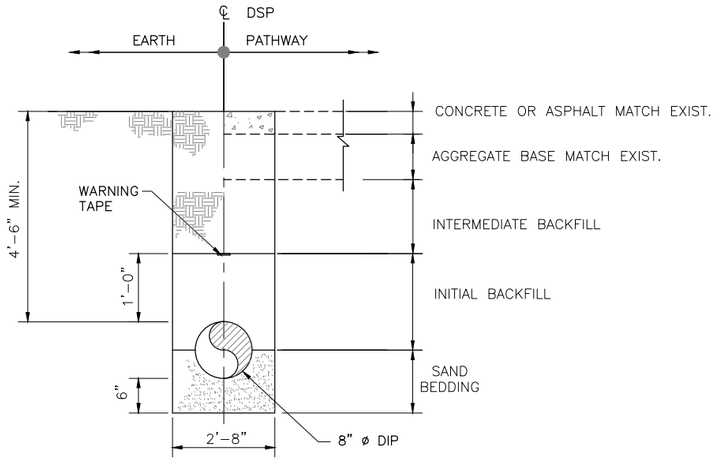


PIPE SIZE	TEST PRESSURE	THRUST BLOCK DIMENSIONS (FT.)			
		A	B	C	D
8"	200 PSI	2'-6"	2'-9"	1'-6"	2'-0"

NOTES

1. THRUST BLOCKS SHALL BE CONCRETE – 2000 PSI MIN. COMPRESSIVE STRENGTH.
2. CONCRETE SHALL BE PLACED AGAINST UNDISTURBED SOIL.
3. JOINTS AND FACES OF PLUGS SHALL BE CLEAR OF CONCRETE.
4. ALL DIMENSIONS ARE MINIMUM.
5. THRUST BLOCKS REQUIRED AT ALL FITTINGS INDICATED BY THE DETAIL.

THRUST BLOCK BEARING AREA TABLE
TYPICAL DETAIL
SCALE: NTS



TYPICAL WATER LINE TRENCH SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

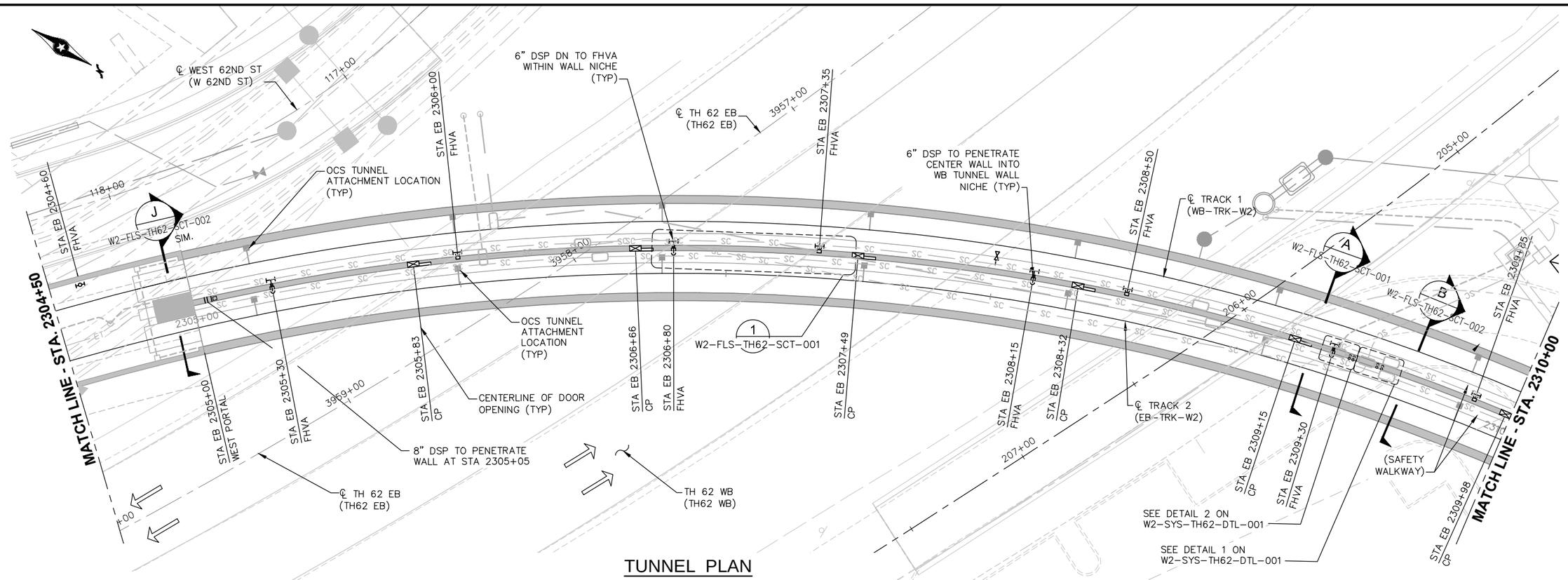
CIVIL - VOLUME 5
FIRE LIFE SAFETY
GENERAL DETAILS

DISCIPLINE: SYSTEMS

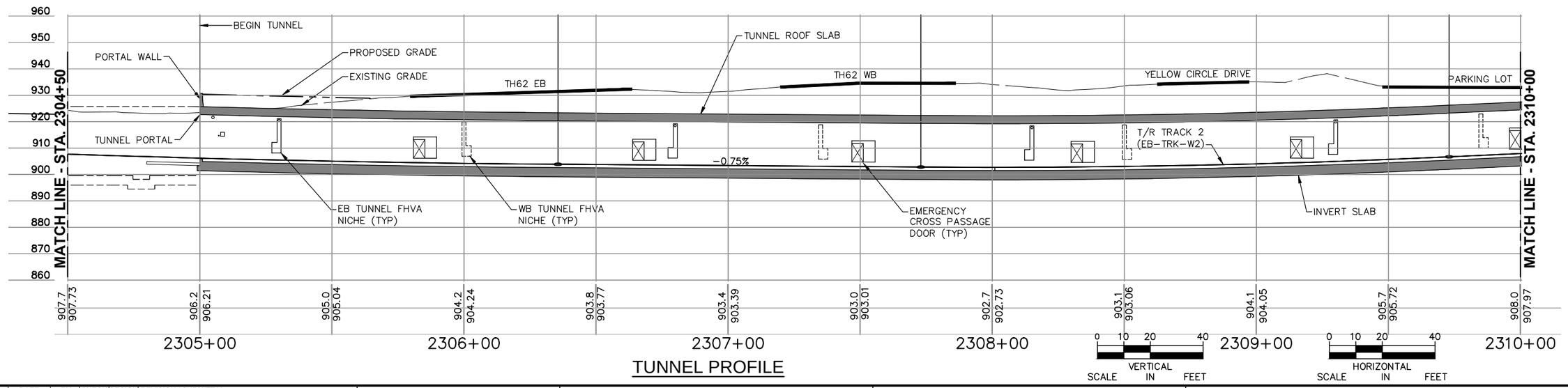
SHEET NAME: 00-FLS-TUN-DTL-001

SHEET 124 OF 148

Jan, 18 2016 11:34 am V:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\SYSTEMS\00-FLS-TUN-DTL-001.dwg By: tangj



TUNNEL PLAN



TUNNEL PROFILE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

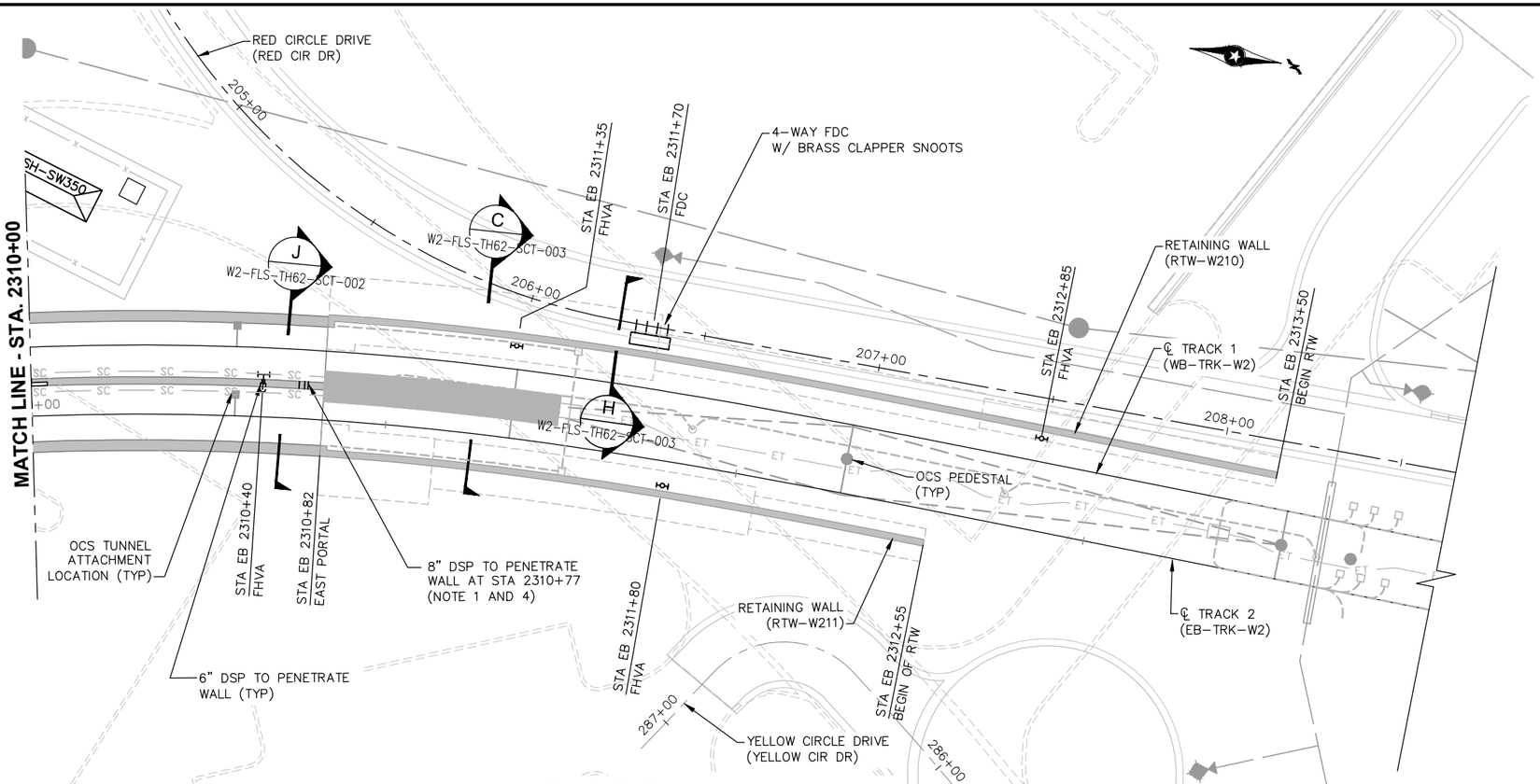
CIVIL - VOLUME 5
TH 62 TUNNEL (BRIDGE 27W33)
SYSTEMS - NICHES AND SLEEVES PLAN SHEET 1

DISCIPLINE: SYSTEMS

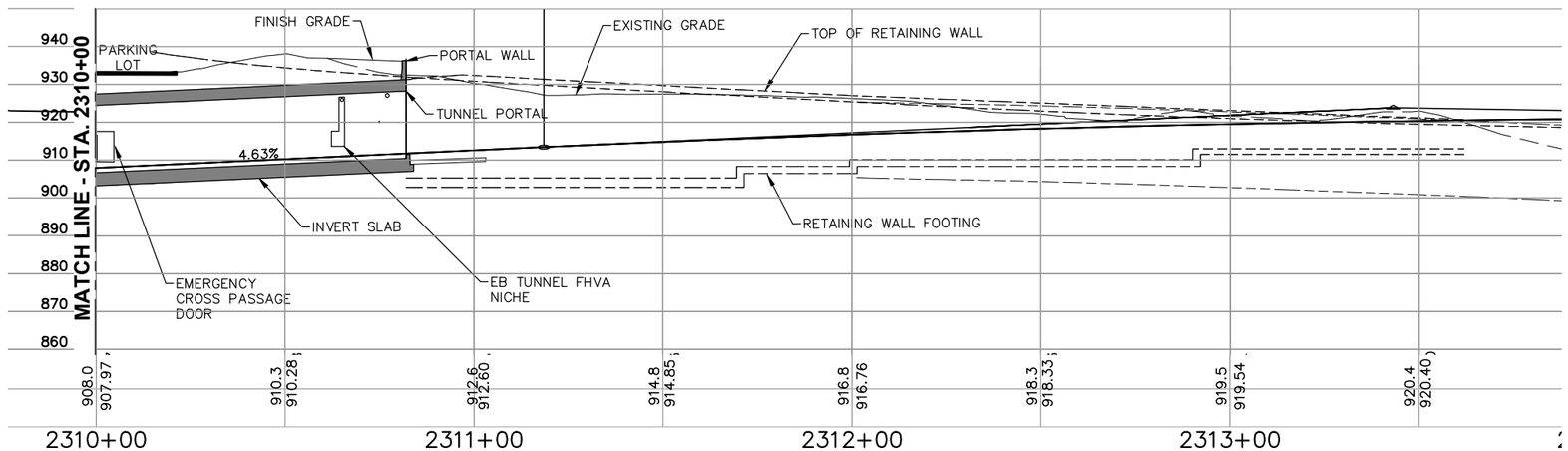
SHEET NAME: W2-SYS-TH62-PLN-001

SHEET 125 OF 148

Jan. 18 2016 11:37 am V:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\SYSTEMS\W2-SYS-TH62-PLN.dwg By: tangj



TUNNEL PLAN



TUNNEL PROFILE

HORIZONTAL SCALE IN FEET: 0 10 20 40

VERTICAL SCALE IN FEET: 0 10 20 40

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

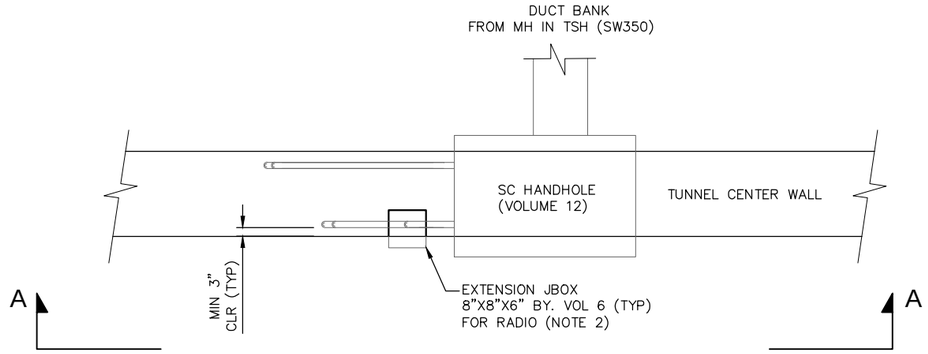
CIVIL - VOLUME 5
TH 62 TUNNEL (BRIDGE 27W33)
SYSTEMS - NICHES AND SLEEVES PLAN
SHEET 2

DISCIPLINE: SYSTEMS

SHEET NAME: W2-SYS-TH62-PLN-002

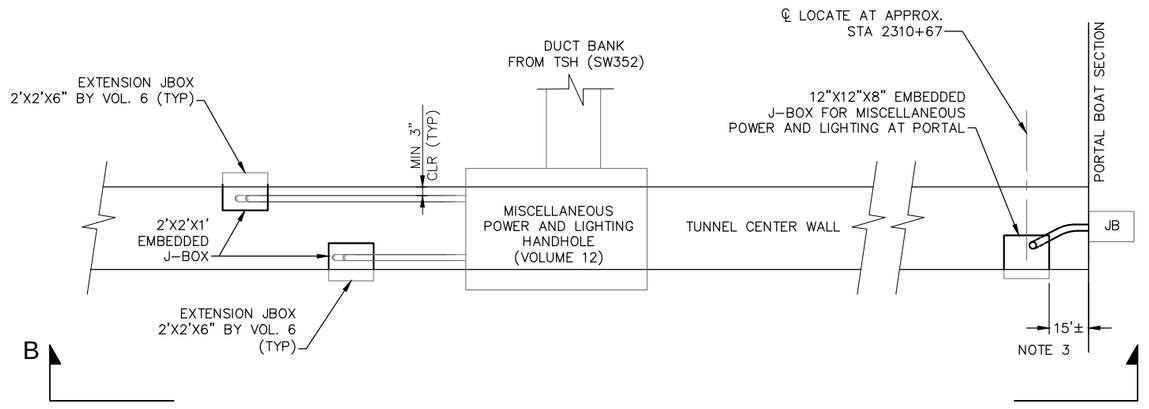
SHEET 126 OF 148

Jan, 18 2016 11:37 am v:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\SYSTEMS\W2-SYS-TH62-PLN.dwg By: tangj



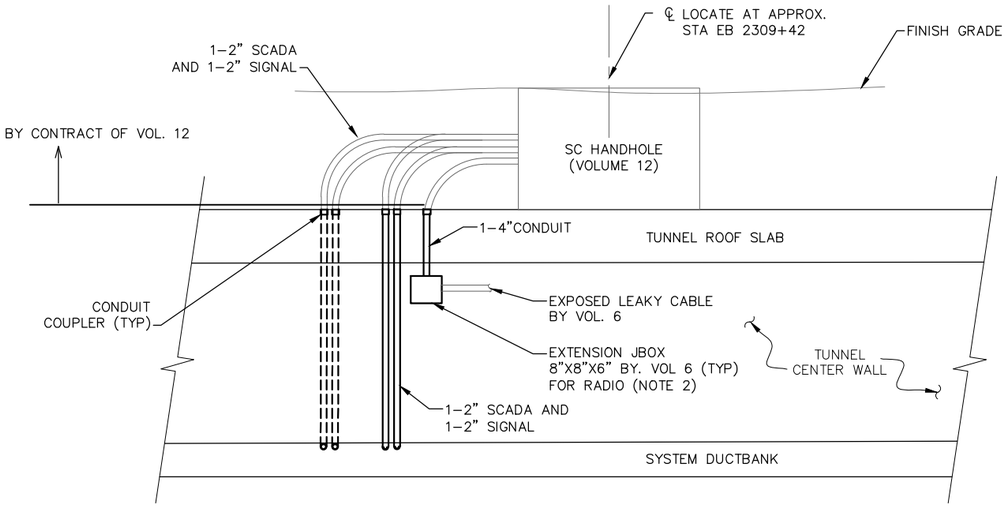
1 - PLAN - SIGNAL, COMM AND RADIO

NOT TO SCALE



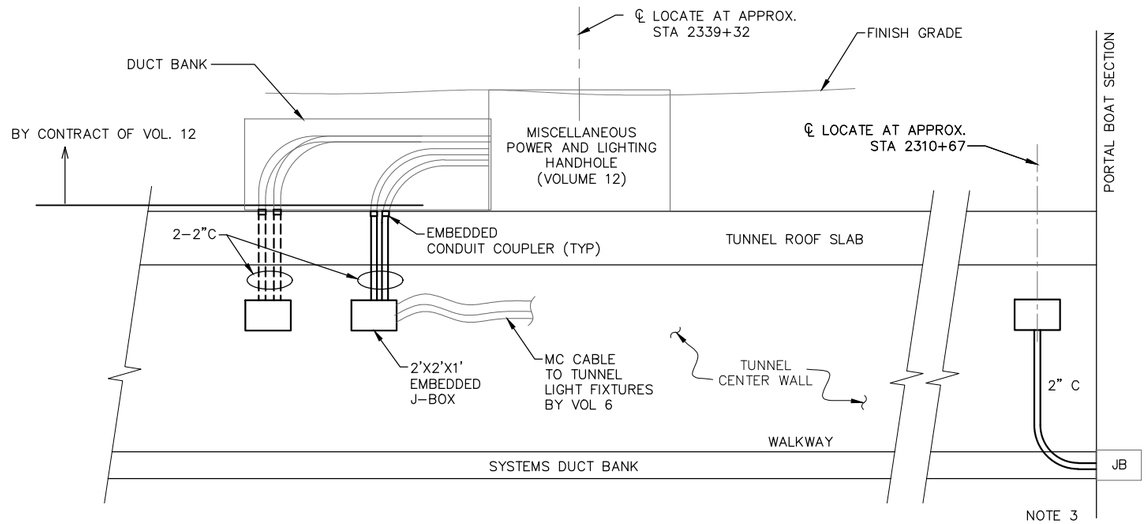
2 - PLAN - LIGHTING & MISCELLANEOUS EAST

NOT TO SCALE



A - SECTION - SIGNAL, COMM AND RADIO

NOT TO SCALE



B - SECTION - LIGHTING & MISCELLANEOUS

NOT TO SCALE

SHEET NOTES:

1. CONCRETE EMBEDDED CONDUITS ARE ENCASED MIN OF 3".
2. LIGHTING, MISCELLANEOUS POWER CONDUITS SHOWN ON THIS SHEET IS FOR EAST SIDE ON CENTER WALL OF TUNNEL, SIMILAR CONFIGURATION WILL APPLY FOR WEST SIDE OF TUNNEL. SEE PLAN DRAWINGS.
3. TYPICAL INSTALLATION AT WEST PORTAL.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

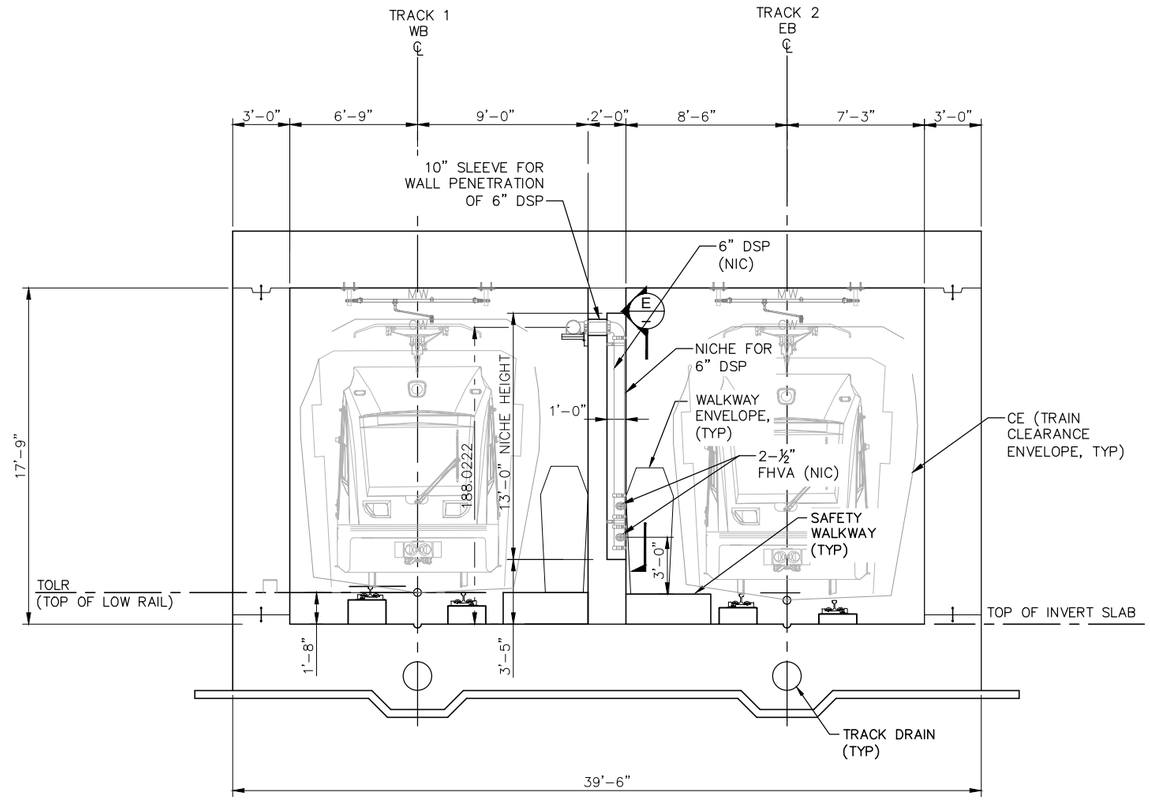
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
SYSTEMS SLEEVE AND NICHE DETAILS

DISCIPLINE: SYSTEMS

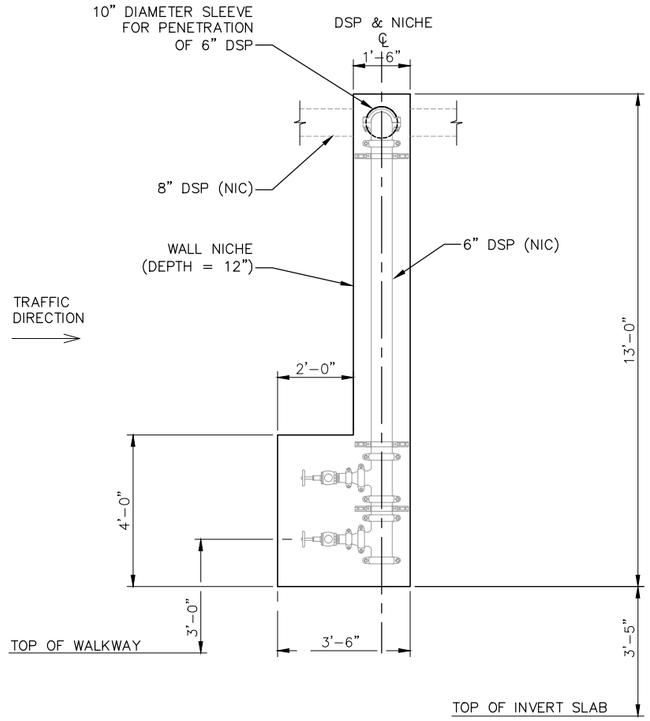
SHEET NAME: W2-SYS-TH62-DTL-001

SHEET 127 OF 148



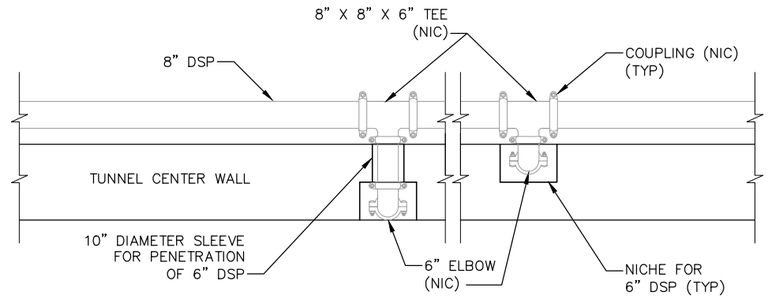
A — TYPICAL TUNNEL SECTION

SCALE: 0 2 4 8 HORIZONTAL IN FEET



E — SIDE VIEW / ELEVATION

SCALE: 0 1 2 4 HORIZONTAL IN FEET



1 — ENLARGED PLAN DETAIL

NOT TO SCALE

NOTES:

1. ALL DRY STANDPIPE EQUIPMENT SHOWN ARE NOT IN CONTRACT (NIC).

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

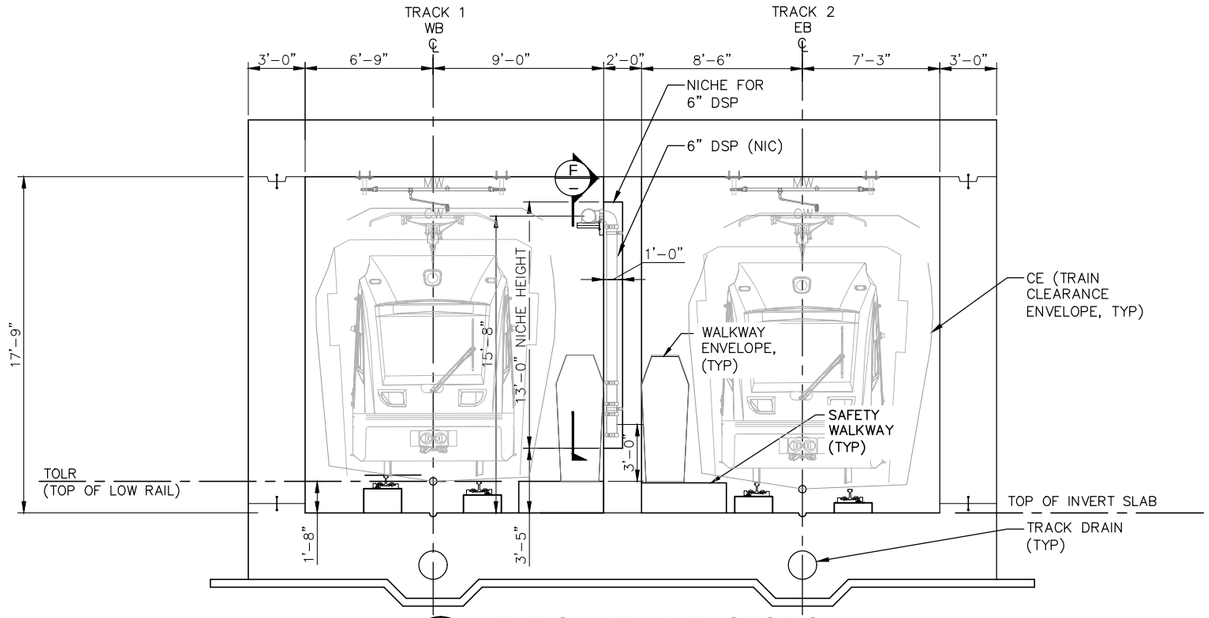
CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
FIRE LIFE SAFETY - TYPICAL SECTION & DETAILS SHEET 1

DISCIPLINE: SYSTEMS

SHEET NAME: W2-FLS-TH62-SCT-001

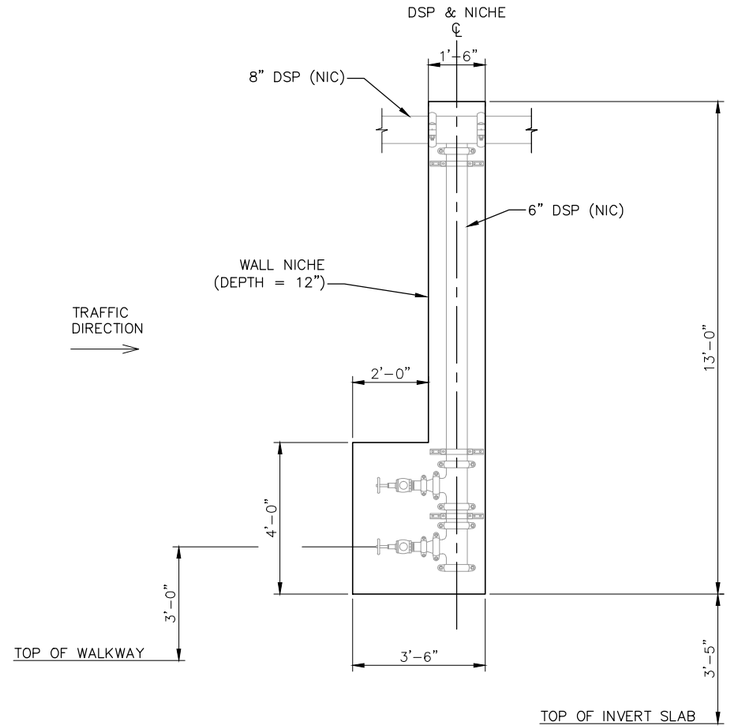
SHEET 128 OF 148

Jan, 18 2016 11:38 am V:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\SYSTEMS\W2-FLS-TH62-SCT.dwg By: tangj



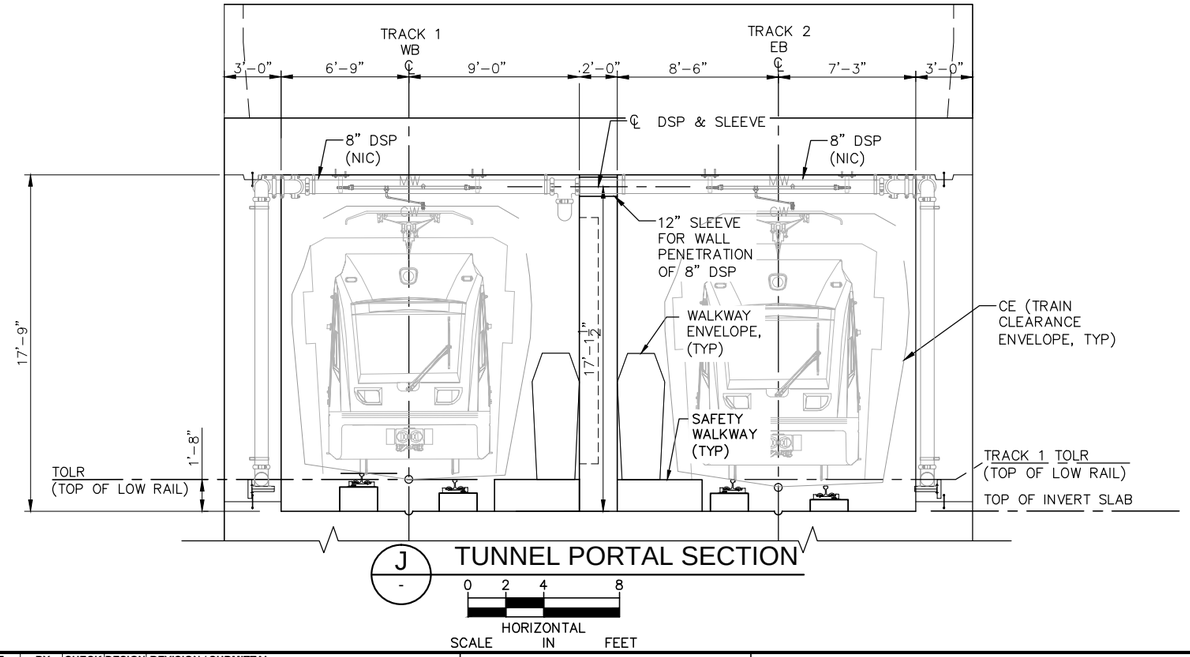
B - TYPICAL TUNNEL SECTION

SCALE HORIZONTAL IN FEET 0 2 4 8



F - SIDE VIEW / ELEVATION

SCALE HORIZONTAL IN FEET 0 1 2 4



J - TUNNEL PORTAL SECTION

SCALE HORIZONTAL IN FEET 0 2 4 8

NOTES:

1. ALL DRY STANDPIPE EQUIPMENT SHOWN ARE NOT IN CONTRACT (NIC).

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
FIRE LIFE SAFETY - TYPICAL SECTION & DETAILS SHEET 2

DISCIPLINE: SYSTEMS

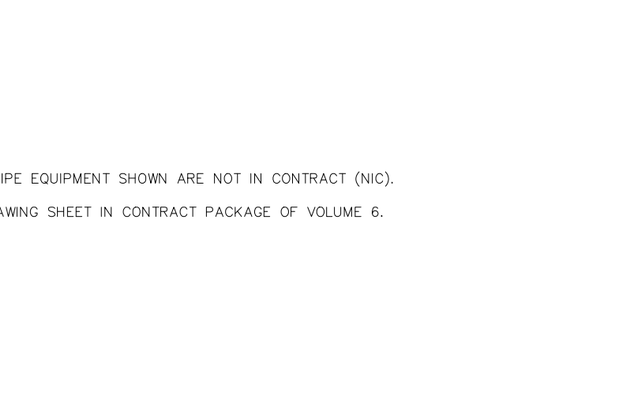
SHEET NAME: W2-FLS-TH62-SCT-002

SHEET 129 OF 148

Jan, 18 2016 11:39 am V:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\SYSTEMS\W2-FLS-TH62-SCT.dwg By: tangj

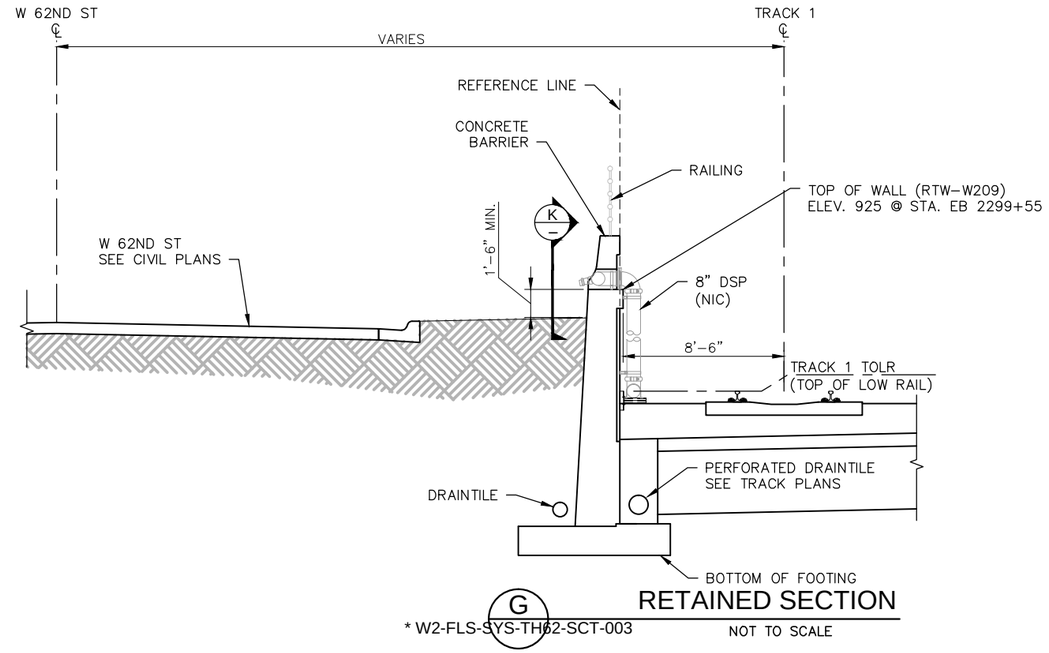
NOTES:

1. ALL DRY STANDPIPE EQUIPMENT SHOWN ARE NOT IN CONTRACT (NIC).
2. "*" DENOTES DRAWING SHEET IN CONTRACT PACKAGE OF VOLUME 6.



K
-
FIRE DEPT. CONNECTION DETAIL

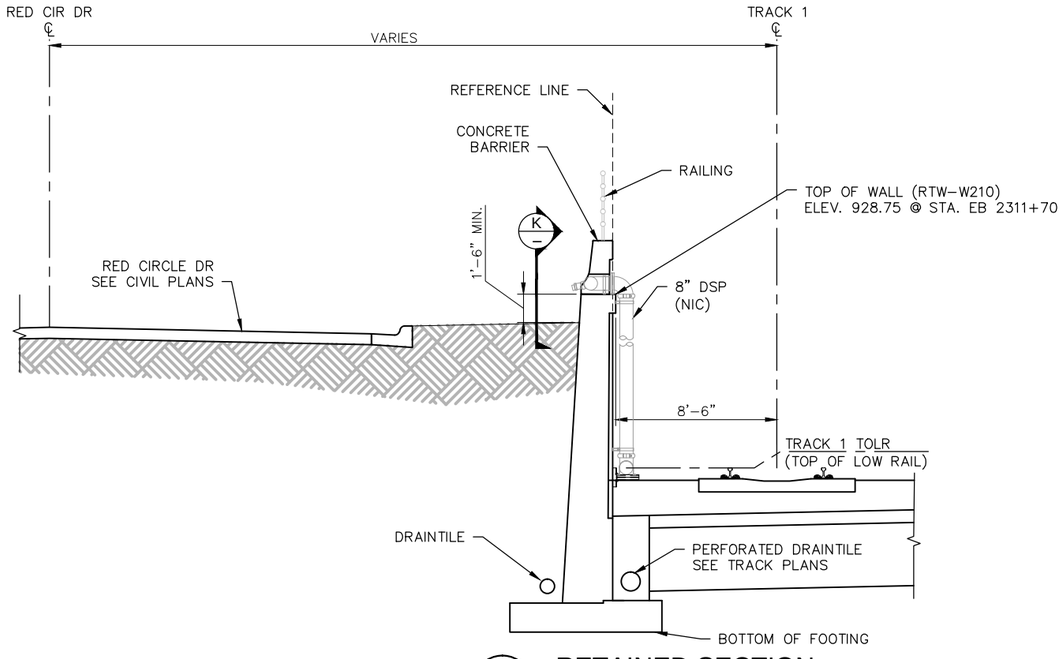
NOT TO SCALE



G
RETAINED SECTION

* W2-FLS-SYS-TH62-SCT-003

NOT TO SCALE



H
-
RETAINED SECTION

NOT TO SCALE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

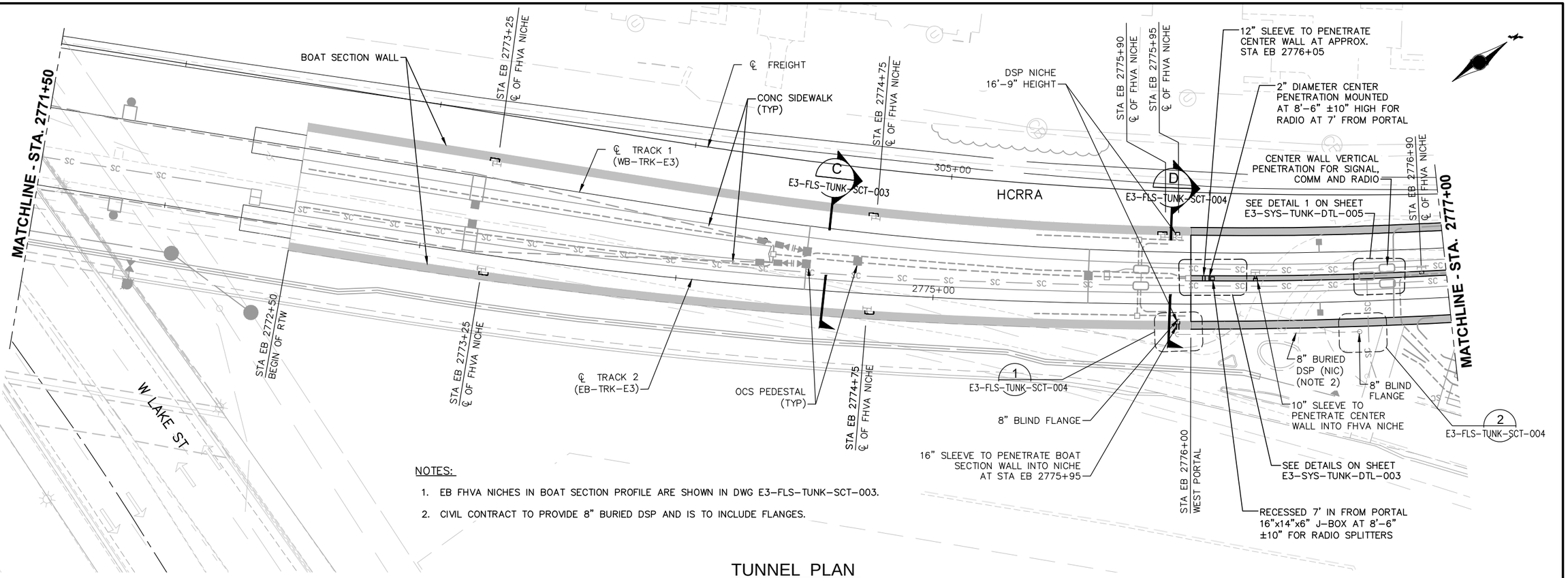
CIVIL - VOLUME 5
TH62 TUNNEL (BRIDGE 27W33)
FIRE LIFE SAFETY - TYPICAL SECTION & DETAILS SHEET 3

DISCIPLINE: SYSTEMS

SHEET NAME: W2-FLS-TH62-SCT-003

SHEET 130 OF 148

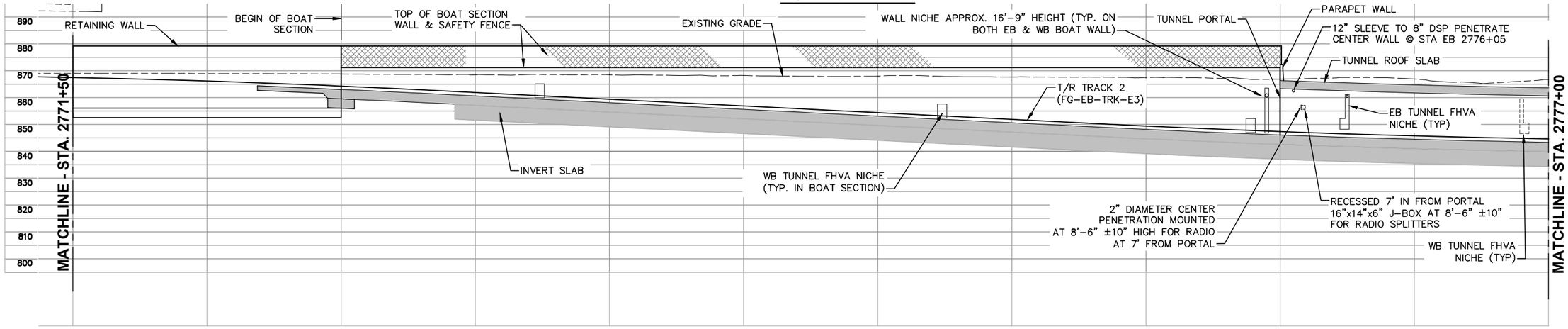
Jan, 18 2016 01:19 pm v:\3400_ADC\CAD\SEGMENT W2\PLAN SHEETS\SYSTEMS\W2-FLS-TH62-SCT.dwg By: tangj



NOTES:

1. EB FHVA NICHES IN BOAT SECTION PROFILE ARE SHOWN IN DWG E3-FLS-TUNK-SCT-003.
2. CIVIL CONTRACT TO PROVIDE 8" BURIED DSP AND IS TO INCLUDE FLANGES.

TUNNEL PLAN



TUNNEL PROFILE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

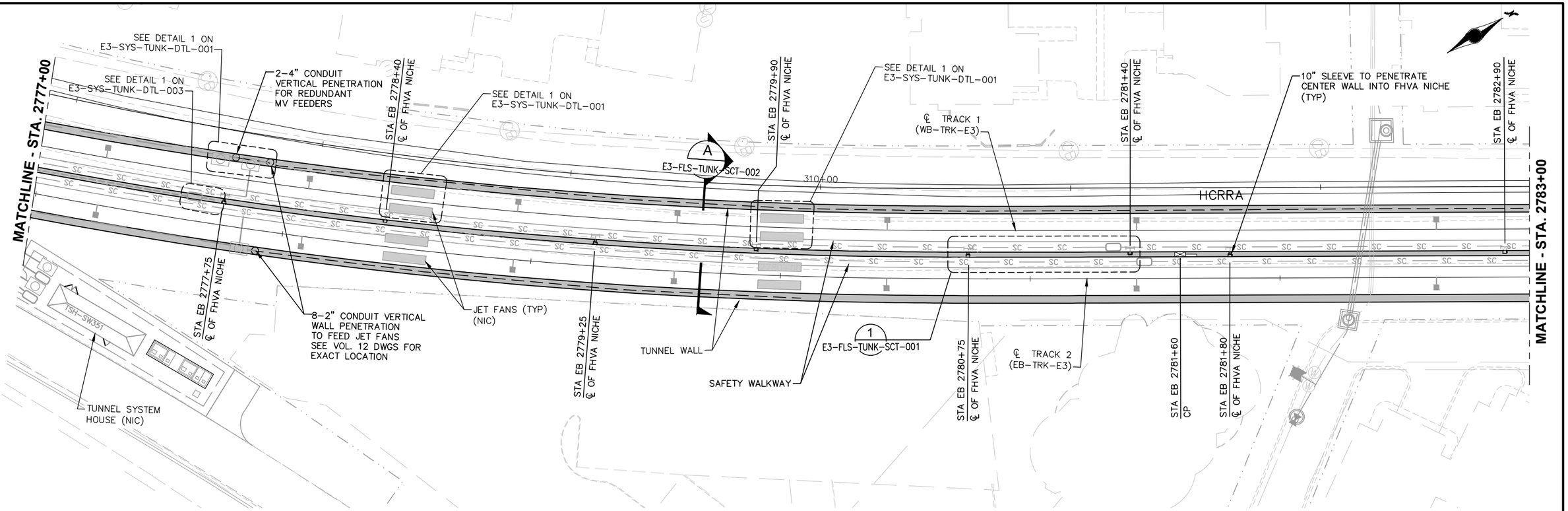
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SYSTEMS SLEEVE AND NICHE PLAN
SHEET 1

DISCIPLINE: SYSTEMS

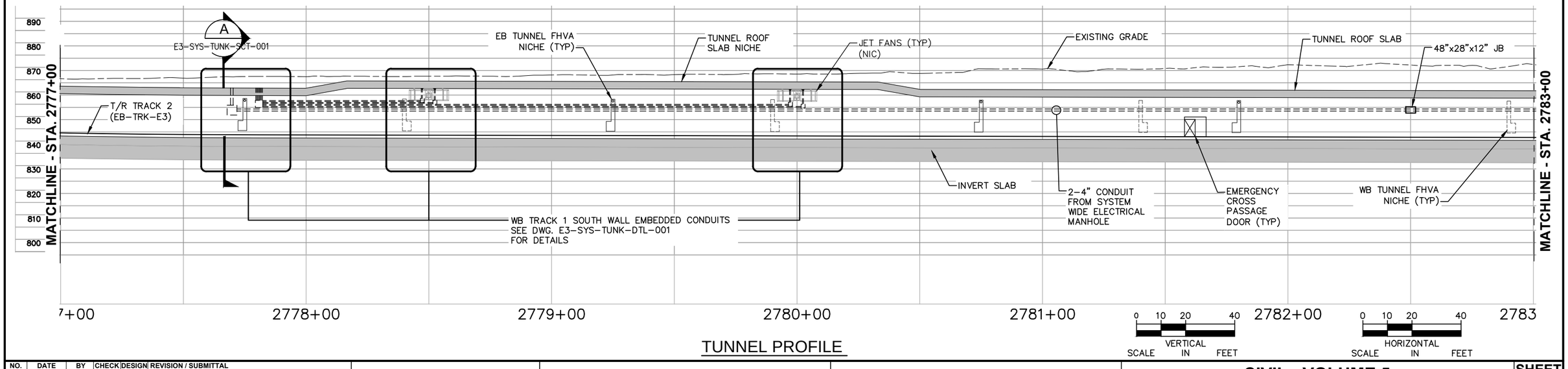
SHEET NAME: E3-SYS-TUNK-PLN-001

SHEET 131 OF 148

Jan, 18 2016 10:51 am V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\SYSTEMS\E3-SYS-TUNK-PLN.dwg By: tangj



TUNNEL PLAN



TUNNEL PROFILE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

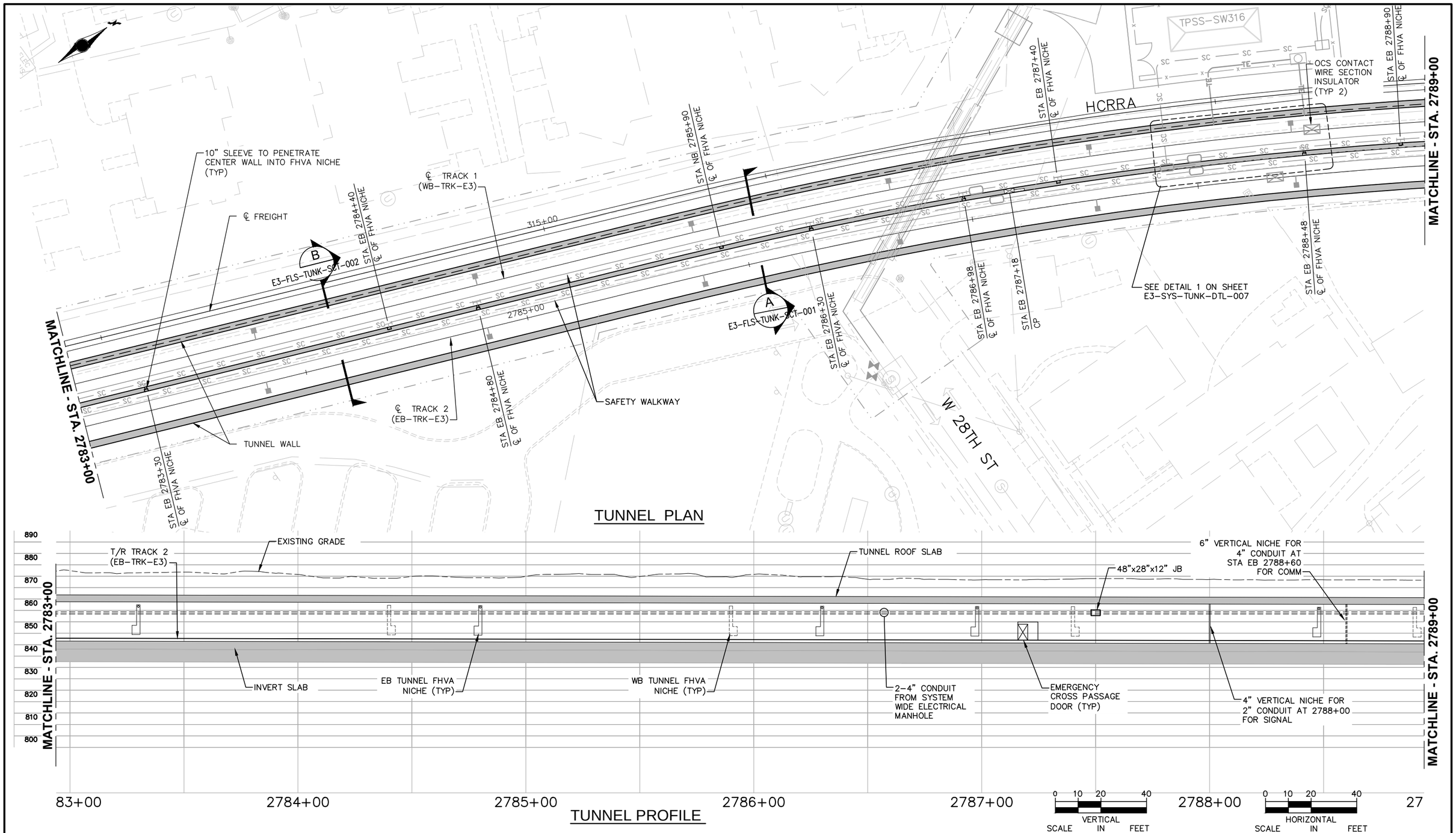
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SYSTEMS SLEEVE AND NICHE PLAN
SHEET 2

DISCIPLINE: SYSTEMS

SHEET NAME: E3-SYS-TUNK-PLN-002

SHEET 132 OF 148

Jan, 18 2016 10:52 am V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\SYSTEMS\E3-SYS-TUNK-PLN.dwg By: tangj



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

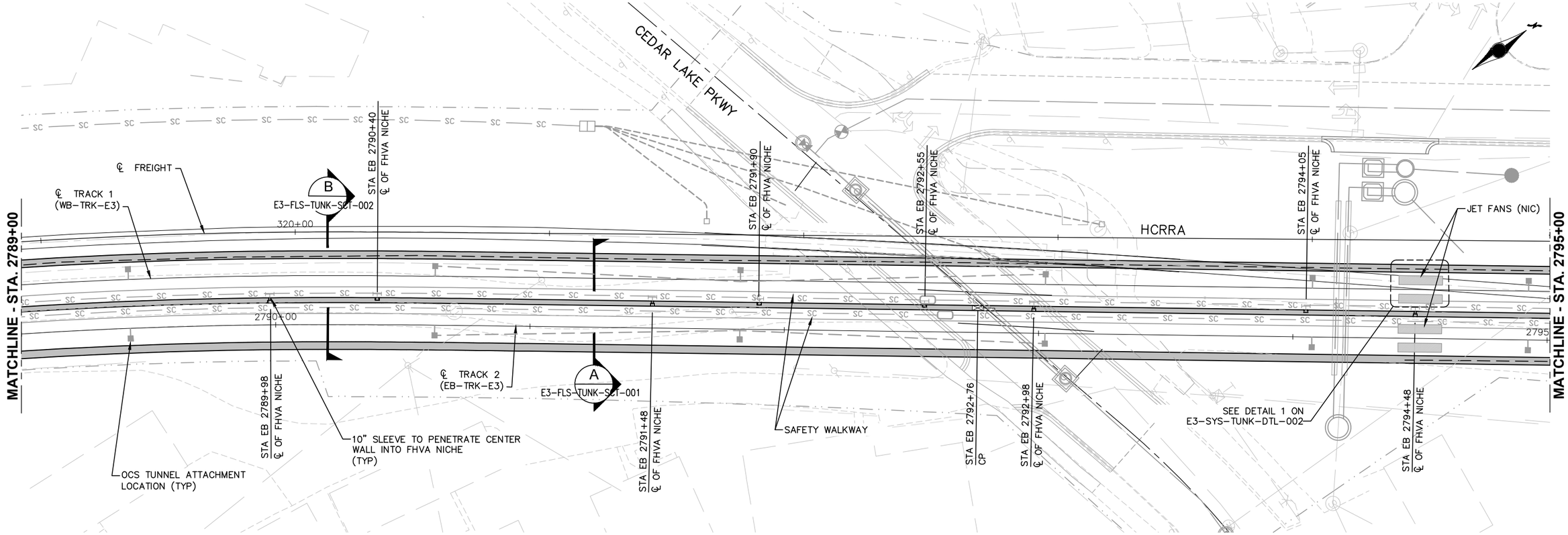
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SYSTEMS SLEEVE AND NICHE PLAN
SHEET 3

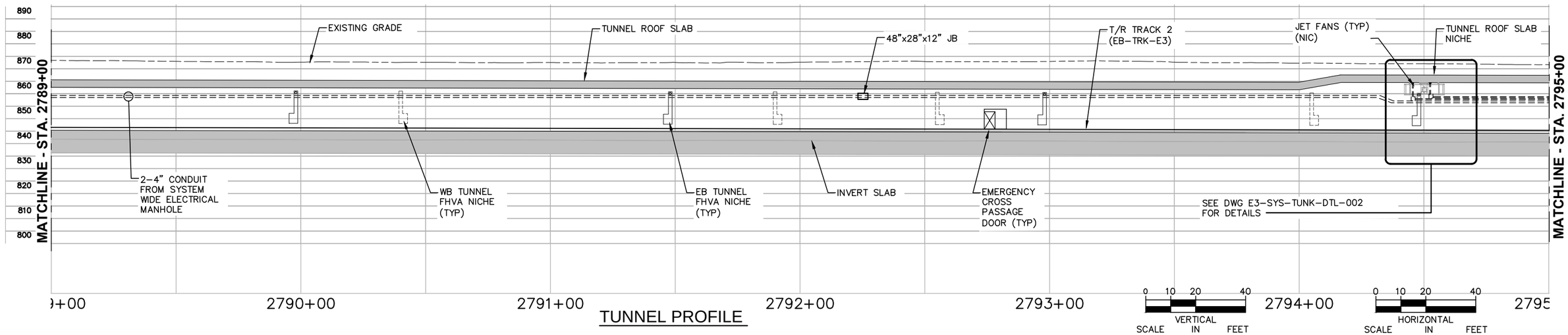
DISCIPLINE: SYSTEMS

SHEET NAME: E3-SYS-TUNK-PLN-003

SHEET 133 OF 148



TUNNEL PLAN



TUNNEL PROFILE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

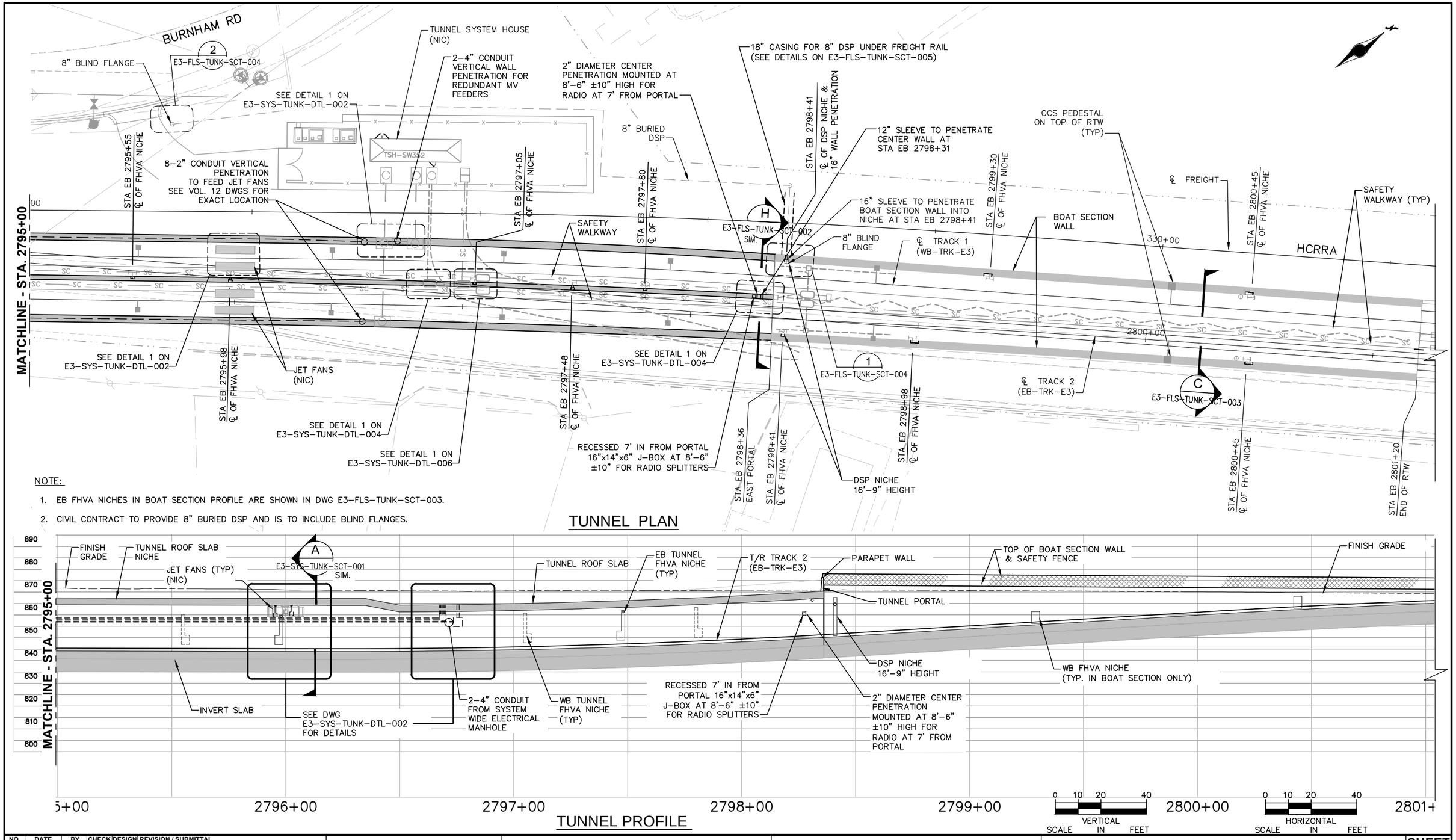
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SYSTEMS SLEEVE AND NICHE PLAN
SHEET 4

DISCIPLINE: SYSTEMS

SHEET NAME: E3-SYS-TUNK-PLN-004

SHEET 134 OF 148

Jan, 18 2016 10:54 am V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\SYSTEMS\E3–SYS–TUNK–PLN.dwg By: tangj



NOTE:

1. EB FHVA NICHES IN BOAT SECTION PROFILE ARE SHOWN IN DWG E3-FLS-TUNK-SCT-003.
2. CIVIL CONTRACT TO PROVIDE 8" BURIED DSP AND IS TO INCLUDE BLIND FLANGES.

TUNNEL PLAN

TUNNEL PROFILE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

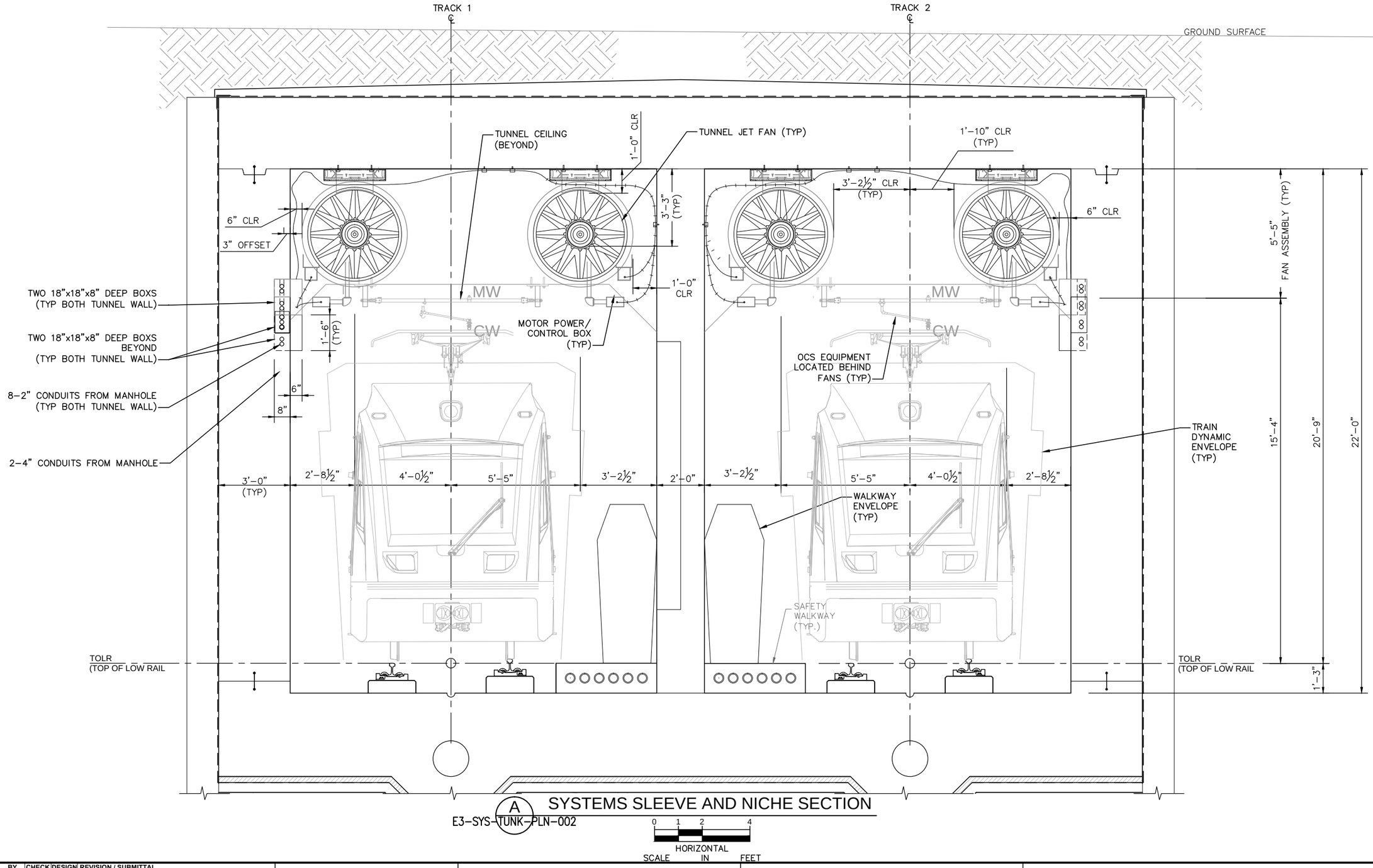
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SYSTEMS SLEEVE AND NICHE PLAN
SHEET 5

DISCIPLINE: SYSTEMS

SHEET NAME: E3-SYS-TUNK-PLN-005

SHEET 135 OF 148

Jan, 18 2016 10:55 am V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\SYSTEMS\E3-SYS-TUNK-PLN.dwg By: tangj



A SYSTEMS SLEEVE AND NICHE SECTION

E3-SYS-TUNK-PLN-002

0 1 2 4

HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

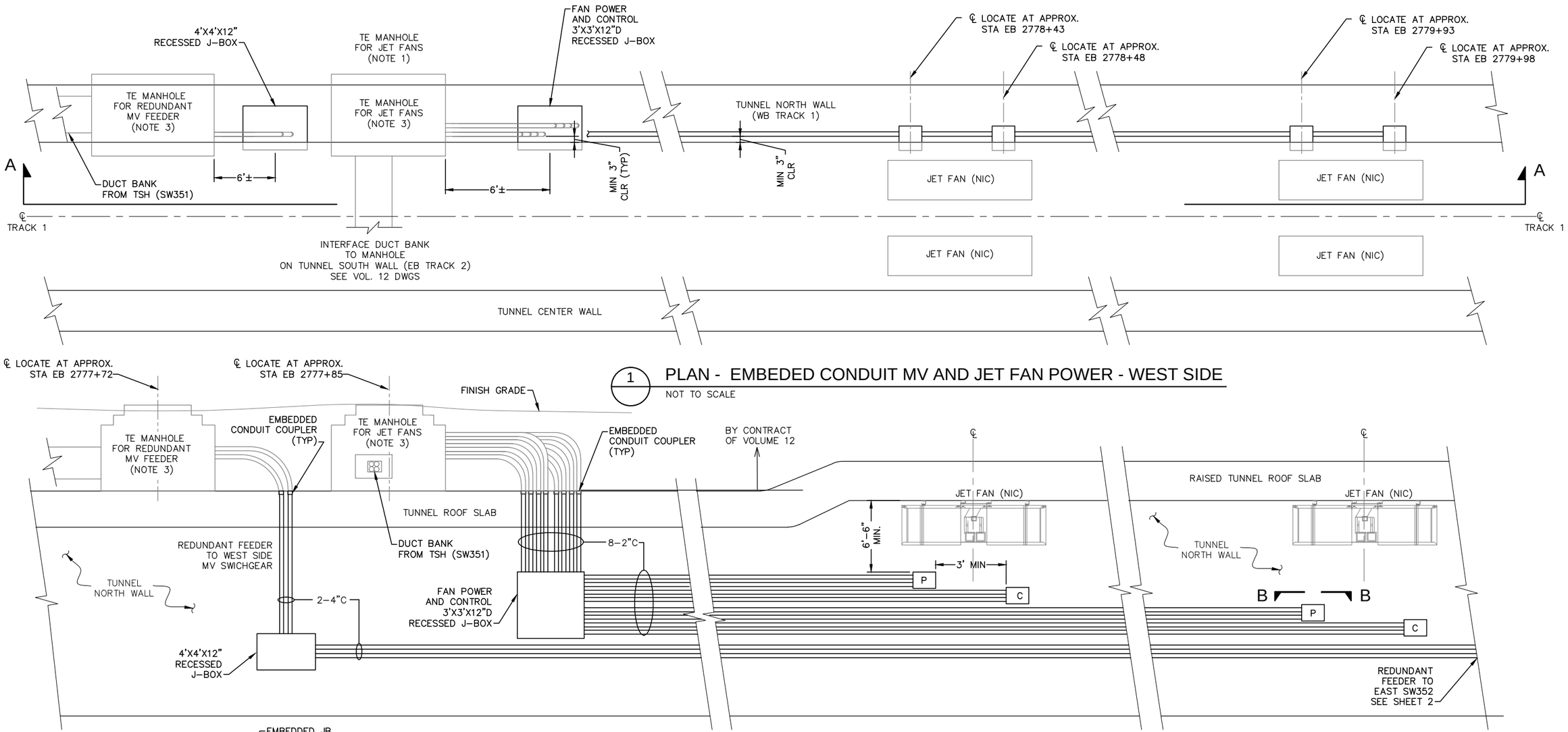
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SYSTEMS SLEEVE AND NICHE SECTION

DISCIPLINE: SYSTEMS

SHEET NAME: E3-SYS-TUNK-SCT-001

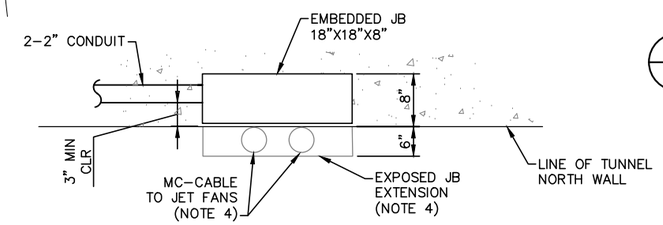
SHEET 136 OF 148

Jan, 18 2016 11:03 am V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\SYSTEMS\E3-SYS-TUNK-SCT-001.dwg By: tangj



1 PLAN - EMBEDED CONDUIT MV AND JET FAN POWER - WEST SIDE

NOT TO SCALE



B - SECTION - POWER (TYP FOR CONTROL)

NOT TO SCALE

A - SECTION - EMBEDED CONDUIT MV AND JET FAN POWER - WEST SIDE

NOT TO SCALE

SHEET NOTES

1. CONCRETE EMBEDDED CONDUITS ARE ENCASED MIN OF 3".
2. JET FAN POWER, CONTROL AND MV CONDUITS SHOWN ARE ON WEST SIDE NORTH WALL OF TUNNEL. SIMILAR CONFIGURATION APPLY ON TRACK 2 SOUTH WALL WITHOUT MV REDUNDANT FEEDER
3. REFER TO VOLUME 12 DRAWINGS FOR WORK. SHOWN FOR INFORMATION ONLY.
4. REFER TO SYSTEMS AND TUNNEL FACILITIES – VOLUME 6 DRAWING.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

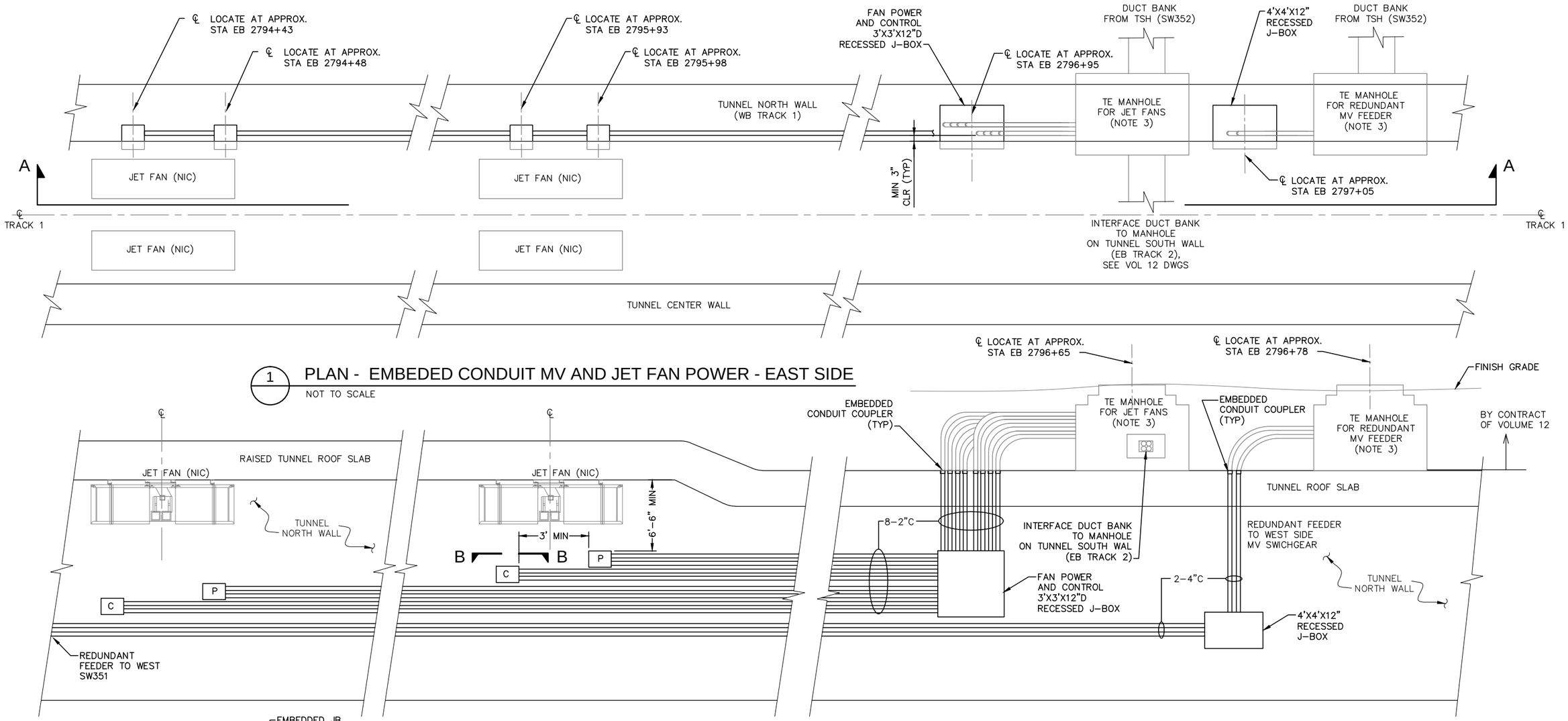
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SYSTEMS SLEEVE AND NICHE DETAILS
SHEET 1

DISCIPLINE: SYSTEMS

SHEET NAME: E3-SYS-TUNK-DTL-001

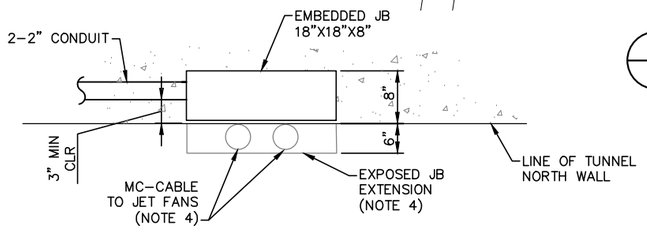
SHEET 137 OF 148

Jan, 18 2016 10:55 am v:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\SYSTEMS\E3-SYS-TUNK-DTL-1-4.dwg By: tangj



1 PLAN - EMBEDED CONDUIT MV AND JET FAN POWER - EAST SIDE

NOT TO SCALE



B - SECTION - POWER (TYP FOR CONTROL)

NOT TO SCALE

A - SECTION - EMBEDED CONDUIT MV AND JET FAN POWER - EAST SIDE

NOT TO SCALE

SHEET NOTES

1. CONCRETE EMBEDDED CONDUITS ARE ENCASED MIN OF 3".
2. JET FAN POWER, CONTROL AND MV CONDUITS SHOWN ARE ON WEST SIDE NORTH WALL OF TUNNEL. SIMILAR CONFIGURATION APPLY ON TRACK 2 SOUTH WALL WITHOUT MV REDUNDANT FEEDER.
3. REFER TO VOLUME 12 DRAWINGS FOR WORK. SHOWN FOR INFORMATION ONLY.
4. REFER TO SYSTEMS AND TUNNEL FACILITIES – VOLUME 6 DRAWING.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

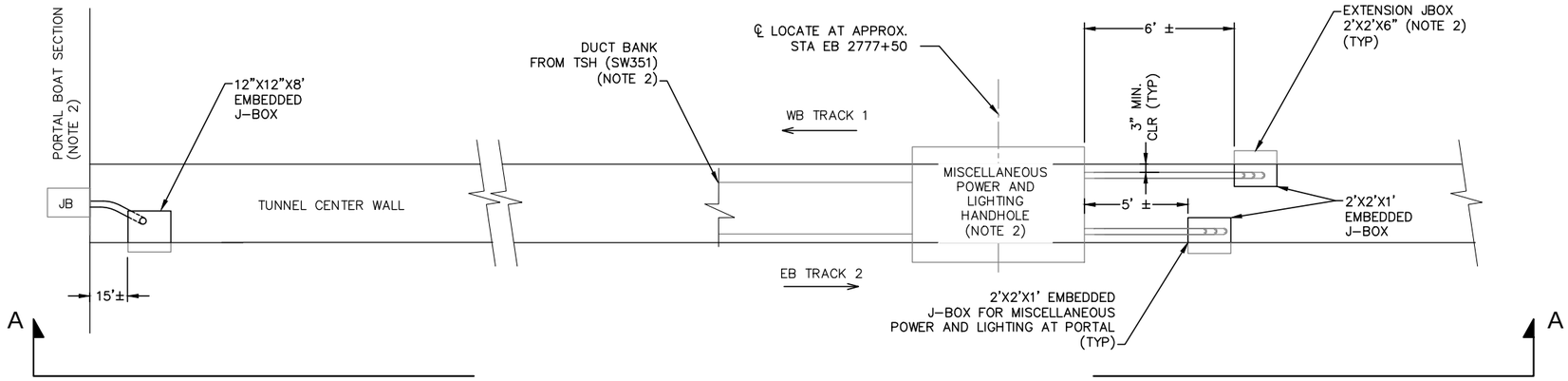
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SYSTEMS SLEEVE AND NICHE DETAILS
SHEET 2

DISCIPLINE: SYSTEMS

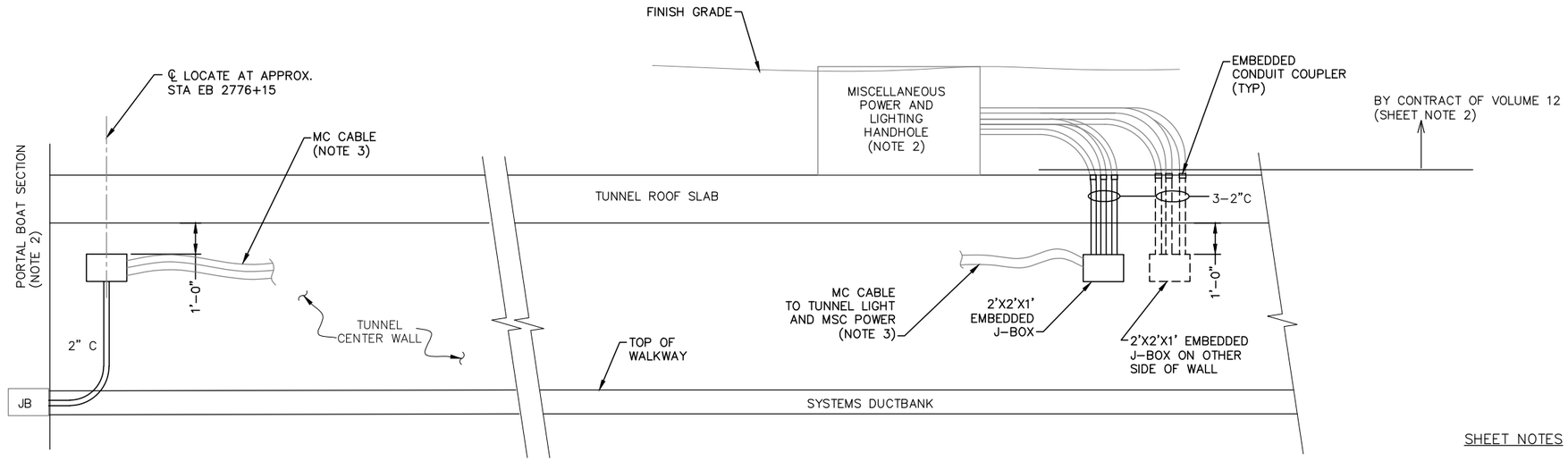
SHEET NAME: E3-SYS-TUNK-DTL-002

SHEET 138 OF 148



1 PLAN - LIGHTING & MISCELLANEOUS POWER - WEST

NOT TO SCALE



A SECTION - LIGHTING & MISCELLANEOUS

NOT TO SCALE

SHEET NOTES

1. CONCRETE EMBEDDED CONDUITS ARE ENCASED MIN OF 3".
2. REFER TO VOLUME 12 DRAWINGS FOR WORK. SHOWN FOR INFORMATION ONLY.
3. REFER TO SYSTEMS AND TUNNEL FACILITIES – VOLUME 6 DRAWING.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

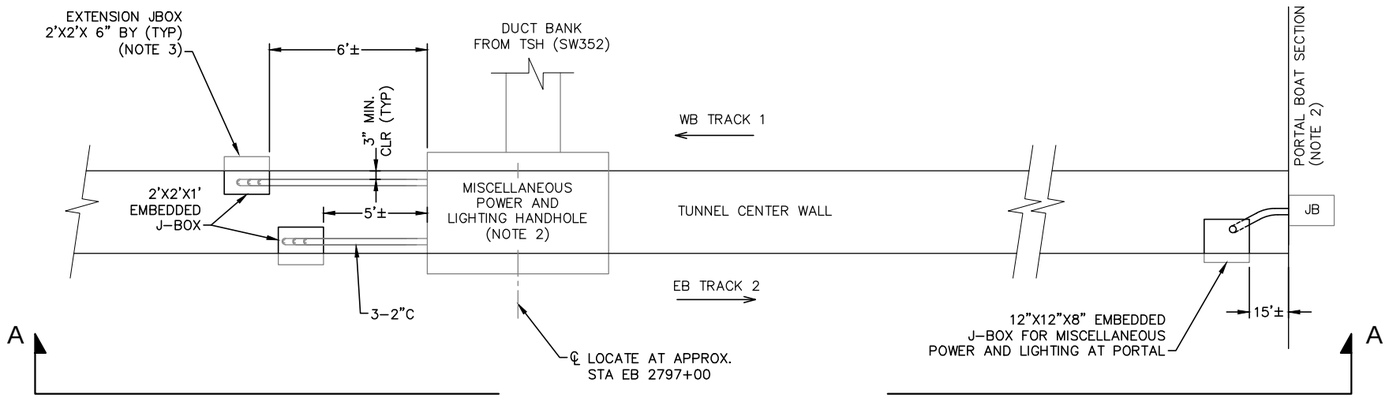
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SYSTEMS SLEEVE AND NICHE DETAILS
SHEET 3

DISCIPLINE: SYSTEMS

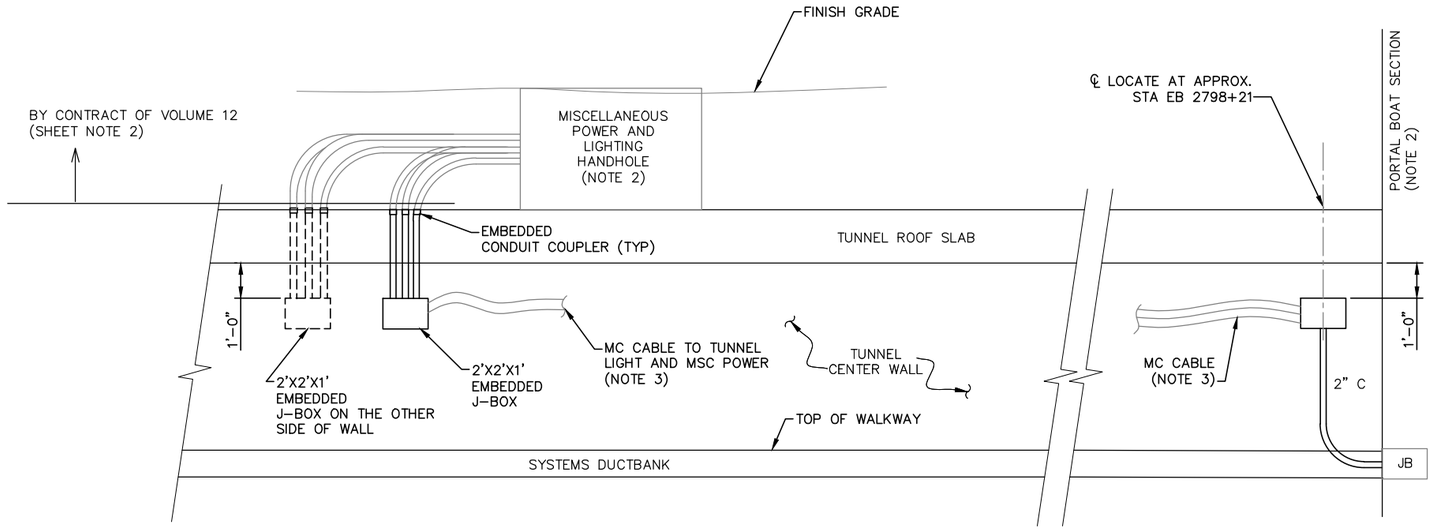
SHEET NAME: E3-SYS-TUNK-DTL-003

SHEET 139 OF 148



1 / - PLAN - LIGHTING & MISCELLANEOUS POWER - EAST

NOT TO SCALE



A / - SECTION - LIGHTING & MISCELLANEOUS

NOT TO SCALE

SHEET NOTES

1. CONCRETE EMBEDDED CONDUITS ARE ENCASED MIN OF 3".
2. REFER TO VOLUME 12 DRAWINGS FOR WORK. SHOWN FOR INFORMATION ONLY.
3. REFER TO SYSTEMS AND TUNNEL FACILITIES – VOLUME 6 DRAWING.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

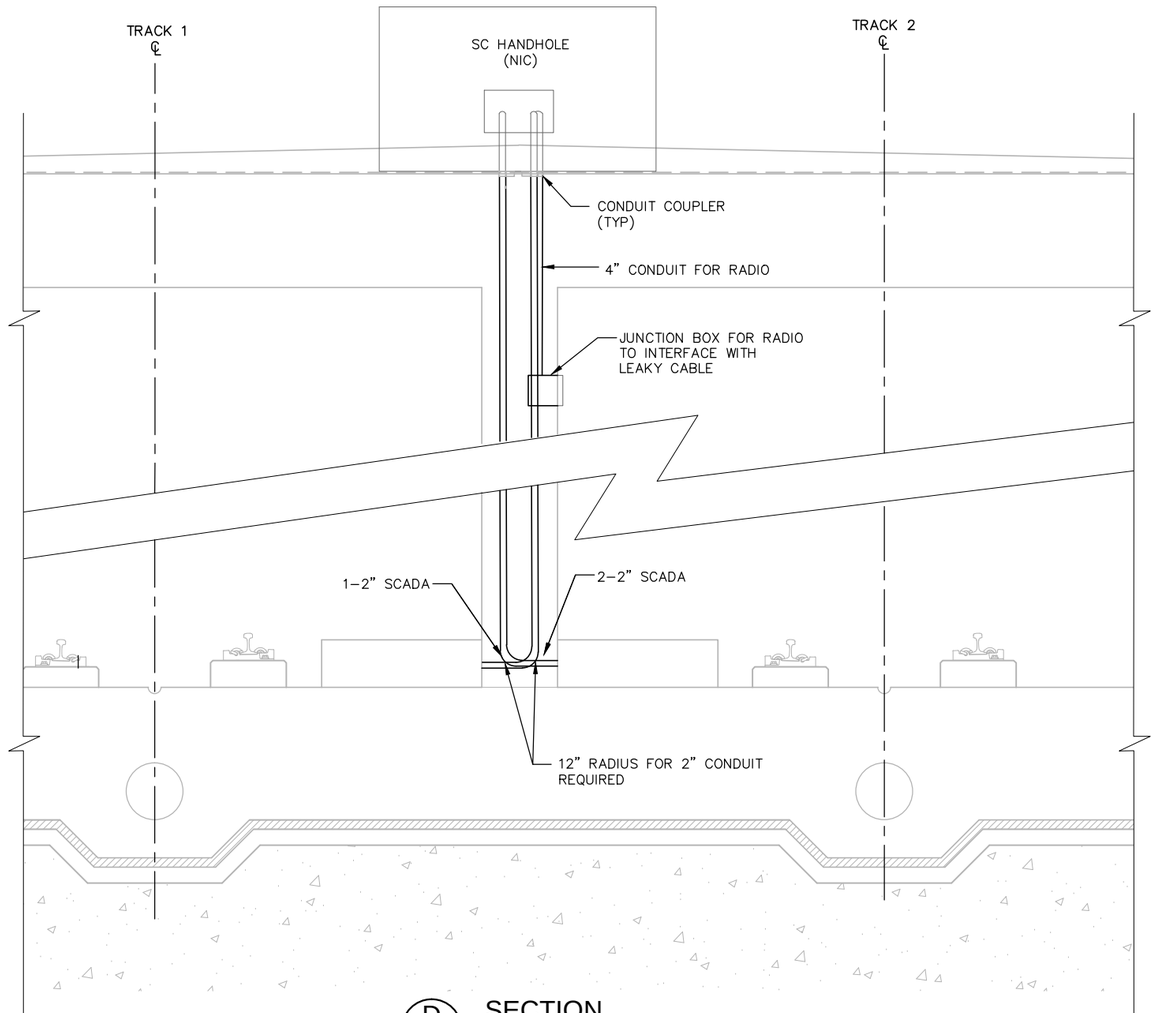
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SYSTEMS SLEEVE AND NICHE DETAILS
SHEET 4

DISCIPLINE: SYSTEMS

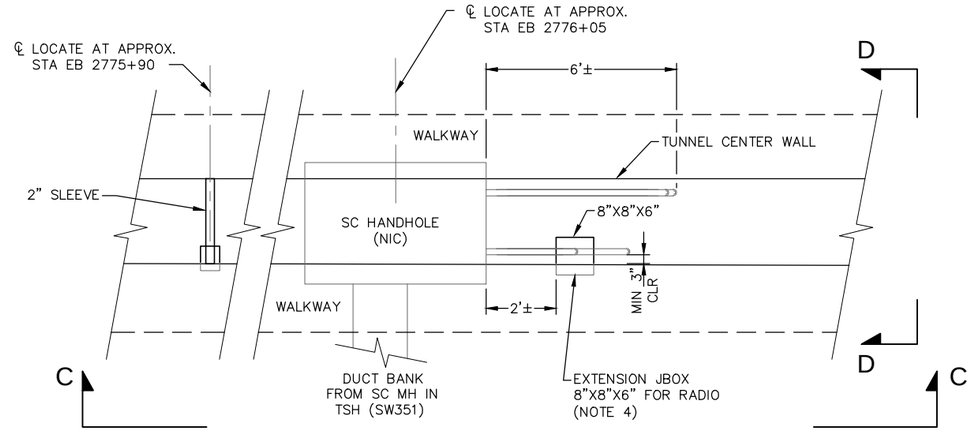
SHEET NAME: E3-SYS-TUNK-DTL-004

SHEET 140 OF 148

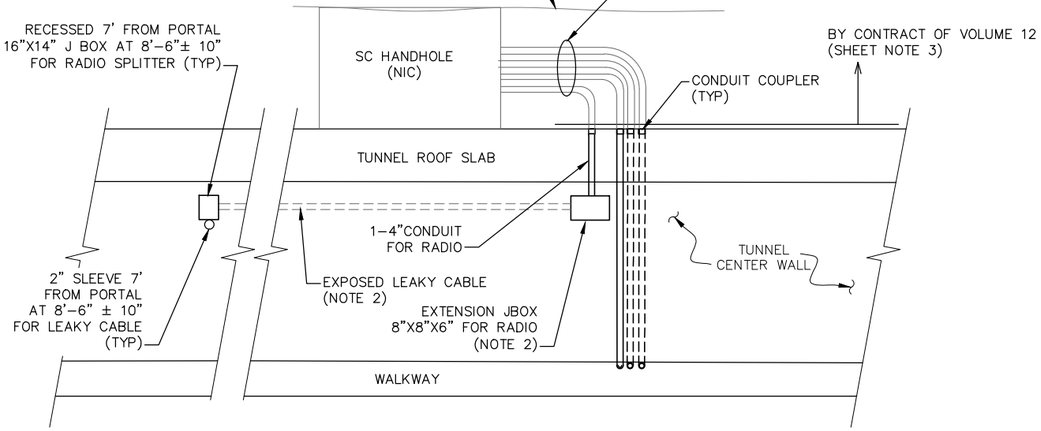
Jan. 18 2016 10:56 am v:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\SYSTEMS\E3-SYS-TUNK-DTL-1-4.dwg By: tangj



D
-
SECTION
NOT TO SCALE



2
-
PLAN - SIGNAL, COMM AND RADIO - WEST SIDE
NOT TO SCALE



C
-
SECTION - SIGNAL, COMM AND RADIO - WEST SIDE
NOT TO SCALE

SHEET NOTES:

1. CONCRETE EMBEDDED CONDUITS ARE ENCASED MIN OF 3".
2. SIGNAL, COMM AND RADIO CONDUITS SHOWN ON THIS SHEET IS FOR EAST SIDE ON CENTER WALL PENETRATION OF TUNNEL
3. REFER TO VOLUME 12 DRAWINGS FOR WORK. SHOWN FOR INFORMATION ONLY.
4. REFER TO SYSTEMS AND TUNNEL FACILITIES – VOLUME 6 DRAWING.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

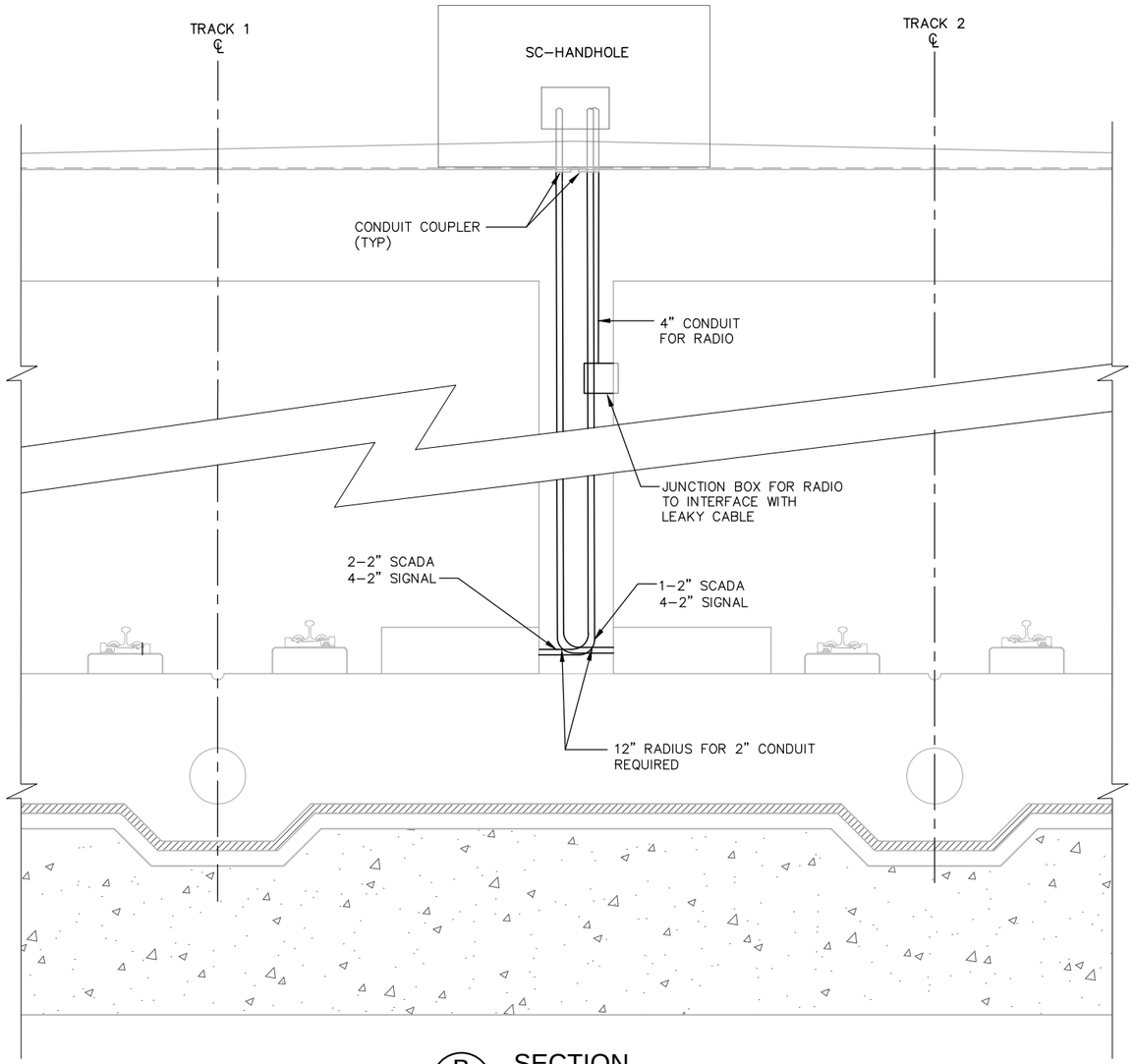
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SYSTEMS SLEEVE AND NICHE DETAILS
SHEET 5

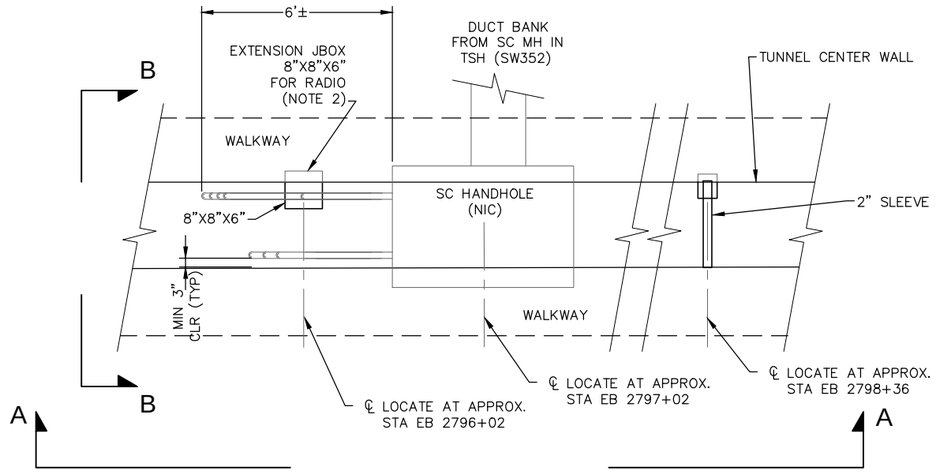
DISCIPLINE: SYSTEMS

SHEET NAME: E3-SYS-TUNK-DTL-005

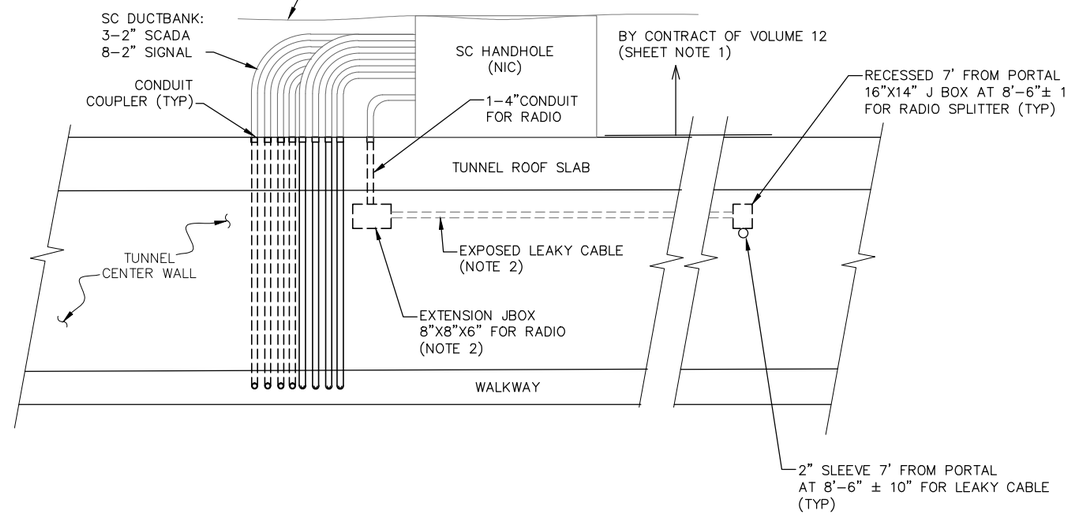
SHEET 141 OF 148



B
-
SECTION
NOT TO SCALE



1
-
PLAN - SIGNAL, COMM AND RADIO - EAST SIDE
NOT TO SCALE



A
-
SECTION - SIGNAL, COMM AND RADIO - EAST SIDE
NOT TO SCALE

GENERAL NOTE:

1. REFER TO VOLUME 12 DRAWINGS FOR WORK. SHOWN FOR INFORMATION ONLY.
2. REFER TO SYSTEMS AND TUNNEL FACILITIES – VOLUME 6 DRAWING.
3. CONCRETE EMBEDDED CONDUITS ARE ENCASED MIN OF 3".
4. SIGNAL, COMM AND RADIO CONDUITS SHOWN ON THIS SHEET IS FOR EAST SIDE ON CENTER WALL PENETRATION OF TUNNEL

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

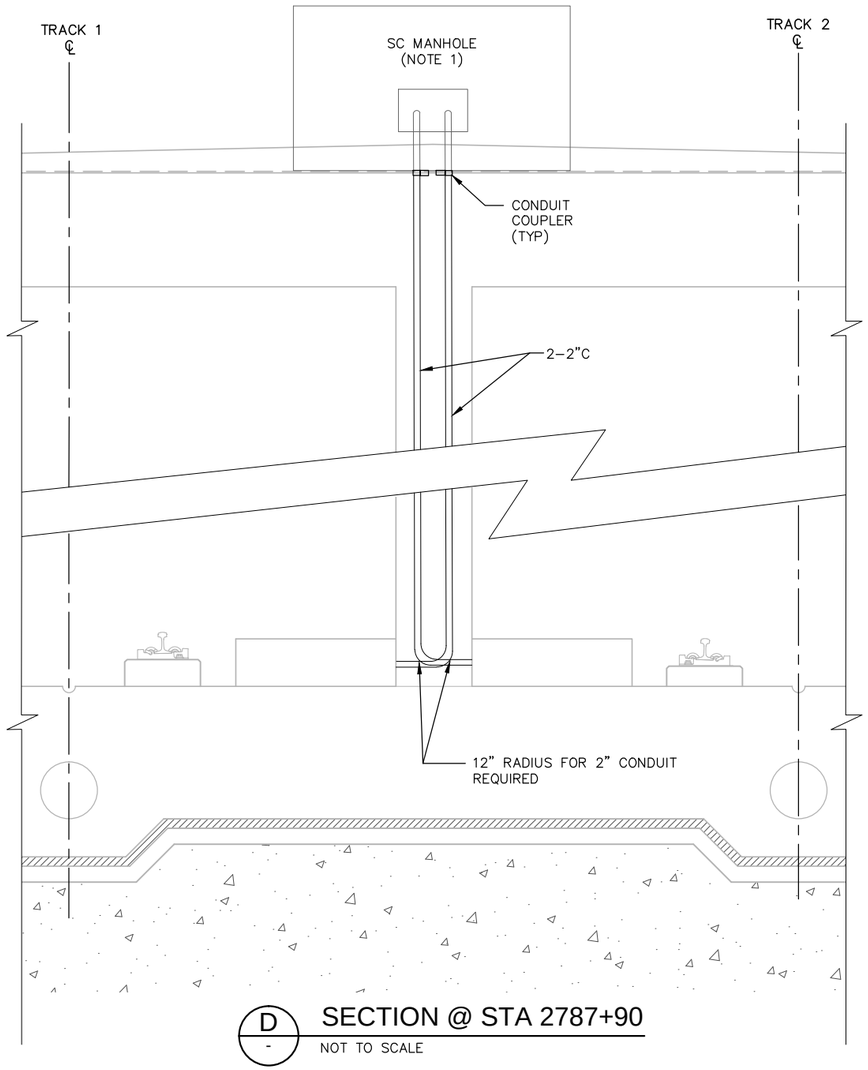
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SYSTEMS SLEEVE AND NICHE DETAILS
SHEET 6

DISCIPLINE: SYSTEMS

SHEET NAME: E3-SYS-TUNK-DTL-006

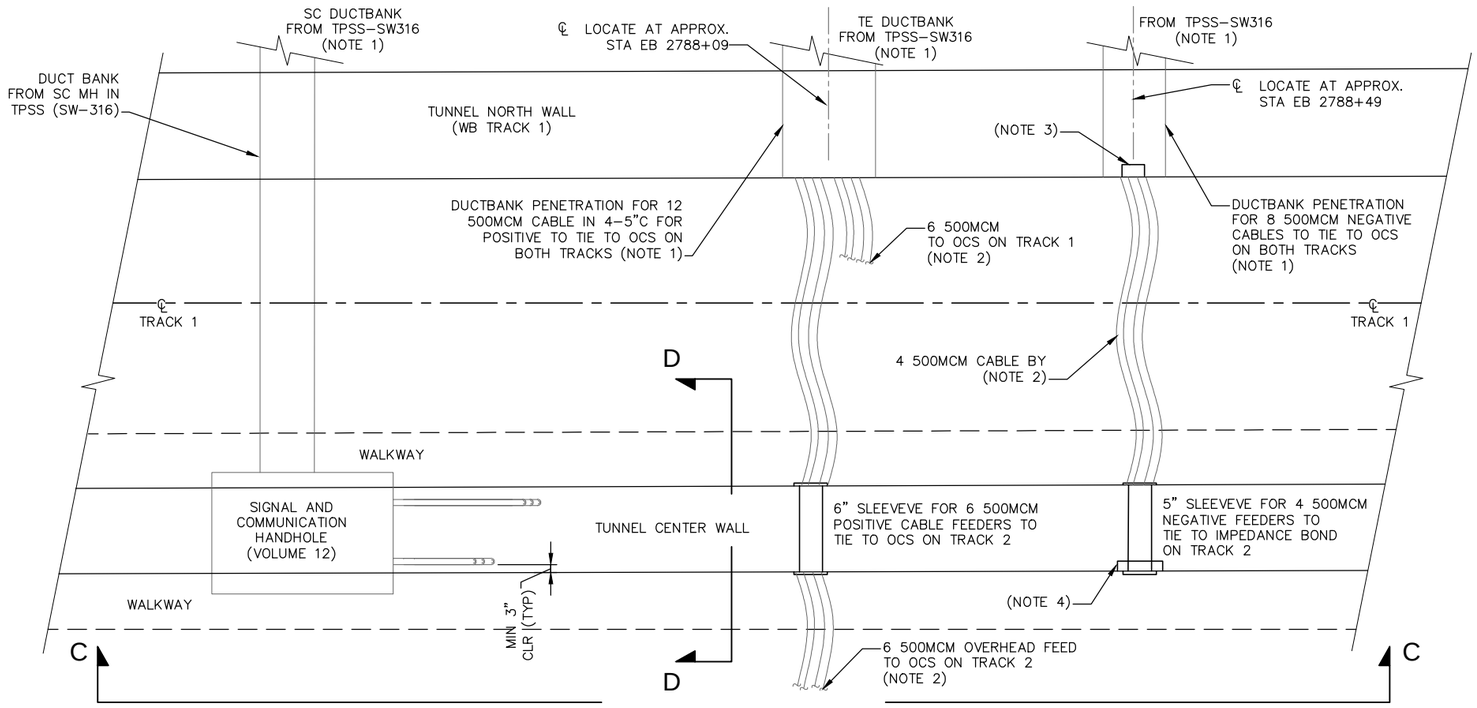
SHEET 142 OF 148

Jan. 18 2016 10:56 am V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\SYSTEMS\E3-SYS-TUNK-DTL-5-7.dwg By: tangj



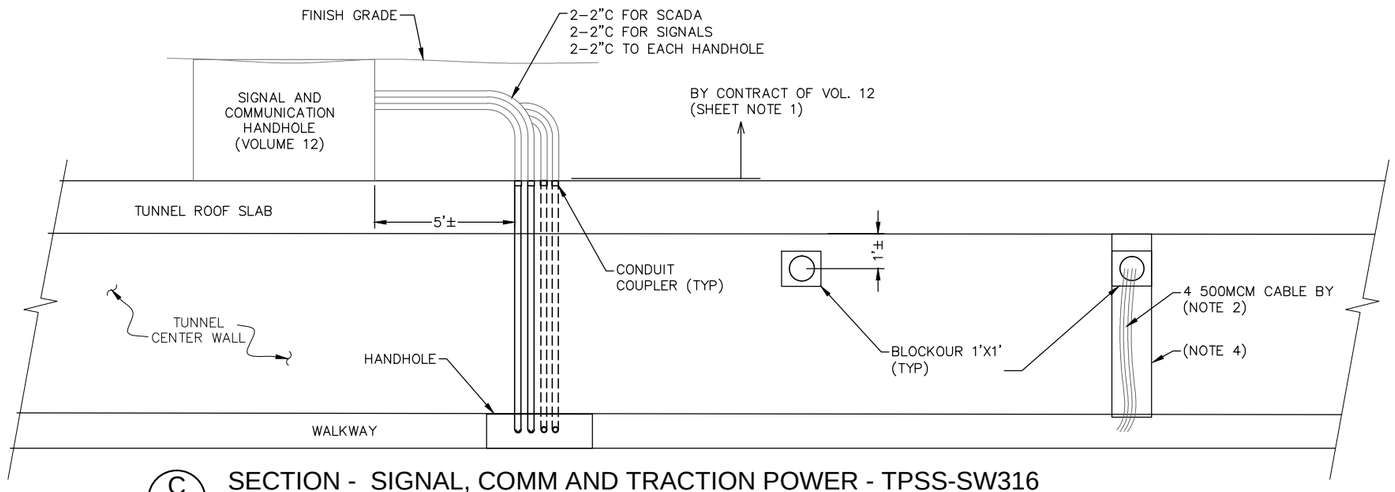
D
-
SECTION @ STA 2787+90

NOT TO SCALE



1
-
PLAN - SIGNAL, COMM AND TRACKTION POWER -TPSS SW316

NOT TO SCALE



C
-
SECTION - SIGNAL, COMM AND TRACTION POWER - TPSS-SW316

NOT TO SCALE

SHEET NOTES

1. REFER TO VOLUME 12 DRAWINGS FOR WORK. SHOWN FOR INFORMATION ONLY.
2. REFER TO SYSTEMS AND TUNNEL FACILITIES – VOLUME 6 DRAWING.
3. 6" VERTICAL WALL NICHE EXTENDED TO THE TRACK LEVEL FOR 4 500MCM CABLE FOR NEGATIVE IMPEDANCE BOND CONNECTION ON TRACK 1 (TYPICAL ON TRACK 2 SOUTHERN WALL) STA 2788+49
4. 6" VERTICAL WALL NICHE EXTENDED TO THE TRACK LEVEL FOR 4 500MCM CABLE FOR NEGATIVE IMPEDANCE BOND CONNECTION ON TRACK 2 (TYPICAL ON TRACK 2 SOUTHERN WALL) STA 2788+49

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

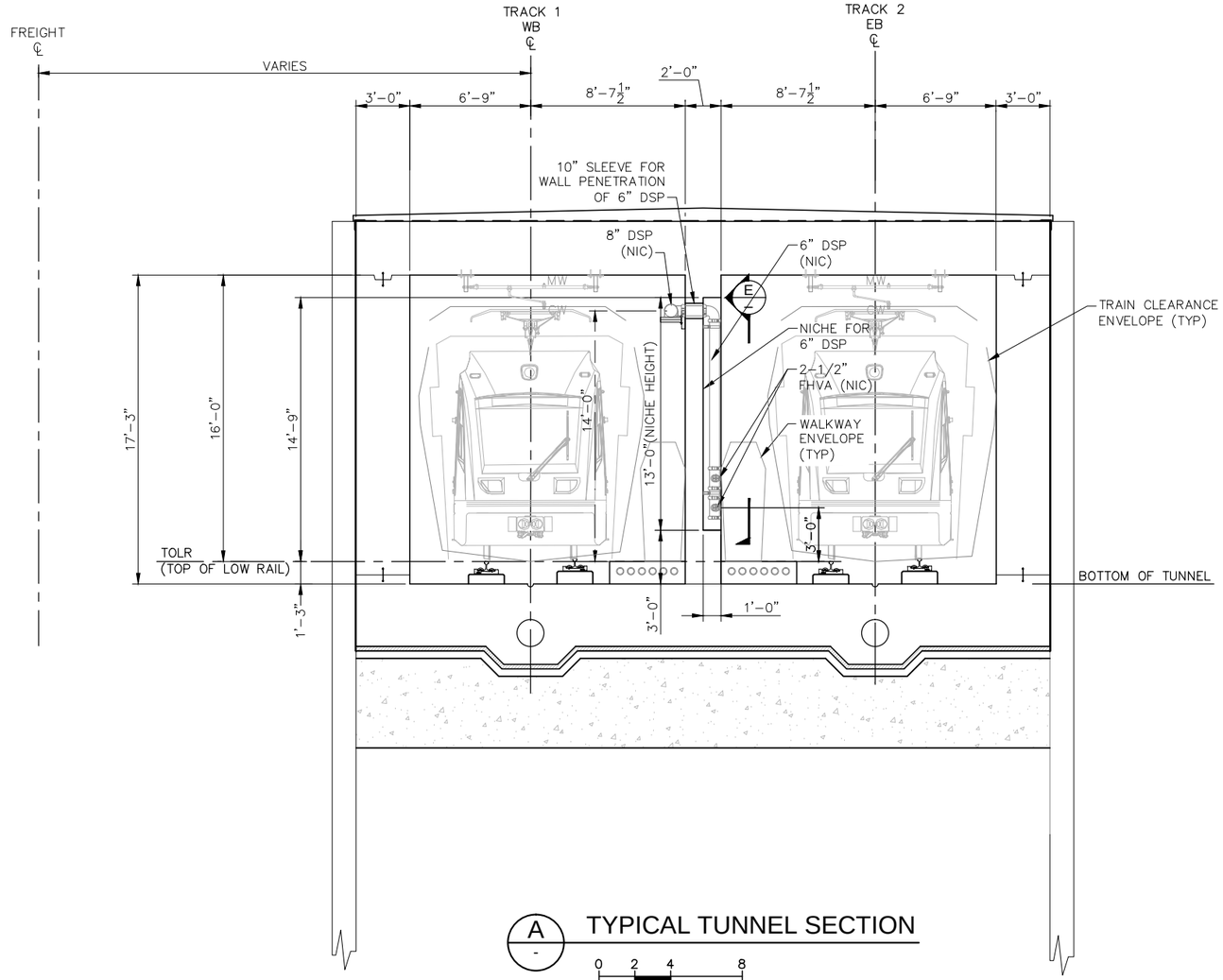
SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
SYSTEMS SLEEVE AND NICHE DETAILS
SHEET 7

DISCIPLINE: SYSTEMS

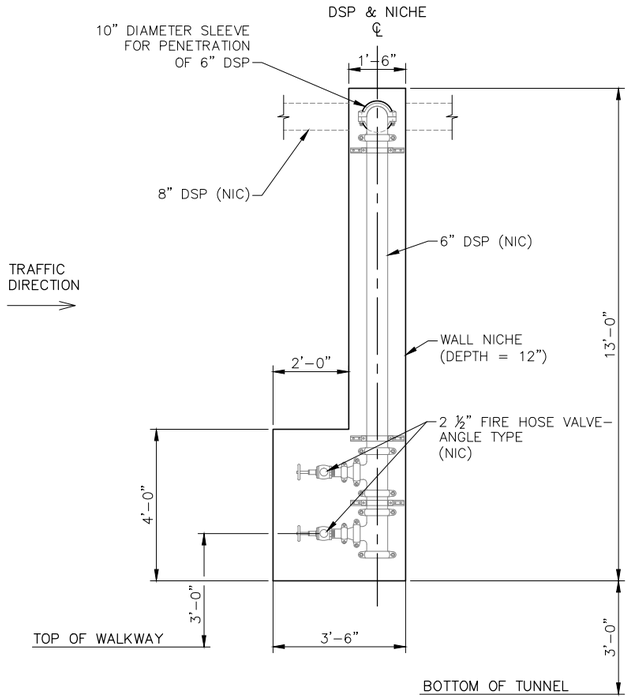
SHEET NAME: E3-SYS-TUNK-DTL-007

SHEET 143 OF 148



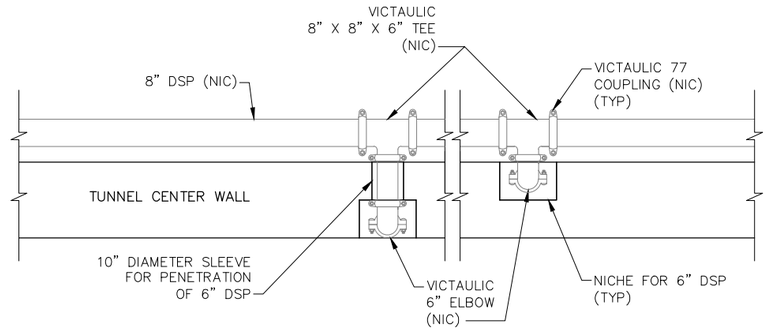
A - TYPICAL TUNNEL SECTION

SCALE IN FEET 0 2 4 8



E - FRONT VIEW / ELEVATION

SCALE IN FEET 0 1 2 4



1 - ENLARGED PLAN DETAIL

NOT TO SCALE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

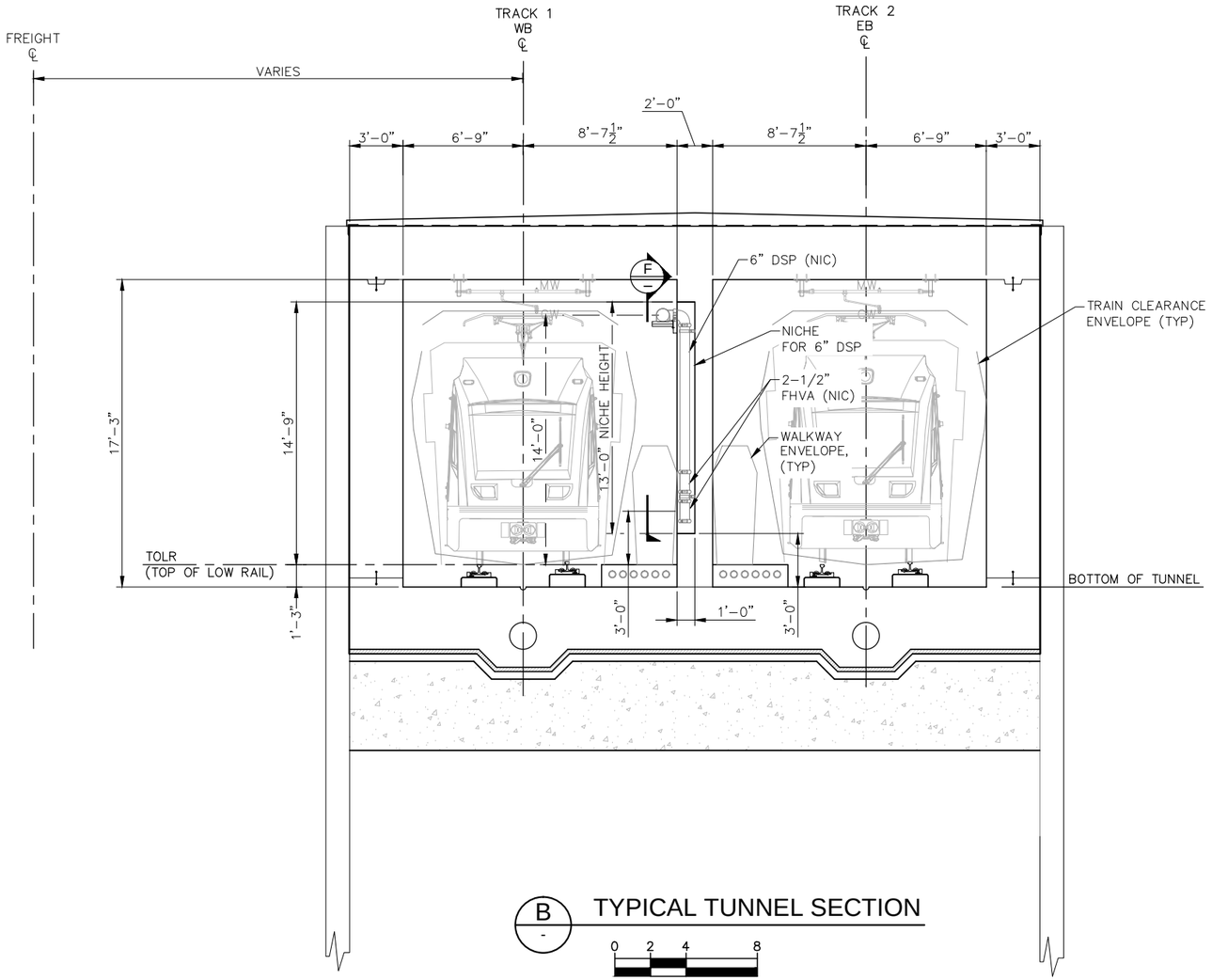
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
FIRE LIFE SAFETY - TYPICAL SECTIONS & DETAILS
SHEET 1

DISCIPLINE: SYSTEMS

SHEET NAME: E3-FLS-TUNK-SCT-001

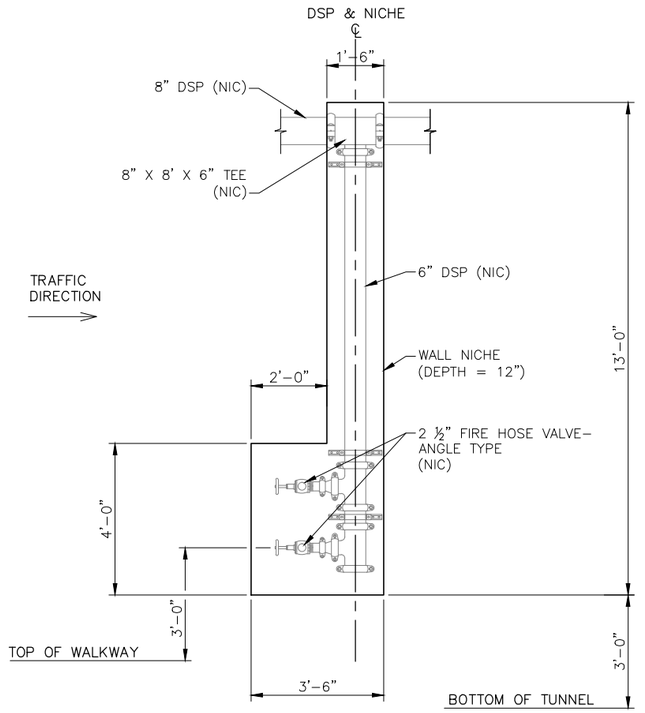
SHEET 144 OF 148

Jan, 18 2016 10:56 am V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\SYSTEMS\E3-FLS-TUNK-SCT.dwg By: tangj



B — TYPICAL TUNNEL SECTION

SCALE IN FEET 0 2 4 8



F — FRONT VIEW / ELEVATION

SCALE IN FEET 0 1 2 4

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

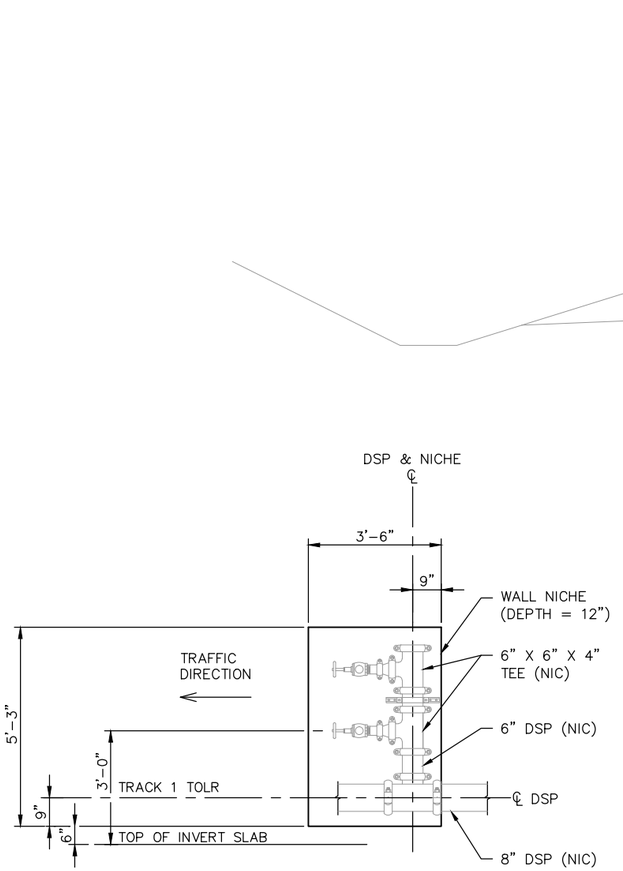
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
FIRE LIFE SAFETY - TYPICAL SECTIONS & DETAILS
SHEET 2

DISCIPLINE: SYSTEMS

SHEET NAME: E3-FLS-TUNK-SCT-002

SHEET 145 OF 148

Jan, 18 2016 10:56 am V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\SYSTEMS\E3-FLS-TUNK-SCT.dwg By: tangj

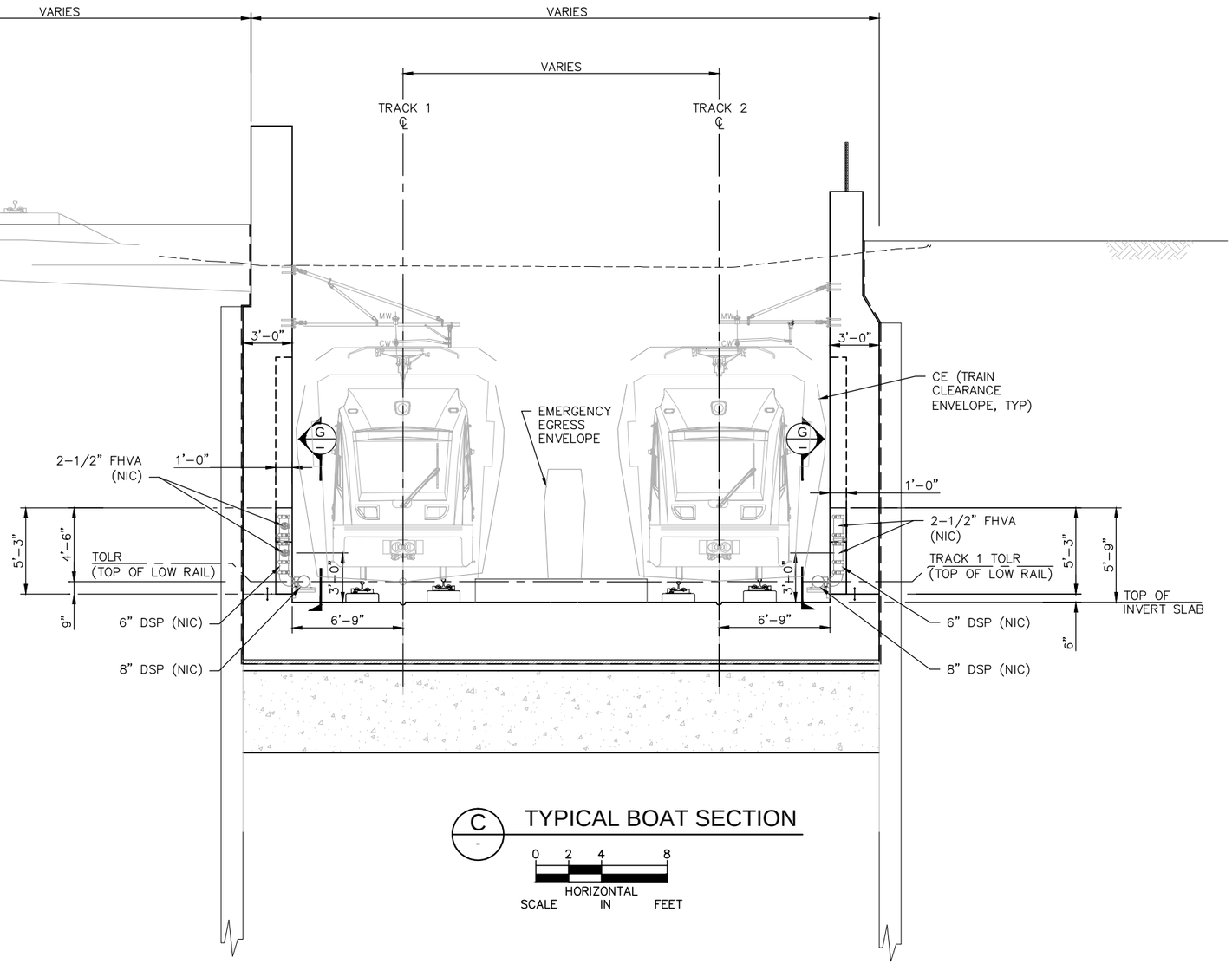


G - TYPICAL SECTION

SCALE 0 1 2 4 HORIZONTAL IN FEET

NOTES:

1. ALL DRY STANDPIPE (DSP) EQUIPMENT SHOWN ARE NOT IN CONTRACT (NIC).



C - TYPICAL BOAT SECTION

SCALE 0 2 4 8 HORIZONTAL IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

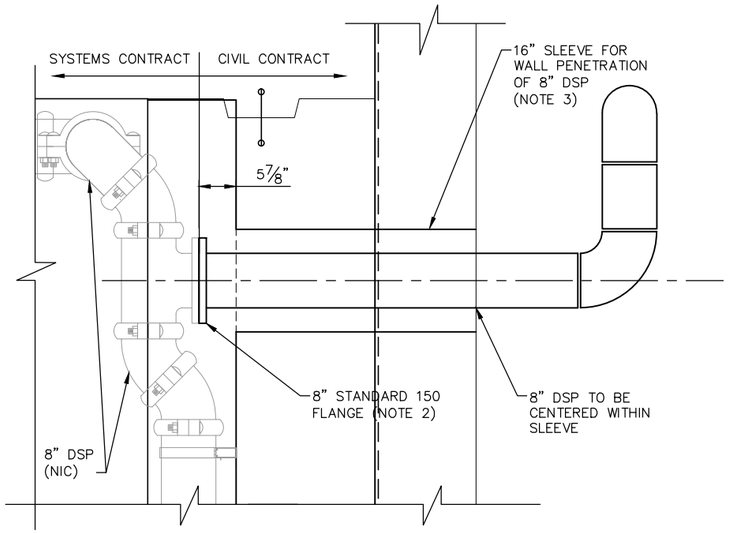
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
FIRE LIFE SAFETY - TYPICAL SECTIONS & DETAILS
SHEET 3

DISCIPLINE: SYSTEMS

SHEET NAME: E3-FLS-TUNK-SCT-003

SHEET 146 OF 148

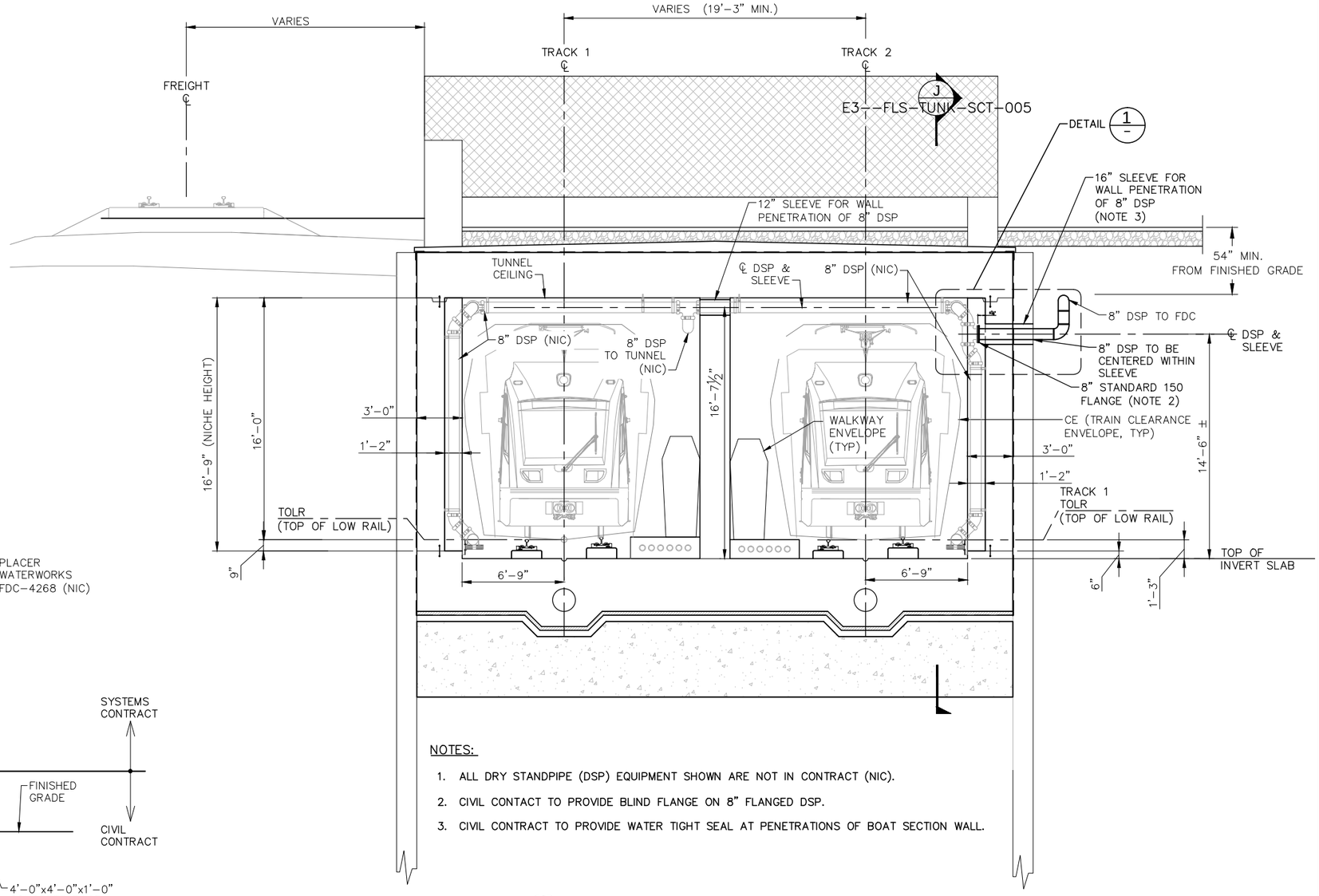
Jan, 18 2016 10:57 am V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\SYSTEMS\E3-FLS-TUNK-SCT-003.dwg By: tangj



1 - DETAIL

0 1/2 1 2

HORIZONTAL SCALE IN FEET



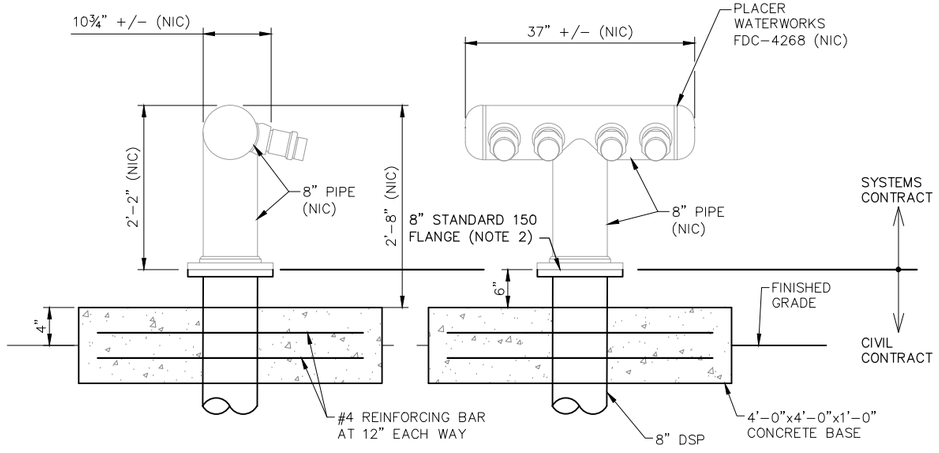
NOTES:

1. ALL DRY STANDPIPE (DSP) EQUIPMENT SHOWN ARE NOT IN CONTRACT (NIC).
2. CIVIL CONTACT TO PROVIDE BLIND FLANGE ON 8" FLANGED DSP.
3. CIVIL CONTRACT TO PROVIDE WATER TIGHT SEAL AT PENETRATIONS OF BOAT SECTION WALL.

D - BOAT SECTION AT WEST PORTAL

0 2 4 8

HORIZONTAL SCALE IN FEET



2 - FIRE DEPARTMENT CONNECTION DETAIL

0 1/2 1 2

HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

90% SUBMISSION - 01/22/16

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

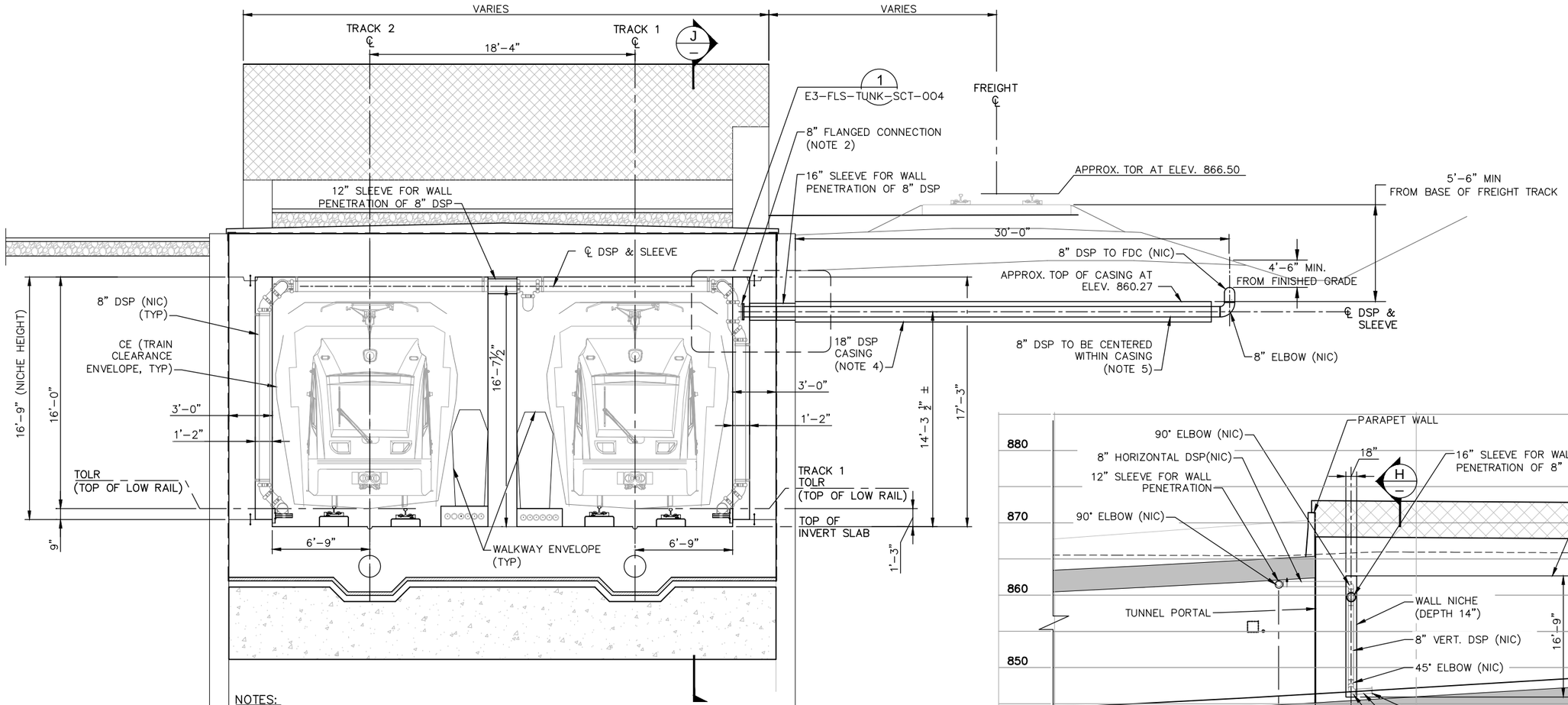
CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
FIRE LIFE SAFETY - TYPICAL SECTIONS & DETAILS
SHEET 4

DISCIPLINE: SYSTEMS

SHEET NAME: E3-FLS-TUNK-SCT-004

SHEET 147 OF 148

Jan, 18 2016 10:57 am V:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\SYSTEMS\E3-FLS-TUNK-SCT-004.dwg By: tangj

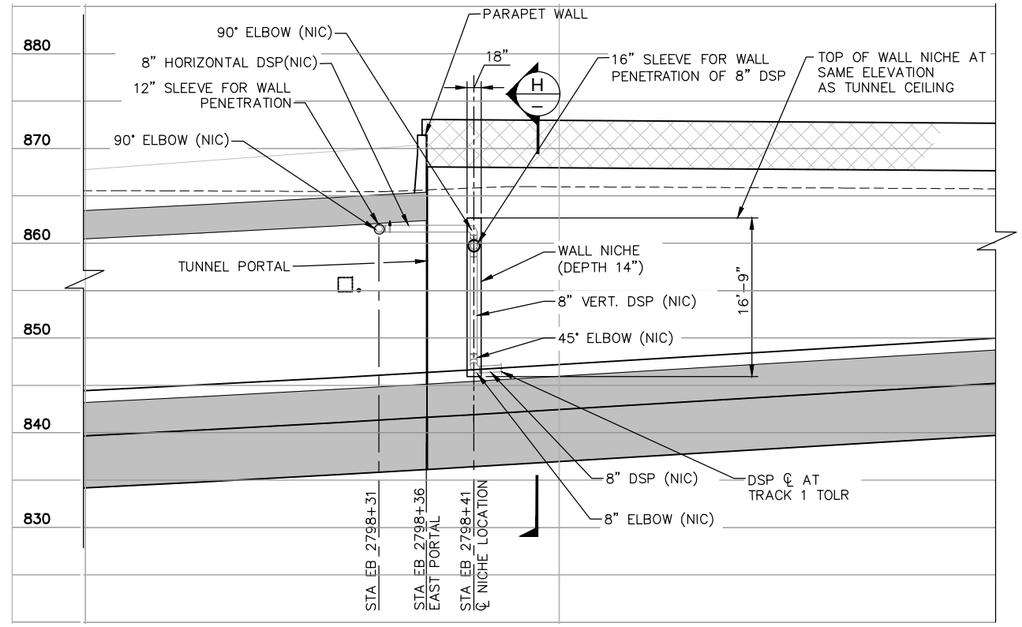


NOTES:

1. ALL DRY STANDPIPE (DSP) EQUIPMENT SHOWN ARE NOT IN CONTRACT (NIC). EXCEPT AS NOTED.
2. CIVIL CONTACT TO PROVIDE BLIND FLANGE ON 8" FLANGED DSP.
3. CIVIL CONTRACT TO PROVIDE WATER TIGHT SEAL AT PENETRATIONS OF BOAT SECTION WALL.
4. CASING SHALL BE SEALED AT END WITH A SEAMLESS CASING END SEAL.
5. EACH LENGTH OF DSP WITHIN CASING SHALL HAVE A MINIMUM OF 3 SPACERS. CASING SPACERS SHALL BE STAINLESS STEEL.

H - BOAT SECTION AT EAST PORTAL

HORIZONTAL SCALE 0 2 4 8 IN FEET



J - TUNNEL ELEVATION (PARTIAL)

VERTICAL SCALE 0 4 8 16 IN FEET

HORIZONTAL SCALE 0 4 8 16 IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

CIVIL - VOLUME 5
KENILWORTH TUNNEL (BRIDGE 27C15)
FIRE LIFE SAFETY - TYPICAL SECTIONS & DETAILS SHEET 5

DISCIPLINE: SYSTEMS

SHEET NAME: E3-FLS-TUNK-SCT-005

SHEET 148 OF 148

Jan. 18 2016 10:58 am v:\3400_ADC\CAD\SEGMENT E3\PLAN SHEETS\SYSTEMS\E3-FLS-TUNK-SCT-005.dwg By: tangj